

SCOPE OF SERVICES
FOR
OPERATION OF THE
BLACK BAYOU CULVERTS STRUCTURE (CS-29)

I. INTRODUCTION

The Black Bayou Culverts Hydrologic Restoration Project (CS-29) is a Coastal Wetlands Planning Protection and Restoration Act (CWPPRA) project jointly funded by the Coastal Protection and Restoration Authority (CPRA) and the USDA/Natural Resources Conservation Service (NRCS). The Black Bayou Culverts Project consists of approximately 72,378 acres in Cameron and Calcasieu parishes. The structure location is approximately 0.5 mile south of the intersection of LA State Highway 384 and the Gulf Intracoastal Waterway (GIWW) along Hwy. 384 in Calcasieu Parish. A Project Features Map and Vicinity Map are located in Appendix A.

The primary function of the structure is to maintain the water level within the project area and provide additional drainage capacity within the western side of the Mermentau River Basin when needed. The objective of this scope is to identify the structure operations needed to meet these goals as well as operations which may be necessary to facilitate inspections to keep the structure functioning properly.

A mandatory pre-bid conference is required. The conference will be held at the CPRA Lafayette Field Office, 635 Cajundome Blvd., Lafayette, LA 70506.

II. CONTRACT TERM

The initial term of this contract is for one (1) year, with the 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 anticipated start date of the contract is May 1, 2016.

III. STRUCTURE FEATURES REQUIRING OPERATIONS

The Black Bayou Culverts Structure consists of ten (10) 10 ft. x 10 ft. concrete box culverts under LA highway 384 which are equipped with trash racks and flap gates. Photos of the structure and various components are located in Appendix D. The typical operation of the structure will be in the free flapping mode but occasional locking of the structure will be required to maintain the desired water level within the project area.

There are ten (10) aluminum flap gates on the downstream side (west side) of the structure on each individual box culvert. The flap gates are equipped with Styrofoam flotation blocks, neoprene seals and locking capabilities to seal off the flow through the structure.

The locking mechanism for each flap gate includes two (2) aluminum lock pins approximately 15 feet in length and 2 ½ inches in diameter. There are three sets of locking rings on each side of the gates and frames which the pins are threaded through. Once in place, the pins are secured via two cables to a “U” bolt in the top of the structure headwall. Each flap gate has two lifting cables attached to either side of the bottom of the gate. The lifting cables are secured to the same “U” bolt in the top of the structure headwall.

When the flap gates are unlocked and free flapping, the Styrofoam blocks aid in opening the gate at minimal head differential. Each flap gate has four compartments for loading and unloading Styrofoam blocks to adjust the buoyancy of the gates. Each compartment is secured with an aluminum plate and cotter pin.

Each of the ten box culverts can be isolated for underwater work using a sluice gate. Three 10ft 4in. x 12ft 5¼in. aluminum sluice gates have been fabricated for this purpose. The gates would typically remain in storage and only require installation when necessary to isolate an individual box culvert during underwater work. The sluice gate is lowered into a slot provided in the receiving frame adjacent to the trash screen on the upstream side (East Side) of the structure. The trash screens prevent floating debris from entering the box culverts.

IV. GENERAL OPERATIONS

- A. During operation of the structure, 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 structure.
- B. All operations by the “Contractor” will be authorized by letter, email or fax through designated CPRA personnel (Project Manager). The Project Manager may verbally give authorization at their discretion and followed up immediately in writing.
- C. 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. (Form letter will be provided by designated CPRA personnel).
- D. Once authorized by CPRA personnel, normal structure operations will have to be complete within 48 hours after notification, unless tide conditions prohibit otherwise. 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 manipulation, once authorized by designated CPRA personnel, will have to be completed within 24 hours providing appropriate tide conditions exist.
- E. All operations will be in compliance with applicable Federal, State, and Local permits.

- F. CPRA has made arrangements with the Calcasieu Lockmaster to use their facilities to store the locking pins, cables, padlocks, Styrofoam blocks, and sluice gates at the Calcasieu Lock located at 3972 Calcasieu Lock Road. The "Contractor" is responsible for transportation of the equipment to and from the structure site. The "Contractor" is responsible for coordinating with the Lockmaster, Kevin Galley, at 337-477-1482 for picking up and returning the equipment to the storage location. If any equipment is temporarily stored elsewhere, the "Contractor" shall provide information to CPRA on the storage location.
- G. Structure operations by the "Contractor" will be performed per instructions specified by designated CPRA personnel. Attached, for informational purposes only, is the Water Management Plan/Operational Schedule and Staff Gauge data sheet for this project. The GIWW-Calcasieu Lock East (76880) will be used for water level monitoring. The gauge data is available online at <http://rivergages.mvr.usace.army.mil/WaterControl/stationinfo2.cfm?sid=76880&fid=&dt=S>.

V. ITEMS OF WORK

The primary items of work to be performed are:

A. Mobilization to and from the Structure Site:

The "Contractor" will be responsible for providing all equipment, including marine equipment, labor, transportation and means necessary to mobilize and demobilize from the site for each operation. Boats are to be equipped with LDWF& USCG safety equipment. Mobilization includes obtaining the stored equipment at the Calcasieu Lock when necessary to perform an operation. The cost for mobilization and demobilization is considered incidental to the work. No separate payment will be made for mobilization and demobilization.

B. Contract for Operations of Black Bayou Culverts Structure (Bid Item No.1):

This bid item provides for accessibility to the contractor throughout the year. This retainer is necessary because operations are required to be executed within 48 hours and in some cases 24 hours from notification by CPRA. In addition, operations for this location are not on a defined schedule due to varying environmental conditions and the Contractor must be available to respond when needed. To establish a contract for operation of the Black Bayou Culverts Structure, payment will be made per month as per Bid Item No. 1.

C. Locking/Unlocking Flapgates (Bid Item No. 2):

1. This operation will consist of one of the following:

- a. Installing pins and locking the flapgates in a closed position to maintain the water level in the project area.
 - b. Removing pins to allow the flapgates to open as needed and provide additional drainage capacity in the project area.
2. During a typical event to maintain or drain water from the project area, all ten gates will be locked or unlocked.
3. The number of structure operations per year is dependent on the water levels within the Mermentau Basin upstream of the structure. Each structure operation will be determined by CPRA as outlined in the Water Management Plan/Operational Schedule (Appendix C) with assistance from the Calcasieu Lockmaster and NRCS. The Calcasieu Lock East gauge will be used for determining water level trends within the basin. It is estimated that there will be an average of eight (8) structure operations per year consisting of locking or unlocking the flapgates. Payment for Locking/Unlocking the Flapgates will be made per event as indicated in Bid Item No. 2.
4. The structure operations will be conducted by both boat and Hwy 384 access from atop the structure. It is anticipated that a three (3) man crew will be required to perform an operation, one man atop the structure handing down/picking up the locking pins, one man installing/pulling the pins through the locking rings from the boat, and one man operating the boat.
5. After installing the pins and locking the flapgates, the "Contractor" will padlock the locking pins to the structure by locking the attached cable to the "U" bolt imbedded in the headwall above each gate location. Padlocks will be furnished by CPRA. See photos in Appendix D for more detail.
6. The "Contractor" will exercise caution when locking and unlocking the gates to prevent damage to or warping of the gates. Gates will only be locked and unlocked on an in-coming tide such that the gates are in a normal closed position during such time.
7. Normal structure operations are expected to occur during daylight hours. However, timing of the operation is dependent on tidal fluctuations and therefore it may be necessary for late evening or early morning operations. In the event of an emergency operation due to storm events, nighttime operations may be necessary but are still dependent on tide conditions.
8. The "Contractor" will be responsible for all safety precautions when working atop the structure adjacent to traffic along Hwy 384 (e.g., traffic cones, orange vests, etc.). Should one lane be closed during this operation, the appropriate personnel are required to direct traffic.

9. The “Contractor” shall notify the Calcasieu Parish Sheriff’s Office at (337) 491-3600 within 24 hours to alert them that the structure gates have been locked as a preventative measure against local vandalism to the structure.

D. Buoyancy Adjustment of Flapgates (Bid Item No. 3):

1. The Styrofoam material may need adjustment after the structure is in operation. The gates are currently filled with two Styrofoam blocks. CPRA will determine when any adjustments are necessary to the flotation material in the gates. Accessing the Styrofoam compartment would involve removal of a cotter pin and aluminum plate.
2. One or all of the gates may be adjusted for buoyancy during each event. Payment for Buoyancy Adjustment of the Flapgates will be made per event as indicated in Bid Item No. 3.
3. Depending on the water levels, the gates may be in the locked configuration and require unpinning prior to lifting the gates to adjust the Styrofoam blocks. Unlocking and locking the gates requires proper timing to perform the operation during a slack tide or in-coming tide. Unlocking and Locking the gates, if required for buoyancy adjustment, are to be included in the bid amount of the “Buoyancy Adjustment of Flapgates”, Bid item No. 3.
4. The actual buoyancy adjustment operation will be conducted by both boat access and via Hwy 384 access atop the structure. It is anticipated that a three man crew will be required to facilitate the adjustment operation, one man atop the structure using a third party rental piece of equipment capable of safely lifting the gates without causing damage, one man in the boat for handling cables and installing/removing the Styrofoam blocks, and one man operating the boat.
5. The buoyancy adjustment operation shall occur only during daylight hours.
6. The “Contractor” shall take all precautions necessary to prevent damaging or warping the gates during the lifting operation.
7. The “Contractor” will be responsible for all safety precautions when working atop the structure adjacent to traffic along Hwy 384 (e.g., traffic cones, orange vests, etc.). Should one lane be closed during this operation, the appropriate additional personnel are required to direct traffic.

E. Lifting Flapgates for Inspection (Bid Item No. 4):

1. Once in operation, there may be a need to raise the flapgates for inspection by CPRA and NRCS to assess the structural condition of the gates. Boat transportation will be required for CPRA and NRCS personnel to inspect the gates.
2. The gate inspection could involve lifting of one or all ten flapgates. Payment for Lifting of the Flapgates for Inspection will be made per event as indicated in Bid Item No. 4.
3. Depending on the water levels, the gates may be in the locked configuration and require unpinning to perform the lifting operation. Unlocking and locking the gates requires proper timing to perform the operation during a slack tide or incoming tide. Unlocking and Locking the gates for this operation, if required, are to be included in the bid amount of the "Lifting Flapgates for Inspection", Bid item No. 4.
4. Lifting of the gate will be conducted by both boat access and via Hwy 384 access atop the structure. A three man crew is anticipated, to perform the lifting operation including one man atop the structure using a third party rental piece of equipment capable of safely lifting the gates without causing damage, one man in the boat for the locking or unlocking operation, and one man operating the boat.
5. The inspection shall occur only during daylight hours.
6. The "Contractor" shall take all precautions necessary to prevent damaging or warping the gates during the lifting operation.
7. The "Contractor" will be responsible for all safety precautions when working atop the structure adjacent to traffic along Hwy 384 (e.g., traffic cones, orange vests, etc.). Should one lane be closed during this operation, the appropriate personnel are required to direct traffic.

F. Installing & Removing Sluice Gates for Inspection (Bid Item No. 5):

1. Once in operation, there may be a need to inspect or perform work underwater on the flapgates or within the box culverts by a diver. Three sluice gates have been fabricated to isolate the box culverts as needed. These gates will be stored at the Calcasieu Lock and require coordination with the lockmaster as previously outlined in the General Operations Section of this scope. The sluice gates have two lifting eyes on top to lower and raise the gate into position within the slot adjacent to the trash screen (East side of structure).

2. Installing and removing the sluice gates requires proper timing to perform the operation during a slack tide or in-coming tide if the flapgates are unlocked to avoid damage to the gate. Typically three sluice gates would be required to be installed and removed for this operation. Payment for Installing & Removing the Sluice Gates for Inspection will be made per event as per Bid Item No. 5.
3. Installing and removing the sluice gate will be conducted by both boat access and via Hwy 384 access atop the structure. A three man crew is anticipated, to perform the operation including one man atop the structure using a third party rental piece of equipment capable of safely lifting the sluice gates without causing damage, one man in the boat for guiding the sluice gate into the slot in the receiving frame, and one man operating the boat.
4. The operation shall occur only during daylight hours.
5. The "Contractor" shall take all precautions necessary to prevent damaging or warping the sluice gates during the operation.
6. The "Contractor" will be responsible for all safety precautions when working atop the structure adjacent to traffic along Hwy 384 (e.g., traffic cones, orange vests, etc.). Should one lane be closed during this operation, the appropriate personnel are required to direct traffic.

VI. DELIVERABLES

The "Contractor" will submit reports as follows:

- A. Upon completion of an authorized operation, the "Contractor" will provide the operations report shown in Appendix B by mail, email or fax to Ms. Jody Roger-White, P.E., Project Manager, CPRA at P.O. Box 62027, Lafayette, LA 70596-2027, phone: 337-482-0664, fax: 337-482-0687, email: jody.white@la.gov.

VII. PAY REQUESTS

Requests for payment shall be submitted to CPRA:

Attn: Jody Roger-White, P.E.
CPRA, Lafayette Regional Office
P.O. Box 62027
Lafayette, LA 70596-2027

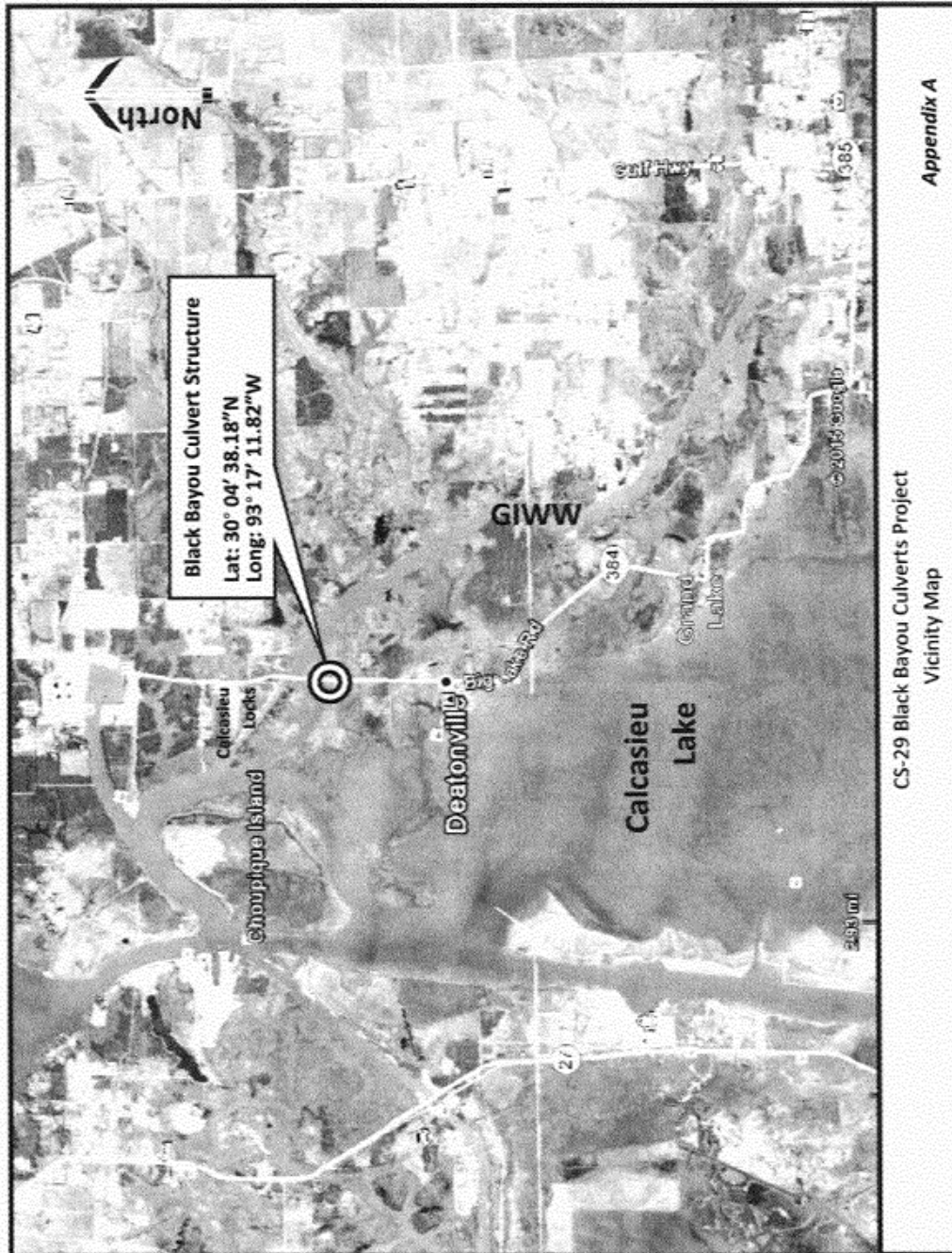
VIII. SCHEDULE OF ITEMS (To be completed by the bidder and submit to LA Office of State Procurement for bid to be considered)

CS-29 BLACK BAYOU CULVERTS OPERATION CONTRACT

ITEM NO.	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE (in words)	UNIT PRICE (in numbers)	TOTAL BID AMOUNT
1	To Establish a Contract for Operations of The Black Bayou Culverts Structure	12	Month	_____ Dollars _____ Cents _____ Cents	\$ _____	\$ _____
2	Locking/Unlocking Flapgates	8	Events	_____ Dollars _____ Cents _____ Cents	\$ _____	\$ _____
3	Buoyancy Adjustment of Flapgates	2	Event	_____ Dollars _____ Cents	\$ _____	\$ _____
4	Lifting Flapgates for Inspection	2	Event	_____ Dollars _____ Cents	\$ _____	\$ _____
5	Installing & Removing Sluice Gate	2	Event	_____ Dollars _____ Cents	\$ _____	\$ _____
TOTAL AMOUNT OF BASE BID				_____ Dollars	_____ Cents	

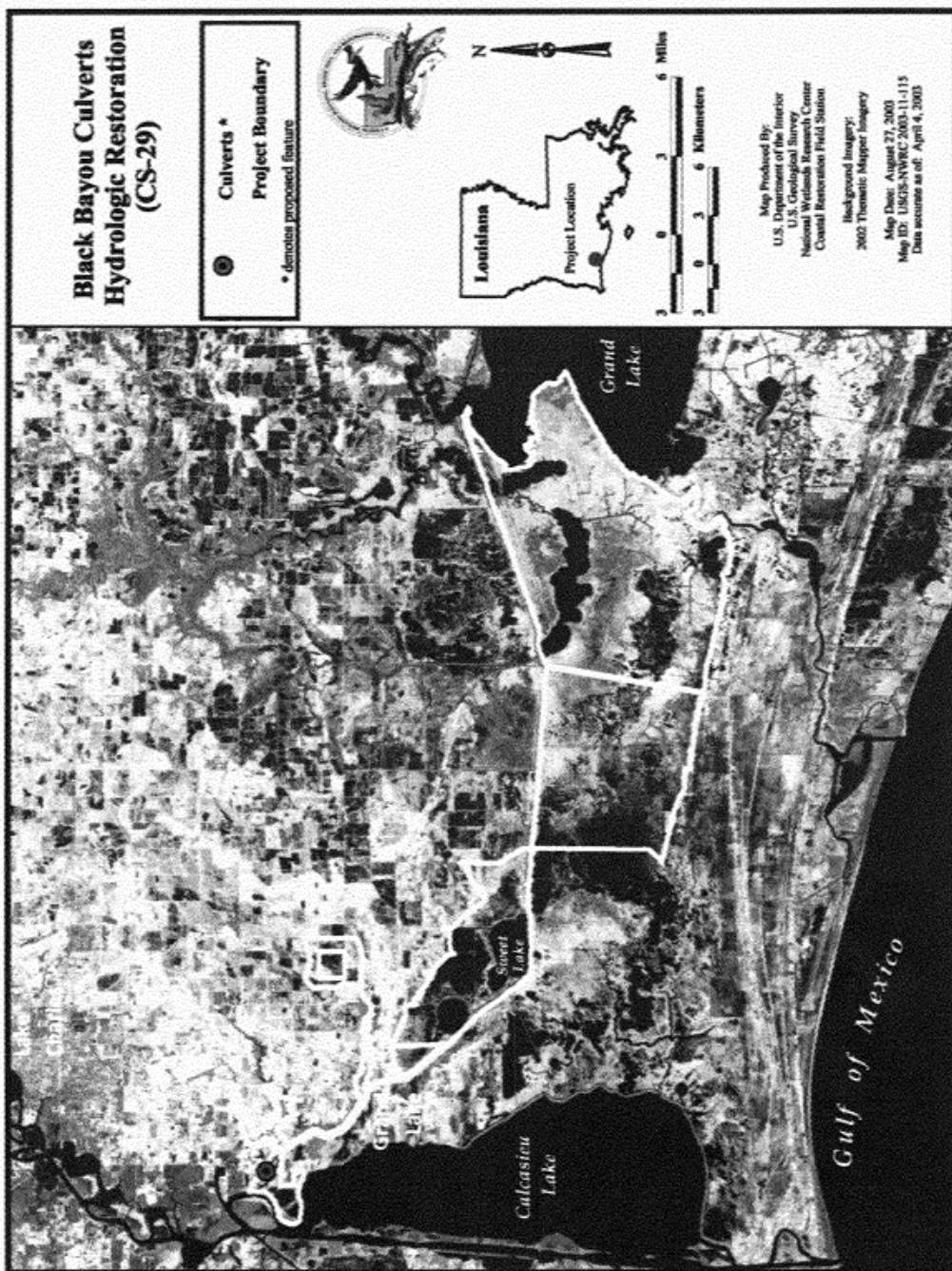
Note: Quantities of work are estimated quantities used for bid purposes only. The Owner reserves the right to increase/decrease the quantity as may be necessary to meet the project objectives or remain within funding limits that arise. In the event of material under-runs/over-runs, the unit cost will be used to determine payment to the Contractor.

**Appendix A
Vicinity Map**



Appendix A

CS-29 Black Bayou Culverts Project
Vicinity Map



**Appendix B
Operations Report**

BLACK BAYOU CULVERTS (CS-29)**OPERATIONS REPORT**

DATE: _____ TIME: _____ PERSONNEL: _____

WEATHER CONDITIONS: _____

TIDE CONDITIONS: _____

GATE NO. *	GATE STATUS		No. of Styrofoam Blocks	COMMENTS
	Locked	Unlocked		
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

* Gates are numbered from North to South.

OTHER OBSERVATIONS: _____

Appendix C
Water Management Plan/ Operational Schedule

CS-29 BLACK BAYOU CULVERTS HYDROLOGIC RESTORATION

WATER MANAGEMENT PLAN/OPERATIONAL SCHEDULE
PROPOSED WATER CONTROL STRUCTURE IN THE
BLACK BAYOU AREA
CALCASIEU PARISH, LOUISIANA

With the construction of Louisiana Highway 384, the Black Bayou drainage path to the Calcasieu River was effectively blocked. In conjunction with the poor water relief offered by the Calcasieu Lock, the barrier created in Black Bayou has hindered the release of flood waters from the Mermentau Basin. Coupled with upstream drainage improvements, clearing of adjacent lands, subsidence, and relative sea level rise, the area is experiencing even longer periods of inundation from flood waters.

This project would re-open Black Bayou and alleviate some of the high water levels in the Mermentau Basin, as well as reduce water velocities through the Calcasieu Lock resulting in safer navigation. The removal of excess water in this area would allow an increase in emergent vegetation, while decreasing stresses on existing vegetation. The proposed flap gated structure would also maintain the deterrence of saltwater intrusion from the Calcasieu River.

Elevation observations in the marshes located near the project site revealed that the average mud line elevations were approximately +0.8 feet NAVD88. The top of the marsh plant root crown mass ranged in elevation from +0.9 feet NAVD88 to +1.2 feet NAVD88 (survey data as per On Target Surveying, Inc. and referenced in the 'Hydrologic Investigation of the Louisiana Chenier Plain' report dated October 2002). The applicant proposes to allow the structure to operate without human intervention, i.e. flap gates operating without restriction, unless the water level upstream of the structure reaches the previously stated average mud line elevation (+0.8 feet NAVD88). If this condition occurs, flow through the structure would be eliminated by manually locking closed the flap gates. A tide gauge referenced to the NAVD88 datum will be maintained upstream of the structure and the water surface elevation at this gauge will be used to determine the appropriate time for restriction of flow through the structure. The structure will remain closed until the water surface elevation at the gauge is +1.0 feet NAVD88; at which time the pins will be removed from the flap gates and the structure will be allowed to operate as designed.

STRUCTURE OPERATION SCHEDULE:

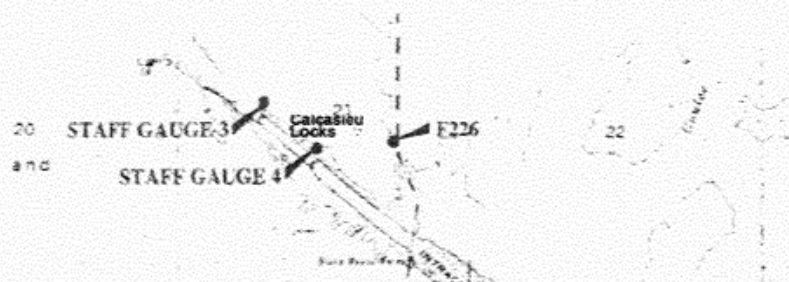
DATE	WATER LEVEL	STRUCTURE OPERATION
Jan. 1 – Dec. 31	above +0.8 ft*	Normal operation, i.e. unrestricted flap gates
Jan. 1 – Dec. 31	below +0.8 ft*	Structure closed, i.e. no flow through structure

*In the event that the water level upstream of the structure drops below +0.8 ft NAVD88 the flap gates will be closed in order to eliminate flow through the structure. After such an event, the structure will remain closed until the water level increases to +1.0 ft NAVD88, at which time the flap gate restriction will be removed and the structure will operate as designed.

5/7/2004

Note: The Calcasieu Lock East Gauge is used for water level monitoring within the project area. The Data Sheet to convert from the USACE gauge in MLG to the operation elevations in NAVD88 of the water management plan is included in this appendix.

Calcasieu Locks Gauge Data Sheet (2005) in NAVD88
Conversion from MLG to NAVD88 – Subtract 1.293ft



VICINITY MAP



WEST
STAFF GAUGE 3
 (EXISTING)

Adjusted NAD 83 (1992) Geodetic Position (RTK)
 Lat. 30°05'19.78129" N
 Long. 93°17'41.39782" W

Adjusted NAD 1983 Datum (1992)
LSZ (1702) Feet (RTK)
 N = 583,105.13
 E = 2,660,539.46

Elevation of 7.0 foot mark on
Gauge No. 3 (NAVD 88) (Feet) (RTK)
 Elevation = - 5.707



EAST
STAFF GAUGE 4
 (EXISTING)

Adjusted NAD 83 (1992) Geodetic Position (RTK)
 Lat. 30°05'12.32111" N
 Long. 93°17'28.38764" W

Adjusted NAD 1983 Datum (1992)
LSZ (1702) Feet (RTK)
 N = 582,332.08
 E = 2,661,669.33

Elevation of 6.0 foot mark on
Gauge No. 4 (NAVD 88) (Feet) (RTK)
 Elevation = - 4.707

NGS Monument E226
 (SEE ATTACHED NGS DATA SHEET)

Adjusted NAD 83 (1992) Geodetic Position (RTK)
 Lat. 30°05'11.62589" N
 Long. 93°17'11.66667" W

Adjusted NAD 1983 Datum (1992)
LSZ (1702) Feet (RTK)
 N = 582,236.79
 E = 2,663,136.44

Adjusted NAVD88 (Feet) (RTK)
 Elevation = - 3.377

**Appendix D
Photos**



Photo No. 1- CS-29 Black Bayou Culverts - East Side/Inlet

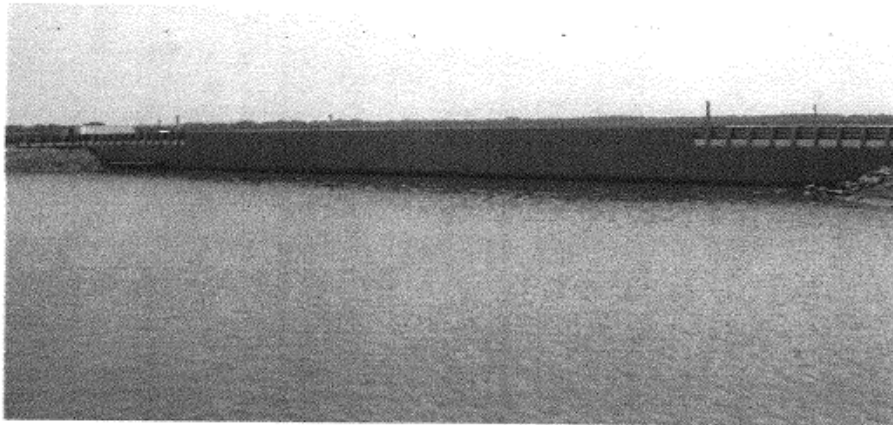


Photo No. 2 - CS-29 Black Bayou Culverts - West Side/Outlet

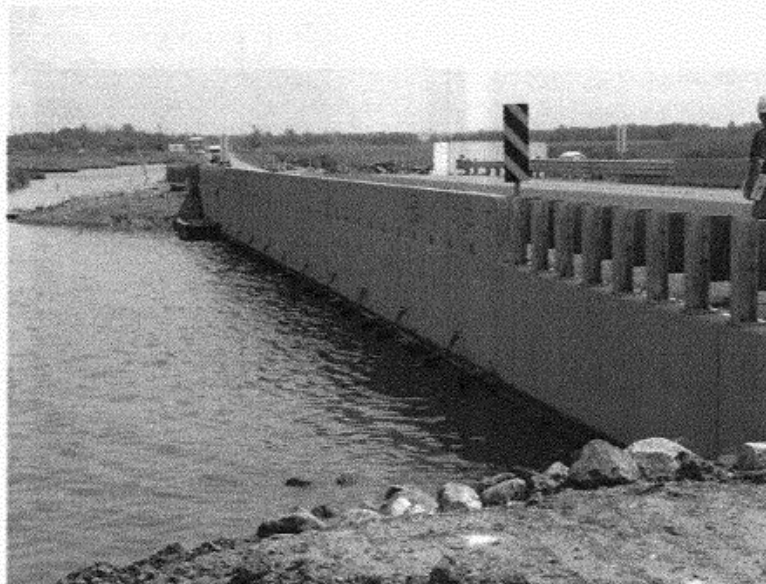


Photo No. 3 - CS-29 Black Bayou Culverts - West Side/Outlet

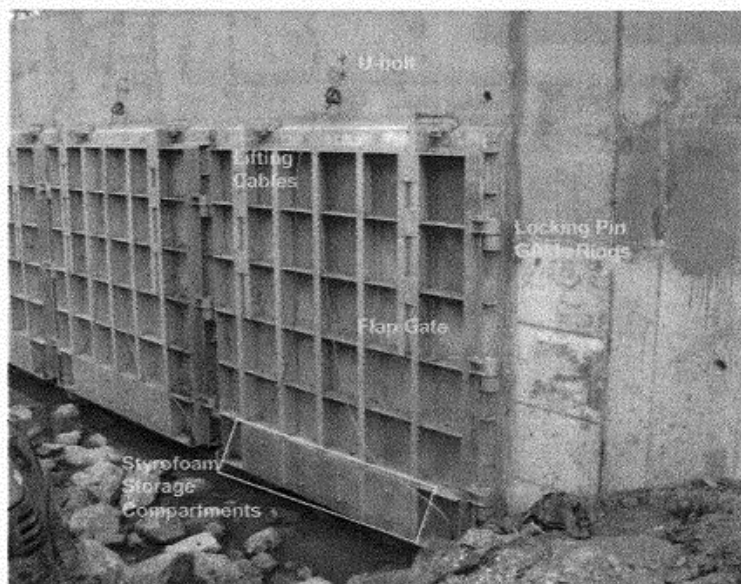


Photo No. 4 - CS-29 Black Bayou Culverts - West Side – Dewatered
Flap Gate, Styrofoam Storage Compartments, Cables, Locking Pin Guide Rings, U-bolt in Headwall

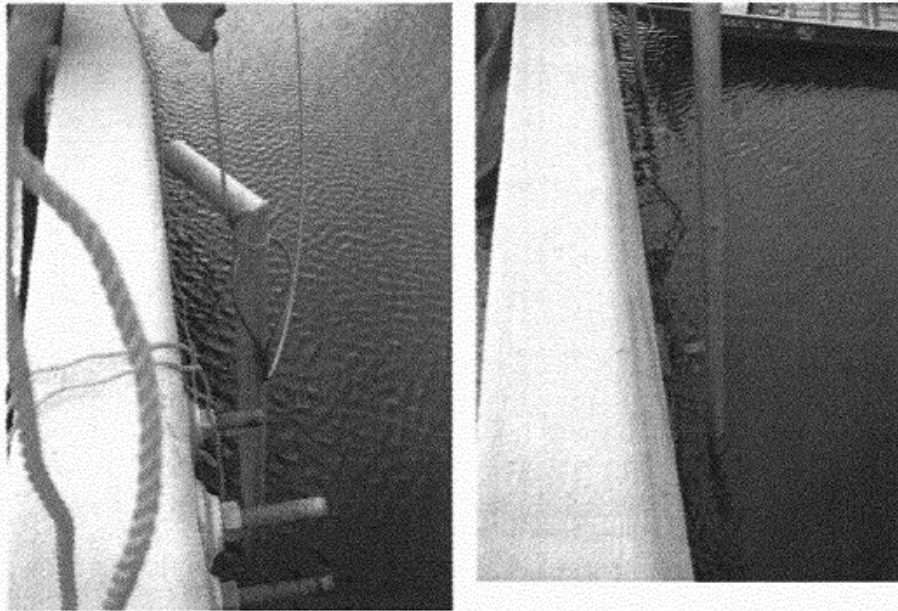


Photo No. 5 - CS-29 Black Bayou Culverts - West Side
Locking Pins