



ST. CHARLES PARISH

DEPARTMENT OF COASTAL ZONE MANAGEMENT

PROFESSIONAL SERVICES AGREEMENT

This AGREEMENT made and entered into the 6th day of November, 2017, by and between ST. CHARLES PARISH acting herein by and through its President, who is duly authorized to act on behalf of the Parish, hereinafter called the OWNER and LONNIE G HARPER & ASSOCIATES herein and through its President, hereinafter called the CONSULTANT. Whereas the OWNER desires to employ the CONSULTANT to perform the services described herein for **Parish Project Levee Analysis and Mapping Procedures, LAMP001.**

1. GENERAL

- a. The OWNER engages the CONSULTANT to perform modeling necessary to successfully participate in the LAMP pilot program and Flood Insurance Rate Map Appeal under the consultation of Dr. Joseph Suhayda (LAMP Coordinator) identified and described in the Scope of Services. CONSULTANT services shall conform to the requirements of the OWNER and all participating regulating agencies.

2. SERVICES OF THE CONSULTANT

- a. The services consist of the work defined in the following Scope of Services.
- b. SCOPE OF SERVICES:
 - Complete those tasks included in EXHIBIT A assigned through the OWNER determined to be necessary for the successful participation by St. Charles Parish in the LAMP pilot program and Flood Insurance Rate Map Appeal

3. PERIOD OF SERVICE

- a. The CONSULTANT shall complete and produce all tasks assigned by the OWNER within the time frame and task orders established by the LAMP Coordinator.
- b. In the event that delays are experienced beyond the control of the CONSULTANT, the schedule may be revised as mutually agreed upon by the OWNER and the CONSULTANT.
- c. The contract shall expire on June 30, 2018 unless extended by mutual written agreement by both parties.

4. CONSULTANT'S COMPENSATION

- a) The method of payment for this AGREEMENT is HOURLY based on the Not to Exceed amounts for each task order for services listed in EXHIBIT A or a lower negotiated amount. Fees for the Services shall be charged to Client at an hourly rate charge according to the schedule in EXHIBIT A. Client agrees to pay CONSULTANT for all services that CONSULTANT performs. If the not to exceed sum is exceeded, it will be considered outside the scope of services and upon approval by the OWNER will be billed as additional billable at the appropriate rates.
- b) Reimbursable expenses shall be approved prior to expenditure, fully documented and reimbursed at cost. Mileage reimbursement will be billed at the appropriate IRS Standard Mileage Rate.
- c) Such payment to be made to CONSULTANT within thirty (30) days after receipt of CONSULTANT'S invoice by OWNER.

5. SERVICES OF THE OWNER

- a. OWNER shall assist CONSULTANT in carrying out the Scope of Services by placing at his disposal all existing relevant data and records in its possession.
- b. CONSULTANT shall be responsible for searching said data and records provided and shall request specific clarification of the information as needed.
- c. OWNER guarantees CONSULTANT access to all public property as required in order to complete the Scope of Services.
- d. CONSULTANT shall work with other consultants working on the PROJECT under the direction of the OWNER.

6. TERMINATION

- a. This AGREEMENT may be terminated without cause by either party upon ten (10) days written notice.
- b. Immediately after receiving such notice, the CONSULTANT shall discontinue advancing the services under this AGREEMENT.
- c. CONSULTANT shall invoice an ascertainable sum proportionate to the lump sum fee amount described in Section 4. The percentage of services completed shall be based upon the Scope of Services set forth in Section 2B.
- d. In no event shall the fee exceed what is set forth in Section 4E of the AGREEMENT.
- e. OWNER, upon receiving the completed or partially completed deliverables, and after the final fee is mutually agreed upon, shall make payment within thirty (30) days.
- f. In the event that this contract is terminated, OWNER shall have the option of completing the Scope of Services in house or entering into an AGREEMENT with another party to complete the work.

7. COMPLIANCE WITH LAWS AND ORDINANCES

- a. The CONSULTANT hereby agrees to comply with all Federal, State, and Local Laws and Ordinances applicable to the Scope of Services under this AGREEMENT.

8. SUCCESSORS AND ASSIGNS

- a. This AGREEMENT is not assignable.

9. INSURANCE

- a. The CONSULTANT shall secure and maintain at his expense such General Liability insurance that will protect him and the OWNER, from claims under the Workmen's Compensation Acts and from claims for bodily injury, death or property damage which may arise from performance of services under this AGREEMENT.
- b. Insurance for bodily injury or death shall be in the unencumbered amount of FIVE HUNDRED THOUSAND DOLLARS (\$500,000.00) for one person and not less than ONE MILLION DOLLARS (\$1,000,000.00) for all injuries and/or deaths resulting from any one occurrence.
- c. The insurance for property damage shall be in the unencumbered amount of FIVE HUNDRED THOUSAND DOLLARS (\$500,000.00) for each accident and not less than ONE MILLION DOLLARS (\$1,000,000.00) aggregate.
- d. CONSULTANT shall also secure and maintain at his own expense professional liability insurance in the unencumbered sum of ONE MILLION DOLLARS (\$1,000,000.00).
- e. All certificates of insurance shall be furnished to the OWNER within five (5) days after execution of the AGREEMENT and shall provide that insurance not be cancelled without ten (10) days prior written notice to the OWNER.

- f. St. Charles Parish shall be named as additional insured on general liability insurance policies.
- g. OWNER may examine all insurance policies.
- h. For all purposes under Louisiana law, the principals of this AGREEMENT shall be recognized as the statutory employer of all contract employees as provided in LSA-R.S. 23:1061.

10. OTHER

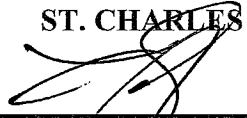
- a. CONSULTANT shall indemnify and save harmless the OWNER against any and all claims, demands, suits or judgments for sums of money to any party for loss of life or injury or damages to person or property growing out of, resulting from or by reason of any negligent act by the CONSULTANT, its agents, servants or employees, while engaged upon or in connection with the services required or performed hereunder.
- b. This AGREEMENT constitutes the entire agreement between the parties. There are no understandings, agreements, or representations, oral or written, not specified within this AGREEMENT. This AGREEMENT may not be modified, supplemented or amended, in any manner, except by written agreement signed by both parties.

11. EXCLUSIVE JURISDICTION AND VENUE

- a. For all claims arising out of or related to this agreement, CONSULTANT hereby consents and yields to the exclusive jurisdiction and venue of the Twenty-Ninth Judicial District Court for the Parish of St. Charles and expressly waives any (a) pleas of jurisdiction based upon CONSULTANT'S residence and (b) right of removal to Federal Court based upon diversity of citizenship.

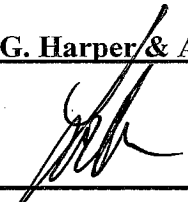
IN WITNESS WHEREOF, the parties hereto have executed this AGREEMENT the day, month and year first above mentioned,

ATTEST
Re S. DeLorain

ST. CHARLES PARISH


 By: Mr. Larry Cochran
 Parish President

ATTEST
Jevelyn M. Brown

Lonnie G. Harper & Associates


 By: Lonnie Harper, President

Contract Evaluation

9/18/2017

Levee Analysis and Mapping Procedures, LAMP001

Lonnie G. Harper & Associates

Task		Budget	% Complete	Balance
Task 1	Flood Threat Assessment	\$237,240.00	100	\$0.00
Task 2	Surge Modeling	\$387,380.00	85	\$58,107.00
Task 3	WHAFIS Modeling	\$107,683.00	40	\$64,609.80
Task 4	Reporting	\$84,968.00	7	\$79,020.24
	Total	\$817,271.00		\$201,737.04
	Invoice #	Amount		
	7499	\$109,859.55		
	7523	\$90,574.65		
	7660	\$210,128.30		
	7752	\$204,971.41		
	Total	\$615,533.91		
	Total Budget	\$817,271.00		
	Remaining	\$201,737.09		

Scope of Work For
St. Charles Parish BFE and LAMP Modeling Analysis
St. Charles Parish, Louisiana

Project Team: Lonnie G. Harper & Associates, Woods Hole Group, Ransom Consulting

Task 1. Flood Threat Assessment					
	Firm	Staff	Hours	Rate/hr	Cost
1.1 Specify engineering and technical procedures that will be used in the re-mapping effort, including data sets and modeling approach	LGH	Sr. Principal	4	\$213.40	\$853.60
	LGH	Sr. Project Coordinator	8	\$187.10	\$1,496.80
	LGH	Engineering Intern II	0	\$114.00	\$0.00
	WHG	Project Mgr	16	\$175.00	\$2,800.00
	WHG	Coastal Engr/Modeler IV	16	\$135.00	\$2,160.00
	<i>Total Anticipated Cost for Task 1.1:</i>				
1.2 Analyze causes of historic flooding including storm surge, backwater, and rainfall	LGH	Sr. Principal	2	\$213.40	\$426.80
	LGH	Sr. Project Coordinator	12	\$187.10	\$2,245.20
	LGH	Engineering Intern II	16	\$114.00	\$1,824.00
	WHG	Project Mgr	8	\$175.00	\$1,400.00
	WHG	Coastal Engr/Modeler IV	40	\$135.00	\$5,400.00
	<i>Total Anticipated Cost for Task 1.2:</i>				
1.3 Identify technical deficiencies in the Flood Insurance Study for the parish in terms of the data sets used, the joint probability and storm tracks, the storm surge modeling, the WHAFIS modeling and the determination of the DFIRM zones and elevations. (See Sub-task Breakdown, Below)	(See Sub-task Manhour Estimates, Below)				
<i>Total Anticipated Cost for Task 1.3:</i>					<i>\$218,633.60</i>
1.3 Sub-Task Manhour Estimates					
1.3.1 Collect and review all engineering data reports used in developing the DFIRMs.					
1.3.1.1 Intermediate Data Submission Report (IDS) I and II	LGH	Sr. Principal	0	\$213.40	\$0.00
	LGH	Sr. Project Coordinator	2	\$187.10	\$374.20
	LGH	Engineering Intern II	2	\$114.00	\$228.00
	LGH	CAD Technician III	0	\$0.00	\$0.00
	WHG	Project Mgr	8	\$175.00	\$1,400.00
	WHG	Coastal Engr/Modeler III	8	\$135.00	\$1,080.00
	WHG	Coastal Engr/Modeler IV	4	\$110.00	\$440.00
1.3.1.2 Technical Support Data Notebook	LGH	Sr. Principal	1	\$213.40	\$213.40
	LGH	Sr. Project Coordinator	4	\$187.10	\$748.40
	LGH	Engineering Intern II	16	\$114.00	\$1,824.00
	LGH	CAD Technician III	2	\$0.00	\$0.00
	WHG	Project Mgr	8	\$175.00	\$1,400.00
	WHG	Coastal Engr/Modeler III	32	\$135.00	\$4,320.00
1.3.1.3 Flood Insurance Study	LGH	Sr. Principal	2	\$213.40	\$426.80
	LGH	Sr. Project Coordinator	8	\$187.10	\$1,496.80
	LGH	Engineering Intern II	0	\$114.00	\$0.00
	LGH	CAD Technician III	0	\$0.00	\$0.00
	WHG	Project Mgr	8	\$175.00	\$1,400.00
	WHG	Coastal Engr/Modeler III	8	\$135.00	\$1,080.00
	WHG	Coastal Engr/Modeler IV	8	\$110.00	\$880.00

1.3.1.4 DFIRM Map Panels	LGH	Sr. Principal	1	\$213.40	\$213.40
	LGH	Sr. Project Coordinator	4	\$187.10	\$748.40
	LGH	Engineering Intern II	4	\$114.00	\$456.00
	LGH	CAD Technician III	8	\$0.00	\$0.00
	WHG	Project Mgr	1	\$175.00	\$175.00
	WHG	Coastal Engr/Modeler III	4	\$110.00	\$440.00
	WHG	Coastal Engr/Modeler IV	16	\$135.00	\$2,160.00
1.3.1.5 ADCIRC Computer Files	LGH	Sr. Principal	0	\$213.40	\$0.00
	LGH	Sr. Project Coordinator	2	\$187.10	\$374.20
	LGH	Engineering Intern II	0	\$114.00	\$0.00
	LGH	CAD Technician III	0	\$0.00	\$0.00
	WHG	Project Mgr	2	\$135.00	\$270.00
	WHG	Coastal Engr/Modeler III	12	\$110.00	\$1,320.00
	WHG	Coastal Engr/Modeler IV	8	\$135.00	\$1,080.00
1.3.1.6 STWAVE Computer Files	LGH	Sr. Principal	0	\$213.40	\$0.00
	LGH	Sr. Project Coordinator	2	\$187.10	\$374.20
	LGH	Engineering Intern II	0	\$114.00	\$0.00
	LGH	CAD Technician III	0	\$0.00	\$0.00
	WHG	Project Mgr	2	\$175.00	\$350.00
	WHG	Coastal Engr/Modeler III	8	\$110.00	\$880.00
	WHG	Coastal Engr/Modeler IV	4	\$135.00	\$540.00
1.3.1.7 WHAFIS Computer Files	LGH	Sr. Principal	2	\$213.40	\$426.80
	LGH	Sr. Project Coordinator	24	\$187.10	\$4,490.40
	LGH	Engineering Intern II	8	\$114.00	\$912.00
	LGH	CAD Technician III	24	\$0.00	\$0.00
	WHG	Project Mgr	4	\$175.00	\$700.00
	WHG	Coastal Engr/Modeler IV	40	\$135.00	\$5,400.00
	WHG	Coastal Engr/Modeler III	16	\$110.00	\$1,760.00
1.3.1.8 FEMA guidelines, manuals, reports	LGH	Sr. Principal	2	\$213.40	\$426.80
	LGH	Sr. Project Coordinator	4	\$187.10	\$748.40
	LGH	Engineering Intern II	4	\$114.00	\$456.00
	LGH	CAD Technician III	0	\$0.00	\$0.00
	WHG	Project Mgr	4	\$175.00	\$700.00
	WHG	Coastal Engr/Modeler III	8	\$110.00	\$880.00
	WHG	Coastal Engr/Modeler IV	8	\$135.00	\$1,080.00
1.3.1.9 Review all existing survey data	LGH	Sr. Principal	0	\$213.40	\$0.00
	LGH	Sr. Project Coordinator	2	\$187.10	\$374.20
	LGH	Engineering Intern II	4	\$114.00	\$456.00
	LGH	CAD Technician III	8	\$0.00	\$0.00
	WHG	Project Mgr	8	\$175.00	\$1,400.00
	WHG	Coastal Engr/Modeler III	16	\$110.00	\$1,760.00
	WHG	Coastal Engr/Modeler IV	16	\$135.00	\$2,160.00
<i>Total Anticipated Cost for Task 1.3.1:</i>					<i>\$51,703.40</i>
1.3.2 Collect and review the data used in the FIS including bathymetry, topography, land cover, and roadway and levee elevations and locations.					
1.3.2.1 Review the DEM used in preparing the DFIRMs (does is meet the FEMA mapping criteria requirements for use in a FIS.)	Firm	Staff	Hours	Rate/hr	Cost
	LGH	Sr. Principal		\$213.40	\$0.00
	LGH	Sr. Project Coordinator	2	\$187.10	\$374.20
	WHG	Project Mgr	1	\$175.00	\$175.00
	WHG	Coastal Engr/Modeler IV	4	\$135.00	\$540.00

1.3.2.2 Verify the accuracy of the DEM (statewide benchmarks were unreliable).	LGH	Sr. Principal	4	\$213.40	\$853.60
	LGH	Sr. Project Coordinator	16	\$187.10	\$2,993.60
	LGH	Engineering Intern II	24	\$114.00	\$2,736.00
	LGH	CAD Technician III	24	\$89.20	\$2,140.80
1.3.2.3 Verify that the ADCIRC topography matches the DEM.	LGH	Sr. Project Coordinator	1	\$187.10	\$187.10
	WHG	Project Mgr	2	\$175.00	\$350.00
	WHG	Coastal Engr/Modeler IV	8	\$135.00	\$1,080.00
	WHG	Coastal Engr/Modeler III	8	\$110.00	\$880.00
1.3.2.4 Verify that the WHAFIS topography matches the DEM.	LGH	Sr. Principal	4	\$213.40	\$853.60
	LGH	Sr. Project Coordinator	24	\$187.10	\$4,490.40
	LGH	Engineering Intern II	32	\$114.00	\$3,648.00
	LGH	CAD Technician III	32	\$89.20	\$2,854.40
1.3.2.5 Verify that the WHAFIS topography matches the ADCIRC topography.	LGH	Sr. Project Coordinator	8	\$187.10	\$1,496.80
	LGH	Engineering Intern II	24	\$114.00	\$2,736.00
	LGH	CAD Technician III	12	\$89.20	\$1,070.40
	WHG	Project Mgr	8	\$175.00	\$1,400.00
	WHG	Coastal Engr/Modeler IV	16	\$135.00	\$2,160.00
	WHG	Coastal Engr/Modeler III	16	\$110.00	\$1,760.00
1.3.2.6 Check validity of the bathymetry used in the ADCIRC model (many source data are decades old).	LGH	Sr. Principal	4	\$213.40	\$853.60
	LGH	Sr. Project Coordinator	16	\$187.10	\$2,993.60
	LGH	Engineering Intern II	8	\$114.00	\$912.00
	LGH	CAD Technician III	24	\$89.20	\$2,140.80
<i>Total Anticipated Cost for Task 1.3.2:</i>					<i>\$41,679.90</i>
1.3.3 Review the set-up of the ADCIRC and STWAVE computer models used in the FIS.					
	Firm	Staff	Hours	Rate/hr	Cost
1.3.3.1 Check to see if ADCIRC and STWAVE model topographic grids omitted key manmade and natural levee/ridge structures (do grids properly represent the actual field conditions).	LGH	Sr. Principal		\$213.40	\$0.00
	LGH	Sr. Project Coordinator	2	\$187.10	\$374.20
	WHG	Project Mgr	8	\$175.00	\$1,400.00
	WHG	Coastal Engr/Modeler IV	32	\$135.00	\$4,320.00
	WHG	Coastal Engr/Modeler III	8	\$110.00	\$880.00
1.3.3.2 Verify that inland water features are modeled according to actual dimensions of width and depth.	LGH	Sr. Principal		\$213.40	\$0.00
	LGH	Sr. Project Coordinator	2	\$187.10	\$374.20
	WHG	Project Mgr	4	\$175.00	\$700.00
	WHG	Coastal Engr/Modeler IV	8	\$135.00	\$1,080.00
	WHG	Coastal Engr/Modeler III	16	\$110.00	\$1,760.00
1.3.3.3 Verify that grid resolution is detailed enough to accurately model storm surge over small scale topographic features.	LGH	Sr. Principal		\$213.40	\$0.00
	LGH	Sr. Project Coordinator	1	\$187.10	\$187.10
	WHG	Project Mgr	2	\$175.00	\$350.00
	WHG	Coastal Engr/Modeler IV	8	\$135.00	\$1,080.00
	WHG	Coastal Engr/Modeler III	16	\$110.00	\$1,760.00
1.3.3.4 Verify that weir features represent actual ridges and levees, and are properly represented in model input (horizontal and vertical control).	LGH	Sr. Principal		\$213.40	\$0.00
	LGH	Sr. Project Coordinator	2	\$187.10	\$374.20
	WHG	Project Mgr	2	\$175.00	\$350.00
	WHG	Coastal Engr/Modeler IV	8	\$135.00	\$1,080.00
	WHG	Coastal Engr/Modeler III	16	\$110.00	\$1,760.00

1.3.3.5 Verify the accuracy of the ADCIRC model predictions for Hurricane Rita and Gustav.	LGH	Sr. Principal		\$213.40	\$0.00
	LGH	Sr. Project Coordinator	2	\$187.10	\$374.20
	WHG	Project Mgr	4	\$175.00	\$700.00
	WHG	Coastal Engr/Modeler IV	8	\$135.00	\$1,080.00
	WHG	Coastal Engr/Modeler III	24	\$110.00	\$2,640.00
<i>Total Anticipated Cost for Task 1.3.3:</i>					\$22,623.90
<i>1.3.4 Review the joint probability analysis and storm tracks used in the FIS surge model.</i>					
1.3.4.1 Check statistics for storm probabilities used in JPM runs.	Firm	Staff	Hours	Rate/hr	Cost
	LGH	Sr. Principal	2	\$213.40	\$426.80
	LGH	Sr. Project Coordinator	2	\$187.10	\$374.20
	WHG	Project Mgr	4	\$175.00	\$700.00
	WHG	Coastal Engr/Modeler IV	8	\$135.00	\$1,080.00
1.3.4.2 Check JPM storm surge runs for locations and tracks.	LGH	Sr. Principal	2	\$213.40	\$426.80
	LGH	Sr. Project Coordinator	2	\$187.10	\$374.20
	WHG	Project Mgr	4	\$175.00	\$700.00
	WHG	Coastal Engr/Modeler IV	8	\$135.00	\$1,080.00
	1.3.4.3 Verify 1% SWEL for parish.	LGH	Sr. Principal	2	\$213.40
LGH		Sr. Project Coordinator	2	\$187.10	\$374.20
WHG		Project Mgr	8	\$175.00	\$1,400.00
WHG		Coastal Engr/Modeler IV	16	\$135.00	\$2,160.00
<i>Total Anticipated Cost for Task 1.3.4:</i>					\$9,523.00
<i>1.3.5 Review the set-up of the WHAFIS wave forecasting computer model used in the FIS including the treatment of levees and roadways.</i>					
1.3.5.1 Check that the vegetation parameters used in the WHAFIS model are correct and represent actual field conditions.	Firm	Staff	Hours	Rate/hr	Cost
	LGH	Sr. Principal	4	\$213.40	\$853.60
	LGH	Sr. Project Coordinator	24	\$187.10	\$4,490.40
	LGH	Engineering Intern II	24	\$114.00	\$2,736.00
	LGH	CAD Technician III	24	\$89.20	\$2,140.80
1.3.5.2 Check WHAFIS transect start point and initial wave height.	LGH	Sr. Project Coordinator	2	\$187.10	\$374.20
	LGH	Engineering Intern II	16	\$114.00	\$1,824.00
	LGH	CAD Technician III	4	\$89.20	\$356.80
1.3.5.3 Check WHAFIS transect segments for type and accuracy.	LGH	Sr. Principal	4	\$213.40	\$853.60
	LGH	Sr. Project Coordinator	24	\$187.10	\$4,490.40
	LGH	Engineering Intern II	16	\$114.00	\$1,824.00
	LGH	CAD Technician III	24	\$89.20	\$2,140.80
	1.3.5.4 Check calculation of wave run-up.	LGH	Sr. Principal	2	\$213.40
LGH		Sr. Project Coordinator	8	\$187.10	\$1,496.80
WHG		Project Mgr	4	\$175.00	\$700.00
WHG		Coastal Engr/Modeler IV	4	\$135.00	\$540.00
WHG		Coastal Engr/Modeler III	32	\$110.00	\$3,520.00
<i>Total Anticipated Cost for Task 1.3.5:</i>					\$28,768.20

1.3.6 Review the FIRMs for protest issues.					
	Firm	Staff	Hours	Rate/hr	Cost
1.3.6.1 Verify BFE elevations were mapped properly.	LGH	Sr. Principal	4	\$213.40	\$853.60
	LGH	Sr. Project Coordinator	16	\$187.10	\$2,993.60
	LGH	Engineering Intern II	24	\$114.00	\$2,736.00
	LGH	CAD Technician III	32	\$89.20	\$2,854.40
	WHG	Project Mgr	4	\$175.00	\$700.00
	WHG	Coastal Engr/Modeler IV	24	\$135.00	\$3,240.00
1.3.6.2 Verify Flood Hazard Zones were mapped properly.	LGH	Sr. Principal	4	\$213.40	\$853.60
	LGH	Sr. Project Coordinator	24	\$187.10	\$4,490.40
	LGH	Engineering Intern II	30	\$114.00	\$3,420.00
	LGH	CAD Technician III	24	\$89.20	\$2,140.80
	WHG	Project Mgr	4	\$175.00	\$700.00
	WHG	Coastal Engr/Modeler IV	24	\$135.00	\$3,240.00
<i>Total Anticipated Cost for Task 1.3.6:</i>					<i>\$28,222.40</i>
1.3.7 Identify the scientific and technical deficiencies of the FIS work					
	Firm	Staff	Hours	Rate/hr	Cost
1.3.7.1 Prepare text, tables and figures to illustrate the deficiencies revealed during the review.	LGH	Sr. Principal	16	\$213.40	\$3,414.40
	LGH	Sr. Project Coordinator	32	\$187.10	\$5,987.20
	LGH	Engineering Intern II	16	\$114.00	\$1,824.00
	LGH	CAD Technician III	24	\$89.20	\$2,140.80
	LGH	Administrative/Clerical II	24	\$48.20	\$1,156.80
	WHG	Project Mgr	48	\$175.00	\$8,400.00
	WHG	Coastal Engr/Modeler IV	32	\$135.00	\$4,320.00
	WHG	Coastal Engr/Modeler III	32	\$110.00	\$3,520.00
1.3.7.2 Present results of review to the parish.	LGH	Sr. Principal	8	\$213.40	\$1,707.20
	LGH	Sr. Project Coordinator	16	\$187.10	\$2,993.60
	LGH	Engineering Intern II	4	\$114.00	\$456.00
	LGH	Administrative/Clerical II	4	\$48.20	\$192.80
<i>Total Anticipated Cost for Task 1.3.7:</i>					<i>\$36,112.80</i>
Total Anticipated Cost for Task 1:					\$237,240.00
Task 2. Surge Modeling					
2.1 Obtain new environmental data from the parish to be used for remapping BFEs including topography, bathymetry, vegetation, cultural features, landscape features, non-levee barriers, and levees.	See Attached Summary for Sub-task manhour estimates Woods Hole Group/Ransom				
	<i>Total Anticipated Cost for Task 2.1:</i>				
2.2 Set-up new model grids for existing (2014) and future conditions (2064).	See Attached Summary for Sub-task manhour estimates Woods Hole Group/Ransom				
	<i>Total Anticipated Cost for Task 2.2:</i>				

2.3 Calibrate and verify the surge model for hurricanes including Katrina, Rita, Gustav, and Issac.	See Attached Summary for Sub-task manhour estimates Woods Hole Group/Ransom				
<i>Total Anticipated Cost for Task 2.3:</i>					\$14,840.00
2.4 Compute new 1% still water elevations (SWELs) for existing and future conditions.	See Attached Summary for Sub-task manhour estimates Woods Hole Group/Ransom				
<i>Total Anticipated Cost for Task 2.4:</i>					\$43,900.00
2.5 Model Calibration and Verification	See Attached Summary for Sub-task manhour estimates Woods Hole Group/Ransom				
<i>Total Anticipated Cost for Task 2.5:</i>					\$65,900.00
2.6 Production Simulations and Statistical Model Development	See Attached Summary for Sub-task manhour estimates Woods Hole Group/Ransom				
<i>Total Anticipated Cost for Task 2.6:</i>					\$154,900.00
Total Anticipated Cost for Task 2:					\$387,380.00
Task 3. WHAFIS Modeling					
3.1 Determine number and location of wave transects needed and identify topography, bathymetry, vegetation, cultural features, landscape features, and non-levee barriers to be included in the WHAFIS runs.	Firm	Staff	Hours	Rate/hr	Cost
	LGH	Sr. Principal	8	\$213.40	\$1,707.20
	LGH	Sr. Project Coordinator	24	\$187.10	\$4,490.40
	LGH	Engineering Intern II	32	\$114.00	\$3,648.00
	LGH	CAD Technician III	40	\$89.20	\$3,568.00
	WHG	Project Mgr	16	\$175.00	\$2,800.00
	WHG	Coastal Engr/Modeler IV	0	\$135.00	\$0.00
<i>Total Anticipated Cost for Task 3.1:</i>					\$16,213.60
3.2 Set-up and run WHAFIS program for the selected transects.	LGH	Sr. Principal	16	\$213.40	\$3,414.40
	LGH	Sr. Project Coordinator	80	\$187.10	\$14,968.00
	LGH	Engineering Intern II	200	\$114.00	\$22,800.00
	LGH	CAD Technician III	80	\$89.20	\$7,136.00
	WHG	Project Mgr	24	\$175.00	\$4,200.00
	WHG	Coastal Engr/Modeler IV	0	\$135.00	\$0.00
<i>Total Anticipated Cost for Task 3.2:</i>					\$52,518.40
3.3 Determine new Base Flood Elevations (BFEs) and Special Flood Hazard Areas (SFHAs) for the west bank of the parish.	LGH	Sr. Principal	8	\$213.40	\$1,707.20
	LGH	Sr. Project Coordinator	40	\$187.10	\$7,484.00
	LGH	Engineering Intern II	80	\$114.00	\$9,120.00
	LGH	CAD Technician III	200	\$89.20	\$17,840.00
	WHG	Project Mgr	16	\$175.00	\$2,800.00
	WHG	Coastal Engr/Modeler IV	0	\$135.00	\$0.00
<i>Total Anticipated Cost for Task 3.3:</i>					\$38,951.20
Total Anticipated Cost for Task 3:					\$107,683.20

Task 4. Reporting					
Prepare final report describing results of modeling and re-mapping work containing the new BFE and Special Flood Hazard Areas maps, and compare the results with the preliminary DFIRMs.	LGH	Sr. Principal	20	\$213.40	\$4,268.00
	LGH	Sr. Project Coordinator	120	\$187.10	\$22,452.00
	LGH	Engineering Intern II	120	\$114.00	\$13,680.00
	LGH	CAD Technician III	40	\$89.20	\$3,568.00
	LGH	Administrative/Clerical II	80	\$175.00	\$14,000.00
	WHG	Project Mgr	80	\$135.00	\$10,800.00
	WHG	Coastal Engr/Modeler IV	120	\$135.00	\$16,200.00
Total Anticipated Cost for Task 4:					\$84,968.00

Woods Hole Group/Ransom		Modeler	Project Manager			
task 2.1	2.1.1 obtain storm set	4	2	\$790.00	\$790.00	
	2.1.2 validate stats	32	8	\$4,920.00	\$4,920.00	
	2.1.3 eval uncertainty	8	4	\$1,580.00	\$1,580.00	
	2.1.4 future climate set	2	1	\$395.00	\$395.00	
	2.1.5 obtain hindcast met	2	4	\$920.00	\$920.00	
task 2.1 total		48	19	\$8,605.00	\$8,605.00	\$78,605.00
task2.2	2.2.1 obtain review topobathy	16	8	\$3,160.00	\$3,160.00	
	2.2.2 identify topobathy gaps	12	4	\$2,020.00	\$2,020.00	
	2.2.3 draw topo polylines	20	4	\$2,900.00	\$2,900.00	
	2.2.4 draw bathy polylines	20	4	\$2,900.00	\$2,900.00	
	2.2.5 prep DEMs	40	16	\$7,200.00	\$7,200.00	
	2.2.6 control structures	16	8	\$3,160.00	\$3,160.00	
	2.2.7 modify 4 future	40	20	\$7,900.00	\$7,900.00	
task 2.2 total		164	64	\$29,240.00	\$29,240.00	\$29,240.00
task 2.3	2.3.1 obtain veg data	16	8	\$3,160.00	\$3,160.00	
	2.3.2 identify veg gaps	12	4	\$2,020.00	\$2,020.00	
	2.3.3 prep grids	32	8	\$4,920.00	\$4,920.00	
	2.3.4 mod 4 future	24	12	\$4,740.00	\$4,740.00	
task 2.3 total		84	32	\$14,840.00	\$14,840.00	\$14,840.00
task 2.4	2.4.1 develop Coarse Grid	40	20	\$7,900.00	\$7,900.00	
	2.4.2 develop Fine Grid	140	60	\$25,900.00	\$25,900.00	
	2.4.3 modify 4 future	60	20	\$10,100.00	\$10,100.00	
task 2.4 total		240	100	\$43,900.00	\$43,900.00	\$43,900.00
task 2.5	2.5.1 Obtain/review WL obs.	12	2	\$1,670.00	\$1,670.00	
	2.5.2 obtain/review wave obs.	12	2	\$1,670.00	\$1,670.00	
	2.5.3 Coarse sensitivity/stability	20	10	\$3,950.00	\$3,950.00	
	2.5.4 Validate Coarse	20	4	\$2,900.00	\$2,900.00	
	2.5.5 Fine sensitivity/stability	100	40	\$18,000.00	\$18,000.00	
	2.5.6 calibrate Fine	100	40	\$18,000.00	\$18,000.00	
	2.5.7 verify Fine	24	8	\$4,040.00	\$4,040.00	
	2.5.8 Fine parametric error	24	8	\$4,040.00	\$4,040.00	
task 2.5 total		312	114	\$54,270.00	\$54,270.00	\$65,902.50
task 2.6	2.6.1.1 Coarse initial screen	4	12	\$2,540.00	\$2,540.00	
	2.6.1.2 sims	24	16	\$5,440.00	\$5,440.00	
	2.6.1.3 check	20	8	\$3,600.00	\$3,600.00	
	2.6.1.4 Coarse CDF	4	4	\$1,140.00	\$1,140.00	
	2.6.1.5-6 select & verify	24	16	\$5,440.00	\$5,440.00	
	2.6.2.1 50 sims	40	20	\$7,900.00	\$7,900.00	
	2.6.2.2 rsm	20	80	\$16,200.00	\$16,200.00	
	2.6.2.3 1st eval	32	16	\$6,320.00	\$6,320.00	
	2.6.2.4 50 more sims re-eval	50	80	\$19,500.00	\$19,500.00	
	2.6.2.5 full response	8	16	\$3,680.00	\$3,680.00	
	2.6.2.6 Fine CDF	24	16	\$5,440.00	\$5,440.00	
	2.6.3 Future	120	60	\$23,700.00	\$23,700.00	
task 2.6 total		370	344	\$100,900.00	\$100,900.00	\$154,900.00