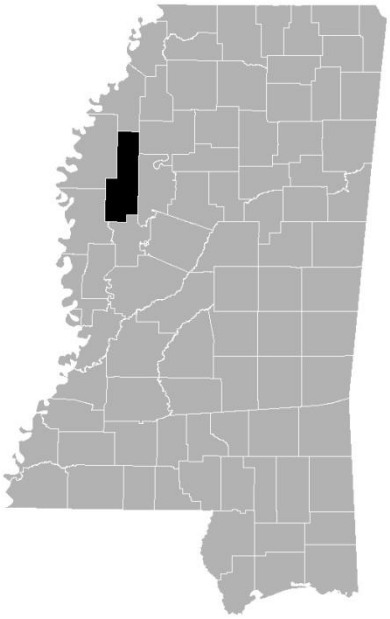
FLOOD INSURANCE STUDY

FEDERAL EMERGENCY MANAGEMENT AGENCY

VOLUME 1 OF 1



SUNFLOWER COUNTY, MISSISSIPPI

AND INCORPORATED AREAS

COMMUNITY NAME	COMMUNITY NUMBER
DODDSVILLE, TOWN OF	280162
DREW, CITY OF	280163
INDIANOLA, CITY OF	280164
INVERNESS, TOWN OF	280165
MOORHEAD, CITY OF	280166
RULEVILLE, TOWN OF	280167
SUNFLOWER COUNTY, UNINCORPORATED AREAS	280195
SUNFLOWER, TOWN OF	280168

FEMA

PRELIMINARY
11/14/2018

REVISED

TBD

FLOOD INSURANCE STUDY NUMBER
28133CV001B

Version Number 2.3.3.3

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FLOOD INSURANCE STUDY REPORT
SUNFLOWER COUNTY, MISSISSIPPI

SECTION 1.0 – INTRODUCTION

1.1 The National Flood Insurance Program

The National Flood Insurance Program (NFIP) is a voluntary Federal program that enables property owners in participating communities to purchase insurance protection against losses from flooding. This insurance is designed to provide an alternative to disaster assistance to meet the escalating costs of repairing damage to buildings and their contents caused by floods.

For decades, the national response to flood disasters was generally limited to constructing flood-control works such as dams, levees, sea-walls, and the like, and providing disaster relief to flood victims. This approach did not reduce losses nor did it discourage unwise development. In some instances, it may have actually encouraged additional development. To compound the problem, the public generally could not buy flood coverage from insurance companies, and building techniques to reduce flood damage were often overlooked.

In the face of mounting flood losses and escalating costs of disaster relief to the general taxpayers, the U.S. Congress created the NFIP. The intent was to reduce future flood damage through community floodplain management ordinances, and provide protection for property owners against potential losses through an insurance mechanism that requires a premium to be paid for the protection.

The U.S. Congress established the NFIP on August 1, 1968, with the passage of the National Flood Insurance Act of 1968. The NFIP was broadened and modified with the passage of the Flood Disaster Protection Act of 1973 and other legislative measures. It was further modified by the National Flood Insurance Reform Act of 1994 and the Flood Insurance Reform Act of 2004. The NFIP is administered by the Federal Emergency Management Agency (FEMA), which is a component of the Department of Homeland Security (DHS).

Participation in the NFIP is based on an agreement between local communities and the Federal Government. If a community adopts and enforces floodplain management regulations to reduce future flood risks to new construction and substantially improved structures in Special Flood Hazard Areas (SFHAs), the Federal Government will make flood insurance available within the community as a financial protection against flood losses. The community's floodplain management regulations must meet or exceed criteria established in accordance with Title 44 Code of Federal Regulations (CFR) Part 60.3, *Criteria for Land Management and Use*.

SFHAs are delineated on the community's Flood Insurance Rate Maps (FIRMs). Under the NFIP, buildings that were built before the flood hazard was identified on the community's FIRMs are generally referred to as "Pre-FIRM" buildings. When the NFIP was created, the U.S. Congress recognized that insurance for Pre-FIRM buildings would be prohibitively expensive if the premiums were not subsidized by the Federal

Government. Congress also recognized that most of these floodprone buildings were built by individuals who did not have sufficient knowledge of the flood hazard to make informed decisions. The NFIP requires that full actuarial rates reflecting the complete flood risk be charged on all buildings constructed or substantially improved on or after the effective date of the initial FIRM for the community or after December 31, 1974, whichever is later. These buildings are generally referred to as “Post-FIRM” buildings.

1.2 Purpose of this Flood Insurance Study Report

This Flood Insurance Study (FIS) Report revises and updates information on the existence and severity of flood hazards for the study area. The studies described in this report developed flood hazard data that will be used to establish actuarial flood insurance rates and to assist communities in efforts to implement sound floodplain management.

In some states or communities, floodplain management criteria or regulations may exist that are more restrictive than the minimum Federal requirements. Contact your State NFIP Coordinator to ensure that any higher State standards are included in the community’s regulations.

1.3 Jurisdictions Included in the Flood Insurance Study Project

This FIS Report covers the entire geographic area of Sunflower County, MS.

The jurisdictions that are included in this project area, along with the Community Identification Number (CID) for each community and the 8-digit Hydrologic Unit Codes (HUC-8) sub-basins affecting each, are shown in Table 1. The Flood Insurance Rate Map (FIRM) panel numbers that affect each community are listed. If the flood hazard data for the community is not included in this FIS Report, the location of that data is identified.

Table 1: Listing of NFIP Jurisdictions

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
Doddsville, Town of	280162	08030207	28133C0195E	
Drew, City of	280163	08030207	28133C0108D 28133C0109D 28133C0116D 28133C0117D	
Indianola, City	280164	08030207	28133C0357E 28133C0358E 28133C0359E 28133C0370E 28133C0380E 28133C0390E	
Inverness, Town of	280165	08030207	28133C0480E	
Moorhead, City of	280166	08030207	28133C0384D 28133C0403D	
Ruleville, Town of	280167	08030207	28133C0181D 28133C0185E	

Table 1: Listing of NFIP Jurisdictions (continued)

Community	CID	HUC-8 Sub-Basin(s)	Located on FIRM Panel(s)	If Not Included, Location of Flood Hazard Data
Sunflower County, Unincorporated Areas	280195	08030206 08030207	28133C0025E 28133C0050E 28133C0075D 28133C0100E 28133C0105E 28133C0108D 28133C0109D 28133C0110D 28133C0115D 28133C0116D 28133C0117D 28133C0120D 28133C0150D 28133C0175E 28133C0180E 28133C0181D 28133C0185E 28133C0190E 28133C0195E 28133C0225D 28133C0250E 28133C0275E 28133C0280E 28133C0285E 28133C0290E 28133C0291E 28133C0292D 28133C0295E 28133C0325D 28133C0350E 28133C0355D 28133C0356E 28133C0357E 28133C0358E 28133C0359E 28133C0365E 28133C0370E 28133C0380E 28133C0384D 28133C0385E 28133C0390E 28133C0395D 28133C0403D 28133C0405D 28133C0415D 28133C0450E 28133C0475E 28133C0480E 28133C0500E 28133C0525D	
Sunflower, Town of	280168	08030207	28133C0291E 28133C0292D	

1.4 Considerations for using this Flood Insurance Study Report

The NFIP encourages State and local governments to implement sound floodplain management programs. To assist in this endeavor, each FIS Report provides floodplain data, which may include a combination of the following: 10-, 4-, 2-, 1-, and 0.2-percent annual chance flood elevations (the 1% annual chance flood elevation is also referred to as the Base Flood Elevation (BFE); delineations of the 1% annual chance and 0.2% annual chance floodplains; and 1% annual chance floodway. This information is presented on the FIRM and/or in many components of the FIS Report, including Flood Profiles, Floodway Data tables, Summary of Non-Coastal Stillwater Elevations tables, and Coastal Transect Parameters tables (not all components may be provided for a specific FIS).

This section presents important considerations for using the information contained in this FIS Report and the FIRM, including changes in format and content. Figures 1, 2, and 3 present information that applies to using the FIRM with the FIS Report.

- Part or all of this FIS Report may be revised and republished at any time. In addition, part of this FIS Report may be revised by a Letter of Map Revision (LOMR), which does not involve republication or redistribution of the FIS Report. Refer to Section 6.5 of this FIS Report for information about the process to revise the FIS Report and/or FIRM.

  It is, therefore, the responsibility of the user to consult with community officials by contacting the community repository to obtain the most current FIS Report components. Communities participating in the NFIP have established repositories of flood hazard data for floodplain management and flood insurance purposes. Community map repository addresses are provided in Table 31, "Map Repositories," within this FIS Report.

- New FIS Reports are frequently developed for multiple communities, such as entire counties. A countywide FIS Report incorporates previous FIS Reports for individual communities and the unincorporated area of the county (if not jurisdictional) into a single document and supersedes those documents for the purposes of the NFIP.

  The initial Countywide FIS Report for Sunflower County became effective on January 18, 2012. Refer to Table 28 for information about subsequent revisions to the FIRMs.

- Selected FIRM panels for the community may contain information (such as floodways and cross sections) that was previously shown separately on the corresponding Flood Boundary and Floodway Map (FBFM) panels. In addition, former flood hazard zone designations have been changed as follows:

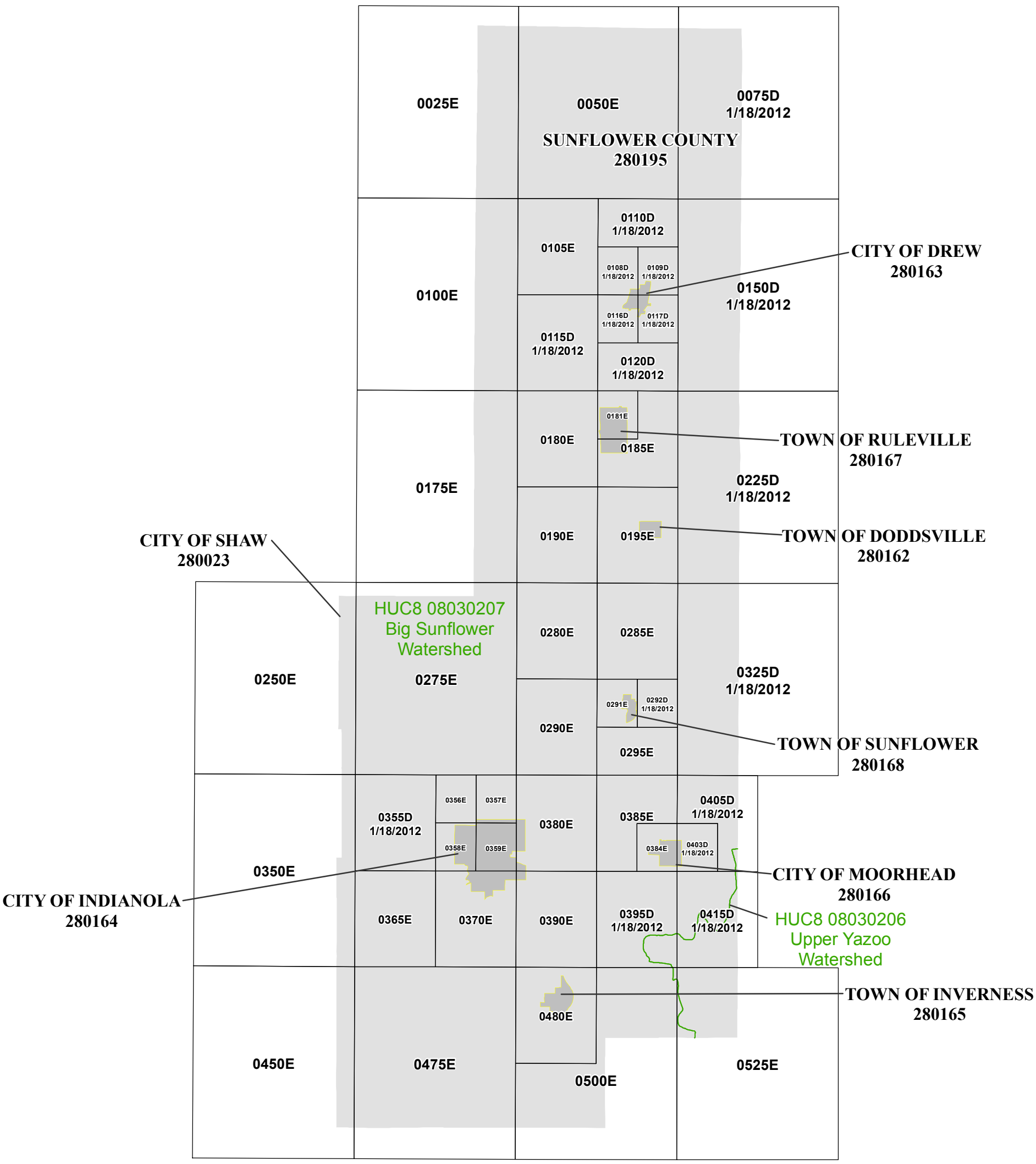
Old Zone	New Zone
A1 through A30	AE
V1 through V30	VE
B	X (shaded)
C	X (unshaded)

- Previous FIS Reports and FIRMs may have included levees that were accredited as reducing the risk associated with the 1% annual chance flood based on the information available and the mapping standards of the NFIP at that time. For FEMA to continue to accredit the identified levees, the levees must meet the criteria of the Code of Federal Regulations, Title 44, Section 65.10 (44 CFR 65.10), titled "Mapping of Areas Protected by Levee Systems."

- FEMA has developed a *Guide to Flood Maps* (FEMA 258) and online tutorials to assist users in accessing the information contained on the FIRM. These include how to read panels and step-by-step instructions to obtain specific information. To obtain this guide and other assistance in using the FIRM, visit the FEMA Web site at https://www.fema.gov/online-tutorials.

The FIRM Index in Figure 1 shows the overall FIRM panel layout within Sunflower County, and also displays the panel number and effective date for each FIRM panel in the county. Other information shown on the FIRM Index includes community boundaries, flooding sources, watershed boundaries, and USGS HUC-8 codes.

Figure 1: FIRM Panel Index



ATTENTION: The corporate limits shown on this FIRM Index are based on the best information available at the time of publication. As such, they may be more current than those shown on FIRM panels issued before MONTH DAY, YEAR.

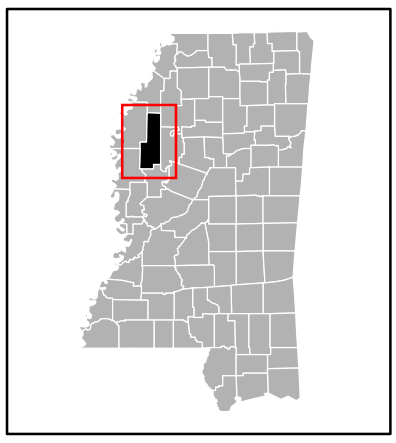
1 inch = 5 miles 1:300,000

N 0 2.5 5 10 Miles

Map Projection:
State Plane Mississippi West Zone;
North American Datum 1983

THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT
HTTPS://MSC.FEMA.GOV

SEE FLOOD INSURANCE STUDY FOR ADDITIONAL INFORMATION



NATIONAL FLOOD INSURANCE PROGRAM
FLOOD INSURANCE RATE MAP INDEX

SUNFLOWER COUNTY, MISSISSIPPI and Incorporated Areas

PANELS PRINTED:

0025, 0050, 0075, 0100, 0105, 0108, 0109, 0110, 0115, 0116, 0117, 0120, 0150, 0175, 0180, 0181, 0185, 0190, 0195, 0225, 0250, 0275, 0280, 0285, 0290, 0291, 0292, 0295, 0325, 0350, 0355, 0356, 0357, 0358, 0359, 0365, 0370, 0380, 0384, 0385, 0390, 0395, 0403, 0405, 0415, 0450, 0475, 0480, 0500, 0525

FEMA

PRELIMINARY

MAP NUMBER
28133CIND0B

MAP REVISED

Each FIRM panel may contain specific notes to the user that provide additional information regarding the flood hazard data shown on that map. However, the FIRM panel does not contain enough space to show all the notes that may be relevant in helping to better understand the information on the panel. Figure 2 contains the full list of these notes.

Figure 2: FIRM Notes to Users

NOTES TO USERS

For information and questions about this map, available products associated with this FIRM including historic versions of this FIRM, how to order products, or the National Flood Insurance Program in general, please call the FEMA Map Information eXchange at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA Flood Map Service Center website at msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website. Users may determine the current map date for each FIRM panel by visiting the FEMA Flood Map Service Center website or by calling the FEMA Map Information eXchange.

Communities annexing land on adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM Index. These may be ordered directly from the Flood Map Service Center at the number listed above.

For community and countywide map dates, refer to Table 28 in this FIS Report.

To determine if flood insurance is available in the community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

PRELIMINARY FIS REPORT: FEMA maintains information about map features, such as street locations and names, in or near designated flood hazard areas. Requests to revise information in or near designated flood hazard areas may be provided to FEMA during the community review period, at the final Consultation Coordination Officer's meeting, or during the statutory 90-day appeal period. Approved requests for changes will be shown on the final printed FIRM.

The map is for use in administering the NFIP. It may not identify all areas subject to flooding, particularly from local drainage sources of small size. Consult the community map repository to find updated or additional flood hazard information.

BASE FLOOD ELEVATIONS: For more detailed information in areas where Base Flood Elevations (BFEs) and/or floodways have been determined, consult the Flood Profiles and Floodway Data and/or Summary of Non-Coastal Stillwater Elevations tables within this FIS Report. Use the flood elevation data within the FIS Report in conjunction with the FIRM for construction and/or floodplain management.

FLOODWAY INFORMATION: Boundaries of the floodways were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the FIS Report for this jurisdiction.

Figure 2: FIRM Notes to Users

FLOOD CONTROL STRUCTURE INFORMATION: Certain areas not in Special Flood Hazard Areas may be protected by flood control structures. Refer to Section 4.3 "Non-Levee Flood Protection Measures" of this FIS Report for information on flood control structures for this jurisdiction.

PROJECTION INFORMATION: The projection used in the preparation of the map was State Plane Transverse Mercator, Mississippi West Zone. The horizontal datum was the North American Datum of 1983 NAVD83, GRS1980 spheroid. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of the FIRM.

ELEVATION DATUM: Flood elevations on the FIRM are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same vertical datum. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at www.ngs.noaa.gov.

Local vertical monuments may have been used to create the map. To obtain current monument information, please contact the appropriate local community listed in Table 31 of this FIS Report.

BASE MAP INFORMATION: Base map information shown on this FIRM was provided in digital format by Mississippi Department of Environmental Quality, Mississippi Automated Resource Information System, and the United States Census Bureau. Ortho imagery was produced by National Agriculture Imagery Program (NAIP) in 2016 and has a 1 - meter ground sample distance and Surdex Corporation in 2015, 2016 and 2017 and has a 1 - foot ground sample distance. For information about base maps, refer to Section 6.2 “Base Map” in this FIS Report.

The map reflects more detailed and up-to-date stream channel configurations than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables may reflect stream channel distances that differ from what is shown on the map.

Corporate limits shown on the map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after the map was published, map users should contact appropriate community officials to verify current corporate limit locations.

NOTES FOR FIRM INDEX

REVISIONS TO INDEX: As new studies are performed and FIRM panels are updated within Sunflower County, Mississippi, corresponding revisions to the FIRM Index will be incorporated within the FIS Report to reflect the effective dates of those panels. Please refer to Table 28 of this FIS Report to determine the most recent FIRM revision date for each community. The most recent FIRM panel effective date will correspond to the most recent index date.

ATTENTION: The corporate limits shown on this FIRM Index are based on the best information available at the time of publication. As such, they may be more current than those shown on FIRM Panels issued before TBD.

Figure 2: FIRM Notes to Users

SPECIAL NOTES FOR SPECIFIC FIRM PANELS This Notes to Users section was created specifically for Sunflower County, Mississippi**,** effective TBD**.**
ACCREDITED LEVEE: Check with your local community to obtain more information, such as the estimated level of protection provided (which may exceed the 1-percent-annual-chance level) and Emergency Action Plan, on the levee system(s) shown as providing protection for areas on this panel. To mitigate flood risk in residual risk areas, property owners and residents are encouraged to consider flood insurance and floodproofing or other protective measures. For more information on flood insurance, interested parties should visit https://www.fema.gov/national-flood-insurance-program.
FLOOD RISK REPORT: A Flood Risk Report (FRR) may be available for many of the flooding sources and communities referenced in this FIS Report. The FRR is provided to increase public awareness of flood risk by helping communities identify the areas within their jurisdictions that have the greatest risks. Although non-regulatory, the information provided within the FRR can assist communities in assessing and evaluating mitigation opportunities to reduce these risks. It can also be used by communities developing or updating flood risk mitigation plans. These plans allow communities to identify and evaluate opportunities to reduce potential loss of life and property. However, the FRR is not intended to be the final authoritative source of all flood risk data for a project area; rather, it should be used with other data sources to paint a comprehensive picture of flood risk

Each FIRM panel contains an abbreviated legend for the features shown on the maps. However, the FIRM panel does not contain enough space to show the legend for all map features. Figure 3 shows the full legend of all map features. Note that not all of these features may appear on the FIRM panels in Sunflower County.

Figure 3: Map Legend for FIRM

SPECIAL FLOOD HAZARD AREAS: *The 1% annual chance flood, also known as the base flood or 100-year flood, has a 1% chance of happening or being exceeded each year. Special Flood Hazard Areas are subject to flooding by the 1% annual chance flood. The Base Flood Elevation is the water surface elevation of the 1% annual chance flood. The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights. See note for specific types. If the floodway is too narrow to be shown, a note is shown.*

Special Flood Hazard Areas subject to inundation by the 1% annual chance flood (Zones A, AE, AH, AO, AR, A99, V and VE)

Zone A — The flood insurance rate zone that corresponds to the 1% annual chance floodplains. No base (1% annual chance) flood elevations (BFEs) or depths are shown within this zone.

Zone AE — The flood insurance rate zone that corresponds to the 1% annual chance floodplains. Base flood elevations derived from the hydraulic analyses are shown within this zone.

Zone AH — The flood insurance rate zone that corresponds to the areas of 1% annual chance shallow flooding (usually areas of ponding) where average depths are between 1 and 3 feet. Whole-foot BFEs derived from the hydraulic analyses are shown at selected intervals within this zone.

Zone AO — The flood insurance rate zone that corresponds to the areas of 1% annual chance shallow flooding (usually sheet flow on sloping terrain) where average depths are between 1 and 3 feet. Average whole-foot depths derived from the hydraulic analyses are shown within this zone.

Zone AR — The flood insurance rate zone that corresponds to areas that were formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.

Zone A99 — The flood insurance rate zone that corresponds to areas of the 1% annual chance floodplain that will be protected by a Federal flood protection system where construction has reached specified statutory milestones. No base flood elevations or flood depths are shown within this zone.

Zone V — The flood insurance rate zone that corresponds to the 1% annual chance coastal floodplains that have additional hazards associated with storm waves. Base flood elevations are not shown within this zone.

Zone VE — Zone VE is the flood insurance rate zone that corresponds to the 1% annual chance coastal floodplains that have additional hazards associated with storm waves. Base flood elevations derived from the coastal analyses are shown within this zone as static whole-foot elevations that apply throughout the zone.

Regulatory Floodway determined in Zone AE.

Non-encroachment zone (see Section 2.4 of this FIS Report for more information)

Figure 3: Map Legend for FIRM

OTHER AREAS OF FLOOD HAZARD

Shaded Zone X: Areas of 0.2% annual chance flood hazards and areas of 1% annual chance flood hazards with average depths of less than 1 foot or with drainage areas less than 1 square mile.

Future Conditions 1% Annual Chance Flood Hazard – Zone X: The flood insurance rate zone that corresponds to the 1% annual chance floodplains that are determined based on future-conditions hydrology. No base flood elevations or flood depths are shown within this zone.

Area with Reduced Flood Risk due to Levee: Areas where an accredited levee, dike, or other flood control structure has reduced the flood risk from the 1% annual chance flood. See Notes to Users for important information.

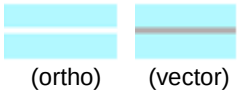
Area with Flood Risk due to Levee: Areas where a non-accredited levee, dike, or other flood control structure is shown as providing protection to less than the 1% annual chance flood.

OTHER AREAS

Zone D (Areas of Undetermined Flood Hazard): The flood insurance rate zone that corresponds to unstudied areas where flood hazards are undetermined, but possible.

Unshaded Zone X: Areas of minimal flood hazard.

FLOOD HAZARD AND OTHER BOUNDARY LINES



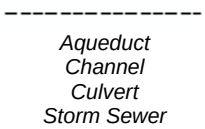
Flood Zone Boundary (white line on ortho-photography-based mapping; gray line on vector-based mapping)

Limit of Study

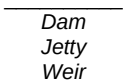
Jurisdiction Boundary

Limit of Moderate Wave Action (LiMWA): Indicates the inland limit of the area affected by waves greater than 1.5 feet

GENERAL STRUCTURES

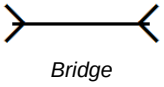


Channel, Culvert, Aqueduct, or Storm Sewer



Dam, Jetty, Weir

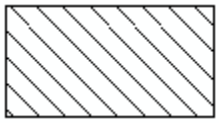
Levee, Dike, or Floodwall



Bridge

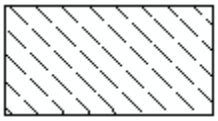
Figure 3: Map Legend for FIRM

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AND OTHERWISE PROTECTED AREAS (OPA): *CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.*



CBRS AREA 09/30/2009

Coastal Barrier Resources System Area: Labels are shown to clarify where this area shares a boundary with an incorporated area or overlaps with the floodway.



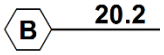
OTHERWISE PROTECTED AREA 09/30/2009

Otherwise Protected Area

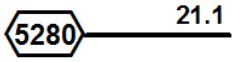
REFERENCE MARKERS

River mile Markers

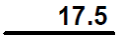
CROSS SECTION & TRANSECT INFORMATION



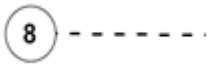
Lettered Cross Section with Regulatory Water Surface Elevation (BFE)



Numbered Cross Section with Regulatory Water Surface Elevation (BFE)



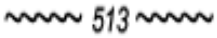
Unlettered Cross Section with Regulatory Water Surface Elevation (BFE)



Coastal Transect

Profile Baseline: Indicates the modeled flow path of a stream and is shown on FIRM panels for all valid studies with profiles or otherwise established base flood elevation.

Coastal Transect Baseline: Used in the coastal flood hazard model to represent the 0.0-foot elevation contour and the starting point for the transect and the measuring point for the coastal mapping.



Base Flood Elevation Line

ZONE AE (EL 16)

Static Base Flood Elevation value (shown under zone label)

ZONE AO (DEPTH 2)

Zone designation with Depth

ZONE AO (DEPTH 2) (VEL 15 FPS)

Zone designation with Depth and Velocity

Figure 3: Map Legend for FIRM

BASE MAP FEATURES	
Missouri Creek	River, Stream or Other Hydrographic Feature
234	Interstate Highway
234	U.S. Highway
234	State Highway
234	County Highway
MAPLE LANE	Street, Road, Avenue Name, or Private Drive if shown on Flood Profile
RAILROAD	Railroad
	Horizontal Reference Grid Line
	Horizontal Reference Grid Ticks
+	Secondary Grid Crosshairs
Land Grant	Name of Land Grant
7	Section Number
R. 43 W. T. 22 N.	Range, Township Number
$^{42}76^{000m}E$	Horizontal Reference Grid Coordinates (UTM)
365000 FT	Horizontal Reference Grid Coordinates (State Plane)
80° 16' 52.5"	Corner Coordinates (Latitude, Longitude)

SECTION 2.0 – FLOODPLAIN MANAGEMENT APPLICATIONS

2.1 Floodplain Boundaries

To provide a national standard without regional discrimination, the 1% annual chance (100-year) flood has been adopted by FEMA as the base flood for floodplain management purposes. The 0.2% annual chance (500-year) flood is employed to indicate additional areas of flood hazard in the community.

Each flooding source included in the project scope has been studied and mapped using professional engineering and mapping methodologies that were agreed upon by FEMA and Sunflower County as appropriate to the risk level. Flood risk is evaluated based on factors such as known flood hazards and projected impact on the built environment. Engineering analyses were performed for each studied flooding source to calculate its 1% annual chance flood elevations; elevations corresponding to other floods (e.g. 10-, 4, 2-, 0.2-percent annual chance, etc.) may have also been computed for certain flooding sources. Engineering models and methods are described in detail in Section 5.0 of this FIS Report. The modeled elevations at cross sections were used to delineate the floodplain boundaries on the FIRM; between cross sections, the boundaries were interpolated using elevation data from various sources. More information on specific mapping methods is provided in Section 6.0 of this FIS Report.

Depending on the accuracy of available topographic data (Table 23), study methodologies employed (Section 5.0), and flood risk, certain flooding sources may be mapped to show both the 1% and 0.2% annual chance floodplain boundaries, regulatory water surface elevations (BFEs), and/or a regulatory floodway. Similarly, other flooding sources may be mapped to show only the 1% annual chance floodplain boundary on the FIRM, without published water surface elevations. In cases where the 1% and 0.2% annual chance floodplain boundaries are close together, only the 1% annual chance floodplain boundary is shown on the FIRM. Figure 3, “Map Legend for FIRM”, describes the flood zones that are used on the FIRMs to account for the varying levels of flood risk that exist along flooding sources within the project area. Table 2 and Table 3 indicate the flood zone designations for each flooding source and each community within Sunflower County, MS, respectively.

Table 2, “Flooding Sources Included in this FIS Report,” lists each flooding source, including its study limits, affected communities, mapped zone on the FIRM, and the completion date of its engineering analysis from which the flood elevations on the FIRM and in the FIS Report were derived. Descriptions and dates for the latest hydrologic and hydraulic analyses of the flooding sources are shown in Table 13. Floodplain boundaries for these flooding sources are shown on the FIRM (published separately) using the symbology described in Figure 3. On the map, the 1% annual chance floodplain corresponds to the SFHAs. The 0.2% annual chance floodplain shows areas that, although out of the regulatory floodplain, are still subject to flood hazards.

Small areas within the floodplain boundaries may lie above the flood elevations but cannot be shown due to limitations of the map scale and/or lack of detailed topographic data. The procedures to remove these areas from the SFHA are described in Section 6.5 of this FIS Report.

Table 2: Flooding Sources Included in this FIS Report

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Bear Bayou 2	Sunflower County, Unincorporated Areas	Confluence with Quiver River	At U.S. Highway 49	08030207	4.5	N	A	07/20/2010
Beaver Dam Bayou	Indianola, City of; Sunflower County, Unincorporated Areas	Confluence with Big Sunflower River	Approximately 2,500 feet upstream of Faision Road	08030207	10.5	N	A	07/20/2010
Big Sunflower	Sunflower County, Unincorporated Areas; Sunflower, Town of	Humphreys County boundary	Approximately 3,970 feet downstream of Torrey Street	08030207	44.1	N	AE	04/01/2016
Big Sunflower River	Sunflower County, Unincorporated Areas; Sunflower, Town of	Approximately 3,970 feet downstream of Torrey Street	Approximately 2,800 feet upstream of Torrey Street	08030207	1.2	N	AE	06/01/1977
Big Sunflower	Sunflower County, Unincorporated Areas; Sunflower, Town of	Approximately 2,800 feet upstream of Torrey Street	Coahoma County boundary	08030207	54.8	N	AE	04/01/2016
Big Sunflower River Tributary 40	Sunflower County, Unincorporated Areas	Confluence with Big Sunflower River	At North Bolivar County Road	08030207	0.8	N	A	07/20/2010
Bogue Phalia Cuttoff	Sunflower County , Unincorporated Areas	Confluence with Big Sunflower River	Washington County boundary	08030207	7.5	N	A	04/01/2016
Brown Bayou	Sunflower County , Unincorporated Areas	Humphreys County boundary	Humphreys County boundary	08030207	15.2	N	A	04/01/2016
Brown Bayou Unnamed Tributary 1	Sunflower County , Unincorporated Areas	Confluence with Brown Bayou	Approximately 1.2 miles upstream of the confluence with Brown Bayou	08030207	1.2	N	A	04/01/2016
Brown Bayou Unnamed Tributary 1-1	Sunflower County , Unincorporated Areas	Confluence with Brown Bayou Unnamed Tributary 1	Humphreys County boundary	08030207	0.1	N	A	04/01/2016
Brown Bayou Unnamed Tributary 2	Sunflower County , Unincorporated Areas	Confluence with Brown Bayou	Approximately 4,340 feet upstream of Sealy Road	08030207	1.9	N	A	04/01/2016
Brown Bayou Unnamed Tributary 3	Sunflower County , Unincorporated Areas	Confluence with Brown Bayou	Humphreys County boundary	08030207	2.0	N	A	04/01/2016

Table 2: Flooding Sources Included in this FIS Report (continued)

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Brown Bayou Unnamed Tributary 4	Sunflower County , Unincorporated Areas	Confluence with Brown Bayou	Approximately 4,020 feet upstream of Humphreys County boundary	08030207	1.0	N	A	04/01/2016
County Ditch Unnamed Tributary 1	Sunflower County , Unincorporated Areas	Confluence with County Ditch Unnamed Tributary 2	Humphreys County boundary	08030207	1.7	N	A	04/01/2016
County Ditch Unnamed Tributary 2	Sunflower County , Unincorporated Areas	Confluence with Dutch Brake	Humphreys County boundary	08030207	1.1	N	A	04/01/2016
County Ditch Unnamed Tributary 3	Sunflower County , Unincorporated Areas	Confluence with Dutch Brake	Humphreys County boundary	08030207	0.7	N	A	04/01/2016
Cypress Creek	Sunflower County , Unincorporated Areas	Washington County boundary	Approximately 3,740 feet upstream of Washington County boundary	08030207	0.7	N	A	04/01/2016
Dougherty Bayou	Ruleville, Town of Sunflower County, Unincorporated Areas	A State Highway 8	Approximately 3,020 feet upstream of West Floyce Street	08030207	0.9	N	AE	06/01/1977
East Cypress Slough	Sunflower County , Unincorporated Areas	Washington County boundary	Approximately 2,810 feet upstream of Washington County boundary	08030207	0.5	N	A	04/01/2016
East Prong	Indianola, City of; Sunflower County, Unincorporated Areas	Confluence with Indian Bayou / West Prong	Approximately 1,015 feet upstream of North Martin Luther King Drive	08030207	1.5	Y	AE	05/01/1977
East Prong	Indianola, City of; Sunflower County, Unincorporated Areas	Approximately 1,015 feet upstream of North Martin Luther King Drive	Approximately 1,675 feet upstream of Weathersby Road	08030207	0.3	N	A	07/20/2010
East Sixmile Bayou	Sunflower County , Unincorporated Areas	Confluence with Bogue Phalia Cuttoff	At Bland Road	08030207	1.6	N	A	04/01/2016
Indian Bayou	Indianola, City of	Confluence with East Prong / West Prong	Approximately 2.0 miles upstream of Alexander Avenue	08030207	0.9	Y	AE	05/01/1977
Lake Dawson	Sunflower County , Unincorporated Areas	Confluence with Big Sunflower River	Humphreys County boundary	08030207	7.0	N	A	04/01/2016

Table 2: Flooding Sources Included in this FIS Report (continued)

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Locust Bayou	Sunflower County , Unincorporated Areas	Confluence with Big Sunflower River	Washington County boundary	08030207	6.7	N	A	04/01/2016
Lutken Bayou	Drew, City of; Sunflower County, Unincorporated Areas	At South Boulevard	Approximately 1,560 feet upstream of Lombardy Road	08030207	1.0	Y	AE	06/01/1977
Moorhead Bayou	Moorhead, City of; Sunflower County, Unincorporated Areas	Confluence with Quiver Bayou	Approximately 2,065 feet upstream of the confluence of Tributary X	08030207	2.2	Y	AE	10/01/1977
Moorhead Bayou	Moorhead, City of; Sunflower County, Unincorporated Areas	Approximately 2,065 feet upstream of the confluence of Tributary X	Approximately 3,000 feet upstream of Johnny Russell Street	08030207	2.2	N	AE	06/01/1977
Mound Bayou	Inverness, Town of; Sunflower County, Unincorporated Areas	Approximately 1,260 feet upstream of U.S. Highway 49	At Old Highway 49W	08030207	0.5	N	A	07/20/2010
Mound Bayou	Inverness, Town of; Sunflower County, Unincorporated Areas	At Old Highway 49W	Approximately 1,910 feet upstream of Brand Street	08030207	1.0	Y	AE	06/01/1977
Mound Bayou Tributary 1	Inverness, Town of; Sunflower County, Unincorporated Areas	Confluence with Mound Bayou Tributary 2	Approximately 635 feet upstream of the confluence with Mound Bayou Tributary 2	08030207	0.1	Y	AE	06/01/1977
Mound Bayou Tributary 2	Inverness, Town of; Sunflower County, Unincorporated Areas	Confluence with Mound Bayou	Approximately 3,280 feet upstream of the confluence with Mound Bayou	08030207	0.6	Y	AE	06/01/1977
Mound Bayou Tributary 3	Inverness, Town of; Sunflower County, Unincorporated Areas	Confluence with Mound Bayou	Approximately 400 feet upstream of Old Highway 49W	08030207	0.6	N	A	07/20/2010
Mound Bayou Tributary 3	Inverness, Town of; Sunflower County, Unincorporated Areas	Approximately 400 feet upstream of Old Highway 49W	Approximately 1,460 feet upstream of Old Highway 49W	08030207	0.2	Y	AE	06/01/1977

Table 2: Flooding Sources Included in this FIS Report (continued)

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Mound Bayou Tributary 3	Inverness, Town of; Sunflower County, Unincorporated Areas	Approximately 1,460 feet upstream of Old Highway 49W	Approximately 120 feet upstream of Southside Road	08030207	0.9	N	A	07/20/2010
Powell Bayou	Drew, City of; Sunflower County, Unincorporated Areas	Approximately 3,230 feet downstream of Swoope Road	Approximately 800 feet upstream of the confluence of Tributary Z	08030207	2.3	Y	AE	10/01/1977
Powell Bayou Tributary 1	Drew, City of; Sunflower County, Unincorporated Areas	Confluence with Powell Bayou	Approximately 200 feet upstream of East Street	08030207	1.4	Y	AE	06/01/1977
Short Bayou	Indianola, City of	Confluence with East Prong	Approximately 980 feet upstream of U.S. Highway 82	08030207	0.7	Y	AE	05/01/1977
Sixmile Bayou	Sunflower County , Unincorporated Areas	Confluence with Sixmile Bayou	Washington County boundary	08030207	3.4	N	A	04/01/2016
Sunflower Diversion Channel	Sunflower, Town of; Sunflower County, Unincorporated Areas	Approximately 1,150 feet downstream of South Taylor Road	Approximately 3,250 upstream of Dwyer Road	08030207	4.8	Y	AE	10/01/1977
Tributary 1	Ruleville, Town of; Sunflower County, Unincorporated Areas	Approximately 2,300 feet downstream of West Floyce Street	Approximately 970 feet upstream of West Floyce Street	08030207	0.6	Y	AE	06/01/1977
Tributary 2	Ruleville, Town of; Sunflower County, Unincorporated Areas	At Twiner Street	Just upstream of Connell Avenue	08030207	0.6	Y	AE	06/01/1977
Tributary 3	Ruleville, Town of; Sunflower County, Unincorporated Areas	Approximately 115 feet upstream of West Head Circle	Approximately 95 feet downstream of West Head Circle	08030207	0.2	Y	AE	06/01/1977
Tributary X	Sunflower County, Unincorporated Areas	Confluence with Moorhead Bayou	Approximately 3,600 feet upstream of Preachers Road	08030207	2.7	Y	AE	10/01/1977
Tributary Y	Sunflower County, Unincorporated Areas	Confluence with Sunflower Diversion Channel	Approximately 2,000 feet upstream of Itta Bena Road	08030207	1.6	Y	AE	10/01/1977

Table 2: Flooding Sources Included in this FIS Report (continued)

Flooding Source	Community	Downstream Limit	Upstream Limit	HUC-8 Sub-Basin(s)	Length (mi) (streams or coastlines)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Tributary Z	Sunflower County, Unincorporated Areas	Confluence with Powell Bayou	Approximately 1,600 feet upstream of confluence with Powell Bayou	08030207	0.3	Y	AE	10/01/1977
Unnamed Stream 2	Sunflower County , Unincorporated Areas	Washington County boundary	Approximately 3,410 feet upstream of Washington County boundary	08030207	0.6	N	A	04/01/2016
Unnamed Stream 4	Sunflower County , Unincorporated Areas	Washington County boundary	Approximately 1.1 miles upstream of Washington County boundary	08030207	1.1	N	A	04/01/2016
West Prong	Indianola, City of; Sunflower County, Unincorporated Areas	Confluence with East Prong / Indian Bayou	Approximately 400 feet upstream of the confluence of West Prong Bayou Tributary 1	08030207	1.0	Y	AE	05/01/1977
West Prong	Indianola, City of; Sunflower County, Unincorporated Areas	Approximately 400 feet upstream of the confluence of West Prong Bayou Tributary 1	At Brickyard Road	08030207	1.5	N	A	07/20/2010
West Prong Tributary 1	Indianola, City of	Confluence with West Prong	Approximately 745 feet upstream of U.S Highway 82	08030207	0.4	Y	AE	05/01/1977
Willis Bayou Unnamed Tributary 1	Sunflower County , Unincorporated Areas	Humphreys County boundary	Approximately 1.3 miles upstream of Humphreys County boundary	08030207	1.3	N	A	04/01/2016
Wixon Slough	Moorhead, City of; Sunflower County, Unincorporated Areas	Confluence with Moorhead Bayou	Approximately 1,550 feet upstream of confluence with Moorhead Bayou	08030207	0.3	N	AE	06/01/1977
Wrong Prong	Sunflower County , Unincorporated Areas	Washington County boundary	Approximately 2,490 feet upstream of Washington County boundary	08030207	0.5	N	A	04/01/2016
Zone A Streams in studied in HUC 08030207	Sunflower County, Unincorporated Areas	Various	Various	08030207	440.3	N	A	07/20/2010

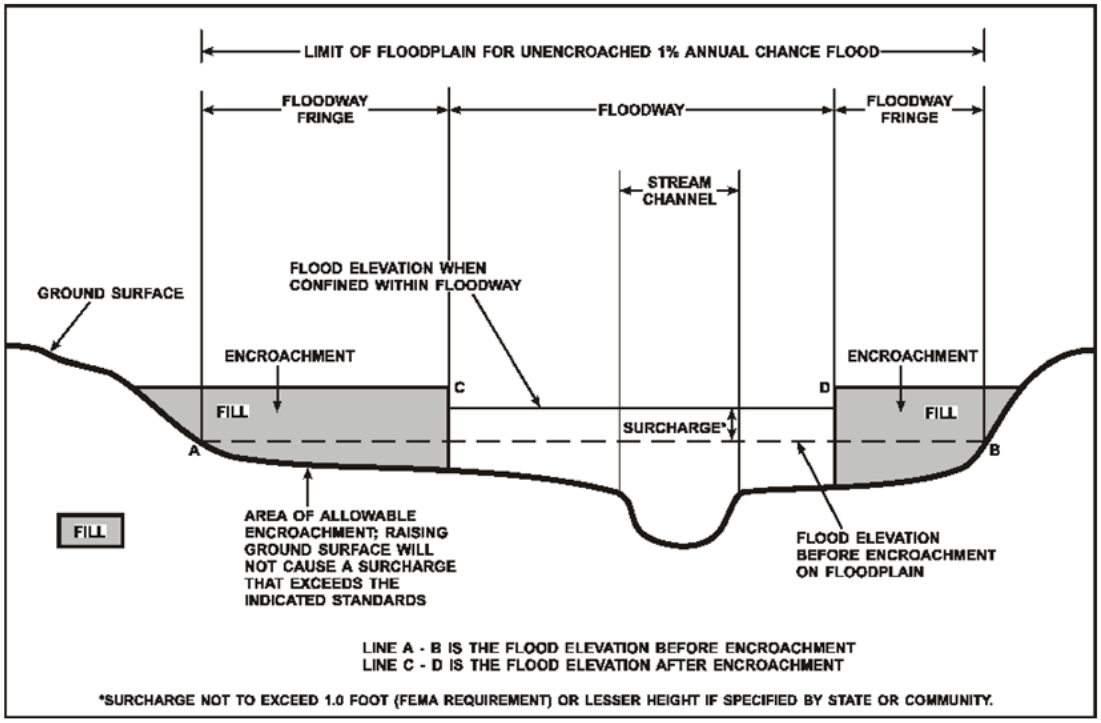
2.2 Floodways

Encroachment on floodplains, such as structures and fill, reduces flood-carrying capacity, increases flood heights and velocities, and increases flood hazards in areas beyond the encroachment itself. One aspect of floodplain management involves balancing the economic gain from floodplain development against the resulting increase in flood hazard.

For purposes of the NFIP, a floodway is used as a tool to assist local communities in balancing floodplain development against increasing flood hazard. With this approach, the area of the 1% annual chance floodplain on a river is divided into a floodway and a floodway fringe based on hydraulic modeling. The floodway is the channel of a stream, plus any adjacent floodplain areas, that must be kept free of encroachment in order to carry the 1% annual chance flood. The floodway fringe is the area between the floodway and the 1% annual chance floodplain boundaries where encroachment is permitted. The floodway must be wide enough so that the floodway fringe could be completely obstructed without increasing the water surface elevation of the 1% annual chance flood more than 1 foot at any point. Typical relationships between the floodway and the floodway fringe and their significance to floodplain development are shown in Figure 4.

To participate in the NFIP, Federal regulations require communities to limit increases caused by encroachment to 1.0 foot, provided that hazardous velocities are not produced. Regulations for Mississippi require communities in Sunflower County to limit increases caused by encroachment to 1.0 foot and several communities have adopted additional restrictions. The floodways in this project are presented to local agencies as minimum standards that can be adopted directly or that can be used as a basis for additional floodway projects.

Figure 4: Floodway Schematic



Floodway widths presented in this FIS Report and on the FIRM were computed at cross sections. Between cross sections, the floodway boundaries were interpolated. For certain stream segments, floodways were adjusted so that the amount of floodwaters conveyed on each side of the floodplain would be reduced equally. The results of the floodway computations have been tabulated for selected cross sections and are shown in Table 24, “Floodway Data.”

All floodways that were developed for this Flood Risk Project are shown on the FIRM using the symbology described in Figure 3. In cases where the floodway and 1% annual chance floodplain boundaries are either close together or collinear, only the floodway boundary has been shown on the FIRM. For information about the delineation of floodways on the FIRM, refer to Section 6.3.

2.3 Base Flood Elevations

The hydraulic characteristics of flooding sources were analyzed to provide estimates of the elevations of floods of the selected recurrence intervals. The Base Flood Elevation (BFE) is the elevation of the 1% annual chance flood. These BFEs are most commonly rounded to the whole foot, as shown on the FIRM, but in certain circumstances or locations they may be rounded to 0.1 foot. Cross section lines shown on the FIRM may also be labeled with the BFE rounded to 0.1 foot. Whole-foot BFEs derived from engineering analyses that apply to coastal areas, areas of ponding, or other static areas with little elevation change may also be shown at selected intervals on the FIRM.

Cross sections with BFEs shown on the FIRM correspond to the cross sections shown in the Floodway Data table and Flood Profiles in this FIS Report. BFEs are primarily intended for flood insurance rating purposes. For construction and/or floodplain management purposes, users are cautioned to use the flood elevation data presented in this FIS Report in conjunction with the data shown on the FIRM.

2.4 Non-Encroachment Zones

Some States and communities use non-encroachment zones to manage floodplain development. For flooding sources with medium flood risk, field surveys are often not collected and surveyed bridge and culvert geometry is not developed. Standard hydrologic and hydraulic analyses are still performed to determine BFEs in these areas. However, floodways are not typically determined, since specific channel profiles are not developed. To assist communities with managing floodplain development in these areas, a “non-encroachment zone” may be provided. While not a FEMA designated floodway, the non-encroachment zone represents that area around the stream that should be reserved to convey the 1% annual chance flood event. As with a floodway, all surcharges must fall within the acceptable range in the non-encroachment zone.

General setbacks can be used in areas of lower risk (e.g. unnumbered Zone A), but these are not considered sufficient where unnumbered Zone A is replaced by Zone AE. The NFIP requires communities to ensure that any development in a non-encroachment area causes no increase in BFEs. Communities must generally prohibit development within the area defined by the non-encroachment width to meet the NFIP requirement. Regulations for State require communities in Sunflower County to limit increases caused by encroachment to 1.0 foot and several communities have adopted additional

restrictions for non-encroachment areas.

Non-encroachment determinations may be delineated where it is not possible to delineate floodways because specific channel profiles with bridge and culvert geometry were not developed. Any non-encroachment determinations for this Flood Risk Project have been tabulated for selected cross sections and are shown in Table 25, “Flood Hazard and Non-Encroachment Data for Selected Streams.” Areas for which non-encroachment zones are provided show BFEs and the 1% annual chance floodplain boundaries mapped as zone AE on the FIRM but no floodways.

2.5 Coastal Flood Hazard Areas

This section is not applicable to this Flood Risk Project.

2.5.1 Water Elevations and the Effects of Waves

This section is not applicable to this Flood Risk Project

Figure 5: Wave Runup Transect Schematic

[Not Applicable to this Flood Risk Project]

2.5.2 Floodplain Boundaries and BFEs for Coastal Areas

This section is not applicable to this Flood Risk Project.

2.5.3 Coastal High Hazard Areas

This section is not applicable to this Flood Risk Project.

Figure 6: Coastal Transect Schematic

[Not Applicable to this Flood Risk Project]

2.5.4 Limit of Moderate Wave Action

This section is not applicable to this Flood Risk Project.

SECTION 3.0 – INSURANCE APPLICATIONS

3.1 National Flood Insurance Program Insurance Zones

For flood insurance applications, the FIRM designates flood insurance rate zones as described in Figure 3, “Map Legend for FIRM.” Flood insurance zone designations are assigned to flooding sources based on the results of the hydraulic or coastal analyses. Insurance agents use the zones shown on the FIRM and depths and base flood elevations in this FIS Report in conjunction with information on structures and their contents to assign premium rates for flood insurance policies.

The 1% annual chance floodplain boundary corresponds to the boundary of the areas of special flood hazards (e.g. Zones A, AE, V, VE, etc.), and the 0.2% annual chance floodplain boundary corresponds to the boundary of areas of additional flood hazards.

Table 3 lists the flood insurance zones in Sunflower County.

Table 3: Flood Zone Designations by Community

Community	Flood Zone(s)
Doddsville, Town of	A, X
Drew, City of	A, AE, X
Indianola, City of	A, AE, X
Inverness, Town of	A, AE, X
Moorhead, City of	A, AE AO, X
Ruleville, Town of	AE, X
Sunflower County, Unincorporated Areas	A, AE, AO, X
Sunflower, Town of	A, AE, X

3.2 Coastal Barrier Resources System

This section is not applicable to this Flood Risk Project.

Table 4: Coastal Barrier Resources System Information

[Not Applicable to this Flood Risk Project]

SECTION 4.0 – AREA STUDIED

4.1 Basin Description

Table 5 contains a description of the characteristics of the HUC-8 sub-basins within which each community falls. The table includes the main flooding sources within each basin, a brief description of the basin, and its drainage area.

Table 5: Basin Characteristics

HUC-8 Sub-Basin Name	HUC-8 Sub-Basin Number	Primary Flooding Source	Description of Affected Area	Drainage Area (square miles)
Big Sunflower	08030207	Big Sunflower River	Largest watershed within Sunflower County encompasses majority of the county.	3,154
Upper Yazoo	08030206	Yazoo River	Small portion located in southeast corner of the county.	1,674

4.2 Principal Flood Problems

Table 6 contains a description of the principal flood problems that have been noted for Sunflower County by flooding source.

Table 6: Principal Flood Problems

Flooding Source	Description of Flood Problems
Various	Low-lying and depressional areas are subject to seasonal saturation and periodic flooding is caused by the overflow of the Big Sunflower River and Quiver River as well as their tributaries. In 1958 and 1973, the area experienced some of the greatest flooding along the Big Sunflower River and Quiver River. It was determined that the floods were greater than the 1% annual chance flood in the headwater reaches. In the City of Drew, a low-lying area in the eastern part of town is affected by backwater on Powell Bayou. Heavy rainfall can cause ponding along Powell Bayou Tributary 1, where several houses were flooded in 1973. The Town of Inverness saw its greatest flooding in 1973 from Big Sunflower River. High water marks in the area ranged from 107.3 feet to 110.9 feet. The City of Moorhead experiences flooding in the northeast corner of town due to backwater flooding from Quiver River which prevents Moorhead Bayou from draining. The flooding experienced by the Town of Sunflower results from water backing up into storm-sewer drainage pipes. Flooding also occurs on the east side of town due to backup of the Sunflower Diversion Channel (FEMA 2012).

Table 7 contains information about historic flood elevations in the communities within Sunflower County.

Table 7: Historic Flooding Elevations

Flooding Source	Location	Historic Peak (Feet NAVD88)	Event Date	Approximate Recurrence Interval (years)	Source of Data
Big Sunflower River	Town of Inverness	107.3-110.9	1973	N/A	FEMA 2012
Various	Various	N/A	1958 & 1973	100	FEMA 2012

4.3 Non-Levee Flood Protection Measures

Table 8 contains information about non-levee flood protection measures within Sunflower County such as dams, jetties, and or dikes. Levees are addressed in Section 4.4 of this FIS Report.

Table 8: Non-Levee Flood Protection Measures

[Not Applicable to this Flood Risk Project]

4.4 Levees

This section is not applicable to this Flood Risk Project.

Table 9: Levees

[Not Applicable to this Flood Risk Project]

SECTION 5.0 – ENGINEERING METHODS

For the flooding sources in the community, standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this study. Flood events of a magnitude that are expected to be equaled or exceeded at least once on the average during any 10-, 25-, 50-, 100-, or 500-year period (recurrence interval) have been selected as having special significance for floodplain management and for flood insurance rates. These events, commonly termed the 10-, 25-, 50-, 100-, and 500-year floods, have a 10-, 4-, 2-, 1-, and 0.2% annual chance, respectively, of being equaled or exceeded during any year.

Although the recurrence interval represents the long-term, average period between floods of a specific magnitude, rare floods could occur at short intervals or even within the same year. The risk of experiencing a rare flood increases when periods greater than 1 year are considered. For example, the risk of having a flood that equals or exceeds the 100-year flood (1-percent chance of annual exceedance) during the term of a 30-year mortgage is approximately 26 percent (about 3 in 10); for any 90-year period, the risk increases to approximately 60 percent (6 in 10). The analyses reported herein reflect flooding potentials based on conditions existing in the community at the time of completion of this study. Maps and flood elevations will be amended periodically to reflect future changes.

5.1 Hydrologic Analyses

Hydrologic analyses were carried out to establish the peak elevation-frequency relationships for floods of the selected recurrence intervals for each flooding source studied. Hydrologic analyses are typically performed at the watershed level. Depending on factors such as watershed size and shape, land use and urbanization, and natural or man-made storage, various models or methodologies may be applied. A summary of the hydrologic methods applied to develop the discharges used in the hydraulic analyses for each stream is provided in Table 13. Greater detail (including assumptions, analysis, and results) is available in the archived project documentation.

A summary of the discharges is provided in Table 10. Stream gage information is provided in Table 12.

Table 10: Summary of Discharges

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharges (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Big Sunflower River	Washington County boundary	2,394	14,475	16,928	18,708	20,478	24,594
Big Sunflower River	Just upstream of Kinlock Road	1,543	14,475	16,928	18,708	20,478	24,594
Big Sunflower River	Approximately 2,520 feet upstream of U.S. Highway 82	889	9,517	11,130	12,300	13,470	16,170
Big Sunflower River[1]	At Sunflower County boundary	767	13,780	*	17,730	19,320	22,850
Big Sunflower River	Approximately 4,700 feet downstream of State Highway 442	694	7,966	8,884	9,501	10,070	11,260
Big Sunflower River	Approximately 4,575 feet downstream of State Highway 32	471	7,324	8,239	8,877	9,449	10,640
Dougherty Bayou	At State Highway 8	14.20	3,347	*	4,076	4,091	4,969
East Prong	Above confluence of Short Bayou	1.81	350	*	460	510	710
Indian Bayou	Near mouth	9.64	2,008	*	2,718	3,096	3,782
Indian Bayou	At Columbus and Greenville Railway bridge	6.39	763	*	997	1,100	1,419
Lutken Bayou	At South Boulevard	7.65	1,450	*	1,903	2,105	2,536
Lutken Bayou	At Park Avenue	1.14	516	*	653	726	888
Lutken Bayou	Above Powell Bayou Tributary 1	0.42	251	*	316	352	429
Moorhead Bayou	Near mouth	12.80	1,624	*	2,153	2,378	2,854
Moorhead Bayou	At northern corporate limit	8.17	1,182	*	1,572	1,730	2,075
Moorhead Bayou	At Washington Street	5.73	758	*	1,010	1,112	1,333
Moorhead Bayou	At State Highway 3	4.41	446	*	599	658	789

Table 10: Summary of Discharges (continued)

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharges (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Mound Bayou	At Baird Street	0.66	194	*	251	277	335
Mound Bayou	At Illinois Central Gulf Railroad	3.08	642	*	838	928	1,124
Mound Bayou Tributary 1	At cross section A	0.70	249	*	320	354	428
Mound Bayou Tributary 2	At cross section A	2.42	462	*	587	651	790
Mound Bayou Tributary 3	At Highway 49 West	0.90	355	*	455	503	609
Mound Bayou Tributary 3	At cross section B	0.80	327	*	418	463	560
Mound Bayou Tributary 3	At Airport Road	0.40	212	*	269	297	360
Powell Bayou	At FAS 604 bridge	8.48	1,435	*	1,891	2,089	2,572
Powell Bayou	At southeast corporate limit	7.46	1,263	*	1,660	1,846	2,253
Powell Bayou Tributary 1	At U.S. Highway 49 West	0.49	234	*	297	332	404
Powell Bayou Tributary 1	At Wilson Avenue	0.24	137	*	173	193	235
Powell Bayou Tributary 1	At cross section I	0.03	38	*	47	53	65
Short Bayou	At mouth	0.44	282	*	355	395	481
Sunflower Diversion Channel	At mouth	6.15	1,830	*	2,300	2,606	3,149
Sunflower Diversion Channel	At bridge to O'Neal Cemetery	2.26	727	*	900	1,019	1,234
Sunflower Diversion Channel	At U.S. Highway 49 West	1.00	317	*	405	453	551
Sunflower Diversion Channel	At Illinois-Central Gulf Railroad	0.50	257	*	325	362	441

Table 10: Summary of Discharges (continued)

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharges (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Tributary 1	Approximately 700 feet about Tributary 3	0.22	121	*	153	170	211
Tributary 1	At Floyce Street	0.10	98	*	122	136	167
Tributary 2	At Floyce Street	0.82	388	*	491	547	678
Tributary 3	At corporate limit	0.15	84	*	106	118	144
Tributary X	At mouth	2.31	474	*	623	689	829
Tributary Y	At mouth	0.86	273	*	349	391	475
Tributary Z	At mouth	0.45	325	*	408	453	553
West Prong	At mouth	3.82	592	*	771	862	1,047
West Prong	At corporate limits	2.20	217	*	291	320	383
West Prong Tributary 1	At mouth	1.06	290	*	370	420	510
Wixon Slough	At confluence with Moorhead Bayou	0.60	162	*	211	234	281

* Not calculated for this Flood Risk Project

[1] Increasing discharge value reflects effective Big Sunflower River detailed from 1977

Figure 7: Frequency Discharge-Drainage Area Curves

[Not applicable to this Flood Risk Project]

Table 11: Summary of Non-Coastal Stillwater Elevations

[Not applicable to this Flood Risk Project]

Table 12: Stream Gage Information used to Determine Discharges

Flooding Source	Gage Identifier	Agency that Maintains Gage	Site Name	Drainage Area (Square Miles)	Period of Record	
					From	To
Big Sunflower River	07288500	USGS	Big Sunflower River at Sunflower, MS	767	02/16/1936	06/12/2014
Big Sunflower River	07288280	USGS	Big Sunflower River near Merigold, MS	553	04/11/1993	06/11/2014

* Data not available

5.2 Hydraulic Analyses

Analyses of the hydraulic characteristics of flooding from the sources studied were carried out to provide estimates of the elevations of floods of the selected recurrence intervals. Base flood elevations on the FIRM represent the elevations shown on the Flood Profiles and in the Floodway Data tables in the FIS Report. Rounded whole-foot elevations may be shown on the FIRM in coastal areas, areas of ponding, and other areas with static base flood elevations. These whole-foot elevations may not exactly reflect the elevations derived from the hydraulic analyses. Flood elevations shown on the FIRM are primarily intended for flood insurance rating purposes. For construction and/or floodplain management purposes, users are cautioned to use the flood elevation data presented in this FIS Report in conjunction with the data shown on the FIRM. The hydraulic analyses for this FIS were based on unobstructed flow. The flood elevations shown on the profiles are thus considered valid only if hydraulic structures remain unobstructed, operate properly, and do not fail.

For streams for which hydraulic analyses were based on cross sections, locations of selected cross sections are shown on the Flood Profiles (Exhibit 1). For stream segments for which a floodway was computed (Section 6.3), selected cross sections are also listed on Table 24, “Floodway Data.”

A summary of the methods used in hydraulic analyses performed for this project is provided in Table 13. Roughness coefficients are provided in Table 14. Roughness coefficients are values representing the frictional resistance water experiences when passing overland or through a channel. They are used in the calculations to determine water surface elevations. Greater detail (including assumptions, analysis, and results) is available in the archived project documentation.

Table 13: Summary of Hydrologic and Hydraulic Analyses

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Bear Bayou 2	Confluence with Quiver River	At U.S. Highway 49	Regression Equations (USGS 1991)	HEC-RAS 4.0.0 (USACE 2008)	07/20/2010	A	Selected streams were analyzed using an enhanced approximate approach instead of limited detailed studies. The differences between enhanced approximate and limited detailed studies are that Zone A designation is applied, Base Flood Elevations and cross sections are not shown on the DFIRMs, and no flood profiles are included in the FIS report for the enhanced approximate streams. Limited detailed survey methods were still used and floodway analyses were performed for these streams. In the event newer topographic data becomes available, the streams studied by enhanced approximate methods can easily be converted back to a traditional limited detailed study.

Table 13: Summary of Hydrologic and Hydraulic Analyses (continued)

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Beaver Dam Bayou	Confluence with Big Sunflower River	Approximately 2,500 feet upstream of Faision Road	Regression Equations (USGS 1991)	HEC-RAS 4.0.0 (USACE 2008)	07/20/2010	A	Selected streams were analyzed using an enhanced approximate approach instead of limited detailed studies. The differences between enhanced approximate and limited detailed studies are that Zone A designation is applied, Base Flood Elevations and cross sections are not shown on the DFIRMs, and no flood profiles are included in the FIS report for the enhanced approximate streams. Limited detailed survey methods were still used and floodway analyses were performed for these streams. In the event newer topographic data becomes available, the streams studied by enhanced approximate methods can easily be converted back to a traditional limited detailed study.
Big Sunflower	Humphreys County boundary	Approximately 3,970 feet downstream of Torrey Street	Gage Analysis	HEC-RAS 4.1.0 (USACE 2010)	04/01/2016	AE	
Big Sunflower River	Approximately 3,970 feet downstream of Torrey Street	Approximately 2,800 feet upstream of Torrey Street	HEC-1 (USACE 1973a)	Other	06/01/1977	AE	For the Big Sunflower River, a gaging station located at the Town of Sunflower was the principle source of data for defining discharge-frequency relationships for that river. While 40 years of stream gaging data were available at this station, it was decided that only the last 13 years (1963-1975) reflect current conditions in the watershed. Values of the 10-, 50-, 100-, and 500-year peak discharges were obtained from a log-Pearson Type III distribution of annual peak flow data (USGS 1982, FEMA 2012).

Table 13: Summary of Hydrologic and Hydraulic Analyses (continued)

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Big Sunflower	Approximately 2,800 feet upstream of Torrey Street	Coahoma County boundary	Gage Analysis	HEC-RAS 4.1.0 (USACE 2010)	04/01/2016	AE	
Big Sunflower River Tributary 40	Confluence with Big Sunflower River	At North Bolivar County Road	Regression Equations (USGS 1991)	HEC-RAS 4.0.0 (USACE 2008)	07/20/2010	A	Selected streams were analyzed using an enhanced approximate approach instead of limited detailed studies. The differences between enhanced approximate and limited detailed studies are that Zone A designation is applied, Base Flood Elevations and cross sections are not shown on the DFIRMs, and no flood profiles are included in the FIS report for the enhanced approximate streams. Limited detailed survey methods were still used and floodway analyses were performed for these streams. In the event newer topographic data becomes available, the streams studied by enhanced approximate methods can easily be converted back to a traditional limited detailed study.
Bogue Phalia Cuttoff	Confluence with Big Sunflower River	Washington County boundary	Regression Equations (USGS 1991)	HEC-RAS 4.1.0 (USACE 2010)	04/01/2016	A	
Brown Bayou	Humphreys County boundary	Humphreys County boundary	Regression Equations (USGS 1991)	HEC-RAS 4.1.0 (USACE 2010)	04/01/2016	A	
Brown Bayou Unnamed Tributary 1	Confluence with Brown Bayou	Approximately 1.2 miles upstream of the confluence with Brown Bayou	Regression Equations (USGS 1991)	HEC-RAS 4.1.0 (USACE 2010)	04/01/2016	A	

Table 13: Summary of Hydrologic and Hydraulic Analyses (continued)

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Brown Bayou Unnamed Tributary 1-1	Confluence with Brown Bayou Unnamed Tributary 1	Humphreys County boundary	Regression Equations (USGS 1991)	HEC-RAS 4.1.0 (USACE 2010)	04/01/2016	A	
Brown Bayou Unnamed Tributary 2	Confluence with Brown Bayou	Approximately 4,340 feet upstream of Sealy Road	Regression Equations (USGS 1991)	HEC-RAS 4.1.0 (USACE 2010)	04/01/2016	A	
Brown Bayou Unnamed Tributary 3	Confluence with Brown Bayou	Humphreys County boundary	Regression Equations (USGS 1991)	HEC-RAS 4.1.0 (USACE 2010)	04/01/2016	A	
Brown Bayou Unnamed Tributary 4	Confluence with Brown Bayou	Approximately 4,020 feet upstream of Humphreys County boundary	Regression Equations (USGS 1991)	HEC-RAS 4.1.0 (USACE 2010)	04/01/2016	A	
County Ditch Unnamed Tributary 1	Confluence with County Ditch Unnamed Tributary 2	Humphreys County boundary	Regression Equations (USGS 1991)	HEC-RAS 4.1.0 (USACE 2010)	04/01/2016	A	
County Ditch Unnamed Tributary 2	Confluence with Dutch Brake	Humphreys County boundary	Regression Equations (USGS 1991)	HEC-RAS 4.1.0 (USACE 2010)	04/01/2016	A	
County Ditch Unnamed Tributary 3	Confluence with Dutch Brake	Humphreys County boundary	Regression Equations (USGS 1991)	HEC-RAS 4.1.0 (USACE 2010)	04/01/2016	A	
Cypress Creek	Washington County boundary	Approximately 3,740 feet upstream of Washington County boundary	Regression Equations (USGS 1991)	HEC-RAS 4.1.0 (USACE 2010)	04/01/2016	A	

Table 13: Summary of Hydrologic and Hydraulic Analyses (continued)

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Dougherty Bayou	A State Highway 8	Approximately 3,020 feet upstream of West Floyce Street	HEC-1 (USACE 1973a)	HEC-2 (USACE 1973b)	06/01/1977	AE	Detailed information for this stream is provided in the narrative below.
East Cypress Slough	Washington County boundary	Approximately 2,810 feet upstream of Washington County boundary	Regression Equations (USGS 1991)	HEC-RAS 4.1.0 (USACE 2010)	04/01/2016	A	
East Prong	Confluence with Indian Bayou / West Prong	Approximately 1,015 feet upstream of North Martin Luther King Drive	HEC-1 (USACE 1973a)	HEC-2 (USACE 1973b)	05/01/1977	AE	Detailed information for this stream is provided in the narrative below.
East Prong	Approximately 1,015 feet upstream of North Martin Luther King Drive	Approximately 1,675 feet upstream of Weathersby Road	Regression Equations (USGS 1991)	HEC-RAS 4.0.0 (USACE 2008)	07/20/2010	A	Selected streams were analyzed using an enhanced approximate approach instead of limited detailed studies. The differences between enhanced approximate and limited detailed studies are that Zone A designation is applied, Base Flood Elevations and cross sections are not shown on the DFIRMs, and no flood profiles are included in the FIS report for the enhanced approximate streams. Limited detailed survey methods were still used and floodway analyses were performed for these streams. In the event newer topographic data becomes available, the streams studied by enhanced approximate methods can easily be converted back to a traditional limited detailed study.
East Sixmile Bayou	Confluence with Bogue Phalia Cuttoff	At Bland Road	Regression Equations (USGS 1991)	HEC-RAS 4.1.0 (USACE 2010)	04/01/2016	A	

Table 13: Summary of Hydrologic and Hydraulic Analyses (continued)

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Indian Bayou	Confluence with East Prong / West Prong	Approximately 2.0 miles upstream of Alexander Avenue	HEC-1 (USACE 1973a)	HEC-2 (USACE 1973b)	05/01/1977	AE w/ floodway	Detailed information for this stream is provided in the narrative below.
Lake Dawson	Confluence with Big Sunflower River	Humphreys County boundary	Regression Equations (USGS 1991)	HEC-RAS 4.1.0 (USACE 2010)	04/01/2016	A	
Locust Bayou	Confluence with Big Sunflower River	Washington County boundary	Regression Equations (USGS 1991)	HEC-RAS 4.1.0 (USACE 2010)	04/01/2016	A	
Lutken Bayou	At South Boulevard	Approximately 1,560 feet upstream of Lombardy Road	HEC-1 (USACE 1973a)	HEC-2 (USACE 1973b)	06/01/1977	AE w/ floodway	Detailed information for this stream is provided in the narrative below.
Moorhead Bayou	Confluence with Quiver Bayou	Approximately 2,065 feet upstream of the confluence of Tributary X	HEC-1 (USACE 1973a)	HEC-2 (USACE 1973b)	10/01/1977	AE w/ floodway	Detailed information for this stream is provided in the narrative below.
Moorhead Bayou	Approximately 2,065 feet upstream of the confluence of Tributary X	Approximately 3,000 feet upstream of Johnny Russell Street	HEC-1 (USACE 1973a)	HEC-2 (USACE 1973b)	06/01/1977	AE w/ floodway	Detailed information for this stream is provided in the narrative below.

Table 13: Summary of Hydrologic and Hydraulic Analyses (continued)

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Mound Bayou	Approximately 1,260 feet upstream of U.S. Highway 49	At Old Highway 49W	Regression Equations (USGS 1991)	HEC-RAS 4.0.0 (USACE 2008)	07/20/2010	A	Selected streams were analyzed using an enhanced approximate approach instead of limited detailed studies. The differences between enhanced approximate and limited detailed studies are that Zone A designation is applied, Base Flood Elevations and cross sections are not shown on the DFIRMs, and no flood profiles are included in the FIS report for the enhanced approximate streams. Limited detailed survey methods were still used and floodway analyses were performed for these streams. In the event newer topographic data becomes available, the streams studied by enhanced approximate methods can easily be converted back to a traditional limited detailed study.
Mound Bayou	At Old Highway 49W	Approximately 1,910 feet upstream of Brand Street	HEC-1 (USACE 1973a)	HEC-2 (USACE 1973b)	06/01/1977	AE w/ floodway	Detailed information for this stream is provided in the narrative below.
Mound Bayou Tributary 1	Confluence with Mound Bayou Tributary 2	Approximately 635 feet upstream of the confluence with Mound Bayou Tributary 2	HEC-1 (USACE 1973a)	HEC-2 (USACE 1973b)	06/01/1977	AE w/ floodway	This stream was referred to as "Tributary 1" in the January 1982 FIS report for the Town of Inverness and was changed to "Mound Bayou Tributary 1" in the January 12, 2012 FIS report (FEMA 2012). Detailed information for this stream is provided in the narrative below.

Table 13: Summary of Hydrologic and Hydraulic Analyses (continued)

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Mound Bayou Tributary 2	Confluence with Mound Bayou	Approximately 3,280 feet upstream of the confluence with Mound Bayou	HEC-1 (USACE 1973a)	HEC-2 (USACE 1973b)	06/01/1977	AE w/ floodway	This stream was referred to as "Tributary 2" in the January 1982 FIS report for the Town of Inverness and was changed to "Mound Bayou Tributary 2" in the January 12, 2012 FIS report (FEMA 2012). Detailed information for this stream is provided in the narrative below.
Mound Bayou Tributary 3	Confluence with Mound Bayou	Approximately 400 feet upstream of Old Highway 49W	Regression Equations (USGS 1991)	HEC-RAS 4.0.0 (USACE 2008)	07/20/2010	A	Selected streams were analyzed using an enhanced approximate approach instead of limited detailed studies. The differences between enhanced approximate and limited detailed studies are that Zone A designation is applied, Base Flood Elevations and cross sections are not shown on the DFIRMs, and no flood profiles are included in the FIS report for the enhanced approximate streams. Limited detailed survey methods were still used and floodway analyses were performed for these streams. In the event newer topographic data becomes available, the streams studied by enhanced approximate methods can easily be converted back to a traditional limited detailed study.
Mound Bayou Tributary 3	Approximately 400 feet upstream of Old Highway 49W	Approximately 1,460 feet upstream of Old Highway 49W	HEC-1 (USACE 1973a)	HEC-2 (USACE 1973b)	06/01/1977	AE w/ floodway	This stream was referred to as "Tributary 3" in the January 1982 FIS report for the Town of Inverness and was changed to "Mound Bayou Tributary 3" in the January 12, 2012 FIS report (FEMA 2012). Detailed information for this stream is provided in the narrative below.

Table 13: Summary of Hydrologic and Hydraulic Analyses (continued)

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Mound Bayou Tributary 3	Approximately 1,460 feet upstream of Old Highway 49W	Approximately 120 feet upstream of Southside Road	Regression Equations (USGS 1991)	HEC-RAS 4.0.0 (USACE 2008)	07/20/2010	A	Selected streams were analyzed using an enhanced approximate approach instead of limited detailed studies. The differences between enhanced approximate and limited detailed studies are that Zone A designation is applied, Base Flood Elevations and cross sections are not shown on the DFIRMs, and no flood profiles are included in the FIS report for the enhanced approximate streams. Limited detailed survey methods were still used and floodway analyses were performed for these streams. In the event newer topographic data becomes available, the streams studied by enhanced approximate methods can easily be converted back to a traditional limited detailed study.
Powell Bayou	Approximately 3,230 feet downstream of Swoope Road	Approximately 800 feet upstream of the confluence of Tributary Z	HEC-1 (USACE 1973a)	HEC-2 (USACE 1973b)	10/01/1977	AE w/ floodway	Detailed information for this stream is provided in the narrative below.
Powell Bayou Tributary 1	Confluence with Powell Bayou	Approximately 200 feet upstream of East Street	HEC-1 (USACE 1973a)	HEC-2 (USACE 1973b)	06/01/1977	AE w/ floodway	This stream was referred to as "Tributary 1" in the November 1977 FIS report for the City of Drew and was changed to "Powell Bayou Tributary 1" in the January 12, 2012 FIS report (FEMA 2012). Detailed information for this stream is provided in the narrative below.
Short Bayou	Confluence with East Prong	Approximately 980 feet upstream of U.S. Highway 82	HEC-1 (USACE 1973a)	HEC-2 (USACE 1973b)	05/01/1977	AE w/ floodway	Detailed information for this stream is provided in the narrative below.

Table 13: Summary of Hydrologic and Hydraulic Analyses (continued)

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Sixmile Bayou	Confluence with Sixmile Bayou	Washington County boundary	Regression Equations (USGS 1991)	HEC-RAS 4.1.0 (USACE 2010)	04/01/2016	A	
Sunflower Diversion Channel	Approximately 1,150 feet downstream of South Taylor Road	Approximately 3,250 upstream of Dwyer Road	HEC-1 (USACE 1973a)	HEC-2 (USACE 1973b)	10/01/1977	AE w/ floodway	Detailed information for this stream is provided in the narrative below.
Tributary 1	Approximately 2,300 feet downstream of West Floyce Street	Approximately 970 feet upstream of West Floyce Street	HEC-1 (USACE 1973a)	HEC-2 (USACE 1973b)	06/01/1977	AE w/ floodway	Detailed information for this stream is provided in the narrative below.
Tributary 2	At Twiner Street	Just upstream of Connell Avenue	HEC-1 (USACE 1973a)	HEC-2 (USACE 1973b)	06/01/1977	AE w/ floodway	Detailed information for this stream is provided in the narrative below.
Tributary 3	Approximately 115 feet upstream of West Head Circle	Approximately 95 feet downstream of West Head Circle	HEC-1 (USACE 1973a)	HEC-2 (USACE 1973b)	06/01/1977	AE w/ floodway	Detailed information for this stream is provided in the narrative below.
Tributary X	Confluence with Moorhead Bayou	Approximately 3,600 feet upstream of Preachers Road	HEC-1 (USACE 1973a)	HEC-2 (USACE 1973b)	10/01/1977	AE w/ floodway	Detailed information for this stream is provided in the narrative below.
Tributary Y	Confluence with Sunflower Diversion Channel	Approximately 2,000 feet upstream of Itta Bena Road	HEC-1 (USACE 1973a)	HEC-2 (USACE 1973b)	10/01/1977	AE w/ floodway	Detailed information for this stream is provided in the narrative below.
Tributary Z	Confluence with Powell Bayou	Approximately 1,600 feet upstream of confluence with Powell Bayou	HEC-1 (USACE 1973a)	HEC-2 (USACE 1973b)	10/01/1977	AE w/ floodway	Detailed information for this stream is provided in the narrative below.

Table 13: Summary of Hydrologic and Hydraulic Analyses (continued)

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Unnamed Stream 2	Washington County boundary	Approximately 3,410 feet upstream of Washington County boundary	Regression Equations (USGS 1991)	HEC-RAS 4.1.0 (USACE 2010)	04/01/2016	A	
Unnamed Stream 4	Washington County boundary	Approximately 1.1 miles upstream of Washington County boundary	Regression Equations (USGS 1991)	HEC-RAS 4.1.0 (USACE 2010)	04/01/2016	A	
West Prong	Confluence with East Prong / Indian Bayou	Approximately 400 feet upstream of the confluence of West Prong Bayou Tributary 1	HEC-1 (USACE 1973a)	HEC-2 (USACE 1973b)	05/01/1977	AE	Detailed information for this stream is provided in the narrative below.
West Prong	Approximately 400 feet upstream of the confluence of West Prong Bayou Tributary 1	At Brickyard Road	Regression Equations (USGS 1991)	HEC-RAS 4.0.0 (USACE 2008)	07/20/2010	A	Selected streams were analyzed using an enhanced approximate approach instead of limited detailed studies. The differences between enhanced approximate and limited detailed studies are that Zone A designation is applied, Base Flood Elevations and cross sections are not shown on the DFIRMs, and no flood profiles are included in the FIS report for the enhanced approximate streams. Limited detailed survey methods were still used and floodway analyses were performed for these streams. In the event newer topographic data becomes available, the streams studied by enhanced approximate methods can easily be converted back to a traditional limited detailed study.

Table 13: Summary of Hydrologic and Hydraulic Analyses (continued)

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
West Prong Tributary 1	Confluence with West Prong	Approximately 745 feet upstream of U.S Highway 82	HEC-1 (USACE 1973a)	HEC-2 (USACE 1973b)	05/01/1977	AE w/ floodway	This stream was referred to as "Tributary 1" in the July 1977 FIS report for the City of Indianola and was changed to "West Prong Tributary 1" in the January 12, 2012 FIS report (FEMA 2012). Detailed information for this stream is provided in the narrative below.
Willis Bayou Unnamed Tributary 1	Humphreys County boundary	Approximately 1.3 miles upstream of Humphreys County boundary	Regression Equations (USGS 1991)	HEC-RAS 4.1.0 (USACE 2010)	04/01/2016	A	
Wixon Slough	Confluence with Moorhead Bayou	Approximately 1,550 feet upstream of confluence with Moorhead Bayou	HEC-1 (USACE 1973a)	HEC-2 (USACE 1973b)	06/01/1977	AE	Detailed information for this stream is provided in the narrative below.
Wrong Prong	Washington County boundary	Approximately 2,490 feet upstream of Washington County boundary	Regression Equations (USGS 1991)	HEC-RAS 4.1.0 (USACE 2010)	04/01/2016	A	
Zone A Streams in studied in HUC 08030207	Various	Various	Regression Equations (USGS 1991)	HEC-RAS 4.0.0 (USACE 2008)	07/20/2010	A	For those parts of the county studied by approximate methods, past floods of the Big Sunflower River and Quiver River were considered in determining the approximate 1% annual chance flood boundaries. High water marks from the 1958 and 1973 floods were used for these studies and stage probabilities at the gages on the Big Sunflower River at Lombardy, Sunflower, and Moorhead supplemented this data (FEMA 1979, FEMA 2012).

Special Considerations (continued)

Values of the 10-, 50-, 100-, and 500-year peak discharges were obtained using the Hydrologic Engineering Center's "Flood Hydrograph Package" (HEC-1) (USACE 1973). The computer program computes flood hydrographs utilizing a unit hydrograph defined by Snyder's method parameters. In order to use this program, the initial rainfall loss, a uniform loss rate, the lag time (tp), a peaking coefficient (Cp), the storm rainfall, and drainage areas had to be defined as input parameters (FEMA 2012).

Rainfall for the 10-, 50-, and 100-year return period storms was obtained from the U.S. Weather Bureau's Technical Paper 40 (NWS 1961). The Technical Paper No. 40 data were plotted and extrapolated on log-log probability paper to obtain the 500-year rainfall (FEMA 2012).

The drainage areas of the streams studied in detail were drawn on USGS or USACE topographic maps (USGS 1966). Drainage divides were determined by map inspection and field reconnaissance. The drainage areas were planimetered on the maps and the area determined in square miles (FEMA 2012).

Checks on the logic of calculations and the results obtained for the peak discharges calculated were deemed especially necessary due to the lack of hydrologic data in this region. Two regression analyses formulae were used. The first was found in "Flood Frequency of Mississippi Streams" (USGS 1976). The second was a technical memorandum of the USGS dated August 3, 1970 which was obtained from the USGS in Jackson, Mississippi (USGS 1970). A comparison was made between the results from HEC-1 and from each of the two regression formulas. Comparison was only made at stations where a simple one-basin runoff situation existed, i.e., not at stations which were the sum of two areas (FEMA 2012).

Profiles were determined for the 10, 2, 1, and 0.2% annual chance floods. Flood elevations of the selected recurrence intervals on the Quiver River determined starting water-surface elevations. Water-surface elevations on these streams at the point of confluence with the tributaries determined the starting elevations on the tributaries. In some areas, backwater computations assuming steady flow conditions were inappropriate due to the storage of flood volumes in areas upstream from culverts. Reservoir routing procedures were used in these circumstances. Flood profiles were drawn showing computed water-surface elevations to an accuracy of 0.5 foot for floods of the selected recurrence intervals (FEMA 1979).

Table 14: Roughness Coefficients

Flooding Source	Channel “n”	Overbank “n”
Bear Bayou 2	0.040	0.070
Beaver Dam Bayou	0.045	0.070
Big Sunflower	0.040-0.055	0.060-0.130
Big Sunflower River	*	*
Big Sunflower	0.040-0.055	0.060-0.130
Big Sunflower River Tributary 40	0.040	0.070
Bogue Phalia Cuttoff	0.045	0.070
Brown Bayou	0.045	0.070
Brown Bayou Unnamed Tributary 1	0.045	0.070
Brown Bayou Unnamed Tributary 1-1	0.045	0.070
Brown Bayou Unnamed Tributary 2	0.045	0.110
Brown Bayou Unnamed Tributary 3	0.045	0.120
Brown Bayou Unnamed Tributary 4	0.045	0.070
County Ditch Unnamed Tributary 1	0.050	0.150
County Ditch Unnamed Tributary 2	0.050	0.150
County Ditch Unnamed Tributary 3	0.045	0.120
Cypress Creek	0.045	0.070
Dougherty Bayou	0.060-0.110	0.040-0.100
East Cypress Slough	0.045	0.070
East Prong	0.050-0.100	0.040-0.060
East Prong	0.045	0.070
East Sixmile Bayou	0.045	0.110
Indian Bayou	0.050-0.100	0.040-0.060
Lake Dawson	0.045	0.110
Locust Bayou	0.045	0.070
Lutken Bayou	0.050-0.100	0.040-0.110
Moorhead Bayou	0.045-0.100	0.040-0.085
Moorhead Bayou	0.045-0.110	0.040-0.100
Mound Bayou	0.035-0.040	0.070

Table 14: Roughness Coefficients (continued)

Flooding Source	Channel "n"	Overbank "n"
Mound Bayou	0.045-0.110	0.040-0.100
Mound Bayou Tributary 1	0.045-0.110	0.040-0.100
Mound Bayou Tributary 2	0.045-0.110	0.040-0.100
Mound Bayou Tributary 3	0.045-0.050	0.070-0.150
Mound Bayou Tributary 3	0.045-0.110	0.040-0.100
Mound Bayou Tributary 3	0.045-0.050	0.070-0.150
Powell Bayou	0.045-0.100	0.040-0.085
Powell Bayou Tributary 1	0.050-0.100	0.040-0.110
Short Bayou	0.050-0.100	0.040-0.060
Sixmile Bayou	0.045	0.070
Sunflower Diversion Channel	0.045-0.100	0.040-0.085
Tributary 1	0.060-0.110	0.040-0.100
Tributary 2	0.060-0.110	0.040-0.100
Tributary 3	0.060-0.110	0.040-0.100
Tributary X	0.045-0.100	0.040-0.085
Tributary Y	0.045-0.100	0.040-0.085
Tributary Z	0.045-0.100	0.040-0.085
Unnamed Stream 2	0.050	0.150
Unnamed Stream 4	0.045	0.070
West Prong	0.050-0.100	0.040-0.060
West Prong	0.070	0.120
West Prong Tributary 1	0.050-0.100	0.040-0.060
Willis Bayou Unnamed Tributary 1	0.045	0.070-0.150
Wixon Slough	0.045-0.110	0.040-0.100
Wrong Prong	0.045	0.070-0.150
Zone A Streams in studied in HUC 08030207	0.050	0.150

* Data Not Available

5.3 Coastal Analyses

This section is not applicable to this Flood Risk Project.

Table 15: Summary of Coastal Analyses

[Not Applicable to this Flood Risk Project

5.3.1 Total Stillwater Elevations

This section is not applicable to this Flood Risk Project.

Figure 8: 1% Annual Chance Total Stillwater Elevations for Coastal Areas

[Not Applicable to this Flood Risk Project]

Table 16: Tide Gage Analysis Specifics

[Not Applicable to this Flood Risk Project]

5.3.2 Waves

This section is not applicable to this Flood Risk Project.

5.3.3 Coastal Erosion

This section is not applicable to this Flood Risk Project

5.3.4 Wave Hazard Analyses

This section is not applicable to this Flood Risk Project

Table 17: Coastal Transect Parameters

[Not Applicable to this Flood Risk Project]

Figure 9: Transect Location Map

[Not applicable to this Flood Risk Project]

5.4 Alluvial Fan Analyses

This section is not applicable to this Flood Risk Project.

Table 18: Summary of Alluvial Fan Analyses

[Not Applicable to this Flood Risk Project]

Table 19: Results of Alluvial Fan Analyses

[Not Applicable to this Flood Risk Project]

SECTION 6.0 – MAPPING METHODS

6.1 Vertical and Horizontal Control

All FIS Reports and FIRMs are referenced to a specific vertical datum. The vertical datum provides a starting point against which flood, ground, and structure elevations can be referenced and compared. Until recently, the standard vertical datum used for newly created or revised FIS Reports and FIRMs was the National Geodetic Vertical Datum of 1929 (NGVD29). With the completion of the North American Vertical Datum of 1988 (NAVD88), many FIS Reports and FIRMs are now prepared using NAVD88 as the referenced vertical datum.

Flood elevations shown in this FIS Report and on the FIRMs are referenced to NAVD88. These flood elevations must be compared to structure and ground elevations referenced to the same vertical datum. For information regarding conversion between NGVD29 and NAVD88 or other datum conversion, visit the National Geodetic Survey website at www.ngs.noaa.gov.

Temporary vertical monuments are often established during the preparation of a flood hazard analysis for the purpose of establishing local vertical control. Although these monuments are not shown on the FIRM, they may be found in the archived project documentation associated with the FIS Report and the FIRMs for this community. Interested individuals may contact FEMA to access these data.

To obtain current elevation, description, and/or location information for benchmarks in the area, please visit the NGS website at www.ngs.noaa.gov.

The datum conversion locations and values that were calculated for Sunflower County are provided in Table 20.

Table 20: Countywide Vertical Datum Conversion

Quadrangle Name	Quadrangle Corner	Latitude	Longitude	Conversion from NGVD29 to NAVD88 (feet)
Average Conversion from NGVD29 to NAVD88 = -0.270 feet				

Table 21: Stream-Based Vertical Datum Conversion

[Not Applicable to this Flood Risk Project]

6.2 Base Map

The FIRMs and FIS Report for this project have been produced in a digital format. The flood hazard information was converted to a Geographic Information System (GIS) format that meets FEMA's FIRM database specifications and geographic information standards. This information is provided in a digital format so that it can be incorporated into a local GIS and be accessed more easily by the community. The FIRM Database includes most of the tabular information contained in the FIS Report in such a way that the data can be associated with pertinent spatial features. For example, the information

contained in the Floodway Data table and Flood Profiles can be linked to the cross sections that are shown on the FIRMs. Additional information about the FIRM Database and its contents can be found in FEMA's *Guidelines and Standards for Flood Risk Analysis and Mapping*, https://www.fema.gov/guidelines-and-standards-flood-risk-analysis-and-mapping.

Base map information shown on the FIRM was derived from the sources described in Table 22.

Table 22: Base Map Sources

Data Type	Data Provider	Data Date	Data Scale	Data Description
Digital Orthophoto	Surdex Corporation	2014 2015 2016 2017	1:6,300	Contains data used as a basemap for the study area
Digital Orthophoto	National Agriculture Imagery Program	2016	N/A	Contains data used as a basemap for the study area
Political County Boundaries	Mississippi Automated Resource Information System	2007	N/A	County Boundaries
Political Incorporated Community Boundaries	US Department of Commerce, US Census Bureau	2010	N/A	Municipal boundaries inside Sunflower County boundaries
Public Land Survey System (PLSS)	Mississippi Automated Resource Information System	2008	1:24,000	Township and Range Boundaries
Surface Water Features	Federal Emergency Management Agency (FEMA)	2012	N/A	Streams, rivers, and lakes derived from NHD data
Transportation Features	Mississippi Department of Environmental Quality	2010	N/A	Roads throughout Sunflower County
Transportation Features	Mississippi Automated Resource Information System	2004	N/A	Roads throughout Sunflower County
Transportation Features	Mississippi Automated Resource Information System	2012	N/A	Railroads throughout Sunflower County

6.3 Floodplain and Floodway Delineation

The FIRM shows tints, screens, and symbols to indicate floodplains and floodways as well as the locations of selected cross sections used in the hydraulic analyses and floodway computations.

For riverine flooding sources, the mapped floodplain boundaries shown on the FIRM have been delineated using the flood elevations determined at each cross section; between cross sections, the boundaries were interpolated using the topographic elevation data described in Table 23.

In cases where the 1% and 0.2% annual chance floodplain boundaries are close together, only the 1% annual chance floodplain boundary has been shown. Small areas within the floodplain boundaries may lie above the flood elevations but cannot be shown due to limitations of the map scale and/or lack of detailed topographic data.

The floodway widths presented in this FIS Report and on the FIRM were computed for certain stream segments on the basis of equal conveyance reduction from each side of the floodplain. Floodway widths were computed at cross sections. Between cross sections, the floodway boundaries were interpolated. Table 2 indicates the flooding sources for which floodways have been determined. The results of the floodway computations for those flooding sources have been tabulated for selected cross sections and are shown in Table 24, "Floodway Data."

Table 23: Summary of Topographic Elevation Data used in Mapping

		Source for Topographic Elevation Data			
Community	Flooding Source	Description	Vertical Accuracy	Horizontal Accuracy	Citation
Sunflower County and Incorporated Areas	All flooding sources within county	1 meter resolution Light Detection and Ranging data (LiDAR)	0.09 Meters $RMSE_z$	0.09 meter at 95% confidence level	MRD 2010

BFEs shown at cross sections on the FIRM represent the 1% annual chance water surface elevations shown on the Flood Profiles and in the Floodway Data tables in the FIS Report.

Table 24: Floodway Data

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	8,780	252	1,375	0.9	114.7	114.7	114.8	0.1
B	9,450	167	1,158	1.0	114.7	114.7	114.9	0.2
C	10,380	49	490	2.4	115.4	115.4	115.6	0.2
D	11,200	151	415	2.7	115.5	115.5	115.7	0.2
E	12,500	230	2,058	0.5	115.6	115.6	116.6	1.0
F	12,550	81	999	1.0	115.6	115.6	116.6	1.0

[1] Feet above Bridge on Kinlock Road

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUNFLOWER COUNTY, MISSISSIPPI

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: INDIAN BAYOU

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	0	93	1,112	1.9	133.4	128.5[2]	129.2	0.7
B	465	410	3,179	0.5	133.4	128.6[2]	129.3	0.7
C	2,360	217	1,176	0.8	133.5	128.8[2]	129.4	0.6
D	3,695	20	150	4.8	133.5	130.8[2]	131.6	0.8
E	4,380	123	553	1.1	133.6	131.4[2]	132.1	0.7

[1] Feet about South Boulevard
[2] Elevation computed without consideration of backwater effects from Blue Lake

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUNFLOWER COUNTY, MISSISSIPPI

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: LUTKEN BAYOU

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	8,380	168	1,584	1.5	113.4	111.3[2]	112.1	0.8
B	9,500	186	1,551	1.5	113.4	111.7[2]	112.5	0.8
C	10,940	109	1,217	2.0	113.4	112.1[2]	113.1	1.0
D	12,240	21	351	6.8	113.4	113.4[2]	114.4	1.0

[1] Feet above confluence with Quiver River
[2] Elevation computed without consideration of backwater effects from Quiver River

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUNFLOWER COUNTY, MISSISSIPPI

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: MOORHEAD BAYOU

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	30	125	192	4.8	111.2	111.2[2]	111.2	0.0
B	1,160	23	152	6.1	115.1	113.8[2]	114.2	0.4
C	1,320	300	1,252	0.7	115.1	115.1	116.1	1.0
D	3,100	199	1,245	0.2	116.2	116.2	117.1	0.9
E	4,500	159	617	0.4	116.2	116.2	117.2	1.0

[1] Feet about Old Highway 49W
[2] Elevation computed without consideration of backwater effects from Lake Dawson

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUNFLOWER COUNTY, MISSISSIPPI

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: MOUND BAYOU

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	360	84	197	1.8	118.7	118.7	119.4	0.7

[1] Feet about confluence with Mound Bayou Tributary 2

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUNFLOWER COUNTY, MISSISSIPPI

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: MOUND BAYOU TRIBUTARY 1

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	350	77	226	2.9	116.1	115.9[2]	115.9	0.0
B	450	85	275	2.4	116.5	116.5[2]	116.5	0.0
C	1,440	248	337	1.8	117.4	117.4[2]	117.8	0.4
D	2,440	197	486	0.8	117.7	117.7[2]	118.4	0.7

[1] Feet above confluence with Mound Bayou
[2] Elevation computed without consideration of backwater effects from Mound Bayou

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUNFLOWER COUNTY, MISSISSIPPI

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: MOUND BAYOU TRIBUTARY 2

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	3,080	127	396	1.3	112.2	112.2	112.9	0.7
B	4,050	187	335	1.4	112.7	112.7	113.5	0.8

[1] Feet about mouth

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUNFLOWER COUNTY, MISSISSIPPI

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: MOUND BAYOU TRIBUTARY 3

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	5,000	62	442	4.7	129.7	129.7[2]	130.5	0.8
B	6,800	106	819	2.3	131.5	131.5[2]	132.4	0.9
C	9,770	368	1,929	0.8	133.4	133.4	134.0	0.6
D	10,850	638	3,908	0.3	133.4	133.4	134.0	0.6
E	13,750	627	3,417	0.3	133.4	133.4	134.1	0.7

[1] Feet about Federal Aid Secondary Highway 604 Bridge
[2] Elevation computed without consideration of backwater effects from Powell Bayou

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUNFLOWER COUNTY, MISSISSIPPI

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: POWELL BAYOU

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	250	91	266	1.2	133.2	128.3[2]	128.8	0.5
B	870	147	490	0.7	133.2	129.0[2]	129.3	0.3
C	1,350	145	905	0.2	133.2	131.4[2]	131.7	0.3
D	2,410	124	540	0.4	133.2	132.1[2]	132.4	0.3
E	3,120	61	273	0.7	136.1	136.1[2]	136.3	0.2
F	3,480	106	393	0.5	136.1	136.1	136.6	0.5
G	4,670	162	486	0.4	136.1	136.1	136.6	0.5
H	6,390	365	1,214	0.1	137.7	137.7	137.9	0.2

[1] Feet about Federal Aid Secondary Highway 604 Bridge
[2] Elevation computed without consideration of backwater effects from Powell Bayou

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUNFLOWER COUNTY, MISSISSIPPI

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: POWELL BAYOU TRIBUTARY 1

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	730	225	452	0.9	118.0	112.9[2]	112.9	0.0
B	1,240	74	462	0.9	118.0	116.0[2]	116.2	0.2
C	1,685	29	137	2.4	118.0	116.1[2]	116.4	0.3
D	2,470	55	129	2.5	118.0	117.6[2]	118.3	0.7
E	3,200	125	175	1.9	118.3	118.3	119.3	1.0

[1] Feet above mouth
[2] Elevation computed without consideration of backwater effects from East Prong

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUNFLOWER COUNTY, MISSISSIPPI

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: SHORT BAYOU

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	450	176	660	4.0	114.7	114.0[2]	114.0	0.0
B	4,980	1,475	3,717	0.7	115.5	115.3[2]	115.7	0.4
C	7,980	1,972	1,048	1.7	115.7	115.6[2]	116.1	0.5
D	11,100	1,259	1,197	1.1	116.7	116.7	117.6	0.9
E	13,600	54	422	2.5	119.0	119.0	119.8	0.8
F	16,250	2,532	4,460	0.2	119.3	119.3	120.1	0.8
G	19,730	1,721	4,698	0.1	119.3	119.3	120.1	0.8

[1] Feet above mouth
[2] Elevation computed without consideration of backwater effects from Roundaway Bayou

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUNFLOWER COUNTY, MISSISSIPPI

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: SUNFLOWER DIVERSION CHANNEL

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	2,325	83	364	0.4	134.5	134.5	135.5	1.0
B	3,110	65	94	1.4	135.0	135.0	136.0	1.0

[1] Feet above limit of detailed study (Limit of Study is approximately 2,300 feet downstream of West Floyce Street)

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUNFLOWER COUNTY, MISSISSIPPI

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: TRIBUTARY 1

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	0	*	*	*	129.7	*	*	*
B	1,355	186	341	1.6	129.7	127.9[2]	128.8	0.9
C	1,970	290	427	1.3	129.7	128.8[2]	129.4	0.6
D	2,610	147	209	2.6	132.0	132.0	132.5	0.5
E	3,270	300	720	0.8	132.5	132.5	133.3	0.8

[1] Feet above Twiner Street
[2] Elevation computed without consideration of backwater effects from Quiver River
* Data Not Available

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUNFLOWER COUNTY, MISSISSIPPI

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: TRIBUTARY 2

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	340	71	176	0.7	134.2	134.2	134.8	0.6
B	1,030	30	108	1.1	134.5	134.5	135.1	0.6

[1] Feet above limit of detailed study (Limit of Detailed Study is approximately 290 feet downstream of West Head Circle)

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUNFLOWER COUNTY, MISSISSIPPI

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: TRIBUTARY 3

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	720	14	119	5.8	114.3	112.0[2]	112.0	0.0
B	1,900	12	120	5.7	115.0	113.6[2]	114.5	0.9
C	4,450	233	1,771	0.3	115.0	113.7[2]	114.7	1.0
D	7,280	136	662	0.9	115.0	114.0[2]	114.9	0.9

[1] Feet above confluence with Moorhead Bayou
[2] Elevation computed without consideration of backwater effects from Moorhead Bayou

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUNFLOWER COUNTY, MISSISSIPPI

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: TRIBTARY X

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	450	93	219	1.6	117.1	116.9[2]	117.4	0.6
B	2,390	75	212	1.0	117.8	117.7[2]	118.5	0.8
C	6,730	4	19	4.0	118.7	118.7	119.5	0.8

[1] Feet above confluence with Sunflower Diversion Channel
[2] Elevation computed without consideration of backwater of backwater effects from Sunflower Diversion Channel

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUNFLOWER COUNTY, MISSISSIPPI

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: TRIBUTARY Y

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	1,600	208	607	0.7	133.5	131.3[2]	132.1	0.8

[1] Feet above confluence with Powell Bayou
[2] Elevation computed without consideration of backwater effects from Powell Bayou

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUNFLOWER COUNTY, MISSISSIPPI

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: TRIBUTARY Z

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	610	40	267	3.2	115.7	109.9[2]	110.9	1.0
B	1,610	224	706	1.2	115.8	110.8[2]	111.4	0.6
C	3,570	165	589	1.5	115.8	113.1[2]	113.2	0.1

[1] Feet above confluence with Indian Bayou and East Prong
[2] Elevation computed without consideration of backwater effects from Indian Bayou and East Prong

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUNFLOWER COUNTY, MISSISSIPPI

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: WEST PRONG

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	800	148	573	0.7	116.2	115.6[2]	115.6	0.0
B	1,380	9	50	8.4	116.5	116.5	116.5	0.0
C	1,680	236	975	0.4	120.1	120.1	120.6	0.5

[1] Feet above confluence with West Prong
[2] Elevation computed without consideration of backwater effects from West Prong

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUNFLOWER COUNTY, MISSISSIPPI

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: WEST PRONG TRIBUTARY 1

Non-encroachment areas may be delineated where it is not possible to delineate floodways because specific channel profiles with bridge and culvert geometry were not developed. Any non-encroachment determinations for this Flood Risk Project have been tabulated for selected cross sections and are shown in Table 25. The non-encroachment width indicates the measured distance left and right (looking downstream) from the mapped center of the stream to the non-encroachment boundary based on a surcharge of 1.0 foot or less.

Table 25: Flood Hazard and Non-Encroachment Data for Selected Streams

Flooding Source	Cross Section	Stream Station[1]	1% Annual Chance Flood Discharge (cfs)	1% Annual Chance Water Surface Elevation (feet NAVD88)	Non-Encroachment Width (feet)	
					Left	Right
Big Sunflower River		387,310	20,487	104.0	138	614
Big Sunflower River	A	388,625	20,487	104.1	148	115
Big Sunflower River		390,690	20,487	104.3	237	111
Big Sunflower River		392,417	20,487	104.4	155	125
Big Sunflower River		394,411	20,487	104.5	205	114
Big Sunflower River		396,369	20,487	104.6	202	140
Big Sunflower River	B	398,074	20,487	104.7	161	151
Big Sunflower River		400,444	20,487	104.8	189	234
Big Sunflower River		402,348	20,487	104.9	271	115
Big Sunflower River		403,819	20,487	104.9	137	270
Big Sunflower River	C	405,081	20,487	105.0	219	178
Big Sunflower River		406,200	20,487	105.0	211	133
Big Sunflower River		407,342	20,487	105.1	216	180
Big Sunflower River		407,833	20,487	105.1	222	130
Big Sunflower River		407,920	20,487	105.1	232	125
Big Sunflower River		408,015	20,487	105.1	232	125
Big Sunflower River	D	408,661	20,487	105.1	324	153
Big Sunflower River		410,347	20,487	105.2	212	141
Big Sunflower River		412,634	20,487	105.3	234	332
Big Sunflower River		414,284	20,487	105.3	217	118
Big Sunflower River	E	416,798	20,487	105.4	1,209	141
Big Sunflower River		418,585	20,487	105.5	494	271
Big Sunflower River		420,757	20,487	105.6	453	105
Big Sunflower River		423,081	20,487	105.7	2,995	81
Big Sunflower River	F	428,095	20,487	105.9	138	2,822
Big Sunflower River		432,652	20,487	106.2	88	3,930
Big Sunflower River		437,200	20,487	106.5	1,832	1,439
Big Sunflower River		440,583	20,487	106.7	140	4,713

Table 25: Flood Hazard and Non-Encroachment Data for Select Streams (continued)

Flooding Source	Cross Section	Stream Station[1]	1% Annual Chance Flood Discharge (cfs)	1% Annual Chance Water Surface Elevation (feet NAVD88)	Non-Encroachment Width (feet)	
					Left	Right
Big Sunflower River	G	442,511	20,487	106.8	355	4,507
Big Sunflower River		444,487	20,487	106.9	1,369	3,680
Big Sunflower River		446,007	20,487	106.9	977	2,198
Big Sunflower River		446,753	20,487	106.9	561	136
Big Sunflower River		446,800	20,487	106.9	557	140
Big Sunflower River		446,833	20,487	106.9	557	140
Big Sunflower River		446,906	20,487	106.9	479	2,299
Big Sunflower River		447,014	20,487	107.0	564	2,259
Big Sunflower River		447,665	20,487	107.0	705	2,291
Big Sunflower River	H	448,848	20,487	107.0	963	242
Big Sunflower River		450,651	20,487	107.2	1,610	162
Big Sunflower River		452,630	20,487	107.3	1,301	91
Big Sunflower River		454,963	20,487	107.5	151	124
Big Sunflower River	I	458,026	20,487	107.7	163	1,223
Big Sunflower River		459,637	20,487	107.7	1,366	1,256
Big Sunflower River		462,230	20,487	107.8	3,137	88
Big Sunflower River		465,354	20,487	108.1	145	924
Big Sunflower River	J	467,688	20,487	108.3	123	874
Big Sunflower River		471,425	20,487	108.6	1,015	107
Big Sunflower River		473,506	20,487	108.8	4,431	475
Big Sunflower River		475,236	20,487	108.8	4,190	2,199
Big Sunflower River		476,743	20,487	108.8	2,871	139
Big Sunflower River		477,888	20,487	108.9	2,529	159
Big Sunflower River	K	478,597	20,487	108.9	160	102
Big Sunflower River		478,703	20,487	109.2	157	105
Big Sunflower River		478,894	20,487	109.2	157	105
Big Sunflower River		479,537	20,487	109.3	144	588
Big Sunflower River		482,059	20,487	109.5	3,727	129
Big Sunflower River		484,175	20,487	109.6	1,546	1,765
Big Sunflower River		487,445	20,487	109.9	105	3,878
Big Sunflower River		489,525	20,487	110.0	623	2,822
Big Sunflower River		491,976	20,487	110.2	174	1,669
Big Sunflower River	L	494,179	20,487	110.2	168	98

Table 25: Flood Hazard and Non-Encroachment Data for Select Streams (continued)

Flooding Source	Cross Section	Stream Station[1]	1% Annual Chance Flood Discharge (cfs)	1% Annual Chance Water Surface Elevation (feet NAVD88)	Non-Encroachment Width (feet)	
					Left	Right
Big Sunflower River		495,949	20,487	110.4	358	150
Big Sunflower River		497,802	20,487	110.7	1,095	80
Big Sunflower River		499,196	20,487	110.8	124	150
Big Sunflower River	M	499,265	20,487	111.4	133	142
Big Sunflower River		499,343	20,487	111.4	133	142
Big Sunflower River		500,953	20,487	111.5	140	155
Big Sunflower River		503,768	20,487	111.9	180	199
Big Sunflower River		506,363	20,487	112.2	282	155
Big Sunflower River	N	510,227	20,487	112.5	302	155
Big Sunflower River	O	512,657	20,487	112.6	183	330
Big Sunflower River		514,852	20,487	112.6	253	284
Big Sunflower River		516,837	20,487	112.8	255	235
Big Sunflower River		518,811	20,487	112.9	190	358
Big Sunflower River		519,005	20,487	113.2	174	306
Big Sunflower River		519,147	20,487	113.2	174	306
Big Sunflower River		520,414	20,487	113.4	173	185
Big Sunflower River		522,180	13,470	113.5	271	261
Big Sunflower River		524,563	13,470	113.6	467	204
Big Sunflower River		528,064	13,470	113.7	512	288
Big Sunflower River	P	530,473	13,470	113.8	605	339
Big Sunflower River		533,276	13,470	113.9	490	247
Big Sunflower River		535,169	13,470	114.0	391	367
Big Sunflower River		536,543	13,470	114.0	307	1,190
Big Sunflower River		536,677	13,470	114.0	760	1,165
Big Sunflower River		536,813	13,470	114.0	760	1,165
Big Sunflower River	Q	537,851	13,470	114.0	1,141	267
Big Sunflower River		539,146	13,470	114.0	511	1,105
Big Sunflower River		540,691	13,470	114.1	1,461	656
Big Sunflower River		543,782	13,470	114.2	181	1,034
Big Sunflower River	R	545,685	13,470	114.2	601	131
Big Sunflower River		547,468	13,470	114.3	152	962
Big Sunflower River		549,367	13,470	114.4	850	898
Big Sunflower River		550,757	13,470	114.5	146	1,182

Table 25: Flood Hazard and Non-Encroachment Data for Select Streams (continued)

Flooding Source	Cross Section	Stream Station[1]	1% Annual Chance Flood Discharge (cfs)	1% Annual Chance Water Surface Elevation (feet NAVD88)	Non-Encroachment Width (feet)	
					Left	Right
Big Sunflower River		552,759	13,470	114.6	2,080	392
Big Sunflower River	S	554,006	13,470	114.6	1,761	636
Big Sunflower River		557,120	13,470	114.8	2,098	237
Big Sunflower River		561,336	13,470	114.9	201	2,020
Big Sunflower River		562,922	13,470	115.0	408	1,583
Big Sunflower River		567,536	13,470	115.4	1,365	426
Big Sunflower River		570,959	13,470	115.7	233	235
Big Sunflower River	T	572,500	13,470	115.9	156	1,451
Big Sunflower River		573,582	13,470	116.0	235	1,113
Big Sunflower River		574,943	13,470	116.1	199	1,386
Big Sunflower River		577,758	13,470	116.5	106	1,663
Big Sunflower River	U	580,034	13,470	116.7	739	1,037
Big Sunflower River		581,550	13,470	116.8	152	1,111
Big Sunflower River		583,216	13,470	117.1	137	1,972
Big Sunflower River		586,022	13,470	117.6	107	1,074
Big Sunflower River		587,086	13,470	117.7	859	2,032
Big Sunflower River	V	588,159	13,470	117.8	573	2,143
Big Sunflower River		590,670	13,470	117.9	337	2,117
Big Sunflower River		593,669	13,470	117.9	79	3,990
Big Sunflower River		595,394	13,470	118.4	50	5,739
Big Sunflower River		596,787	13,470	118.8	75	5,409
Big Sunflower River	W	599,265	13,470	118.9	104	7,506
Big Sunflower River		604,132	13,470	119.5	2,129	778
Big Sunflower River		605,796	13,470	119.5	188	1,641
Big Sunflower River	X	612,561	13,470	120.2	104	8,830
Big Sunflower River		613,705	13,470	120.3	53	7,789
Big Sunflower River		615,371	13,470	120.4	368	3,380
Big Sunflower River		616,491	13,470	120.5	79	3,330
Big Sunflower River		619,649	13,470	120.6	93	4,570
Big Sunflower River	Y	625,691	13,470	121.2	103	1,170
Big Sunflower River		626,257	13,470	121.2	89	971
Big Sunflower River		627,187	13,470	121.2	138	319
Big Sunflower River		628,333	13,470	121.3	98	84

Table 25: Flood Hazard and Non-Encroachment Data for Select Streams (continued)

Flooding Source	Cross Section	Stream Station[1]	1% Annual Chance Flood Discharge (cfs)	1% Annual Chance Water Surface Elevation (feet NAVD88)	Non-Encroachment Width (feet)	
					Left	Right
Big Sunflower River		629,649	13,470	121.5	925	120
Big Sunflower River		630,883	13,470	121.6	166	501
Big Sunflower River		631,779	13,470	121.8	136	3,082
Big Sunflower River		632,634	13,470	121.9	606	3,871
Big Sunflower River		633,068	13,470	121.9	3,217	2,375
Big Sunflower River		633,981	13,470	122.0	4,832	2,871
Big Sunflower River		634,937	13,470	122.1	1,339	2,574
Big Sunflower River		635,979	13,470	122.1	2,085	1,864
Big Sunflower River		636,518	13,470	122.2	2,477	1,376
Big Sunflower River		637,220	13,470	122.2	2,715	180
Big Sunflower River		638,402	13,470	122.2	1,803	4,835
Big Sunflower River		639,209	13,470	122.2	62	4,659
Big Sunflower River		639,881	13,470	122.2	148	3,784
Big Sunflower River	AA	640,519	13,470	122.2	165	3,170
Big Sunflower River		640,853	13,470	122.3	85	3,356
Big Sunflower River		641,572	13,470	122.3	120	2,928
Big Sunflower River		642,448	13,470	122.3	59	3,312
Big Sunflower River		643,602	13,470	122.3	69	3,203
Big Sunflower River		644,774	13,470	122.4	1,871	243
Big Sunflower River	BB	645,625	13,470	122.4	2,280	140
Big Sunflower River		646,321	13,470	122.5	2,379	117
Big Sunflower River		647,049	13,470	122.5	2,138	524
Big Sunflower River		648,379	13,470	122.5	770	1,894
Big Sunflower River		649,629	13,470	122.6	123	3,087
Big Sunflower River		650,734	13,470	122.6	85	4,262
Big Sunflower River		651,518	13,470	122.6	260	4,910
Big Sunflower River		651,834	13,470	122.6	276	5,737
Big Sunflower River		652,349	13,470	122.6	527	5,211
Big Sunflower River	AC	652,995	13,470	122.6	345	4,644
Big Sunflower River		653,735	13,470	122.6	691	4,098
Big Sunflower River		654,660	13,470	122.7	122	4,156
Big Sunflower River		655,345	13,470	122.7	94	3,853
Big Sunflower River		656,493	13,470	122.7	267	2,729

Table 25: Flood Hazard and Non-Encroachment Data for Select Streams (continued)

Flooding Source	Cross Section	Stream Station[1]	1% Annual Chance Flood Discharge (cfs)	1% Annual Chance Water Surface Elevation (feet NAVD88)	Non-Encroachment Width (feet)	
					Left	Right
Big Sunflower River		657,470	13,470	122.8	119	125
Big Sunflower River		658,024	13,470	122.8	132	170
Big Sunflower River		658,595	13,470	122.8	147	64
Big Sunflower River		658,668	13,470	122.9	169	42
Big Sunflower River		658,744	13,470	122.9	169	42
Big Sunflower River		659,698	13,470	123.1	1,863	1,375
Big Sunflower River		660,532	13,470	123.2	969	2,360
Big Sunflower River		661,990	13,470	123.2	2,591	1,505
Big Sunflower River		662,539	13,470	123.2	2,160	165
Big Sunflower River		663,218	13,470	123.3	1,892	679
Big Sunflower River	AD	663,717	13,470	123.3	1,668	1,124
Big Sunflower River		664,144	13,470	123.3	793	962
Big Sunflower River		664,840	13,470	123.3	1,804	102
Big Sunflower River		665,702	13,470	123.4	2,481	60
Big Sunflower River		666,419	13,470	123.4	2,498	54
Big Sunflower River		666,824	13,470	123.4	2,569	71
Big Sunflower River		667,530	13,470	123.4	173	163
Big Sunflower River	AE	668,219	13,470	123.4	428	136
Big Sunflower River		669,182	13,470	123.5	186	764
Big Sunflower River		670,066	13,470	123.5	806	1,522
Big Sunflower River		670,853	13,470	123.6	689	1,901
Big Sunflower River		671,613	13,470	123.6	274	2,546
Big Sunflower River		672,459	13,470	123.6	196	4,266
Big Sunflower River		673,051	13,470	123.7	506	4,545
Big Sunflower River		673,611	13,470	123.7	121	4,759
Big Sunflower River	AF	674,191	13,470	123.7	297	4,961
Big Sunflower River		674,791	13,470	123.7	772	4,755
Big Sunflower River		675,981	13,470	123.8	396	3,229
Big Sunflower River		676,796	13,470	123.8	423	3,366
Big Sunflower River		677,567	13,470	123.8	795	3,144
Big Sunflower River		678,058	13,470	123.8	603	3,130
Big Sunflower River		678,529	13,470	123.9	978	2,526
Big Sunflower River	AG	679,650	13,470	124.0	659	2,566

Table 25: Flood Hazard and Non-Encroachment Data for Select Streams (continued)

Flooding Source	Cross Section	Stream Station[1]	1% Annual Chance Flood Discharge (cfs)	1% Annual Chance Water Surface Elevation (feet NAVD88)	Non-Encroachment Width (feet)	
					Left	Right
Big Sunflower River		680,366	13,470	124.2	234	827
Big Sunflower River		681,615	13,470	124.2	1,080	497
Big Sunflower River		682,926	13,470	124.3	1,573	980
Big Sunflower River		683,845	13,470	124.3	117	350
Big Sunflower River		684,662	13,470	124.5	134	362
Big Sunflower River		685,617	13,470	124.5	165	1,285
Big Sunflower River	AH	686,977	13,470	124.7	192	1,813
Big Sunflower River		688,193	10,070	124.8	133	2,048
Big Sunflower River		689,716	10,070	124.8	204	301
Big Sunflower River		691,129	10,070	124.9	154	237
Big Sunflower River		692,114	10,070	124.9	135	162
Big Sunflower River		692,174	10,070	124.9	132	165
Big Sunflower River		692,251	10,070	124.9	132	165
Big Sunflower River		693,133	10,070	125.0	130	861
Big Sunflower River	AI	693,948	10,070	125.1	188	169
Big Sunflower River		695,581	10,070	125.2	1,660	75
Big Sunflower River		696,590	10,070	125.3	195	168
Big Sunflower River		697,945	10,070	125.4	169	135
Big Sunflower River		698,822	10,070	125.5	113	682
Big Sunflower River		699,592	10,070	125.5	140	152
Big Sunflower River		700,932	10,070	125.6	194	177
Big Sunflower River	AJ	702,597	10,070	125.8	557	175
Big Sunflower River		703,865	10,070	125.9	113	561
Big Sunflower River		705,456	10,070	126.0	139	159
Big Sunflower River		706,870	10,070	126.1	200	148
Big Sunflower River		707,793	10,070	126.2	119	512
Big Sunflower River		708,610	10,070	126.2	161	142
Big Sunflower River	AK	709,590	10,070	126.3	1,905	125
Big Sunflower River		710,837	10,070	126.3	2,678	140
Big Sunflower River		711,728	10,070	126.4	141	439
Big Sunflower River		713,158	10,070	126.4	160	155
Big Sunflower River		714,251	10,070	126.5	696	107
Big Sunflower River		715,575	10,070	126.6	169	162

Table 25: Flood Hazard and Non-Encroachment Data for Select Streams (continued)

Flooding Source	Cross Section	Stream Station[1]	1% Annual Chance Flood Discharge (cfs)	1% Annual Chance Water Surface Elevation (feet NAVD88)	Non-Encroachment Width (feet)	
					Left	Right
Big Sunflower River	AL	716,912	10,070	126.7	168	158
Big Sunflower River		718,095	10,070	126.8	156	166
Big Sunflower River		719,298	10,070	126.9	161	217
Big Sunflower River		720,389	10,070	126.9	177	201
Big Sunflower River		721,184	10,070	126.9	135	213
Big Sunflower River		721,788	10,070	127.0	135	167
Big Sunflower River	AM	724,269	10,070	127.1	193	134
Big Sunflower River		726,948	10,070	127.3	184	420
Big Sunflower River		729,012	10,070	127.4	177	213
Big Sunflower River		730,894	10,070	127.5	284	1,013
Big Sunflower River		731,933	10,070	127.5	166	1,184
Big Sunflower River		733,080	10,070	127.6	490	290
Big Sunflower River	AN	735,706	10,070	127.6	182	229
Big Sunflower River		737,542	10,070	127.7	129	914
Big Sunflower River		738,546	10,070	127.7	165	143
Big Sunflower River		739,218	10,070	127.8	221	282
Big Sunflower River		739,830	10,070	127.8	158	298
Big Sunflower River	AO	741,118	10,070	127.9	635	179
Big Sunflower River		741,875	10,070	127.9	131	130
Big Sunflower River		741,970	10,070	127.9	130	131
Big Sunflower River		742,051	10,070	127.9	130	131
Big Sunflower River		742,404	10,070	127.9	210	214
Big Sunflower River		743,152	10,070	128.0	180	698
Big Sunflower River		743,955	10,070	128.0	148	219
Big Sunflower River		744,942	10,070	128.0	172	135
Big Sunflower River		745,931	10,070	128.1	152	185
Big Sunflower River		746,811	10,070	128.1	214	109
Big Sunflower River	AP	748,131	10,070	128.2	497	114
Big Sunflower River		750,197	10,070	128.3	138	392
Big Sunflower River		751,206	10,070	128.3	321	103
Big Sunflower River		752,600	10,070	128.3	297	111
Big Sunflower River		753,573	10,070	128.3	110	145
Big Sunflower River		754,361	10,070	128.4	103	148

Table 25: Flood Hazard and Non-Encroachment Data for Select Streams (continued)

Flooding Source	Cross Section	Stream Station[1]	1% Annual Chance Flood Discharge (cfs)	1% Annual Chance Water Surface Elevation (feet NAVD88)	Non-Encroachment Width (feet)	
					Left	Right
Big Sunflower River	AQ	755,456	10,070	128.5	108	135
Big Sunflower River		756,295	10,070	128.5	160	113
Big Sunflower River		757,324	10,070	128.6	132	108
Big Sunflower River		758,301	10,070	128.6	161	97
Big Sunflower River		759,254	10,070	128.7	222	90
Big Sunflower River		759,708	10,070	128.7	135	102
Big Sunflower River		759,784	10,070	128.7	135	102
Big Sunflower River		759,873	10,070	128.7	135	102
Big Sunflower River	AR	760,464	10,070	128.7	113	160
Big Sunflower River		761,257	10,070	128.8	118	122
Big Sunflower River		762,130	10,070	128.8	127	116
Big Sunflower River		762,893	10,070	128.9	132	239
Big Sunflower River		763,456	10,070	128.9	136	547
Big Sunflower River		764,121	10,070	128.9	108	551
Big Sunflower River		764,803	10,070	128.9	264	116
Big Sunflower River	AS	765,405	10,070	129.0	120	143
Big Sunflower River		765,949	10,070	129.0	113	126
Big Sunflower River		766,595	10,070	129.0	112	137
Big Sunflower River		767,106	10,070	129.1	150	107
Big Sunflower River		767,726	10,070	129.1	129	130
Big Sunflower River		768,382	10,070	129.1	131	143
Big Sunflower River	AT	768,977	10,070	129.2	129	125
Big Sunflower River		769,437	10,070	129.2	172	52
Big Sunflower River		769,819	10,070	129.2	140	85
Big Sunflower River		770,293	10,070	129.3	81	201
Big Sunflower River		771,026	10,070	129.3	153	107
Big Sunflower River		771,725	10,070	129.3	141	171
Big Sunflower River		772,571	10,070	129.4	121	397
Big Sunflower River	AU	773,389	10,070	129.4	148	130
Big Sunflower River		774,241	10,070	129.4	143	132
Big Sunflower River		775,031	10,070	129.5	164	143
Big Sunflower River		775,482	10,070	129.5	115	139
Big Sunflower River		776,062	10,070	129.5	135	140

Table 25: Flood Hazard and Non-Encroachment Data for Select Streams (continued)

Flooding Source	Cross Section	Stream Station[1]	1% Annual Chance Flood Discharge (cfs)	1% Annual Chance Water Surface Elevation (feet NAVD88)	Non-Encroachment Width (feet)	
					Left	Right
Big Sunflower River		776,657	10,070	129.5	143	126
Big Sunflower River	AV	777,174	10,070	129.6	173	103
Big Sunflower River		777,764	10,070	129.6	149	102
Big Sunflower River		778,430	10,070	129.7	146	125
Big Sunflower River		779,215	10,070	129.7	383	121
Big Sunflower River		779,901	10,070	129.7	141	130
Big Sunflower River		780,445	10,070	129.8	105	181
Big Sunflower River	AW	780,982	10,070	129.8	201	60
Big Sunflower River		781,626	10,070	129.9	169	168
Big Sunflower River		782,260	10,070	129.9	121	142
Big Sunflower River		782,782	10,070	129.9	121	115
Big Sunflower River		783,279	10,070	130.0	130	140
Big Sunflower River		784,076	10,070	130.0	155	103
Big Sunflower River		784,767	10,070	130.1	131	120
Big Sunflower River		785,666	10,070	130.1	105	129
Big Sunflower River	AX	786,443	10,070	130.2	171	93
Big Sunflower River		787,426	10,070	130.3	67	189
Big Sunflower River		825,878	10,070	132.8	113	157
Big Sunflower River		826,429	10,070	132.9	129	122
Big Sunflower River	AY	826,995	10,070	132.9	139	73
Big Sunflower River		827,692	10,070	133.0	189	103
Big Sunflower River		828,236	10,070	133.0	71	230
Big Sunflower River		828,614	10,070	133.0	95	225
Big Sunflower River		828,898	10,070	133.1	306	111
Big Sunflower River		829,456	10,070	133.1	324	68
Big Sunflower River	AZ	830,189	10,070	133.1	141	102
Big Sunflower River		830,811	10,070	133.1	150	128
Big Sunflower River		831,535	10,070	133.2	117	116
Big Sunflower River		832,175	10,070	133.2	252	71
Big Sunflower River		832,971	10,070	133.3	139	102
Big Sunflower River		833,796	10,070	133.3	130	112
Big Sunflower River		834,477	10,070	133.4	198	138
Big Sunflower River		835,126	10,070	133.4	160	169

Table 25: Flood Hazard and Non-Encroachment Data for Select Streams (continued)

Flooding Source	Cross Section	Stream Station[1]	1% Annual Chance Flood Discharge (cfs)	1% Annual Chance Water Surface Elevation (feet NAVD88)	Non-Encroachment Width (feet)	
					Left	Right
Big Sunflower River	BA	835,722	10,070	133.4	146	78
Big Sunflower River		836,513	10,070	133.5	112	154
Big Sunflower River		836,992	10,070	133.5	89	126
Big Sunflower River		837,651	10,070	133.6	151	75
Big Sunflower River		838,412	10,070	133.6	118	148
Big Sunflower River		838,982	10,070	133.7	107	172
Big Sunflower River		839,550	10,070	133.7	122	110
Big Sunflower River	BB	840,330	10,070	133.7	111	114
Big Sunflower River		840,939	10,070	133.8	144	109
Big Sunflower River		841,599	10,070	133.9	97	333
Big Sunflower River		842,198	10,070	133.9	103	413
Big Sunflower River		842,888	10,070	133.9	139	484
Big Sunflower River		843,284	10,070	133.9	156	98
Big Sunflower River	BC	843,703	10,070	134.0	137	102
Big Sunflower River		844,173	10,070	134.0	129	92
Big Sunflower River		844,750	10,070	134.0	121	102
Big Sunflower River		845,166	10,070	134.1	121	121
Big Sunflower River		845,610	10,070	134.1	144	123
Big Sunflower River		846,100	10,070	134.1	142	126
Big Sunflower River	BD	846,554	10,070	134.1	135	102
Big Sunflower River		847,208	10,070	134.2	104	119
Big Sunflower River		847,646	10,070	134.2	102	148
Big Sunflower River		848,243	10,070	134.2	130	115
Big Sunflower River		848,645	10,070	134.3	112	109
Big Sunflower River		849,226	10,070	134.3	355	114
Big Sunflower River		849,703	10,070	134.3	525	87
Big Sunflower River	BE	850,113	10,070	134.3	119	106
Big Sunflower River		850,663	10,070	134.4	123	198
Big Sunflower River		851,109	10,070	134.4	107	194
Big Sunflower River		851,525	10,070	134.4	133	98
Big Sunflower River		851,984	10,070	134.4	148	91
Big Sunflower River		852,402	10,070	134.5	127	102
Big Sunflower River		852,989	10,070	134.5	136	125

Table 25: Flood Hazard and Non-Encroachment Data for Select Streams (continued)

Flooding Source	Cross Section	Stream Station[1]	1% Annual Chance Flood Discharge (cfs)	1% Annual Chance Water Surface Elevation (feet NAVD88)	Non-Encroachment Width (feet)	
					Left	Right
Big Sunflower River	BF	853,411	10,070	134.5	117	155
Big Sunflower River		853,742	10,070	134.5	126	137
Big Sunflower River		854,089	10,070	134.6	137	117
Big Sunflower River		854,459	10,070	134.6	110	171
Big Sunflower River		854,835	10,070	134.6	113	140
Big Sunflower River		855,193	10,070	134.6	118	112
Big Sunflower River		855,488	10,070	134.6	125	111
Big Sunflower River		855,793	10,070	134.7	151	108
Big Sunflower River		856,123	10,070	134.7	149	164
Big Sunflower River		856,475	10,070	134.7	150	94
Big Sunflower River	BG	856,811	10,070	134.7	133	104
Big Sunflower River		857,076	10,070	134.7	139	117
Big Sunflower River		857,323	10,070	134.8	110	168
Big Sunflower River		857,583	10,070	134.8	89	146
Big Sunflower River		857,875	10,070	134.8	95	197
Big Sunflower River		858,171	10,070	134.8	161	115
Big Sunflower River		858,389	10,070	134.8	123	138
Big Sunflower River		858,444	10,070	134.9	129	132
Big Sunflower River		858,501	10,070	134.9	129	132
Big Sunflower River		858,828	10,070	134.9	156	112
Big Sunflower River	BH	859,208	10,070	135.0	112	115
Big Sunflower River		859,660	10,070	135.0	117	202
Big Sunflower River		860,237	10,070	135.0	112	140
Big Sunflower River		860,652	10,070	135.0	106	149
Big Sunflower River		861,048	10,070	135.1	108	194
Big Sunflower River		861,481	10,070	135.1	109	230
Big Sunflower River		861,843	10,070	135.1	109	260
Big Sunflower River		862,252	10,070	135.1	115	122
Big Sunflower River	BI	862,654	10,070	135.2	263	102
Big Sunflower River		863,257	10,070	135.2	96	137
Big Sunflower River		863,617	10,070	135.2	71	272
Big Sunflower River		863,941	10,070	135.2	79	315
Big Sunflower River		864,179	10,070	135.3	103	314

Table 25: Flood Hazard and Non-Encroachment Data for Select Streams (continued)

Flooding Source	Cross Section	Stream Station[1]	1% Annual Chance Flood Discharge (cfs)	1% Annual Chance Water Surface Elevation (feet NAVD88)	Non-Encroachment Width (feet)	
					Left	Right
Big Sunflower River		864,517	10,070	135.3	147	142
Big Sunflower River		864,897	10,070	135.3	262	95
Big Sunflower River		865,380	10,070	135.3	395	81
Big Sunflower River		865,833	10,070	135.3	393	97
Big Sunflower River	BJ	866,242	10,070	135.3	93	156
Big Sunflower River		866,677	10,070	135.4	106	151
Big Sunflower River		867,047	10,070	135.4	137	94
Big Sunflower River		867,425	10,070	135.4	115	106
Big Sunflower River		867,860	10,070	135.4	110	103
Big Sunflower River		868,330	10,070	135.5	161	94
Big Sunflower River		868,866	10,070	135.5	80	176
Big Sunflower River	BK	869,404	10,070	135.6	159	220
Big Sunflower River		869,698	10,070	135.6	114	435
Big Sunflower River		870,021	10,070	135.6	100	569
Big Sunflower River		870,321	10,070	135.6	107	615
Big Sunflower River		870,522	10,070	135.6	262	291
Big Sunflower River		870,992	10,070	135.6	498	62
Big Sunflower River		871,563	10,070	135.6	402	126
Big Sunflower River		871,962	10,070	135.6	80	149
Big Sunflower River		872,537	10,070	135.6	150	90
Big Sunflower River		872,939	10,070	135.7	115	493
Big Sunflower River		873,375	10,070	135.7	86	629
Big Sunflower River		873,690	10,070	135.7	120	126
Big Sunflower River		874,118	10,070	135.8	123	238
Big Sunflower River	BL	874,507	10,070	135.8	138	95
Big Sunflower River		874,866	10,070	135.8	128	109
Big Sunflower River		875,371	10,070	135.8	136	108
Big Sunflower River		875,769	10,070	135.9	130	155
Big Sunflower River		876,284	10,070	135.9	105	149
Big Sunflower River		876,701	10,070	135.9	123	133
Big Sunflower River		877,064	10,070	135.9	137	118
Big Sunflower River		877,541	10,070	136.0	109	178
Big Sunflower River	BM	878,046	10,070	136.0	140	172

Table 25: Flood Hazard and Non-Encroachment Data for Select Streams (continued)

Flooding Source	Cross Section	Stream Station[1]	1% Annual Chance Flood Discharge (cfs)	1% Annual Chance Water Surface Elevation (feet NAVD88)	Non-Encroachment Width (feet)	
					Left	Right
Big Sunflower River		878,569	10,070	136.0	124	126
Big Sunflower River		879,029	10,070	136.1	135	143
Big Sunflower River		879,437	10,070	136.1	204	132
Big Sunflower River		879,889	10,070	136.1	80	175
Big Sunflower River		880,488	10,070	136.2	90	183
Big Sunflower River		880,884	10,070	136.2	121	133
Big Sunflower River		881,350	10,070	136.2	132	138
Big Sunflower River		881,880	10,070	136.3	132	119
Big Sunflower River	BN	882,386	10,070	136.3	116	117
Big Sunflower River		882,771	10,070	136.4	101	141
Big Sunflower River		883,221	10,070	136.4	106	294
Big Sunflower River		883,830	10,070	136.4	166	100
Big Sunflower River		884,364	10,070	136.5	136	110
Big Sunflower River		885,030	10,070	136.5	117	155
Big Sunflower River		885,627	10,070	136.6	132	105
Big Sunflower River		886,247	10,070	136.6	132	100
Big Sunflower River		886,682	10,070	136.6	98	130
Big Sunflower River	BO	887,171	10,070	136.7	115	114
Big Sunflower River		887,533	10,070	136.7	125	115
Big Sunflower River		887,862	10,070	136.7	117	117
Big Sunflower River		888,250	10,070	136.8	126	125
Big Sunflower River		888,296	10,070	137.4	129	122
Big Sunflower River		888,348	10,070	137.4	129	122
Big Sunflower River		888,641	10,070	137.5	125	132
Big Sunflower River		889,056	10,070	137.5	134	127
Big Sunflower River	BP	889,547	10,070	137.6	126	152
Big Sunflower River		889,990	10,070	137.6	235	102
Big Sunflower River		890,372	10,070	137.6	142	437
Big Sunflower River		890,865	10,070	137.6	161	234
Big Sunflower River		891,434	10,070	137.7	108	402
Big Sunflower River		892,026	10,070	137.7	144	190
Big Sunflower River	BQ	892,457	10,070	137.7	170	414
Big Sunflower River		892,938	9,449	137.8	298	473

Table 25: Flood Hazard and Non-Encroachment Data for Select Streams (continued)

Flooding Source	Cross Section	Stream Station[1]	1% Annual Chance Flood Discharge (cfs)	1% Annual Chance Water Surface Elevation (feet NAVD88)	Non-Encroachment Width (feet)	
					Left	Right
Big Sunflower River		893,376	9,449	137.8	320	130
Big Sunflower River		893,800	9,449	137.8	320	99
Big Sunflower River		894,288	9,449	137.8	587	144
Big Sunflower River	BR	894,802	9,449	137.9	803	86
Big Sunflower River		895,368	9,449	137.9	492	103
Big Sunflower River		895,898	9,449	137.9	198	116
Big Sunflower River		896,325	9,449	137.9	174	254
Big Sunflower River		896,787	9,449	137.9	192	213
Big Sunflower River		897,063	9,449	137.9	142	83
Big Sunflower River		897,577	9,449	138.0	345	125
Big Sunflower River		897,890	9,449	138.0	515	154
Big Sunflower River	BS	898,387	9,449	138.0	459	86
Big Sunflower River		898,888	9,449	138.0	180	141
Big Sunflower River		899,425	9,449	138.1	118	530
Big Sunflower River		899,824	9,449	138.1	124	577
Big Sunflower River		900,189	9,449	138.1	430	64
Big Sunflower River		900,648	9,449	138.1	328	343
Big Sunflower River		900,946	9,449	138.1	217	459
Big Sunflower River		901,394	9,449	138.1	53	532
Big Sunflower River		901,783	9,449	138.2	129	87
Big Sunflower River		902,130	9,449	138.2	104	75
Big Sunflower River		902,446	9,449	138.3	129	119
Big Sunflower River		902,876	9,449	138.3	75	310
Big Sunflower River		903,132	9,449	138.4	71	462
Big Sunflower River		903,529	9,449	138.4	116	493
Big Sunflower River		903,912	9,449	138.5	460	178
Big Sunflower River		904,307	9,449	138.5	354	72
Big Sunflower River		904,680	9,449	138.5	360	185
Big Sunflower River	BT	905,052	9,449	138.5	79	103
Big Sunflower River		905,524	9,449	138.6	387	57
Big Sunflower River		906,066	9,449	138.6	381	80
Big Sunflower River		906,476	9,449	138.7	81	75
Big Sunflower River		907,032	9,449	138.7	76	69

Table 25: Flood Hazard and Non-Encroachment Data for Select Streams (continued)

Flooding Source	Cross Section	Stream Station[1]	1% Annual Chance Flood Discharge (cfs)	1% Annual Chance Water Surface Elevation (feet NAVD88)	Non-Encroachment Width (feet)	
					Left	Right
Big Sunflower River		907,574	9,449	138.9	140	64
Big Sunflower River		908,076	9,449	138.9	134	47
Big Sunflower River		908,348	9,449	139.0	107	53
Big Sunflower River		908,588	9,449	139.0	102	66
Big Sunflower River		908,991	9,449	139.2	65	264
Big Sunflower River		909,248	9,449	139.2	342	241
Big Sunflower River		909,562	9,449	139.2	183	101
Big Sunflower River		909,828	9,449	139.2	120	61
Big Sunflower River		910,106	9,449	139.2	112	48
Big Sunflower River		910,479	9,449	139.3	46	389
Big Sunflower River		910,860	9,449	139.3	46	202
Big Sunflower River		911,270	9,449	139.4	170	100
Big Sunflower River		911,610	9,449	139.4	362	61
Big Sunflower River		911,800	9,449	139.5	360	61
Big Sunflower River		912,025	9,449	139.5	68	94
Big Sunflower River		912,394	9,449	139.5	77	94
Big Sunflower River		912,749	9,449	139.5	57	101
Big Sunflower River		913,105	9,449	139.6	61	99
Big Sunflower River		913,408	9,449	139.7	126	79
Big Sunflower River		913,671	9,449	139.7	71	93
Big Sunflower River		913,909	9,449	139.7	64	100
Big Sunflower River	BU	914,204	9,449	139.9	72	152
Big Sunflower River		914,501	9,449	139.9	323	70
Big Sunflower River		914,784	9,449	139.9	74	107
Big Sunflower River		915,120	9,449	139.9	90	70

[1] Stream distance in feet above confluence with Yazoo River

6.4 Coastal Flood Hazard Mapping

This section is not applicable to this Flood Risk Project.

Table 26: Summary of Coastal Transect Mapping Considerations

[Not applicable to this Flood Risk Project

6.5 FIRM Revisions

This FIS Report and the FIRM are based on the most up-to-date information available to FEMA at the time of its publication; however, flood hazard conditions change over time. Communities or private parties may request flood map revisions at any time. Certain types of requests require submission of supporting data. FEMA may also initiate a revision. Revisions may take several forms, including Letters of Map Amendment (LOMAs), Letters of Map Revision Based on Fill (LOMR-Fs), Letters of Map Revision (LOMRs) (referred to collectively as Letters of Map Change (LOMCs)), Physical Map Revisions (PMRs), and FEMA-contracted restudies. These types of revisions are further described below. Some of these types of revisions do not result in the republishing of the FIS Report. To assure that any user is aware of all revisions, it is advisable to contact the community repository of flood-hazard data (shown in Table 31, "Map Repositories").

6.5.1 Letters of Map Amendment

A LOMA is an official revision by letter to an effective NFIP map. A LOMA results from an administrative process that involves the review of scientific or technical data submitted by the owner or lessee of property who believes the property has incorrectly been included in a designated SFHA. A LOMA amends the currently effective FEMA map and establishes that a specific property is not located in a SFHA.

To obtain an application for a LOMA, visit https://www.fema.gov/floodplain-management/letter-map-amendment-loma and download the form "MT-1 Application Forms and Instructions for Conditional and Final Letters of Map Amendment and Letters of Map Revision Based on Fill". Visit the "Flood Map-Related Fees" section to determine the cost, if any, of applying for a LOMA.

FEMA offers a tutorial on how to apply for a LOMA. The LOMA Tutorial Series can be accessed at https://www.fema.gov/online-tutorials.

For more information about how to apply for a LOMA, call the FEMA Map Information eXchange; toll free, at 1-877-FEMA MAP (1-877-336-2627).

6.5.2 Letters of Map Revision Based on Fill

A LOMR-F is an official revision by letter to an effective NFIP map. A LOMR-F states FEMA's determination concerning whether a structure or parcel has been elevated on fill above the base flood elevation and is, therefore, excluded from the SFHA.

Information about obtaining an application for a LOMR-F can be obtained in the same manner as that for a LOMA, by visiting www.fema.gov/floodplain-management/letter-map-amendment-loma for the "MT-1 Application Forms and Instructions for Conditional

and Final Letters of Map Amendment and Letters of Map Revision Based on Fill" or by calling the FEMA Map Information eXchange, toll free, at 1-877-FEMA MAP (1-877-336-2627). Fees for applying for a LOMR-F, if any, are listed in the "Flood Map-Related Fees" section.

A tutorial for LOMR-F is available at https://www.fema.gov/online-tutorials.

6.5.3 Letters of Map Revision

A LOMR is an official revision to the currently effective FEMA map. It is used to change flood zones, floodplain and floodway delineations, flood elevations and planimetric features. All requests for LOMRs should be made to FEMA through the chief executive officer of the community, since it is the community that must adopt any changes and revisions to the map. If the request for a LOMR is not submitted through the chief executive officer of the community, evidence must be submitted that the community has been notified of the request.

To obtain an application for a LOMR, visit www.fema.gov/national-flood-insurance-program-flood-hazard-mapping/mt-2-application-forms-and-instructions and download the form "MT-2 Application Forms and Instructions for Conditional Letters of Map Revision and Letters of Map Revision". Visit the "Flood Map-Related Fees" section to determine the cost of applying for a LOMR. For more information about how to apply for a LOMR, call the FEMA Map Information eXchange; toll free, at 1-877-FEMA MAP (1-877-336-2627) to speak to a Map Specialist.

Previously issued mappable LOMCs (including LOMRs) that have been incorporated into the Sunflower County FIRM are listed in Table 27.

Table 27: Incorporated Letters of Map Change

[Not applicable to this Flood Risk Project

6.5.4 Physical Map Revisions

Physical Map Revisions (PMRs) are an official republication of a community's NFIP map to effect changes to base flood elevations, floodplain boundary delineations, regulatory floodways and planimetric features. These changes typically occur as a result of structural works or improvements, annexations resulting in additional flood hazard areas or correction to base flood elevations or SFHAs.

The community's chief executive officer must submit scientific and technical data to FEMA to support the request for a PMR. The data will be analyzed and the map will be revised if warranted. The community is provided with copies of the revised information and is afforded a review period. When the base flood elevations are changed, a 90-day appeal period is provided. A 6-month adoption period for formal approval of the revised map(s) is also provided.

For more information about the PMR process, please visit https://www.fema.gov and visit the "Flood Map Revision Processes" section.

6.5.5 Contracted Restudies

The NFIP provides for a periodic review and restudy of flood hazards within a given community. FEMA accomplishes this through a national watershed-based mapping needs assessment strategy, known as the Coordinated Needs Management Strategy (CNMS). The CNMS is used by FEMA to assign priorities and allocate funding for new flood hazard analyses used to update the FIS Report and FIRM. The goal of CNMS is to define the validity of the engineering study data within a mapped inventory. The CNMS is used to track the assessment process, document engineering gaps and their resolution, and aid in prioritization for using flood risk as a key factor for areas identified for flood map updates. Visit https://www.fema.gov to learn more about the CNMS or contact the FEMA Regional Office listed in Section 8 of this FIS Report.

6.5.6 Community Map History

The current FIRM presents flooding information for the entire geographic area of Sunflower County. Previously, separate FIRMs, Flood Hazard Boundary Maps (FHBMs) and/or Flood Boundary and Floodway Maps (FBFMs) may have been prepared for the incorporated communities and the unincorporated areas in the county that had identified SFHAs. Current and historical data relating to the maps prepared for the project area are presented in Table 28, "Community Map History." A description of each of the column headings and the source of the date is also listed below.

- *Community Name* includes communities falling within the geographic area shown on the FIRM, including those that fall on the boundary line, nonparticipating communities, and communities with maps that have been rescinded. Communities with No Special Flood Hazards are indicated by a footnote. If all maps (FHBM, FBFM, and FIRM) were rescinded for a community, it is not listed in this table unless SFHAs have been identified in this community.

- *Initial Identification Date (First NFIP Map Published)* is the date of the first NFIP map that identified flood hazards in the community. If the FHBM has been converted to a FIRM, the initial FHBM date is shown. If the community has never been mapped, the upcoming effective date or "pending" (for Preliminary FIS Reports) is shown. If the community is listed in Table 28 but not identified on the map, the community is treated as if it were unmapped.

- *Initial FHBM Effective Date* is the effective date of the first Flood Hazard Boundary Map (FHBM). This date may be the same date as the Initial NFIP Map Date.

- *FHBM Revision Date(s)* is the date(s) that the FHBM was revised, if applicable.

- *Initial FIRM Effective Date* is the date of the first effective FIRM for the community.

- *FIRM Revision Date(s)* is the date(s) the FIRM was revised, if applicable. This is the revised date that is shown on the FIRM panel, if applicable. As countywide studies are completed or revised, each community listed should have its FIRM dates updated accordingly to reflect the date of the countywide study. Once the

FIRMs exist in countywide format, as Physical Map Revisions (PMR) of FIRM panels within the county are completed, the FIRM Revision Dates in the table for each community affected by the PMR are updated with the date of the PMR, even if the PMR did not revise all the panels within that community.

The initial effective date for the Sunflower County FIRMs in countywide format was 01/18/2012.

Table 28: Community Map History

Community Name	Initial Identification Date	Initial FHBM Effective Date	FHBM Revision Date(s)	Initial FIRM Effective Date	FIRM Revision Date(s)
Doddsville, Town of	11/08/1974	11/08/1974	N/A	07/17/1986	TBD 01/18/2012
Drew, City of	05/10/1974	05/10/1974	07/23/1976	05/01/1978	01/18/2012
Indianola, City of	05/24/1974	05/24/1974	08/06/1976	01/03/1979	TBD 01/18/2012
Inverness, Town of	05/31/1974	05/31/1974	07/23/1976	05/15/1978	TBD 01/18/2012 01/15/1982
Moorhead, City of	05/10/1974	05/10/1974	N/A	04/17/1978	01/18/2012
Ruleville, Town of	05/10/1974	05/10/1974	08/20/1976	05/01/1978	TBD 01/18/2012
Sunflower County, Unincorporated Areas	11/11/1977	11/11/1977	N/A	09/28/1979	TBD 01/18/2012
Sunflower, Town of	05/17/1974	05/17/1974	06/18/1976	07/17/1978	TBD 01/18/2012

SECTION 7.0 – CONTRACTED STUDIES AND COMMUNITY COORDINATION

7.1 Contracted Studies

Table 29 provides a summary of the contracted studies, by flooding source, that are included in this FIS Report.

Table 29: Summary of Contracted Studies Included in this FIS Report

Flooding Source	FIS Report Dated	Contractor	Number	Work Completed Date	Affected Communities
Bear Bayou 2	01/18/2012	State of Mississippi	EMA-2008-CA-5883	July 2010	Sunflower County, Unincorporated Areas
Beaver Dam Bayou	01/18/2012	State of Mississippi	EMA-2008-CA-5883	July 2010	Indianola, City of; Sunflower County, Unincorporated Areas
Big Sunflower	TBD	AECOM	MS FY.11	April 2016	Sunflower County, Unincorporated Areas; Sunflower, Town of
Big Sunflower River	01/01/1978	USACE	Inter-Agency Agreement No. IAA-H-7-76, Project Order No. 6	June 1977	Sunflower County, Unincorporated Areas; Sunflower, Town of
Big Sunflower	TBD	AECOM	MS FY.11	April 2016	Sunflower County, Unincorporated Areas; Sunflower, Town of
Big Sunflower River Tributary 40	01/18/2012	State of Mississippi	EMA-2008-CA-5883	July 2010	Sunflower County, Unincorporated Areas
Bogue Phalia Cuttoff	TBD	AECOM	MS FY.11	April 2016	Sunflower County , Unincorporated Areas
Brown Bayou	TBD	AECOM	MS FY.11	April 2016	Sunflower County , Unincorporated Areas
Brown Bayou Unnamed Tributary 1	TBD	AECOM	MS FY.11	April 2016	Sunflower County , Unincorporated Areas
Brown Bayou Unnamed Tributary 1-1	TBD	AECOM	MS FY.11	April 2016	Sunflower County , Unincorporated Areas
Brown Bayou Unnamed Tributary 2	TBD	AECOM	MS FY.11	April 2016	Sunflower County , Unincorporated Areas
Brown Bayou Unnamed Tributary 3	TBD	AECOM	MS FY.11	April 2016	Sunflower County , Unincorporated Areas
Brown Bayou Unnamed Tributary 4	TBD	AECOM	MS FY.11	April 2016	Sunflower County , Unincorporated Areas
County Ditch Unnamed Tributary 1	TBD	AECOM	MS FY.11	April 2016	Sunflower County , Unincorporated Areas
County Ditch Unnamed Tributary 2	TBD	AECOM	MS FY.11	April 2016	Sunflower County , Unincorporated Areas

Table 29: Summary of Contracted Studies Included in this FIS Report (continued)

Flooding Source	FIS Report Dated	Contractor	Number	Work Completed Date	Affected Communities
County Ditch Unnamed Tributary 3	TBD	AECOM	MS FY.11	April 2016	Sunflower County , Unincorporated Areas
Cypress Creek	TBD	AECOM	MS FY.11	April 2016	Sunflower County , Unincorporated Areas
Dougherty Bayou	11/01/1977	USACE, Vicksburg District	Inter-Agency Agreement No. IAA-H-7-76, Project Order No. 6	June 1977	Ruleville, Town of Sunflower County, Unincorporated Areas
East Cypress Slough	TBD	AECOM	MS FY.11	April 2016	Sunflower County , Unincorporated Areas
East Prong	07/01/1978	USACE, Vicksburg District	Inter-Agency Agreement No. IAA-H-7-76, Project Order No. 14 and Amendment 1 to Project Order No. 14	May 1977	Indianola, City of; Sunflower County, Unincorporated Areas
East Prong	01/18/2012	State of Mississippi	EMA-2008-CA-5883	July 2010	Indianola, City of; Sunflower County, Unincorporated Areas
East Sixmile Bayou	TBD	AECOM	MS FY.11	April 2016	Sunflower County , Unincorporated Areas
Indian Bayou	07/01/1978	USACE, Vicksburg District	Inter-Agency Agreement No. IAA-H-7-76, Project Order No. 14 and Amendment 1 to Project Order No. 14	May 1977	Indianola, City of
Lake Dawson	TBD	AECOM	MS FY.11	April 2016	Sunflower County , Unincorporated Areas
Locust Bayou	TBD	AECOM	MS FY.11	April 2016	Sunflower County , Unincorporated Areas
Lutken Bayou	11/01/1977	USACE	Inter-Agency Agreement No. IAA-H-7-76, Project Order No. 6	June 1977	Drew, City of; Sunflower County, Unincorporated Areas
Moorhead Bayou	03/01/1979	USACE	Inter-Agency Agreement No. IAA-H-7-76, Project Order No. 14 and Amendment 1 to Project Order No. 14	October 1977	Moorhead, City of; Sunflower County, Unincorporated Areas
Moorhead Bayou	10/01/1977	USACE, Vicksburg District	Inter-Agency Agreement No. IAA-H-7-76, Project Order No. 6	June 1977	Moorhead, City of; Sunflower County, Unincorporated Areas
Mound Bayou	01/18/2012	State of Mississippi	EMA-2008-CA-5883	July 2010	Inverness, Town of; Sunflower County, Unincorporated Areas

Table 29: Summary of Contracted Studies Included in this FIS Report (continued)

Flooding Source	FIS Report Dated	Contractor	Number	Work Completed Date	Affected Communities
Mound Bayou	01/01/1982	USACE	Inter-Agency Agreement No. IAA-H-7-76, Project Order No. 6	June 1977	Inverness, Town of; Sunflower County, Unincorporated Areas
Mound Bayou Tributary 1	01/01/1982	USACE	Inter-Agency Agreement No. IAA-H-7-76, Project Order No. 6	June 1977	Inverness, Town of; Sunflower County, Unincorporated Areas
Mound Bayou Tributary 2	01/01/1982	USACE	Inter-Agency Agreement No. IAA-H-7-76, Project Order No. 6	June 1977	Inverness, Town of; Sunflower County, Unincorporated Areas
Mound Bayou Tributary 3	01/18/2012	State of Mississippi	EMA-2008-CA-5883	July 2010	Inverness, Town of; Sunflower County, Unincorporated Areas
Mound Bayou Tributary 3	01/01/1982	USACE	Inter-Agency Agreement No. IAA-H-7-76, Project Order No. 6	June 1977	Inverness, Town of; Sunflower County, Unincorporated Areas
Mound Bayou Tributary 3	01/18/2012	State of Mississippi	EMA-2008-CA-5883	July 2010	Inverness, Town of; Sunflower County, Unincorporated Areas
Powell Bayou	03/01/1979	USACE	Inter-Agency Agreement No. IAA-H-7-76, Project Order No. 14 and Amendment 1 to Project Order No. 14	October 1977	Drew, City of; Sunflower County, Unincorporated Areas
Powell Bayou Tributary 1	11/01/1977	USACE	Inter-Agency Agreement No. IAA-H-7-76, Project Order No. 6	June 1977	Drew, City of; Sunflower County, Unincorporated Areas
Short Bayou	07/01/1978	USACE, Vicksburg District	Inter-Agency Agreement No. IAA-H-7-76, Project Order No. 14 and Amendment 1 to Project Order No. 14	May 1977	Indianola, City of
Sixmile Bayou	TBD	AECOM	MS FY.11	April 2016	Sunflower County , Unincorporated Areas
Sunflower Diversion Channel	03/01/1979	USACE	Inter-Agency Agreement No. IAA-H-7-76, Project Order No. 14 and Amendment 1 to Project Order No. 14	October 1977	Sunflower, Town of; Sunflower County, Unincorporated Areas
Tributary 1	11/01/1977	USACE, Vicksburg District	Inter-Agency Agreement No. IAA-H-7-76, Project Order No. 6	June 1977	Ruleville, Town of; Sunflower County, Unincorporated Areas
Tributary 2	11/01/1977	USACE, Vicksburg District	Inter-Agency Agreement No. IAA-H-7-76, Project Order No. 6	June 1977	Ruleville, Town of; Sunflower County, Unincorporated Areas

Table 29: Summary of Contracted Studies Included in this FIS Report (continued)

Flooding Source	FIS Report Dated	Contractor	Number	Work Completed Date	Affected Communities
Tributary 3	11/01/1977	USACE, Vicksburg District	Inter-Agency Agreement No. IAA-H-7-76, Project Order No. 6	June 1977	Ruleville, Town of; Sunflower County, Unincorporated Areas
Tributary X	03/01/1979	USACE	Inter-Agency Agreement No. IAA-H-7-76, Project Order No. 14 and Amendment 1 to Project Order No. 14	October 1977	Sunflower County, Unincorporated Areas
Tributary Y	03/01/1979	USACE	Inter-Agency Agreement No. IAA-H-7-76, Project Order No. 14 and Amendment 1 to Project Order No. 14	October 1977	Sunflower County, Unincorporated Areas
Tributary Z	03/01/1979	USACE	Inter-Agency Agreement No. IAA-H-7-76, Project Order No. 14 and Amendment 1 to Project Order No. 14	October 1977	Sunflower County, Unincorporated Areas
Unnamed Stream 2	TBD	AECOM	MS FY.11	April 2016	Sunflower County , Unincorporated Areas
Unnamed Stream 4	TBD	AECOM	MS FY.11	April 2016	Sunflower County , Unincorporated Areas
West Prong	07/01/1978	USACE, Vicksburg District	Inter-Agency Agreement No. IAA-H-7-76, Project Order No. 14 and Amendment 1 to Project Order No. 14	May 1977	Indianola, City of; Sunflower County, Unincorporated Areas
West Prong	01/18/2012	State of Mississippi	EMA-2008-CA-5883	July 2010	Indianola, City of; Sunflower County, Unincorporated Areas
West Prong Tributary 1	07/01/1978	USACE, Vicksburg District	Inter-Agency Agreement No. IAA-H-7-76, Project Order No. 14 and Amendment 1 to Project Order No. 14	May 1977	Indianola, City of
Willis Bayou Unnamed Tributary 1	TBD	AECOM	MS FY.11	April 2016	Sunflower County , Unincorporated Areas
Wixon Slough	10/01/1977	USACE, Vicksburg District	Inter-Agency Agreement No. IAA-H-7-76, Project Order No. 6	June 1977	Moorhead, City of; Sunflower County, Unincorporated Areas
Wrong Prong	TBD	AECOM	MS FY.11	April 2016	Sunflower County , Unincorporated Areas
Zone A Streams in studied in HUC 08030207	01/18/2012	State of Mississippi	EMA-2008-CA-5883	July 2010	Sunflower County, Unincorporated Areas

7.2 Community Meetings

The dates of the community meetings held for this Flood Risk Project and previous Flood Risk Projects are shown in Table 30. These meetings may have previously been referred to by a variety of names (Community Coordination Officer (CCO), Scoping, Discovery, etc.), but all meetings represent opportunities for FEMA, community officials, study contractors, and other invited guests to discuss the planning for and results of the project.

Table 30: Community Meetings

Community	FIS Report Dated	Date of Meeting	Meeting Type	Attended By
Doddsville, Town of	TBD	07/09/2013	Discovery Meeting	Mississippi Department of Environmental Quality, Mississippi Emergency Management Agency, Mississippi Department of Transportation, Federal Emergency Management Agency Region IV, United States Geological Survey, Yazoo Mississippi Levee District, South Delta Planning Development District, Waggoner Engineering, and AECOM
		TBD	Flood Risk Review Meeting	TBD
		TBD	CCO Meeting	TBD
		TBD	Resilience Meeting	TBD
Drew, City of	01/18/2012	08/28/2008	Initial CCO Meeting	Representatives from Mississippi Department of Environmental Quality, Mississippi Emergency Management Agency, Mississippi Geographic Information, LLC, State study contractor, and Sunflower County and the incorporated communities within Sunflower County
		12/07/2010	Final CCO Meeting	Representatives from Mississippi Department of Environmental Quality, Mississippi Emergency Management Agency, Mississippi Geographic Information, LLC, State study contractor, and Sunflower County and the incorporated communities within Sunflower County

Table 30: Community Meetings (continued)

Community	FIS Report Dated	Date of Meeting	Meeting Type	Attended By
Indianola, City of	TBD	07/09/2013	Discovery Meeting	Mississippi Department of Environmental Quality, Mississippi Emergency Management Agency, Mississippi Department of Transportation, Federal Emergency Management Agency Region IV, United States Geological Survey, Yazoo Mississippi Levee District, South Delta Planning Development District, Waggoner Engineering, and AECOM
		TBD	Flood Risk Review Meeting	TBD
		TBD	CCO Meeting	TBD
		TBD	Resilience Meeting	TBD
Inverness, Town of	TBD	07/09/2013	Discovery Meeting	Mississippi Department of Environmental Quality, Mississippi Emergency Management Agency, Mississippi Department of Transportation, Federal Emergency Management Agency Region IV, United States Geological Survey, Yazoo Mississippi Levee District, South Delta Planning Development District, Waggoner Engineering, and AECOM
		TBD	Flood Risk Review Meeting	TBD
		TBD	CCO Meeting	TBD
		TBD	Resilience Meeting	TBD

Table 30: Community Meetings (continued)

Community	FIS Report Dated	Date of Meeting	Meeting Type	Attended By
Moorhead, City of	01/18/2012	08/28/2008	Initial CCO Meeting	Representatives from Mississippi Department of Environmental Quality, Mississippi Emergency Management Agency, Mississippi Geographic Information, LLC, State study contractor, and Sunflower County and the incorporated communities within Sunflower County
		12/07/2010	Final CCO Meeting	Representatives from Mississippi Department of Environmental Quality, Mississippi Emergency Management Agency, Mississippi Geographic Information, LLC, State study contractor, and Sunflower County and the incorporated communities within Sunflower County
Ruleville, Town of	TBD	07/09/2013	Discovery Meeting	Mississippi Department of Environmental Quality, Mississippi Emergency Management Agency, Mississippi Department of Transportation, Federal Emergency Management Agency Region IV, United States Geological Survey, Yazoo Mississippi Levee District, South Delta Planning Development District, Waggoner Engineering, and AECOM
		TBD	Flood Risk Review Meeting	TBD
		TBD	CCO Meeting	TBD
		TBD	Resilience Meeting	TBD

Table 30: Community Meetings (continued)

Community	FIS Report Dated	Date of Meeting	Meeting Type	Attended By
Sunflower County, Unincorporated Areas	TBD	07/09/2013	Discovery Meeting	Mississippi Department of Environmental Quality, Mississippi Emergency Management Agency, Mississippi Department of Transportation, Federal Emergency Management Agency Region IV, United States Geological Survey, Yazoo Mississippi Levee District, South Delta Planning Development District, Waggoner Engineering, and AECOM
		TBD	Flood Risk Review Meeting	TBD
		TBD	CCO Meeting	TBD
		TBD	Resilience Meeting	TBD
Sunflower, Town of	TBD	07/09/2013	Discovery Meeting	Mississippi Department of Environmental Quality, Mississippi Emergency Management Agency, Mississippi Department of Transportation, Federal Emergency Management Agency Region IV, United States Geological Survey, Yazoo Mississippi Levee District, South Delta Planning Development District, Waggoner Engineering, and AECOM
		TBD	Flood Risk Review Meeting	TBD
		TBD	CCO Meeting	TBD
		TBD	Resilience Meeting	TBD

SECTION 8.0 – ADDITIONAL INFORMATION

Information concerning the pertinent data used in the preparation of this FIS Report can be obtained by submitting an order with any required payment to the FEMA Engineering Library. For more information on this process, see https://www.fema.gov.

There are no levees present in Sunflower County; however the Mississippi River levee does protect part of the county. These areas have been noted on each FIRM panel. Refer to the FIS report for Coahoma County (FEMA TBD) for more information on the on the levee system.

Table 31 is a list of the locations where FIRMs for Sunflower County can be viewed. Please note that the maps at these locations are for reference only and are not for distribution. Also, please note that only the maps for the community listed in the table are available at that particular repository. A user may need to visit another repository to view maps from an adjacent community.

Table 31: Map Repositories

Community	Address	City	State	Zip Code
Doddsville, Town of	Town Hall 3077-A Highway 49	Doddsville	MS	38771
Drew, City of	City Hall 130 West Shaw Avenue	Drew	MS	38737
Indianola, City of	City Hall 101 Front Street	Indianola	MS	38751
Inverness, Town of	Town Hall 802 East Grand Avenue	Inverness	MS	38753
Moorhead, City of	City Hall 801 Johnny Russell Drive	Moorhead	MS	38761
Ruleville, Town of	Town Hall 200 East Floyce Street	Ruleville	MS	38771
Sunflower County, Unincorporated Areas	Sunflower County Chancery Clerk's Office 200 Main Street	Indianola	MS	38751
Sunflower, Town of	Town Hall 103 East Quiver	Sunflower	MS	38778

The National Flood Hazard Layer (NFHL) dataset is a compilation of effective FIRM databases and LOMCs. Together they create a GIS data layer for a State or Territory. The NFHL is updated as studies become effective and extracts are made available to the public monthly. NFHL data can be viewed or ordered from the website shown in Table 32.

Table 32 contains useful contact information regarding the FIS Report, the FIRM, and

other relevant flood hazard and GIS data. In addition, information about the State NFIP Coordinator and GIS Coordinator is shown in this table. At the request of FEMA, each Governor has designated an agency of State or territorial government to coordinate that State's or territory's NFIP activities. These agencies often assist communities in developing and adopting necessary floodplain management measures. State GIS Coordinators are knowledgeable about the availability and location of State and local GIS data in their state.

Table 32: Additional Information

FEMA and the NFIP	
FEMA and FEMA Engineering Library website	www.fema.gov/national-flood-insurance-program-flood-hazard-mapping/engineering-library
NFIP website	https://www.fema.gov/national-flood-insurance-program
NFHL Dataset	msc.fema.gov
FEMA Region IV	Federal Regional Center 3003 Chamblee Tucker Road Atlanta, GA 30341 (770) 220-5200
Other Federal Agencies	
USGS website	www.usgs.gov
Hydraulic Engineering Center website	www.hec.usace.army.mil
State Agencies and Organizations	
State NFIP Coordinator	Stacey D. Ricks, CFM Mississippi Emergency Management Agency PO Box 5644 Pearl, MS 39208 Office: (601) 933-6605 Fax: (601) 933-6805 sricks@mema.ms.gov
State GIS Coordinator	Position Currently Vacant MFMMI Program Director Administrator of the MS Coordinating Council for Remote and Geographic Information Systems P.O. Box 20307 Jackson, MS 39289-1307

SECTION 9.0 – BIBLIOGRAPHY AND REFERENCES

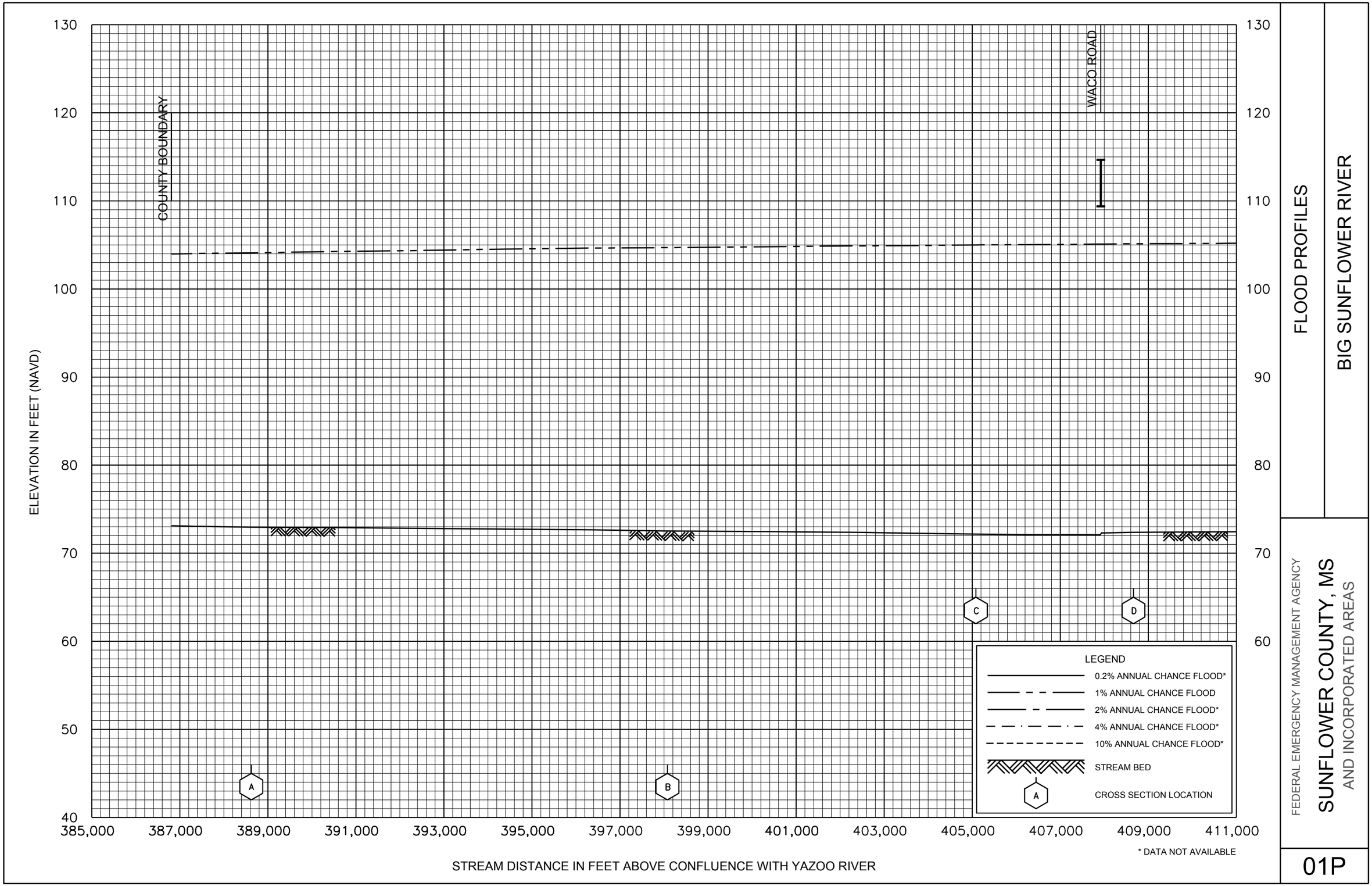
Table 33 includes sources used in the preparation of and cited in this FIS Report as well as additional studies that have been conducted in the study area.

Table 33: Bibliography and References

Citation in this FIS	Publisher / Issuer	*Publication Title,* "Article," Volume, Number, etc.	Author/Editor	Place of Publication	Publication Date / Date of Issuance	Link
FEMA 1977a	Federal Emergency Management Agency	Flood Insurance Study, City of Drew, Sunflower County, Mississippi		Washington, D.C.	November 1977	
FEMA 1977b	Federal Emergency Management Agency	Flood Insurance Study, Town of Ruleville, Sunflower County, Mississippi		Washington, D.C.	November 1977	
FEMA 1977c	Federal Emergency Management Agency	Flood Insurance Study, City of Moorhead, Sunflower County, Mississippi		Washington, D.C.	October 1977	
FEMA 1978a	Federal Emergency Management Agency	Flood Insurance Study, Town of Sunflower, Sunflower County, Mississippi		Washington, D.C.	January 1978	
FEMA 1978b	Federal Emergency Management Agency	Flood Insurance Study, City of Indianola, Sunflower County, Mississippi		Washington, D.C.	July 1978	
FEMA 1979	Federal Emergency Management Agency	Flood Insurance Study, Sunflower County, Mississippi, Unincorporated Areas		Washington, D.C.	March 1979	
FEMA 1982	Federal Emergency Management Agency	Flood Insurance Study, Town of Inverness, Sunflower County, Mississippi		Washington, D.C.	January 1982	
FEMA 2012	Federal Emergency Management Agency	Flood Insurance Study, Sunflower County, Mississippi and Incorporated Areas		Washington, D.C.	January 18, 2012	
NWS 1961	U.S. Department of Commerce, National Weather Service	Technical Paper No. 40, Rainfall Intensity – Duration Frequency Curves, U.S. Government Printing Office		Washington, D.C.	1961	
USACE 1973a	U.S. Army Corps of Engineers, Hydrologic Engineering Center	HEC-1, Flood Hydrograph Package, User's Manual, Version 2.0		Davis, California	January 1973	

Table 33: Bibliography and References (continued)

Citation in this FIS	Publisher / Issuer	*Publication Title,* "Article," Volume, Number, etc.	Author/Editor	Place of Publication	Publication Date / Date of Issuance	Link
USACE 1973b	U.S. Army Corps of Engineers, Hydrologic Engineering Center	HEC-2 Water Surface Profiles Generalized Computer Program		Davis, California	October 1973	
USACE 2008	U.S. Army Corps of Engineers, Hydrologic Engineering Center	HEC-RAS 4.0.0, River Analysis System, Version 4.0.0, Computer Software		Davis, California	March 2008	
USACE 2010	U.S. Army Corps of Engineers, Hydrologic Engineering Center	HEC-RAS 4.1.0, River Analysis System, Version 4.1.0, Computer Software		Davis, California	2010	
USGS 1966	U.S. Department of the Interior, Geological Survey	15 minute quadrangle maps: Baird, Mound Bayou, and Cleveland, Mississippi			1966	
USGS 1970	U.S. Department of the Interior, Geological Survey	U.S. Geological Survey, Memorandum, Jackson, Mississippi office			August 3, 1970	
USGS 1976	U.S. Department of the Interior, Geological Survey	Flood Frequency of Mississippi Streams	B.E. Colson and J.W. Hudson		1976	
USGS 1982	US Dept. of the Interior, Geological Survey	Interagency Advisory Committee on Water Data, Office of Water Data Coordination, Hydrology Subcommittee, Bulletin No. 17B: Guidelines for Determining Flood Flow Frequency			September 1981; revised March 1982	
USGS 1991	US Dept. of the Interior, Geological Survey, Open File Report	Flood Characteristics of Mississippi Streams, Water-Resources Investigations Report 91-4037		Jackson, Mississippi	1991	



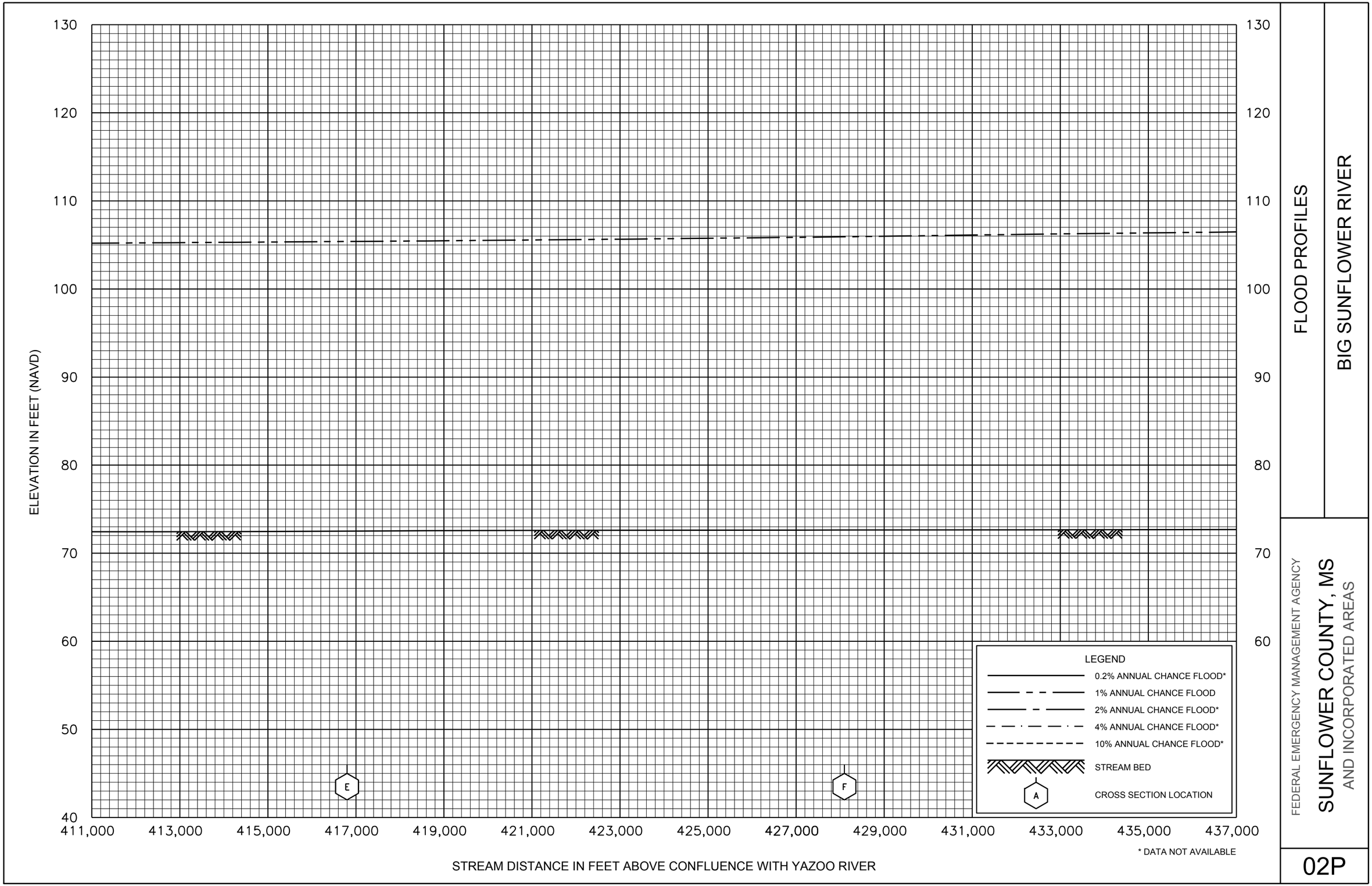
FLOOD PROFILES

BIG SUNFLOWER RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUNFLOWER COUNTY, MS
AND INCORPORATED AREAS

01P



FLOOD PROFILES

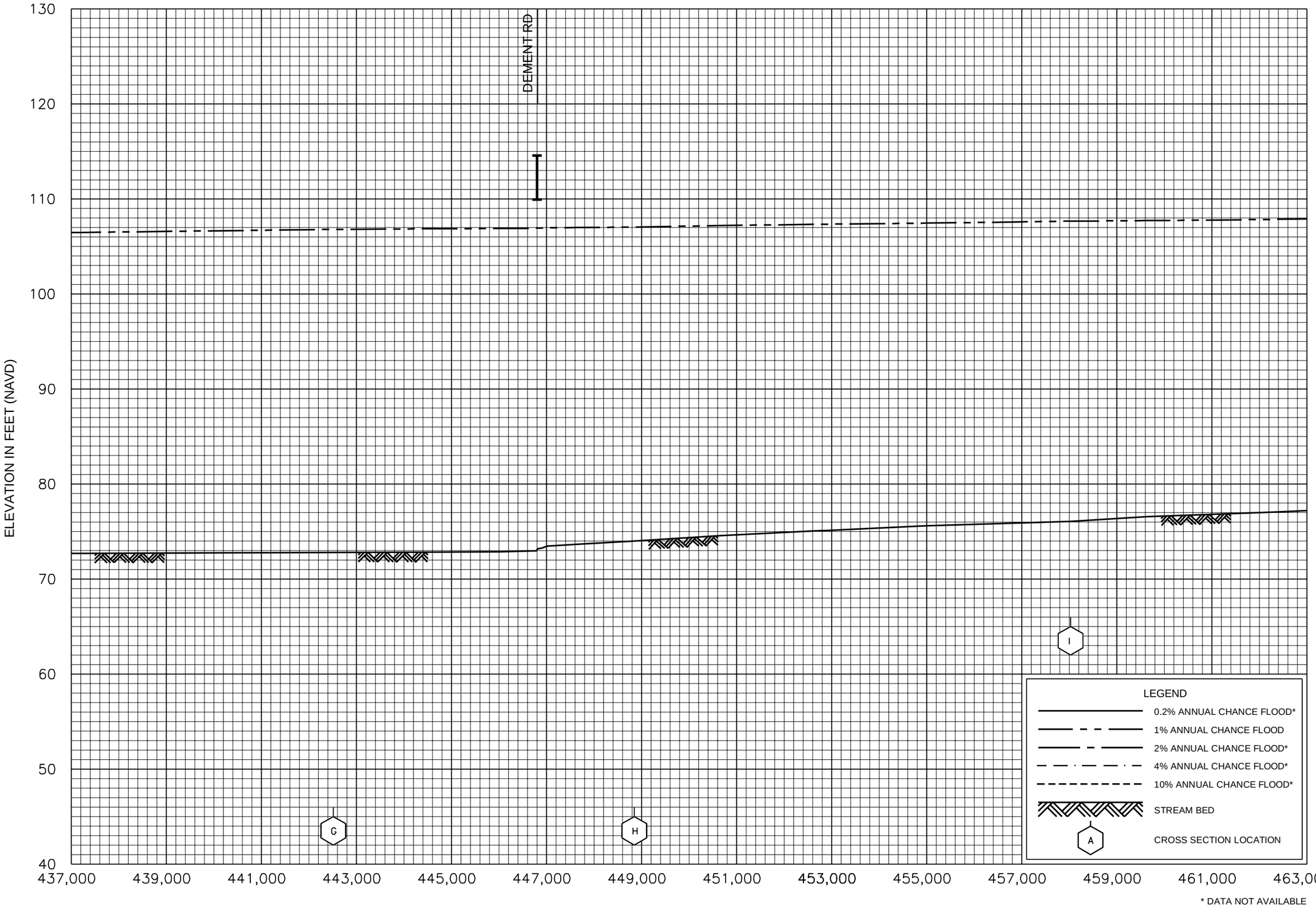
BIG SUNFLOWER RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUNFLOWER COUNTY, MS

AND INCORPORATED AREAS

02P



* DATA NOT AVAILABLE

FLOOD PROFILES

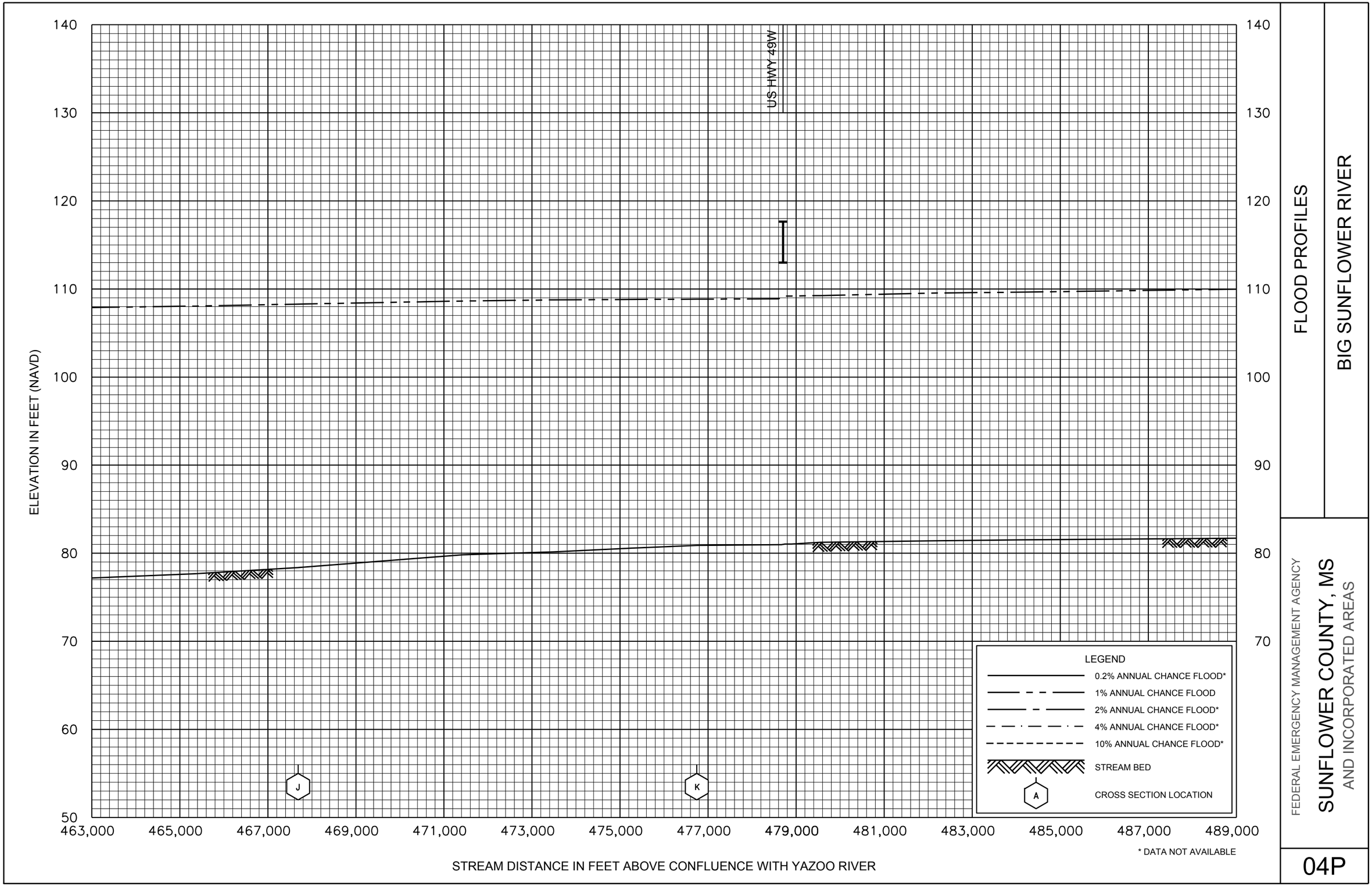
BIG SUNFLOWER RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUNFLOWER COUNTY, MS

AND INCORPORATED AREAS

03P



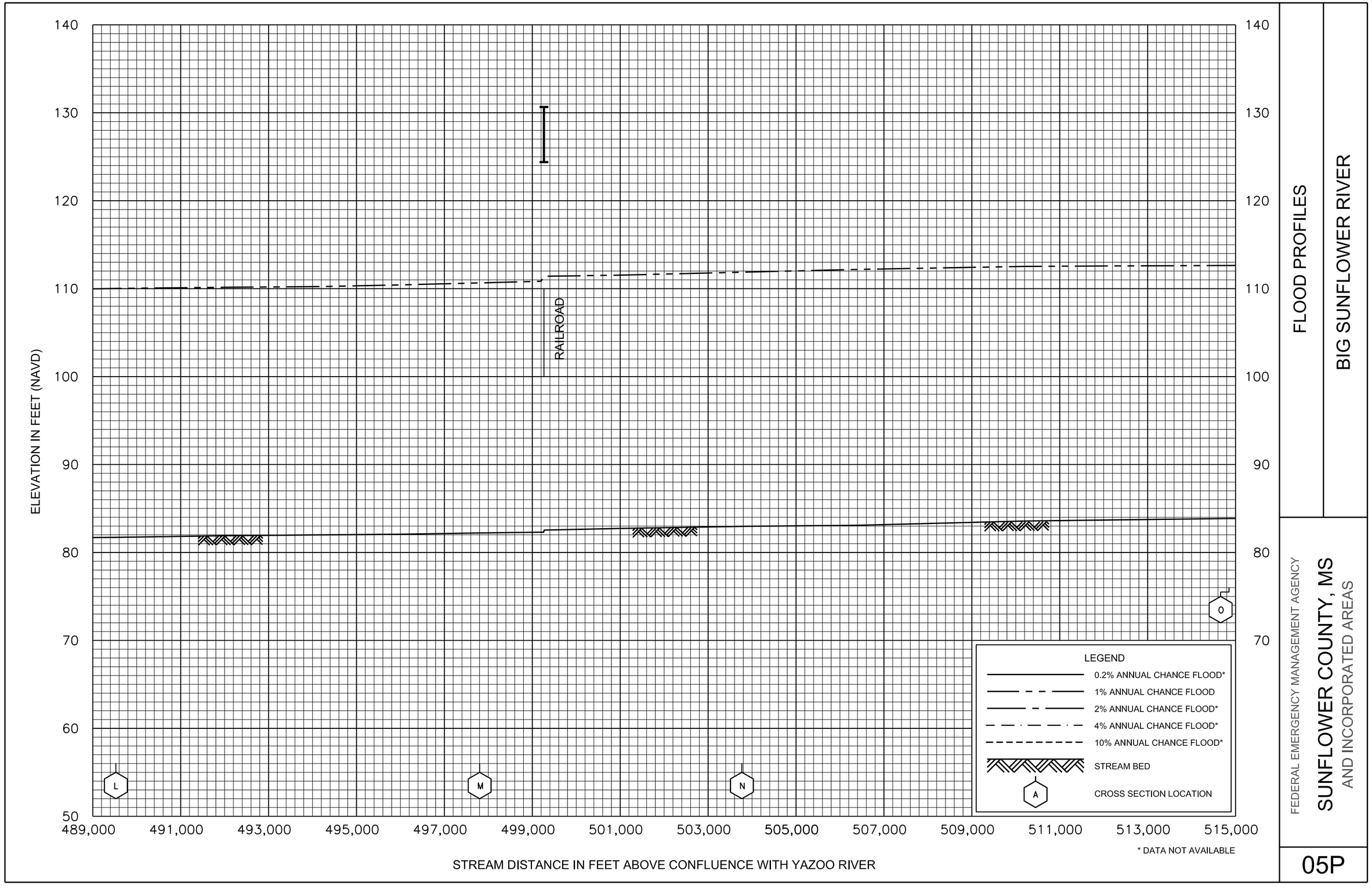
FLOOD PROFILES

BIG SUNFLOWER RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUNFLOWER COUNTY, MS
AND INCORPORATED AREAS

04P



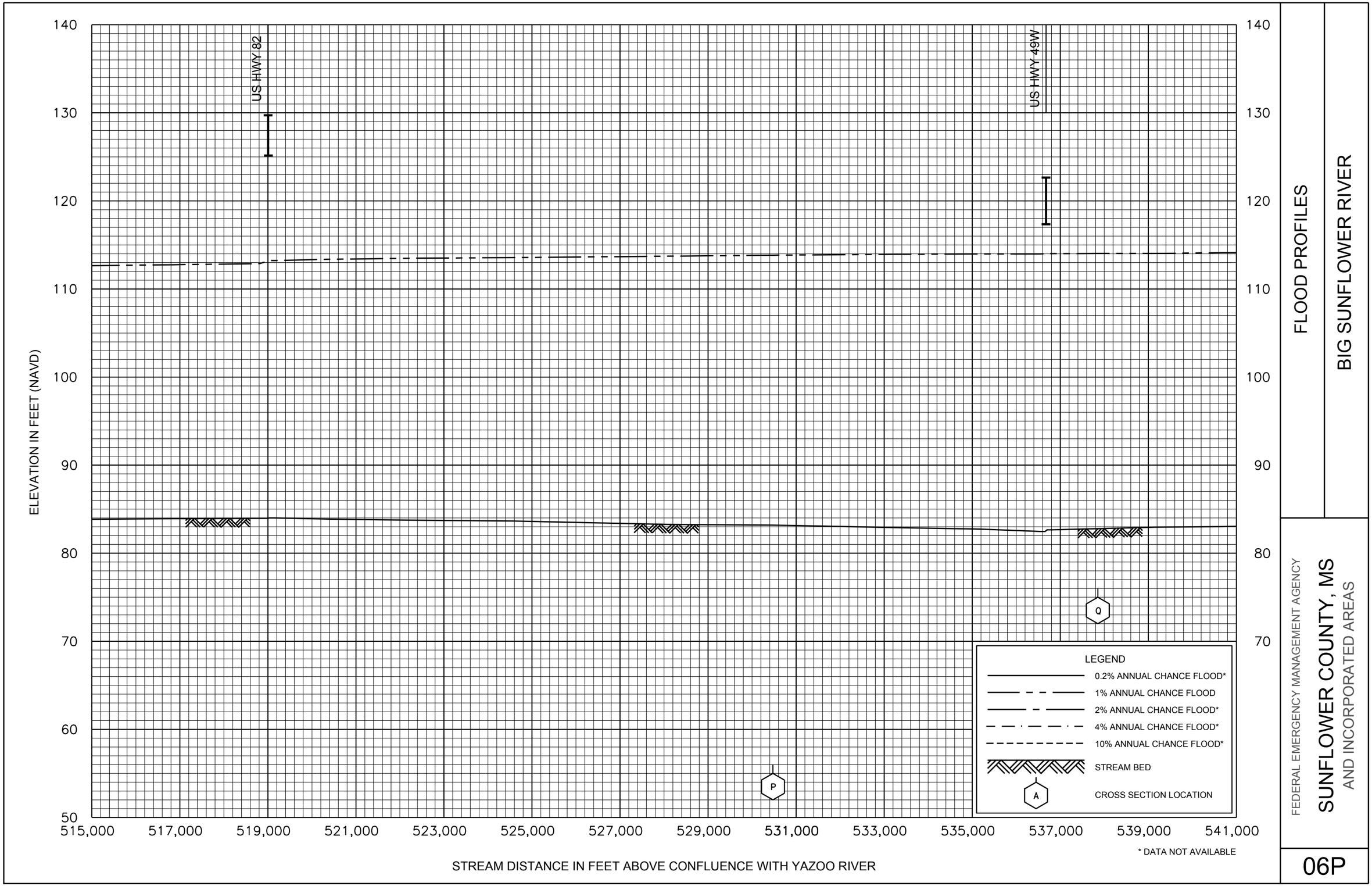
FLOOD PROFILES

BIG SUNFLOWER RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUNFLOWER COUNTY, MS
AND INCORPORATED AREAS

05P



FLOOD PROFILES

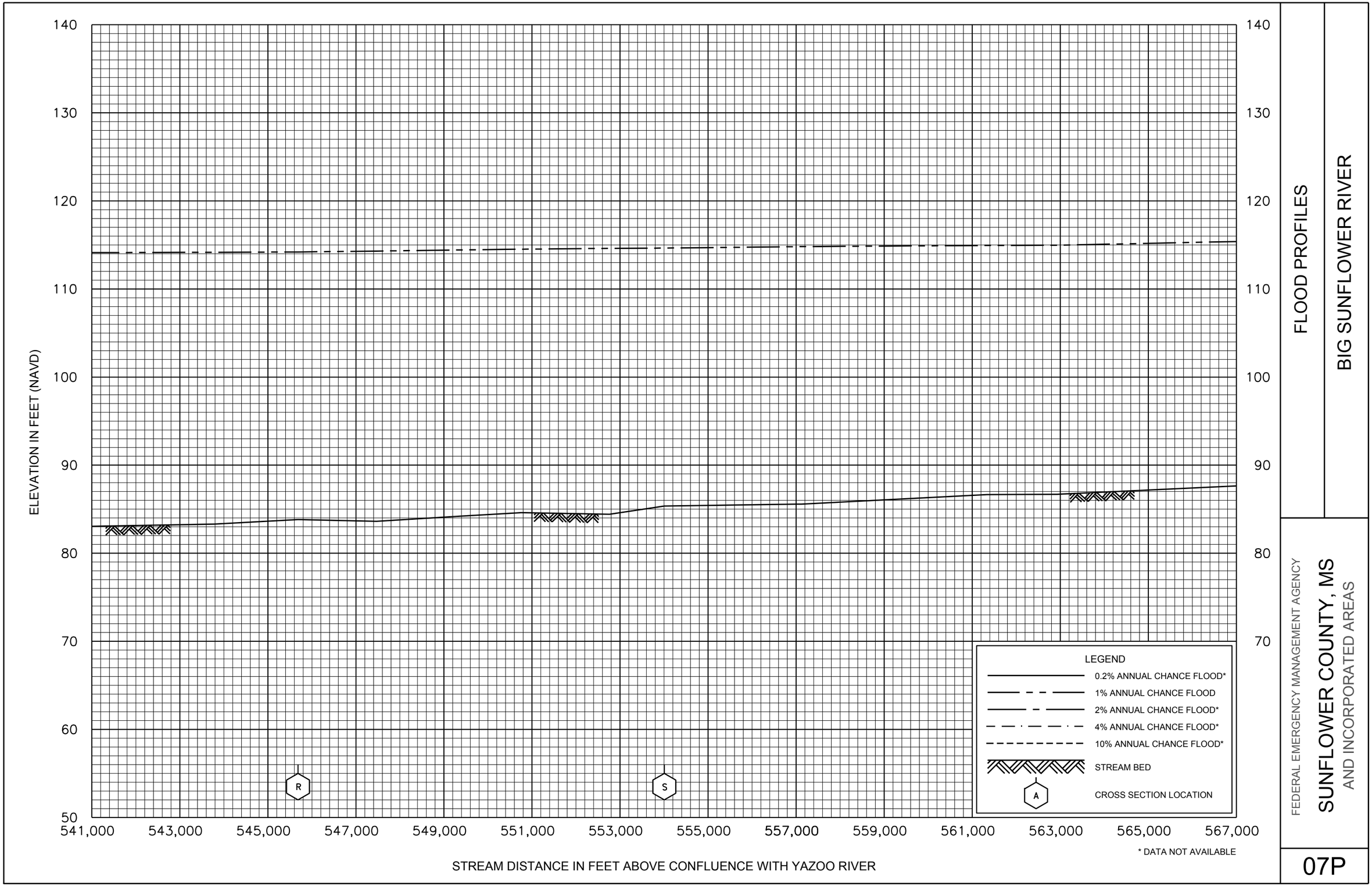
BIG SUNFLOWER RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUNFLOWER COUNTY, MS

AND INCORPORATED AREAS

06P



FLOOD PROFILES

BIG SUNFLOWER RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUNFLOWER COUNTY, MS

AND INCORPORATED AREAS

07P

ELEVATION IN FEET (NAVD)

150
140
130
120
110
100
90
80
70
60

567,000 569,000 571,000 573,000 575,000 577,000 579,000 581,000 583,000 585,000 587,000 589,000 591,000 593,000

STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH YAZOO RIVER

T
U
V

LEGEND

- 0.2% ANNUAL CHANCE FLOOD*
- 1% ANNUAL CHANCE FLOOD
- 2% ANNUAL CHANCE FLOOD*
- 4% ANNUAL CHANCE FLOOD*
- 10% ANNUAL CHANCE FLOOD*
- STREAM BED
- A — CROSS SECTION LOCATION

* DATA NOT AVAILABLE

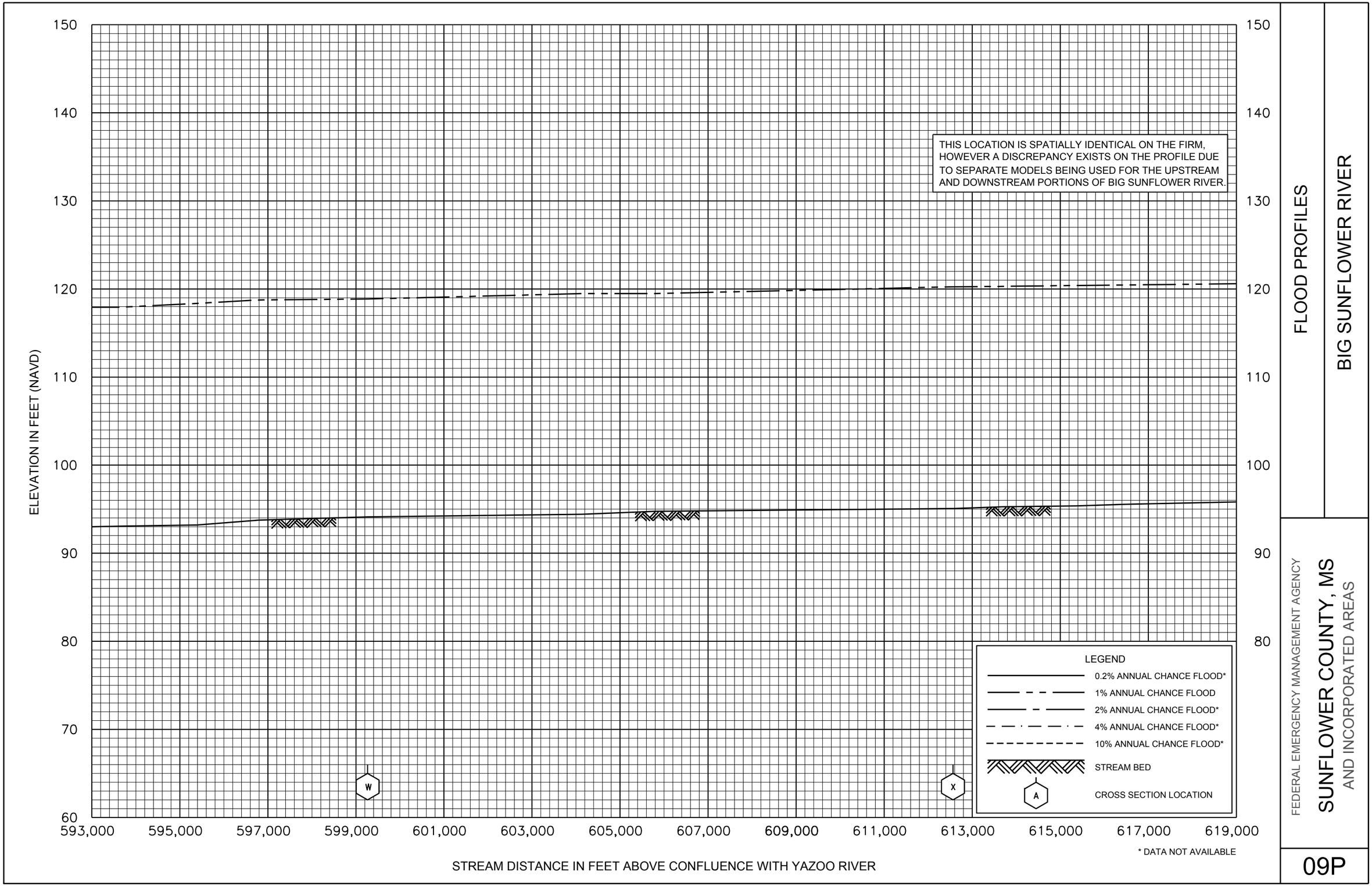
FLOOD PROFILES

BIG SUNFLOWER RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUNFLOWER COUNTY, MS
AND INCORPORATED AREAS

08P



FLOOD PROFILES

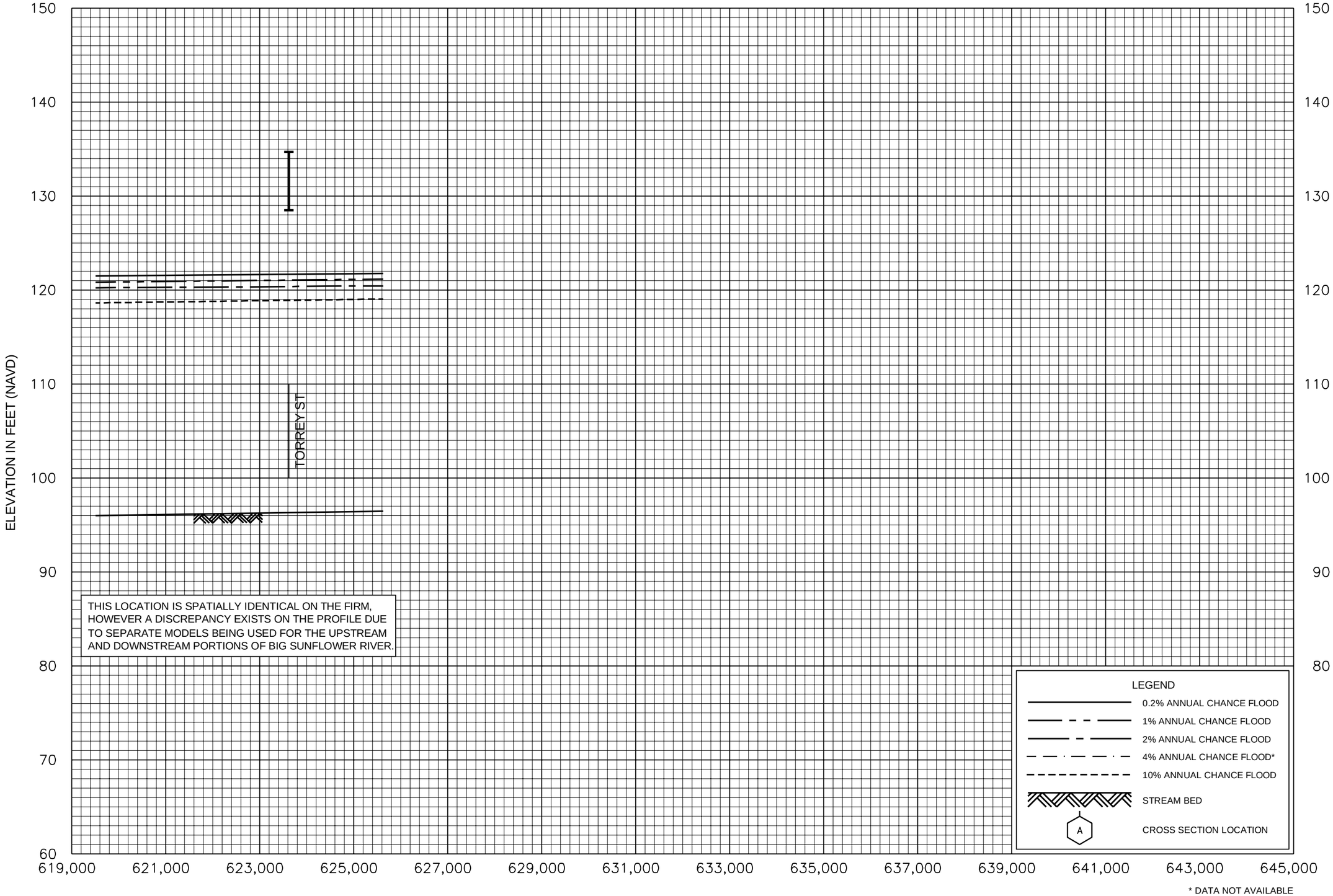
BIG SUNFLOWER RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUNFLOWER COUNTY, MS

AND INCORPORATED AREAS

09P



FLOOD PROFILES

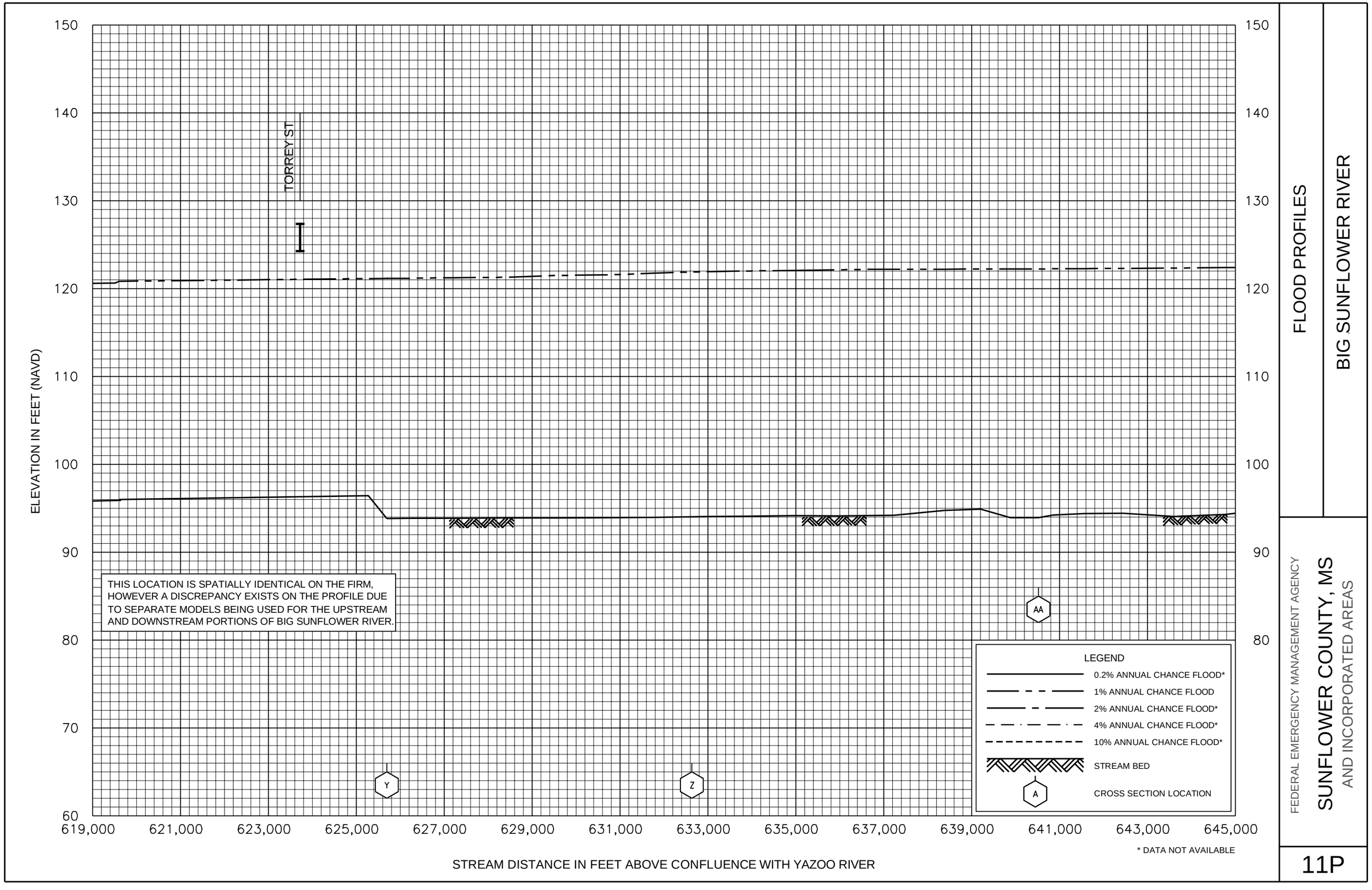
BIG SUNFLOWER RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUNFLOWER COUNTY, MS

AND INCORPORATED AREAS

10P



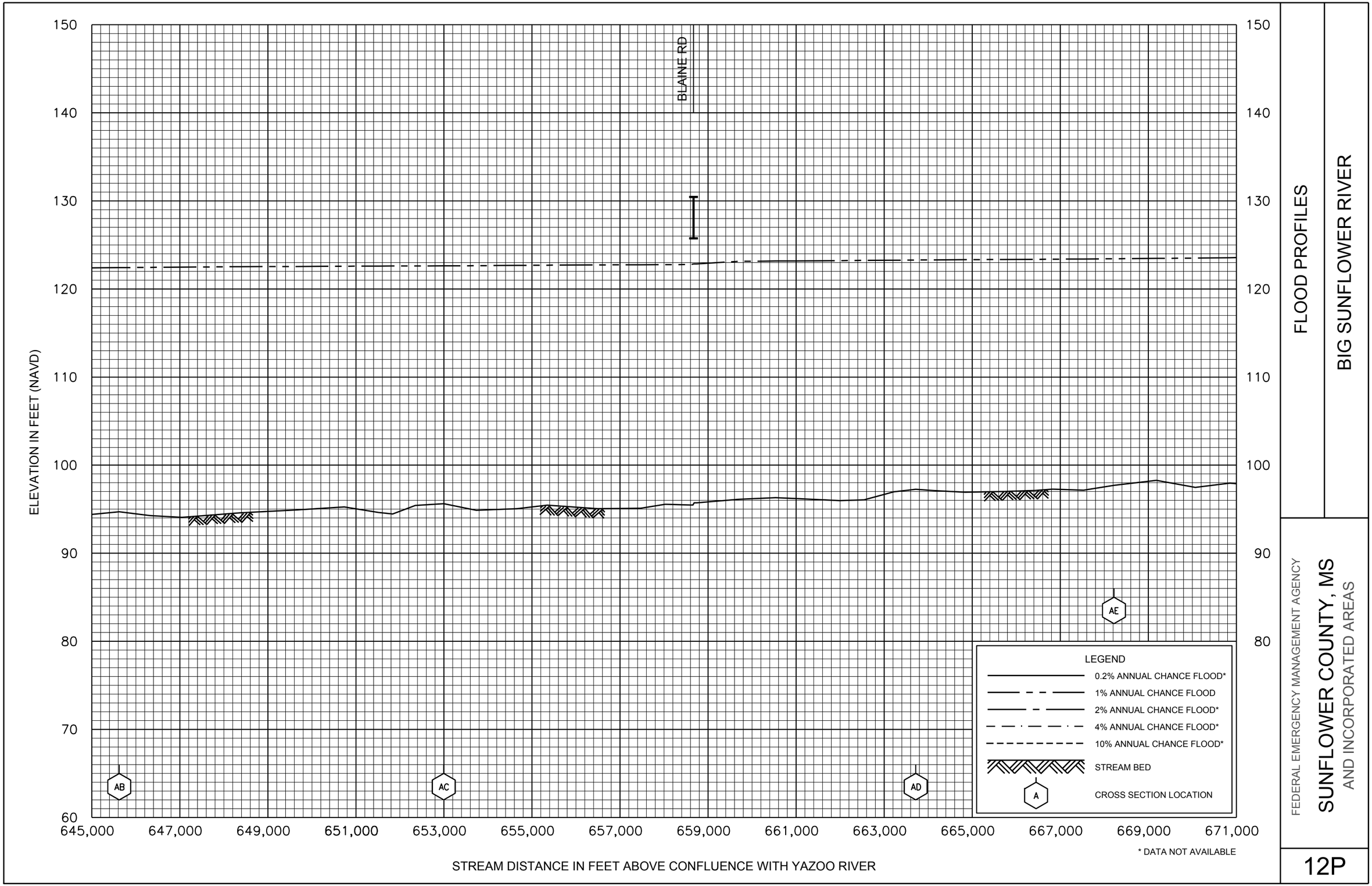
FLOOD PROFILES

BIG SUNFLOWER RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUNFLOWER COUNTY, MS

AND INCORPORATED AREAS



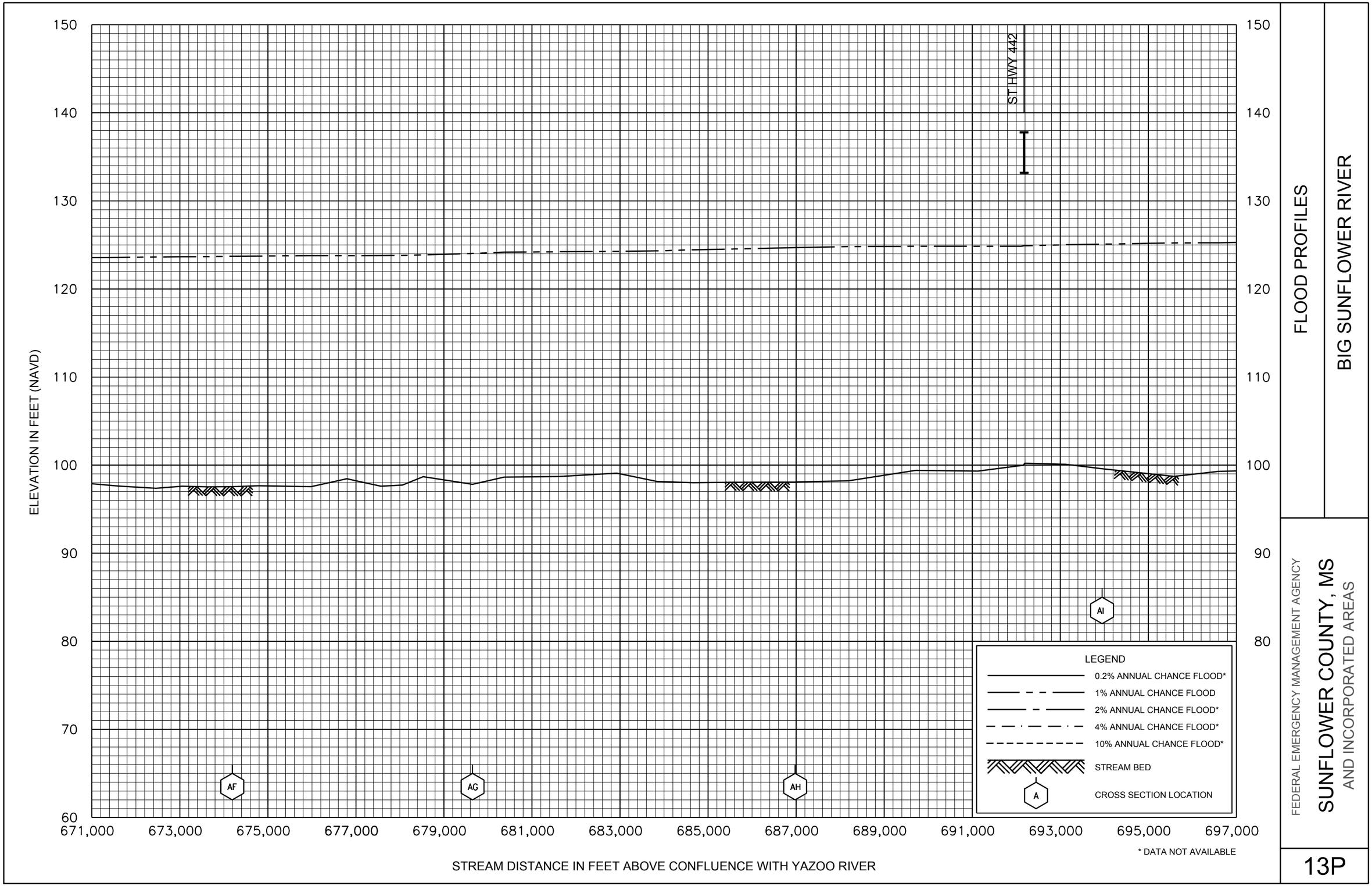
FLOOD PROFILES

BIG SUNFLOWER RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUNFLOWER COUNTY, MS

AND INCORPORATED AREAS



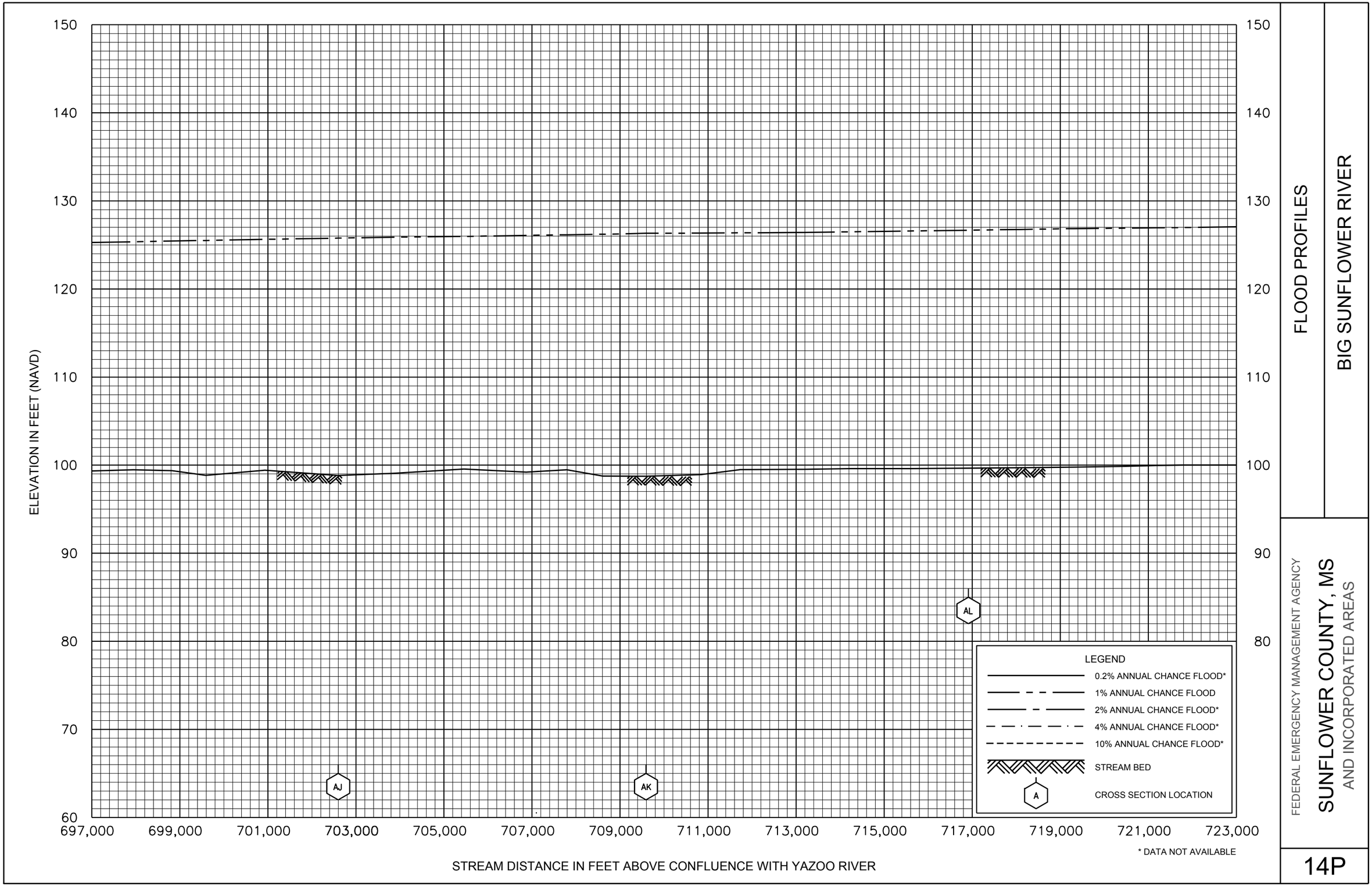
FLOOD PROFILES

BIG SUNFLOWER RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUNFLOWER COUNTY, MS
AND INCORPORATED AREAS

13P



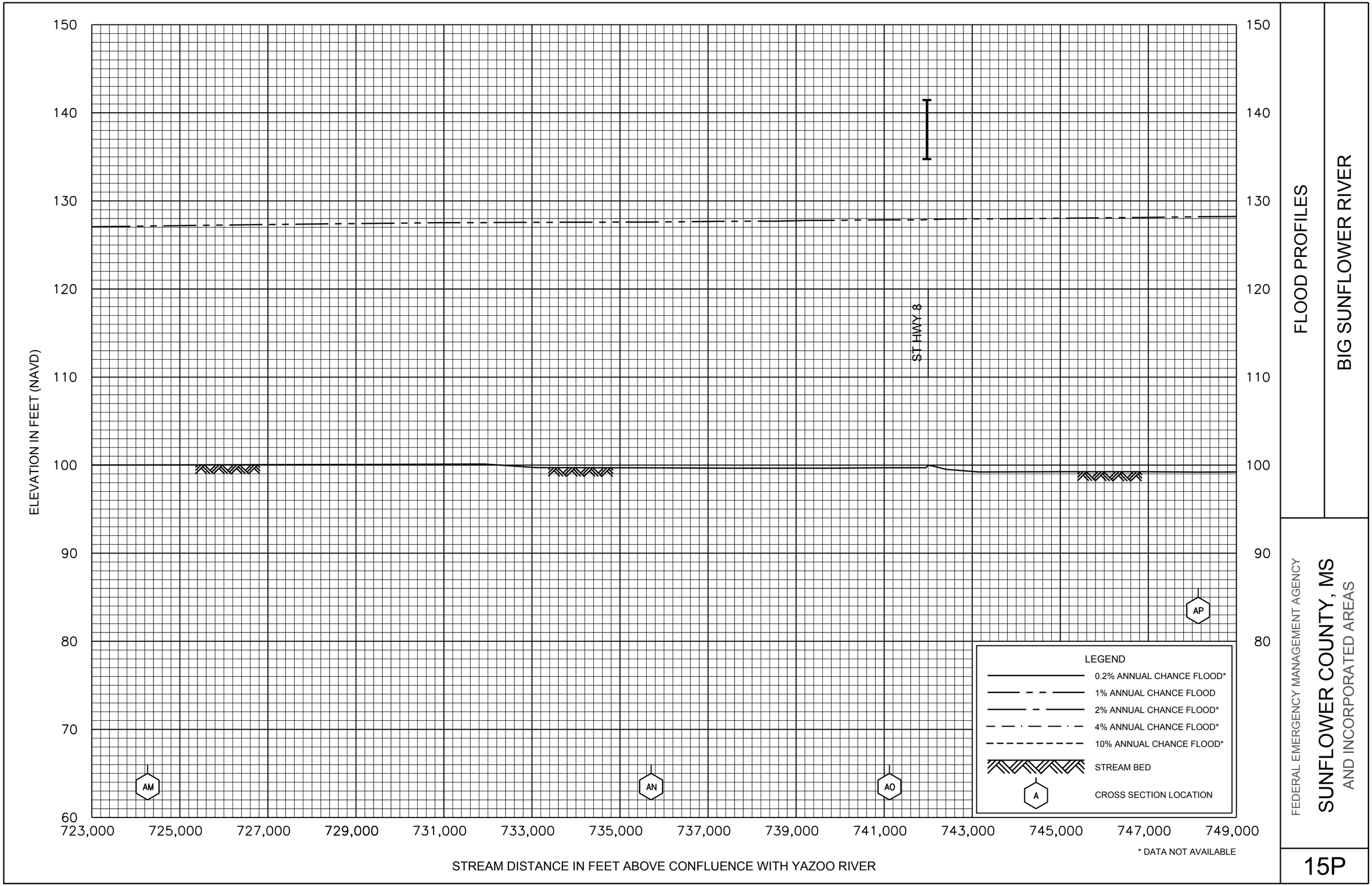
FLOOD PROFILES

BIG SUNFLOWER RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUNFLOWER COUNTY, MS
AND INCORPORATED AREAS

14P



FLOOD PROFILES

BIG SUNFLOWER RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUNFLOWER COUNTY, MS

AND INCORPORATED AREAS

15P

ELEVATION IN FEET (NAVD)

150
140
130
120
110
100
90
80
70
60

DOCKERY RD

AQ
AR
AS
AT
AU

LEGEND
- 0.2% ANNUAL CHANCE FLOOD*
- 1% ANNUAL CHANCE FLOOD
- 2% ANNUAL CHANCE FLOOD*
- 4% ANNUAL CHANCE FLOOD*
- 10% ANNUAL CHANCE FLOOD*
- STREAM BED
- A — CROSS SECTION LOCATION

749,000 751,000 753,000 755,000 757,000 759,000 761,000 763,000 765,000 767,000 769,000 771,000 773,000 775,000

* DATA NOT AVAILABLE

STREAM DISTANCE IN FEET ABOVE CONFLUENCE WITH YAZOO RIVER

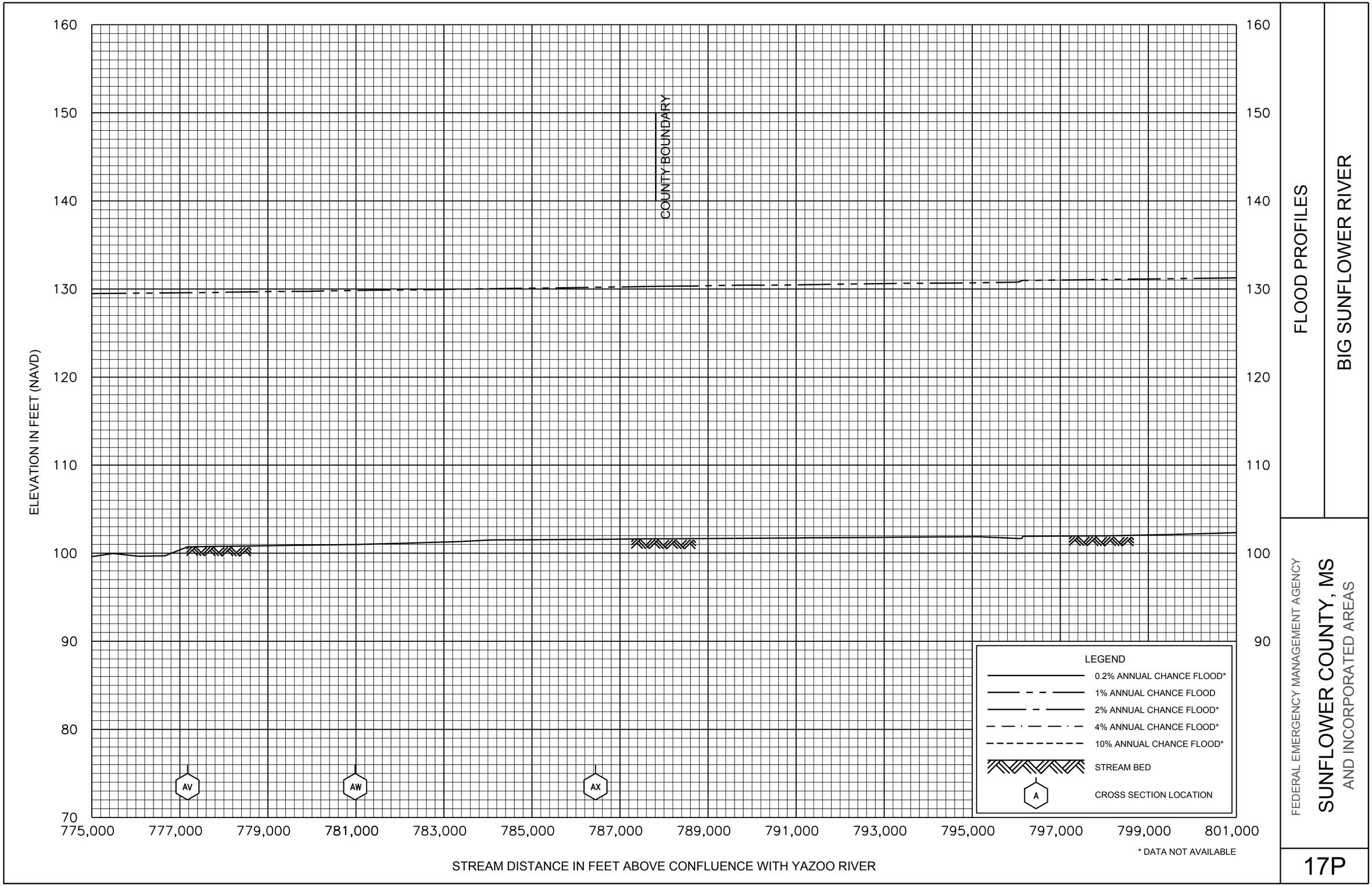
FLOOD PROFILES

BIG SUNFLOWER RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUNFLOWER COUNTY, MS
AND INCORPORATED AREAS

16P



FLOOD PROFILES

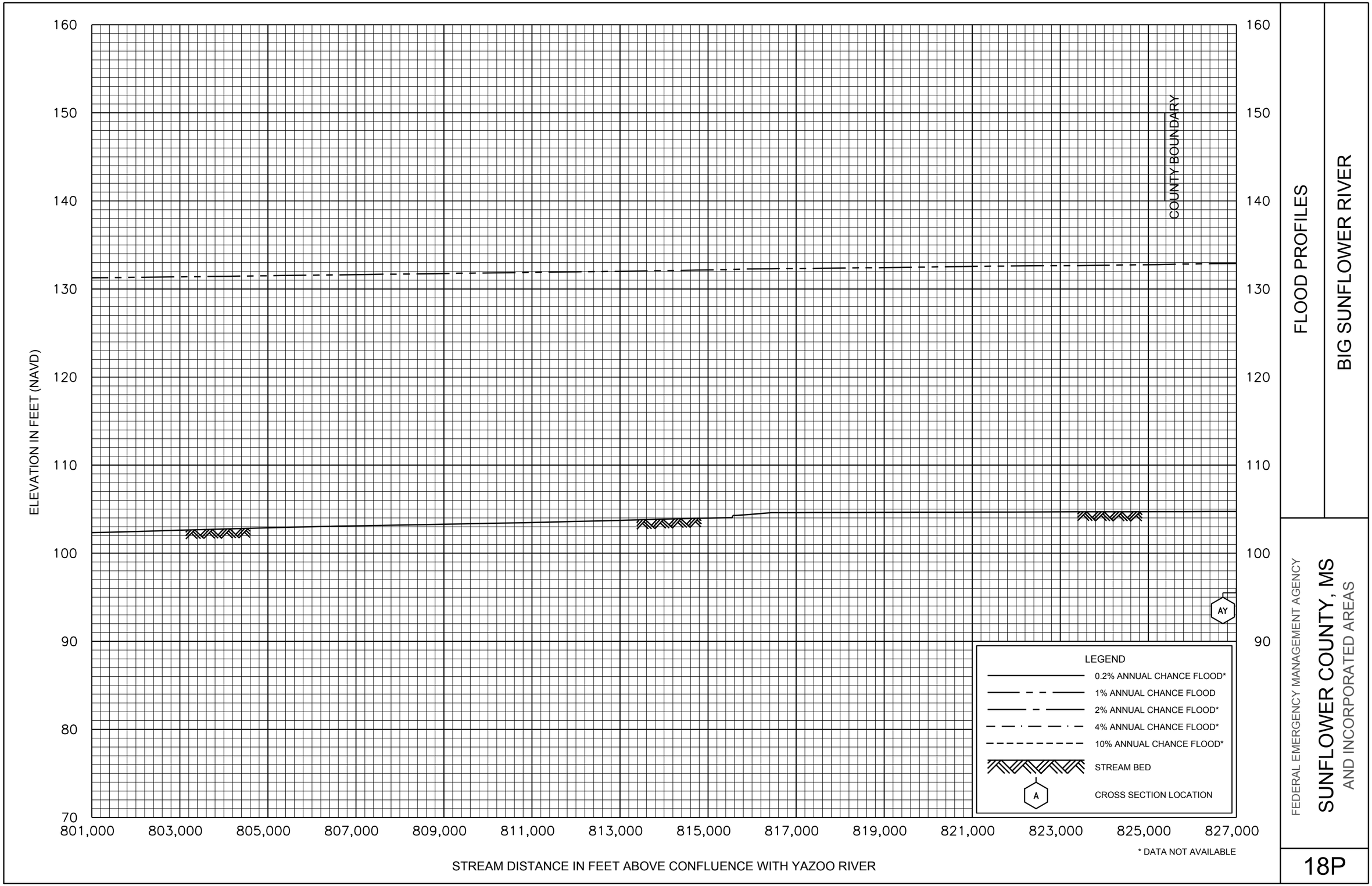
BIG SUNFLOWER RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUNFLOWER COUNTY, MS

AND INCORPORATED AREAS

17P



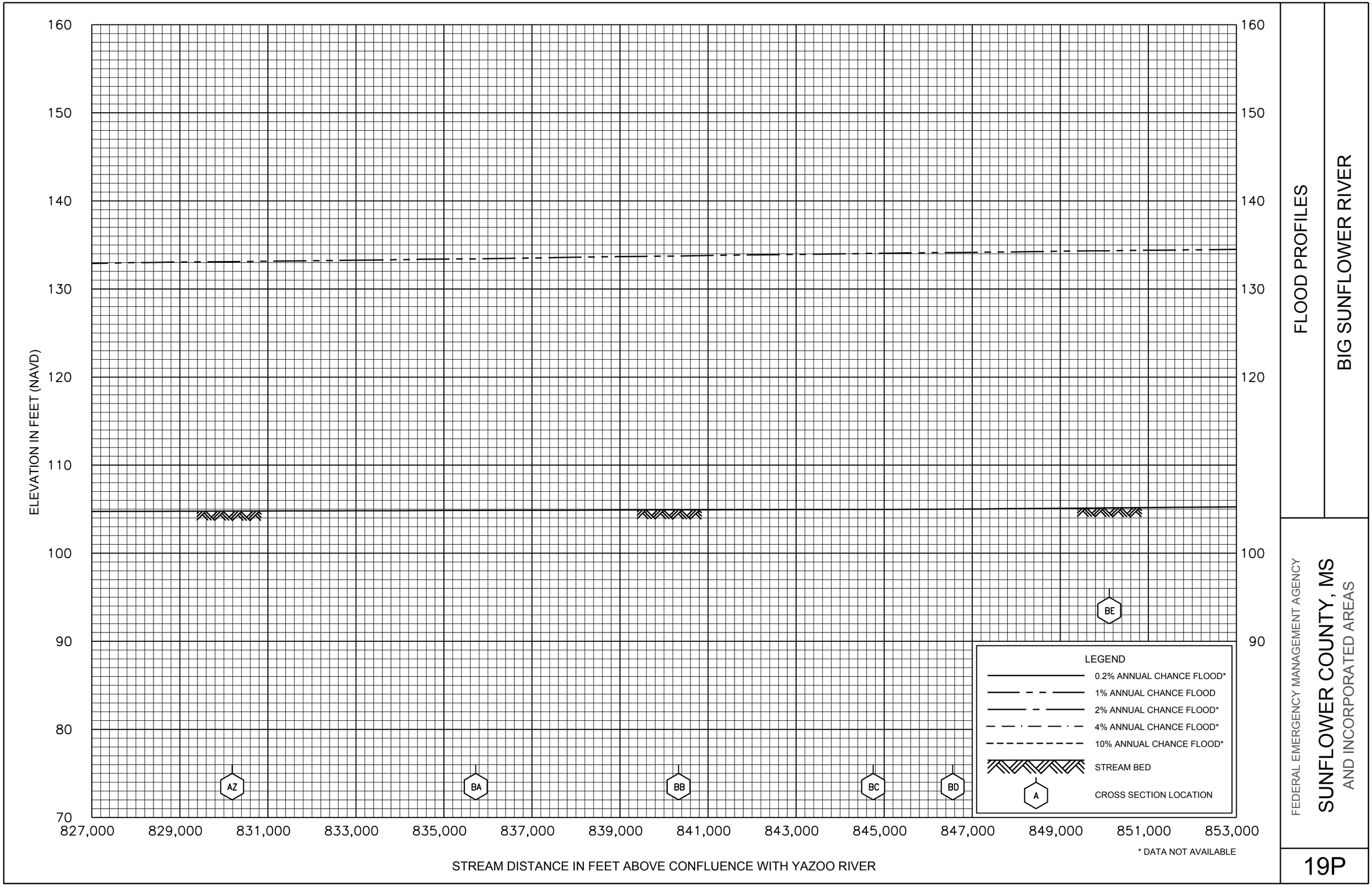
FLOOD PROFILES

BIG SUNFLOWER RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUNFLOWER COUNTY, MS

AND INCORPORATED AREAS



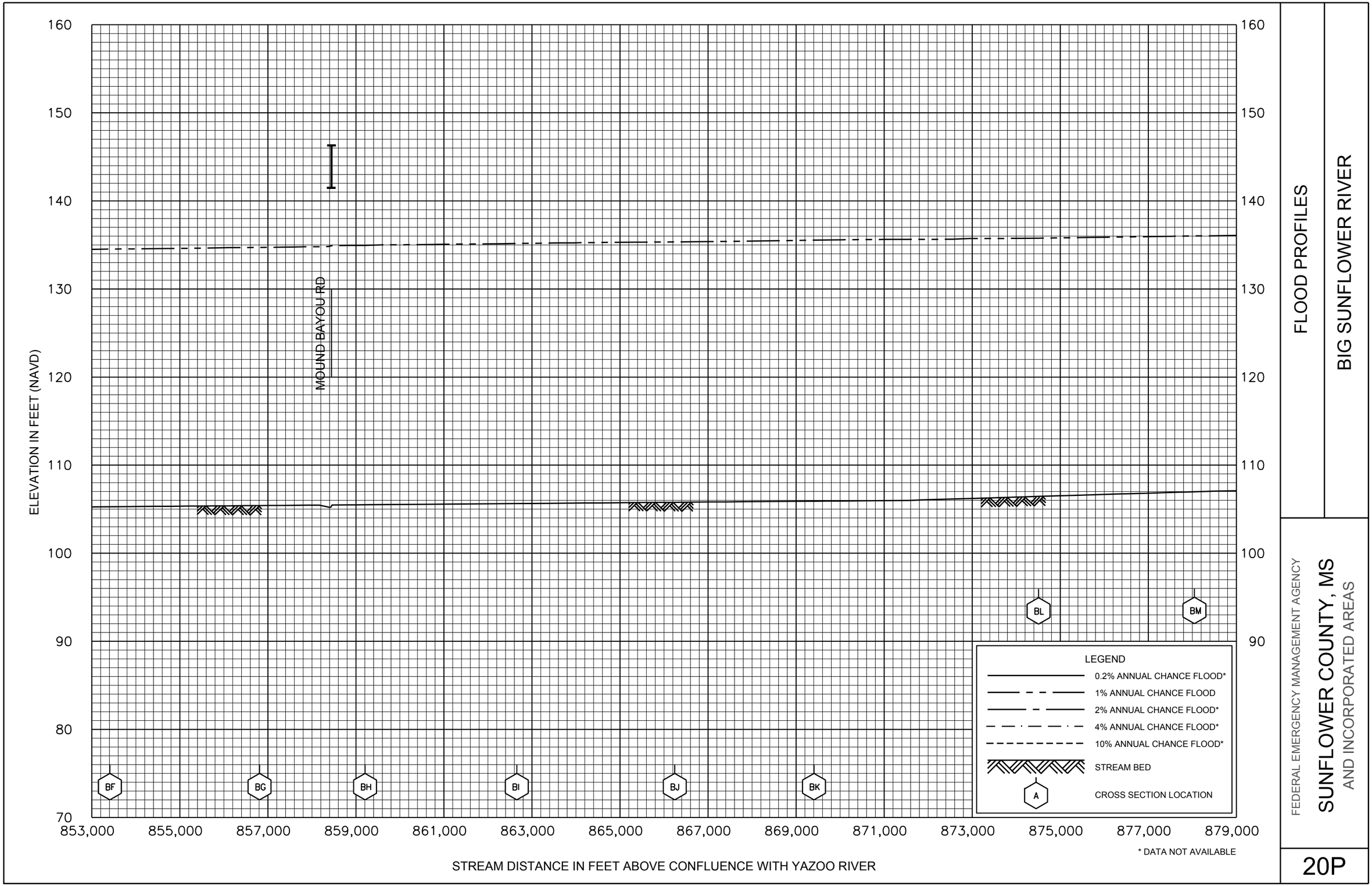
FLOOD PROFILES

BIG SUNFLOWER RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUNFLOWER COUNTY, MS

AND INCORPORATED AREAS

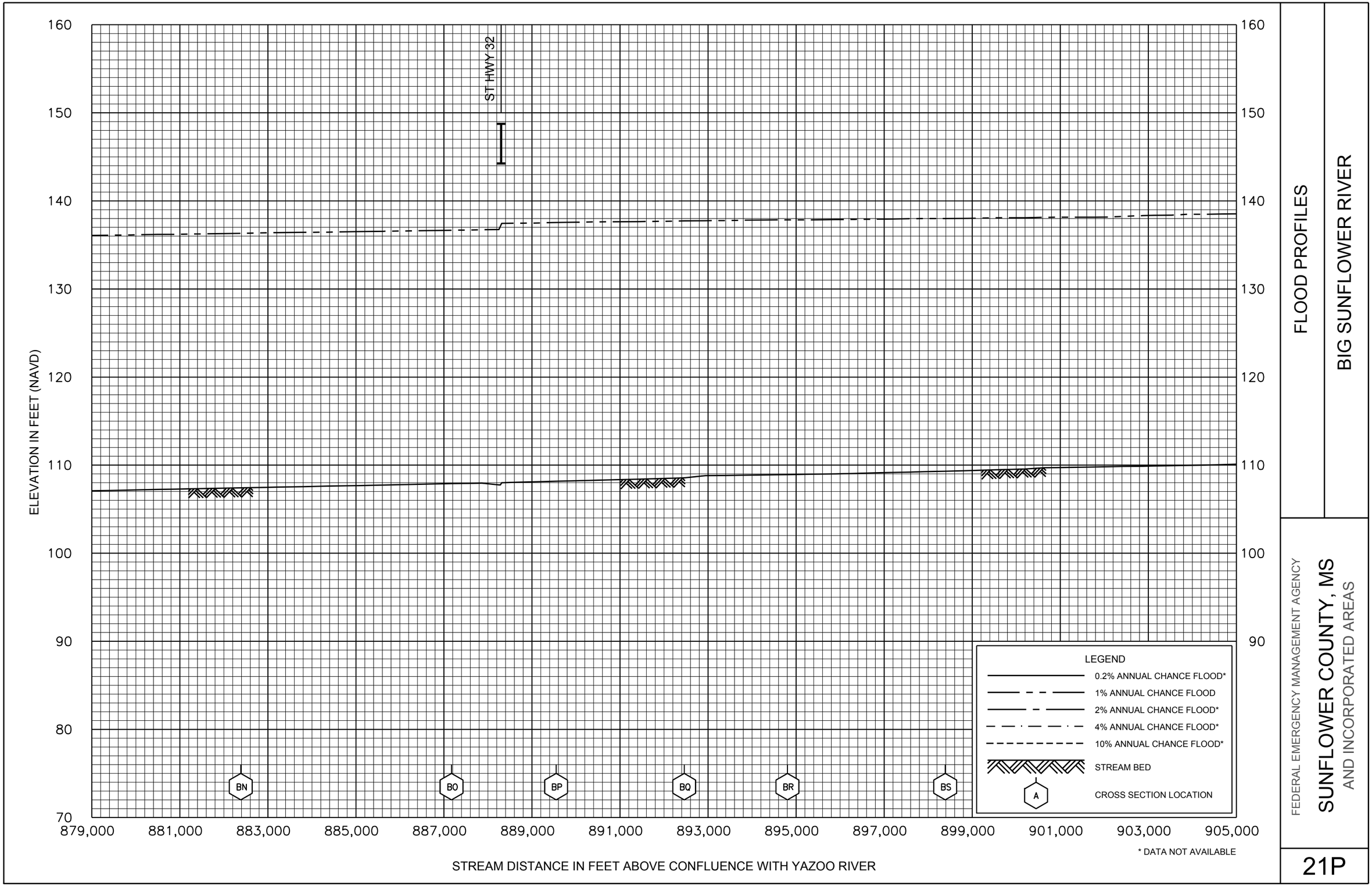


FLOOD PROFILES

BIG SUNFLOWER RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUNFLOWER COUNTY, MS
AND INCORPORATED AREAS



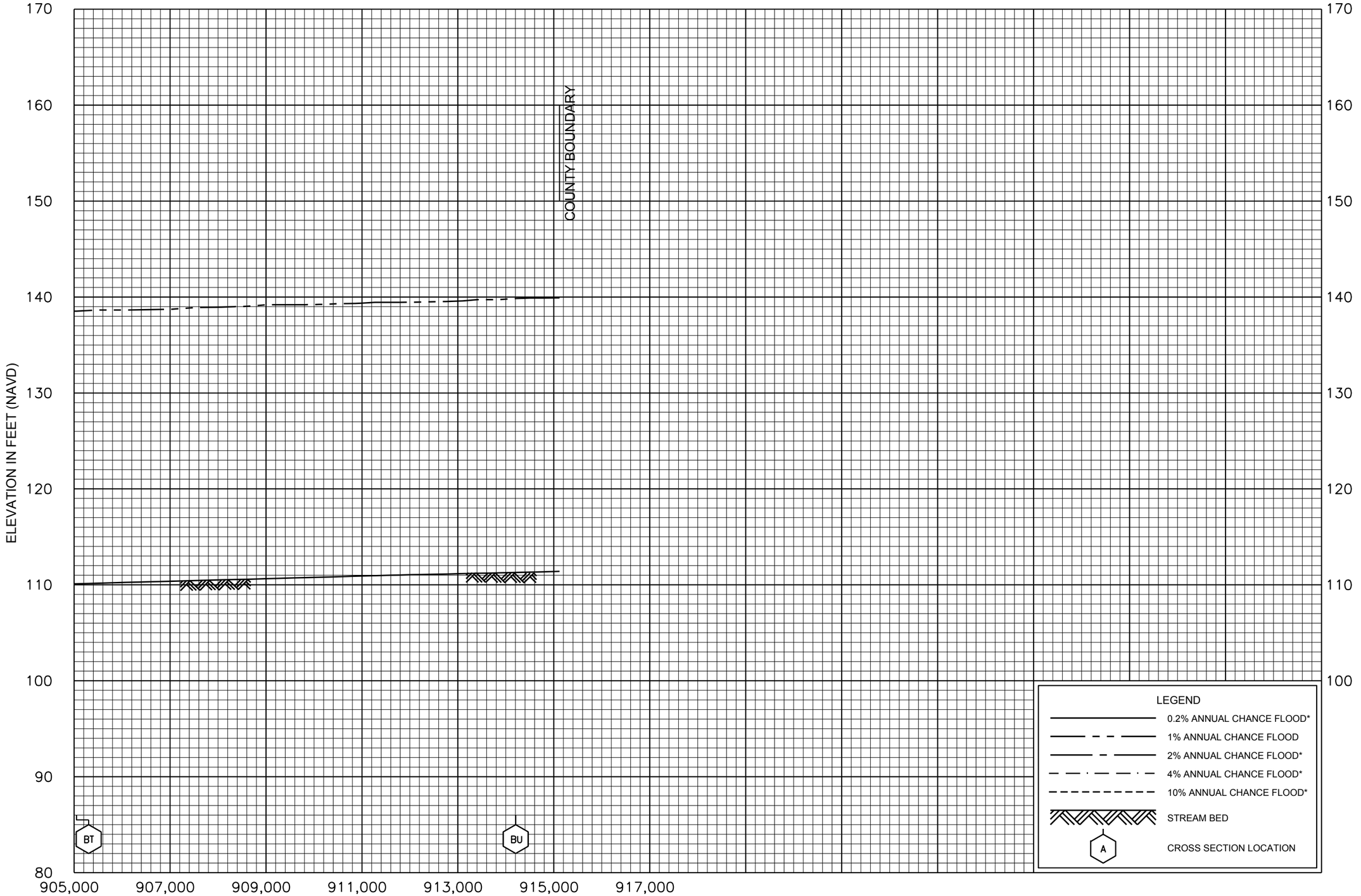
FLOOD PROFILES

BIG SUNFLOWER RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUNFLOWER COUNTY, MS

AND INCORPORATED AREAS



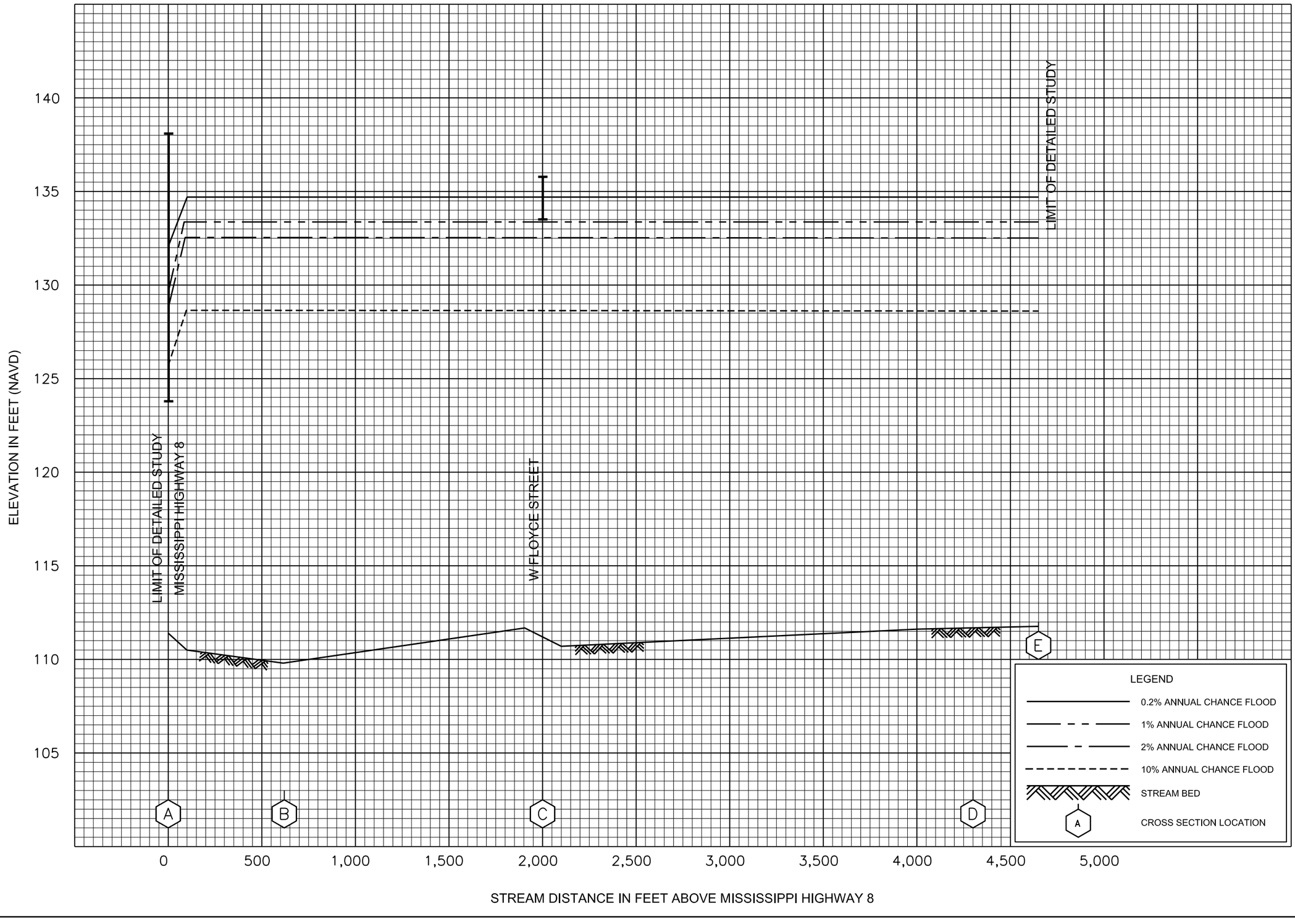
FLOOD PROFILES

BIG SUNFLOWER RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUNFLOWER COUNTY, MS

AND INCORPORATED AREAS



FLOOD PROFILES

DOUGHERTY BAYOU

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUNFLOWER COUNTY, MS
AND INCORPORATED AREAS

23P

FLOOD PROFILES

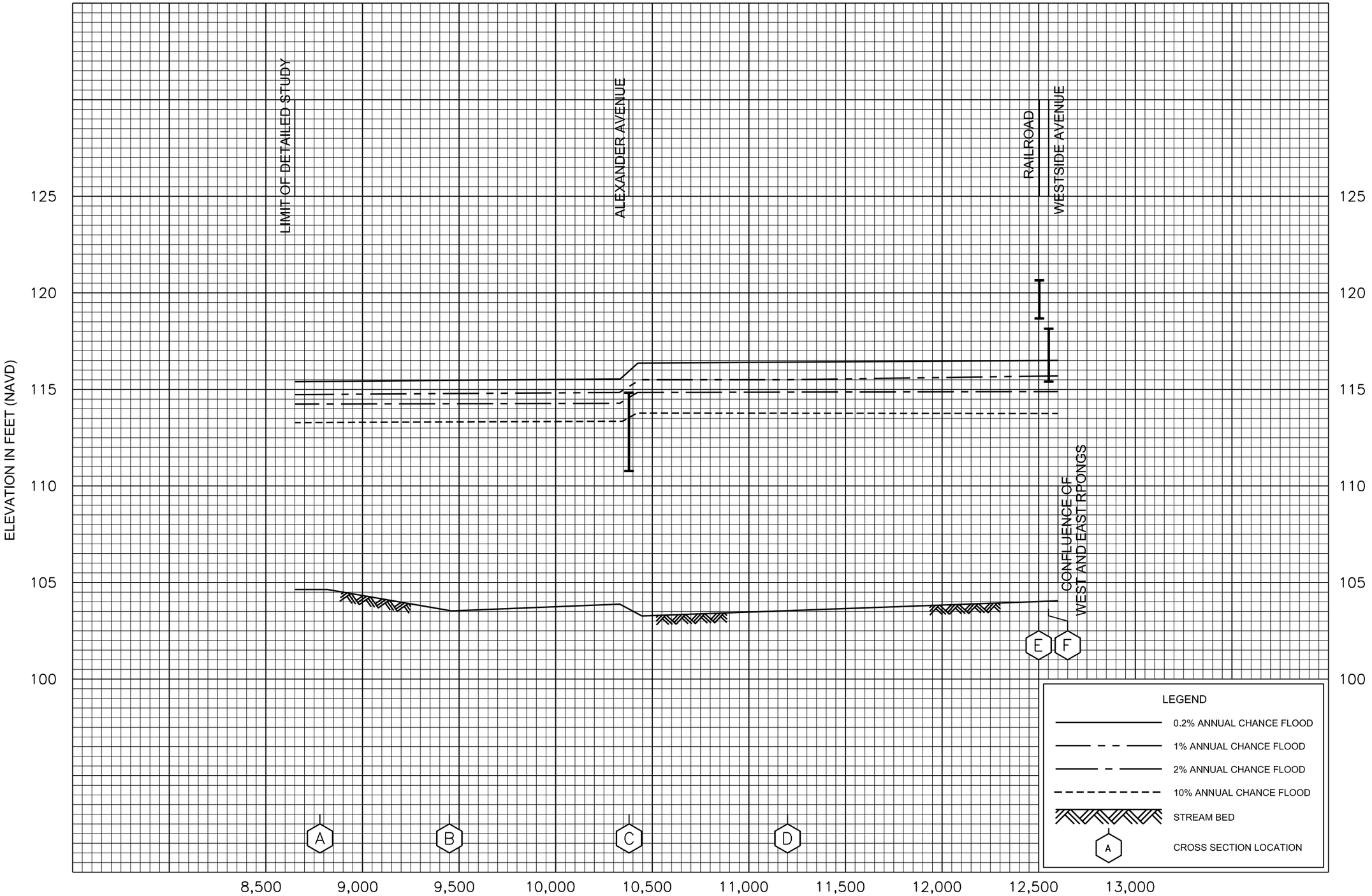
EAST PRONG

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUNFLOWER COIUNTY, MS

AND INCORPORATED AREAS

24P



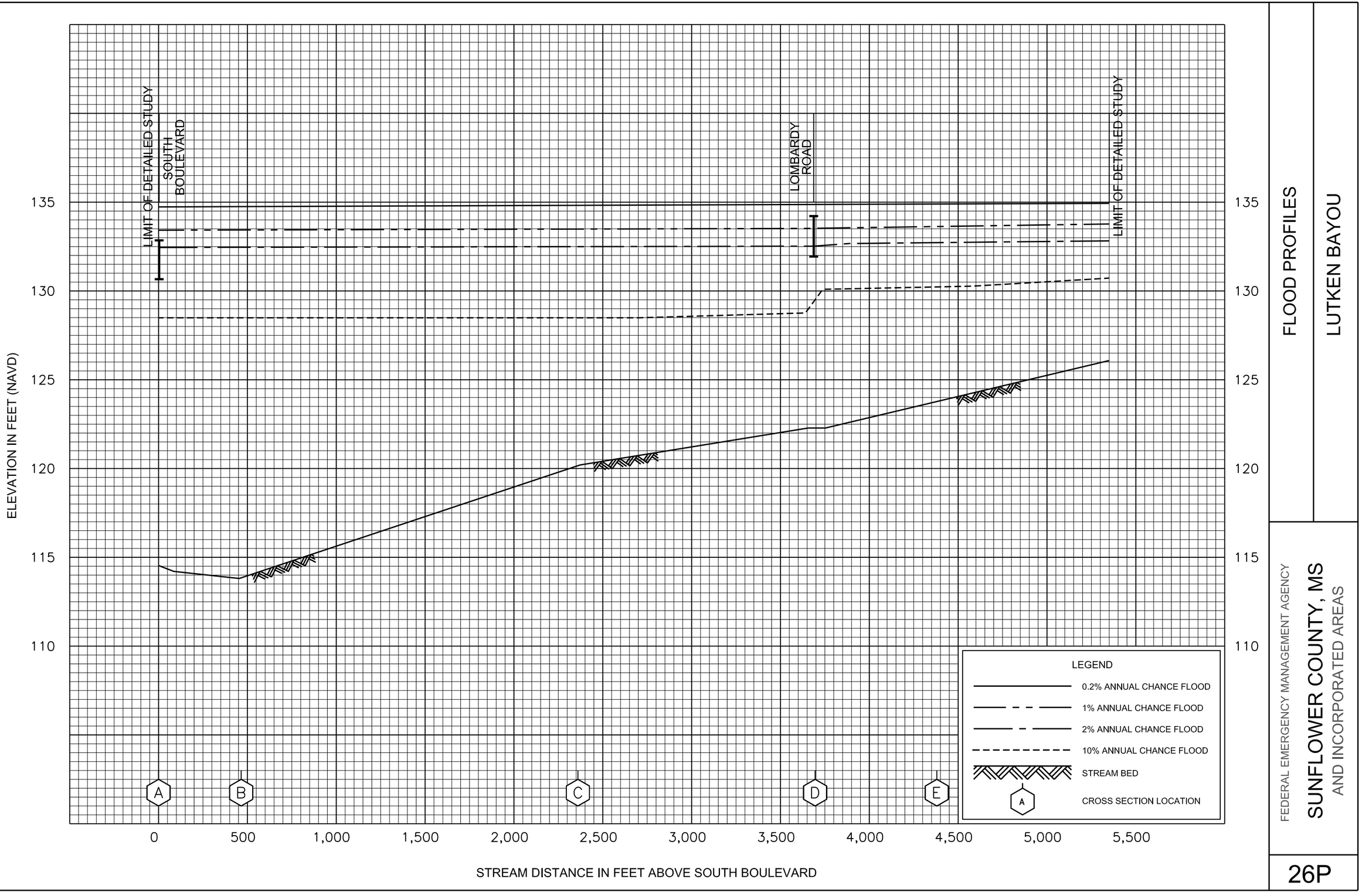
FLOOD PROFILES

INDIAN BAYOU

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUNFLOWER COUNTY, MS
AND INCORPORATED AREAS

25P



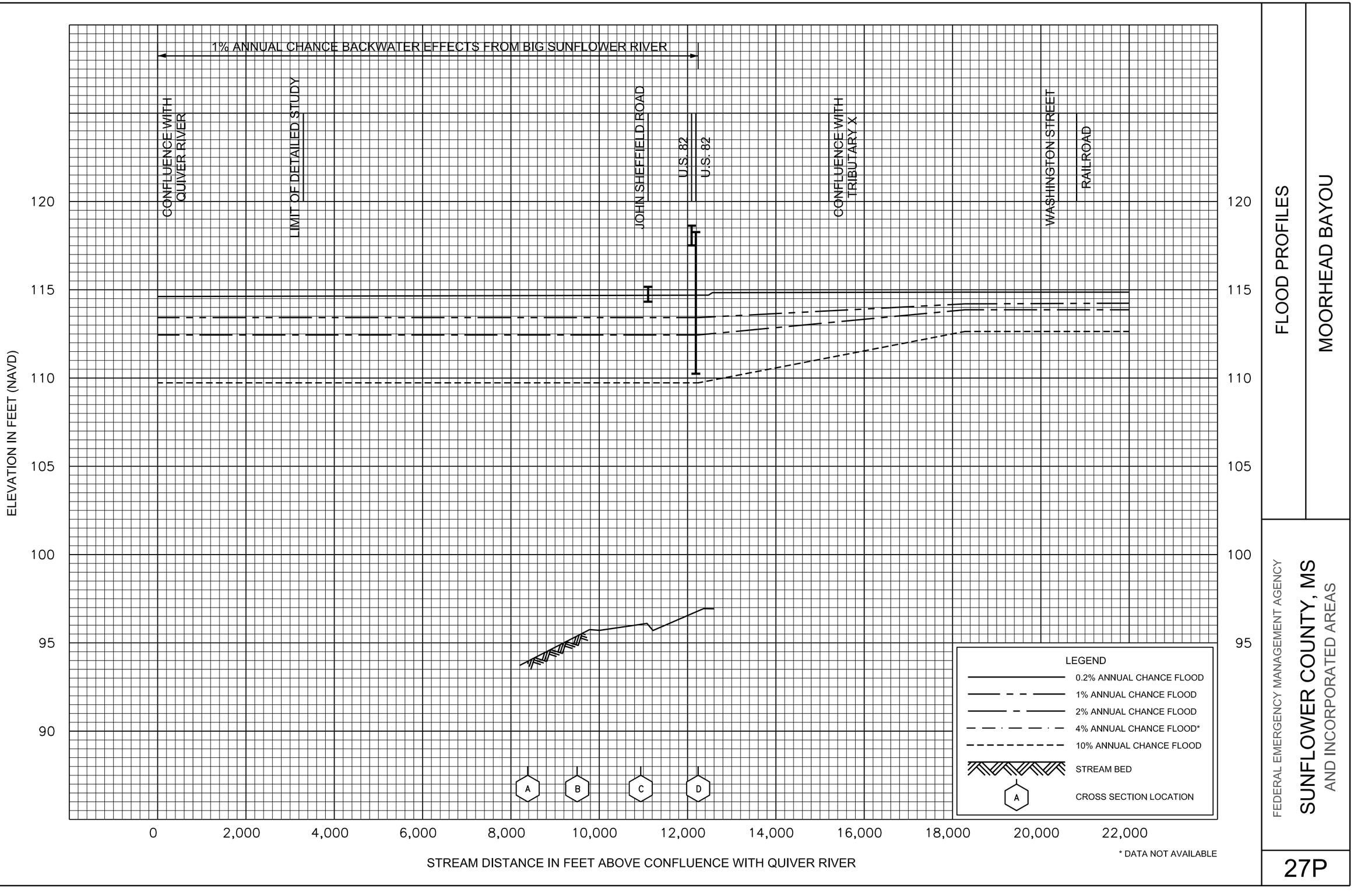
FLOOD PROFILES

LUTKEN BAYOU

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUNFLOWER COUNTY, MS
AND INCORPORATED AREAS

26P

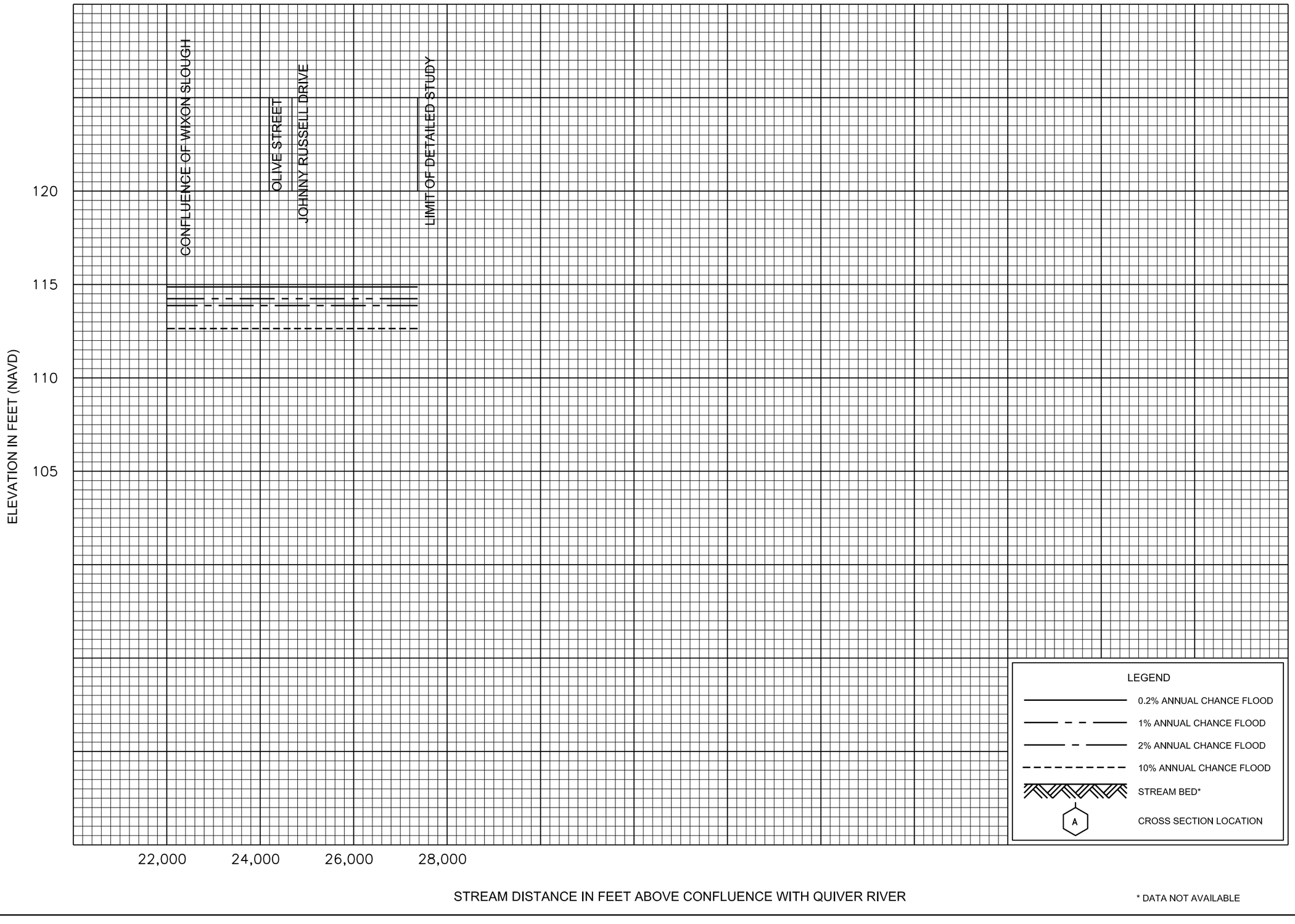


FLOOD PROFILES

MOORHEAD BAYOU

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUNFLOWER COUNTY, MS
AND INCORPORATED AREAS



* DATA NOT AVAILABLE

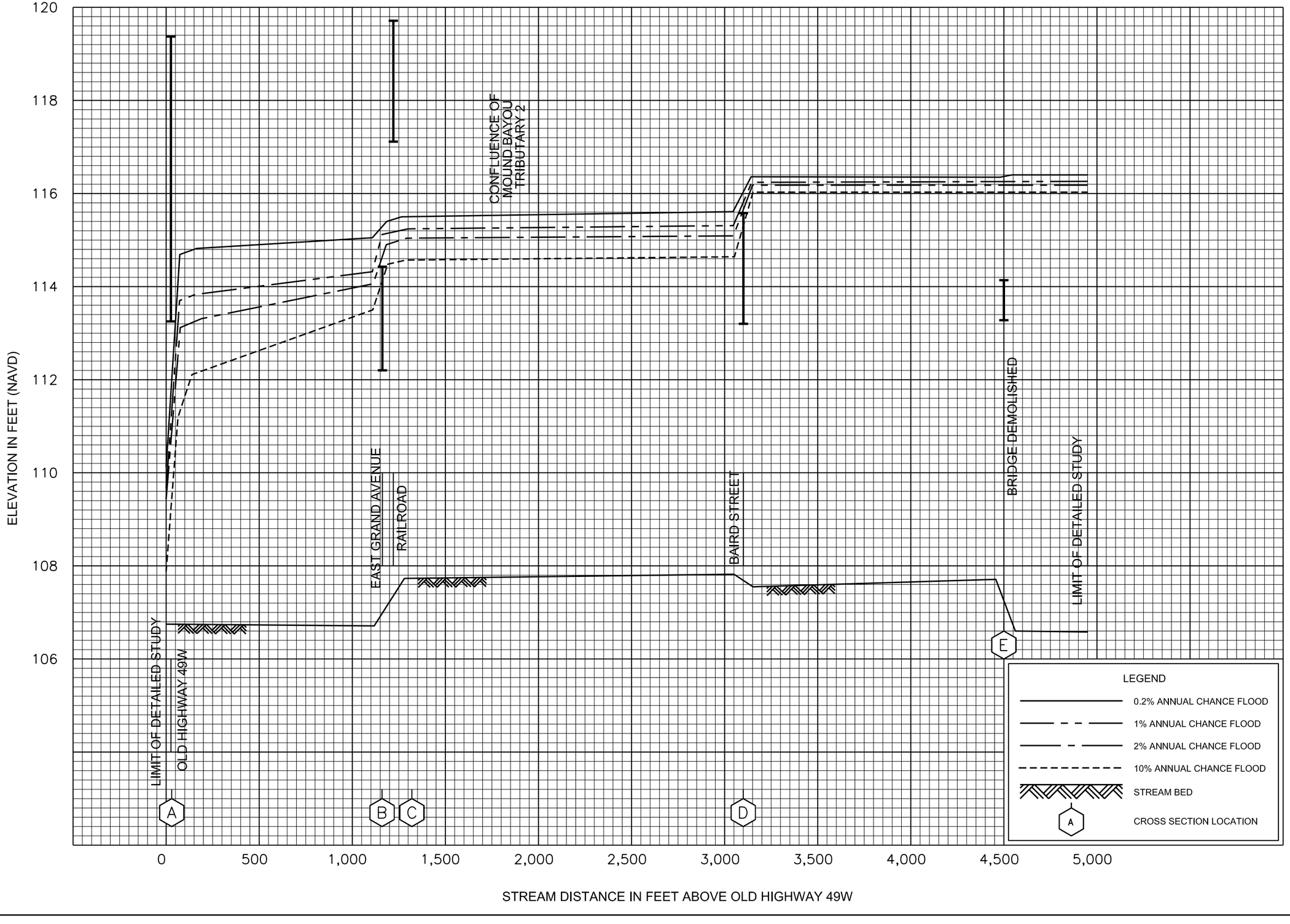
FLOOD PROFILES

MOORHEAD BAYOU

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUNFLOWER COUNTY, MS
AND INCORPORATED AREAS

28P



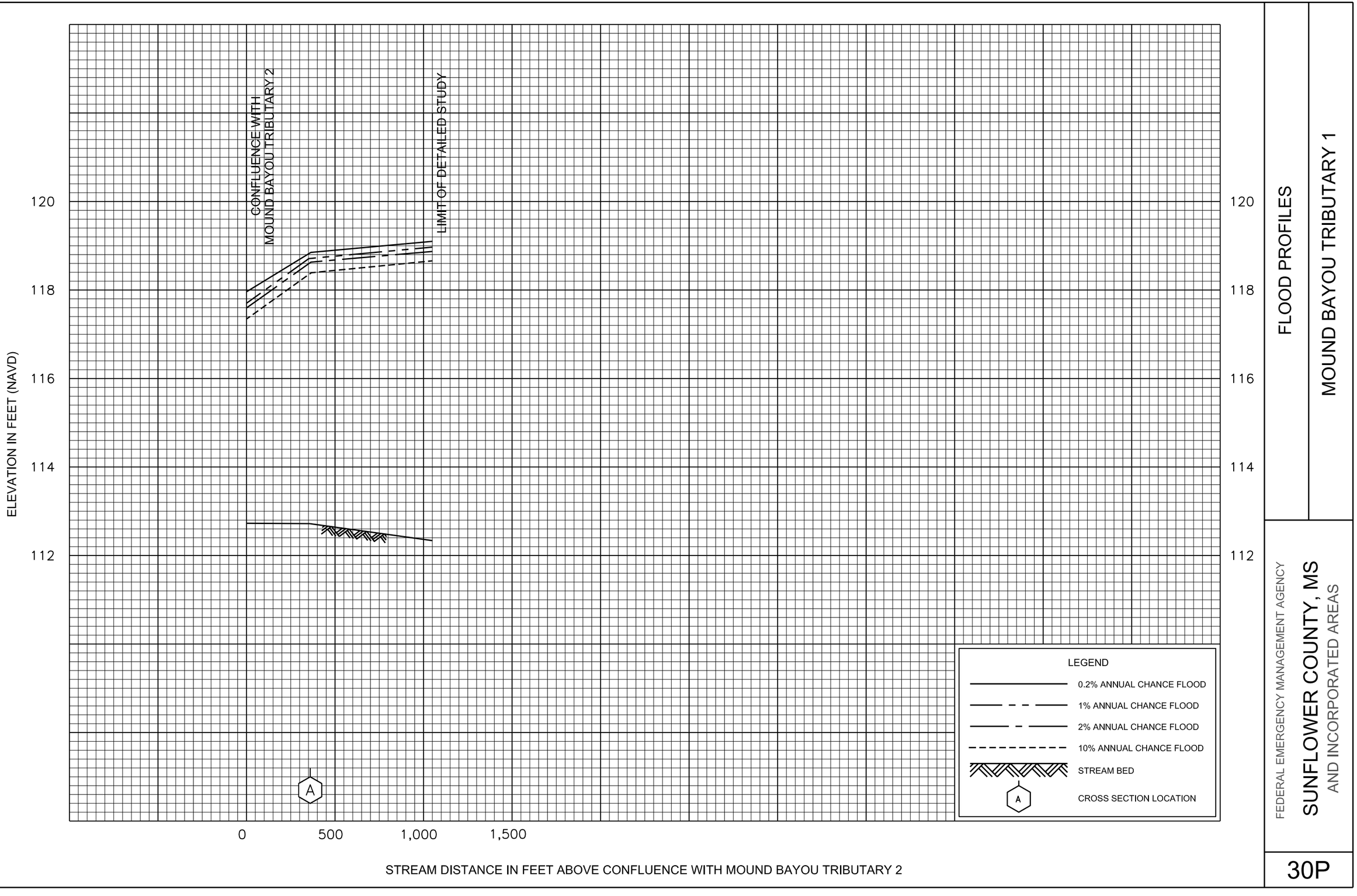
FLOOD PROFILES

MOUND BAYOU

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUNFLOWER COUNTY, MS
AND INCORPORATED AREAS

29P

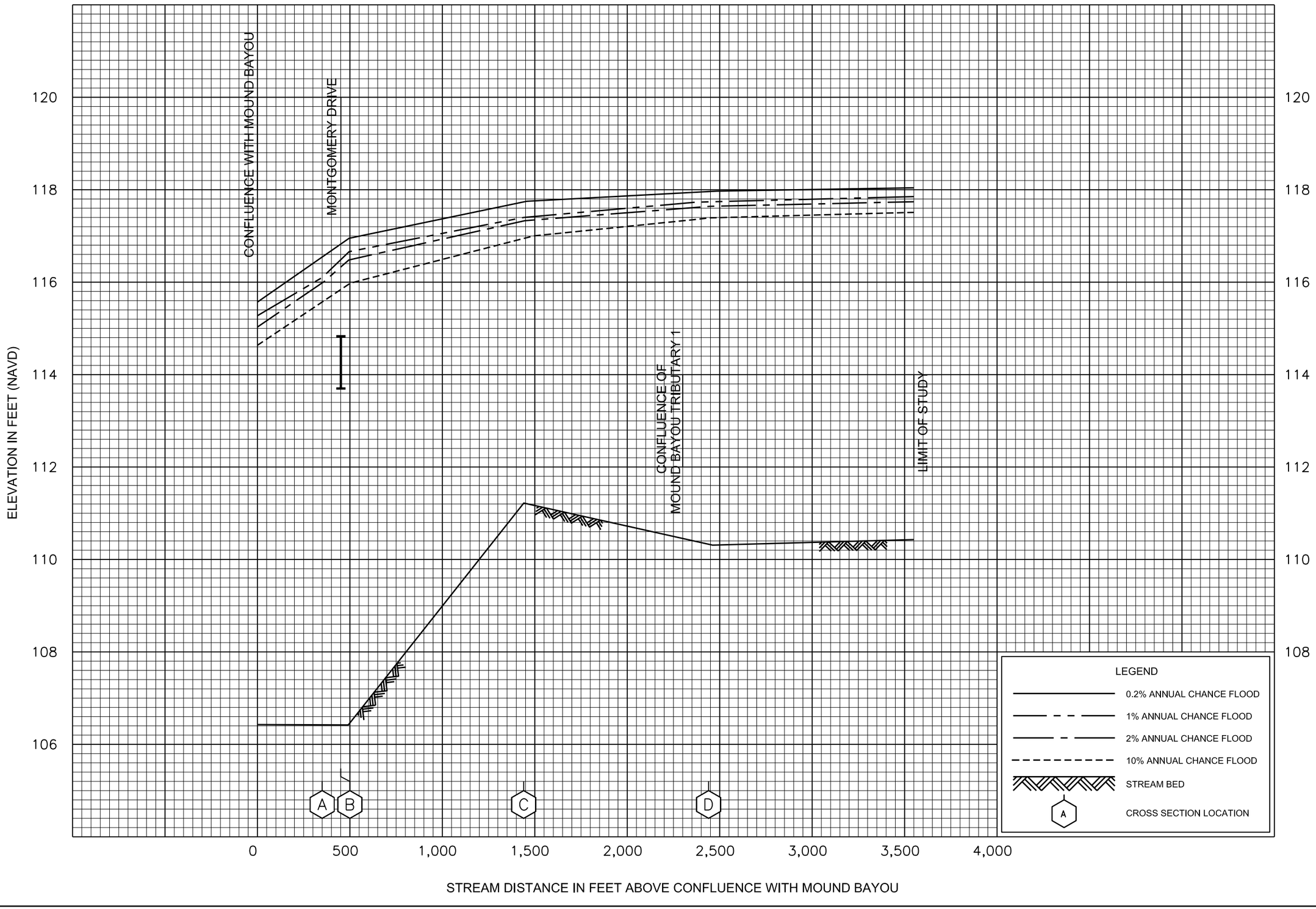


FLOOD PROFILES

MOUND BAYOU TRIBUTARY 1

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUNFLOWER COUNTY, MS
AND INCORPORATED AREAS

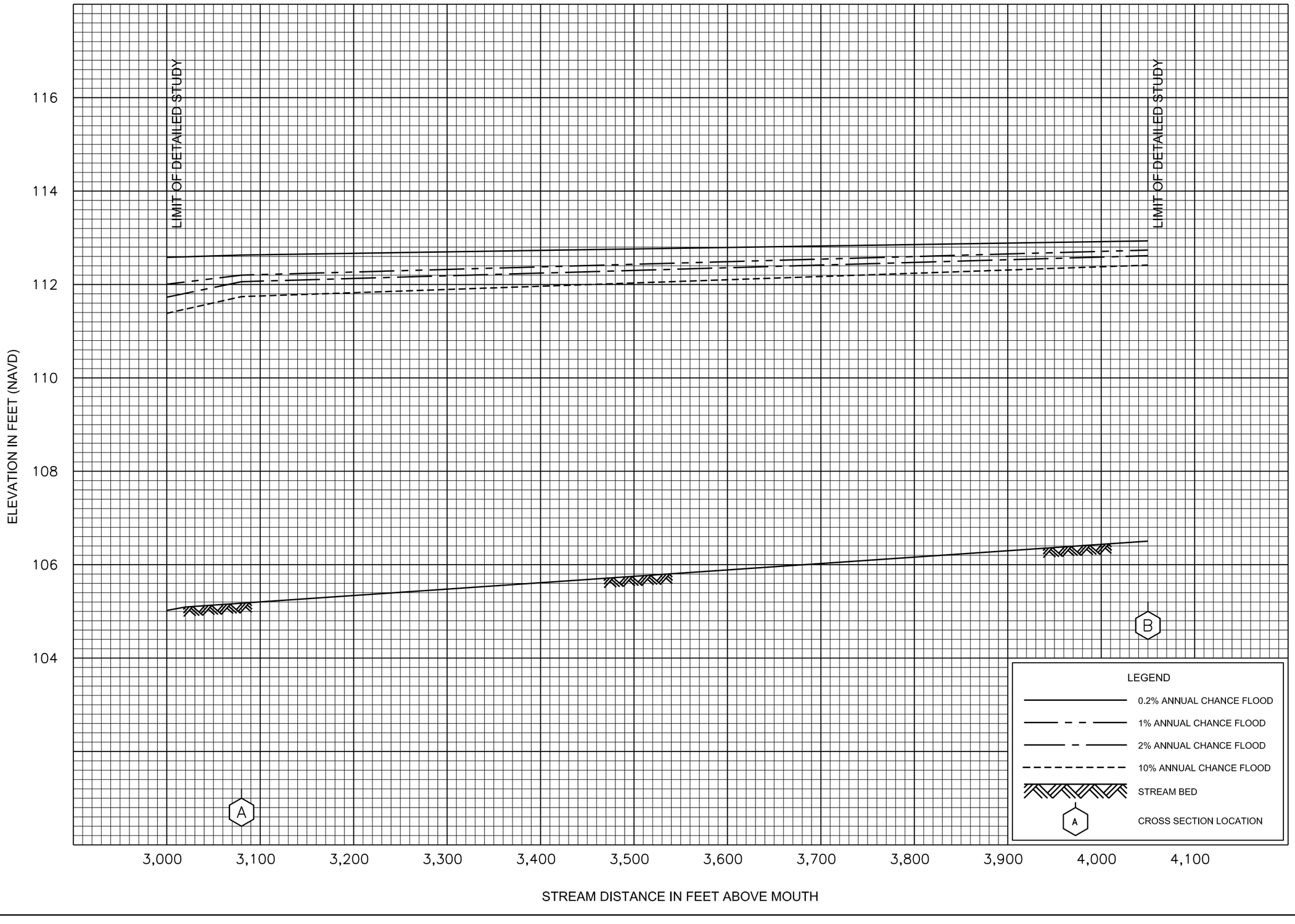


FLOOD PROFILES

MOUND BAYOU TRIBUTARY 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUNFLOWER COUNTY, MS
AND INCORPORATED AREAS



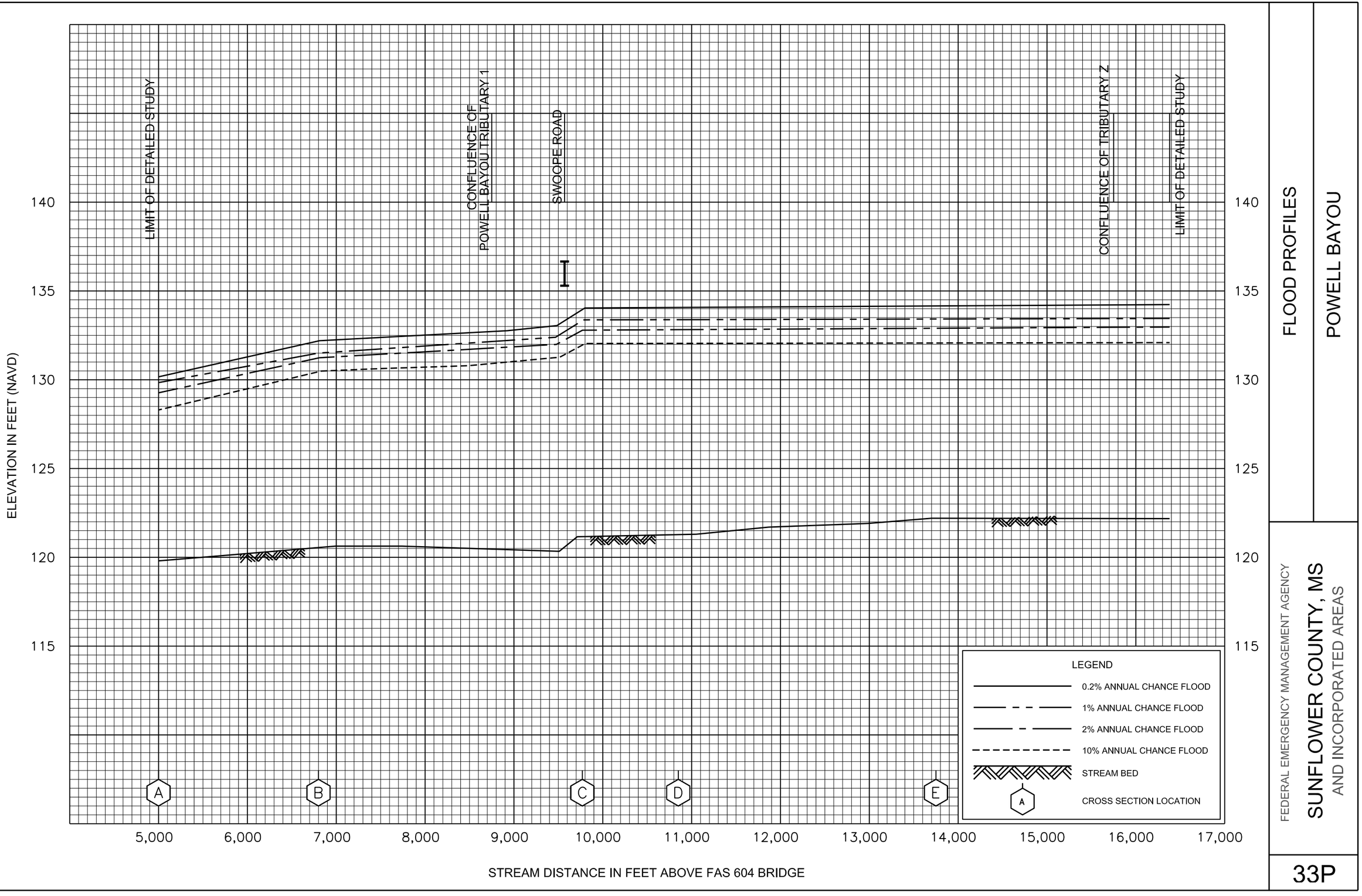
FLOOD PROFILES

MOUND BAYOU TRIBUTARY 3

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUNFLOWER COUNTY, MS
AND INCORPORATED AREAS

32P



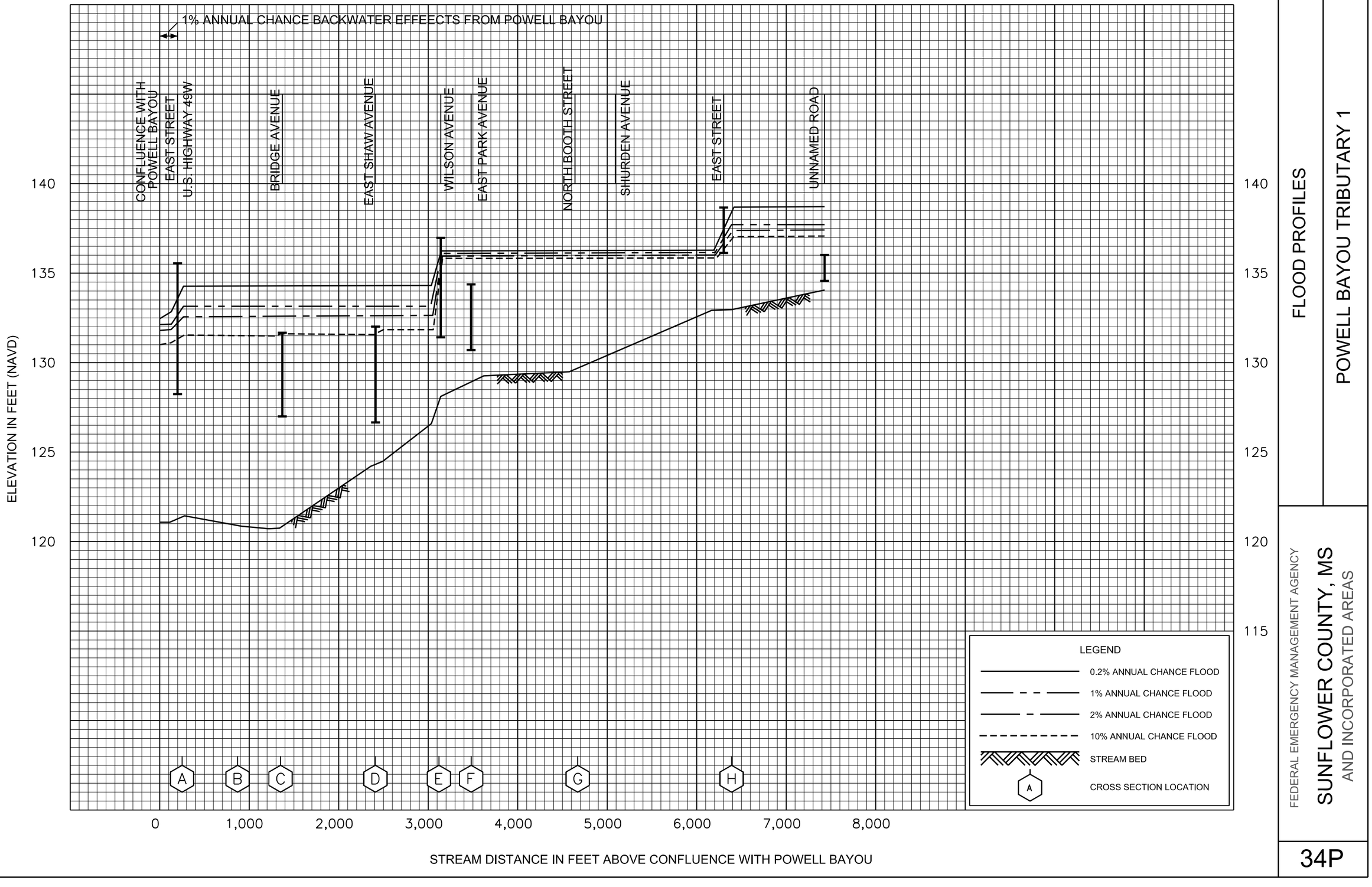
FLOOD PROFILES

POWELL BAYOU

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUNFLOWER COUNTY, MS
AND INCORPORATED AREAS

33P



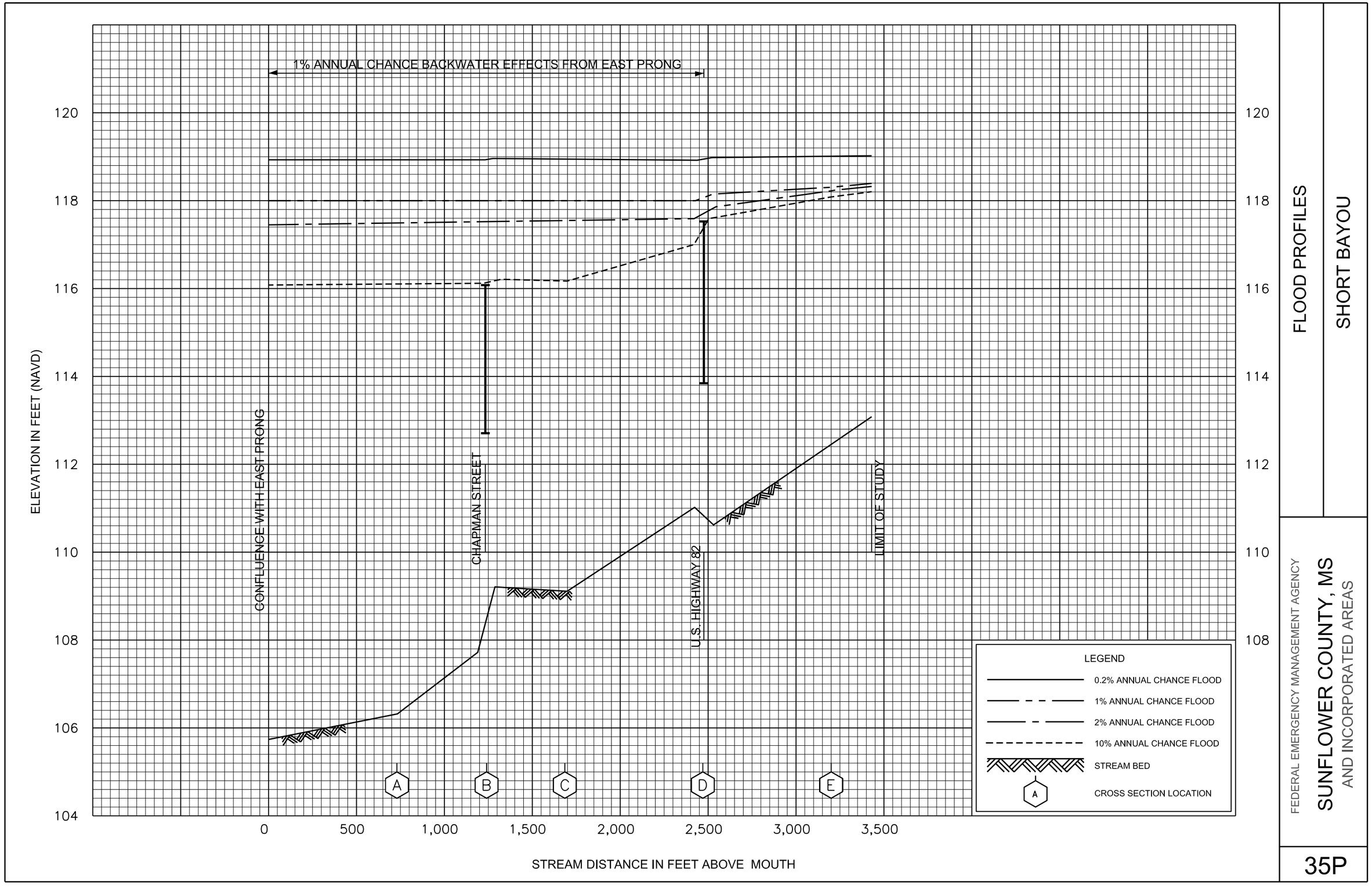
FLOOD PROFILES

POWELL BAYOU TRIBUTARY 1

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUNFLOWER COUNTY, MS
AND INCORPORATED AREAS

34P



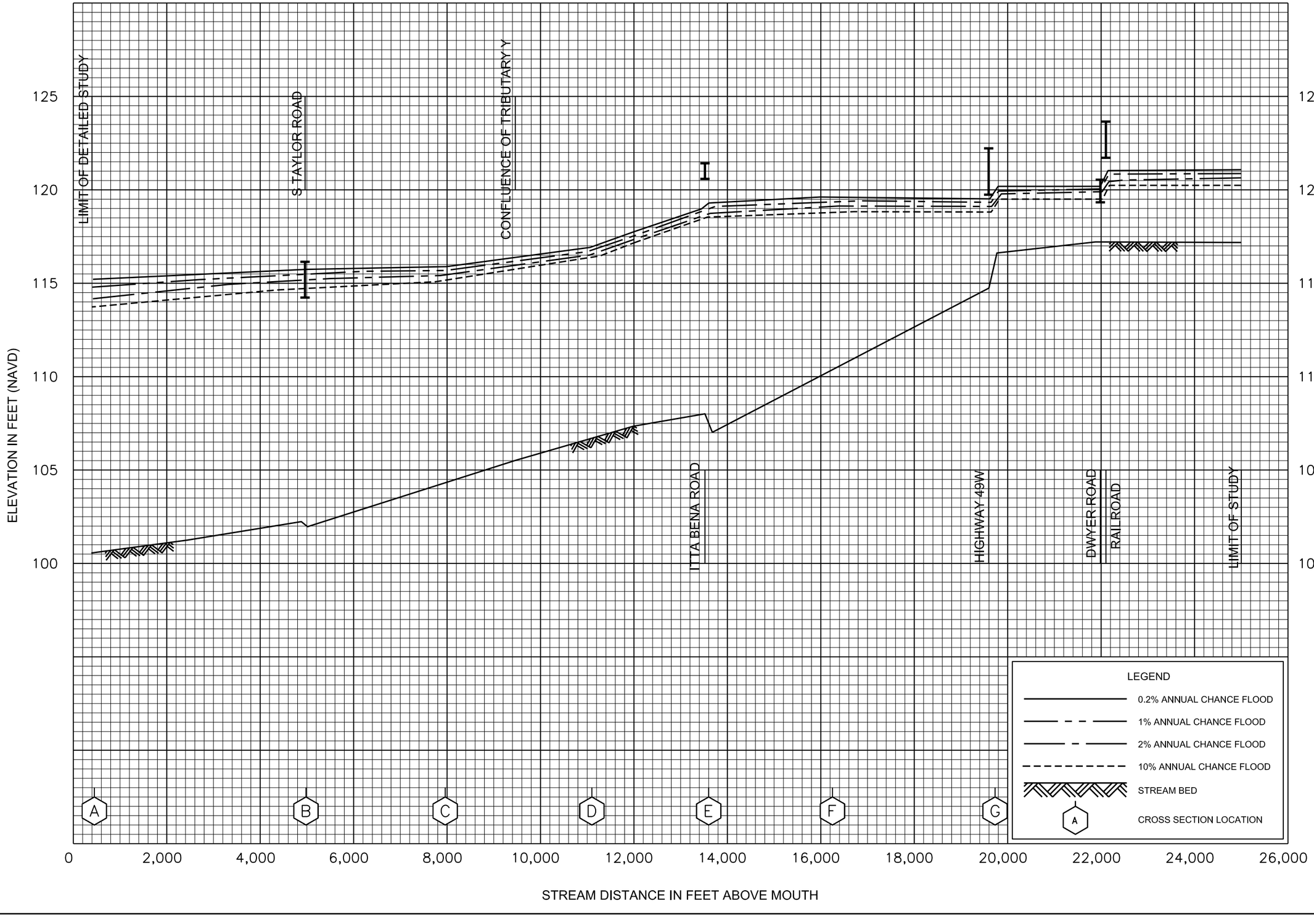
FLOOD PROFILES

SHORT BAYOU

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUNFLOWER COUNTY, MS
AND INCORPORATED AREAS

35P



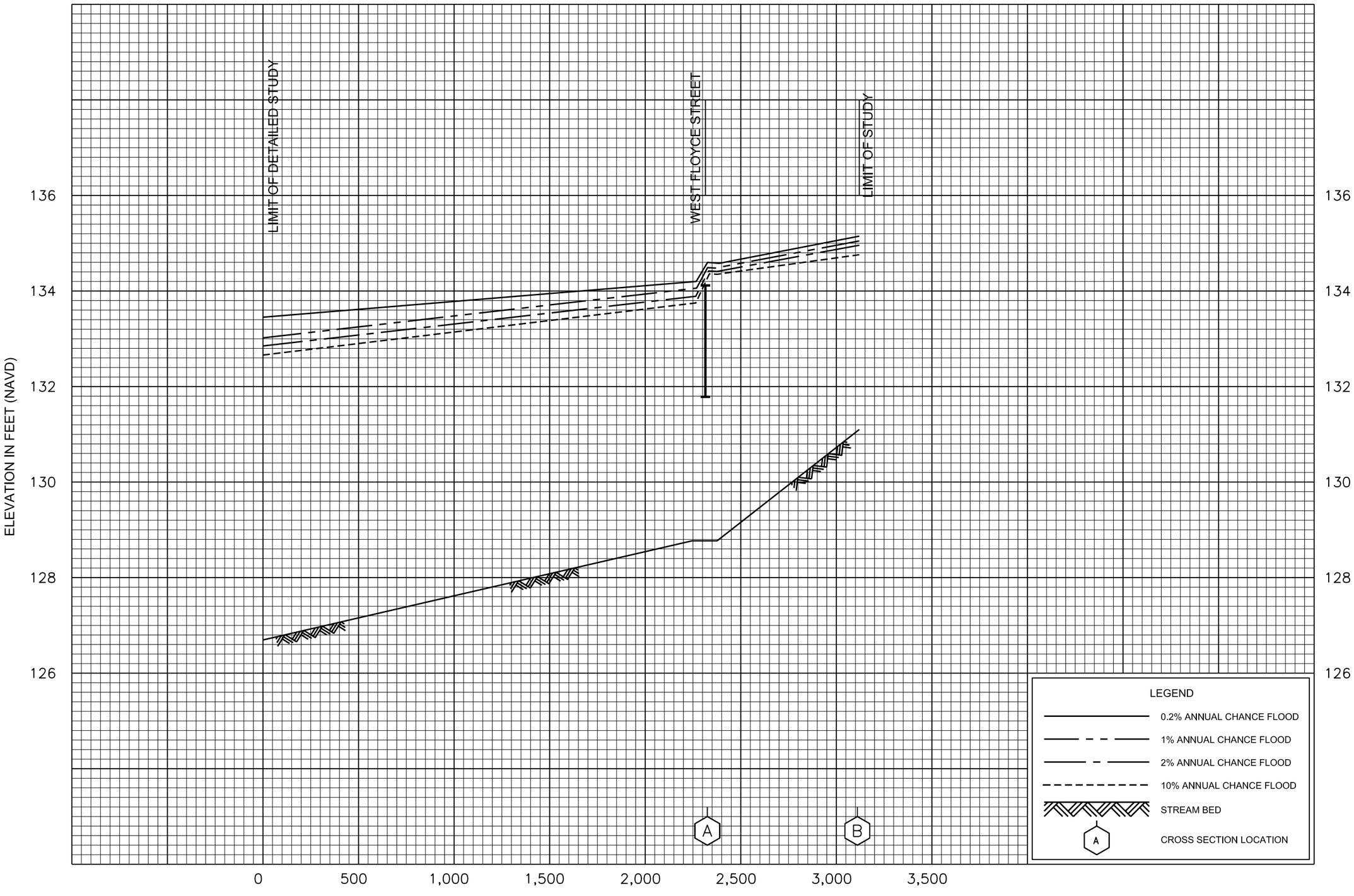
FLOOD PROFILES

SUNFLOWER DIVERSION CHANNEL

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUNFLOWER COUNTY, MS
AND INCORPORATED AREAS

36P

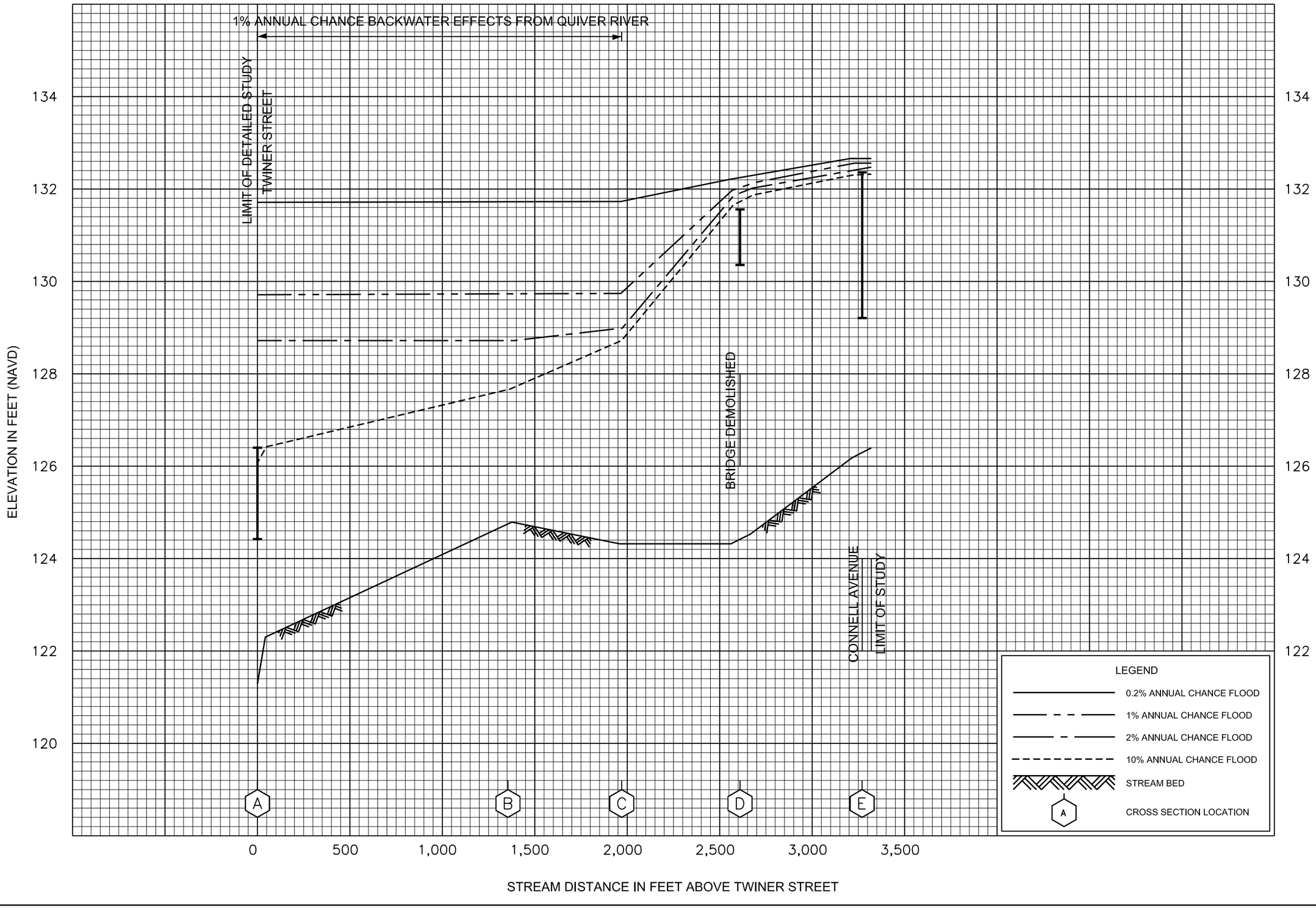


FLOOD PROFILES

TRIBUTARY 1

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUNFLOWER COUNTY, MS
AND INCORPORATED AREAS

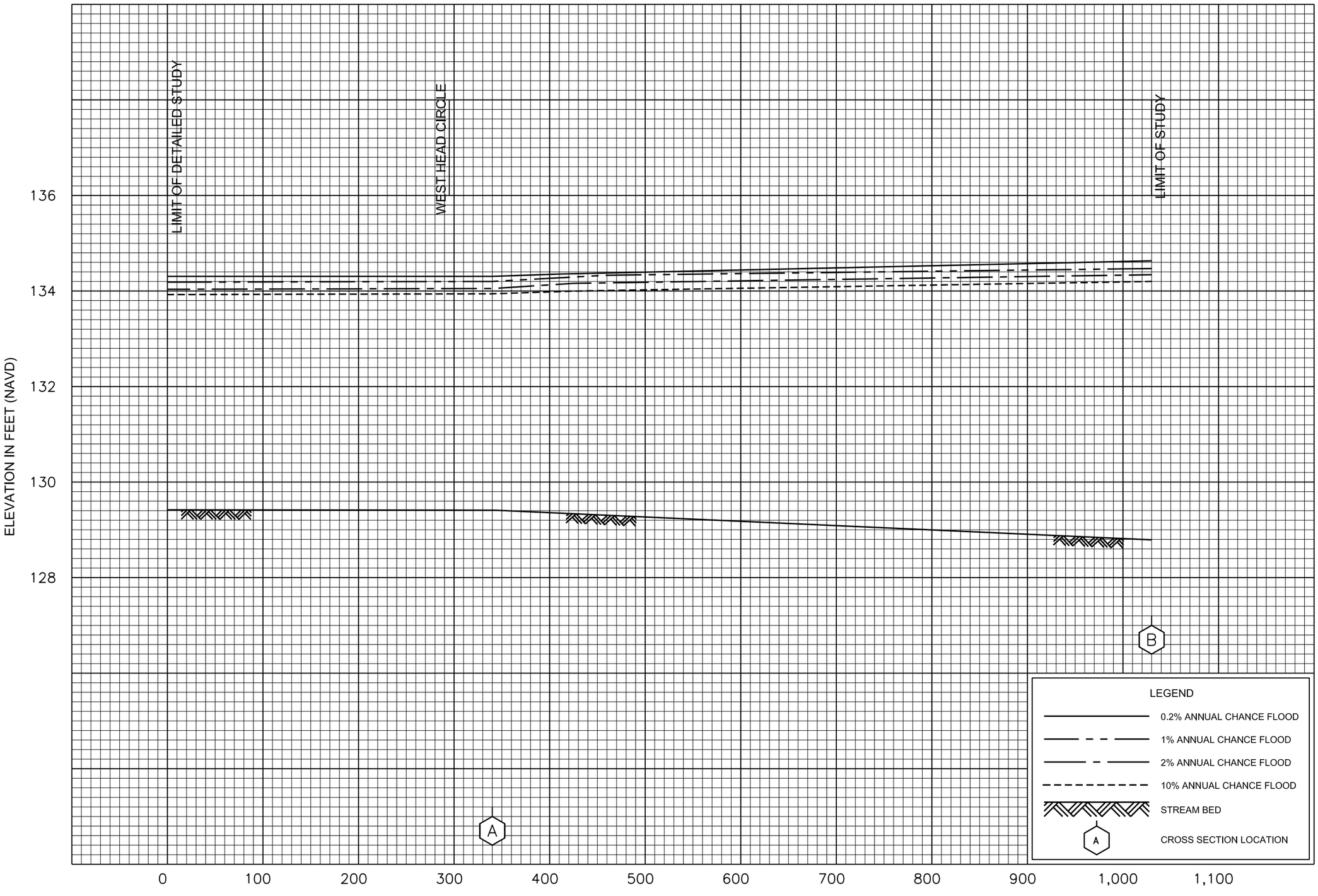


FLOOD PROFILES

TRIBUTARY 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUNFLOWER COUNTY, MS
AND INCORPORATED AREAS

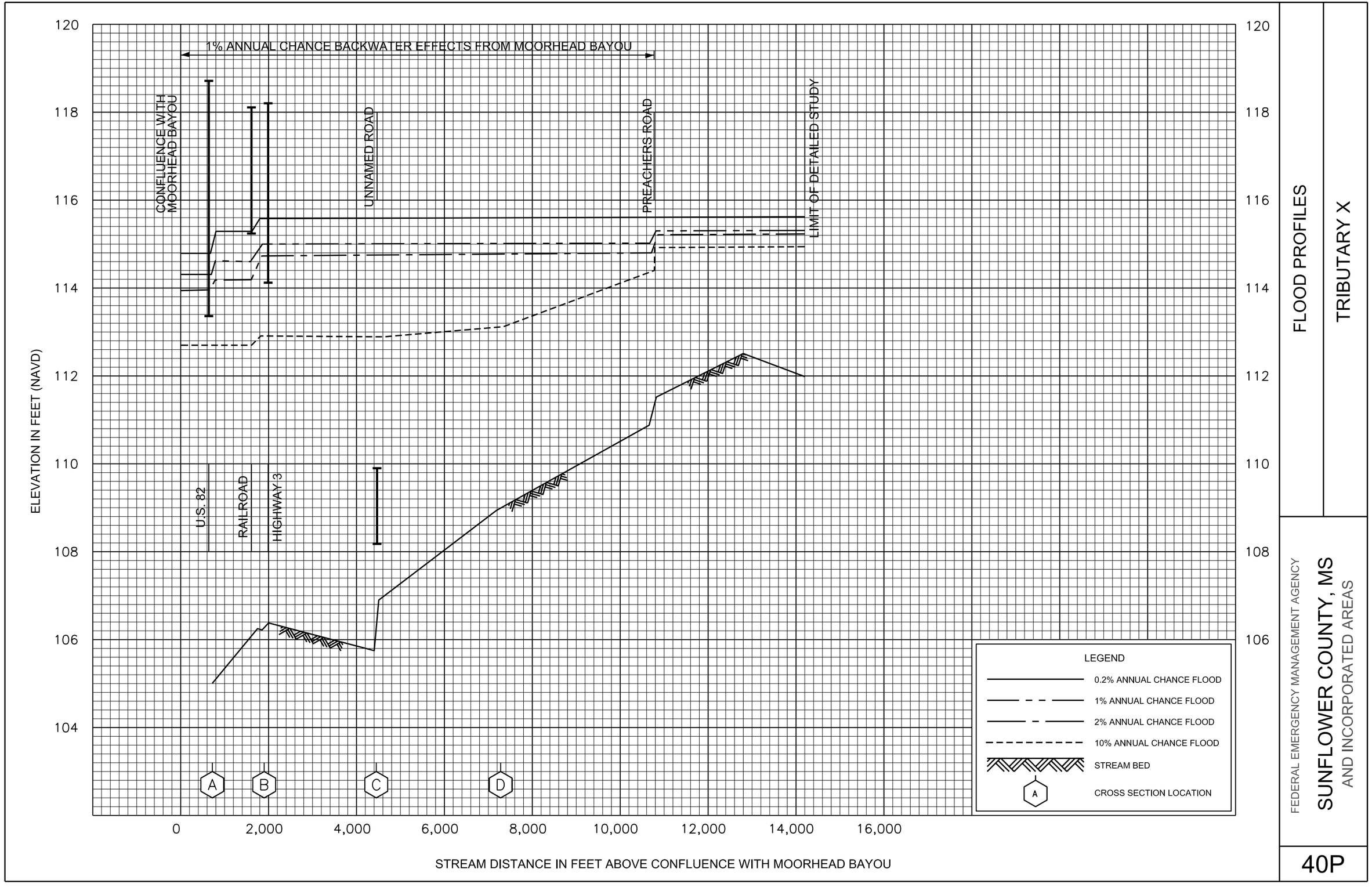


FLOOD PROFILES

TRIBUTARY 3

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUNFLOWER COUNTY, MS
AND INCORPORATED AREAS

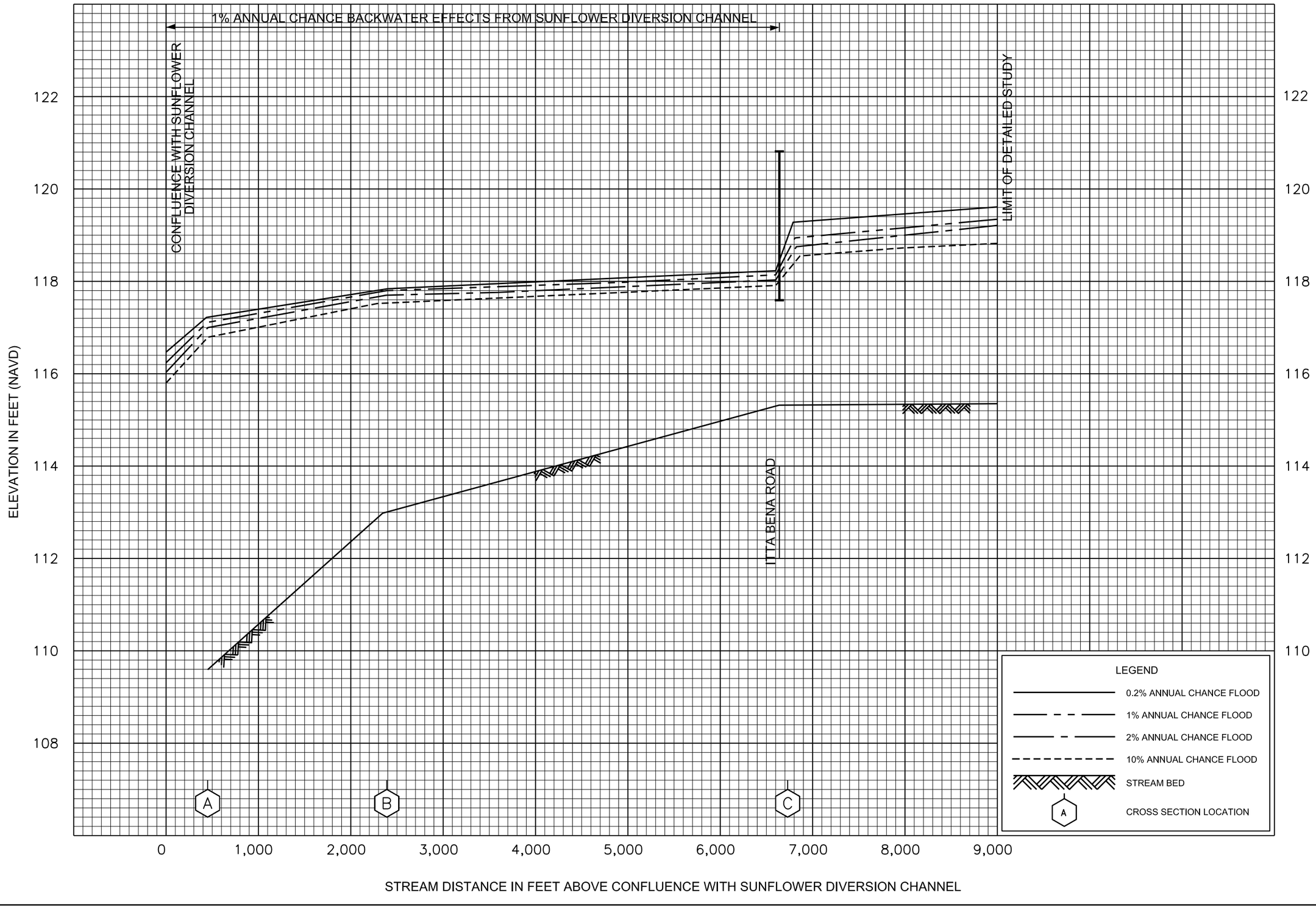


FLOOD PROFILES

TRIBUTARY X

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUNFLOWER COUNTY, MS
AND INCORPORATED AREAS



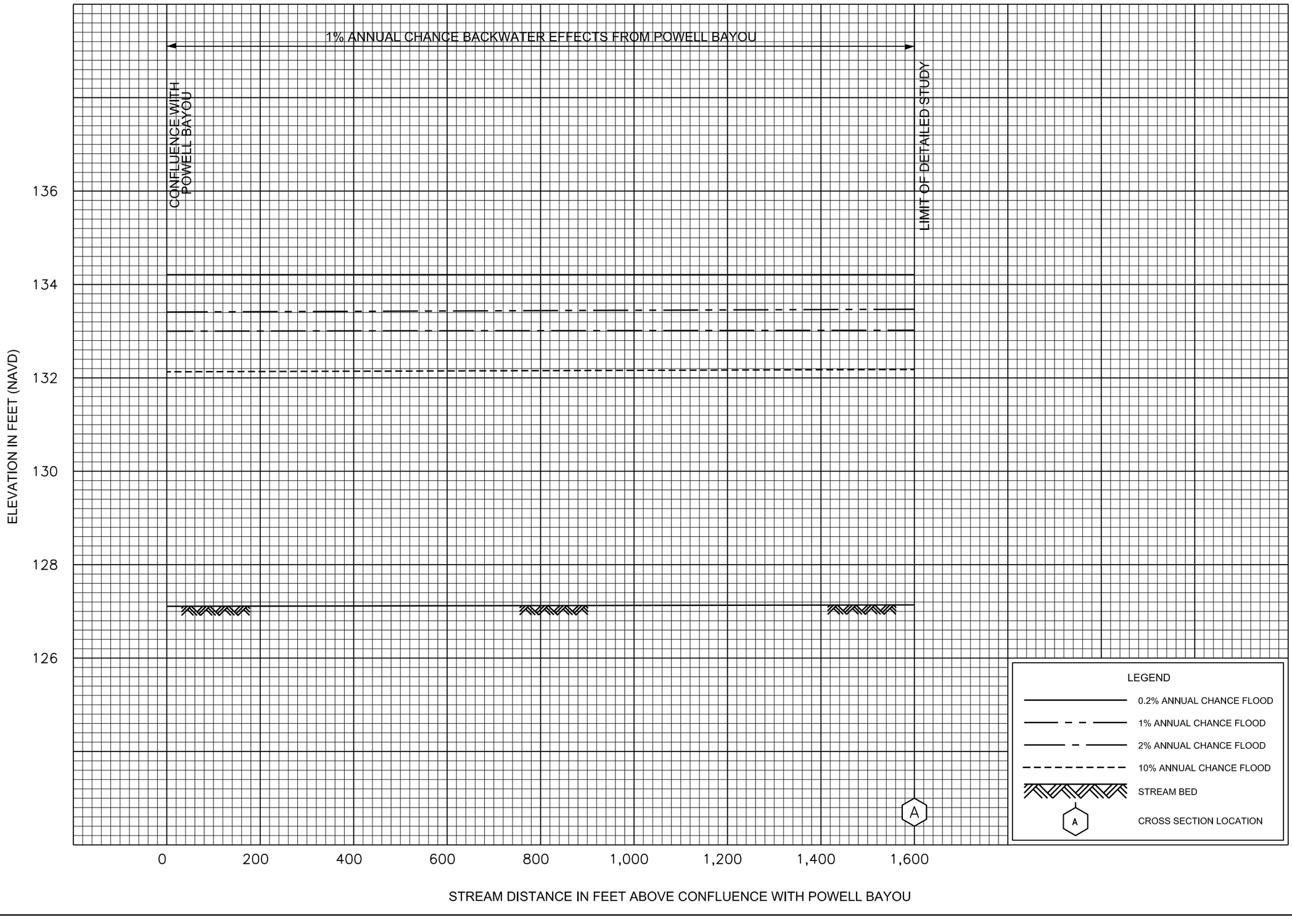
FLOOD PROFILES

TRIBUTARY Y

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUNFLOWER COUNTY, MS
AND INCORPORATED AREAS

41P



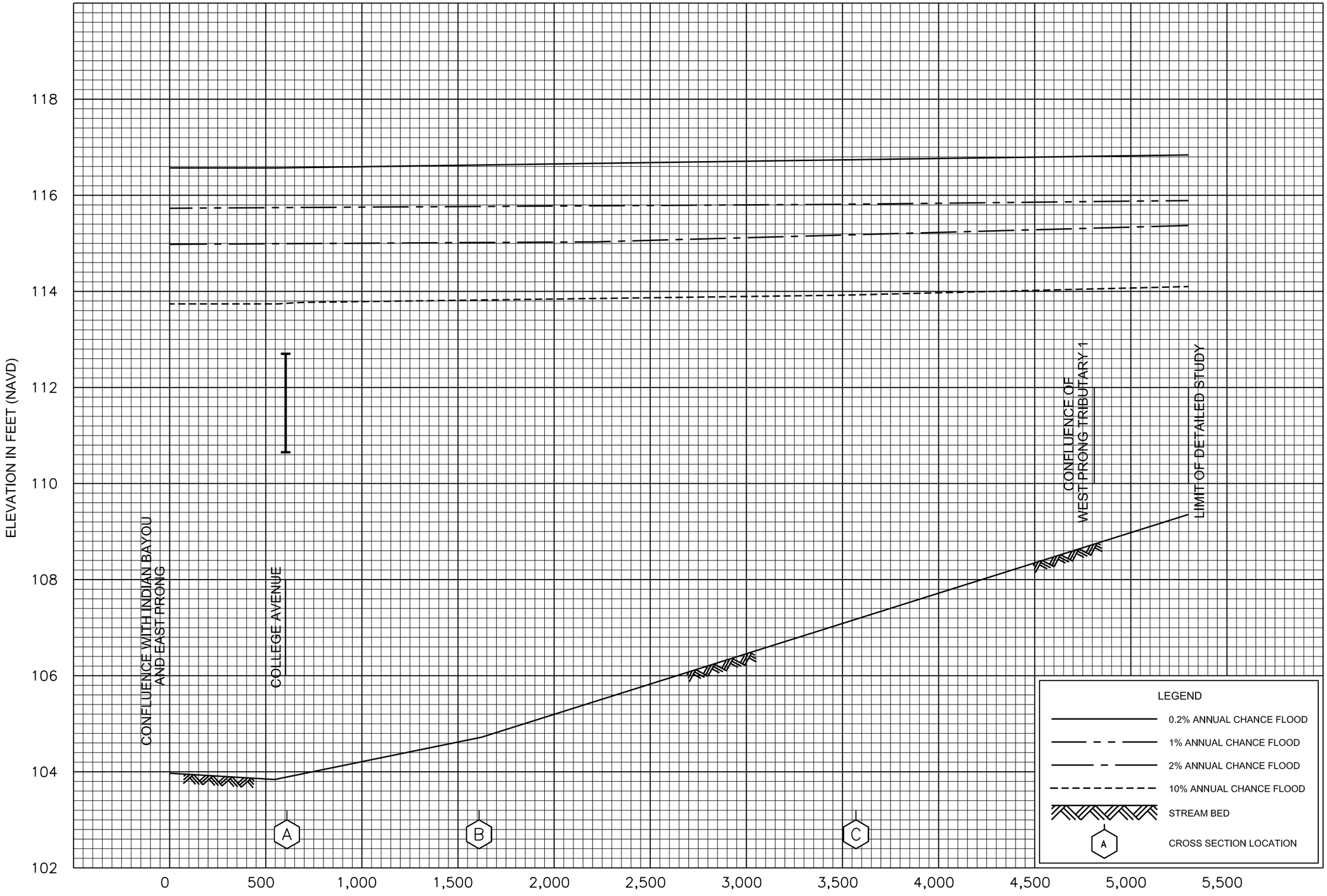
FLOOD PROFILES

TRIBUTARY Z

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUNFLOWER COINTY, MS
AND INCORPORATED AREAS

42P

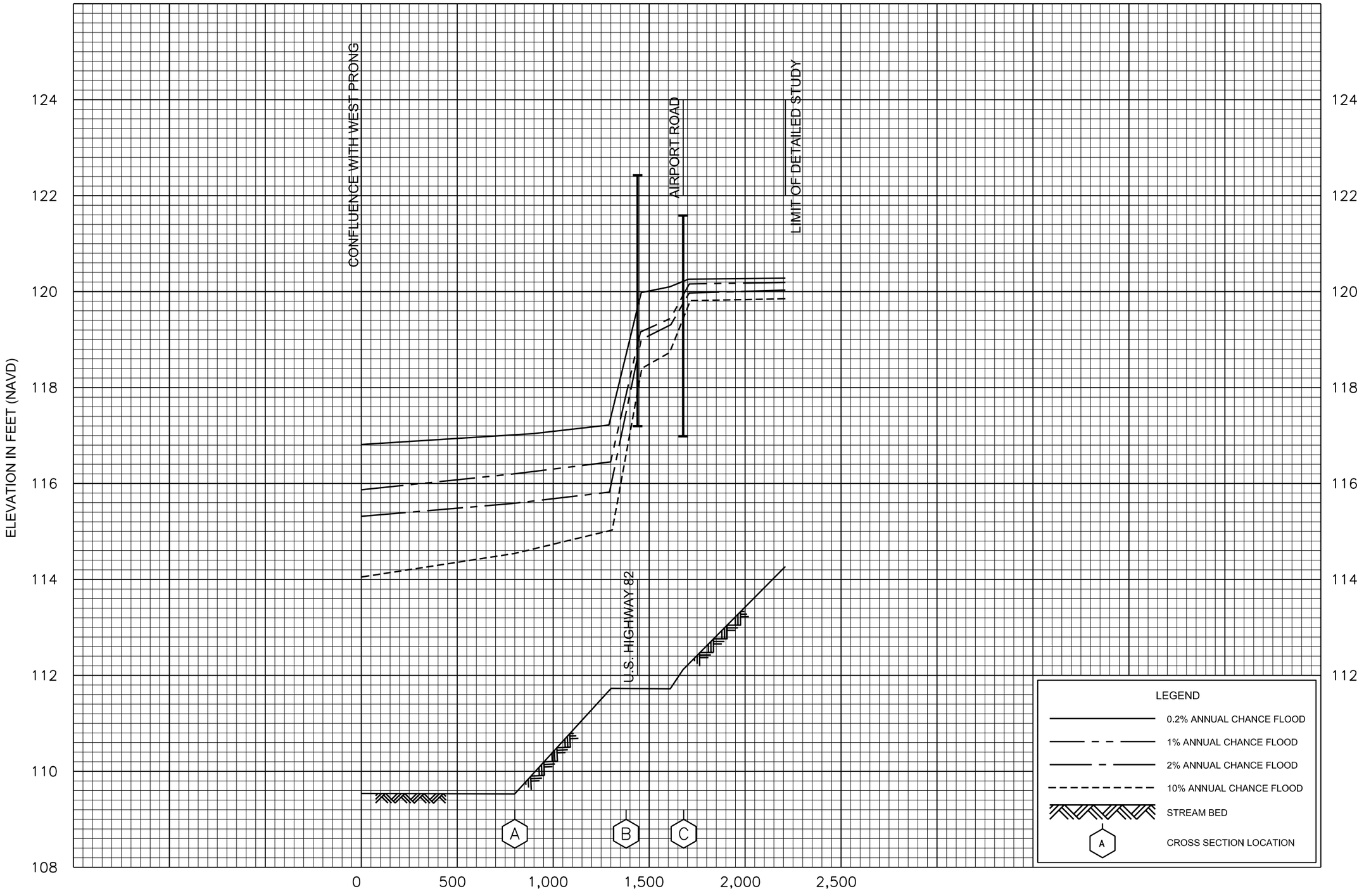


FLOOD PROFILES

WEST PRONG

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUNFLOWER COUNTY, MS
AND INCORPORATED AREAS



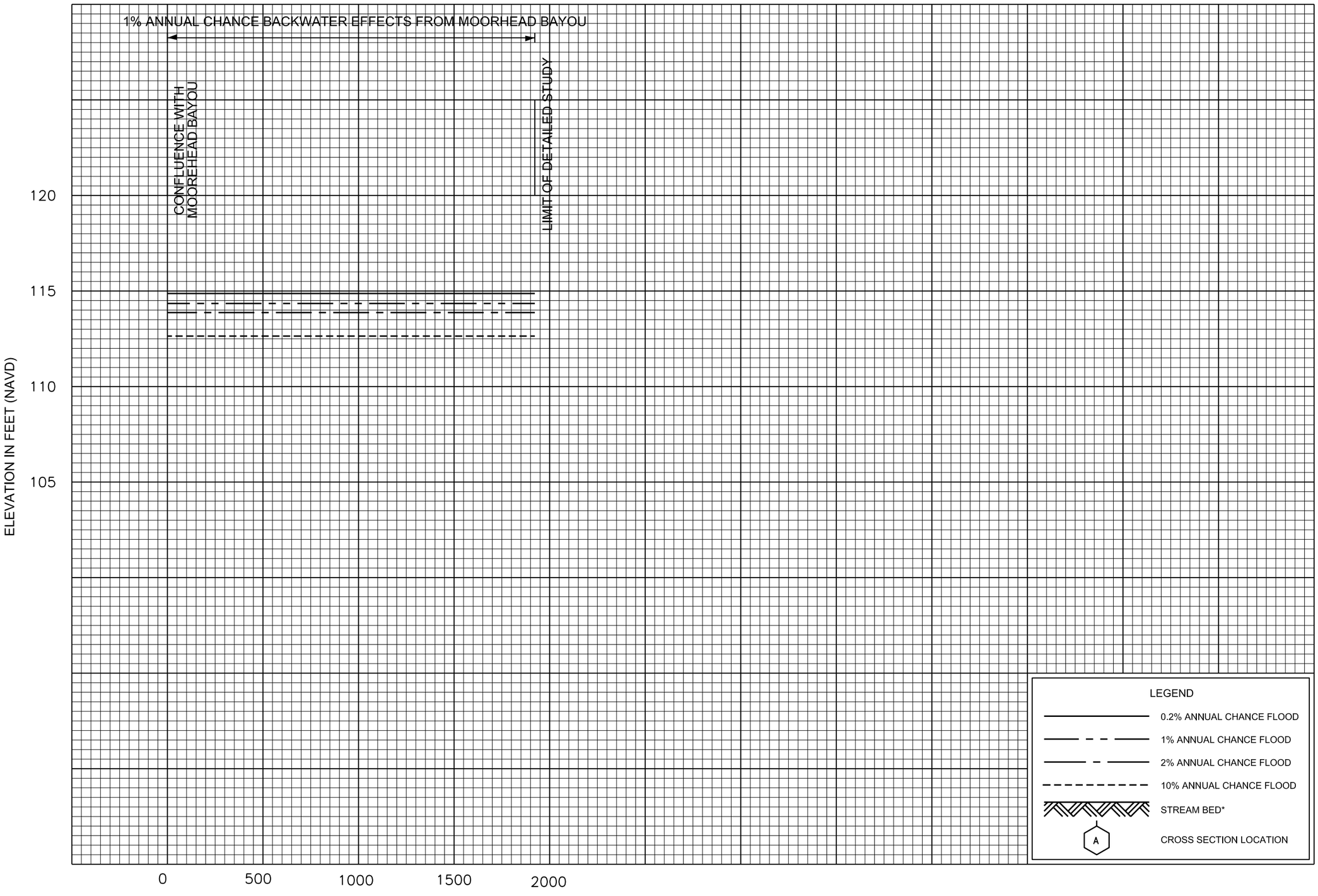
FLOOD PROFILES

WEST PRONG TRIBUTARY 1

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUNFLOWER COUINTY, MS

AND INCORPORATED AREAS



FLOOD PROFILES

WIXON SLOUGH

FEDERAL EMERGENCY MANAGEMENT AGENCY

SUNFLOWER COUNTY, MS
AND INCORPORATED AREAS

45P