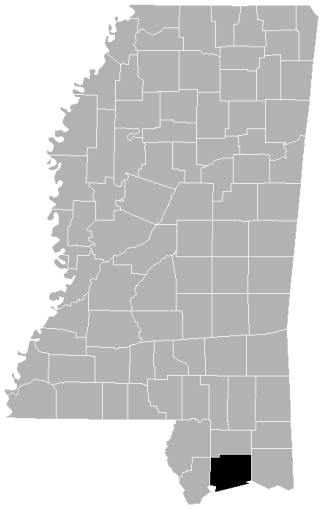
FLOOD INSURANCE STUDY

FEDERAL EMERGENCY MANAGEMENT AGENCY

VOLUME 1 OF 3



HARRISON COUNTY, MISSISSIPPI

AND INCORPORATED AREAS

COMMUNITY NAME	COMMUNITY NUMBER
BILOXI, CITY OF	**285252**
D'IBERVILLE, CITY OF	**280336**
GULFPORT, CITY OF	**285253**
HARRISON COUNTY UNINCORPORATED AREAS	**285255**
LONG BEACH, CITY OF	**285257**
PASS CHRISTIAN, CITY OF	**285261**

FEMA

PRELIMINARY

02/29/2016

REVISED:

TBD

FLOOD INSURANCE STUDY NUMBER
28047CV001B

Version Number 2.3.3.3

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Bernard Bayou Tributary 3	07 P
Bernard Bayou Tributary 4	08 P
Bernard Bayou Tributary 5	09 P
Bernard Bayou Tributary 6	10 P
Big Creek	11-13 P
Biloxi River	14-21 P
Brickyard Bayou	22-24 P
Canal No. 1	25-29 P
Canal No. 3	30-31 P
Choctaw Creek	32 P
Crow Creek	33-34 P
Flat Branch	35-38 P
Flat Branch Tributary 1	39 P
Flat Branch Tributary 2	40 P
Fritz Creek	41-42 P
Fritz Creek Tributary 1	43-45 P
Fritz Creek Tributary 2	46 P
Hickory Creek	47-48 P
Hog Branch	49-51 P
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Pole Branch	69-70 P

Volume 2
Exhibits

Flood Profiles	Panel
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Tchoutacabouffa River	77-81 P
Turkey Creek	82-87 P
Tuxachanie Creek	88-94 P
Unnamed Tributary 1 to Bernard Creek	94a P
Unnamed Tributary 1A to Bernard Creek	94b-94c P
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Exhibits

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Transect 5	5
Transect 6	6
Transect 7	7
Transect 8	8
Transect 9	9
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Transect 13	14
Transect 14	15-16
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Transect 16	18
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Transect 19	21
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Published Separately

Flood Insurance Rate Map (FIRM)

FLOOD INSURANCE STUDY REPORT
HARRISON 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 Harrison 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
Biloxi, City of	285252	03170009	28047C0260H 28047C0267G 28047C0269G 28047C0276H 28047C0277G 28047C0278G 28047C0279G 28047C0281G 28047C0282G 28047C0283G 28047C0284G 28047C0286G 28047C0287G 28047C0288G 28047C0289G 28047C0291G 28047C0292G	

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
Biloxi, City of	285252	03170009	28047C0293G 28047C0294G 28047C0311G 28047C0313G	
D'Iberville, City of	280336	03170009	28047C0282G 28047C0283G 28047C0284G 28047C0291G 28047C0292G	
Gulfport, City of	285253	03170009	28047C0165G 28047C0242G 28047C0244G 28047C0254H 28047C0255H 28047C0260H 28047C0261G 28047C0262H 28047C0263G 28047C0264G 28047C0266G 28047C0267G 28047C0268G 28047C0269G 28047C0357G 28047C0376G 28047C0377G 28047C0378G[1] 28047C0381G 28047C0382G[1]	
Harrison County Unincorporated Areas	285255	03170009	28047C0015G[1] 28047C0020G 28047C0040G 28047C0045G 28047C0065H 28047C0070H 28047C0090H 28047C0095H 28047C0105G	

[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
Harrison County Unincorporated Areas	285255	03170009	28047C0110G 28047C0115G 28047C0120G 28047C0130G 28047C0135G 28047C0140G 28047C0145G 28047C0155G 28047C0160G 28047C0165G 28047C0170G 28047C0180G 28047C0185G 28047C0190G 28047C0195G 28047C0205G 28047C0210G 28047C0215G 28047C0220G 28047C0230G 28047C0235G 28047C0236G 28047C0237G 28047C0238G 28047C0239G 28047C0241G 28047C0242G 28047C0243G 28047C0244G 28047C0255H 28047C0260H 28047C0261G 28047C0263G 28047C0269G 28047C0276H 28047C0277G 28047C0281G 28047C0282G 28047C0288G	

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
Harrison County Unincorporated Areas	285255	03170009	28047C0289G 28047C0293G 28047C0294G 28047C0313G 28047C0314G 28047C0330G 28047C0331G 28047C0332G 28047C0333G 28047C0334G 28047C0345G 28047C0351G 28047C0352G 28047C0353G 28047C0354G 28047C0356G 28047C0357G 28047C0358G 28047C0359G 28047C0365G 28047C0370G[1] 28047C0376G 28047C0377G 28047C0378G[1] 28047C0379G[1] 28047C0381G 28047C0382G[1] 28047C0383G[1] 28047C0384G[1] 28047C0390G[1] 28047C0395G[1] 28047C0425G[1] 28047C0450G 28047C0475G[1] 28047C0500G[1] 28047C0525G[1] 28047C0550G[1] 28047C0575G[1]	

[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
Long Beach, City of	285257	03170009	28047C0243G 28047C0244G 28047C0352G 28047C0354G 28047C0356G 28047C0357G 28047C0358G 28047C0359G 28047C0376G	
Pass Christian, City of	285261	03170009	28047C0333G 28047C0334G 28047C0345G 28047C0353G 28047C0354G 28047C0358G 28047C0365G	

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 Harrison County became effective on June 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-tutorials.

The FIRM Index in Figure 1 shows the overall FIRM panel layout within Harrison 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 1:264,000

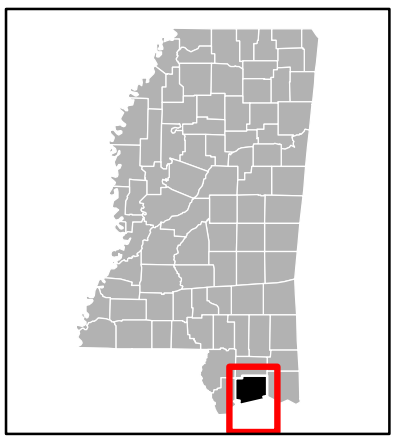
N 0 2.25 4.5 9 Miles

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 - NO SPECIAL FLOOD HAZARD AREAS
**PANEL NOT PRINTED - OPEN WATER AREA
***PANEL NOT PRINTED - AREA ALL WITHIN ZONE VE (EL 23)
****PANEL NOT PRINTED - AREA ALL WITHIN ZONE VE (EL 20)



NATIONAL FLOOD INSURANCE PROGRAM
FLOOD INSURANCE RATE MAP INDEX

HARRISON COUNTY, MISSISSIPPI and Incorporated Areas

PANELS PRINTED:

0020, 0040, 0045, 0065, 0070, 0090, 0095, 0105, 0110, 0115, 0120, 0130, 0135, 0140, 0145, 0155, 0160, 0165, 0170, 0180, 0185, 0190, 0195, 0205, 0210, 0215, 0220, 0230, 0235, 0236, 0237, 0238, 0239, 0241, 0242, 0243, 0244, 0254, 0255, 0260, 0261, 0262, 0263, 0264, 0266, 0267, 0268, 0269, 0276, 0277, 0278, 0279, 0281, 0282, 0283, 0284, 0286, 0287, 0288, 0289, 0291, 0292, 0293, 0294, 0311, 0313, 0314, 0330, 0331, 0332, 0333, 0334, 0345, 0351, 0352, 0353, 0354, 0356, 0357, 0358, 0359, 0365, 0376, 0377, 0381, 0450

FEMA

MAP NUMBER
28047CIND0B

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 the FIRM was provided in digital format by Mississippi Department of Environmental Quality, Automated Resource Information System, and the United States Census Bureau. Othro imagery was originally produced by Sewall Company in 2012 and has a 0.5 foot ground sample distance. Supplemental imagery was produced by National Agriculture Imagery Program (NAIP) in 2014 and has a 1 – meter ground sample distanced. . 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 Harrison 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 Harrison 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 Harrison 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

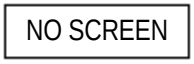
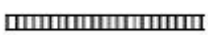
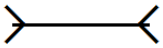
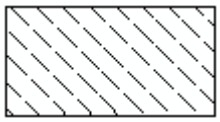
OTHER AREAS OF FLOOD HAZARD	
	Shaded Zone X: Areas of 0.2% annual chance flood hazards and areas of 1% annual chance flood hazards with average depths of less than 1 foot or with drainage areas less than 1 square mile.
	Future Conditions 1% Annual Chance Flood Hazard – Zone X: The flood insurance rate 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	
(ortho) (vector)	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 accredited or provisionally accredited to reduce the flood risk from the 1% annual chance flood.
	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.



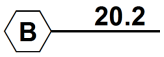
OTHERWISE PROTECTED AREA
09/30/2009

Otherwise Protected Area

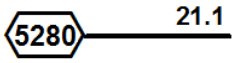
REFERENCE MARKERS

River mile Markers

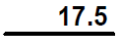
CROSS SECTION & TRANSECT INFORMATION



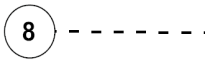
Lettered Cross Section with Regulatory Water Surface Elevation (BFE)



Numbered Cross Section with Regulatory Water Surface Elevation (BFE)



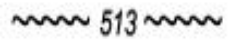
Unlettered Cross Section with Regulatory Water Surface Elevation (BFE)



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 Harrison 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 Harrison 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)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
All Zone A Streams Studied in the 2009 FIS	Harrison County and Incorporated Areas	Various	Various	03170009	Various	n/a	N	A	2007
Baymond Branch	Harrison County Unincorporated Areas	Approximately 7,320 feet downstream of Harrison/Stone County Boundary	At Harrison/Stone County Boundary	03170009	1.4	n/a	N	A	2014
Beaver Dam Branch	Harrison County Unincorporated Areas	Approximately 1,830 feet upstream of confluence with Hurricane Creek	At Harrison/Stone County Boundary	03170009	2.06	n/a	N	A	2014
Bernard Bayou	Gulfport, City of	Confluence with Biloxi River	At Interstate 10	03170009	8.3	n/a	Y	AE	1985
Bernard Bayou	Gulfport, City of; Harrison County Unincorporated Areas	At Interstate 10	Approximately 780 feet downstream of the confluence with Bernard Bayou Tributary 3	03170009	1.4	n/a	Y	AE	2000
Bernard Bayou	Gulfport, City of; Harrison County Unincorporated Areas	Approximately 780 feet downstream of the confluence with Bernard Bayou Tributary 3	Approximately 750 feet upstream of Mennonite Road	03170009	7.9	n/a	Y	AE	1985
Bernard Bayou	Harrison County Unincorporated Areas	Approximately 750 feet upstream of Mennonite Road	Approximately 3,000 feet upstream of Mennonite Road	03170009	0.4	n/a	N	AE	2007
Bernard Bayou Tributary 3	Gulfport, City of; Harrison County Unincorporated Areas	Confluence with Bernard Bayou	Approximately 5,890 feet upstream of Orange Grove Road	03170009	1.8	n/a	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)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Bernard Bayou Tributary 4	Gulfport, City of; Harrison County Unincorporated Areas	Confluence with Bernard Bayou Tributary 3	Approximately 1,900 feet upstream of Lambrecht Road	03170009	2.0	n/a	N	AE	2007
Bernard Bayou Tributary 5	Gulfport, City of; Harrison County Unincorporated Areas	Confluence with Bernard Bayou Tributary 4	Approximately 850 feet upstream of Pheasant Drive	03170009	0.9	n/a	N	AE	2007
Bernard Bayou Tributary 6	Harrison County Unincorporated Areas	Confluence with Bernard Bayou	Approximately 300 feet upstream of Orange Grove Road	03170009	0.9	n/a	N	AE	2007
Big Creek	Harrison County Unincorporated Areas	Confluence with Wolf River	Approximately 29,050 feet upstream of the confluence with Wolf River	03170009	4.0	n/a	Y	AE	1985
Big Creek	Harrison County Unincorporated Areas	Approximately 29,050 feet upstream of the confluence with Wolf River	Approximately 32,210 feet upstream of the confluence with Wolf River	03170009	0.6	n/a	N	AE	2007
Biloxi River	Biloxi, City of; Gulfport, City of; Harrison County Unincorporated Areas	Confluence with Back Bay of Biloxi	Approximately 250 feet upstream of Pete Hickman Road	03170009	26.4	n/a	Y	AE	1985
Biloxi River	Harrison County Unincorporated Areas	Approximately 250 feet upstream of Pete Hickman Road	Harrison/Stone County Boundary	03170009	6.0	n/a	N	AE	2007
Biloxi River Tributary 1	Biloxi, City of	Confluence with Biloxi River	Approximately 5,450 feet upstream of Wash Fayard Road	03170009	2.2	n/a	N	A	2014
Brickyard Bayou	Gulfport, City of	Confluence with Bernard Bayou	At U.S. Highway 49	03170009	4.1	n/a	Y	AE	2000

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)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Brickyard Bayou	Gulfport, City of	At U.S. Highway 59	Approximately 250 feet upstream of Stewart Avenue	03170009	2.6	n/a	N	AE	2007
Canal No.1	Pass Christian, City of	Confluence with Mississippi Sound and Canal No.3	Approximately 1,900 feet upstream of Espy Avenue	03170009	5.7	n/a	Y	AE	1985
Canal No.1	Harrison County Unincorporated Areas	Approximately 1,900 feet upstream of Espy Avenue	Approximately 950 feet downstream of Beatline Road	03170009	0.6	n/a	Y	AE	1985
Canal No.1	Long Beach, City of	Approximately 950 feet downstream of Beatline Road	Approximately 50 feet downstream of Perimeter Road	03170009	3.7	n/a	Y	AE	1985
Canal No.1	Harrison County Unincorporated Areas	Approximately 50 feet downstream of Perimeter Road	At 11th Street	03170009	0.6	n/a	N	AE	1985
Canal No.3	Harrison County Unincorporated Areas	Confluence with Mississippi Sound and Canal No.1	Approximately 1,080 feet downstream of Espy Avenue	03170009	0.2	n/a	Y	AE	1985
Canal No.3	Long Beach, City of	At Espy Avenue	At 28th Street	03170009	6.4	n/a	Y	AE	1985
Choctaw Creek	Harrison County Unincorporated Areas	Confluence with Tuxachanie Creek	Approximately 7,250 feet upstream of the confluence of Choctaw Creek Tributary 2	03170009	3.0	n/a	Y	AE	1985
Crow Creek	Harrison County Unincorporated Areas	Confluence with Biloxi River	Approximately 1,940 feet upstream of Unnamed Road	03170009	3.7	n/a	Y	AE	1985
Crow Creek	Harrison County Unincorporated Areas	Approximately 1,940 feet upstream of Unnamed Road	Approximately 8,500 feet upstream of Unnamed Road	03170009	1.0	n/a	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)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Cypress Creek	D'Iberville, City of	Confluence with Tchoutacabouffa River	Harrison/Jackson County Boundary	03170009	1.5	n/a	Y	VE	1985
Flat Branch	Gulfport, City of	Confluence with Bernard Bayou	Approximately 130 feet downstream of Community Road	03170009	0.2	n/a	Y	AE	2000
Flat Branch	Gulfport, City of	Approximately 130 feet downstream of Community Road	Approximately 2,570 feet upstream of O'Neal Road	03170009	3.7	n/a	Y	AE	2014
Flat Branch	Gulfport, City of	Approximately 2,570 feet upstream of O'Neal Road	Approximately 2,750 feet upstream of Old Highway 49	03170009	1.7	n/a	Y	AE	2007
Flat Branch	Gulfport, City of; Harrison County Unincorporated Areas	Approximately 2,750 feet upstream of Old Highway 49	Approximately 8,820 feet upstream of the confluence of Flat Branch Tributary 2	03170009	1.7	n/a	N	AE	2007
Flat Branch Split West	Gulfport, City of	Confluence with Flat Branch Split West	Approximately 2,230 feet upstream of Dedeaux Road	03170009	0.9	n/a	Y	AE	2014
Flat Branch Tributary 1	Gulfport, City of	Confluence with Flat Branch	Approximately 3,880 feet upstream of Robinson Road	03170009	2.1	n/a	N	AE	2007
Flat Branch Tributary 2	Gulfport, City of	Confluence with Flat Branch	Approximately 2,450 feet upstream of the confluence of Flat Branch	03170009	0.5	n/a	N	AE	2007
Fritz Creek	Gulfport, City of	Confluence with Biloxi River	At Interstate 10	03170009	0.9	n/a	Y	AE	1985
Fritz Creek	Gulfport, City of	At Interstate 10	Approximately 500 feet downstream of O'Neal Road	03170009	5.8	n/a	Y	AE	1985

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)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Fritz Creek	Gulfport, City of	Approximately 500 feet downstream of O'Neal Road	Approximately 850 feet upstream of Three Rivers Road	03170009	1.8	n/a	N	AE	2007
Fritz Creek Tributary 1	Gulfport, City of	Confluence with Fritz Creek	At Three Rivers Road	03170009	2.2	n/a	Y	AE	1985
Fritz Creek Tributary 1	Gulfport, City of	At Three Rivers Road	Approximately 1,700 feet upstream of Three Rivers Road	03170009	0.3	n/a	Y	AE	2007
Fritz Creek Tributary 1	Gulfport, City of	Approximately 1,700 feet upstream of Three Rivers Road	Approximately 1,075 feet upstream of O'Neal Road	03170009	0.41	n/a	N	AE	2007
Fritz Creek Tributary 2	Gulfport, City of; Harrison County Unincorporated Areas	Confluence with Fritz Creek	Approximately 850 feet upstream of Three Rivers Road	03170009	0.9	n/a	N	AE	2007
Gulf of Mexico	Harrison County Incorporated Areas	Entire coastline of Harrison County	Entire coastline of Harrison County	03170009	n/a	n/a	N	A,AE,AH,VE	2007
Hickory Creek	Harrison County Unincorporated Areas	Confluence with Biloxi River	Approximately 3,850 feet upstream of McHenry Road	03170009	4.81	n/a	Y	AE	1985
Hickory Creek	Harrison County Unincorporated Areas	Approximately 3,850 feet upstream of McHenry Road	Approximately 7,920 feet upstream of McHenry Road	03170009	0.8	n/a	N	AE	2007
Hog Branch	Harrison County Unincorporated Areas	Confluence with Tuxachanie Creek	Approximately 3,745 feet upstream of White Plains Road	03170009	1.2	n/a	Y	AE	2007
Hog Branch	Harrison County Unincorporated Areas	Approximately 3,745 feet upstream of White Plains Road	Approximately 1,650 feet upstream of South Carr Bridge Road	03170009	2.5	n/a	Y	AE	1985

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)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Hog Branch	Harrison County Unincorporated Areas	Approximately 1,650 feet upstream of South Carr Bridge Road	Approximately 10,032 feet upstream of South Carr Bridge Road	03170009	1.3	n/a	N	AE	2007
Howard Creek	Biloxi, City of; Harrison County Unincorporated Areas	Confluence with Tchoutacabouffa River	Approximately 19,010 feet upstream of the confluence with Tchoutacabouffa River	03170009	2.3	n/a	Y	AE	1985
Hurricane Creek	Harrison County Unincorporated Areas	Approximately 2,850 feet upstream of confluence of Beaver Dam Branch	At Harrison/Stone County Boundary	03170009	1.5	n/a	N	A	2014
Little Biloxi River	Harrison County Unincorporated Areas	Confluence with Biloxi River	Approximately 100 feet downstream of McHenry Road	03170009	26.7	n/a	Y	AE	1985
Little Biloxi River	Harrison County Unincorporated Areas	Approximately 100 feet downstream of McHenry Road	Approximately 6,700 feet upstream of McHenry Road	03170009	1.3	n/a	N	AE	2007
Mill Creek	Harrison County Unincorporated Areas	Confluence with Wolf River t	Approximately 4,900 feet upstream of State Highway 53	03170009	2.0	n/a	Y	AE	1985
Mill Creek	Harrison County Unincorporated Areas	Approximately 4,900 feet upstream of State Highway 53	Approximately 8,980 feet upstream of State Highway 53	03170009	0.8	n/a	N	AE	2007
Palmer Creek	Harrison County Unincorporated Areas	Confluence with Biloxi River	Approximately 3,800 feet upstream of Wortham Road	03170009	2.5	n/a	Y	AE	1985
Palmer Creek	Harrison County Unincorporated Areas	Approximately 3,800 feet upstream of Wortham Road	Approximately 9,200 feet upstream of Wortham Road	03170009	1.0	n/a	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)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Parker Creek	Biloxi, City of; Harrison County Unincorporated Areas	Confluence with Tchoutacabouffa River	Approximately 1.2 miles upstream of State Highway 67	03170009	3.4	n/a	Y	AE	1985
Parker Creek	Harrison County Unincorporated Areas	Approximately 6,340 upstream of State Highway 67	Approximately 9,500 feet upstream of State Highway 67	03170009	0.2	n/a	N	AE	2007
Pole Branch	Harrison County Unincorporated Areas	Confluence with Wolf River	Approximately 300 feet downstream of Cable Bridge Road	03170009	1.7	n/a	Y	AE	1985
Pole Branch	Harrison County Unincorporated Areas	Approximately 300 feet downstream of Cable Bridge Road	Approximately 3,200 feet upstream of Cable Bridge Road	03170009	0.7	n/a	N	AE	2007
Sandy Creek	Harrison County Unincorporated Areas	Confluence with Wolf River	Approximately 1,200 feet downstream of Steel Bridge Road	03170009	4.3	n/a	Y	AE	1985
Sandy Creek	Harrison County Unincorporated Areas	Approximately 1,200 feet downstream of Steel Bridge Road	Approximately 2,500 feet upstream of Steel Bridge Road	03170009	0.7	n/a	N	AE	2007
Saucier Creek	Harrison County Unincorporated Areas	Confluence with Biloxi River	Approximately 1,200 feet upstream of State Highway 67	03170009	8.9	n/a	Y	AE	1985
Saucier Creek	Harrison County Unincorporated Areas	Approximately 1,200 feet upstream of State Highway 67	At Martha Redmond Road	03170009	2.0	n/a	N	AE	2007
Saucier Creek	Harrison County Unincorporated Areas	At Martha Redmond Road	At Harrison/Stone County Boundary	03170009	1.2	n/a	N	A	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)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Tchoutacabouffa River	Biloxi, City of; D'Iberville, City of; Harrison County Unincorporated Areas	Confluence with Biloxi River	Approximately 4,000 feet downstream of the confluence with Tchoutacabouffa River Tributary 3	03170009	18.7	n/a	Y	AE	1985
Tchoutacabouffa River	Harrison County Unincorporated Areas	Approximately 4,000 feet downstream of the confluence with Tchoutacabouffa River Tributary 3	Approximately 5,000 feet upstream of the confluence with Railroad Creek	03170009	4.8	n/a	N	AE	2007
Turkey Creek	Gulfport, City of; Harrison County Unincorporated Areas	Confluence with Bernard Bayou	At Canal Road	03170009	5.5	n/a	Y	AE	1985
Turkey Creek	Harrison County Unincorporated Areas	At Canal Road	Approximately 10,360 feet upstream of Landon Road	03170009	7.4	n/a	Y	AE	1985
Tuxachanie Creek	D'Iberville, City of; Harrison County Unincorporated Areas	Confluence with Tchoutacabouffa River	Approximately 700 feet downstream of the confluence of Hog Branch	03170009	7.0	n/a	Y	AE	1985
Tuxachanie Creek	Harrison County Unincorporated Areas	Approximately 700 feet downstream of the confluence with Hog Branch	Approximately 1,450 feet upstream of the confluence with Choctaw Creek	03170009	9.6	n/a	Y	AE	2007
Tuxachanie Creek	Harrison County Unincorporated Areas	Approximately 1,450 feet upstream of the confluence with Choctaw Creek	Approximately 3,680 feet downstream of Forestry No 440	03170009	5.3	n/a	N	AE	2007
Tuxachanie Creek	Harrison County Unincorporated Areas	Approximately 3,680 feet downstream of Forestry No 440	At Harrison/Stone County Boundary	03170009	1.0	n/a	N	A	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)	Area (mi^2) (estuaries or ponding)	Floodway (Y/N)	Zone shown on FIRM	Date of Analysis
Unnamed Tributary 1 to Bernard Bayou	Gulfport, City of	Confluence with Bernard Bayou	Approximately 1,920 feet upstream of 4th Street	03170009	2.1	n/a	Y	AE	2014
Unnamed Tributary 1A to Bernard Bayou	Gulfport, City of	Confluence with Unnamed Tributary 1 to Bernard Bayou	Approximately 1,380 feet upstream of Dedeaux Road	03170009	1.2	n/a	Y	AE	2014
West Creek	Harrison County Unincorporated Areas	Confluence with Saucier Creek	Approximately 2,000 feet downstream of State Highway 67	03170009	1.5	n/a	Y	AE	1985
West Creek	Harrison County Unincorporated Areas	Approximately 2,000 feet downstream of State Highway 67	Approximately 10,030 feet upstream of State Highway 67	03170009	2.3	n/a	N	AE	2007
West Creek	Harrison County Unincorporated Areas	Approximately 10,030 feet upstream of State Highway 67	Harrison/Stone County Boundary	03170009	2.2	n/a	N	A	2014
Wolf River	Harrison County Unincorporated Areas	Confluence with Mississippi Sound	Harrison/Hancock County boundary	03170009	32.5	n/a	Y	AE	1985

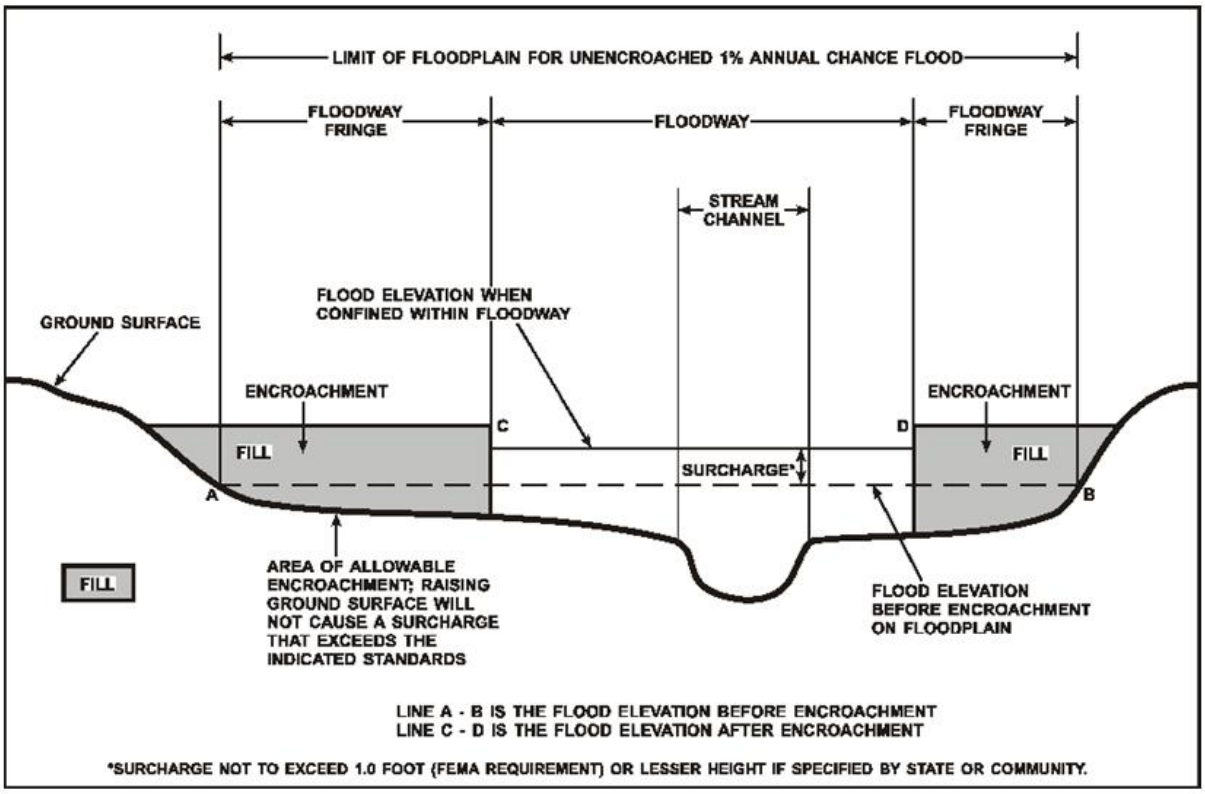
2.2 Floodways

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 Harrison County to limit increases caused by encroachment to 1.0 foot and several communities have adopted additional restrictions. The floodways in this project are presented to local agencies as minimum standards that can be adopted directly or that can be used as a basis for additional floodway projects.

Figure 4: Floodway Schematic



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

All floodways that were developed for this Flood Risk Project are shown on the FIRM using the symbology described in Figure 3. In cases where the floodway and 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 Harrison 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.

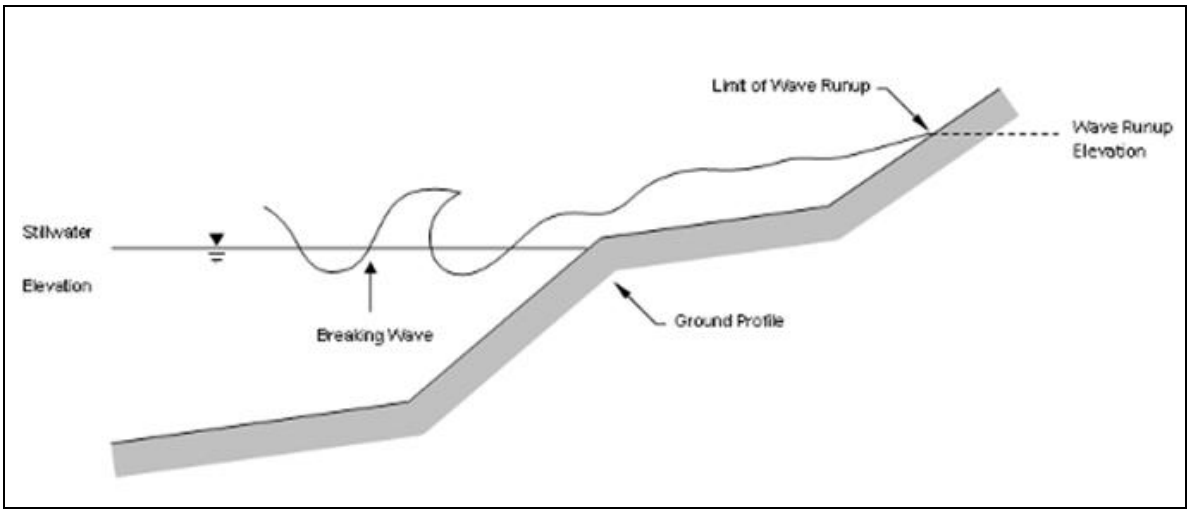
- *Wave setup* is the increase in stillwater elevation at the shoreline caused by the reduction of waves in shallow water. It occurs as breaking wave momentum is transferred to the water column.

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.

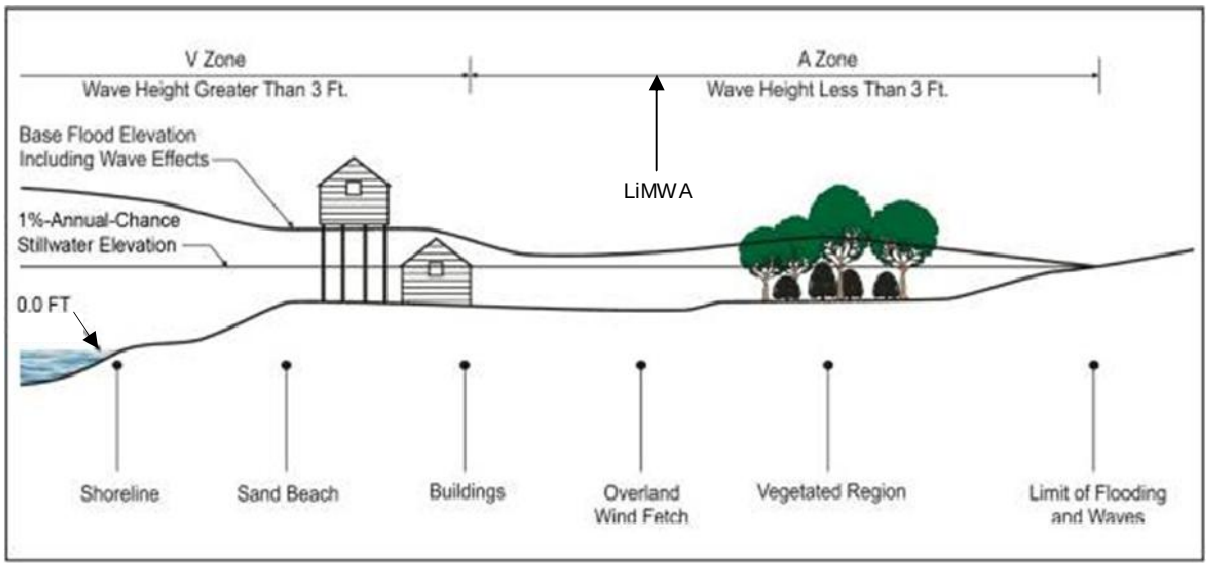
The landward limit of the PFD occurs at a point where there is a distinct change from a relatively steep slope to a relatively mild slope; this point represents the landward extension of Zone VE. Areas of lower risk in the CHHA are designated with Zone V on the FIRM. More detailed information about the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

Table 3: Flood Zone Designations by Community

Community	Flood Zone(s)
Biloxi, City of	A, AE, AH, VE, X
D'Iberville, City of	A, AE, VE, X
Gulfport, City of	A, AE, AO, VE, X
Harrison County Unincorporated Areas	A, AE, D, VE, X
Long Beach, City of	A, AE, VE, X
Pass Christian, City of	A, AE, AO, 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	Gulf Islands MS-01P	OPA	11/16/1991	28047C0425G[1] 28047C0450G 28047C0525G[1] 28047C0550G[1] 28047C0575G[1]
Gulf of Mexico	Cat Islands R03	CBRS	10/01/1983	28047C0500G[1] 28047C0525G[1]
Gulf of Mexico	Deer Island R02	CBRS	10/01/1983	28047C0294G 28047C0313G 28047C0314G 28047C0450G

[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)
Mississippi Costal	03170009	Gulf of Mexico and Various Streams	Encompasses the entire county	2,480

4.2 Principal Flood Problems

Table 6 contains a description of the principal flood problems that have been noted for Harrison 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.
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.

Table6: Principal Flood Problems continued

Flooding Source	Description of Flood Problems
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. 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

Table6: Principal Flood Problems continued

Flooding Source	Description of Flood Problems
Hurricane Georges continued	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. 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 Harrison 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 Harrison 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	Harrison County and Incorporated Areas	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. Completed in 1927, the seawall was the longest single concrete structure of its time. According to the Harrison County Civil Defense, the seawall varies in elevation from 5 feet NGVD29 to 11 feet NGVD29 with the majority of the wall being at 11 feet NGVD29.
Various	N/A	Man Made Beach	Harrison County and Incorporated Areas	After September 1947 hurricane, a manmade beach was placed seaward of the seawall to further attenuate damage along the coast. The seawall and beach system have been effective in minimizing wave damage north of the coastal highway.
Various	N/A	Breakwater	Eastern part of Biloxi Marina	The west end of Deer Island has been extended with a breakwater. This structure affords wave protection to the eastern Biloxi Marina and commercial fishing area.
Various	N/A	Seawall	Harrison County and Incorporated Areas	A seawall exists in the study area that provides the community with some degree of protection against flooding. However, it has been ascertained that this seawall may not protect the community from rare events such as the 1% annual-chance flood. The criteria use to evaluate protection against the 1% annual-chance flood are adequate design, including freeboard, structural stability, and proper operation and maintenance. Levees that do not protect against the 1% annual-chance flood are not considered in the hydraulic analysis of the 1% annual-chance floodplain.
Various	N/A	Storm Drainage System	Biloxi, City of; Pass Christian, City of	In the communities of Pass Christian and Biloxi, a storm drainage system consisting of natural and manmade 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.

The engineering analyses described here incorporate the results of previously issued Letters of Map Change (LOMCs) listed in Table 27, “Incorporated Letters of Map Change”, which include Letters of Map Revision (LOMRs). For more information about LOMRs, refer to Section 6.5, “FIRM Revisions.”

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
Bernard Bayou	At confluence	75.9	7,600	*	*	15,400	21,500
Bernard Bayou	Just downstream of Three Rivers Road	33.8	4,930	*	6,750	10,200	15,000
Bernard Bayou	At Three Rivers Road	10.6	4,600	*	6,300	9,300	13,500
Bernard Bayou	At U.S. Highway 49	9.7	2,700	*	3,700	5,460	7,600
Bernard Bayou	Just upstream of Old U.S. Highway 49	15.4	*	*	*	5,808	*
Bernard Bayou	Just downstream of Canal Road	11.5	*	*	*	5,327	*
Bernard Bayou	Just upstream of County Road	9.6	*	*	*	5,384	*
Bernard Bayou	Just downstream of County Road	5.6	*	*	*	3,634	*
Bernard Bayou	Just downstream of Harrison County Farm Road	3.2	*	*	*	3,868	*
Bernard Bayou	Approximately 750 feet upstream of Mennonite Road	1.0	*	*	*	916	*
Bernard Bayou Tributary 3	Just upstream of the confluence with Bernard Bayou	2.8	*	*	*	2,376	*
Bernard Bayou Tributary 3	Just upstream of the confluence with Bernard Bayou Tributary 4	1.5	*	*	*	1,391	*

* 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
Bernard Bayou Tributary 3	Approximately 4,250 feet upstream of Orange Grove Road	1.0	*	*	*	1,140	*
Bernard Bayou Tributary 4	Approximatley 100 feet upstream of the confluence with Bernard Bayou Tributary 3	1.3	*	*	*	1,371	*
Bernard Bayou Tributary 4	Approximately 1,750 feet upstream of Orange Grove Road	1.0	*	*	*	1,165	*
Bernard Bayou Tributary 4	Approximately 1,500 feet downstream of Mennonite Road	0.3	*	*	*	399	*
Bernard Bayou Tributary 5	Approximately 200 feet upstream of the confluence with Bernard Bayou Tributary 4	0.5	*	*	*	651	*
Bernard Bayou Tributary 6	At the confluence with Bernard Bayou	0.3	*	*	*	589	*
Big Creek	Approximately 1 mile upstream of the confluence with Wolf River	*	*	*	*	5,250	*
Big Creek	Approximately 4.5 miles upstream of the confluence with Wolf River	5.4	*	*	*	5,250	*
Biloxi River	At Three Rivers Road	240.3	17,000	*	26,000	31,000	43,800

* 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
Biloxi River	Just upstream of the confluence of Little Biloxi River	163.1	13,900	*	21,500	25,200	36,500
Biloxi River	Just downstream of the confluence of Saucier Creek	144.3	12,800	*	20,000	23,500	33,900
Biloxi River	At U.S. Highway 49	96.6	10,200	*	15,700	19,000	27,200
Biloxi River	At Lizana Saucier Road	83.3	9,300	*	14,800	17,500	25,800
Biloxi River	Approximately 3,900 feet downstream of Pete Hickman Road	59.0	*	*	*	12,804	*
Brickyard Bayou	At Courthouse Road	5.5	1,370	*	1,960	2,190	2,780
Brickyard Bayou	At 37th Street	4.9	1,350	*	1,920	2,140	2,710
Brickyard Bayou	At 28th Street	3.7	1,230	*	1,720	1,920	2,400
Brickyard Bayou	At 25th Street	2.1	1,060	*	1,450	1,600	1,980
Brickyard Bayou	Just downstream of 21st Street	1.0	*	*	*	1,307	*
Canal No.1	At mouth	7.4	1,085	*	1,769	2,384	3,500
Canal No.1	At Menge Road	6.1	947	*	1,541	2,121	3,150
Canal No.1	At Espy Avenue	5.3	864	*	1,402	1,952	2,900
Canal No.1	At Beatline Road	4.0	704	*	1,132	1,604	2,400
Canal No.1	At Pineville Road	2.0	375	*	591	886	1,400

* 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
Canal No.1	At Klondike Road	1.4	329	*	504	734	1,130
Canal No.3	At mouth	8.2	1,278	*	2,085	2,807	4,050
Canal No.3	At Menge Road	5.4	1,005	*	1,619	2,210	3,270
Canal No.3	At Espy Avenue	4.9	941	*	1,511	2,103	3,050
Canal No.3	Approximately 0.5 mile upstream of Espy Avenue	4.1	783	*	1,253	1,782	2,630
Canal No.3	At Beatline Road	2.7	532	*	843	1,221	1,750
Canal No.3	At Daugherty Road	0.8	158	*	243	366	530
Choctaw Creek	Just downstream of Forestry Road	6.7	2,258	*	2,915	4,134	5,936
Crow Creek	Approximately 2 miles upstream of the confluence with Biloxi River	8.7	2,264	*	3,424	4,911	6,955
Crow Creek	Approximately 3.6 miles upstream of the confluence with Biloxi River	5.8	*	*	*	2,613	*
Cypress Creek	At Ramset Springs Road	8.9	1,760	*	2,420	3,645	5,300
Flat Branch	At the confluence with Bernard Bayou	13.6	2,535	*	3,450	5,075	7,000
Flat Branch	Approximately 1,050 feet upstream of the confluence with Bernard Bayou	13.1	4,050	5160	6,140	7,150	8,920

* 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
Flat Branch	Approximately 1,880 feet upstream of the confluence with Bernard Bayou	11.5	3,490	4480	5,350	6,220	7,780
Flat Branch	Approximately 80 feet downstream Dedeaux Road	11.2	3,440	4420	5,290	6,140	7,700
Flat Branch	Approximately 1,500 feet upstream Dedeaux Road	11.0	3,220	4150	4,970	5,780	7,260
Flat Branch	Approximately 5,280 feet upstream Dedeaux Road	10.7	3,020	3900	4,690	5,450	6,860
Flat Branch	Approximately 1,800 feet downstream O'Neal Road	10.2	2,940	3820	4,600	5,330	6,730
Flat Branch	Just downstream of O'Neal Road	9.9	2,890	3760	4,530	5,260	6,630
Flat Branch	Approximately 1,500 feet upstream O'Neal Road	6.8	1,990	2590	3,150	3,640	4,600
Flat Branch	At confluence with Flat Branch Tributary 2	4.2	*	*	*	2,293	*
Flat Branch	Approximately 650 feet upstream of the confluence with Flat Branch Tributary 3	2.9	*	*	*	1,686	*
Flat Branch Tributary 1	At confluence with Flat Branch	1.6	*	*	*	1,844	*

* 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
Flat Branch Tributary 1	Approximately 1,150 feet upstream of Saint Charles Street	1.1	*	*	*	1,390	*
Flat Branch Tributary 2	At confluence with Flat Branch	1.4	*	*	*	1,224	*
Fritz Creek	At Interstate 10	7.8	1,910	*	3,040	3,740	5,600
Fritz Creek	Just upstream of the confluence with Unnamed Tributary	3.3	1,040	*	1,620	1,960	2,800
Fritz Creek	Approximately 1,600 feet downstream of O'Neal Road	2.3	*	*	*	1,895	*
Fritz Creek	Approximately 5,000 feet upstream of O'Neal Road	1.3	*	*	*	1,386	*
Fritz Creek Tributary	Just upstream of confluence with Fritz Creek	2.2	725	*	1,110	1,370	2,050
Fritz Creek Tributary 1	Approximately 800 feet downstream of O'Neal Road	0.2	*	*	*	408	*
Fritz Creek Tributary 2	Approximately 300 feet upstream of the confluence with Fritz Creek	0.3	*	*	*	446	*
Hickory Creek	Approximately 1 mile upstream of the confluence with Biloxi River	7.1	1,971	*	2,556	3,645	5,130
Hickory Creek	Just downstream of McHenry Road	3.9	1,783	*	2,289	3,312	4,715

* 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
Hog Branch	Just upstream of White Plains Road	6.7	1,810	*	2,329	3,315	4,760
Hog Branch	Just upstream of South Carr Bridge Road	4.2	1,500	*	1,932	2,760	3,956
Hog Branch	Approximately 0.6 mile upstream of South Carr Bridge Road	3.0	*	*	*	1,716	*
Hog Branch	Approximately 1.9 miles upstream of South Carr Bridge Road	2.1	*	*	*	1,421	*
Howard Creek	At Old Highway 67	4.1	1,375	*	1,794	2,490	3,400
Howard Creek	Approximately 3.3 miles upstream of the confluence with Choctaw Creek	1.7	1,112	*	1,427	2,106	2,984
Little Biloxi River	At confluence with Biloxi River	75.0	5,670	*	7,308	10,080	14,427
Little Biloxi River	Approximately 2.8 miles upstream of the confluence with Biloxi River	71.6	5,775	*	7,392	10,230	14,652
Little Biloxi River	Just downstream of Old Highway 49	64.7	5,658	*	7,245	10,143	14,490
Little Biloxi River	Approximately 1 mile downstream of Harrison County Farm Road	59.2	5,616	*	7,200	10,080	14,328

* 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
Little Biloxi River	Approximately 1.3 miles downstream Harrison County Farm Road	50.5	5,288	*	6,825	9,525	13,575
Little Biloxi River	Just downstream of Lizana Saucier Road	45.3	5,280	*	6,800	9,520	13,600
Little Biloxi River	Approximately 1 mile downstream of Herman Ladner Road	36.4	4,640	*	6,000	8,320	12,000
Little Biloxi River	Just upstream of the confluence with Bully Creek	29.4	4,182	*	5,412	7,544	10,824
Little Biloxi River	Approximately 750 feet downstream of McHenry Road	22.3	*	*	*	6,427	*
Mill Creek	Approximately 1.8 miles upstream of the confluence with Wolf River	*	*	*	*	4,870	*
Mill Creek	Approximately 1.4 miles upstream of State Highway 53	3.9	*	*	*	4,870	*
Palmer Creek	Approximately 1 mile upstream of the confluence with Biloxi River	5.7	1,762	*	2,216	3,195	4,539
Palmer Creek	Approximately 0.5 mile upstream of Wortham Road	4.5	1,758	*	2,257	3,276	4,628
Palmer Branch	Approximately 2,400 feet upstream of Wortham Road	4.7	*	*	*	3,276	*

* 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
Palmer Branch	Approximately 6,100 feet upstream of Wortham Road	3.9	*	*	*	2,319	*
Parker Creek	At Interstate 10	4.5	1,575	*	2,060	2,875	4,000
Parker Creek	At Wolf Market Road	3.0	1,225	*	1,585	2,175	2,900
Parker Creek	Approximately 0.6 mile upstream of U.S. Highway 67	1.48	720	*	1,075	1,565	2,232
Parker Creek	Approximately 3.4 miles upstream of the confluence with Tchoutacabouffa River	0.77	785	*	988	1,496	2,128
Pole Branch	Approximately 1 mile upstream of the confluence with Wolf River	*	*	*	*	485	*
Pole Branch	Just upstream of Cable Bridge Road	3.2	*	*	*	2,771	*
Sandy Creek	Just upstream of Sandy Ridge Cemetery Road	*	*	*	*	4,228	*
Saucier Creek	Just upstream of Wortham Road	40.2	5,828	*	7,520	10,434	15,040
Saucier Creek	Just upstream of Saucier Fairly Road	36.3	6,264	*	8,046	10,608	15,300
Saucier Creek	Just downstream of Bethel Road	12.8	2,688	*	3,440	4,902	7,052
Saucier Creek	Approximately 3,200 feet upstream of State Highway 67	10.4	*	*	*	3,930	*

* 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
Tchoutacabouffa River	At mouth	241.6	15,600	*	21,420	31,280	44,000
Tchoutacabouffa River	Just upstream of the confluence with Tuxachanie Creek	78.8	8,832	*	11,424	15,840	22,560
Tchoutacabouffa River	Just upstream of the confluence with Unnamed Tributary	48.8	8,400	*	9,450	13,125	18,900
Tchoutacabouffa River	At confluence with Hurricane Creek	21.8	*	*	*	7,991	*
Tchoutacabouffa River	Just upstream of the confluence with Railroad Creek	3.5	*	*	*	1,764	*
Turkey Creek	At Canal Road	14.8	2,200	*	*	4,600	6,600
Turkey Creek	At Washington Street	28.2	2,700	*	3,850	5,800	8,600
Turkey Creek	At Illinois Central Railroad	25.2	2,600	*	3,650	5,500	7,950
Turkey Creek	At Tillman Road Extension	11.5	2,020	*	2,790	4,200	6,000
Turkey Creek	At Interstate 10	6.0	1,620	*	2,500	3,300	5,200
Turkey Creek	Approximately 1 mile upstream of Landon Road	*	*	*	*	3,200	*
Tuxachanie Creek	Approximately 1 mile upstream of the confluence with Tchoutacabouffa River	24.9	7,650	*	9,825	13,650	19,500
Tuxachanie Creek	Just downstream of Old Highway 15	23.8	7,700	*	10,010	13,860	19,866

* 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
Tuxachanie Creek	Just downstream of State Highway 15	22.2	8,019	*	10,368	14,418	20,574
Tuxachanie Creek	Just downstream of the confluence with Hog Branch	20.5	8,256	*	10,664	14,706	21,070
Tuxachanie Creek	Just upstream of White Plains Road	19.4	7,783	*	9,976	13,846	19,780
Tuxachanie Creek	Just downstream of Carr Bridge Road	16.0	6,930	*	8,910	12,420	17,820
Tuxachanie Creek	Just downstream of the confluence of Choctaw Creek	13.2	7,000	*	9,100	12,500	18,000
Tuxachanie Creek	Approximately 1,800 feet downstream of Wortham Road	38.4	*	*	*	9,613	*
Tuxachanie Creek	Just upstream of the confluence with Baymond Branch	27.8	*	*	*	7,589	*
Tuxachanie Creek	Approximately 2.8 miles upstream of the confluence with Baymond Branch	21.1	*	*	*	6,622	*
Unnamed Tributary 1 to Bernard Bayou	At the confluence with Bernard Bayou	2.0	1,260	1560	1,870	2,130	2,650
Unnamed Tributary 1 to Bernard Bayou	Just downstream of Seawall Road	1.9	1,230	1520	1,820	2,070	2,560
Unnamed Tributary 1 to Bernard Bayou	Just downstream of Interstate 10	1.8	1,220	1510	1,810	2,060	2,550

* 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
Unnamed Tributary 1 to Bernard Bayou	Approximately 860 feet upstream Interstate 10	1.0	753	931	1,120	1,270	1,570
Unnamed Tributary 1 to Bernard Bayou	Approximately 100 feet downstream Dedeaux Road	0.8	713	874	1,050	1,180	1,460
Unnamed Tributary 1 to Bernard Bayou	At 4th Street	0.6	587	718	863	969	1,190
Unnamed Tributary 1A to Bernard Bayou	At the confluence with Unnamed Tributary 1 to Bernard Bayou	0.7	699	853	1,020	1,150	1,420
Unnamed Tributary 1A to Bernard Bayou	Approximately 1,500 feet upstream of confluence with Unnamed Tributary 1 to Bernard Bayou	0.6	627	765	917	1,030	1,270
Unnamed Tributary 1A to Bernard Bayou	At Three Rivers Road	0.5	495	602	723	812	999
Unnamed Tributary 1A to Bernard Bayou	At Tanner Road	0.3	439	531	638	713	874
Unnamed Tributary 1A to Bernard Bayou	Approximately 100 feet downstream Dedeaux Road	0.3	417	504	605	675	824
West Creek	Approximately 1 mile upstream of the confluence with Saucier Creek	15.9	3,337	*	4,277	6,110	8,648
Wolf River	At Interstate 10	348.2	16,380	*	21,150	27,860	38,400

* 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
Wolf River	Just downstream of the confluence with Big Creek	*	*	*	*	25,212	*
Wolf River	Approximately 3.25 miles upstream of the confluence with Sandy Creek	*	*	*	*	24,850	*

* 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 Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
All Zone A Streams Studied in the 2009 FIS	Various	Various	Regression Equations (1991)	HEC-RAS 3.2.1	09/01/2007	A	
Baymond Branch	Approximately 7,320 feet downstream of Harrison/Stone County Boundary	At Harrison/Stone County Boundary	Regression Equations	HEC-RAS 4.1.0	07/10/2014	A	
Beaver Dam Branch	Approximately 1,830 feet upstream of confluence with Hurricane Creek	At Harrison/Stone County Boundary	Regression Equations	HEC-RAS 4.1.0	07/10/2014	A	
Bernard Bayou	Confluence with Biloxi River	At Interstate 10	Regression Equations (1976)	HEC-2 (1984)	08/01/1985	AE w/ Floodway	Floodway was added in the City of Gulfport FIS 2002, however no details were given as to how it was calculated. This downstream portion is shown as static Zone AE due to the Combined Probability Storm Surge from Bay of Biloxi. This coastal analysis supersedes the riverine modeling from the confluence to approximately 43,824 feet upstream.
Bernard Bayou	At Interstate 10	Approximately 780 feet downstream of the confluence with Bernard Bayou Tributary 3	Regression Equations (1976)	HEC-2 4.6.2 (May 1991)	12/28/2000	AE w/ Floodway	Studied under LOMR Case No. 00-04-095P and incorporated into the 2002 FISs. Incorporates Case Numbers 98-04-047P and 99-04-095P.
Bernard Bayou	Approximately 780 feet downstream of the confluence with Bernard Bayou Tributary 3	Approximately 750 feet upstream of Mennonite Road	Regression Equations (1976)	HEC-2 (1984)	03/01/1985	AE w/ Floodway	Floodway was added in the Harrison County Unincorporated Areas FIS 2002, however no details were given as to how it was calculated.
Bernard Bayou	Approximately 750 feet upstream of Mennonite Road	Approximately 3,000 feet upstream of Mennonite Road	Regression Equations (1991)	HEC-RAS 3.2.1	09/01/2007	AE w/ Floodway	
Bernard Bayou Tributary 3	Confluence with Bernard Bayou	Approximately 5,890 feet upstream of Orange Grove Road	Regression Equations (1991)	HEC-RAS 3.2.1	09/01/2007	AE	

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					
Bernard Bayou Tributary 4	Confluence with Bernard Bayou Tributary 3	Approximately 1,900 feet upstream of Lambrecht Road	Regression Equations (1991)	HEC-RAS 3.2.1	09/01/2007	AE	
Bernard Bayou Tributary 5	Confluence with Bernard Bayou Tributary 4	Approximately 850 feet upstream of Pheasant Drive	Regression Equations (1991)	HEC-RAS 3.2.1	09/01/2007	AE	
Bernard Bayou Tributary 6	Confluence with Bernard Bayou	Approximately 300 feet upstream of Orange Grove Road	Regression Equations (1991)	HEC-RAS 3.2.1	09/01/2007	AE	
Big Creek	Confluence with Wolf River	Approximately 29,050 feet upstream of the confluence with Wolf River	Regulated Frequency Curves (1961)	HEC-2 (1984)	03/01/1985	AE w/ Floodway	Floodway was added in the Harrison County Unincorporated Areas FIS 2002, however no details were given as to how it was calculated.
Big Creek	Approximately 29,050 feet upstream of the confluence with Wolf River	Approximately 32,210 feet upstream of the confluence with Wolf River	Regression Equations (1991)	HEC-RAS 3.2.1	09/01/2007	AE w/ Floodway	
Biloxi River	Confluence with Back Bay of Biloxi	Approximately 250 feet upstream of Pete Hickman Road	USACE Biloxi River SFH Report	USACE Biloxi River SFH Report	03/01/1985	AE w/ Floodway	Riverine data obtained from the U.S. Army Corps of Engineers (USACE) study titled, "Special Flood Hazard Information Report – Biloxi River, Harrison County, Mississippi" (January 1977), was used to delineate flooding and to develop floodways. Regional Gage Analysis used incorporating data from 104 gage stations from surrounding area. Regression equation formed based on data collected from these sites. The hydraulic portion most likely used HEC-2, however not directly referenced in the report. The downstream portion of this section is shown as static Zone AE due to the Combined Probability Storm Surge from Bay of Biloxi. This coastal analysis supersedes the riverine modeling from the confluence to approximately 24,600 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					
Biloxi River	Approximately 250 feet upstream of Pete Hickman Road	Harrison/Stone County Boundary	Regression Equations (1991)	HEC-RAS 3.2.1	09/01/2007	AE w/ Floodway	
Biloxi River Tributary 1	Confluence with Biloxi River	Approximately 5,450 feet upstream of Wash Fayard Road	Regression Equations	HEC-RAS 4.1.0	07/10/2014	A	
Brickyard Bayou	Confluence with Bernard Bayou	At U.S. Highway 49	USGS Regression Equations (1991)	HEC-RAS 2.1 (October 1997)	08/17/2000	AE w/ Floodway	Studied under LOMR Case No. 99-04-309P and incorporated into the 2002 FISs. A portion of this section is shown as static Zone AE due to the Combined Probability Storm Surge from Bay of Biloxi. This coastal analysis supersedes the riverine modeling from the confluence to approximately 13,000 feet upstream.
Brickyard Bayou	At U.S. Highway 59	Approximately 250 feet upstream of Stewart Avenue	Regression Equations (1991)	HEC-RAS 3.2.1	09/01/2007	AE w/ Floodway	
Canal No.1	Confluence with Mississippi Sound and Canal No.3	Approximately 1,900 feet upstream of Espy Avenue	Regression Equations (1976)	HEC-2 (1976)	03/01/1985	AE w/ Floodway	Also known as Johnson Bayou in previous FIS reports. Floodway was added in the City of Pass Christian FIS 1987, however no details were given as to how it was calculated. This downstream portion is shown as static Zone AE due to the Combined Probability Storm Surge from St. Louis Bay. This coastal analysis supersedes the riverine modeling from the confluence to the corporate boundary.
Canal No.1	Approximately 1,900 feet upstream of Espy Avenue	Approximately 950 feet downstream of Beatline Road	Regression Equations (1976)	HEC-2 (1976)	03/01/1985	AE w/ Floodway	Floodway was added in the Harrison County Unincorporated Areas FIS 2002, however no details were given as to how it was calculated. This portion is shown as static Zone AE due to the Combined Probability Storm Surge from St. Louis Bay. This coastal analysis supersedes the riverine modeling for this portion.

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					
Canal No.1	Approximately 950 feet downstream of Beatline Road	Approximately 50 feet downstream of Perimeter Road	Regression Equations (1976)	HEC-2 (1984)	03/01/1985	AE w/ Floodway	Floodway was added in the City of Long Beach FIS 1987, however no details were given as to how it was calculated. This portion is shown as static Zone AE due to the Combined Probability Storm Surge from St. Louis Bay. This coastal analysis supersedes the riverine modeling for this portion.
Canal No.1	Approximately 50 feet downstream of Perimeter Road	At 11th Street	Regression Equations (1976)	HEC-2 (1976)	03/01/1985	AE w/ Floodway	Studied in the City of Gulfport FIS 1988, however currently shown in Harrison County Unincorporated due to corporate limit changes. Floodway was added in the City of Gulfport FIS 1988, however no details were given as to how it was calculated.
Canal No.3	Confluence with Mississippi Sound and Canal No.1	Approximately 1,080 feet downstream of Espy Avenue	Regression Equations (1976)	HEC-2 (1976)	03/01/1985	AE w/ Floodway	Floodway was added in the Harrison County Unincorporated Areas FIS 2002, however no details were given as to how it was calculated. This downstream portion is shown as static Zone AE due to the Combined Probability Storm Surge from St. Louis Bay. This coastal analysis supersedes the riverine modeling from the confluence to approximately 26,600 feet upstream.
Canal No.3	At Espy Avenue	At 28th Street	Regression Equations (1976)	HEC-2 (1976)	03/01/1985	AE w/ Floodway	Floodway was added in the City of Long Beach FIS 1988, however no details were given as to how it was calculated.
Choctaw Creek	Confluence with Tuxachanie Creek	Approximately 7,250 feet upstream of the confluence of Choctaw Creek Tributary 2	Regulated Frequency Curves (1961)	HEC-2 (1984)	03/01/1985	AE	Floodway was added in the Harrison County Unincorporated Areas FIS 2002, however no details were given as to how it was calculated.
Crow Creek	Confluence with Biloxi River	Approximately 1,940 feet upstream of Unnamed Road	Regulated Frequency Curves (1961)	HEC-2 (1984)	03/01/1985	AE	Floodway was added in the Harrison County Unincorporated Areas FIS 2002, however no details were given as to how it was calculated.
Crow Creek	Approximately 1,940 feet upstream of Unnamed Road	Approximately 8,500 feet upstream of Unnamed Road	Regression Equations (1991)	HEC-RAS 3.2.1	09/01/2007	AE w/ Floodway	

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					
Cypress Creek	Confluence with Tchoutacabouffa River	Harrison/Jackson County Boundary	Regression Equations (1976)	HEC-2 (1984)	03/01/1985	VE w/ Floodway	Studied in the Harrison County Unincorporated Areas FIS 1988, however currently shown in the City of D'Iberville due to corporate limit changes. Floodway was added in the Harrison County Unincorporated Areas FIS 2002, however no details were given as to how it was calculated. This portion is shown as static Zone AE due to the Combined Probability Storm Surge from Back Bay of Biloxi. This coastal analysis supersedes the riverine modeling for this entire portion.
Flat Branch	Confluence with Bernard Bayou	Approximately 130 feet downstream of Community Road	Regression Equations (1976)	HEC-2 4.6.2 (May 1991)	12/28/2000	AE w/ Floodway	Studied under LOMR Case No. 00-04-095P and incorporated into the 2002 FISs. Incorporates Case Numbers 98-04-047P and 99-04-095P.
Flat Branch	Approximately 130 feet downstream of Community Road	Approximately 2,570 feet upstream of O'Neal Road	Regression Equations	HEC-RAS 4.1.0	07/10/2014	AE w/ Floodway	The elevation difference in upstream portion of profile is due to new detailed study downstream at cross section station 16,000 feet.
Flat Branch	Approximately 2,570 feet upstream of O'Neal Road	Approximately 2,750 feet upstream of Old Highway 49	Regression Equations (1991)	HEC-RAS 3.2.1	09/01/2007	AE w/ Floodway	
Flat Branch	Approximately 2,750 feet upstream of Old Highway 49	Approximately 8,820 feet upstream of the confluence of Flat Branch Tributary 2	Regression Equations (1991)	HEC-RAS 3.2.1	09/01/2007	AE w/ Floodway	
Flat Branch Split West	Confluence with Flat Branch	Approximately 2,230 feet upstream of Dedeaux Road	Regression Equations	HEC-RAS 4.1.0	07/10/2014	AE w/ Floodway	
Flat Branch Tributary 1	Confluence with Flat Branch Spilt West	Approximately 3,880 feet upstream of Robinson Road	Regression Equations (1991)	HEC-RAS 3.2.1	09/01/2007	AE	
Flat Branch Tributary 2	Confluence with Flat Branch	Approximately 2,450 feet upstream of the confluence of Flat Branch	Regression Equations (1991)	HEC-RAS 3.2.1	09/01/2007	AE	

Table 13: Summary of Hydrologic and Hydraulic Analyses continued

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Fritz Creek	Confluence with Biloxi River	At Interstate 10	Regression Equations (1976)	HEC-2 (1984)	03/01/1985	AE w/ Floodway	Floodway was added in the City of Gulfport FIS 2002, however no details were given as to how it was calculated. This portion is shown as static Zone AE due to the Combined Probability Storm Surge from Bay of Biloxi. This coastal analysis supersedes the riverine modeling for this entire portion.
Fritz Creek	At Interstate 10	Approximately 500 feet downstream of O'Neal Road	Regression Equations (1976)	HEC-2 (1984)	03/01/1985	AE	Floodway was added in the City of Gulfport FIS 2002, however no details were given as to how it was calculated. This portion is shown as static Zone AE due to the Combined Probability Storm Surge from Bay of Biloxi. This coastal analysis supersedes the riverine modeling from Interstate 10 to approximately 21,100 feet upstream.
Fritz Creek	Approximately 500 feet downstream of O'Neal Road	Approximately 850 feet upstream of Three Rivers Road	Regression Equations (1991)	HEC-RAS 3.2.1	09/01/2007	AE w/ Floodway	
Fritz Creek Tributary 1	Confluence with Fritz Creek	At Three Rivers Road	Regression Equations (1976)	HEC-2 (1984)	03/01/1985	AE	Also known as Fritz Creek Tributary in previous FIS reports. Floodway was added in the City of Gulfport FIS 2002, however no details were given as to how it was calculated.
Fritz Creek Tributary 1	At Three Rivers Road	Approximately 1,700 feet upstream of Three Rivers Road	Regression Equations (1991)	HEC-RAS 3.2.1	09/01/2007	AE w/ Floodway	
Fritz Creek Tributary 1	Approximately 1,700 feet upstream of Three Rivers Road	Approximately 1,075 feet upstream of O'Neal Road	Regression Equations (1991)	HEC-RAS 3.2.1	09/01/2007	AE w/ Floodway	
Fritz Creek Tributary 2	Confluence with Fritz Creek	Approximately 850 feet upstream of Three Rivers Road	Regression Equations (1991)	HEC-RAS 3.2.1	09/01/2007	AE	

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					
Gulf of Mexico	Entire coastline of Harrison County	Entire coastline of Harrison County	Various	Various	09/01/2007	A, AE, AH, VE	Includes analyses for Back Bay of Biloxi, St. Louis Bay, Mississippi Sound. Refer to Table 15 for modeling information. Note that LOMR-F Case No. 10-04-4688A revises a portion of the stream. However, the results of this case were not incorporated into this FIS report as it is not on a panel included the PMR. Note that LOMR Case No. 03-04-375-P was superseded by the 2009 analyses.
Hickory Creek	Confluence with Biloxi River	Approximately 3,850 feet upstream of McHenry Road	Regulated Frequency Curves (1961)	HEC-2 (1984)	03/01/1985	AE	Floodway was added in the Harrison County Unincorporated Areas FIS 2002, however no details were given as to how it was calculated.
Hickory Creek	Approximately 3,850 feet upstream of McHenry Road	Approximately 7,920 feet upstream of McHenry Road	Regression Equations (1991)	HEC-RAS 3.2.1	09/01/2007	AE w/ Floodway	
Hog Branch	Confluence with Tuxachanie Creek	Approximately 3,745 feet upstream of White Plains Road	Regression Equations (1991)	HEC-RAS 3.2.1	09/01/2007	AE w/ Floodway	
Hog Branch	Approximately 3,745 feet upstream of White Plains Road	Approximately 1.650 feet upstream of South Carr Bridge Road	Regulated Frequency Curves (1961)	HEC-2 (1984)	03/01/1985	AE	Floodway was added in the Harrison County Unincorporated Areas FIS 2002, however no details were given as to how it was calculated.
Hog Branch	Approximately 1,800 feet upstream of South Carr Bridge Road	Approximately 10,032 feet upstream of South Carr Bridge Road	Regression Equations (1991)	HEC-RAS 3.2.1	09/01/2007	AE w/ Floodway	

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					
Howard Creek	Confluence with Tchoutacabouffa River	Approximately 19,010 feet upstream of the confluence with Tchoutacabouffa River	Regression Equations (1976)	HEC-2 (1984)	03/01/1985	AE w/ Floodway	Studied in the Harrison County Unincorporated Areas FIS 1988, however currently shown in both Harrison County Unincorporated and City of Biloxi due to corporate limit changes. Floodway was added in the Harrison County Unincorporated Areas FIS 2002, however no details were given as to how it was calculated. The downstream portion is shown as static Zone AE due to the Combined Probability Storm Surge from Bay of Biloxi. This coastal analysis supercedes the riverine modeling from the confluence to approximately 6,300 feet upstream.
Hurricane Creek	Approximately 2,850 feet upstream of confluence of Beaver Dam Branch	At Harrison/Stone County Boundary	Regression Equations	HEC-RAS 4.1.0	07/10/2014	A	
Little Biloxi River	Confluence with Biloxi River	Approximately 100 feet downstream of McHenry Road	Regulated Frequency Curves (1961)	HEC-2 (1984)	03/01/1985	AE	Floodway was added in the Harrison County Unincorporated Areas FIS 2002, however no details were given as to how it was calculated.
Little Biloxi River	Approximately 100 feet downstream of McHenry Road	Approximately 6,700 feet upstream of McHenry Road	Regression Equations (1991)	HEC-RAS 3.211	09/01/2007	AE w/ Floodway	
Mill Creek	Confluence with Wolf River	Approximately 4,900 feet upstream of State Highway 53	Regulated Frequency Curves (1961)	HEC-2 (1984)	03/01/1985	AE	Floodway was added in the Harrison County Unincorporated Areas FIS 2002, however no details were given as to how it was calculated.
Mill Creek	Approximately 4,900 feet upstream of State Highway 53	Approximately 8,980 feet upstream of State Highway 53	Regression Equations (1991)	HEC-RAS 3.2.1	09/01/2007	AE w/ Floodway	
Palmer Creek	Confluence with Biloxi River	Approximately 3,800 feet upstream of Wortham Road	Regulated Frequency Curves (1961)	HEC-2 (1984)	03/01/1985	AE	Floodway was added in the Harrison County Unincorporated Areas FIS 2002, however no details were given as to how it was calculated.
Palmer Creek	Approximately 3,800 feet upstream of Wortham Road	Approximately 9,200 feet upstream of Wortham Road	Regression Equations (1991)	HEC-RAS 3.2.1	09/01/2007	AE w/ Floodway	

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					
Parker Creek	Confluence with Tchoutacabouffa River	Approximately 1.2 miles upstream of State Highway 67	Regression Equations (1976)	HEC-2 (1984)	03/01/1985	AE	Studied in the Harrison County Unincorporated Areas FIS 1988, however currently shown in both Harrison County Unincorporated and City of Biloxi due to corporate limit changes. Floodway was added in the Harrison County Unincorporated Areas FIS 2002, however no details were given as to how it was calculated. The downstream portion is shown as static Zone AE due to the Combined Probability Storm Surge from Bay of Biloxi. This coastal analysis supercedes the riverine modeling from the confluence to approximately 7,600 feet upstream. Note that LOMR-F Case No. 10-04-4688A revises a portion of the stream. However, the results of this case were not incorporated into this FIS report as it is not on a panel included the PMR.
Parker Creek	Approximately 6,340 upstream of State Highway 67	Approximately 9,500 feet upstream of State Highway 67	Regression Equations (1991)	HEC-RAS 3.2.1	09/01/2007	AE w/ Floodway	
Pole Branch	Confluence with Wolf River	Approximately 300 feet downstream of Cable Bridge Road	Regulated Frequency Curves (1961)	HEC-2 (1984)	03/01/1985	AE	Floodway was added in the Harrison County Unincorporated Areas FIS 2002, however no details were given as to how it was calculated.
Pole Branch	Approximately 300 feet downstream of Cable Bridge Road	Approximately 3,200 feet upstream of Cable Bridge Road	Regression Equations (1991)	HEC-RAS 3.2.1	09/01/2007	AE w/ Floodway	
Sandy Creek	Confluence with Wolf River	Approximately 1,200 feet downstream of Steel Bridge Road	Regulated Frequency Curves (1961)	HEC-2 (1984)	03/01/1985	AE	Floodway was added in the Harrison County Unincorporated Areas FIS 2002, however no details were given as to how it was calculated.
Sandy Creek	Approximately 1,200 feet downstream of Steel Bridge Road	Approximately 2,500 feet upstream of Steel Bridge Road	Regression Equations (1991)	HEC-RAS 3.2.1	09/01/2007	AE w/ Floodway	
Saucier Creek	Confluence with Biloxi River	Approximately 1,200 feet upstream of State Highway 67	Regulated Frequency Curves (1961)	HEC-2 (1984)	03/01/1985	AE	Floodway was added in the Harrison County Unincorporated Areas FIS 2002, 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					
Saucier Creek	Approximately 1,200 feet upstream of State Highway 67	At Martha Redmond Road	Regression Equations (1991)	HEC-RAS 3.2.1	09/01/2007	AE w/ Floodway	
Saucier Creek	At Martha Redmond Road	At Harrison/Stone County Boundary	Regression Equations	HEC-RAS 4.1.0	07/10/2014	A	
Tchoutacabouffa River	Confluence with Biloxi River	Approximately 4,000 feet downstream of the confluence with Tchoutacabouffa River Tributary 3	Regression Equations (1976)	HEC-2 (1984)	03/01/1985	AE	Floodway was added in the Harrison County Unincorporated Areas FIS 2002, however no details were given as to how it was calculated. The downstream portion is shown as static Zone AE due to the Combined Probability Storm Surge from Bay of Biloxi. This coastal analysis supercedes the riverine modeling from the confluence to approximately 51,000 feet upstream.
Tchoutacabouffa River	Approximately 4,000 feet downstream of the confluence with Tchoutacabouffa River Tributary 3	Approximately 5,000 feet upstream of the confluence with Railroad Creek	Regression Equations (1991)	HEC-RAS 3.2.1	09/01/2007	AE w/ Floodway	
Turkey Creek	Confluence with Bernard Bayou	At Canal Road	Regression Equations (1976)	HEC-2 (1984)	08/01/1985	AE w/ Floodway	Floodway was added in the City of Gulfport FIS 2002, however no details were given as to how it was calculated. The downstream portion is shown as static Zone AE due to the Combined Probability Storm Surge from Bay of Biloxi. This coastal analysis supercedes the riverine modeling from the confluence to approximately 6,300 feet upstream.
Turkey Creek	At Canal Road	Approximately 10,360 feet upstream of Landon Road	Regression Equations (1976)	HEC-2 (1984)	03/01/1985	AE w/ Floodway	Floodway was added in the Harrison County Unincorporated Areas FIS 2002, however no details were given as to how it was calculated.
Tuxachanie Creek	Confluence with Tchoutacabouffa River	Approximately 700 feet downstream of the confluence of Hog Branch	Regulated Frequency Curves (1961)	HEC-2 (1984)	03/01/1985	AE	Floodway was added in the Harrison County Unincorporated Areas FIS 2002, 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					
Tuxachanie Creek	Approximately 700 feet downstream of the confluence with Hog Branch	Approximately 1,450 feet upstream of the confluence with Choctaw Creek	Regression Equations (1991)	HEC-RAS 3.2.1	09/01/2007	AE w/ Floodway	
Tuxachanie Creek	Approximately 1,450 feet upstream of the confluence with Choctaw Creek	Approximately 3,680 feet downstream of Forestry No 440	Regression Equations (1991)	HEC-RAS 3.2.1	09/01/2007	AE w/ Floodway	
Tuxachanie Creek	Approximately 3,680 feet downstream of Forestry No 440	At Harrison/Stone County Boundary	Regression Equations	HEC-RAS 4.1.0	07/10/2014	AE w/ Floodway	
Unnamed Tributary 1 to Bernard Bayou	Confluence with Bernard Bayou	Approximately 1,920 feet upstream of 4th Street	Regression Equations	HEC-RAS 4.1.0	07/10/2014	AE w/ Floodway	
Unnamed Tributary 1A to Bernard Bayou	Confluence with Unnamed Tributary 1 to Bernard Bayou	Approximately 1,380 feet upstream of Dedeaux Street	Regression Equations	HEC-RAS 4.1.0	07/10/2014	AE w/ Floodway	
West Creek	Confluence with Saucier Creek	Approximately 2,000 feet downstream of State Highway 67	Regulated Frequency Curves (1961)	HEC-2 (1984)	03/01/1985	AE	Floodway was added in the Harrison County Unincorporated Areas FIS 2002, however no details were given as to how it was calculated.
West Creek	Approximately 2,000 feet downstream of State Highway 67	Approximately 10,030 feet upstream of State Highway 67	Regression Equations (1991)	HEC-RAS 3.2.1	09/01/2007	AE w/ Floodway	
West Creek	Approximately 10,030 feet upstream of State Highway 67	Harrison/Stone County Boundary	Regression Equations	HEC-RAS 4.1.0	07/10/2010	AE w/ Floodway	
Wolf River	Confluence with Mississippi Sound	Harrison/Hancock County boundary	Regression Equations (1976)	HEC-2 (1984)	03/01/1985	AE	Floodway was added in the Harrison County Unincorporated Areas FIS 2002, however no details were given as to how it was calculated. Downstream portion is shown as static Zone AE due to the Combined Probability Storm Surge from St. Louis Bay. This coastal analysis supercedes the riverine modeling from the confluence to approximately 47,300 feet upstream.

Table 14: Roughness Coefficients

Flooding Source	FIS Report Date	Channel "n"	Overbank "n"
All Zone A Streams Studied in the 2009 FIS report	06/16/2009	0.050	0.150
All Zone A Streams Studied in this FIS report	TBD	0.040-0.060	0.050-0.150
Bernard Bayou	07/04/1988	0.0350-0.060	0.050-0.100
Bernard Bayou	10/04/2002	0.060-0.080	0.030-0.060
Bernard Bayou	08/04/1988	0.060-0.080	0.030-0.045
Bernard Bayou	06/16/2009	0.045	0.080
Bernard Bayou Tributary 3	06/16/2009	0.045	0.080
Bernard Bayou Tributary 4	06/16/2009	0.045	0.080
Bernard Bayou Tributary 5	06/16/2009	0.030-0.040	0.120
Bernard Bayou Tributary 6	06/16/2009	0.045	0.080
Big Creek	08/04/1988	*	*
Big Creek	06/16/2009	0.050	0.120-0.130
Biloxi River	08/04/1988	0.050-0.120	0.080-0.310
Biloxi River	06/16/2009	0.050	0.120
Brickyard Bayou	10/04/2002	0.035-0.060	0.050-0.100
Brickyard Bayou	06/16/2009	0.040-0.060	0.080-0.150
Canal No.1	08/19/1987	0.040-0.070	0.100-0.150
Canal No.1	08/04/1988	0.040-0.070	0.100-0.150
Canal No.1	05/04/1988	0.040-0.070	0.090-0.150
Canal No.1	07/04/1988	*	*
Canal No.3	08/04/1988	0.050-0.070	0.090-0.150
Canal No.3	05/04/1988	0.050-0.070	0.090-0.150
Choctaw Creek	08/04/1988	*	*
Crow Creek	08/04/1988	*	*
Crow Creek	06/16/2009	0.050	0.120

* Data not available

Table 14: Roughness Coefficients continued

Flooding Source	FIS Report Date	Channel "n"	Overbank "n"
Cypress Creek	08/04/1988	0.050-0.070	0.120-0.150
Flat Branch	10/04/2002	0.040-0.045	0.040-0.080
Flat Branch	TBD	0.030-0.058	0.035-0.150
Flat Branch	06/16/2009	0.045	0.050-0.080
Flat Branch	06/16/2009	0.045	0.080
Flat Branch Split West	TBD	0.030-0.058	0.080-0.140
Flat Branch Tributary 1	06/16/2009	0.018-0.045	0.100-0.150
Flat Branch Tributary 2	06/16/2009	0.0450	0.080
Fritz Creek	07/04/1988	0.040-0.060	0.075-0.080
Fritz Creek	07/04/1988	0.040-0.060	0.075-0.080
Fritz Creek	06/16/2009	0.050	0.080
Fritz Creek Tributary 1	07/04/1988	0.020-0.055	0.075-0.080
Fritz Creek Tributary 1	06/16/2009	0.050	0.030-0.080
Fritz Creek Tributary 1	06/16/2009	0.050	0.080-0.100
Fritz Creek Tributary 2	06/16/2009	0.050	0.080
Gulf of Mexico	06/16/2009	*	*
Hickory Creek	08/04/1988	*	*
Hickory Creek	06/16/2009	0.060	0.150
Hog Branch	06/16/2009	0.040	0.100-0.150
Hog Branch	08/04/1988	*	*
Hog Branch	06/16/2009	0.050	0.100
Howard Creek	08/04/1988	0.050-0.070	0.120-0.150
Little Biloxi River	08/04/1988	*	*
Little Biloxi River	06/16/2009	0.050	0.150
Mill Creek	08/04/1988	*	*
Mill Creek	06/16/2009	0.050	0.150
Palmer Creek	08/04/1988	*	*
Palmer Creek	06/16/2009	0.050	0.150
Parker Creek	08/04/1988	0.012-0.060	0.075-0.150

* Data not available

Table 14: Roughness Coefficients continued

Flooding Source	FIS Report Date	Channel "n"	Overbank "n"
Parker Creek	06/16/2009	0.050	0.120
Pole Branch	08/04/1988	*	*
Pole Branch	06/16/2009	0.050	0.100-0.120
Sandy Creek	08/04/1988	*	*
Sandy Creek	06/16/2009	0.040	0.120
Saucier Creek	08/04/1988	*	*
Saucier Creek	06/16/2009	0.050	0.150
Tchoutacabouffa River	08/04/1988	0.030	0.070-0.012
Tchoutacabouffa River	06/16/2009	0.050	0.150
Turkey Creek	07/04/1988	0.035-0.055	0.060-0.100
Turkey Creek	08/04/1988	0.035-0.055	0.060-0.100
Tuxachanie Creek	08/04/1988	*	*
Tuxachanie Creek	06/16/2009	0.040	0.040-0.100
Tuxachanie Creek	06/16/2009	0.050	0.100
Unnamed Tributary 1 to Bernard Bayou	TBD	0.045-0.060	0.050-0.140
Unnamed Tributary 1A to Bernard Bayou	TBD	0.048-0.055	0.080-0.140
West Creek	08/04/1988	*	*
West Creek	06/16/2009	0.050	0.150
Wolf River	08/04/1988	0.030	0.070-0.120

* Data not available

5.3 Coastal Analyses

For the areas of Harrison 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	Study Limits To	Hazard Evaluated	Model or Method Used	Date Analysis was Completed
Gulf of Mexico	Entire coastline of Harrison County	Entire coastline of Harrison County	Storm Surge, Wave setup, Statistical Analyses	ADCIRC	September 2007
Gulf of Mexico	Entire coastline of Harrison County	Entire coastline of Harrison County	Storm Surge, Wave setup, Statistical Analyses	SWAN	September 2007
Gulf of Mexico	Entire coastline of Harrison County	Entire coastline of Harrison County	Storm Surge, PFD,	PLB	September 2007
Gulf of Mexico	Entire coastline of Harrison County	Entire coastline of Harrison County	Storm Surge, PBD, Statistical Analyses	JPM	September 2007
Gulf of Mexico	Entire coastline of Harrison County	Entire coastline of Harrison County	Statistical Analyses	JPM-OS	September 2007
Gulf of Mexico	Entire coastline of Harrison County	Entire coastline of Harrison County	Wave setup	SWAN 2-D	September 2007
Gulf of Mexico	Entire coastline of Harrison County	Entire coastline of Harrison County	Overland Wave Propagation	WHAFIS 4.0	September 2007
Gulf of Mexico	Entire coastline of Harrison County	Entire coastline of Harrison 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
Biloxi, MS Station ID: 8744117	NOAA	Tide	06/24/2004	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	St. Louis Bay/Gulf of Mexico at Pine Hills Boulevard	7.0	4.9	5.6 5.6-5.6	* *	15.7 15.7-15.8	18.6 18.6-18.8	23.6 23.6-23.8
Gulf of Mexico	2	St. Louis Bay/Gulf of Mexico at Pine Hills Road	6.8	4.5	5.6 5.5-5.6	* *	15.7 15.7-15.9	18.7 18.6-18.8	23.6 23.6-23.9
Gulf of Mexico	3	St. Louis Bay/Gulf of Mexico east of Pine Hills Road	6.9	4.4	5.6 5.5-5.6	* *	15.6 15.6-15.9	18.4 18.1-18.7	23.6 23.6-24.0
Gulf of Mexico	4	St. Louis Bay/Gulf of Mexico south of Kiln Delisle Road	6.6	4.3	5.6 5.6-5.6	* *	15.4 15.4-15.8	18.2 17.8-18.4	23.4 23.4-23.8
Gulf of Mexico	5	St. Louis Bay/Gulf of Mexico south of Kiln Delisle Road	6.3	4.5	5.6 5.6-5.6	* *	15.3 15.3-15.6	18.1 18.1-18.5	23.3 23.3-23.8
Gulf of Mexico	6	St. Louis Bay/Gulf of Mexico south of Kiln Delisle Road	6.3	4.2	5.6 5.6-5.6	* *	15.2 15.2-15.5	18.0 18.0-18.4	23.2 23.2-23.8
Gulf of Mexico	7	St. Louis Bay/Gulf of Mexico west of Wittman Road	5.8	4.3	5.6 5.6-5.6	* *	15.0 15.0-15.4	17.8 17.8-18.2	22.9 22.9-23.8
Gulf of Mexico	8	Gulf of Mexico at 1st Street	7.9	5.4	5.6 5.6-5.6	* *	15.0 14.8-15.0	17.7 17.6-17.8	22.8 22.6-23.0

* 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	9	Gulf of Mexico at 4th Street	8.2	5.6	5.7 5.6-5.7	* *	15.1 14.8-15.2	17.9 17.6-18.2	23.0 23.0-23.9
Gulf of Mexico	10	Gulf of Mexico at Lady Mary Avenue	7.8	5.7	5.7 5.6-5.7	* *	15.1 14.8-15.1	17.9 17.6-17.9	23.1 22.6-23.8
Gulf of Mexico	11	Gulf of Mexico east of Brown Avenue	7.7	5.7	5.8 5.6-5.8	* *	15.1 14.8-15.2	17.9 17.6-17.9	23.2 22.5-23.2
Gulf of Mexico	12	Gulf of Mexico at Jackson Avenue	7.8	5.6	5.8 5.5-5.8	* *	15.2 14.8-15.3	17.9 17.6-18.2	23.2 22.6-23.4
Gulf of Mexico	13	Gulf of Mexico at Clarence Avenue	7.3	5.6	5.8 5.4-5.8	* *	15.2 14.8-15.3	18.4 17.6-18.4	23.2 22.6-23.5
Gulf of Mexico	14	Gulf of Mexico east of Church Street	7.3	5.7	5.9 5.3-5.9	* *	15.2 14.8-15.4	18.4 17.5-18.4	23.6 22.5-23.6
Gulf of Mexico	15	Gulf of Mexico west of Davis Avenue	7.6	5.9	5.9 5.4-5.9	* *	15.2 14.7-15.3	18.0 17.4-18.0	23.6 22.5-23.6
Gulf of Mexico	16	Gulf of Mexico at Seal Avenue	7.7	6.0	5.9 5.4-5.9	* *	15.1 14.7-15.2	18.0 17.4-18.2	23.4 22.5-23.5
Gulf of Mexico	17	Gulf of Mexico at Courtenay Avenue	7.6	6.0	5.9 5.5-5.9	* *	15.1 14.7-15.1	18.0 17.4-18.0	23.4 22.5-23.4

* 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	18	Gulf of Mexico east of Lang Avenue	7.4	6.0	5.9 5.2-5.9	* *	15.1 14.5-15.1	18.0 17.3-18.1	24.1 22.3-24.1
Gulf of Mexico	19	Gulf of Mexico east of Menge Road	7.6	6.0	6.0 5.2-6.0	* *	15.1 14.5-15.1	18.0 17.3-18.0	23.5 22.4-23.6
Gulf of Mexico	20	Gulf of Mexico at Wisteria Drive	7.5	6.0	6.0 4.9-6.0	* *	15.1 14.4-15.1	18.0 17.2-18.0	23.8 22.3-23.8
Gulf of Mexico	21	Gulf of Mexico at Least Tern Drive	7.0	5.2	6.0 6.0-6.0	* *	15.3 14.3-15.3	18.0 17.0-18.0	23.5 21.9-23.7
Gulf of Mexico	22	Gulf of Mexico at Hayden Avenue	7.1	5.4	6.0 4.5-6.0	* *	15.3 14.3-15.3	18.0 17.2-18.0	23.7 21.9-24.1
Gulf of Mexico	23	Gulf of Mexico at White Harbor Road	7.1	5.4	6.0 6.0-6.0	* *	15.1 14.3-15.3	18.0 17.9-18.0	23.5 21.1-23.6
Gulf of Mexico	24	Gulf of Mexico at Arbor Station Drive	7.0	5.4	6.0 3.9-6.0	* *	15.2 14.1-15.2	18.0 17.6-18.0	23.6 20.0-23.5
Gulf of Mexico	25	Gulf of Mexico at Boggs Drive	6.8	5.5	6.0 6.0-6.0	* *	15.3 13.9-15.3	18.0 17.5-18.4	23.5 20.6-23.5
Gulf of Mexico	26	Gulf of Mexico at West Avenue	6.5	5.4	6.0 6.0-6.0	* *	15.3 13.6-15.9	18.0 17.8-19.8	23.5 21.5-24.0

* 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	27	Gulf of Mexico at Russell Avenue	6.8	5.6	6.0 6.0-6.0	* *	15.4 13.3-15.8	18.4 18.3-19.6	23.9 22.5-23.9
Gulf of Mexico	28	Gulf of Mexico west of South Burke Avenue	6.9	5.5	6.0 6.0-6.0	* *	15.3 15.3-15.4	18.4 18.1-18.4	23.8 21.7-23.7
Gulf of Mexico	29	Gulf of Mexico at South Nicholson Avenue	6.7	5.8	6.0 6.0-6.0	* *	15.2 15.2-15.4	18.0 17.9-18.0	23.6 23.1-23.5
Gulf of Mexico	30	Gulf of Mexico east of Beach Park Place	6.8	5.7	6.0 6.0-6.0	* *	15.2 15.2-15.4	18.0 17.8-18.0	23.7 23.0-23.7
Gulf of Mexico	31	Gulf of Mexico at Central Avenue	6.4	5.6	6.0 6.0-6.0	* *	15.3 15.3-15.4	18.3 18.3-18.3	23.9 23.9-23.9
Gulf of Mexico	32	Gulf of Mexico at Fournieu Road	6.5	5.6	6.0 6.0-6.0	* *	15.2 15.2-15.3	18.2 18.2-18.2	23.8 23.3-24.0
Gulf of Mexico	33	Gulf of Mexico at 41st Street	6.5	5.6	6.0 6.0-6.0	* *	15.3 15.1-15.3	18.0 18.0-18.0	24.0 24.0-24.0
Gulf of Mexico	34	Gulf of Mexico between 36th Avenue and 33rd Avenue	6.3	5.2	5.9 4.8-5.9	* *	15.0 14.7-15.0	18.0 18.0-18.0	23.7 23.7-23.8
Gulf of Mexico	35	Gulf of Mexico at Copa Boulevard	5.9	5.2	5.4 4.8-5.6	* *	15.2 15.2-15.2	18.1 18.1-18.1	23.5 17.6-23.9

* 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	36	Gulf of Mexico at 20th Avenue	7.7	5.8	5.8 5.6-5.8	* *	15 9.8-15.3	18.2 18.2-18.2	23.4 17.6-24.3
Gulf of Mexico	37	Gulf of Mexico west of Pratt Avenue	6.1	5.8	5.8 5.8-5.8	* *	15.1 14.9-15.1	18.3 18.3-18.3	24.2 17.6-24.2
Gulf of Mexico	38	Gulf of Mexico at Hill Place	6.5	5.5	6.0 6.0-6.0	* *	15 9.8-15.0	18.2 11.6-18.2	24.2 17.6-24.2
Gulf of Mexico	39	Gulf of Mexico east of Evans Avenue	6.6	5.5	6.1 6.1-6.1	* *	15.1 9.8-15.1	18.0 11.7-18.0	24.1 17.7-24.1
Gulf of Mexico	40	Gulf of Mexico at Alfonso Drive	6.6	5.4	6.0 6.0-6.0	* *	15.2 9.8-15.3	18.1 12.4-18.1	24.1 17.3-24.1
Gulf of Mexico	41	Gulf of Mexico west of Arkansas Avenue	6.5	5.8	6.0 5.0-6.1	* *	15.2 10.7-15.3	18.3 13.7-18.3	23.6 18.0-23.6
Gulf of Mexico	42	Gulf of Mexico at Courthouse Road	6.6	5.8	6.0 6.0-6.0	* *	15.1 12.3-15.3	18.2 14.3-18.2	23.3 18.4-23.3
Gulf of Mexico	43	Gulf of Mexico at Tegarden Road	6.6	5.7	6.0 5.2-6.0	* *	15.2 12.3-15.2	18.2 14.3-18.2	23.4 18.3-24.4
Gulf of Mexico	44	Gulf of Mexico at Laurel Road	6.5	5.9	6.0 5.2-6.0	* *	15 12.3-15.1	18.1 14.3-18.1	23.3 18.2-23.4

* 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	45	Gulf of Mexico at Allan Drive	6.6	5.9	6.0 5.3-6.0	* *	14.9 12.4-14.9	17.8 14.4-17.8	23.2 18.3-23.2
Gulf of Mexico	46	Gulf of Mexico west of Southern Circle	6.6	5.9	6.0 5.3-6.0	* *	14.7 12.4-14.7	17.7 14.5-17.7	23.2 18.4-23.2
Gulf of Mexico	47	Gulf of Mexico at Venetian Gardens	6.5	5.8	6.0 4.6-6.0	* *	14.8 11.5-14.8	17.7 13.7-17.7	23.2 17.6-23.2
Gulf of Mexico	48	Gulf of Mexico at Gateway Drive	6.4	5.7	6.0 5.0-6.0	* *	14.7 12.5-14.9	17.9 14.6-17.9	23.5 16.8-23.5
Gulf of Mexico	49	Gulf of Mexico east of Edgewater Gulf Drive	6.6	5.7	5.9 5.4-5.9	* *	14.6 12.4-14.7	17.6 14.6-17.6	23.5 18.6-23.5
Gulf of Mexico	50	Gulf of Mexico at Briarfield Avenue	6.3	5.6	5.9 5.3-5.9	* *	14.6 12.4-14.9	17.8 14.5-17.8	23.1 18.6-23.1
Gulf of Mexico	51	Gulf of Mexico west of Beauvoir Avenue	5.5	5.5	5.9 5.2-5.9	* *	14.7 12.4-14.7	17.4 14.5-17.4	23.0 19.0-23.0
Gulf of Mexico	52	Gulf of Mexico at Sadler Beach Drive	6.2	5.4	5.9 5.3-5.9	* *	14.5 12.1-14.5	17.4 14.7-17.4	23.1 18.9-23.1
Gulf of Mexico	53	Gulf of Mexico west of Camellia Street	6.2	5.4	5.9 5.3-5.9	* *	14.3 12.5-14.3	17.3 14.9-17.3	23.2 19-23.2

* 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	54	Gulf of Mexico west of Veterans Avenue	5.9	5.3	5.8 5.3-5.8	* *	14.2 12.7-14.2	17.2 13.1-17.2	23.1 19.1-23.1
Gulf of Mexico	55	Gulf of Mexico west of Travis Street	6.0	5.3	5.8 5.2-5.8	* *	14.3 12.6-14.3	17.2 13.3-17.2	23.0 19.1-23.0
Gulf of Mexico	56	Gulf of Mexico at Iberville Drive	6.2	5.3	5.8 5.6-5.8	* *	14.2 12.6-14.3	17.2 15.6-17.2	22.9 20.2-22.9
Gulf of Mexico	57	Gulf of Mexico at St. George Street	6.3	5.3	5.8 5.6-5.8	* *	14.1 13.1-14.1	17.1 15.7-17.1	22.8 20.4-22.8
Gulf of Mexico	58	Gulf of Mexico at Chalmers Street	6.0	5.4	5.8 5.7-5.8	* *	14.1 13.2-14.1	17.0 15.9-17.0	22.6 20.8-22.5
Gulf of Mexico	59	Gulf of Mexico at White Avenue	6.0	5.2	5.7 5.7-5.7	* *	14.0 13.4-14.0	17.0 16.2-17.0	22.5 21.2-22.5
Gulf of Mexico	60	Gulf of Mexico at Porter Avenue	5.9	5.3	5.7 5.7-5.7	* *	14.0 13.5-14.0	16.9 16.2-16.9	22.1 21.0-22.0
Gulf of Mexico	61	Gulf of Mexico at Seal Avenue	5.9	5.2	5.7 5.7-5.8	* *	13.9 13.5-13.9	16.8 16.2-16.8	22.1 21.4-22.1
Gulf of Mexico	62	Gulf of Mexico at G.E. Ohr Street	6.7	4.6	5.7 5.7-5.8	* *	13.7 13.6-14.4	16.7 16.5-17.2	21.8 21.6-22.8

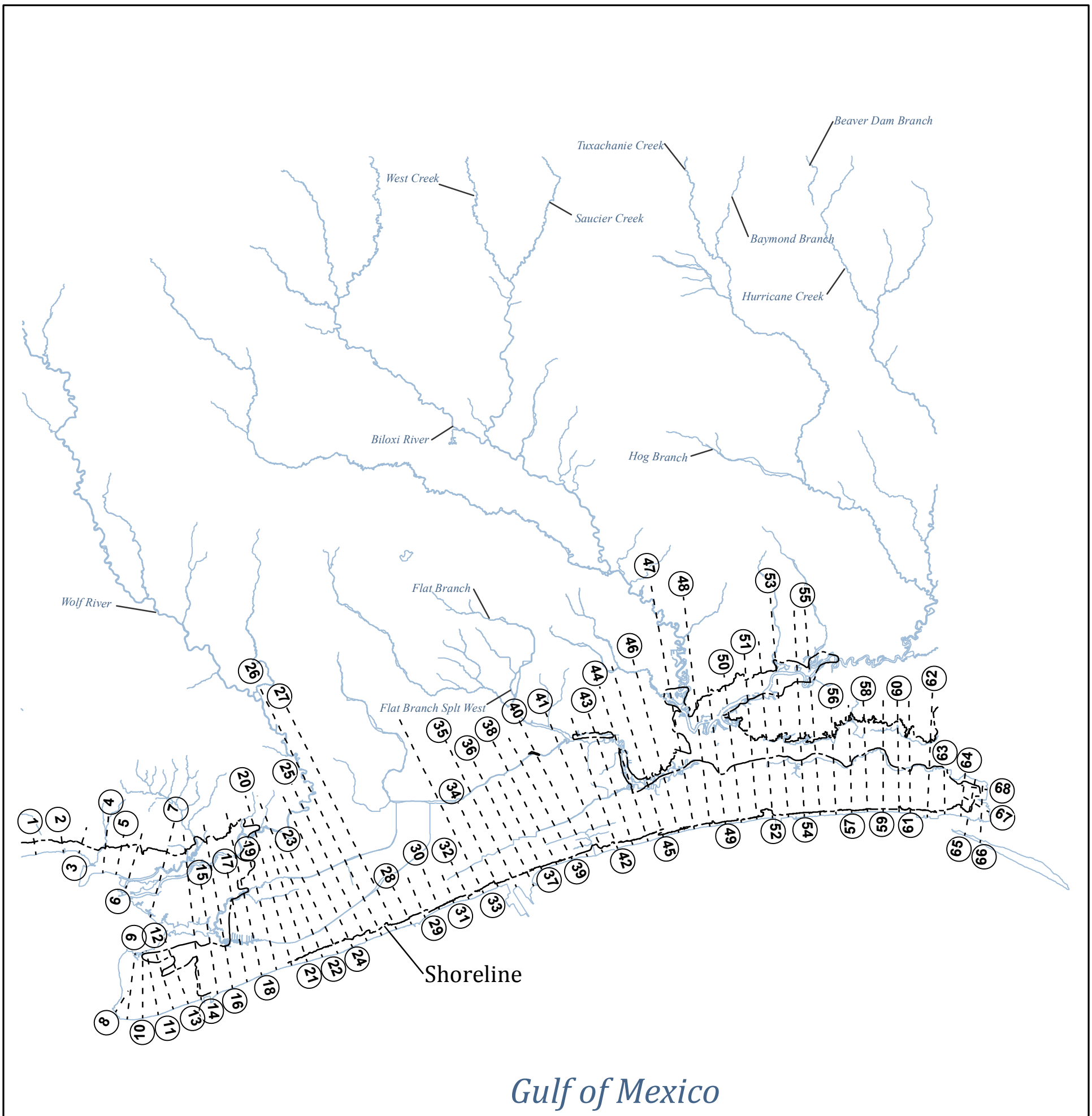
* Data not available

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	63	Gulf of Mexico at Lee Street	6.1	4.7	5.7 5.7-5.8	* *	13.7 13.7-13.8	16.7 16.5-16.7	22.2 21.8-22.2
Gulf of Mexico	64	Gulf of Mexico at Kuhn Street	5.8	4.6	5.7 5.7-5.8	* *	13.7 13.6-13.8	16.6 16.6-16.8	21.9 21.9-22.0
Gulf of Mexico	65	Gulf of Mexico on Deer Island	6.2	4.5	5.6 5.6-5.7	* *	13.5 13.4-13.8	16.3 16.3-16.7	21.8 21.8-22.0
Gulf of Mexico	66	Gulf of Mexico on Deer Island	6.2	4.6	5.5 5.5-5.7	* *	13.3 13.3-13.8	16.2 16.2-16.6	21.4 21.4-21.9
Gulf of Mexico	67	Gulf of Mexico at Cadet Street	3.9	4.6	5.7 5.7-5.7	* *	13.7 13.7-13.8	16.5 16.5-16.7	21.8 21.8-22.0
Gulf of Mexico	68	Gulf of Mexico at Michael Boulevard	3.4	4.8	5.7 5.7-5.7	* *	13.6 13.6-13.7	16.5 16.5-16.7	22.0 21.9-22.0

* Data not available

Figure 9: Transect Location Map



1 inch = 17,083 feet 1:205,000

N

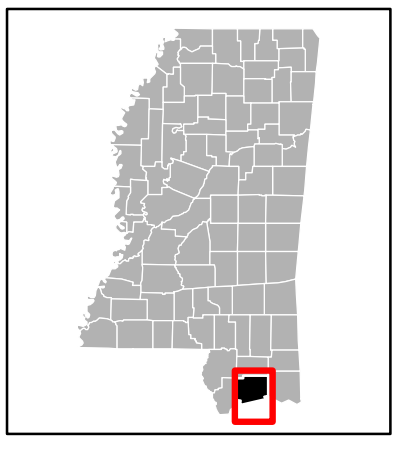
Feet
0 9,500 19,000 38,000

Map Projection:
Mississippi State Plane Zone 2301;
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

0215, 0220, 0230, 0237, 0238, 0239, 0242, 0243, 0244, 0260, 0261, 0262, 0263, 0264, 0266, 0267, 0268, 0269, 0277, 0278, 0279, 0283, 0284, 0286, 0287, 0288, 0289, 0291, 0292, 0293, 0294, 0311, 0313, 0330, 0331, 0332, 0333, 0334, 0345, 0351, 0352, 0353, 0354, 0356, 0357, 0358, 0359, 0376, 0377, 0381

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 Harrison 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 = -0.010 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	01/01/2007	N/A	S_Pol_Ar - County Boundary.
County Boundary	U.S. Department of Commerce, U.S. Census Bureau, Geography Division	01/01/2010	N/A	S_Pol_Ar - Municipal Boundaries.
Digital Orthophoto	National Agriculture Imagery Program	01/01/2014	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
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.
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 – Roads.
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."

Certain flooding sources may have been studied that do not have published BFEs on the FIRMs, or for which there is a need to report the 1% annual chance flood elevations at selected cross sections because a published Flood Profile does not exist in this FIS Report. These streams may have also been studied using methods to determine non-encroachment zones rather than floodways. For these flooding sources, the 1% annual chance floodplain boundaries 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. All topographic data used for modeling or mapping has been converted as necessary to NAVD 88. The 1% annual chance elevations for selected cross sections along these flooding sources, along with their non-encroachment widths, if calculated, are shown in Table 25, "Flood Hazard and Non-Encroachment Data for Selected Streams."

Table 23: Summary of Topographic Elevation Data used in Mapping

Community	Flooding Source	Source for Topographic Elevation Data			
		Description	Scale	Contour Interval	Citation
Gulfport, City of	Flat Branch	LiDAR	1:12,000	N/A	Sewall Company, 2012
Gulfport, City of	Unnamed Tributary 1 to Bernard Bayou	LiDAR	1:12,000	N/A	Sewall Company, 2012
Gulfport, City of	Unnamed Tributary 1A to Bernard Bayou	LiDAR	1:12,000	N/A	Sewall Company, 2012
Harrison County Unincorporated Areas	All Zone A streams studied in this FIS	LiDAR	1:12,000	N/A	Sewall Company, 2012
Harrison County and Incorporated 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	3,000	989	3,527	2.0	14.5[2]	1.9[3]	2.9[3]	1.0
B	9,450	816	3,446	2.0	14.5[2]	2.4[3]	3.3[3]	0.9
C	10,684	1,130	7,870	0.9	14.5[2]	2.5[3]	3.4[3]	0.9
D	19,584	979	2,103	3.3	14.5[2]	3.0[3]	3.7[3]	0.7
E	25,334	750	7,464	2.0	14.5[2]	3.8[3]	4.8[3]	1.0
F	33,059	736	11,381	1.3	14.5[2]	4.1[3]	5.0[3]	0.9
G	39,234	282	4,459	2.3	14.5[2]	4.3[3]	5.2[3]	0.9
H	41,634	124	1,166	8.7	14.5[2]	4.2[3]	5.1[3]	0.9
I	41,923	130	1,533	6.1	14.5[2]	6.2[3]	7.1[3]	0.9
J	42,623	218	1,966	4.7	14.5[2]	7.5[3]	7.9[3]	0.4
K	44,427	162	2,036	4.6	14.7	10.4[3]	10.6[3]	0.2
L	46,282	100	636	8.6	15.0	11.6[3]	11.6[3]	0.0
M	46,934	330	4,004	1.4	15.4	13.1[3]	13.5[3]	0.4
N	47,199	80	778	7.0	15.4	13.1[3]	13.1[3]	0.0
O	49,699	60	855	6.4	19.1	18.9[3]	19.8[3]	0.9
P	50,849	397	3,066	1.9	22.0	21.9[3]	22.9[3]	1.0
Q	59,499	530	2,741	1.9	30.0	30.0	31.0	1.0
R	69,149	573	2,950	1.8	43.8	43.8	44.8	1.0
S	76,999	596	2,811	1.3	56.5	56.5	57.5	1.0
T	87,599	542	2,815	1.4	73.6	73.6	74.6	1.0

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

TABLE 24	FEDERAL EMERGENCY MANAGEMENT AGENCY HARRISON COUNTY, MS AND INCORPORATED AREAS	FLOODWAY DATA FLOODING SOURCE: BERNARD 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	20,3601	588	3,274	1.6	54.1	54.1	55.1	1.0

[1] Feet above confluence with Wolf River

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

HARRISON COUNTY, MS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: BIG 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	13,675	1,623	15,251	2.0	14.5[2]	6.6[3]	7.6[3]	1.0
B	20,117	2,422	17,406	1.7	14.5[2]	8.9[3]	9.7[3]	0.8
C	24,605	1,973	16,760	1.8	15.2	11.6[3]	12.0[3]	0.4
D	36,168	3,144	47,348	0.7	18.9	18.5[3]	19.5[3]	1.0
E	40,498	2,691	42,389	0.7	20.0	19.8[3]	20.8[3]	1.0
F	49,421	3,166	44,794	0.7	22.2	22.1[3]	23.1[3]	1.0
G	55,440	4,310	51,161	0.6	23.6	23.6	24.6	1.0
H	60,403	3,736	48,790	0.6	25.4	25.4	26.4	1.0
I	71,122	3,451	35,714	0.7	27.8	27.8	28.8	1.0
J	76,824	1,750	15,049	1.7	29.7	29.7	30.7	1.0
K	80,256	1,726	15,798	1.6	32.1	32.1	33.1	1.0
L	85,906	2,778	19,287	1.3	35.2	35.2	36.1	0.9
M	89,443	1,614	14,058	1.8	37.4	37.4	38.3	0.9
N	98,314	1,541	16,056	1.5	43.4	43.4	44.3	0.9
O	105,283	549	8,496	2.2	47.7	47.7	48.6	0.9
P	111,830	1,663	13,938	1.4	51.6	51.6	52.6	1.0
Q	112,886	1,104	11,372	1.7	52.6	52.6	53.6	1.0
R	121,070	1,431	15,285	1.2	57.0	57.0	57.9	0.9
S	129,571	1,668	5,789	3.3	63.8	63.8	64.6	0.8
T	136,594	2,000	12,102	1.4	73.2	73.2	73.8	0.6

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

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

HARRISON COUNTY, MS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: BILOXI 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[2]	WITH FLOODWAY	INCREASE
A	930	140	1,443	1.5	*	3.4	4.4	1.0
B	1,120	134	1,335	1.6	*	3.4	4.4	1.0
C	1,531	248	1,641	1.3	*	3.6	4.6	1.0
D	2,671	280	1,580	1.4	*	4.1	4.9	0.8
E	3,721	382	1,215	1.8	*	4.8	5.3	0.5
F	4,135	350	1,651	1.3	*	5.3	5.7	0.4
G	6,395	150	775	2.8	*	6.4	6.5	0.1
H	6,671	230	1,104	1.9	*	6.9	7.0	0.1
I	7,784	165	1,066	2.0	*	8.2	8.2	0.0
J	8,259	90	635	3.4	*	8.2	8.2	0.0
K	8,648	80	568	3.8	*	8.5	8.5	0.0
L	9,968	166	859	2.5	*	9.1	9.5	0.4
M	10,182	170	981	2.0	*	9.3	9.7	0.4
N	11,337	232	1,708	1.1	*	9.5	9.8	0.3
O	11,634	139	915	2.1	*	9.5	9.8	0.3
P	13,064	125	704	2.7	*	9.9	10.2	0.3
Q	13,371	125	930	2.1	13.0	10.3	10.6	0.3
R	16,171	755	2,132	0.9	13.0	10.8	11.2	0.4
S	18,246	133	631	3.1	13.0	11.2	11.9	0.7
T	18,464	230	1,006	1.9	13.0	11.5	12.2	0.7
U	20,344	90	597	3.2	13.0	12.7	13.1	0.4
W	21,328	65	482	4.0	13.5	13.1	13.7	0.6
X	21,496	90	535	3.0	14.8	14.5	15.1	0.6

[1] Feet above confluence with Bernard Bayou

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

* BFE determined by coastal storm surge flooding

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

HARRISON COUNTY, MS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: BRICKYARD BAYOU

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	8,840	630	2,331	1.0	*	5.5[2]	6.5	1.0
B	15,240	185	1,071	2.0	*	8.2[2]	8.5	0.3
C	16,370	239	1,398	1.5	*	8.9[2]	9.4	0.5
D	18,090	342	1,139	1.9	*	10.2[2]	10.9	0.7
E	19,990	266	1,125	1.7	*	12.2[2]	13.0	0.8
F	20,890	386	1,086	1.8	*	13.6[2]	14.4	0.8
G	22,710	415	846	2.3	17.6	16.0[2]	17.0	1.0
H	24,650	118	724	2.2	18.7	18.2[2]	19.2	1.0
I	26,230	731	3,705	0.4	19.0	18.6[2]	19.6	1.0
J	27,330	365	2,359	0.7	19.0	18.7[2]	19.7	1.0
K	29,430	325	1,863	0.9	19.4	19.2[2]	20.2	1.0
L	31,530	385	1,736	0.9	19.9	19.8[2]	20.8	1.0
M	34,330	760	3,856	0.4	20.2	20.2	21.2	1.0
N	35,930	400	1,829	0.5	20.4	20.4	21.4	1.0
O	37,730	316	930	1.0	20.7	20.7	21.7	1.0
P	39,630	493	1,861	0.4	21.2	21.2	22.2	1.0
Q	40,530	415	1,330	0.6	21.3	21.3	22.3	1.0
R	41,330	350	1,061	0.7	21.6	21.6	22.6	1.0

[1] Feet above confluence with Saint Louis Bay
[2] Elevation computed without consideration of storm surge effects from Saint Louis Bay/ Mississippi Sound
* BFE determined by coastal storm surge flooding

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

HARRISON COUNTY, MS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: CANAL NO.1

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	5,650	327	1,494	1.9	*	2.7[2]	3.7	1.0
B	9,330	572	2,249	1.2	*	4.4[2]	5.4	1.0
C	12,830	73	589	3.8	*	6.4[2]	7.4	1.0
D	16,430	100	955	2.3	*	9.7[2]	10.7	1.0
E	16,974	100	1,015	2.2	*	10.3[2]	11.3	1.0
F	19,475	183	1,078	2.1	*	12.4[2]	13.3	0.9
G	20,615	96	695	3.2	17.1	13.9[2]	14.8	0.9
H	21,310	202	978	2.1	17.2	15.0[2]	16.0	1.0
I	22,550	486	1,904	1.1	17.5	16.1[2]	16.9	0.8
J	23,120	450	2,036	1.0	17.7	16.3[2]	17.2	0.9
K	24,350	365	990	1.8	18.0	17.0[2]	18.0	1.0
L	25,705	232	1,436	1.2	18.6	18.1[2]	19.1	1.0
M	28,195	336	1,086	1.1	20.1	20.0[2]	20.9	0.9
N	29,825	404	1,988	0.6	20.3	20.3	21.3	1.0
O	30,520	395	1,961	0.6	20.4	20.4	21.4	1.0
P	31,330	172	875	0.4	20.5	20.5	21.5	1.0
Q	33,195	138	429	0.9	21.1	21.1	22.1	1.0
R	34,545	150	516	0.7	21.4	21.4	22.4	1.0

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

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

HARRISON COUNTY, MS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: CANAL NO.3

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	6,680	383	2,114	2.0	85.3	85.3	86.3	1.0

[1] Feet above confluence with Tuxachanie Creek

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

HARRISON COUNTY, MS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: CHOCTAW 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	11,450[1]	220	1,841	2.7	90.1	90.1	91.1	1.0

[1] Feet above confluence with Biloxi River

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

HARRISON COUNTY, MS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: CROW 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	2,500	200	1,648	2.2	13.8	5.6	6.5	0.9

[1] Feet above confluence with Tchoutacabouffa River
[2] Elevation computed without consideration of storm surge effects from Back Bay of Biloxi

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

HARRISON 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	1,050	100	717	10.0	14.5	8.6[2]	9.0	0.4
B	4,819	83	711	7.6	18.5	18.4[2]	18.5	0.1
C	6,551	150	1,100	5.3	23.0	22.9[2]	23.4	0.5
D	8,606	170	992	5.8	26.5	26.5	26.8	0.3
E	11,709	138	1,236	4.3	31.9	31.9	32.2	0.3
F	13,114	140	1,692	3.2	33.4	33.4	34.1	0.7
G	16,000	550	3,515	1.4	41.2	41.2	42.0	0.8
H	18,000	428	2,387	2.1	41.9	41.9	42.7	0.8
I	21,055	129	1,144	4.3	48.8	48.8	49.0	0.2
J	25,000	500	2,458	3.0	52.9	52.9	53.9	1.0

[1] Feet above confluence with Bernard Bayou
[2] Elevation computed without consideration of storm surge effects from Back Bay of Biloxi

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

HARRISON COUNTY, MS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: FLAT BRANCH

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	245	87	867	2.7	15.3	14.3	14.9	0.6
B	1,483	136	1,074	2.2	15.7	15.0	15.5	0.5
C	3,031	96	560	4.1	18.5	18.3	18.5	0.2
D	4,754	144	563	4.1	20.2	20.1	20.2	0.1

[1] Feet above confluence with Flat Branch
[2] Elevation computed without consideration of storm surge effects from Back Bay of Biloxi

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

HARRISON COUNTY, MS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: FLAT BRANCH SPLIT WEST

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	4,578	300	2,077	1.8	15.2	6.2[2]	7.2[2]	1.0
B	8,808	276	1,932	1.9	15.2	8.0[2]	9.0[2]	1.0
C	10,808	156	1,028	3.2	15.2	9.1[2]	9.8[2]	0.7
D	14,908	205	943	3.5	15.7	14.6[2]	15.3[2]	0.7
E	18,208	358	1,086	1.8	22.2	22.2	22.8	0.6
F	22,108	88	477	4.1	29.3	29.3	30.2	0.9

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

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

HARRISON COUNTY, MS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: FRITZ 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	4,024	164	621	2.2	27.0	27.0	27.9	0.9
B	11,624	117	397	3.4	50.8	50.8	51.7	0.8
C	13,596	250	824	1.7	53.9	53.9	54.8	0.9

[1] Feet above confluence with Fritz Creek

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

HARRISON COUNTY, MS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: FRITZ CREEK TRIBUTARY 1

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	4,600	170	1,040	3.5	78.0	75.4[2]	76.4	1.0
B	18,800	256	1,689	2.0	108.1	108.1	109.1	1.0

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

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

HARRISON COUNTY, MS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: HICKORY 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	4,500	550	3,318	1.1	43.8	43.8	44.7	0.9
B	5,900	415	1,670	2.0	55.2	55.2	56.2	1.0
C	16,300	268	1,453	1.9	75.4	75.4	76.4	1.0

[1] Feet above confluence with Tuxachanie 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	3,930	77	663	3.8	*	9.0[2]	9.9	0.9
B	6,330	145	575	4.3	15.1	13.4[2]	14.2	0.8
C	8,730	278	935	2.7	23.3	23.3	23.9	0.6
D	17,180	587	3,410	0.6	62.4	62.4	63.4	1.0

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

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

HARRISON COUNTY, MS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: HOWARD 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	6,350	632	4,289	2.4	26.2	26.2	27.2	1.0
B	14,700	774	6,209	1.6	32.1	32.1	33.1	1.0
C	30,100	464	3,983	2.5	40.6	40.6	41.6	1.0
D	45,550	677	4,041	2.5	54.8	54.8	55.8	1.0
E	62,850	730	5,257	1.8	68.5	68.5	69.5	1.0
F	74,450	704	4,784	2.0	79.8	79.8	80.8	1.0
G	83,250	635	4,505	1.8	89.6	89.6	90.6	1.0
H	95,800	789	4,915	1.5	100.2	100.2	101.2	1.0

[1] Feet above confluence with Biloxi River

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

HARRISON COUNTY, MS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: LITTLE BILOXI 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	9,500	418	1,840	2.6	103.3	103.3	104.3	1.0

[1] Feet above confluence with Wolf River

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

HARRISON COUNTY, MS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: MILL 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	5,130	233	1,639	1.9	51.6	51.6	52.6	1.0
B	11,920	210	1,454	2.3	72.9	72.9	73.9	1.0

[1] Feet above confluence with Biloxi River

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

HARRISON COUNTY, MS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: PALMER 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	3,000	240	1,762	1.6	*	7.4[2]	8.3	0.9
B	3,830	404	3,110	0.9	*	7.8[2]	8.8	1.0
C	7,430	94	550	4.0	*	12.6[2]	13.4	0.8
D	13,220	67	495	3.2	32.0	32.0	33.0	1.0
E	17,880	238	738	2.0	66.4	66.4	67.4	1.0

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

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

HARRISON COUNTY, MS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: PARKER 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	5,620	230	*	*	53.8	53.8	54.8	1.0

[1] Feet above confluence with Wolf River

* Data not available

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

HARRISON COUNTY, MS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: POLE BRANCH

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/ SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	8,430	160	*	*	49.0	49.0	50.0	1.0

[1] Feet above confluence with Wolf River

* Data not available

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

HARRISON COUNTY, MS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: SANDY 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	11,400	680	*	*	48.4	48.4	49.4	1.0
B	27,550	620	*	*	63.0	63.0	64.0	1.0
C	42,250	103	1,268	3.9	88.9	88.9	89.9	1.0

[1] Feet above confluence with Biloxi River

* Data not available

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

HARRISON COUNTY, MS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: SAUCIER 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	4,100	1,226	10,326	3.0	*	3.7[2]	4.7	1.0
B	14,900	1,000	8,960	3.5	*	5.7[2]	6.6	0.9
C	21,764	1147	11741	2.7	*	7.0[2]	7.9	0.9
D	25,464	580	11788	2.7	*	7.6[2]	8.5	0.9
E	38,014	384	9312	3.4	*	8.3[2]	9.2	0.9
F	52,464	300	6546	4.8	13.9	11.1[2]	11.7	0.6
G	55,914	292	4161	7.5	13.9	11.9[2]	12.6	0.7
H	71,514	108	1408	11.2	15.2	14.6[2]	15.6	1.0
I	107,264	204	3057	4.3	37.1	37.1	38.1	1.0

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

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

HARRISON COUNTY, MS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: TCHOUTACBOUFFA 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	2,680	139	1,283	5.3	*	7.5[2]	7.7	0.2
B	7,730	447	2,936	3.8	14.2	10.9[2]	11.9	1.0
C	10,430	495	4,186	1.4	14.2	12.2[2]	13.2	1.0
D	12,830	200	1,398	3.9	14.6	13.2[2]	14.2	1.0
E	13,530	263	2,671	2.1	14.8	13.9[2]	14.8	0.9
F	14,570	735	5,821	0.9	15.4	14.4[2]	15.4	1.0
G	21,430	129	898	5.4	16.6	16.3[2]	17.2	0.9
H	25,230	500	3,111	1.6	20.4	20.3[2]	21.3	1.0
I	28,330	1,006	4,362	1.1	21.7	21.7	22.6	0.9
J	31,685	798	1,770	2.6	24.9	24.9	25.8	0.9
K	34,285	1,767	9,435	0.4	25.6	25.6	26.6	1.0
L	37,845	1,369	7,388	0.6	25.8	25.8	26.7	0.9
M	40,245	2,622	8,968	0.5	26.0	26.0	26.9	0.9
N	41,805	1,705	9,180	0.5	26.1	26.1	27.0	0.9
O	45,745	277	1,163	2.8	26.6	26.6	27.5	0.9
P	47,005	600	2,682	1.2	27.7	27.7	28.4	0.7
Q	62,100	529	1,484	2.2	44.5	44.5	45.5	1.0

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

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

HARRISON COUNTY, MS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: TURKEY 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	7,350	395	3,756	3.6	14.6	12.7[2]	13.4	1.0
B	13,400	91	1,474	9.4	17.5	17.5	18.5	1.0
C	24,200	157	2,230	6.5	24.8	24.8	25.8	1.0
D	32,350	194	2,864	5.1	30.6	30.6	31.6	1.0
E	36,338	195	3,290	4.5	32.0	32.0	33.0	1.0
F	38,500	184	5,704	4.4	34.3	34.3	35.2	0.9
G	43,500	429	8,292	1.7	38.0	38.0	38.4	0.4
H	47,500	362	5,127	3.3	40.5	40.5	41.2	0.7
I	53,000	139	3,187	4.3	45.5	45.5	46.1	0.6
J	61,500	410	4,298	3.2	51.6	51.6	52.3	0.7
K	67,500	438	6,094	2.3	56.5	56.5	57.3	0.8
L	82,050	157	2,338	5.3	69.7	69.7	70.7	1.0

[1] Feet above confluence with Tchoutacabouffa River

[2] Elevation computed without consideration of storm surge effects from Tchoutacabouffa River

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

HARRISON COUNTY, MS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: TUXACHANIE 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	1,853	160	607	3.4	18.5	18.5[2]	19.5	1.0
B	3,804	220	1,298	1.0	25.3	25.3	26.1	0.8
C	5,149	138	542	2.3	26.4	26.4	27.3	0.9
D	6,469	220	466	2.7	30.1	30.1	30.6	0.5
E	8,034	115	354	3.6	34.2	34.2	35.0	0.8
F	9,588	130	513	1.9	39.9	39.9	40.9	1.0
G	10,993	162	430	2.3	47.0	47.0	47.9	0.9

[1] Feet above confluence with Bernard Bayou

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

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

HARRISON COUNTY, MS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: UNNAMED TRIBUTARY 1 TO BERNARD 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	958	52	283	4.1	25.1	23.7[2]	23.9	0.2
B	2,021	67	263	3.9	28.9	28.9	29.2	0.3
C	3,204	70	318	2.6	34.1	34.1	35.1	1.0
D	4,471	68	215	3.3	39.0	39.0	39.6	0.6
E	6,078	53	163	4.1	46.3	46.3	46.5	0.2

[1] Feet above confluence with Unnamed Tributary 1 to Bernard Bayou
[2] Elevation computed without consideration of storm surge effects from Unnamed Tributary 1 to Bernard Bayou

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

HARRISON COUNTY, MS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: UNNAMED TRIBUTARY 1A TO BERNARD 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	4,200	77	1283	4.8	79.5	79.5	80.5	1.0

[1] Feet above confluence with Saucier Creek

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

HARRISON COUNTY, MS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: WEST 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	3,600	3,160	16127	1.7	*	3.6[2]	4.6	1.0
B	9,327	2,928	17213	1.6	*	5.0[2]	5.8	0.8
C	24,749	1,999	15039	1.9	*	8.0[2]	8.5	0.5
D	31,549	1,950	12482	2.2	*	10.7[2]	11.2	0.5
E	38,389	2,200	18595	1.5	*	13.2[2]	13.9	0.7
F	43,855	1,714	11879	2.3	*	14.8[2]	15.8	1.0
G	51,655	1,220	12856	2.2	20.2	18.9[2]	19.6	0.7
H	54,855	1,077	8446	3.3	21.0	20.2[2]	21.0	0.8
I	65,185	1,108	**	**	24.6	24.4[2]	25.4	1.0
J	119,855	196	**	**	51.2	51.2	52.2	1.0

[1] Feet above confluence with Saint Louis Bay

2 Elevation computed without consideration of storm surge effects from Saint Louis Bay

* BFE determined by coastal storm surge flooding

** Floodway data not computed

TABLE 24

FEDERAL EMERGENCY MANAGEMENT AGENCY

HARRISON COUNTY, MS

AND INCORPORATED AREAS

FLOODWAY DATA

FLOODING SOURCE: WOLF CREEK

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 (feet above mouth)	1% Annual Chance Flood Discharge (cfs)	1% Annual Chance Water Surface Elevation (feet NAVD88)	Non-Encroachment Width (feet)	
					Left	Right
Bernard Bayou	U	96,501	916	80.30	55.0	55.0
Bernard Bayou		97,037	916	83.41	27.9	63.6
Bernard Bayou		97,500	916	84.20	55.4	16.3
Bernard Bayou		98,000	916	85.39	90.5	24.5
Bernard Bayou		98,426	916	86.20	65.0	7.0
Bernard Bayou	V	98,795	916	87.34	68.8	17.6
Bernard Bayou Tributary 3		500	2,376	15.18	19.0	19.0
Bernard Bayou Tributary 3		1,000	2,376	16.83	57.2	32.9
Bernard Bayou Tributary 3		1,500	2,376	17.62	125.2	18.2
Bernard Bayou Tributary 3		2,000	2,376	18.71	19.0	11.0
Bernard Bayou Tributary 3		2,201	1,391	20.86	19.0	19.0
Bernard Bayou Tributary 3	Bridge	2,223	1,391	21.26	19.0	19.0
Bernard Bayou Tributary 3	A	2,244	1,391	21.26	19.0	19.0
Bernard Bayou Tributary 3		2,500	1,391	21.70	18.6	18.6
Bernard Bayou Tributary 3		3,000	1,391	22.28	15.2	18.4
Bernard Bayou Tributary 3		3,564	1,391	24.13	12.0	19.0
Bernard Bayou Tributary 3	Bridge	3,610	1,391	25.14	11.0	19.0
Bernard Bayou Tributary 3	B	3,649	1,391	25.14	11.0	19.0
Bernard Bayou Tributary 3		4,000	1,391	27.05	48.2	30.6
Bernard Bayou Tributary 3		4,500	1,391	27.43	18.4	19.9
Bernard Bayou Tributary 3		5,000	1,391	28.67	35.0	18.8
Bernard Bayou Tributary 3	C	5,500	1,391	30.19	40.0	26.0
Bernard Bayou Tributary 3		6,000	1,391	31.21	50.0	100.0
Bernard Bayou Tributary 3		6,500	1,391	31.17	9.1	12.0
Bernard Bayou Tributary 3		7,000	1,391	37.02	13.0	15.0
Bernard Bayou Tributary 3	D	7,500	1,391	38.76	30.0	18.2
Bernard Bayou Tributary 3		8,000	1,140	40.25	48.1	42.7
Bernard Bayou Tributary 3		8,500	1,140	41.20	18.4	18.4
Bernard Bayou Tributary 3		9,000	1,140	42.46	18.5	18.5
Bernard Bayou Tributary 3	E	9,500	1,140	43.57	18.3	18.3
Bernard Bayou Tributary 4	A	500	1,371	23.43	300.0	12.0

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

Flooding Source	Cross Section/ Structure Type	Stream Station (feet above mouth)	1% Annual Chance Flood Discharge (cfs)	1% Annual Chance Water Surface Elevation (feet NAVD88)	Non-Encroachment Width (feet)	
					Left	Right
Bernard Bayou Tributary 4		908	1,371	24.64	36.0	33.0
Bernard Bayou Tributary 4	Bridge	937	1,371	25.23	36.0	33.0
Bernard Bayou Tributary 4	B	962	1,371	25.23	36.0	33.0
Bernard Bayou Tributary 4		1,500	1,371	26.43	60.8	23.7
Bernard Bayou Tributary 4		2,000	1,371	27.23	50.0	15.3
Bernard Bayou Tributary 4		2,500	1,371	28.43	19.4	42.4
Bernard Bayou Tributary 4	C	3,000	1,165	30.00	29.8	12.0
Bernard Bayou Tributary 4		3,500	1,165	31.48	30.5	23.4
Bernard Bayou Tributary 4		4,000	1,165	33.08	51.1	18.1
Bernard Bayou Tributary 4		4,500	1,165	34.87	25.4	41.1
Bernard Bayou Tributary 4	D	5,000	1,165	37.34	25.0	20.0
Bernard Bayou Tributary 4		5,500	1,165	39.15	25.0	42.4
Bernard Bayou Tributary 4		5,991	1,165	40.97	145.0	8.0
Bernard Bayou Tributary 4		6,500	399	45.59	100.0	12.0
Bernard Bayou Tributary 4		6,826	399	45.98	20.0	20.0
Bernard Bayou Tributary 4	Bridge	6,890	399	48.04	25.0	25.0
Bernard Bayou Tributary 4		6,945	399	48.04	25.0	25.0
Bernard Bayou Tributary 4	E	7,123	399	48.47	31.7	75.1
Bernard Bayou Tributary 4		7,469	399	49.72	20.0	20.0
Bernard Bayou Tributary 4	Culvert	7,497	399	52.06	20.0	20.0
Bernard Bayou Tributary 4		7,517	399	52.06	20.0	20.0
Bernard Bayou Tributary 4	F	8,000	399	52.48	46.1	57.8
Bernard Bayou Tributary 4		8,400	399	54.16	25.1	25.0
Bernard Bayou Tributary 4	Culvert	8,437	399	56.73	25.0	25.0
Bernard Bayou Tributary 4		8,476	399	56.73	25.0	25.0
Bernard Bayou Tributary 4	G	9,004	399	57.04	45.8	35.5
Bernard Bayou Tributary 4		9,500	399	59.41	27.4	34.7
Bernard Bayou Tributary 4		10,000	399	62.18	50.0	30.6
Bernard Bayou Tributary 4		10,330	399	63.54	56.5	14.6
Bernard Bayou Tributary 5		500	712	41.98	20.0	20.0
Bernard Bayou Tributary 5		977	712	45.96	40.1	39.9
Bernard Bayou Tributary 5	Culvert	1,005	712	47.80	100.0	1000.0
Bernard Bayou Tributary 5	A	1,031	712	47.80	100.0	1000.0
Bernard Bayou Tributary 5		1,500	712	47.83	10.0	10.0
Bernard Bayou Tributary 5		1,965	712	50.81	161.0	120.0
Bernard Bayou Tributary 5	Bridge	2,000	712	51.20	50.0	60.0

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

Flooding Source	Cross Section/ Structure Type	Stream Station (feet above mouth)	1% Annual Chance Flood Discharge (cfs)	1% Annual Chance Water Surface Elevation (feet NAVD88)	Non-Encroachment Width (feet)	
					Left	Right
Bernard Bayou Tributary 5		2,029	712	51.20	50.0	60.0
Bernard Bayou Tributary 5	B	2,500	712	52.20	40.0	7.5
Bernard Bayou Tributary 5		3,000	712	54.82	7.5	100.0
Bernard Bayou Tributary 5		3,608	712	59.31	31.5	31.5
Bernard Bayou Tributary 5	Culvert	3,663	712	62.69	50.0	50.0
Bernard Bayou Tributary 5		3,724	712	62.69	50.0	50.0
Bernard Bayou Tributary 5		4,000	712	62.82	10.1	43.3
Bernard Bayou Tributary 5	C	4,500	712	64.78	56.4	34.4
Bernard Bayou Tributary 6	A	1,367	589	28.62	16.0	212.4
Bernard Bayou Tributary 6		1,818	589	30.03	104.5	153.3
Bernard Bayou Tributary 6		2,347	589	33.14	121.1	38.4
Bernard Bayou Tributary 6		2,909	589	38.07	42.0	75.6
Bernard Bayou Tributary 6		3,748	589	44.62	42.0	27.4
Bernard Bayou Tributary 6	Culvert	3,800	589	46.51	42.0	27.4
Bernard Bayou Tributary 6	B	3,831	589	46.51	42.0	27.4
Bernard Bayou Tributary 6		4,183	589	49.81	33.0	46.7
Bernard Bayou Tributary 6	Culvert	4,218	589	50.92	33.0	46.7
Bernard Bayou Tributary 6	C	4,259	589	50.92	33.0	46.7
Bernard Bayou Tributary 6	D	4,534	589	51.80	59.1	71.8
Big Creek	B	28,748	5,250	54.80	105.0	645.2
Big Creek		29,128	5,250	54.99	85.4	694.9
Big Creek		29,500	5,250	55.17	51.4	663.0
Big Creek		30,044	5,250	55.53	269.1	242.5
Big Creek	C	30,524	5,250	55.90	571.7	431.5
Big Creek		30,884	5,250	56.14	542.4	243.9
Big Creek		31,544	5,250	56.98	363.4	295.9
Big Creek	D	32,000	5,250	57.56	433.6	237.4
Biloxi River	U	155,127	12,804	85.70	258.0	580.0
Biloxi River		155,386	12,804	85.74	200.0	400.0
Biloxi River		156,333	12,804	86.04	471.9	323.6
Biloxi River		156,500	12,804	86.08	178.8	421.6
Biloxi River		157,099	12,804	86.23	261.3	956.0
Biloxi River	V	157,541	12,804	86.21	41.4	899.9
Biloxi River		158,000	12,804	86.32	220.4	218.4
Biloxi River		158,741	12,804	86.46	391.5	277.1
Biloxi River		158,932	12,804	86.53	296.3	518.4

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

Flooding Source	Cross Section/ Structure Type	Stream Station (feet above mouth)	1% Annual Chance Flood Discharge (cfs)	1% Annual Chance Water Surface Elevation (feet NAVD88)	Non-Encroachment Width (feet)	
					Left	Right
Biloxi River	W	159,284	12,804	86.55	41.3	756.9
Biloxi River		160,089	12,804	86.78	357.3	514.0
Biloxi River		160,500	12,804	86.85	97.3	552.0
Biloxi River		160,955	12,804	86.89	34.0	491.5
Biloxi River	X	161,372	12,804	86.99	104.9	152.4
Biloxi River		162,000	12,804	87.41	73.5	428.9
Biloxi River		162,438	12,804	87.56	609.4	287.5
Biloxi River		162,912	12,804	87.64	406.5	207.8
Biloxi River	Y	163,500	12,804	87.80	128.3	365.2
Biloxi River		164,000	12,804	87.99	224.1	246.2
Biloxi River		164,228	12,804	87.98	113.6	289.3
Biloxi River		165,264	12,804	88.73	426.8	69.2
Biloxi River	Z	165,625	12,804	88.88	337.2	217.4
Biloxi River		165,803	12,804	88.93	390.7	71.2
Biloxi River		166,817	12,804	89.57	88.3	368.4
Biloxi River		167,026	12,804	89.62	36.4	349.7
Biloxi River	AA	167,547	12,804	90.01	125.0	222.9
Biloxi River		167,823	12,804	90.25	300.2	86.3
Biloxi River		168,418	12,804	90.69	40.8	471.2
Biloxi River		169,000	12,804	91.17	188.0	214.1
Biloxi River	AB	169,500	12,804	91.49	82.4	514.4
Biloxi River		169,794	12,804	91.64	77.4	359.1
Biloxi River		170,375	12,804	92.12	60.4	857.6
Biloxi River		170,950	12,804	92.48	304.2	535.8
Biloxi River	Bridge	171,022	12,804	92.81	304.2	535.8
Biloxi River	AC	171,068	12,804	92.81	304.2	535.8
Biloxi River		171,500	12,804	92.98	78.9	509.4
Biloxi River		171,968	12,804	93.39	227.9	401.7
Biloxi River		172,405	12,804	93.61	85.7	708.2
Biloxi River	AD	173,000	12,804	93.76	555.6	126.2
Biloxi River		173,500	12,804	94.23	50.4	454.2
Biloxi River		174,248	12,804	94.93	391.2	135.9
Biloxi River		174,500	12,804	95.22	402.0	585.8
Biloxi River	AE	175,000	12,804	95.26	350.4	215.3
Biloxi River		175,400	12,804	95.52	323.8	147.5
Biloxi River		176,000	12,804	96.06	273.8	505.7

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

Flooding Source	Cross Section/ Structure Type	Stream Station (feet above mouth)	1% Annual Chance Flood Discharge (cfs)	1% Annual Chance Water Surface Elevation (feet NAVD88)	Non-Encroachment Width (feet)	
					Left	Right
Biloxi River		176,369	12,804	96.08	127.5	233.8
Biloxi River	AF	176,741	12,804	96.41	54.5	354.4
Biloxi River		177,500	12,804	96.98	150.0	521.2
Biloxi River		177,978	12,804	97.12	421.9	158.3
Biloxi River		178,403	12,804	97.45	200.0	269.8
Biloxi River		178,646	12,804	97.51	150.0	400.0
Biloxi River	AG	179,216	12,804	98.16	300.0	464.9
Biloxi River		179,500	12,804	98.25	324.3	405.4
Biloxi River		180,000	12,804	98.69	39.3	625.0
Biloxi River		180,500	12,804	99.35	321.3	63.0
Biloxi River	AH	181,000	12,804	100.09	77.6	379.7
Biloxi River		181,500	12,804	100.16	357.9	64.1
Biloxi River		181,971	12,804	100.93	161.3	261.0
Biloxi River		182,646	12,804	101.50	207.0	110.6
Biloxi River	AI	183,000	12,804	101.73	286.6	53.7
Biloxi River		183,500	12,804	102.48	534.8	68.8
Biloxi River		184,093	12,804	102.65	234.2	37.6
Biloxi River		184,712	12,804	103.15	362.3	588.0
Biloxi River	AJ	184,992	12,804	103.25	412.9	436.8
Biloxi River		185,500	12,804	103.40	171.9	697.0
Biloxi River		186,308	12,720	103.78	450.0	91.9
Brickyard Bayou		21,601	1,600	14.50	37.5	37.5
Brickyard Bayou		22,222	1,600	16.61	15.0	15.0
Brickyard Bayou	Culvert	22,322	1,600	16.83	40.0	40.0
Brickyard Bayou	Y	22,456	1,600	16.83	40.0	40.0
Brickyard Bayou		23,000	1,600	16.88	100.0	100.0
Brickyard Bayou		23,337	1,600	17.25	23.1	23.5
Brickyard Bayou	Culvert	23,408	1,600	18.34	23.1	23.5
Brickyard Bayou		23,490	1,600	18.34	23.1	23.5
Brickyard Bayou		23,521	1,600	18.21	25.6	301.9
Brickyard Bayou		23,831	1,600	18.88	138.8	122.6
Brickyard Bayou	Bridge	23,853	1,600	18.99	138.8	122.6
Brickyard Bayou	Z	23,871	1,600	18.99	138.8	122.6
Brickyard Bayou		24,267	1,600	19.07	360.0	78.7
Brickyard Bayou		24,647	1,600	19.15	318.4	73.2
Brickyard Bayou	Culvert	24,682	1,600	19.16	318.4	73.2

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

Flooding Source	Cross Section/ Structure Type	Stream Station (feet above mouth)	1% Annual Chance Flood Discharge (cfs)	1% Annual Chance Water Surface Elevation (feet NAVD88)	Non-Encroachment Width (feet)	
					Left	Right
Brickyard Bayou	AA	24,731	1,600	19.16	318.4	73.2
Brickyard Bayou		24,883	1,600	19.21	266.9	53.4
Brickyard Bayou		25,129	1,600	19.26	422.6	31.7
Brickyard Bayou	Culvert	25,158	1,600	19.31	422.6	31.7
Brickyard Bayou		25,190	1,600	19.31	422.6	31.7
Brickyard Bayou		25,350	1,600	19.32	86.5	65.1
Brickyard Bayou		25,572	1,600	19.40	140.7	130.7
Brickyard Bayou	Culvert	25,596	1,600	19.40	140.7	130.7
Brickyard Bayou		25,621	1,600	19.40	140.7	130.7
Brickyard Bayou		25,780	1,600	19.55	114.9	297.8
Brickyard Bayou		25,982	1,600	19.66	200.0	100.0
Brickyard Bayou	Culvert	26,029	1,600	20.13	200.0	100.0
Brickyard Bayou	AB	26,069	1,600	20.13	200.0	100.0
Brickyard Bayou		26,490	1,600	20.47	21.0	21.0
Brickyard Bayou	AC Culvert	27,502	1,307	20.90	150.0	150.0
Brickyard Bayou		28,504	1,307	20.90	150.0	150.0
Brickyard Bayou		28,621	1,307	20.89	362.5	168.1
Brickyard Bayou		28,853	1,307	21.80	244.6	131.8
Brickyard Bayou	Culvert	28,896	1,307	21.72	244.6	131.8
Brickyard Bayou		28,940	1,307	21.72	244.6	131.8
Brickyard Bayou		29,142	1,307	21.66	665.8	9.5
Brickyard Bayou		29,436	1,307	22.62	782.1	46.8
Brickyard Bayou	Culvert	29,475	1,307	22.68	782.1	46.8
Brickyard Bayou	AD	29,508	1,307	22.68	782.1	46.8
Brickyard Bayou		29,947	1,307	22.97	581.3	154.5
Brickyard Bayou		30,506	1,307	23.14	1103.9	20.0
Brickyard Bayou	Culvert	30,531	1,307	23.14	1103.9	20.0
Brickyard Bayou	AE	30,566	1,307	23.14	1103.9	20.0
Brickyard Bayou		30,939	1,307	23.28	814.5	205.2
Brickyard Bayou		31,288	1,307	23.35	753.9	318.6
Brickyard Bayou	Culvert	31,311	1,307	23.35	753.9	318.6
Brickyard Bayou	AF	31,337	1,307	23.35	753.9	318.6
Brickyard Bayou		31,483	1,307	23.38	597.0	309.1
Brickyard Bayou		31,692	1,307	23.42	671.6	189.9
Brickyard Bayou	Culvert	32,194	1,307	23.44	671.6	189.9
Brickyard Bayou		32,693	1,307	23.44	671.6	189.9

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

Flooding Source	Cross Section/ Structure Type	Stream Station (feet above mouth)	1% Annual Chance Flood Discharge (cfs)	1% Annual Chance Water Surface Elevation (feet NAVD88)	Non-Encroachment Width (feet)	
					Left	Right
Brickyard Bayou		32,715	1,307	23.45	817.6	39.5
Brickyard Bayou	AG	32,743	1,307	23.49	582.4	41.7
Brickyard Bayou	Culvert	32,980	1,307	24.16	582.4	41.7
Brickyard Bayou		33,214	1,307	24.16	582.4	41.7
Brickyard Bayou		33,531	1,307	24.68	696.9	18.5
Brickyard Bayou		33,937	1,307	24.77	20.0	20.0
Brickyard Bayou	Culvert	33,971	1,307	28.26	200.0	100.0
Brickyard Bayou	AH	34,021	1,307	28.26	200.0	100.0
Brickyard Bayou		34,313	1,307	28.27	498.9	39.1
Brickyard Bayou		34,586	1,307	28.39	505.4	124.0
Brickyard Bayou	Culvert	34,628	1,307	28.41	505.4	124.0
Brickyard Bayou		34,679	1,307	28.41	505.4	124.0
Brickyard Bayou		34,797	1,307	28.44	317.1	98.5
Brickyard Bayou		34,987	1,307	28.47	226.2	174.7
Brickyard Bayou	Culvert	35,036	1,307	28.47	226.2	174.7
Brickyard Bayou	AI	35,099	1,307	28.47	226.2	174.7
Brickyard Bayou		35,298	1,307	28.63	350.0	102.4
Brickyard Bayou		35,564	1,307	28.78	222.7	148.8
Brickyard Bayou	Culvert	35,605	1,307	28.78	222.7	148.8
Brickyard Bayou		35,657	1,307	28.78	222.7	148.8
Brickyard Bayou		35,706	1,307	28.65	49.0	49.0
Brickyard Bayou		35,747	1,307	29.39	250.0	150.0
Brickyard Bayou	Culvert	35,788	1,307	29.25	100.0	85.0
Brickyard Bayou		35,840	1,307	29.25	100.0	85.0
Brickyard Bayou		35,975	1,307	29.51	46.2	32.7
Brickyard Bayou		36,122	1,307	29.82	100.0	100.0
Brickyard Bayou	Culvert	36,163	1,307	29.80	100.0	100.0
Brickyard Bayou		36,216	1,307	29.80	100.0	100.0
Brickyard Bayou		36,403	1,307	30.24	50.0	50.0
Crow Creek	B	19,265	2,613	94.87	108.5	47.0
Crow Creek		19,624	2,613	94.93	53.3	83.2
Crow Creek		20,000	2,613	95.05	100.2	23.9
Crow Creek		20,561	2,613	95.18	25.0	56.3
Crow Creek		21,000	2,613	95.61	49.4	45.8
Crow Creek	C	21,427	2,613	95.88	122.9	27.6
Crow Creek		21,708	2,613	96.01	132.0	22.4

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

Flooding Source	Cross Section/ Structure Type	Stream Station (feet above mouth)	1% Annual Chance Flood Discharge (cfs)	1% Annual Chance Water Surface Elevation (feet NAVD88)	Non-Encroachment Width (feet)	
					Left	Right
Crow Creek		22,243	2,382	96.28	26.3	93.0
Crow Creek		22,500	2,382	96.53	106.4	87.0
Crow Creek	D	23,084	2,382	96.99	62.9	92.7
Crow Creek		23,431	2,382	97.49	39.0	59.4
Crow Creek		24,000	2,382	98.88	71.9	31.4
Crow Creek		24,371	2,382	100.44	113.2	9.5
Crow Creek	E	24,676	2,382	101.34	99.1	10.6
Flat Branch		25,629	2,293	53.28	628.1	508.4
Flat Branch		26,205	2,293	53.60	465.1	153.8
Flat Branch		26,802	2,293	54.45	422.9	221.2
Flat Branch	K	27,207	2,254	55.06	430.3	227.3
Flat Branch		27,876	2,254	56.23	314.2	125.1
Flat Branch		28,482	2,254	57.20	213.0	268.5
Flat Branch		28,931	2,254	57.80	64.4	429.3
Flat Branch	L	29,608	2,254	58.72	13.8	442.3
Flat Branch		29,954	2,254	59.31	28.5	431.1
Flat Branch		30,397	1,686	60.12	64.4	145.9
Flat Branch		31,342	1,686	61.70	114.7	183.9
Flat Branch	M	31,950	1,686	62.75	144.7	154.8
Flat Branch		32,882	1,686	64.25	309.1	94.5
Flat Branch		33,420	1,686	65.08	245.2	94.7
Flat Branch	N	33,822	1,686	65.83	319.6	81.9
Flat Branch Tributary 1		398	1,844	20.11	19.3	19.3
Flat Branch Tributary 1		898	1,844	21.88	19.1	19.1
Flat Branch Tributary 1		1,398	1,844	24.63	19.3	19.3
Flat Branch Tributary 1		1,816	1,844	27.35	300.0	100.0
Flat Branch Tributary 1	Bridge	1,833	1,844	28.27	300.0	100.0
Flat Branch Tributary 1	A	1,855	1,844	28.27	300.0	100.0
Flat Branch Tributary 1		2,125	1,844	28.37	150.0	20.5
Flat Branch Tributary 1		2,394	1,844	28.19	14.0	14.1
Flat Branch Tributary 1	Bridge	2,417	1,844	28.56	14.1	14.1
Flat Branch Tributary 1	B	2,441	1,844	28.56	14.1	14.1
Flat Branch Tributary 1		2,898	1,844	29.89	15.6	15.6
Flat Branch Tributary 1		3,398	1,390	31.43	15.0	15.0
Flat Branch Tributary 1		3,898	1,390	31.92	15.0	15.0

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

Flooding Source	Cross Section/ Structure Type	Stream Station (feet above mouth)	1% Annual Chance Flood Discharge (cfs)	1% Annual Chance Water Surface Elevation (feet NAVD88)	Non-Encroachment Width (feet)	
					Left	Right
Flat Branch Tributary 1		4,170	1,390	32.65	20.0	20.0
Flat Branch Tributary 1	Culvert	4,312	1,390	34.01	20.0	20.0
Flat Branch Tributary 1	C	4,460	1,390	34.01	20.0	20.0
Flat Branch Tributary 1		4,898	1,390	35.63	55.0	45.0
Flat Branch Tributary 1		5,362	1,390	38.12	32.0	32.0
Flat Branch Tributary 1	Bridge	5,383	1,390	40.59	40.0	40.0
Flat Branch Tributary 1		5,409	1,390	40.59	40.0	40.0
Flat Branch Tributary 1		5,479	1,390	40.69	60.0	60.0
Flat Branch Tributary 1	D	5,524	1,390	40.12	200.0	100.0
Flat Branch Tributary 1	Culvert	5,542	1,390	42.94	200.0	100.0
Flat Branch Tributary 1		5,560	1,390	42.94	200.0	100.0
Flat Branch Tributary 1		5,898	1,390	43.13	33.7	276.0
Flat Branch Tributary 1		6,398	1,390	43.39	13.7	253.1
Flat Branch Tributary 1		6,992	1,390	43.77	17.5	17.5
Flat Branch Tributary 1	Culvert	7,018	1,390	44.23	50.0	50.0
Flat Branch Tributary 1	E	7,040	1,390	44.23	50.0	50.0
Flat Branch Tributary 1		7,119	1,390	44.29	86.5	202.3
Flat Branch Tributary 1		7,398	1,390	44.32	48.8	53.9
Flat Branch Tributary 1		7,898	1,390	44.91	22.4	20.2
Flat Branch Tributary 1		8,242	1,390	45.60	17.3	19.4
Flat Branch Tributary 1	F	8,398	1,390	45.92	16.8	16.8
Flat Branch Tributary 1		8,745	1,390	46.81	15.6	15.7
Flat Branch Tributary 1		8,993	1,390	48.00	16.2	22.5
Flat Branch Tributary 1		9,398	1,390	50.92	17.3	14.9
Flat Branch Tributary 1	G	9,898	1,390	53.86	15.0	15.1
Flat Branch Tributary 1		10,398	1,390	56.49	65.6	56.1
Flat Branch Tributary 1		10,898	1,390	58.11	14.1	14.2
Flat Branch Tributary 2		500	1,224	50.86	324.4	11.9
Flat Branch Tributary 2		1,000	1,224	52.74	154.8	164.8
Flat Branch Tributary 2	A	1,500	1,224	53.88	284.5	101.6
Flat Branch Tributary 2		2,000	1,224	54.94	144.3	148.7
Flat Branch Tributary 2	B	2,440	1,224	56.08	18.5	277.2
Fritz Creek		25,381	1,895	29.59	38.0	38.0

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

Flooding Source	Cross Section/ Structure Type	Stream Station (feet above mouth)	1% Annual Chance Flood Discharge (cfs)	1% Annual Chance Water Surface Elevation (feet NAVD88)	Non-Encroachment Width (feet)	
					Left	Right
Fritz Creek	Bridge	25,471	1,895	30.45	20.0	20.0
Fritz Creek		25,556	1,895	30.45	20.0	20.0
Fritz Creek		26,000	1,895	31.32	161.7	27.6
Fritz Creek		26,500	1,895	31.91	27.6	134.6
Fritz Creek		27,000	1,895	33.12	103.8	223.3
Fritz Creek	G	27,500	1,895	34.15	15.8	314.1
Fritz Creek		28,000	1,895	35.26	15.8	206.9
Fritz Creek		28,500	1,895	36.38	135.7	178.6
Fritz Creek		29,000	1,895	37.51	168.8	76.7
Fritz Creek	H	29,443	1,895	38.87	62.0	207.5
Fritz Creek		30,000	1,895	40.49	198.3	114.3
Fritz Creek		30,500	1,895	42.14	204.6	19.4
Fritz Creek		31,000	1,386	43.33	67.2	226.9
Fritz Creek	I	31,500	1,386	44.43	58.5	68.6
Fritz Creek		32,000	1,386	46.56	93.6	78.3
Fritz Creek		32,500	1,386	47.85	32.7	106.8
Fritz Creek		33,000	1,386	49.26	37.2	34.3
Fritz Creek		33,500	1,386	51.14	22.0	21.5
Fritz Creek		33,596	1,386	52.01	158.9	20.0
Fritz Creek	Culvert	33,640	1,386	55.91	20.0	158.9
Fritz Creek		33,688	1,386	55.91	20.0	158.9
Fritz Creek		34,000	1,386	56.03	190.7	75.4
Fritz Creek	J	34,500	1,386	56.22	72.7	71.8
Fritz Creek Tributary 1		13,927	408	53.96	136.7	104.9
Fritz Creek Tributary 1	Culvert	13,978	408	53.89	136.7	104.9
Fritz Creek Tributary 1		14,046	408	53.89	136.7	104.9
Fritz Creek Tributary 1		14,192	408	54.42	76.3	20.4
Fritz Creek Tributary 1	Bridge	14,212	408	55.54	76.3	20.4
Fritz Creek Tributary 1		14,234	408	55.54	76.3	20.4
Fritz Creek Tributary 1		14,588	408	56.25	10.5	94.0
Fritz Creek Tributary 1	Culvert	14,641	408	56.18	10.5	94.0
Fritz Creek Tributary 1		14,667	408	56.18	10.5	94.0
Fritz Creek Tributary 1		14,678	408	56.34	8.0	164.5
Fritz Creek Tributary 1	Culvert	14,695	408	56.35	8.0	164.5
Fritz Creek Tributary 1	D	14,719	408	56.35	8.0	164.5
Fritz Creek Tributary 1		14,758	408	56.36	10.0	165.7

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

Flooding Source	Cross Section/ Structure Type	Stream Station (feet above mouth)	1% Annual Chance Flood Discharge (cfs)	1% Annual Chance Water Surface Elevation (feet NAVD88)	Non-Encroachment Width (feet)	
					Left	Right
Fritz Creek Tributary 1	Culvert	14,769	408	56.41	10.0	165.7
Fritz Creek Tributary 1		14,791	408	56.41	10.0	165.7
Fritz Creek Tributary 1		14,856	408	56.43	26.0	37.0
Fritz Creek Tributary 1	Culvert	14,895	408	56.89	26.0	37.0
Fritz Creek Tributary 1		14,932	408	56.89	26.0	37.0
Fritz Creek Tributary 1		15,137	408	57.03	13.5	20.6
Fritz Creek Tributary 1		15,418	408	57.99	12.5	12.5
Fritz Creek Tributary 1	Culvert	15,449	408	60.12	34.6	16.1
Fritz Creek Tributary 1		15,513	408	60.12	34.6	16.1
Fritz Creek Tributary 1	E	15,752	408	60.25	64.5	188.2
Fritz Creek Tributary 2		500	446	39.37	20.0	20.0
Fritz Creek Tributary 2	A	1,000	446	41.73	17.9	17.9
Fritz Creek Tributary 2		1,500	446	43.78	32.8	16.9
Fritz Creek Tributary 2		2,000	446	45.57	17.9	17.9
Fritz Creek Tributary 2		2,500	446	48.00	17.9	17.9
Fritz Creek Tributary 2		2,785	446	49.75	18.5	18.5
Fritz Creek Tributary 2	Culvert	2,845	446	53.39	18.5	18.5
Fritz Creek Tributary 2	B	2,903	446	53.39	18.5	18.5
Fritz Creek Tributary 2		3,000	446	53.44	64.3	25.5
Fritz Creek Tributary 2		3,500	446	53.56	18.4	18.4
Fritz Creek Tributary 2		4,000	446	56.14	18.4	18.4
Fritz Creek Tributary 2	C	4,502	446	57.54	18.4	18.4
Hickory Creek	C	25,369	3,312	121.20	135.0	133.0
Hickory Creek		25,621	3,312	121.27	150.0	575.0
Hickory Creek		26,000	3,312	121.54	152.8	378.3
Hickory Creek		26,356	3,312	121.88	106.3	335.3
Hickory Creek		26,908	3,312	122.63	80.1	458.3
Hickory Creek	D	27,500	3,312	123.70	49.2	452.5
Hickory Creek		28,000	3,312	124.86	142.2	359.8
Hickory Creek		28,500	3,312	126.28	76.9	430.2
Hickory Creek		29,000	3,312	127.47	99.5	356.1
Hickory Creek	E	29,569	3,312	128.31	304.4	246.5
Hog Branch	D	19,236	2,760	79.03	149.7	150.3
Hog Branch		19,500	2,760	79.30	243.2	105.2
Hog Branch		20,122	2,760	80.46	108.6	168.1
Hog Branch		20,500	2,760	82.12	49.7	81.5

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

Flooding Source	Cross Section/ Structure Type	Stream Station (feet above mouth)	1% Annual Chance Flood Discharge (cfs)	1% Annual Chance Water Surface Elevation (feet NAVD88)	Non-Encroachment Width (feet)	
					Left	Right
Hog Branch	E	21,000	1,716	83.65	117.8	184.3
Hog Branch		21,500	1,716	84.28	78.8	114.2
Hog Branch		21,900	1,716	84.89	321.0	101.0
Hog Branch		22,500	1,716	85.69	27.0	289.6
Hog Branch	F	23,000	1,716	87.34	100.1	55.8
Hog Branch		23,500	1,716	88.74	63.5	233.2
Hog Branch		24,000	1,716	89.80	133.2	102.3
Hog Branch		24,500	1,716	91.19	8.8	344.9
Hog Branch	G	25,000	1,716	94.02	28.7	91.2
Hog Branch		25,620	1,716	97.31	204.1	90.3
Hog Branch	H	26,000	1,716	98.14	246.5	47.7
Little Biloxi River		137,120	6,427	118.07	190.0	51.0
Little Biloxi River		137,151	6,427	120.00	66.9	420.9
Little Biloxi River	Bridge	137,238	6,427	125.31	66.9	420.9
Little Biloxi River		137,290	6,427	125.31	66.9	420.9
Little Biloxi River		137,550	6,427	125.38	261.9	647.5
Little Biloxi River		138,000	6,427	125.51	224.9	664.4
Little Biloxi River		138,540	6,427	125.65	199.8	1213.7
Little Biloxi River		139,000	6,427	125.75	39.9	1180.2
Little Biloxi River		139,500	6,427	125.89	131.1	1188.0
Little Biloxi River		140,000	6,427	126.03	176.2	1117.3
Little Biloxi River		140,535	6,427	126.21	181.8	955.9
Little Biloxi River		141,031	6,427	126.41	301.7	922.2
Little Biloxi River		141,653	6,326	126.73	383.3	632.7
Little Biloxi River		142,000	6,326	126.97	493.4	271.5
Little Biloxi River		142,500	6,326	127.50	453.9	270.2
Little Biloxi River		142,844	6,326	127.89	482.3	300.6
Little Biloxi River		143,289	6,326	128.39	747.7	71.1
Little Biloxi River		143,930	6,326	129.09	515.3	139.7
Mill Creek	B	10,689	4,870	104.17	379.9	239.1
Mill Creek		10,901	4,870	104.23	442.9	202.5
Mill Creek		11,369	4,870	104.50	288.7	96.1
Mill Creek		11,592	4,870	104.81	291.5	75.9
Mill Creek		12,000	4,870	105.45	344.1	65.2
Mill Creek	C	12,500	4,870	106.69	122.1	112.6
Mill Creek		13,000	4,870	108.31	105.4	270.5

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

Flooding Source	Cross Section/ Structure Type	Stream Station (feet above mouth)	1% Annual Chance Flood Discharge (cfs)	1% Annual Chance Water Surface Elevation (feet NAVD88)	Non-Encroachment Width (feet)	
					Left	Right
Mill Creek		13,500	4,870	109.34	150.6	396.4
Mill Creek		14,004	4,870	110.74	80.4	231.5
Mill Creek	D	14,738	4,870	114.28	84.4	218.9
Palmer Creek		15,340	3,276	75.99	38.9	200.3
Palmer Creek		15,545	3,276	76.06	54.3	380.5
Palmer Creek		15,746	3,276	76.12	19.6	266.4
Palmer Creek		16,274	3,276	76.45	184.0	62.4
Palmer Creek		16,523	3,276	76.68	129.6	70.7
Palmer Creek		16,848	3,276	77.04	58.2	181.0
Palmer Creek	D	17,203	3,276	77.40	19.0	257.3
Palmer Creek		17,763	2,319	78.44	21.5	210.5
Palmer Creek		18,149	2,319	79.24	67.0	181.2
Palmer Creek		18,465	2,319	79.74	87.1	43.7
Palmer Creek	E	19,000	2,319	81.36	261.8	32.4
Palmer Creek		19,521	2,319	82.98	96.1	147.5
Palmer Creek		20,000	2,319	84.44	43.9	227.5
Palmer Creek		20,293	2,319	85.70	55.7	168.0
Palmer Creek	F	20,691	2,319	87.46	56.4	152.4
Parker Creek		19,799	1,496	75.20	342.0	298.0
Parker Creek		20,216	1,496	75.20	1000.0	869.0
Parker Creek	F	20,913	1,496	75.20	289.5	432.2
Pole Branch	B	10,585	485	61.00	324.4	167.3
Pole Branch		10,737	485	61.00	222.6	108.1
Pole Branch	Bridge	10,779	485	61.03	222.6	108.1
Pole Branch	C	10,829	485	61.03	222.6	108.1
Pole Branch		11,500	485	61.03	480.3	41.6
Pole Branch		12,000	485	61.04	72.4	144.8
Pole Branch	D	12,500	485	61.08	9.5	37.3
Pole Branch		13,000	485	61.31	9.0	9.0
Pole Branch		13,500	485	65.53	9.6	9.6
Pole Branch	E	14,000	485	68.12	9.8	9.8
Sandy Creek	B	22,807	2,731	72.27	69.7	25.5
Sandy Creek		23,099	2,731	72.36	24.5	42.9
Sandy Creek		23,542	2,731	72.66	24.5	98.2
Sandy Creek		24,012	2,731	72.76	25.5	25.5
Sandy Creek	Bridge	24,050	2,731	72.97	25.5	25.5

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

Flooding Source	Cross Section/ Structure Type	Stream Station (feet above mouth)	1% Annual Chance Flood Discharge (cfs)	1% Annual Chance Water Surface Elevation (feet NAVD88)	Non-Encroachment Width (feet)	
					Left	Right
Sandy Creek		24,089	2,731	72.97	25.5	25.5
Sandy Creek	C	24,500	2,731	73.15	25.5	27.5
Sandy Creek		24,988	2,731	73.34	25.5	25.5
Sandy Creek		25,488	2,731	73.64	25.5	25.5
Sandy Creek		26,000	2,731	74.21	25.5	25.5
Sandy Creek	D	26,531	2,731	74.99	25.5	25.5
Saucier Creek		46,703	4,902	92.09	82.2	143.0
Saucier Creek	D	46,912	4,902	91.95	44.3	38.6
Saucier Creek		47,496	4,902	92.93	84.4	43.4
Saucier Creek		48,055	4,902	93.53	35.3	36.3
Saucier Creek		48,389	4,902	94.20	43.7	82.5
Saucier Creek		49,008	3,930	94.79	48.4	96.5
Saucier Creek	E	49,500	3,930	95.10	65.3	98.6
Saucier Creek		50,000	3,930	95.23	33.4	33.4
Saucier Creek		50,538	3,930	96.16	33.4	36.0
Saucier Creek		50,919	3,930	96.88	37.4	49.0
Saucier Creek	F	51,648	3,922	97.85	49.8	45.4
Saucier Creek		52,052	3,922	98.48	108.4	33.3
Saucier Creek		52,497	3,922	99.00	91.7	57.4
Saucier Creek	G	53,000	3,922	99.76	105.9	60.7
Saucier Creek		53,500	3,922	100.14	72.9	33.3
Saucier Creek		54,000	3,922	101.11	33.3	59.9
Saucier Creek		54,309	3,922	101.89	106.4	41.6
Saucier Creek		55,032	3,701	103.08	32.5	81.1
Saucier Creek	H	55,472	3,701	103.55	32.5	54.3
Saucier Creek		56,000	3,701	104.97	64.3	78.2
Saucier Creek		56,500	3,701	105.63	32.5	72.0
Saucier Creek		57,000	3,701	107.42	98.4	72.0
Saucier Creek		57,296	3,701	108.31	61.0	27.5
Saucier Creek	Bridge	57,337	3,701	110.93	100.0	50.0
Saucier Creek	I	57,378	3,701	110.93	100.0	50.0
Tchoutacabouffa River		108,653	13,125	37.20	82.5	82.5
Tchoutacabouffa River		109,016	13,125	38.02	35.9	34.5
Tchoutacabouffa River		109,489	13,125	38.80	34.6	34.5
Tchoutacabouffa River		109,945	13,125	39.47	34.5	34.5
Tchoutacabouffa River		110,435	13,125	40.57	44.4	34.5

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

Flooding Source	Cross Section/ Structure Type	Stream Station (feet above mouth)	1% Annual Chance Flood Discharge (cfs)	1% Annual Chance Water Surface Elevation (feet NAVD88)	Non-Encroachment Width (feet)	
					Left	Right
Tchoutacabouffa River		111,000	13,125	41.54	34.5	74.8
Tchoutacabouffa River		111,535	13,125	42.34	64.4	59.8
Tchoutacabouffa River		111,965	13,125	42.77	86.0	35.2
Tchoutacabouffa River		112,550	13,125	43.46	91.6	57.6
Tchoutacabouffa River		113,009	13,125	44.28	34.5	170.8
Tchoutacabouffa River		113,495	13,125	44.59	34.5	77.8
Tchoutacabouffa River		114,067	13,125	45.18	46.4	34.5
Tchoutacabouffa River		114,600	13,125	45.79	39.8	37.3
Tchoutacabouffa River		115,007	13,125	46.42	77.3	37.0
Tchoutacabouffa River		115,500	13,125	47.09	55.4	158.5
Tchoutacabouffa River		116,027	13,125	47.62	159.4	139.8
Tchoutacabouffa River		116,555	13,125	47.82	125.7	109.1
Tchoutacabouffa River		117,000	13,125	48.06	143.3	49.3
Tchoutacabouffa River		117,399	13,125	48.41	45.4	40.1
Tchoutacabouffa River		117,964	13,125	49.40	34.6	210.8
Tchoutacabouffa River		118,485	13,125	50.07	295.4	46.3
Tchoutacabouffa River		119,000	13,125	50.12	40.6	49.7
Tchoutacabouffa River		119,421	13,125	50.60	32.3	69.5
Tchoutacabouffa River		119,976	13,125	51.15	34.8	37.6
Tchoutacabouffa River		120,500	13,125	52.35	74.0	165.7
Tchoutacabouffa River		120,997	13,125	52.46	32.3	32.3
Tchoutacabouffa River		121,453	13,125	53.74	32.3	182.6
Tchoutacabouffa River		122,008	13,125	54.06	130.0	68.7
Tchoutacabouffa River		122,474	13,125	54.47	32.3	39.1
Tchoutacabouffa River		122,997	13,125	55.25	32.3	32.3
Tchoutacabouffa River		123,531	13,125	56.38	39.8	34.5
Tchoutacabouffa River		124,000	13,125	57.32	134.5	35.6
Tchoutacabouffa River		124,484	13,125	58.10	41.4	203.4
Tchoutacabouffa River		125,134	7,991	59.00	81.6	198.8
Tchoutacabouffa River		125,546	7,991	59.24	89.2	147.1
Tchoutacabouffa River		126,021	7,991	59.84	28.4	109.6
Tchoutacabouffa River		126,369	7,991	60.62	33.6	84.8
Tchoutacabouffa River		126,990	7,991	61.84	269.1	117.9
Tchoutacabouffa River		127,479	7,991	62.05	63.8	96.4
Tchoutacabouffa River		128,032	7,991	62.74	31.0	123.2
Tchoutacabouffa River		128,513	7,991	62.85	35.0	75.4

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

Flooding Source	Cross Section/ Structure Type	Stream Station (feet above mouth)	1% Annual Chance Flood Discharge (cfs)	1% Annual Chance Water Surface Elevation (feet NAVD88)	Non-Encroachment Width (feet)	
					Left	Right
Tchoutacabouffa River		128,938	7,991	63.43	38.9	38.7
Tchoutacabouffa River		129,560	1,764	65.01	19.9	210.7
Tchoutacabouffa River		129,976	1,764	65.36	9.8	178.7
Tchoutacabouffa River		130,516	1,764	66.13	136.4	235.8
Tchoutacabouffa River		130,990	1,764	66.86	36.7	71.3
Tchoutacabouffa River		131,590	1,764	68.59	41.0	89.6
Tchoutacabouffa River		132,000	1,764	69.48	28.8	41.2
Tchoutacabouffa River	V	132,500	1,764	71.63	271.2	9.8
Tchoutacabouffa River		132,967	1,764	72.88	274.1	64.7
Tchoutacabouffa River		133,448	1,764	73.97	290.5	55.9
Tchoutacabouffa River	W	133,939	1,764	74.87	163.1	211.8
Tuxachanie Creek	M	86,639	12,500	71.09	133.0	133.0
Tuxachanie Creek		87,148	12,500	71.82	64.2	189.0
Tuxachanie Creek		87,826	12,500	72.30	350.0	106.5
Tuxachanie Creek	N	88,114	12,500	72.74	500.0	200.0
Tuxachanie Creek		88,561	12,500	72.94	210.6	133.9
Tuxachanie Creek		88,924	12,500	73.64	68.8	170.3
Tuxachanie Creek		89,500	12,500	74.15	111.8	332.4
Tuxachanie Creek	O	89,939	12,500	74.88	295.2	429.3
Tuxachanie Creek		90,346	12,500	74.64	168.0	70.0
Tuxachanie Creek		90,836	12,500	75.21	429.5	157.8
Tuxachanie Creek		91,500	12,500	75.72	91.3	322.6
Tuxachanie Creek		91,827	12,500	75.97	127.4	141.0
Tuxachanie Creek	P	92,582	9,613	76.52	67.2	279.1
Tuxachanie Creek		92,933	9,613	76.67	157.9	67.8
Tuxachanie Creek		93,705	9,613	77.20	508.8	96.0
Tuxachanie Creek		93,960	9,613	77.22	90.2	109.8
Tuxachanie Creek	Bridge	94,073	9,613	78.94	90.2	109.8
Tuxachanie Creek		94,153	9,613	78.94	90.2	109.8
Tuxachanie Creek		94,828	9,613	79.34	325.7	377.6
Tuxachanie Creek	Q	96,470	7,589	79.65	113.3	33.5
Tuxachanie Creek		96,769	7,589	79.71	53.7	124.4
Tuxachanie Creek		97,759	7,589	80.25	392.9	36.7
Tuxachanie Creek	R	98,353	7,589	80.35	248.3	36.7
Tuxachanie Creek		98,720	7,589	80.56	352.1	36.7
Tuxachanie Creek		99,000	7,589	80.68	239.5	36.7

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

Flooding Source	Cross Section/ Structure Type	Stream Station (feet above mouth)	1% Annual Chance Flood Discharge (cfs)	1% Annual Chance Water Surface Elevation (feet NAVD88)	Non-Encroachment Width (feet)	
					Left	Right
Tuxachanie Creek		99,224	7,589	80.71	158.9	36.7
Tuxachanie Creek		99,759	7,589	81.50	306.1	36.7
Tuxachanie Creek	S	100,287	7,589	81.75	377.3	41.4
Tuxachanie Creek		100,903	7,589	82.53	506.0	70.5
Tuxachanie Creek		101,747	7,589	83.21	301.3	209.4
Tuxachanie Creek	T	102,033	7,589	83.35	365.9	36.4
Tuxachanie Creek		102,745	7,589	84.05	344.1	415.8
Tuxachanie Creek		103,034	7,589	84.07	382.9	36.4
Tuxachanie Creek		103,733	7,480	84.90	225.1	331.6
Tuxachanie Creek	U	104,143	7,480	85.15	77.6	488.5
Tuxachanie Creek		104,620	7,480	85.51	131.9	306.4
Tuxachanie Creek		105,518	7,480	86.22	35.9	813.3
Tuxachanie Creek	V	106,052	7,480	86.57	175.0	563.5
Tuxachanie Creek		106,713	7,480	87.12	130.4	505.4
Tuxachanie Creek		107,097	7,480	87.64	82.6	756.7
Tuxachanie Creek		107,500	7,103	88.08	35.9	700.6
Tuxachanie Creek	W	107,914	7,103	88.71	46.0	475.4
Tuxachanie Creek		108,436	7,103	89.26	94.3	468.5
Tuxachanie Creek		108,824	7,103	89.79	228.0	416.8
Tuxachanie Creek		109,473	7,103	90.40	186.7	449.8
Tuxachanie Creek	X	110,000	6,622	90.75	232.9	297.3
Tuxachanie Creek		110,500	6,622	91.05	35.4	573.7
Tuxachanie Creek		111,123	6,622	91.82	196.4	534.5
Tuxachanie Creek		111,501	6,622	92.16	192.8	487.5
Tuxachanie Creek	Y	112,068	6,622	92.65	35.2	820.2
Tuxachanie Creek		112,565	6,622	92.98	35.2	568.1
Tuxachanie Creek		113,000	6,622	93.60	104.6	971.7
Tuxachanie Creek		113,515	6,622	94.04	80.1	970.3
Tuxachanie Creek	Z	114,412	6,622	94.74	627.7	376.6
West Creek	B	8,114	6,110	85.00	50.9	45.8
West Creek		8,552	6,110	85.36	77.3	150.5
West Creek		8,968	6,110	85.52	117.7	39.7
West Creek		9,501	6,110	85.81	95.5	111.7
West Creek		10,080	6,110	86.00	54.8	54.1
West Creek	Bridge	10,116	6,110	86.12	54.8	54.1
West Creek	C	10,160	6,110	86.12	54.8	54.1

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

Flooding Source	Cross Section/ Structure Type	Stream Station (feet above mouth)	1% Annual Chance Flood Discharge (cfs)	1% Annual Chance Water Surface Elevation (feet NAVD88)	Non-Encroachment Width (feet)	
					Left	Right
West Creek		10,526	6,110	86.33	76.1	36.0
West Creek		11,000	6,110	86.68	36.4	105.3
West Creek		11,500	6,110	87.05	42.9	125.4
West Creek	D	12,000	6,110	87.43	81.6	65.9
West Creek		12,451	6,110	87.92	70.6	179.0
West Creek		13,000	6,110	88.16	47.6	37.7
West Creek		13,500	6,110	88.77	81.6	37.7
West Creek		13,739	6,110	88.88	39.0	32.6
West Creek	E	14,051	6,110	89.32	39.0	39.0
West Creek		14,500	6,110	89.93	82.6	48.9
West Creek		14,817	6,110	90.09	46.4	78.4
West Creek		15,116	6,110	90.17	39.0	63.8
West Creek		15,500	6,110	90.65	65.1	78.9
West Creek	F	15,973	6,110	91.01	92.9	169.3
West Creek		16,777	6,110	91.44	94.3	40.2
West Creek		17,000	6,110	91.79	40.2	165.9
West Creek		17,500	6,110	92.29	121.0	45.3
West Creek	G	18,000	6,110	92.92	247.8	40.2
West Creek		18,276	6,110	93.13	224.0	40.2
West Creek		18,944	6,110	93.89	40.2	209.8
West Creek		19,361	6,110	94.40	61.1	155.8
West Creek		19,885	6,110	94.53	41.5	41.5
West Creek	H	20,097	6,110	95.14	123.6	96.4

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 21-26 AE 19-21	Wave Height	SWEL
2	N/A	N/A	VE 21-26 AE 19-21	Wave Height	SWEL
3	N/A	N/A	VE 21-26 AE 18-21	Wave Height	SWEL
4	N/A	N/A	VE 20-25 AE 18-20	Wave Height	SWEL
5	N/A	N/A	VE 21-25 AE 18-21	Wave Height	SWEL
6	N/A	N/A	VE 21-25 AE 18-20	Wave Height	SWEL
7	N/A	N/A	VE 20-24 AE 18-20	Wave Height	SWEL
8	N/A	N/A	VE 20-26 AE 19-20	Wave Height	SWEL
9	N/A	N/A	VE 20-26 AE 18-20	Wave Height	SWEL
10	N/A	N/A	VE 20-26 AE 18-20	Wave Height	SWEL
11	N/A	N/A	VE 20-26 AE 18-20	Wave Height	SWEL
12	N/A	N/A	VE 20-26 AE 18-20	Wave Height	SWEL
13	N/A	N/A	VE 20-27 AE 18-20	Wave Height	SWEL
14	N/A	N/A	VE 20-27 AE 18-20	Wave Height	SWEL
15	N/A	N/A	VE 20-26 AE 18-20	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 20-26 AE 18-20	Wave Height	SWEL
17	N/A	N/A	VE 20-26 AE 18-20	Wave Height	SWEL
18	N/A	N/A	VE 20-26 AE 17-20	Wave Height	SWEL
19	N/A	N/A	VE 20-26 AE 17-20	Wave Height	SWEL
20	N/A	N/A	VE 20-26 AE 17-20	Wave Height	SWEL
21	N/A	N/A	VE 20-26 AE 17-20	Wave Height	SWEL
22	N/A	N/A	VE 20-26 AE 17-20	Wave Height	SWEL
23	N/A	N/A	VE 20-26 AE 18-20	Wave Height	SWEL
24	N/A	N/A	VE 20-26 AE 18-20	Wave Height	SWEL
25	N/A	N/A	VE 20-26 AE 18-20	Wave Height	SWEL
26	N/A	N/A	VE 20-25 AE 18-20	Wave Height	SWEL
27	N/A	N/A	VE 20-26 AE 18-20	Wave Height	SWEL
28	N/A	N/A	VE 20-26 AE 18-20	Wave Height	SWEL
29	N/A	N/A	VE 20-26 AE 18-20	Wave Height	SWEL
30	N/A	N/A	VE 20-26 AE 18-20	Wave Height	SWEL
31	N/A	N/A	VE 20-25 AE 18-20	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 20-25 AE 18-20	Wave Height	SWEL
33	N/A	N/A	VE 20-25 AE 18-20	Wave Height	SWEL
34	N/A	N/A	VE 20-25 AE 18-20	Wave Height	SWEL
35	N/A	N/A	VE 20-25 AE 18-20	Wave Height	SWEL
36	N/A	N/A	VE 20-27 AE 18-20	Wave Height	SWEL
37	N/A	N/A	VE 20-25 AE 18-20	Wave Height	SWEL
38	N/A	N/A	VE 20-27 AE 14-20	Wave Height	SWEL
39	N/A	N/A	VE 20-25 AE 14-20	Wave Height	SWEL
40	N/A	N/A	VE 20-26 AE 12-20	Wave Height	SWEL
41	N/A	N/A	VE 20-26 AE 14-20	Wave Height	SWEL
42	N/A	N/A	VE 20-26 AE 14-20	Wave Height	SWEL
43	N/A	N/A	VE 20-26 AE 14-20	Wave Height	SWEL
44	N/A	N/A	VE 20-25 AE 14-20	Wave Height	SWEL
45	N/A	N/A	VE 20-26 AE 14-20	Wave Height	SWEL
46	N/A	N/A	VE 20-25 AE 15-20	Wave Height	SWEL
47	N/A	N/A	VE 20-25 AE 14-20	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 20-25 AE 15-20	Wave Height	SWEL
49	N/A	N/A	VE 17-25 AE 15-17	Wave Height	SWEL
50	N/A	N/A	VE 20-25 AE 15-20	Wave Height	SWEL
51	N/A	N/A	VE 17-25 AE 15-17	Wave Height	SWEL
52	N/A	N/A	VE 17-24 AE 15-17	Wave Height	SWEL
53	N/A	N/A	VE 17-24 AE 15-17	Wave Height	SWEL
54	N/A	N/A	VE 17-24 AE 14-17	Wave Height	SWEL
55	N/A	N/A	VE 17-24 AE 14-17	Wave Height	SWEL
56	N/A	N/A	VE 18-24 AE 16-18	Wave Height	SWEL
57	N/A	N/A	VE 18-24 AE 16-18	Wave Height	SWEL
58	N/A	N/A	VE 18-24 AE 16-18	Wave Height	SWEL
59	N/A	N/A	VE 18-24 AE 16-18	Wave Height	SWEL
60	N/A	N/A	VE 18-23 AE 16-18	Wave Height	SWEL
61	N/A	N/A	VE 18-23 AE 16-18	Wave Height	SWEL
62	N/A	N/A	VE 19-24 AE 17-19	Wave Height	SWEL
63	N/A	N/A	VE 19-24 AE 17-19	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)		
64	N/A	N/A	VE 19-23 AE 17-19	Wave Height	SWEL
65	N/A	N/A	VE 19-23 AE 17-19	Wave Height	SWEL
66	N/A	N/A	VE 19-23 AE 17-19	Wave Height	SWEL
67	N/A	N/A	VE 19-21 AE 17-19	Wave Height	SWEL
68	N/A	N/A	VE 19-20 AE 17-19	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 Harrison County FIRM are listed in Table 27.

Table 27: Incorporated Letters of Map Change

Case Number	Effective Date	Flooding Source	FIRM Panel(s)
99-04-309P	02/13/2001	Brickyard Bayou	28047C0264G
00-04-095P	04/18/2001	Flat Branch Bernard Bayou	28047C0255H
15-04-4242P	01/15/2016	Turkey Creek	28047C0262H

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 Harrison 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 Harrison County FIRMs in countywide format was 06/16/2009.

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)
Biloxi, City of	06/27/1970	06/27/1970	N/A	06/30/1970	TBD 06/18/2009 03/18/1987 03/15/1984 08/08/1980 04/16/1976 07/01/1974
D'Iberville, City of[1]	09/18/1970	09/18/1970	07/17/1974	06/15/1978	06/18/2009 10/04/2002 06/15/1984 10/01/1983 06/20/1980
Gulfport, City of	05/26/1970	05/26/1970	N/A	05/26/1970	TBD 06/18/2009 10/04/2002 07/04/1988 11/16/1983 02/20/1976 07/01/1974
Harrison County Unincorporated Areas	09/18/1970	09/18/1970	07/17/1974	06/15/1978	TBD 06/18/2009 10/04/2002 08/18/1992 08/04/1988 06/15/1984 10/01/1983 06/20/1980
Long Beach, City of	07/17/1970	07/17/1970	N/A	06/19/1970	06/18/2009 05/04/1988 11/16/1983 10/17/1975 07/01/1974
Pass Christian, City of	05/26/1970	05/26/1970	N/A	05/26/1970	06/18/2009 08/19/1987 11/16/1983 10/17/1975 07/01/1974

[1] Dates for this community were taken from Harrison County, Unincorporated Areas

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 continued

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	06/16/2009	State of Mississippi	EMA-2003-GR-5370	September 2007	Harrison County and Incorporated Areas
Baymond Branch	TBD	AECOM	14-04-0025S	July 2014	Harrison County Unincorporated Areas
Beaver Dam Branch	TBD	AECOM	14-04-0025S	July 2014	Harrison County Unincorporated Areas
Bernard Bayou	07/04/1988	Gee & Jenson Engineers, Architects, Planners, Inc.	EMW-C-0159	August 1985	Gulfport, City of
Bernard Bayou	10/04/2002	Jones & Carter, Inc.	See LOMR Case No. 00-04-0095P Effective date 04/18/2001	December 2000	Gulfport, City of; Harrison County Unincorporated Areas
Bernard Bayou	08/04/1988	Gee & Jenson Engineers, Architects, Planners, Inc.	EMW-C-0159	March 1985	Gulfport, City of; Harrison County Unincorporated Areas
Bernard Bayou	06/16/2009	State of Mississippi	EMA-2003-GR-5370	September 2007	Harrison County Unincorporated Areas
Bernard Bayou Tributary 3	06/16/2009	State of Mississippi	EMA-2003-GR-5370	September 2007	Gulfport, City of; Harrison County Unincorporated Areas
Bernard Bayou Tributary 4	06/16/2009	State of Mississippi	EMA-2003-GR-5370	September 2007	Gulfport, City of; Harrison County Unincorporated Areas
Bernard Bayou Tributary 5	06/16/2009	State of Mississippi	EMA-2003-GR-5370	September 2007	Gulfport, City of; Harrison County Unincorporated Areas
Bernard Bayou Tributary 6	06/16/2009	State of Mississippi	EMA-2003-GR-5370	September 2007	Harrison 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
Big Creek	08/04/1988	Gee & Jenson Engineers, Architects, Planners, Inc.	EMW-C-0159	March 1985	Harrison County Unincorporated Areas
Big Creek	06/16/2009	State of Mississippi	EMA-2003-GR-5370	September 2007	Harrison County Unincorporated Areas
Biloxi River	08/04/1988	Gee & Jenson Engineers, Architects, Planners, Inc.	EMW-C-0159	March 1985	Gulfport, City of; Biloxoi, City of; Harrison County Unincorporated Areas
Biloxi River	06/16/2009	State of Mississippi	EMA-2003-GR-5370	September 2007	Harrison County Unincorporated Areas
Biloxi River Tributary 1	TBD	AECOM	14-04-0025S	July 2014	Bixloxi, City of
Brickyard Bayou	10/04/2002	URS Greiner Woodward Clyde	See LOMR Case No. 99-04-309P Effective date 02/13/2001	August 17, 2000	Gulfport, City of
Brickyard Bayou	06/16/2009	State of Mississippi	EMA-2003-GR-5370	September 2007	Gulfport, City of
Canal No.1	08/19/1987	Gee & Jenson Engineers, Architects, Planners, Inc.	EMW-C-0159	March 1985	Pass Christian, City of
Canal No.1	08/04/1988	Gee & Jenson Engineers, Architects, Planners, Inc.	EMW-C-0159	March 1985	Harrison County Unincorporated Areas
Canal No.1	05/04/1988	Gee & Jenson Engineers, Architects, Planners, Inc.	EMW-C-0159	March 1985	Long Beach, City of
Canal No.1	07/04/1988	Gee & Jenson Engineers, Architects, Planners, Inc.	EMW-C-0159	August 1985	Harrison County Unincorporated Areas
Canal No.3	08/04/1988	Gee & Jenson Engineers, Architects, Planners, Inc.	EMW-C-0159	March 1985	Harrison 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
Canal No.3	05/04/1988	Gee & Jenson Engineers, Architects, Planners, Inc.	EMW-C-0159	March 1985	Long Beach, City of
Choctaw Creek	08/04/1988	Gee & Jenson Engineers, Architects, Planners, Inc.	EMW-C-0159	March 1985	Harrison County Unincorporated Areas
Crow Creek	08/04/1988	Gee & Jenson Engineers, Architects, Planners, Inc.	EMW-C-0159	March 1985	Harrison County Unincorporated Areas
Crow Creek	06/16/2009	State of Mississippi	EMA-2003-GR-5370	September 2007	Harrison County Unincorporated Areas
Cypress Creek	08/04/1988	Gee & Jenson Engineers, Architects, Planners, Inc.	EMW-C-0159	March 1985	D'Iberville, City of
Flat Branch	10/04/2002	Jones & Carter, Inc.	See LOMR Case No. 00-04-0095P Effective date 04/18/2001	December 2000	Gulfport, City of
Flat Branch	TBD	AECOM	14-04-0025S	July 2014	Gulfport, City of
Flat Branch	06/16/2009	State of Mississippi	EMA-2003-GR-5370	September 2007	Gulfport, City of
Flat Branch	06/16/2009	State of Mississippi	EMA-2003-GR-5370	September 2007	Gulfport, City of; Harrison County Unincorporated Areas
Flat Branch Split West	TBD	AECOM	14-04-0025S	July 2014	Gulfport, City of
Flat Branch Tributary 1	06/16/2009	State of Mississippi	EMA-2003-GR-5370	September 2007	Gulfport, City of
Flat Branch Tributary 2	06/16/2009	State of Mississippi	EMA-2003-GR-5370	September 2007	Gulfport, City of
Fritz Creek	07/04/1988	Gee & Jenson Engineers, Architects, Planners, Inc.	EMW-C-0159	August 1985	Gulfport, City of

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

Flooding Source	FIS Report Dated	Contractor	Number	Work Completed Date	Affected Communities
Fritz Creek	07/04/1988	Gee & Jenson Engineers, Architects, Planners, Inc.	EMW-C-0159	August 1985	Gulfport, City of
Fritz Creek	06/16/2009	State of Mississippi	EMA-2003-GR-5370	September 2007	Gulfport, City of
Fritz Creek Tributary 1	07/04/1988	Gee & Jenson Engineers, Architects, Planners, Inc.	EMW-C-0159	August 1985	Gulfport, City of
Fritz Creek Tributary 1	06/16/2009	State of Mississippi	EMA-2003-GR-5370	September 2007	Gulfport, City of
Fritz Creek Tributary 1	06/16/2009	State of Mississippi	EMA-2003-GR-5370	September 2007	Gulfport, City of
Fritz Creek Tributary 2	06/16/2009	State of Mississippi	EMA-2003-GR-5370	September 2007	Gulfport, City of; Harrison County Unincorporated Areas
Gulf of Mexico	06/16/2009	State of Mississippi	EMA-2003-GR-5370	September 2007	Harrison County Incorporated Areas
Hickory Creek	08/04/1988	Gee & Jenson Engineers, Architects, Planners, Inc.	EMW-C-0159	March 1985	Harrison County Unincorporated Areas
Hickory Creek	06/16/2009	State of Mississippi	EMA-2003-GR-5370	September 2007	Harrison County Unincorporated Areas
Hog Branch	06/16/2009	State of Mississippi	EMA-2003-GR-5370	September 2007	Harrison County Unincorporated Areas
Hog Branch	08/04/1988	Gee & Jenson Engineers, Architects, Planners, Inc.	EMW-C-0159	March 1985	Harrison County Unincorporated Areas
Hog Branch	06/16/2009	State of Mississippi	EMA-2003-GR-5370	September 2007	Harrison County Unincorporated Areas
Howard Creek	08/04/1988	Gee & Jenson Engineers, Architects, Planners, Inc.	EMW-C-0159	March 1985	Biloxi, City of; Harrison County Unincorporated Areas
Hurricane Creek	TBD	AECOM	14-04-0025S	July 2014	Harrison 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
Little Biloxi River	08/04/1988	Gee & Jenson Engineers, Architects, Planners, Inc.	EMW-C-0159	March 1985	Harrison County Unincorporated Areas
Little Biloxi River	06/16/2009	State of Mississippi	EMA-2003-GR-5370	September 2007	Harrison County Unincorporated Areas
Mill Creek	08/04/1988	Gee & Jenson Engineers, Architects, Planners, Inc.	EMW-C-0159	March 1985	Harrison County Unincorporated Areas
Mill Creek	06/16/2009	State of Mississippi	EMA-2003-GR-5370	September 2007	Harrison County Unincorporated Areas
Palmer Creek	08/04/1988	Gee & Jenson Engineers, Architects, Planners, Inc.	EMW-C-0159	March 1985	Harrison County Unincorporated Areas
Palmer Creek	06/16/2009	State of Mississippi	EMA-2003-GR-5370	September 2007	Harrison County Unincorporated Areas
Parker Creek	08/04/1988	Gee & Jenson Engineers, Architects, Planners, Inc.	EMW-C-0159	March 1985	Biloxi, City of; Harrison County Unincorporated Areas
Parker Creek	06/16/2009	State of Mississippi	EMA-2003-GR-5370	September 2007	Harrison County Unincorporated Areas
Pole Branch	08/04/1988	Gee & Jenson Engineers, Architects, Planners, Inc.	EMW-C-0159	March 1985	Harrison County Unincorporated Areas
Pole Branch	06/16/2009	State of Mississippi	EMA-2003-GR-5370	September 2007	Harrison County Unincorporated Areas
Rattlesnake Branch	TBD	AECOM	14-04-0025S	July 2014	Harrison County Unincorporated Areas
Sandy Creek	08/04/1988	Gee & Jenson Engineers, Architects, Planners, Inc.	EMW-C-0159	March 1985	Harrison 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
Sandy Creek	06/16/2009	State of Mississippi	EMA-2003-GR-5370	September 2007	Harrison County Unincorporated Areas
Saucier Creek	08/04/1988	Gee & Jenson Engineers, Architects, Planners, Inc.	EMW-C-0159	March 1985	Harrison County Unincorporated Areas
Saucier Creek	06/16/2009	State of Mississippi	EMA-2003-GR-5370	September 2007	Harrison County Unincorporated Areas
Tchoutacabouffa River	08/04/1988	Gee & Jenson Engineers, Architects, Planners, Inc.	EMW-C-0159	March 1985	Biloxi, City of; D'Iberville, City of; Harrison County Unincorporated Areas
Tchoutacabouffa River	06/16/2009	State of Mississippi	EMA-2003-GR-5370	September 2007	Harrison County Unincorporated Areas
Turkey Creek	07/04/1988	Gee & Jenson Engineers, Architects, Planners, Inc.	EMW-C-0159	August 1985	Gulfport, City of;Harrison County Unincorporated Areas
Turkey Creek	08/04/1988	Gee & Jenson Engineers, Architects, Planners, Inc.	EMW-C-0159	March 1985	Harrison County Unincorporated Areas
Tuxachanie Creek	08/04/1988	Gee & Jenson Engineers, Architects, Planners, Inc.	EMW-C-0159	March 1985	D'Iberville, City of; Harrison County Unincorporated Areas
Tuxachanie Creek	06/16/2009	State of Mississippi	EMA-2003-GR-5370	September 2007	Harrison County Unincorporated Areas
Tuxachanie Creek	06/16/2009	State of Mississippi	EMA-2003-GR-5370	September 2007	Harrison County Unincorporated Areas
Tuxachanie Creek	TBD	AECOM	14-04-0025S	July 2014	Harrison County Unincorporated Areas
Unnamed Tributary 1 to Bernard Bayou	TBD	AECOM	14-04-0025S	July 2014	Gulfport, City of

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

Flooding Source	FIS Report Dated	Contractor	Number	Work Completed Date	Affected Communities
Unnamed Tributary 1A to Bernard Bayou	TBD	AECOM	14-04-0025S	July 2014	Gulfport, City of
West Creek	08/04/1988	Gee & Jenson Engineers, Architects, Planners, Inc.	EMW-C-0159	March 1985	Harrison County Unincorporated Areas
West Creek	06/16/2009	State of Mississippi	EMA-2003-GR-5370	September 2007	Harrison County Unincorporated Areas
West Creek	TBD	AECOM	14-04-0025S	July 2014	Harrison County Unincorporated Areas
Wolf River	08/04/1988	Gee & Jenson Engineers, Architects, Planners, Inc.	EMW-C-0159	March 1985	Harrison 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
Biloxi, City of	03/18/1987	06/19/1979	Initial CCO	FEMA, City of Biloxi, and the Gee & Jensen Engineers, Architects, Planers, Inc.
		03/07/1986	Final CCO	
Harrison 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	*
Harrison County and Incorporated Areas	06/16/2009	06/11/2004	Pre-Scoping	FEMA, MDEQ, MEMA, Harrison County and the incorporated communities within Harrison County, MGI, DH POA, and the study contractor
		08/24/2004	Scoping	
		*	Final CCO	
Harrison County Unincorporated Areas	10/04/2002	*	Initial CCO	*
		09/14/2001	Notified by Letter	N/A
	07/04/1988	*	Initial CCO	FEMA, Harrison County, and the study contractor
		09/16/1987	Final CCO	
Gulfport, City of	10/04/2002	*	Initial CCO	*
		04/16/2001	Notified by Letter	N/A
	07/04/1988	*	Initial CCO	FEMA, City of Gulfport, and Gee & Jensen Engineers, Architects, Planers, Inc.
		07/07/1987	Final CCO	
Long Beach, City of	05/04/1988	*	Initial CCO	*
		07/08/1986	Final CCO	FEMA, City of Long Beach, and Gee & Jensen Engineers, Architects, Planers, Inc.
Pass Christian, City of	08/19/1987	06/19/1979	Initial CCO	FEMA, City of Pass Christian, and Gee & Jensen Engineers, Architects, Planers, Inc. contractor
		*	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.

Table 31 is a list of the locations where FIRMs for Harrison 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
Biloxi, City of	Community Development Building 676 Dr. Martin Luther King Boulevard	Biloxi	MS	39533
D'Iberville, City of	City Hall 10383 Automall Parkway	D'Iberville	MS	39540
Gulfport, City of	William K. Hardy Building 1410 24th Avanue	Gulfport	MS	39501
Harrison County Unincorporated Areas	Harriscon County Code Administration 15309 Community Road	Gulfport	MS	39503
Long Beach, City of	City Hall 201 Jeff Davis Avenue	Long Beach	MS	39560
Pass Christian, City of	City Hall 200 West Scenic Drive	Pass Christian	MS	39571

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 1987	Federal Emergency Management Agency	*Flood Insurance Study, City of Biloxi, Harrison County, Mississippi*		Washington, D.C.	March 18, 1987	
FIS 1988	Federal Emergency Management Agency	*Flood Insurance Study, City of Long Beach, Harrison County, Mississippi*		Washington, D.C.	May 4, 1988	
FIS 1989	Federal Emergency Management Agency	*Flood Insurance Study, City of Pass Christian, Harrison County, Mississippi*		Washington, D.C.	August 19, 1987	
FIS 2002	Federal Emergency Management Agency	*Flood Insurance Study, City of Gulfport, Harrison County, Mississippi*		Washington, D.C.	October 4, 2002	
FIS 2002	Federal Emergency Management Agency	*Flood Insurance Study, Harrison County, Unincorporated Areas, Mississippi*		Washington, D.C.	October 4, 2002	
FIS 2009	Federal Emergency Management Agency	*Flood Insurance Study, Harrison County and Incorporated Areas, Mississippi*			June 16, 2009	
FIS 2009	Federal Emergency Management Agency	*Flood Insurance Study, Jackson County and Incorporated Areas, Mississippi*			March 16, 2009	
UASCE	U.S. Army Corps of Engineers, Mobile District	*After Action Report Supplement No. 1 Hurricane Camille 17-18 August 1969*			June 1971	
AMS	American Meteorological Society	Early American Hurricanes 1491-1870	David M. Ludlum		1963	

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
UASCE	U.S. Army Corps of Engineers, Mobile District	*Hurricane Betsy 8-11 September 1965*			October 1967	
UASCE	U.S. Army Corps of Engineers, Mobile District	*Hurricane Frederic, 30 August – 14 September 1979, Post Disaster Report*			February 1981	
NOAA	U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Weather Service	*Memorable Hurricanes of the United States Since 1873*			April 1971	
UASCE	U.S. Army Corps of Engineers	*New Orleans District, Hurricane Betsy 8-11 September 1965 After Action Report*			July 1966	
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	
USGS	U.S. Department of the Interior, Geological Survey	*Flood Characteristics of Mississippi Streams, Water-Resources Investigations Report 91-4037*		Jackson, MS	1991	
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	

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 Prepared in coordination with the Mississippi State Highway Department	*Floods in Mississippi, Magnitude and Frequency*	K.V. Wilson and I.L. Trotter Jr.		1961	
SFH Report 1977	U.S. Army Corps of Engineers, Mobile District, Prepared for Gulf Regional Planning Commission	*Special Flood Hazard Information Report – Biloxi River, Harrison County, Mississippi.*			January 1977	
SCS	U. S. Department of Agriculture, Soil Conservation Service	*Surveyed Cross-section Data for Canal No. 1 Channel Reach Upstream of Beatline Road*	Bay Springs, Mississippi		1984	
SCS	U. S. Department of Agriculture, Soil Conservation Service	*Surveyed Cross-section Data for Canal No. 3 Channel Reach Upstream of Menge Road*	Bay Springs, Mississippi		1983	
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 1984	U.S. Army Corps of Engineers, Hydrologic Engineering Center	*HEC-2 Water-Surface Profiles, Generalized Computer Program*		Davis, CA	April 1984	
HEC-2 1991	U.S. Army Corps of Engineers, Hydrologic Engineering Center	*HEC-2, 4.6.2, Water-Surface Profiles, Generalized Computer Program*		Davis, CA	1991	
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	

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
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	
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	
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	
USACE	U. S. Army Corps of Engineers	*Guidelines for Identifying Coastal High Hazard Zones*	Galveston District Corps of Engineers		June 1975	
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	
STAN	Stanford University	*Probability Distribution for Texas Gulf Coast Hurricane Effects of Engineering Interest. Ph.D. Thesis*	Russell, L. R.	Stanford University	1968	

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	
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	
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	