



DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, NEW ORLEANS DISTRICT
7400 LEAKE AVE
NEW ORLEANS, LA 70118-3651

PUBLIC NOTICE

October 11, 2021

United States Army
Corps of Engineers
New Orleans District
Attn: Regulatory Division, RGW
7400 Leake Ave.
New Orleans, Louisiana 70118-3651

Project Manager:
Johnny J. Duplantis
(504) 862-2548
Johnny.j.duplantis@usace.army.mil
Application #: MVN-2018-00910-WPP

Interested parties are hereby notified that a permit application has been received by the New Orleans District of the U.S. Army Corps of Engineers pursuant to: [X] Section 10 of the Rivers and Harbors Act of March 3, 1899 (30 Stat. 1151; 33 USC 403); and/or [X] Section 404 of the Clean Water Act (86 Stat. 816; 33 USC 1344).

FLOOD PROTECTION LEVEE CONSTRUCTION IN TERREBONNE PARISH

NAME OF APPLICANT: Terrebonne Levee Conservation District, c/o: GIS Engineering, LLC, 2503 Petroleum Drive, Suite 110, Houma, Louisiana 70363.

LOCATION OF WORK: Located in Terrebonne Parish, located along La. Highway 182, Bayou Black and Geraldine Road, near the communities of Houma and Gibson, Louisiana, (lat. 29.590575, long. -90.8309972), as shown within the attached drawings. (Hydrologic Unit Code 8090301, Barataria Watershed)

The work described below was partially completed prior to obtaining a Department of the Army permit and was in violation of Section 301 of the Clean Water Act. All legal issues concerning the unauthorized work have since been deferred.

CHARACTER OF WORK: This proposal is for the construction of four flood protection levees called; Reaches 1, 2, 3, and Geraldine Road levee. On May 10, 2011, the Corps received an emergency request from the Terrebonne Parish Consolidated Government (TPCG) for an emergency authorization to construct three flood protection levees known as Reaches 2, 3, and the Geraldine Road Levee. The emergency request was due to

the anticipated opening of the Morganza Spillway on May 15, 2011. TPCG noted that verbal authorization was provided by the Corps on May 11, 2011 to perform emergency levee construction along Hwy 182 and along Geraldine Road. On December 30, 2016, TPCG began construction of the Reach 1 flood protection levee in the same general area due to a projected Mississippi River high water flooding event. This newly constructed levee extended from the existing verbally authorized levees along Hwy 182 from Bayou Black towards Houma.

On August 8, 2018, the Terrebonne Levee and Conservation District (TLCD) submitted a revised permit application that included all three previously constructed levees (Reach 1, 2 & 3) and the proposed Geraldine Road Levee. TLCD completed wetland delineations for all four levees and submitted that data to the Corps on March 10, 2020. Reaches 1, 2, 3, and Geraldine Road are described in detail in the following drawings. The project includes a total of 52.42 acres of direct impacts to jurisdictional Bottomland Hardwoods wetlands and 21.38 acres of direct impacts to jurisdictional Cypress Tupelo wetlands. The applicant has proposed a project related plan which they expect the benefits will offset project related impacts, and that consists of a water management design that would reduce flooding/water levels affecting residences in the area and would additionally be managed in a way that would maintain beneficial water levels conducive to wetland habitat regeneration of degrading habitats within the levee system. A copy of this plan is attached to this Public Notice.

The applicant may be required to fully or partially restore the site to pre-project conditions if issuance of a permit is determined to be contrary to the public interest.

The comment period on the requested Department of the Army Permit will close **20 days** from the date of this public notice. Written comments, including suggestions for modifications or objections to the proposed work, stating reasons thereof, are being solicited from anyone having interest in this permit request, and must be submitted so as to be received before or by the last day of the comment period. Letters and/or comments concerning the subject permit application must reference the Applicant's Name and the Permit Application Number and can be preferably emailed to the Corps of Engineers project manager listed above or forwarded to the Corps of Engineers at the address above, **ATTENTION: REGULATORY DIVISION, RGW, Johnny J. Duplantis.** Individuals or parties may also request an extension of time in which to comment on the proposed work by mail or preferably by emailing the specified project manager listed above. Any request for an extension of time to comment must be specific and substantively supportive of the requested extension and received by this office prior to the end of the initial comment period. The Section Chief will review the request and the requestor will be promptly notified of the decision to grant or deny the request. If granted, the time extension will be continuous and inclusive of the initial comment period and will not exceed a total of 30 calendar days.

Corps of Engineers Permit Criteria

The decision whether to issue a permit will be based on an evaluation of the probable impacts, including cumulative impacts of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership and, in general, the needs and welfare of the people.

The U.S. Army Corps of Engineers is soliciting comments from the public, federal, state, and local agencies and officials, Indian Tribes, and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the U.S. Army Corps of Engineers to determine whether to make, modify, condition, or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

The New Orleans District is unaware of properties listed on the National Register of Historic Places near the proposed work. The possibility exists that the proposed work may damage or destroy presently unknown archeological, scientific, prehistorical, historical sites, or data. As deemed necessary, copies of this public notice will be sent to the State Archeologist, State Historic Preservation Officer and federally listed tribes regarding potential impacts to cultural resources.

Our initial finding is that the proposed work would neither affect any species listed as endangered by the U.S. Departments of Interior or Commerce, nor affect any habitat designated as critical to the survival and recovery of any endangered species. Based on the Information Planning and Consultation (IPaC) tool for Endangered Species in Louisiana, as signed on January 27, 2020, between the U.S. Army Corps of Engineers, New Orleans and the U.S. Fish and Wildlife Service, it has been determined that the project would have no effect to the Western Indian Manatee.

This notice initiates the Essential Fish Habitat (EFH) consultation requirements of the Magnuson-Stevens Fishery Conservation and Management Act. The applicant's proposal may result in the destruction, alteration, and/or disturbance of **0.0 acres** of

EFH utilized by various life stages of red drum and penaeid shrimp. Our initial determination is that the proposed action would not have a substantial adverse impact on EFH or federally managed fisheries in the Gulf of Mexico. Our final determination relative to project impacts and the need for mitigation measures is subject to review by and coordination with the National Marine Fisheries Service.

If the proposed work involves deposits of dredged or fill material into navigable waters, the evaluation of the probable impacts will include the application of guidelines established by the Administrator of the Environmental Protection Agency. ***Also, a certification that the proposed activity will not violate applicable water quality standards will be required from the LA Department of Environmental Quality before a Department of the Army permit can be issued.***

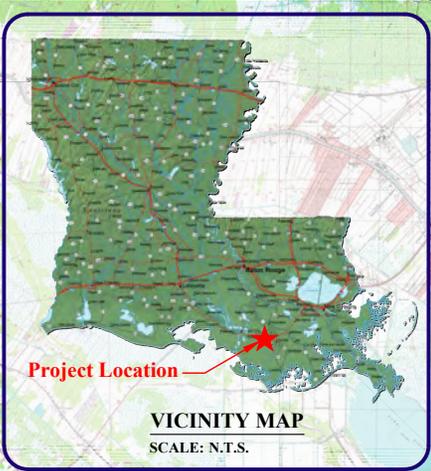
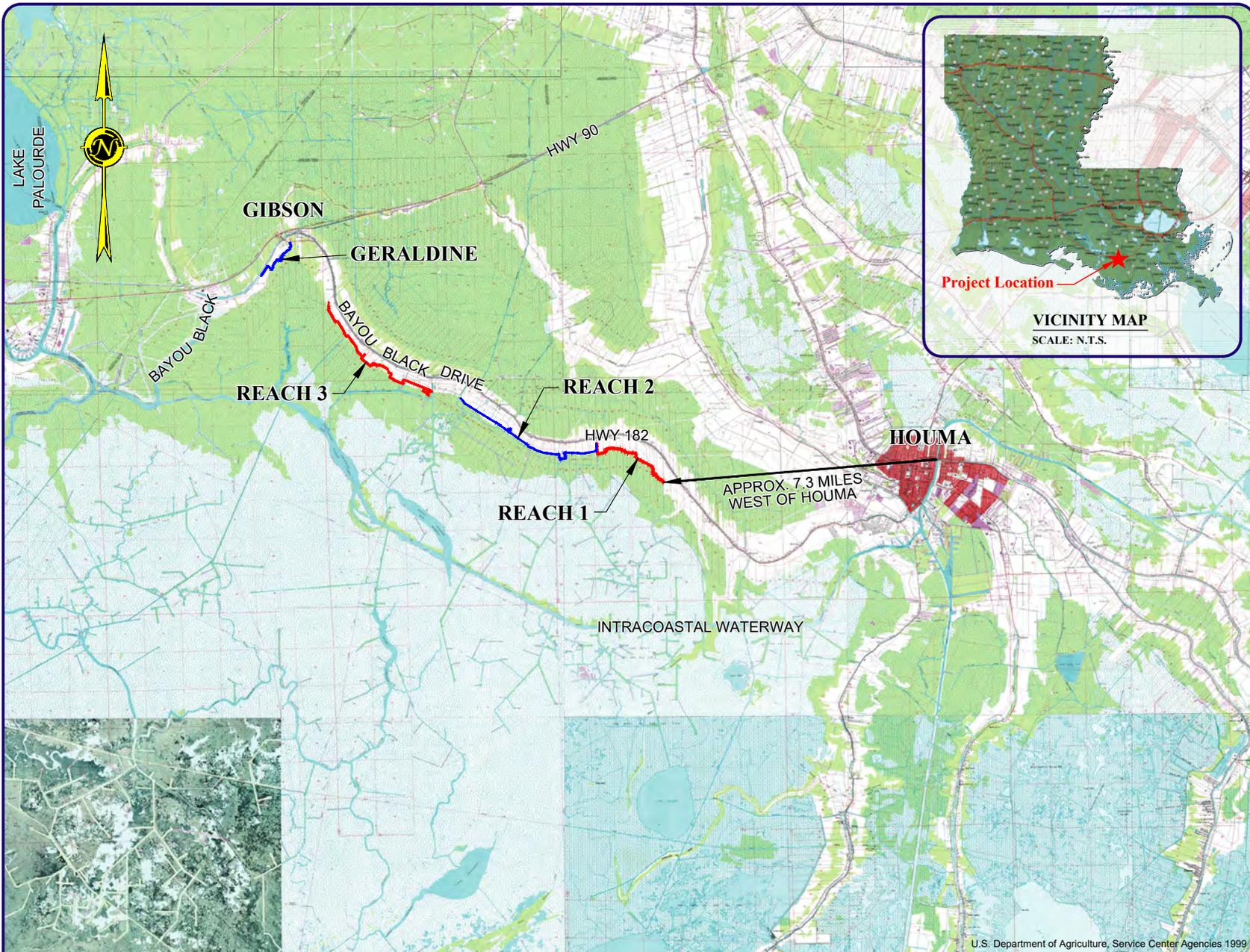
Any person may request, (preferably by email to the project manager, or in writing), within the comment period specified in this notice, that a public hearing be held to consider this application. Requests for public hearings shall state, with particularity, the reasons for holding a public hearing.

The applicant has certified that the proposed activity described in the application complies with and will be conducted in a manner that is consistent with the Louisiana Coastal Resources Program. The Department of the Army permit will not be issued unless the applicant receives approval or a waiver of the Coastal Use Permit by the Department of Natural Resources.

You are invited to communicate the information contained in this notice to any other parties whom you deem likely to have interest in the matter.

Darrell S. Barbara
Chief, Western Evaluation Branch
Regulatory Division

Enclosure



ENGINEERING LLC
 Coastal Design & Infrastructure
 2503 Petroleum Dr. | Suite 110
 Houma, LA 70363
 O: (985) 219-1000 | F: (985) 475-7014
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REVISIONS		
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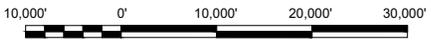
FOR PERMIT APPLICATION ONLY

DUSTIN M. MALBROUGH
 LA. LICENSE NO. 36779

TERREBONNE LEVEE AND CONSERVATION DISTRICT
 BAYOU BLACK LEVEE REACH 1, 2, 3, AND GERALDINE ALIGNMENT AFTER-THE-FACT
 TERREBONNE PARISH, LOUISIANA

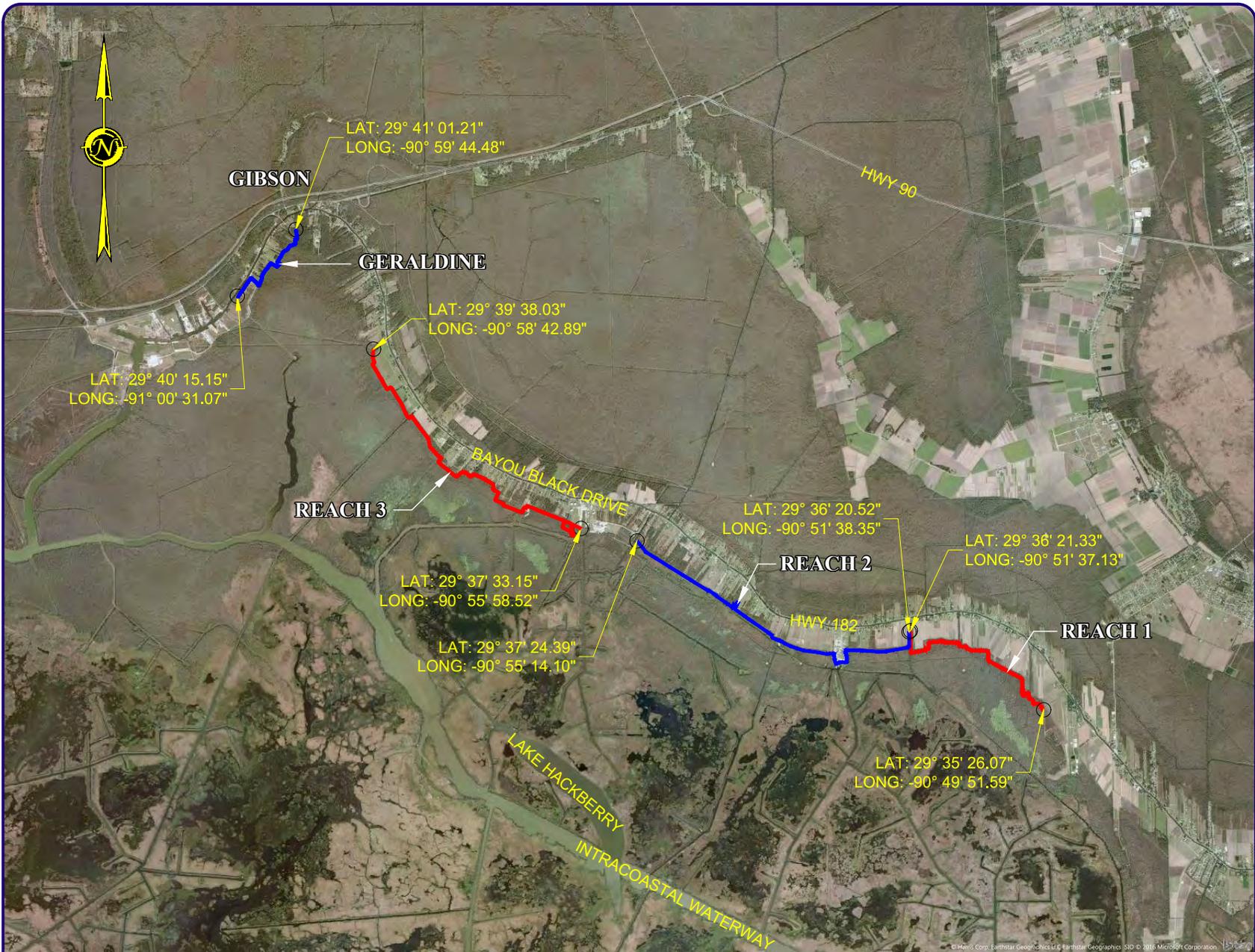
VICINITY MAP

Project number	39130-1025
Date	April 2016
Designed by	DMM
Drawn by	MAC
Checked by	MM
Checked by	DMM
Plot Date	June 16, 2016



NOTE: THE IMAGE ABOVE IS A GENERAL REPRESENTATION OF THE WORK AREA, ACTUAL FIELD CONDITIONS MAY DIFFER.

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NOTE: STAGING AREA AND ACCESS ROUTES TO THE LEVEE WERE IN AGRICULTURAL AREAS/UPLANDS. NO ADDITIONAL WETLAND AREAS WERE AFFECTED DUE TO STAGING.



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PROJECT LOCATION PLAN VIEW

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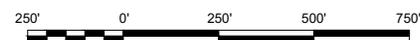
GERALDINE - PLAN VIEW

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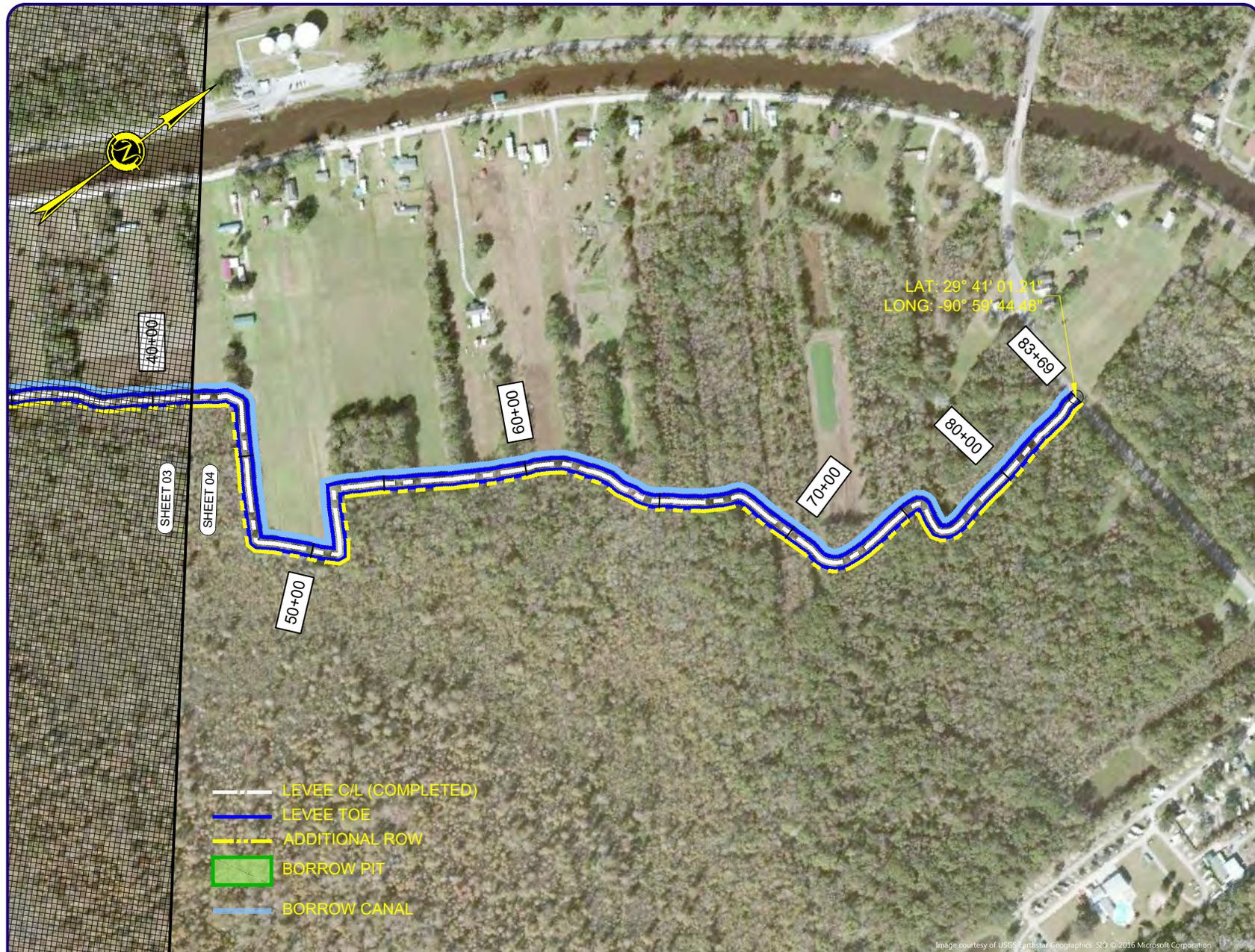
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**REACH 3 -
 PLAN VIEW**

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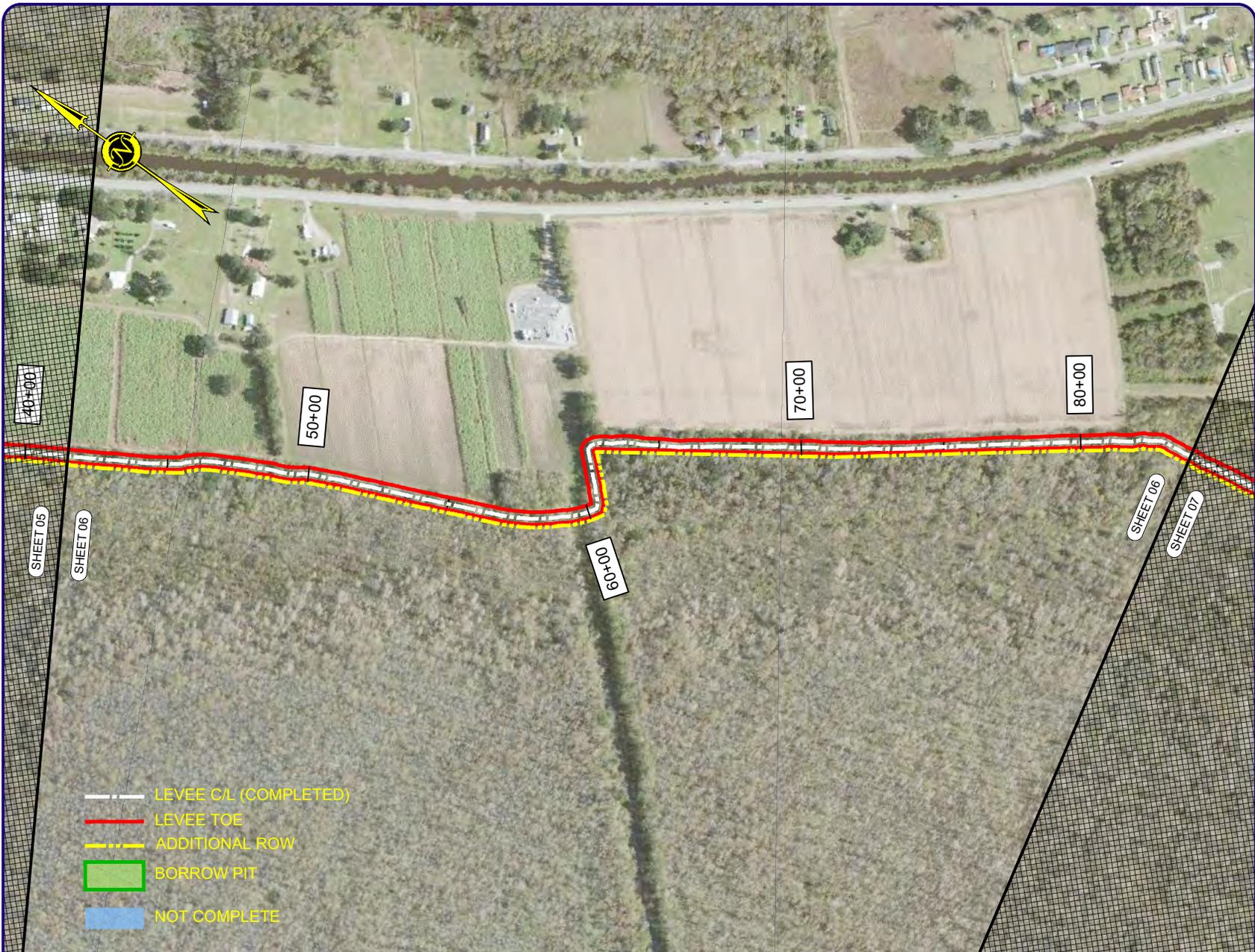


- LEVEE CL. (COMPLETED)
- LEVEE TOE
- ADDITIONAL ROW
- BORROW PIT
- NOT COMPLETE

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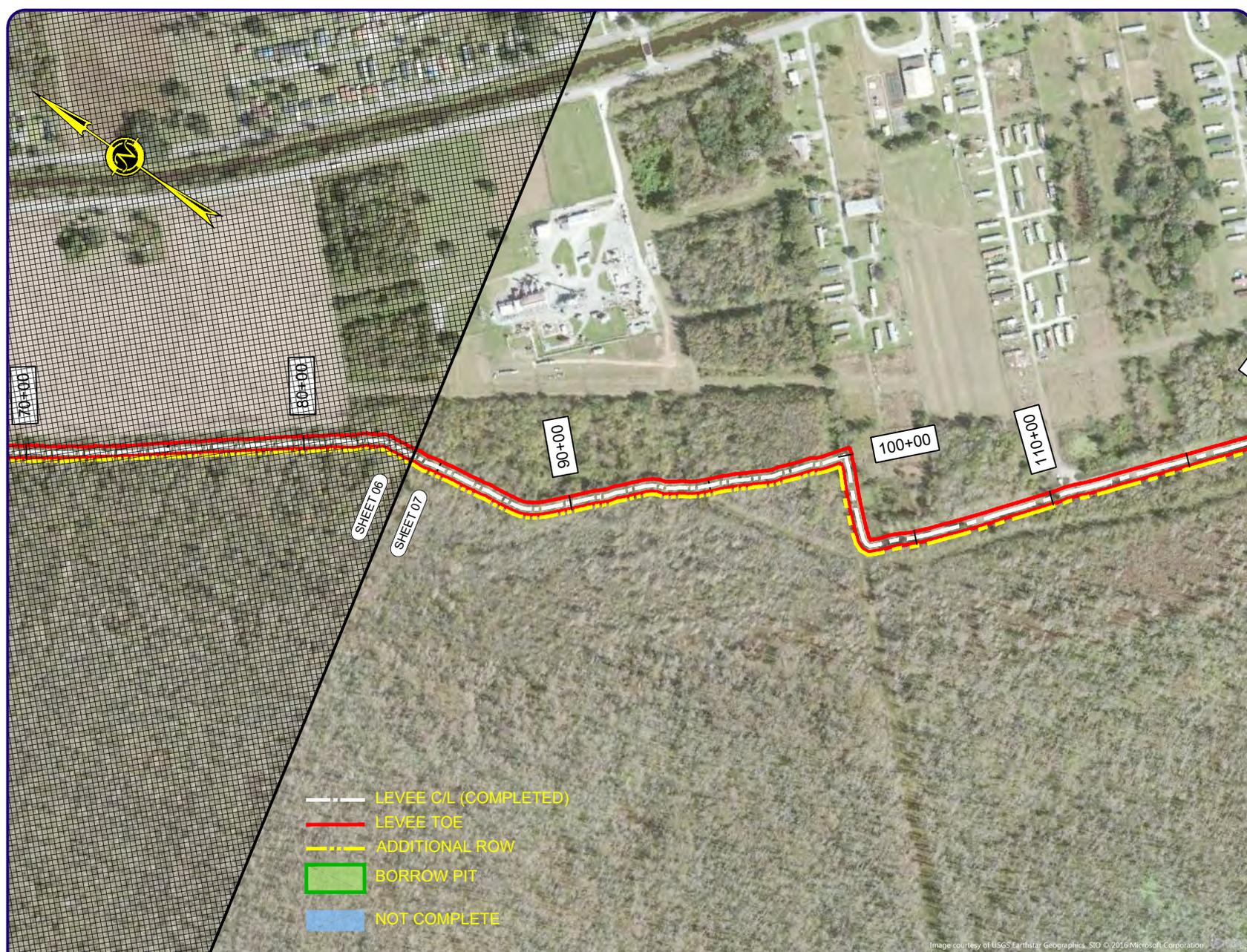
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**REACH 3 -
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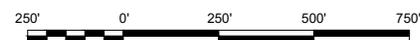
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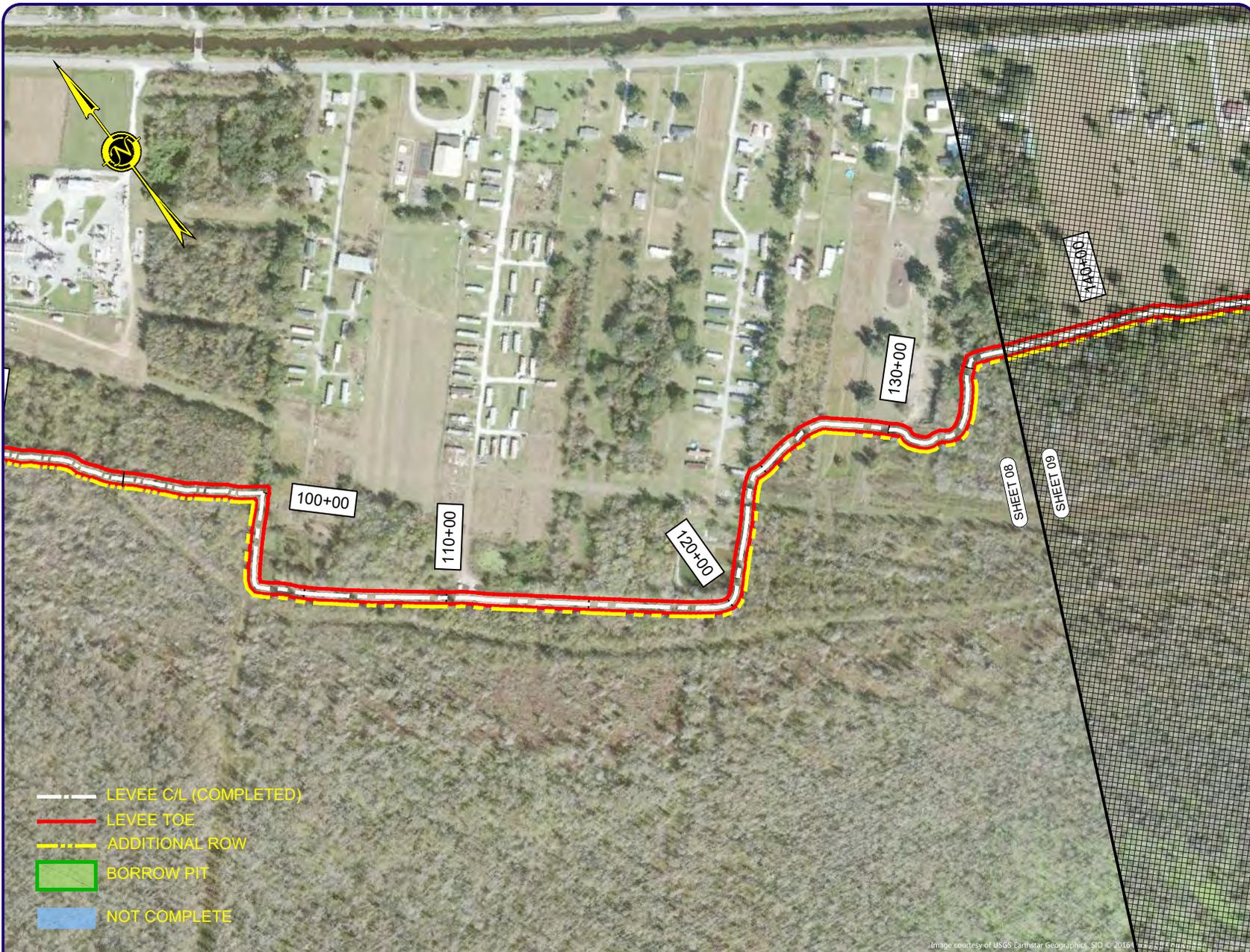


- LEVEE C/L (COMPLETED)
- LEVEE TOE
- ADDITIONAL ROW
- BORROW PIT
- NOT COMPLETE

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 2503 Petroleum Dr. | Suite 110
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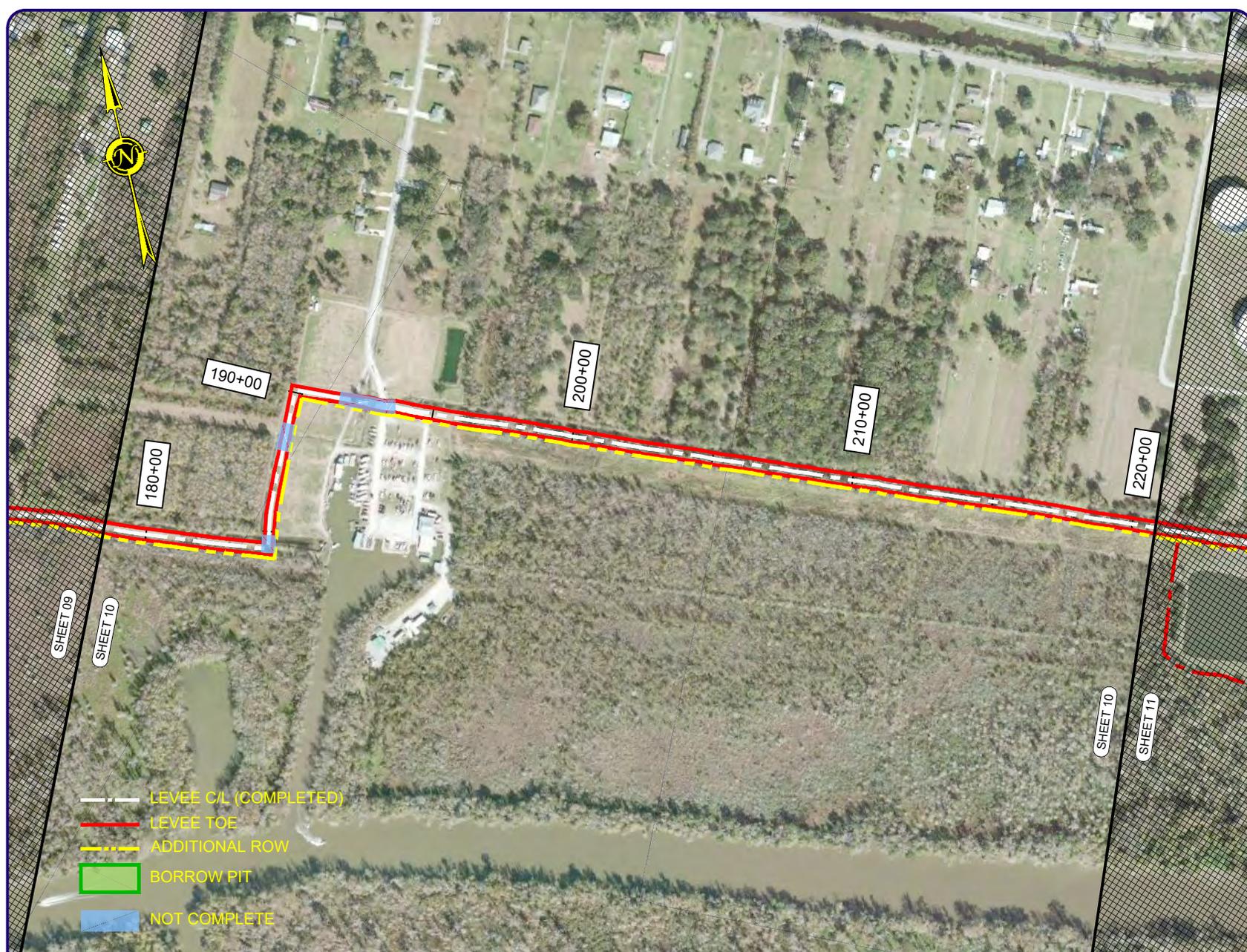
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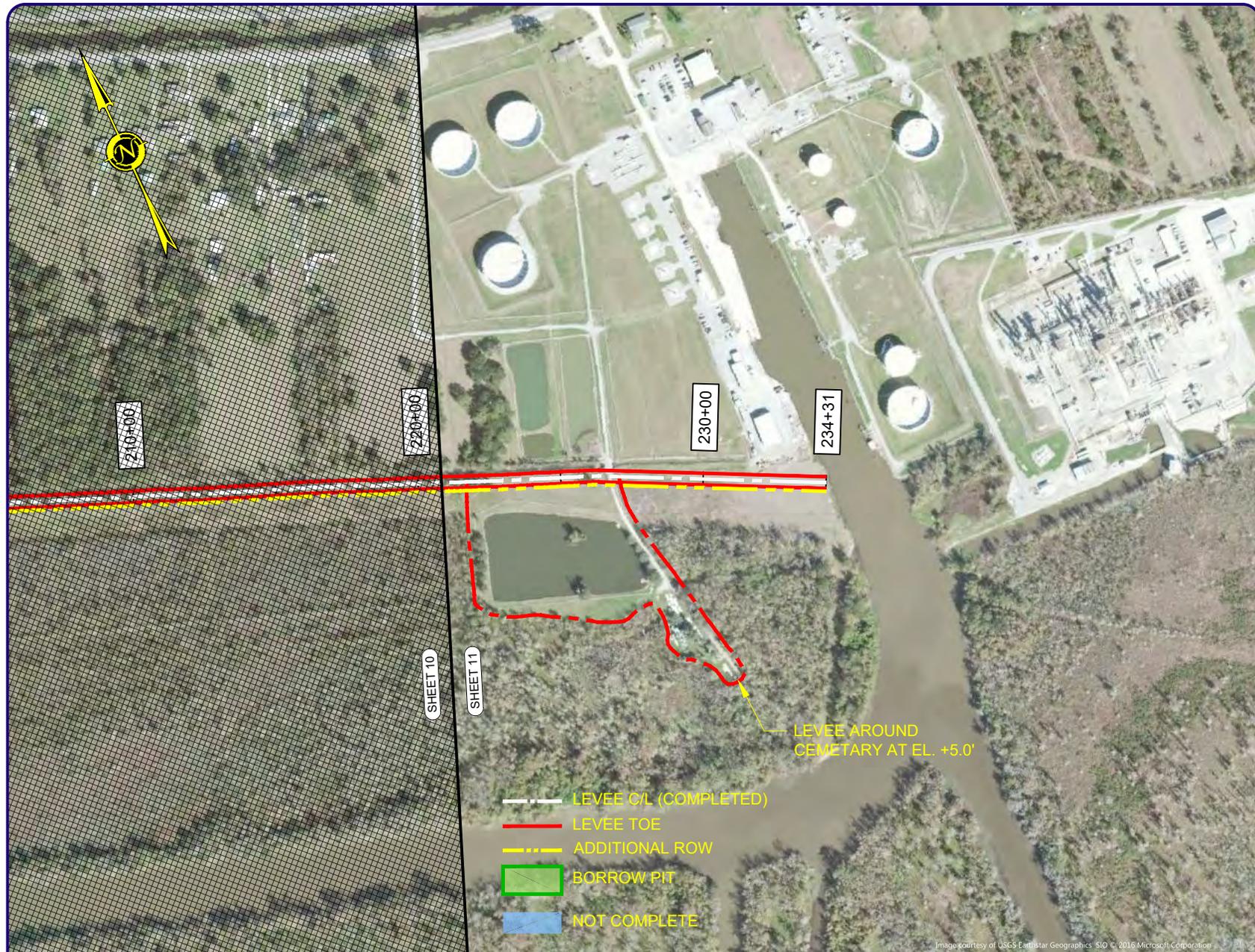
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REACH 3 - PLAN VIEW

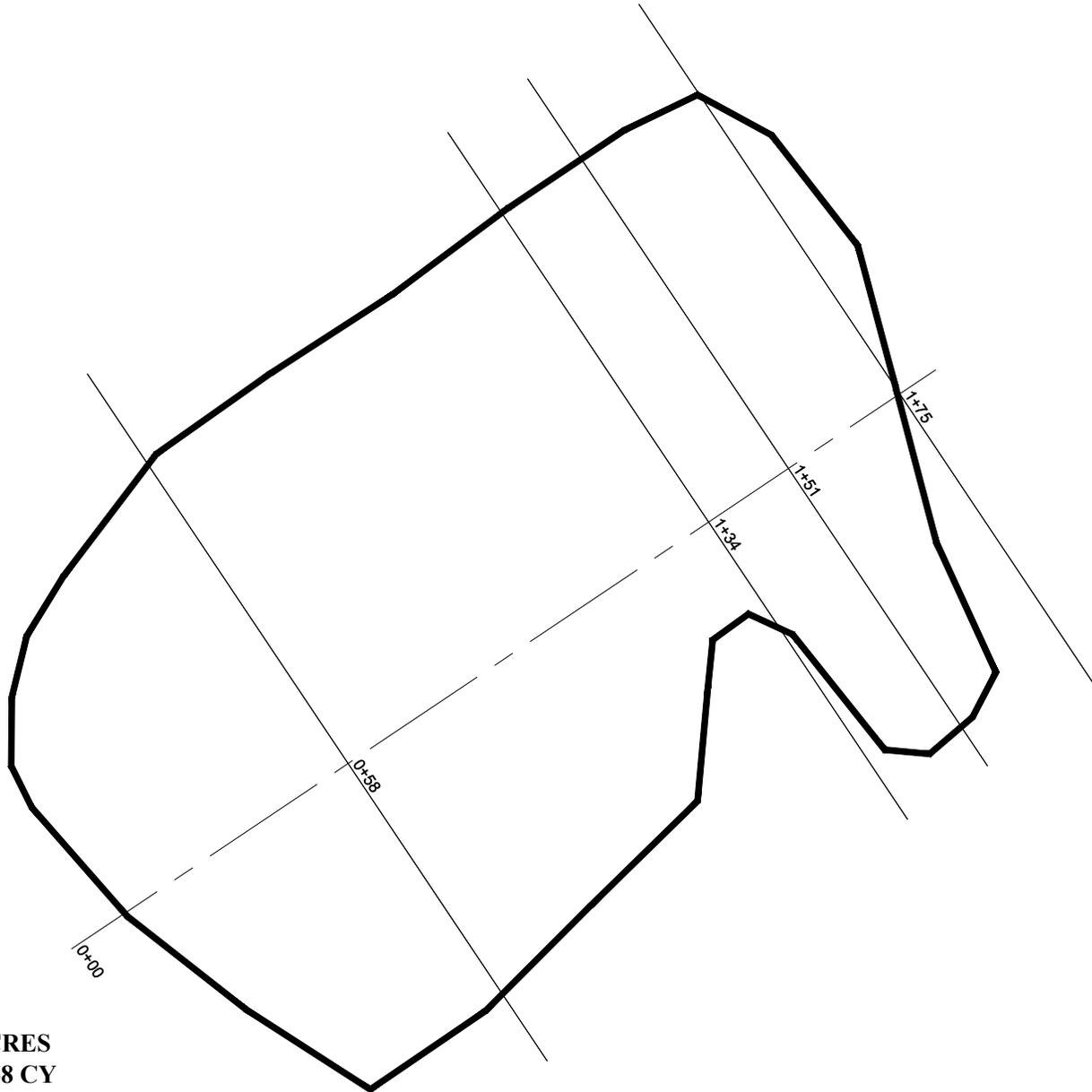
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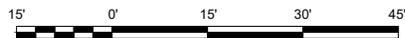


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AREA: 0.38 ACRES
VOLUME: 4,958 CY

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BAYOU BLACK LEVEE REACH 1, 2, 3, AND GRADLINE ALIGNMENT AFTER-THE-FACT
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**MICHAEL LEBLANC
BORROW PIT**

Project number	39130-1025
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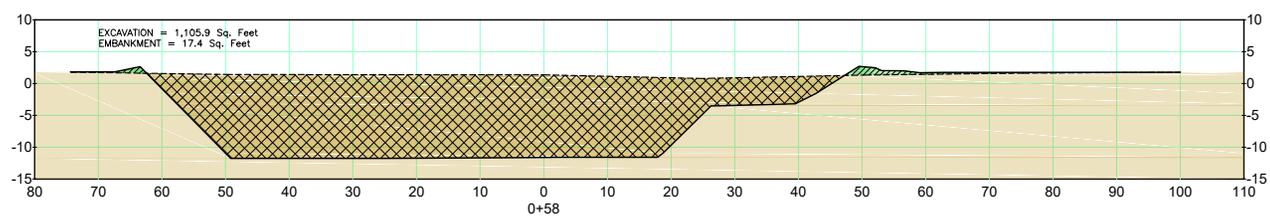
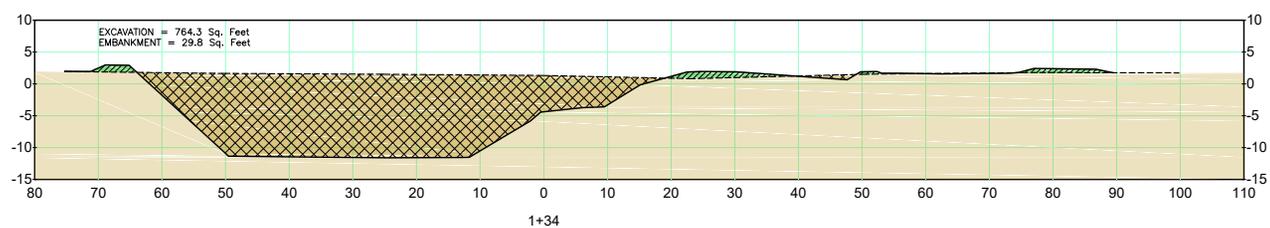
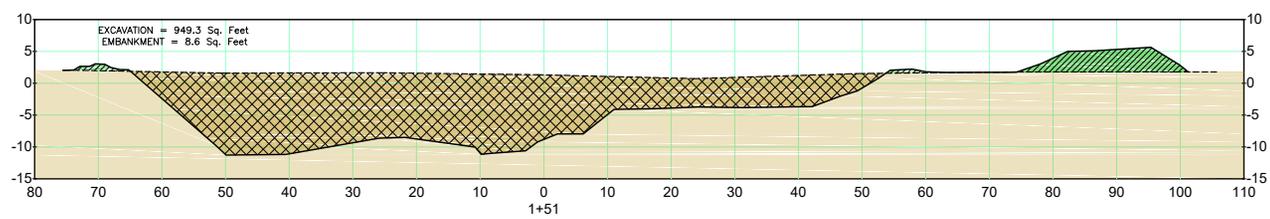
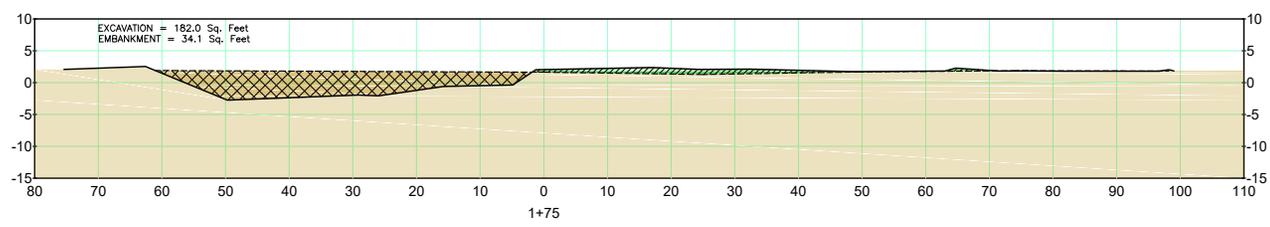
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 BAYOU BLACK LEVEE REACH 1, 2, 3, AND GRADLINE ALIGNMENT AFTER-THE-FACT
 TERREBONNE PARISH, LOUISIANA

**MICHAEL LEBLANC
 BORROW PIT**

Project number	39130-1025
Date	April 2016
Designed by	DMM
Drawn by	MAC
Checked by	MM
Checked by	DMM
Plot Date	June 16, 2016

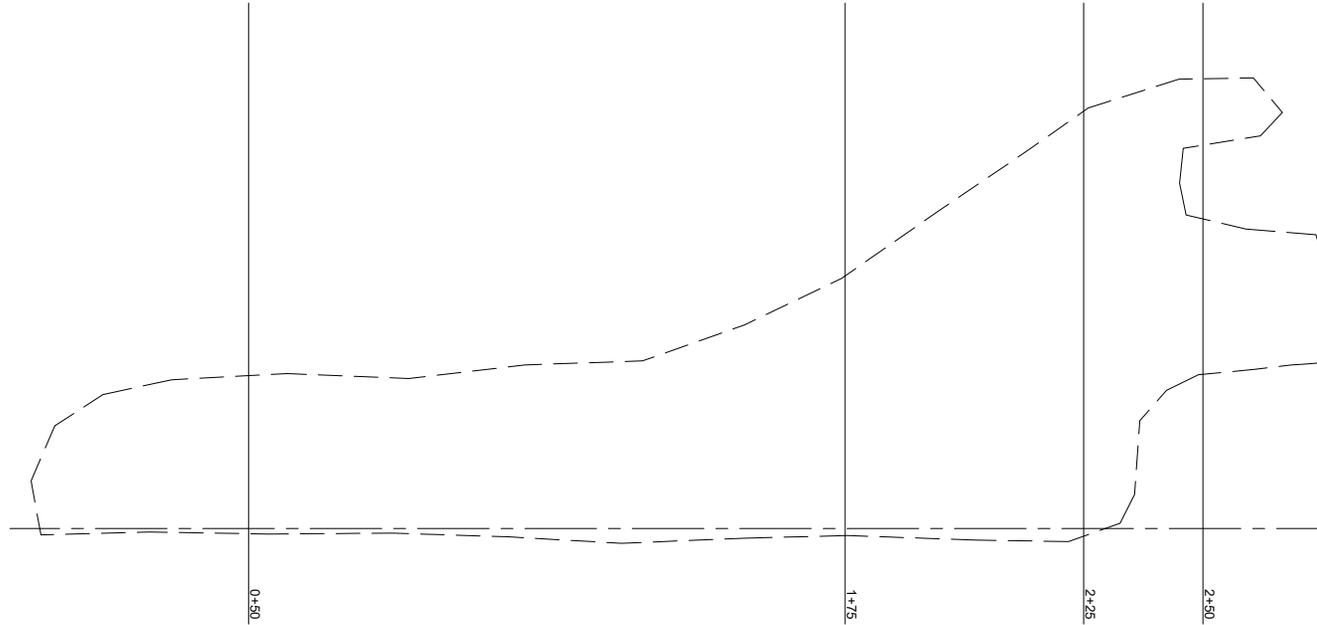
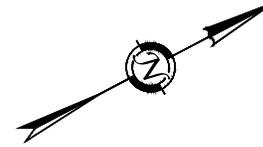


LEGEND
 ORIGINAL SECTION -----
 FINAL SECTION - - - - -

NOTE: THE IMAGE ABOVE IS A GENERAL REPRESENTATION OF THE WORK AREA, ACTUAL FIELD CONDITIONS MAY DIFFER.



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LEGEND

BASELINE ————
 TOP BANK - - - - -

ACRES: 0.286 ACRES
 VOLUME: 3,423 CY

ERIC WILKINSON BORROW PIT



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REVISIONS

No.	Description	Date

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DUSTIN M. MALBROUGH
 LA LICENSE NO. 36779

TERREBONNE LEVEE AND CONSERVATION DISTRICT
 BAYOU BLACK LEVEE REACH 1, 2, 3, AND GRALDINE ALIGNMENT AFTER-THE-FACT
 TERREBONNE PARISH, LOUISIANA

ERIC WILKINSON BORROW PIT

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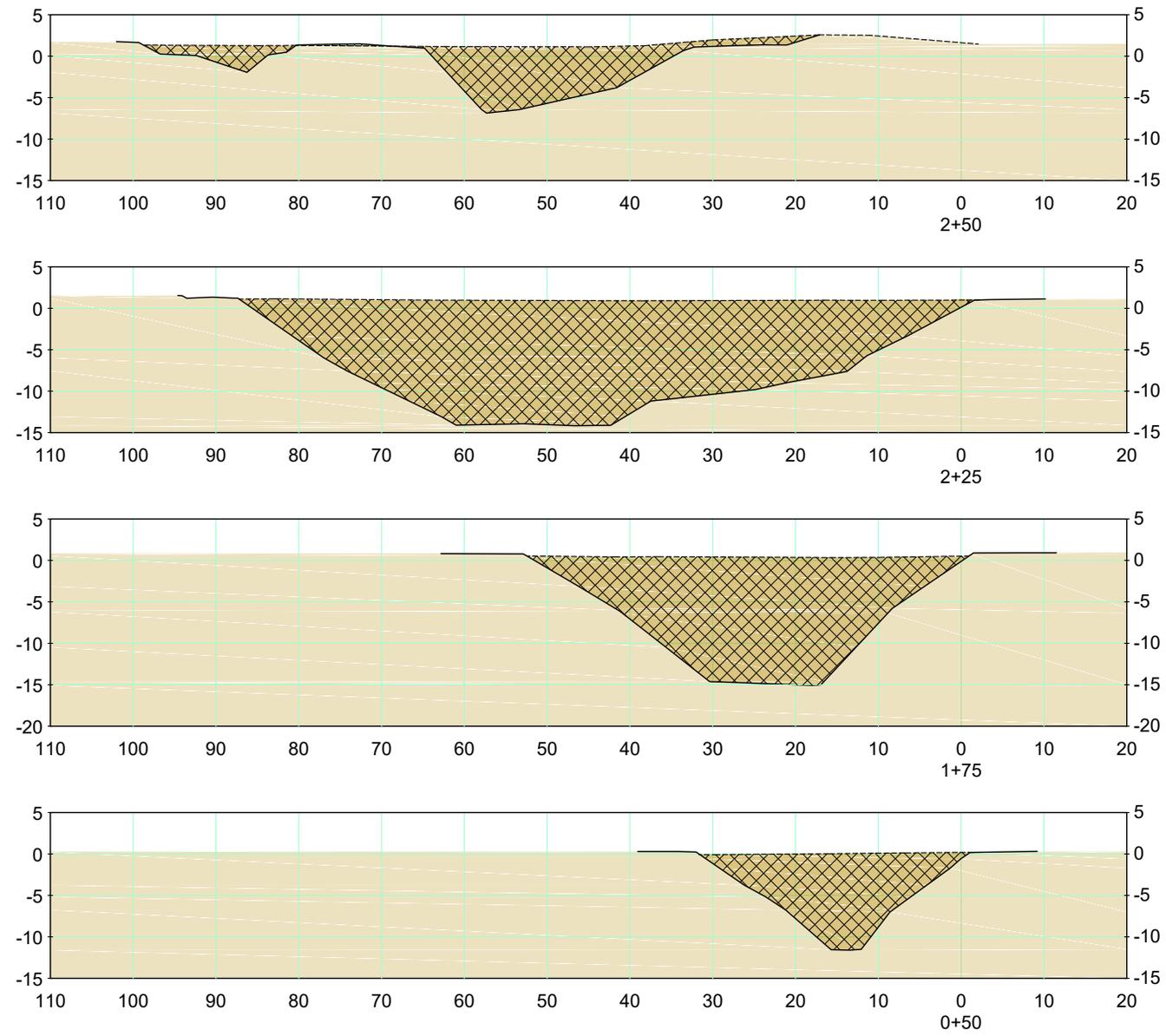
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 BAYOU BLACK LEVEE REACH 1, 2, 3, AND GRADLINE ALIGNMENT AFTER-THE-FACT
 TERREBONNE PARISH, LOUISIANA

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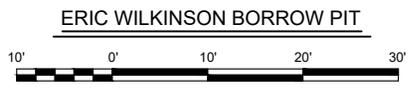
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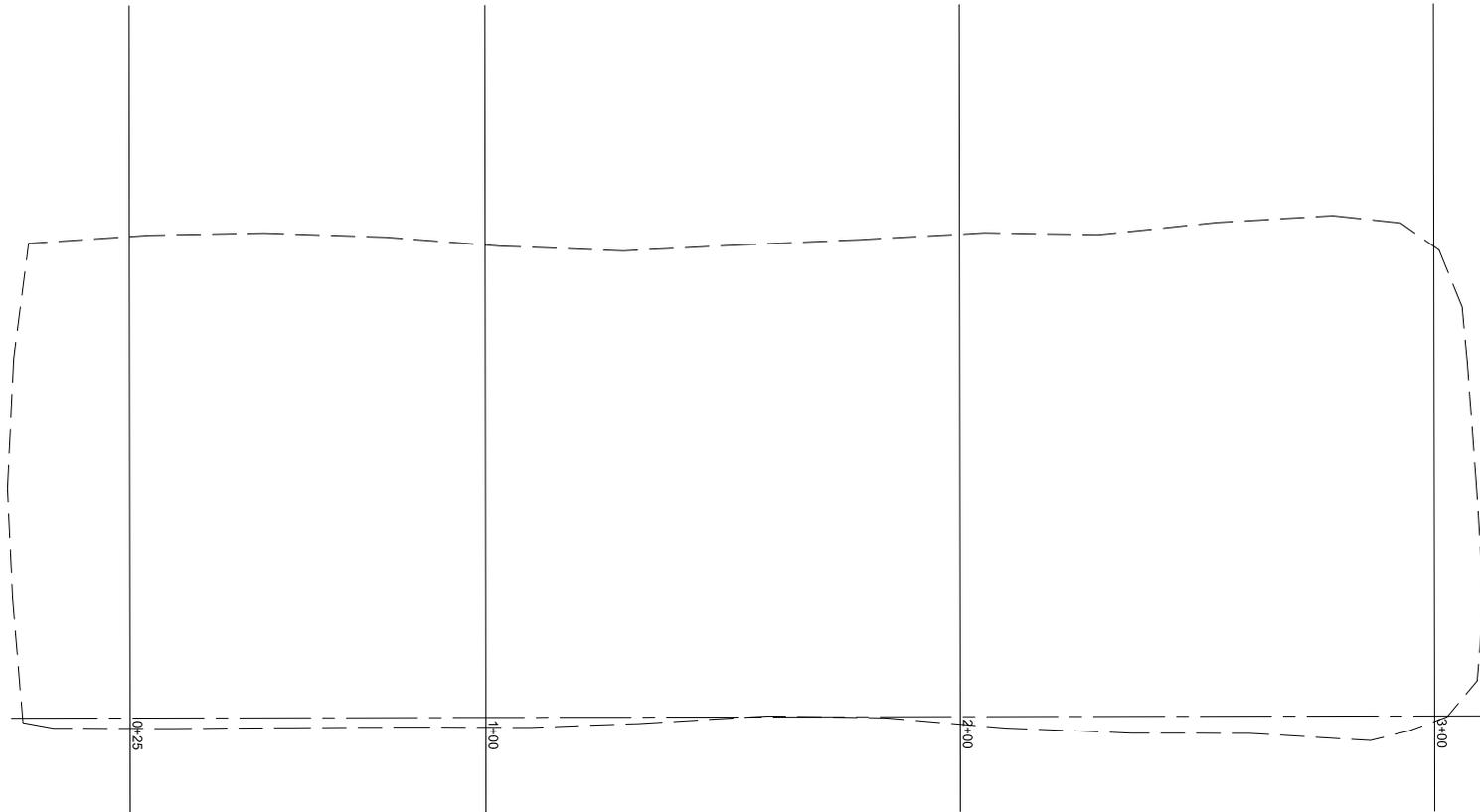
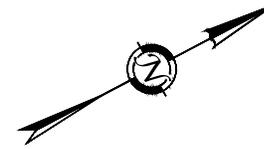
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LEGEND

ORIGINAL SECTION	-----
FINAL SECTION	_____



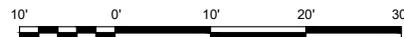
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LEGEND

- BASELINE ————
- TOP BANK - - - - -
- AREA: 0.728 ACRES
- VOLUME: 10,344 CY

LEO ALBINSON BORROW PIT



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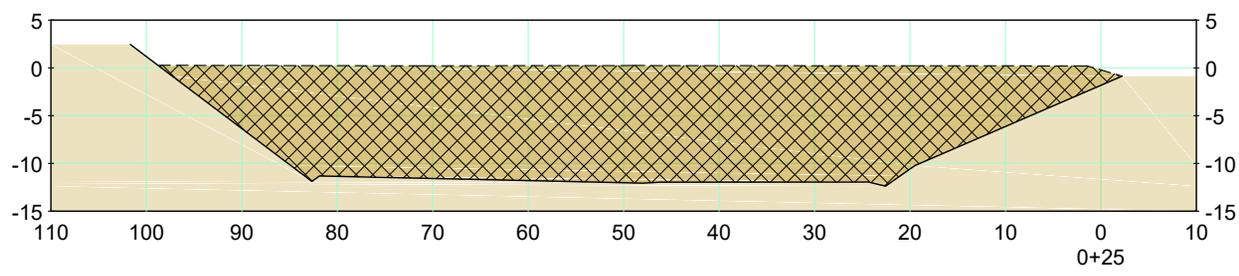
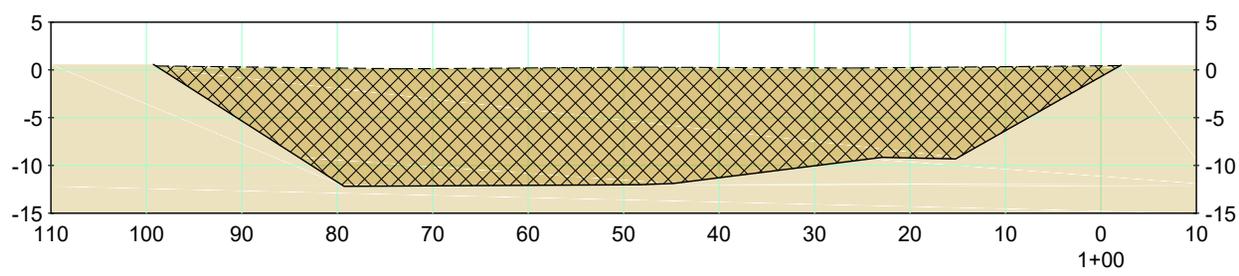
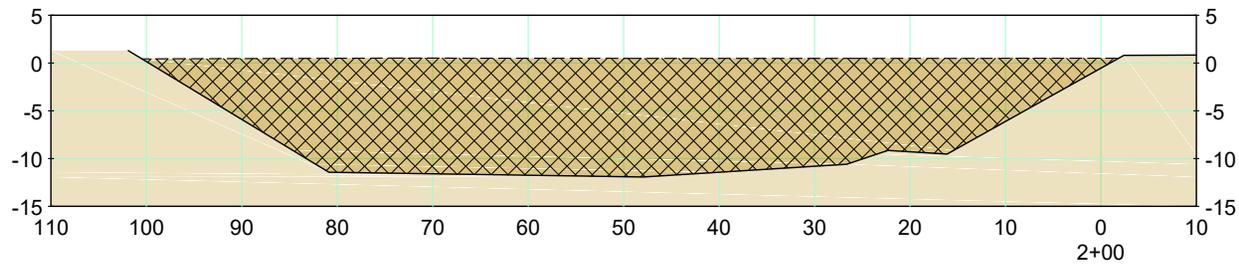
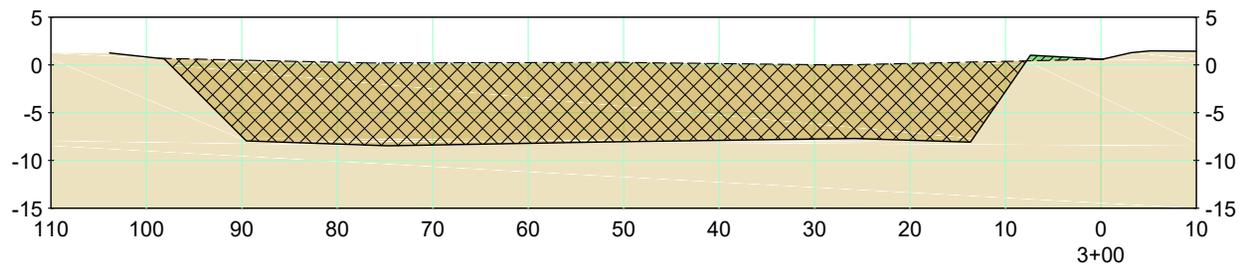
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TERREBONNE LEVEE AND CONSERVATION DISTRICT
 BAYOU BLACK LEVEE REACH 1, 2, 3, AND GRADLINE ALIGNMENT AFTER-THE-FACT
 TERREBONNE PARISH, LOUISIANA

LEO ALBINSON BORROW PIT

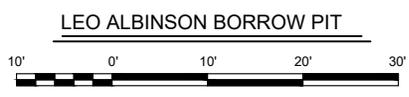
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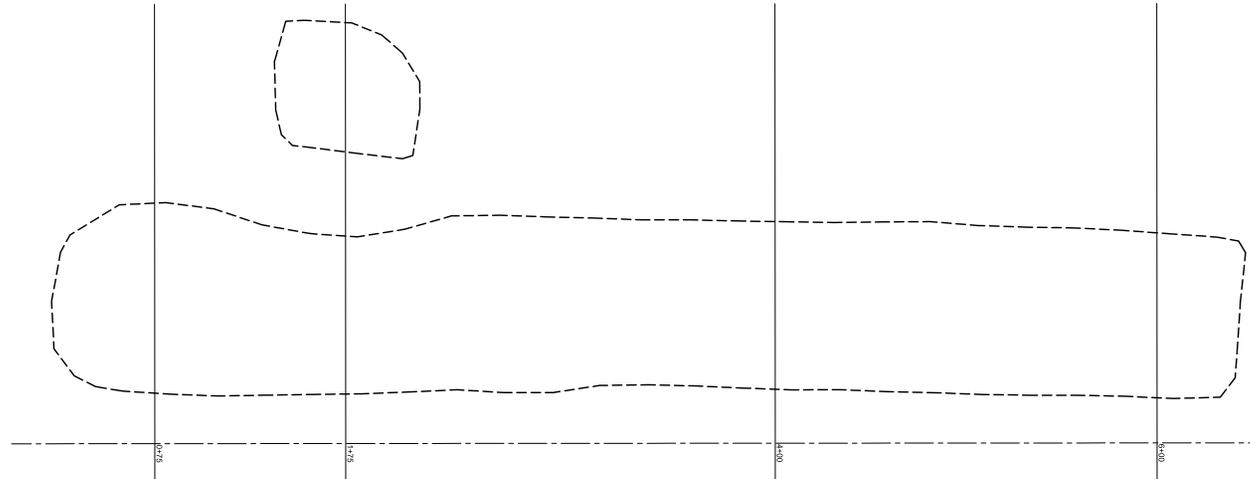
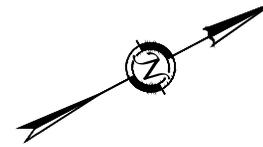
LEGEND

ORIGINAL SECTION - - - - -

FINAL SECTION - - - - -



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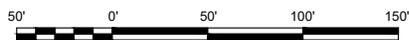


LEGEND

BASELINE ————
 TOP BANK - - - - -

AREA: 1.36 ACRES
 VOLUME: 15,660 CY

BYRON DIGGS BORROW PIT



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TERREBONNE LEVEE AND CONSERVATION DISTRICT
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BYRON DIGGS BORROW PIT

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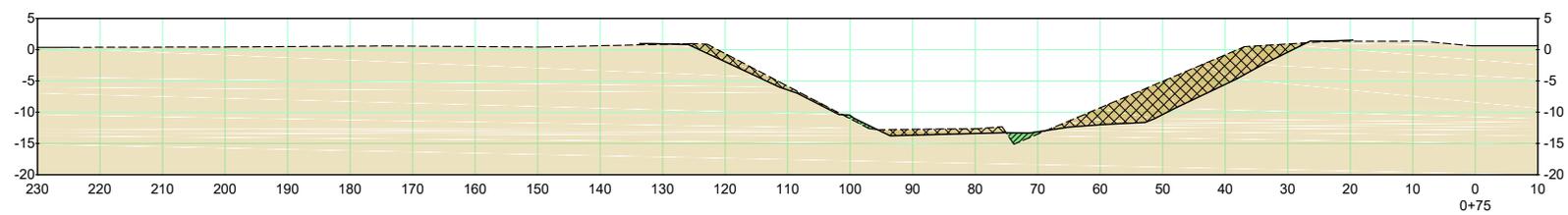
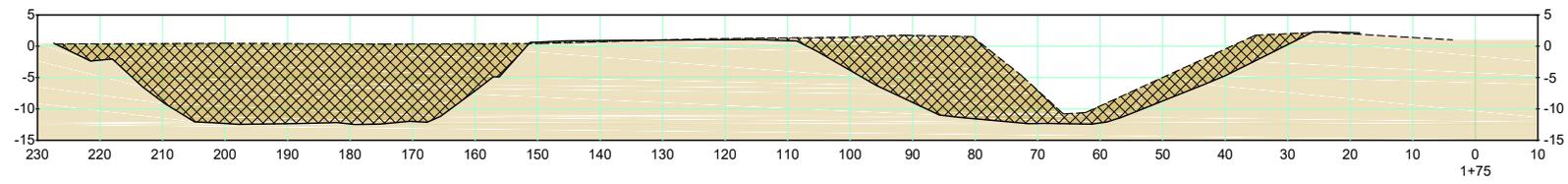
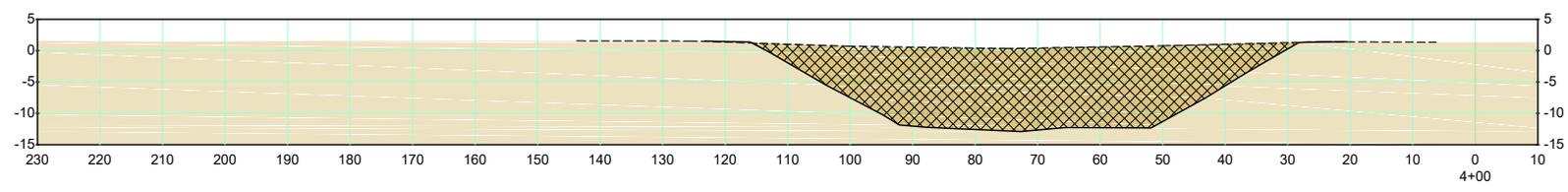
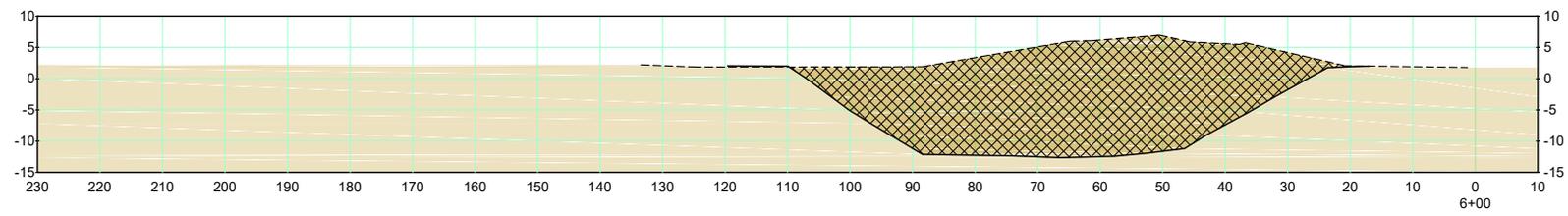
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TERREBONNE LEVEE AND CONSERVATION DISTRICT
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 TERREBONNE PARISH, LOUISIANA

BYRON DIGGS BORROW PIT

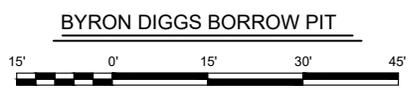
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LEGEND

ORIGINAL SECTION - - - - -

FINAL SECTION _____



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TERREBONNE LEVEE AND CONSERVATION DISTRICT
 BAYOU BLACK LEVEE REACH 1, 2, 3, AND GRADLINE ALIGNMENT AFTER-THE-FACT
 TERREBONNE PARISH, LOUISIANA

REACH 2 - PLAN VIEW

Project number	39130-1025
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Plot Date	June 16, 2016

22



LAT: 29° 37' 24.39"
 LONG: -90° 55' 14.10"

- LEVEE C/L (COMPLETED)
- LEVEE TOE
- ADDITIONAL ROW
- BORROW PIT
- LEVEE NOT COMPLETE

NOTE: THE IMAGE ABOVE IS A GENERAL REPRESENTATION OF THE WORK AREA, ACTUAL FIELD CONDITIONS MAY DIFFER.



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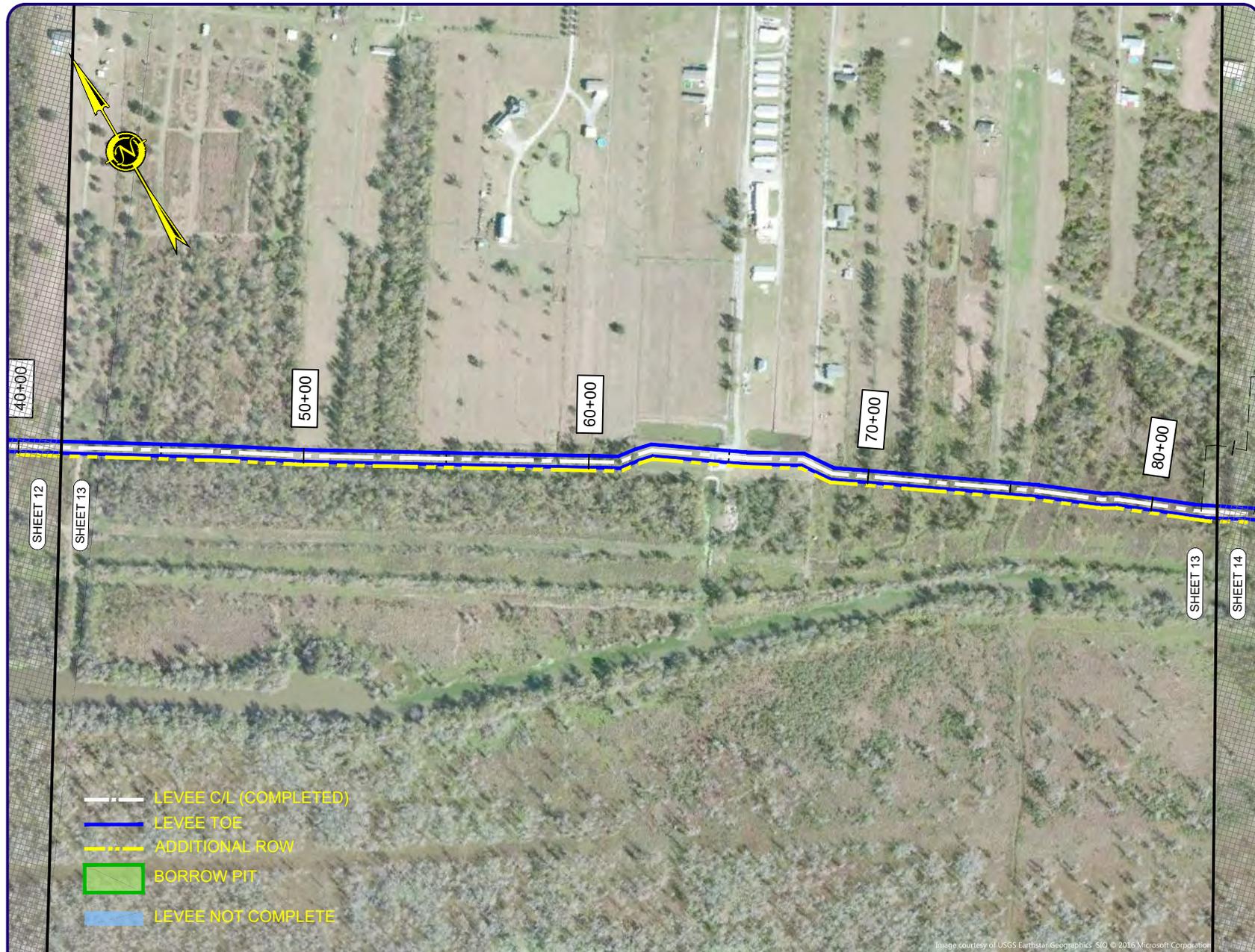
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TERREBONNE LEVEE AND
 CONSERVATION DISTRICT
 BAYOU BLACK LEVEE REACH 1, 2, 3, AND
 GRADLINE ALIGNMENT AFTER-THE-FACT
 TERREBONNE PARISH, LOUISIANA

REACH 2 - PLAN VIEW

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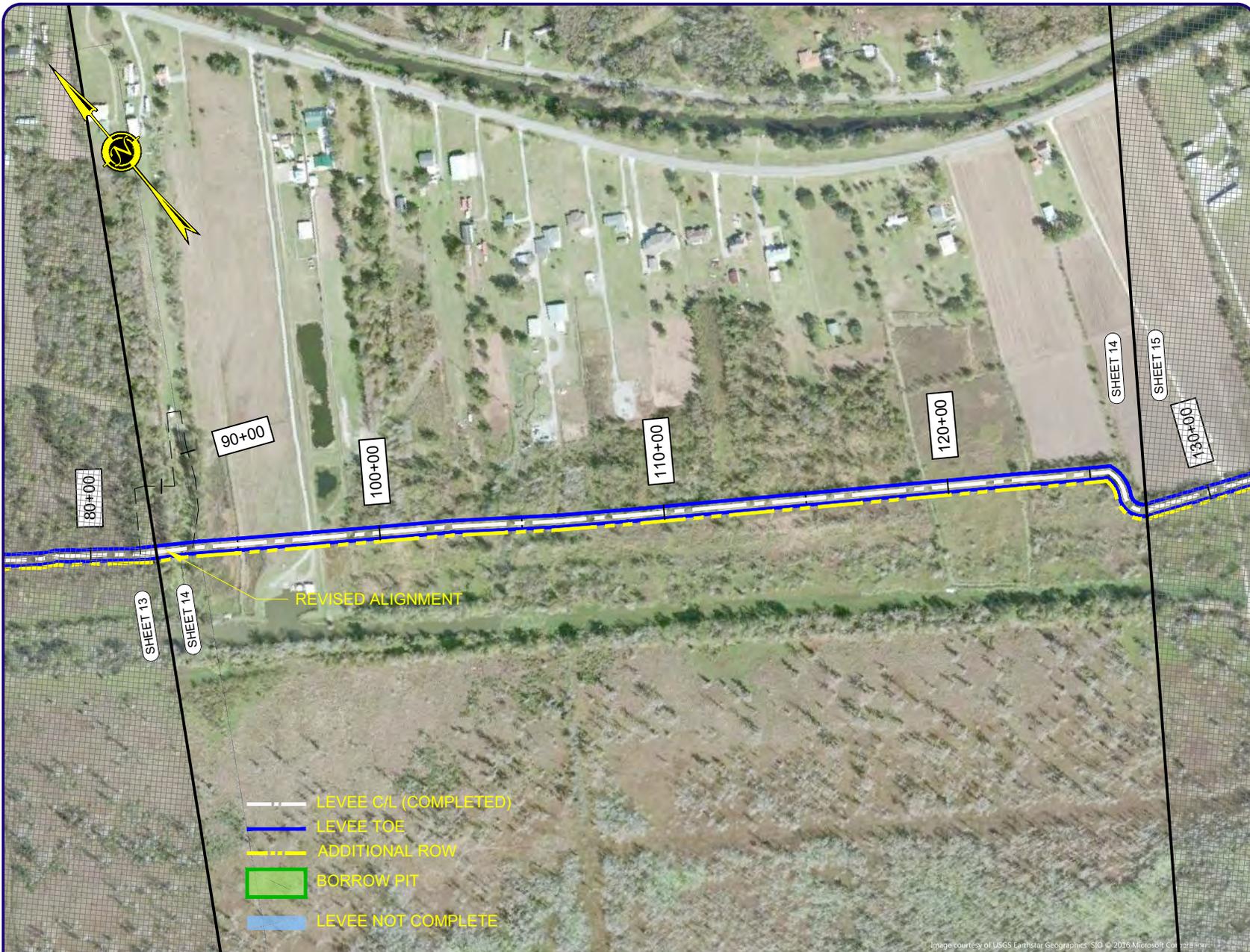


- LEVEE C/L (COMPLETED)
- LEVEE TOE
- ADDITIONAL ROW
- BORROW PIT
- LEVEE NOT COMPLETE

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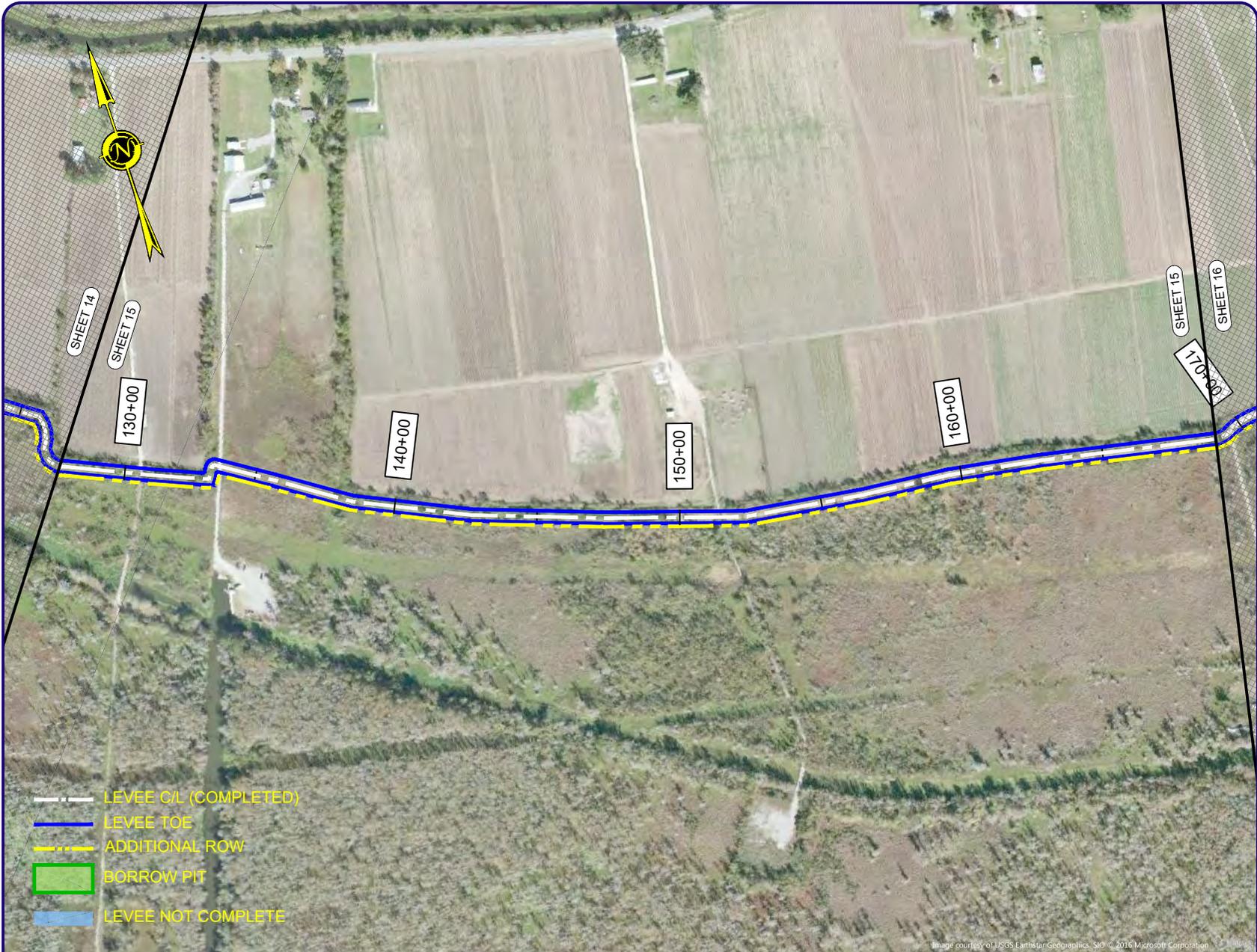
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 BAYOU BLACK LEVEE REACH 1, 2, 3, AND GRADLINE ALIGNMENT AFTER-THE-FACT
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REACH 2 - PLAN VIEW

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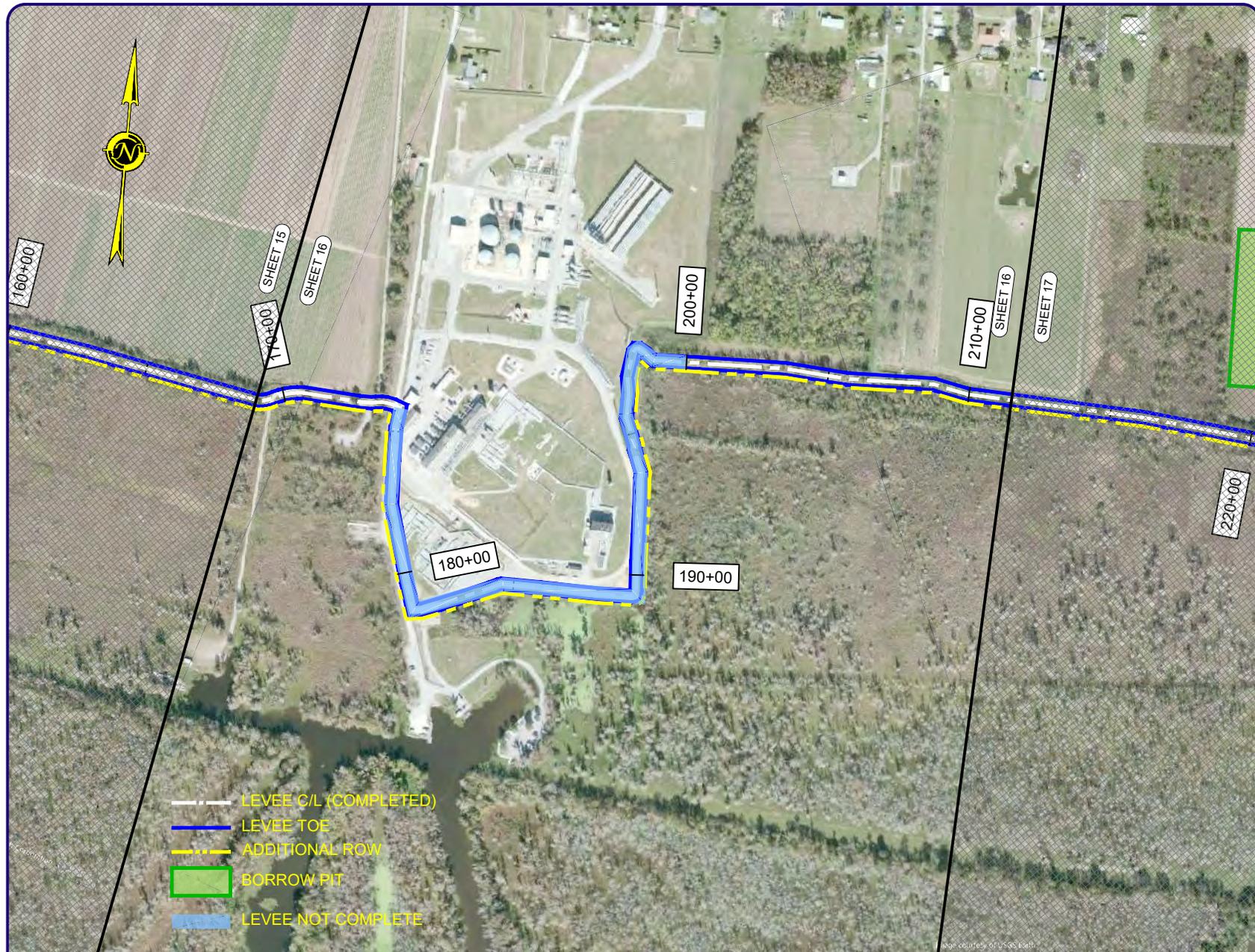
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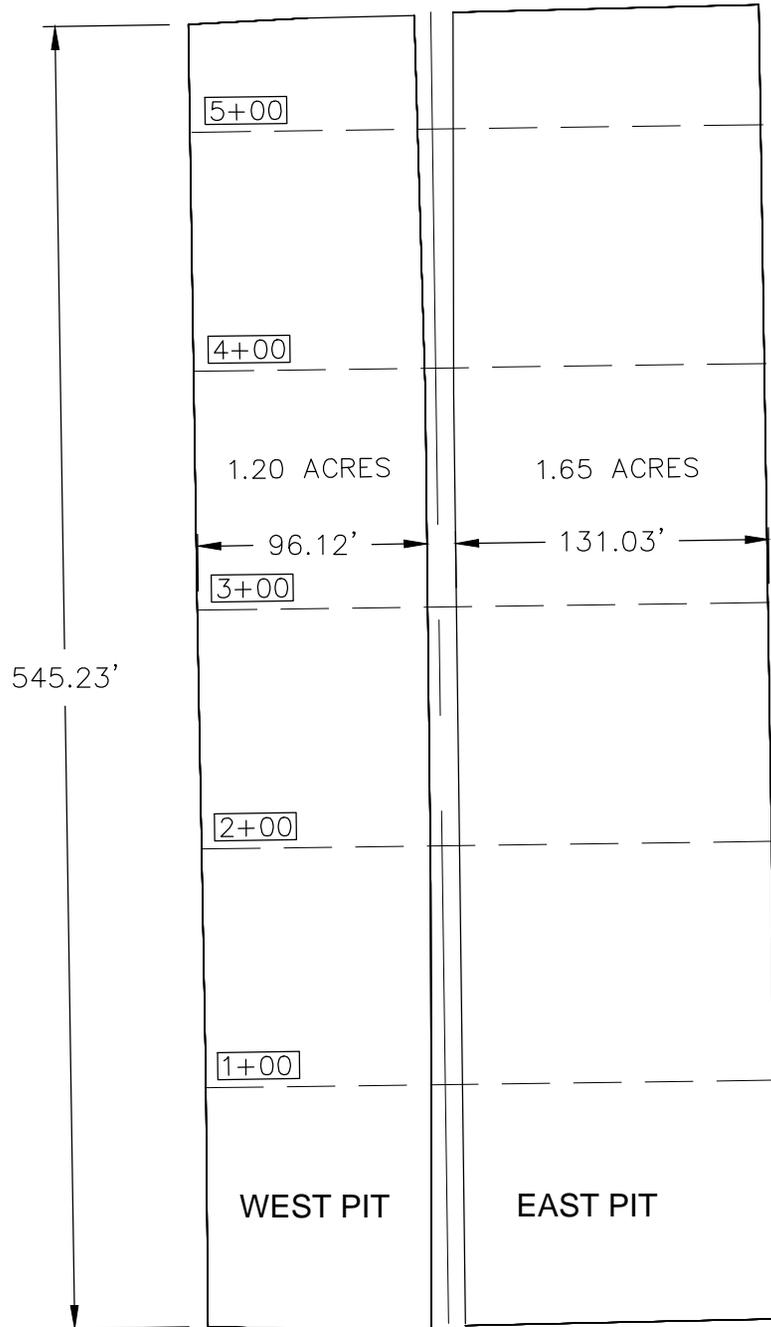


- LEVEE CL (COMPLETED)
- LEVEE TOE
- ADDITIONAL ROW
- BORROW PIT
- LEVEE NOT COMPLETE

NOTE: THE IMAGE ABOVE IS A GENERAL REPRESENTATION OF THE WORK AREA, ACTUAL FIELD CONDITIONS MAY DIFFER.



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REACH 2 BORROW PIT PLAN

SCALE: 1"=80'-0"



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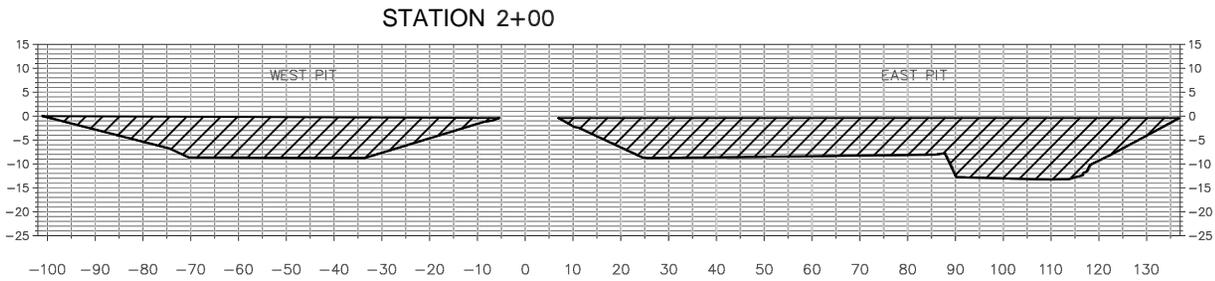
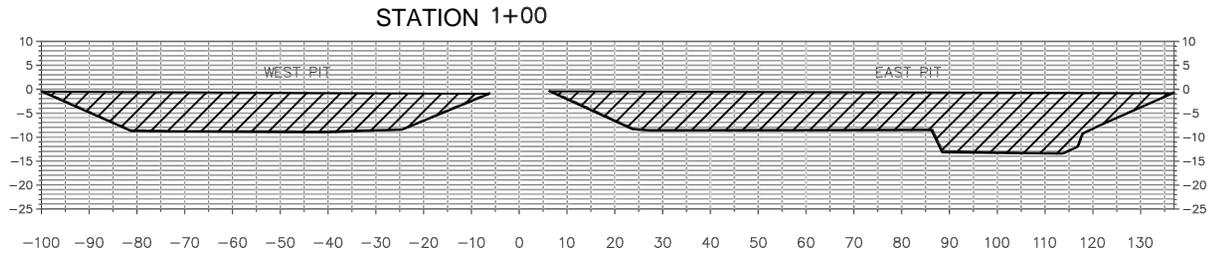
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REACH 2 BORROW PIT AS-BUILT

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WEST PIT

EAST PIT

**AREA
VOLUME**

**1.19 ACRES
20,994 CY**

**1.62 ACRES
11,616 CY**

EXCAVATED AREAS



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BAYOU BLACK LEVEE REACH 1, 2, 3, AND
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TERREBONNE PARISH, LOUISIANA

**REACH 2 BORROW
PIT AS-BUILT**

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28A

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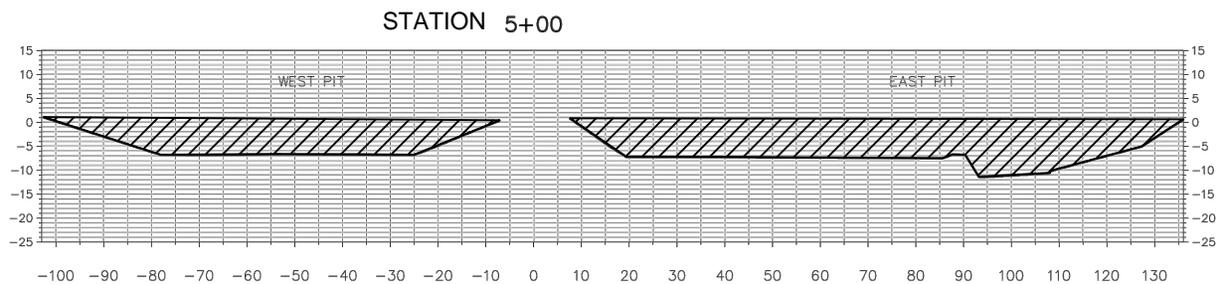
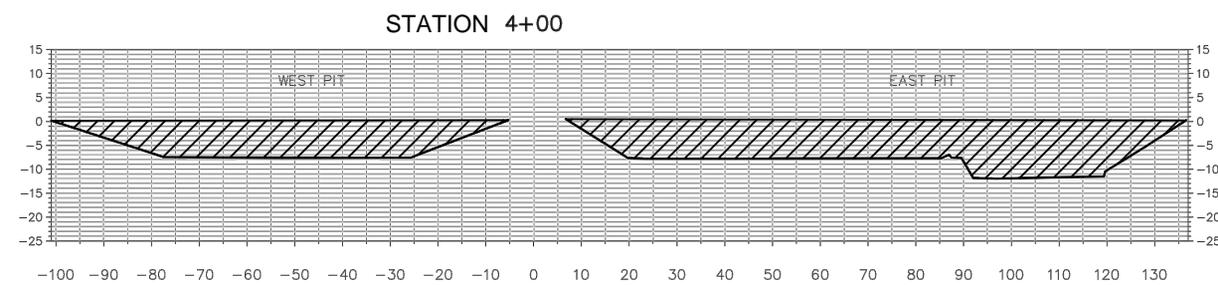
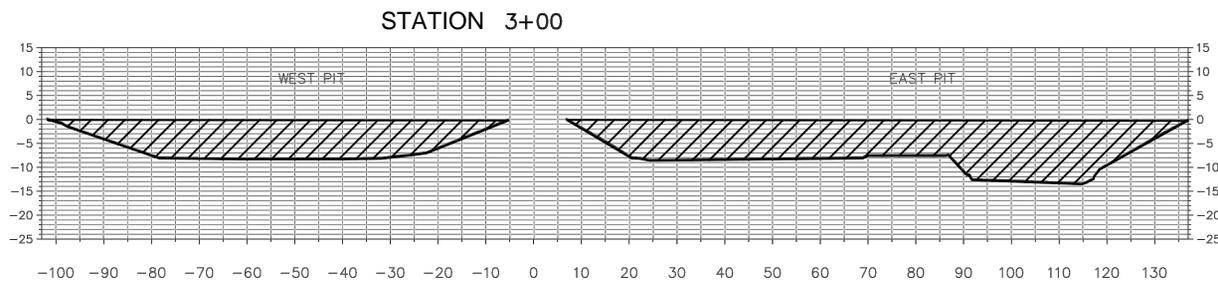
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28B



WEST PIT

EAST PIT

AREA 1.19 ACRES
VOLUME 20,994 CY

1.62 ACRES
11,616 CY

EXCAVATED AREAS

M:\Department_39\Client\1 - TPOG - Terrebonne Parish\39130-1025 - Bayou Black Emergency Levee Reports - After the Fact\5-Engineering-Design\CAD\DWG\1 Permit\Bayou Black Levee - Reach 2\Reach 2 Borrow Pit As-Built.dwg



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No.	Description	Date

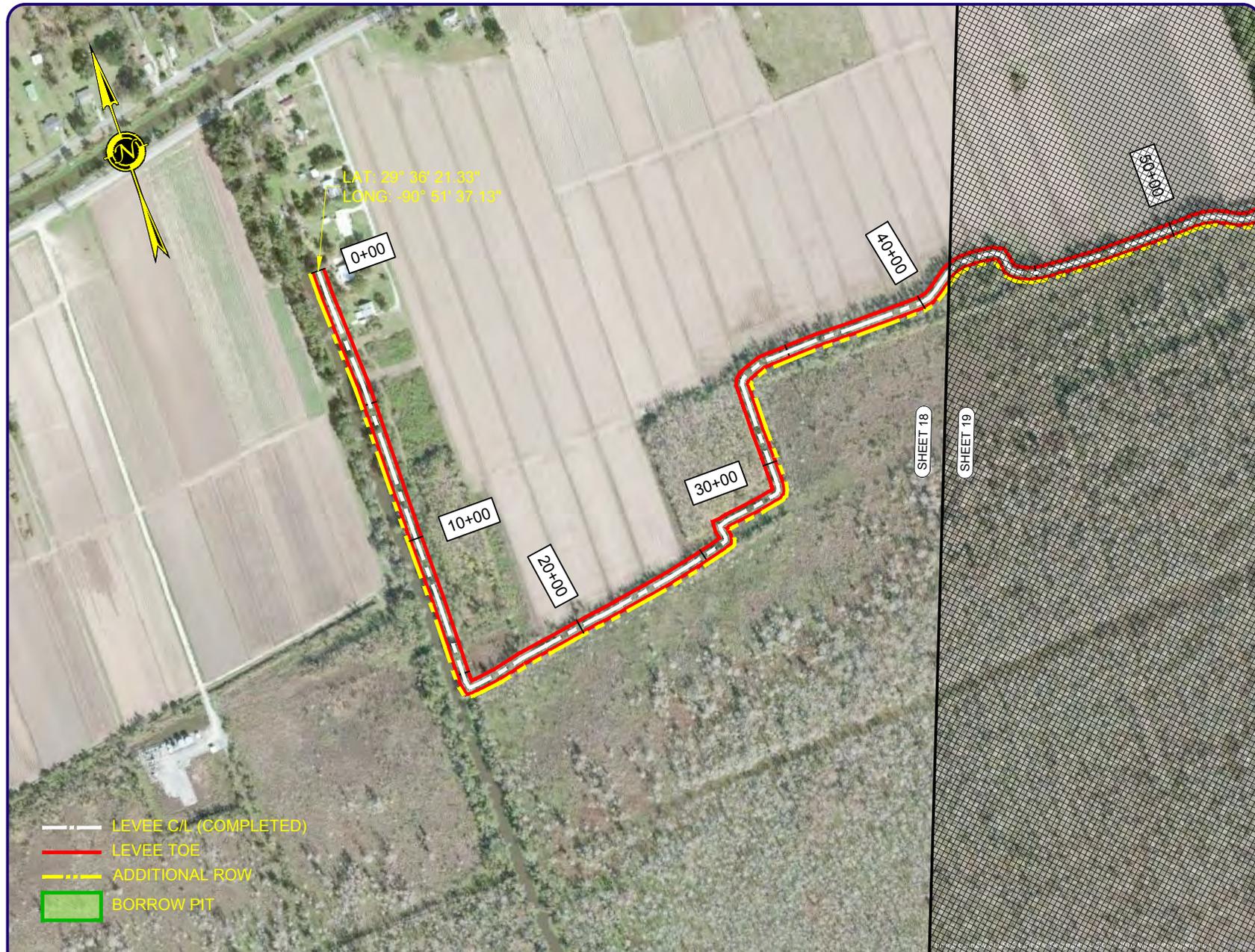
FOR PERMIT APPLICATION ONLY

DUSTIN M. MALBROUGH
 LA. LICENSE NO. 36779

TERREBONNE LEVEE AND CONSERVATION DISTRICT
 BAYOU BLACK LEVEE REACH 1, 2, 3, AND GRADLINE ALIGNMENT AFTER-THE-FACT
 TERREBONNE PARISH, LOUISIANA

REACH 1 - PLAN VIEW

Project number	39130-1025
Date	April 2016
Designed by	DMM
Drawn by	MAC
Checked by	MM
Checked by	DMM
Plot Date	June 16, 2016



NOTE: THE IMAGE ABOVE IS A GENERAL REPRESENTATION OF THE WORK AREA, ACTUAL FIELD CONDITIONS MAY DIFFER.



M:\Department_39\Client\1 - TPO3 - Terrebonne Parish\39130-1025 - Bayou Black Emergency Levee Repairs - After the Fact\3-Engineering-Design\CAD\DWG\1 Permit\Reach 1 - Plan View.dwg



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No.	Description	Date

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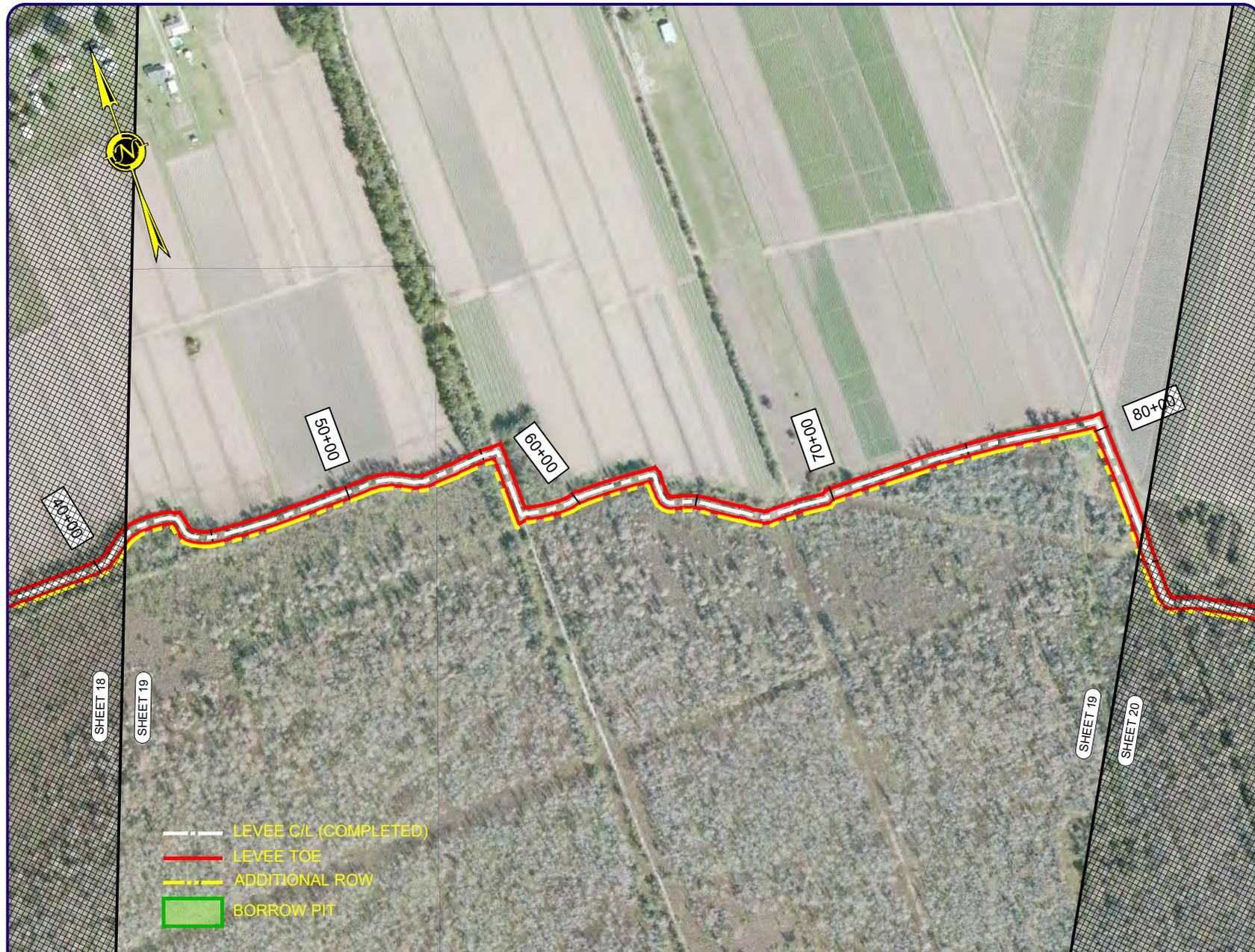
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 LA. LICENSE NO. 36779

TERREBONNE LEVEE AND
 CONSERVATION DISTRICT
 BAYOU BLACK LEVEE REACH 1, 2, 3, AND
 GRALDINE ALIGNMENT AFTER-THE-FACT
 TERREBONNE PARISH, LOUISIANA

REACH 1 - PLAN VIEW

Project number	39130-1025
Date	April 2016
Designed by	DMM
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Checked by	DMM
Plot Date	June 16, 2016

30



- - - LEVEE C/L (COMPLETED)
- LEVEE TOE
- - - ADDITIONAL ROW
- BORROW PIT

NOTE: THE IMAGE ABOVE IS A GENERAL REPRESENTATION OF THE WORK AREA, ACTUAL FIELD CONDITIONS MAY DIFFER.



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No.	Description	Date

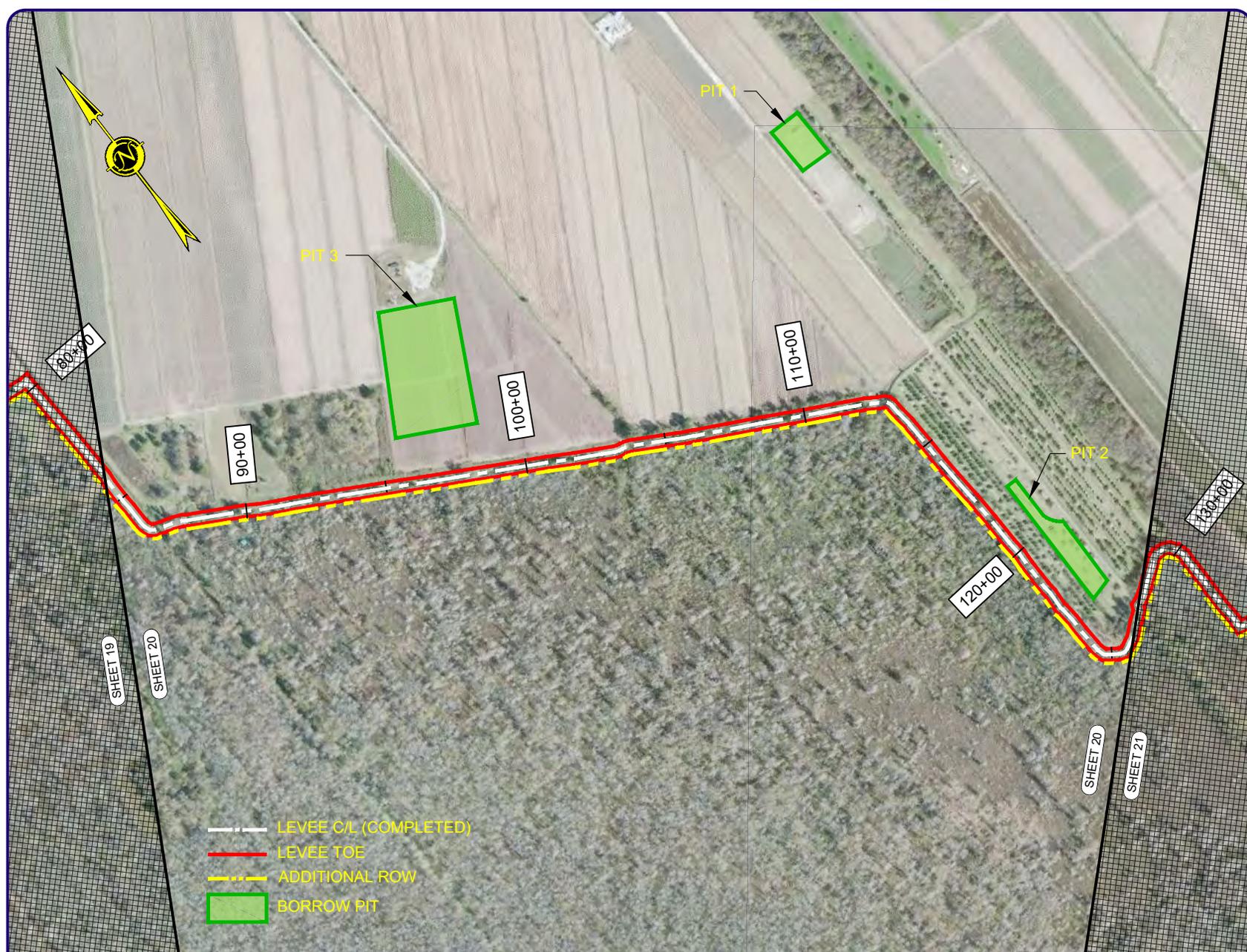
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TERREBONNE LEVEE AND
 CONSERVATION DISTRICT
 BAYOU BLACK LEVEE REACH 1, 2, 3, AND
 GRADLINE ALIGNMENT AFTER-THE-FACT
 TERREBONNE PARISH, LOUISIANA

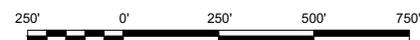
REACH 1 - PLAN VIEW

Project number	39130-1025
Date	April 2016
Designed by	DMM
Drawn by	MAC
Checked by	MM
Checked by	DMM
Plot Date	June 16, 2016

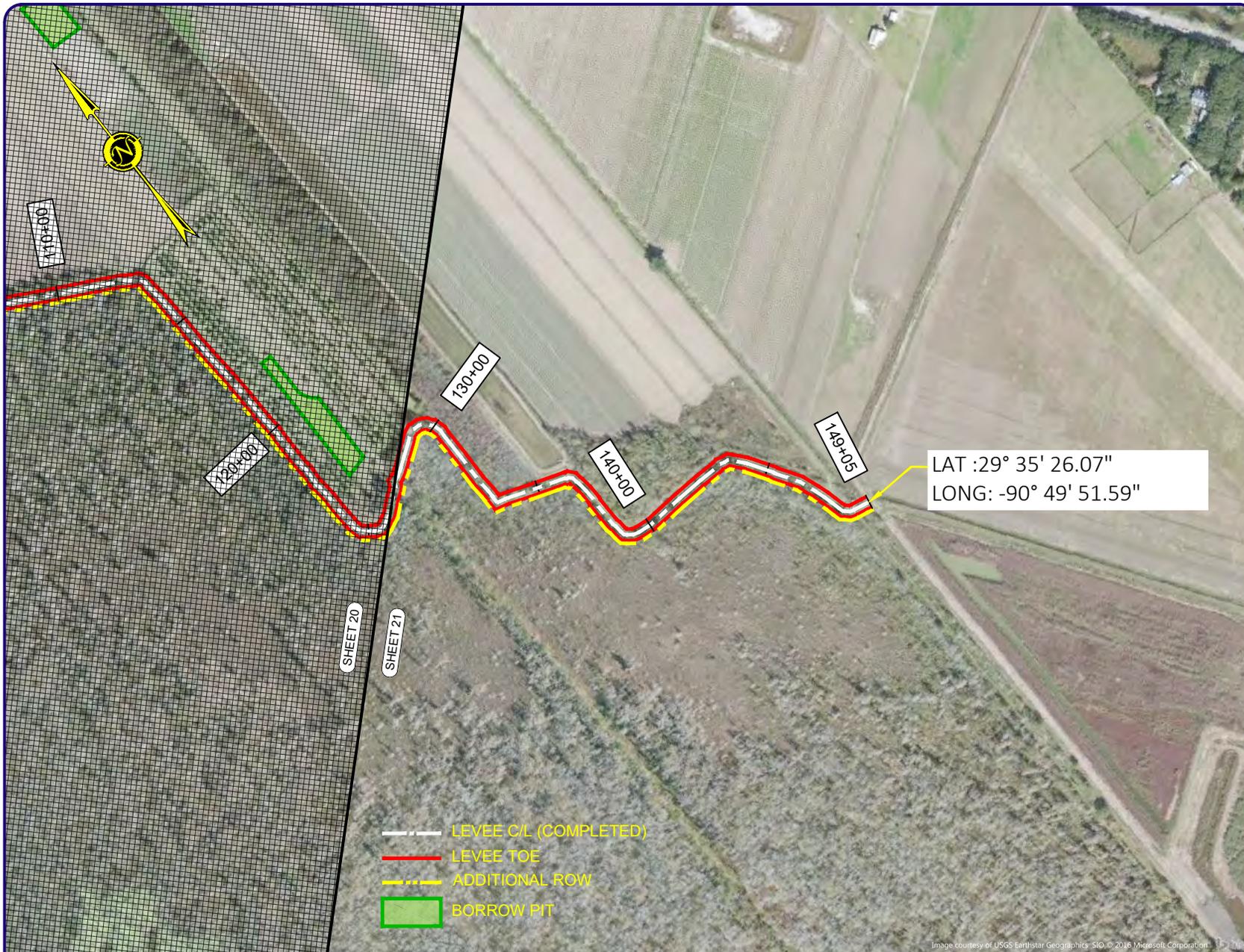


- LEVEE C/L (COMPLETED)
- LEVEE TOE
- ADDITIONAL ROW
- BORROW PIT

NOTE: THE IMAGE ABOVE IS A GENERAL REPRESENTATION OF THE WORK AREA, ACTUAL FIELD CONDITIONS MAY DIFFER.



M:\Department_39\Client\1 - TPO2 - Terrebonne Parishes\39130-1025 - Bayou Black Emergency Levee Repairs - After the Fact\3-Engineering-Design\CAD\DWG\1 Permit\Reach 1 - Plan View.dwg



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TERREBONNE LEVEE AND CONSERVATION DISTRICT
 BAYOU BLACK LEVEE REACH 1, 2, 3, AND GRADLINE ALIGNMENT AFTER-THE-FACT
 TERREBONNE PARISH, LOUISIANA

REACH 1 - PLAN VIEW

Project number	39130-1025
Date	April 2016
Designed by	DMM
Drawn by	MAC
Checked by	MM
Checked by	DMM
Plot Date	June 16, 2016

M:\Department_39\Client\1 - TP03 - Terrebonne Parish\39130-1025 - Bayou Black Emergency Levee Repairs - After the Fact\3-Engineering-Design\CAD\DWG\1 Permit\Reach 1 - Plan View.dwg



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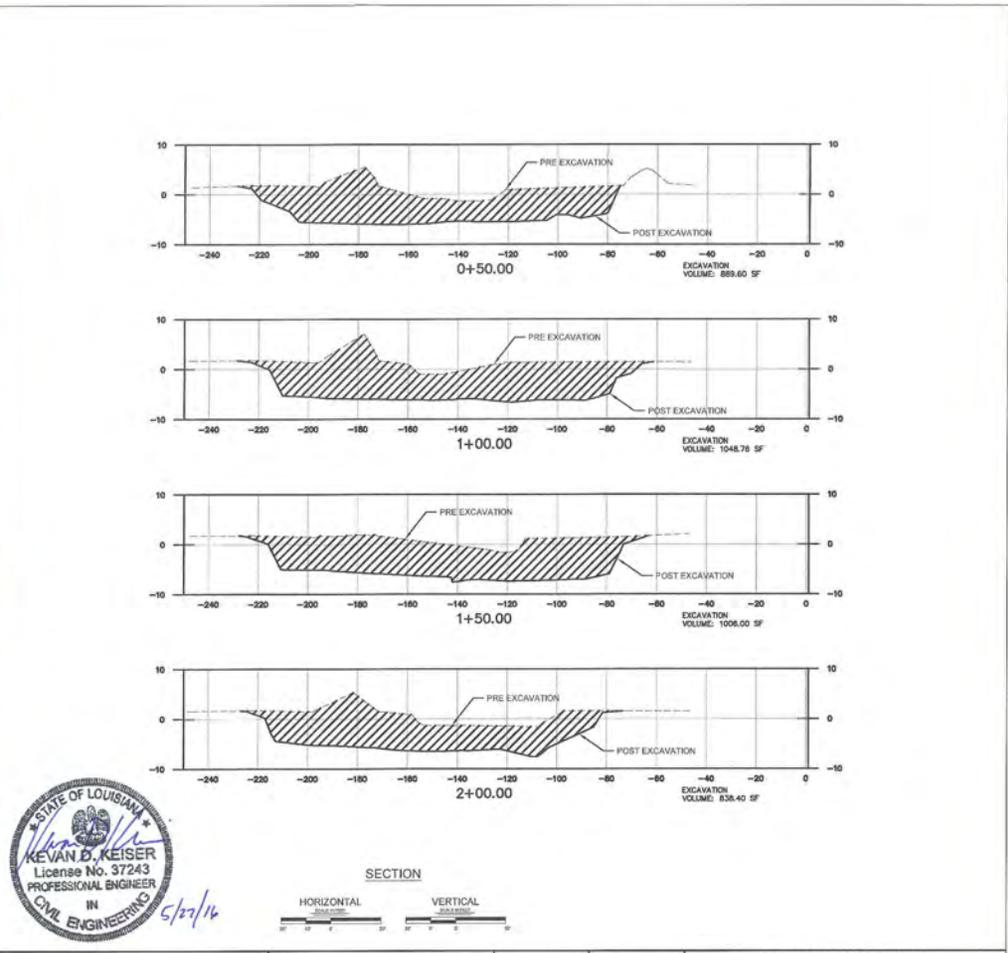
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 LA. LICENSE NO. 36779

**TERREBONNE LEVEE AND CONSERVATION DISTRICT
 BAYOU BLACK LEVEE REACH 1, 2, 3, AND GRADLINE ALIGNMENT AFTER-THE-FACT
 TERREBONNE PARISH, LOUISIANA**

Reach 1
 From T. Baker

Project number	39130-1025
Date	April 2016
Designed by	DMM
Drawn by	MAC
Checked by	MM
Checked by	DMM
Plot Date	June 16, 2016



KEVAN B. KEISER
 LICENSE NO. 37243
 PROFESSIONAL ENGINEER
 IN CIVIL ENGINEERING
 5/27/16

SECTION

HORIZONTAL SCALE: 1" = 40'
 VERTICAL SCALE: 1" = 10'



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No.	Description	Date

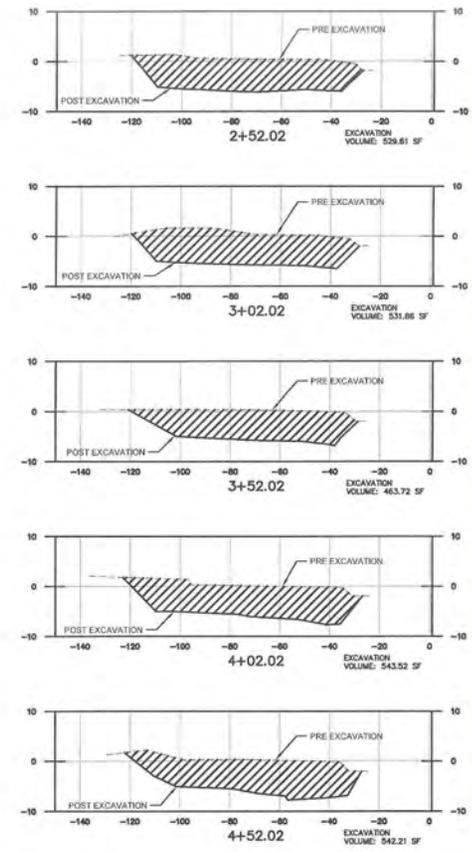
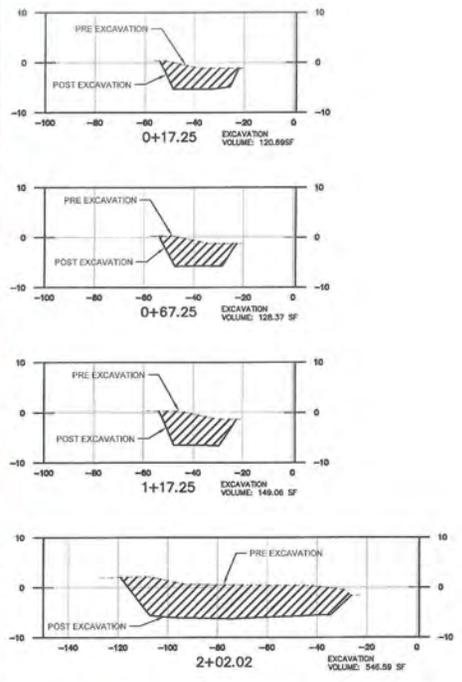
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DUSTIN M. MALBROUGH
 LA LICENSE NO. 36779

**TERREBONNE LEVEE AND CONSERVATION DISTRICT
 BAYOU BLACK LEVEE REACH 1, 2, 3, AND GRADLINE ALIGNMENT AFTER-THE-FACT
 TERREBONNE PARISH, LOUISIANA**

Reach 1
 From T. Baker

Project number	39130-1025
Date	April 2016
Designed by	DMM
Drawn by	MAC
Checked by	MM
Checked by	DMM
Plot Date	June 16, 2016



KEVAN D. KEISER
 License No. 37243
 PROFESSIONAL ENGINEER
 IN
 CIVIL ENGINEERING
 5/27/16

SECTION

HORIZONTAL
 1" = 50'

VERTICAL
 1" = 5'



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DUSTIN M. MALBROUGH
LA LICENSE NO. 38775

**TERREBONNE LEVEE AND CONSERVATION DISTRICT
BAYOU BLACK LEVEE REACH 1, 2, 3, AND GRADLINE ALIGNMENT AFTER-THE-FACT
TERREBONNE PARISH, LOUISIANA**

**REACH 1
BORROW PITS**

Project number	39130-1025
Date	April 2016
Designed by	DMM
Drawn by	MAC
Checked by	MM
Checked by	DMM
Plot Date	June 17, 2016

M:\Department - 39130\39130-1025 - Terrebbonne Reach 1\39130-1025 - Bayou Black Emergency Lower Reaches - After the Fact\39130-Engineering-Design\CAD\DWG\1 Term\1reach_1_Borrows.dwg



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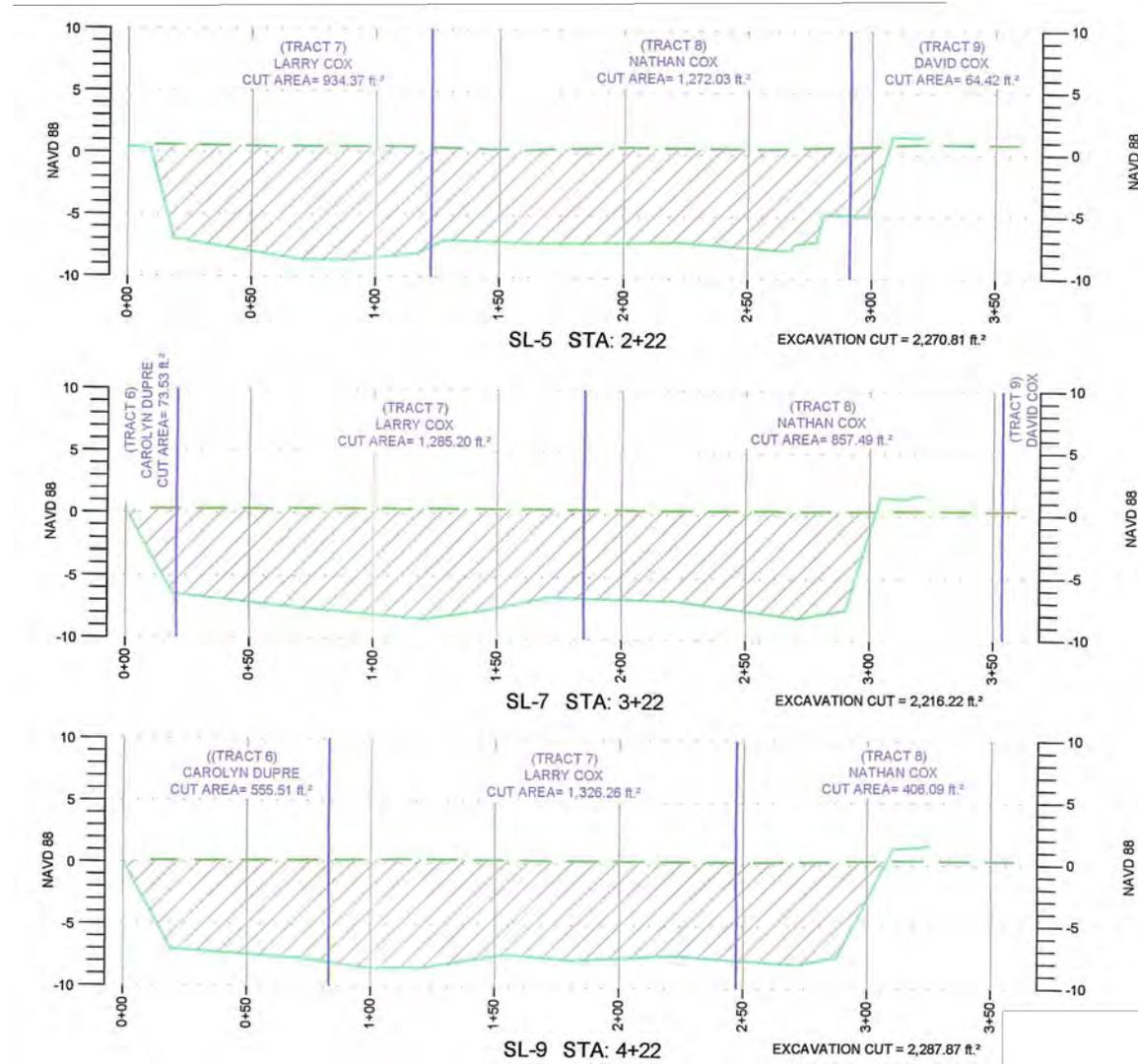
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 LA LICENSE NO. 36779

TERREBONNE LEVEE AND
 CONSERVATION DISTRICT
 BAYOU BLACK LEVEE REACH 1, 2, 3, AND
 GRADLINE ALIGNMENT AFTER-THE-FACT
 TERREBONNE PARISH, LOUISIANA

**REACH 1
 BORROW PITS**

Project number	39130-1025
Date	April 2016
Designed by	DMM
Drawn by	MAC
Checked by	MM
Checked by	DMM
Plot Date	June 17, 2016

35A



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No.	Description	Date

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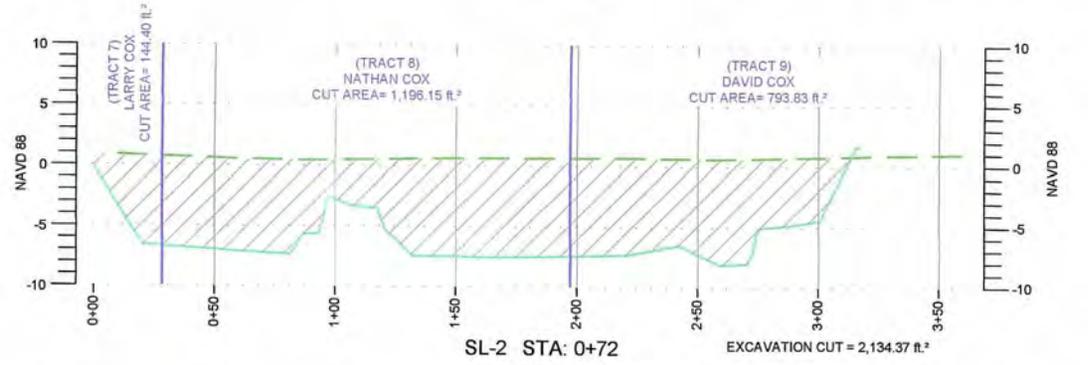
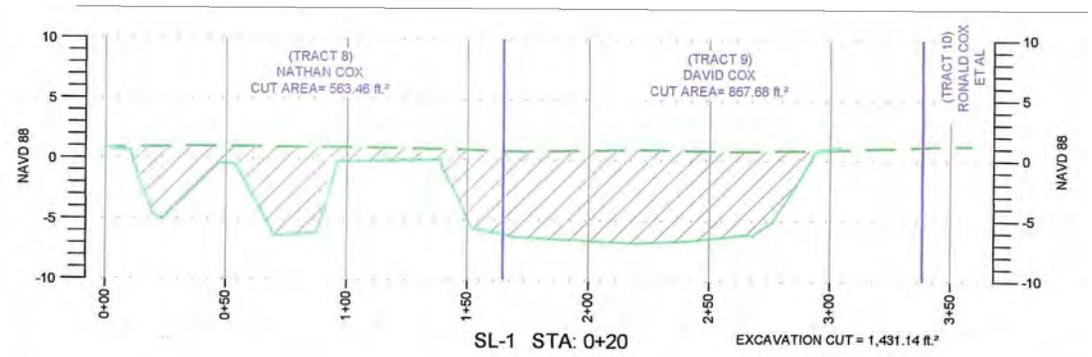
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TERREBONNE LEVEE AND CONSERVATION DISTRICT
 BAYOU BLACK LEVEE REACH 1, 2, 3, AND GRADLINE ALIGNMENT AFTER-THE-FACT
 TERREBONNE PARISH, LOUISIANA

**REACH 1
 BORROW PITS**

Project number	39130-1025
Date	April 2016
Designed by	DMM
Drawn by	MAC
Checked by	MM
Checked by	DMM
Plot Date	June 17, 2016

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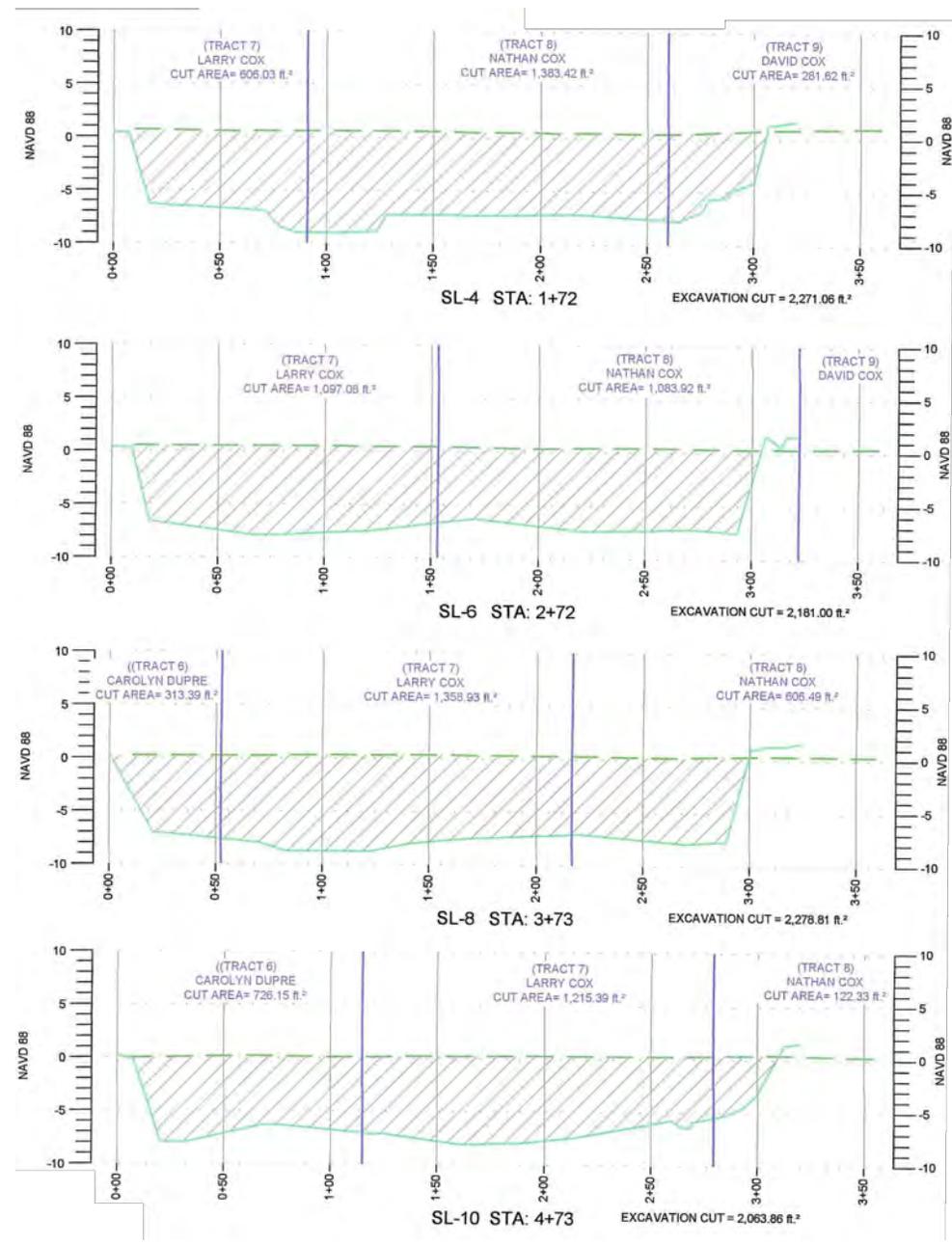
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TERREBONNE LEVEE AND CONSERVATION DISTRICT
 BAYOU BLACK LEVEE REACH 1, 2, 3, AND GRADLINE ALIGNMENT AFTER-THE-FACT
 TERREBONNE PARISH, LOUISIANA

REACH 1 BORROW PITS

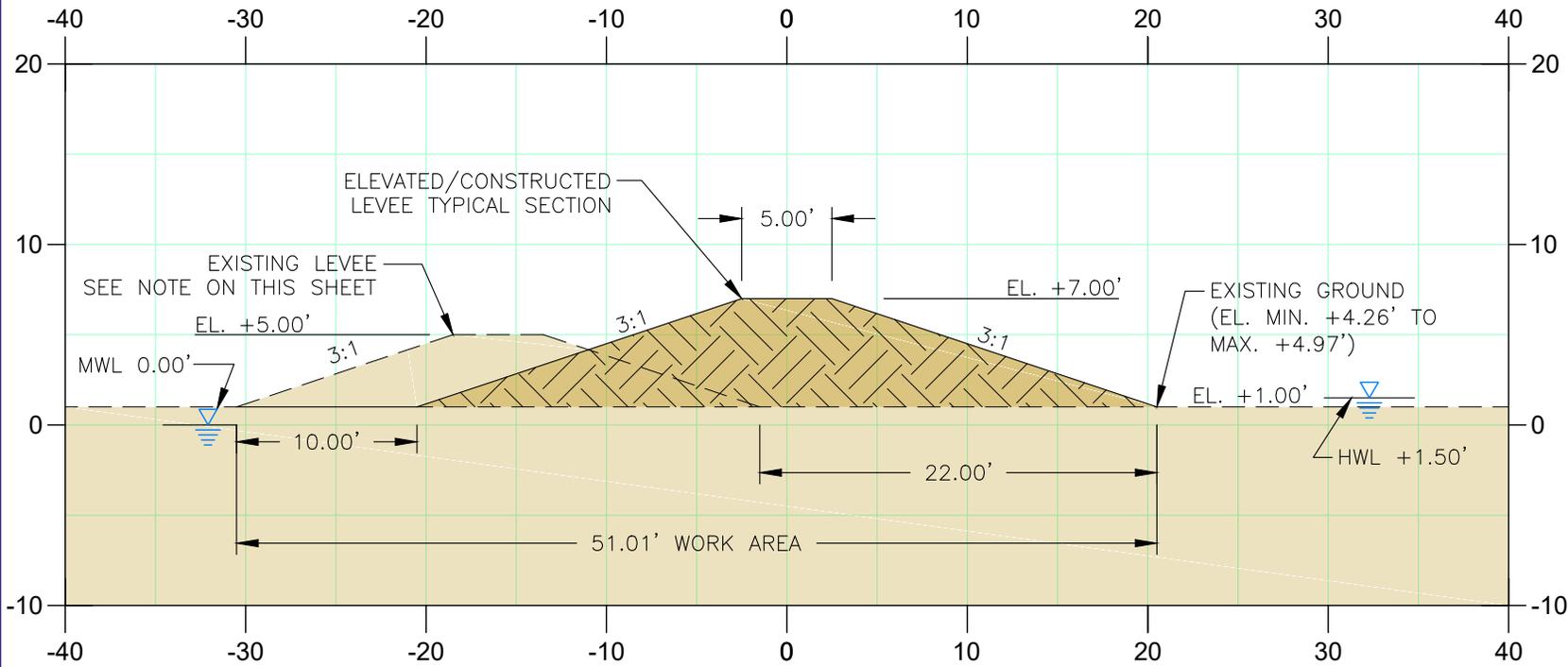
Project number	39130-1025
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Designed by	DMM
Drawn by	MAC
Checked by	MM
Checked by	DMM
Plot Date	June 17, 2016

35C



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TYPICAL SECTION 1
 REACH 2 : STATION 200+00 TO STATION 230+00
 STATION 230+00 TO STATION 253+18



TYPICAL CROSS SECTION 1 - BORROW PIT FILL MATERIAL WITH BERM



LEGEND	
	NEW FILL MATERIAL
	EXISTING CONDITIONS

NOTES:

- CROSS SECTIONS VARY ALONG THE ENTIRE LENGTH OF THE ALIGNMENT.
- EXISTING LEVEE WAS DEGRADED TO PROVIDE A BERM AND STABILITY FOR THE PROPOSED LEVEE.
- USE TYPICAL SECTION GIVEN INITIALLY (AT PLACES WHERE THE CROSS SECTION IS NOT AVAILABLE) TO DENOTE THE WIDTH OF THE WORKING AREA.



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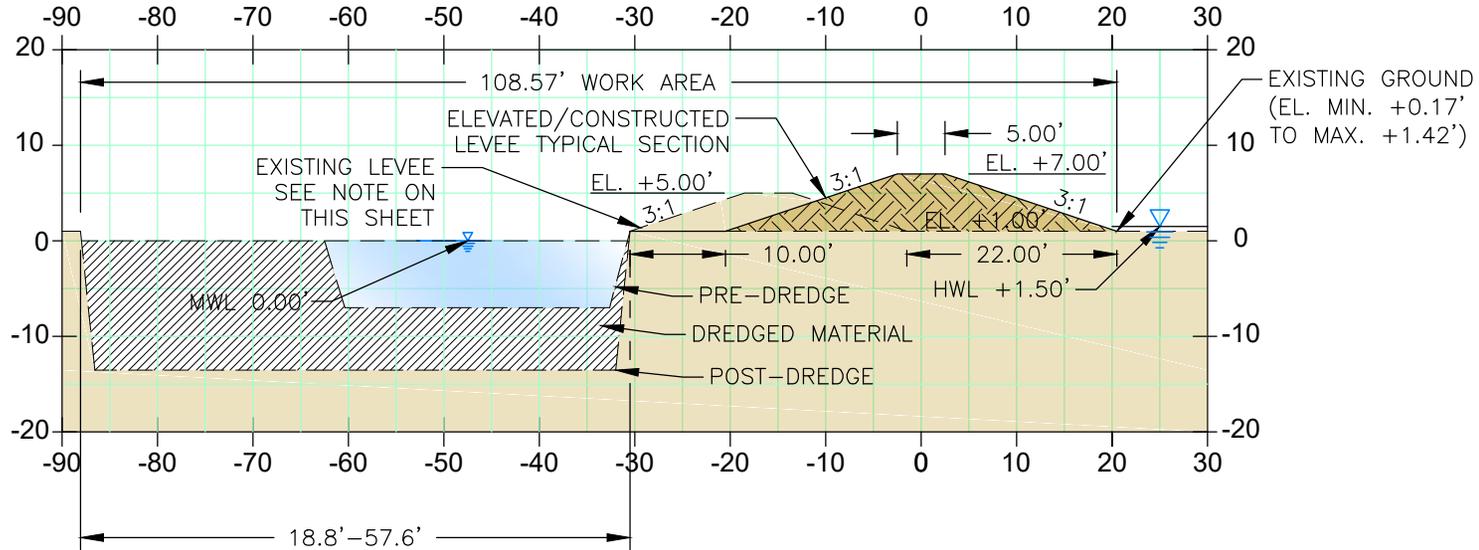
TERREBONNE LEVEE AND CONSERVATION DISTRICT
 BAYOU BLACK LEVEE REACH 1, 2, 3, AND GRALDINE ALIGNMENT AFTER-THE-FACT
 TERREBONNE PARISH, LOUISIANA

TYPICAL CROSS SECTION 1

Project number	39130-1025
Date	April 2016
Designed by	DMM
Drawn by	MAC
Checked by	MM
Checked by	DMM
Plot Date	July 6, 2016

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TYPICAL SECTION 2
REACH 3: 0+00 TO 225+00



TYPICAL CROSS SECTION 2 - BORROW CANAL FILL WITH BERM

LEGEND	
	NEW FILL MATERIAL
	EXISTING CONDITIONS
	EXCAVATION AREA

NOTES:

- CROSS SECTIONS VARY ALONG THE ENTIRE LENGTH OF THE ALIGNMENT.
- EXISTING LEVEE WAS DEGRADED TO PROVIDE A BERM AND STABILITY FOR THE PROPOSED LEVEE.
- USE TYPICAL SECTION GIVEN INITIALLY (AT PLACES WHERE THE CROSS SECTION IS NOT AVAILABLE) TO DENOTE THE WIDTH OF THE WORKING AREA.



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No.	Description	Date

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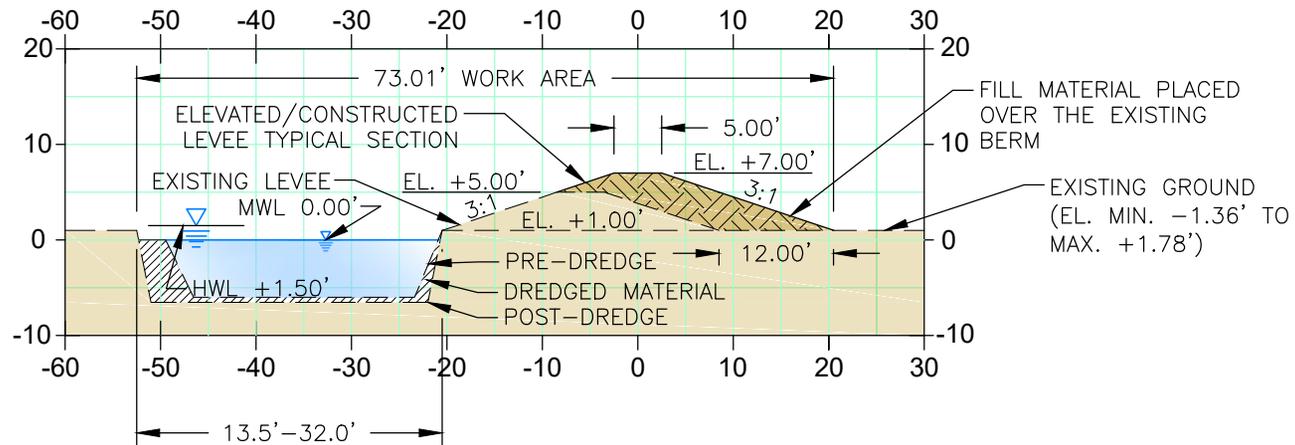
TERREBONNE LEVEE AND CONSERVATION DISTRICT
BAYOU BLACK LEVEE REACH 1, 2, 3, AND GRADLINE ALIGNMENT AFTER-THE-FACT
TERREBONNE PARISH, LOUISIANA

TYPICAL CROSS SECTION 2

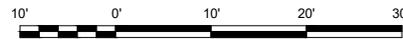
Project number	39130-1025
Date	April 2016
Designed by	DMM
Drawn by	MAC
Checked by	MM
Checked by	DMM
Plot Date	July 25, 2016

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TYPICAL SECTION 3
 REACH 1 : STATION 30+00 TO STATION 85+00
 STATION 100+00 TO STATION 149+05
 REACH 2 : STATION 0+00 TO STATION 175+00



TYPICAL CROSS SECTION 3 - BORROW CANAL FILL MATERIAL WITHOUT BERM



LEGEND

-  NEW FILL MATERIAL
-  EXISTING CONDITIONS
-  EXCAVATION AREA

NOTES:

1. CROSS SECTIONS VARY ALONG THE ENTIRE LENGTH OF THE ALIGNMENT.
2. USE TYPICAL SECTION GIVEN INITIALLY (AT PLACES WHERE THE CROSS SECTION IS NOT AVAILABLE) TO DENOTE THE WIDTH OF THE WORKING AREA.



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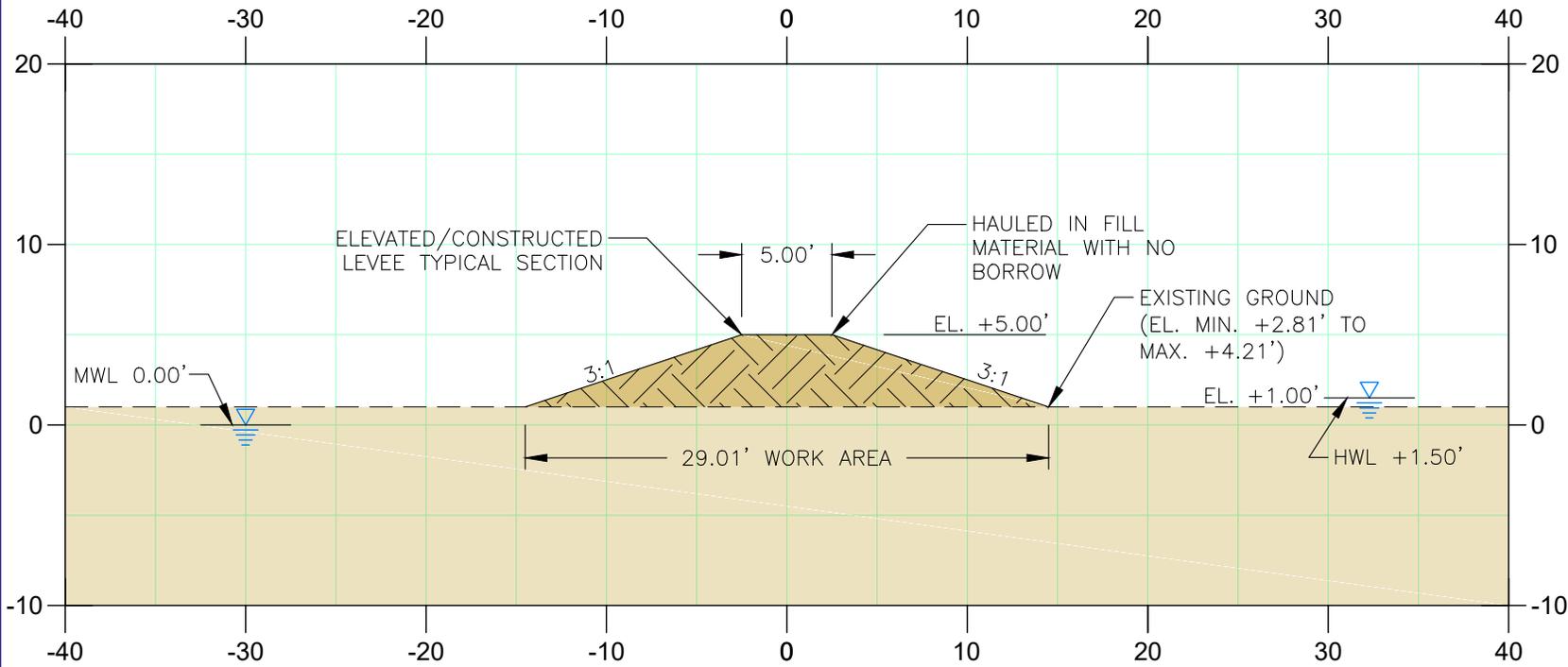
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TERREBONNE LEVEE AND CONSERVATION DISTRICT
 BAYOU BLACK LEVEE REACH 1, 2, 3, AND GRADLINE ALIGNMENT AFTER-THE-FACT
 TERREBONNE PARISH, LOUISIANA

TYPICAL CROSS SECTION 3

Project number	39130-1025
Date	April 2016
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Drawn by	MAC
Checked by	MM
Checked by	DMM
Plot Date	July 25, 2016

TYPICAL SECTION 4
 THIS SECTION REPRESENTS THE LEVEE AROUND THE CEMETARY IN
 REACH 3 BETWEEN STATION 220+00 TO STATION 230+00



TYPICAL CROSS SECTION 4 (NO PREVIOUS EXISTING LEVEE) - BORROW PIT FILL MATERIAL



LEGEND	
	NEW FILL MATERIAL
	EXISTING CONDITIONS

NOTES:

- CROSS SECTIONS VARY ALONG THE ENTIRE LENGTH OF THE ALIGNMENT.
- USE TYPICAL SECTION GIVEN INITIALLY (AT PLACES WHERE THE CROSS SECTION IS NOT AVAILABLE) TO DENOTE THE WIDTH OF THE WORKING AREA.



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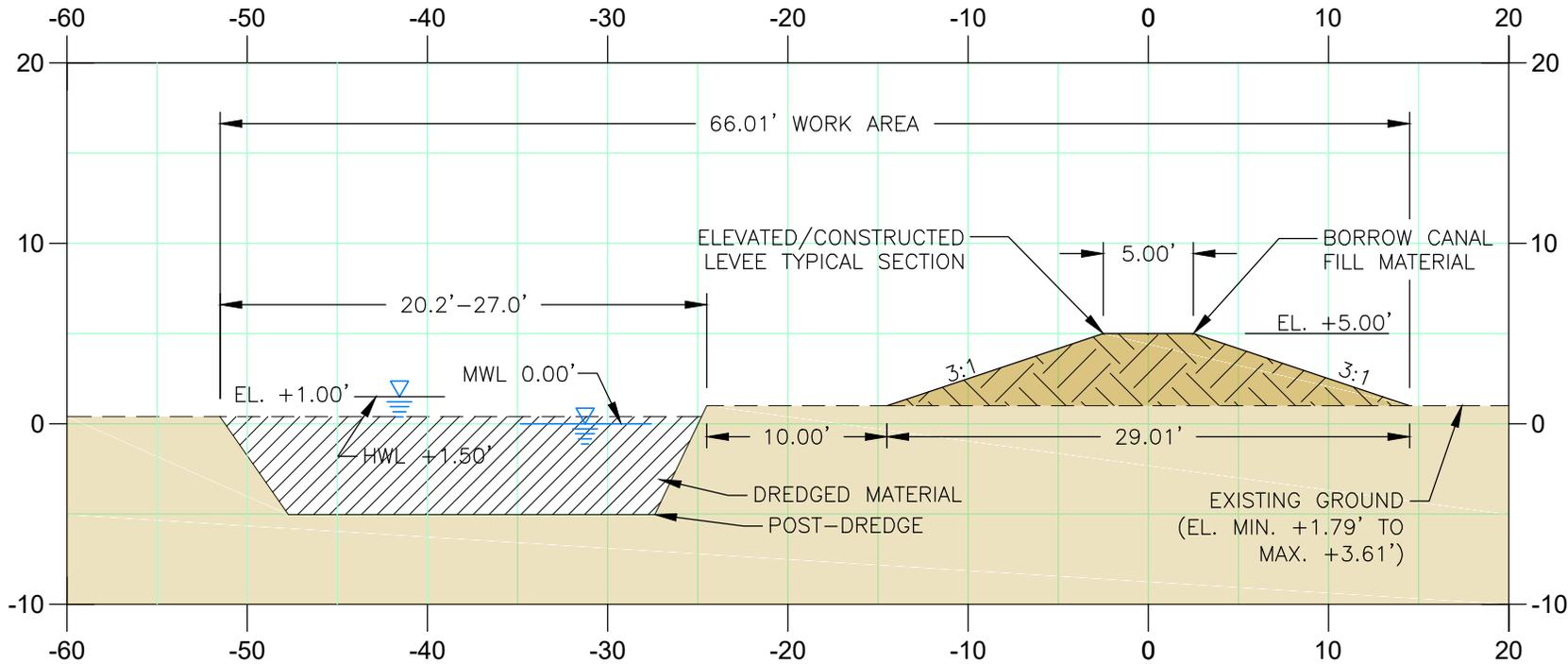
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 BAYOU BLACK LEVEE REACH 1, 2, 3, AND GRADLINE ALIGNMENT AFTER-THE-FACT
 TERREBONNE PARISH, LOUISIANA

TYPICAL CROSS SECTION 4

Project number	39130-1025
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Checked by	DMM
Plot Date	July 6, 2016

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TYPICAL SECTION 5
GERALDINE ALIGNMENT: STATION 0+00 TO STATION 83+69

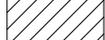


TYPICAL CROSS SECTION 5 - BORROW CANAL FILL MATERIAL

NOTES:

- CROSS SECTIONS VARY ALONG THE ENTIRE LENGTH OF THE ALIGNMENT.
- USE TYPICAL SECTION GIVEN INITIALLY (AT PLACES WHERE THE CROSS SECTION IS NOT AVAILABLE) TO DENOTE THE WIDTH OF THE WORKING AREA.
- APPROXIMATELY 479,860 CY OF MATERIAL WERE HAULED IN FROM APPROVED NON-WET BORROW PITS AND/OR EXCAVATED/DREDGED FROM EXISTING BORROW CANALS.
- NO CONSTRUCTION WORK WAS PERFORMED OUTSIDE OF THE LEVEE R.O.W.

LEGEND

-  NEW FILL MATERIAL
-  EXISTING CONDITIONS
-  EXCAVATION AREA



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No.	Description	Date

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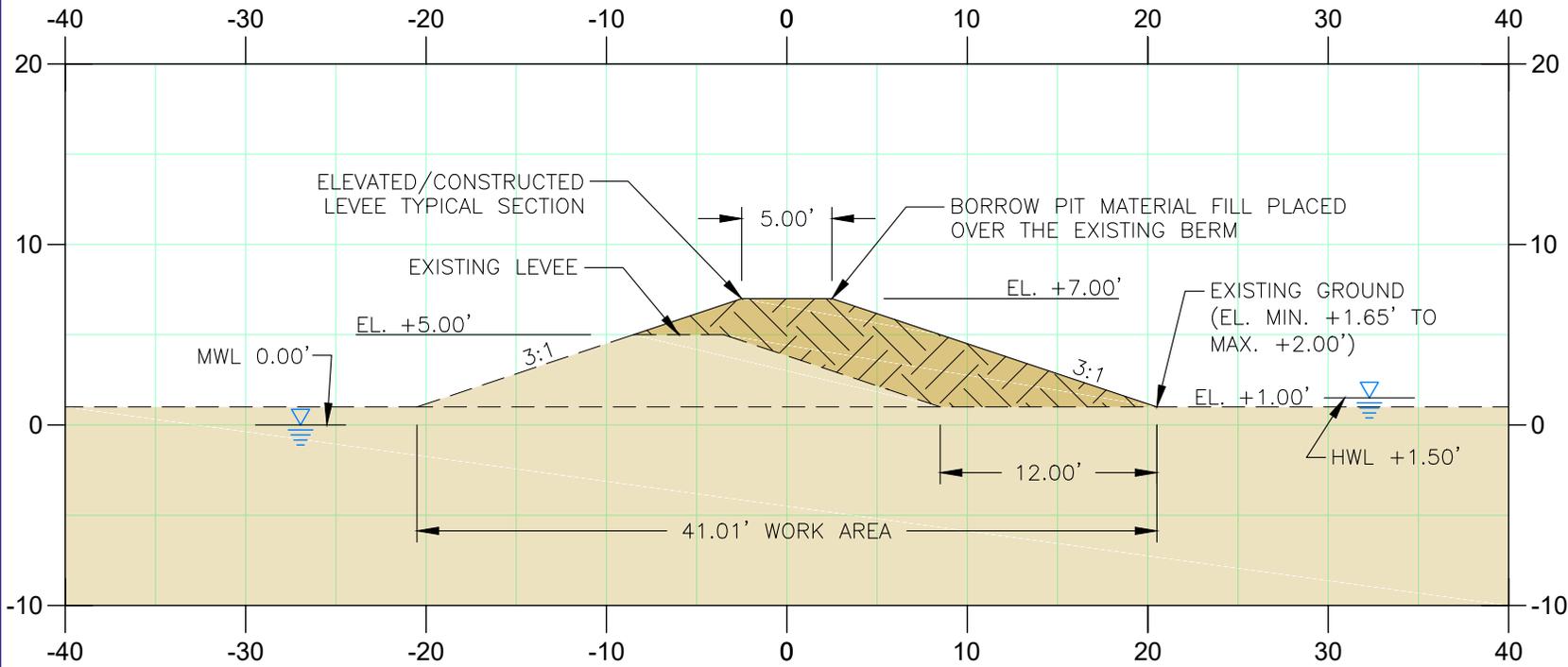
DUSTIN M. MALBROUGH
LA LICENSE NO. 36779

TERREBONNE LEVEE AND CONSERVATION DISTRICT
BAYOU BLACK LEVEE REACH 1, 2, 3, AND GERALDINE ALIGNMENT AFTER-THE-FACT
TERREBONNE PARISH, LOUISIANA

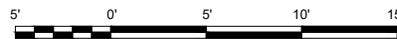
TYPICAL CROSS SECTION 5

Project number	39130-1025
Date	April 2016
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Drawn by	MAC
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Checked by	DMM
Plot Date	July 25, 2016

TYPICAL SECTION 6
 REACH 1: STATION 30+00 TO STATION 85+00
 STATION 100+00 TO STATION 149+05
 REACH 3: STATION 225+00 TO STATION 234+31



TYPICAL CROSS SECTION 6 - BORROW PIT FILL MATERIAL



LEGEND	
	NEW FILL MATERIAL
	EXISTING CONDITIONS

NOTES:

- CROSS SECTIONS VARY ALONG THE ENTIRE LENGTH OF THE ALIGNMENT.
- USE TYPICAL SECTION GIVEN INITIALLY (AT PLACES WHERE THE CROSS SECTION IS NOT AVAILABLE) TO DENOTE THE WIDTH OF THE WORKING AREA.
- EXCAVATED MATERIAL = 479,860 CY



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TERREBONNE LEVEE AND CONSERVATION DISTRICT
 BAYOU BLACK LEVEE REACH 1, 2, 3, AND GRADLINE ALIGNMENT AFTER-THE-FACT
 TERREBONNE PARISH, LOUISIANA

TYPICAL CROSS SECTION 6

Project number	39130-1025
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Plot Date	July 6, 2016

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Attachment C

Step 11D: Preliminary Mitigation Plan **Chacahoula Basin Watershed Environmental Management Plan** Bayou Black Levee Reaches 1, 2, 3, and Geraldine Alignment, After-the- Fact Permit Application

Introduction

The Terrebonne Levee and Conservation District (TLCD) proposes implementation of Chacahoula Basin Watershed Environmental Management Plan, which was developed in the year 2000.

The Chacahoula Basin water is enclosed by man-made barriers. The basin comprises approximately 107,179 acres and is bound to the north by LA1, US 90 to the south, LA662 and LA 398 to the west, and the east by LA311 and LA20 (Figure 1; Project Area).

The Chacahoula Basin Plan addresses flooding in the basin and its ecological enhancement by implementing a long term hydrological management. The basin is experiencing severe high water levels causing loss of natural swamps and marshes in the area by lack of sufficient regeneration and flooding of upland private residences. High water levels within this basin results from:

- Geological subsidence and the artificial ponding due to man-made barriers
- High water level associated with the Atchafalaya River and high precipitation events

Approximately 51% of the basin watershed is covered by cypress – tupelo swamp. Prolonged inundation of the basin through the growing season prevents cypress-tupelo and other species regeneration.

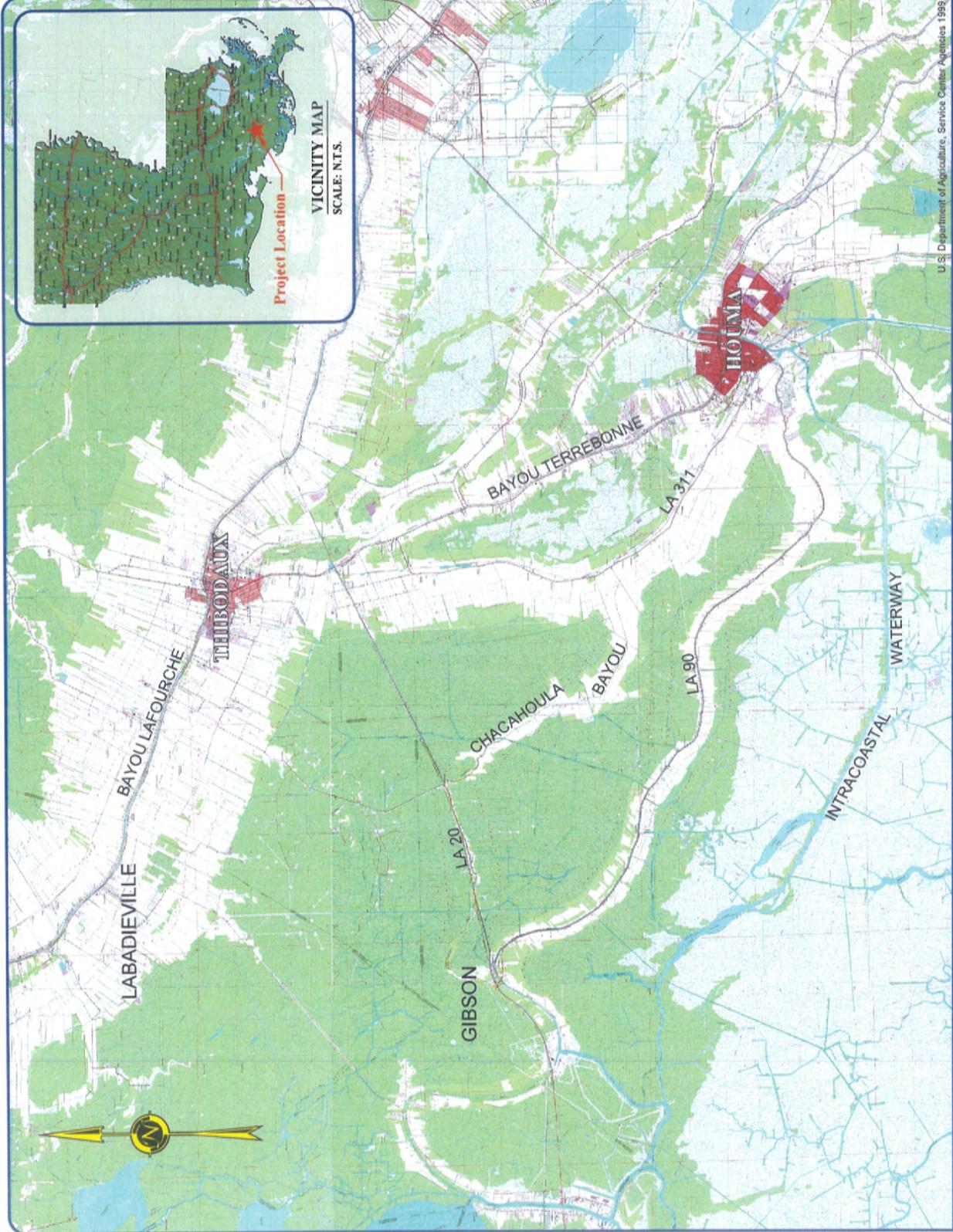
The basin can be divided into smaller hydrological sub-basins by the presence of bayous with complicated channel network. These sub basins act as off-channel storage areas and when the water levels in the off-channel is high, water flows back into the bayous.

This plan consists of a water management plan to reduce flooding/water levels affecting residences and maintain water levels conducive for wetland habitat regeneration. Additionally, the basin may be able to serve storage areas for the water from high rainfall events and minimize peak flow of the drainage channels.

Methodology/Approach

UNET Model was utilized to simulate the results of the alternatives and acceptable approaches. The model simulated the amount of communication flow between the bayous and the storage areas by adjusting the weir flow coefficient. The model for the basin included 69 reaches and 25 storage areas. Flow rates and water elevations at the six openings were the boundary conditions. Pertinent data were collected at the boundaries as well as from the interval points. The model was calibrated by compiling model parameters by surveying and data collection efforts. Vegetation and natural habitats were assessed by field verification and by utilizing aerial photographs and visual observations from a helicopter.

The only way to lower the water level in the basin based on the model results and calibration is to isolate the basin from its surroundings and implementing a forced drainage system. This water management approach could aid in looking at four alternative options, including no action.



U.S. Department of Agriculture, Service Center, Apollonia, 1989

NOTE: THE IMAGE ABOVE IS A GENERAL REPRESENTATION OF THE WORK AREA. ACTUAL FIELD CONDITIONS MAY DIFFER.



CHACAHOULA BASIN FIGURE 1 - PROJECT AREA

ANANA COMPANY
ENGINEERING LLC
Coastal Design & Infrastructure
2503 Petroleum Dr. | Suite 110
Houma, LA 70363
O: (985) 219-1000 | F: (985) 475-7014
ENGINEERING • PLANNING • ENVIRONMENTAL CONSULTING

REVISIONS	
No.	Date

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LA LICENSE NO. 2879

TERREBONNE LEVEE AND
CONSERVATION DISTRICT
BAYOU BLACK LEVEE REACH 1, 2, 3, AND
GRADLINE ALIGNMENT AFTER-THE-FACT
SECTIONS
TERREBONNE PARISH, LOUISIANA

MITIGATION MAP

Project number	39130-1025
Date	April 2016
Designed by	DMM
Drawn by	MAC
Checked by	MM
Checked by	DMM
Plot Date	April 27, 2016

Management Options/Alternatives

1. *No Action*
2. *Bottom Land Hardwoods (BLH) habitat enhancement and regeneration*
This alternative is to lower surface water elevation during the growing season in areas dominated by bottomland hardwoods (BLH) communities
3. *Cypress-tupelo swamp habitat enhancement and regeneration*
Alternative 3 attempts to lower water level during the growing season to allow growth and regeneration of bald cypress by mimicking by natural riverine conditions
4. *Floating marsh habitat enhancement and regeneration*
Floating Marsh management option is conceived to allow maximum development of floating marsh in sparse areas by manipulating water levels in the basin

The analysis of data, observations, experience, and from an ecological stand point, it is most logical and effective approach to maintain the health and vigor of the dominant plant communities, the cypress-tupelo swamp, alternative 3.

Alternative 3. Cypress-tupelo swamp habitat enhancement and regeneration

This alternative proposes a “hands-on approach by optimizing water levels during “good seed” years. During these years, water elevations should be lowered to zero (0) feet during the months of August through November (Table 1)

Table 1. Monthly Surface Water Levels (feet above Soil Surface)

*Water levels following "good seed" crop year											
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.0	1.0	1.0	0.5	0.5	0.5	0.5	0	0	0	0	1.0
**Water levels for all other years											
2.0	1.5	1.0	0.5	0.5	0.5	0.5	0	0	0	1.0	2.0

* Water levels are never to exceed 1.0ft and are never to be below -0.5ft.

** Water levels are never to exceed 2.0ft., and never to be below -0.5ft.

The water elevations must be maintained for a complete year and not just a calendar year in order to achieve the desired effect. Yearly inspections would have to be made during August to determine if it is a good seed year. During the years of low seed production, surface water levels will be maintained to allow optimum ecological benefits to the swamp. This will facilitate natural and artificial regeneration of the cypress-tupelo swamp (as well as BLH) by keeping surface water depth below the terminal buds of the seedling. This is a critical component of establishing regeneration in deeply flooded areas. In order to protect the seedlings during the growing season, a nutria control policy should be put in place and to be implemented.

Figure 2 shows the locations and water management structures such as pump stations, weirs, and flood gate to maintain the desired water levels to successfully implement cypress-tupelo option (Alternative 3).

