

PROJECT COMPLETION REPORT

PROJECT NAME: **Brady Canal Breach Repair Project (2003)**

CWPPRA/STATE PROJECT NO. **TE-28 – Maintenance Project**

REPORT DATE: **August 12, 2003**

PREPARED BY: **LDNR**

1. Project Managers/ Contracting Parties

DNR Project Manager: **Brian Babin**

O&M/ Construction Manager: **Brian Babin**

DNR Monitoring Manager: **Todd Folsie**

NRCS Project Manager: **Brad Sticker**

Construction Administrator/ Inspection: Mike Maillet – Pyburn & Odom

2. Location and description of maintenance project.

The Brady Canal Hydrologic Restoration Project is located in the Terrebonne Basin, within the Bayou Penchant watershed in Terrebonne Parish, Louisiana. The project area is bounded by Bayou Penchant, Brady Canal, and Little Carencro Bayou to the north, Bayou Decade and Turtle Bayou to the south, Superior Canal to the east, and Little Carencro Bayou and Voss Canal to the west. **This project completion report will include project features repaired and rehabilitated under the Brady Canal Breach Repair Project (2003).**

The Brady Canal Breach Repair Project consist of repairing levee breaches at (11) eleven locations within the Brady Canal Hydrologic Restoration project and replacement of a damaged timber dolphin at Structure No.6. Plans and specifications were prepared by Pyburn and Odom MCA of Baton Rouge. The project specification and plans included a base bid and one (1) alternate. The base bid required the installation of 6,200 tons of Broken Stone Rip-Rap and repair of 2,200 linear feet of earthen embankment. The alternate bid provided for the placement of an additional 2,550 tons of Broken Stone Rip-rap along the north bank of Bayou Decade from Tutle Bayou to Jug Lake. Manson Gulf Construction of Houma, Louisiana, submitted the lowest bid on the project and was awarded the construction contract for the base and alternate bid to complete the maintenance work.

3. **Final As-built features constructed and rehabilitated.**

Below are a description and location and method of repair of breaches:

Base Bid: (All broken stone rip-rap sections were constructed using ASTM R-600 grade stone and designed with a crest elevation of +3.5' and 1:3 side slopes above a geotextile fabric. The earthen embankment sections were designed with a crown elevation of +3.5' with 1:6 side slopes. For actual constructed elevations, see as-built drawings)

Breach 1 – 660 linear feet of broken stone rip-rap dike above geotextile fabric located along the northern bank of Bayou Decade near Jug Lake.

Breach 2&3 – 1,130 linear feet of broken stone rip-rap dike above geotextile fabric located along the northern bank of Bayou Decade.

Breach 4 – 160 linear feet of broken stone rip-rap dike above geotextile fabric located along the northern bank of Bayou Decade.

Breach 5&6 – 1,500 linear feet of earthen embankment construction located along Turtle Bayou.

Breach 7 – 261 linear feet of broken stone rip-rap dike above geotextile fabric located along an existing oil field canal off of Superior Canal.

Breach 8 – 200 linear feet of earthen embankment construction located Superior Canal.

Breach 9 – 200 linear feet of earthen embankment construction located along Superior Canal.

Breach 10 – 90 linear feet of earthen embankment construction located along the west bank of Jug Lake near an existing culver/flap gated structure.

Breach 11 – 300 linear feet of earthen embankment construction located along the west bank of Jug Lake north of Breach 10.

Alternate No.1 : (All broken stone rip-rap sections were constructed using ASTM R-600 grade stone and designed with a crest elevation of +3.5' and 1:3 side slopes above a geotextile fabric. No earthen embankments were constructed under the alternate bid. For actual constructed elevations, see as-built drawings)

Breach repairs under alternate bid consisted of the following:

- 1,700 linear feet of rip-rap dike along Bayou Decade between breach 1 and 2.
- 400 linear feet of rip-rap dike along Bayou Decade beginning at the end of breach 3 and the beginning of breach 4.

4. Project Cost Estimates

| | Work Order Estimate | Actual Cost |
|------------------------------|----------------------------|--------------------|
| Construction | \$538,000 | \$471,329.65 |
| Engineering and Design | \$ 44,134 | \$ 54,743 |
| Bidding | \$ 4,100 | \$ 4,472 |
| Construction Administration | \$ 7,096 | \$ 8,020 |
| Construction Oversight | \$ 24,540 | \$ 49,635 |
| As-built Survey and Drawings | <u>\$ 13,130</u> | <u>\$ 12,873</u> |
| Project Totals: | \$631,000 | \$604,289 |

Note: Engineering, Design, Construction Administration, Construction Oversight and As-built survey and drawings services were provided by Pyburn & Odom MCA of Baton Rouge.

5. Final Contract Quantities

| Item | Description | Units | Unit Rate | Item Total |
|----------------------------|-----------------------|--------------|------------------|----------------------|
| 1 | Mobilization | Lump Sum | 100% | \$ 10,000.00 |
| 2 | Dolphin Repair | Lump Sum | 100% | \$ 9,000.00 |
| 3 | Broken Stone Rip Rap | 7,114 tons | \$39.35 | \$ 279,935.90 |
| 4 | Earthen Embankment | 2,325 L.F. | \$13.00 | \$ 30,255.00 |
| 5 | Geotextile Fabric | 8,983 S.Y. | \$ 3.00 | \$ 26,949.00 |
| 6. | Seeding & Fertilizing | 3.1 acres | \$1,000 | \$ \$3,100.00 |
| 7. | Broken Stone Rip Rap | 2,550 tons | \$39.00 | \$ 99,450.00 |
| 8. | Geotextile Fabric | 5,631 S.Y. | \$ 2.25 | \$ 12,669.75 |
| Total Project Cost: | | | | \$ 471,329.65 |

6. Construction and Construction Oversight

| | |
|------------------------------------|------------------------------|
| Prime Contractor | Manson Gulf Construction Co. |
| Original Construction Contract | \$448,069 |
| Change Orders (over) Runs | \$ 39,350 |
| Revised Construction Contract | \$487,419 |
| Balancing Change order (under) run | \$ 16,089 |
| Final Construction Contract | \$471,329 |

7. Major Equipment Used:

Rock Barge
18' Survey Boat
20' Work Boat
14' Work boat
4600 Manitowic Crane with 140' boom
54' x 165' Work Barge

8. Discuss construction and sequences and activities.

- 4/16 - Contractor began construction – began placing fabric and rock on the easterly end of breach 4.
- 4/18 - began placing fabric and rock at Breach 3.
- 4/21 - placing fabric and rock at Breach 2&3 (Sta. 5+46 to Sta. 4+90)
- 4/23 - placing fabric and rock at Breach 2&3 (Sta. 4+90 to Sta. 1+30)
- 4/24 - placing fabric and rock at Breach 2&3 to Alt 1 (Sta. 0+80 to Sta. 3+20)
- 4/25 - placing fabric and rock at Breach Alt 1 (Sta. 14+00 to Sta. 10+50)
- 4/26 - Rock placement – Breach Alt 1 (Sta. 10+50 to Sta. 4+40)
- 4/27 - Rock placement – Breach Alt 1 (Sta. 4+20 to Sta. 0+40)
- 4/28 - Rock placement – Breach Alt 1 to Breach 1 (Sta. 0+40 to Sta. 5+50)
- 4/29 - Rock Placement – Breach 1 (Sta. 5+50 to Sta. 4+50)
- 4/30 - Rock Placement – Breach1 (Sta. 4+50 to Sta. 0+85), completed lift of rock at all breaches along Bayou Decade and began dressing dike and placing additional rock in low areas.
- 5/3 - Began rebuilding earthen sections at Breach 5,6 & 8.
- 5/4 - Began rebuilding earthen section at Breach 10 & 11.
- 5/5 - Began placement of fabric and rock at Breach 7.
- 5/6 - Began rebuilding earthen section at Breach 9 and dressing Breach 5 & 6.
- 5/8 - completed repair of broken timber pile at site No.6.
- 5/31 - Began placing additional rock under change order along Breach 1 thru 4.
- 6/2 - Completed placement of additional rock.
- 6/12 - Performed Substantial Completion Inspection.
- 6/24 - Issued punch-list items
- 8/13 - Performed final inspection and accepted the project as complete.

9. Construction Change Orders and Field Changes

Change Order No.1 - (5/9/2003), increased base bid quantity of required broken stone rip-rap from 6,200 tons to 7,200 tons. Additional 1,000 tons at \$39.35 increased the contract by \$39,350. Change Order No.1 also increased the contract time by 39 days with the new completion of May 30, 2003.

Change Order No.2 – increased the contract time to complete the project from May 30, 2003 to August 30, 2003. Final acceptance was granted to the contractor on August 13, 2003.

10. Pipelines and other utility Crossings

No pipelines were within the construction limits of this project.

11. Safety and Accidents

On May 5, 2003, one of the contractor's employee was working on the brake drum on the spud winch when the rope supporting the drum broke and the drum fell on his thigh and top left foot. First-aid was administered on site and the employee was transported to the hospital. Word from the hospital indicated this person has a broken foot.

In a separate incident on the weekend of July 5, 2003, an accident occurred along Bayou Decade in which a boat was traveling along the bayou and loss control, colliding with the newly placed rock dike, installed under this contract, approximately 300' east of Jug Lake. The operation and maintenance manager contacted Wildlife and Fisheries to obtain a copy of the accident report. The O&M manager was told that the accident report could not be release because the investigation was ongoing. No further information is available at this time.

12. Additional comments pertaining to construction of the project.

- A. During construction, it was discovered that the barge tables for the rock riprap delivered to the site indicated the gradation to be COE R-650 designation. The rock specified and approved for the project was a ASTM R-300 designation. Gradation test data sheets for the COE R-650 riprap was requested from the contractor. The supplier of the rock (River Mountain Quarry) was contacted for an explanation. The supplier explained that since the gradations of the ASTM R-300 and COE 650 are so close in gradation that they actually perform the same gradation test for both designations. The gradation test for the R-650 was plotted on the gradation curve for the COE R-300 rock. I was determined that the COE R-650 riprap fell within the gradation limits of the ASTM R-300. Therefore, the COE R-650 was approved through a field change as an acceptable alternate riprap for the project.
- B. The construction contract required the repair of an existing breach adjacent to a culvert flap gate along the west bank of Jug Lake. This breach was repaired as required by the contract. Not long after the repairs were made, over-wash from Tropical Storm Bill re-opened the breach. Through discussions with NRCS, LDNR and the landowners, a consensus was established that this structure should be removed to prevent future deterioration of the levee bank. LDNR is pursuing the removal of this structure.
- C. At the land-owners request, LDNR approached the contractor to perform additional work along the west bank of Jug Lake. The additional work included placing additional rock along the low areas of Breach 1 & 4 and to install a rock rip-rap cap along the earthen embankment at Breach 10 & 11. The contractor submitted a cost of \$69,647 to complete this additional work. After discussing the cost with NRCS and the landowner, it was determined that the contractor's cost was too high and the money remaining in the project budget was insufficient to cover the additional work.

13. Significant Construction Dates

| | Date | Bid I.D. |
|------------------------------------|-------------------|--|
| LDNR Bid Identification: | | File No. J24908DL PO# 3521619 |
| Pre-Bid Conference | 11/7/2002 | |
| Bid Opening | 11/21/2002 | |
| Construction Contract Award | 1/15/2003 | |
| Pre-construction Conference | 3/6/2003 | |
| Notice to Proceed | 3/6/2003 | |
| Mobilization | 4/11/2003 | |
| Construction Start | 4/16/2003 | |
| Final Acceptance | 8/13/2003 | |

14. Photos of completed maintenance repairs.



Breach 5 & 6 – Photo of breach repair along Turtle Bayou looking south.



Breach 9 – Photo of breach repair along Superior Canal looking south.



Breach 8 – Photo of levee repair along Superior Canal looking south.



Breach 7 – Photo of rip-rap breach repair along oil field canal looking north.



Photo of timber pile repair at Structure No.6 along Bayou Decade.



Breach 10 – photo of breach repair along the west bank of Jug Lake.



Breach 11 – photo of breach repair along the west bank of Jug Lake.



Breach 1 thru 4 – rock dike along Bayou Decade looking north.



Breach 1 thru 4 – rock dike along Bayou Decade looking north.



Breach 1 thru 4 – rock dike along Bayou Decade looking north.