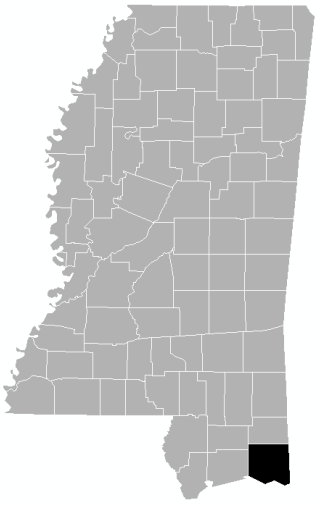
FLOOD INSURANCE STUDY

FEDERAL EMERGENCY MANAGEMENT AGENCY

VOLUME 1 OF 2



JACKSON COUNTY, MISSISSIPPI

AND INCORPORATED AREAS

COMMUNITY NAME	COMMUNITY NUMBER
GAUTIER, CITY OF	**280332**
JACKSON COUNTY UNINCORPORATED AREAS	**285256**
MOSS POINT, CITY OF	**285258**
OCEAN SPRINGS, CITY OF	**285259**
PASCAGOULA, CITY OF	**285260**

FEMA

PRELIMINARY

02/29/2016

REVISED:

TBD

FLOOD INSURANCE STUDY NUMBER
28059CV001B

Version Number 2.3.3.3

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FLOOD INSURANCE STUDY REPORT
JACKSON 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 insurance 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 Jackson County, Mississippi.

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
Gautier, City of	280332	03170006 03170009	28059C0303H 28059C0304H 28059C0307G 28059C0308G 28059C0309G 28059C0311G 28059C0312G 28059C0313G 28059C0314G 28059C0316G 28059C0317G 28059C0318G 28059C0319G 28059C0330G 28059C0336G 28059C0338G 28059C0405G	

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
Gautier, City of	280332	03170006 03170009	28059C0406G 28059C0407G 28059C0426G	
Jackson County Unincorporated Areas	285256	03170006 03170007 03170008 03170009	28059C0025G 28059C0050G 28059C0075G 28059C0100G 28059C0125G 28059C0135G 28059C0145G 28059C0155G 28059C0160G 28059C0165G 28059C0170G 28059C0180G 28059C0182G 28059C0184G 28059C0185G 28059C0187G 28059C0189G 28059C0190G 28059C0191G 28059C0192G 28059C0193G 28059C0194G 28059C0202G 28059C0204G 28059C0205G 28059C0210G 28059C0215G 28059C0216G 28059C0217G 28059C0218G 28059C0219G 28059C0230G 28059C0235G 28059C0236G 28059C0237G	

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
Jackson County Unincorporated Areas	285256	03170006 03170007 03170008 03170009	28059C0238G 28059C0239G 28059C0241G 28059C0242G 28059C0243G 28059C0244G 28059C0260H 28059C0267G 28059C0278H 28059C0279H 28059C0280H 28059C0285G 28059C0286G 28059C0287G 28059C0289G 28059C0291G 28059C0292G 28059C0293G 28059C0294G 28059C0301H 28059C0302G 28059C0303H 28059C0304H 28059C0306G 28059C0307G 28059C0308G 28059C0309G 28059C0311G 28059C0312G 28059C0313G 28059C0314G 28059C0316G 28059C0330G 28059C0331G 28059C0332G 28059C0333G 28059C0334G 28059C0336G	

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
Jackson County Unincorporated Areas	285256	03170006 03170007 03170008 03170009	28059C0337G 28059C0338G 28059C0339G 28059C0341G 28059C0344G 28059C0351G 28059C0352G 28059C0353G 28059C0354G 28059C0356G 28059C0357G 28059C0358G 28059C0359G 28059C0361G 28059C0362G 28059C0363G 28059C0364G 28059C0370G 28059C0380G[1] 28059C0385G 28059C0395G[1] 28059C0405G 28059C0406G 28059C0407G 28059C0408G[1] 28059C0409G[1] 28059C0415G[1] 28059C0420G[1] 28059C0426G 28059C0430G 28059C0432G 28059C0433G 28059C0434G 28059C0440G[1] 28059C0445G[1] 28059C0451G 28059C0453G	

[1] Panel not printed

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
Jackson County Unincorporated Areas	285256	03170006 03170007 03170008 03170009	28059C0455G 28059C0460G[1] 28059C0465G[1] 28059C0470G[1] 28059C0500G[1] 28059C0525G[1] 28059C0530G[1] 28059C0535G[1] 28059C0540G[1] 28059C0545G[1] 28059C0575G[1]	
Moss Point, City of	285258	03170006 03170008 03170009	28059C0330G 28059C0331G 28059C0332G 28059C0333G 28059C0334G 28059C0337G 28059C0338G 28059C0339G 28059C0341G 28059C0342G 28059C0343G 28059C0344G 28059C0353G 28059C0361G 28059C0363G	
Ocean Springs, City of	285259	03170006	28059C0286G 28059C0287G 28059C0288G 28059C0289G 28059C0291G 28059C0292G 28059C0293G 28059C0294G 28059C0311G 28059C0313G	

[1] Panel not printed

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
Pascagoula, City of	285260	03170006 03170009	28059C0338G 28059C0339G 28059C0343G 28059C0344G 28059C0426G 28059C0427G 28059C0430G 28059C0431G 28059C0432G 28059C0433G 28059C0434G	

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 Jackson County became effective on March 16, 2009. Refer to Table 28 for information about subsequent revisions to the FIRMs.

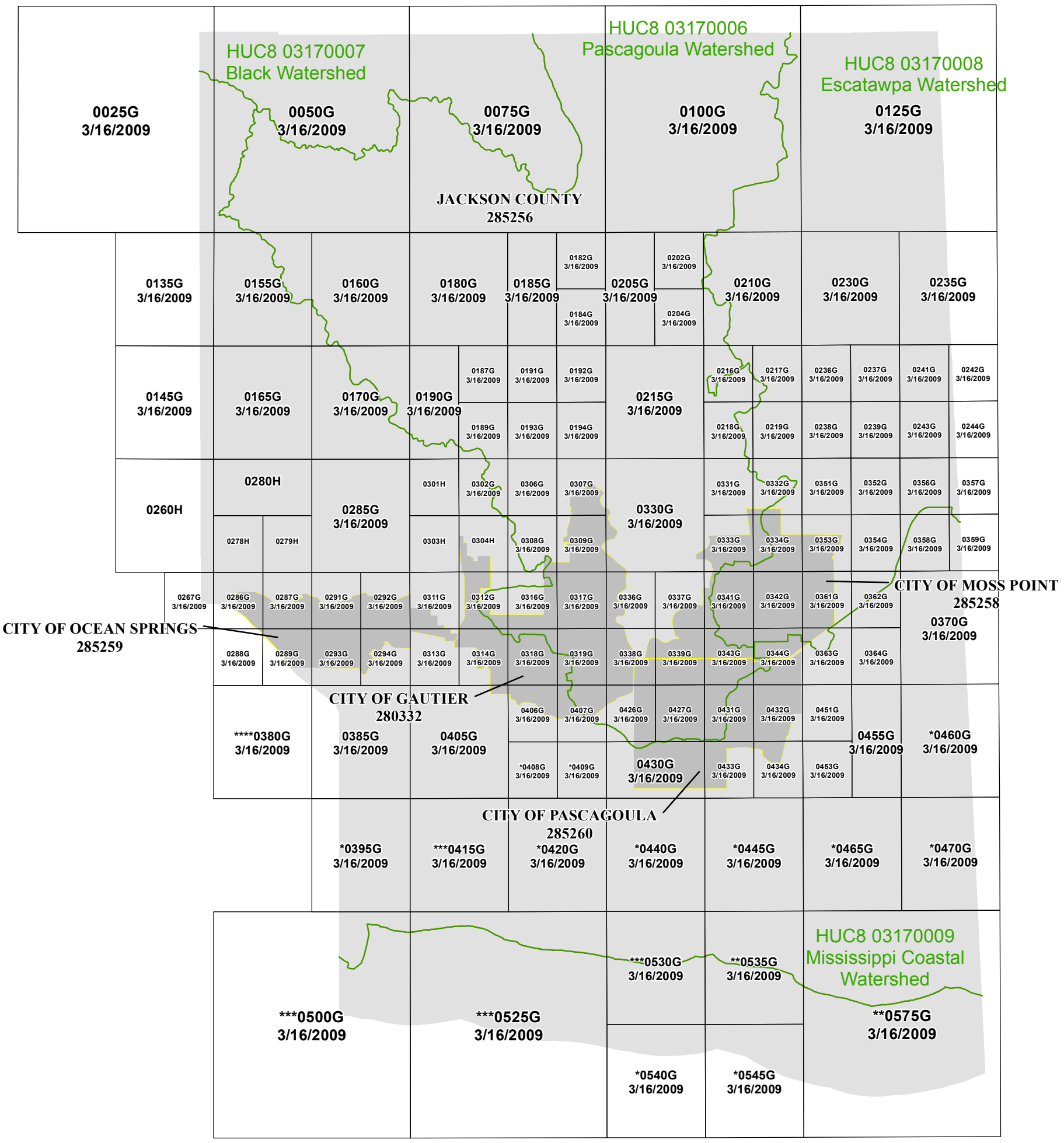
- FEMA does not impose floodplain management requirements or special insurance ratings based on Limit of Moderate Wave Action (LiMWA) delineations at this time. The LiMWA represents the approximate landward limit of the 1.5-foot breaking wave. If the LiMWA is shown on the FIRM, it is being provided by FEMA as information only. For communities that do adopt Zone VE building standards in the area defined by the LiMWA, additional Community Rating System (CRS) credits are available. Refer to Section 2.5.4 for additional information about the LiMWA.

  The CRS is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements. Visit the FEMA Web site at https://www.fema.gov/national-flood-insurance-program-community-rating-system or contact your appropriate FEMA Regional Office for more information about this program.

- 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 http://www.fema.gov/online-tutoria.

The FIRM Index in Figure 1 shows the overall FIRM panel layout within Jackson 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 United States Geological Survey (USGS) Hydrologic Unit Code – 8 (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.

PRELIMINARY
FEB 29 2016

1 inch = 4 miles 1:270,000

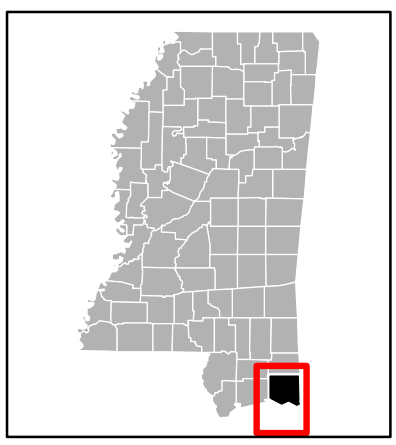
N 0 2.25 4.5 9 Miles

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

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

SEE FLOOD INSURANCE STUDY FOR ADDITIONAL INFORMATION

*PANEL NOT PRINTED - OPEN WATER AREA
**PANEL NOT PRINTED - AREA ALL WITHIN ZONE VE (EL 17)
***PANEL NOT PRINTED - AREA ALL WITHIN ZONE VE (EL 18)
****PANEL NOT PRINTED - AREA ALL WITHIN ZONE VE (EL 22)



NATIONAL FLOOD INSURANCE PROGRAM
FLOOD INSURANCE RATE MAP INDEX

JACKSON COUNTY, MISSISSIPPI and Incorporated Areas

PANELS PRINTED:
0025, 0050, 0075, 0100, 0125, 0135, 0145, 0155, 0160, 0165, 0170, 0180, 0182, 0184, 0185, 0187, 0189, 0190, 0191, 0192, 0193, 0194, 0202, 0204, 0205, 0210, 0215, 0216, 0217, 0218, 0219, 0230, 0235, 0236, 0237, 0238, 0239, 0241, 0242, 0243, 0244, 0260, 0267, 0278, 0279, 0280, 0285, 0286, 0287, 0288, 0289, 0291, 0292, 0293, 0294, 0301, 0302, 0303, 0304, 0306, 0307, 0308, 0309, 0311, 0312, 0313, 0314, 0316, 0317, 0318, 0319, 0330, 0331, 0332, 0333, 0334, 0336, 0337, 0338, 0339, 0341, 0342, 0343, 0344, 0351, 0352, 0353, 0354, 0356, 0357, 0358, 0359, 0361, 0362, 0363, 0364, 0370, 0385, 0405, 0406, 0407, 0426, 0427, 0430, 0431, 0432, 0433, 0434, 0451, 0453, 0455

MAP NUMBER
28059CIND0B

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 Flood Map Information eXchange at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA Map Service Center website at http://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 Flood 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 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.

Coastal Base Flood Elevations shown on the map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the FIS Report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on the FIRM.

Figure 2. FIRM Notes to Users

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.

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 Coordinate System, Mississippi East, FIPS ZONE 2301. The horizontal datum was NAD83, 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 http://www.ngs.noaa.gov/ or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

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 the FIRM 2009 was provided in digital format by the State of Mississippi. This information was photogrammetrically compiled at a scale of 1:12,000 from aerial photography dated January 2006.
Base map information shown on this revision was provided in digital format by Mississippi Department of Environmental Quality. Othro imagery was originally produced by Sewall Company in 2012 and has a 0.5 foot ground sample distance. Supplemental imagery was collected by Sewall Company for Harrison County in 2012 and has a 0.5 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.

Figure 2. FIRM Notes to Users

NOTES FOR FIRM INDEX

REVISIONS TO INDEX: As new studies are performed and FIRM panels are updated within Jackson County, MS, 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.

SPECIAL NOTES FOR SPECIFIC FIRM PANELS

This Notes to Users section was created specifically for Jackson County, MS, effective TBD.

COASTAL BARRIER RESOURCES (CBRS) NOTE: This map includes approximate boundaries of the CBRS for informational purposes only. Flood insurance is not available within CBRS areas for structures that are newly built or substantially improved on or after the date(s) indicated on the map. For more information see http://www.fws.gov/habitatconservation/coastal_barrier.html, the FIS Report, or call the U.S. Fish and Wildlife Service Customer Service Center at 1-800-344-WILD.

LIMIT OF MODERATE WAVE ACTION: Zone AE has been divided by a Limit of Moderate Wave Action (LiMWA). The LiMWA represents the approximate landward limit of the 1.5-foot breaking wave. The effects of wave hazards between Zone VE and the LiMWA (or between the shoreline and the LiMWA for areas where Zone VE is not identified) will be similar to, but less severe than, those in Zone VE.

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 Jackson 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, either at cross section locations or as static whole-foot elevations that apply throughout the 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.

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.

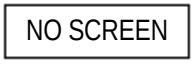
Future Conditions 1% Annual Chance Flood Hazard – Zone X: The flood insurance rate zone that corresponds to the 1% annual chance floodplains that are determined based on future-conditions hydrology. No base flood elevations or flood depths are shown within this zone.

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 determined to be outside the 0.2% annual chance 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

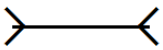
Aqueduct
Channel
Culvert
Storm Sewer

Channel, Culvert, Aqueduct, or Storm Sewer

Dam
Jetty
Weir

Dam, Jetty, Weir

Levee, Dike, or Floodwall



Bridge

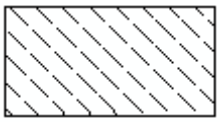
Bridge

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. See Notes to Users for important information.*

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.



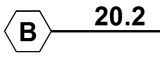
OTHERWISE PROTECTED AREA
09/30/2009

Otherwise Protected Area

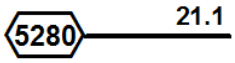
REFERENCE MARKERS

River mile Markers

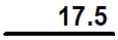
CROSS SECTION & TRANSECT INFORMATION



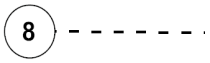
Lettered Cross Section with Regulatory Water Surface Elevation (BFE)



Numbered Cross Section with Regulatory Water Surface Elevation (BFE)



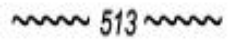
Unlettered Cross Section with Regulatory Water Surface Elevation (BFE)



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 (shown for flooding sources for which no cross sections or profile are available)

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 Jackson 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 Jackson 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
All Zone A streams studied in the 2009 FIS	Jackson County Unincorporated Areas	Various	Various	03170006 03170007 03170008 03170009	Various	N	A	2007
Bayou Castelle	Jackson County Unincorporated Areas; Pascagoula, City of	Approximately 6,336 feet downstream from Gautier-Vancleave Road	Confluence of Old Fort Bayou Tributary	03170006 03170009	4.3	N	AE	1975
Bayou Costapia	Jackson County Unincorporated Areas	At Harrison/Jackson County boundary	Approximately 2,200 feet upstream of the confluence of Perigal Creek	03170009	2.84	Y	AE	1975
Bayou Costapia	Jackson County Unincorporated Areas	Approximately 2,200 feet upstream of the confluence of Perigal Creek	Approximately 4,960 feet upstream of the confluence of Bayou Costapia Tributary 3	03170009	4.5	N	A	2007
Black Creek	Jackson County Unincorporated Areas; Moss Point, City of	Confluence with Escatawpa River	At State Highway 613	03170008	10.5	Y	AE, VE	1985
Black Creek	Jackson County Unincorporated Areas	At State Highway 613	Approximately 5,000 feet upstream of Big Point Road	03170008	4.3	N	A	2007
Bluff Creek	Jackson County Unincorporated Areas	Confluence with Pascagoula River	Approximately 8,980 feet upstream of State Highway 57	03170006	12.0	Y	AE, VE	1985
Bluff Creek	Jackson County Unincorporated Areas	Approximately 8,980 feet upstream of State Highway 57	Approximately 9,000 feet upstream of the confluence of Bluff Creek Tributary 33	03170006	14.6	N	A	2007

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
Cypress Creek	Jackson County Unincorporated Areas	At Harrison/Jackson County boundary	Approximately 1,900 feet upstream of Stennis Road	03170009	3.5	Y	AE	2014
Cypress Creek	Jackson County Unincorporated Areas	Approximately 1,900 feet upstream of Stennis Road	Approximately 5,430 feet upstream of Stennis Road	03170009	1.0	N	A	2014
Ditch No.1	Jackson County Unincorporated Areas	Confluence with Cypress Creek	Approximately 1,100 feet upstream of McClelland Road	03170009	1.4	N	AE	1975
Ditch No.2	Jackson County Unincorporated Areas	Confluence with Cypress Creek	At McClelland Road	03170009	1.4	N	AE	1975
Ditch No.3	Jackson County Unincorporated Areas	Confluence with Perigal Creek	At Tucker Road	03170009	0.8	N	AE	1975
Escatawpa River	Jackson County Unincorporated Areas; Moss Point, City of	Confluence with Pascagoula River	Approximately 2,255 feet upstream from the confluence of Cunningham Branch	03170008	26.5	Y	AE	1985
Escatawpa River	Jackson County Unincorporated Areas	Approximately 2,255 feet upstream from the confluence of Cunningham Branch	At George/Jackson County boundary	03170008	17.1	N	A	2007
Gulf of Mexico	Jackson County Unincorporated Areas	Entire Coastline of Jackson County	Entire Coastline of Jackson County	03170009	n/a	N	A, AE, AH, VE	2007
Jackson Creek	Jackson County Unincorporated Areas	Confluence with Escatawpa River	Mississippi/Alabama State Line	03170008	3.9	N	AE	2007

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
Jackson Creek Tributary 2	Jackson County Unincorporated Areas	Confluence with Jackson Creek	Approximately 4,150 feet upstream from the confluence of Jackson Creek	03170008	0.8	N	AE	2007
Johns Bayou	Jackson County Unincorporated Areas	Approximately 9,560 feet downstream of Summerlin Bayou Road	Approximately 2,800 feet upstream of Poticaw Bayou Road	03170006	3.6	Y	AE, VE	1985
Lyons Creek	Jackson County Unincorporated Areas	Confluence with Escatawpa River	Approximately 5,270 feet upstream from the confluence of Lyons Creek Tributary 1	03170008	3.3	Y	AE	1975
Lyons Creek	Jackson County Unincorporated Areas	Approximately 5,270 feet upstream from the confluence of Lyons Creek Tributary 1	Approximately 2.13 miles upstream from the confluence of Lyons Creek Tributary 1	03170008	1.1	N	A	2007
Moungers Creek	Jackson County Unincorporated Areas	Confluence with Bluff Creek	Approximately 1,800 feet downstream from the confluence of Island Branch West	03170006	3.0	Y	AE	1975
Moungers Creek	Jackson County Unincorporated Areas	Approximately 1,800 feet downstream from the confluence of Island Branch West	Approximately 4.05 miles upstream of McGregor Road	03170006	4.3	N	A	2007
Old Fort Bayou	Jackson County and Incorporated Areas; Ocean Springs, City of	Confluence with Mississippi Sound	Approximately 4,990 feet downstream of Interstate 10	03170009	9.4	Y	AE	1975
Old Fort Bayou	Jackson County Unincorporated Areas	Approximately 4,990 feet downstream of Interstate 10	Approximately 6,950 feet upstream of confluence of Old Fort Bayou Tributary	03170009	4.4	Y	AE	2014

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
Old Fort Bayou	Jackson County Unincorporated Areas	Approximately 6,950 feet upstream of confluence of Old Fort Bayou Tributary	Approximately 10,500 feet upstream of the confluence of Old Fort Bayou Tributary 2	03170009	5.3	N	A	2007
Old Fort Bayou Tributary	Jackson County Unincorporated Areas	Confluence with Old Fort Bayou	Confluence with Bayou Castelle	03170009	1.1	Y	AE	2014
Old Fort Bayou Tributary 7	Jackson County Unincorporated Areas	Confluence with Old Fort Bayou	Approximately 4,750 feet upstream of the confluence of Old Fort Bayou	03170009	0.4	N	A	2007
Old Fort Bayou Tributary 7	Jackson County Unincorporated Areas	Approximately 4,750 feet upstream of the confluence with Old Fort Bayou	Approximately 500 feet downstream of Humphrey Road	03170009	1.4	N	AE	2007
Old Fort Bayou Tributary 8	Jackson County Unincorporated Areas	Confluence with Old Fort Bayou Tributary 7	Approximately 2,100 feet upstream of the confluence of Old Fort Bayou Tributary 7	03170009	0.4	N	A	2007
Old Fort Bayou Tributary 8	Jackson County Unincorporated Areas	Approximately 2,100 feet upstream of the confluence with Old Fort Bayou Tributary 7	Approximately 4,600 feet upstream of the confluence of Old Fort Bayou Tributary 7	03170009	0.5	N	AE	2007
Pascagoula River	Jackson County Unincorporated Areas	Confluence with West Pascagoula River and Little River to the Jackson/George County Boundary	Jackson/George County Boundary	03170006	31.5	N	AE	1975
West Pascagoula River	Jackson County Unincorporated Areas; Pascagoula, City of	Confluence with Mississippi Sound	Confluence with Pascagoula River and Little River	03170006	15.0	N	AE, VE	1975

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
Perigal Creek	Jackson County Unincorporated Areas	Confluence with Bayou Costapia	At Seaman Road	03170009	2.5	Y	AE	1975
Tchoutacabouffa River	Jackson County Unincorporated Areas	At the Jackson/Harrison County Boundary approximately 1,600 feet downstream from the confluence of Bayou Billie	Jackson/Harrison County Boundary approximately 1,980 feet upstream from the confluence of Little Band Branch	03170009	1.7	Y	AE	1975
Waters Creek	Jackson County Unincorporated Areas	Confluence with Moungers Creek	At McGregor Road	03170006	1.1	Y	AE	1975
Waters Creek	Jackson County Unincorporated Areas	At McGregor Road	At the confluence of Waters Creek Tributary 4	03170006	1.4	N	AE	2007
Waters Creek	Jackson County Unincorporated Areas	At the confluence of Waters Creek Tributary 4	At Spring Lake Drive East	03170006	1.6	N	A	2007
Woodmans Branch	Jackson County Unincorporated Areas	Confluence with Bluff Creek	Approximately 5,280 feet upstream of Poticaw Bayou Road	03170006	1.7	Y	AE	1975
Woodmans Branch	Jackson County Unincorporated Areas	Approximately 5,280 feet upstream of Poticaw Bayou Road	Approximately 10,560 feet upstream of Poticaw Bayou Road	03170006	2.0	N	A	2007

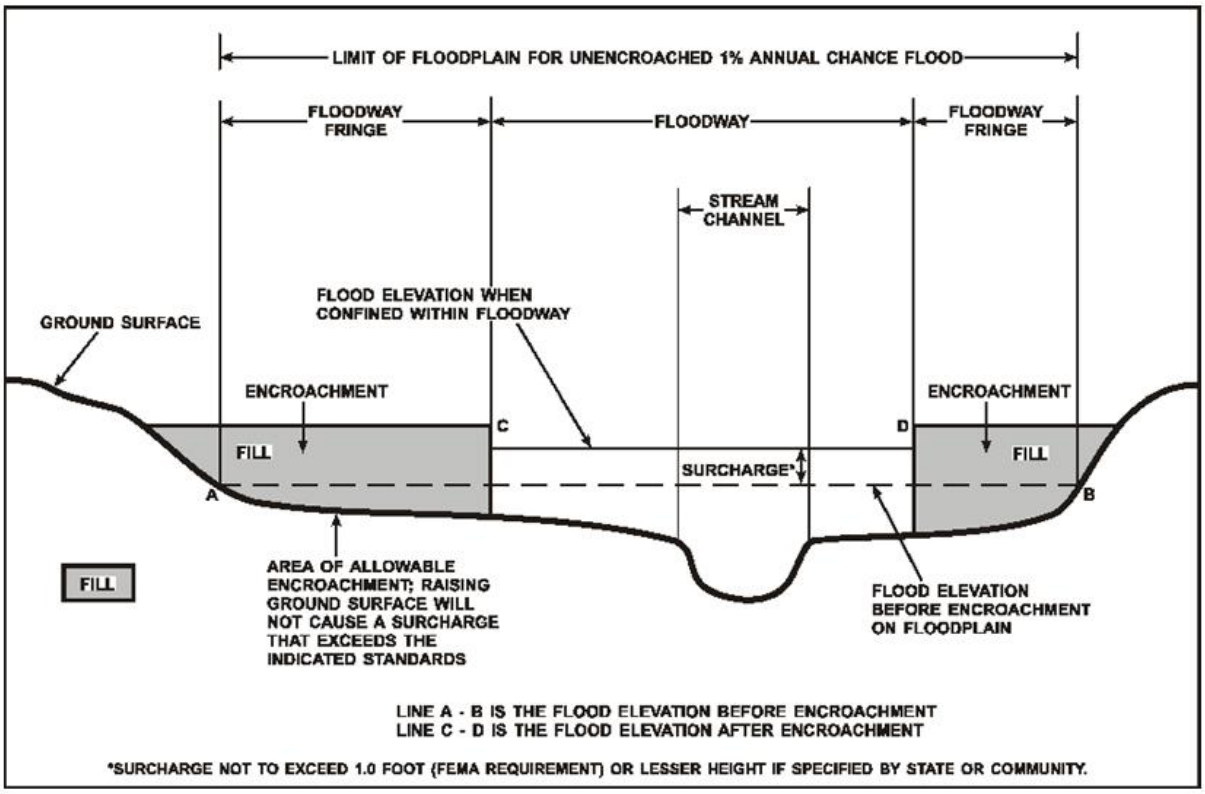
2.2 Floodways

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 Jackson 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 Figure3. In cases where the floodway and l% 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 Mississippi require communities in Jackson 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 FIS 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

For most areas along rivers, streams, and small lakes, BFEs and floodplain boundaries are based on the amount of water expected to enter the area during a 1% annual chance flood and the geometry of the floodplain. Floods in these areas are typically caused by storm events. However, for areas on or near ocean coasts, large rivers, or large bodies of water, BFE and floodplain boundaries may need to be based on additional components, including storm surges and waves. Communities on or near ocean coasts face flood hazards caused by offshore seismic events as well as storm events.

Coastal flooding sources that are included in this FIS project are shown in Table 2.

2.5.1 Water Elevations and the Effects of Waves

Specific terminology is used in coastal analyses to indicate which components have been included in evaluating flood hazards.

The stillwater elevation (SWEL or still water level) is the surface of the water resulting from astronomical tides, storm surge, and freshwater inputs, but excluding wave setup contribution or the effects of waves.

- *Astronomical tides* are periodic rises and falls in large bodies of water caused by the rotation of the earth and by the gravitational forces exerted by the earth, moon and sun.
- *Storm surge* is the additional water depth that occurs during large storm events. These events can bring air pressure changes and strong winds that force water up against the shore.
- *Freshwater inputs* include rainfall that falls directly on the body of water, runoff from surfaces and overland flow, and inputs from rivers.

The 1% annual chance stillwater elevation is the stillwater elevation that has been calculated for a storm surge from a 1% annual chance storm. The 1% annual chance storm surge can be determined from analyses of tidal gage records, statistical study of regional historical storms, or other modeling approaches. Stillwater elevations for storms of other frequencies can be developed using similar approaches.

The total stillwater elevation (also referred to as the mean water level) is the stillwater elevation plus wave setup contribution but excluding the effects of waves.

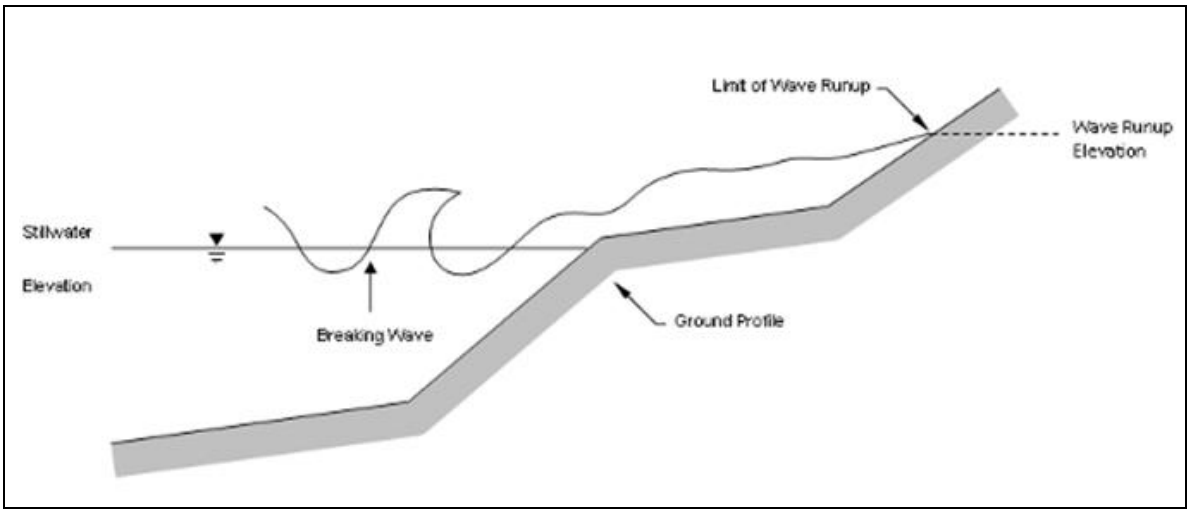
- *Wave setup* is the increase in stillwater elevation at the shoreline caused by the reduction of waves in shallow water. It occurs as breaking wave momentum is transferred to the water column.

Like the stillwater elevation, the total stillwater elevation is based on a storm of a particular frequency, such as the 1% annual chance storm. Wave setup is typically estimated using standard engineering practices or calculated using models, since tidal gages are often sited in areas sheltered from wave action and do not capture this information.

Coastal analyses may examine the effects of overland waves by analyzing storm-induced erosion, overland wave propagation, wave runup, and/or wave overtopping.

- *Storm-induced erosion* is the modification of existing topography by erosion caused by a specific storm event, as opposed to general erosion that occurs at a more constant rate.
- *Overland wave propagation* describes the combined effects of variation in ground elevation, vegetation, and physical features on wave characteristics as waves move onshore.
- *Wave runup* is the uprush of water from wave action on a shore barrier. It is a function of the roughness and geometry of the shoreline at the point where the stillwater elevation intersects the land.
- *Wave overtopping* refers to wave runup that occurs when waves pass over the crest of a barrier.

Figure 5: Wave Runup Transect Schematic



2.5.2 Floodplain Boundaries and BFEs for Coastal Areas

For coastal communities along the Atlantic and Pacific Oceans, the Gulf of Mexico, the Great Lakes, and the Caribbean Sea, flood hazards must take into account how storm surges, waves, and extreme tides interact with factors such as topography and vegetation. Storm surge and waves must also be considered in assessing flood risk for certain communities on rivers or large inland bodies of water.

Beyond areas that are affected by waves and tides, coastal communities can also have riverine floodplains with designated floodways, as described in previous sections.

Floodplain Boundaries

In many coastal areas, storm surge is the principle component of flooding. The extent of the 1% annual chance floodplain in these areas is derived from the total stillwater elevation (stillwater elevation including storm surge plus wave setup) for the 1% annual chance storm. The methods that were used for calculation of total stillwater elevations for coastal areas are described in Section 5.3 of this FIS Report. Location of total stillwater elevations for coastal areas are shown in Figure 8, "1% Annual Chance Total Stillwater Levels for Coastal Areas."

In some areas, the 1% annual chance floodplain is determined based on the limit of wave runup or wave overtopping for the 1% annual chance storm surge. The methods that were used for calculation of wave hazards are described in Section 5.3 of this FIS Report.

Table 26 presents the types of coastal analyses that were used in mapping the 1% annual chance floodplain in coastal areas.

Coastal BFEs

Coastal BFEs are calculated as the total stillwater elevation (stillwater elevation including storm surge plus wave setup) for the 1% annual chance storm plus the additional flood hazard from overland wave effects (storm-induced erosion, overland wave propagation, wave runup and wave overtopping).

Where they apply, coastal BFEs are calculated along transects extending from offshore to the limit of coastal flooding onshore. Results of these analyses are accurate until local topography, vegetation, or development type and density within the community undergoes major changes.

Parameters that were included in calculating coastal BFEs for each transect included in this FIS Report are presented in Table 17, "Coastal Transect Parameters." The locations of transects are shown in Figure 9, "Transect Location Map." More detailed information about the methods used in coastal analyses and the results of intermediate steps in the coastal analyses are presented in Section 5.3 of this FIS Report. Additional information on specific mapping methods is provided in Section 6.4 of this FIS Report.

2.5.3 Coastal High Hazard Areas

Certain areas along the open coast and other areas may have higher risk of experiencing structural damage caused by wave action and/or high-velocity water during the 1% annual chance flood. These areas will be identified on the FIRM as Coastal High Hazard Areas.

- *Coastal High Hazard Area (CHHA)* is a SFHA extending from offshore to the inland limit of the primary frontal dune (PFD) or any other area subject to damages caused by wave action and/or high-velocity water during the 1% annual chance flood.
- *Primary Frontal Dune (PFD)* is a continuous or nearly continuous mound or ridge of sand with relatively steep slopes immediately landward and adjacent to the beach. The PFD is subject to erosion and overtopping from high tides and waves during major coastal storms.

CHHAs are designated as "V" zones (for "velocity wave zones") and are subject to more stringent regulatory requirements and a different flood insurance rate structure. The areas of greatest risk are shown as VE on the FIRM. Zone VE is further subdivided into elevation zones and shown with BFEs on the FIRM.

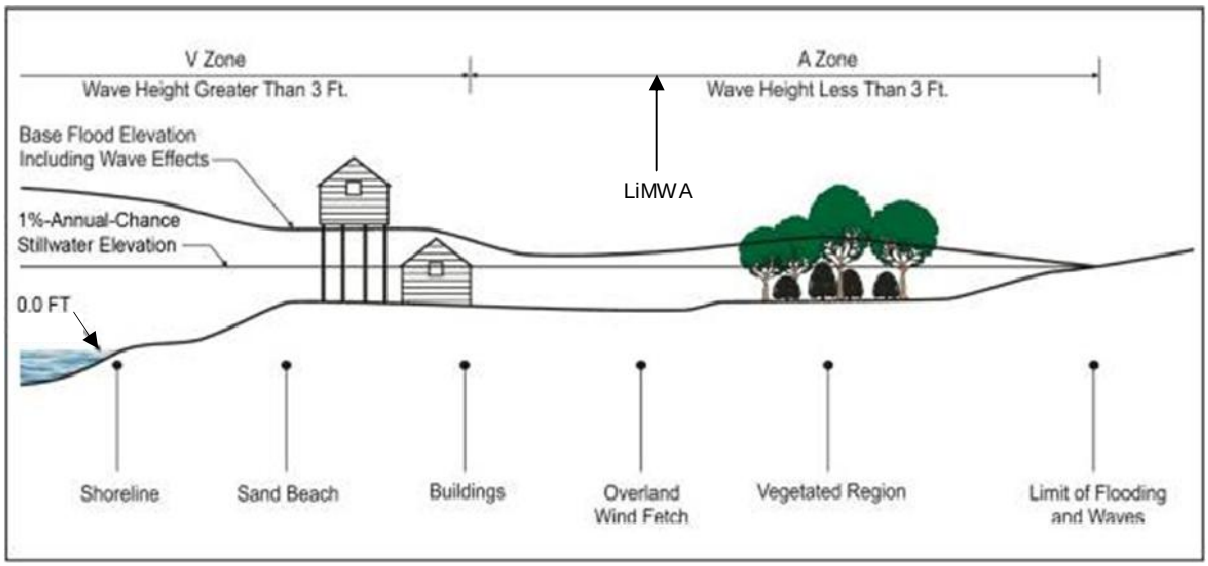
The landward limit of the PFD occurs at a point where there is a distinct change from a relatively steep slope to a relatively mild slope; this point represents the landward extension of Zone VE. Areas of lower risk in the CHHA are designated with Zone V on the FIRM. More detailed information about the identification and designation of Zone VE is presented in Section 6.4 of this FIS Report.

Areas that are not within the CHHA but are SFHAs may still be impacted by coastal flooding and

damaging waves; these areas are shown as "A" zones on the FIRM.

Figure 6, "Coastal Transect Schematic," illustrates the relationship between the base flood elevation, the 1% annual chance stillwater elevation, and the ground profile as well as the location of the Zone VE and Zone AE areas in an area without a PFD subject to overland wave propagation. This figure also illustrates energy dissipation and regeneration of a wave as it moves inland.

Figure 6: Coastal Transect Schematic



Methods used in coastal analyses in this FIS project are presented in Section 5.3 and mapping methods are provided in Section 6.4 of this FIS Report.

Coastal floodplains are shown on the FIRM using the symbology described in Figure 3, "Map Legend for FIRM." In many cases, the BFE on the FIRM is higher than the stillwater elevations shown in Table 17 due to the presence of wave effects. The higher elevation should be used for construction and/or floodplain management purposes.

2.5.4 Limit of Moderate Wave Action

Laboratory tests and field investigations have shown that wave heights as little as 1.5 feet can cause damage to and failure of typical Zone AE building construction. Wood-frame, light gage steel, or masonry walls on shallow footings or slabs are subject to damage when exposed to waves less than 3 feet in height. Other flood hazards associated with coastal waves (floating debris, high velocity flow, erosion, and scour) can also damage Zone AE construction.

Therefore, a LiMWA boundary may be shown on the FIRM as an informational layer to assist coastal communities in safe rebuilding practices. The LiMWA represents the approximate landward limit of the 1.5-foot breaking wave. The location of the LiMWA relative to Zone VE and Zone AE is shown in Figure 6.

The effects of wave hazards in Zone AE between Zone VE (or the shoreline where Zone VE is

not identified) and the limit of the LiMWA boundary are similar to, but less severe than, those in Zone VE where 3-foot or greater breaking waves are projected to occur during the 1% annual chance flooding event. Communities are therefore encouraged to adopt and enforce more stringent floodplain management requirements than the minimum NFIP requirements in the LiMWA. The NFIP Community Rating System provides credits for these actions.

Where wave runup elevations dominate over wave heights, there is no evidence to date of significant damage to residential structures by runup depths less than 3 feet. Examples of these areas include areas with steeply sloped beaches, bluffs, or flood protection structures that lie parallel to the shore. In these areas, the FIRM shows the LiMWA immediately landward of the VE/AE boundary. Similarly, in areas where the zone VE designation is based on the presence of a primary frontal dune or wave overtopping, the LiMWA is delineated immediately landward of the Zone VE/AE boundary.

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 Jackson County.

Table 3: Flood Zone Designations by Community

Community	Flood Zone(s)
Gautier, City of	A, AE, VE, X
Jackson County Unincorporated Areas	A, AE, AH, VE, X
Moss Point, City of	A, AE, AH, VE, X
Ocean Springs, City of	A, AE, AH, VE, X
Pascagoula, City of	A, AE, AH, VE, X

3.2 Coastal Barrier Resources System

The Coastal Barrier Resources Act (CBRA) of 1982 was established by Congress to create areas along the Atlantic and Gulf coasts and the Great Lakes, where restrictions for Federal financial assistance including flood insurance are prohibited. In 1990, Congress passed the Coastal Barrier Improvement Act (CBIA), which increased the extent of areas established by the CBRA and added "Otherwise Protected Areas" (OPA) to the system. These areas are collectively referred to as the John. H Chafee Coastal Barrier Resources System (CBRS). The CBRS boundaries that

have been identified in the project area are in Table 4, "Coastal Barrier Resource System Information."

Table 4: Coastal Barrier Resources System Information

Primary Flooding Source	Unit Name and Number	CBRS/OPA Type	Date CBRS Area Established	FIRM Panel Number(s)
Gulf of Mexico	Round Island R-01	CBRS	10/01/1983	28059C0440G[1]
Gulf of Mexico	Marsh Point MS-02	CBRS	10/01/1983	28059C0289G 28059C0293G 28059C0294G 28059C0380G[1] 28059C0385G
Gulf of Mexico	Belle Fontaine Point R01A	CBRS	11/16/1990	28059C0318G 28059C0405G 28059C0406G
Gulf of Mexico	Gulf Islands MS-01P	OPA	11/16/1991	28059C0395G[1] 28059C0415G[1] 28059C0420G[1] 28059C0500G[1] 28059C0525G[1] 28059C0530G[1] 28059C0535G[1] 28059C0575G[1]

[1] Panel not printed

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)
Pascagoula	03170006	Pascagoula River	Flows through the central portion of the county	620
Black	03170007	Black Creek	Small area located in the northwest portion of the county	1,290
Escatawpa	03170008	Escatawpa River	Located on the southeastern portion of the county	1,080
Mississippi Costal	03170009	Gulf of Mexico and Various Streams	Encompasses the entire southern portion of the county	2,480

4.2 Principal Flood Problems

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

Table 6: Principal Flood Problems

Flooding Source	Description of Flood Problems
Various Sources	Coastal areas along the Mississippi Sound, Biloxi Bay, Davis Bayou, Lake Yazoo, Bayou Chico, Bayou Casotte, West Prong, Old Fort Bayou and the lower reaches of the Pascagoula and Escatawpa floodplains are primarily subject to coastal storm surge flooding and wave action as a result of hurricane and tropical storm activity in the gulf. Rivers, streams, and tributaries are subject to riverine flooding during periods of heavy rainfall. Severe rainfall can also cause flooding as a result of ponding in low-lying areas and areas with inadequate drainage.
Hurricane	Landfalling in Louisiana, August 10, 1909 – August 21, 1909, the storm caused tides of 8 to 12 feet along the Mississippi coast. Three hundred and fifty lives were reported lost as a result of the storm.
Hurricane	This hurricane made landfall near the City of Grand Isle, Louisiana on September 29, 1915. Although the storm center passed well west of the Mississippi coast, a pressure of 28.02 inches of mercury (in. Hg) was recorded at the City of Biloxi. High-water elevations ranged from 11.8 feet NGVD29 at Bay St. Louis to 9.0 feet NGVD29 at the Cities of Gulfport and Biloxi. Two hundred and seventy-five lives were reportedly lost because of this storm.
Hurricane	This hurricane entered the Gulf of Mexico after passing over Florida. Continuing across the gulf, the hurricane made landfall in southeastern Louisiana on September 1947. High-water marks surveyed after the storm showed elevations ranging from 8 feet NGVD29 at Pascagoula to 15 feet NGVD29 at the City of Bay St. Louis. Portions of the 28-mile seawall were breached during this storm. 51% people were left dead in its wake with damages estimated at $100 million.

Table 6: Principal Flood Problems continued

Flooding Source	Description of Flood Problems
Hurricane Betsy	Entering the Gulf of Mexico on September 8, 1965 Hurricane Betsy proceeded on a northwesterly track making landfall west of Grand Isle, Louisiana, on the evening of the ninth. Betsy left many sections of U.S. Highway 90 along the shoreline damaged as a result of wave action and surge. High-water elevations surveyed after the storm were about 12 feet NGVD29 in the vicinity of the Cities of Waveland, Bay St. Louis and Pass Christian. The tide gage at Biloxi recorded a peak surge of 8.6 feet NGVD29 (approximately a 4% annual-chance recurrence interval).
Hurricane Camille	Camille reached hurricane strength on the morning of August 15, 1969 with estimated wind speeds of 90 mph near the center of the storm. Its location was 75 miles off the extreme southwestern tip of Cuba. The storm continued to develop rapidly while traveling on a north-northwest track. Camille was located 155 miles southeast of New Orleans at 1 pm, on Sunday, August 17, and was tracking to the north-northwest at 12 to 15 mph. Maximum wind speeds were estimated at 160 mph with Weather Bureau predictions of 190 mph for that same afternoon. The center of Camille passed east of the mouth of the Mississippi River and then made landfall at Waveland and Bay St. Louis, Mississippi, at 10:30 pm, August 17. The eye was estimated to be 10 to 12 miles in diameter and a central pressure of 26.85 in. Hg. was recorded in Bay St. Louis. In Pascagoula, high-water marks up to 11.2 feet NGVD29 were surveyed after the storm. Wind gusts of 81 mph were recorded at the Ingalls Shipyard from the east-southeast during the storm. Camille ranked 5 on the Saffir Simpson Hurricane Scale of 1 to 5 and was the most intense storm to ever hit the United States mainland.
Hurricane Frederic	Landfalling east of Pascagoula on September 12, 1979, Jackson County was spared from the right front quadrant of the storm and thus from serious flooding. However, with gusts recorded up to 110 knots, the county did sustain heavy damages. The tide gage at the Pascagoula Coast Guard Station peaked at noon on the following day at 5.8 feet NGVD29. This elevation represents approximately a 10% annual-chance recurrence interval.
Hurricane Elena	Elena, named on August 28, 1985 over central Cuba, strengthened into a hurricane on August 29 in the open waters of the southeast Gulf of Mexico. A decrease in forward speed and a turn to the east-northeast threatened the Florida panhandle. Elena eventually made an anti-cyclonic loop off Cedar Key, Florida and began accelerating towards the west-northwest. The storm reached a central pressure of 951 mb on September 1 about 100 mi south of Apalachicola, Florida. Elena weakened after that and made landfall near Biloxi, Mississippi with a central pressure of 959 mb. The highest tides and the storm surge reached about 8 feet in Biloxi and Gulfport, and 10 feet in the Pascagoula area. Several commercial structures were damaged by high winds, estimated at 60 to 105 mph in Gulfport and 90 to 115 mph in Pascagoula. During the period Elena threatened Gulf Coast areas, nearly a million people were evacuated, which may account for the fact that there were no deaths in the area of landfall. Four deaths were attributed to Elena by falling trees, automobile accidents, and heart attacks. The overall economic loss was estimated at over $1.25 billion.
Hurricane Danny	Danny became a tropical cyclone on July 16, 1997 off the southwestern coast of Louisiana. Danny continued to strengthen and became a hurricane early on July 18, but moved slowly and became nearly stationary at times. It finally made landfall just northwest of the Mississippi River Delta near Empire and Buras, Louisiana on July 18. Danny was back in the Gulf of Mexico later the same day and strengthened to Category 1 with 75 mph winds and a minimum central pressure of 984 mb.

Table 6: Principal Flood Problems continued

Flooding Source	Description of Flood Problems
Hurricane Danny continued	Danny moved east, then north-northeast near the mouth of Mobile Bay and passed over Dauphin Island before finally making landfall near Mullet Point, Alabama on July 19. The Mississippi coast experienced large amounts of rainfall and estimated winds of about 75 mph near the Mississippi-Alabama state line as Danny traveled toward landfall. Danny was responsible for five deaths in the region. The total reported damages were between $60 and $100 million.
Hurricane Georges	Georges was named on September 15, 1998 while still a tropical storm. It continued to strengthen and reached category 4 status by September 19. Near-surface wind estimates indicated maximum winds of a strong Category 4 hurricane on September 20 about 300 mi east of Guadeloupe in the Lesser Antilles. After making several landfalls along its path from the eastern Atlantic Ocean to the Caribbean Sea, Georges intensified again and made landfall on September 25 in Key West, Florida with a minimum central pressure of 981 mb and maximum winds of 105 mph. The storm shifted eastward and made landfall again, near Biloxi, Mississippi, on the morning of September 28 with a sustained 1-min wind speed of 150 mph and a minimum central pressure of 964 mb. High water marks were taken on the U.S. mainland. Along the Mississippi coast, the range of stillwater marks was 6.9 to 12.1 feet. Similarly, the debris line heights ranged from 5.6 to 12.5 feet in Mississippi. A total of 602 deaths were attributed to Georges making it the 19th-deadliest storm in the Atlantic basin during the twentieth century to date. Most of the deaths were in the Dominican Republic and Haiti, due to flash flooding and subsequent mud slides. One death occurred in the United States - a freshwater drowning in Mobile, Alabama. Insured property damage estimates totaled $2.96 billion in the United States including Puerto Rico and the U.S. Virgin Islands. Based on the insured losses, the total estimated damage from Georges is $5.9 billion, of which $2.31 billion was outside the continental United States.
Hurricane Katrina	Katrina developed over the central Bahamas on the evening of August 23, 2005. The storm strengthened and reached hurricane status on the evening of August 25, less than 2 hours before it made landfall as a Category 1 storm near the border of Miami-Dade County and Broward County. Katrina continued moving west-southwest and entered the Gulf of Mexico early on August 26. The storm intensified to a Category 3 hurricane by noon on August 27 over 275 mile southeast of the mouth of the Mississippi River. Over the next day, Katrina doubled in size and turned toward the northwest. Katrina strengthened to a Category 5 in less than 12 hours and reached 160 mph winds by noon on August 28. Although Katrina did not make landfall near Buras, Louisiana until around noon on August 29 as a strong Category 3 storm (according to best estimates), the storm was large enough that hurricane force winds were reaching the coast as early as August 28. Since most of the tide gauges failed along the coast and buildings were completely destroyed, it was difficult to determine the storm surge from Katrina. Post-storm assessments by FEMA estimate that the storm surge was 24 to 28 feet along the Mississippi coast across a swath about 20 miles wide, centered roughly on St. Louis Bay. For the eastern half of the Mississippi coast (roughly from Gulfport to Pascagoula), the storm surge was estimated to be 17 to 22 feet reaching up to 6 mile inland and up to 12 mile inland along bays and rivers. Compared to the 1969 storm (Hurricane Camille) that traveled along nearly the same path, Katrina was a weaker storm, but caused as much or more damage due to its large size. The radius of maximum winds was 25-30 n. mile and hurricane force winds extended at least 75 n mile to the east from the center of the storm.

Table 6: Principal Flood Problems continued

Flooding Source	Description of Flood Problems
Hurricane Katrina continued	Also, Katrina generated substantial wave setup along the northern Gulf coast while it was still a Category 4 and 5 before it made landfall. Katrina was a powerful and deadly hurricane that ranks as one of the costliest and one of the five deadliest hurricanes to ever strike the United States. A total of 1,833 fatalities from Louisiana, Mississippi, Florida, Georgia and Alabama are directly and indirectly related to Katrina. Early estimates of the total damages place the losses at over $81 billion.

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

Table 7: Historic Flooding Elevations

Flooding Source	Location	Historic Peak (Feet)	Event Date	Approximate Recurrence Interval (years)	Source of Data
Hurricane	Along the Mississippi coast	8.0-12.0 NGVD29	08/10/1909 to 08/21/1909	N/A	NOAA
Hurricane	Bay St. Louis, City of Biloxi, City of; Gulfport, City of	9.0-11.8 NGVD29	09/22/1915 to 10/01/1915	N/A	NOAA
Hurricane	Pascagoula, City of; Bay St. Louis, City of	8.0-15.0 NGVD29	09/04/1947 to 09/21/1947	N/A	NOAA
Hurricane Betsy	Cities of Waveland, Bay St. Louis and Pass Christian	12.0 NGVD29	08/27/1965 to 09/12/1965	4	USACE
Hurricane Camille	Pascagoula, City of	11.2 NGVD29	08/14/1969 to 08/22/1969	N/A	USGS, USACE
Hurricane Frederic	Tide gage at the Pascagoula Coast Guard Station	5.8 NGVD29	08/30/1979 to 09/14/1979	10	USACE
Hurricane Elena	Various	Various	08/28/1985 to 09/04/1985	N/A	USGS
Hurricane Danny	Various	Various	07/161997 to 07/26/1997	N/A	USGS
Hurricane Georges	Various	Various	09/15/1998 to 10/01/1998	N/A	USGS
Hurricane Katrina	Various	Various	08/23/2005 to 08/30/2005	N/A	USGS

4.3 Non-Levee Flood Protection Measures

Table 8 contains information about non-levee flood protection measures within Jackson 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

Flooding Source	Structure Name	Type of Measure	Location	Description of Measure
Various	N/A	Seawall	Ocean Springs, City of; Pascagoula, City of; and portions of Jackson County	Following the storms of 1909 and 1915 which damaged much of the coastal highway, a 28 mile protective seawall was constructed to prevent future damage. Portions of the seawall in Jackson County are contained within the corporate limits of Ocean Springs and Pascagoula and therefore, offer no appreciable protection for the unincorporated areas of the county.
Various	N/A	Seawall	Ocean Springs, City of	The seawall system in Ocean Springs is located in two sections along the south shore. The first section extends from Weeks Bayou to Halstead Road along Shearwater Drive. The second section extends from the U.S. Highway 90 bridge to Inner Harbor. The seawall system in Pascagoula extends along Beach Boulevard and averages about 6 feet in elevation. The seawall has been effective in minimizing wave damage during minimal strength hurricanes. In addition, a man-made beach was placed seaward of the seawall to further attenuate storm damage. The beach has been replenished after major storms since 1947.
Pascagoula River Floodplain	Louisville & Nashville Railroad	Railroad	Various locations	The Louisville & Nashville Railroad and U.S. Highway 90 do offer resistance to waves propagating into the Pascagoula River floodplain.
Various	N/A	Storm Drainage System	Various locations	A storm drainage system consisting of natural and man-made ditches handles storm runoff for the less intense rainfall events.

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. Frequency Discharge-Drainage Area Curves used to develop the hydrologic models may also be shown in Figure 7 for selected flooding sources. A summary of stillwater elevations developed for non-coastal flooding sources is provided in Table 11. (Coastal stillwater elevations are discussed in Section 5.3 and shown in Table 17.) Stream gage information is provided in Table 12.

Table 10: Summary of Discharges

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Bayou Costapia	Just downstream of Daisy-Vestry Road	30.7	7,245	*	*	13,110	19,044
Bayou Costapia	Just upstream of Latimer Road	10.3	2,780	*	*	5,100	7,340
Black Creek	Just upstream of Interstate 10	45.5	4,000	*	*	8,330	12,400
Bluff Creek	At mouth	128.5	9,070	*	*	18,330	26,000
Cypress Creek	Just downstream of Daisy-Vestry Road	7.4	1,880	2,430	2940	3,400	4,280
Cypress Creek	At the confluence of Ditch No. 1	5.9	1,560	2,010	2430	2,800	3,500
Cypress Creek	At the confluence of Ditch No. 2	4.7	1,300	1,670	2030	2,330	2,920
Cypress Creek	Approximately 1,320 feet upstream of the confluence of Ditch No. 2	4.6	1,240	1,590	1920	2,210	2,760
Cypress Creek	Approximately 1,460 feet upstream of the confluence of Ditch No. 2	4.1	1,110	1,430	1740	2,000	2,500
Cypress Creek	Approximately 1,500 feet upstream of the confluence of Ditch No. 2	3.8	1,080	1,390	1690	1,940	2,420
Cypress Creek	Approximately 2,770 feet downstream of Tucker Road	3.4	1,030	1,320	1600	1,830	2,290

* Not calculated for this Flood Risk Project

Table 10: Summary of Discharges continued

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Cypress Creek	Approximately 910 feet downstream of Tucker Road	2.5	764	959	1110	1,250	1,600
Cypress Creek	Approximately 1,160 feet upstream of Tucker Road	2.2	721	904	1050	1,170	1,500
Cypress Creek	Approximately 1,000 feet upstream of Seaman Road	1.7	604	756	876	980	1,250
Cypress Creek	Approximately 2,380 feet upstream of Seaman Road	1.3	492	615	712	796	1,010
Escatawpa River	At mouth	1,070	35,000	*	*	68,780	100,030
Escatawpa River	Just upstream of Interstate 10	969	33,070	*	*	65,340	95,320
Escatawpa River	Just upstream of confluence of Franklin Creek	885	31,400	*	*	62,340	91,180
Jackson Creek	Approximately 2,470 feet upstream of Forts Lake Road	36.1	*	*	*	8,697	*
Jackson Creek Tributary 2	Approximately 300 feet upstream of confluence with Jackson Creek	0.5	*	*	*	456	*
Johns Bayou	At mouth	3.8	890	*	*	1,800	2,400
Old Fort Bayou	At mouth	48.2	4,680	*	7720	9,710	15,400
Old Fort Bayou	Approximately 3,560 feet downstream of Interstate 10	29.4	5,180	6,950	8420	9,850	12,600

Table 10: Summary of Discharges continued

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Old Fort Bayou	At Interstate 10	29.2	4,910	6,620	8030	9,390	12,000
Old Fort Bayou	Approximately 1,940 feet upstream of Interstate 10	27.8	4,840	6,520	7920	9,250	11,800
Old Fort Bayou	Approximately 4,000 feet upstream of Interstate 10	27.6	4,640	6,290	7680	8,980	11,600
Old Fort Bayou	Approximately 4,100 feet upstream of Interstate 10	27.1	4,580	6,220	7600	8,880	11,400
Old Fort Bayou	Approximately 6,720 feet upstream of Interstate 10	26.2	4,470	6,070	7410	8,660	11,200
Old Fort Bayou	Approximately 900 feet downstream of the confluence of Old Fort Bayou Tributary	23.9	4,270	5,810	7110	8,290	10,700
Old Fort Bayou	At the confluence of Old Fort Bayou Tributary	22.1	4,200	5,710	7000	8,160	10,500
Old Fort Bayou	Just downstream of Private Drive	21.8	4,200	5,710	7000	8,160	10,500
Old Fort Bayou	Approximately 100 feet upstream of Private Drive	20.2	3,930	5,350	6560	7,640	9,870
Old Fort Bayou Tributary	Approximately 4,070 feet upstream of State Highway 57	1.3	610	762	887	987	1,260
Old Fort Bayou Tributary	At State Highway 57	1.6	649	813	945	1,050	1,350

* Not calculated for this Flood Risk Project

Table 10: Summary of Discharges continued

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Old Fort Bayou Tributary	Confluence with Old Fort Bayou	1.8	666	834	970	1,080	1,380
Old Fort Bayou Tributary 7	Just upstream of confluence with Old Fort Bayou	2.9	*	*	*	1,704	*
Old Fort Bayou Tributary 7	Approximately 5,150 feet downstream of Humphrey Road	1.0	*	*	*	955	*
Old Fort Bayou Tributary 8	Just upstream of confluence with Old Fort Bayou Tributary 7	1.4	*	*	*	985	*
Perigal Creek	Just upstream of Latimer Road	5.3	1,665	*	*	3,060	4,329
Perigal Creek	Just downstream of confluence of Ditch No.3	4.7	1,625	*	*	3,040	4,361
Perigal Creek	Just downstream of Seamen Road	3.4	1,470	*	*	2,756	3,938
Tchoutacabouffa River	Just downstream of confluence of Bayou Billie	65.8	8,798	*	*	15,794	27,772
Waters Creek	At McGregor Road	6.9	*	*	*	3,011	*

* Not calculated for this Flood Risk Project

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

[Not Applicable to this Flood Risk Project]

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		Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
	Downstream Limit	Upstream Limit					
All Zone A streams studied in the 2009 FIS	Various	Various	Regression Equations (1991)	HEC-RAS 3.1.2	09/01/2007	A	
Bayou Castelle	Approximately 6,336 feet downstream from Gautier-Vancleave Road	Confluence of Old Fort Bayou Tributary	Regulated Frequency Curves	Other	06/01/1975	AE	Cross sections were interpolated between Old Fort Bayou and Pascagoula River water elevations The 1% annual-chance flood of Old Fort Bayou Tributary has reversible direction. It can either flow southeasterly towards Bayou Castelle or westerly towards Old Fort Bayou. This occurs because the water-surface profiles for Old Fort Bayou Tributary are relatively flat with no dominant direction of flow.
Bayou Costapia	At Harrison/Jackson County boundary	Approximately 2,200 feet upstream of the confluence of Perigal Creek	Regulated Frequency Curves	Rating Curves	06/01/1975	AE w Floodway	Rating Curves were used to form cross sections then plotted and connected to form profiles. Floodway was added in the Jackson County Unincorporated Areas FIS 1987, however no details were given as to how it was calculated.
Bayou Costapia	Approximately 2,200 feet upstream of the confluence of Perigal Creek	Approximately 4,960 feet upstream of the confluence of Bayou Costapia Tributary 3	Regression Equations (1991)	HEC-RAS 3.1.2	09/01/2007	A	
Black Creek	Confluence with Escatawpa River	At State Highway 613	Regression Equations (1976)	HEC-2 (1984)	02/01/1985	AE w Floodway, VE	The downstream portion is shown as static Zone AE/VE due to the Combined Probability Storm Surge from Pascagoula Bay. This coastal analysis supercedes the riverine modeling from the confluence to approximately 13,5250 feet upstream.

Table 13: Summary of Hydrologic and Hydraulic Analyses continued

Flooding Source	Study Limits		Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
	Downstream Limit	Upstream Limit					
Black Creek	At State Highway 613	Approximately 5,000 feet upstream of Big Point Road	Regression Equations (1991)	HEC-RAS 3.1.2	09/01/2007	A	
Bluff Creek	Confluence with Pascagoula River	Approximately 8,980 feet upstream of State Highway 57	Regression Equations (1976)	HEC-2 (1984)	02/01/1985	AE w Floodway, VE	The downstream portion is shown as static Zone VE due to the Combined Probability Storm Surge from Mississippi Sound. This coastal analysis supercedes the riverine modeling from the confluence to approximately 7.49 miles upstream.
Bluff Creek	Approximately 8,980 feet upstream of State Highway 57	Approximately 9,000 feet upstream of the confluence of Bluff Creek Tributary 33	Regression Equations (1991)	HEC-RAS 3.1.2	09/01/2007	A	
Cypress Creek	At Harrison/Jackson County boundary	Approximately 1,900 feet upstream of Stennis Road	Regression Equations	HEC-RAS 4.1.0	07/10/2014	AE w Floodway	The downstream portion is shown as static Zone AE due to the Combined Probability Storm Surge from Back Bay of Biloxi. This coastal analysis supercedes the riverine modeling from the county boundary to approximately 1,000 feet upstream.
Cypress Creek	Approximately 1,900 feet upstream of Stennis Road	Approximately 5,430 feet upstream of Stennis Road	Regression Equations	HEC-RAS 4.1.0	07/10/2014	A	
Ditch No.1	Confluence with Cypress Creek	Approximately 1,100 feet upstream of McClelland Road	Regulated Frequency Curves	Rating Curves	06/01/1975	AE	Rating Curves were used to form cross sections then plotted and connected to form profiles.
Ditch No.2	Confluence with Cypress Creek	At McClelland Road	Regulated Frequency Curves	Rating Curves	06/01/1975	AE	Rating Curves were used to form cross sections then plotted and connected to form profiles.

Table 13: Summary of Hydrologic and Hydraulic Analyses continued

Flooding Source	Study Limits		Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
	Downstream Limit	Upstream Limit					
Ditch No.3	Confluence with Perigal Creek	At Tucker Road	Regulated Frequency Curves	Rating Curves	06/01/1975	AE	Rating Curves were used to form cross sections then plotted and connected to form profiles.
Escatawpa River	Confluence with Pascagoula River	Approximately 2,255 feet upstream from the confluence of Cunningham Branch	Regression Equations (1976)	HEC-2 (1984)	02/01/1985	AE w Floodway	The downstream portion is shown as static Zone AE/VE due to the Combined Probability Storm Surge from Pascagoula Bay. This coastal analysis supercedes the riverine modeling from the confluence to approximately 37,400 feet upstream.
Escatawpa River	Approximately 2,255 feet upstream from the confluence of Cunningham Branch	At George/Jackson County boundary	Regression Equations (1991)	HEC-RAS 3.1.2	09/01/2007	A	
Gulf of Mexico	Entire Coastline of Jackson County	Entire Coastline of Jackson County	Various	Various	09/01/2007	A, AE, AH, VE	Includes analyses for Back Bay of Biloxi, Mississippi Sound, Pascagoula Bay. Refer to Table 15 for modeling information.
Jackson Creek	Confluence with Escatawpa River	Mississippi/Alabama State Line	Regression Equations (1991)	HEC-RAS 3.1.2	09/01/2007	AE	
Jackson Creek Tributary 2	Confluence with Jackson Creek	Approximately 4,150 feet upstream from the confluence of Jackson Creek	Regression Equations (1991)	HEC-RAS 3.1.2	09/01/2007	AE	
Johns Bayou	Approximately 9,560 feet downstream of Summerlin Bayou Road	Approximately 2,800 feet upstream of Poticaw Bayou Road	Regression Equations (1976)	HEC-2 (1984)	02/01/1985	AE w Floodway, VE	The downstream portion is shown as static Zone VE due to the Combined Probability Storm Surge from Pascagoula Bay. This coastal analysis supercedes the riverine modeling from the confluence to approximately 1,220 feet upstream.

Table 13: Summary of Hydrologic and Hydraulic Analyses continued

Flooding Source	Study Limits		Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
	Downstream Limit	Upstream Limit					
Lyons Creek	Confluence with Escatawpa River	Approximately 5,270 feet upstream from the confluence of Lyons Creek Tributary 1	Regulated Frequency Curves	Rating Curves	06/01/1975	AE w Floodway	Rating Curves were used to form cross sections then plotted and connected to form profiles. Floodway was added in the Jackson County Unincorporated Areas FIS 1987, however no details were given as to how it was calculated.
Lyons Creek	Approximately 5,270 feet upstream from the confluence of Lyons Creek Tributary 1	Approximately 2.13 miles upstream from the confluence of Lyons Creek Tributary 1	Regression Equations (1991)	HEC-RAS 3.1.2	09/01/2007	A	
Moungers Creek	Confluence with Bluff Creek	Approximately 1,800 feet downstream from the confluence of Island Branch West	Regulated Frequency Curves	Rating Curves	06/01/1975	AE w Floodway	Rating Curves were used to form cross sections then plotted and connected to form profiles. Floodway was added in the Jackson County Unincorporated Areas FIS 1987, however no details were given as to how it was calculated.
Moungers Creek	Approximately 1,800 feet downstream from the confluence of Island Branch West	Approximately 4.05 miles upstream of McGregor Road	Regression Equations (1991)	HEC-RAS 3.1.2	09/01/2007	A	
Old Fort Bayou	Confluence with Mississippi Sound	Approximately 4,990 feet downstream of Interstate 10	Regulated Frequency Curves	Rating Curves	06/01/1975	AE	Rating Curves were used to form cross sections then plotted and connected to form profiles. The downstream portion is shown as static Zone AE due to the Combined Probability Storm Surge from Back Bay of Biloxi. This coastal analysis supercedes the riverine modeling from the county boundary to approximately 9.38 miles upstream.

Table 13: Summary of Hydrologic and Hydraulic Analyses continued

Flooding Source	Study Limits		Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
	Downstream Limit	Upstream Limit					
Old Fort Bayou	Approximately 4,990 feet downstream of Interstate 10	Approximately 6,950 feet upstream of confluence of Old Fort Bayou Tributary	Regression Equations	HEC-RAS 4.1.0	07/10/2014	AE w Floodway	
Old Fort Bayou	Approximately 6,950 feet upstream of confluence of Old Fort Bayou Tributary	Approximately 10,500 feet upstream of the confluence of Old Fort Bayou Tributary 2	Regression Equations (1991)	HEC-RAS 3.1.2	09/01/2007	A	
Old Fort Bayou Tributary	Confluence with Old Fort Bayou	Confluence with Bayou Castelle	Regression Equations	HEC-RAS 4.1.0	07/10/2014	AE w Floodway	
Old Fort Bayou Tributary 7	Confluence with Old Fort Bayuo	Approximately 4,750 feet upstream of the confluence of Old Fort Bayou	Regression Equations (1991)	HEC-RAS 3.1.2	09/01/2007	A	
Old Fort Bayou Tributary 7	Approximately 4,750 feet upstream of the confluence with Old Fort Bayou	Approximately 500 feet downstream of Humphrey Road	Regression Equations (1991)	HEC-RAS 3.1.2	09/01/2007	AE	
Old Fort Bayou Tributary 8	Confluence with Old Fort Bayuo Tributary 7	Approximately 2,100 feet upstream of the confluence of Old Fort Bayou Tributary 7	Regression Equations (1991)	HEC-RAS 3.1.2	09/01/2007	A	

Table 13: Summary of Hydrologic and Hydraulic Analyses continued

Flooding Source	Study Limits		Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
	Downstream Limit	Upstream Limit					
Old Fort Bayou Tributary 8	Approximately 2,100 feet upstream of the confluence with Old Fort Bayou Tributary 7	Approximately 4,600 feet upstream of the confluence of Old Fort Bayou Tributary 7	Regression Equations (1991)	HEC-RAS 3.1.2	09/01/2007	AE	
Pascagoula River	Confluence with West Pascagoula River and Little River to the Jackson/George County Boundary	Jackson/George County Boundary	Regulated Frequency Curves	Rating Curves	06/01/1975	AE	Rating Curves were used to form cross sections then plotted and connected to form profiles.
West Pascagoula River	Confluence with Mississippi Sound	Confluence with Pascagoula River and Little River	Regulated Frequency Curves	Rating Curves	06/01/1975	AE, VE	Rating Curves were used to form cross sections then plotted and connected to form profiles. The downstream portion is shown as static Zone AE/VE due to the Combined Probability Storm Surge from Mississippi Sound. This coastal analysis supercedes the riverine modeling from the confluence to approximately 10,220 feet upstream.
Perigal Creek	Confluence with Bayou Costapia	At Seaman Road	Regulated Frequency Curves	Rating Curves	06/01/1975	AE w Floodway	Rating Curves were used to form cross sections then plotted and connected to form profiles. Floodway was added in the Jackson County Unincorporated Areas FIS 1987, however no details were given as to how it was calculated.
Tchoutacabouffa River	At the Jackson/Harrison County Boundary approximately 1,600 feet downstream from the confluence of Bayou Billie	Jackson/Harrison County Boundary approximately 1,980 feet upstream from the confluence of Little Band Branch	Regulated Frequency Curves	Rating Curves	06/01/1975	AE w Floodway	Rating Curves were used to form cross sections then plotted and connected to form profiles. Floodway was added in the Jackson County Unincorporated Areas FIS 1987, however no details were given as to how it was calculated.

Table 13: Summary of Hydrologic and Hydraulic Analyses continued

Flooding Source	Study Limits		Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
	Downstream Limit	Upstream Limit					
Waters Creek	Confluence with Moungers Creek	At McGregor Road	Regulated Frequency Curves	Rating Curves	06/01/1975	AE	Rating Curves were used to form cross sections then plotted and connected to form profiles. Floodway was added in the Jackson County Unincorporated Areas FIS 1987, however no details were given as to how it was calculated.
Waters Creek	At McGregor Road	At the confluence of Waters Creek Tributary 4	Regression Equations (1991)	HEC-RAS 3.1.2	09/01/2007	AE w Floodway	
Waters Creek	At the confluence of Waters Creek Tributary 4	At Spring Lake Drive East	Regression Equations (1991)	HEC-RAS 3.1.2	09/01/2007	A	
Woodmans Branch	Confluence with Bluff Creek	Approximately 5,280 feet upstream of Poticaw Bayou Road	Regulated Frequency Curves	Rating Curves	06/01/1975	AE w Floodway	Rating Curves were used to form cross sections then plotted and connected to form profiles. Floodway was added in the Jackson County Unincorporated Areas FIS 1987, however no details were given as to how it was calculated.
Woodmans Branch	Approximately 5,280 feet upstream of Poticaw Bayou Road	Approximately 10,560 feet upstream of Poticaw Bayou Road	Regression Equations (1991)	HEC-RAS 3.1.2	09/01/2007	A	

Table 14: Roughness Coefficients

Flooding Source	Channel "n"	Overbank "n"
All Zone A streams studied in the 2009 FIS	0.030-0.050	0.150
Bayou Costapia	*	*
Black Creek	0.035-0.060	0.080-0.150
Bluff Creek	0.030-0.060	0.090-0.150
Cypress Creek	0.058	0.035-0.140
Ditch No.1	*	*
Ditch No.2	*	*
Ditch No.3	*	*
Escatawpa River	0.030-0.035	0.060-0.120
Jackson Creek	0.030-0.040	0.100
Jackson Creek Tributary 2	0.050	0.150
Johns Bayou	0.030-0.060	0.090-0.150
Lyons Creek	*	*
Moungers Creek	*	*
Old Fort Bayou (downstream)	*	*
Old Fort Bayou (upstream)	0.045-0.065	0.035 - 0.140
Old Fort Bayou Tributary	0.050-0.055	0.080 - 0.140
Old Fort Bayou Tributary 7	0.050	0.150
Old Fort Bayou Tributary 8	0.045	0.150
Pascagoula River	*	*
Perigal Creek	*	*
Tchoutacabouffa River	*	*
Waters Creek (downstream)	*	*
Waters Creek (upstream)	0.050	0.150
West Pascagoula River	*	*
Woodmans Branch	*	*

* Data not available

5.3 Coastal Analyses

For the areas of Jackson County that are impacted by coastal flooding processes, coastal flood hazard analyses were performed to provide estimates of coastal BFEs. Coastal BFEs reflect the increase in water levels during a flood event due to extreme tides and storm surge as well as overland wave effects.

The following subsections provide summaries of how each coastal process was considered for this FIS Report. Greater detail (including assumptions, analysis, and results) is available in the archived project documentation. Table 15 summarizes the methods and/or models used for the coastal analyses. Refer to Section 2.5.1 for descriptions of the terms used in this section.

Table 15: Summary of Coastal Analyses

Flooding Source	Study Limits From	To	Hazard Evaluated	Model or Method Used	Date Analysis was Completed
Gulf of Mexico	Entire coastline of Jackson County	Entire coastline of Jackson County	Storm Surge, Wave setup, Statistical Analyses	ADCIRC	September 2007
Gulf of Mexico	Entire coastline of Jackson County	Entire coastline of Jackson County	Storm Surge, Wave setup, Statistical Analyses	SWAN	September 2007
Gulf of Mexico	Entire coastline of Jackson County	Entire coastline of Jackson County	Storm Surge, PFD,	PLB	September 2007
Gulf of Mexico	Entire coastline of Jackson County	Entire coastline of Jackson County	Storm Surge, PBD, Statistical Analyses	JPM	September 2007
Gulf of Mexico	Entire coastline of Jackson County	Entire coastline of Jackson County	Statistical Analyses	JPM-OS	September 2007
Gulf of Mexico	Entire coastline of Jackson County	Entire coastline of Jackson County	Wave setup	SWAN 2-D	September 2007
Gulf of Mexico	Entire coastline of Jackson County	Entire coastline of Jackson County	Overland Wave Propagation	WHAFIS 4.0	September 2007
Gulf of Mexico	Entire coastline of Jackson County	Entire coastline of Jackson County	Wave Runup	TAW	September 2007

5.3.1 Total Stillwater Elevations

The total stillwater elevations (stillwater including storm surge plus wave setup) for the 1% annual chance flood were determined for areas subject to coastal flooding. The models and methods that were used to determine storm surge and wave setup are listed in Table 15. The

stillwater elevation that was used for each transect in coastal analyses is shown in Table 17, "Coastal Transect Parameters." Figure 8 shows the total stillwater elevations for the 1% annual chance flood that was determined for this coastal analysis.

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

Astronomical Tide

Astronomical tidal statistics were generated directly from local tidal constituents by sampling the predicted tide at random times throughout the tidal epoch.

Storm Surge Statistics

Storm surge is modeled based on characteristics of actual storms responsible for significant coastal flooding. The characteristics of these storms are typically determined by statistical study of the regional historical record of storms or by statistical study of tidal gages.

When historic records are used to calculate storm surge, characteristics such as the strength, size, track, etc., of storms are identified by site. Storm data was used in conjunction with numerical hydrodynamic models to determine the corresponding storm surge levels. An extreme value analysis was performed on the storm surge modeling results to determine a stillwater elevation for the 1% annual chance event.

Tidal gages can be used instead of historic records of storms when the available tidal gage record for the area represents both the astronomical tide component and the storm surge component. Table 16 provides the gage name, managing agency, gage type, gage identifier, start date, end date, and statistical methodology applied to each gage used to determine the stillwater elevations. For areas between gages, peak stillwater elevations for selected recurrence intervals were estimated by combining interpolation between gages and observed high water marks during major storms. A regionalized statistical approach was applied to the gage data so that stillwater elevations in areas between gages could be identified.

Table 16: Tide Gage Analysis Specifics

Gage Name	Managing Agency of Tide Gage Record	Gage Type	Start Date	End Date	Statistical Methodology
Ocean Springs, MS Station ID: 8743281	NOAA	Tide	04/29/2005	08/29/2005	GEV
Pascagoula Point, MS Station ID: 8741196	NOAA	Tide	03/24/1980	08/11/2005	GEV
Horn Island, MS Station ID: 8742221	NOAA	Tide	04/16/1980	08/29/2005	GEV

Combined Riverine and Tidal Effects

Riverine and surge rates were combined by developing curves for rate of occurrence vs. flood level for each flood source.

Wave Setup Analysis

Wave setup was computed during the storm surge modeling through the methods and models listed in Table 15 and included in the frequency analysis for the determination of the total stillwater elevations. The oscillating component of wave setup, *dynamic wave setup*, was calculated for areas subject to wave runup hazards.

5.3.2 Waves

A coastal wave model was used to calculate the nearshore wave fields required for the addition of wave setup effects. Three nested grids were used to obtain sufficient nearshore resolution to represent the radiation stress gradients required as ADCIRC inputs. Radiation stress fields output from the inner grids are used by ADCIRC to estimate the contribution of breaking waves (wave setup effects) to the total stillwater elevation.

5.3.3 Coastal Erosion

A single storm episode can cause extensive erosion in coastal areas. Storm-induced erosion was evaluated to determine the modification to existing topography that is expected to be associated with flooding events. Erosion was evaluated using the methods listed in Table 15. The post-event eroded profile was used for the subsequent transect-based onshore wave hazard analyses.

5.3.4 Wave Hazard Analyses

Overland wave hazards were evaluated to determine the combined effects of ground elevation, vegetation, and physical features on overland wave propagation and wave runup. These analyses were performed at representative transects along all shorelines for which waves were expected to be present during the floods of the selected recurrence intervals. The results of these analyses were used to determine elevations for the 1% annual chance flood.

Transect locations were chosen with consideration given to the physical land characteristics as well as development type and density so that they would closely represent conditions in their locality. Additional consideration was given to changes in the total stillwater elevation. Transects were spaced close together in areas of complex topography and dense development or

where total stillwater elevations varied. In areas having more uniform characteristics, transects were spaced at larger intervals. Transects shown in Figure 9, "Transect Location Map," are also depicted on the FIRM. Table 17 provides the location, stillwater elevations, and starting wave conditions for each transect evaluated for overland wave hazards. In this table, "starting" indicates the parameter value at the beginning of the transect.

Wave Height Analysis

Wave height analyses were performed to determine wave heights and corresponding wave crest elevations for the areas inundated by coastal flooding and subject to overland wave propagation hazards. Refer to Figure 6 for a schematic of a coastal transect evaluated for overland wave propagation hazards.

Wave heights and wave crest elevations were modeled using the methods and models listed in Table 15, "Summary of Coastal Analyses".

Wave Runup Analysis

Wave runup analyses were performed to determine the height and extent of runup beyond the limit of stillwater inundation for the 1% annual chance flood. Wave runup elevations were modeled using the methods and models listed in Table 15.

Table 17: Coastal Transect Parameters

Flood Source	Coastal Transect	Description	Starting Wave Conditions for the 1% Annual Chance		Starting Stillwater Elevations (ft NAVD88) Range of Stillwater Elevations (ft NAVD88)				
			Significant Wave Height H_s (ft)	Peak Wave Period T_p (sec)	10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Gulf of Mexico	1	Biloxi Bay at Rue Dauphin Street (just east of county line)	5.1	4.0	5.8 5.8-5.9	* *	13.9 13.9-14.4	16.9 16.9-17.30	22.1 22.1-22.8
Gulf of Mexico	2	Biloxi Bay at Back Bay of Biloxi Street	4.9	4.0	5.9 5.9-5.9	* *	14.0 14.0-14.4	17.0 17.0-17.3	22.4 22.4-22.8
Gulf of Mexico	3	Biloxi Bay at Ascot Drive	5.3	3.9	5.8 5.8-5.9	* *	14.0 11.4-14.2	17.0 17.0-17.2	22.3 22.3-22.8
Gulf of Mexico	4	Biloxi Bay east of Crescent Shore Drive	4.8	4.0	5.8 5.8-5.9	* *	14.0 14.0-14.2	17.0 17.0-17.0	22.4 22.2-22.8
Gulf of Mexico	5	Gulf of Mexico at Deer Island	5.9	4.7	5.5 5.5-5.8	* *	13.4 13.3-14.0	16.1 16.1-17.0	21.3 21.3-22.3
Gulf of Mexico	6	Gulf of Mexico at Deer Island	5.9	4.8	5.5 5.5-5.7	* *	13.3 13.3-13.6	16.1 16.3-16.6	21.3 21.3-22.2
Gulf of Mexico	7	Gulf of Mexico at Deer Island	5.9	4.9	5.5 5.3-5.7	* *	13.1 13.0-13.5	15.9 15.8-16.5	21.3 21.3-22.2
Gulf of Mexico	8	Gulf of Mexico at Deer Island	5.9	4.9	5.4 5.2-5.7	* *	12.9 12.7-13.4	15.8 15.5-16.4	21.0 20.9-22.10
Gulf of Mexico	9	Biloxi Bay at East Beach Drive and just east of Sheawater Drive	5.4	4.6	5.6 5.1-5.6	* *	13.3 12.4-13.3	16.3 15.1-16.3	21.6 20.3-21.8

* Data not available

Table 17: Coastal Transect Parameters continued

Flood Source	Coastal Transect	Description	Starting Wave Conditions for the 1% Annual Chance		Starting Stillwater Elevations (ft NAVD88) Range of Stillwater Elevations (ft NAVD88)				
			Significant Wave Height H_s (ft)	Peak Wave Period T_p (sec)	10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Gulf of Mexico	10	Back Bay at Beach Drive	5.6	4.7	5.5 4.9-5.6	* *	13 12.2-13.2	15.9 14.8-16.2	21.2 19.7-21.8
Gulf of Mexico	11	Back Bay at Gulf Coast Research Laboratory	5.4	4.8	5.5 4.8-5.6	* *	12.9 11.8-13.3	15.9 14.1-16.3	21 18.9-21.7
Gulf of Mexico	12	Back Bay at Gulf Island National Seashore, Magnolia Area	5.5	4.2	5.4 4.7-5.5	* *	12.8 11.2-13.2	15.7 13.7-16.3	20.9 18.2-21.6
Gulf of Mexico	13	Gulf of Mexico near end of wooden bulkhead	5.4	4.3	5.4 4.4-5.4	* *	12.7 10.5-13.0	15.6 12.4-15.9	20.8 16.6-21.4
Gulf of Mexico	14	Gulf of Mexico at David Bayou and Pointe Aux Chenes Road	5.3	4.4	5.4 4.2-5.4	* *	12.6 9.9-12.8	15.5 11.3-15.7	20.6 15.3-21.3
Gulf of Mexico	15	Gulf of Mexico at Point Aux Chenez Road	5.2	4.5	5.4 3.5-5.4	* *	12.5 8.7-12.8	15.4 10.3-15.6	20.6 13.7-21.1
Gulf of Mexico	16	Gulf of Mexico at Seashore Drive	5.0	4.3	5.3 3.7-5.3	* *	12.4 9.1-12.8	15.2 10.8-15.5	20.4 14.1-21
Gulf of Mexico	17	Gulf of Mexico at Lake Mars Avenue	4.7	4.1	5.3 5.3-5.3	* *	12.3 12.3-12.7	15.1 15.1-15.7	20.2 20.2-20.9
Gulf of Mexico	18	Starfish Avenue and 15th Street	4.9	4.1	5.2 5.2-5.3	* *	12.1 12.1-12.7	14.8 14.8-15.6	19.9 19.9-20.9

* Data not available

Table 17: Coastal Transect Parameters continued

Flood Source	Coastal Transect	Description	Starting Wave Conditions for the 1% Annual Chance		Starting Stillwater Elevations (ft NAVD88) Range of Stillwater Elevations (ft NAVD88)				
			Significant Wave Height H_s (ft)	Peak Wave Period T_p (sec)	10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Gulf of Mexico	19	Gulf of Mexico at Belle Fountaine Point	4.9	4.6	5.2 5.2-5.7	* *	12.1 12.1-13.4	14.7 14.7-15.9	19.6 19.6-20.8
Gulf of Mexico	20	Gulf of Mexico and Graveline Bay St. Andrews Golf Course	4.9	5.0	5.2 5.2-5.7	* *	12.1 12.1-13.4	14.6 14.6-16.1	19.6 19.6-21
Gulf of Mexico	21	Gulf of Mexico and Graveline Bay at East Bell Fountaine	4.9	5.2	5.3 5.3-5.7	* *	12.3 12.3-13.2	14.7 14.7-15.8	19.6 19.6-21
Gulf of Mexico	22	Old Shell Landing Road	5.2	5.1	5.3 5.3-5.5	* *	12.3 12.3-13.3	14.8 14.8-15.4	19.8 19.8-21.4
Gulf of Mexico	23	Gulf of Mexico at Shell Landing Golf Club	5.0	4.4	5.3 5.3-5.5	* *	12.3 12.3-13.0	14.8 14.8-15.4	19.8 19.8-21
Gulf of Mexico	24	Gulf of Mexico at Pointe Clear Riviera	4.8	4.2	5.3 5.3-5.5	* *	12.3 12.0-12.8	14.8 14.8-15.4	19.9 19.9-21.3
Gulf of Mexico	25	Gulf of Mexico at Robert Heirm Road	5.0	4.2	5.3 5.3-5.3	* *	12.2 12.2-12.3	14.6 14.6-14.8	19.6 19.6-21.3
Gulf of Mexico	26	Gulf of Mexico at Oakleigh Place	5.0	4.0	5.2 5.2-5.2	* *	12.2 12.2-12.2	14.6 14.6-14.7	19.6 19.6-21.3
Gulf of Mexico	27	Gulf of Mexico at The Lewis House (“Old Fields”)	5.3	3.9	5.2 5.2-5.3	* *	12.1 12.1-12.3	14.5 14.5-14.7	19.4 19.4-20.2

* Data not available

Table 17: Coastal Transect Parameters continued

Flood Source	Coastal Transect	Description	Starting Wave Conditions for the 1% Annual Chance		Starting Stillwater Elevations (ft NAVD88) Range of Stillwater Elevations (ft NAVD88)				
			Significant Wave Height H_s (ft)	Peak Wave Period T_p (sec)	10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Gulf of Mexico	28	Gulf of Mexico, approximately 640 feet east of terminus of Colin J. McRae Road	5.3	4.0	5.2 3.9-5.2	* *	12.2 9.1-12.2	14.5 10.9-14.6	19.4 15.0-19.8
Gulf of Mexico	29	Gulf of Mexico approximately 360 feet west of Vaughndale Drive	4.8	4.0	5.2 3.4-5.2	* *	12.2 7.7-12.3	14.5 9.1-14.5	19.5 12.3-19.6
Gulf of Mexico	30	Gulf of Mexico at Soundview Drive	4.0	3.8	5.2 4.0-5.2	* *	12.1 8.9-12.1	14.4 10.7-14.4	19.4 14.1-19.4
Gulf of Mexico	31	West Channel of the Pascagoula River approximately 2,300 feet north of the U S Route 90 crossing	4.5	3.4	4.4 3.2-4.4	* *	9.6 7.7-9.6	11.5 8.9-11.5	15.7 12.8-15.7
Gulf of Mexico	32	West Channel of the Pascagoula River, approximately 2450 feet northeast of the location of Transect 31	4.5	3.4	4.2 2.8-4.2	* *	9.2 5.8-9.2	11.1 7.5-11.1	15.2 9.3-15.2
Gulf of Mexico	33	West Channel of the Pascagoula River at the eastern end of the CSX Railroad bridge	4.6	3.7	5.1 3.1-5.1	* *	11.2 7.4-11.2	14.0 8.8-14.0	18.6 12.0-18.6
Gulf of Mexico	34	West Channel of the Pascagoula River approximately 1950 feet southeast of the location of Transect 33	5.1	3.7	5.1 3.3-5.2	* *	11.7 7.9-11.7	14.1 9.6-14.1	18.7 13.3-18.8

* Data not available

Table 17: Coastal Transect Parameters continued

Flood Source	Coastal Transect	Description	Starting Wave Conditions for the 1% Annual Chance		Starting Stillwater Elevations (ft NAVD88) Range of Stillwater Elevations (ft NAVD88)				
			Significant Wave Height H_s (ft)	Peak Wave Period T_p (sec)	10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Gulf of Mexico	35	Gulf of Mexico approximately 4,500 feet southeast of the location of Transect 34	4.9	3.6	5.1 3.4-5.1	* *	11.7 6.5-11.8	14 7.7-14.0	18.6 13.1-18.6
Gulf of Mexico	36	Gulf of Mexico at Spanish Point	5.9	3.9	4.9 3.3-5.0	* *	11.5 7.6-11.5	13.8 9.5-13.8	18.4 12.8-18.4
Gulf of Mexico	37	Gulf of Mexico at U S Naval facility	6.5	4.6	4.8 3.8-5.0	* *	11.3 8.5-11.7	14.0 10.8-14.0	18.1 13.1-18.5
Gulf of Mexico	38	Gulf of Mexico west of the intersection of Beach Boulevard and Hague Street	4.9	4.6	5.0 3.9-5.0	* *	11.7 7.6-11.7	14.1 10.7-14.1	18.6 13.7-18.6
Gulf of Mexico	39	Gulf of Mexico approximately 100 feet east of the intersection of Beach Boulevard and Pascagoula Street	5.1	4.7	5.0 4.0-5.0	* *	11.7 8.2-11.8	14.1 12.8-14.1	18.7 13.7-18.7
Gulf of Mexico	40	Gulf of Mexico approximately 420 feet east of the intersection of Beach Boulevard and Market Street	5.0	4.7	5.0 3.3-5.0	* *	11.7 7.5-11.9	14.1 9.5-14.1	18.7 13.0-18.8
Gulf of Mexico	41	Gulf of Mexico approximately 870 feet east of the intersection of Beach Boulevard and 11th Street	4.4	4.7	5.0 2.9-5.0	* *	11.6 7.9-11.8	14.1 9.5-14.1	18.7 13.2-18.8

* Data not available

Table 17: Coastal Transect Parameters continued

Flood Source	Coastal Transect	Description	Starting Wave Conditions for the 1% Annual Chance		Starting Stillwater Elevations (ft NAVD88) Range of Stillwater Elevations (ft NAVD88)				
			Significant Wave Height H_s (ft)	Peak Wave Period T_p (sec)	10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Gulf of Mexico	42	Gulf of Mexico approximately 200 feet east of the intersection of Beach Boulevard and Oliver Street	5.2	4.8	4.9 3.3-5.0	* *	11.5 7.9-11.7	14.0 9.4-14.0	18.6 13.3-18.6
Gulf of Mexico	43	Gulf of Mexico east of the intersection of Beach Boulevard and Westwood Street	4.9	4.8	4.9 3.2-4.9	* *	11.5 7.6-11.9	14.0 9.3-14.0	18.5 12.9-18.6
Gulf of Mexico	44	Gulf of Mexico approximately 230 feet west of the intersection of Beach Boulevard and Martin Street	4.7	4.5	4.9 3.0-4.9	* *	11.4 7.9-12.1	13.9 9.7-13.9	18.4 13.7-19.0
Gulf of Mexico	45	Gulf of Mexico at Greenwood Island, west of the confluence of Bayou Casotte	3.3	1.7	4.7 2.4-4.9	* *	11.2 7.6-12.2	13.6 9.2-14.1	18.1 12.7-19.3
Gulf of Mexico	46	Gulf of Mexico east of the confluence of Bayou Casotte	4.6	5.2	4.7 2.4-5.1	* *	11.1 7.4-12.6	13.6 9.6-15.1	17.9 12.5-19.6
Gulf of Mexico	47	Gulf of Mexico approximately 4800 feet south of the terminus of State Route 611	4.8	5.3	4.7 2.6-5.2	* *	11.1 7.7-12.9	13.6 9.7-15.6	18 14.5-20.0
Gulf of Mexico	48	Gulf of Mexico approximately 2400 feet east of the location of Transect 47	4.6	5.1	4.7 2.4-5.2	* *	11.1 7.4-13.0	13.7 9.3-15.7	18.0 12.1-20.3

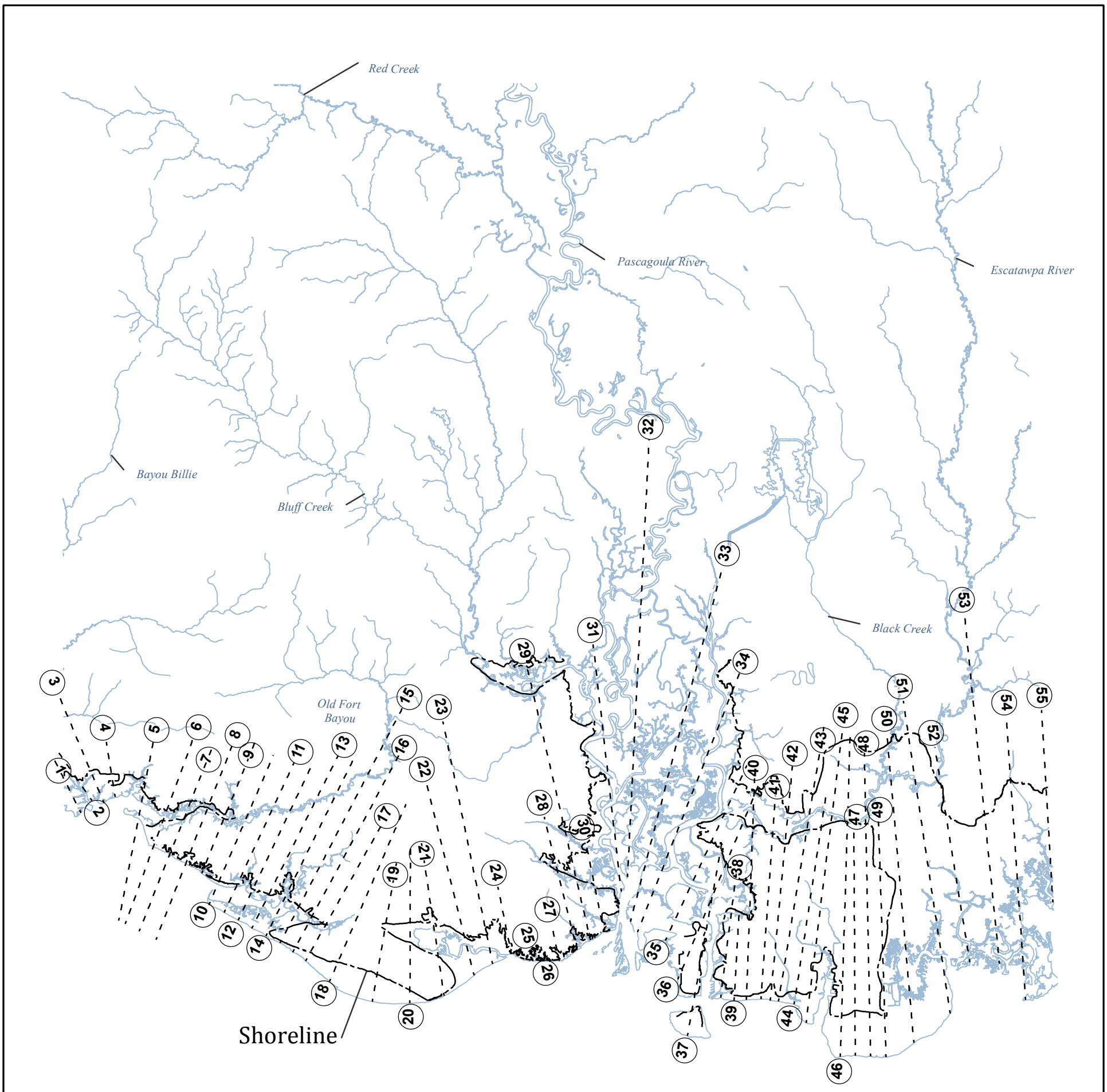
* Data not available

Table 17: Coastal Transect Parameters continued

Flood Source	Coastal Transect	Description	Starting Wave Conditions for the 1% Annual Chance		Starting Stillwater Elevations (ft NAVD88) Range of Stillwater Elevations (ft NAVD88)				
			Significant Wave Height H_s (ft)	Peak Wave Period T_p (sec)	10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Gulf of Mexico	49	Gulf of Mexico approximately 2400 feet east of the location of Transect 48 (Pointe aux Chenes)	4.6	4.8	4.7 2.5-5.4	* *	11.0 7.6-13.3	13.7 9.7-16.0	18.0 13.9-20.6
Gulf of Mexico	50	Gulf of Mexico approximately 4700 feet east of the location of Transect 49	4.9	5.2	4.8 2.2-5.8	* *	11.2 7.3-13.4	13.9 9.7-16.1	18.3 12.1-20.6
Gulf of Mexico	51	Gulf of Mexico approximately 7315 feet northeast of the location of Transect 50	4.7	5.1	4.9 2.2-5.7	* *	11.4 7.3-13.1	14.3 9.4-15.9	18.9 12.7-20.5
Gulf of Mexico	52	Gulf of Mexico (Point aux Chenes Bay), east of the confluence of Cumbest Bayou	4.9	4.2	5.1 2.0-5.5	* *	12 7.5-13.0	14.9 9.4-15.9	19.6 13.0-20.7
Gulf of Mexico	53	Gulf of Mexico (Point aux Chenes Bay), west of the confluence of Crooked Bayou	5.4	4.3	5.0 2.1-5.6	* *	11.7 6.6-13.0	14.7 8.1-16.1	19.4 11.2-20.9
Gulf of Mexico	54	Gulf of Mexico at South Rigolets	5.2	5.3	4.7 4.7-5.6	* *	11.0 10.0-13.0	13.9 12.8-16.2	18.6 12.7-21.1
Gulf of Mexico	55	Gulf of Mexico at the confluence of Bayou Heron (Mississippi state boundary)	5.5	4.2	5.2 5.2-5.6	* *	12.1 10.9-12.8	15.4 11.4-16.2	20.3 13.7-21.1

* Data not available

Figure 9: Transect Location Map



1 inch = 3 miles 1:205,000

N

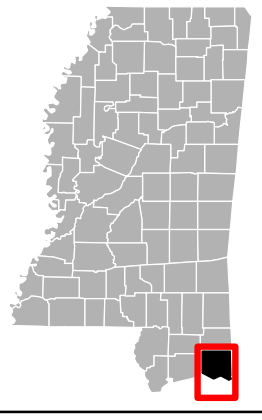
Miles 0 1.75 3.5 7

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

THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT

HTTP://MSC.FEMA.GOV

SEE FLOOD INSURANCE STUDY FOR ADDITIONAL INFORMATION



NATIONAL FLOOD INSURANCE PROGRAM

Transect Locator Map

PANELS WITH TRANSECTS

0205, 0215, 0218, 0239, 0260, 0267, 0278, 0279, 0285, 0286, 0287, 0288, 0289, 0291, 0292, 0293, 0294, 0303, 0304, 0307, 0309, 0311, 0312, 0313, 0314, 0316, 0317, 0318, 0319, 0330, 0331, 0333, 0334, 0336, 0337, 0338, 0339, 0341, 0342, 0343, 0344, 0351, 0352, 0353, 0354, 0356, 0358, 0359, 0361, 0362, 0363, 0364, 0370, 0380, 0385, 0405, 0406, 0407

FEMA

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, or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

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 contact information services Branch of the NGS at (301) 713-3242, or visit their website at www.ngs.noaa.gov.

The datum conversion locations and values that were calculated for Jackson 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 = +0.08 feet				

Table 21: Stream-by-Stream 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*, http://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
County Boundary	Mississippi Department of Environmental Quality	12/31/2009	N/A	S_Pol_Ar. County and Municipal Boundaries
Digital Orthophoto	State of Mississippi	01/01/2006	1:12,000	S_Base_Index Orthophotography S_Base_Index table contains information about the raster data used as a base map for the study area.
Digital Orthophoto	Sewall Company	04/27/2012	N/A	S_Base_Index Orthophotography S_Base_Index table contains information about the raster data used as a base map for the study area.

Table 22: Base Map Sources continued

Data Type	Data Provider	Data Date	Data Scale	Data Description
Incorporated Communities Boundaries	Mississippi Department of Environmental Quality	07/01/2009	N/A	S_PLSS_Ar.
Transportation Features	Mississippi Department of Environmental Quality, Office of Geology	12/08/2009	N/A	S_Trnsport_Ln.
Water Surface Features	Mississippi Automated Resource Information System (MARIS)	01/01/2005	N/A	S_Wtr_Ar. Water areas within the study area.

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. For each coastal flooding source studied as part of this FIS Report, the mapped floodplain boundaries on the FIRM have been delineated using the flood and wave elevations determined at each transect; between transects, boundaries were delineated using land use and land cover data, the topographic elevation data described in Table 23, and knowledge of coastal flood processes. In ponding areas, flood elevations were determined at each junction of the model; between junctions, 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

Community	Flooding Source	Source for Topographic Elevation Data			
		Description	Scale	Contour Interval	Citation
Jackson County Unincorporated Areas	Cypress Creek	LiDAR	1:12,000	N/A	Sewall Company, 2012
Jackson County Unincorporated Areas	Old Fort Bayou	LiDAR	1:12,000	N/A	Sewall Company, 2012
Jackson County Unincorporated Areas	Old Fort Bayou Tributary	LiDAR	1:12,000	N/A	Sewall Company, 2012
Jackson County Unincorporated Areas	All streams studied in the 2009 FIS	LiDAR	1:12,000	N/A	State of Mississippi, 2006

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. Rounded whole-foot elevations may be shown on the FIRM in coastal areas, areas of ponding, and other areas with static base flood elevations.

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	9,000	470	*	*	21.3	21.3	22.3	1.0

[1] Feet above confluence with Tchoutacabouffa River

* Data not available

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

JACKSON COUNTY, MS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: BAYOU COSTAPIA

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	6,200	1,887	9,559	0.9	**	5.3[2]	6.3	1.0
B	9,970	575	3,544	2.3	13.0	5.9[2]	6.9	1.0
C	15,670	1,561	9,409	0.9	13.2	7.8[2]	8.8	1.0
D	19,656	638	5,527	1.5	14.0	9.3[2]	10.1	0.8
E	26,136	589	5,996	1.4	14.0	11.0[2]	11.8	0.8
F	30,346	737	7,759	1.1	14.0	11.7[2]	12.6	0.9
G	33,620	600	6,956	1.2	14.0	13.4[2]	14.2	0.8
H	35,170	695	7,906	1.0	14.3	14.3	15.2	0.9
I	38,600	525	*	*	15.0	15.0	16.0	1.0
J	46,350	724	*	*	17.1	17.1	18.1	1.0

[1] Feet above confluence with Escatawpa River
[2] Elevation computed without consideration of storm surge effects from Pascagoula Bay
* Data not available
** BFE determined by coastal storm surge flooding

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

JACKSON COUNTY, MS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: BLACK CREEK

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	15,150	500	6,703	2.7	**	5.8[2]	6.8	1.0
B	22,350	2,977	27,250	0.6	**	6.0[2]	7.0	1.0
C	29,500	2,285	15,663	1.1	**	6.2[2]	7.2	1.0
D	38,050	1,284	10,656	1.7	**	7.0[2]	8.0	1.0
E	45,650	1,711	12,417	1.4	9.6	7.9[2]	8.9	1.0
F	63,600	800	*	*	14.5	14.5	15.5	1.0

[1] Feet above confluence with West Pascagoula River
[2] Elevation computed without consideration of storm surge effects from Mississippi Sound
* Data not available
** BFE determined by coastal storm surge flooding

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

JACKSON COUNTY, MS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: BLUFF CREEK

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	7,910	270	1,064	3.2	13.8	10.3[2]	11.1	0.8
B	9,387	225	1,490	2.3	14.3	13.2[2]	13.7	0.5
C	10,870	250	1,557	2.2	16.0	15.8[2]	16.6	0.8
D	12,275	248	1,421	2.0	17.3	17.1[2]	18.0	0.9
E	13,664	260	1,457	1.6	18.9	18.8[2]	19.7	0.9
F	15,019	330	1,975	1.1	19.9	19.8[2]	20.8	1.0
G	16,764	255	1,174	1.7	22.3	22.3[2]	23.0	0.7
H	19,145	335	1,521	1.2	24.7	24.7	25.6	0.9
I	20,416	330	1,387	1.3	26.0	26.0	27.0	1.0
J	22,595	185	840	1.5	30.0	30.0	30.8	0.8
K	24,028	370	1,473	0.8	31.0	31.0	31.9	0.9
L	26,213	240	629	1.3	32.3	32.3	33.3	1.0

[1] Feet above confluence with Tchoutacabouffa River

[2] Elevation computed without consideration of combined probability storm surge effects from Bay of Biloxi

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

JACKSON COUNTY, MS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: CYPRESS CREEK

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	1,249	1,300	14,638	4.7	**	4.0[2]	5.0	1.0
B	5,200	1,178	14,079	4.9	**	4.9[2]	5.9	1.0
C	10,972	3,539	49,418	1.4	**	5.7[2]	6.7	1.0
D	12,732	2,908	33,467	2.1	**	5.8[2]	6.8	1.0
E	18,602	2,630	23,990	2.9	**	6.1[2]	7.1	1.0
F	20,102	2,200	21,942	3.1	**	6.4[2]	7.4	1.0
G	22,982	1,128	14,028	4.9	**	6.7[2]	7.7	1.0
H	25,482	1,590	14,809	4.6	**	7.5[2]	8.5	1.0
I	37,402	5,193	42,324	1.6	**	9.5[2]	10.5	1.0
J	55,942	4,559	39,778	1.7	**	11.1[2]	12.0	0.9
K	61,262	2,231	27,408	2.4	**	12.2[2]	13.1	0.9
L	64,012	2,375	32,138	2.0	13.0	12.6[2]	13.5	0.9
M	66,912	2,880	39,072	1.7	13.2	13.0[2]	13.9	0.9
N	84,062	3,391	42,462	1.5	14.6	14.6	15.6	1.0
O	91,942	2,044	28,556	2.2	16.2	16.2	17.2	1.0
P	100,012	1,751	27,729	2.2	19.4	19.4	20.2	0.8

[1] Feet above confluence with Pascagoula River
[2] Elevation computed without consideration of storm surge effects from Pascagoula Bay
** BFE determined by coastal storm surge flooding

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

JACKSON COUNTY, MS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: ESCATAWPA RIVER

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	2,900	1,154	5,457	0.3	10.5	4.3[2]	5.3	1.0
B	5,200	142	1,058	1.7	10.5	4.5[2]	5.5	1.0
C	7,600	92	403	4.5	10.5	6.2[2]	7.2	1.0
D	8,980	187	*	*	10.5	10.1[2]	11.1	1.0
E	12,880	172	*	*	17.3	17.3	18.3	1.0
F	16,590	268	*	*	26.4	26.4	27.4	1.0

[1] Feet above confluence with Bluff Creek
[2] Elevation computed without consideration of storm surge effects from Pascagoula Bay
* Data not available

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

JACKSON COUNTY, MS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: JOHNS 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	9,660	181	*	*	20.6	17.0[2]	18.0	1.0

[1] Feet above confluence with Escatawpa River
[2] Elevation computed without consideration of backwater effects from Escatawpa River
* Data not available

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

JACKSON COUNTY, MS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: LYONS CREEK

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	3,630	550	*	*	15.1	15.1	16.1	1.0
B	10,900	671	*	*	22.4	22.4	23.4	1.0

[1] Feet above confluence with Bluff Creek

* Data not available

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

JACKSON COUNTY, MS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: MOUNGERS CREEK

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[2]	WITH FLOODWAY	INCREASE
A	10,000	1,239	9,363	1.0	**	3.0	3.9	0.9
B	17,972	300	4,203	2.3	**	3.4	4.2	0.8
C	29,872	270	3,629	2.7	**	4.4	5.1	0.7
D	39,772	283	3,346	2.9	**	5.5	6.2	0.7
E	49,672	512	4,594	2.1	**	7.1	8.0	0.9
F	50,941	595	3,698	2.7	11.4	7.8	8.8	1.0
G	56,441	801	6,341	1.5	11.4	9.8	10.7	0.9
H	60,226	1,010	8,138	1.2	11.5	10.8	11.7	0.9
I	64,825	860	5,400	1.6	12.4	12.0	12.9	0.9
J	67,490	1,350	7,084	1.2	13.0	12.8	13.7	0.9
K	69,977	600	4,684	2.1	13.9	13.8	14.7	0.9
L	72,735	330	2,566	3.0	15.1	15.0	15.9	0.9

[1] Feet above confluence with Back Bay of Biloxi
[2] Elevation computed without consideration of combined probability storm surge effects from Back Bay of Biloxi
** BFE determined by coastal storm surge flooding

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

JACKSON COUNTY, MS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: OLD FORT 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	1,037	330	1,013	1.1	12.7	9.8[2]	10.4	0.6
B	2,584	250	729	1.4	12.7	10.8[2]	11.7	0.9
C	4,522	415	1,552	0.7	12.9	12.9[3]	13.8	0.9
D	5,969	360	1,412	0.7	13.6	13.5[3]	14.5	1.0

[1] Feet above confluence with Old Fort Bayou
[2] Elevation computed without consideration of backwater effects from Old Fort Bayou
[3] Elevation computed without consideration of combined probability storm surge effects from Back Bay of Biloxi

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

JACKSON COUNTY, MS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: OLD FORT BAYOU TRIBUTARY

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	1,270	451	*	*	26.3	24.3[2]	25.3	1.0
B	3,770	312	*	*	28.3	28.3	29.3	1.0
C	9,600	285	*	*	37.7	37.7	38.7	1.0

[1] Feet above confluence with Bayou Costapia
[2] Elevation computed without consideration of overflow effects from Bayou Costapia
* Data not available

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

JACKSON COUNTY, MS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: PERIGAL CREEK

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	94,347	115	1,966	8.0	33.3	33.3	34.3	1.0

[1] Feet above confluence with Biloxi River

* Data not available

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

JACKSON COUNTY, MS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: TCHOUTACABOUFFA RIVER

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	2,600	325	*	*	22.2	22.2	23.2	1.0

[1] Feet above confluence with Moungers Creek

* Data not available

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

JACKSON COUNTY, MS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: WATERS CREEK

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	7,310[4]	110	*	*	32.2	32.2	33.2	1.0

[1] Feet above confluence with Bluff Creek

* Data not available

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

JACKSON COUNTY, MS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: WOODMANS BRANCH

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 the FIS 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/ Structure Type	Stream Station[1]	1% Annual Chance Flood Discharge (cfs)	1% Annual Chance Water Surface Elevation (feet NAVD88)	Non-Encroachment Width (feet)	
					Left	Right
Jackson Creek		2,685	8,760	10.85	179.6	1251.4
Jackson Creek	A	3,572	8,760	10.87	311.0	151.2
Jackson Creek		4,166	8,760	11.00	277.3	186.7
Jackson Creek		4,649	8,760	11.02	251.5	85.9
Jackson Creek		5,172	8,760	11.12	350.7	50.5
Jackson Creek		5,675	8,760	11.30	274.8	104.7
Jackson Creek		6,325	8,760	11.65	181.2	304.5
Jackson Creek		7,036	8,760	11.90	35.3	532.8
Jackson Creek		7,701	8,760	12.09	631.1	61.4
Jackson Creek		8,595	8,760	12.30	337.0	197.2
Jackson Creek	B	9,221	8,760	12.49	139.3	342.0
Jackson Creek		9,545	8,697	12.59	242.7	131.4
Jackson Creek		10,045	8,697	12.85	324.0	51.5
Jackson Creek		10,545	8,697	13.11	268.4	225.1
Jackson Creek		10,931	8,697	13.24	147.4	309.5
Jackson Creek		11,510	8,697	13.44	116.5	214.5
Jackson Creek		12,045	8,697	13.80	234.4	220.5
Jackson Creek		12,545	8,697	14.02	393.0	151.7
Jackson Creek		13,045	8,697	14.19	380.5	419.8
Jackson Creek	C	13,380	8,697	14.27	424.7	214.4
Jackson Creek		13,702	8,697	14.40	140.2	162.0
Jackson Creek	Bridge	13,788	8,697	15.68	140.2	162.0
Jackson Creek		13,939	8,697	15.68	140.2	162.0
Jackson Creek		14,192	8,697	16.02	39.9	324.8
Jackson Creek		14,469	8,697	16.17	146.1	99.9

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

Flooding Source	Cross Section/ Structure Type	Stream Station[1]	1% Annual Chance Flood Discharge (cfs)	1% Annual Chance Water Surface Elevation (feet NAVD88)	Non-Encroachment Width (feet)	
					Left	Right
Jackson Creek		14,554	8,697	16.15	136.0	41.1
Jackson Creek	D	14,670	8,697	16.83	34.2	243.5
Jackson Creek		14,995	8,697	17.10	116.8	257.5
Jackson Creek		15,495	8,697	17.33	293.6	185.9
Jackson Creek		15,995	8,697	17.47	287.8	229.5
Jackson Creek		16,353	8,697	17.60	260.5	414.7
Jackson Creek	E	17,082	8,697	17.85	273.2	456.0
Jackson Creek		17,614	8,697	18.07	61.5	317.9
Jackson Creek		18,114	8,697	18.49	155.9	244.3
Jackson Creek	F	18,646	8,697	18.80	299.1	462.8
Jackson Creek		19,215	8,697	18.95	34.1	1025.5
Jackson Creek		19,712	8,714	19.08	82.1	874.3
Jackson Creek Tributary 2		292	573	6.47	136.3	12.5
Jackson Creek Tributary 2		874	573	8.93	48.5	22.0
Jackson Creek Tributary 2		1,479	573	12.32	18.4	48.2
Jackson Creek Tributary 2		1,872	573	14.34	12.5	48.5
Jackson Creek Tributary 2	Culvert	1,934	573	14.58	40.0	48.5
Jackson Creek Tributary 2		2,000	573	14.58	40.0	48.5
Jackson Creek Tributary 2	A	2,574	573	15.91	29.2	37.4
Jackson Creek Tributary 2		3,071	573	17.28	44.8	35.1
Jackson Creek Tributary 2		3,325	573	18.20	19.3	54.7
Jackson Creek Tributary 2	Culvert	3,376	573	18.19	19.3	54.7
Jackson Creek Tributary 2		3,432	573	18.19	19.3	54.7

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

Flooding Source	Cross Section/ Structure Type	Stream Station[1]	1% Annual Chance Flood Discharge (cfs)	1% Annual Chance Water Surface Elevation (feet NAVD88)	Non-Encroachment Width (feet)	
					Left	Right
Jackson Creek Tributary 2		3,901	456	19.79	39.5	33.0
Jackson Creek Tributary 2	B	4,136	456	20.18	12.5	124.1
Old Fort Bayou Tributary 7		62	1,704	6.65	25.7	40.9
Old Fort Bayou Tributary 7		256	1,704	7.22	22.5	16.7
Old Fort Bayou Tributary 7		613	1,704	10.34	22.8	71.4
Old Fort Bayou Tributary 7		1,034	1,704	11.79	20.1	32.2
Old Fort Bayou Tributary 7		1,500	1,704	13.05	17.7	87.6
Old Fort Bayou Tributary 7		2,000	1,027	13.92	15.3	33.1
Old Fort Bayou Tributary 7		2,500	1,027	14.70	50.5	25.1
Old Fort Bayou Tributary 7		3,000	1,027	15.36	17.3	16.6
Old Fort Bayou Tributary 7		3,500	1,027	17.07	14.4	15.0
Old Fort Bayou Tributary 7		4,000	1,027	18.43	16.0	20.2
Old Fort Bayou Tributary 7		4,500	1,027	19.30	17.3	12.0
Old Fort Bayou Tributary 7	A	5,000	1,027	20.58	15.1	14.4
Old Fort Bayou Tributary 7		5,500	1,027	21.84	19.1	15.7
Old Fort Bayou Tributary 7		6,000	1,027	23.17	28.2	21.0
Old Fort Bayou Tributary 7		6,097	955	23.44	20.0	15.0
Old Fort Bayou Tributary 7		6,266	955	24.29	12.0	12.0
Old Fort Bayou Tributary 7		6,402	955	26.94	12.0	25.3

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

Flooding Source	Cross Section/ Structure Type	Stream Station[1]	1% Annual Chance Flood Discharge (cfs)	1% Annual Chance Water Surface Elevation (feet NAVD88)	Non-Encroachment Width (feet)	
					Left	Right
Old Fort Bayou Tributary 7		6,506	955	28.90	12.0	66.2
Old Fort Bayou Tributary 7	B	7,067	955	31.80	12.0	144.4
Old Fort Bayou Tributary 7		7,567	955	32.85	12.0	161.9
Old Fort Bayou Tributary 7		8,067	955	34.18	128.5	12.0
Old Fort Bayou Tributary 7		8,567	955	36.11	12.0	72.3
Old Fort Bayou Tributary 7		9,067	955	37.44	49.3	106.0
Old Fort Bayou Tributary 7		9,567	955	38.61	122.6	25.0
Old Fort Bayou Tributary 7		10,067	955	40.12	102.7	28.1
Old Fort Bayou Tributary 7		10,540	955	40.88	94.6	49.6
Old Fort Bayou Tributary 7	C	10,995	955	41.28	83.2	112.5
Old Fort Bayou Tributary 8		54	985	11.64	25.7	37.8
Old Fort Bayou Tributary 8		211	985	11.94	15.1	22.8
Old Fort Bayou Tributary 8		713	985	13.21	17.3	22.8
Old Fort Bayou Tributary 8		1,205	985	14.19	13.3	36.9
Old Fort Bayou Tributary 8		1,702	985	14.92	12.0	12.0
Old Fort Bayou Tributary 8	A	2,203	985	17.94	27.3	29.0
Old Fort Bayou Tributary 8		2,682	985	18.96	22.4	12.0
Old Fort Bayou Tributary 8		3,179	985	20.37	18.0	16.7
Old Fort Bayou Tributary 8		3,660	985	22.01	15.0	18.0

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

Flooding Source	Cross Section/ Structure Type	Stream Station[1]	1% Annual Chance Flood Discharge (cfs)	1% Annual Chance Water Surface Elevation (feet NAVD88)	Non-Encroachment Width (feet)	
					Left	Right
Old Fort Bayou Tributary 8		4,082	985	23.04	12.0	41.2
Old Fort Bayou Tributary 8	B	4,599	985	25.00	20.0	12.0
Waters Creek		33	3,011	23.90	145.0	145.0
Waters Creek		98	3,011	23.75	50.0	50.0
Waters Creek		185	Bridge	25.91	50.0	50.0
Waters Creek		279	3,011	25.91	50.0	50.0
Waters Creek	B	606	3,011	26.87	489.4	217.1
Waters Creek		1,106	3,011	27.35	93.7	416.5
Waters Creek		1,606	2,967	28.12	122.8	254.0
Waters Creek		1,881	2,967	30.07	46.2	50.0
Waters Creek	Inline Structure	1,935	2,967	30.13	38.0	40.0
Waters Creek		2,024	2,967	30.13	38.0	40.0
Waters Creek	C	2,106	2,967	33.29	198.4	186.0
Waters Creek		2,606	2,967	33.42	158.6	172.2
Waters Creek		3,106	2,967	33.60	169.3	252.6
Waters Creek		3,595	2,967	33.79	218.8	84.5
Waters Creek		4,073	2,967	34.04	279.3	85.0
Waters Creek		4,578	2,967	34.28	355.2	125.4
Waters Creek		5,200	2,967	34.70	191.3	108.2
Waters Creek	D	5,718	2,967	35.27	17.8	218.5
Waters Creek		6,144	2,655	35.94	17.3	336.3
Waters Creek		6,544	2,655	36.56	17.5	213.9
Waters Creek		7,018	2,655	37.34	179.2	109.1
Waters Creek		7,518	2,655	38.02	240.2	150.2
Waters Creek	E	7,853	2,655	38.49	284.1	86.2

[1] Feet above mouth

6.4 Coastal Flood Hazard Mapping

Flood insurance zones and BFEs including the wave effects were identified on each transect based on the results from the onshore wave hazard analyses. Between transects, elevations were interpolated using topographic maps, land-use and land-cover data, and knowledge of coastal flood processes to determine the aerial extent of flooding. Sources for topographic data are shown in Table 23.

Zone VE is subdivided into elevation zones and BFEs are provided on the FIRM.

The limit of Zone VE shown on the FIRM is defined as the farthest inland extent of any of these criteria (determined for the 1% annual chance flood condition):

- The *primary frontal dune zone* is defined in 44 CFR Section 59.1 of the NFIP regulations. The primary frontal dune represents a continuous or nearly continuous mound or ridge of sand with relatively steep seaward and landward slopes that occur immediately landward and adjacent to the beach. The primary frontal dune zone is subject to erosion and overtopping from high tides and waves during major coastal storms. The inland limit of the primary frontal dune zone occurs at the point where there is a distinct change from a relatively steep slope to a relatively mild slope.

- The *wave runup zone* occurs where the (eroded) ground profile is 3.0 feet or more below the 2-percent wave runup elevation.

- The *wave overtopping splash zone* is the area landward of the crest of an overtopped barrier, in cases where the potential 2-percent wave runup exceeds the barrier crest elevation by 3.0 feet or more.

- The *breaking wave height zone* occurs where 3-foot or greater wave heights could occur (this is the area where the wave crest profile is 2.1 feet or more above the total stillwater elevation).

- The *high-velocity flow zone* is landward of the overtopping splash zone (or area on a sloping beach or other shore type), where the product of depth of flow times the flow velocity squared (hv^2) is greater than or equal to 200 ft^3/sec^2. This zone may only be used on the Pacific Coast.

The SFHA boundary indicates the limit of SFHAs shown on the FIRM as either “V” zones or “A” zones.

Table 26 indicates the coastal analyses used for floodplain mapping and the criteria used to determine the inland limit of the open-coast Zone VE and the SFHA boundary at each transect.

Table 26: Summary of Coastal Transect Mapping Considerations

Coastal Transect	Primary Frontal Dune (PFD) Identified	Wave Runup Analysis	Wave Height Analysis	Zone VE Limit	SFHA Boundary
		Zone Designation and BFE (ft NAVD 88)	Zone Designation and BFE (ft NAVD 88)		
1	N/A	N/A	VE 19-23 AE 17-19	Wave Height	SWEL
2	N/A	N/A	VE 19-22 AE 17-19	Wave Height	SWEL
3	N/A	N/A	VE 19-23 AE 17-23	Wave Height	SWEL
4	N/A	N/A	VE 19-22 AE 17-19	Wave Height	SWEL
5	N/A	N/A	VE 19-24 AE 17-19	Wave Height	SWEL
6	N/A	N/A	VE 19-23 AE 16-19	Wave Height	SWEL
7	N/A	N/A	VE 18-23 AE 16-19	Wave Height	SWEL
8	N/A	N/A	VE 19-23 AE 16-18	Wave Height	SWEL
9	N/A	N/A	VE 18-22 AE 15-18	Wave Height	SWEL
10	N/A	N/A	VE 19-22 AE 15-18	Wave Height	SWEL
11	N/A	N/A	VE 19-22 AE 14-17	Wave Height	SWEL
12	N/A	N/A	VE 18-22 AE 14-18	Wave Height	SWEL
13	N/A	N/A	VE 16-22 AE 13-17	Wave Height	SWEL
14	N/A	N/A	VE 18-21 AE 11-18	Wave Height	SWEL
15	N/A	N/A	VE 19-21 AE 10-17	Wave Height	SWEL

Table 26: Summary of Costal Transect Mapping Considerations continued

Coastal Transect	Primary Frontal Dune (PFD) Identified	Wave Runup Analysis	Wave Height Analysis	Zone VE Limit	SFHA Boundary
		Zone Designation and BFE (ft NAVD 88)	Zone Designation and BFE (ft NAVD 88)		
16	N/A	N/A	VE 18-20 AE 11-17	Wave Height	SWEL
17	N/A	N/A	VE 18-20 AE 15-16	Wave Height	SWEL
18	N/A	N/A	VE 18-20 AE 15-17	Wave Height	SWEL
19	N/A	N/A	VE 17-20 AE 15-17	Wave Height	SWEL
20	N/A	N/A	VE 17-20 AE 15-18	Wave Height	SWEL
21	N/A	N/A	VE 17-20 AE 15-18	Wave Height	SWEL
22	N/A	N/A	VE 18-20 AE 15-17	Wave Height	SWEL
23	N/A	N/A	VE 19-20 AE 15-17	Wave Height	SWEL
24	N/A	N/A	VE 17-20 AE 15-17	Wave Height	SWEL
25	N/A	N/A	VE 17-20 AE 15-17	Wave Height	SWEL
26	N/A	N/A	VE 17-20 AE 15-17	Wave Height	SWEL
27	N/A	N/A	VE 17-20 AE 15-17	Wave Height	SWEL
28	N/A	N/A	VE 17-20 AE 11-17	Wave Height	SWEL
29	N/A	N/A	VE 11-20 AE 9-17	Wave Height	SWEL
30	N/A	N/A	VE 13-19 AE 11-17	Wave Height	SWEL
31	N/A	N/A	VE 12-16 AE 9-12	Wave Height	SWEL

Table 26: Summary of Costal Transect Mapping Considerations continued

Coastal Transect	Primary Frontal Dune (PFD) Identified	Wave Runup Analysis	Wave Height Analysis	Zone VE Limit	SFHA Boundary
		Zone Designation and BFE (ft NAVD 88)	Zone Designation and BFE (ft NAVD 88)		
32	N/A	N/A	VE 12-15 AE 8-12	Wave Height	SWEL
33	N/A	N/A	VE 12-19 AE 9-15	Wave Height	SWEL
34	N/A	N/A	VE 12-19 AE 10-16	Wave Height	SWEL
35	N/A	N/A	VE 12-19 AE 8-14	Wave Height	SWEL
36	N/A	N/A	VE 12-19 AE 9-16	Wave Height	SWEL
37	N/A	N/A	VE 13-20 AE 13-16	Wave Height	SWEL
38	N/A	N/A	VE 13-20 AE 11-16	Wave Height	SWEL
39	N/A	N/A	VE 16-20 AE13-16	Wave Height	SWEL
40	N/A	N/A	VE 12-20 AE 10-16	Wave Height	SWEL
41	N/A	N/A	VE 12-19 AE 10-16	Wave Height	SWEL
42	N/A	N/A	VE 12-20 AE 9-16	Wave Height	SWEL
43	N/A	N/A	VE 12-19 AE 9-16	Wave Height	SWEL
44	N/A	N/A	VE 16-19 AE 10-16	Wave Height	SWEL
45	N/A	N/A	VE 12-19 AE 10-16	Wave Height	SWEL
46	N/A	N/A	VE 12-19 AE 10-16	Wave Height	SWEL
47	N/A	N/A	VE 17-19 AE 10-18	Wave Height	SWEL

Table 26: Summary of Costal Transect Mapping Considerations continued

Coastal Transect	Primary Frontal Dune (PFD) Identified	Wave Runup Analysis	Wave Height Analysis	Zone VE Limit	SFHA Boundary
		Zone Designation and BFE (ft NAVD 88)	Zone Designation and BFE (ft NAVD 88)		
48	N/A	N/A	VE 12-19 AE 9-17	Wave Height	SWEL
49	N/A	N/A	VE 17-19 AE 10-18	Wave Height	SWEL
50	N/A	N/A	VE 12-19 AE 10-17	Wave Height	SWEL
51	N/A	N/A	VE 14-20 AE 9-18	Wave Height	SWEL
52	N/A	N/A	VE 18-20 AE 9-18	Wave Height	SWEL
53	N/A	N/A	VE 18-21 AE 8-18	Wave Height	SWEL
54	N/A	N/A	VE 18-21 AE 13-18	Wave Height	SWEL
55	N/A	N/A	VE 18-22 AE 11-18	Wave Height	SWEL

A LiMWA boundary has also been added in coastal areas subject to wave action for use by local communities in safe rebuilding practices. The LiMWA represents the approximate landward limit of the 1.5-foot breaking wave. To simplify representation, the LiMWA was continued immediately landward of the VE/AE boundary in areas where wave runup elevations dominate. Similarly, in areas where the Zone VE designation is based on the presence of a primary frontal dune or wave overtopping, the LiMWA was delineated immediately landward of the Zone VE/AE boundary.

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 to FIS projects 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. A LOMA cannot be issued for properties located on the PFD (primary frontal dune).

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 http://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 https://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 http://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 https://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 Jackson 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

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 http://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 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 Jackson 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 Jackson County FIRMs in countywide format was 03/16/2009.

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)
Gautier, City of	09/18/1970	09/18/1970	N/A	04/03/1978	TBD 03/16/2009 08/18/1992 12/03/1987 03/15/1984 10/01/1983
Jackson County Unincorporated Areas	09/18/1970	09/18/1970	07/01/1974	04/03/1978	TBD 03/16/2009 04/16/1993 08/18/1992 09/04/1987 03/15/1984 10/01/1983
Moss Point, City of	09/18/1970	09/18/1970	N/A	07/01/1974	03/16/2009 09/04/1987 11/16/1983 04/09/1976
Ocean Springs, City of	09/11/1970	09/11/1970	N/A	09/11/1970	03/16/2009 08/18/1992 03/18/1987 03/01/1984 05/14/1976 07/01/1974
Pascagoula, City of	09/18/1970	09/18/1970	N/A	09/18/1970	03/16/2009 03/15/1984 05/14/1976 07/01/1974

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
All Zone A streams studied in the 2009 FIS	03/16/2009	State of Mississippi	EMA-2004-CA-5028	September 2007	Jackson County Unincorporated Areas
Bayou Castelle	06/01/1977	U.S. Soil Conservation Service (SCS)	IAA-H-9-71 Project Order No. 18	June 1975	Jackson County Unincorporated Areas, City of Pascagoula
Bayou Costapia	06/01/1977	U.S. Soil Conservation Service (SCS)	IAA-H-9-71 Project Order No. 18	June 1975	Jackson County Unincorporated Areas
Bayou Costapia	03/16/2009	State of Mississippi	EMA-2004-CA-5028	September 2007	Jackson County Unincorporated Areas
Black Creek	09/04/1987	Gee & Jenson Engineers, Architects, Planners, Inc.	EMW-C-0159	February 1985	Jackson County Unincorporated Areas; Moss Point, City of
Black Creek	03/16/2009	State of Mississippi	EMA-2004-CA-5028	September 2007	Jackson County Unincorporated Areas
Bluff Creek	09/04/1987	Gee & Jenson Engineers, Architects, Planners, Inc.	EMW-C-0159	February 1985	Jackson County Unincorporated Areas
Bluff Creek	03/16/2009	State of Mississippi	EMA-2004-CA-5028	September 2007	Jackson County Unincorporated Areas
Cypress Creek	TBD	AECOM	14-04-0025S	July 10, 2014	Jackson County Unincorporated Areas
Cypress Creek	TBD	AECOM	14-04-0025S	July 10, 2014	Jackson County Unincorporated Areas
Ditch No.1	06/01/1977	U.S. Soil Conservation Service (SCS)	IAA-H-9-71 Project Order No. 18	June 1975	Jackson County Unincorporated Areas
Ditch No.2	06/01/1977	U.S. Soil Conservation Service (SCS)	IAA-H-9-71 Project Order No. 18	June 1975	Jackson County Unincorporated Areas
Ditch No.3	06/01/1977	U.S. Soil Conservation Service (SCS)	IAA-H-9-71 Project Order No. 18	June 1975	Jackson 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
Escatawpa River	09/04/1987	Gee & Jenson Engineers, Architects, Planners, Inc.	EMW-C-0159	February 1985	Jackson County Unincorporated Areas; Moss Point, City of
Escatawpa River	03/16/2009	State of Mississippi	EMA-2004-CA-5028	September 2007	Jackson County Unincorporated Areas
Gulf of Mexico	03/16/2009	State of Mississippi	EMA-2004-CA-5028	September 2007	Jackson County Unincorporated Areas
Jackson Creek	03/16/2009	State of Mississippi	EMA-2004-CA-5028	September 2007	Jackson County Unincorporated Areas
Jackson Creek Tributary 2	03/16/2009	State of Mississippi	EMA-2004-CA-5028	September 2007	Jackson County Unincorporated Areas
Johns Bayou	09/04/1987	Gee & Jenson Engineers, Architects, Planners, Inc.	EMW-C-0159	February 1985	Jackson County Unincorporated Areas
Lyons Creek	06/01/1977	U.S. Soil Conservation Service (SCS)	IAA-H-9-71 Project Order No. 18	June 1975	Jackson County Unincorporated Areas
Lyons Creek	03/16/2009	State of Mississippi	EMA-2004-CA-5028	September 2007	Jackson County Unincorporated Areas
Moungers Creek	06/01/1977	U.S. Soil Conservation Service (SCS)	IAA-H-9-71 Project Order No. 18	June 1975	Jackson County Unincorporated Areas
Moungers Creek	03/16/2009	State of Mississippi	EMA-2004-CA-5028	September 2007	Jackson County Unincorporated Areas
Old Fort Bayou	06/01/1977	U.S. Soil Conservation Service (SCS)	IAA-H-9-71 Project Order No. 18	June 1975	Jackson County Unincorporated Areas; Ocean Springs, City of
Old Fort Bayou	TBD	AECOM	14-04-0025S	July 10, 2014	Jackson County Unincorporated Areas
Old Fort Bayou	03/16/2009	State of Mississippi	EMA-2004-CA-5028	September 2007	Jackson County Unincorporated Areas
Old Fort Bayou Tributary	TBD	AECOM	14-04-0025S	July 10, 2014	Jackson 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
Old Fort Bayou Tributary 7	03/16/2009	State of Mississippi	EMA-2004-CA-5028	September 2007	Jackson County Unincorporated Areas
Old Fort Bayou Tributary 7	03/16/2009	State of Mississippi	EMA-2004-CA-5028	September 2007	Jackson County Unincorporated Areas
Old Fort Bayou Tributary 8	03/16/2009	State of Mississippi	EMA-2004-CA-5028	September 2007	Jackson County Unincorporated Areas
Old Fort Bayou Tributary 8	03/16/2009	State of Mississippi	EMA-2004-CA-5028	September 2007	Jackson County Unincorporated Areas
Pascagoula River	06/01/1977	U.S. Soil Conservation Service (SCS)	IAA-H-9-71 Project Order No. 18	June 1975	Jackson County Unincorporated Areas
West Pascagoula River	06/01/1977	U.S. Soil Conservation Service (SCS)	IAA-H-9-71 Project Order No. 18	June 1975	Jackson County Unincorporated Areas, Pascagoula, City of
Perigal Creek	06/01/1977	U.S. Soil Conservation Service (SCS)	IAA-H-9-71 Project Order No. 18	June 1975	Jackson County Unincorporated Areas
Tchoutacabouffa River	06/01/1977	U.S. Soil Conservation Service (SCS)	IAA-H-9-71 Project Order No. 18	June 1975	Jackson County Unincorporated Areas
Waters Creek	06/01/1977	U.S. Soil Conservation Service (SCS)	IAA-H-9-71 Project Order No. 18	June 1975	Jackson County Unincorporated Areas
Waters Creek	03/16/2009	State of Mississippi	EMA-2004-CA-5028	September 2007	Jackson County Unincorporated Areas
Waters Creek	03/16/2009	State of Mississippi	EMA-2004-CA-5028	September 2007	Jackson County Unincorporated Areas
Woodmans Branch	06/01/1977	U.S. Soil Conservation Service (SCS)	IAA-H-9-71 Project Order No. 18	June 1975	Jackson County Unincorporated Areas
Woodmans Branch	03/16/2009	State of Mississippi	EMA-2004-CA-5028	September 2007	Jackson County Unincorporated Areas

7.2 Community Meetings

The dates of the community meetings held for this FIS project and any previous FIS 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
Gautier, City of	12/03/1987	*	Scoping	FEMA, this community and the study contractor
		09/16/1987	Final CCO	
Jackson County and Incorporated Areas	TBD	06/14/2012	Discovery	FEMA, Department of Environmental Quality (MDEQ), Mississippi Emergency Management Agency (MEMA), Jackson County and the incorporated communities within Jackson County, Mississippi Geographic Information LLC (MGI), DH POA, and the study contractor
		TBD	Resilience	*
		TBD	CCO Open House	*
Jackson County and Incorporated Areas	03/16/2009	04/02/2004	Pre-Scoping	FEMA, MDEQ, MEMA, Jackson County and the incorporated communities within Jackson County, MGI, DH POA, and the study contractor
		07/14/2004	Scoping	
		08/27/2004	Post-Scoping	
Jackson County Unincorporated Areas	09/04/1987	06/18/1979	Scoping	FEMA, this community and the study contractor
		09/16/1986	Final CCO	
Moss Point, City of	09/04/1987	06/18/1979	Scoping	FEMA, this community and the study contractor
		09/16/1986	Final CCO	
Ocean Springs, City of	03/18/1987	06/18/1979	Scoping	FEMA, this community and the study contractor
		07/07/1986	Final CCO	
Pascagoula, City of	09/15/1983	06/18/1979	Scoping	FEMA, this community and the study contractor
		04/07/1983	Final CCO	

* Data not available

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 http://www.fema.gov.

The additional data that was used for this project includes the FIS Report and FIRM that were previously prepared for Jackson County, (FEMA 2009).

Table 31 is a list of the locations where FIRMs for Jackson 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
Gautier, City of	City Hall 3330 Highway 90	Gautier	MS	39553
Jackson County Unincorporated Areas	Jackson County Planning Department 2915 Canty Street, Suite Q	Pascagoula	MS	39567
Moss Point, City of	Building Official 4320 McInnis Avenue	Moss Point	MS	39563
Ocean Springs, City of	Building Department 1018 Porter Avenue	Ocean Springs	MS	39564
Pascagoula, City of	Building Department 415 14th Street	Pascagoula	MS	39567

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	https://www.fema.gov/national-flood-insurance-program-flood-hazard-mapping/engineering-library
NFIP website	http://www.fema.gov/national-flood-insurance-program
NFHL Dataset	http://msc.fema.gov
FEMA Region IV	Federal Emergency Management Agency 3003 Chamblee Tucker Road Atlanta, GA 30341 (770) 220-5200
Other Federal Agencies	
USGS website	http://www.usgs.gov
Hydraulic Engineering Center website	http://www.hec.usace.army.mil
State Agencies and Organizations	
State NFIP Coordinator	Stacey D. Ricks, CFM Mississippi Emergency Management Agency 1 MEMA Drive P.O. Box 5644 Pearl, MS 39288-5644 Phone: 601-933-6684 sricks@mema.ms.gov
State GIS Coordinator	Jim Steil Director, MARIS 3825 Ridgewood Road Jackson, MS 39211 Phone: 601-432-6357 jsteil@ihl.state.ms.us
Statewide Regulatory Coordinator	Stacey D. Ricks, CFM Mississippi Emergency Management Agency 1 MEMA Drive P.O. Box 5644 Pearl, MS 39288-5644 Phone: 601-933-6684 sricks@mema.ms.gov

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
FIS 2009	Federal Emergency Management Agency	*Flood Insurance Study, Jackson County, Unincorporated Areas, Mississippi*		Washington, D.C.	September 4, 1987	
FIS 1972	Federal Emergency Management Agency, U.S. Department of Housing and Urban Development, Federal Insurance Administration	*Flood Insurance Study, Jackson County, Unincorporated Areas, Mississippi*	Soil Conservation Service, U.S. Department of Agriculture		February 1972	
FIS 1984	Federal Emergency Management Agency	*Flood Insurance Study, Jackson County, Unincorporated Areas, Mississippi*			March 1984	
AMS	American Meteorological Society	Early American Hurricanes 1491-1870	David M. Ludlum		1963	
NOAA	U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Weather Service	*Memorable Hurricanes of the United States Since 1873*			April 1971	
USACE	U.S. Army Corps of Engineers, Mobile District	*Hurricane Betsy 8-11 September 1965*			October 1967	
USACE	U.S. Army Corps of Engineers	*New Orleans District, Hurricane Betsy 8-11 September 1965 After Action Report*			July 1966	

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	U.S. Army Corps of Engineers, Mobile District	*After Action Report Supplement No. 1 Hurricane Camille 17-18 August 1969*			June 1971	
USACE	U.S. Army Corps of Engineers, Mobile District	*Hurricane Frederic, 30 August – 14 September 1979, Post Disaster Report*			February 1981	
USGS	U.S. Geological Survey	*Hydrologic Investigations Atlas, HA-40.6, Hurricane Camille Tidal Floods of August 1969 Along the Gulf Coast*		Pascagoula Quadrangle, MS	1969	
USACE	U.S. Army Corps of Engineers, Mobile District	*Flood Control Study of the Orange Grove Community, Jackson County, Mississippi, Preliminary Sections B and C*			August 30, 1984	
USGS	U.S. Geological Survey	*Flood Frequency of Mississippi Streams*	B.E. Colson and J.W. Hudson, prepared for the Mississippi State Highway Department in cooperation with the Federal Highway Administration		1976	
USGS	U.S. Geological Survey	*Floods in Mississippi Magnitude and Frequency*	Prepared in coordination with the Mississippi State Highway Department		1961	

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
USGS	U.S. Department of the Interior, Geological Survey	*Flood Characteristics of Mississippi Streams, Water-Resources Investigations Report 91-4037*		Jackson, MS	1991	
GJEAP	McCrory and Williams Consulting Engineers and Land Surveyors, subcontracted by Gee and Jenson, Engineers, Architects, Planners, Inc.	*Cross Section Surveys*		Mobile, AL		
HEC-2 1976	U.S. Army Corps of Engineers, Hydrologic Engineering Center	*HEC-2 Water-Surface Profiles Generalized Computer Program*		Davis, CA	November 1976	
HEC-2 1984	U.S. Army Corps of Engineers, Hydrologic Engineering Center	*HEC-2 Water-Surface Profiles, Generalized Computer Program*		Davis, CA	April 1984	
HEC-RAS 2002	U.S. Army Corps of Engineers, Hydrologic Engineering Center	*HEC-RAS River Analysis System, User's Manual, version 3.1.2*		Davis, CA	November 2002	
HEC-RAS 2010	U. S. Army Corps of Engineers	*HEC-RAS River Analysis System, Version 4.1.0, Computer Software*	USACE	Davis, CA	January 2010	
Watershed Concepts 2008	Watershed Concepts, a Division of Hayes, Seay, Mattern & Mattern, Inc.	*Watershed Information System (WISE) Computer Software, Version 4.1.0*	Watershed Concepts		2008	

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
ADCIRC	U. S. Army Engineer Waterways Experiment Station	ADCIRC: An Advanced Three-Dimensional Circulation Mdeol for Shelves, Coasts, and Estuaries, Report 1: Theory and Methodology of ADCIRC-2DDI and ADCIRC-3DL, Technical Report DRP-92-6	Luettich, R.A., Westerink, J.J., and Scheffner, N. W.	Vicksburg, MS	1992	
WAVE MODEL	Journal of Geophysical Research	A Third-Generation Wave Model for Coastal Regions, Part I: Model Description and Validation. Journal of Geophysical Research. 104/C4, p.7649	Booij, N., R. C. Ris, and L. H. Holtuijsen		1998	
USAEWES	Cardone, V.J., Greenwood, C.V., and Greenwood, J.A.	*"Unified Program for the Specification of Hurricane Boundary Layer Winds Over Surfaces of Specified Roughness," Contract Report CERC-92-1*	U. S. Army Engineer Waterways Experiment Station	Vicksburg, MS	1992	
USACE	U. S. Army Corps of Engineers	*Guidelines for Identifying Coastal High Hazard Zones*	Galveston District Corps of Engineers		June 1975	
STAN	Stanford University	*Probability Distribution for Texas Gulf Coast Hurricane Effects of Engineering Interest. Ph.D. Thesis*	Russell, L. R.	Stanford University	1968	
FEMA	Federal Emergency Management Agency	*Guidelines and Specifications for Flood Hazard Mapping Partners, Appendix D: Guidance for Coastal Flooding Analyses and Mapping*		Washington, D. C.	2003	FEMA

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
FEMA	Federal Emergency Management Agency	*Procedure Memorandum No. 37 - Protocol for Atlantic and Gulf Coast Coastal Flood Insurance Studies in FY05*		Washington, D. C.	August 1, 2005	FEMA
TAW	Delft, The Netherlands	*Wave Run-up and Overtopping at Dikes. Technical Report, Technical Advisory Committee for Water Retaining Structures (TAW), Delft, The Netherlands*	Van der Meer, J. W.		2002	