

Sediment Containment System for Marsh Creation Demonstration (LA-09)

17th Priority Project List
of the
Coastal Wetlands Planning, Protection and Restoration Act



CWPPRA Demonstration Project
Project Completion Report

March 26, 2015

Prepared by the USDA Natural Resources Conservation Service

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INTRODUCTION

The Sediment Containment System for Marsh Creation Demonstration Project (LA-09) was approved by the CWPPRA Task Force on February 13, 2008 on the 17th Year Priority Project List (PPL 17) and the USDA Natural Resources Conservation Service (NRCS) was authorized as the official sponsoring federal agency, in partnership with the Louisiana Coastal Protection and Restoration Authority (CPRA), to engineer, design and build a demonstration of the Net Gains, LLC product as an alternative means to contain dredge sediment and as a passive sediment trapping system.

The Net Gains product is considered a new and innovative technology that could possibly be used in conditions and circumstances that limit the use of traditional earth dike containment. The CWPPRA Engineering and Environmental Work Groups (Eng/Env WG) performed an extensive evaluation of the product and cited several key factors that make the product unique. The product may be used in areas where soils are of too poor quality to construct containment dikes, in areas considered too sensitive to allow access to heavy equipment to construct containment dikes, and/or in areas where obstructions such as oil and gas pipelines prevent construction of earthen containment. The Eng/Env WG also determined that the product may be cost-effective because it does not require heavy equipment to install. The demonstration project evaluated all of these potential benefits.

The Net Gains, LLC system is a newly patented technology (US 6,827,525 B2 – Dec. 7, 2004) that had yet to be suitably tested in coastal restoration. Because of the high cost of dredging, which often runs in millions of dollars, the use of untested technology on a large project is not feasible because of the risk of failure and the cost involved. Therefore, a designated demonstration project was funded to specifically test the product to properly evaluate its use in coastal Louisiana.

PROJECT PLANNING AND DESIGN

NRCS had originally planned to demonstrate the utility of the product at two different locations where existing full-scale CWPPRA projects were scheduled for hydraulic dredging. The demonstration project was to be included as add-on features to the main projects to significantly reduce the cost of the demonstration since the bulk of the cost was expected to be absorbed by the greater projects.

Previously, NRCS reported that the demonstration would take place on two existing projects that were scheduled to go into construction including **1) South Shore of The Pen March Creation (BA-41)** and **2) Hanson Marsh Hydrologic Restoration Project**, for both of which NRCS was the contracting party.

NRCS proceeded to imbed the project within the South Shore of the Pen project and even went as far as purchasing the Net Gains material designed for use in the project.

However, due to circumstances beyond NRCS control, coordination of LA-09 was unsuccessful on both projects due to difficulties in negotiating a reasonable cost with the project contractors. In both cases, the contractors encountered problems in the construction of the main project and because of these difficulties NRCS decided it was best not to continue pursuit of imbedding the demonstration project to avoid further complications and potentially jeopardize construction of the primary project. The Net Gains material purchased for the South Shore of the Pen project was placed into storage until another location could be identified to construct the project.

Consequently, NRCS proceeded to identify two alternative projects that the demonstration could be incorporated into. Identified were two existing CWPPRA projects in advanced design that would mutually benefit from the use of the demonstration product; 1) **Barataria Basin Landbridge Project (BA-27, Construction Unit 7&8)** and 2) **Labranche East Marsh Creation Pilot Project (PO-75)**. The intention was to test the material in the first available project and possibly do additional testing in the second project if available funds allowed.

As with the previous projects, both of these projects were significantly advancing towards construction and dredge mobilization. The full projects had also completed all geotechnical analyses, land ownership investigations, cultural resource assessments, and any necessary environmental permits as detailed in the design reports for the parent projects. The main difference was that NRCS was to include the demonstration project as a feature in the scope of work within the original contract so as to avoid uncertainty with the contractor's willingness and ability to incorporate the demo.

The **LaBranche East Marsh Creation Pilot Project (PO-75)** provided the first opportunity to demonstrate the Net Gains product's capability of containing material in an environment consisting of questionable soils where conventional earthen containment could be problematic (Figure 1). The NRCS design team was provided a location within the PO-75 project area to place the LA-09 demonstration project (Figure 2). The PO-75 pilot project was designed to explore various approaches to determine what would be most effective in the construction of the full project area marsh creation. The Net Gains product was tested within the project to compare the product to other conventional methods of containment and evaluate cost-effectiveness. A three acre circular cell constructed with the Net Gains material was placed within the designated area to receive dredge material from Lake Pontchartrain (Figure 3). Although imbedded within the PO-75 pilot project, the LA-09 demonstration project was required to cover its portion of the cost of mobilization and demobilization as well as the cost of the dredge material. The cost of the demonstration fully utilized the allocated demonstration project available funds. Construction of this project began in June 2013 and ended in August 2013.

The original demonstration project plan also included an additional application of the Net Gains product that was to test its ability to passively trap suspended sediments flowing from riverine sources to increase efficiency of sediment retention and land formation. However, due to the difficulty of completing the primary project objective of sediment containment and concerns over available funding, this portion of the project was dropped

from the demonstration. The project team decided that the delay in deploying the material for passive sediment trapping would exceed the limits of the project life to properly monitor the function of sediment trapping. Therefore, all emphasis was placed on demonstrating the utility of the product for its primary intended purpose - sediment containment of dredge material.

Figure 1. Plan view map of Labranche East pilot project (PO-75)

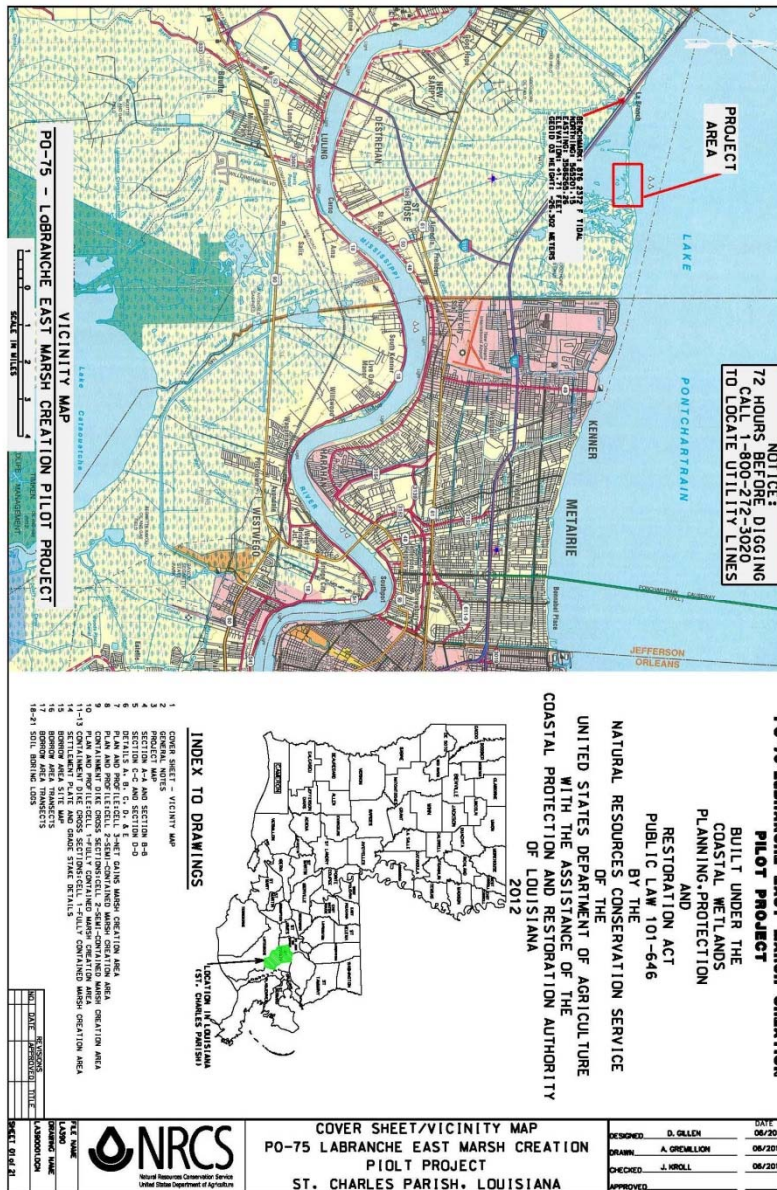


Figure 2. Site view map of Labranche East pilot project borrow and marsh creation areas including the LA-09 Sediment Containment Marsh Creation project cell.

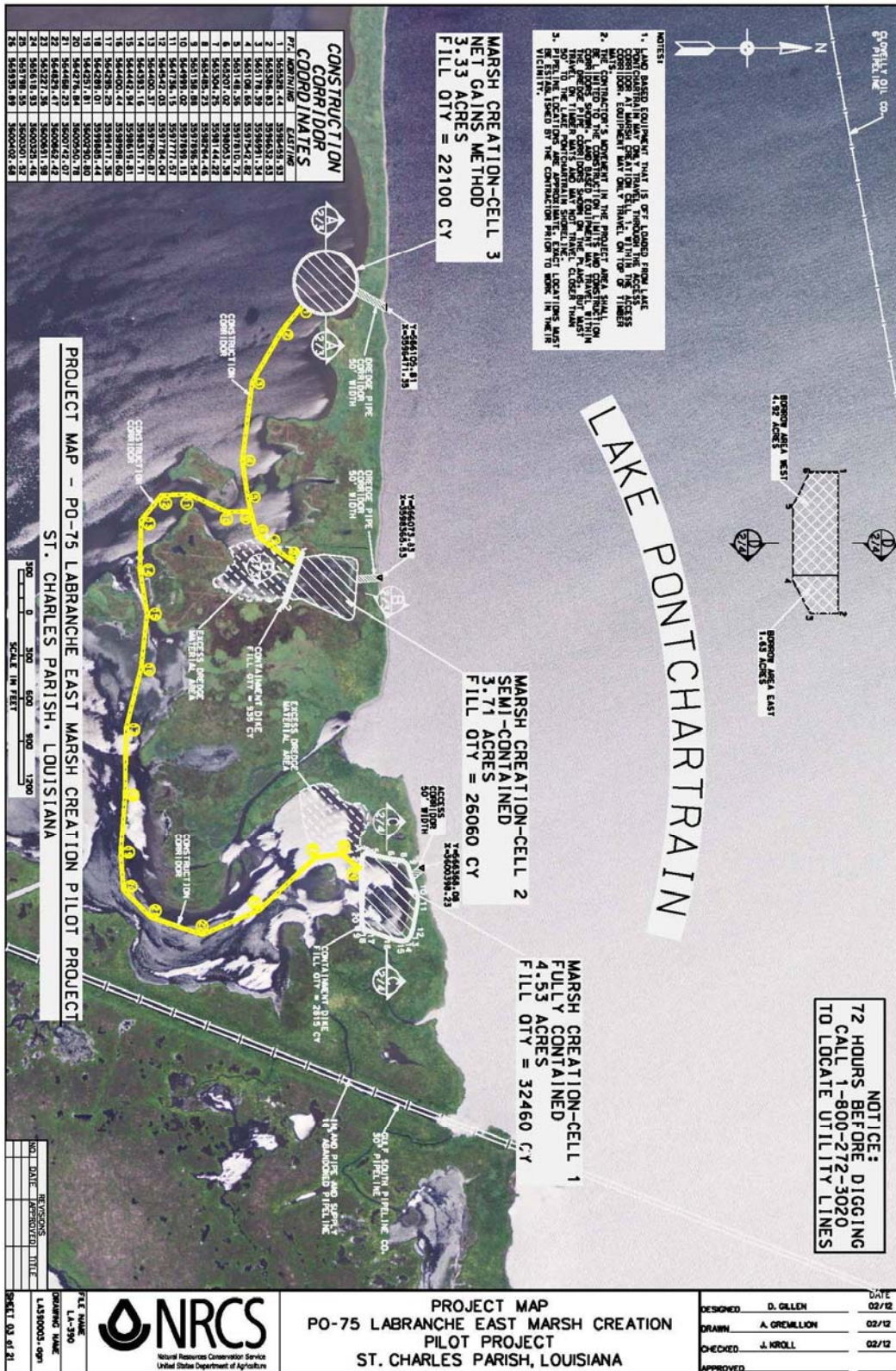
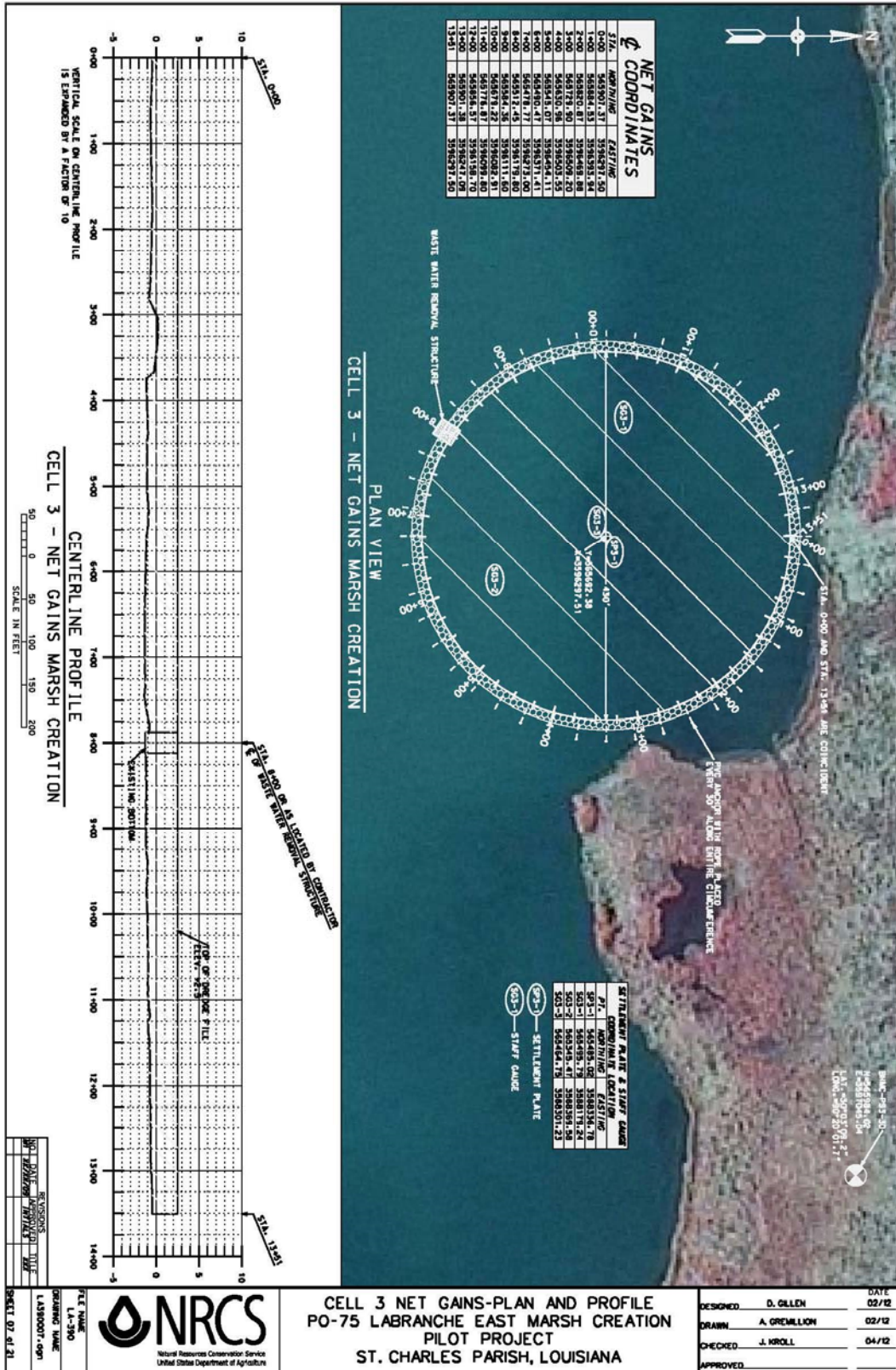


Figure 3. Detail view of LA-09 marsh creation containment cell.



CONSTRUCTION ACTIVITIES AND COMPLETION REPORT

The following reported information was provided by the prime contractor, APC Construction, LLC, which details the activities with respect to the construction of the project.

APC Construction, LLC Physical Office: 1215 Prytania Street Suite 405 New Orleans, LA 70130 Tel: Fax: Website:
E-Mail: (504) 539-4260 (504) 324-0777 www.apcconstruction.com info@apcconstruction.com

1215 Prytania Street | Suite 405 | New Orleans, LA 70130

September 30, 2013

Report prepared for use and review by NRCS

Report prepared by Bridget Himel, Operations Manager and lead Project Manager; APC Construction, LLC

Reporting of Construction Activities, and Results of Cell Three Material Placement for Contract Number: AG - 7217-C-13-0004, PO-75 LaBranche East Marsh Creation NRCS

APC Construction was contracted by NRCS to place material into a location identified as Cell Three in the contract documents. The material was acquired by dredging from a specified and defined borrow area identified in the contract documents using an 18" hydraulic dredge split into three hoses and utilizing a reducer and valve mechanism to control flow into the receiving areas (Cells 1,2, and 3.) The means of sediment containment for cell three was a synthetic system supplied by Net Gains, LLC and known as the Net Gains System.

Description and Methodology of Net Gains:

- Fabrication. Net Gains, LLC fabricated a sediment containment area utilizing the system described in U.S. patent no. 7,472,501. The specifications for this fabric are included in an attachment to this report. This system is capable of containing a circular area of approximately 430' more or less in diameter. The total length of the circumference of the system was 1,351' when installed. The system included 2 effluent discharge water control structure capable of raising or lowering the water elevation in the containment system. The Net Gains System was manufactured with 103' segments with 48" pocket for cork line. Panel ends had 5'x4' flap on both ends. Flaps have 4 grommets on them. The system was made for 6" chain line. Each weir was made with 2-2x6x12, 2 4x4x12, aluminum angle, lag bolts, 4" screws, 6 2x6x4. Each wing attached was 20' panels with 4 grommets connected by lag bolts and screws to each weir. Each side of the wing panels were sewn together to the 100' sections to make up the system.

• Patent Information included with this report as secondary attachment.

Installation of System:

- On June 10, 2013 700 LF of the Net Gains System was installed on site. The crew worked from the weir box at approximately station 9+80 and worked in a clockwise or northwesterly direction (moving northward) working to station 13+00. The remaining material was installed on June 11, 2013. On the second day of installation, the crew started at station 13+00 and worked in a clockwise or Southeasterly direction to close the loop with the exception of one panel that was left open to ensure access for weir construction and survey team as needed. The open area that was left for access was from station 4+50-6+00. The system was ready to accept material on July 18th. The final repairs from the last weather event to damage the system were made on July 17th. The first weir was placed in mud at station 9+80 and the

second weir was placed at 4+56. The weirs were constructed with drills, and then were placed in the mud with a dead man and sledge hammer. The weirs were connected to the fabric by wrapping wings around 4x4 then lag bolted. The 1st panel was connected to the weir, by sewing it to the wing on weir, and going in reverse as the panels unrolled out of boat. When panel was completely connected, Net Gains attached another panel by sewing it.

Subsequent Repairs of System Pre-Dredging:

- Without material placed in the system, the system proved vulnerable to weather events. The system had to be repaired four times between June 25th and July 17th due to damages incurred by weather events. Each repair took less than one work day. Stretching of the rope couldn't be repaired. Panels of the system tore off of weirs, so Net Gains lagged bolted the panels back to weir. Sections of cork line where exposed, Net Gains sewed 6'x6' panel pieces over gaps.

Performance of System during Dredge Activities:

- APC Construction, LLC began dredging into the system on July 18th at 9:15 A.M. The system performed well and appeared to gain stability as material was placed in the circumference of the cell area.

- Days that the system was able to accept material was greatly affected by the tidal activity and water elevation. When there was low tidal activity and subsequent low water elevation, the system proved to not be as buoyant and the top structure was unable to provide enough "float" to contain the sediment. This caused sediment to flow over the top part of the structure and elude containment. When the (exterior) water elevation was higher, the system performed very well and the sediment was contained as designed by the Net Gains System. The system was monitored by the Net Gains employees and installers as well as APC Construction Quality Control personnel continuously during the dredge activities. During favorable tidal stages, the system also de-watered as designed and planned when not being pumped in to. Because of tidal changes the cork line would sink, so Net Gains would push on corks with air boat to aid cork line. To minimize the loss of material, pressure was directed to the weirs. Net Gains and APC closed weirs during pumping and pushed on corks when they were sinking.

- On August 2nd, the Net Gains System ceased being able to contain the sediment material. The material was overtopping the system and effluent was spreading beyond the allowed buffer zone. NRCS gave the order to cease dredging activities in to the system. The total system expanded 45' in circumference due to the rope stretching once material was pumped into system. The after dredge surveys indicate that materials deposited outside the sediment curtain completely encircling the curtain, predominately on the west side and the south side. Hydroterra's surveys indicated additional materials outside of the containment cell up to 200 feet outside of the sediment curtain. The deposited materials ranged from 0.5' to 1.0'.

Breakdown of System:

- The portion of the Net Gains System that was above the mudline was removed on August 11th and 12, 2013. The floats and cork lines were removed and the material was pulled and cut so that it fell below the mud line when released. The weirs were also removed along with ropes, PVC, anchors and subsequent supports.

Quantities Contained in Net Gains System:

- The Net Gains System successfully accepted and contained 12,394 CY of sediment material. There was some material that was lost by the over-topping of the system. APC Construction, LLC estimates that this amount is between 12-15% of the total cubic yardage accepted by the system or approximately +/- 1,715 CY. It should be noted that the quality of the sediment material that overtopped was of an OH and PT soil classification in the major soil division of silt and clays so it was very fluid and that this possibly lent itself to the overtopping of the Net Gains System.

Total Evaluation of Net Gains System:

- It is the opinion of APC Construction, LLC that the Net Gains System performed favorably. The system actually exceeded the expectations of the APC Team. With some design and implementation adjustments we feel that the system could be successful in future projects.

Recommendations and Modifications for Future Use:

After monitoring and discussion with the Net Gains team, we feel that the following modifications would add to the successful implementation of the Net Gains System:

- Double up on the containment system material (geo fabric). For example: We would get the manufacture to fold the 12' wide panels in 1/2 to make 6' panels, to make the material twice as strong. For connecting the material to the weirs, we recommend use carriage bolts instead of lag bolts and screws. The panels will also be folded and stitched, strengthening overall system.
- Utilize heavier chain line.
- Use non stretch braided spectra rope throughout cork line.
- Build weirs out of 8x8, use carriage bolts, deploy weirs with marsh buggy.
- The system should be installed as close to the start of dredge activities as possible to ensure that it is not vulnerable to damage caused by weather events. The system is more stable and less likely to incur damages after it has material placed in it.
- Use larger/more buoyant float mechanisms to support the structure once it is accepting material so that the top of the structure stays above the water line and material does not escape over the top of the system. Floats would be between 24" -36". Also we recommend using a spectra rope to stop the stretching of the nylon rope.

Bridget Himel

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Net Gains Construction, Dredge Activity, Repair, and Removal Log

6/10/2013- Net Gains sediment containment system was partially installed. 700 LF installed from station 6+00-13+00. Weir one set at +3.1 elevation.

6/11/2013- Net Gains system was installed from station 13+00-4+50.

6/12/2013- Net Gains containment system was completed. Elevation of weir one was corrected to +4.1 elevation and second weir was installed to design elevation of +4.1.

7/01/2013- 20" floats were installed on dredge line to ensure line was not interfering with top of Net Gains sediment containment system.

7/01/2013- Severe storm came through area and caused damage to Net Gains system in the form of rips and tears to the fabric and shifting of the top line.

7/08/2013- Net Gains crew came out to the site and repaired system via means of sewing the tears and re-setting the perimeter. The layout was confirmed through survey.

7/09/2013- APC repaired the poly-pipe crossover that suspended the dredge line with floats over the top perimeter of the sediment containment system.

7/11/2013- Severe weather once again damaged Net Gains sediment containment system and caused additional rips and tears in the fabric.

7/14/2013- Net Gains repaired the tears to the sediment containment system and re-set the weirs that were damaged in the storm that took place on July 11.

7/18/2013- Dredge activities commence into Net Gains system. The Net Gains crew worked the curtain and stop logs to maintain the system while it accepted dredge material.

7/24/2013- Curtain at a float tore and needed repairs. Net Gains sediment containment system down for the day.

7/26/2013- Unconsolidated dredge material passed over the top of the Net Gains sediment containment system. The material overflowed in the area surrounding the circumference of the structure. Material did not flow beyond the allowable over-dredge area defined in the drawings.

8/02/2013- Final Day of dredging.

NRCS performed its final inspection of the project on August 15, 2013 and determined there were no outstanding issues with the construction of the project. The NRCS held a Close-out meeting on September 11, 2013 to discuss all aspects of the construction of the project and discuss lessons learned.

COSTS

The Phase 0 construction cost estimate for the project was \$718,580 (\$574,580 with 25% contingency). NRCS' original plans to imbed the project within a larger project were intended to offset much of the costs that would otherwise be cost-prohibitive for a small project demonstration, such as mobilization and demobilization of a dredge. However, because we imbedded the project within the PO-75 pilot project, the LA-09 did have to cover its share of the burden of mobilization and demobilization of the dredge and the full cost of the cubic yards (CY) of material deposited into the system. We had estimated 41,000 cubic yards of material available to the project and the use of 6,000 linear feet (LF) of containment, but we ended up with a project that only used just over 12,000 CY and 1,351 LF of containment material. The costs of the project were appropriate for the available budget and provided an adequate testing of the product.

Some important considerations in the costs of the project include:

- 1) The project was fully designed for implementation within two larger projects prior to being installed in the PO-75 project. Each design involved significant engineering resources to complete. Due to complications with contractors in the two prior projects, NRCS determined it to be in the best interest of the larger project to remove the LA-09 from the project.
- 2) Because the project was imbedded within the PO-75 Pilot Project, the LA-09 project agreed to evenly divide the costs between the other two construction cells for a 1/3 share of the total costs of construction. This made it very difficult for us

to breakout the costs of the construction items relative specifically to LA-09. However, we were able to make a fairly accurate assessment of costs for the Net Gains material.

- 3) The unit cost for the Net Gains material was \$30.20 per lf for a total of \$40,803 for the 1,351 lf. The cost of the installation of the Sediment Containment system was an additional \$116,577.79 which included the mobilization, transport, installation, monitoring of the system during dredging and removal of the material upon completion. Based upon this information, the unit cost for the total 1351 lf was \$116.49 per lf for this specific project deployment.
- 4) The unit costs and therefore the total costs of the project implementation are considered to be significantly higher because of the complications of coordinating the project within another project and because of the small scale of the project. For example, mob/demob, price per cubic yard of dredge material and the unit cost of the installation of the containment material are considered significantly inflated due to the small scale of the project. It is expected that in a full-scale project the unit costs would be significantly reduced. Additional attention to detail during the preparation and construction was warranted due to the untested nature of the product.
- 5) The Net Gains material was purchased in anticipation of an earlier designed project but had to be placed in storage for additional costs for several months until the project could be implemented within another project.

Table 1. Sediment Containment System for Marsh Creation (LA-09) Estimated and Actual Construction Costs

Estimated Construction Costs						Actual Construction Costs				
Item	Work or Material	Quantity	Unit	Unit Cost	Amount	Work or Material	Bid Quantity	Unit	Unit Price	Total
1	Mobilization/Demobilization	1	LS	\$ 150,000.00	\$ 150,000	Mobilization/Demobilization	1	LS		\$ 204,037.00
2	Containment System	6,000	LF	\$ 40.00	\$ 240,000	*Installation of Containment System	1,351	LF	\$ 86.29	\$ 116,577.79
3	Marsh Creation	48,155	CY	\$ 3.75	\$ 180,581	Net Gains Material	1,351	LS		\$ 40,803.32
4	Temporary Navigation Aids	4	each	\$ 1,000.00	\$ 4,000	**Marsh Creation Material	22,100	CY	\$ 10.54	\$ 232,934.00
5						Storage of Net Gains Material	1	LS		\$ 3,431.89
6						Construction Surveys	1	LS		\$ 40,333.33
7						Staff Gauges	3	EA	\$ 500.00	\$ 1,500.00
8						Settlement Plates	1	EA	\$3,696.00	\$ 3,696.00
Estimated Construction Cost					\$ 574,581	Actual Construction Costs				
Estimated Construction Cost +25% Contingency					\$ 718,225	\$ 643,313				
* Includes mobilization, transport of material, installation of material, monitoring of the system during dredging, and removal of material upon completion.										
** Actual amount received was 12,394 cy; remainder was diverted due to overflowing from system.										

PROJECT CONCLUSIONS

Overall, the Net Gains, LLC sediment containment project performed satisfactorily although there were a few adjustments that needed to be made during construction and adjustments and improvements noted following construction that would significantly improve overall performance in future applications. Both Net Gains, LLC (see Appendix D) and the prime contractor have provided feedback on performance and improvements. The main performance criterion is that the system did not fail. Although the dredge

material began to flow over the float system and the system stretched under the pressure of the influx of material, it managed to hold up and contain a significant amount of the dredge material. With some modifications, it is believed that these issues can be resolved in future application. As expected, the stacking of material appeared to be turtle-backed with the majority of the elevated deposits near the discharge pipe. The full allotment of dredge material for this area was cut short because the project team believed that the remaining material would mostly be lost due to the overflow from the system. Both the prime contractor and Net Gains, LLC have suggested that in future applications, the overflow from the system can be avoided by using larger floats and non-stretch rope (spectra-rope).

The product was moderately cost-effective although it is believed that on full-scale projects, the system can be much more cost-effective than demonstrated in this small scale test. For example, the deployment of the system was quick and required only small boat access. In comparison to traditional earthen containment, heavy equipment is not required, there is minimal disturbance to the water bottoms and soil conditions are not a major factor for containment. These factors alone could potentially vastly improve cost-effectiveness on projects.

NRCS believes that the Net Gains, LLC system for containment has potential application in marsh creation although the system needs to be further tested beyond this demonstration. With some modifications as suggested by the contractors of this demonstration project and continued improvements to the product, the system may certainly serve as a viable alternative to earthen containment, particularly in areas where soil conditions make it difficult to successfully construct earthen containment.

PROJECT CONTACTS:

Federal Sponsor:

USDA/Natural Resources Conservation Service

Project Manager: Ron Boustany

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State Sponsor:

State of Louisiana

Coastal Protection and Restoration Authority (CPRA)

Project Manager: Cody Bruhl

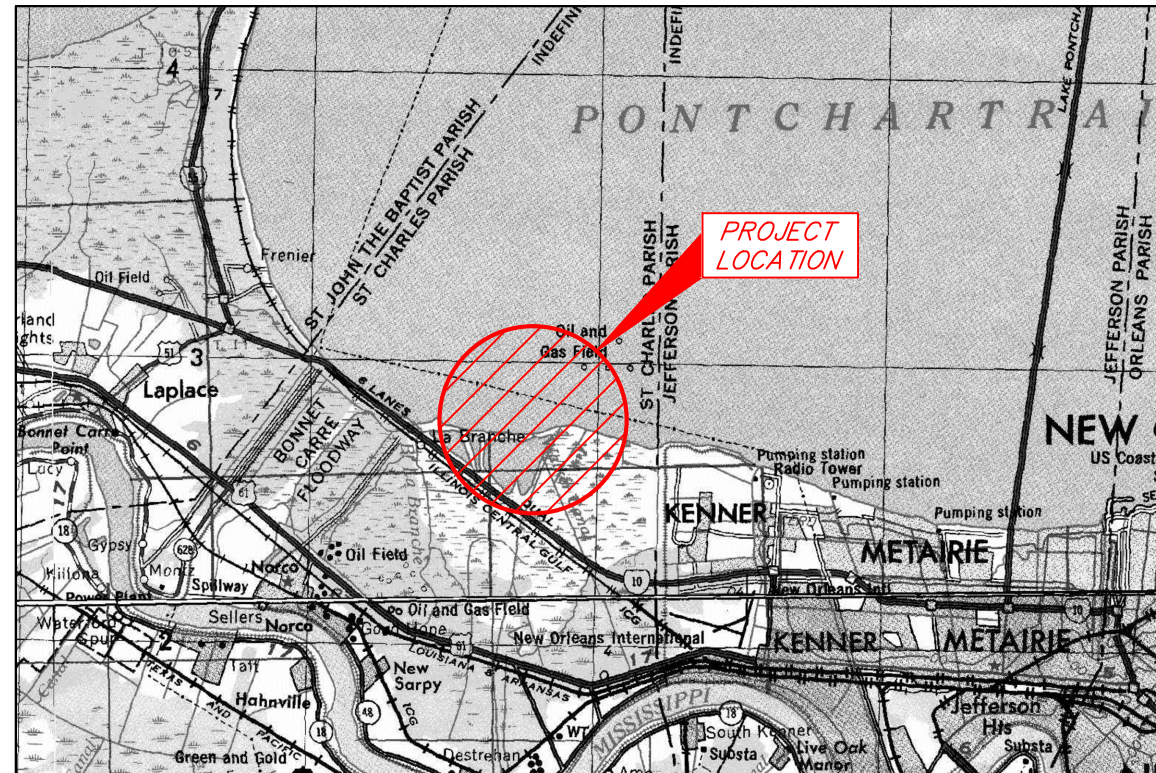
APPENDICES

APPENDIX A

FINAL AS-BUILT SURVEY REPORT

INLAND MARINE SERVICES, LLC
PO - 75 - LABRANCHE EAST MARSH CREATION PILOT PROJECT
FINAL AS-BUILT SURVEY OF MARSH CREATION - CELL 3
TOPOGRAPHIC SURVEY

ST. CHARLES PARISH, LA



VICINITY MAP (N.T.S.)

INDEX TO SHEETS

SHEET NO.	DESCRIPTION
1	TITLE PAGE
2	PLAN VIEW (EDGE OF FABRIC)
3	PLAN VIEW (TOPO SURVEY)
4	POINT TABLE
5	SECTION VIEW

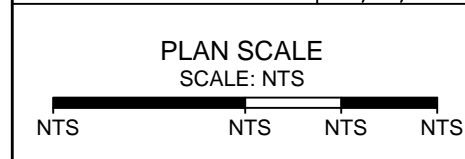


THIS MAP REPRESENTS AN ACTUAL FIELD SURVEY MADE UNDER DIRECT SUPERVISION OF THE UNDERSIGNED.

Keith J. Roberts

KEITH J. ROBERTS, PLS # 4780
 202 JACOBS RUN
 SCOTT, LA. 70583
 (337) 706-8219

REVISED BY:	DATE:
JJP	08/14/13
JJP	09/05/13
JJP	09/23/13



DATE: 08/13/13 JOB# 2131033



PREPARED BY: HYDROTERRA TECHNOLOGIES, LLC. - 202 JACOBS RUN, SCOTT, LA 70583

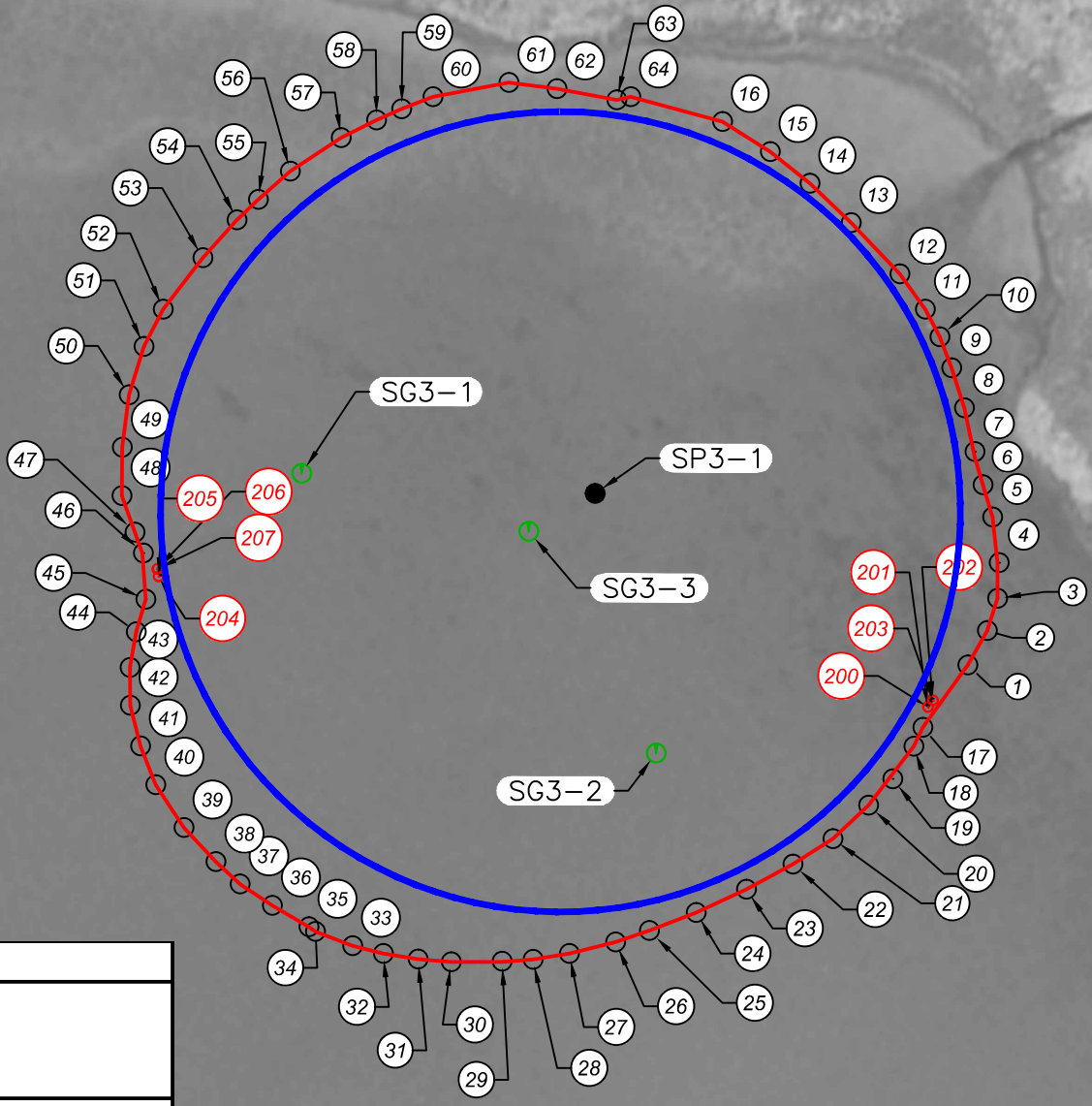
PO-75 LABRANCHE
EAST MARSH CREATION PILOT PROJECT
FINAL AS-BUILT SURVEY - MARSH CREATION CELL 3
TOPOGRAPHIC SURVEY

TITLE PAGE
ST. CHARLES PARISH, LA

Submission 15 - As-Built Survey Marsh Creation Cell 3\09-23-13.dwg

SHEET: 1 OF 5

WEIR BOX POINT TABLE				
Point #	Northing	Easting	Elevation	Raw Description
200	565587.4	3596495.1	4.3	TOP OF WOOD
201	565587.4	3596494.9	4.2	ANGLE IRON
202	565591.1	3596497.6	4.3	ANGLE IRON
203	565590.9	3596497.7	4.4	TOP OF WOOD
204	565657.5	3596081.3	5.0	TOP OF WOOD
205	565657.6	3596081.5	5.0	ANGLE IRON
206	565661.5	3596080.6	4.7	TOP OF WOOD
207	565661.8	3596081.0	4.8	ANGLE IRON



STAFF GAGE AND SETTLEMENT PLATE POINT TABLE						
NAME	NORTHING	EASTING	TOP ELEVATION			
			BEFORE DREDGE	Date	AFTER DREDGE	Date
SG3-1	565712.9	3596157.7	4.2	7/11/13	4.1	8/12/13
SG3-2	565562.5	565562.5	4.2	6/26/13	4.1	8/12/13
SG3-3	565681.2	3596279.6	4.3	6/26/13	3.9	8/12/13
SP3-1	565702.3	3596315.9	7.5	6/26/13	7.3	8/12/13



NOTES

1. ALL HORIZONTAL COORDINATES ARE BASED ON LOUISIANA SOUTH ZONE - NAD83 HPGN DATUM, US SURVEY FOOT AS DERIVED FROM PROJECT CONTROL VIA GPS KINEMATIC OBSERVATIONS.
2. ALL VERTICAL COORDINATES ARE BASED ON NAVD 88 (GEOID 03), US SURVEY FOOT AS DERIVED FROM PROJECT CONTROL VIA GPS KINEMATIC OBSERVATIONS.
3. THIS DRAWING INDICATES GENERAL CONDITIONS AT THE TIME OF SURVEY.
4. AS-BUILT SURVEY DATA ACQUISITION WAS PERFORMED AUGUST 8 AND 11-12, 2013.
5. SEE POINT TABLE ON SHEET 3 FOR LIST OF AS-BUILT COORDINATES OF FINAL LOCATION OF FABRIC.
6. TOTAL LINEAR FOOTAGE OF THE AS-BUILT NET GAINS MATERIAL FABRIC SURVEYED = 1493.6'.

LEGEND	
	EDGE OF AS-BUILT NET GAINS FABRIC PLACEMENT
	EDGE OF PROPOSED NET GAINS FABRIC PLACEMENT

REVISED BY:	DATE:
JJP	08/14/13
JJP	09/05/13
JJP	09/23/13
HORIZONTAL SCALE 1" = 100'	
DATE: 08/13/13	JOB# 2131033

LAND SURVEY AND HYDROGRAPHIC SOLUTIONS

PREPARED BY: HYDROTERRA TECHNOLOGIES, LLC. - 202 JACOBS RUN, SCOTT, LA 70583

PO-75 LABRANCHE
EAST MARSH CREATION PILOT PROJECT
FINAL AS-BUILT SURVEY - MARSH CREATION CELL 3
TOPOGRAPHIC SURVEY
PLAN VIEW
ST. CHARLES PARISH, LA

Submittal 15 - As-Built Survey Marsh Creation Cell 3)09-23-13.dwg

SHEET: 2 OF 5

Point Table				
Point #	Northing	Easting	Elevation	Raw Description
1	565609.9	3596516.4	3.0	TOP OF FABRIC
2	565628.5	3596526.9	2.5	TOP OF FABRIC
3	565645.8	3596532.3	2.5	TOP OF FABRIC
4	565665.0	3596533.3	2.4	TOP OF FABRIC
5	565689.5	3596529.7	2.4	TOP OF FABRIC
6	565706.8	3596524.6	2.3	TOP OF FABRIC
7	565724.7	3596520.3	2.2	TOP OF FABRIC
8	565748.2	3596514.5	2.1	TOP OF FABRIC
9	565769.6	3596507.7	2.4	TOP OF FABRIC
10	565786.4	3596501.4	2.5	TOP OF FABRIC
11	565801.2	3596493.5	2.5	TOP OF FABRIC
12	565820.1	3596479.9	2.6	TOP OF FABRIC
13	565847.7	3596453.6	2.5	TOP OF FABRIC
14	565868.7	3596431.5	2.7	TOP OF FABRIC
15	565885.8	3596410.2	2.5	TOP OF FABRIC
16	565902.0	3596384.5	2.6	TOP OF FABRIC
17	565576.6	3596492.2	2.5	TOP OF FABRIC
18	565566.4	3596487.4	2.9	TOP OF FABRIC
19	565548.8	3596476.1	2.2	TOP OF FABRIC
20	565534.7	3596463.0	2.2	TOP OF FABRIC
21	565516.6	3596443.9	2.1	TOP OF FABRIC
22	565503.1	3596422.5	2.3	TOP OF FABRIC

Point Table				
Point #	Northing	Easting	Elevation	Raw Description
23	565489.5	3596397.4	2.0	TOP OF FABRIC
24	565477.0	3596370.5	2.3	TOP OF FABRIC
25	565467.4	3596345.3	2.2	TOP OF FABRIC
26	565461.1	3596327.1	2.2	TOP OF FABRIC
27	565455.1	3596302.3	2.2	TOP OF FABRIC
28	565451.9	3596282.7	2.2	TOP OF FABRIC
29	565450.8	3596266.1	2.2	TOP OF FABRIC
30	565450.5	3596238.8	2.1	TOP OF FABRIC
31	565452.0	3596220.9	2.2	TOP OF FABRIC
32	565455.1	3596202.2	2.2	TOP OF FABRIC
33	565459.2	3596185.7	2.1	TOP OF FABRIC
34	565466.9	3596165.8	1.9	TOP OF FABRIC
35	565469.4	3596162.2	2.2	TOP OF FABRIC
36	565480.9	3596142.6	2.2	TOP OF FABRIC
37	565492.4	3596125.3	2.1	TOP OF FABRIC
38	565504.3	3596112.2	1.9	TOP OF FABRIC
39	565522.7	3596095.2	2.1	TOP OF FABRIC
40	565545.7	3596079.9	2.3	TOP OF FABRIC
41	565566.5	3596071.7	2.5	TOP OF FABRIC
42	565588.3	3596066.2	2.4	TOP OF FABRIC
43	565608.6	3596066.2	2.5	TOP OF FABRIC
44	565627.9	3596069.5	2.6	TOP OF FABRIC

Point Table				
Point #	Northing	Easting	Elevation	Raw Description
45	565645.4	3596074.7	2.9	TOP OF FABRIC
46	565670.1	3596073.2	3.1	TOP OF FABRIC
47	565681.4	3596068.7	2.7	TOP OF FABRIC
48	565700.9	3596061.8	2.0	TOP OF FABRIC
49	565727.1	3596062.0	2.2	TOP OF FABRIC
50	565755.1	3596065.5	2.4	TOP OF FABRIC
51	565781.2	3596073.6	2.4	TOP OF FABRIC
52	565801.1	3596083.9	2.3	TOP OF FABRIC
53	565828.8	3596105.2	2.4	TOP OF FABRIC
54	565849.2	3596123.6	2.2	TOP OF FABRIC
55	565860.2	3596135.1	2.5	TOP OF FABRIC
56	565875.3	3596152.2	2.0	TOP OF FABRIC
57	565893.2	3596179.6	2.2	TOP OF FABRIC
58	565902.9	3596198.6	2.2	TOP OF FABRIC
59	565908.8	3596212.1	2.2	TOP OF FABRIC
60	565915.3	3596229.0	2.4	TOP OF FABRIC
61	565923.0	3596269.8	2.5	TOP OF FABRIC
62	565919.6	3596295.6	2.2	TOP OF FABRIC
63	565913.7	3596327.8	1.5	TOP OF FABRIC
64	565915.3	3596335.2	2.4	TOP OF FABRIC



LEGEND

REVISED BY:	DATE:
JJP	08/14/13
JJP	09/05/13
JJP	09/23/13
HORIZONTAL SCALE	
VERTICAL SCALE	
DATE: 08/13/13	JOB# 2131033

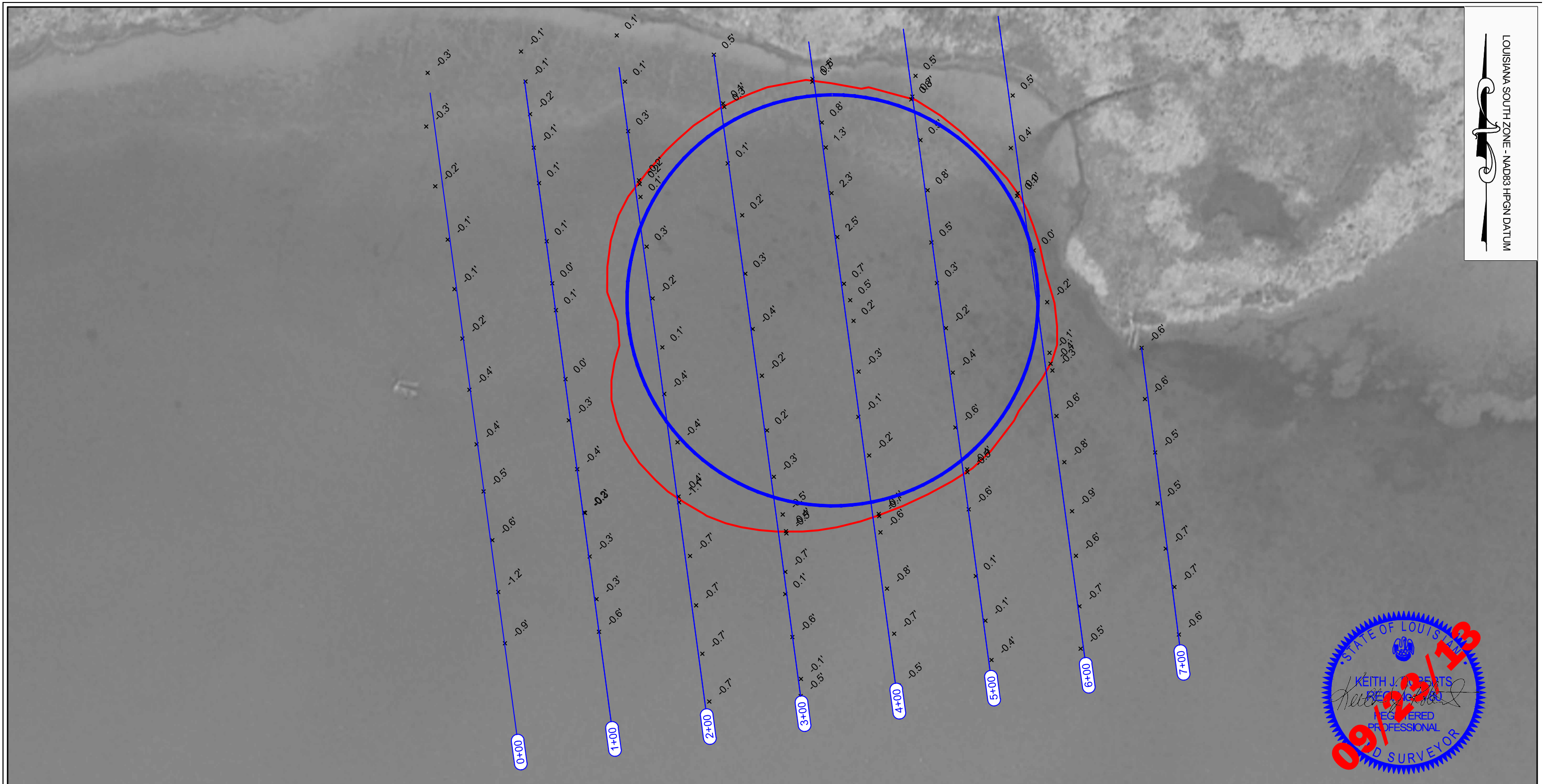


PO-75 LABRANCHE
EAST MARSH CREATION PILOT PROJECT
 FINAL AS-BUILT SURVEY - MARSH CREATION CELL 3
 TOPOGRAPHIC SURVEY
TOP OF FABRIC POINT TABLE
 ST. CHARLES PARISH, LA

PREPARED BY: HYDROTERRA TECHNOLOGIES, LLC. - 202 JACOBS RUN, SCOTT, LA 70583



Submittal 15 - As-Built Survey Marsh Creation Cell 3)09-23-13.dwg

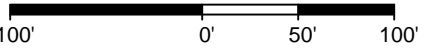
SHEET: 3 OF 5



NOTES

1. ALL HORIZONTAL COORDINATES ARE BASED ON LOUISIANA SOUTH ZONE - NAD83 HPGN DATUM, US SURVEY FOOT AS DERIVED FROM PROJECT CONTROL VIA GPS KINEMATIC OBSERVATIONS.
2. ALL VERTICAL COORDINATES ARE BASED ON NAVD 88 (GEOID 03), US SURVEY FOOT AS DERIVED FROM PROJECT CONTROL VIA GPS KINEMATIC OBSERVATIONS.
3. THIS DRAWING INDICATES GENERAL CONDITIONS AT THE TIME OF SURVEY.
4. SURVEY DATA ACQUISITION WAS PERFORMED AUGUST 8 AND 11-12, 2013.

LEGEND	
	EDGE OF AS-BUILT NET GAINS FABRIC PLACEMENT
	EDGE OF PROPOSED NET GAINS FABRIC PLACEMENT

REVISED BY:	DATE:
JJP	08/14/13
JJP	09/05/13
JJP	09/23/13
HORIZONTAL SCALE 1" = 100' 	
DATE: 08/13/13	JOB# 2131033



HYDROTERRA
TECHNOLOGIES, LLC
LAND SURVEY AND HYDROGRAPHIC SOLUTIONS



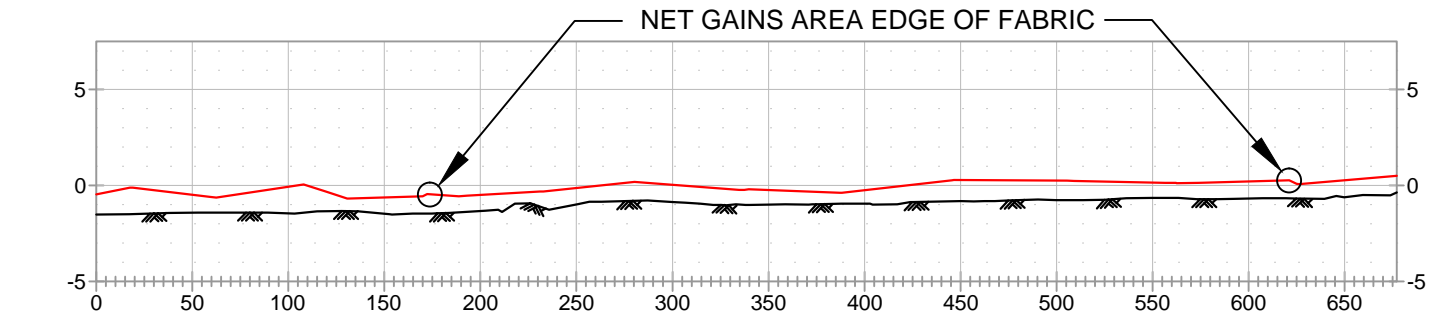
Inland
marine
services

PREPARED BY: HYDROTERRA TECHNOLOGIES, LLC. - 202 JACOBS RUN, SCOTT, LA 70583

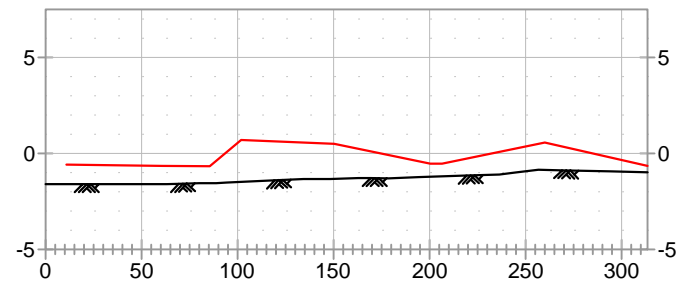
PO-75 LABRANCHE
EAST MARSH CREATION PILOT PROJECT
FINAL AS-BUILT SURVEY - MARSH CREATION CELL 3
TOPOGRAPHIC SURVEY
PLAN VIEW
 ST. CHARLES PARISH, LA

Submittal 15 - As-Built Survey Marsh Creation Cell 3)09-23-13.dwg

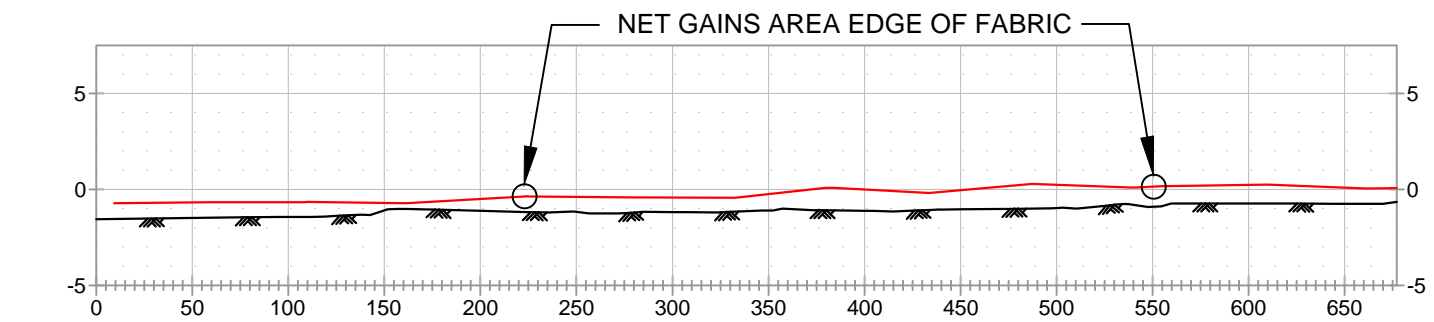
SHEET: 4 OF 5



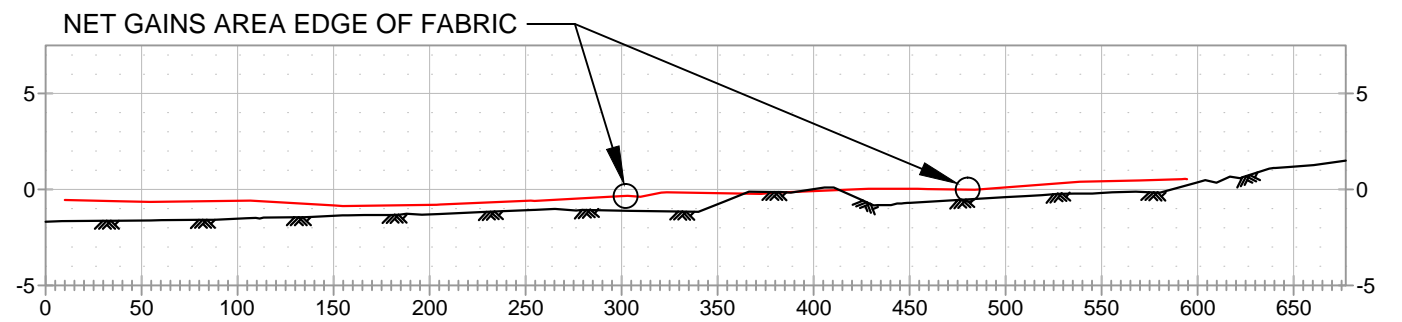
STA. 3+00



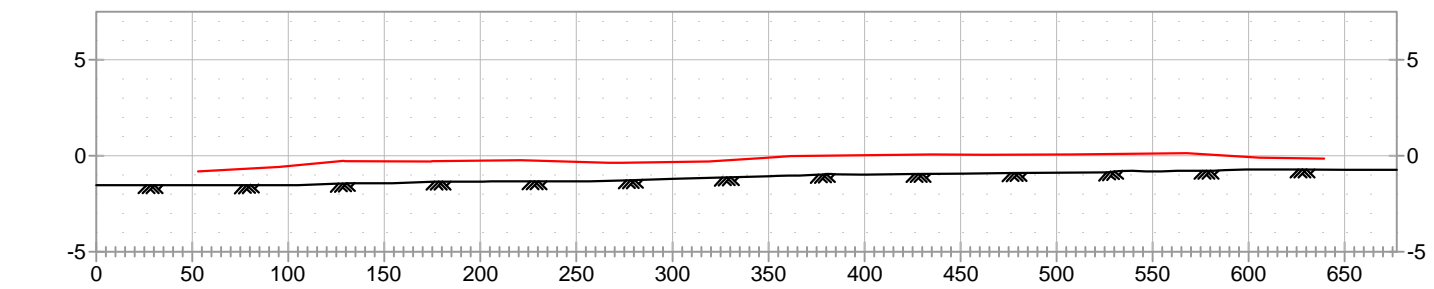
STA. 7+00



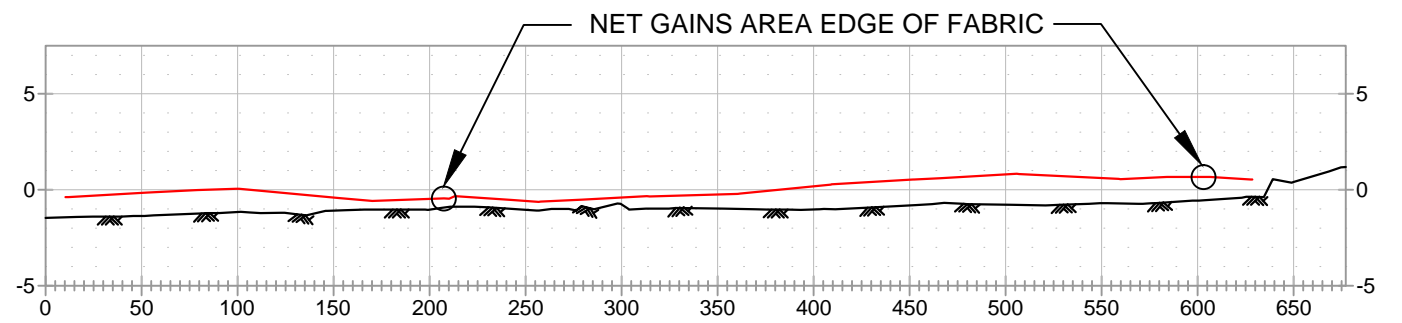
STA. 2+00



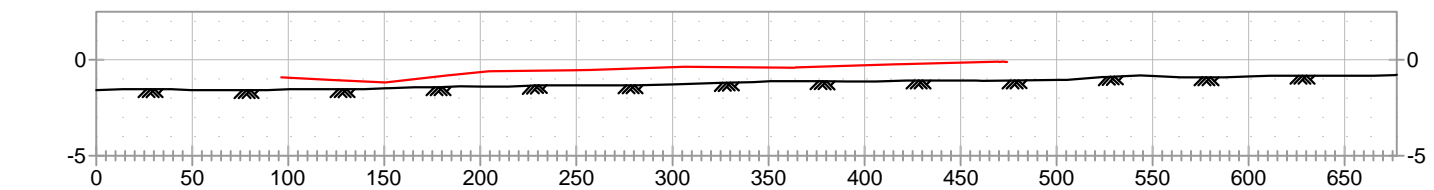
STA. 6+00



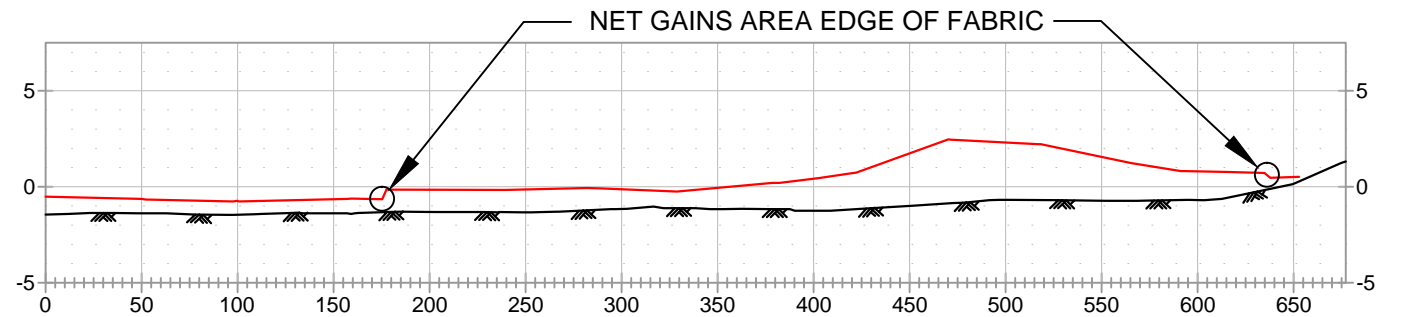
STA. 1+00



STA. 5+00



STA. 0+00

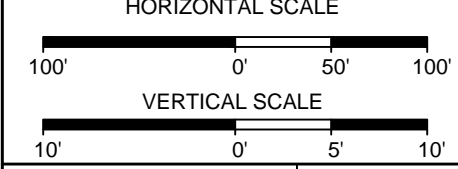


STA. 4+00



LEGEND	
	NRCS ORIGINAL SURVEY
	AS-BUILT SURVEY

REVISED BY:	DATE:
JJP	08/14/13
JJP	09/05/13
JJP	09/23/13



DATE: 08/13/13	JOB# 2131033
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PO-75 LABRANCHE
EAST MARSH CREATION PILOT PROJECT
 FINAL AS-BUILT SURVEY - MARSH CREATION CELL 3
 TOPOGRAPHIC SURVEY
CROSS SECTION VIEW
 ST. CHARLES PARISH, LA

PREPARED BY: HYDROTERRA TECHNOLOGIES, LLC. - 202 JACOBS RUN, SCOTT, LA 70583
 Submittal 15 - As-Built Survey Marsh Creation Cell 3)09-23-13.dwg
 SHEET: 5 OF 5

APPENDIX B

PROJECT PERMITS AND CERTIFICATIONS



DEPARTMENT OF THE ARMY
NEW ORLEANS DISTRICT, CORPS OF ENGINEERS
P.O. BOX 60267
NEW ORLEANS, LOUISIANA 70160-0267

REPLY TO
ATTENTION OF

OCT 02 2012

OCT 4 #11:45

Operations Division
Eastern Evaluation Section

SUBJECT: MVN 2012-1081-EFF

Crescent Soil and Water Conservation District
Post Office Box 531
Boutte, Louisiana 70039

Dear Gentlemen:

Enclosed is a permit dated this date, subject as above, authorizing work under the Department of the Army permit program.

You are again reminded that any work not in accordance with the approved plans is subject to removal regardless of the expense and the inconvenience that such removal may involve and regardless of the date when the discrepancy is discovered.

Your attention is directed to all the terms and conditions of the approval. In order to have the work approved in accordance with the issued permit, all terms and conditions of the permit and plans shown on the drawings attached thereto must be rigidly adhered to.

It is necessary that you notify the District Engineer, Attention: Eastern Evaluation Section, in writing, prior to commencement of work and also upon its completion. The notification must include the permittee's name, as shown on the permit, and the permit number. Please note the expiration date on the permit. Should the project not be completed by that date, you may request a permit time extension. Such requests must be received before, but no sooner than six months before, the permit expiration date and must show the work completed and the reason the project was not finished within the time period granted by the permit.

A copy of Page 1 of the permit (ENG Form 1721) must be conspicuously displayed at the project site. Also, you must keep a copy of the signed permit at the project site until the work is completed.

Sincerely,

Michael V. Farabee
Chief, Eastern Evaluation Section

Enclosure

DEPARTMENT OF THE ARMY PERMIT

Permittee: Crescent Soil and Water Conservation District

OCT 02 2012

Permit No. MVN-2012-1081-EFF

Issuing Office: New Orleans District

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below.

Project Description: Excavate and deposit fill to construct the PO-75 East LaBranch Marsh Creation Pilot Project in St. Charles Parish, in accordance with the drawings attached in five sheets, undated.

Project Location: In St. Charles Parish, Sections 41-51, T11S-R9E, on the south shore of Lake Ponchartrain, near Norco, Louisiana.

Permit Conditions:

General Conditions:

1. The time limit for completing the work authorized ends on SEPT 30, 2017. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least 1 month before the above date is reached.
2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.
3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and State coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.
5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.
6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

Special Conditions: See Attached.

Further information:

1. Congressional Authorities: You have been authorized to undertake the activity described above pursuant to:

- Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).
- Section 404 of the Clean Water Act (33 U.S.C. 1344).
- Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).

2. Limits of this authorization.

- a. This permit does not obviate the need to obtain other Federal, State, or local authorizations required by law.
- b. This permit does not grant any property rights or exclusive privileges.
- c. This permit does not authorize any injury to the property or rights of others.
- d. This permit does not authorize interference with any existing or proposed Federal project.

3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following:

- a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.
- b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.
- c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.
- d. Design or construction deficiencies associated with the permitted work.

- e. Damage claims associated with any future modification, suspension, or revocation of this permit.
4. **Reliance on Applicant's Data:** The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.
5. **Reevaluation of Permit Decision.** This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:
- a. You fail to comply with the terms and conditions of this permit.
 - b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (See 4 above).
 - c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. **Extensions.** General condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

Crescent Soil & Water Conservation District
 x William B. Ensminger
 (PERMITTEE)

x 9-20-2012
 (DATE)

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

Michael V Farabee

September 20, 2012
 (DATE)

Michael V Farabee, Chief Eastern Evaluation Section

for Edward R. Fleming, District Commander

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

 (TRANSFEREE)

 (DATE)

SPECIAL CONDITIONS: MVN-2012-1081-EFF

7. This authorization does not obviate the permittee from obtaining any necessary approvals from other pertinent federal, state, and/or local authorities.
8. Construction activities shall be confined to the proposed work areas shown on the attached drawings. Mechanized land clearing or filling in wetlands for access and/or project construction, unless expressly identified on the attached drawings, is not authorized. Any alterations or changes in scope of the proposed project which was not considered under this authorization would require a separate Department of the Army permit review and decision, prior to commencing that work.
9. The permittee shall assure that any contractors and/or workers associated with construction of the permitted project are equally aware of the conditions and restrictions associated with this approval.
10. The permittee is aware that future site visits and inspections may be conducted to the project area by this office and/or other resource agencies in order to assess project compliance with this authorization and requirements associated herewith.
11. The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.
12. Your use of the permitted activity must not interfere with the public's right to free navigation on all navigable waters of the United States.
13. You must install and maintain, at your expense, any safety lights, signs and signals prescribed by the US Coast Guard, through regulations or otherwise, on your authorized facilities.
14. If the proposed project, or future maintenance work, involves the use of floating construction equipment (barge mounted cranes, barge mounted pile driving equipment, floating dredge equipment, dredge discharge pipelines, etc.,) in the waterway, you are advised to notify the US Coast Guard so that a Notice to Mariners, if required, may be prepared. Notification, with a copy of your permit approval and drawings, should be mailed to the US Coast Guard, Sector New Orleans Command Center, 200 Hendee Street, New Orleans, Louisiana 70114, about 1 month before you plan to start work. Telephone inquiries can be directed to (504) 365-2281.

SPECIAL CONDITIONS: MVN-2012-1081-EFF

15. The Chitimacha Tribe of Louisiana has stated that the project area is part of the aboriginal Chitimacha homelands. If during the course of work at the site, prehistoric and/or historic aboriginal cultural materials are discovered, the applicant will contact the Chitimacha Tribe of Louisiana at Post Office Box 661, Charenton, LA 70523, and the Army Corps of Engineers, New Orleans District (CEMVN) Regulatory Branch. CEMVN, Regulatory Branch will initiate the required federal, state, and tribal coordination to determine the significance of the cultural materials and the need, if applicable, for additional cultural resource investigations.

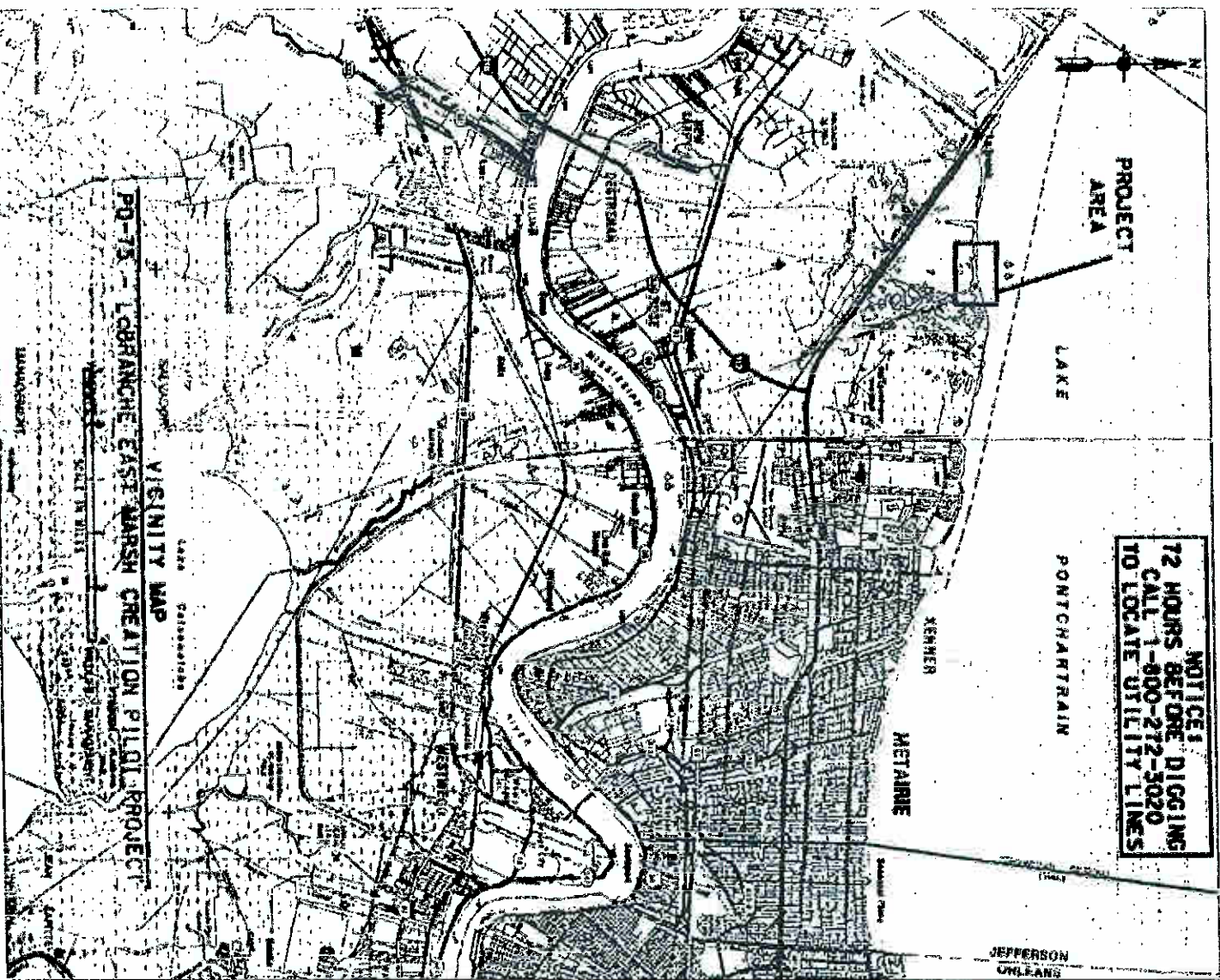
16. To the greatest extent, the permittee shall avoid negative impacts to existing vegetated wetlands at the site. The deposition or sloughing of fill materials into existing marsh during project construction shall be done in a manner which nourishes the existing habitat. Disturbance and/or rutting of existing vegetated wetlands during mobilization and construction activities shall be restored to pre-existing elevations, immediately following project completion. The use of timber mats should be utilized where feasible, in order to avoid and minimize impacts to marsh.

17. To the greatest extent, the permittee shall avoid impacts to existing natural shorelines along Lake Ponchartrain. Any rutting and/or ground disturbance in these areas must be restored immediately to pre-project conditions.

18. The permittee shall breach containment dikes within two years of completion of the project. Breaches should be in the containment dikes that border open water and be a minimum of 50' feet wide and to the elevation of adjacent marsh. The applicant shall notify this office and the National Marine Fisheries Service (attn: Mr. Richard Hartman at 225-389-0506 / ext 203), when construction of the breaches has been completed.

19. If archaeological materials and/or human remains are discovered during ground disturbing activities you shall cease and desist all activities in the project area and contact this office and Mr. Dennis Jones of the Louisiana Office of Cultural Development, Division of Archaeology at (225) 342-8160.

NOTICE!
72 HOURS BEFORE DIGGING
CALL 1-800-272-3020
TO LOCATE UTILITY LINES

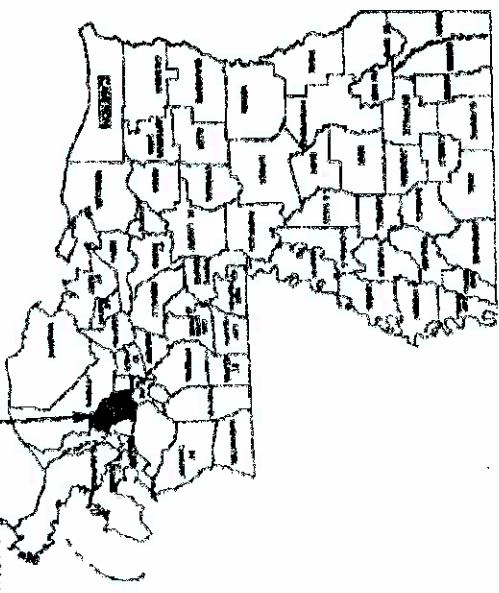


PO-75 - LABRANCHE EAST MARSH CREATION PILOT PROJECT

VICINITY MAP

SCALE IN FEET

PO-76-LABRANCHE EAST MARSH CREATION PILOT PROJECT
PERMIT DRAWING



INDEX TO DRAWINGS

- 1 COVER SHEET - VICINITY MAP
- 2 PROJECT LOCATION MAP
- 3 SECTION A-A & SECTION B-B
- 4 SECTION C-C & SECTION D-D
- 5 DETAILS AND/OR E-E

CONTAINMENT DIKE IMPACTS TO MARSH AND WATER BOTTOM.

	WATER BOTTOM EXCAVATED *	MARSH EXCAVATED	WATER BOTTOM FILLED	MARSH FILLED
CELL 31 NET GAINS	N/A	N/A	N/A	N/A
CELL 21 SEMI-CONTAINED	0.4 ACRES	0.1 ACRES	0.2 ACRES	0.1 ACRES
CELL 13 FULLY CONTAINED	1.9 ACRES	0 ACRES	0.2 ACRES	0.7 ACRES

* ALL WATER BOTTOMS EXCAVATED FOR CONTAINMENT DIKE CONSTRUCTION WILL BE REFILLED WITH HYDRAULICALLY DREDGED FILL MATERIAL.

LAKE PONTCHARTRAIN

- NOTES:**
1. THE ACCESS CORRIDOR INTO CELL 1 WILL BE THE ONLY LOCATION WHERE CONSTRUCTION EQUIPMENT WILL ENTER AND EXIT THE PROJECT SITE FROM LAKE PONTCHARTRAIN. THE ACCESS CORRIDOR WILL ALSO FACILITATE THE DREDGE PIPE INTO CELL 1.
 2. THE DREDGE PIPE CORRIDORS INTO CELLS 2 AND 3 WILL FACILITATE THE DREDGE PIPE INTO THOSE CELLS.
 3. DUE TO THE CONSTRUCTION CORRIDOR WILL BE THE ONLY AREA WHERE MARSH BUGGIES, AIRBOATS, OR OTHER CONSTRUCTION EQUIPMENT WILL BE ABLE TO TRAVEL BETWEEN THE MARSH CREATION CELLS.

MARSH CREATION
SEMI-CONTAINED
3.71 ACRES
FILL QTY = 27500 CY

MARSH CREATION
FULLY CONTAINED
4.53 ACRES
FILL QTY = 32500 CY

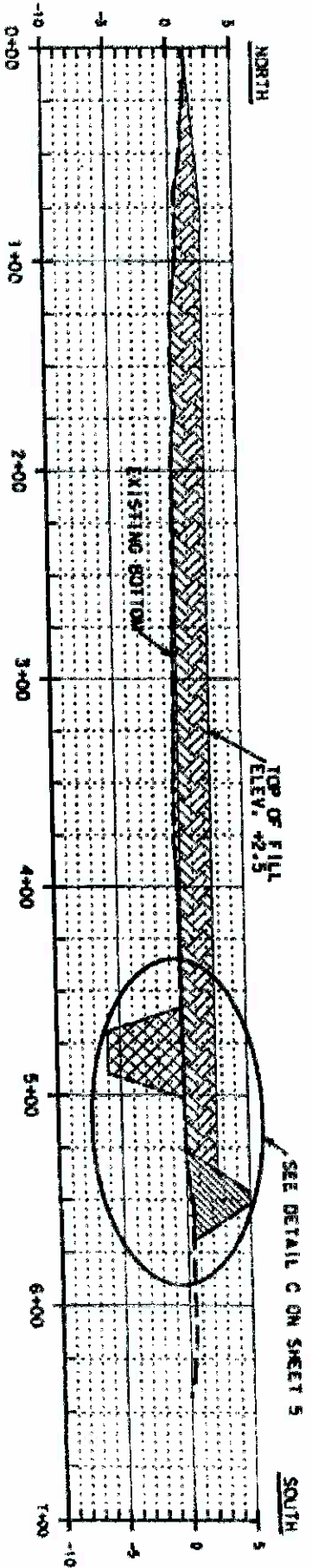
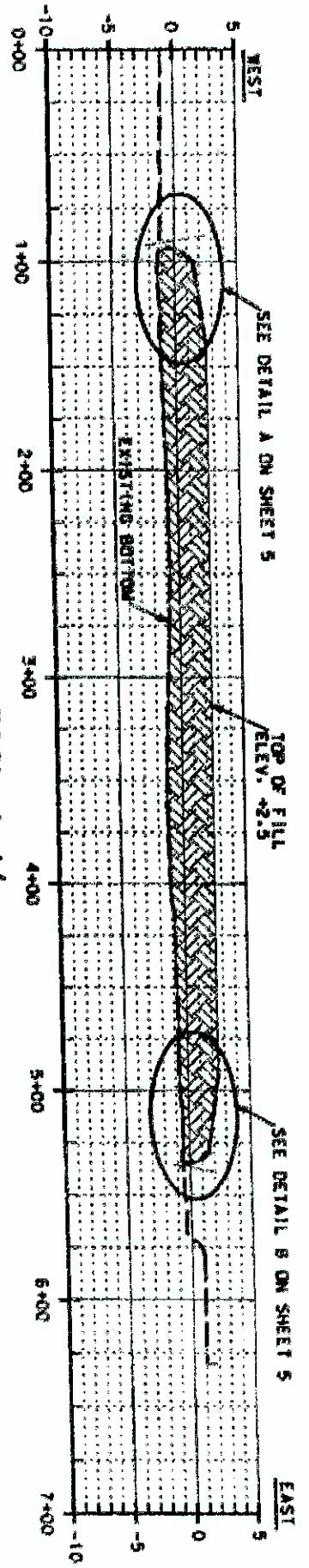
DREDGE PIPE
CORRIDOR

DREDGE PIPE
CORRIDOR

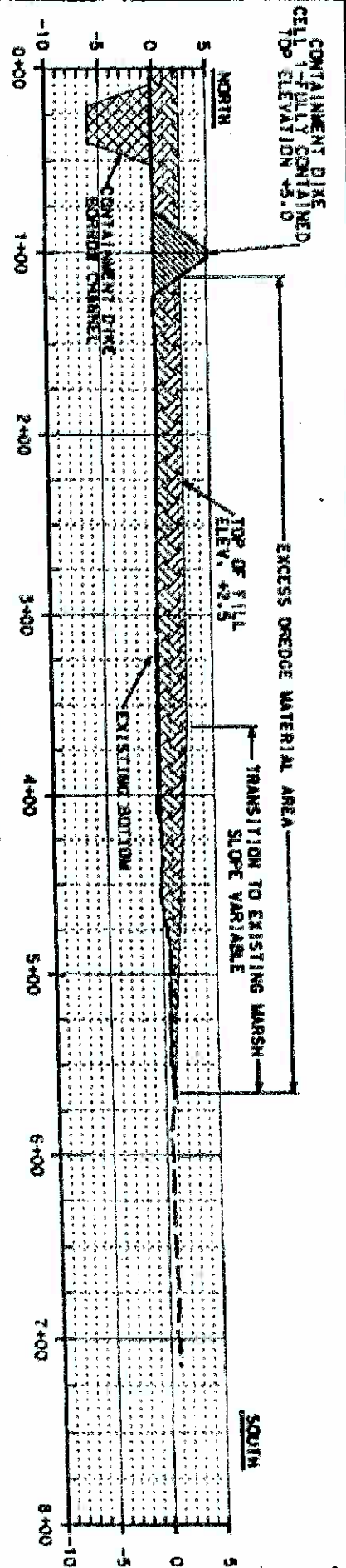
ACCESS
CORRIDOR

PROJECT MAP - PD-75-LABRANCHE EAST MARSH CREATION PILOT PROJECT

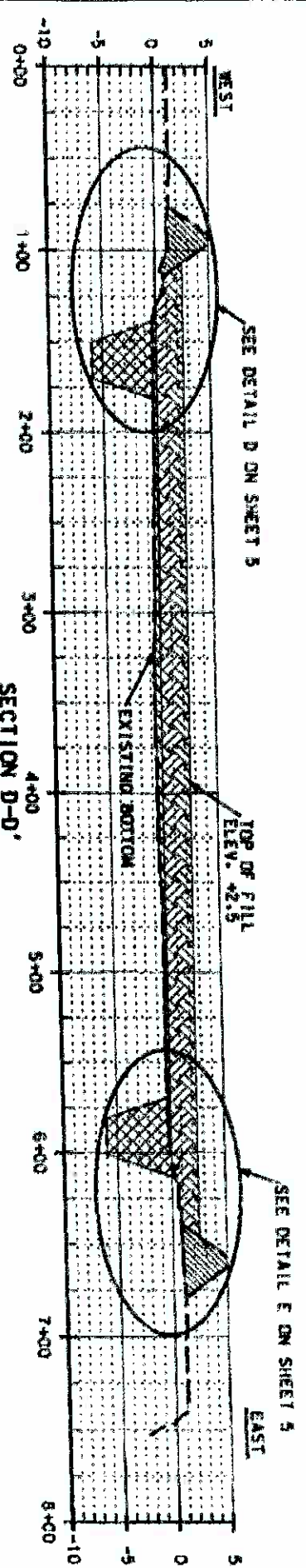
SCALE IN FEET



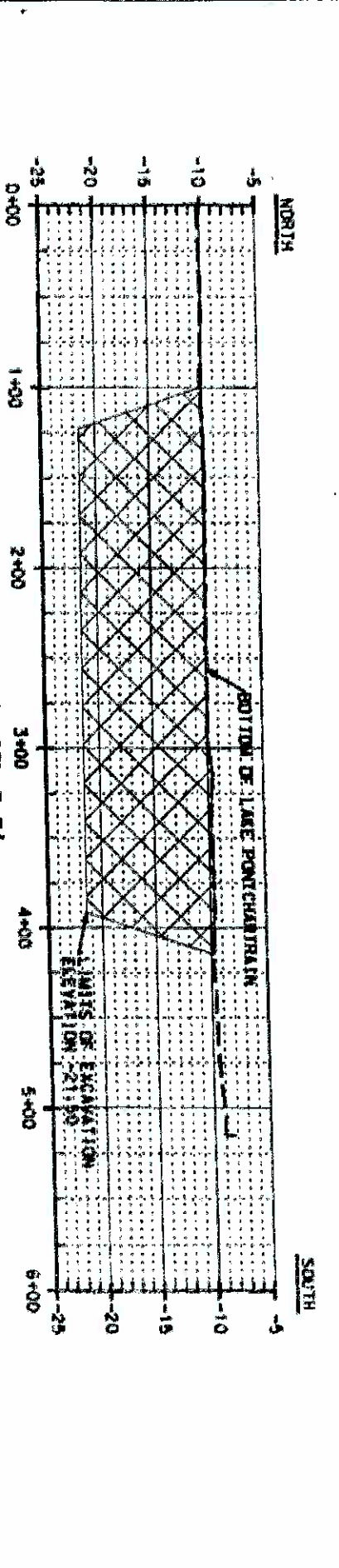
NOTE:
MARSH DREDGE FILL MATERIAL PLACED TO ELEVATION +2.5' IS EXPECTED TO SETTLE TO AN ELEVATION OF +1.0' WITHIN ONE YEAR AFTER CONSTRUCTION.



SECTION C-C'

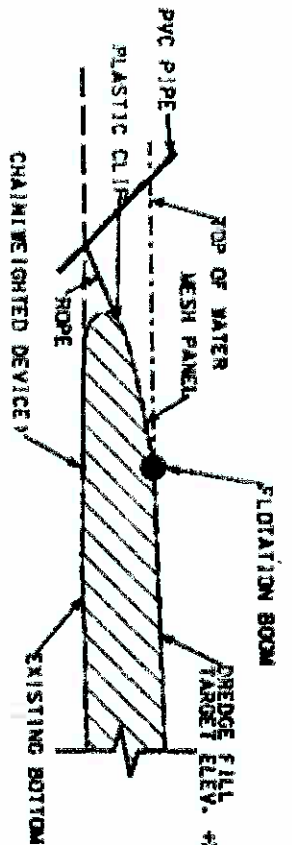


SECTION D-D'

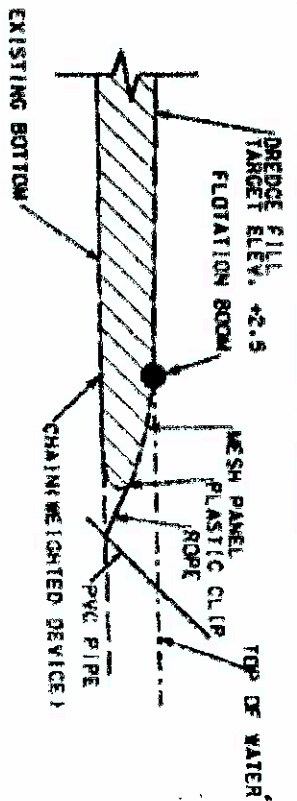


SECTION E-E'

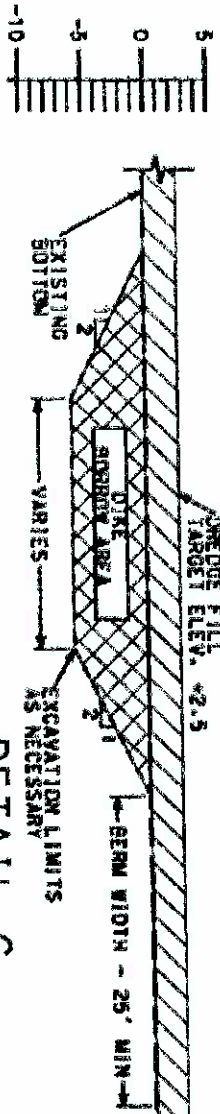
NOTE:
MARSH DREDGE FILL MATERIAL PLACED TO ELEVATION +2.5' IS EXPECTED TO SETTLE TO AN ELEVATION OF +1.0' WITHIN ONE YEAR AFTER CONSTRUCTION.



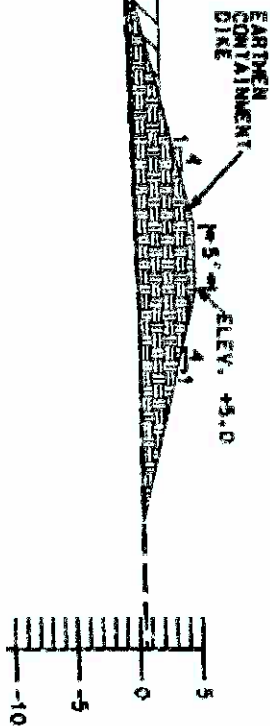
DETAIL A



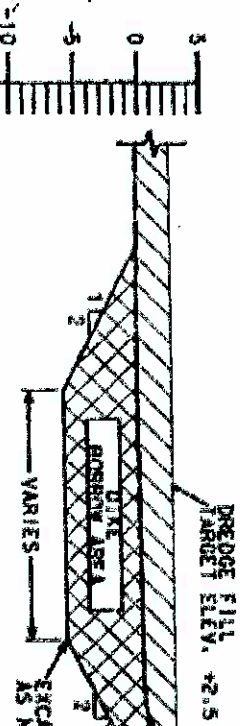
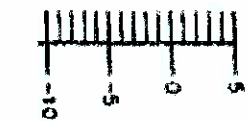
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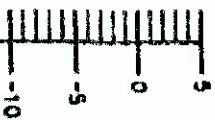
DETAIL C



DETAIL D



DETAIL E



BOBBY JINDAL
GOVERNOR



To Britt
SCOTT A. ANGELLE
SECRETARY

JUN 25 10:12 PM '12

State of Louisiana
DEPARTMENT OF NATURAL RESOURCES
OFFICE OF COASTAL MANAGEMENT

June 21, 2012

Sarah Haymaker
United States Department of Agriculture
3737 Government Street
Alexandria, Louisiana 71302

RE: **C20120135**, Coastal Zone Consistency
U. S. Department of Agriculture
Direct Federal Action
LaBranche East Marsh Creation Project (PO-75)
St. Charles Parish, Louisiana

Dear Ms. Haymaker:

The above referenced project has been reviewed for consistency with the Louisiana Coastal Resources Program in accordance with Section 307 (c) of the Coastal Zone Management Act of 1972, as amended. The project, as proposed in this application, is consistent with the LCRP.

If you have any questions concerning this determination please contact Carol Crapanzano of the Consistency Section at (225) 342-7949 or 1-800-267-4019.

Sincerely yours,

A handwritten signature in blue ink that reads "Keith Lovell".

Keith Lovell
Acting Administrator
Interagency Affairs/Field Services Division

KOL/JDH/cmc

cc: Pete Serio, COE-NOD
David Butler, LDWF
Earl Matherne, St. Charles Parish
Kirk Kilgen, OCM FI

Post Office Box 44487 • Baton Rouge, Louisiana 70804-4487
617 North Third Street • 10th Floor • Suite 1078 • Baton Rouge, Louisiana 70802
(225) 342-7591 • Fax (225) 342-9439 • <http://www.dnr.louisiana.gov>

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Natural Resources Conservation Service
3737 Government Street
Alexandria, LA 71302

(318) 473-7751
Fax: (318) 473-7626

August 3, 2012

Jamie Phillippe
Louisiana Department of Environmental Quality
Water Permits Division
P.O. Box 4313
Baton Rouge, Louisiana 70821-4313

RE: Water Quality Certification (WQC 120607-01/AI 182381) - St. Charles Parish

Dear Mr. Phillippe:

I am writing in response to the letter received by Ms. Sarah Haymaker on July 23, 2012, via the Louisiana Department of Natural Resources - Coastal Management Divisions (CMD) online comment system, regarding the above referenced water quality certification request. I am providing the following response to the requirements listed in the letter:

1. **A statement that any dredge/fill material will be, to the best of your knowledge, free of contaminants.** To the best of NRCS' knowledge, the dredge/fill material will be free of contaminants.
2. **Non-commercial fee of \$33.00.** The fee will be paid through the Louisiana Coastal Protection and Restoration Authority (CPRA). The CPRA Project Manager, Bill Feazell, will be coordinating the payment.

Should you have any questions please contact Dain Gillen, Design Engineer, at 225-664-1430, Ext.112.

Respectfully,

A handwritten signature in black ink, appearing to read "W. Britt Paul".

W. Britt Paul
Assistant State Conservationist /Water Resources

cc: Mike Nichols, Project Manager, USDA/NRCS, Alexandria, LA
Jason Kroll, Planning Engineer, USDA/NRCS, Baton Rouge, LA
Dain Gillen, Design Engineer, USDA/NRCS, Denham Springs, LA
Bill Feazell, Project Manager, CPRA, Baton Rouge, LA

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DEPARTMENT OF THE ARMY
NEW ORLEANS DISTRICT, CORPS OF ENGINEERS
P.O. BOX 60267
NEW ORLEANS, LOUISIANA 70160-0267

SEPTEMBER 10, 2012

REPLY TO
ATTENTION OF:

Operations Division
Eastern Evaluation Section

SUBJECT: MVN-2012-1081-EFF

National Marine Fisheries Service
c/o: LSU Center for Wetland Resources
Attn: Mr. Richard Hartman
Baton Rouge, Louisiana 70803-7535

Gentlemen:

This is in response to your July 13, 2012 letter, in which you offered comments to an application by NRCS to construct the PO-75 LaBranch East Marsh Creation Pilot Project, located on Lake Ponchartrain, near Norco, Louisiana, within St. Charles Parish.

We are in a position to recommend permit issuance on the project within the immediate future. By this letter we are requesting your written concurrence to our recommendation. The following lists our efforts to insure all considerations of essential fish habitat and aquatic resources of national importance are addressed in an appropriate manner:

NMFS COMMENTS:

1. "Any permit issued for this project should require the applicant to breach containment dikes within 2 years of project completion. Breaches should be in the containment dikes that border open water and be a minimum of 50 feet wide and to the elevation of adjacent marsh. The applicant shall notify the NOD and the NMFS when construction of the breaches has been completed."

RESPONSE: By correspondence dated July 13, 2012, the applicant agreed to the NMFS recommendations. A special condition of the Department of the Army (DA) permit will be included in order to reiterate the NMFS position and to prevent detriments to essential fish habitat and aquatic resources of national importance. A copy of the final DA permit authorization will be forwarded to your office, upon issuance.

Should you have any questions concerning this matter, please contact Darrell S. Barbara with this office at (504) 862-2260 or darrell.barbara@usace.army.mil.

Sincerely,

Darrell S. Barbara

for: Pete J. Serio
Chief, Regulatory Branch

APPENDIX C

CONSTRUCTION SEQUENCE PHOTOS/DOCUMENTATION

6/10/13 – Installation of Net Gains



6/10/13 – Installation of Net Gains; weir installation



6/17/13 – Fully installed Net Gains prior to dredge pump initiation



7/18/13 – Dredge initiation



7/18/13 - Dredge initiation



7/18/13 – View of pipe overlay into Net Gains system



7/18/13 – Initial dredging



7/19/13 – Day 2



7/19/13 – Day 2



7/22/13 – Day 5



7/22/13 – Day 5 View of discharge



7/30/13 – Day 13 Dredge completed



8/7/13 – 1 week after dredge completion



8/13/13 – 2 weeks after dredge completion



8/13/13 – 2 weeks after dredge completion w/floats removed



8/15/13 – completed project



8/15/13 – edge of completed project



7/22/14 – Project team walking on newly created marsh platform approximately 12 months after construction



7/22/14 – View of LA-09 created marsh 12 months after construction.



Google Earth image of project site on October 14, 2014.



APPENDIX D

**NET GAINS, LLC
LETTER**

(Letter from Net Gains, LLC to NRCS on post-project observations and assessment)

Net Gains, LLC

Panels used in demonstration project in the Labranche wetlands were designed for the South Shore of the Pen in Lafitte. This project was within a contained area with no tidal flow. Since the entire area around our containment was to be filled, we would have been able to leave weirs open during dredging process. Panels would have worked in that application. We accepted the project, because NRCS purchased the panels from the South Pen project. It made sense to use the purchased panels.

With less than ideal sediments, I still thought it had a chance of working with 2 weirs required. I didn't understand that at Labranche, we had to let sludge dewater in system, and weirs had to remain closed. When water left the bay system the flotation system was sitting on dry land, because of south pen design using 7.5 inch floats giving the system only 7.5 inches of freeboard. At that point dredging and project was shut down due to overflow of material. When water returned floats popped up and system was again functional. When net gains returned to remove system, sludge had dewatered within system and we could not find a depth of over 4 inches. Despite being designed for a different application I think the concept of using this design with a few modifications was proven.

Modifications:

- Larger chain line.
- 24 or 36 inch floats, giving 24 or 36 inches of freeboard to system when or if water leaves bay system.
- The use of spectra rope or cable on cork line to eliminate stretch, give better protection for dewatering.
- Modified strengthened weirs to hold sludge for dewatering.
- In shallow water applications (2-4ft.), we will fold panels and resew chain and flotation pouches. Doubling strength of system. In deeper water applications, we will sew 2 panels together and sew pouches doubling strength of system.

Advantages:

- No pipelines will be impacted by our system. Eliminates magnetometer testing.
- No excavator or operator needs to be on standby during dredging or containment construction, no mob cost for excavator.
- Deployment time over a quarter mile a day. System can be used to concentrate sediments on diversion projects.
- System can also remain in place acting as a wave barrier for two growing seasons, allowing a healthy root system to develop, then removed if desired.

I cannot say enough about our working relationship with, APC, the dredge contractor, and NRCS. Every thing went smoothly and we really enjoyed working with the group, and look forward to doing so in the future.

no pipelines will be impacted by our system. Ultimately, no need for no necessary equipment needs to be on standby during dredging. Deployment time over a quarter mile a day. System can be used in. System can also remain in place acting as a wave barrier for low tides.

I cannot say enough about our working relationship with the dredge

APPENDIX E

**State of Louisiana
Coastal Protection and Restoration Authority**

Comments on NRCS Project Completion Report



State of Louisiana

BOBBY JINDAL
GOVERNOR

Date: 05/21/2014

Project: Sediment Containment System for Marsh Creation Demonstration Project (LA-09)

Task: Comments on NRCS Project Completion Report

Reviewers: Cody Bruhl (CPRA PM) & Luke Prendergast (CPRA Field Engineer)

Comment No.	Section	REF	COMMENTS	ACTION/BY
1.	<i>Rec. for Future Use</i>	<i>Page 9</i>	The cork line supporting the top of the system is subject to significant tension loads and is a potential single point of failure. It may be advisable on future projects to require sealed design calculations as part of the shop drawing submittal. This requirement would ensure that a qualified professional engineer has checked the capacity of the line for the anticipated static and dynamic loads encountered during fill placement.	
2.	<i>Costs</i>	<i>Page 10</i>	The figures in the cost estimate appear to be transposed; \$590,979 = \$472,783 + 25% contingency.	
3.	<i>App. D</i>	<i>Page 44</i>	Net Gains states "Deployment time over a quarter mile a day" as a product advantage (>1,320 ft/day). Review of the construction activity log on Page 9 indicates three days were required to install 1,351 ft (from 6/10/13 to 6/12/13).	
4.	<i>App. D</i>	<i>Page 44</i>	Net Gains states that the system can be used as a wave barrier; has the product been tested in this application at another site?	