PROJECT COMPLETION REPORT

PROJECT NAME **Hopedale Hydrologic Restoration Project**

CWPPRA/STATE PROJECT NO. **PPO-38 / P24**

Report Date: **April 4, 2005** **BY: Hydro Consultants, Inc.**

1. DNR Project Managers/Engineer/Construction Contractor :

DNR Project Manager	George Boddie	Telephone	504-280-4067
DNR Construction Project Manager	Thomas Bernard	Telephone	504-280-4071
DNR Monitoring Manager	John Troutman	Telephone	504-280-4068
Federal Agency Project Manager	Rachel Sweeney (NOAA)	Telephone	504-389-0508
Gill's Crane & Dozer Service, Inc.	Gill Audibert	Telephone	504-662-5530

2. Location and description of project.

Project features are located in St. Bernard Parish, Louisiana, along State Highway 624 near Hopedale, Louisiana. The project consists of one individual project site accessible from Highway 624. The existing structure consists of a rock dike and three associated corrugated metal pipes. Constructed in the 1950's, this structure has deteriorated and is having an adverse effect on wetlands in the project area. Wind-driven tide and rainwater pond on the marsh surface as a result of lower drainage capacity at this structure, reducing plant heath and accelerating marsh loss. Replacement of this structure will allow more rapid drainage of the area, improve fisheries access to the area, reduce wetland loss rates and protect over 3,000 acres of marsh.

The project involves removal of three existing corrugated metal pipes and rock structure located within Hopedale Canal and replacing with a sheet pile/pipe pile gated structure, along with associated walkways and riprap protection. The site will require construction of temporary closure dams for dewatering the existing canal during construction.

3. Final, as-built features.

The Hopedale control structure consists of a sheet pile/pipe pile wall, which spans the channel and extends past both banks with an overall length of 137.9'. The top of cap plate elevation is set at + 8' NAVD 88. The structure has three (3) Whipps combination gates and two (2) Whipps fish gates installed with the invert elevation at –7.0' NAVD 88. Associated with the structure is a walkway and guardrails with warning signs on each side of the structure. Canal banks and bottom have an overall length of 115' are covered with 1' thick 10 lb. riprap and 1.5' thick 55 lb. riprap. The top of 55 lb. riprap along the canal bottom is set at elevation –8 NAVD 88.

For further information regarding the actual constructed dimensions, locations and materials, see the " As-Built " drawings of this structure.

4. Items of Work Construction Site S-1 Control Structure

Item No.	Work	c	Unit	Est. Unit Price	Est. Amount	Final Quant.	Bid Unit Price	Final Amount	% Over /Under
201-01	Clearing & Grubbing	L.S.	L.S.		1	1	$ 2,500	$ 2,500.00	0%
202-01	Removal of Structures & Obstructions	L.S.	L.S.		1	1	$10,000	$ 10,000.00	0%
203-06	Excavation & Embankment	L.S.	L.S.		1	1	$25,000	$ 25,000.00	0%
204-06	Temporary Silt Fencing	500	Linear Ft.		500	500	$5.00	$ 2,500.00	0%
204-07	Temp. Stone Construction Entrance	1	Each		1	1	$5,100	$5,100.00	0%
705-03-C	Single Swinging Walk Gates	1	Each		1	1	$500	$500.00	0%
705-06-B	Chain Link Fence (5')	45	Linear Ft.		45	45	$16	$ 720.00	0%
705-06-D	Chain Link Fence (7')	90	Linear Ft.		90	90	$25	$ 2,250.00	0%
711-02-A	Riprap (10 lb)	1100	Ton		1100	1165.24	$50	$ 58,262.00	+5.6%
711-02-D	Riprap (55 lb)	1600.	Ton		1600	1662.66	$76.25	$ 126,777.83	+3.8%
711-04	Geotextile Fabric	1930	Sq. Yd.		1930	1930	$5.00	$ 9,650.00	0%
717-01	Seeding	15	Pound		15	15	$10.00	$ 150.00	0%
718-01	Fertilizer	500	Pound		500	500	$0.50	$ 250.00	0%
727-01	Mobilization	L.S.	L.S.		1	1	$28,000	$28,000.00	0%
729-01	Sign (Type D)	60	Sq. Ft.		60	60	$ 25.00	$ 1,500.00	0%
732-01-A	Plastic Pavement Striping (4" width)	1150	Linear Ft.		1,150	1,150	$ 4.00	$ 4,600.00	0%
740-01	Construction Layout	L.S.	L.S.		1	1	$ 4,000	$ 4,000.00	0%
803-03	Steel Sheet Pile Wall	3460	Sq. Ft.		3,460	3442.3	$ 23.34	$ 80,343.00	-0.5%
804-03-A	Steel Pipe Piles (24" dia.,¾" wall thickness)	384	Linear Ft.		384	380.5	$ 160	$ 60,880.00	-0.9%
804-03-B	Steel Pipe Piles (12" dia, ½" wall thickness)	360	Linear Ft.		360	C.0. # 1 680	$ 40	$ 27,200.00	+52.9%
807-06	Structural Metalwork	L.S.	L.S.		1	1	$30,000	$ 30,000.00	0%
808-01	Steel Grid Flooring	345	Sq. Ft.		345	345	$ 30.00	$ 30,000.00	0%

810-03	Pipe Railing	94	Linear Ft.		94	94	$ 50.00	$ 4,700.00	0%
S-001	Dewatering	L.S.	L.S.		1	1	$20,000	$ 20,000.00	0%
S-002	Aluminum Slide Gate (2''x7' rectangular)	2	Each		2	2	$ 7,300	$ 14,600.00	0%
S-003	Alum. Combination Gate (84" diameter)	3	Each		3	3	$24,000	$ 72,000.00	0%
S-004	Gasoline Powered Portable Actuator	1	Each		1	1	$ 2,870	$ 2,870.00	0%

5. Construction cost.

Original construction contract	$ 585,436.40
Change Orders 1 & 2	$ 33,095.49
Over/Under runs	$ -973.12
Final construction contract	$ 617,558.77

6. Major equipment used.

a. Kobelco 7035 40 tn. Crane
b. Case 160 trackhoe
c. MKT V5 Vibro Hammer

7. Discuss construction sequences and activities, problems encountered, solutions to problems, etc.

On December 2, 2003 the prescribed pre-construction meeting was held on-site. The contractor did not mobilize until January 5, 2004. Construction layout was in progress when it was stopped by a representative of the lease holder of the property within the construction limits of the project. See Daily Report dated January 12, 2004 for details. Site work was suspended by DNR until the matter was resolved (Change Order No. 2, part A).

Concurrent with the land-rights dispute, the contractor sandblasted and painted sheet pile, pipe pile and guard rails at their yard. Two (2) 8-mil thick coats of coal tar epoxy were applied to achieve a 12-mil thick dry coat. Humidity was closely monitored during this period.

The project specifications called for three (3) 84” Waterman combination gates and two (2) fish gates. Waterman discontinued manufacture of 84” combination gates but offered a substitute approved by the project engineer. The contractor sent a purchase order for all the required gates on January 13, 2004.

A meeting was held January 21, 2004 with DNR Project Management, DNR Engineering, DNR Land Department, the landowners representative and Amigo Enterprises, Inc. to outline the points of contention in the ongoing land rights dispute. The meeting resulted in deletion of the western levee, extended the eastern levee to the existing road, the structure walkway was moved to the opposite side of the structure and the guard rails were relocated to the middle of the transition. All of these changes were incorporated in Change Order No. 2, and site work was resumed.

The contractor was informed on February 17, 2004 that Waterman Gates has filed for Chapter 11 bankruptcy protection, and may not honor their order. A search for an approved equal began immediately. Of the three vendors located, Whipps Gates was the only vendor that could meet the project specifications. A four (4) month lead time is required for the manufacturing and delivery of the gates, five (5) months if drawings are required. A time extension was granted to the contractor for this reason.

Construction of the guard rails and cofferdam ran concurrently. Once two vertical guard rail members were driven the horizontals were welded in. The cofferdam materials consisted of scrap sheet pile, pipe pile and miscellaneous sized beams. First the pipe pile was driven at a 10 degree batter. Once that was complete beams were welded together at the top of the battered pipe piles. Sheet piles were then driven and welded to the top beam. Frequent underground obstructions were encountered during pile driving operations, more numerous on the downstream end.

The contractor began construction of the structure before dewatering. A string line set on the centerline of the structure was stretched across channel. A steel batter board was driven into the ground on the right descending bank of the channel. A similar batter board was placed a few feet away toward the left descending bank. A beam was then welded to the batter boards at an offset to structure centerline. Carpet was placed between the beam and sheet pile. Sheet pile were placed against this beam then driven. The contractor began driving sheet pile on the right descending bank of the channel progressed toward the left bank. The contractor drove the last pile for the structure on March 24, 2004.

The cofferdam was pumped down to test the structural integrity of the sheet pile walls on March 29, 2004. Beams welded across the top of the sheet pile walls bowed inward as the water was drawn down. The upstream beam had considerably more bow than the downstream. The contractor attempted to stabilize the upstream wall by anchoring to an existing oak tree on the left descending bank. The walls were monitored for horizontal movement for a few days. No movement was observed.

Once the area was dewatered, removal of material around the existing structure began on April 1, 2004. Initially, excavated material was placed in the scour hole. Once this area was filled, excavated material was trucked to approved spoil areas.

On April 19, 2004, the downstream cofferdam wall failed. The failure is attributed to insufficient horizontal bracing coupled with a loose connection between sheet piles. Based on the precarious condition of the upstream cofferdam wall, the contractor decided to remove and replace both upstream and downstream walls. This resulted in a three (3) week delay.

After the cofferdam was pumped down again, excavation of the downstream side of the structure resumed. The bottom was excavated to grade, and geotextile fabric was placed on the bottom, followed by 10 lb. class riprap. The side slopes were then cut grade. Riprap was placed on side slopes by using the drag bucket to pull the riprap up the slope. A Bobcat was used to finish-grade the bottom and a long-reach track hoe was used on the side slopes. The same process was used to place the 55 lb class riprap. This process was repeated on the upstream side of the structure. Placement of 55 lb. class riprap was completed June 16, 2004.

Concurrent with the placement of riprap, the contractor began structural metalwork. The WT7x72.5 beam was installed first. Then an 84" diameter circle was cut out of the ½" structural panel plates at the contractor's yard, then trucked to the site and welded between the 24" pipe piles. The gate manufacturer supplied a bolt template for the bolt circle around gate mounting flange. Bolt holes were drilled according to this template. The gate manufacturer was instructed to omit the bolt holes in the gate mounting flange. These holes were drilled on-site to match the holes drilled in the ½" structural mounting plates. This eliminated any fit up problems. The remaining structural metalwork members were installed and completed on July 2, 2004. Sandblasting and painting was completed July 13, 2004.

The cofferdam was allowed to fill with water. Walkway, grating, handrail and fencing were installed with the use of small work barges. Once this was complete contractor waited until the gates were delivered to resume work.

On October 1, 2004, the gates were delivered. Installation began soon after. The contractor was issued a Certificate of Substantial Completion on November 29, 2004 along with a punch list of items to be completed . That work was done that same day and on November 30, 2004. The contract was accepted as complete by Ton Bernard, LDNR Contract Manager. On January 21, 2005 the project was officially turned over to St. Bernard Parish for operation.

8. Construction change orders and field changes.

See attachments

9. Safety and Accidents.

No accidents were reported during the construction of this project. The contractor complied with safety requirements.

10. Significant Construction Dates:

Description	Date
Bid Opening	**September 4, 2003**
Construction Contract Award	**November 14, 2003**
Preconstruction Conference	**December 2, 2003**
Notice to Proceed	**November 14, 2003**
Mobilization	**January 5, 2004**
Construction Start	**January 10, 2004**
Construction Completion	**November 30, 2004**
Final Acceptance	**January 6, 2005**

SUPPLEMENT TO COMPLETION REPORT

CONSTRUCTION PLANS

List any items pertinent to the plans which caused problems, need clarification or changes for future contracts of this nature.

DESCRIPTION OF ITEM IN PLANS	RECOMMENDATIONS FOR FUTURE CONTRACTS

CONSTRUCTION SPECIFICATIONS

List any items in the construction specifications which caused problems, need clarification or changes for future contracts of this nature.

DESCRIPTION OF ITEM IN SPECIFICATIONS	RECOMMENDATIONS FOR FUTURE CONTRACTS
TS-21.2.1 Aluminum Slide Gates	84” Waterman Gates are no longer available. Furthermore, Waterman has filed for Chapter 11 bankruptcy protection.
TS-11 Striping	Reflective striping does not adhere well to coal tar epoxy.
TS-19 Welding	Be more specific with welding specifications as they pertain to the requirements of the work to be performed.

CHANGE ORDER NO. 1

PROJECT: Modification of the Hopedale Hydrologic Restoration Project	**DATE OF ISSUANCE:** March 15, 2004
OWNER: Louisiana Department of Natural Resources	**OWNER'S PROJECT NO.** DNR PO-24
CONTRACTOR: Gill's Crane and Dozer Service, Inc. P.O. Box 29225, New Orleans, La. 70189	**ENGINEER:** Brown, Cunningham & Gannuch, Inc. 99256 Interline, Dr., Baton Rouge, La.
CONTRACT FOR: Modification of the Hopedale Hydrologic Restoration Project (PO-24)	**ENGINEER'S PROJECT NO.** 2503—00—36

You are directed to make the following changes to the Contract Documents:
Description: Refer to Change Order No. 1 Attached
Purpose of Change Order: An error in the required quantity calculations during design.

CHANGE IN CONTRACT PRICE:	**CHANGE IN CONTRACT TIME:**
Original Contract Price $ 585,436.40	Original Contract Time 120 Calendar Days
Previous Change Orders $ 0.00	Net Change from previous Change Orders 0 Days
Contract Price Prior to this Change Order $ 585,436.40	Contract Time Prior to this Change Order 120 Calendar Days
Net Increase of this Change Order $ 12,800.00	Net Increase of this Change Order 12 Days
Total Contract Price to Date $ 598,236.40	Total Contract Time to Date 132 Days

RECOMMENDED:	**APPROVED:**
By:_____Engr.	By:_____DNR
Date:_____	Date:_____
APPROVED:	**APPROVED:**
By:_____Cont.	By:_____DNR
Date:_____	Date:_____

Modification to the Hopedale Hydrologic Restoration Project (PO-24)
St. Bernard Parish, Louisiana
Change Order No. 1

Summary

The change order cost is $12,800.00, and will increase the total construction cost to **$598,236.40**. The contract time will be increased by 12 calander days due to this change. A copy of the contractor's request is attached to this Change Order.

The Change Order consists of adjusting the following Items:

ITEM	JUSTIFICATION	COST ADJUSTMENT
804-03-B Steel Pipe Pile 12"Dia.,1/2" Wall Thickness	The quantity was increased by 320 linear feet in order to correct inaccuracies in the bid quantity.	$12,800.00
	TOTAL ADDITIONAL COSTS	$12,800.00

CHANGE ORDER NO. 2

PROJECT: Modification of the Hopedale Hydrologic Restoration Project	**DATE OF ISSUANCE:** November 15, 2004
OWNER: Louisiana Department of Natural Resources	**OWNER'S PROJECT NO.** DNR PO-24
CONTRACTOR: Gill's Crane and Dozer Service, Inc. P.O. Box 29225, New Orleans, La. 70189	**ENGINEER:** Brown, Cunningham & Gannuch, Inc. 99256 Interline, Dr., Baton Rouge, La.
CONTRACT FOR: Modification of the Hopedale Hydrologic Restoration Project (PO-24)	**ENGINEER'S PROJECT NO.** 2503—00—36

You are directed to make the following changes to the Contract Documents:
Description: Refer to Change Order No. 2 Attached
Purpose of Change Order: To compensate the contractor for the LDNR-directed changes as detailed in the attached summaries.

CHANGE IN CONTRACT PRICE:	**CHANGE IN CONTRACT TIME:**
Original Contract Price $ 585,436.40	Original Contract Time 120 Calendar Days
Previous Change Orders $ 12,800.00	Net Change from previous Change Orders 12 Calendar Days
Contract Price Prior to this Change Order $ 598,236.40	Contract Time Prior to this Change Order 132 Calendar Days
Net Increase of this Change Order $ 20,295.49	Net Increase of this Change Order 233 Days
Total Contract Price to Date $ 618,531.89	Total Contract Time to Date 365 Calendar Days

RECOMMENDED:	**APPROVED:**
By:_____ Engr.	By:_____ DNR
Date:_____	Date:_____
APPROVED:	**APPROVED:**
By:_____ Cont.	By:_____ DNR
Date:_____	Date:_____

Modification to the Hopedale Hydrologic Restoration Project (PO-24)
St. Bernard Parish, Louisiana
Change Order No. 2

Summary

The Change Order cost is **$ 20,295.49**, and will increase the total construction cost to **$ 618,531.89.** Additional time is not necessary for the contractor to complete within the contract period; therefore, the contract time will remain the same due to this **Change Order No. 2.**

ITEM	JUSTIFICATION	COST ADJUSTMENT
Change Part 2a Land Rights dispute with land owner after award	Land Rights dispute occurred subsequent to the mobilizing of the contractor's equipment causing a suspension of work resulting in stand-by costs and some minor contract changes.	+$465.66
Change Part 2b Increase in Riprap quantities for channel protection	A greater than anticipated subsidence of the channel foundation caused an increase in each of the estimated contract riprap stone quantities.	+8,039.83
Change Part 2c Lump Sum Adjustment due to (Hurricane Ivan)	High hurricane tides required LDNR to direct the contractor to mobilize equipment and manpower to open breaches in the cofferdams to allow storm water to drain from local residences.	+$6,190.00
Change Part 2d Corrosion Protection (32 Anodes)	Anodes were installed on both the Steel and Aluminum portion of the structure to prevent premature saltwater corrosion and deterioration. 32 Anodes @ $175.00 each.	+$5,600.00
Total for Change Order No. 2	**TOTAL ADDITIONAL COSTS**	**+20,295.49**

Modification to the Hopedale Hydrologic Restoration Project (PO-24)
St. Bernard Parish, Louisiana
Contract Change Part 2a

Summary

The contract change cost is **$465.66**. The contract time will remain unchanged due to this change. The additional time was incorporated into the contract period under a separate time extension. A copy of the contractor's request is attached.

ITEM	JUSTIFICATION	COST ADJUSTMENT
203-06 Deletion of the Western Levee and associated items.	Landowner has plans for new improvements in the area of the proposed levee. Access to the structure will be moved to the east side eliminating the necessity for the elevated western access.	-($7,247.50)
203-06 Extension of the East Levee to the existing road.	The East Levee shall be extended to tie into the existing road that parallels the canal to the east.	+$113.56
807-06 Structure walkway and gate moved to east side of project	All access to the structure for operation and maintenance will be changed from the west side to the east side of the structure.	+$850.00
804-03-B Relocate north and south Guardrails closure to structure	Landowner's improvements conflicted with design location of North and South Guardrails	+$500.00
Lump Sum adjustment for stand-by cost associated with this Change.	Contractor had mobilized equipment to the site prior to the time that the work was suspended, pending ROW dispute between the State of Louisiana and the Landowner.	+$6,249.60
Total for Part 2a	**TOTAL ADDITIONAL COSTS**	**+$465.66**

Modification to the Hopedale Hydrologic Restoration Project (PO-24)
St. Bernard Parish, Louisiana
Contract Change Part 2b

Summary

The contract change cost is **$ 8,039.83**. The contract time will remain unchanged due to this change. A copy of the contractor's request for the change is attached.

ITEM	JUSTIFICATION	COST ADJUSTMENT
711-03-A RIPRAP (2 LB.)	The quantity was increased by 65.24 tons or 5.9% to 1165.24 tons, due to a greater than anticipated subsidence in the channel foundation.	+$3,262.00
711-03-D RIPRAP (55 LB.)	The quantity was increased by 62.66 tons or 3.9% to 1662.66 tons, due to a greater than anticipated subsidence in the channel foundation.	+$4,777.83
Total for Part 2b	**TOTAL ADDITIONAL COSTS**	**+$8,039.83**

Modification to the Hopedale Hydrologic Restoration Project (PO-24)
St. Bernard Parish, Louisiana
Contract Change Part 2c

Summary

The contract change cost is **$ 6,190.00.** The contract time will remain unchanged due to this change. A copy of the contractor's request is attached.

ITEM	JUSTIFICATION	COST ADJUSTMENT
LDNR Work Directed as a result of (Hurricane Ivan)	High hurricane tides required LDNR to direct the contractor to mobilize equipment and manpower to open breaches in the cofferdams to allow storm water to drain from local residences.	+$6,190.00
Total for Part 2c	**TOTAL ADDITIONAL COSTS**	**+$6,190.00**

Modification to the Hopedale Hydrologic Restoration Project (PO-24)
St. Bernard Parish, Louisiana
Contract Change Part 2d

Summary

The contract change cost is **$ 5,600.00**. The contract time will remain unchanged due to this change. A copy of the contractor's request is attached.

ITEM	JUSTIFICATION	COST ADJUSTMENT
Corrosion Protection (32 Anodes)	Anodes were installed on both the Steel and Aluminum portion of the structure to prevent premature saltwater corrosion and deterioration. 32 Anodes @ $175.00 each.	+$5,600.00
Total for Part 2d	**TOTAL ADDITIONAL COSTS**	**+$5,600.00**