

**Coastal Protection and Restoration Authority (CPRA)**

**SCOPE OF SERVICES  
OPERATIONS AND MAINTENANCE OF WATER CONTROL  
STRUCTURES & MONITORING EQUIPMENT  
FOR  
HIGHWAY 384 HYDROLOGIC RESTORATION (CS-21)**

**1. INTRODUCTION**

The Hwy. 384 Hydrologic Restoration project (State Project No. CS-21) is located in the Calcasieu-Sabine Basin on the northeast side of Calcasieu Lake in Cameron Parish. The 1,125 acre project area extends from the northeast shore of Calcasieu Lake in a southeasterly direction to the Gulf Intracoastal Waterway and generally parallels LA Hwy. 384 in the vicinity of the Grand Lake community. The project consists of two structures in need of intermittent operational manipulations and maintenance of two monitoring stations. (See Attached Site Map).

The objective of this scope is to carry out the operations and maintenance measures necessary for the project.

A mandatory pre-bid conference is required as provided in the Invitation to Bid. The conference will be held at the CPRA Lafayette Regional Office, 635 Cajundome Blvd., Lafayette, LA 70506.

**2. CONTRACT TERM**

The term of this contract will be for one (1) year, with option to renew at the same price, terms and conditions for two (2) additional 12 month periods not to exceed a total of thirty-six (36) months. The effective date of this contract shall be August 1, 2015.

**3. FEATURES REQUIRING OPERATIONS**

**A.** Structure #1 (Site 1) – Water control structure having three (3) 24-inch aluminum culverts with flapgates on the project interior side and canal side (sluice gates) on the project exterior (Intracoastal Waterway side). Flapgates are operated with stationary levers and canal gates are operated with removable 9-inch wheel gears.

- B. Structure #2 (Site 12) – Variable crest, aluminum weir drop inlet water control structure consisting of two (2) 48-inch culverts with flapgates on the project exterior (Calcasieu Lake side) and four (4) 5-foot wide stoplog bays on the project interior side. Each weir inlet has thirteen (13) creosote member stoplogs at 55-inches long by 3 inches wide by 6 inches deep. There are a total of 52 stoplogs. The flapgates are operated by mobile levers and the stoplogs are handled individually.

#### 4. OPERATIONS

- A. During operation of the structures, care will be taken in order to minimize maintenance due to neglect, vandalism, improper operation, etc. The “Contractor” will provide timely oral reports to CPRA on any potential problems of vandalism, storm damage, drift, debris or other conditions that might hinder the operation of the structures.
- B. Structure operations by the “Contractor” will be performed per the Water Management Plan/Operational Schedule for this project. (Attached)
- C. All operations will be in compliance with applicable Federal, State and local permits.
- D. All operations by the “Contractor” will be authorized by letter, email or fax through designated CPRA personnel (Project Manager); or at the discretion of the Project Manager, authorization may be provided verbally and followed up immediately in writing.
- E. Upon completion of authorized operations, notification by letter, email or fax to the designated CPRA personnel by the “Contractor” will be required. This notice will state time, date and actual operation performed by the “Contractor” at the structure.
- F. Once authorized by CPRA personnel, normal structure operations will have to be completed within 72 hours after notification. The “Contractor” shall notify CPRA if the structure operation cannot be completed within the specified timeframe. In the case of emergency operations (e.g., abnormal rainfall events, flooding, hurricanes, etc.) structure operation, once authorized by designated CPRA personnel, will have to be completed within 24 hours.

#### 5. ITEMS OF WORK

##### A. Mobilization

Contractor will provide mobilization to and from structure sites. The structures are located behind locked gates. After award, gate access will be provided.

##### B. Structure Operations

Total numbers of structure operations per year are dependent on the salinity and water level values in the vicinity of the structures. Each structure operation will be determined by CPRA as outlined in the attached Water Management Plan/Operational Schedule. Based on historical data, it is estimated there will be between three (3) to nine (9) operations per year.

### **C. Stoplog Storage**

The Contractor will be responsible for stoplogs when they are being transported to and from structure sites and while stored by the Contractor.

### **D. Checking and Recording Salinity and Water Levels**

Salinity and water levels in the vicinity of the structure sites will be checked and recorded once per month.

## **6. FEATURES REQUIRING MAINTENANCE**

Maintenance is required on two (2) monitoring sites (15r and 29r). The continuous monitoring stations with telemetry, includes the following equipment at each site:

1. InSitu Aqua Troll 200 Sonde that measures conductivity, salinity, depth, and temperature.
2. RomComm/Troll Link telemetry which transmits the sonde data to the internet
3. Solar panel for recharging the telemetry Battery.

A station location map and site coordinates will be handed out at the pre-bid conference.

## **7. MAINTENANCE PROCEDURES**

All sites must be serviced once per month using the procedure listed below. A “continuous recorder calibration sheet” provided by CPRA must be completed for each station and returned to the CPRA Lafayette Regional office with the downloaded data. Any repairs to the station’s electronics or mounting hardware must also be performed during the service visit. Any parts/material needed to repair equipment or mounting hardware will be added to the cost of the service visit. Submit detailed cost information to justify payment for approval by CPRA.

Note: All repairs and costs must have prior approval from CPRA.

CPRA expects high quality data to be collected and delivered with as few gaps as possible. Address problems with monitoring equipment promptly. Be prepared to

service or replace equipment on each field trip and address larger problems on the next scheduled trip. Data completeness, the ratio of the amount of valid data obtained to the amount expected, is 85%. Consideration will be given for landrights restrictions and factors outside the control of the Contractor.

**A. Equipment required to perform maintenance includes:  
(To be provided by Contractor)**

1. Laptop computer (with compatible In-Situ software) or InSitu Rugged Reader (plus connect cable) for communication with the In-Situ Aqua Troll 200 sonde.
2. Handheld salinity/conductivity/temperature meter.
3. Conductivity calibration standard.
4. Telescopic survey rod graduated in Feet/10ths/100ths.

**B. Routine Maintenance Procedure:**

1. Disconnect sonde cable from telemetry box connector.
2. Connect sonde to laptop/rugged reader and record data onto calibration sheet under the “Dirty Readings” section/ “Constant Recorder” row.
3. Place handheld meter to the water next to the sonde and read its data on the calibration sheet under “Dirty Readings” section/ “Calibration Instrument” row.
4. Remove sonde from mounting pipe and record the depth reading in the “Dirty Readings” section/ “Depth out of Water” box.
5. Physically clean the sonde with a brush and clean water. Also remove sensor guard and clean each sensor. Then clean inside of sensor guard. Reinstall sensor guard.
6. Using the laptop/rugged reader stop the existing data logging file, and then download this file onto the laptop/rugged reader.
7. While the sonde is still out of the water; record the sonde depth reading under the “Clean Readings” section/ “Depth out of Water” box on the calibration sheet. **Note:** If this reading is not equal to Zero then calibrate depth to zero.
8. Reinstall sonde into mounting pipe and record data onto the calibration sheet under the “Clean Readings” section/ “Constant Recorder” row.
9. Place handheld meter in the water next to the sonde and record its data on the calibration sheet under “Clean Readings” section/“Calibration Instrument” row.
10. Calculate the SpCond difference in the “Clean Readings” section by subtracting the SpCond of the constant recorder from the SpCond of the calibration instrument and record this as a percentage in the “% Difference” box.  
**Note:** if this percent (%) difference is greater than 5% then a calibration on the sonde must be performed (see calibration procedure below).
11. Create a new data logging file and start the data logging process.
12. Disconnect sonde from Laptop/rugged reader and reconnect field cable to

- SDI-12 converter inside cable connection box.
13. Connect cable to telemetry box and lock.
  14. Read the staff gauge that is mounted at each station and record under “Staff Gauge” section/ “Staff Gauge (NAVD).”
  15. Physically clean the solar panel with a soft brush and water.

### **C. Calibration Procedure:**

#### **Conductivity**

1. Connect laptop/rugged reader to sonde.
2. Remove sonde sensor guard.
3. Install sonde calibration cup.
4. Pour conductivity calibration solution into calibration cup.
5. Wait for conductivity readings to stabilize then select calibrate on laptop/rugged reader.
6. Record data under the “Calibration Required” section/ “Constant Recorder” row on the data sheet.

#### **Depth**

1. Connect laptop/rugged reader to sonde.
2. Hold sonde upright out of the water.
3. Wait for the depth readings to stabilize then calibrate depth to zero.
4. Record data under the “Calibration Required” section/ “Constant Recorder” row on the data sheet.

Following field maintenance of instrumentation, all downloaded data and Continuous Reader Calibration Sheets must be provided to CPRA Lafayette Regional Office and NRCS Lafayette Field Office.

### **8. DATA Quality Assessment /Quality Control (QA/QC) PROCEDURE**

Hydrologic data collected by the Contractor are to be housed in CPRA’s online Oracle-based SONRIS (Strategic Online Natural Resources Information System) database. Real-time data will be transferred directly into SONRIS. Once the contract is awarded, the Contractor should contact CPRA for technical details regarding establishing data transmission to SONRIS. The Contractor is responsible for performing quality assessment and quality control (QA/QC) procedures on downloaded data each month after servicing and if any changes to the data are required, the Contractor is to upload corrected data into the SONRIS system. Data can be transferred to the SONRIS system

from any computer connected to the internet via a remote load procedure through the use of a File Transfer Protocol (FTP) site. The FTP load procedure will be provided to the Contractor after the contract is awarded.

CPRA will provide an Excel spreadsheet used for performing QA/QC on downloaded data. The Excel spreadsheet assists in shifting data, summary statistics, creating preliminary graphics, and formatting data for inclusion in the SONRIS database.

In the office after sondes have been serviced and data has been collected, the Contractor should follow the steps below to ensure the data has been processed properly:

1. Examine the calibration sheet for completeness and accuracy.
  - a. Are calculations correct?
  - b. Is the staff gauge minus water level measurement within 0.05 feet, if available?
2. Check that the data from the calibration sheet was correctly transferred to the "Data" worksheet of the Excel file.
3. Check that the starting/ending dates and times of the data within the Excel file correspond with the dates and times on the calibration sheets.
4. Ensure that all data were shifted correctly.
  - a. If the percent difference was greater than 5% between the dirty continuous recorder readings and the calibration instrument for the salinity or water level data, then a shift should have been applied to the shifted data columns.
5. Ensure that all depth data were correctly converted to NAVD88, ft.
6. Ensure there is no suspect data in the file.
  - a. Outliers in the salinity or water level graphs should be removed. Always delete data from the adjusted (shifted) columns; never delete raw data.
  - b. If there are any raw water level readings of 0.03 ft. or less, remove all corresponding adjusted (shifted) data.
7. Ensure there are no missing dates/times
  - a. Insert a spacer for any missed readings including the date, time and organization name. All other columns should remain blank.

Check that the transition between the previous and current month's data is smooth and that no sample point is missing between the two sample periods due to instrument servicing.

## **9. DELIVERABLES**

The Contractor will submit reports providing the information below. These reports are to be submitted on a monthly or quarterly basis as shown below.

1. Number of the type of structure operations performed during the reporting period. (Quarterly)

2. Values of the salinity and water level readings taken during the reporting period.(Quarterly)
3. Each month after sonde servicing, digitally deliver a pdf of the scanned field calibration sheet with any field notes and the Excel spreadsheet provided for data shifts and formatting. (Monthly)

One (1) original report will be sent to Jody Roger-White, P.E., Project Manager, CPRA , P.O. Box 62027, Lafayette, LA 70596-2027

One (1) original report will be sent to Mike Miller, Monitoring Manager, CPRA, P.O. Box 62027, Lafayette, LA 70596-2027

One (1) original report will be sent to Loland Broussard, Project Manager, NRCS, 646 Cajundome Blvd., Lafayette, LA 70506

## 10. PAY REQUESTS

Send Invoice To:  
CPRA  
Attn: Jody Roger White, P.E.  
P.O. Box 62027  
Lafayette, LA 70596-2027  
Jody.White@la.gov

## COST

Monthly Operation and Maintenance \$\_\_\_\_\_Per Month

**HIGHWAY 384 HYDROLOGIC RESTORATION  
CS-21  
"WATER MANAGEMENT PLAN"  
Revised 05-03-06**

**ES #1 Structure** - Three (3) 24 inch Aluminum culverts with Interior 24 inch Flapgates and Exterior 24 inch Sluice Gate

	Culvert # 1		Culvert #2		Culvert #3	
Salinity	Sluice	Flap	Sluice	Flap	Sluice	Flap
≥ 7 ppt	down	down	down	down	down	down
< 7 ppt	open	down	open	down	open	down

Average Marsh Level CTU 2 = 1.253 ft NAVD88

Notes: When exterior salinities at ES #1 structure meet or exceed 7 ppt, the structure will be set according to the above chart. When exterior salinities fall below 7 ppt, the structure will be reset according to the above chart.

**ES #12 Structure** Two (2) 48 inch Aluminum Culverts, each with an Interior 10 foot Variable-Crested Weir Inlet with a 4 inch vertical slot and an Exterior 48 inch Flapgate.

	Culvert #1			Culvert #2		
Salinity	Flap	Stoplog	Slot	Flap	Stoplog	Slot
< 7 ppt	open	.88 ft	open	open	None	open



<b>7-10 ppt</b>	down	.88 ft	open	open	None	open
<b>&gt;10 ppt</b>	down	.88 ft	open	down	.38 ft	open

Average Marsh Level CTU 1 = 1.38 ft NAVD88

Notes:

- "None" refers to removal of all stop logs.
- Salinity shall be monitored on the northern side of the shell road at ES #12 Structure.

**Highway 384 HR (CS-21) Site Map**

