FEMA

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

Mapping Activity Statement No. FY06.05 – 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 MDEQ and the Federal Emergency Management Agency (FEMA), Mapping Activity Statement (MAS) No. 5 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 following Mississippi counties:

Washington	Chickasaw
Lowndes	Covington
Oktibbeha	Tishomingo
Pike	Walthall
Lafayette	Yalobusha
Monroe	Claiborne
Lincoln	Wilkinson
Neshoba	Webster
Tippah	Franklin
Winston	Sharkey

The DFIRM and FIS report will be produced in the FEMA countywide format. The DFIRM products will be referenced to the North American Vertical Datum of 1988 (NAVD 88) and the Mississippi State Plane Coordinate System (horizontal datum).

Existing Geographic Information System (GIS) data and study needs for the community will be researched, obtained, organized, and provided in accordance with the Scoping Activity. Scoping will be necessary to determine the final scope of work for this project.

In addition, the Mapping Partners involved in this project will develop new and/or updated flood hazard data, as summarized in Table 1.1, Flooding Sources to be Studied.

Table 1.1 Flooding Source(s) to be Studied

Flooding Source*	Reach Limits*	Reach Length*	Detailed Riverine		Detailed Coastal					Limited Detail Study	Redelineation of SFHAs Using Effective Profiles and New Topography	Refine/ Establish Zone A
			Hydrology	Hydraulics	Stillwater	Set up	Wave Height	Wave Runup	Erosion			
Washington			X	X						X	X	X
Lowndes			X	X						X	X	X
Oktibbeha			X	X						X	X	X
Pike										X	X	X
Lafayette										X	X	X
Monroe										X	X	X
Lincoln										X	X	X
Neshoba										X	X	X
Tippah										X	X	X
Winston										X	X	X
Chickasaw										X	X	X
Covington										X	X	X
Tishomingo										X	X	X
Walthall										X	X	X
Yalobusha										X	X	X
Claiborne										X	X	X
Wilkinson										X	X	X

Flooding Source*	Reach Limits*	Reach Length*	Detailed Riverine		Detailed Coastal					Limited Detail Study	Redelineation of SFHAs Using Effective Profiles and New Topography	Refine/ Establish Zone A
			Hydrology	Hydraulics	Stillwater	Set up	Wave Height	Wave Runup	Erosion			
Webster										X	X	X
Franklin										X	X	X
Sharkey										X	X	X

*Specific flooding sources within each listed county, with associated reach limits and lengths will be identified through the Scoping Activity and outlined in the Final Scoping Report for each county. The types of studies identified for each county in Table 1.1 are projected at the time of preparation of this MAS and will be finalized upon completion of the Scoping Activity as described in a later section of this MAS.

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

- State of Mississippi, Dept. of Environmental Quality, Office of Geology (MDEQ*);
- Federal Emergency Management Agency (FEMA);
- Mississippi Geographic Information, LLC (MGI) the State's Contractor;
- State of Mississippi, Mississippi Emergency Management Agency (MEMA);
- Baker (the FEMA National Service Provider (NSP); and
- Local governments and communities.

*In general, where MDEQ is listed as the responsible mapping partner, it is understood that the work will be performed by MDEQ or its mapping contractor.

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)
Scoping	X	
Outreach	X	X[1]
Field Survey	X	
Independent QA/QC Review of Field Survey	X	X[1]
Base Map Acquisition and Preparation	X	
Hydrologic Analyses	X	
Independent QA/QC Review of Hydrologic Analyses	X	X[1]
Hydraulic Analyses (including Levee Evaluation, if applicable)	X	
Independent QA/QC Review of Hydraulic Analyses	X	X[1]
Floodplain Mapping (Detailed Riverine Analysis, Refinement or Creation of Zone A, Merge Revised and Non-Revised Information, Redelineation Using Effective Flood Profiles and Updated Topographic Data, Refinement and Redelineation (digitization) of Non-Revised Areas)	X	
Independent QA/QC Review of Floodplain Mapping	X	X[1]
Develop DFIRM Database (including Graphic Specifications)	X	
Independent QA/QC Review of DFIRM Database and Graphics	X	X[1]
Produce Preliminary Map Products	X	
Post-Preliminary Processing	X	X[1]
[1] The CTP is the primary owner of this activity. FEMA is available in an audit or assistance authority upon determination of the Regional Project Officer.		

FEMA has developed tools to assist in the development of the flood hazard data studies and DFIRMs if the MDEQ wishes to use them. FEMA will provide all MDEQ's 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 MDEQ's or FEMA's contractor at the discretion of FEMA. MDEQ will be utilizing its Independent QA/QC Contractor to do the QA/QC review. MDEQ will 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. The NFIP approved 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 and DFIRM database. The metadata profiles are available from FEMA.

Scoping

Responsible Mapping Partner: MDEQ, MEMA

Scope: This task involves collecting data from a variety of sources including community surveys, other Federal and State Agencies, National Flood Insurance Program (NFIP) State Coordinators, Community Assistance Visits (CAVs), and FEMA archives. MDEQ will evaluate the effective FIS report and Flood Insurance Rate Maps (FIRMs) to see if it needs to be updated. Lists of mapping needs will be obtained from the WISE Scoping Tool, MNUSS database, community surveys, and CAVs, if available.

Data collection will include obtaining the best available base map materials (corporate limits, roads, orthophotos, etc) along with stream centerline files. The acquired data will be imported into the Scoping Tool and used during the Scoping Task. In the Scoping Tool, all streams should have unique names, the limits of the effective FEMA studies should be identified, Letter of Map Change (LOMC) areas should be identified, and community requests should be identified. This task also includes populating the streamlines with existing pipeline and scoped studies currently underway.

Identify all stream/coastal reaches where levees are shown as providing protection against the 1-percent-annual-chance flood. Request the information specified in Title 44 Code of Federal Regulations (CFR) 65.10, Mapping of areas protected by levee systems, from the community or other party seeking continued recognition of the levee.

In cooperation with the FEMA Region, a Project Management Team will be established consisting of MDEQ, FEMA's regional engineer, community representatives, and other appropriate officials. The Project Management Team will be responsible for coordinating the activities of this project and completing all tasks identified in this MAS. The MIP shall be updated with Scoping status as appropriate.

If the Special Flood Hazard Area (SFHA) is proposed to be mapped as contained by a levee on a new FIRM then the requirements of 44 CFR 65.10 must be provided to FEMA regardless if the flooding

source is proposed to be restudied or not. All levee systems impacting existing and proposed SFHAs shall be identified during this task and relevant information on the levee's ownership, structure (including freeboard, stability, seepage, closure, etc.), maintenance, operations, and interior drainage shall be obtained and inventoried. For all levees proposed to be shown on the new FIRM as providing protection from the 1-percent-annual-chance flood (i.e., those known to have adequate freeboard, available as-built plans, adequate maintenance, and operation plans, etc.) that do not have certification documentation available, the levee owner and/or community(s) protected shall be contacted by the CTP via letter requesting the missing requirement(s) of 44 CFR 65.10. CTP is not responsible for identifying levee owners but will proceed based on data provided by communities or counties. During this step, the time frame for providing the request ed data shall be established in coordination with the FEMA Regional Office. If certification, plans, etc. are not provided within the established timeframe, then the need for new flood hazard analysis/mapping shall be documented. At the end of this task, FEMA's Flood Levee Inventory System must be updated for all levees identified by MDEQ.

Preliminary Research Activities can be separated into two categories—researching effective information and researching available data for the Flood Map Project. The following tasks shall be completed to research effective information: inventory the FEMA archives for effective FIRM panels, Flood Boundary Floodway Map (FBFM) panels, FIS reports, and other flood hazard data or existing study data; summarize the information in the WISE Scoping Tool and/or MNUSS database; summarize contiguous community agreement checks; review CAV and Community Assistance Contact files; and develop a "scoping map" and an overview of the results of the research.

MDEQ will coordinate, setup, and hold the Scoping Meeting. This includes identifying a time, place, and participants. The purpose of this meeting is to present the current information to the local officials (State, county, and municipal) and coordinate on prioritization and identification of study areas. MDEQ shall be responsible for compiling the necessary information for the meeting. These items may include: the FIS and FIRM for affected communities; United States Geological Survey quads for the study area; best available community base map(s); effective FIRM summary; Available Data Inventory; Scoping Map; Scoping Meeting Agenda/Minutes form; Aerial photos/topographic mapping, if available; existing drainage studies or other H&H data; Community Master Plan(s)/Drainage Master Plan(s); Zoning Maps; Street Maps; As-built plans; and Floodplain Ordinance(s).

The project management team shall review the initial mapping needs list, review the research findings, and make selections of proposed methods for obtaining/producing flood data. Any additions or changes to the needs list shall be discussed with all members. All needs shall also be prioritized. In general, highest priority shall be given to the following areas: areas of dense existing or anticipated development including areas where new road crossings have been constructed over stream(s); areas affected by flood-control structures and/or channelization; areas where natural physical changes in the floodplain have been significant (due to subsidence or extreme erosion, for example); areas that were studied by approximate methods and unmapped areas especially those with development pressure; areas where the community has experienced flooding outside mapped floodplains with severe damage to buildings and/or infrastructure; areas where mapped flood hazards do not match those shown on contiguous FIRMs (unless those FIRMs are not considered to be accurate); and areas where flood data (Base Flood Elevations (BFEs), floodplains, and regulatory floodways) are likely to be changed the most by a restudy.

Based on the discussion of mapping needs, MDEQ and the FEMA Project Officer will finalize the areas to be included in the project (based on recommendations provided by the Project Team). Areas to be studied by detailed, limited detail, and approximate methods shall be identified. The following issues will be discussed and refined: Review and Refinement of Flood Hazard Identification Methodologies, Review

of Proposed Paneling Scheme, Review and Refinement of Base and Topographic Map Source, and Finalization of Map Production and Database Options.

MDEQ will be acting as the Consultation Coordination Officer for this flood study as identified in 44 CFR Part 66. At this point, the MDEQ will prepare and setup the Community Case File and Flood Elevation Docket for the maintenance of all communication and coordination throughout the project as outlined in 44CFR Parts 66 and 67.

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

Deliverables:

- The Final Scoping with all of the components as laid out in the attached "Partner Flood Map Modernization Program Scoping Report" template in Appendix A, or an approved alternate, will be delivered in accordance with the schedule outlined in Section 6 - Schedule to the Regional Project Officer for approval.

- QA/QC Plan for the review of the mapping project outlined in this MAS. This will include the checklists developed for that review in accordance with the schedule included in Section 6 - Schedule.

- WISE Scoping Tool population and MNUSS updates of unmet needs identified during scoping.

OUTREACH

The performance of outreach takes place throughout the life of the flood study project. The outreach budget will be tracked in the MIP Workflow, equally between Produce Preliminary Map Products and Post Preliminary Processing,

The outreach activities for a Flood Map Project can best be understood as a process that begins during the Project Scoping phase and continues through the map production and post-preliminary phases. A regulatory overview of required activities is followed by a description of tools that can be used in working with stakeholders to keep them informed and to solicit their input.

The overarching goal for conducting outreach is to create a climate of understanding and ownership of the mapping process at the State and local levels. Well-planned outreach activities can reduce political stress, confrontation in the media, and public controversy, which can arise from lack of information, misunderstanding, or misinformation. These outreach activities also can assist FEMA and other members of the Project Team in responding to congressional inquiries.

MDEQ will work with the Regional Office during the initiation of this activity to determine an Outreach Plan for implementation throughout the mapping project. The Regional Office will have access to many outreach tools that have been developed for this process that can be utilized or customized.

All communication with local governments will be done in accordance with 44 CFR Part 66.

- Upon determination of an Outreach and Coordination Approach the MDEQ shall deliver the following to the FEMA Regional Project Officer in accordance with the schedule outlined in Section 6 - Schedule:
    - A report detailing outreach and coordination activities
    - Backup or supplemental information used in writing this report

Field Survey

Responsible Mapping Partner: MDEQ

Scope: To supplement any field reconnaissance conducted during the Project Scoping phase of this project, MDEQ shall conduct a detailed field reconnaissance of the specific study area to determine conditions along the floodplain(s), types and numbers of hydraulic and/or flood-control structures, apparent maintenance or lack thereof of existing hydraulic structures, locations of cross sections to be surveyed, and other parameters needed for the hydrologic and hydraulic analyses.

In addition to the initial field reconnaissance, MDEQ shall conduct field surveys, including obtaining channel and floodplain cross sections, identifying or establishing temporary bench marks, and obtaining the physical dimensions of hydraulic and flood-control structures. MDEQ also shall coordinate with other Mapping Partners that are involved in the Topographic Data Development process.

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

Deliverables: In accordance with the Technical Support Data Notebook (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. The NFIP approved 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 monthly for status reporting as well as 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 report summarizing the findings of the field reconnaissance;
- Maps and drawings that provide the detailed survey results;
- Survey notebook containing cross sections and structural data;
- Documentation of the Datum;
- Format Survey Database or Data Delivery consistent with the Data Capture Standards–Appendix N of the *Guidelines and Specifications for Flood Hazard Mapping Partners*, and

- 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.

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

Base Map Acquisition

Responsible Mapping Partner: MDEQ

Scope: Base Map Acquisition consists of obtaining the digital base map for the project. MDEQ shall obtain the digital base map. The required activities are as follows:

- Obtain digital files (raster or vector) of the base map.
- Secure necessary permissions from the map source to allow FEMA's use and distribution of hardcopy and digital map products using the digital base map, free of charge.
- Certify that the digital data meets the minimum standards and specifications that FEMA requires for DFIRM production.

Standards: All Base Map Acquisition work shall be performed in accordance with the standards specified in Section 5 - Standards. 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 time of delivery. The NFIP approved 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 monthly for status reporting as well as when the activity is complete. MDEQ shall make the following products available to FEMA in accordance with the schedule outlined in Section 6 – Schedule.

- Written certification that the digital data meet the minimum standards and specifications;
- Documentation that FEMA can use the digital base map; and
- Documentation of the Datum, if appropriate.

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

Independent QA/QC Review of Base Map

Responsible Mapping Partner: MDEQ/MDEQ's Independent QA/QC Contractor

Scope: MDEQ's Independent QA/QC Contractor shall review the base map acquired by MDEQ to ensure it includes data consistent with FEMA standards and sufficient to include on the DFIRM.

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 the MIP or submitting it to the FEMA Regional Office if the MIP is unavailable at time of delivery. The NFIP approved 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 monthly for status reporting as well as when the activity is complete.

- A Summary Report that describes the findings of the independent QA/QC review;
- Recommendations to resolve any problems that are identified during the independent QA/QC review; and
- If data changed during review, then updated deliverables from 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/plan/prevent/fhm/dl_cgs.shtm.

Hydrologic Analyses

Responsible Mapping Partner: MDEQ

Scope: MDEQ shall perform hydrologic analyses for the number of square miles of drainage area and for the flooding source(s) to be studied by detailed methods, as will determined during the Scoping Activity and quantified in the Final Scoping Report for each county in Table 1.1. MDEQ shall calculate peak flood discharges for the 10-, 2-, 1-, and 0.2-percent-annual-chance storm events using the HEC-1 or HEC-HMS computer program. These flood discharges will be the basis for subsequent Hydraulic Analyses performed under this MAS. In addition, MDEQ shall address all concerns or questions regarding the hydrologic analyses that are raised during the independent QA/QC review performed by its Independent QA/QC Contractor during the QA/QC review.

MDEQ shall perform hydrologic analyses for the flooding source(s) to be studied by limited detail methods, as will determined during the Scoping Activity and quantified in the Final Scoping Report for each county in Table 1.1. MDEQ shall calculate peak flood discharges for the 1-percent-annual-chance storm events using Regional Regression Equations and/or stream gage data. These flood discharges will be the basis for subsequent Hydraulic Analyses performed under this MAS. In addition, MDEQ shall address all concerns or questions regarding the hydrologic analyses that are raised during the independent QA/QC review performed by its Independent QA/QC Contractor during the QA/QC review.

Standards: All Hydrologic Analyses 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 upload the digital data to the MIP or submit to FEMA by using other digital media if the MIP is unavailable so that its Independent QA/QC Contractor can access it for an independent QA/QC review in accordance with the schedule outlined in Section 6 - Schedule. The NFIP approved 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 monthly for status reporting as well as 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.

- For flooding sources studied by detail study methods, digital copies of all hydrologic modeling (input and output) files for the 10-, 2-, 1-, and 0.2-percent-annual-chance storm events;
- For flooding sources studied by limited detail study methods, digital copies of all hydrologic modeling (input and output) files for the 1-percent-annual-chance storm events;
- Digital Summary of Discharges Tables presenting discharge data for the flooding sources for which hydrologic analyses were performed;
- Digital draft text for Hydrologic Analyses Section of the FIS report;
- Digital versions of all backup data used in the analysis including work maps;
- Format Hydrology Database or Data Delivery consistent with the Data Capture Standards–Appendix N of the *Guidelines and Specifications for Flood Hazard Mapping Partners*; and
- 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.

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

Independent QA/QC Review of Hydrologic Analyses

Responsible Mapping Partner: MDEQ/MDEQ's Independent QA/QC Contractor

Scope: MDEQ's Independent QA/QC Contractor shall review the technical, scientific, and other information submitted by MDEQ specific to the hydrologic analyses to ensure that the data and modeling are consistent with FEMA standards and standard engineering practice, and are sufficient to prepare the DFIRM. 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 submittal for technical and regulatory adequacy, completeness of required information, and supporting data and documentation. The technical review is to focus on the following:
  - Use of acceptable models;
  - Use of appropriate methodology(ies);

- Correctly applied methodology(ies)/model(s), including QC of input parameters;
- Comparison with gage data and/or regression equations, if appropriate; and
- Comparison with discharges for contiguous reaches or flooding sources.

- Maintain records of all contacts, reviews, recommendations, and actions and make the data readily available to FEMA;
- Maintain an archive of all data submitted for hydrologic modeling review. (All supporting data must be retained for three years from the date funding recipient submits its final expenditure report to FEMA, once the study is effective all associated data should be submitted to the FEMA library); and
- If data changed during review, then updated deliverables for previous tasks will be submitted at this time.

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 the MIP or submitting it to the FEMA Regional Office if the MIP is unavailable at the time of delivery. The NFIP approved 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 monthly for status reporting as well as when the activity is complete.

- A Summary Report that describes the findings of the independent QA/QC review and
- Recommendations to resolve any problems that are identified during the independent QA/QC review.

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

Hydraulic Analyses

Responsible Mapping Partner: MDEQ

Scope: For flooding sources studied by detailed methods MDEQ shall perform hydraulic analyses for the number of miles of the flooding sources to be identified during he Scoping Activity for the counties listed earlier in Table 1.1. The modeling will include the 10-, 2-, 1-, and 0.2-percent-annual-chance events based on peak discharges computed under Hydrologic Analyses. The hydraulic methods used for this analysis will include utilization of HEC-RAS software.

MDEQ shall use the cross-section and field data collected during Field Survey to perform the hydraulic analyses. The hydraulic analyses will be used to establish flood elevations and regulatory floodways for the subject flooding sources.

MDEQ shall use the FEMA CHECK-2 or CHECK-RAS checking program to verify the reasonableness of the hydraulic analyses. To facilitate the independent QA/QC review, MDEQ shall provide explanations for unresolved messages from the CHECK-2 or CHECK-RAS program, as appropriate. In addition, MDEQ shall address all concerns or questions regarding the hydraulic analyses that are raised by its Independent QA/QC Contractor during the independent QA/QC review.

Standards: All Hydraulic Analyses 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 upload the digital data to the MIP or submit to FEMA by using other digital media if the MIP is unavailable so that its Independent QA/QC Contractor can access it for an independent QA/QC review in accordance with the schedule outlined in Section 6 - Schedule. The NFIP approved 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 monthly for status reporting as well as 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.

- For flooding sources studied by detailed methods, digital profiles of the 10-, 2-, 1- and 0.2-percent-annual-chance water-surface elevations representing existing conditions using the FEMA RASPLOT program or similar software;
- For flooding sources studied by limited detail methods, digital profiles of the 1-percent-annual-chance water-surface elevations representing existing conditions using the FEMA RASPLOT program or similar software;
- Digital Floodway Data Tables for each flooding source that is compatible with the DFIRM database, for each flooding source studied by detailed methods;
- Digital hydraulic modeling (input and output) files;
- Digital tables with range of Manning's "n" values;
- Explanations for unresolved messages from the CHECK-2 or CHECK-RAS program, as appropriate;
- Digital versions of all backup data used in the analyses;
- Digital versions of draft text for inclusion in the FIS report;
- Format Hydraulic Database or Data Delivery consistent with the Data Capture Standards–Appendix N of the *Guidelines and Specifications for Flood Hazard Mapping Partners*; and
- 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.

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

Independent QA/QC Review of Hydraulic Analyses

Responsible Mapping Partner: MDEQ/MDEQ's Independent QA/QC Contractor

Scope: MDEQ's Independent QA/QC Contractor shall review the technical, scientific, and other information submitted by MDEQ under Hydraulic Analysis to ensure that the data and modeling are consistent with FEMA standards and standard engineering practice, and are sufficient to revise the FIRM. 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 submittal for technical and regulatory adequacy, completeness of required information, and supporting data and documentation. The technical review is to focus on the following:
    - Use of acceptable model(s);
    - Starting water-surface elevations;
    - Cross-section geometry;
    - Manning's "n" values and expansion/contraction coefficients;
    - Bridge and culvert modeling;
    - Flood discharges;
    - Regulatory floodway computation methods; and
    - Tie-in to upstream and downstream non-revised Flood Profiles.
- Use the CHECK-2 or CHECK-RAS program, as appropriate, to flag potential problems and focus review efforts.
- Maintain records of all contacts, reviews, recommendations, and actions and make the data readily available to FEMA.
- Maintain an archive of all data submitted for hydrologic modeling review. (All supporting data must be retained for three years from the date funding recipient submits its final expenditure report to FEMA, once the study is effective all associated data should be submitted to the FEMA library); and
- If data changed during review, then updated deliverables for previous tasks will be submitted at this time.

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 the MIP or submitting it to the FEMA Regional Office if the MIP is unavailable at the time of delivery. The NFIP approved 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 monthly for status reporting and when the activity is complete

- A Summary Report that describes the findings of the independent QA/QC review;
- Recommendations to resolve any problems that are identified during the independent QA/QC review; and
- If the data changed during the Hydrologic and/or Hydraulic Analyses QA/QC process, then the updated and verified deliverables from these activities 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/plan/prevent/fhm/dl_cgs.shtm.

Floodplain Mapping

Responsible Mapping Partner: MDEQ

Scope for Detailed Riverine or Coastal Analysis: MDEQ shall delineate the 1- and 0.2-percent-annual-chance floodplain boundaries and the regulatory floodway boundaries for the flooding sources for which detailed hydrologic, hydraulic, and/or coastal analyses were performed. MDEQ shall incorporate all new or revised hydrologic, hydraulic, and/or coastal modeling and shall use the topographic data acquired under Topographic Data Development to delineate the floodplain and regulatory floodway boundaries on a digital work map.

Scope of Redelineation of Detailed Floodplain Boundaries Using Updated Topographic Data:

MDEQ shall delineate the 1- and 0.2-percent-annual-chance floodplain boundaries and regulatory floodway boundaries for the flooding sources listed earlier in Table 1.1. MDEQ shall use the topographic data acquired under Topographic Data Development to delineate the floodplain and regulatory floodway boundaries, as appropriate, on a digital work map. If the new topographic data do not reflect the same hydraulic characteristics as in the effective study, MDEQ shall evaluate the topographic data to determine if changes are significant enough to invalidate the floodplain boundary and regulatory floodway boundary redelineations. If so, MDEQ shall contact the FEMA Regional Project Officer, identified in Section 12 – Points of Contact, with a recommendation.

Scope for Limited Detail Study: The Limited Detail Study (LDS) approach is intended as an option for producing AE zones with published BFEs where communities have not had such on prior maps and where high resolution terrain data provide the opportunity to produce high quality mapping with a limited amount of field survey effort, thus reducing cost. MDEQ shall confer closely with the affected community(ies) to ensure that sufficient terrain data exist to produce studies adequate for publishable BFEs. If such is not the case, alternative study methods shall be employed, such as Refinement or Creation of Zone A. For reaches scoped as LDS, MDEQ shall delineate the 1-percent-annual-chance floodplain boundaries for the flooding sources for which limited detail hydrologic and hydraulic analyses were performed. MDEQ shall incorporate all new or revised hydrologic and hydraulic modeling and shall

use the topographic data used in these analyses to delineate the floodplain boundaries on a digital work map.

Scope for Refinement or Creation of Zone A: MDEQ shall delineate the 1-percent-annual-chance floodplain boundaries for the flooding sources listed earlier in Table 1.1 or in the subsequent Scoping Report. MDEQ shall use existing topographic data or the topographic data acquired under Topographic Data Development to delineate the floodplain boundaries on a digital work map. MDEQ may expand on the approaches for analyzing Zone A areas outlined in *Guidelines and Specifications for Flood Hazard Mapping Partners* and in FEMA 265, *Managing Floodplain Development in Approximate Zone A Areas* (April 1995), and/or develop new approaches. Such approaches must be coordinated with the FEMA Regional Project Officer identified in Section 12 – Points of Contact, before analysis and mapping begin.

Scope for Non-revised Areas:

For all flooding sources except those segments for which updated flood data will be developed, MDEQ shall convert the information shown on the effective FIRM and FBFM panels for all incorporated and unincorporated areas of the counties listed in Tables 1.1, in accordance with the work to be defined in the Final Scoping Reports, to digital format in conformance with FEMA DFIRM specifications. MDEQ shall use the acquired base map for the conversion. MDEQ shall digitize FIRM panels and FBFM panels as required, in accordance with the work to be defined in the Final Scoping Reports. MDEQ shall not digitize the flood theme for those segments of flooding sources for which updated flood data will be developed.

Scope for Merging Revised and Non-Revised Information: Upon completion of the floodplain mapping activities for the revised and non-revised areas, 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 that were not studied as part of the Flood Map Project documented in this MAS. MDEQ also shall tie in the revised and non-revised Flood Profiles, floodplain boundaries, and regulatory floodway boundaries with contiguous communities that were not studied as part of the Flood Map Project documented in this MAS. 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 incorporate the results of all effective LOMCs for all affected communities on the DFIRM. Also, 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. MDEQ may expand on the approaches for analyzing Zone A areas outlined in *Guidelines and Specifications for Flood Hazard Mapping Partners* and in FEMA 265, *Managing Floodplain Development in Approximate Zone A Areas* (April 1995), and/or develop new approaches. Such approaches must be coordinated with the FEMA Regional Project Officer before analysis and mapping begin.

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 those flooding sources and reaches to be identified in the Final Scoping Reports for the counties listed in Table 1.1, 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 its Independent QA/QC Contractor can access it for the independent QA/QC review. The NFIP approved 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 mapping for the remaining flooding sources including any non-revised digital panels and all merged revised and non-revised floodplain mapping data is to be submitted for a final QA/QC review at the completion of this activity. This submittal will occur in accordance with the schedule outlined in Section 6 - Schedule. The MIP shall be updated monthly for status reporting and 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.

- Digital work map showing the 1- and 0.2-percent-annual-chance floodplain boundary delineations, regulatory floodway boundary delineations, cross sections, BFEs, flood insurance risk zone designation labels, and all applicable base map features;
- 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*;
- 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;
- Any backup or supplemental information including supporting calculations and assumptions used in the mapping required for the independent QA/QC review of Hydrologic, Coastal and /or Hydraulic Analyses and Floodplain Mapping;
- An explanation for the use of existing topography for the studied reaches, if appropriate.
- Written summary of the analysis methodologies;
- Digital versions of input and output for any computer programs that were used;
- Format Mapping Database or Data Delivery consistent with the Data Capture Standards–Appendix N of the *Guidelines and Specifications for Flood Hazard Mapping Partners*;
- If automated GIS-based models are applied, all input data, output data, intermediate data processing products, and GIS data layers shall be submitted.

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

Independent QA/QC Review of Floodplain Mapping

Responsible Mapping Partner: MDEQ/MDEQ's Independent QA/QC Contractor

Scope: MDEQ's Independent QA/QC Contractor shall review the floodplain mapping submitted by MDEQ under Floodplain Mapping to ensure that the results of the analyses performed are accurately represented, the redelineation of existing data on new, updated topography is appropriate, and to ensure that the new DFIRM panels accurately represent the information shown on the effective FIRMs and FBFMs for the unrevised areas that are mapped. 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. The NFIP approved 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 monthly for status reporting and 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/plan/prevent/fhm/dl_cgs.shtm.

DFIRM Database

Responsible Mapping Partner: MDEQ

Scope: MDEQ shall apply the final FEMA DFIRM graphic and database specifications to the DFIRM files produced under Floodplain Mapping and/or Redelineation. 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 database format. The database shall be produced in accordance with Appendix L of the *Guides and Specifications for Flood Hazard Mapping Partners*. MDEQ shall coordinate with those Mapping Partners responsible for Floodplain Mapping and/or Redelineation, as necessary, 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. The NFIP approved 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 monthly for status reporting and 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/plan/prevent/fhm/dl_cgs.shtm.

Independent QA/QC Review of DFIRM Dbase

Responsible Mapping Partner: MDEQ/MDEQ's Independent QA/QC Contractor

Scope: Upon completion of the floodplain mapping and redelineation activities, MDEQ's Independent QA/QC Contractor shall review the DFIRM spatial database to determine if it meets current FEMA database specifications. In addition, MDEQ's Independent QA/QC Contractor shall review the DFIRM to ensure it meets current FEMA graphic specifications. MDEQ's Independent QA/QC Contractor shall coordinate with other Mapping Partners, as necessary, to resolve any problems identified during this QA/QC review. 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. The NFIP approved 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 monthly for status reporting and 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/plan/prevent/fhm/dl_cgs.shtm.

Produce Preliminary Map Products

Responsible Mapping Partners: MDEQ

Scope: 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.

Preliminary Transmittal Letter Preparation: The MDEQ shall prepare letters and transmit the Preliminary copies of the DFIRM and FIS report and related enclosures to all affected communities, all other Project Team members, the State NFIP Coordinator, the FEMA Regional Office, and others as directed by FEMA. This letter may be prepared for FEMA only or for signature by FEMA and MDEQ.

Distribution of Preliminary DFIRM and FIS Report: MDEQ shall distribute the Preliminary copies of the DFIRM and FIS report to all affected communities, all other Project Team members, the State NFIP Coordinator, the FEMA Regional Office, and others as directed by FEMA.

News Release Preparation: MDEQ shall prepare news release notifications of BFE changes for all affected communities, if appropriate, and perform QA/QC reviews of the notices for accuracy and compliance with FEMA format requirements. MDEQ shall file the notifications for later submittal to FEMA for review.

Preliminary Summary of Map Actions (SOMA) Preparation: 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 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. The NFIP approved 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 monthly for status reporting and when the activity is complete.

- Preliminary transmittal letters shall be prepared and transmitted. These letters and any additional letters requested by FEMA shall be prepared in accordance with the current version of the FEMA *Document Control Procedures Manual* and in conjunction with Guidance provided by the Region and/or its contractor.
- 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 copies of the DFIRM and FIS report, including all updated data tables and Flood Profiles shall be mailed to the Chief Executive Officer (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.
- 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.
- The NFIP approved 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.

Independent QA/QC of Preliminary Map Products

Responsible Mapping Partners: MDEQ/MDEQ's Independent QA/QC Contractor

Scope:

Final QA/QC Review of Preliminary DFIRM and FIS Report: 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* and the QA/QC report submitted for approval at the end of scoping.

Discrepancy Resolution: 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. The NFIP approved 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 monthly for status reporting and 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/plan/prevent/fhm/dl_cgs.shtm.

Post-Preliminary Processing

Responsible Mapping Partners: MDEQ and FEMA

Scope: Post-Preliminary Processing includes coordination with FEMA and the Community to schedule a Community Meeting(s) for review of the Preliminary DFIRM, if required. This activity consists of finalizing the DFIRM and FIS report after the Preliminary copies of the DFIRM and FIS report have been issued to community officials and the public for 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.

Community Coordination Meeting: MDEQ shall arrange for and verify that the following activities are completed:

- Establish invitee list,

- Schedule meeting data and place,
- Complete and Distribute Meeting Notice/Letter,
- Record Meeting Minutes, and
- Identify any/all communities with BFE changes for required appeal period.

Initiation of Statutory 90-Day Appeal Period: When required, upon completion of a 30-day community comment period and/or final coordination meeting with the affected communities, MDEQ shall arrange for and verify that the following activities are completed in accordance with the current version of the FEMA *Guidelines and Specifications for Flood Hazard Mapping Partners* and *Document Control Procedures Manual*:

- Proposed BFE determination letters are sent to the community CEOs and floodplain administrators.

News release notifications of BFE changes are published in prominent newspapers with local circulation in accordance with 44 CFR.

- MDEQ shall prepare the appropriate notices (Proposed Rules) that are to be published in the *Federal Register*. MDEQ shall then deliver those notices to FEMA for publication.
- When MDEQ holds public meetings to present and discuss the results of this Flood Map Project, FEMA may attend the meetings and assist where possible, if requested.

Resolution of Appeals and Protests: MDEQ shall review and resolve appeals and protests received during the 90-day appeal period. For each appeal and 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.

MDEQ's role in supporting the appeal and protest process associated with any particular county of those listed in Table 1.1 includes up to 40 hours of technical support per county. If MDEQ's required level of effort exceeds 40 hours, MDEQ will coordinate with FEMA for additional funding and will notify FEMA in advance when it appears that the 40-hour limit will be exceeded.

Preparation of Special Correspondence: MDEQ shall support FEMA in responding to comments not received within the 90-day appeal period (referred to as "special correspondence") including drafting responses for FEMA review when appropriate and finalizing responses for co-signature. MDEQ also

shall mail the final correspondence (and enclosures, if appropriate) and distribute appropriate copies of the correspondence and enclosures upon receipt of authorization from FEMA.

Revision of FIRM and FIS Report: If necessary, MDEQ shall work together with FEMA to revise the DFIRM and FIS report 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 Letter of Final Determination: MDEQ shall work with FEMA to establish the effective date for the DFIRM and FIS report, and shall prepare Letters of Final Determination (LFDs) for each affected community for FEMA review in coordination with the Region and its contractor, and in accordance with the FEMA *Document Control Procedures Manual*. FEMA or its designated contractor shall mail the final signed LFDs and enclosures and distribute appropriate copies of the signed LFDs.

Processing of Final DFIRM and FIS Report for Printing: MDEQ shall prepare final reproduction materials for the DFIRM and FIS report and provide these materials to MSC 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.

Revalidation Letter Processing. MDEQ shall prepare and distribute letters for FEMA signature to the community CEOs and floodplain administrators to notify the affected communities about LOMCs for which determinations will remain in effect after the DFIRM and FIS report become effective.

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, 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. The NFIP approved 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 monthly for status reporting and when the activity is complete.:

- Documentation that the news releases were published in accordance with FEMA requirements;
- Documentation that the appropriate *Federal Register* notices (Proposed and Final Rules) were published in accordance with FEMA requirements;

- Draft and final Special Correspondence (and all associated enclosures, backup data, and other related information) for FEMA review and signature, as appropriate;
- 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;
- Draft and final LFDs (and all associated enclosures, backup data, and other related information) for FEMA review and signature;
- DFIRM negatives and final FIS report materials including all updated data tables and Flood Profiles;
- Paperwork for the final DFIRM and FIS report materials;
- Transmittal letters for the printed DFIRM and FIS report;
- LOMC Revalidation Letters, if appropriate;
- 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	QA/QC of Hydrology	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 Documentation														
Special Problem Reports	X	X			X	X	X	X	X	X	X	X	X	X
Telephone Conversation Reports	X	X			X	X	X	X	X	X	X	X	X	X
Meeting Minutes/ Reports	X	X			X	X	X	X	X	X	X	X	X	X
General Correspondence	X	X			X	X	X	X	X	X	X	X	X	X
Engineering Analyses														
Hydrologic Analyses		X			X	X	X	X	X	X	X			
Hydraulic Analyses		X			X	X	X	X	X	X	X			
Key to Cross-Section Labeling		X			X	X	X	X	X	X	X			
Key to Transect Labeling		X			X	X	X	X	X	X	X			
Draft FIS Report					X	X	X	X	X					
Mapping Information	X									X	X	X	X	X
Miscellaneous Reference Information	X	X			X	X	X	X	X	X	X	X	X	X

SECTION 3—PERIOD OF PERFORMANCE

The mapping activities outlined in this MAS will begin upon receipt of Notice to Proceed from FEMA, and will be completed no later than 36 months afterward or September 30, 2009. The mapping activities may be terminated at the option of FEMA or MDEQ 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

FEMA is providing funding, in the amount of
to MDEQ for the completion of this Flood Map Project. MDEQ shall provide any additional resources required to complete the assigned activities for this Flood Map Project. During the scoping process, additional needs may be identified. Activities associated with any additional needs would be performed based on availability of additional funds. The CTP Leverage listed below includes in-kind services and blue book values for acquired information. More detailed leverage information will be determined during the detailed scoping process and reported back to FEMA at that time.

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

*CTP Contribution at this stage consists of Base Map Acquisition, specifically Statewide color digital orthophotography, at a 2' pixel resolution. The value of the leverage shown is based on an estimated 1,000 DFIRM panels for the 20 counties listed in Table 1.1, at a "Blue Book" value of $430/panel for "Local orthophotos with max. features" (*Estimating the Value of Partner Contributions to Flood Mapping Projects "Blue Book,"* 10/28/03, page 7).

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

Table 4.1 FEMA-Funded Activities

Activities	FUNDABLE?
Scoping	Yes, up to 10 percent of total cost
Outreach	Yes
Field Surveys and Reconnaissance	Yes
Base Map Acquisition	No
Hydrologic Analyses	Yes
Independent QA/QC Review of Hydrologic Analyses	Yes
Hydraulic Analyses	Yes

Activities	FUNDABLE?
Independent QA/QC Review of Hydraulic Analyses	Yes
Floodplain Mapping (Detailed Riverine Analysis; Redelineation Using Effective Flood Profiles and Updated Topographic Data; Refinement or Creation of Zone A; Redelineation/digitization of Non-Revised Areas; and Merging Revised and Non-Revised Areas)	Yes
Independent QA/QC of Floodplain Mapping	Yes
Optional: Redelineation (Redelineation Using Effective Flood Profiles and Updated Topographic Data; Refinement; and Redelineation (digitization) Non-Revised Areas)	Yes
Independent QA/QC of Redelineation	Yes
DFIRM Database and Graphic Specifications	Yes
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/plan/prevent/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
Scoping	MDEQ	3/28/07
Field Surveys	MDEQ	8/27/07
Base Map Acquisition	MDEQ	6/29/07
Hydrologic Analyses	MDEQ	8/27/07
Independent QA/QC Review of Hydrologic Analyses	MDEQ/FEMA	9/27/07
Hydraulic Analyses	MDEQ	12/26/07
Independent QA/QC Review of Hydraulic Analyses	MDEQ/FEMA	1/27/08
Floodplain Mapping: • Detailed Riverine Analysis • Refinement or Creation of Zone A • Merging Revised and Unrevised Areas • Redelineation Using Effective Flood Profiles and Updated Topographic Data • Redelineation/Digitization of Non-Revised Areas	MDEQ	5/25/08
Independent QA/QC Review of Floodplain Mapping	MDEQ/FEMA	6/27/08
DFIRM Database (including Graphic Specifications)	MDEQ	8/12/08
Independent QA/QC Review of DFIRM Database	MDEQ/FEMA	8/28/08
Produce Preliminary Map Products (including 1/3 Outreach)	MDEQ	9/28/08
Post-Preliminary Processing (including 1/3 Outreach)	MDEQ/FEMA	9/29/09

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 throughout the project duration;
- 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., or Stephen D. Champlin, R.P.G., the Project Managers 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 — 09-18-06

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

Laura Algeo — 9-29-06

Laura Algeo, P.E. — Date
Regional Project Officer
Federal Emergency Management Agency, Region IV

for Kristi Hall — 9/22/06

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

Thomas M. Womack FOR — 9/22/06

Thomas M. Womack — Date
Interim Executive Director, Mississippi Emergency Management Agency

Attachments to include:

Appendix A – Project Scoping Report Template (including Baseline Budget/Schedule Form aligned to the MIP Work Flow)
Appendix B – CTP Quarterly Report (MIP REPORT, under construction)