



Georgia Department of Natural Resources COOPERATING TECHNICAL PARTNERS MAPPING ACTIVITY STATEMENT

Mapping Activity Statement No. 1 – Digital Flood Insurance Rate Map Production and Development of Updated Flood Data

In accordance with the Cooperating Technical Partners (CTP) Partnership Agreement dated August 16, 1999, between State of Georgia Department of Natural Resources and the Federal Emergency Management Agency (FEMA), Mapping Activity Statement (MAS) No. 1 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 Henry County, Georgia. 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).

In addition the Mapping Partners involved in this project will develop new and/or updated flood hazard data for approximately 100 miles of stream, as summarized in the table below.

Flooding Source	Reach Limits (stream length in miles)	Hydrologic Analyses	Hydraulic Analyses	Floodplain Mapping	Redelineation Using Effective Flood Profiles and Updated Topographic Data	Refinement or Creation of Zone A
Camp Creek	7	X	X	X		
Mountain Creek / Mitchell Branch	4	X	X	X		
Martin Creek	4	X	X	X		
James Creek	6	X	X	X		
Cane Creek	5	X	X	X		X
Reeves Creek	7	X	X	X		
Little Cotton Indian Creek	7	X	X	X		
Pates Creek	7	X	X	X		
Big Cotton Indian Creek	18	X	X	X		

**Georgia Department of Natural Resources
COOPERATING TECHNICAL PARTNERS
MAPPING ACTIVITY STATEMENT
(CONTINUED)**

Flooding Source	Reach Limits (stream length in miles)	Hydrologic Analyses	Hydraulic Analyses	Floodplain Mapping	Redelineation Using Effective Flood Profiles and Updated Topographic Data	Refinement or Creation of Zone A
Rum Creek / Line Creek	5	X	X	X		
Walnut Creek	23	X	X	X		
Birch Creek	7	X	X	X		
Zone A's	45					X

This Flood Map Project will be completed by the following:

- State of Georgia Department of Natural Resources (DNR);
- Henry County, Georgia;
- Lowe Engineers Project Team (Contractor);

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 the table below. The sections of this MAS that follow the table below describe the specific activities, responsible Mapping Partner(s), FEMA standards that must be met, and resultant map components.

Activities	CIP	FEMA
Activity 1A – Scoping and Outreach	X	X
Activity 1B – Field Surveys and Reconnaissance	X	
Activity 4 – Hydrologic Analyses	X	
Activity 5 – QA/QC Review of Hydrologic Analyses	X	X
Activity 6 – Hydraulic Analyses	X	
Activity 7 – QA/QC Review of Hydraulic Analyses	X	X
Activity 8 – Floodplain Mapping (Detailed Riverine)	X	
Activity 8B – Floodplain Mapping (Refinement /Creation of Zone A)	X	
Activity 9 – QA/QC Review of Floodplain Mapping (Revised Areas)	X	X

**Georgia Department of Natural Resources
COOPERATING TECHNICAL PARTNERS
MAPPING ACTIVITY STATEMENT
(CONTINUED)**

Activities	CTP	FEMA
Activity 10 – Base Map Acquisition	X	
Activity 11 – DFIRM Production (Non-Revised Areas)	X	
Activity 11A – QA/QC Review of DFIRM Production (Non-Revised Areas)	X	X
Activity 12 – DFIRM Production (Merge Revised and Non-Revised Information)	X	
Activity 12A – Application of DFIRM Graphic and Database Specifications	X	
Activity 12B – QA/QC Review of DFIRM Product Meeting FEMA Graphic and Database Specifications	X	X
Activity 13 – Preliminary DFIRM and FIS Report Distribution	X	
Activity 14 – Post-Preliminary Processing	X	X

Activity 1A – Scoping and Outreach

Responsible Mapping Partner: State of Georgia DNR and their contractor.

Scope: The State of Georgia DNR and their contractor shall conduct a scoping/kick-off meeting for the Henry County mapping project. The initial kick-off meeting will cover the areas proposed for detail hydrologic and hydraulic analysis reflected in this MAS and the schedule for the completion of the new Digital Flood Insurance Rate Maps (DFIRM) for Henry County. The streams listed above in the Table in Section 1 could be revised as a result of the scoping meeting. This revised scope of work will refine the statement objective with the written approval of the Georgia DNRs Project Manager and FEMAs Regional Project Officer. The Scoping of this project will be completed in accordance with the Scoping Guidelines outlined in the *Guidelines and Specifications for Flood Hazard Mapping Partners Appendix I* dated April 2003. Any changes in scope as a result of the kick-off meeting resulting in more than 100 miles of detail study on streams in Henry County will be reflected as a modification to this MAS.

The State of Georgia DNR and their contractor will perform four (4) additional status meetings with Henry County and FEMA Region IV at strategic points in the process of the project. The scheduling of the status meetings will be decided upon at the project kick-off meeting.

Standards: All work under Activity 1 shall be performed in accordance with the standards specified in Section 5 of this MAS. In addition, all communication and coordination with local governments will be done in accordance with Title 44 Code of Federal Regulations Part 66.

Deliverables: In accordance with the Technical Support Data Notebook (TSDN) format described in described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, the State of Georgia DNR shall make the following products available to FEMA :

**Georgia Department of Natural Resources
COOPERATING TECHNICAL PARTNERS
MAPPING ACTIVITY STATEMENT
(CONTINUED)**

- Minutes summarizing the kick-off and status meetings; and
- Project schedules indicating project milestones.

Activity 1B - Field Surveys and Reconnaissance

Responsible Mapping Partner: State of Georgia DNR and their contractor.

Scope: To supplement any field reconnaissance conducted during the Project Scoping phase of this project, the State of Georgia DNR 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, the State of Georgia DNR 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.

Standards: All work under Activity 1B shall be performed in accordance with the standards specified in Section 5 of this MAS.

Deliverables: In accordance with the Technical Support Data Notebook (TSDN) format described in described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, the State of Georgia DNR shall make the following products available to FEMA :

- A report summarizing the findings of the field reconnaissance;
- Maps and drawings that provide the detailed survey results; and
- Survey notebook containing cross sections and structural data.

Activity 4 – Hydrologic Analyses

Responsible Mapping Partner: State of Georgia DNR and their contractor.

Scope: State of Georgia DNR shall perform hydrologic analyses for the flooding sources listed in the Table above in Section 1. The State of Georgia DNR shall calculate peak flood discharges for the 10%, 2%, 1%, and 0.2% annual-chance storm events using either the U.S. Army Corps of Engineers (COE) HEC-1 or HEC-HMS computer program or other methodologies accepted by FEMA. These flood discharges will be the basis for subsequent hydraulic analyses under Activity 6. In addition, State of Georgia DNR shall address all concerns or questions regarding Activity 4 that are raised during the QA/QC review performed under Activity 5.

If Geographic Information System (GIS)-based modeling is used, State of Georgia DNR and their contractors shall document automated data processing and modeling algorithms and provide them to FEMA to ensure they are consistent with the standards outlined above. Digital datasets (such as elevation, basin, or land-use data) are to be documented and provided to FEMA for approval before performing the hydrologic analyses to ensure the datasets meet minimum requirements. If non-commercial (i.e., custom-developed) software is used for the analysis, then State of Georgia DNR shall

**Georgia Department of Natural Resources
COOPERATING TECHNICAL PARTNERS
MAPPING ACTIVITY STATEMENT
(CONTINUED)**

provide full user documentation, technical algorithm documentation, and the software to FEMA for review before performing the hydrologic analyses.

Standards: All work under Activity 4 shall be performed in accordance with the standards specified in Section 5 of this MAS.

Deliverables: Upon completion of hydrologic modeling, the State of Georgia DNR contractor shall internally review the results through a QA/QC process identified in Activity 5.

In accordance with the TSDN format described in described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, State of Georgia Department of Natural Resources and their contractors shall make the following products available to FEMA:

- Digital copies of all hydrologic modeling (input and output) files for the 10%, 2%, 1%, and 0.2% annual-chance storm events;
- Digital and hardcopy versions of the Summary of Discharges Table presenting discharge data for the flooding sources for which hydrologic analyses were performed;
- Digital and hardcopy versions of draft text for Section 3.1, Hydrologic Analyses, of the FIS report; and
- Digital and hardcopy versions of all backup data used in the analysis, including work maps.

For GIS-based modeling, deliverables shall include all input and output data, intermediate data processing products, and GIS data layers.

Activity 5 - Independent QA/QC Review of Hydrologic Analyses

Responsible Mapping Partner: FEMA, State of Georgia DNR and their contractor.

Scope: State of Georgia DNRs contractor and FEMA shall review the technical, scientific, and other information developed under Activity 4 to ensure that the data and modeling are consistent with FEMA standards and standard engineering practice and are sufficient to prepare the DFIRM. The QA/QC review will be performed by one of the subcontractors on Lowe Engineers project team. The engineering firm performing the QA/QC will differ from the firm that performs the tasks under Activity 4. A list of what was reviewed by Georgia DNR as QA/QC will be submitted to FEMA in order to determine if further review is necessary. 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

**Georgia Department of Natural Resources
COOPERATING TECHNICAL PARTNERS
MAPPING ACTIVITY STATEMENT
(CONTINUED)**

- Comparison with discharges for contiguous reaches or flooding sources.
- Maintain records of all contacts, reviews, recommendations, and actions and make them readily available to FEMA.
- Maintain an archive of all data submitted for hydrologic modeling review. (All supporting data must be retained for 3 years from the date funding recipient submits its final expenditure report to FEMA.)

Standards: All work under Activity 5 shall be performed in accordance with the standards specified in Section 5 of this MAS.

Deliverables: In accordance with the TSDN format described in described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, State of Georgia DNR shall make the following products available to FEMA:

- A Summary Report that describes the findings of the QA/QC review;
- Recommendations to resolve any problems that are identified during the independent QA/QC review; and
- QA/QC review document certified by a Registered Engineer in the State of Georgia.

Activity 6 – Hydraulic Analyses

Responsible Mapping Partner: State of Georgia DNR and their contractor.

Scope: State of Georgia DNR and their contractors shall perform hydraulic analyses for approximately 100 miles of the flooding sources shown above in the Table in Section 1 of this MAS. The modeling will include the 10%, 2%, 1%, and 0.2% annual-chance storm events based on peak discharges computed under Activity 4. The hydraulic methods used for this analysis will include the use of HEC-RAS and/or HEC-GeoRAS or other models acceptable to FEMA.

State of Georgia DNR and their contractor shall use the cross-section and field data collected under Activity 1 to perform the hydraulic analyses. Model data will be supplemented with cross sections taken from Henry County's digital topographic mapping. The hydraulic analyses will be used to establish flood elevations and regulatory floodways for the subject flooding sources.

State of Georgia DNR and their contractors shall use the FEMA CHECK-RAS checking program where applicable to check the reasonableness of the hydraulic analyses. To facilitate the internal QA/QC review under Activity 7, the State of Georgia DNR shall provide explanations for unresolved messages from the CHECK-RAS program, as appropriate. In addition, State of Georgia DNR shall address all concerns or questions regarding Activity 6 that are raised by the review during the internal QA/QC review under Activity 7.

State of Georgia DNR shall document automated data processing and modeling algorithms for GIS-based modeling and provide them to FEMA for review to ensure they are consistent with the standards outlined above. Digital datasets are to be documented and provided to FEMA for approval before performing the hydraulic analyses to ensure the datasets meet minimum requirements.

**Georgia Department of Natural Resources
COOPERATING TECHNICAL PARTNERS
MAPPING ACTIVITY STATEMENT
(CONTINUED)**

Standards: All work under Activity 6 shall be performed in accordance with the standards specified in Section 5 of this MAS.

Deliverables: Upon completion of hydraulic modeling, the State of Georgia DNR's contractor shall internally review the results through a QA/QC process identified in Activity 7.

In accordance with the TSDN format described in described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, State of Georgia DNR shall make the following products available to FEMA:

- Digital profiles of the 10%, 2%, 1%, and 0.2% annual-chance water-surface elevations representing existing conditions using the FEMA RASLOT program or similar software;
- Digital and hardcopy versions of the Floodway Data Table for each flooding source that is compatible with the DFIRM database;
- Digital and hardcopy versions of all hydraulic modeling (input and output) files;
- Digital and hardcopy versions of table with range of Manning's "n" values;
- Explanations for unresolved messages from the CHECK-RAS program, as appropriate;
- Digital and hardcopy versions of all backup data used in the analyses;
- Digital and hardcopy versions of draft text for inclusion in the FIS report.

For GIS-based modeling, deliverables include all input and output data, intermediate data processing products, GIS data layers, and final products in the format of the DFIRM database structure.

Activity 7 - Independent QA/QC Review of Hydraulic Analyses

Responsible Mapping Partner: FEMA, State of Georgia DNR and their contractor.

Scope: State of Georgia DNR's contractor and FEMA shall review the technical, scientific, and other information developed under Activity 6 to ensure that the data and modeling are consistent with FEMA standards and standard engineering practice and are sufficient to prepare the DFIRM. The QA/QC review will be performed by one of the subcontractors on Lowe Engineers project team. The engineering firm performing the QA/QC will differ from the firm that performs the tasks under Activity 6. A list of what was reviewed by Georgia DNR as QA/QC will be submitted to FEMA in order to determine if further review is necessary. 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;

**Georgia Department of Natural Resources
COOPERATING TECHNICAL PARTNERS
MAPPING ACTIVITY STATEMENT
(CONTINUED)**

- 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 them readily available to FEMA.
 - Maintain an archive of all data submitted for hydraulic modeling review. (All supporting data must be retained for 3 years from the date funding recipient submits its final expenditure report to FEMA.)

Standards: All work under Activity 7 shall be performed in accordance with the standards specified in Section 5 of this MAS.

Deliverables: In accordance with the TSDN format described in described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, State of Georgia DNR shall make the following products available to FEMA:

- A Summary Report that describes the findings of the QA/QC review;
- Recommendations to resolve any problems that are identified during the independent QA/QC review; and
- QA/QC review document certified by a Registered Engineer in the State of Georgia.

Activity 8 - Floodplain Mapping (Detailed Riverine)

Responsible Mapping Partner: State of Georgia DNR and their contractor.

Scope: The State of Georgia DNR shall delineate the 1% and 0.2% annual-chance floodplain boundaries and the regulatory floodway boundaries (if required) for the flooding sources shown in the Table above in Section 1. Henry County's digital topographic mapping will be utilized for the mapping of the required floodplains. In addition, State of Georgia DNR and their contractor shall incorporate the results of all effective Letters of Map Change (LOMCs) within Henry County. Finally, the State of Georgia DNR and their contractor shall address all concerns or questions regarding Activity 8 that are raised during the internal QA/QC review under Activity 9.

Standards: All work under Activity 8 shall be performed in accordance with the standards specified in Section 5 of this MAS.

Deliverables: Upon completion of floodplain mapping, the State of Georgia DNR's contractor shall internally review the results through a QA/QC process identified in Activity 9.

**Georgia Department of Natural Resources
COOPERATING TECHNICAL PARTNERS
MAPPING ACTIVITY STATEMENT
(CONTINUED)**

In accordance with the TSDN format described in described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, State of Georgia DNR shall make the following products available to FEMA:

- Digital work maps showing the 1- and 0.2-percent-annual-chance floodplain boundary delineations, regulatory floodway boundary delineations, cross sections, BFEs, flood insurance risk zone 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*;
- 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; and
- Any backup or supplemental information used in the mapping required for the independent QA/QC review outlined under Activity 9.

Activity 8B - Floodplain Mapping (Refinement or Creation of Zone A)

Responsible Mapping Partner: State of Georgia DNR and their contractor.

Scope: The State of Georgia DNR and their contractor shall delineate the 1-percent-annual-chance floodplain boundaries for the flooding sources listed earlier in this MAS as Zone A creation. The State of Georgia DNR and their contractor shall use existing topographic data to delineate the approximate 100-year-floodplain boundaries on a digital work map. In addition, the State of Georgia DNR and their contractor shall address all concerns or questions regarding Activity 8B that are raised during the independent QA/QC review under Activity 9.

The State of Georgia DNR 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 11 of this MAS before analysis and mapping begin.

Standards: All work under Activity 8B shall be performed in accordance with the standards specified in Section 5 of this MAS.

Deliverables: Upon completion of floodplain mapping for the Zone A areas that are to be identified in the scoping meeting, the state of Georgia DNR shall submit the results for an independent QA/QC review under Activity 9. The State of Georgia DNR shall submit the mapping for the remaining flooding sources for a final QA/QC review at the completion of this activity.

In accordance with the TSDN format described in described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, the State of Georgia DNR shall make the following products available to FEMA:

**Georgia Department of Natural Resources
COOPERATING TECHNICAL PARTNERS
MAPPING ACTIVITY STATEMENT
(CONTINUED)**

- Digital work maps showing the 1-percent-annual-chance floodplain boundary delineations, flood insurance risk zone labels, and all applicable base map features;
- Written summary of the analysis methodologies;
- Any backup or supplemental information, including supporting calculations and assumptions for any computed 1-percent-annual-chance water-surface elevations used in the mapping required for the independent QA/QC review under Activity 9;
- Hardcopy and digital versions of input and output for any computer programs that were used;
- 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; 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.

If automated GIS-based models are applied, all input data, output data, intermediate data processing products, and GIS data layers shall be submitted.

Activity 9 - Independent QA/QC Review of Floodplain Mapping (Revised Areas)

Responsible Mapping Partner: FEMA, State of Georgia DNR and their contractor.

Scope: State of Georgia DNRs contractor and FEMA shall perform an independent review of the floodplain mapping prepared under Activity 8 to ensure that the mapping is consistent with FEMA standards and is sufficient to prepare the DFIRM. The QA/QC review will be performed by one of the subcontractors on Lowe Engineers project team. The engineering firm performing the QA/QC will differ from the firm that performs the tasks under Activity 8. A list of what was reviewed by Georgia DNR as QA/QC will be submitted to FEMA in order to determine if further review is necessary. 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.

**Georgia Department of Natural Resources
COOPERATING TECHNICAL PARTNERS
MAPPING ACTIVITY STATEMENT
(CONTINUED)**

- Review the floodplain boundaries for agreement with the flood elevations shown in the Floodway Data Table and 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 they match the Floodway Data Table.
- Review the floodplain boundaries as shown on the work maps to ensure they match the Flood Profiles.
- Review the flood insurance risk zones as shown on the work maps to ensure they are labeled properly.
- Review the DFIRM mapping files to ensure they were prepared in accordance with the requirements in *Guidelines and Specifications for Flood Hazard Mapping Partners*.
- Review the metadata files to ensure they include all required information shown in *Guidelines and Specifications for Flood Hazard Mapping Partners*.

Standards: All work under Activity 9 shall be performed in accordance with the standards specified in Section 5 of this MAS.

Deliverables: In accordance with the TSDN format described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, State of Georgia DNR shall make the following products available to FEMA:

- 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
- QA/QC review document certified by a Registered Engineer in the State of Georgia.

Activity 10 - Base Map Acquisition

Responsible Mapping Partner: State of Georgia DNR and their contractor.

Scope: Activity 10 consists of obtaining the digital base map from Henry County for the countywide DFIRM. Henry County through the State of Georgia DNR shall provide the digital base map. The required activities for State of Georgia DNR 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.
- Populate the DFIRM database with the information required by FEMA.

**Georgia Department of Natural Resources
COOPERATING TECHNICAL PARTNERS
MAPPING ACTIVITY STATEMENT
(CONTINUED)**

Standards: All work under Activity 10 shall be performed in accordance with the standards specified in Section 5 of this MAS.

Deliverables: In accordance with the TSDN format described in described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, State of Georgia Department of Natural Resources shall make the following products available to FEMA:

- Written certification that the digital data meet the minimum standards and specifications and
- Documentation that FEMA can use the digital base map.

Activity 11 – DFIRM Production (Non-Revised Areas)

Responsible Mapping Partner: State of Georgia DNR and their contractor.

Scope: For all flooding sources except those segments for which updated flood data will be developed under Activities 1 through 9, the State of Georgia DNR and their contractors shall convert the information shown on the effective FIRM panels for all incorporated and unincorporated areas of Henry County to digital format in conformance with FEMA DFIRM specifications. The State of Georgia DNR and their contractor shall use the base map acquired under Activity 10 for the conversion. The State of Georgia DNR and their contractor also shall incorporate the results of LOMCs issued by FEMA in these areas since the date of the current effective FIRM for each affected community. The State of Georgia DNR shall not digitize the flood theme for those segments of flooding sources for which updated flood data will be developed. Rather, the State of Georgia DNR shall leave these as “holes” in the digital flood theme that will be filled in as part of Activity 12 using the digital flood data layers developed as part of Activities 8 and 8B.

Standards: All work under Activity 11 shall be performed in accordance with the standards specified in Section 5 of this MAS.

Deliverables: In accordance with the TSDN format described in described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, State of Georgia DNR shall make the following products available to FEMA:

- Digital work maps showing the 1- and 0.2-percent-annual-chance floodplain boundary delineations, regulatory floodway boundary delineations, cross sections, BFEs, flood insurance risk zone 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*;
- Complete set of plots of DFIRM panels showing all detailed flood hazard information at a suitable scale; 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, including a check that the road and floodplain relationship is maintained for all non-revised areas.

**Georgia Department of Natural Resources
COOPERATING TECHNICAL PARTNERS
MAPPING ACTIVITY STATEMENT
(CONTINUED)**

Activity 11A – Independent QA/QC Review of DFIRM Production (Non-Revised Areas)

Responsible Mapping Partner: FEMA, State of Georgia DNR and their contractor.

Scope: State of Georgia DNR and FEMA shall perform a review of the DFIRM panels prepared under Activity 11 to ensure that the new DFIRM panels accurately represent the information shown on the effective FIRMs and FBFMs for the area mapped. The QA/QC review will be performed by one of the subcontractors on Lowe Engineers project team. A list of what was reviewed by Georgia DNR as QA/QC will be submitted to FEMA in order to determine if further review is necessary. The engineering firm performing the QA/QC will differ from the firm that performs the tasks under Activity 11. This work shall include, at a minimum, checking the following:

- Cross sections were properly located and oriented as shown on the FIRM or FBFM.
- BFEs are properly located and agree with the BFEs shown on the FIRM.
- Regulatory floodway widths agree with the widths shown on the FIRM or FBFM.
- The 1 and 0.2-percent-annual-chance floodplain boundaries agree with the floodplain boundaries shown on the FIRM and the contour lines, other topographic information, and planimetric information shown on the DFIRM base.
- Flood insurance risk zone designations are indicated properly.
- Road and floodplain relationships are maintained for all unrevised areas.
- DFIRM mapping files meet the GIS file and database format requirements specified in FEMA's *Guidelines and Specifications for Flood Hazard Mapping Partners* and conform to those requirements for content and attribution.
- Metadata files describing the DFIRM data include the required information.

Standards: All work under Activity 11A shall be performed in accordance with the standards specified in Section 5 of this MAS.

Deliverables: In accordance with the TSDN format described in described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, State of Georgia DNR shall make the following products available to FEMA:

- 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 copy of the DFIRM with all questions and/or concerns indicated, if necessary; and
- QA/QC review document certified by a Registered Engineer in the State of Georgia.

**Georgia Department of Natural Resources
COOPERATING TECHNICAL PARTNERS
MAPPING ACTIVITY STATEMENT
(CONTINUED)**

Activity 12 –DFIRM Production (Merging Revised and Non-Revised Information)

Responsible Mapping Partner: State of Georgia DNR and their contractor.

Scope: Upon completion of the floodplain mapping activities (Activities 8 and 8B) for the revised flooding sources and the DFIRM production for non-revised areas (Activity 11), the State of Georgia DNR and their contractor 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. The State of Georgia DNR 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.

Standards: All work under Activity 12 shall be performed in accordance with the standards specified in Section 5 of this MAS.

Deliverables: In accordance with the TSDN format described in described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, State of Georgia DNR shall make the following products available to FEMA:

- Digital work maps showing the 1- and 0.2-percent-annual-chance floodplain boundary delineations, regulatory floodway boundary delineations, cross sections, BFEs, flood insurance risk zone 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*;
- Complete set of plots of DFIRM panels showing all detailed flood hazard information at a suitable scale; 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.

Activity 12A – DFIRM Production (Application of DFIRM Graphics and Database Specifications)

Responsible Mapping Partner: State of Georgia DNR and their contractor.

Scope: The State of Georgia DNR and their contractor shall apply the final FEMA DFIRM graphic and database specifications to the DFIRM files produced under Activity 12. 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, etc...).

Standards: All work under Activity 12A shall be performed in accordance with the standards specified in Section 5 of this MAS.

Deliverables: In accordance with the TSDN format described in described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, State of Georgia DNR shall make the following products available to FEMA:

**Georgia Department of Natural Resources
COOPERATING TECHNICAL PARTNERS
MAPPING ACTIVITY STATEMENT
(CONTINUED)**

- Digital work maps showing the 1- and 0.2-percent-annual-chance floodplain boundary delineations, regulatory floodway boundary delineations, cross sections, BFEs, flood insurance risk zone 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*;
- Complete set of plots of DFIRM panels showing all detailed flood hazard information at a suitable scale; and
- FEMA standard DFIRM database files, prepared in accordance with the requirements in *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.

Activity 12B – Internal QA/QC Review of DFIRM Product Meeting FEMA Graphics and Database Specifications

Responsible Mapping Partner: State of Georgia DNR and their contractor.

Scope: Upon completion of the DFIRM production activities (Activities 11, 12, and 12A), State of Georgia DNR shall perform an internal review of the DFIRM to ensure it meets current FEMA graphic specifications. In addition, the State of Georgia DNR shall review the DFIRM spatial database to determine if it meets current FEMA database specifications. The QA/QC review will be performed by one of the subcontractors on Lowe Engineers project team. The engineering firm performing the QA/QC will differ from the firm that performs the tasks under Activity 11, 12, and 12A. 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 one of the GIS file and database formats 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.

**Georgia Department of Natural Resources
COOPERATING TECHNICAL PARTNERS
MAPPING ACTIVITY STATEMENT
(CONTINUED)**

- Metadata files describing the DFIRM data include all required information shown in *Guidelines and Specifications for Flood Hazard Mapping Partners*.
- The FIS report is prepared in the FEMA Countywide Format as documented in Appendix J of *Guidelines and Specifications for Flood Hazard Mapping Partners*.

Standards: All work under Activity 12B shall be performed in accordance with the standards specified in Section 5 of this MAS.

Deliverables: In accordance with the TSDN format described in described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners*, State of Georgia DNR shall make the following products available to FEMA:

- 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;
- An annotated copy of the DFIRM with all questions and/or concerns indicated, if necessary; and
- QA/QC review document certified by a Registered Engineer in the State of Georgia.

Activity 13 - Preliminary DFIRM and FIS Report Distribution

Responsible Mapping Partners: FEMA, State of Georgia DNR and their contractor.

Scope: Activity 13 consists of the final preparation, review, and distribution of the Preliminary copies of the DFIRM and FIS report for community official and general public review and comment. The activities to be performed are summarized below.

Preliminary Transmittal Letter Preparation. Unless instructed otherwise by FEMA, the State of Georgia DNR and their contractor shall prepare letters to 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.

Final QA/QC Review of Preliminary DFIRM and FIS Report: FEMA, the State of Georgia DNR and their 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 State of Georgia DNR and their contractor will resolve any discrepancies identified in the final QA/QC review.

Distribution of Preliminary DFIRM and FIS Report: Unless otherwise instructed by FEMA, the State of Georgia DNR and their contractor 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.

**Georgia Department of Natural Resources
COOPERATING TECHNICAL PARTNERS
MAPPING ACTIVITY STATEMENT
(CONTINUED)**

News Release Preparation: Unless otherwise instructed by FEMA, the State of Georgia DNR and their contractor 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. Unless otherwise instructed by FEMA, these notifications shall be submitted to FEMA for review prior being released.

Preliminary Summary of Map Actions (SOMA) Preparation: Unless instructed otherwise by FEMA, the State of Georgia DNR and their contractors 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 work under Activity 13 shall be performed in accordance with the standards specified in Section 5 of this MAS.

Deliverables: In accordance with the TSDN format described in described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners* and the requirements documented in Section 1 and Appendix A of the *FEMA Document Control Procedures Manual*. The State of Georgia DNR and their contractor shall make the products listed below available to FEMA.

- Preliminary transmittal letters shall be prepared. 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*.
- 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.
- Revised DFIRM mapping files, prepared in accordance with the requirements in *Guidelines and Specifications for Flood Hazard Mapping Partners*, shall be provided on CD-ROM.
- Revised DFIRM database files, prepared in accordance with the requirements in *Guidelines and Specifications for Flood Hazard Mapping Partners*, shall be provided on CD-ROM.
- Revised metadata files describing the DFIRM data, including all required information shown in *Guidelines and Specifications for Flood Hazard Mapping Partners*, shall be provided on CD-ROM.
- 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 shall be provided.

**Georgia Department of Natural Resources
COOPERATING TECHNICAL PARTNERS
MAPPING ACTIVITY STATEMENT
(CONTINUED)**

Activity 14 - Post-Preliminary Processing

Responsible Mapping Partners: State of Georgia DNR and their contractor.

Scope: Activity 14 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. The activities to be performed are summarized below.

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 the State of Georgia DNR 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.
- The appropriate notices (Proposed Rules) are published in the *Federal Register*.

Resolution of Appeals and Protests: The State of Georgia DNR shall support FEMA in reviewing and resolving appeals and protests received during the 90-day appeal period. Appeal and protest support shall be limited to no more than \$23,000 in contractor labor. If the cost for appeal resolution exceeds the dollar amount stated in this agreement, then FEMA will process the remainder of the appeals or coordinate with Georgia DNR concerning additional funding. 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 and revised DFIRM and FIS report materials for FEMA review.

The Georgia DNR shall mail all associated correspondence upon authorization by FEMA.

Preparation of Special Correspondence: The State of Georgia DNR and their contractor 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 when requested by FEMA. When necessary, dual signatures (DNR and FEMA) may be required for correspondence. The State of Georgia DNR 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.

**Georgia Department of Natural Resources
COOPERATING TECHNICAL PARTNERS
MAPPING ACTIVITY STATEMENT
(CONTINUED)**

Revision of FIRM and FIS Report: If necessary, the State of Georgia DNR and their contractor shall work together to revise the DFIRM and FIS report at the direction of the FEMA Regional Project Officer and 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: The State of Georgia DNR and their contractor shall prepare Final SOMAs for the affected communities as appropriate. When necessary, dual signatures (MSD and FEMA) may be required for correspondence.

Processing of Letter of Final Determination: The State of Georgia DNR and their contractor shall work with FEMA to establish the effective date for the DFIRM and FIS report, and shall prepare a Letter of Final Determination (LFDs) for each affected community for FEMA review in accordance with the *FEMA Document Control Procedures Manual*. The State of Georgia DNR also shall mail the final signed LFDs and enclosures and distribute appropriate copies of the signed LFDs and enclosures upon receipt of authorization from FEMA.

Processing of Final DFIRM and FIS Report for Printing: The State of Georgia DNR shall prepare final reproduction materials for the DFIRM and FIS report and provide these materials to the FEMA Map Service Center for printing by the U.S. Government Printing Office. The State of Georgia DNR also shall 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. The State of Georgia DNR and their contractor shall prepare and distribute letters 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: The State of Georgia DNR and their contractor shall ensure that technical and administrative support data are packaged in the FEMA required format and stored until they are transmitted to the FEMA Engineering Study Data Package Facility. The State of Georgia DNR will maintain and archive all the technical data for at least 3 years.

Standards: All work under Activity 14 shall be performed in accordance with the standards specified in Section 5 of this MAS.

Deliverables: In accordance with the TSDN format described in described in Appendix M of *Guidelines and Specifications for Flood Hazard Mapping Partners* and the requirements documented in Section 1 and Appendix A of the *FEMA Document Control Procedures Manual*, the State of Georgia DNR shall make the following products available to FEMA:

- 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;

**Georgia Department of Natural Resources
COOPERATING TECHNICAL PARTNERS
MAPPING ACTIVITY STATEMENT
(CONTINUED)**

- 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; and
- Complete, organized archived technical and administrative support data

**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 Mapping Activity Statement 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. 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. Additionally, the State of Georgia DNR shall collect and maintain a set of products for all Activities and shall compile a comprehensive TSDN for the entire project.

**Georgia Department of Natural Resources
COOPERATING TECHNICAL PARTNERS
MAPPING ACTIVITY STATEMENT
(CONTINUED)**

Table 2-1. Mapping Activities and Applicable TSDN Sections

TSDN Section	Mapping Activities													
	1	2	3	4, 4A	5, 5A	6	7	8	9	10	11, 11A	12, 12A	13	14
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					
Hydraulic Analyses	X			X	X	X	X	X	X					
Key to Cross-Section Labeling	X			X	X	X	X	X	X					
Key to Transect Labeling	X			X	X	X	X	X	X					
Draft FIS Report				X	X	X	X							
Mapping Information								X	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 for the FY 03 funds will begin upon the Notice to Proceed (NTP) issuance from FEMA and will be completed no later than 30 months from the NTP not to proceed beyond September 30, 2006. The completion time of 30 months is contingent upon the start of the 90 day appeal period no later than 1 month from the issuance of the Preliminary DFIRMS. The mapping activities may be terminated at the option of FEMA or the State of Georgia DNR in accordance with the provisions of the Partnership Agreement dated August 16, 1999.

Georgia Department of Natural Resources
COOPERATING TECHNICAL PARTNERS
MAPPING ACTIVITY STATEMENT
(CONTINUED)

SECTION 4—FUNDING/LEVERAGE

SECTION 5—STANDARDS

The standards relevant to this Mapping Activity Statement 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.

Georgia Department of Natural Resources
 COOPERATING TECHNICAL PARTNERS
 MAPPING ACTIVITY STATEMENT
 (CONTINUED)

Table 5-1. Applicable Standards for Project Activities

Applicable Standards	Activities													
	1	2	3	4, 4A	5, 5A	6	7	8	9	10	11, 11A	12, 12A	13	14
<i>Guidelines and Specifications for Flood Hazard Mapping Partners</i> , April 2003	X			X	X	X	X	X	X	X	X	X	X	X
American Congress on Surveying and Mapping (ACSM) procedures	X													
Global Positioning System (GPS) Surveys: National Geodetic Survey (NGS-58), "Guidelines for Establishing GPS-Derived Ellipsoid Heights," November 1997	X													
EM 1000-1-1000, <i>Photogrammetric Mapping</i> , March 31, 1993	X													
EM 1110-2-1003, <i>Hydrographic Surveys</i> , October 31, 1994	X													
Numerical Models Accepted by FEMA for NFIP Usage, January 11, 2002				X	X	X								
<i>Content Standards for Digital Geospatial Metadata</i> (Federal Geographic Data Committee, 1998)								X	X	X	X	X	X	X
<i>Document Control Procedures Manual</i> , December 2000												X	X	X

Georgia Department of Natural Resources
 COOPERATING TECHNICAL PARTNERS
 MAPPING ACTIVITY STATEMENT
 (CONTINUED)

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

Activity Number	Activity Description	Applicable Volume, Section/Subsection, and Appendix
1	Field Surveys and Reconnaissance	Volume 1, Sections 1.2, 1.3, 1.4 (specifically Subsection 1.4.2.1) Appendix A, Sections A.5, A.6, A.7, and A.8 Appendices B, C, and M
3	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
4	Hydrologic Analyses	Volume 1, Section 1.4 (specifically Subsections 1.4.2.2 and 1.4.2.4) Appendix C, Sections C.1 and C.7 Appendices E, F, G, H, and M
4A	Coastal Hazard Analyses	Volume 1, Section 1.4 (specifically Subsection 1.4.2.2) Appendix A, Section A.4 Appendices B, D, and M
5	QA/QC Review of Hydrologic Analyses	Volume 1, Section 1.4 (specifically Subsection 1.4.1) Appendix C, Section C.2 Appendices E, F, G, H, and M
5A	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, H, and M

Georgia Department of Natural Resources
 COOPERATING TECHNICAL PARTNERS
 MAPPING ACTIVITY STATEMENT
 (CONTINUED)

Table 5-2. Project Activities and Applicable Portions of FEMA Guidelines and Specifications (Cont'd)

Activity Number	Activity Description	Applicable Volume, Section/Subsection, and Appendix
6	Hydraulic Analyses	Volume 1, Section 1.4 (specifically Subsections 1.4.2.2 and 1.4.2.4) Appendix C, Sections C.3 and C.7 Appendices B, E, F, G, H, and M
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 Appendices B, E, F, G, H, and M
8	Floodplain Mapping (Detailed Riverine or Coastal Analysis)	Volume 1, Section 1.4 (specifically Subsection 1.4.2.3) Appendix C, Sections C. 4 and C.6 Appendices K, L, and M
8A	Floodplain Mapping (Redelineation Using Effective Flood Profiles and Updated Topographic Data)	Volume 1, Section 1.4 (specifically Subsections 1.4.2.2 and 1.4.2.3) Appendices K, L, and M
8B	Floodplain Mapping (Refinement or Creation of Zone A)	Volume 1, Section 1.4 (specifically Subsection 1.4.2.3) Appendix C, Sections C.4 and C.6 Appendices K, L, and M
9	QA/QC Review of Floodplain Mapping (Revised Areas)	Volume 1, Section 1.4 (specifically Subsection 1.4.2.3) Appendix C, Sections C.4 and C.6 Appendices K, L, and M

Georgia Department of Natural Resources
 COOPERATING TECHNICAL PARTNERS
 MAPPING ACTIVITY STATEMENT
 (CONTINUED)

Table 5-2. Project Activities and Applicable Portions of FEMA Guidelines and Specifications (Cont'd)

Activity Number	Activity Description	Applicable Volume, Section/Subsection, and Appendix
10	Base Map Acquisition and Preparation	Volume I, Section 1.3 (specifically Subsection 1.3.1.8) and 1.4 (specifically Subsection 1.4.3) Appendices A and B
11	Independent QA/QC Review of DFIRM Production (Non-Revised Areas)	Volume I, Section 1.4 (specifically Subsections 1.4.2.3 and 1.4.3.2) Appendices K, L, and M
11A	DFIRM Production (Merging Revised and Non-Revised Areas)	Volume I, Section 1.4 (specifically Subsection 1.4.3) Appendices K, L, and M
12	DFIRM Production (Merging Revised and Non-Revised Areas)	Volume I, Section 1.4 (specifically Subsections 1.4.2.3 and 1.4.3.3) Appendices K, L, and M
12A	DFIRM Production (Application of DFIRM Graphic and Database Specifications)	Volume I, Section 1.4 (specifically Subsection 1.4.3) Appendices K, L, and M
12B	Independent QA/QC Review of DFIRM Product Meeting FEMA Graphic and Database Specifications	Volume I, Section 1.4 (specifically Subsections 1.4.2.3 and 1.4.3.3) Appendices K, L, and M
13	Preliminary DFIRM and FIS Report Distribution	Volume I, Section 1.4 (specifically Subsections 1.4.2 and 1.4.3) Appendix C, Sections C.4 and C.6 Appendices J, K, L, and M
14	Post-Preliminary Processing	Volume I, Section 1.4 (specifically Subsection 1.4.2 and 1.4.3) Appendices J, K, L, and M

SECTION 6—SCHEDULE

The Deliverables identified in the Activities documented in this MAS shall be completed and submitted to FEMA in accordance with the project schedule below. All due dates are referenced from the Notice to Proceed Date (NTP) from FEMA. If changes to this schedule are required, the responsible Mapping Partner shall coordinate with FEMA and the other Mapping Partners in a timely manner.

ACTIVITIES	RESPONSIBLE PARTNER(S)	DATE DUE
Activity 1A – Scoping and Outreach	CTP	1 month
Activity 1B – Field Surveys and Reconnaissance	CTP	5 months
Activity 4 – Hydrologic Analyses	CTP	6 months
Activity 5– QA/QC Review of Hydrologic Analyses	CTP	8 months
Activity 6 – Hydraulic Analyses	CTP	10 months
Activity 7 – QA/QC Review of Hydraulic Analyses	CTP	11 months
Activity 8 – Floodplain Mapping (Detailed Riverine Analysis)	CTP	13 months
Activity 8 B–Floodplain Mapping (Refinement/Creation of Zone A)	CTP	9 months
Activity 9 – QA/QC Review of Floodplain Mapping (Revised Areas)	CTP	14 months
Activity 10 – Base Map Acquisition	CTP	1 month
Activity 11 – DFIRM Production (Non-Revised Areas)	CTP	15 months
Activity 11A – Independent QA/QC Review of DFIRM Production (Non-Revised Areas)	CTP	15 months
Activity 12 – DFIRM Production (Merge Revised and Non-Revised Information)	CTP	16 months
Activity 12A – Application of DFIRM Graphic and Database Specifications	CTP	17 months
Activity 13 – Preliminary DFIRM and FIS Report Distribution	CTP	18 months
Activity 14 – Post-Preliminary Processing	CTP	30 months

Georgia Department of Natural Resources
COOPERATING TECHNICAL PARTNERS
MAPPING ACTIVITY STATEMENT
(CONTINUED)

SECTION 7—CERTIFICATIONS

The following certifications apply to this MAS:

Activity 1 (Field Surveys and Reconnaissance)

A Registered Professional Engineer or Licensed Land Surveyor will 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.

Activity 4 (Hydrologic Analyses), Activity 6 (Hydraulic Analyses), Activity 8 (Floodplain Mapping— Detailed Riverine Analysis), and Activity 8B (Floodplain Mapping {Refinement of Zone A})

- A Registered Professional Engineer or Licensed Land Surveyor will certify hydrologic and hydraulic analyses and data in accordance with 44 CFR 65.6(f).
- A Registered Professional Engineer or Licensed Land Surveyor will 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).

Activity 8 (Floodplain Mapping— Detailed Riverine Analysis), and Activity 8B (Floodplain Mapping {Refinement of Zone A}), Activity 9 (QA/QC Review of Floodplain Mapping {Revised Areas}), Activity 11 (DFIRM Production {Non-Revised Areas}), Activity 12 (DFIRM Production {Merging Revised and Non-Revised Information}), and Activity 12A (Application of DFIRM Graphic and Database Specifications)

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

Activity 10 (Base Map Acquisition and Preparation)

- A community official or responsible party will provide written certification that the digital data meet FEMA minimum standards and specifications.
- The State of Georgia DNR will provide documentation that the digital base map can be used by FEMA.

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's National Contractor.

General technical and programmatic information, such as FEMA 265 and the Quick-2 computer program, can be downloaded from the FEMA Web site (www.fema.gov/fhm).

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.

Georgia Department of Natural Resources
COOPERATING TECHNICAL PARTNERS
MAPPING ACTIVITY STATEMENT
(CONTINUED)

SECTION 9—CONTRACTORS

State of Georgia DNR intends to use the services of Lowe Engineers and their subcontractors; Dewberry, URS, and MACTEC for this Flood Map Project. State of Georgia DNR shall ensure that the procurement for all contractors used for this Flood Map Project complies with the requirements of 44 CFR 13.36.

SECTION 10—REPORTING

Financial Reporting: Financial reporting requirements will be in accordance with Cooperative Agreement Articles V & VI.

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 that was completed during the quarter and a comparison for the % work completed to the % of funds expended. The FEMA Regional Project Officer, as needed, may request additional information on status.

SECTION 11—POINTS OF CONTACT

The points of contact for this Flood Map Project are Laura Algeo, the FEMA Regional Project Officer; Collis Brown, the Project Manager for State of Georgia DNR; or subsequent personnel of comparable experience who are appointed to fulfill these responsibilities. When necessary, additional assistance should be requested through the FEMA Regional Project Officer.

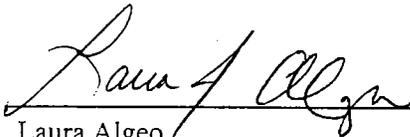
Each party has caused this MAS to be executed by its duly authorized representative.



David Word
Acting Director, Environmental Protection Division
State of Georgia Department of Natural Resources

9/23/03

Date



Laura Algeo
Regional Project Officer
Federal Emergency Management Agency, Region IV

9/23/03

Date