



# COASTAL PROTECTION AND RESTORATION AUTHORITY



## New Orleans Landbridge Shoreline Stabilization & Marsh Creation Project (PO-0169)

*Submitted by:*



**LINFIELD, HUNTER & JUNIUS, INC.**  
PROFESSIONAL ENGINEERS,  
ARCHITECTS AND SURVEYORS

**December 2025**

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## LIST OF ACRONYMS

Abbreviation	Definition
1V:5H	1xVertical Change : 5xHorizontal Change
ACM	Articulated Concrete Mat
AV	Avoidance Area
BA1	Borrow Area - 1
BA2	Borrow Area - 2
CAT	Caterpillar
CDC	Coastal Dredging Company, Inc.
CO	Change Order
CPRA	Coastal Protection and Restoration Authority
CWPPRA	Coastal Wetlands Planning, Protection, and Restoration Act
CY	Cubic Yards
DCC	Delta Coast Consultants, LLC.
DPC	Dredge Pipe Corridor
EAC	Equipment Access Corridor
ECD	Earthen Containment Dike
FC	Field Change
FO	Field Order
FT	Foot/Feet
GEFF	Geomorphic and Ecological Form and Function
GS	Grade Stake
ISP	Instrument Settlement Plate
lbs	Pounds
LH&J	Linfield, Hunter & Junius, Inc.
LF	Linear Feet
LS	Lump Sum
MCA	Marsh Creation Area
MCY	Million Cubic Yards
MDD	Magnolia Dredge & Dock, LLC.
MHW	Mean High Water
MLW	Mean Low Water
NAVD88	North American Vertical Datum of 1988
NM	Nautical Miles
NWGF	Non-Woven Geotextile Fabric
RFI	Request For Information
RPR	Resident Project Representative
SP	Settlement Plate
STA	Station
SY	Square Yard
TIN	Triangulated Irregular Network
WGF	Woven Geotextile Fabric
WVA	Wetland Value Assessment

## PROJECT COMPLETION REPORT

**PROJECT NAME:** New Orleans Landbridge Shoreline Stabilization & Marsh Creation Project

**STATE PROJECT NO.:** PO-0169

**REPORT DATE:** December 8, 2025

**BY:** Linfield, Hunter & Junius, Inc.

### 1.0a PROJECT TEAM (PHASE 1)

#### 1.1 PROJECT OWNER

Coastal Protection and Restoration Authority (CPRA)  
150 Terrace Avenue  
Baton Rouge, LA 70802  
225-342-7308

#### 1.2 PRIME CONSTRUCTION CONTRACTOR

Magnolia Dredge & Dock, LLC (MDD)  
Activity: Prime contractor – Dredging  
1730 Orleans Street  
Mandeville, LA 70448  
985-778-0404

#### 1.3 CONSTRUCTION SUB-CONTRACTORS

Coastal Dredging Company, Inc. (CDC)  
Activity: Dredging  
19128 Robert Road  
Hammond, LA 70401  
985-956-7331

Wilco Marsh Buggies & Draglines, Inc.  
Activity: Earthen Containment Dike Construction  
1304 MacArthur Avenue  
Harvey, LA 70058  
504-341-3409

Gill's Crane & Dozer Services, Inc.  
Activity: Marine Transportation and Articulated Concrete Mat Installation  
116 Marlin Drive  
Slidell, LA 70461  
504-662-5530

## **1.0b PROJECT TEAM (PHASE 2)**

During the course of the New Orleans Landbridge Shoreline Stabilization & Marsh Creation Project, the original prime contractor, Magnolia Dredge & Dock, experienced financial and performance-related difficulties that ultimately led to the loss of their performance bond. In accordance with the terms of the bond agreement, Philadelphia Indemnity Insurance Company, the surety and bonding company, exercised its rights and responsibilities by stepping in to ensure the completion of the project. Philadelphia Indemnity assumed the role of prime contractor, coordinating with the project's key personnel to maintain progress and uphold contractual obligations.

### **1.1 PROJECT OWNER**

Coastal Protection and Restoration Authority (CPRA)  
150 Terrace Avenue  
Baton Rouge, LA 70802  
225-342-7308

### **1.2 PRIME CONSTRUCTION CONTRACTOR**

Philadelphia Indemnity Insurance Company  
Activity: Bonding Company  
One Bala Plaza, Suite 100  
Bala CYNWYD, PA 19004  
877-438-7459

### **1.3 CONSTRUCTION SUB-CONTRACTORS**

Coastal Dredging Company, Inc.  
Activity: Dredging  
19128 Robert Road  
Hammond, LA 70401  
985-956-7331

Frogco Amphibious Equipment, Inc.  
Activity: Earthen Containment Dike Construction  
2280 Coteau Road  
Houma, LA 0364  
985-853-2200

Wilson Coastal Development, LLC.  
Activity: Earthen Containment Dike Construction  
P.O. Box 1229  
Youngsville, LA 70592  
337-376-0021

Delta Coast Consultants, LLC.

Activity: Surveying  
631 S Hollywood Road  
Houma, LA 70360  
985-655-3100

Gill's Crane & Dozer Services, Inc.

Activity: Marine Transportation and Articulated Concrete Mat Installation  
116 Marlin Drive  
Slidell, LA 70461  
504-662-5530

J.S. Held

Activity: Construction Management  
365 Canal Street, Suite# 2760  
New Orleans, LA 70130  
504-561-6563

#### 1.4 CONSTRUCTION ADMINISTRATION AND RESIDENT PROJECT REPRESENTATIVE (RPR) CONSULTANT

Linfield, Hunter & Junius, Inc.

Activity: Construction Administration and RPR Services  
Davis-Bacon Act Compliance  
3608 18<sup>th</sup> Street #200  
Metairie, LA 70002  
504-833-5300

#### 1.5 CONSTRUCTION MATERIALS TESTING & ENGINEERING CONSULTANT

Intertek PSI

Activity: Soil Sampling, Testing and Analysis  
724 Central Avenue  
Jefferson LA, 70121  
504-733-9411

## 1.6 KEY PERSONNEL

CPRA Project Manager (Phase 2): Joe Wyble	225-342-6871 joe.wyble@la.gov
CPRA Project Manager (Phase 1): Micaela Conor	225-219-7709 Micaela.Conor2@la.gov
CPRA Construction Engineer: David Chambers, P.E.	504-280-4069 david.chambers@la.gov
CPRA Engineer of Record: Jacques Boudreaux, P.E.	225-342-0242 jacques.boudreaux@la.gov
LH&J Construction Project Engineer: John Jackson, P.E.	504-833-5300 jjackson@Lhjunius.com
LH&J Construction Project Manager: Bryce Vazquez	504-833-5300 bvazquez@Lhjunius.com
CDC Project Manager: Justin Chorlog	850-225-4192 jchorlog@coastaldredging.net
LH&J Resident Project Representative: Brandon Barger	504-833-5300 bbarger@Lhjunius.com
LH&J Resident Project Representative: Bajazit Muminovic	504-833-5300 bmuminovic@Lhjunius.com
LH&J Resident Project Representative: Parker Verlander	504-833-5300 pverlander@Lhjunius.com
LH&J Resident Project Representative: John Scruggs	504-833-5300 <a href="mailto:jscruggs@Lhjunius.com">jscruggs@Lhjunius.com</a>
JS Held Construction Manager: Jamie Gisevius, CCM	504-494-1914 jgisevius@jsheld.com
Philadelphia Indemnity Insurance Company Project Engineer: Michael Martin, P.E.	860-616-5764 michael.martin@phly.com

## **2.0 PROJECT PURPOSE, LOCATION, AND PROJECT DESCRIPTION**

### **2.1 PROJECT PURPOSE**

The goal of a marsh creation project is to create wetland habitat in typically degraded coastal marsh regions to maximize ecological benefits for the project's design life duration and to stabilize the newly built shoreline to de-energize wave action. This marsh creation project utilized material dredged from "borrow areas" on the lake bottom to construct the proposed marsh creation project features. This project is implemented by constructing an earthen containment dike template, hydraulically dredging material from the marsh creation borrow area, providing a dredge pipeline corridor for material conveyance, and pumping the slurry material to the designated marsh creation areas.

Engineering Design Documents, Plans, and Specifications were prepared by or under the direct supervision of a licensed and registered professional engineer in the state of Louisiana and within the CPRA.

### **2.2 LOCATION**

The Project Area includes three (3) Marsh Creation Areas located in Region 1, Pontchartrain Basin, Orleans Parish, adjacent to U.S. Highway 90 and two (2) Borrow Areas located in Lake Pontchartrain and in Lake St. Catherine (Figure 1). Marsh Creation Area 1 (MCA1) extends from Latitude 30° 08' 58.11" N, Longitude 89° 44' 47.40" W on the southwestern extreme to Latitude 30° 09' 42.62" N, Longitude 89° 44' 41.65" W on the northwestern extreme. Marsh Creation Area 2 (MCA2) extends from Latitude 30° 08' 52.31" N, Longitude 89° 44' 08.78" W on the southeastern extreme to Latitude 30° 09' 49.43, Longitude 89° 44' 13.32" W on the northwestern extreme. Marsh Creation Area 3 (MCA3) extends from Latitude 30° 08' 36.25" N, Longitude 89° 43' 06.00" W on the southwestern extreme to Latitude 30° 08' 23.00" N, Longitude 89° 42' 45.34" W on the southeastern extreme.

The Borrow Areas are each located approximately 1 nautical mile (NM) from U.S. Highway 90. Borrow Area 1 (BA1) is northwest of U.S. Highway 90 and is centered at Latitude 30° 09' 48.57" N, Longitude 89° 45' 24.88". Borrow Area 2 (BA2) is southeast of U.S. Highway 90 and is centered at Latitude 30° 08' 39.20" N, Longitude 89° 43' 35.02".



Figure 1. Project Overview

## 2.3 PROJECT DESCRIPTION

### 2.3.1 Marsh Creation Areas

The New Orleans Landbridge Shoreline Stabilization and Marsh Creation project created and/or nourished approximately 275 acres of brackish marsh adjacent to US Highway 90. This was successfully achieved by building earthen containment dike structures around the limits shown in the plan documents. Once the earthen containment dike structures were built, the sides of the marsh facing the adjacent lakes were armored with non-woven geotextile fabric and articulated concrete mats to reduce erosion and avoid breaches from wave action. This marsh creation project utilized borrow areas to construct the proposed marsh creation project features from the adjacent lakes, Lake St. Catherine and Lake Pontchartrain. Once the entire perimeter was built and containment was achieved, a hydraulic dredge was used to excavate and pump slurry material from the borrow areas into the marsh creation areas through a pipeline corridor. The specific marsh creation areas had different target fill elevations specified in the specifications. Marsh Creation Area 1 had an original target fill elevation of 2.0+ +/-0.25 ft for phase 1. However, once the phase 2 contractor took over the target fill elevations of MCA1, MCA2, and MCA3 were +1.75 ft with a +/-0.25 ft tolerance, +1.5 ft with a +0.5 ft tolerance, and +2.0 ft with a +/-0.25 ft tolerance, respectively. (Figures 2a & 2b)

#### 2.3.1.1 Dewatering Structures:

Dewatering structures, namely weir systems, were employed throughout the project in each marsh creation area. These structures facilitated the decanting of excess water introduced alongside slurry material, allowing it to exit into the surrounding wetland areas with minimal loss of borrow material. This process supported effective consolidation of the deposited material within the marsh creation sites. Once sufficient consolidation was achieved and the marsh creation area was approved, the weir structures were removed.

#### 2.3.1.2 Earthen Plugs:

Earthen plugs were not utilized throughout the New Orleans Landbridge Shoreline and Marsh Creation project.

### 2.3.2 Earthen Containment Dikes

As shown in the Plans, five (5) distinct types of Earthen Containment Dikes (ECDs) were required for construction, each defined by specific material and armoring requirements, location, and crest elevation.

**Type I ECDs** were constructed in unarmored sections of MCA1 and did not require woven geotextile fabric or articulated concrete mat (ACM) armoring. These dikes were built on the south, east, and north sides of MCA1, adjacent to the marsh, with a target crest elevation of +3.0 feet ( $\pm 0.5$  ft), NAVD88.

**Type II ECDs** were constructed only in ACM-armored portions of MCA1. They also did not require woven geotextile fabric but did require ACM armoring. These were located on the west side of MCA1, adjacent to Lake Pontchartrain, with the same target crest elevation of +3.0 feet ( $\pm 0.5$  ft), NAVD88.

**Type III ECDs** were built in unarmored areas of MCA2 and required woven geotextile fabric but no ACM armoring. Initially, woven geotextile fabric was specified for these sections, but Field Order No. 4 authorized the replacement of geotextile with geogrid. These ECDs were located on the north and southwest sides of MCA2 adjacent to marsh, and on the west side adjacent to open water, with a target crest elevation of +2.5 feet ( $\pm 0.5$  ft), NAVD88.

**Type IV ECDs** required either woven geotextile fabric as a foundation, along with ACM armoring, and featured 1V:4H side slopes. Following Field Order No. 4, geogrid was used in place of geotextile in all Type IV ECDs constructed at MCA2. These were built within armored areas along the north, east, and south sides of MCA2, including the northern extension adjacent to Sawmill Pass and The Rigolets. Type IV ECDs had a target crest elevation of +2.5 feet ( $\pm 0.5$  ft), NAVD88.

**Type V ECDs** were originally planned along the southeast, south, and southwest sides of MCA3, adjacent to Bay Jaune and Lake St. Catherine. They were designed to include woven geotextile fabric, ACM armoring, and 1V:5H side slopes, with a crest elevation of +3.0 feet ( $\pm 0.5$  ft), NAVD88. However, under Emergency Field Change No. 1, the original Type V construction details were replaced with revised Type V standards. The updated Type V ECDs were constructed on the north, east, and west sides of MCA3 adjacent to marsh, maintaining the original elevation requirements. (See Figure 2c)

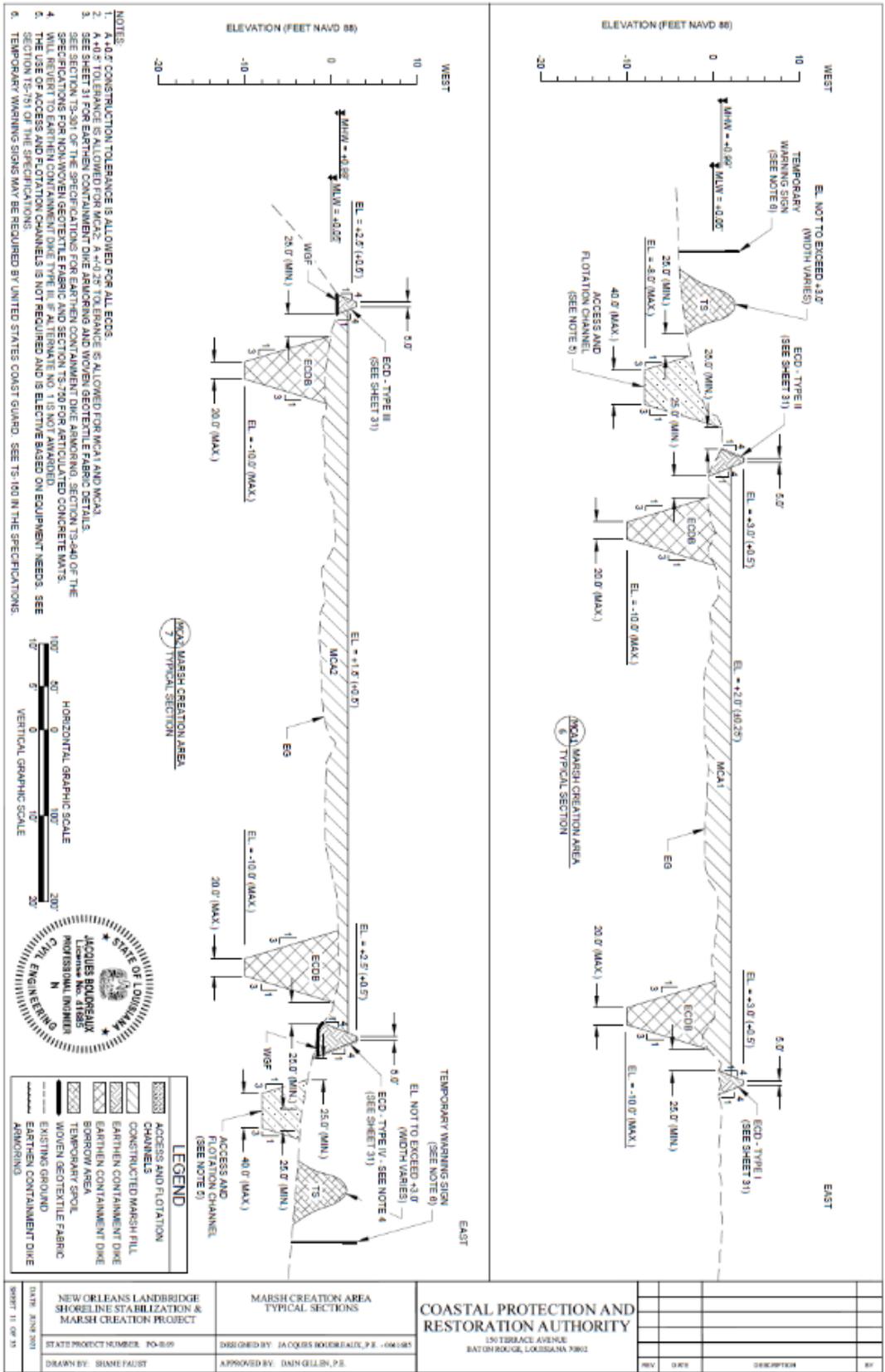


Figure 2a. Marsh Creation Area Typical Sections

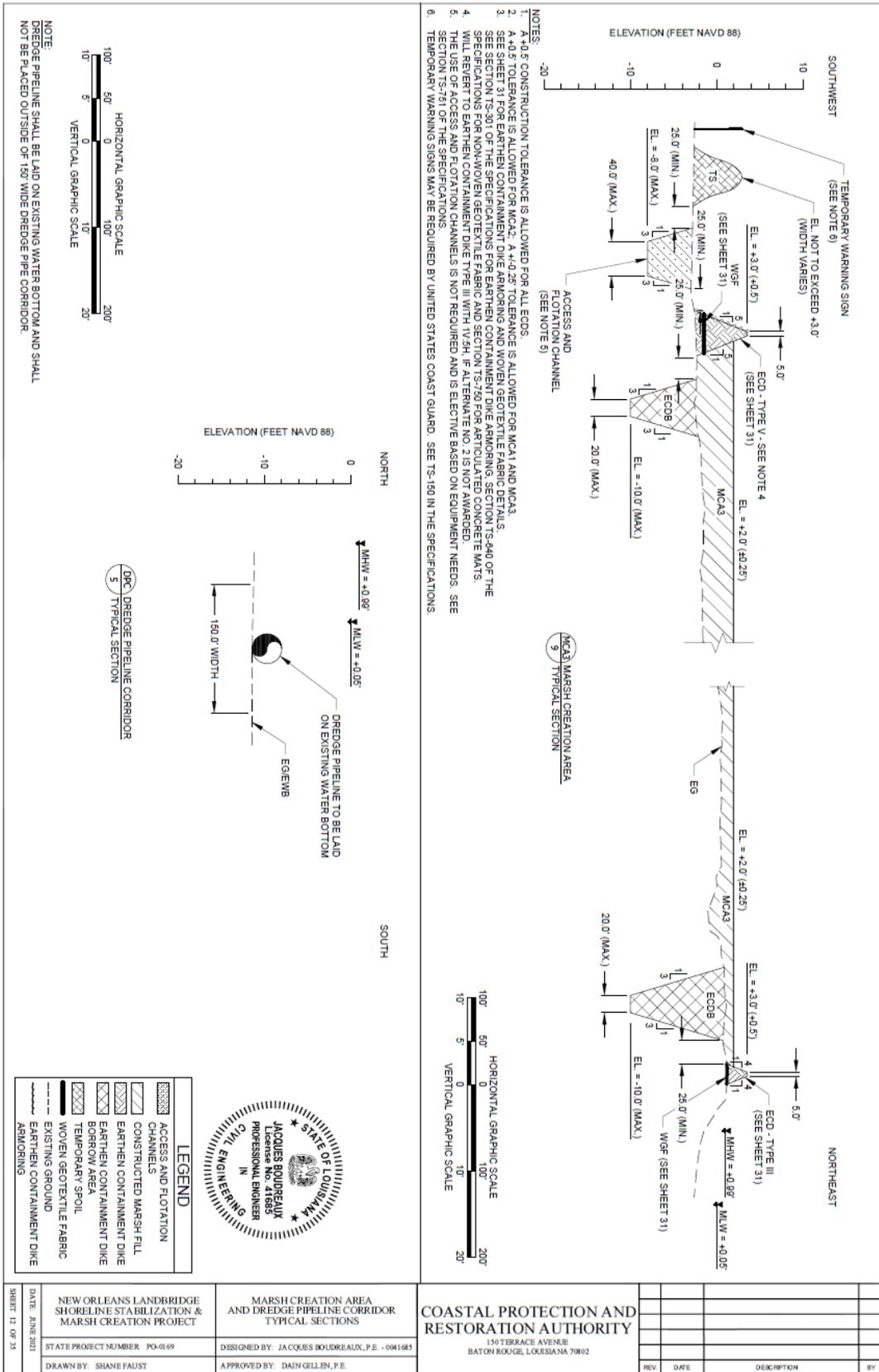


Figure 2b. Marsh Creation Area Typical Sections

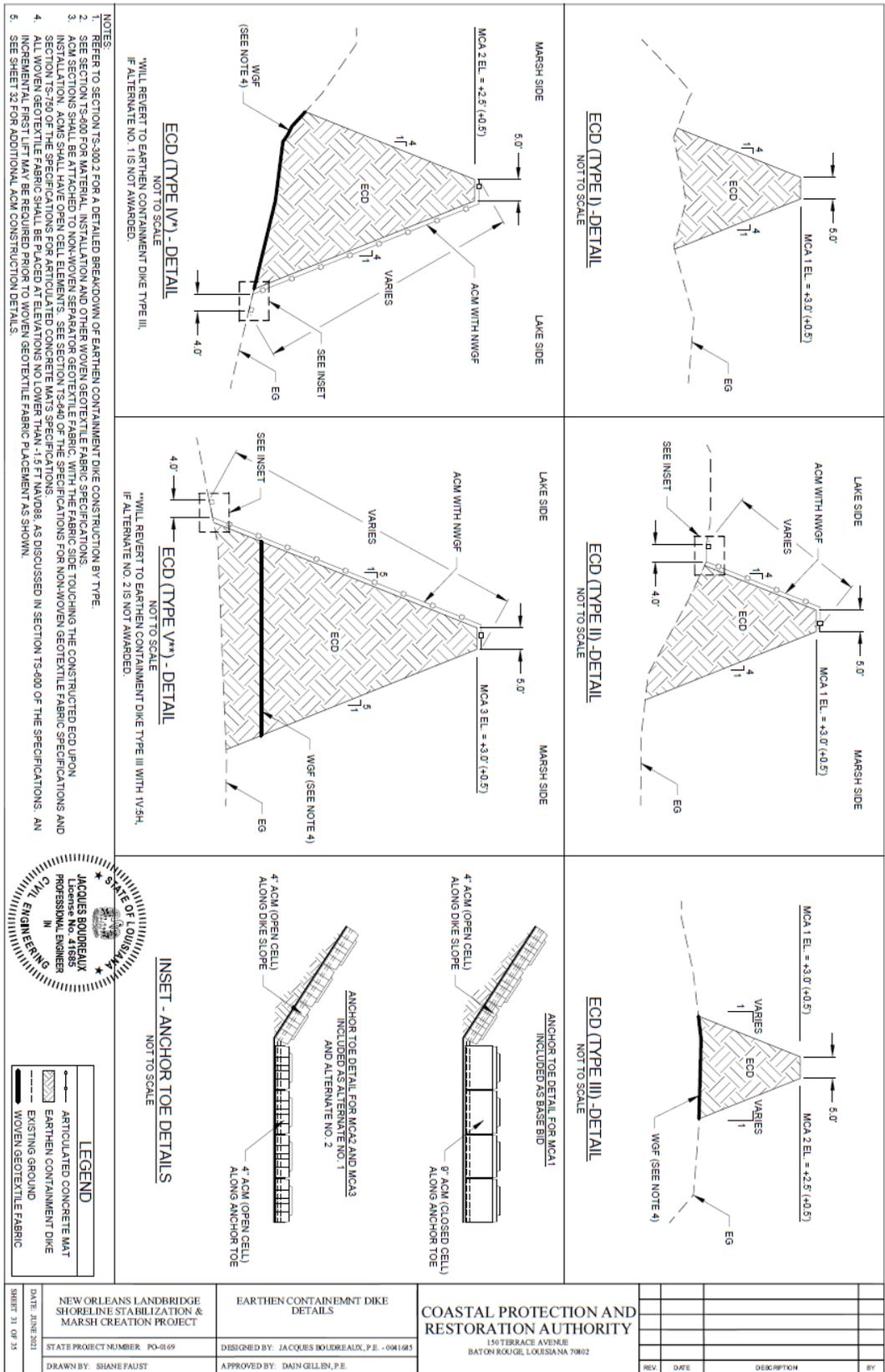


Figure 2c. Marsh Creation Area Typical Details

### 2.3.3 Articulated Concrete Mats

This Project included an articulated concrete mat (ACM) feature along the exterior perimeters of the marsh creations areas that were adjacent to the lakes and subject to wave action (See Figure 3-4). This consisted of the south, east, and southwest sides of MCA3 adjacent to Bay Jaune and Lake Saint Catherine, the entire east side of MCA2 adjacent to the Rigolets and Sawmill Pass, and the entire west side of MCA1 adjacent to Lake Pontchartrain (See Figure 5). Articulated concrete mats were used throughout this project as an erosion control system. The articulated concrete mats were designed of 4-inch open cell interconnected individual concrete blocks to form a flexible, mat-like cover over vulnerable areas like the earthen containment dikes subject to heavy wave action to protect them from erosion. The ACM system for this project incorporated a non-woven geotextile fabric as a filter layer beneath the ACM. This fabric provided critical soil retention by preventing subgrade particle migration and assisted in slowing the erosion process. Articulated concrete mats are interconnected and allow them to conform to changes in the underlying terrain while maintaining their structural integrity. The articulated concrete mats were installed on Earthen Containment Dike Types II, IV, and V (Figure 2c). The ACM system was installed on the crest of the Earthen Containment Dike and extended down the slope of the lake side past the toe of the Earthen Containment Dike and the ACM itself had 4 feet of concrete blocks as an anchor toe past the toe of the Earthen Containment Dike. Open-cell ACMS were required for placement along all portions of required ECD armoring, excluding the anchor toe system at MCA1. Each Open Cell Concrete Element was cast as an open cell and had minimum dimensions of twelve (12) inches in width, twelve (12) inches in length, and a minimum of four (4) inches in nominal thickness, unless otherwise approved by the Engineer. Closed-cell ACMs were required for placement along all portions of the anchor toe system at MCA1. Each Closed Cell Concrete Element was cast as a closed cell and had minimum dimensions of twelve (12) inches in width, twelve (12) inches in length, and a minimum of nine (9) inches in nominal thickness. Each ACM consisted of individual concrete elements that were interlinked to form overall minimum dimensions of eight (8) feet in width, twenty (20) feet in length, as shown in Figure 3. Two (2) types of individual concrete elements were used on each of the Marsh Creation Areas. The first consisted of 4-inch thick open cell elements, except at the anchor toe, which consisted of 9-inch thick closed concrete cells. This ACM type was used at MCA1 only along the ECDs adjacent to Lake Pontchartrain. The second type consisted of 4-inch open cell elements throughout the full system, including the anchor toe. This type was installed at MCA2 and MCA3 along the ECDs adjacent to The Rigolets and Lake St. Catherine. Articulated concrete mats were vital to this project along the perimeter of the Marsh Creation Areas subject to wave action to dissipate energy and prevent soil erosion along the lake side of the Earthen Containment Dikes. (See Figures 3 and 4)

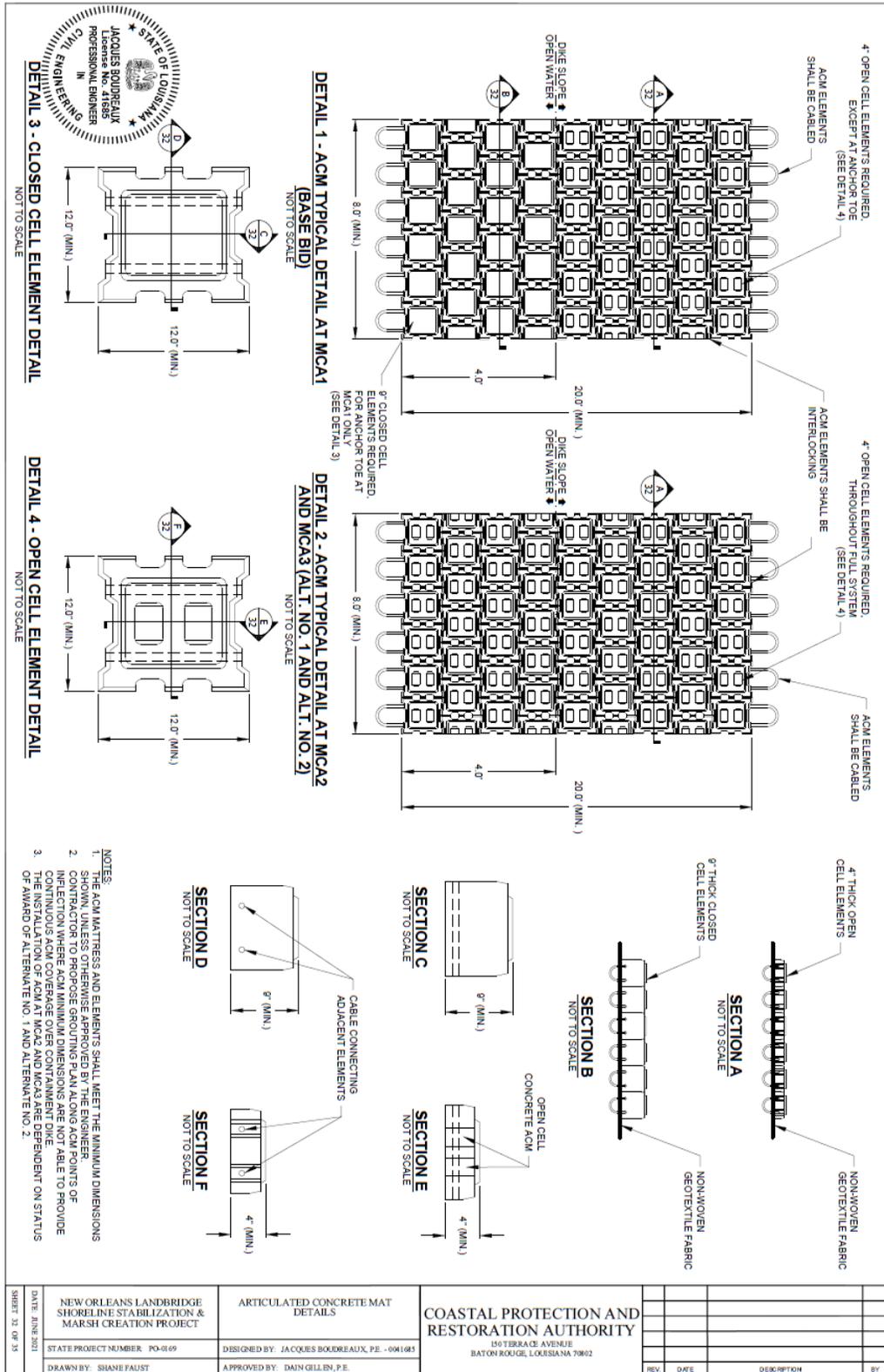


Figure 3. Final Design – Articulated Concrete Mats Overview

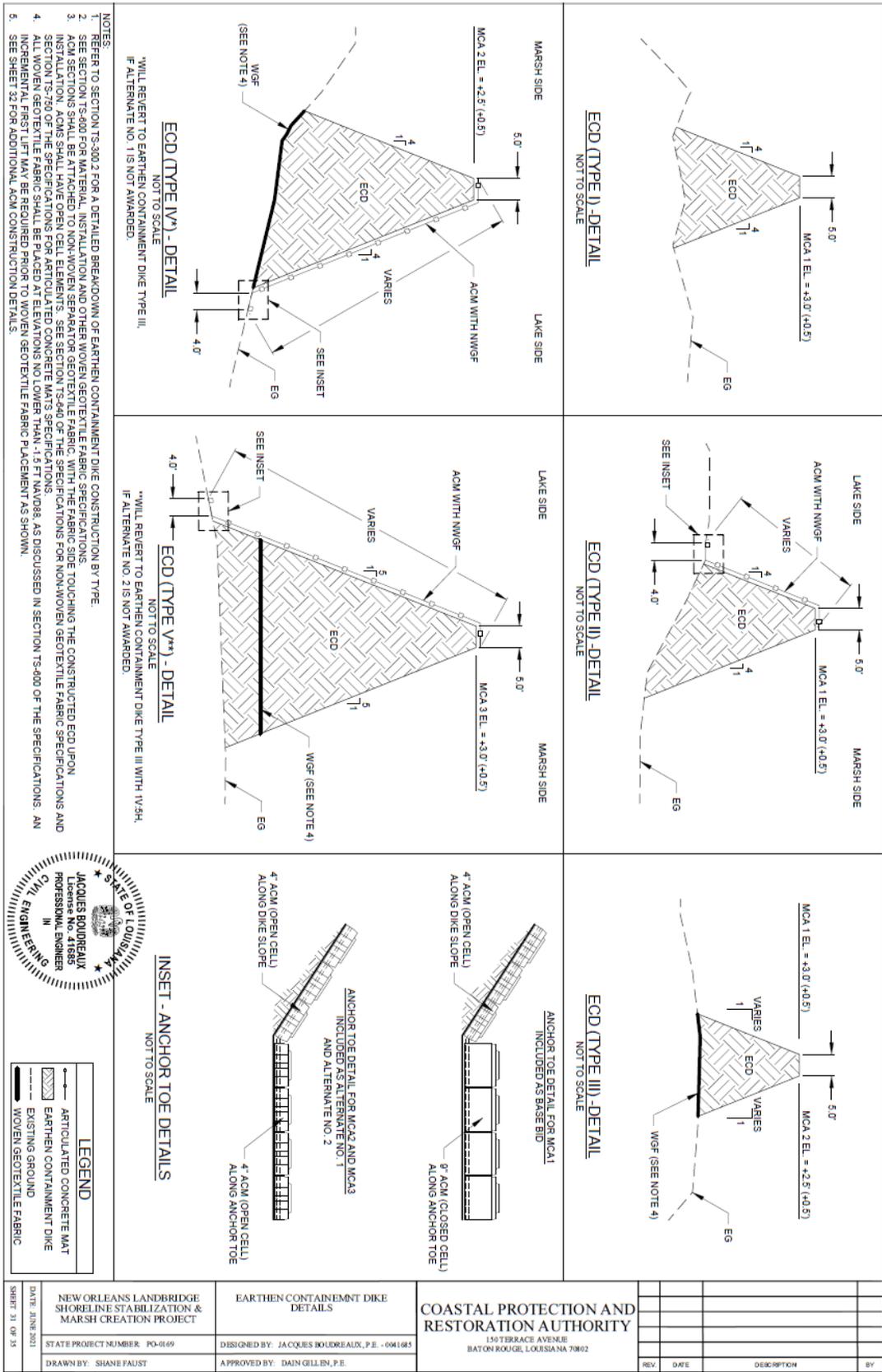
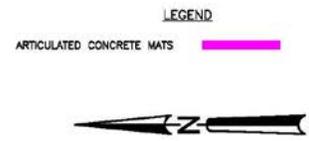


Figure 4. Final Design – Earthen Containment Dike and Articulated Concrete Mat Typical Sections



**Figure 5. Final Design - Articulated Concrete Mats Overview**

### 2.3.4 Borrow Areas

The Project included two (2) borrow Areas, BA1 and BA2 (Figures 6 and 7, respectively). Borrow Area 1 had a design estimated volume of 1,577,295 cubic yards of borrow material to be used to dredge material into MCA1. Borrow Area 2 had a design estimated volume of 2,343,000 cubic yards of borrow material to be used to dredge material into MCA2 and MCA3. The two (2) borrow areas utilized in this project were discovered and permitted by the CPRA.

In BA1, the borrow area typical section was designed as a trapezoidal shape with a 1 on 3 slope. The borrow or cut depth varied from existing water bottom elevation, approximately -9.0' to -16.0', to -25.0' NAVD88 maximum elevation. Borrow Area 1 template width ranges from approximately 681 ft to 1,921 ft and approximately 2,881 ft in length (See Figures 6 & 8). Borrow Area 1 had 3 avoidance areas with 100 ft radii within the borrow area design template. Avoidance Area 5 (AV5) was located at 607,995.30 Northing and 3,779,597.41 Easting. Avoidance Area 6 (AV6) was located at 607,641.12 Northing and 3,779,117.62 Easting. Avoidance Area 7 (AV7) was located at 607,616.96 Northing and 3,779,138.17 Easting. During construction, the Contractor struck an object at 18-20 feet below surface (8-10 feet below sea floor) around GPS coordinates 30.16294165N, 89.75469674W. ELOS Environmental Consulting, LLC (ELOS) Director of Maritime Culture Resources Justin H. Daley PhD, RPA was brought to the site to identify and protect what appeared to be a shipwreck. Justin H. Daley PhD, RPA and the state guidelines recommended a 100-200 ft buffer zone around such anomalies, and a new avoidance area (AV9) with a 100-foot radius from the anomaly was created by unanticipated discoveries plan.

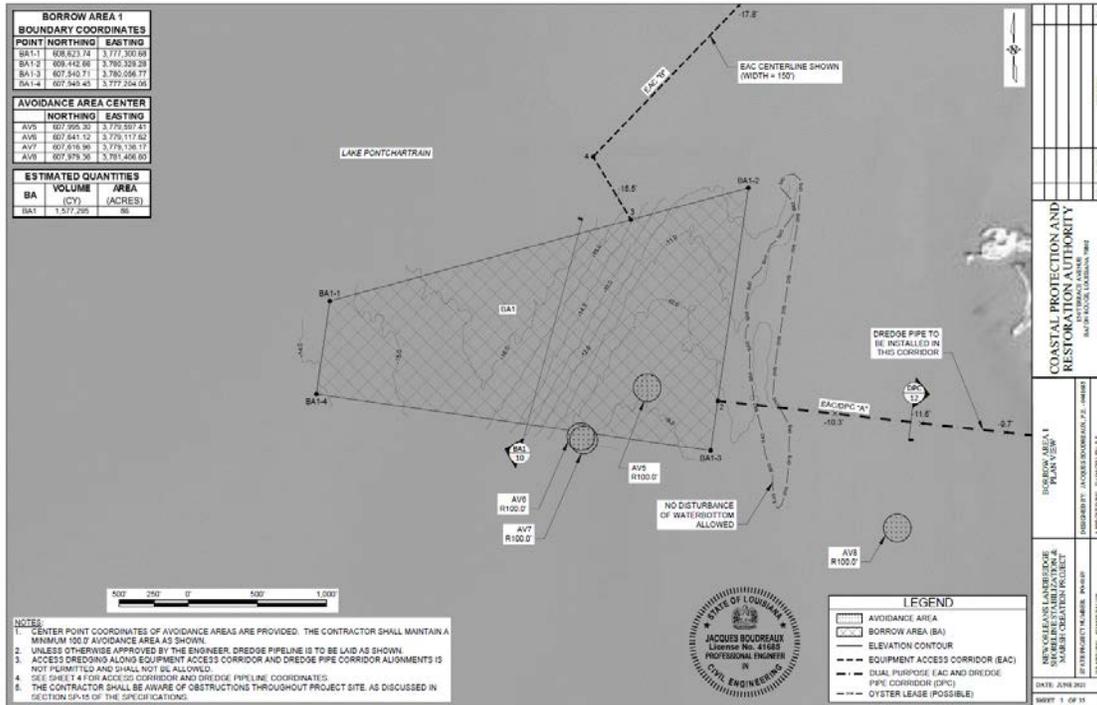


Figure 6. Final Design – Borrow Area 1 Limits

In BA2, the borrow area typical section was designed as a trapezoidal shape with a 1 on 3 slope. The borrow or cut depth varied from existing water bottom elevation, approximately -5.0' to -15.0', to -25.0' NAVD88 maximum elevation. Borrow Area 2 template width is approximately 1,142 ft and approximately 2,931 ft in length (See Figures 7 & 8).

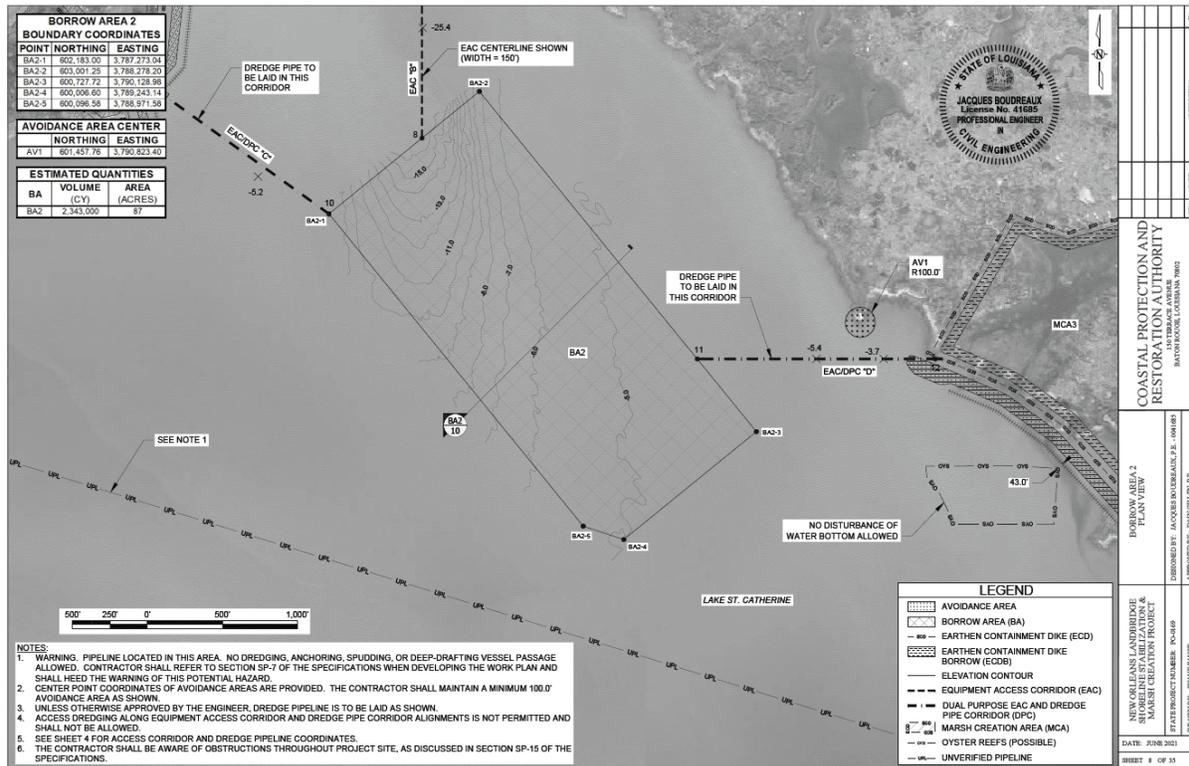


Figure 7. Final Design - Borrow Area 2 Limits

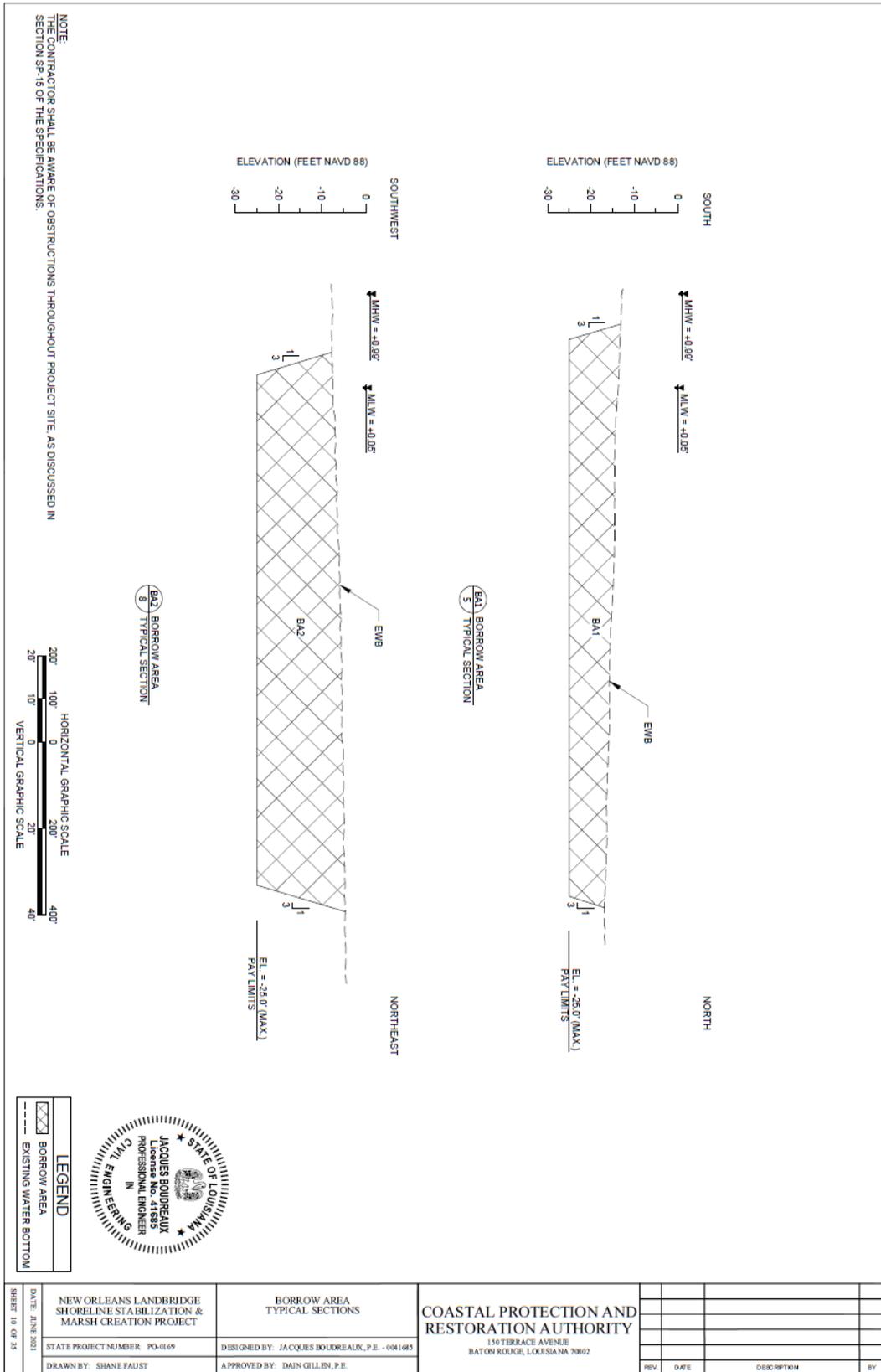


Figure 8. Final Design - Cross Sections for BA1 and BA2

### 2.3.5 Dredge Pipe Corridors

Three (3) dredge pipe conveyance corridors (DPC) were designed for the Project. Dredge Pipe Corridor “A” was 2,892 ft long and connected Borrow Area 1 and MCA1. Dredge Pipe Corridor “C” was 1,700 ft long and connected Borrow Area 2 and MCA2. Dredge Pipe Corridor “D” was 1,591 ft long and connected Borrow Area 2 and MCA3. Figure 9 presents an overview of the New Orleans Landbridge Shoreline Stabilization and Marsh Creation Project dredge pipe corridors.

Upon recommencement of dredging operations once Coastal Dredging Company (CDC) took over as the primary dredging contractor, CDC submitted a variance request to Dredge Pipe Corridor “A” in an effort to fill the south region directly instead of running the pipe all the way through the marsh. The CPRA allowed CDC to have a new Dredge Pipe Corridor that extended 4,764 ft from borrow area 1 to the southern portion of MCA1. (See Figure 9)

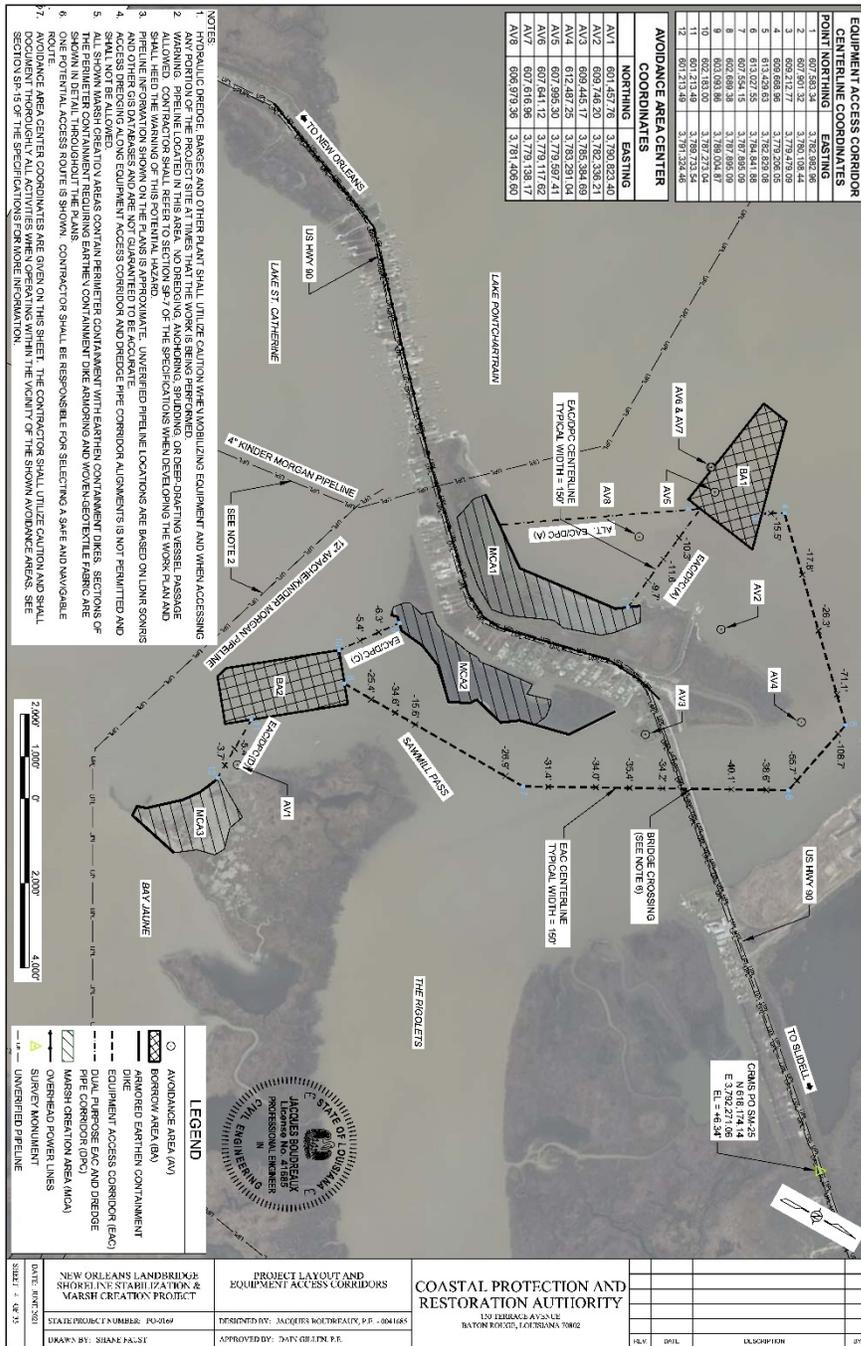


Figure 9. Final Design – New Orleans Landbridge Equipment Access and Dredge Pipe Corridors Overview

## 2.4 SIGNIFICANT CONSTRUCTION DATES

Table 1 provides a summary of significant construction dates.

**Table 1: Significant Construction Dates**

<b>Description</b>	<b>Date</b>
Pre-Bid Conference	07/01/2021
Bid Opening	07/29/2021
Construction Contract Award	08/13/2021
Pre-Construction Conference	11/05/2021
Notice to Proceed	12/16/2021
Mobilization	03/14/2022
Phase 1 - Construction Start	03/14/2022
MCA3 – Articulated Concrete Mats Completed	08/12/2022
MCA3 - Earthen Containment Dike Completed	08/08/2022
MCA1 – Articulated Concrete Mats Completed	09/02/2022
MCA1 - Earthen Containment Dike Completed	09/02/2022
MCA2 – Articulated Concrete Mats Completed	11/11/2022
MCA2 - Earthen Containment Dike completed	11/21/2022
MCA1 - Fill Placement Begins	11/18/2022
MCA3 – Fill Placement Begins	01/17/2023
MCA3 – Fill Placement Completed	03/04/2023
MCA2 – Fill Placement Begins	03/20/2023
Contractor Defaulted and Demobilized from the Project	04/21/2023
Pre-Construction Conference with New Contractor	10/10/2023
Notice to Proceed	10/18/2023
Mobilization	10/27/2023
Phase 2 - Construction Start	10/27/2023
MCA2 – Fill Placement Begins	12/13/2023
MCA2 – Fill Placement Completed but not Approved	02/26/2024
MCA1 – Fill Placement Begins	03/24/2024
MCA1 – Fill Placement Completed	05/19/2024
MCA2 – Fill Placement Resumes	06/06/2024
MCA2 – Fill Placement Completed	08/16/2024
Hurricane Francine Hit Project Site	09/11/2024
MCA3 Additional Fill – Fill Placement Begins	12/17/2024
MCA3 Additional Fill – Fill Placement Completed	01/18/2025
Final Dressing Completed	02/15/2025
Substantial Completion Engineer’s Inspection	02/17/2025
Punch List Items Completed and Demobilization of Work Area	02/23/2025
Final Engineer’s Inspection	02/25/2025
<b>Project Final Acceptance</b>	<b>03/27/2025</b>

## 2.5 SIGNIFICANT SURVEY DATES

Table 2 provides a summary of significant survey dates.

**Table 2: Significant Survey Dates**

<b>Description</b>	<b>Stamp Date</b>
Pre-Construction MCA3	01/14/2022
Pre-Construction MCA1	02/24/2022
Pre-Construction MCA1 w/ Realignment	05/26/2022
Pre-Construction MCA2 w/ Realignment	01/17/2022
Pre-Construction / Pre-Dredge BA2	02/24/2022
Pre-Construction / Pre-Dredge BA1	02/24/2022
Pre-Dredge Survey at MCA3	10/03/2022
Pre-Dredge Survey at MCA1	09/21/2022
Pre-Dredge Survey at MCA2	01/09/2023
Pre-Dredge Survey at MCA2 (Phase 2)	12/18/2023
Pre-Dredge Survey at MCA1 (Phase 2)	12/18/2023
Pre-Dredge Survey at MCA3 (Phase 2 – CO#9)	12/24/2024
Pre-Construction / Pre-Dredge BA2 (Phase 2)	12/20/2023
Pre-Construction / Pre-Dredge BA1 (Phase 2)	03/26/2024
Acceptance Survey MCA3	04/10/2023
Acceptance Survey MCA3 (Phase 2 – CO#9)	02/03/2025
Acceptance Survey MCA2 – Not in Compliance (Phase 2)	03/14/2024
Acceptance Survey MCA1 (Phase 2)	10/03/2024
Acceptance Survey MCA2 (Phase 2) *	07/25/2024
Acceptance Survey MCA2 (Phase 2) *	08/21/2024
Acceptance Survey MCA2 (Phase 2)	02/12/2025
As-Built Survey BA1	04/08/2025
As-Built Survey BA2	01/28/2025
As-Built Survey MCA1	10/25/2024
As-Built Survey MCA3	03/07/2025
As-Built Survey MCA2	03/06/2025
<b>Project Final Acceptance</b>	<b>03/27/2025</b>

**Note: \* = A formal submittal was not given, only points were submitted for review.**

### **3.0 CONTRACTOR CONSTRUCTION METHODOLOGY**

#### **3.1 EARTHEN CONTAINMENT DIKE CONSTRUCTION**

Earthen Containment Dikes (ECD) were constructed utilizing two (2) CAT 336 Wilco Marsh Buggies and two (2) CAT 345 Wilco Marsh Buggies. The marsh buggies were utilized to excavate in-situ earthen material from designated borrow areas shown on the plans. The borrow areas were a minimum of 25.0' away from the toe of the dike, as specified in the plans. The material was placed within the dike template sufficiently above the minimum required grade of +3.0 feet NAVD88 to account for settlement and shrinkage. The ECD was shaped and dressed using the marsh buggies to achieve the required grades and side slopes. The entirety of MCA3 was constructed with marsh buggies. The majority of the ECD construction at MCA2 and MCA3 was performed with marsh buggies. The last 1,000 ft of ECD at MCA1 was constructed with an excavator mounted on a barge, which excavated borrow material from the access and flotation channel to build up the ECD, and then shaped using a marsh buggy. Once MCA1 was complete, the Contractor moved the excavator mounted on a barge to MCA2 for a day to assist in shaping the ECDs. Roughly 350 ft of ECD on the southwest side of MCA2 was constructed with an excavator mounted on a barge.

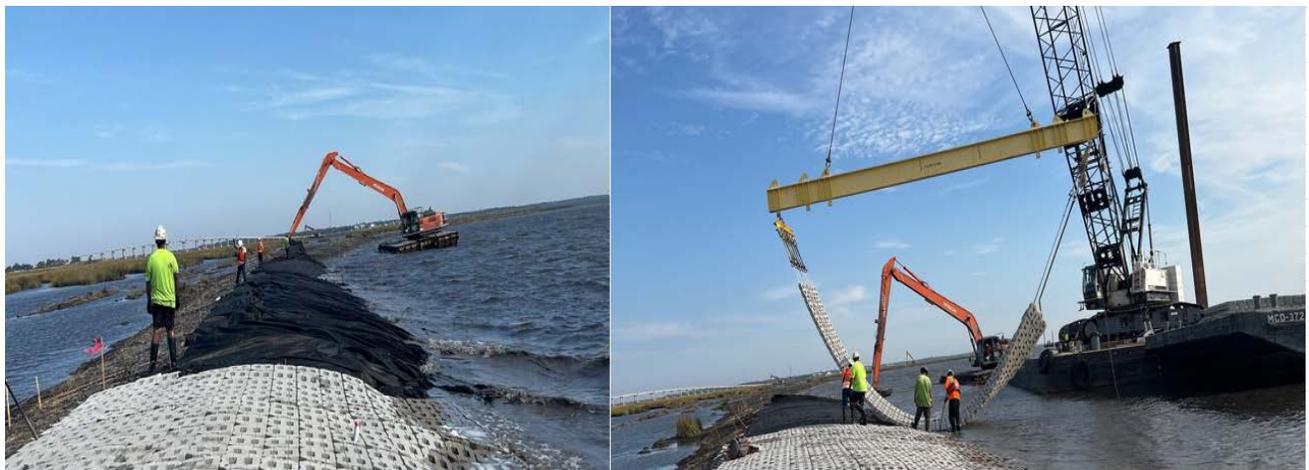
ECD Types III, V, and IV (refer to Section 2.3.2) were constructed as specified in the Plans. The Base of the ECD was constructed to at least -1.5 feet NAVD88 before placement of woven geotextile fabric at MCA3 or biaxial geogrid at MCA2. In the case of MCA1, no fabric was installed before ECD construction. At MCA2 and MCA3, once the base grade was achieved, the fabric or geogrid was placed within the specified lines utilizing marsh equipment, airboats, and/or mud boats. The fabric or geogrid was then pinned down or weighed down per manufacturer's recommendations. After the fabric or geogrid was placed, the ECD was constructed atop to meet the lines and grades specified in the plans.

Deep water sections of ECD at MCA1 and MCA2 were constructed utilizing a barge mounted 390 Excavator Crawler. The excavator excavated in-situ earthen material from CPRA approved external borrow areas shown on the plans as the Access and Flotation Channels. The borrow areas were a minimum of 25.0' away from the toe of the dike, as specified in the plans. The material was placed within the dike template sufficiently above the minimum required grade of +3.0 feet at MCA1 and MCA3 and +2.5 feet at MCA2 NAVD88 to account for settlement and shrinkage. Marsh buggies were then utilized to come behind the work done by the barge mounted excavator to dress and shape the constructed ECD to achieve the required grades and side slopes.

#### **3.2 ARTICULATED CONCRETE MATS CONSTRUCTION**

After the complete construction of the Earthen Containment Dikes but prior to the installation of Earthen Containment Dike Armoring, the Contractor must verify that all portions of the dike meet the required template as shown in the Plans. In order to do this, the Contractor shall submit the Earthen Containment Dike Process Survey to the Engineer for review. No more than fifteen (15)

days may elapse between a Process Survey showing the dike constructed to the required template and installation of Earthen Containment Dike Armoring on the dike. The Contractor was able to armor the ECDs adjacent to the lake with non-woven Geotextile Fabric (NWGF) and Articulated Concrete Mats (ACM) to serve as a buffer between wave action and the ECDs. The non-woven Geotextile fabric was installed utilizing crew boat, airboat, and a marsh buggy. The crew boat was used to transport the fabric from the yard to the placement site. The marsh buggy was used to lift the fabric rolls and set them on the ECD base. The crew unrolled the fabric rolls by hand from the airboat or dry ground as necessary. The NWGF was then pinned down as specified by the manufacturer. Once the NWGF was installed, the Contractor began utilizing a 77 Ton Mantis Marsh Crane, four spud barges, a 600 HP tug, and a CAT 330 LR marsh buggy to begin ACM installation (Figure 10). The ACMs were transported with the 600 HP tugboat through the equipment access corridor on spud barges to the designated Marsh Creation Area. The ACMs were connected to the spreader bar on the barge with the marsh crane and then swung onto the Earthen Containment Dike to be placed within the lines and grades shown on the plans. Each ACM was 8-feet wide by varied feet long and placed adjacent to each other to provide continuous coverage. The ACMs were connected and fastened together using cable clamps to interlock the cable ties running through the horizontal ACM blocks. The ACM installation at MCA3 was completed on August 12, 2022. Subsequently, the ACM installation at MCA1 was completed on September 2, 2022. Finally, the ACM installation at MCA2 was completed on November 11, 2022. All ACMs were installed by the Phase 1 contractor, Magnolia Dredge and Dock.



**Figure 10. Articulated Concrete Mat Installation Operation**

### 3.3 MARSH CREATION AREA & HYDRAULIC DREDGING CONSTRUCTION

The Contractor utilized pre-approved equipment access routes to mobilize dredging equipment to the appropriate borrow areas and marsh creation areas. Once the dredge was mobilized to the appropriate borrow area, the Contractor dredged material from the borrow area through a 16-inch cutterhead suction dredge pipeline into the corresponding marsh creation area (refer to Section 2.3.1 for each MCA's target fill height). The Contractor dredged from Borrow Area 1 into MCA1, from Borrow Area 2 into MCA3, and from Borrow Area 2 to MCA2. First, dredging operations began at MCA1 and the material was removed using a 16-inch Cutterhead Dredge, Dredge Gazap, (Figure 11) which excavated the borrow area material from the lake bottom floor and pumped it through the sediment pipeline to the corresponding marsh creation area. The dredge pipeline outfall was maneuvered throughout the marsh creation area to pump material strategically throughout the area and allow water to decant out of the weir structures. Marsh Creation Areas 1 and 2 utilized a booster pump barge, as necessary, to increase the velocity and distance of the slurry in the sediment pipeline. The booster pump was located approximately halfway between the borrow areas and the marsh creation areas. Once the dredge pumped enough borrow material into the marsh creation area to show grade stake readings at the target elevation, the engineer was able to give the direction for the marsh creation area to be surveyed for acceptance. Upon acceptance, the Contractor was able to remove the grade stakes, weir structures, and degrade sections of the earthen containment dike for water movement.

Before the Phase 1 contractor, MDD, demobilized from the site, MDD completed construction on MCA3 and began construction on MCA1 and MCA2. MCA1 and MCA2 construction was interrupted due to the phase 1 contractor defaulting. Construction was resumed by the Phase 2 contractor, CDC, after a six (6) month delay. However, because of the delay, material that had previously been placed into MCA1 during the original construction contract under MDD had settled. Because of this, the remaining dredging material could be pumped to a slightly lower elevation, so CPRA changed the Target Pump elevation for MCA1 to +1.75 ft with a +/- 0.25 ft tolerance NAVD88. CDC completed construction of MCA1, MCA2, and additional dredging via change order at MCA3.



**Figure 11. Cutterhead Dredge Operation**



**Figure 12a. Marsh Creation Area Discharge Location**



**Figure 12b. Marsh Creation Area Discharge Location**

Once the borrow material arrived at the corresponding Marsh Creation Area, marsh buggies shaped and moved the dredged material around to keep it relatively flat at the design fill template. A marsh buggy was also utilized to relocate the dredge pipeline discharge point to various spots within the Marsh Creation Area, allowing material to be pumped across multiple locations throughout the site. (Figures 12a, 12b, and 13).



**Figure 13. Marsh Buggy Working Material Near Outfall**

## 4.0 CONSTRUCTION CHALLENGES

### 4.1 WEATHER

Throughout the project, while Magnolia Dredge & Dock was the prime Contractor, the Contractor experienced weather days as expected in the Monthly Anticipated Adverse Weather Calendar Days table. However, once Coastal Dredging Company (CDC) took over in November 2023, CDC experienced more actual weather days than in the Monthly Anticipated Adverse Weather Calendar Days table. The result of this was an additional 19 weather days given with 6 additional days for the work written out in Change Order No. 8 as of the end of July 2024, executed on August 15, 2025. Additionally, CDC was given another 8 weather days in Change Order No. 10, executed on February 27, 2025, towards the end of the Contract for accrued Inclement Weather Days after the Change Order No. 8 days were given.

Hurricane Francine also had a notable weather delay, resulting in the contractor demobilizing from the site. Additional weather days resulting from this delay were included in the previously mentioned weather days given to the contractor.

- Additional Calendar Days added because of Inclement Weather (27 Days)

### 4.2 CONTRACTOR DEFAULTING

Magnolia Dredge & Dock (MDD) was awarded the PO-0169 project as the prime contractor on August 13, 2021. The project progressed initially with MDD completing MCA3 on March 10, 2023. MDD then began work on MCA2 on March 10, 2023, while their subcontractor, CDC, simultaneously performed dredging operations into MCA1.

However, operations were disrupted when MDD's bonding company, Philadelphia Indemnity Insurance Company, took control of MDD's finances and ultimately stopped funding their day-to-day operations, prompting MDD to cease work and withdraw from the site on April 21, 2023.

The bonding company assigned CDC, the original subcontractor, as the new dredging contractor to complete the remaining work on the project. A Pre-Construction Conference was held on October 10, 2023, with all key personnel present, including CDC, Linfield, Hunter & Junius, CPRA, and JS Held. JS Held represented the bonding company. The Notice to Proceed was issued for October 18, 2023.

CDC mobilized shortly thereafter and began repairs to the perimeter Earthen Containment Dike at MCA2 on October 27, 2023.

#### 4.3 AMENDMENT NO. 1

Following the default of the original prime contractor, Magnolia Dredge & Dock (MDD), CPRA engaged with Philadelphia Indemnity Insurance Company, MDD's bonding company, to secure a replacement contractor. This process resulted in the appointment of CDC, formerly a subcontractor on the project, as the new dredging contractor to complete the New Orleans Landbridge Shoreline Stabilization and Marsh Creation Project (PO-0169).

Due to the project's six-month pause, additional services were required to restart construction. Prior to resuming hydraulic dredging activities, the Contractor was tasked with conducting additional pre-construction surveying and mobilizing a marsh buggy to repair the perimeter earthen containment dikes surrounding MCAs 1 and 2.

These necessary tasks are formally documented in **Amendment No. 1**, which became effective March 18, 2024, recorded date of April 17, 2024, and includes the following:

- **Pre-Construction Surveying Services**
  - Cost: **\$93,725.61**
  - Additional Time: **8 calendar days**
- **Perimeter Earthen Containment Dike Repairs**
  - Cost: **\$150,364.50**
  - Additional Time: **46 calendar days**

Amendment No. 1 was critical to facilitate the resumption and eventual completion of the project. It provides clarity on the additional scope, time extensions, and associated costs brought on by the transition between contractors and the extended project delay.

#### 4.4 MCA1 LAKE PONTCHARTRAIN ARMORED ECD FAILURE / CHANGE ORDER No. 6

Prior to the MDD defaulting, approximately 1,000-ft of armored ECD along the south side of MCA1 began deteriorating, evidently due to high wave action in that area. In response, CPRA drafted and signed Change Order No. 6 on April 11, 2023; however, MDD defaulted before the change order could be executed by all parties. During the down time between construction contractors, the deteriorating ECD section at MCA1 on the southern end from station 83+00 to station 93+00 had deteriorated severely. Therefore, once CDC replaced MDD as the prime contractor, the CPRA issued CDC Change Order No. 6 to repair this 1000-ft section of earthen containment dike at MCA1. Change Order No. 6 was fully executed on February 21, 2024, to provide a repair of the southern 1000-ft reach of the Lake Pontchartrain shoreline at MCA1 so that hydraulic dredging operation could be completed. The shoreline repair was accomplished using borrowed material from the Access and Flotation Channel, that conformed with the lines, grades, cross sections, dimensions, and other requirements shown on the plan drawings, and placing it on

top of and/or inside and directly adjacent to the existing failed Type II ECD along the southern 1,000-ft of MCA1 to construction a new Type I ECD (as dictated by the Contract Documents) in accordance with the conditions of the Wilson Coastal Development quote. Change Order No. 6 also dictated that following the CPRA's acceptance of the newly constructed Type 1 ECD, the Contractor was to maintain the ECD with marsh fill material from the interior of MCA1 in a manner that conformed with the lines, grades, cross sections, dimensions, and other requirements shown on the Plans until MCA1 was completed and accepted. Change Order No. 6 added a net increase to the project of \$204,901.57 and added an additional 52 calendar days to the project.

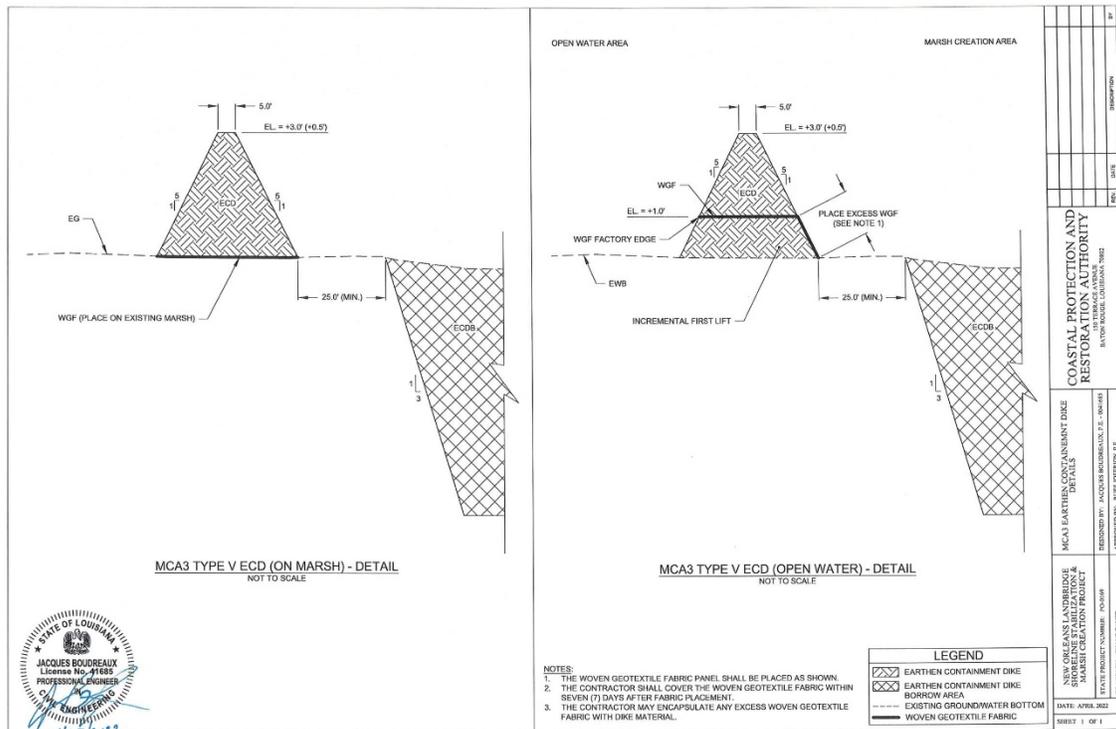
## **5.0 CONSTRUCTION DESIGN CHANGES**

### **5.1 EMERGENCY FIELD CHANGE AUTHORIZATION1 (MCA3)**

The Contractor experienced difficulties during the construction of Type V Earthen Containment Dike (ECD) at MCA3 and submitted RFI-002 to document the issue. According to the RFI, while Wilco began placing material to construct the dike from Point of Intersection (PI) MC3-7 (as shown on Sheet 9 of the Plans) to Station 43+00, both the foreman and a Wilco operator observed that the fill material was spilling beyond the dike toe into Bay Jaune by approximately six feet. Upon further inspection, it was noted that not only the fill material, but also the woven geotextile fabric (WGF), was sliding with the material.

In response, the foreman contacted the project manager with Wilco and directed the marsh buggy to reposition further down the dike alignment in an attempt to construct the dike from the outside in, thereby using the equipment to help anchor the fabric in place. Despite this effort, the same result occurred—both the fabric and fill material continued to slide—prompting a suspension of Type V ECD construction at MCA3 pending a resolution approved by CPRA.

To address the issue and allow construction to proceed, Emergency Field Change No. 1 (MCA3) was issued. This field change authorized the contractor to replace the original Type V ECD construction details with a revised configuration shown in the updated figure below. The details provided in this revised figure supersede any conflicting language or specifications found elsewhere in the Contract Documents. (See Figure 14)



**Figure 14. Emergency Field Change Authorization No. 1**

## 5.2 MARSH CREATION AREA ALIGNMENT

### 5.2.1 Marsh Creation Area 1 Realignment

Due to differences in the land from the design survey data collection timeframe (ca. 2016) to the pre-construction survey data collection timeframe (early 2022), up to 1 foot of elevation loss occurred along the MCA1 Type II ECD alignment along Lake Pontchartrain. In order to achieve a more favorable water depth condition for dike constructability, the Engineer submitted a proposed realignment to optimize the implementation of the ECD feature for the project. This change in alignment was performed with no adjustment to the contract unit price and/or contract time. This realignment was issued under Field Order No. 1 on April 29, 2022 (Figure 15).



**Figure 15. Field Order No. 1 Proposed Realignment of MCA1 ECD Type II**

### 5.2.2 Marsh Creation Area 2 Realignment

This field order adjusted the alignment of the ECD Type III and IV along the perimeter of MCA2 to account for erosion that occurred between the design survey data collection timeframe (ca. 2016) and the pre-construction survey data collection timeframe (early 2022). The adjusted alignment served to optimize the implementation of the ECD feature for this project by providing more favorable water depth conditions for dike constructability without requiring dredged access. This change in alignment was performed with no adjustment to the contract, unit price, and/or contract time. This realignment was issued under Field Order No. 3 on July 14, 2022 (See Figure 16).



**Figure 16. Field Order No. 3 Proposed Realignment of MCA2 ECD Type III and IV**

### 5.2.3 Marsh Creation Area 2 – 2<sup>nd</sup> Realignment

On August 29, 2022, Field Order No. 5 was issued in response to RFI-005 and to provide further direction regarding the area near station 96+69.3 at MCA2. In RFI-005, the Contractor observed that tracking the marsh buggy along the interior berm of an unexcavated section of ECD in the area near station 96+69.3 was causing marsh mud to move laterally into the adjacent canal on the outside as well as the adjacent marsh pond toward the inside of the MCA as a result of a pre-existing gap in the marsh grass. The Contractor expressed concern for the stability of the foundation in which the ECD was to be constructed. The Contractor also observed that the pressure of the marsh buggy was causing the existing marsh to float higher, giving the geogrid and underlying marsh the opportunity to float outward from the alignment. Field Order No. 5 directed the Contractor to adjust the ECD centerline alignment inward onto the interior twenty-five (25) foot berm. The Contractor was instructed to leave in-place the geogrid that had already been laid to this point and to install new geogrid along the interior berm where their equipment had been tracking. The existing stockpiled material except for the bottom approximate +0.5-ft of the stockpile, was then placed on the newly installed geogrid according to the contract plans and specifications. The new borrow area began 25' from the newly aligned ECD interior toe and extended towards the marsh as necessary. Any material required to build the dike beyond what is currently stockpiled was excavated from the new borrow area. (See Figure 17)

Note that the previously-placed geogrid remained in place in order to minimize any further disturbance in this sensitive area. To this end, Owner recommended that the Contractor exercise similar caution and conduct its operations in a manner to minimize disturbance to the greatest extent practicable, so as not to potentially cause additional destabilization.

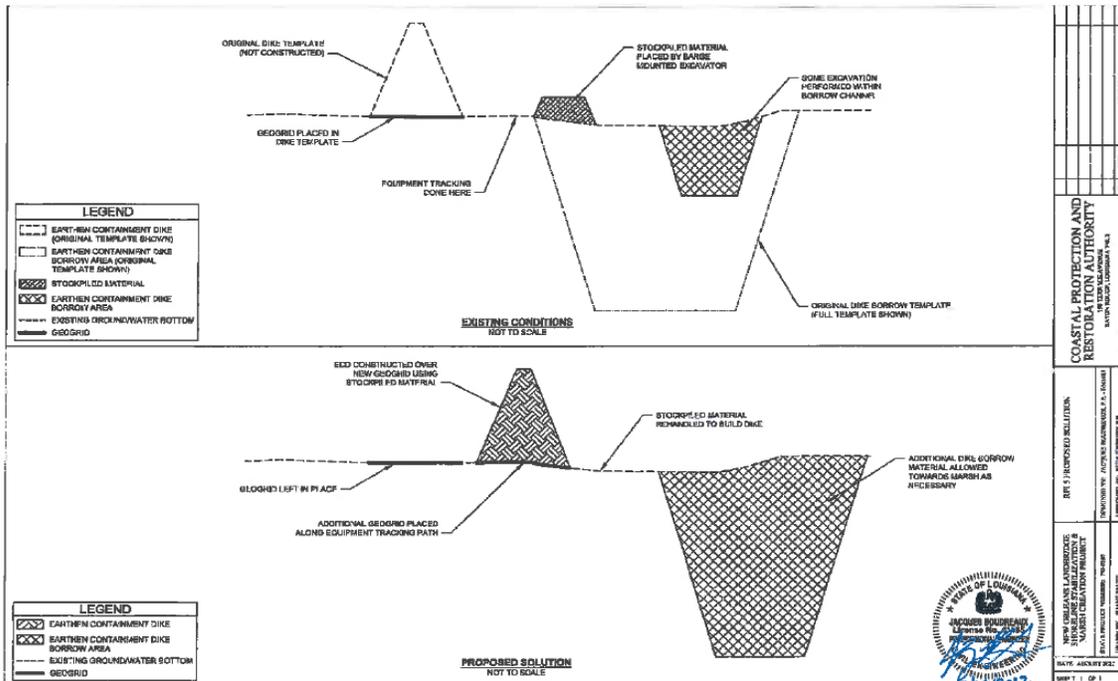
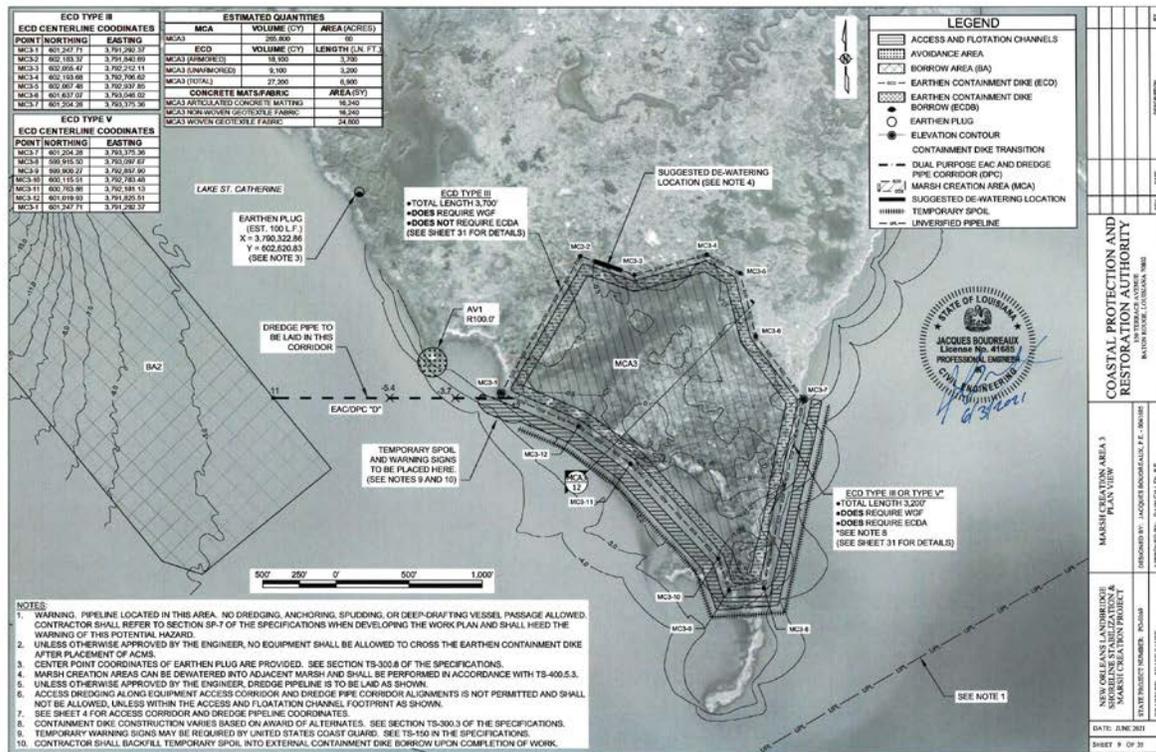


Figure 17. Field Order No. 5 - MCA2 - 2<sup>nd</sup> Realignment

### 5.3 EARTHEN CONTAINMENT DIKE CONSTRUCTION

#### 5.3.1 Additional Material Required at MCA3

The Contractor requested to use the access and flotation channel for borrow material to close the 25' access gap on ECD at the southwest corner of MCA3. CPRA provided Field Order No. 2 on May 25, 2022, as clarification that the Contractor may utilize the access and flotation channel spoil for containment dike borrow for the construction of the MCA3 ECD Gap Closure, and the completion/dressing of the MCA3 ECD construction. The Contractor was to adhere to the MCA3 ECD lines, grades, and dimensions shown in the plans. CPRA also allowed the Contractor to utilize the MCA3 ingress/egress locations for equipment access as shown on the attachment with Field Order No. 2 while minimizing the disturbance to existing marsh. Additional external ECD borrow material was utilized to field dress ECD crossings. (Shown in Figure 18)



**Figure 18. Field Order No. 2 Additional Material Location**

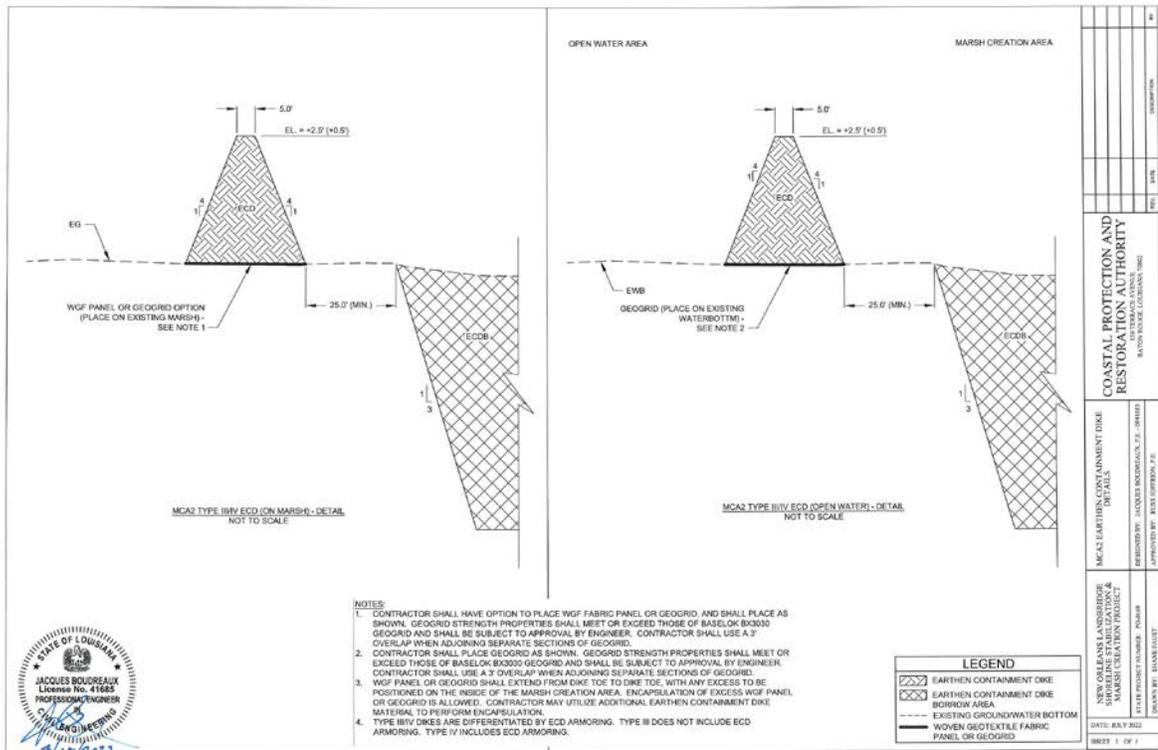
### 5.3.2 Design Changes to Type III and IV ECD at MCA2

Field Order No. 4 changed the construction of Type III and IV Earthen Containment Dike (ECD) at MCA2 and changed the following to the Contract Documents:

- The use of geogrid was required for ECD Type III and IV that is constructed on existing marsh.
- The use of geogrid was required along the reach of ECD Type III and IV that are constructed in open water.
- An upcoming proposed scope expansion to the project footprint may eliminate the need for ECD construction between MC2-16 and MC2-21, so Work on this reach shall be suspended until future notice until further notice. Such changes will be captured in a future change order.
- ECD Construction between MC2-1 and MC2-5 was allowed without woven geotextile fabric or geogrid.

The changes discussed above were performed with no adjustment to the contract unit price for ECD Type III and IV construction. Change Order No. 1, executed on August 25, 2022, added additional Non-Woven Geotextile Fabric (NWGF) and Articulated Concrete Mat quantity to MCA1 and MCA2, added the work item and price for geogrid, adjusted the

WGF quantity and included appropriate documentation and justification for the related changes to the contract time and associated costs. (Figure 19) (See Appendix B).



**Figure 19. Field Order No. 4 Design Change to Type III and IV ECD Details at MCA2**

#### 5.4 REVISED LOCATIONS FOR INSTRUMENTED SETTLEMENT PLATES

Field Order No. 6 was issued on October 10, 2022, for the CPRA Engineer to revise the locations of the Instrumented Settlement Plates (ISPs) throughout the Project Site. (See Figures 20a and 20b) As directed by CPRA engineering department, ISP-1 was relocated from MCA1 to MCA2 North, and ISP-2 was moved from MCA1 to the southern portion of MCA3.

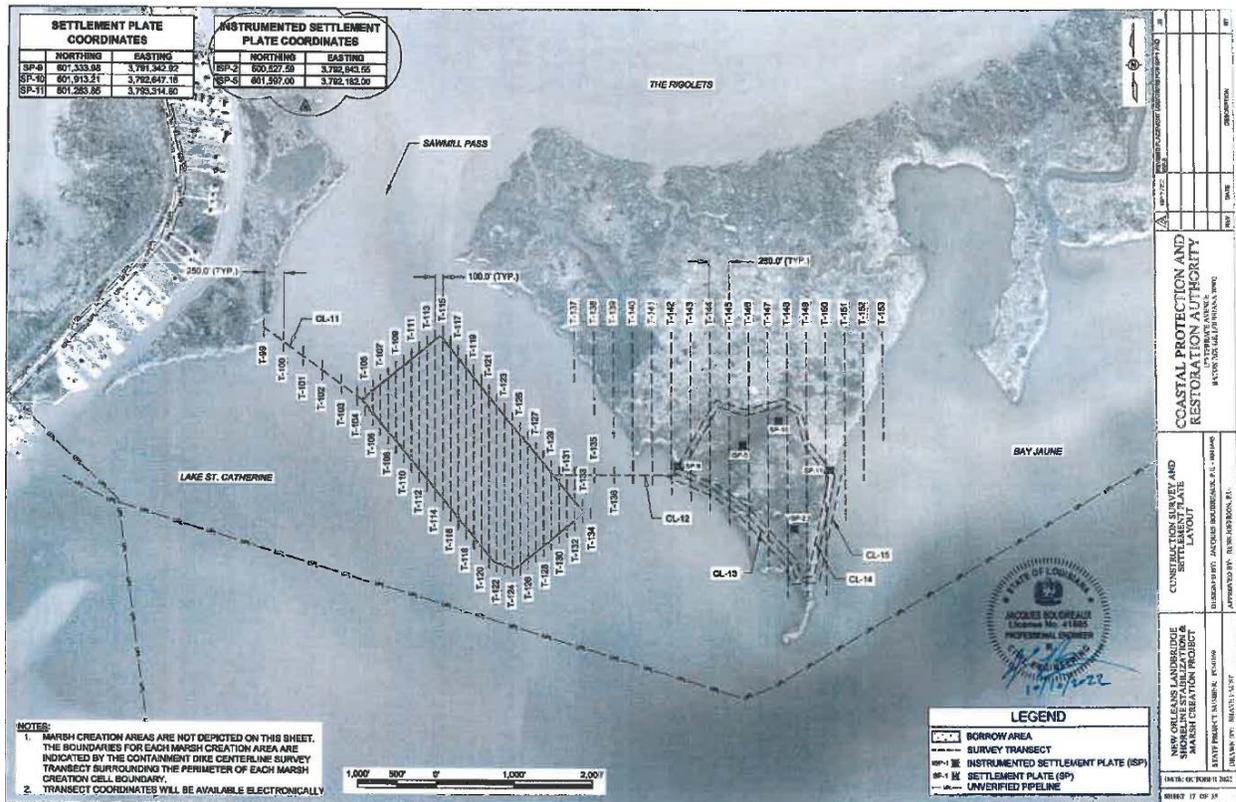


Figure 20a. Field Order No. 6 Revised Locations for ISPs

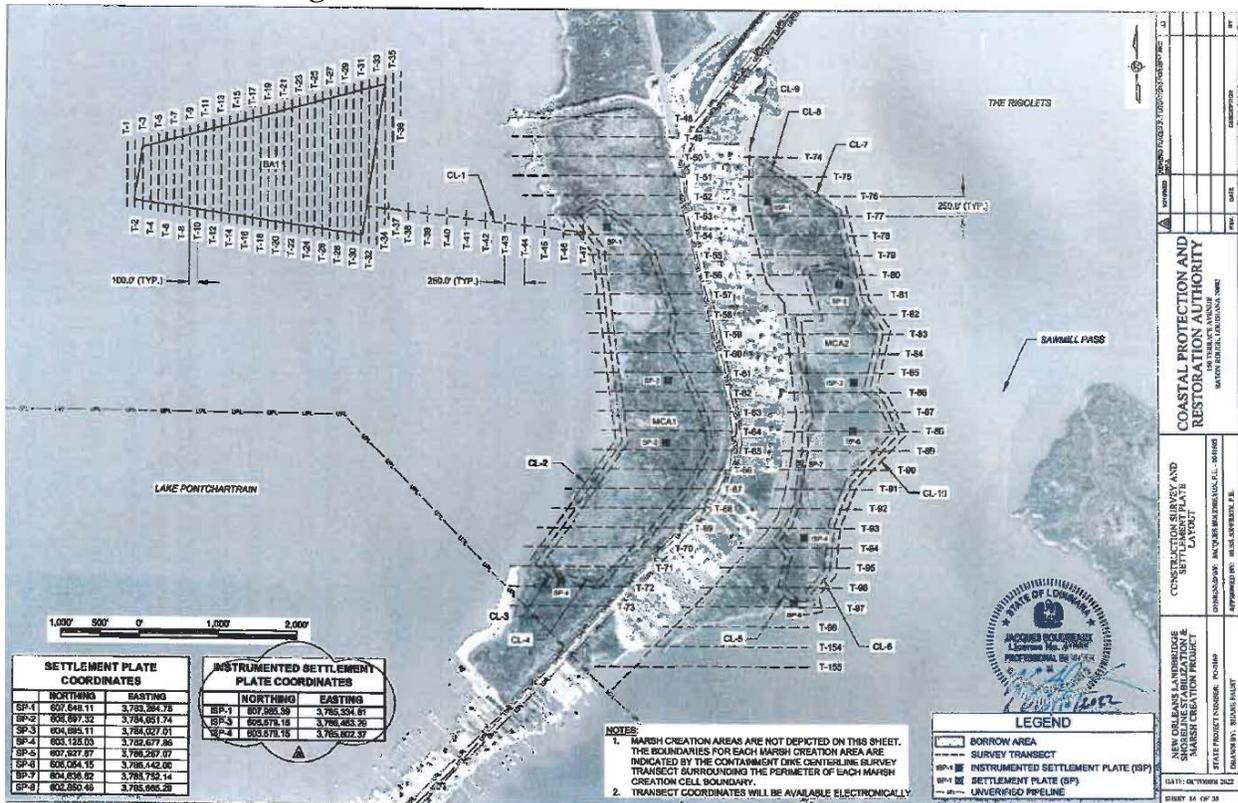


Figure 20b. Field Order No. 6 Revised Locations for ISPs

## 5.5 DREDGE PIPE CORRIDOR (DPC) DESIGN CHANGES

### 5.5.1 Alternate Landing Point for Dredge Pipe Corridor at MCA2

The Contractor was directed to utilize an additional segment of EAC/DPC “C”, which provides an alternate landing point of the EAC/DPC into MCA2, as shown on the attached drawing. The Contractor was instructed to maintain a 25-foot path between MCA2 station 81+32 and MCA2 station 81+57, which shall be used for the passage of marsh buggies and other equipment. This modification was made under Field Order No. 7, which was executed on October 17, 2022, and shown in Figure 21.



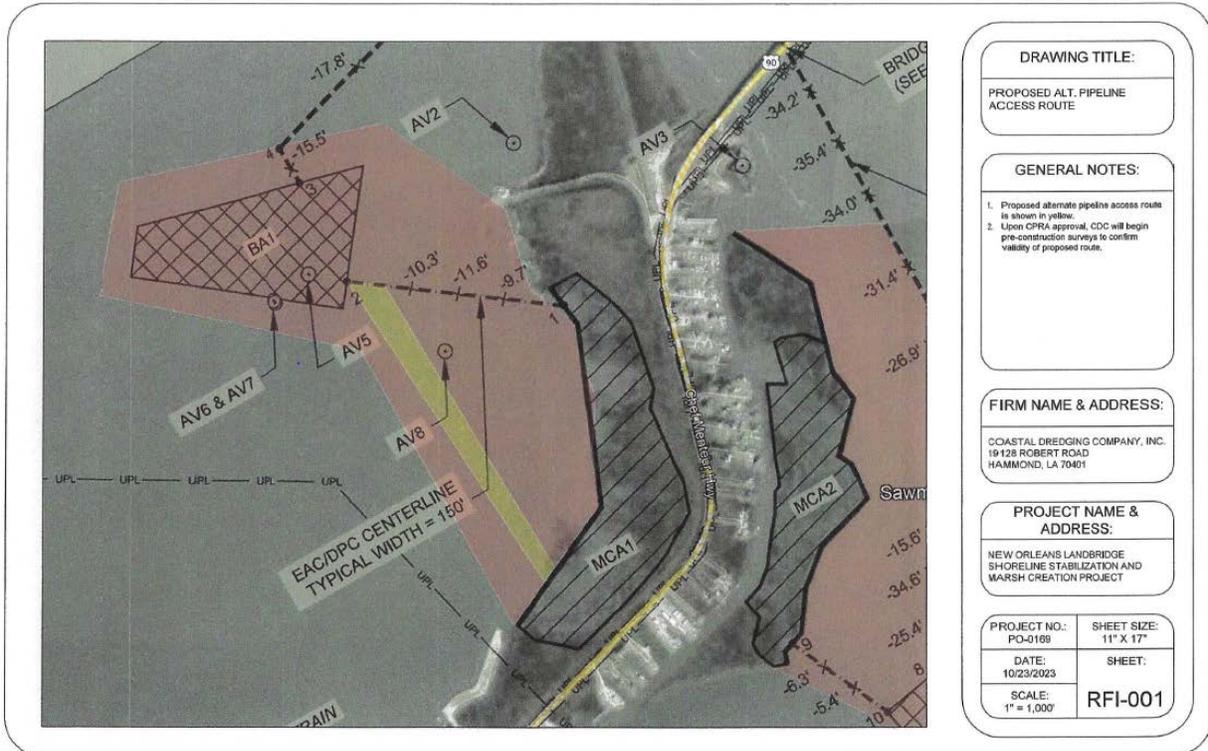
FIGURE 1: MARSH CREATION AREA 2  
ALTERNATE LANDING POINT



**Figure 21. Field Order No. 7 Alternate Landing Point for DPC at MCA2**

### 5.5.2 Alternate Dredge Pipe Corridor and Landing Point at MCA1

The first Request for Information (RFI) in the second part of the construction project requested an alternate Dredge Pipe Corridor and Landing Point at MCA1 to fill the southern problematic area at MCA1 directly as opposed to running dredge pipe through the length of the marsh. The CPRA issued Field Order No. 9 on October 25, 2023, to address the Contractor’s RFI and direct the Contractor to utilize an alternate segment of EAC/DPC “A”, which provided an alternate landing point of the EAC/DPC from BA1 into MCA1 at station 90+50 along the MCA1 containment dike alignment. A 100-foot path was allowed for passage of land-based equipment, with the centerline of the alternate path located at station 90+50. A 150-foot-wide nautical corridor was allowed, as indicated on the Plans. (See Figure 22)



**Figure 22. Field Order No. 9 Alternate EAC/DPC and Landing Point at MCA1**

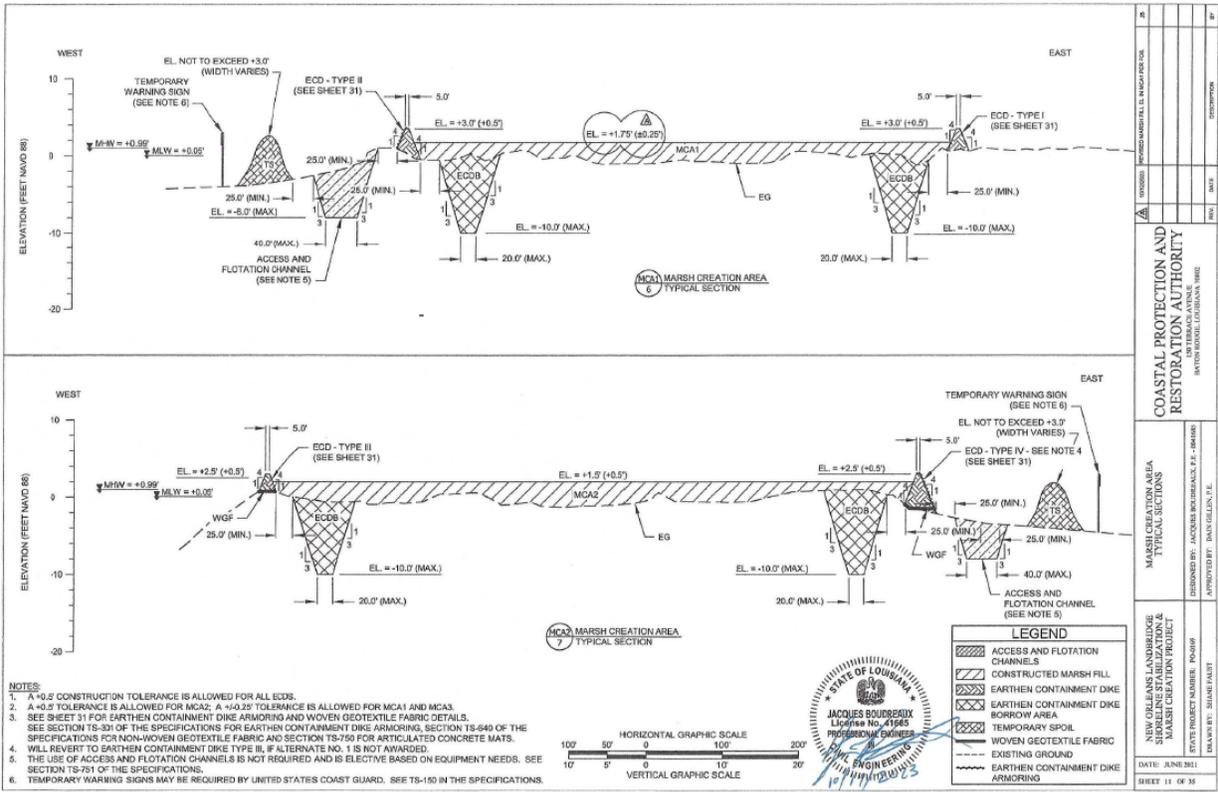
## 5.6 HYDRAULIC DREDGING TARGET ELEVATION DESIGN CHANGE

### 5.6.1 Hydraulic Dredging Target Elevation Design Change at MCA1

The CPRA executed Field Order No. 8 on October 25, 2023, because Phase 2 pre-construction surveys revealed that a substantial amount of material had been placed into MCA1 during the original construction contract under MDD (Phase 1). By the end of this contract, MDD had completed approximately eight one percent (81%) of the MCA1 hydraulic dredging process. At the end of MDD's contract, the grade stake slurry elevation readings in MCA1 were as follows: GS#1 – N/A, GS#2 – 3', GS#3 – 2.4', GS#4 – 2.3', GS#5 – 1.7', GS#6 – 1.8', GS#7 – 2', GS#8 – 2.6', GS#9 = 1.8', and GS#10 = 1.6'.

Because of this, some of the settlement process had already taken place so the remaining dredging material could be pumped to a slightly lower elevation. Therefore, CPRA changed the original Target Pump Elevation for MCA1 of +2.0 ft with a tolerance of +/- 0.25 ft NAVD88 to a target elevation of +1.75 ft with a +/- 0.25 ft tolerance NAVD88. (See Figure 23)

For clarification, CPRA noted that the Contractor should make no changes to the target pump elevation at MCA2, or elsewhere throughout the Project Site, as a result of this Field Order, unless otherwise directed by the Engineer.



**Figure 23. Field Order No. 8 – Hydraulic Dredging Target Elevation Design Change at MCA1.**

**5.7 MARSH CREATION AREA 1 EARTHEN CONTAINMENT DIKE REPAIR (CHANGE ORDER NO. 6)**

An agreement was executed between the CPRA and Philadelphia Indemnity Insurance Company to address ECD repairs needed at the southern end of MCA1 so that dredging operations could continue at MCA1 within the New Orleans Landbridge Shoreline Stabilization and Marsh Creation Project (PO-0169).

This agreement, formalized as Change Order No. 6, which was executed on February 21, 2024, authorized CDC to perform temporary repair work on the southern 1,000-foot section of the Lake Pontchartrain shoreline at MCA1 to enable the continuation and completion of hydraulic dredging operations.

Key components of Change Order No. 6 included:

- Construction of a new Type I Earthen Containment Dike (ECD) to replace the failed Type II ECD, using borrowed material sourced from the permitted Access and Flotation Channel.

- The borrowed material was placed on top of, inside of, and/or directly adjacent to the existing failed Type II ECD, in accordance with the contract plans, dimensions, grades, and cross sections.
- Construction followed the specifications detailed in the Wilson Coastal Development quote, which is incorporated by reference into the agreement.

Upon Wilson Coastal Development completing the change order #6 work as of March 28, 2024, CDC maintained the ECD using marsh fill material from within MCA1. This maintenance was performed in accordance with the contract documents until final completion and acceptance of MCA1 on June 27th, 2025.

Change Order No. 6 helped to restore critical shoreline integrity to allow the project to proceed while maintaining environmental and engineering compliance.

## 5.8 ACCESS AND FLOTATION CHANNEL BORROW (FIELD ORDER NO. 10)

Due to the lack of original *in situ* material remaining in the internal earthen containment dike borrow area (ECDB) adjacent to the southern lakeshore of MCA1 and since the access and flotation borrow was not excavated for equipment access, the Contractor was allowed to use material from access and flotation channel borrow area as per TS 300.6.1 up to the excavation limits shown on Sheet 11 of the plans to cap the ECD from STA. 83+00 northward towards STA. 96+00. Per the detail drawing on Sheet 11, the landward extent of the borrow excavation was a minimum of 25-ft from the toe of the constructed ECD.

## 5.9 HYDRAULIC DREDGE AND MARSH FILL QUANTITY INCREASES

### 5.9.1 Magnolia Dredge & Dock's Pre-Dredge Survey vs Plan Documents

Upon mobilization to the project site, completion of the earthen containment dike construction, and execution of armoring operations, the Contractor was required to conduct a Pre-Dredge Survey of the Marsh Creation Areas (MCAs). This survey was necessary to determine the actual quantity of dredge material required to achieve the design marsh elevation.

It is important to note that the hydraulic dredging quantities presented in the original Plan Documents were intended for estimating purposes only. Those quantities were based on site conditions observed during surveys conducted between July 2016 – September 2016 and September 2018 – October 2018.

The estimated quantities based on Magnolia Dredge & Dock's Pre-Dredge Survey conducted at MCA1 on 9/21/2022, MCA2 on 1/09/2023, and MCA3 on 10/03/2022 in comparison to the original estimated quantities provided in the Plan Documents are presented below in Table 3.

**Table 3: Magnolia Dredge & Dock’s Pre-Dredge Survey Versus Plan Documents**

<b>Marsh Creation Area</b>	<b>MDD Pre-Dredge Survey</b>	<b>Plan Documents</b>
MCA1	591,336.36 CY	485,000 CY
MCA2	338,986 CY	291,100 CY
MCA3	281,240 CY	265,800 CY
Totals	1,211,562.36 CY	1,041,900 CY
Difference	<b>169,662.36 CY</b>	

5.9.2 Marsh Creation Area 2 – Newly Formed Bayou within MCA2 Limits Prior to Construction

Prior to the project being advertised for bid and subsequently starting construction in late 2022, a portion of MCA2—which was previously intact marsh—had naturally eroded and transformed into an intertidal cut and open channel, providing boat access through the marsh area. Repeated boat traffic through this newly formed channel further scoured the channel bottom, displacing additional sediment and accelerating the loss of marsh material.

As a result, this unexpected erosion led to a significant change in site conditions, which was not captured in the earlier Plan Document surveys. This discrepancy became evident when Magnolia Dredge & Dock conducted a Pre-Dredge Survey at MCA2 on January 9, 2023, revealing that additional dredge material quantities would be required to reach the project’s design marsh elevation compared to the estimates based on previous surveys.

5.9.3 Marsh Creation Area 3 - Problematic ECD Spot

During the construction of the earthen containment dikes (ECDs) along the lakeside of MCA3, the Contractor encountered a problematic stretch of approximately 125 feet, from station 76+15 to station 77+37, which required additional work to address issues of sliding and slippage presumably caused by sustained high water levels above +1.0 elevation and persistent wave action. These environmental conditions led to the erosion and washout of the earthen material that had been placed atop the woven geotextile fabric, as originally specified in the project plans. This segment was the final reach of ECD left unconstructed, so tidal action through that open reach made it even more difficult to close. As a result, Change Order No. 3 was executed on August 30, 2022, to compensate the Contractor for the unforeseen work necessary to construct and close out the Type V ECD at the lakeside closure of MCA3 along Lake St. Catherine. This work exceeded the scope anticipated in Emergency Field Change Authorization No. 1, executed on April 28, 2022, which had previously authorized the MCA3 ECD Type V modification. The additional efforts included drying and stockpiling earthen material on an adjacent barge before building the ECDs and installing timber mats driven in a line parallel to the ECD to reduce wave action and protect the closure area from further erosion.

To support these efforts, Field Order No. 2 was issued on May 25, 2022, to allow the Contractor to use spoil material from the access and flotation channel as borrow for the construction of the MCA3 ECD gap closure. It also authorized the use of internal ECD borrow material to field-dress the dike at equipment crossings, particularly at the equipment access corner of MCA3 where ingress and egress occurred.

In addition, Change Order No. 9 was executed on September 10, 2024, to add additional dredge material to MCA3 and, more importantly, to repair and maintain the previously identified problematic portion of the ECD. This work included the full repair of a 275-foot section of the ECD prior to dredging operations and required the Contractor to maintain the entire MCA3 perimeter to ensure the containment dikes remained structurally sound and prevented dredged material from overtopping during fill operations.

#### 5.9.4 Marsh Creation Area 2 – Cross Dike Material

The original plan documents for MCA2 outlined the construction of a perimeter around the central portion of the marsh, intentionally excluding the northern and southern marsh areas. However, the plans included armoring an earthen containment dike (ECD) along the northern edge to provide protection to a somewhat deteriorated marsh area located above MCA2. During the course of construction, the CPRA made the decision to fully enclose the marsh area north of MCA2, designating it as MCA2 North, through the execution of Change Order No. 4 on February 28, 2023. This modification was implemented after the original MCA2 ECDs had already been constructed, which necessitated additional work. Specifically, it required the placement of additional earthen material to construct a new containment dike around MCA2 North, as well as the filling of the borrow channel originally excavated to construct the ECD between MCA2 and MCA2 North.

#### 5.9.5 Marsh Creation Area 2 & 1 – Frogco Built up ECD after 6-Month Project Downtime

Due to the default of the original prime contractor, the CPRA entered into negotiations with the bonding company, Philadelphia Indemnity Insurance Company, to secure a new contractor to complete the project. During this six-month period, while these negotiations were underway, the previously constructed earthen containment dikes (ECDs) began to settle and shift out of project tolerance. As a result, once an agreement was finalized and the new contractor was mobilized to the project site, additional work was required to repair and rebuild the perimeter ECDs surrounding MCA1, MCA2, and the newly added MCA2 North. The ECD construction subcontractor, Frogco, was utilized to repair and rebuild the perimeter ECDs surrounding MCA2, MCA2 North, and MCA1 except for the problematic 1000-foot section on the south end adjacent to Lake Pontchartrain which was repaired through Change Order No. 6.

This remedial work is detailed in Amendment No. 1, which became effective on March 18, 2024,

and outlines both the scope and associated costs of the additional work required due to the extended pause in construction. Moreover, the rebuilding and reinforcement of the containment dikes around all three marsh creation areas necessitated the use of additional borrow material, increasing the total quantity of hydraulically dredged material required to fill the marsh creation areas to their designated design elevations.

#### 5.9.6 Marsh Creation Area 1 – 1000-ft Problematic Area on Southern End

Following the construction of the earthen containment dike (ECD) around MCA1 by the original prime contractor, significant issues arose along the southernmost 1,000-foot section of the armored ECD. This portion experienced substantial settlement, collapse of the armoring, and signs of breaches at its southern extremity. In response, the prime contractor deployed its subcontractor, CDC, to perform ongoing maintenance, frequently tracking a marsh buggy to the southern end of MCA1 to rebuild the dike's backside. These repeated efforts resulted in the creation of large borrow channels along the interior of MCA1.

By the time the bonding company assumed responsibility for the project, this 1,000-foot section had significantly deteriorated, necessitating repairs before any hydraulic dredging operations could commence. To address this, Change Order No. 6 was executed on February 21, 2024, to authorize additional work to repair and temporarily stabilize the Lake Pontchartrain shoreline at the southern end of MCA1. This included the construction of a new Type I ECD using borrow material from the permitted Access and Flotation Channel, placed on top of and/or inside and directly adjacent to the failed Type II ECD, in accordance with the lines, grades, cross sections, and other requirements detailed in the Contract Plans.

Furthermore, a critical component of Change Order No. 6 was the requirement that the contractor maintain the newly constructed Type I ECD using marsh fill material from the interior of MCA1 until final project completion and acceptance. This ongoing maintenance obligation increased the need for additional hydraulically dredged material in MCA1 to support both the containment dike integrity and the marsh fill operations required to achieve the design elevation.

## 6.0 FINAL AS-BUILT FEATURES

### 6.1 MARSH CREATION AREA 1

MCA1 extended adjacent to US HWY 90 on the west side for approximately 6,000 feet. MCA1 protects the adjacent marsh and US HWY 90 from Lake Pontchartrain wave action. The perimeter stationing was from station 10+00 to station 132+67, giving MCA1 a total perimeter of 12,300 feet in perimeter length. The width of MCA1 ranged from 400 ft to 1,200 ft. The total length of the ECD Type I in MCA1 was 5,003 ft, and the total length of ECD Type II was 7,297 ft. The total length of ECD armored with ACMs was 5,003 ft at MCA1. No foundation was required in the construction of any ECD in this MCA. The initial target elevation of MCA1 was +2.0 ft NAVD88. Based on the results of the geotechnical and inundation analysis by the CPRA, a +/- 0.5-foot tolerance was included for this MCA (Figure 2a). However, with CPRA’s execution of Field Order No. 8 on October 25, 2023, the initial target elevation of MCA1 was changed to a target elevation of +1.75 ft with a +/- 0.25 ft tolerance NAVD88 (refer to section 5.5.1 for more information regarding this change). CDC, as the subcontractor, was able to fill this marsh with 394,553 cubic yards in the first phase of construction project and came back as the prime contractor to dredge 196,238.40 cubic yards into MCA1 to achieve the targeted design elevation throughout this Marsh Creation Area. Upon acceptance of MCA1 on June 27, 2025, CDC removed the weir structure and degraded thirteen (13), approximately 40 feet wide sections of the ECD to an elevation of approximately +1.00 ft to +2.50 ft to create openings between the MCA and the surrounding existing marsh. These gaps were implemented to facilitate tidal exchange, allowing water to flow in and out with the natural tide cycle. (See Figures 24 & 25)

PI DATA TABLE		
PI NO.	NORTHING	EASTING
MCA1-1	603,335.98	3,782,355.09
MCA1-2	603,146.14	3,782,580.12
MCA1-3	603,021.67	3,783,156.52
MCA1-4	603,648.62	3,783,799.63
MCA1-5	604,275.69	3,784,332.90
MCA1-6	604,830.53	3,784,638.36
MCA1-7	605,239.78	3,784,563.75
MCA1-8	606,218.77	3,784,124.63
MCA1-9	606,495.26	3,784,169.01
MCA1-10	607,361.18	3,783,879.40
MCA1-11	607,601.15	3,783,666.26
MCA1-12	608,011.74	3,783,158.32
MCA1-13	607,819.12	3,782,805.91
MCA1-14	607,347.58	3,783,160.03
MCA1-15	606,907.47	3,783,214.60
MCA1-16	606,389.40	3,783,420.22
MCA1-17	605,682.68	3,783,366.45
MCA1-18	604,908.21	3,783,462.47

**Figure 24. MCA1 As-Built ECD Type I and II Centerline Coordinates.**



Figure 25. MCA1 As-Built Survey

## 6.2 MARSH CREATION AREA 2

MCA2 also extended adjacent to US HWY 90 on the east side for approximately 5,000 feet. MCA2 protects the adjacent marsh and US HWY 90 from Lake Saint Catherine, Sawmill Pass, and The Rigolets wave action. The perimeter stationing was from station 10+00 to station 150+77 giving MCA2 a total perimeter of 12,221.50 feet plus the additional 1,930 ft of earthen containment dike to close in MCA2 North to give a total perimeter of 14,271.50 feet. The width of MCA2 ranges from 500 ft to 1,230 ft. The total length of the ECD Type III in MCA2 was 7,141.50 ft, and the total length of ECD Type IV was 7,130 ft. The total feet of ECD armored with ACMs was 7,130 ft at MCA2. As directed in Field Order No. 4, geogrid was used in the foundation of all ECD constructed in this area. The target elevation of MCA2 was +1.5 ft NAVD88. Based on the results of the geotechnical and inundation analysis by the CPRA, a +0.5-foot tolerance was included for this Marsh Creation Area (Figure 2a). Magnolia Dredging & Dock initially

began dredging into this MCA and pumped a total of 91,097 cubic yards into MCA2 before defaulting and leaving the project. Upon CDC’s arrival, CDC dredged an additional 282,852.62 cubic yards into MCA2 and 133,584 cubic yards into MCA2 North to achieve the targeted design elevation. Upon completely dredging operations at MCA2, CDC demobilized from the project site from September 17, 2025, to December 9, 2025. Upon re-mobilization, CDC removed the two (2) weir structures and degraded two (2) sections of the ECD to approximately elevation +1.5 ft to create openings between the MCA and the existing southern marsh on February 22, 2025. These gaps were implemented to facilitate tidal exchange, allowing water to flow in and out with the natural tide cycle. (See Figure 26 for MCA2 As-Built ECD Coordinates)

<b>ECD TYPE III</b>			<b>ECD TYPE IV</b>		
<b>ECD CENTERLINE COORDINATES</b>			<b>CENTERLINE COORDINATES</b>		
<b>PI NO.</b>	<b>NORTHING</b>	<b>EASTING</b>	<b>PI NO.</b>	<b>NORTHING</b>	<b>EASTING</b>
MCA2-1	602,787.27	3,785,724.77	MCA2-25	608,556.61	3,785,265.78
MCA2-2	602,948.38	3,785,545.29	MCA2-26	607,950.85	3,786,183.96
MCA2-3	603,082.68	3,785,472.33	MCA2-27	607,874.27	3,786,253.24
MCA2-4	603,433.60	3,785,560.90	MCA2-28	607,809.42	3,786,306.74
MCA2-5	603,618.77	3,785,401.92	MCA2-29	607,707.88	3,786,312.96
MCA2-6	603,769.75	3,785,546.38	MCA2-30	607,607.51	3,786,323.82
MCA2-7	603,906.88	3,785,617.76	MCA2-31	607,512.65	3,786,356.65
MCA2-8	604,067.48	3,785,673.01	MCA2-32	607,417.81	3,786,389.60
MCA2-9	604,221.65	3,785,710.93	MCA2-33	607,322.28	3,786,419.77
MCA2-10	604,307.13	3,785,710.47	MCA2-34	607,227.41	3,786,452.58
MCA2-11	604,760.39	3,785,786.18	MCA2-35	607,071.43	3,786,491.67
MCA2-12	604,811.31	3,785,804.33	MCA2-36	606,707.69	3,786,582.81
MCA2-13	605,074.36	3,785,804.99	MCA2-37	606,344.60	3,786,850.49
MCA2-14	605,214.48	3,785,886.73	MCA2-38	606,236.89	3,786,815.01
MCA2-15	605,365.54	3,785,825.63	MCA2-39	606,045.18	3,786,757.28
MCA2-16	605,529.26	3,785,796.82	MCA2-40	605,874.94	3,786,614.30
MCA2-17	606,510.97	3,785,698.53	MCA2-41	605,674.30	3,786,592.05
MCA2-18	606,509.40	3,785,947.62	MCA2-42	605,511.20	3,786,647.78
MCA2-19	606,764.26	3,786,040.70	MCA2-43	605,480.18	3,786,748.09
MCA2-20	606,897.43	3,786,922.40	MCA2-44	605,433.25	3,786,818.96
MCA2-21	607,012.59	3,785,891.44	MCA2-45	605,265.26	3,786,924.69
MCA2-22	607,095.78	3,785,794.06	MCA2-46	605,191.27	3,787,007.41
MCA2-23	607,157.82	3,785,875.18	MCA2-47	605,101.09	3,787,050.61
MCA2-24	607,200.66	3,786,198.62	MCA2-48	605,011.73	3,786,996.67
MCA2-35	607,071.43	3,786,491.67	MCA2-49	604,862.37	3,786,863.51
MCA2N-40	607,107.76	3,785,380.76	MCA2-50	604,637.44	3,786,664.68
MCA2N-41	607,560.53	3,785,250.28	MCA2-51	604,425.84	3,786,451.86
MCA2N-42	607,997.63	3,785,178.09	MCA2-52	604,159.36	3,786,314.04
MCA2N-43	608,439.58	3,785,192.92	MCA2-53	603,873.96	3,786,219.48
			MCA2-54	603,678.83	3,786,195.38
			MCA2-55	603,580.80	3,786,171.57
			MCA2-56	603,383.72	3,786,133.39
			MCA2-57	603,282.46	3,786,140.02
			MCA2-58	603,214.84	3,786,079.88
			MCA2-59	603,064.83	3,785,947.52
			MCA2-60	602,978.95	3,785,898.71
			MCA2-1	602,787.27	3,785,724.77

**Figure 26. MCA2 As-Built ECD Type III and IV Centerline Coordinates.**

### 6.3 MARSH CREATION AREA 3

MCA3 was approximately 1.35 nautical miles east of US HWY 90. MCA3 protects existing marsh areas and wave action from Bay Jaune. The perimeter stationing was from station 10+00 to station 79+31 giving MCA3 a total perimeter of 6,931 feet in perimeter length. The width of MCA3 ranges from 1,050 ft to 1,500 ft. The total length of the ECD Type III at MCA3 was 3,241 ft, and the total length of ECD Type IV at MCA3 was 3,690 ft. The total length of armored ECD with ACMs was 3,690 ft at MCA3. Woven geotextile fabric was used in the foundation of all ECD constructed in this MCA. The target elevation of MCA3 was +2.0 ft NAVD88. Based on the results of the geotechnical and inundation analysis by the CPRA, a +/-0.5-foot tolerance was included for this MCA (Figure 2b). Magnolia Dredge & Dock (MDD) was the first Contractor to dredge into this MCA and MDD pumped a total of 280,123 cubic yards into MCA3 to achieve the targeted design elevation before it was accepted and approved by the CPRA. Months later when a new Contractor, Coastal Dredging Company, was acquired to finish the project, the CPRA decided it would be beneficial to pump an additional 134,780 cubic yards of fill from BA2 into MCA3. This additional work was covered under Change Order No. 9, which was executed on September 10, 2024. Upon completion of MCA3 Change Order No. 9 work, CDC removed the weir structure and degraded eight (8) approximately 40 feet wide sections of the ECD to approximately elevation 0.00 ft – +0.50 ft to create openings between the MCA and the surrounding existing marsh. These gaps were implemented to facilitate tidal exchange, allowing water to flow in and out with the natural tide cycle.

The Work covered in Change Order No. 9 was to perform additional dredging operations, a second lift, into MCA3 in order to maximize the vegetated acreage of the marsh platform. Change Order No. 9 allowed the Contractor to survey, remobilize, repair and maintain existing earthen containment dike around the perimeter of MCA3, and hydraulically dredge additional material from BA2 into MCA3. (See Figure 27 for MCA3 As-Built ECD Coordinates)

ECD TYPE III ECD CENTERLINE COORDINATES			ECD TYPE V ECD CENTERLINE COORDINATES		
PI NO.	NORTHING	EASTING	PI NO.	NORTHING	EASTING
MCA3-1	601,247.71	3,791,292.37	MCA3-7	601,204.28	3,793,375.36
MCA3-2	602,183.37	3,791,840.69	MCA3-8	599,915.50	3,793,097.67
MCA3-3	602,055.47	3,792,212.11	MCA3-9	599,900.27	3,792,857.90
MCA3-4	602,193.68	3,792,706.62	MCA3-10	600,115.51	3,792,783.48
MCA3-5	602,067.48	3,792,937.85	MCA3-11	600,763.88	3,792,181.13
MCA3-6	601,637.07	3,793,046.02	MCA3-12	601,019.93	3,791,825.51
MCA3-7	601,204.28	3,793,375.36	MCA3-1	601,247.71	3,791,292.37

**Figure 27. MCA3 As-Built ECD Type III and V Centerline Coordinates.**

#### 6.4 MARSH CREATION AREA BENEFITED ACREAGE

Table 4 illustrates the number of acres created and restored as a result of this project. The project involved the construction of three distinct Marsh Creation Areas with an addition to Marsh Creation Area 2 shown in the table below as Marsh Creation Area 2 North. The table below outlines the benefited acreage attributed to each individual MCA:

**Table 4: New Orleans Landbridge Shoreline Stabilization and Marsh Creation Benefited Acreage**

<b>Marsh Creation Area</b>	<b>Post-Construction</b>
Marsh Creation Area 1	109.02 acres
Marsh Creation Area 2	78.20 acres
Marsh Creation Area 2 North	27.71 acres
Marsh Creation Area 3	60.12 acres
Totals	275.05 acres

## 6.5 BORROW AREA 1

Borrow Area 1 template width ranged from approximately 681 ft to 1,921 ft and was approximately 2,881 ft in length. Excavation of the overburden extended from elevation -9.0 ft down to -23.0 ft, approaching the design bottom-of-cut elevation of -25.0 ft NAVD88 as indicated in the plans. The material dredged from Borrow Area 1 was classified as clayey sand, silty sand, sandy silt, and very soft clay. (See Figure 29)

The analysis of the pre-construction and post-construction surveys determined that approximately 590,791.40 CY of borrow material had been removed from Borrow Area 1 for the construction of MCA1. (See Table 5)

## 6.6 BORROW AREA 2

In BA2, the borrow area typical section was designed as a trapezoidal shape with a 1 on 3 slope. The borrow or cut depth varied from existing water bottom elevation, approximately -5.0' to -15.0', to -25.0' NAVD88 maximum elevation. Borrow Area 2 template width is approximately 1,142 ft and approximately 2,931 ft in length. The material dredged from Borrow Area 2 was classified as very soft clay to soft to medium clay. (See Figure 28)

The analysis of the pre-construction and post-construction surveys determined that approximately 922,436.62 CY of borrow material had been removed from Borrow Area 2 for the construction of MCA2, MCA2 North, and MCA3. (See Table 5)

**Table 5: Volume Placed from Borrow Area to Marsh Creation Area**

<b>Borrow Area</b>	<b>Volume</b>
Volume Dredged from Borrow Area 1	590,791.40 CY
Volume Dredged from Borrow Area 2	922,436.62 CY
Total Volume Dredged	1,513,228.02 CY
<b>Marsh Creation Areas</b>	<b>Volume</b>
Total Volume Placed – MCA1	590,791.40 CY
Total Volume Placed – MCA2	373,949.62 CY
Total Volume Placed – MCA2 N (CO#6)	133,584.00 CY
Total Volume Placed – MCA3	280,123.00 CY
Total Volume Placed – MCA3 2 <sup>nd</sup> Lift (CO#9)	134,780.00 CY

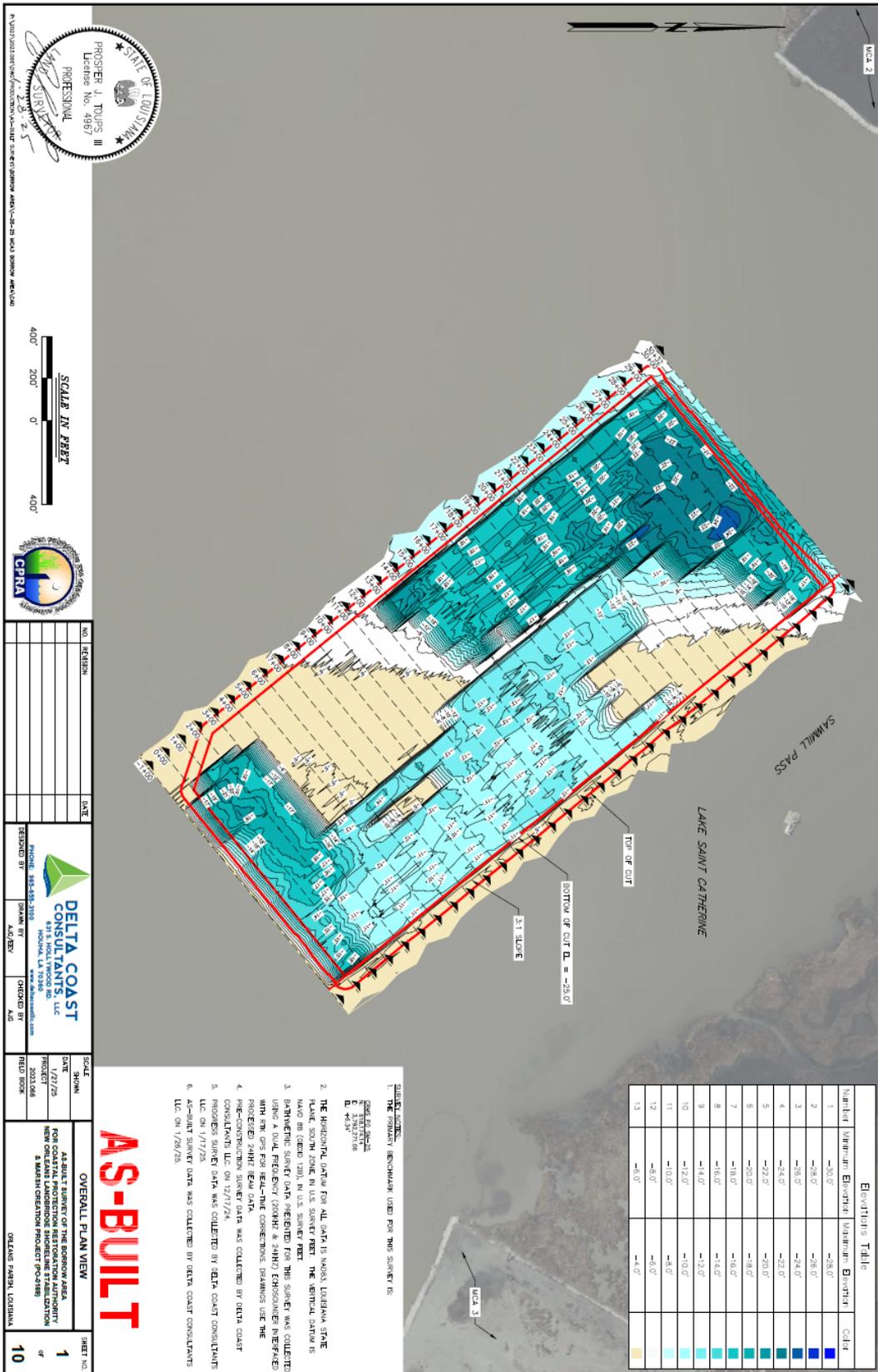


Figure 28. Borrow Area 2 - Post-Construction Bathymetry



## **7.0 CONSTRUCTION DELIVERABLES**

### **7.1 CONSTRUCTION CONTRACTOR DAILY PROGRESS REPORTS**

MDD for Phase 1 and CDC for Phase 2 were required to provide Daily Progress Reports listing the location of the dredge within the Borrow Areas, location of the discharge within the fill templates, safety issues, communications, and general construction progress notes. The Contractor Daily Reports are presented in Appendix J.

### **7.2 RESIDENT PROJECT REPRESENTATIVE (RPR) OBSERVATION REPORTS**

LH&J provided full-time RPR services to observe the construction efforts for the Project. The RPR observed daily construction activities to confirm compliance with the construction plans and specifications. The RPR developed and submitted a daily report of the progress, observations, and communications with the Construction Administrator and the Construction Contractor. The RPR reports also contain select photographs showing key items and site conditions for that day. The Daily Inspection Reports are presented in Appendix K. The Construction Observation Photographs are presented in Appendix L.

### **7.3 AERIAL PHOTOGRAPHS**

Pre-construction aerial photographs were collected on March 11, 2022. Post-construction aerial photographs were collected on March 1, 2025, following the demobilization of equipment from the Marsh Creation Areas. Pre- and post-construction aerial photographs are included in Appendix I.

### **7.4 PRE-CONSTRUCTION AND POST CONSTRUCTION SURVEYS**

All survey data from the pre-construction and post-construction surveys were formatted in the required CPRA Coastal Information Management System format. Files containing the survey data, metadata, and appropriate shapefiles are included in Appendix H.

## 8.0 PROJECT COSTS

### 8.1 CONSTRUCTION COST AND CONTRACT TIME

During the course of the PO-0169 Project a total of eleven (11) Change Orders and a total of ten Field Orders were executed (Appendix B). Summaries of the Change Orders for the Project are listed below.

Change Order No. 1: The purpose of Change Order No. 1 was to adjust the Contract to reflect the changes in Contract Price and Time associated with the re-alignment of the Earthen Containment Dike along perimeter of MCA1 and MCA2 to account for erosion that has occurred between the design survey data collection timeframe (early 2016) and the pre-construction survey data collection timeframe (early 2022). The adjusted alignments serve to optimize the implementation of the Earthen Containment Dike feature for the project by providing more favorable water depth conditions for dike constructability and stability. Summaries of the changes are as follows:

- 1) Decrease of \$397,014.64 in the Contract price for the deduction of 59,972 square yards to the quantity for Pay Item No. 9, Woven Geotextile Fabric, to decrease the quantity associated with changing Woven Geotextile Fabric to Geogrid.
- 2) Increase of \$18,220.44 in the Contract price for the addition of 2,786 square yards to the quantity for Pay Item No. 10, Non-Woven Geotextile Fabric, for additional quantity associated with the re-alignment for MCA1.
- 3) Increase of \$228,452.00 in the Contract price for the addition of 2,786 square yards to the quantity for Pay Item No. 11, Articulated Concrete Mats, for additional quantity associated with the re-alignment for MCA1. This item was utilized to standardize the (ACM) length to 40 feet and made it possible for the overbuilding of the Earth Containment Dike (ECD).
- 4) Increase of \$7,699.86 in the Contract price for the addition of 1,134 square yards to the quantity for Pay Item No. 14, Non-Woven Geotextile Fabric, for additional quantity associated with the re-alignment for MCA2. An additional quantity of Non-Woven Geotextile Fabric was required to install directly underneath the Articulated Concrete Mats. (ACM).
- 5) Increase of \$80,514.00 in the Contract price for the addition of 1,134 square yards to the quantity for Pay Item No. 15, Articulated Concrete Mats, for additional quantity associated with the re-alignment for MCA2. An additional quantity of Articulated Concrete Mats was required to standardize the ACM length to 40 feet and made it possible for the overbuilding of the Earth Containment Dike (ECD).
- 6) Increase of \$44,250.00 in the Contract Price for the addition of Pay Item No. 20, CO-01 Additional MCA-1 & 2 Surveying, for additional survey effort associated with the re-alignment for MCA1 and MCA2. This item includes the evaluation of other proposed re-

alignment options and the preparation of a modified alignment for MCA2 which maximized the shift to shallower water along Lake St. Catherine while avoiding having to dredge access for equipment to accommodate the re-alignment.

- 7) Increase of \$433,791.00 in the Contract Price for the addition of 47,100 square yards of new Pay Item No. 21, CO-01 Biaxial Geogrid, to the Contract as a replacement for the Woven Geotextile Fabric Bid item in MCA2. The quantity of the Woven Geotextile Fabric Pay Item is adjusted accordingly in this change order.
- 8) Increase in Contract time of sixty (60) calendar days to account for the time required for this work.

Change Order No. 2: The purpose of Change Order No. 2 was to add to the Contract to reflect the following changes: two new pay items, Pay Item No. 22, Additional MCA3 Surveying, and Pay item No. 23, MCA3 ECD Type V Mod. Summaries of the changes are as follows:

- 1) Increase of \$22,814.00 in the Contract Price for the addition of Pay Item No. 22, Additional MCA3 Surveying, which accounts for four (4) days of additional surveying associated with the MCA3 ECD Type V Modification.
- 2) Increase of \$94,136.86 in the Contract Price for the addition of Pay Item No. 23, MCA3 ECD Type V Modification, is a follow-up to Emergency Field Authorization No. 1 to adjust the Contract for the costs and time associated with this design modification and subsequent ECD construction. In addition to the work performed by Subcontractors, this item includes all costs, such as field office equipment, boats/operators, and field personnel, incurring during the 8-day period from April 21, 2022, to April 28, 2022, until resolution on the elevation placement of the woven was reached.
- 3) Increase in Contract time of fourteen (14) calendar days to account for the time required for this work which is based on the original project construction schedule needed to complete one (1) lift of the 3,700 LF reach of Type V ECD.

Change Order No. 3: The purpose of Change Order No. 3 was to adjust the Contract to reflect the following change: one new pay item, Pay Item No. 24, MCA3 ECD Closure.

- 1) Increase of \$35,323.29 in the Contract Price for the addition of Pay Item No. 24, MCA3 ECD Closure, due to high water levels and wave action eroding and washing out the earthen material placed atop the WGF at the last section of MCA3 ECD constructed along Lake St. Catherine, additional work was required to construct the closure. This additional work was beyond the scope of what was anticipated at the time of Emergency Field Change Authorization No. 1 execution based on the MCA3 ECD Type V Modification. This additional work included placing and drying earthen material on an adjacent barge prior to installation at the closure and installing temporary breakwaters to control the wave action and erosion at the closure location.
- 2) Increase in Contract time of eleven (11) calendar days to account for the time required

for this work which is based on the time associated with this additional work between June 11, 2022, and August 4, 2022.

Change Order No. 4: The purpose of Change Order No. 4 was to adjust the Contract to reflect the changes in Contract Price and Time for additional work due to MCA2 N Expansion. Change Order No. 4 increased the project footprint to the north of the original MCA2 boundary through the addition of a new fill area. The CWPPRA Task Force has reviewed the work and the associated benefits and has approved the budget for the work. The expansion area shall be fully contained by an earthen containment dike (ECD) with a height of +2.5' (+0.5' tolerance) and fill placed to an elevation of +1.5'. The cost has been reviewed, compared to the Engineer's estimate, and deemed to be reasonable for the associated work, The days added are commensurate with the additional work to be performed.

- 1) Increase of \$43,000.00 in the Contract Price for the addition of Pay Item No. 25, Surveying – MCA2 North, to the Contract for additional survey effort associated with the MCA2 North Expansion.
- 2) Increase of \$1,947.00 in the Contract Price for the addition of Pay Item No. 26, Grade Stakes, to the Contract for three (3) additional grade stakes required in the MCA2 North Expansion.
- 3) Increase of \$79,560.00 in the Contract Price for the addition of Pay Item No. 27, Earthen Containment Dikes, to the Contract for additional 2,210 linear feet of Earthen Containment Dike construction around the MCA2 North Expansion.
- 4) Increase of \$455,598.00 in the Contract Price for the addition of Pay Item No. 28, Hydraulic Dredging & Marsh Fill – MCA2 North, to the Contract for additional 85,800 cubic yards of Hydraulic Dredging and Marsh Fill required to fill the MCA2 North Expansion Area.
- 5) Increase of \$104,422.00 in Contract Price for the addition of Pay Item No. 29, Biaxial Geogrid – MCA2 North, to the Contract for additional 9,580 square yards of Biaxial Geogrid required under the additional 2,210 linear feet of Earthen Containment Dikes.
- 6) Increase in Contract time of seventy-seven (77) calendar days to account for the time required to perform additional work required to expand MCA2 to the north.

Change Order No. 5:

The purpose of Change Order No. 5 was to adjust the Contract to reflect the changes in Contract Price and Time for the following:

- 1) Increase of \$50,000 in Contract Price for the addition of Pay Item No. 30, Mobilization & Demobilization – MCA2 North, to the Contract for additional cost to mobilize and demobilize for the additional work added under Change Order No. 4.
- 2) Increase in Contract time of forty-five (45) calendar days to account for the time required to construct the Earthen Containment Dikes (ECDs) for MCA2 expansion to

the north added under Change Order No. 4.

Change Order No. 6:

The purpose of Change Order No. 6 was to adjust the Contract to reflect the changes in Contract Price and Time for the following:

- 1) Increase of \$73,440.00 in Contract Price for the addition of Pay Item No. 31, Mobilization & Demobilization – MCA1 Shoreline Repair, to the Contract for additional cost to mobilize and demobilize for the additional work added with Change Order No. 6.
- 2) Increase of \$13,791.57 in Contract Price for the addition of Pay Item No. 32, Surveys – MCA1 Shoreline Repair, to the Contract for additional survey effort associated with the MCA1 Shoreline Repair work.
- 3) Increase of \$117,670.00 in Contract Price for the addition of Pay Item No. 33, Earthen Containment Dike Repair, to the Contract for the temporary repair of the southern 1,000-ft reach of the Lake Pontchartrain shoreline at MCA1 so that hydraulic dredging operations can be completed.
- 4) Increase in Contract time of fifty-two (52) calendar days to account for the time required to mobilize, construct, and survey the 1,000-ft reach of the Lake Pontchartrain shoreline at MCA1.

Change Order No. 7:

The purpose of Change Order No. 7 was to adjust the Contract to reflect the changes in Contract Price and Time for the following:

- 1) Increase of \$786,114.00 in the Contract Price for the addition of 224,604 cubic yards to the quantity for Item 8, additional Hydraulic Dredging and Marsh Fill estimated for MCAs 1 and 2 and does not include MCA3.
- 2) Increase of \$98,213.76 in the Contract Price for the addition of 18,496 cubic yards to the quantity for Item 28, additional Hydraulic Dredging and Marsh Fill was required in MCA2 North to meet the fill target elevation for acceptance.
- 3) Increase in Contract time of forty-nine (49) calendar days to account for the time required to perform the additional Hydraulic Dredging and Marsh Fill for Pay Items 8 and 28 as required to achieve acceptance target elevations and complete the Work.

Change Order No. 8:

The purpose of Change Order No. 8 was to adjust the Contract to reflect the changes in Contract Price and Time for the following:

- 1) Increase of \$155,519.28 in the Contract Price for the additional 29,288 cubic yards of

Hydraulic Dredging and Marsh Fill MCA2 North for Bid Item No. 28, Hydraulic Dredging and Marsh Fill MCA2 North (TS-400).

- 2) Increase in Contract time of twenty-five (25) days to account for the time required for this work and weather days accrued through July 2024.

Change Order No. 9: The purpose of Change Order No. 9 was to adjust the Contract to reflect the changes in Contract Price and Time for the following:

- 1) Increase of \$69,011.72 in Contract Price for the addition of Pay Item No. 36, Mobilization & Demobilization – MCA3 Additional Fill Placement, to the Contract for additional Mobilization and Demobilization effort associated with the MCA3 Additional Fill Placement.
- 2) Increase of \$103,808.20 in Contract Price for the addition of Pay Item No. 37, Surveys – MCA3 Additional Fill Placement, to the Contract for additional survey effort associated with the MCA3 Additional Fill Placement.
- 3) Increase of \$2,400.00 in Contract Price for the addition of Pay Item No. 38, Grade Stakes - MCA3 Additional Fill Placement, to the Contract for the additional 3 Grade Stakes required for the Change Order No. 9 Hydraulic Dredging Operations at MCA3.
- 4) Increase of \$33,000.00 in Contract Price for the addition of Pay Item No. 39, Earthen Containment Dike Repair & Maintenance - Additional Fill Placement, to the Contract for the additional 275 linear feet of Earthen Containment Dike work required to complete the additional fill placement at MCA3.
- 5) Increase of \$1,078,240.00 in Contract Price for the addition of Pay Item No. 40, Hydraulic Dredging – MCA3 Additional Fill Placement, to the Contract for additional 134,780 cubic yards of Hydraulic Dredging fill material to increase the vegetated acreage of the marsh within the fill area.
- 6) Increase in Contract time of one hundred and sixty (160) total calendar days to account for the time required to perform the additional Hydraulic Dredging and Marsh Fill operations for MCA3 Additional Fill Placement. This change order gives one hundred (100) calendar days for the required MCA3 Additional Fill Placement Work and also gives sixty (60) calendar days to the Contractor to mobilize from this project to complete a separate, pre-existing, third-party contract which could not be delayed any further.

Change Order No. 10: The purpose of Change Order No. 10 was to add eight (8) calendar days to the contract time for accrued adverse weather days in excess of the monthly anticipated adverse weather days as per GP-7 that were incurred through February 19, 2025, and that were not accounted for in prior change orders. The changes in Contract Time were completed as follows:

- 1) Increase in Contract time of eight (8) days to account for the time affected by adverse weather days in excess of the monthly anticipated adverse weather days as per GP-7 that

occurred through February 19, 2025, and that were not accounted for in prior change orders.

Change Order No. 11: The purpose of Change Order No. 11 was to reconcile the Contract bid items by accounting for unused quantities and quantity overruns and adding a lump sum item, Final Claim Resolution Settlement, agreed by the CPRA and the Contractor to compensate the Contractor. The changes in Contract Price were completed as follows:

- 1) Deduction of \$550.00 in Contract Price for non-installation of 1 unit of quantity for Bid Item No. 3 - Grade Stakes.
- 2) Deduction of \$7,308.00 in Contract Price for non-installation of linear feet for 252 linear feet for Bid Item No. 6 Earthen Containment Dikes.
- 3) Deduction of \$75,739.93 in Contract Price for non-installation of 21,639.98 CY of quantity for Bid Item No. 8 Hydraulic Dredging & Marsh Fill.
- 4) Increase in Contract Price of \$2,620.26 for installation and placement of 385.90 SY of quantity for Bid Item No. 14 Alternate#1 Non-Woven Geotextile Fabric.
- 5) Increase in Contract Price of \$27,398.90 for installation and placement of 385.90 SY of quantity for Bid Item No. 15 Alternate#1 Articulated Concrete Mats.
- 6) Deduction in Contract Price of \$1,437.04 for non-installation of 211.64 SY of quantity for Bid Item No. 18 Alternate#2 Non-Woven Geotextile Fabric.
- 7) Deduction in Contract Price of \$15,873.00 for non-installation of 211.64 SY of quantity for Bid Item No. 19 Alternate#2 Articulated Concrete Mats.
- 8) Deduction in Contract Price of \$20,201.40 for non-installation of 2,193.42 SY of quantity for Bid Item No. 21 Biaxial Geogrid which was added by Change Order No. 1.
- 9) Deduction in Contract Price of \$10,080.00 for non-installation of 280 LF for Bid Item No. 27 Earthen Containment Dikes which was added by Change Order No. 4.
- 10) Deduction in Contract Price of \$57,606.50 for non-installation of 5,285 SY of quantity for Bid Item No. 29 Biaxial Geogrid which was added by Change Order No. 4.
- 11) Deduction in Contract Price of \$2,400.00 for non-installation of 3 units of quantity for Bid Item No. 38 Grade Stakes – MCA3 Additional Fill Placement.
- 12) Increase of \$265,689.98 in Contract Price for the addition of Pay Item No. 41, Final Claim Resolution Settlement, to the Contract for additional compensation to the Contractor. (See Change Order 11 in Appendix B for more clarification)

Refer to Appendix B for the fully executed Change Order documents.

The summary of Construction Costs changes is presented in Table 6.

**Table 6: Construction Costs**

<b>Construction Contract Adjustments</b>	<b>Amount</b>	<b>Issue Date</b>
Original Construction Contract	\$11,682,274.20	8/13/2021
Change Order No. 1	\$415,912.66	8/25/2022
Change Order No. 2	\$116,950.86	8/25/2022
Change Order No. 3	\$35,323.29	8/30/2022
Change Order No. 4	\$684,527.00	2/28/2023
Change Order No. 5	\$50,000.00	4/11/2023
Change Order No. 6	\$229,409.50	2/21/2024
Change Order No. 7	\$884,327.76	4/16/2024
Change Order No. 8	\$155,519.28	8/15/2024
Change Order No. 9	\$1,286,459.92	9/10/2024
Change Order No. 10	\$0.00	2/27/2025
Change Order No. 11	\$104,513.27	10/14/2025
Liquidated Damages	\$0.00	
Final Construction Contract	\$15,864,799.92	
Over (+) / Under (-) Runs	\$4,182,525.72	

The summary of changes in Contract Time is presented in Table 7.

**Table 7: Construction Duration**

<b>Construction Contract Adjustments</b>	<b>Days</b>
Original Construction Contract	395
Change Order No. 1	60
Change Order No. 2	14
Change Order No. 3	11
Change Order No. 4	77
Change Order No. 5	45
Change Order No. 6	52
Amendment No. 1	54
Change Order No. 7	49
Change Order No. 8	25
Change Order No. 9	160
Change Order No. 10	8
Change Order No. 11	0
Final Construction Contract Duration	1,042
Actual Construction Duration	1,042
Over (+) / Under (-) Runs	0

a. ANALYSIS OF CONSTRUCTION COST

An analysis of the total construction and administration cost was performed. The final construction cost for the Project including all Change Orders and Contract amendments was determined to be 35.82% more than the final opinion of probable construction cost (CEC, 2021). The significant majority of the additional construction costs can be attributed to the damages caused by the prime Contractor moving off the job and having to acquire a new Contractor months later to finish out the work. Additionally, a significant majority of the additional construction costs can be attributed to the additional fill material added to MCA2 N through Change Order Number 6, additional fill material added to MCA3 through Change Order Number 9, and additional cost for the Final Claim Resolution Settlement added through Change Order Number 11. A summary of the construction cost comparison is presented in Table 8.

**Table 8: Total Construction Cost Comparison**

<b>Total Construction Costs *</b>	<b>Amount</b>
Final Opinion of Probable Construction Cost (2021)	\$11,682,274.20
Final Construction Cost (Including Change Orders) (2025)	\$15,864,799.92
Over (+) / Under (-) Runs	+\$4,182,525.72

\* Includes construction related items included in the original Bid Items and Change Orders.

## 9.0 ITEMS OF WORK

The summary of the completed construction items of work is presented in Table 9.

**Table 9: Construction Items of Work**

Bid Item	Unit	Bid Quantity	Unit Price	Contract Amount	Final Quantity	Final Amount	Increase / Decrease	% Over / Under
<b>Base Bid</b>								
1. Mobilization Demobilization	LS	1	\$800,000.00	\$800,000.00	1.00	\$800,000.00	\$0.00	0%
2. Surveys	LS	1	\$410,000.00	\$410,000.00	1.00	\$410,000.00	\$0.00	0%
3. Grade Stakes	EA	24	\$550.00	\$13,200.00	23.00	\$12,650.00	-\$550.00	-4%
4. Settlement Plates	EA	11	\$1,900.00	\$20,900.00	11.00	\$20,900.00	\$0.00	0%
5. Instrumented Settlement Plates	EA	5	\$4,000.00	\$20,000.00	5.00	\$20,000.00	\$0.00	0%
6. Earthen Containment Dikes	LF	32,300	\$29.00	\$936,700.00	32,048.00	\$929,392.00	-\$7,308.00	-1%
7. Access and Flotation Channels	LS	0	\$0.00	\$0.00	0	\$0.00	\$0.00	0%
8. Hydraulic Dredging & Marsh Fill (224604 CY added in CO #7)	CY	1,041,900	\$3.50	\$3,646,650.00	1,244,864.02	\$4,357,024.07	\$710,374.07	19%
9. Woven Geotextile Fabric	SY	89,090	\$6.62	\$589,775.80	29,118.00	\$192,761.16	-\$397,014.64	-67%
10. Non-Woven Geotextile Fabric	SY	19,450	\$6.54	\$127,203.00	22,236.00	\$145,423.44	\$18,220.44	14%
11. Articulated Concrete Mats	SY	19,450	\$82.00	\$1,594,900.00	22,236.00	\$1,823,352.00	\$228,452.00	14%
<b>Alternative #1</b>								
12. Alt 1 Surveys (MCA 2)	LS	1	\$10,000.00	\$10,000.00	1.00	\$10,000	\$0.00	0%
13. Access and Flotation Channels	LS	0	\$0.00	\$0.00	0	\$0.00	\$0.00	0%
14. Alt 1 Non-Woven Geotextile Fabric (MCA 2)	SY	28,020	\$6.79	\$190,225.80	29,539.90	\$200,575.92	\$10,320.12	5%
15. Alt 1 Articulated Concrete Mats (MCA 2)	SY	28,020	\$71.00	\$1,989,420.00	29,539.90	\$2,097,332.90	\$107,912.90	5%

**Alternative #2**

<b>Bid Item</b>	<b>Unit</b>	<b>Bid Quantity</b>	<b>Unit Price</b>	<b>Contract Amount</b>	<b>Final Quantity</b>	<b>Final Amount</b>	<b>Increase / Decrease</b>	<b>% Over / Under</b>
16. Alt 2 Surveys (MCA 3)	LS	1	\$5,000.00	\$5,000.00	1.00	\$5,000.00	\$0.00	0%
17. Access and Flotation Channels	LS	0	\$0.00	\$0.00	0	\$0.00	\$0.00	0%
18. Alt 2 Non-Woven Geotextile Fabric (MCA 3)	SY	16,240	\$6.79	\$110,269.60	16,028.36	\$108,832.56	-\$1,437.04	-1%
19. Alt 2 Articulated Concrete Mats (MCA 3)	SY	16,240	\$75.00	\$1,218,000.00	16,028.36	\$1,202,127.00	-\$15,873.33	-1%
<b>Contract Add-On #1</b>								
20. CO-01 Additional MCA-1 & 2	LS	1	\$44,250.00	\$44,250.00	1.00	\$44,250.00	\$0.00	0%
21. CO-01 Biaxial Geogrid	SY	47,100	\$9.21	\$433,791.00	44,906.58	\$413,589.60	-\$20,679.48	-5%
<b>Contract Add-On #2</b>								
22. CO-02 Additional MCA-3 Surveying	LS	1	\$22,814.00	\$22,814.00	1.00	\$22,814.00	\$0.00	0%
23. CO-02 MCA-3 ECD Type V Mod	LS	1	\$94,136.86	\$94,136.86	1.00	\$94,136.86	\$0.00	0%
<b>Contract Add-On #3</b>								
24. CO-03 MCA-3 Gap Closure	LS	1	\$35,323.29	\$35,323.29	1.00	\$35,323.29	\$0.00	0%
<b>Contract Add-On #4</b>								
25. Surveying-MCA2 North-CO4	LS	1	\$43,000.00	\$43,000.00	1.00	\$43,000.00	\$0.00	0%
26. Grade Stakes-CO4 - MCA2 N	EA	3	\$649.00	\$1,947.00	3.00	\$1,947.00	\$0.00	0%
27. Earthen Containment Dikes-CO4 - MCA2 N	LF	2,210	\$36.00	\$79,560.00	1,930.00	\$69,480.00	-\$10,080.00	-13%

Bid Item	Unit	Bid Quantity	Unit Price	Contract Amount	Final Quantity	Final Amount	Increase / Decrease	% Over / Under
28. Hydraulic Dredging & Marsh Fill-CO4 - MCA2 N (18496 CY added in CO#7)	CY	133,584	\$5.31	\$709,331.04	133,584.00	\$709,331.04	\$0.00	0%
29. Biaxial Geogrid-MCA2 N	SY	9,580	\$10.90	\$104,422.00	4,295.00	\$46,815.50	-\$57,606.50	-55%
<b>Contract Add-On #5</b>								
30. Mob-Demob for CO4-MCA2 North	LS	1	\$50,000.00	\$50,000.00	1.00	\$50,000.00	\$0.00	0%
<b>Contract Add-On #6</b>								
31. CO6 - Mob/Demob for MCA 1 ECD Repairs	LS	1	\$73,440.00	\$73,440.00	1.00	\$73,440.00	\$0.00	0%
32. CO6 - Surveys – MCA1 Shoreline Repairs	LS	1	\$13,791.57	\$13,791.57	1.00	\$13,791.57	\$0.00	0%
33. CO6 - Earthen Containment Dike Repair MCA1	LF	1,000	\$117.67	\$117,670.00	1,000.00	\$117,670.00	\$0.00	0%
<b>Amendment #1</b>								
34. Amendment to Takeover Agreement - Additional ECD Repair Work	LS	1	\$150,364.50	\$150,364.50	1.00	\$150,364.50	\$0.00	0%

Bid Item	Unit	Bid Quantity	Unit Price	Contract Amount	Final Quantity	Final Amount	Increase / Decrease	% Over / Under
35. Amendment to Takeover Agreement - Additional Project Precon Surveys	LS	1	\$93,725.61	\$93,725.61	1.00	\$93,725.61	\$0.00	0%
<b>Contract Add-On #9</b>								
36. Mobilization & Demobilization – MCA3 Additional Fill Placement	LS	1	\$69,011.72	\$69,011.72	1.00	\$69,011.72	\$0.00	0%
37. Surveys – MCA3 Additional Fill Placement	LS	1	\$103,808.20	\$103,808.20	1.00	\$103,808.20	\$0.00	0%
38. Grade Stakes – MCA3 Additional Fill Placement	EA	3	\$800.00	\$2,400.00	0	\$0.00	-\$2,400.00	-100%
39. Earthen Containment Dike Repair & Maintenance – MCA3 Additional Fill Placement	LF	275	\$120.00	\$33,000.00	275.00	\$33,000.00	\$0.00	0%
40. Hydraulic Dredging – MCA3 Additional Fill Placement	CY	134,780	\$8.00	\$1,078,240.00	134,780.00	\$1,078,240.00	\$0.00	0%
41. Final Claim Resolution Settlement	LS	1	\$265,689.98	\$265,689.98	1	\$265,689.98	\$0.00	0%

## 10.0 PAY ITEMS TIMELINE

This section outlines the start and end dates for key pay items associated with the project, including Earthen Containment Dikes, Non-Woven Geotextile Fabric, Articulated Concrete Mats, and Hydraulic Dredging & Marsh Fill. These activities are detailed for each designated area: MCA1, MCA2, and MCA3. Refer to Table 10 below for a comprehensive breakdown of the timelines.

**Table 10: Timeline of Pay Items and Individual Quantities per Marsh Creation Area**

Timeline of Pay Items and Individual Quantities per Marsh Creation Area				
Description	Begin Date	Completed Date	Final Quantity	Units
Earthen Containment Dike (MCA3)	3/14/2022	8/22/2022	6,931.00	LF
Earthen Containment Dike (MCA1)	6/2/2022	9/22/2022	12,300.00	LF
Earthen Containment Dike (MCA2)	7/28/2022	11/21/2022	14,271.50	LF
Articulated Concrete Mats (MCA3)	6/20/2022	8/12/2022	3,690.00	LF
Articulated Concrete Mats (MCA1)	8/16/2022	9/2/2022	5,003.00	LF
Articulated Concrete Mats (MCA2)	10/6/2022	11/11/2022	7,130.00	LF
Non-Woven Geotextile Fabric and Articulated Concrete Mats (MCA3)	6/20/2022	8/12/2022	16,028.36	SY
Non-Woven Geotextile Fabric and Articulated Concrete Mats (MCA1)	8/16/2022	9/2/2022	22,236.00	SY
Non-Woven Geotextile Fabric and Articulated Concrete Mats (MCA2)	10/6/2022	11/11/2022	29,539.90	SY
Hydraulic Dredging & Marsh Fill (MCA3)	1/17/2023	3/4/2023	280,123.00	CY
Additional Hydraulic Dredging & Marsh Fill (MCA3)(CO#9)	12/17/2024	1/18/2024	134,780.00	CY
Hydraulic Dredging & Marsh Fill (MCA1)(Phase 1)	11/18/2022	3/24/2023	394,553.00	CY
Hydraulic Dredging & Marsh Fill (MCA1)(Phase 2)	3/24/2024	5/19/2024	196,238.40	CY
Hydraulic Dredging & Marsh Fill (MCA2)(Phase 1)	3/20/2023	4/18/2023	91,097.00	CY
Hydraulic Dredging & Marsh Fill (MCA2 North)(Phase 2)(Part 1)	12/13/2023	1/17/2024	133,584.00	CY
Hydraulic Dredging & Marsh Fill (MCA2 North)(Phase 2)(Part 2)	6/6/24 then 6/27/24	6/30/2024		
Hydraulic Dredging & Marsh Fill (MCA2)(Phase 2)(Part 1)	12/13/2023	2/26/2024	416,436.62	CY
Hydraulic Dredging & Marsh Fill (MCA2)(Phase 2)(Part 2)	6/6/2024	8/16/2024		
Total Hydraulicly Dredged into MCA1		590,791.40		CY
Total Hydraulicly Dredged into MCA2		507,533.62		CY
Total Hydraulicly Dredged into MCA3		414,903.00		CY

## **11.0 MAJOR EQUIPMENT USED**

Below is a list of all major equipment used during the construction of the Project as reported in the Construction Contractor's Daily Progress Reports and as seen and documented in the Daily Resident Inspection Reports.

### **Phase 1:**

#### **Magnolia Dredge and Dock:**

- 1 - Hydraulic Cutter Suction Dredge Grand Chenier (18x18)
- 1 – Airboat (18' by 8' Robicheaux)
- 2 – Enclosed Crew Boat (Scully 27' x 8') and (Lobell 26')
- 1 – Marsh Buggy (330F CAT)
- 1 – Fuel Barge
- 1 – Equipment Barge
- 1 – Excavator (Komatsu PC360)
- 1 - Tugboat

#### **Wilco Marsh Buggy & Draglines:**

- 1 – Excavator (390 CAT)
- 1 – Airboat (18' by 8' Robicheaux)
- 1 – Crew Boat (32 Razorhead)
- 1 – Mudboat (Gatortail 2)
- 1 – Marsh Master
- 1 – Spud Barge
- 3 – Barges for the Articulated Concrete Mats
- 1 – Slide Barge
- 5 – Marsh Buggies (W55 – 336 CAT, W127 – 345 CAT, W190 – 349 CAT, W129 – 330 CAT, 300 Hitachi)

#### **Gill's Crane and Dozer Services:**

- 2 – Crane (Terex HC110)
- 1 – Forklift (United Rentals 10132883)
- 1 – Crane Barge (54' by 120' by 7')
- 1 – Tugboat
- 1 – Crew boat
- 1 – Cherry Picker

Frisco Construction Co.:

- 1 – Crane
- 1 – Crane Barge
- 1 – Crew Boat

Coastal Dredging Company:

- 1 – Hydraulic Cutter Suction Dredge Gazap (16x16)
- 1 – Crew Boat
- 1 – Tugboat
- 1 – Marsh Buggy (329D CAT)
- 1 – Fuel Barge
- 1 – Booster Pump (16 Inch)

**Phase 2:**

Coastal Dredging Company:

- 1 - Hydraulic Cutter Suction Dredge Gazap (16x16)
- 1 – Marsh Buggy (326F CAT)
- 1 - Booster Pump (16 inch)
- 1 – Spud Barge (Fuel Barge) (30’x80’)
- 1 – Living Quarters Barge (30’x80’)
- 2 – Tugboat (A-Frame)
- 1 – Airboat
- 2 – Crew Boats
- 1 – Forklift
- 1 – Living Quarters

Frogco Amphibious Equipment:

- 1 – Marsh Buggy (CAT 300F)
- 1 – Crew Boat without Cabin
- 1 – Airboat

Wilco Marsh Buggy & Draglines:

- 1 – Excavator (390F CAT)
- 1 – Spud barge (120’x55’)
- 1 – Marsh Buggy (CAT 329 Long Reach)
- 1 – Crew Boat

Gill's Crane and Dozer Services:

- 1 – Crane (Terex HC110)
- 1 – Tugboat (16'x40' w/ 2, 800 HP CAT Motors)
- 1 – Crane Barge (54' by 120' by 7')
- 1 – ACM Barge

**12.0 SAFETY AND ACCIDENTS**

Over the 1,042-day construction timeline, no major accidents were reported by the MDD or CDC Safety Officer or included in the Daily Progress Reports. However, one minor incident occurred on April 16, 2023, during the construction contract with MDD, in which an excavator fell from a barge into the water during an attempt to switch barges at the staging area, resulting in leakage of oil and fuel from the sunken excavator into the surrounding area. The operator only suffered minor injuries, and the issue was resolved by the contractor first placing an oil boom curtain around the contaminated area and then using special equipment, such as oil soak pads, to remove the oil and fuel from the area to be disposed of in containment drums. The contractor then arranged for the recovery of the sunken excavator.

**13.0 REFERENCES**

Linfield, Hunter & Junius, Inc., (LH&J), 2025. New Orleans Landbridge Shoreline Stabilization & Marsh Creation Project. (PO-0169), Final Project Completion Report. Prepared for Coastal Restoration and Protection Authority, Baton Rouge, LA, April 2025.

Linfield, Hunter & Junius, Inc., (LH&J), 2022/2025. Construction observation photographs. Collected as part of Construction Administration and Resident Project Representative services.

Appendices A - P  
Can be found on the Project USB Flash Drive