FEMA

STATE OF MISSISSIPPI
DEPARTMENT OF ENVIRONMENTAL QUALITY
OFFICE OF GEOLOGY
COOPERATING TECHNICAL PARTNERS
MAPPING ACTIVITY STATEMENT

Mapping Activity Statement No. FY06.04 – Digital Flood Insurance Rate Map Production and Development of Updated Flood Data

In accordance with the Cooperating Technical Partners (CTP) Partnership Agreement dated January 28, 2003 between the State of Mississippi and the Federal Emergency Management Agency (FEMA), Mapping Activity Statement (MAS) No. 4 is as follows:

SECTION 1—OBJECTIVE AND SCOPE

The objective of the Flood Map Project documented in this MAS is to develop a Digital Flood Insurance Rate Map (DFIRM) and Flood Insurance Study (FIS) report for the coastal areas of Hancock, Harrison, and Jackson Counties, Mississippi. The original countywide projects for these counties are being completed under MAS Nos. 1 and 2. The primary purpose of this MAS No. 4 is to incorporate the results of new coastal flood studies developed by FEMA and its HMTAP Contractor as a result of Hurricane Katrina for Hancock, Harrison, and Jackson Counties. The results of these new studies will be incorporated into new DFIRM and FIS data under the scope of this MAS and combined with like data completed in the riverine areas of these three counties under MAS Nos. 1 and 2. In general, the activities authorized in this MAS pertain to one or both of the following conditions:

1. merging of riverine areas studied and mapped under another MAS with newly studied and mapped coastal areas provided by FEMA's HMTAP contractor; and

2. preparation of DFIRM products for newly mapped coastal areas provided by FEMA's HMTAP contractor.

The DFIRM and FIS report will be produced in the FEMA Countywide format. The DFIRM product will be referenced to the North American Vertical Datum of 1988 (NAVD 88). The horizontal projection will be Mississippi State Plane Coordinate System, NAD 83.

This Flood Map Project will be completed by the following Mapping Partners:

- Mississippi Department of Environmental Quality, Office of Geology (MDEQ);
- Mississippi Emergency Management Agency (MEMA);
- Federal Emergency Management Agency, Region 4 (FEMA);
- Mississippi Geographic Information, LLC (MGI), the State's contractor;
- URS, the FEMA Region 4 HMTAP Contractor; and

- Baker, the FEMA NSP.

The Mapping Partner shall notify FEMA and/or its contractor by e-mail of all meetings with community officials at least one week prior to the meeting (with as much notice as possible). FEMA and/or its contractor may or may not attend the community meetings.

The activities for this Flood Map Project, including required Quality Assurance/Quality Control (QA/QC) reviews, and the Mapping Partners that will complete them are summarized in Table 1.2, Flood Mapping Project Activities. The sections of this MAS that follow the table below describe the specific mapping activities, responsible Mapping Partner(s), FEMA standards that must be met, and resultant map components.

Table 1.2 Flood Mapping Project Activities

Activities	CTP	FEMA (or its Contractor)
Outreach	x	x
Floodplain Mapping - Includes only tie-in of riverine areas produced under another MAS with newly mapped coastal areas produced by FEMA's HMTAP contractor.	x	
Independent QA/QC Review of Floodplain Mapping - Includes tie-in areas as described in the "Floodplain Mapping" activity.	x	x
Develop DFIRM Database (including Graphic Specifications) for tie-in and coastal areas only	x	
Independent QA/QC Review of DFIRM Database and Graphics for tie-in and coastal areas only	x	x
Produce Preliminary Map Products for tie-in and coastal areas only	x	
Post-Preliminary Processing	x	x

To reiterate, the coastal flood hazard analysis and the subsequent coastal floodplain mapping for Hancock, Harrison, and Jackson Counties will be provided by FEMA's HMTAP contractor to the CTP and/or the CTP's contractor for the incorporation of the preliminary DFIRM products.

FEMA has developed tools to assist in the development of the flood hazard data studies and DFIRMs if the CTP wishes to use them. FEMA will provide all CTPs access to and training in these tools. The tools available at this time include WISE software and the DFIRM production tools. The use of these tools will improve the Flood Map Modernization and efficiency of all mapping partners.

QA/QC review activities may be performed by the CTP or FEMA's contractor at the discretion of FEMA. If the CTP will be utilizing its contractor to do the QA/QC review, this should be identified during scoping. The CTP will need to submit its QA/QC plan with checklist to the Regional Project Officer for approval. Please note FEMA will also be performing periodic audits and overall study/project management to ensure study quality.

FEMA will be providing download/upload capability for intermediate data submittals through the MIP. Data submittals uploaded via the MIP will include the same data required prior to the existence of the MIP, with the addition of Metadata profiles required for search and retrieve capabilities. A Federal Geographic Data Committee (FGDC) adopted metadata profile, Content Standard for Digital Geospatial Metadata (CSDGM), must accompany the uploaded digital data in order to facilitate proper cataloging of the data for search and retrieve capabilities within the MIP. The metadata profile should be obtained from FEMA or its contractor to assure compliance.

Metadata profiles are to be included with each of the following four activities that must satisfy Data Capture Standards; Base Map Data, Topographic Data, Hydrologic Data, and Hydraulic Data. The metadata profiles are available from FEMA.

OUTREACH

The Outreach activity included in this MAS includes meetings and other outreach support by MDEQ's mapping contractor specifically related to preparation and distribution of the new coastal DFIRMs for Jackson, Harrison, and Hancock Counties. The outreach covered under this scope includes two separate outreach events on the Gulf Coast, 3 days each (1 meeting-day per county for each of 2 separate events), and includes 3 members of the contractor's team.

All communication with local governments will be done in accordance with 44 CFR Part 66; however, outreach activities associated with scoping and post-preliminary processing, as well as flood mapping activities experienced on more typical full-length projects are covered under another MAS.

Upon completion of the preliminary DFIRM products, MDEQ will post the preliminary DFIRM panels, in portable document format (pdf), for Hancock, Harrison, and Jackson counties on Mississippi's Map Mod website at **http://geology.deq.ms.gov/floodmaps**. (This website was developed and funded independently of the present MAS, through a grant from the MMMS program to MDEQ, with the intention of using that site to support to Mississippi's DFIRM program.)

The CTP shall provide to FEMA's project officer written reports of all outreach events associated with this MAS, to be incorporated into the overall outreach approach and reporting for the countywide projects funded under MAS Nos. 1 and 2, for Jackson, Harrison, and Hancock Counties.

Floodplain Mapping

Responsible Mapping Partner: MDEQ

The extent of the Floodplain Mapping activity includes merging the tie-in areas in Jackson, Harrison, and Hancock Counties, as described hereafter. Floodplain mapping of riverine areas in those counties is covered under separate MASs, and mapping of coastal areas is being performed by FEMA's HMTAP contractor.

Scope for Merging Tie-in Areas: Upon completion of the floodplain mapping activities for the riverine areas, produced under another MAS, and the new coastal areas provided by FEMA's HMTAP contractor, MDEQ shall merge the digital floodplain data into a single, updated DFIRM. This work is to include tie-in of flood hazard information for areas studied under previous MASs (riverine areas of Jackson, Harrison, and Hancock Counties) with coastal areas of those three counties studied by FEMA's HMTAP contractor. MDEQ shall not be responsible for mapping of coastal areas, other than the effort required to

tie those areas into riverine areas mapped by MDEQ under separate MASs. MDEQ shall coordinate with FEMA and any additional Mapping Partners responsible for other components of Floodplain Mapping, as necessary, to resolve any potential tie-in issues.

MDEQ shall address all concerns or questions regarding Floodplain Mapping that are raised by its Independent QA/QC Contractor during the independent QA/QC review.

Standards: All Floodplain Mapping work shall be performed in accordance with the standards specified in Section 5 - Standards. Mapping quality standards should be consistent with Procedure Memorandum No. 38, dated September 2, 2005.

Deliverables: In accordance with the TSDN format described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, and upon completion of floodplain mapping for the tie-in areas of Hancock, Harrison, and Jackson Counties. MDEQ shall upload the digital data to the MIP or submit by using other digital media if the MIP is unavailable at time of delivery so that MDEQ's Independent QA/QC contractor can access it for the independent QA/QC review. A Federal Geographic Data Committee (FGDC) adopted metadata profile, Content Standard for Digital Geospatial Metadata (CSDGM), must accompany the uploaded digital data in order to facilitate proper cataloging of the data for search and retrieve capabilities within the MIP. The metadata profile should be obtained from FEMA or its contractor to assure compliance. This submittal will occur in accordance with the schedule outlined in Section 6 - Schedule. The MIP shall be updated for status reporting when the activity is complete. Where paper documentation is required by State Law for Professional certifications, you may submit the paper in addition to a scanned version of the paper for the digital record.

- A Summary Report that describes and provides the results of all automated or manual QA/QC review steps taken during the preparation of the DFIRM as outlined in the approved QA/QC Plan;
- Format Mapping Database or Data Delivery consistent with the Data Capture Standards– Appendix N of the *Guidelines and Specifications for Flood Hazard Mapping Partners*;

Appendix M and Appendix N may be downloaded from the FEMA Flood Hazard Mapping website at http://www.fema.gov/fhm/dl_cgs.shtm.

Independent QA/QC Review of Floodplain Mapping

Responsible Mapping Partner: MDEQ and FEMA

Scope:

Independent QA/QC efforts associated with this activity include review of tie-in of mapped boundaries for riverine areas, produced under previous MASs, with those boundaries for new coastal areas provided by FEMA's HMTAP contractor.

The activities associated with this MAS will be performed within a compressed timeframe relative to normal conditions. Consequently, MDEQ's Independent QA/QC Contractor shall perform "over-the-shoulder" review of mapping products prepared by MDEQ's mapping contractor. Prior to commencement of the work, MDEQ shall submit to FEMA a written QA/QC Plan for this over-the-shoulder process.

MDEQ's Independent QA/QC contractor shall review ONLY the floodplain mapping submitted by MGI, LLC under Floodplain Mapping to ensure that the results of the analyses performed are accurately represented. MDEQ's Independent QA/QC contractor shall not be responsible for QA/QC review of data

provided by FEMA's HMTAP contractor. QA/QC of coastal data shall be performed by FEMA and its HMTAP contractor. FEMA may audit or assist in these activities if deemed to be necessary by the Regional Project Officer. This work shall include, at a minimum, the activities listed below.

- Review the cross sections for proper location and orientation on the work map and agreement with the Floodway Data Table.
- Review the BFEs shown on the work map for proper location and agreement with the results of the hydraulic modeling.
- Review the regulatory floodway widths for agreement with the widths shown in the Floodway Data Table and the results of the hydraulic modeling.
- Review the floodplain boundaries for agreement with the flood elevations shown in the Floodway Data Table, the contour lines, and other topographic information shown on the work maps.
- Review the floodplain widths at cross sections as shown on the work maps to ensure the data matches the Floodway Data Table.
- Review the floodplain boundaries as shown on the work maps to ensure the data matches the Flood Profiles.
- For non-revised floodplain areas, the 1- and 0.2-percent-annual-chance floodplain boundaries agree with the floodplain boundaries shown on the FIRM, the contour lines, other topographic information, and planimetric information shown on the DFIRM base.
- Road and floodplain relationships are maintained for all unrevised areas.
- Review the flood insurance risk zones as shown on the work maps to ensure the data are labeled properly.
- Review the DFIRM mapping files to ensure the data were prepared in accordance with the requirements in *Guidelines and Specifications for Flood Hazard Mapping Partners*.
- Review the metadata files to ensure the data includes all required information shown in *Guidelines and Specifications for Flood Hazard Mapping Partners*.

Standards: All Independent QA/QC work shall be performed in accordance with the standards specified in Section 5 - Standards.

Deliverables: In accordance with the TSDN format described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, MDEQ shall make the following products available to FEMA by uploading the digital data to MIP or submitting it to the FEMA Regional Office if the MIP is unavailable at the time of delivery. A Federal Geographic Data Committee (FGDC) adopted metadata profile, Content Standard for Digital Geospatial Metadata (CSDGM), must accompany the uploaded digital data in order to facilitate proper cataloging of the data for search and retrieve capabilities within the MIP. The metadata profile should be obtained from FEMA or its contractor to assure compliance. This submittal will occur in accordance with the schedule outlined in Section 6 - Schedule. The MIP shall be updated for status reporting when the activity is complete.

- A Summary Report that describes the findings of the QA/QC review, noting any deficiencies in or agreeing with the mapping results;
- Recommendations to resolve any problems that are identified during the independent QA/QC review;
- An annotated work map with all questions and/or concerns indicated, if necessary; and
- If data changed during review, then updated deliverables for previous tasks will be submitted at this time.

Appendix M and Appendix N may be downloaded from the FEMA Flood Hazard Mapping website at http://www.fema.gov/fhm/dl_cgs.shtm.

DFIRM Database

Responsible Mapping Partner: MDEQ

Scope:

The DFIRM Database activity in this MAS includes work associated with preparation of DFIRM panels for the newly mapped coastal areas, based on mapped boundaries and study data provided by FEMA's HMTAP contractor and preparation of DFIRMs for tie-in of these coastal areas with riverine areas prepared by MDEQ under previous MASs.

MDEQ shall apply the final FEMA DFIRM graphic and database specifications to the DFIRM files produced under Floodplain Mapping. This work shall include adding all required annotation, line pattern, area shading, and map collar information (e.g., map borders, title blocks, legends, notes to user). MDEQ will be preparing the database for this project in the Enhanced format. The database shall be produced in accordance with Appendix L of the *Guides and Specifications for Flood Hazard Mapping Partners*. Although MDEQ is not responsible to QC data provided by FEMA or FEMA's contractor, MDEQ shall coordinate with FEMA's HMTAP contractor to resolve any problems that are identified during development of the DFIRM Database and Graphics.

Standards: All DFIRM Database work shall be performed in accordance with the standards specified in Section 5 - Standards.

Deliverables: In accordance with the TSDN format described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, MDEQ shall make the following products available to FEMA by uploading the digital data to the MIP or submitting it to the FEMA Regional Office if the MIP is unavailable at the time of delivery. A Federal Geographic Data Committee (FGDC) adopted metadata profile, Content Standard for Digital Geospatial Metadata (CSDGM), must accompany the uploaded digital data in order to facilitate proper cataloging of the data for search and retrieve capabilities within the MIP. The metadata profile should be obtained from FEMA or its contractor to assure compliance. This submittal will occur in accordance with the schedule outlined in Section 6 - Schedule. The MIP shall be updated for status reporting when the activity is complete. Where paper documentation is required by State Law for Professional certifications, you may submit the paper in addition to a scanned version of the paper for the digital record.

- DFIRM mapping files prepared in accordance with the requirements in *Guidelines and Specifications for Flood Hazard Mapping Partners*;

- Metadata files describing the DFIRM data including all required information shown in *Guidelines and Specifications for Flood Hazard Mapping Partners*;
- Complete set of plots of DFIRM panels showing all detailed flood hazard information at a suitable scale;
- A Summary Report that describes and provides the results of all automated or manual QA/QC review steps taken during the preparation of the DFIRM as outlined in approved QA/QC Plan; and
- Format DFIRM Database or Data Delivery consistent with the Data Capture Standards–Appendix N of the *Guidelines and Specifications for Flood Hazard Mapping Partners*.

Appendix M and Appendix N may be downloaded from the FEMA Flood Hazard Mapping website at http://www.fema.gov/fhm/dl_cgs.shtm.

Independent QA/QC Review of DFIRM Dbase

Responsible Mapping Partner: MDEQ

Scope:

MDEQ has taken on responsibility, through this MAS, to produce and review DFIRM products for newly mapped coastal zones that are to be provided by FEMA's HMTAP contractor. The Independent QA/QC Review of DFIRM Dbase activity includes QA/QC review of those DFIRM products produced for these newly mapped zones and the tie-in of these zones with riverine areas mapped by MDEQ under previous MASs. This activity does not include QA/QC review of mapping data prepared by FEMA's HMTAP contractor.

In conjunction with preparation of the DFIRM products, MDEQ's Independent QA/QC Contractor shall review the DFIRM spatial database to determine if it meets current FEMA database specifications. The QA/QC reviews shall be conducted as contemporaneous "over the shoulder" reviews, in the same manner as those conducted by FEMA's HMTAP Contractor who produces the flood analysis and mapping data to be provided to MDEQ. In addition, MDEQ's Independent QA/QC Contractor shall review the DFIRM to ensure it meets current FEMA graphic specifications. FEMA may audit or assist in these activities if deemed to be necessary by the Regional Project Officer. This work shall ensure that the requirements below are met.

- All required DFIRM features are accurately and legibly labeled and follow the examples shown in the FEMA DFIRM specifications. This includes all flood insurance risk zones, BFEs, cross sections, studied streams, mapped political entities, and all roads within and adjacent to the 1-percent-annual-chance floodplains.
- All DFIRM features are correctly symbolized with the appropriate symbol, line pattern, or area shading and follow the requirements in *Guidelines and Specifications for Flood Hazard Mapping Partners*.
- All map collar information is complete, correct, and follows the requirements specified in *Guidelines and Specifications for Flood Hazard Mapping Partners*.

- DFIRM mapping files are in a GIS file and database format as specified in FEMA's *Guidelines and Specifications for Flood Hazard Mapping Partners*, and conform to those specifications for content and attribution.
- DFIRM database files are in one of the database formats specified in FEMA's *Guidelines and Specifications for Flood Hazard Mapping Partners*, and conform to those specifications for content and attribution.
- Metadata files describing the DFIRM data include all required information shown in *Guidelines and Specifications for Flood Hazard Mapping Partners*.

Standards: All DFIRM Database Development work shall be performed in accordance with the standards specified in Section 5 - Standards.

Deliverables: In accordance with the TSDN format described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, MDEQ shall make the following products available to FEMA by uploading the digital data to the MIP or submitting it to the FEMA Regional Office if the MIP is unavailable at the time of delivery. A Federal Geographic Data Committee (FGDC) adopted metadata profile, Content Standard for Digital Geospatial Metadata (CSDGM), must accompany the uploaded digital data in order to facilitate proper cataloging of the data for search and retrieve capabilities within the MIP. The metadata profile should be obtained from FEMA or its contractor to assure compliance. The MIP shall be updated for status reporting when the activity is complete. This submittal will occur in accordance with the schedule outlined in Section 6 - Schedule.

- A Summary Report that describes the findings of the QA/QC review noting any deficiencies in or agreeing with the mapping results and the results of all automated or manual QA/QC steps taken during the independent QA/QC review;
- Recommendations to resolve any problems that are identified during the independent QA/QC review; and
- An annotated copy of the DFIRM with all questions and/or concerns indicated, if necessary.
- If the data changed during the QA/QC process, then the updated deliverables from Floodplain Mapping and Redelineation will be resubmitted at this time.

Appendix M and Appendix N may be downloaded from the FEMA Flood Hazard Mapping website at http://www.fema.gov/fhm/dl_cgs.shtm.

Produce Preliminary Map Products

Responsible Mapping Partners: MDEQ

Scope: The scope of this activity includes additional effort, over and above that funded through previous MASs for Jackson, Harrion, and Hancock Counties, particularly associated with preparation of DFIRMs, FIS Reports and SOMA documents for newly mapped coastal zones that were not originally planned for production under MAS Nos. 1 (Harrison County) and 2 (Hancock and Jackson Counties). Only those activities for which supplemental funding is required under this MAS are included hereafter.

Preliminary Map Products consists of the final preparation, review, and distribution of the Preliminary copies of the DFIRM and FIS report for community officials and the general public review and comment.

FEMA may audit or assist in these activities if deemed to be necessary by the Regional Project Officer. The activities to be performed are summarized below.

Posting of Preliminary DFIRMs on MS Map Mod Website: The MDEQ shall post preliminary DFIRM panels, in portable document format (pdf), for Hancock, Harrison, and Jackson counties on Mississippi's Map Mod website at **http://geology.deq.ms.gov/floodmaps**. (This website was developed and funded independently of the present MAS, through a grant from the MMMS program to MDEQ, with the intention of using that site to support to Mississippi's DFIRM program.)

Preliminary Summary of Map Actions (SOMA) Preparation: The MDEQ shall prepare Preliminary SOMAs for all affected communities, if appropriate. The SOMA shall list pertinent information regarding LOMCs that will be affected by the issuance of the newly mapped coastal zone DFIRM (i.e., superseded, incorporated, revalidated).

Standards: All Preliminary Map Products work shall be performed in accordance with the standards specified in Section 5 - Standards. Mapping quality standards should be consistent with Procedure Memorandum No. 38, dated September 2, 2005. The Data Capture Standards must be met for this deliverable to be acceptable.

Deliverables: In accordance with the TSDN format described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, MDEQ shall make the following products available to FEMA by uploading the digital data to the MIP or submitting it to the FEMA Regional Office if the MIP is unavailable at the time of delivery. A Federal Geographic Data Committee (FGDC) adopted metadata profile, Content Standard for Digital Geospatial Metadata (CSDGM), must accompany the uploaded digital data in order to facilitate proper cataloging of the data for search and retrieve capabilities within the MIP. The metadata profile should be obtained from FEMA or its contractor to assure compliance. This submittal will occur in accordance with the schedule outlined in Section 6 - Schedule. The MIP shall be updated for status reporting when the activity is complete.

- The FIS report is prepared in the FEMA Countywide Format as documented in Appendix J of *Guidelines and Specifications for Flood Hazard Mapping Partners.*
- Preliminary SOMAs, prepared in accordance with FEMA requirements, shall be provided as appropriate.
- If appropriate, revised DFIRM mapping and database files, prepared in accordance with the requirements in *Guidelines and Specifications for Flood Hazard Mapping Partners*, shall be provided by uploading the digital data to the MIP or submitting it by using other digital media if the MIP is unavailable at the time of delivery.
- A Federal Geographic Data Committee (FGDC) adopted metadata profile, Content Standard for Digital Geospatial Metadata (CSDGM), must accompany the uploaded digital data in order to facilitate proper cataloging of the data for search and retrieve capabilities within the MIP. The metadata profile should be obtained from FEMA or its contractor to assure compliance.
- A Summary Report that describes and provides the results of all automated or manual QA/QC review steps taken during the final preparation of the preliminary DFIRM shall be provided as outlined in the approved QA/QC Plan.
- MDEQ will submit a summary of outreach activities and any changes made in the outreach approach based on the actual implementation.
- MDEQ will transfer CBRS Zone information to study maps upon receipt from FEMA/USFWS.

Independent QA/QC of Preliminary Map Products

Responsible Mapping Partners: MDEQ

Scope: The scope of this independent QA/QC activity includes review of DFIRM and FIS Report data for newly mapped coastal areas that were not originally planned for production in MAS Nos. 1 (Harrison County) or 2 (Hancock and Jackson Counties).

Final QA/QC Review of Preliminary DFIRM and FIS Report: The MDEQ's Independent QA/QC Contractor shall perform a final QA/QC review of the Preliminary DFIRM and FIS report including all data tables, Flood Profiles, and other components of the FIS report. The QA/QC review procedures shall be consistent with the *Guidelines and Specifications for Flood Hazard Mapping Partners*.

Discrepancy Resolution: The MDEQ shall work to resolve discrepancies identified during the final QA/QC review.

Deliverables: In accordance with the TSDN format described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, MDEQ shall make the following products available to FEMA by uploading the digital data to the MIP or submitting it to the FEMA Regional Office if the MIP is unavailable at the time of delivery. A Federal Geographic Data Committee (FGDC) adopted metadata profile, Content Standard for Digital Geospatial Metadata (CSDGM), must accompany the uploaded digital data in order to facilitate proper cataloging of the data for search and retrieve capabilities within the MIP. The metadata profile should be obtained from FEMA or its contractor to assure compliance. The MIP shall be updated for status reporting when the activity is complete. This submittal will occur in accordance with the schedule outlined in Section 6 - Schedule.

- A Summary Report that describes the findings of the QA/QC review noting any deficiencies in or agreeing with the mapping results and the results of all automated or manual QA/QC steps taken during the independent QA/QC review;
- Recommendations to resolve any problems that are identified during the independent QA/QC review; and
- An annotated copy of the DFIRM with all questions and/or concerns indicated, if necessary.
- If data changed during review, then updated deliverables for previous tasks will be submitted at this time.

Appendix M and Appendix N may be downloaded from the FEMA Flood Hazard Mapping website at http://www.fema.gov/fhm/dl_cgs.shtm.

Post-Preliminary Processing

Responsible Mapping Partners: MDEQ and FEMA

Scope: Post-Preliminary Processing activities are funded and scoped in MAS No. 1 (Harrison County) and No. 2 (Jackson and Hancock Counties), with the exception of work effort related to coastal zones being studied and mapped as a part of FEMA's post-Katrina HMTAP activity. The scope of the post-

preliminary processing work in this current MAS includes only those work items described hereafter, which will be required over and above the effort already included in MAS Nos. 1 and 2.

Resolution of Appeals and Protests: MDEQ's responsibility for resolving appeals and protests is limited to riverine issues only and is covered under MAS Nos. 1 and 2. Furthermore, MDEQ shall not be responsible for resolving appeals and protests related to coastal studies or boundaries, with the exception of protests related to matters of DFIRM graphics resulting from the production of the DFIRM panels themselves. FEMA and its HMTAP contractor shall be responsible to review and resolve appeals and protests related to coastal data and mapping. For each protest, the following activities shall be conducted as appropriate:

- Initial processing and acknowledgment of submittal;
- Technical review of submittal;
- Preparation of letter(s) requesting additional supporting data;
- Performance of revised analyses; and
- Preparation of a draft resolution letter for co-signature with FEMA and MDEQ and revised DFIRM and FIS report materials for FEMA review.

MDEQ shall mail all associated correspondence upon authorization by FEMA.

Revision of FIRM and FIS Report: If necessary and in response to coastal zone issues, MDEQ shall work together with FEMA to revise the DFIRM and FIS report, based on revised mapping data provided by FEMA's HMTAP contractor and shall distribute revised Preliminary copies of the DFIRM and FIS report to the CEO and floodplain administrator of each affected community, all other Project Team members, the State NFIP Coordinator, the FEMA Regional Office, and others as directed by FEMA.

Final SOMA Preparation: MDEQ shall prepare Final SOMAs for the affected communities with assistance from FEMA, as appropriate.

Processing of Final DFIRM and FIS Report for Printing: MDEQ shall prepare final reproduction materials for the DFIRM and FIS report related to the coastal panels and data prepared as a part of the HMTAP effort, over and above the original planned work included in MAS Nos. 1 and 2 and provide these materials to FEMA for printing by the United States Government Printing Office. MDEQ shall also prepare the appropriate paperwork to accompany the DFIRM and FIS report (including Print Processing Worksheet, Printing Requisition Forms, and Community Map Actions Form) and transmittal letters to the community CEOs.

Archiving Data: MDEQ shall ensure that technical and administrative support data are packaged in the FEMA required format and stored properly in the library archives until transmitted to the FEMA Engineering Study Data Package Facility. In addition, the MDEQ will maintain copies of all data for a period of no less than three years.

Standards: All Post Preliminary DFIRM work shall be performed in accordance with the standards specified in Section 5 - Standards.

Deliverables: In accordance with the TSDN format described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, MDEQ shall make the following products available to FEMA by uploading the digital data to the MIP or submitting it to the FEMA Regional Office if the

MIP is unavailable at the time of delivery. A Federal Geographic Data Committee (FGDC) adopted metadata profile, Content Standard for Digital Geospatial Metadata (CSDGM), must accompany the uploaded digital data in order to facilitate proper cataloging of the data for search and retrieve capabilities within the MIP. The metadata profile should be obtained from FEMA or its contractor to assure compliance. This submittal will occur in accordance with the schedule outlined in Section 6 - Schedule. The MIP shall be updated for status reporting not less than the prescribed monthly periods and when the activity is complete.:

- Draft and final Appeal and Protest acknowledgment, additional data, and resolution letters (and all associated enclosures, backup data, and other related information) for FEMA review and signature, as appropriate;
- DFIRM negatives and final FIS report materials including all updated data tables and Flood Profiles;
- Paperwork for the final DFIRM and FIS report materials;
- Completed, organized, and archived technical and administrative support data; and
- Completed, organized, and archived case files and flood elevation dockets.

SECTION 2—TECHNICAL AND ADMINISTRATIVE SUPPORT DATA SUBMITTAL

The Project Team members for this Flood Map Project that have responsibilities for activities included in this MAS shall comply with the data submittal requirements summarized below.

All supporting documentation for the activities in this MAS shall be submitted in the TSDN format in accordance with Appendix M of the FEMA *Guidelines and Specifications for Flood Hazard Mapping Partners*, dated April 2003. Appendix M may be downloaded from the FEMA Flood Hazard Mapping website at http://www.fema.gov/pdf/fhm/frm_gsam.pdf. Table 2-1 indicates the sections of the TSDN that apply to each mapping activity.

If any issues arise that could affect the completion of an activity within the proposed scope or budget, the responsible Mapping Partner shall complete a Special Problem Report (SPR) as soon as possible after the issue is identified and submitted to FEMA. The SPR is to describe the issue and propose possible resolutions. (For additional information on SPRs, refer to Appendix M, Subsection M.2.1.1 of *Guidelines and Specifications for Flood Hazard Mapping Partners*.)

Table 2-1. Mapping Activities and Applicable TSDN Sections

TSDN Section	Mapping Activities													
	Scoping	Field Survey	Topo Data	QA/QC of Topo	Base Map	Hydrology/ Coastal	QA/QC of Hydrology/ Coastal	Hydraulic Analysis	QA/QC of Hydraulics	Flood-plain Mapping (and Re-delineation)	QA/QC of FP Mapping	DFIRM Database	Preliminary Map Products	Post-Preliminary
General Documenta-tion														
Special Problem Reports										X	X	X	X	X
Telephone Conversation Reports										X	X	X	X	X
Meeting Minutes/ Reports										X	X	X	X	X
General Correspon-dence										X	X	X	X	X
Engineering Analyses														
Hydrologic Analyses										X	X			
Hydraulic Analyses										X	X			
Key to Cross-Section Labeling										X	X			
Key to Transect Labeling										X	X			
Draft FIS Report														
Mapping Information										X	X	X	X	X
Miscellan-eous Reference Information										X	X	X	X	X

SECTION 3—PERIOD OF PERFORMANCE

The mapping activities outlined in this MAS will begin upon execution of this MAS and will be completed no later than December 31, 2007. The mapping activities may be terminated at the option of FEMA or the State of Mississippi in accordance with the provisions of the Partnership Agreement dated January 28, 2003. If these mapping activities are terminated; the remaining funds from uncompleted activities, provided by FEMA for this MAS, will be returned to FEMA.

SECTION 4—FUNDING/LEVERAGE (FOR CTP)

FEMA is providing funding, in the amount of to the State of Mississippi for the completion of this Flood Map Project. State of Mississippi shall provide any additional resources required to complete the assigned activities for this Flood Map Project. Activities associated with any additional needs would be performed based on availability of additional funds.

Funding for Project	FEMA Contribution	CTP Contribution*	% Leverage	Total Project Cost
TOTAL FUNDING AMOUNTS				

*CTP Contribution identified above includes LiDAR-derived topographic mapping, 2-foot contour intervals, for those portions of Jackson and Hancock Counties south of Interstate 10 and north of mean high water. The value of the leverage shown is based on an estimated 321 square miles (173 sq. mi. in Jackson and 148 sq. mi. in Hancock), at a "Blue Book" value of $400/sq. mi. for topographic mapping (*Estimating the Value of Partner Contributions to Flood Mapping Projects "Blue Book,"* 10/28/03, page 7).These data were acquired and developed by MDEQ and provided to FEMA's HMTAP contractor at no charge and without limitation for use in coastal zone studies.

The FEMA funds identified above are available to be used for the activities included in Table 4.1.

Table 4.1 FEMA funds identified above are available to be used for the following activities, the scopes for which are described in detail in preceding sections*:

Activities	FUNDABLE?
Outreach	Yes
Floodplain Mapping	Yes
Independent QA/QC of Floodplain Mapping	Yes
DFIRM Database and Graphic Specifications	Yes

Activities	FUNDABLE?
Independent QA/QC Review of DFIRM Database and Graphic Specifications	Yes
Produce Preliminary Map Products	Yes
Post-Preliminary Processing	Yes

*This table is for information purposes only.

SECTION 5—STANDARDS

The standards relevant to this MAS are provided in Tables 5-1 and 5-2. Information on the correct volume, appendix, section, or subsection of the FEMA *Guidelines and Specifications for Flood Hazard Mapping Partners* to be referenced for each mapping activity are summarized in Table 5-2.

These guidelines may be downloaded from the FEMA Flood Hazard Mapping website at http://www.fema.gov/fhm/dl_cgs.shtm.

Table 5-1. Applicable Standards for Project Activities

Applicable Standards	Activities														
	Scoping	Field Survey	Topo Data	QA/QC Topo Data	Base Map	Hydrology/ Coastal	QA/QC Hydrology/ Coastal	Hydraulic Analysis	QA/QC of Hydraulic Analysis	Floodplain Mapping (inc. Redelineation	QA/Qc Flood-plain Mapping	DFIRM Dbase	QA/QC DFIRM Database	Preliminary Map Products	Post-Preliminary Processing
Guidelines and Specifications for Flood Hazard Mapping Partners, April 2003	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
American Congress on Surveying and Mapping Procedures	X	X	X	X											
Global Positioning System (GPS) Surveys: National Geodetic Survey (NGS-510), "Guidelines for Establishing GPS-Derived Ellipsoid Heights," November 1997	X	X	X	X											
Engineer Manual 1110-1-1000, *Photogrammetric Mapping* (USACE), July 1, 2002	X	X	X	X											
Engineer Manual 1110-2-1003, *Hydrographic Surveys* (USACE), January 1, 2002	X	X													
"Numerical Models Accepted by FEMA for NFIP Usage," Updated April 2003	X				X	X	X	X	X						
Content Standard for Digital Geospatial Metadata (Federal Geographic Data Committee), 1998	X		X	X						X	X	X	X	X	X
Document Control Procedures Manual, December 2000	X													X	X
44 Code of Federal Regulations Part 66 and 67	X													X	

Table 5-2. Project Activities and Applicable Portions of FEMA Guidelines and Specifications

Activity Description	Applicable Volume, Section/Subsection, and Appendix
Scoping	Appendix I, Scoping Report document attached in Appendix A to this Mapping Activity Statement; 44 Code of Federal Regulations Part 66 and 67
Field Survey	Volume 1, Section 1.4 (specifically Subsection 1.4.2.1)
	Appendix A, Sections A.4, A.5, A.6, A.7, and A.8
	Appendix F, Section F.3
	Appendices B, C, and M
Topographic Data Development	Volume 1, Section 1.4 (specifically Subsection 1.4.2.1)
	Appendix A, Sections A.2 , A.3, A.7, and A.8
	Appendix M
Independent QA/QC Review of Topographic Data	Volume 1, Section 1.4 (specifically Subsections 1.4.1 and 1.4.2.1)
	Appendix A, Sections A.2, A.3, A.7 (specifically Subsection A.7.5), and A.8 (specifically Subsection A.8.6)
	Appendix M
Base Map Acquisition and Preparation	Volume 1, Section 1.3 (specifically Subsection 1.3.1.8) and 1.4 (specifically Subsections 1.4.3.1 and 1.4.3.2)
	Appendix A, Section A.1 (specifically Subsection A.1.1)
Hydrologic Analyses	Volume 1, Section 1.4 (specifically Subsections 1.4.2.2 and 1.4.2.4)
	Appendix A, Section A.4
	Appendix C, Sections C.1 and C.7
	Appendices E, F, G, H, and M

Activity Description	Applicable Volume, Section/Subsection, and Appendix
Independent QA/QC Review of Hydrologic Analyses	Volume 1, Section 1.4 (specifically Subsection 1.4.1) Appendix A, Section A.4 Appendix C, Section C.2 Appendices E, F, G, H, and M
Hydraulic Analyses	Volume 1, Section 1.4 (specifically Subsections 1.4.2.2 and 1.4.2.4) Appendix A, Section A.4 (specifically Subsection A.4.7) Appendix C, Sections C.3 and C.7
Independent QA/QC Review of Hydraulic Analyses	Volume 1, Section 1.4 (specifically Subsection 1.4.1) Appendix A, Section A.4 (specifically Subsection A.4.7) Appendix C, Section C.5
Levee Evaluation (if appropriate)	Appendix H Procedure Memorandum 34 (and related PMs) 44 CFR 65.2, 44 CFR 65.10
Coastal Hazard Analyses	Appendix A, Section A.4 (specifically Subsection A.4.7) Appendix C, Section C.5 Appendices B, D, and M
Independent QA/QC Review of Coastal Hazard Analyses	Volume 1, Section 1.4 (specifically Subsection 1.4.1) Appendix A, Section A.4 Appendices B, D, and M

Activity Description	Applicable Volume, Section/Subsection, and Appendix
Floodplain Mapping	Volume 1, Section 1.4 (specifically Subsections 1.4.2.2, 1.4.2.3, and 1.4.3.2)
	Appendix C, Sections C. 4 and C.6 (specifically Subsection C.6.1.3)
	Appendix D, Sections D.2 (specifically Subsection D.2.7) and D.3 (specifically Subsection D.3.7)
	Appendices E, F, G, H, K, L, and M
Perform Redelineation	Volume 1, Section 1.4 (specifically Subsections 1.4.2.2, 1.4.2.3, and 1.4.3.2)
	Appendix C, Section C.6 (specifically Subsection C.6.1.3)
	Appendices K. L, and M
Independent QA/QC Floodplain Mapping (including Redelineation/Digitization)	Volume 1, Section 1.4 (specifically Subsections 1.4.1 and 1.4.2.3)
	Appendix C, Sections C.4 and C.6
	Appendix D, Sections D.2 (specifically Subsection D.2.7) and D.3 (specifically Subsection D.3.7)
	Appendices E, F, G, H, K, L, and M
Independent QA/QC Review of DFIRM Database and Graphic Specs	Volume 1, Section 1.4 (specifically Subsections 1.4.2.3, 1.4.3.3, 1.4.3.9, and 1.4.3.10)
	Appendices K, L, and M
Production of Preliminary Map Products	Volume 1, Sections 1.4 (specifically Subsections 1.4.2 and 1.4.3) and 1.5 (specifically Subsection 1.5.1)
	Appendices J, K, L, and M
Post-Preliminary Processing	Volume 1, Section 1.5 (specifically Subsection 1.5.2)
	Appendices J, K, L, and M

SECTION 6—SCHEDULE

The activities documented in this MAS shall be completed in accordance with the project schedule below. If changes to this schedule are required, the responsible Mapping Partner shall coordinate with FEMA and the other Mapping Partners in a timely manner.

Table 6.1 Mapping Activities Schedule

Activities	RESPONSIBLE PARTNER(S)	DATE DUE
Floodplain Mapping: • Merging Revised and Unrevised Areas	MDEQ	*See following list of conditions and assumptions for schedule of these activities.
Independent QA/QC Review of Floodplain Mapping	MDEQ/FEMA	
DFIRM Database (including Graphic Specifications)	MDEQ	
Independent QA/QC Review of DFIRM Database	MDEQ/FEMA	
Produce Preliminary Map Products (including 1/2 Outreach)	MDEQ	
Post-Preliminary Processing (including 1/2 Outreach)	MDEQ	12/31/07

*Conditions and Assumptions related to schedule for activities in Table 6.1:

Preliminary DFIRM's (maps) will be delivered to FEMA in portable document format (.pdf) 5 weeks following complete receipt of final coastal floodplain mapping data from FEMA and/or its HMTAP contractor. Printed FIS Reports, SOMAs, and hard copy maps will be delivered one week following submittal of .pdf files.

The activities outlined in Table 6.1 will be performed within a compressed timeframe relative to normal conditions. Assumptions and conditions on which this schedule is based are as follows:

1. QA/QC reviews will take place in a closely coordinated manner with production of mapping and DFIRM products in a continuous "over the shoulder" environment.

2. Floodplain mapping from FEMA's HMTAP Contractor will be provided to MDEQ in GIS format, with zone breaks and base elevation attributes.

3. Estimated coastal panel count for the 3 counties includes 74 for Hancock, 79 for Harrison, and 104 for Jackson. Deviations from this count will impact schedule of completion of DFIRMs accordingly.

4. DFIRM database deliverables will be delivered to FEMA two weeks after delivery of preliminary DFIRMs.

5. Tie-in of riverine boundaries will be performed when storm surge analysis data are provided to MDEQ.

6. FIS-related tasks not completely associated with the coastal analyses will be completed prior to addition of coastal elements.

7. Production of DFIRMs is assumed to proceed first with Hancock County; however, the first county to be addressed by MDEQ will be the one whose coastal mapping results are submitted first by FEMA's HMTAP Contractor.

8. Outreach participation by MDEQ and its Contractor includes 2 separate outreach events on the Gulf Coast, 3 days each (1 meeting-day per county for each of 2 separate events), and includes 3 members of the Contractor team.

9. Performance of the preceding work within the prescribed schedule is based on receipt of the following deliverables from FEMA's HMTAP Contractor to MDEQ:

    a) Shape files of inundation limits - 100-year and 500-year (georeferenced to the base map) with files to be organized as part of the DFIRM database (the database fields and entries).

    b) Shape files of BFE gutter lines and VE/AE boundary shape files to be organized as part of the DFIRM database (the database fields and entries).

    c) FIS text (digital) to be dropped directly into the riverine text.

    d) FIS tables (digital) that are complete for the coastal work.

    e) All work to be referenced to NAVD 88 with horizontal projection to be Mississippi State Plane Coordinate System, NAD 83.

SECTION 7—CERTIFICATIONS

Field Surveys and Topographic Data Development

A Registered Professional Engineer or Licensed Land Surveyor shall certify topographic data in accordance with 44 CFR 65.5(c). Certification of topographic data by the American Society for Photogrammetry and Remote Sensing is also acceptable.

Base Map Acquisition and Preparation

- A community official or responsible party shall provide written certification that the digital data meet FEMA minimum standards and specifications.
- The responsible Mapping Partner shall provide documentation that the digital base map can be used by FEMA. Please note that uploading base map data to the MIP does not constitute agreement that the digital base map can be used by FEMA. Documentation that the digital base map can be used by FEMA will still be required.

Certifications must be made at the time the intermediate data is submitted. For example, if hydrologic data is submitted, certification will be required at the time it is submitted.

Hydrologic Analyses, Hydraulic Analyses, and Floodplain Mapping

- A Registered Professional Engineer shall certify hydrologic and hydraulic analyses and data in accordance with 44 CFR 65.6(f).
- A Registered Professional Engineer or Licensed Land Surveyor shall certify topographic information in accordance with 44 CFR 65.5(c).
- Any levee systems to be accredited will be certified in accordance with 44 CFR 65.10(e).

Floodplain Mapping, Independent QA/QC Review of Floodplain Mapping and DFIRM Database

The DFIRM metadata files shall include a description of the horizontal and vertical accuracy of the DFIRM base map and floodplain information.

SECTION 8—TECHNICAL ASSISTANCE AND RESOURCES

Project Team members may obtain copies of FEMA-issued LOMCs, archived engineering backup data, and data collected as part of the Mapping Needs Assessment Process from FEMA and/or your Regional Project Officer.

General technical and programmatic information, such as FEMA 265 and the Quick-2 computer program, can be downloaded from the FEMA website at http://www.fema.gov./fhm/. Specific technical and programmatic support may be provided through FEMA and/or its contractor; such assistance should be requested through the FEMA Project Officer specified in Section 12 – Points of Contact.

Project Team members also may consult with the FEMA Regional Project Officer to request support in the areas of selection of data sources, digital data accuracy standards, assessment of vertical data accuracy, data collection methods or subcontractors, and GIS-based engineering and modeling training.

SECTION 9—CONTRACTORS

MDEQ intends to use the services of Mississippi Geographic Information, LLC as a contractor for this Flood Map Project. MDEQ shall ensure that the procurement for all contractors used for this Flood Map Project complies with the requirements of 44 CFR 13.36.

Part 13 may be downloaded in PDF or text format from the United States Government Printing Office website at http://www.access.gpo.gov/nara/cfr/waisidx_04/44cfr13_04.html.

SECTION 10—REPORTING

FINANCIAL REPORTING:

Because funding has been provided to MDEQ by FEMA, financial reporting requirements for MDEQ will be in accordance with Cooperative Agreement Articles V and VI.

MDEQ shall provide financial reports to the FEMA Regional Project Officer and Assistance Officer in accordance with the terms of the signed Cooperative Agreement for this MAS.

STATUS REPORTING:

Status reports will be submitted on a quarterly basis in accordance with the financial reporting submittals. At a minimum, these reports will include a summary of the work as outlined in the CTP/Map Modernization Project Quarterly Report located in Appendix B of this MAS. The Project Officer, as needed, may request additional information on status.

MDEQ may meet with FEMA and/or its contractor up to bi-weekly, or more frequently if needed, to review the progress of the project in addition to the quarterly financial and status submittals. These meetings will alternate between FEMA's Regional Office, the MDEQ office, and conference calls, as necessary.

Section 11—Project Coordination

Throughout the project, all members of the Project Team will coordinate, as necessary, to ensure the products meet the technical and format specifications required and contain accurate, up-to-date information. Coordination activities shall include:

- Meetings, teleconferences, and video conferences with FEMA and other Project Team members as required;
- Telephone conversations with FEMA and other Project Team members on an ad hoc basis, as required;
- Updates to the MIP and other FEMA status information systems in accordance with requirements in Volumes 1 and 3 of *Guidelines and Specifications for Flood Hazard Mapping Partners*; and
- E-mail, facsimile transmissions, and letters, as required.

SECTION 12—POINTS OF CONTACT

The points of contact for this Flood Map Project are Laura Algeo, P.E., the FEMA Regional Project Officer; S. Cragin Knox, R.P.G., the Project Manager for MDEQ; or subsequent personnel of comparable experience who are appointed to fulfill these responsibilities. When necessary, any additional FEMA assistance should be requested through the FEMA Regional Project Officer.

Each party has caused this MAS to be executed by its duly authorized representative.

S. Cragin Knox, R.P.G.
Project Manager
Mississippi Department of Environmental Quality

09-18-06
Date

Laura Algeo, P.E.
Regional Project Officer
Federal Emergency Management Agency, Region 4

9-29-06
Date

for Charles H. Chisolm,
Executive Director
Mississippi Department of Environmental Quality

9/22/06
Date

for Thomas M. Womack
Interim Executive Director
Mississippi Emergency Management Agency

9/22/06
Date