Client Focused. Technology Driven.



FINAL SURVEY REPORT

Topographic, Bathymetric, Magnetometer and other Professional Land Survey Services

Project:

North Delacroix Marsh Creation and Terracing Project (BS-0041)

St. Bernard Parish, Louisiana

Prepared for:

Ms. Jessica Diez, PM
Coastal Protection and Restoration Authority

Prepared by:

Mr. Ricardo Johnson, PLS
Fenstermaker

October 4 , 2021

135 Regency Square | Lafayette, LA 70508 | 337.237.2200 phone | 337.232.3299 fax
www.fenstermaker.com

C. H. Fenstermaker & Associates, L.L.C.
LA Survey Firm Reg. No. VF.0000154. LA Engineering Firm Reg. No. EF.0000311. TX Survey Firm Reg. No. 10028500. TX Engineering Firm Reg. No. F-7855.

TABLE OF CONTENTS

SECTION A..... Methodology Report

SECTION B..... Static GPS Results

SECTION C.....Topographic Survey

SECTION D.....Bathymetric Survey

SECTION E.....Magnetometer Survey

SECTION F.....Marsh Elevation Survey

SECTION G .....Fieldnotes

SECTION H.....Photos

SECTION I ..... Phase 1 Archaeological Assessment

APPENDIX A .....Data Samples and Magnetometer Anomalies

APPENDIX B .....Maps

APPENDIX C ..... Sub-bottom Profile Data Within Survey Area

APPENDIX D .....Daily Survey Operations

APPENDIX E ..... Equipment Specifications

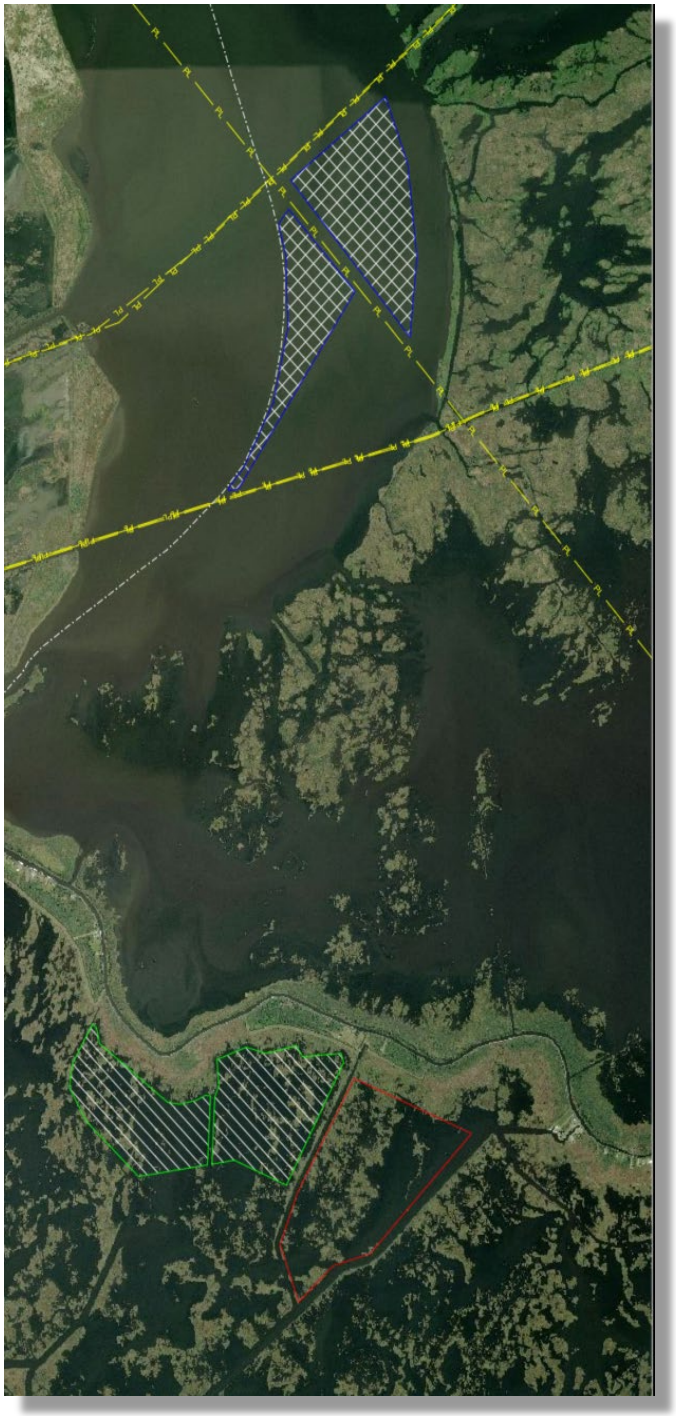
135 Regency Square · Lafayette, LA 70508 · 337.237.2200 phone · 337.232.3299 fax
www.fenstermaker.com

SECTION A

Methodology Report

135 Regency Square · Lafayette, LA 70508 · 337.237.2200 phone · 337.232.3299 fax
www.fenstermaker.com

Client Focused. Technology Driven.



SURVEY METHODOLOGY REPORT

Topographic, Bathymetric, Magnetometer and other Professional Land Survey Services

Project:

North Delacroix Marsh Creation and Terracing Project (BS-0041)

St. Bernard Parish, Louisiana

Prepared for:

Ms. Jessica Diez, PM
Coastal Protection and Restoration Authority

Prepared by:

Mr. Ricardo Johnson, PLS
Fenstermaker

September 30, 2021

135 Regency Square | Lafayette, LA 70508 | 337.237.2200 phone | 337.232.3299 fax
www.fenstermaker.com

C. H. Fenstermaker & Associates, L.L.C.
LA Survey Firm Reg. No. VF.0000154. LA Engineering Firm Reg. No. EF.0000311. TX Survey Firm Reg. No. 10028500. TX Engineering Firm Reg. No. F-7855.

SURVEY METHODOLOGY REPORT

Prepared for the

Coastal Protection and Restoration Authority

in Support of

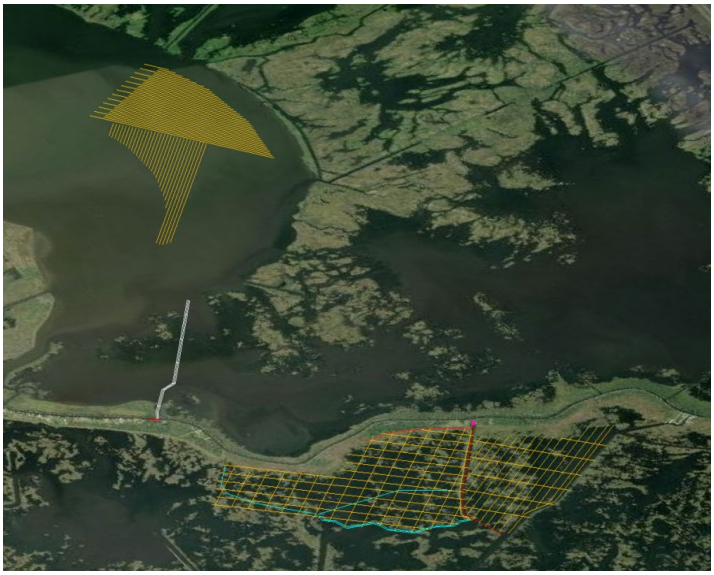
North Delacroix Marsh Creation and Terracing Project (BS-0041)

St. Bernard Parish, Louisiana

September 30, 2021

Introduction

The North Delacroix Marsh Creation and Terracing Project (BS-0041) is funded by the Coastal Wetlands Planning, Protection, and Restoration Act (CWPPRA) under Priority Project List 29 in partnership with the National Oceanic and Atmospheric Administration's (NOAA's) National Marine Fisheries Service (NMFS). The Coastal Protection and Restoration Authority (CPRA) is serving as the local sponsor and has been authorized to execute Phase 1 (Engineering and Design) of BS-0041. APPENDIX A contains the CWPPRA PPL 29 Project Fact Sheet as well as other graphical information representing BS-0041.



The overall goal of the project is to create wetlands and terraces on the east and southeast sides of the community of Delacroix. Delacroix has had an increased exposure to flooding since Hurricanes Katrina and Rita, which caused wind erosion and saltwater intrusion causing the majority of wetland loss in the project area.

Topographic, bathymetric and magnetometer surveys are required to facilitate the project design and accurately estimate the quantities required for the fill area, the quantities available to be dredged in the borrow sites, construction access, and to determine the average marsh elevation within the project site.

Proposed Features

The project consists of two (2) confined marsh creation areas totaling three hundred eighty-nine (389) acres resulting in three hundred twenty-two (322) acres of marsh creation and sixty-seven (67) acres of marsh nourishment. Two (2) creation cells allow a channel for drainage. Additionally, eight thousand five hundred forty-eight (8,548) linear feet of earthen terraces will be constructed and planted to the east of the northern marsh creation cell and south of the southern cell.

Location

The project site is located in St. Bernard Parish, Louisiana, north of the community of Delacroix, LA. The approximate coordinates of the center of the project areas are: 29° 47' 47.9" N and 89° 45' 25.99" W.

Proposed Survey Work Plan

On March 26, 2021, Fenstermaker submitted a Survey Cost Estimate to the CPRA Project Manager that included the following Survey Work Plan designated as Attachment A of the submittal.

Attachment A - Proposed Survey Work Plan

Prior to mobilization, the Fenstermaker Team will meet with the project team associated with the BS-0041 project to review tasks to be performed, Cost Estimate, Proposed Survey Work Plan, and Proposed Schedule. Any modifications to the Plan, Schedule, and Cost Estimate during the review meeting will be resubmitted to CPRA and NOAA for approval. Upon receiving the Notice to Proceed, Fenstermaker will commence the following tasks beginning within twenty (20) days of said notice.

1.0 **Marsh Elevation Surveys** (1 Day) – A 2-man survey crew will perform a marsh elevation survey at three (3) sites to be determined by CPRA. The survey is defined where a survey rod is resting among living vegetative stems and is supported by soil containing living roots. It may be necessary to cut stems where the density is extremely high in order to get accurate elevation data. A minimum of twenty (20) elevations, each one separated by 20-40 feet at each site, are required at each of the three (3) sites for this determination. Fenstermaker will contact Theryn Henkel of the CPRA New Orleans Field Office (:504-280-1005) up to ten (10) days prior to performing this survey. CPRA personnel may request to be present at the time of the marsh elevation survey.

2.0 **Topographic and Bathymetric Survey at Marsh Creation** (6 Days) – The 2-man survey crew will perform topographic surveys from an airboat utilizing RTK along Transects at 500-foot grid intervals. The transects shall cross the levee centerline and extend from the bottom of the adjacent drainage canal to the toe of the flood side of the levee. Marsh elevations and water bottoms will be recorded using an RTK rover pole with a 6" flatfoot attached to the bottom at a maximum distance of 25 feet along each transect, and where the change in elevation is greater than 0.5 feet, such as the marsh to water transition, spoil banks, etc. Topographic data shall merge with any bathymetric data and be overlapped by no less than twenty-five (25) feet.

3.0 **Magnetometer Survey of Marsh Creation Area** (4 Days) - A 2-man survey crew will perform the magnetometer surveys from an airboat utilizing RTK along marsh creation lines at 500-foot grid intervals. Magnetic anomalies will be determined using a Cesium 882 marine magnetometer with positions recorded using RTK and integrated into HyPack, a marine data acquisition software.

4.0 **Topographic and Bathymetric Survey of Recon Area** (4 days) – The 2-man survey crew shall also perform a topographic and bathymetric survey of the Recon Area. Transects shall be spaced in a two-hundred and fifty (250) by one thousand (1000) foot grid. Marsh elevations and water bottoms will be recorded using an RTK rover pole with a 6" flatfoot attached to the bottom at a maximum distance of 25 feet along each transect, and where the change in elevation is greater than 0.5 feet, such as the marsh to water transition, spoil banks, etc. Topographic data shall merge with any bathymetric data and be overlapped by no less than twenty-five (25) feet.

5.0 **Magnetometer Survey of Recon Area** (3 Days) - A 2-man survey crew will perform the magnetometer surveys from an airboat utilizing RTK along Transects at the Recon area at 250 x 100-foot intervals. Magnetic anomalies will be determined using a Cesium 882 marine magnetometer with positions recorded using RTK and integrated into HyPack, a marine data acquisition software.

6.0 **Topographic Survey of Wood Lake Levee and Pump Station & Jack's Canal Road Survey** (1 Day) – a 2-man survey crew using RTK and a UTV will perform a topographic survey of the centerline profile (L-1) along the crown of the existing Wood Lake Levee. A topographic survey will be performed of the pipe invert elevations at the pump station outfall at the coordinates provided by CPRA (coordination with St. Bernard Parish Public Works Department may be needed for access to station.) Survey is to include the diameter and length of the discharge pipe(s) and the elevation at the suction intake inside the wet well shall be recorded shown as L-2. Topographic data shall be merged with bathymetric data as described in Section 3.0 of this document. A topographic, bathymetric, and magnetometer survey of Jack's Canal Road shall be performed along transects (T-34 through T-40). Position, elevation, and water depth shall be recorded every ten (10) feet along each transect and profile or where changes in elevation of greater that one half foot (0.5) occur. A 6" diameter flatfoot plate will be attached to the bottom of the survey rod as to prevent the rod from sinking. The topographic data shall merge with bathymetric data of all transects at the land/water interface and shall be overlapped by no less that ten (10) feet.

7.0 **Topographic, Bathymetric, and Magnetometer Survey of Jack's Canal and Spoil Bank** (1 Day) – A topographic, bathymetric, and magnetometer survey of Jack's Canal (T-1) and the existing spoil bank (T-33). Position, elevation, and water depth shall be recorded every twenty-five (25) feet along each transect and profile or where changes in elevation of greater that one half foot (0.5) occur. A 6" diameter flatfoot plate will be attached to the bottom of the survey rod as to prevent the rod from sinking. The topographic data shall merge with bathymetric data of all transects at the land/water interface and shall be overlapped by no less that twenty-five (25) feet.

8.0 **Topographic, Bathymetric, and Magnetometer Survey of Earthen Containment and Terraces** (2 Days) – A topographic, bathymetric, and magnetometer survey shall be performed of the proposed Earthen Containment Dike (T-9), Earthen Terrace (T-25), and Terrace Borrow Area (T-14) centerlines. Position, elevation, and water depth shall be recorded every twenty-five (25) feet along each transect and profile or where changes in elevation of greater that one half foot (0.5) occur. A 6" diameter flatfoot plate will be attached to the bottom of the survey rod as to prevent the rod from sinking. The topographic data shall merge with bathymetric data of all transects at the land/water interface and shall be overlapped by no less that twenty-five (25) feet.

9.0 **Topographic Survey of Highway 300** (1 Day) – A topographic survey will be performed of the erosion repair features (riprap) along the location along Highway 300 as determined by CPRA. Topographic surveys will be performed by the survey crew along Transects H-1 through H-14. Surveys will be performed at ten-foot intervals or changes in elevation over 0.5 feet. The water depth, elevation of top of rock and edge of rock shall be recorded along each transect.

10.0 **Land and Marine Magnetometer - Mag Anomaly, Pipeline Probing and Marking** (9 Days) – All magnetometer surveys mentioned in sections above will be performed on applicable transects as defined in the scope. For each magnetic finding greater that fifty (50) Gammas, Fenstermaker will perform a closed loop path with the magnetometer. The path shall completely enclose the original magnetic finding, or anomaly) while keeping a twenty-five (25) foot radius from that finding. If a pipeline is detected, the crew shall probe the pipeline to determine the depth of cover and the elevation of the top of the found pipeline. Upon completion of all surveys, magnetic anomalies will be mapped in AutoCAD and will include the anomaly number, durations, gammas, and geodetic positions. This information will be provided to the survey crew to facilitate in the location of existing pipelines to be marked and probed for depth of cover, and depth of water, if submerged. Flagged cane poles will be used to mark the existing pipelines at 200-foot intervals. Where two or more pipelines exist within the same area, cane poles will be marked with a different color scheme.

NOTE: Estimated Days may vary depending on the amount of Anomalies found over 50 Gammas that will need to be investigated and probed.

11.0 **Bathymetry, Magnetometer, Side-Scan Sonar, Sub-bottom Profile Surveys within the Proposed Borrow Area and Cultural Resource Investigation** (4 Days) – A 2-man survey crew from Fenstermaker and 1 team member from TerraSond will perform the Singlebeam Bathymetric Surveys, Magnetometer Survey, Side-Scan Sonar and Sub-bottom Sonar Surveys within the Proposed Borrow Area Transects BA-01 through BA-67. TerraSond, a subcontractor to Fenstermaker, will be assisting the survey crew with Sub-bottom Profile Surveys and Cultural Resource Investigations. All information will be collected and recorded onboard using HyPack. During the data collection, a Marine Archaeologist will be onboard reviewing the survey data, real-time, and documenting any information that will require further investigations and will compare with information obtained from SHPO.

12.0 **Dredge Pipeline Corridor Bathymetric, Geophysical, Magnetometer and Cultural Resource Investigation Survey** (1 Day) - A 2-man survey crew from Fenstermaker and 1 team member from TerraSond will perform the Singlebeam Bathymetric Surveys, Magnetometer Survey, Side-Scan Sonar and Sub-bottom Sonar Surveys within the Dredged Pipeline Corridor. TerraSond, a subcontractor to Fenstermaker, will be assisting the survey crew with Sub-bottom Profile Surveys and Cultural Resource Investigations. All information will be collected and recorded onboard using HyPack. During the data collection, a Marine Archaeologist will be onboard reviewing the survey data, real-time, and documenting any information that will require further investigations and will compare with information obtained from SHPO.

13.0 **Infrastructure Survey** - Fenstermaker shall survey any protruding and observable features/structures above mean water level within the limits of the survey areas. Structures may include, but are not limited to, underground utilities (water, sewer, telephone, etc.), overhead utilities, utility poles, towers, signage, trees greater that 6 inches in diameter, structures, well-heads, bulkheads, pilings, crab traps, etc or any object that may prevent or hinder dredging and construction operations or prevent access in any way to project areas.

14.0 **Deliverables:** Fenstermaker anticipates that deliverables will be completed 4 weeks upon completion of all Field Surveys. All deliverables will be provided as specified in the Scope of Work.

On April 1, 2021, Fenstermaker received a Notice to Proceed to commence surveys in support North Delacroix Marsh Creation Project. After completing the desktop research for permitted pipelines and Landowner Notification, Fenstermaker scheduled a survey crew to commence the data collection process in the field.

Static GPS Survey at Reference Control Monuments

Prior to the mobilization, all transects and coordinates for the reference monuments were setup in the Trimble Business Center (TBC) project file, and then uploaded to the surveyor's positioning device datalogger. On Wednesday, April 28, 2021, the survey crew mobilized and traveled from the Lafayette office to the project site to perform the required survey tasks.

Upon arriving at the project site, the survey crew navigated to an existing monument located south of the project site. After locating monument BS23-SM-01, the GPS base receiver was installed and initialized to begin logging static GPS. A GPS rover unit was then initialized to receive base corrections using Real-time Kinematic (RTK) for sub-centimeter positioning. The survey crew performed a quality control check at a nearby monument TBM 100 to validate correct positioning of the GPS system. The survey crew then navigated along pre-plotted transect lines and profile of the Tidal Levee to obtain natural ground and water bottom elevations.

Static GPS was collected on benchmarks for each day that survey crews performed on topographic, magnetometer, and bathymetric surveys. Additional temporary benchmarks (TBM's) were utilized at various

C. H. Fenstermaker & Associates, L.L.C.
LA Survey Firm Reg. No. VF.0000154. LA Engineering Firm Reg. No. EF.0000311. TX Survey Firm Reg. No. 10028500. TX Engineering Firm Reg. No. F-7855.

locations for efficiency. Initially, the TBM's were located using RTK to determine the positions and facilitated as a quality control check point. Afterward, the TBM's were used as reference base points and static GPS was collected and post-processed. Static GPS surveys in support of the topographic, bathymetric, and magnetometer surveys were completed on June 18, 2021.



Monument BS32-SM-01

Upon completing the static GPS surveys each day, GPS raw data files were downloaded, then uploaded to Fenstermaker's ftp site for post-processing and adjustment.

Static GPS survey activities performed are in conformance with CPRA survey standards as specified in *"A Contractor's Guide to the Standards of Practice Required by Louisiana Department of Natural Resources, Coastal Restoration Division for Contractor's Performing GPS Surveys and Establishing GPS Derived Orthometric Heights Within the Louisiana Coastal Zone Primary GPS Network"* dated January 2019.

Static GPS Downloading, Processing & Adjustments

Upon completing the static GPS survey, GPS log sheets were checked and compared to the data files on the receivers. The raw GPS data was then downloaded into the project file created in Trimble Business Center (TBC) software. The IGS Precise Ephemeris was also downloaded from the NOAA/NGS Internet website for each day that GPS data was collected. All CORS[1] stations which were located nearest to or within the project area were also downloaded from the National Geodetic Survey (NGS) website and processed with the static GPS data. CORS Stations that were incorporated into the GPS network included "MARY", "SBCH", "BVHS", "GRIS", "LMCN", "HOUM", and "DSTR".

After post-processing the GPS Network, a report was then generated in the TBC program and reviewed to determine satellite cycle slips to avoid baseline float solutions in the processed data. If a baseline float solution existed, the elevation mask was raised 5 degrees and the baseline was re-processed to eliminate satellite noise that may have existed close to the horizon.



Monument BS32-SM-01

Upon completing the processing phase, the data was loaded into the adjustment program and adjusted. All necessary adjustments were performed using the TBC Network Adjustment software.

The initial adjustment for the GPS network was minimally constrained to the published adjusted NAD83 (2011) Epoch 2010.00 and the published ellipsoid height at the antenna reference point (ARP) for CORS Station "MARY". A re-adjustment was performed to identify potential outliners to be disabled from the adjustment.

[1] The National Geodetic Survey (NGS) coordinates two networks of continuously operating reference stations (CORS): the National CORS network and the Cooperative CORS network. Each CORS site provides Global Positioning System (GPS) carrier phase and code range measurements in support of 3-dimensional positioning activities throughout the United States and its territories. Surveyors, GIS/LIS professionals, engineers, scientists, and others can apply CORS data to position points at which GPS data have been collected. The CORS system enables positioning accuracies that approach a few centimeters relative to the National Spatial Reference System, both horizontally and vertically.

A scale factor was determined from the Statistics Summary and applied to the network and re-adjusted until the Chi-Square Test passed with a 95% confidence level.

The final fully constrained adjustment was performed by holding to the published values for the CORS Stations antenna reference points (ARP) at "MARY", "LMCN", and "BVHS". Orthometric heights (elevations) were calculated using the Geoid12B model. The adjusted ellipsoid heights for the remainder of the CORS Stations were compared with their published NAD83 (2011) values as a quality control check. All GPS files were submitted to the NGS Online Positioning User Service (OPUS) Program[2] for an independent solution and comparisons made with the final adjustment results.

Figure 1: Tabulation of Final GPS Adjustment Results at Reference Control

North Delacroix Marsh Creation and Terracing Project
Static GPS Adjustment Results
NAD83 (2011) Louisiana South Zone (1702) - NAVD88 (2009.55) Geoid 12B

Name	Latitude	Longitude	Ellipsoid Hgt	Northing	Easting	Elevation	Description
TBM 100	29d46'26.33881"	-89dd45'23.16328"	-81.314	484,922.99	3,780,837.28	2.73	CP
BS32-SM-01	29d45'29.24794"	-89d47'02.06576"	-80.658	460,856.72	3,772,450.52	2.64	MON

Marsh Elevation Survey

On April 28, 2021, a survey crew met with an environmental specialist from Fenstermaker to direct the survey crew on the locations for performing the Marsh Elevation Survey within the Marsh Creation Area.

A total of three (3) sites were selected by the Fenstermaker environmental specialist. RTK surveys to determine marsh elevations were taken at twenty (20) locations within each selected site, separated by 20 to 40 feet. Elevations were recorded on datalogger at the top of the marsh root mass and top of the mudline adjacent to the root mass. The results were tabulated in a spreadsheet to determine average elevations for root mass and mudline for each site surveyed.

RTK Survey of Topographic Features

Upon mobilization and travel to the project on Monday, April 29, 2021, the RTK base unit was initialized at reference monument BS32-SM-01. A quality control shot was measured at TBM 100 with the roving unit to verify that the system was operational and delivering corrected positions.

A topographic survey was conducted on the Wood Lake Levee and Pump Station and along Jack's Canal Road. Using the RTK rover set on a 2-meter pole, elevations were gathered on the pipe inverts at the pump station outfall. The survey included the diameter and length of the discharge pipes and the elevation at the suction intake inside the wet well. Elevation data was recorded along Jack's Canal Road every 10 feet along predetermined transect lines or where elevation differed more than one half foot (0.5'). Data was then merged with bathymetric data in the adjacent Jack's Canal, the marsh creation area, and the proposed recon area.

[2] The National Geodetic Survey operates the On-line Positioning User Service (OPUS) as a means to provide GPS users easier access to the National Spatial Reference System (NSRS). OPUS allows users to submit their GPS data files to NGS, where the data will be processed to determine a position using NGS computers and software. Each data file that is submitted will be processed with respect to 3 CORS sites.

Surveys commenced along transects within the proposed marsh creation site and proposed spoil bank. Once the GPS base was setup and initialized, the survey crew navigated by airboat to capture topographic features along pre-plotted transects within the Marsh Creation Area that included existing natural ground shots, spoil banks, shorelines, and water bottoms using a 2-meter pole with the RTK rover unit attached.


Wood Lake Pump Station

The topographic survey was conducted of the erosion repair features along Louisiana Highway 300 along predetermined transect lines at 10-foot intervals. An infrastructure feature survey was also conducted within the limits of the project area. This included, but was not limited to, all underground and overhead utilities, towers, signage, structures, well-heads, bulkheads, pilings, or any object that could potentially hinder dredging and construction operations or prevent any access to the project area.

RTK was used to perform topographic cross-sections within waterway channels, canals, bayous, and access routes using an extended pole to capture water bottoms. This data was used to validate bathymetric survey data collected with the single-beam echo sounder.

Topographic features were collected along transects as specified in the Section above titled “Proposed Survey Work Plan” using RTK. A flatfoot was attached to the bottom of the rover rod to prevent penetration into the water bottom. In addition, water surface shots were acquired daily to facilitate in determining a relationship to any nearby gauges.

Static GPS was collected at the base station concurrent with the RTK topographic survey for each day of data collection. All topographic surveys conducted to capture existing features, including magnetometer surveys and pipeline probing.

GPS and RTK Survey Equipment

The equipment used for the static GPS survey consisted of a Trimble© Navigation’s dual-frequency GNSS GPS receiver with integrated GPS antenna, also called base stations. A two-meter fixed height tripod was used to eliminate human error that could be introduced by miss-measurement of the GPS antenna heights. The GPS data was downloaded, processed and adjusted using Trimble Business Center (TBC) Software, Version 5.51. The Geoid12B model was used to determine the geoid separation and applied to the ellipsoid heights to determine elevation as specified in the scope.

To perform the RTK survey, a rover consisting of a Trimble© Navigation’s dual-frequency GNSS GPS receivers with an integrated GPS antenna and a radio link was employed to transmit corrections to the rover from the base setup. A fixed height rod with attached flatfoot was used at the rover. The data was collected and stored on a Trimble© TSC7 datalogger and downloaded using TBC, Version 5.51.

Bathymetric Surveys within the Access Routes, Bayous, Borrow Area, and Dredge Pipeline Corridor

Prior to commencing the single-beam bathymetric surveys, coordinates and line files for the proposed transect lines within the Bayou Terre Bouefs, the proposed Dredge Pipeline Corridor, Access Routes, and Proposed Borrow Area in Lake Lery were provided to the survey crew.

On June 15, 2021, the bathymetric survey crew commenced single-beam surveys in Bayou Terre Boeufs south and west of the marsh creation and terracing site. With the installation of a GPS base station and

performing a QC check at the TBM, the survey crew mounted the RTK rover system on the marine vessel and integrated the positioning system with the onboard single-beam echo-sounder using HyPack. This allowed the survey crew to navigate along pre-plotted transect lines to obtain corrected water bottom elevations. Positioning was accomplished using Real-time kinematic (RTK) with the base station delivering GPS corrections from the reference marks located within the project site.

Prior to commencing bathymetric surveys within the Proposed Borrow Area, Fenstermaker survey technicians met with TerraSond technicians to install and calibrate GPS with single-beam Cee HydroSystems CeeEcho, side-scan, and sub-bottom profile devices through HyPack on the Fenstermaker marine vessel at the Lafayette office. Once all equipment was successfully communicating through the onboard computer software, Fenstermaker and TerraSond survey crews mobilized to the project site in Delacroix.

On Tuesday, June 15, 2021, bathymetric surveys commenced within the Proposed Borrow Area which included a single-beam fathometer, side-sonar, sub-bottom profiler, and marine magnetometer. Data acquisition for the single-beam survey was accomplished using HYPACK® digital data acquisition and navigation software. An CeeEcho fathometer was used to determine the water depths along the pre-plotted transect lines. The fathometer was integrated with RTK to accurately position in three dimensions.

Water surface shots were taken in the morning and afternoon by the bathymetric survey crew using RTK to obtain the water surface elevations relative to NAVD88 using Geoid12B. Sound velocities were performed to determine the speed of sound in the water column using an Odom DigiBar Sound Velocity Sensor. Once the sound of velocity was determined and applied to the software, bar checks were performed at the beginning of the day to measure the actual depths relative to the recorded depths on the echo sounder with the average sound velocity, draft and index applied. Once the sound of velocity was determined and applied to the software, a steel plate was lowered beneath the transducer head at 5-foot intervals to validate correct depth readings delivered from the echosounder.


Colonial Pipeline Bulkhead

Once all checks were completed and the system initialized, the bathymetric crew navigated along the pre-plotted transects within the borrow area to collect water depths, water bottom features with the side-scan system, sub-bottom features with the profiler, and anomalies with the magnetometer. A Marine Archaeologist from Terrasond was also aboard the marine vessel during data collection to interpret the information that was collected in real-time. Bathymetric Surveys within the Borrow Area continued each day, as described above, and was completed on June 17th.

Back at the office, the raw data was imported into HYPACK® program, which includes the raw bathymetry data and corrected tide file. A graphic image was generated so that the digital sounder data could be swath edited to remove outliers. The final adjusted and edited file was exported in ascii format and vertically adjusted using NAVD88 using Geoid12B.

Bathymetric Survey Equipment

Horizontal positioning was logged real-time using a Trimble R12 GNSS GPS Receiver integrated with RTK for GPS corrections resulting in a 5cm horizontal accuracy or better. Pitch and roll was recorded with the CDL MiniTilt Motion Sensor to correct for motion changes. Cee HydroSystems CeeEcho was also used to determine water depths along all transect lines. Bathymetry data was corrected for velocity and adjusted to NAVD88 using Geoid12B.

The sub-bottom equipment that was owned and operated by TerraSond is described in a separate report included with these deliverables.

Magnetometer Hazard Surveys within the Marsh Creation and Terracing Area



Possible P&A well found

Prior to performing the magnetometer surveys, a search was made using the National Pipeline Mapping System (NPMS) database and RexTag within Fenstermaker's Map Analyst GIS Mapping System (See Attachment A). The database revealed that no pipelines existed within the Proposed Marsh Creation and Terracing Area. Pipelines were shown to exist within and adjacent to the Proposed Borrow Area.

Commencing on April 29th, 2021, the magnetometer surveys were performed from an airboat along the 500-foot interval gridded transects to locate potential hazards and existing pipelines within the Proposed Marsh Creation and Terracing Area. The topographic survey crew located existing anomalies using a magnetometer towed behind the airboat to record positions.

Upon completion of the magnetometer survey, data was uploaded and processed in the Lafayette office as stated below. Once all anomalies were determined, the crew was given their locations and proceeded to investigate the areas for the nature and source of the signals found.

Instruments utilized for the surveys included a Trimble® R12 GNSS RTK system providing centimeter accuracy positioning and a Geometrics® 882 Cesium Marine Magnetometer.
The magnetometer on the airboat was operated in a towed configuration with the tow point at the stern of the vessel. The magnetometer dataset was collected through HYPACK® at a sampling rate of 10 Hz and a very high sensitivity of less than 0.1 gammas. Chesapeake Technology, Inc.'s SonarWiz.SBP software was used to interpret the magnetometer dataset.

For the Proposed Borrow Area, unidentified anomalies were located from the marine vessel using a Geometrics 882 Marine Magnetometer. Single-beam bathymetry surveys were performed in conjunction with the magnetometer survey to locate water bottoms along the planned track lines within the Proposed Borrow Area. Contacts, or mag hits, were presumed to represent articles of ferrous debris which are either buried below the mudline or too small to be acoustically detected and probably associated with debris, such as crab traps. A table of the recorded magnetic anomalies, identified and unidentified, is presented in a table. The table listing includes Anomaly Number, Coordinates, Duration, Frequency, Amplitude, Ground Elevation, Depth of Cover (if probed), and Water Depth.

A nomogram (See Figure 2) provides a visual reference of the relationship between a ferrous object and magnetic deflection generated by the object. The amplitude and signature width of a magnetic deflection are dependent on a variety of factors that include object size and configuration, ferrous content, and distance from the sensor (Breiner, 1973). Since all the variables involved in anomaly classification are not

readily available, the nomogram provides only a rough estimate for anomalies and source size. The positions of the unidentified anomalies were recorded using the onboard Differential GPS system. Water surface shots were taken occasionally by the crew using RTK to obtain the water surface elevations relative to NAVD88 using Geoid12B.

Back at the office, all raw data was imported into SonarWiz, which includes the raw magnetometer data and Magnetometer tow point position on the vessel. The magnetometer data is then laid back using the recorded laid-back values. A hydrographic survey specialist analyzed each file picking all magnetometer anomalies. The specialist then exported a file with all anomaly positions and amplitudes to be mapped.

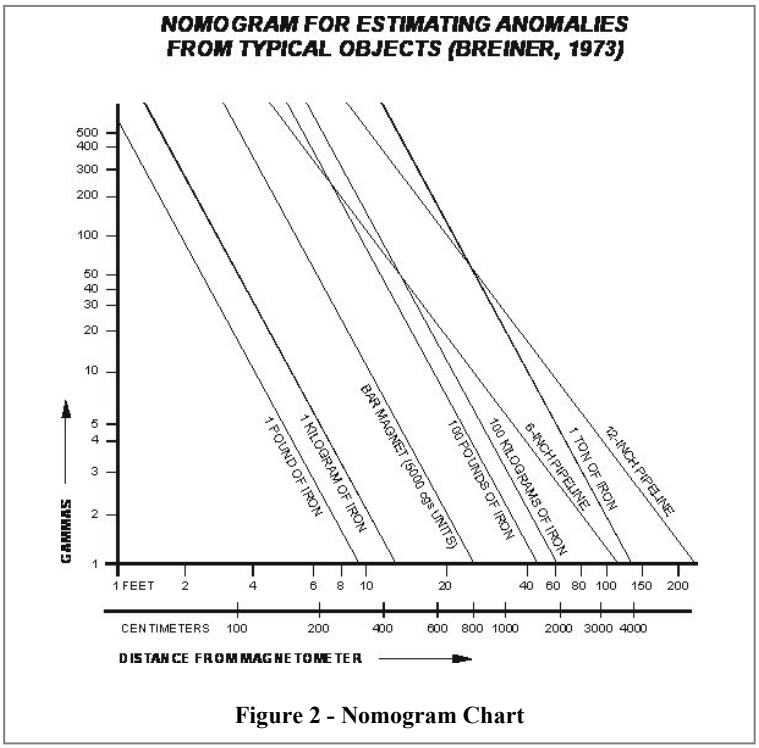


Figure 2 - Nomogram Chart

Significant anomalies that were located and identified on this survey are associated with existing pipelines and ferrous debris, all of which are located within the project footprint. The remainder of these anomalies are determined to be consistent with targets usually associated with minor debris such as crab traps, steel cans and buckets, anchors, etc. Upon further investigations of the anomalies, crab traps seemed to be the most common debris source.

Conclusion

While reasonable efforts are made to locate all pipelines and magnetic anomalies, the equipment used and the characteristics of pipelines themselves make it impossible to guarantee total success. Accordingly, it is incumbent upon the owners, operators and/or contractors conducting operations, to do so with extreme caution, and recognize that hazards, in addition to those detected and reported by Fenstermaker, may exist within the areas of operation, regardless of Fenstermaker's most diligent efforts.

The presence of debris can have an adverse impact on the success of construction activities. The knowledge of the presence of magnetic anomalies will be factored in the alternatives analysis state of engineering and design for this project.

Louisiana (Louisiana One Call™ www.laonecall.com) maintains an information center and link between those who dig (excavators) and those who own and operate underground facilities (operators). It is advisable, and in most States, it is the law for the contractor to contact the center for assistance in locating and marking underground utilities.

FINAL NOTE

Please be advised that the data, which was collected during the survey of this project, represents an epoch, a snapshot at the time that the survey was performed. Due to the effects of crustal motion, subsidence, upheaval, drought and other conditions which influence the physical position and stability of surface monuments, topographic features, and other structures within the Louisiana Coastal Zone, it is recommended that GPS monuments used for this project be re-observed and reprocessed on future surveys using the same reference control, if possible, for the purpose of updating the three dimensional position of the reference monuments.

The GPS/RTK Survey protocols performed in support of this project were in accordance with the Coastal Protection and Restoration Authority of Louisiana requirements as described in "A Contractor's Guide to the Standards of Practice Required by Louisiana Department of Natural Resources, Coastal Restoration Division for Contractor's Performing GPS Surveys and Establishing GPS Derived Orthometric Heights Within the Louisiana Coastal Zone Primary GPS Network" dated January 2019. All Static GPS were adjusted using Trimble Business Center software to determine the final positions for all reference control monuments.



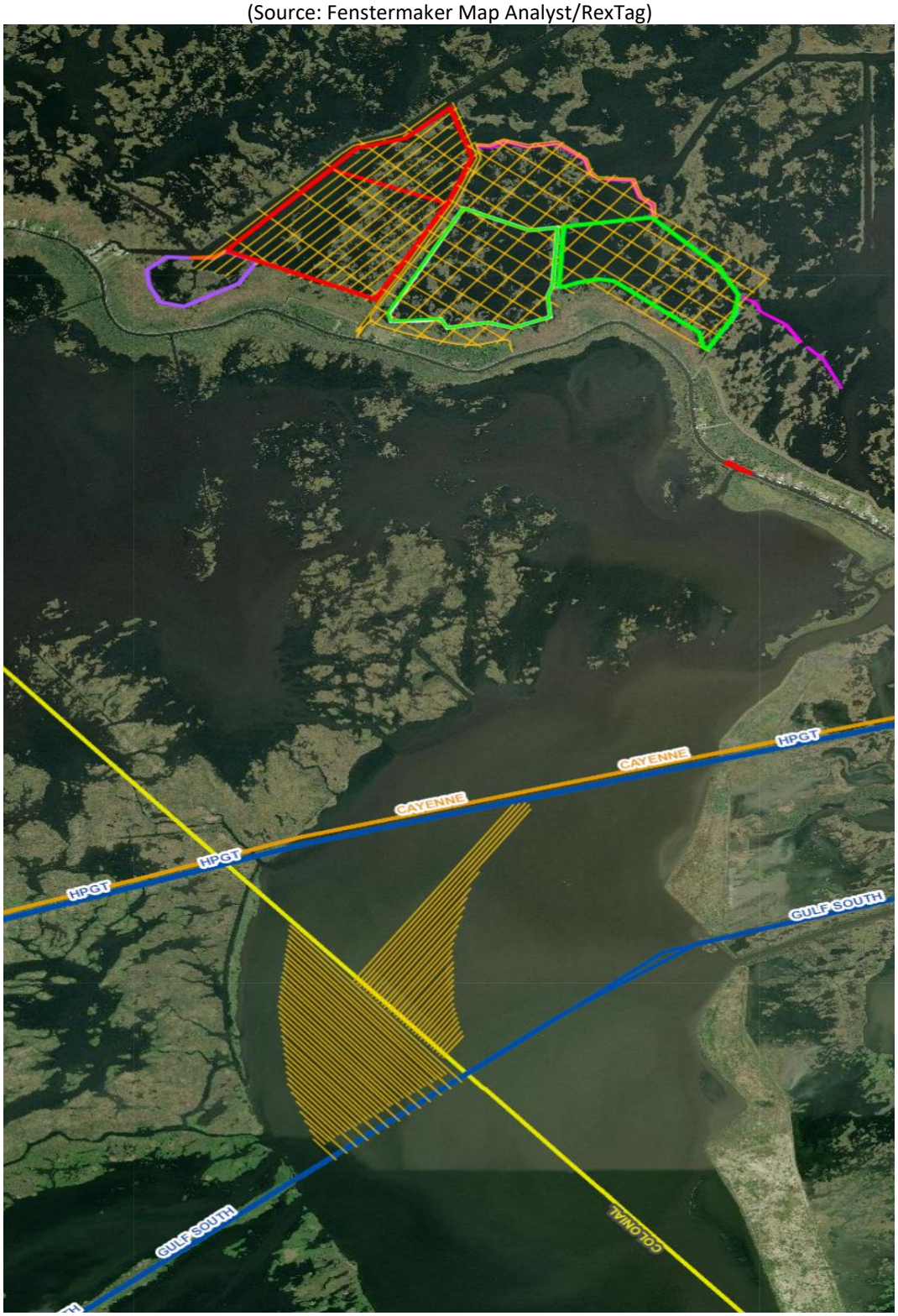
C. H. Fenstermaker & Associates, LLC

9/30/2021

Ricardo M. Johnson, PLS LA Reg. 4767
Director of Coastal Services, Survey & Mapping

ATTACHMENT A – PIPELINE DATABASE RESEARCH

(Source: Fenstermaker Map Analyst/RexTag)



SECTION B

Static GPS & OPUS Solutions

GPS Network Map
Static GPS Adjustment Report
Adjustment Results Tabulation
OPUS Comparisons to Static Adjustment
Monument Datasheets

C. H. Fenstermaker & Associates, LLC
135 Regency Square
Lafayette, LA 70518
USA
Phone: 337 237-2200
http://fenstermaker.com

Project File Data	
Name:	T:\2021\2213288\OPUS\North Delacroix Marsh Creation.vce
Size:	465 KB
Modified:	6/9/2021 5:13:59 PM (UTC:-5)
Time zone:	Central Standard Time
Reference number:	
Description:	
Comment 1:	
Comment 2:	
Comment 3:	

Coordinate System	
Name:	United States/State Plane 1983
Datum:	NAD 1983 (Conus)
Zone:	Louisiana South 1702
Geoid:	GEOID12B (Conus)
Vertical datum:	NAVD88 (2011)
Calibrated site:	

Network Adjustment Report

Adjustment Settings

Set-Up Errors

GNSS

Error in Height of Antenna: 0.005 ft

Centering Error: 0.005 ft

Covariance Display

Horizontal:

Propagated Linear Error [E]: U.S.

Constant Term [C]: 0.000 ft

Scale on Linear Error [S]: 1.960

Three-Dimensional

Propagated Linear Error [E]: U.S.

Constant Term [C]: 0.000 ft

Scale on Linear Error [S]: 1.960

Adjustment Statistics

Number of Iterations for Successful Adjustment: 2

Network Reference Factor: 1.00

Chi Square Test (95%): Passed

Precision Confidence Level: 95%

Degrees of Freedom: 1062

Post Processed Vector Statistics

Reference Factor: 1.00

Redundancy Number: 1062.00

A Priori Scalar: 1.02

Control Coordinate Comparisons

Values shown are control coordinates minus adjusted coordinates.

Point ID	ΔNorthing (US survey foot)	ΔEasting (US survey foot)	ΔElevation (US survey foot)	ΔHeight (US survey foot)
DSTR	0.066	-0.024	?	0.074
GRIS	0.033	-0.022	?	0.001
HOUM	0.066	-0.044	?	0.049
LMCN	0.056	-0.096	?	?
SBCH	0.022	0.013	?	0.014

Control Point Constraints

Point ID	Type	North σ (US survey foot)	East σ (US survey foot)	Height σ (US survey foot)	Elevation σ (US survey foot)
BVHS	Global	Fixed	Fixed	Fixed	
LMCN	Global			Fixed	
MARY	Global	Fixed	Fixed	Fixed	
Fixed = 0.000003(US survey foot)					

Adjusted Grid Coordinates

Point ID	Northing (US survey foot)	Northing Error (US survey foot)	Easting (US survey foot)	Easting Error (US survey foot)	Elevation (US survey foot)	Elevation Error (US survey foot)	Constraint
TBM 100	484922.988	0.004	3780837.279	0.004	2.728	0.024	
BS32-SM-01	460856.721	0.005	3772450.518	0.005	2.642	0.026	
BVHS	309482.269	?	3894798.478	?	31.557	?	LLh
DSTR	533852.000	0.004	3581993.313	0.004	24.516	0.017	
GRIS	281033.445	0.004	3719590.211	0.003	27.346	0.013	
HOUM	397729.269	0.005	3474618.999	0.005	45.299	0.015	
LMCN	275191.042	0.005	3495143.606	0.005	31.657	?	h
MARY	556633.054	?	3730298.895	?	10.692	?	LLh
SBCH	501341.837	0.003	3806984.507	0.003	35.847	0.014	

Adjusted Geodetic Coordinates

Point ID	Latitude	Longitude	Height (US survey foot)	Height Error (US survey foot)	Constraint
TBM 100	N29°49'26.33881"	W89°45'23.16328"	-81.314	0.024	
BS32-SM-01	N29°45'29.24794"	W89°47'02.06576"	-80.658	0.026	
BVHS	N29°20'12.48974"	W89°24'23.01022"	-46.734	?	LLh
DSTR	N29°57'52.39506"	W90°22'56.00636"	-61.021	0.017	

GRIS	N29°15'55.88271"	W89°57'26.26195"	-51.314	0.013	
HOUM	N29°35'32.10901"	W90°43'24.98798"	-37.233	0.015	
LMCN	N29°15'17.90376"	W90°39'40.65087"	-48.393	?	h
MARY	N30°01'22.70919"	W89°54'46.80198"	-75.127	?	LLh
SBCH	N29°52'05.20533"	W89°40'23.63855"	-48.742	0.014	

Adjusted ECEF Coordinates

Point ID	X (US survey foot)	X Error (US survey foot)	Y (US survey foot)	Y Error (US survey foot)	Z (US survey foot)	Z Error (US survey foot)	3D Error (US survey foot)	Constraint
TBM 100	77237.226	0.004	-18168975.980	0.021	10345940.145	0.013	0.025	
BS32-SM-01	68570.207	0.005	-18180911.261	0.022	10325154.636	0.013	0.027	
BVHS	189142.939	?	-18255649.128	?	10191879.308	?	?	LLh
DSTR	-121036.795	0.004	-18143274.213	0.014	10390271.255	0.009	0.017	
GRIS	13616.904	0.003	-18269305.518	0.012	10169272.578	0.007	0.014	
HOUM	-229986.041	0.005	-18209490.622	0.013	10272765.144	0.009	0.016	
LMCN	-210876.278	?	-18269971.320	?	10165927.125	?	?	h
MARY	27533.691	?	-18133023.419	?	10408665.628	?	?	LLh
SBCH	103575.584	0.003	-18160885.924	0.012	10359876.702	0.008	0.015	

Error Ellipse Components

Point ID	Semi-major axis (US survey foot)	Semi-minor axis (US survey foot)	Azimuth
TBM 100	0.006	0.005	60°
BS32-SM-01	0.007	0.006	81°
DSTR	0.005	0.005	6°
GRIS	0.005	0.004	146°
HOUM	0.006	0.006	39°
LMCN	0.006	0.006	19°
SBCH	0.004	0.004	49°

Adjusted GNSS Observations

Transformation Parameters

Deflection in Latitude: -0.213 sec **(95%)** 0.008 sec
Deflection in Longitude: 0.023 sec **(95%)** 0.010 sec
Azimuth Rotation: 0.014 sec **(95%)** 0.002 sec
Scale Factor: 1.00000001 **(95%)** 0.00000001

Observation ID		Observation	A-posteriori Error	Residual	Standardized Residual
SBCH --> TBM 100 (PV140)	**Az.**	238°42'13.3"	0.030 sec	-0.247 sec	-4.266

	ΔHt.	-32.592 ft	0.024 ft	-0.037 ft	-0.947
	Ellip Dist.	30877.027 ft	0.005 ft	-0.005 ft	-0.548
LMCN --> BVHS (PV279)	**Az.**	85°26'19.6"	0.002 sec	0.024 sec	4.113
	ΔHt.	1.734 ft	0.015 ft	-0.030 ft	-0.440
	Ellip Dist.	401123.001 ft	0.004 ft	0.008 ft	0.463
HOUM --> BVHS (PV286)	**Az.**	102°10'14.8"	0.002 sec	0.023 sec	3.934
	ΔHt.	-9.551 ft	0.015 ft	-0.015 ft	-0.207
	Ellip Dist.	429359.320 ft	0.004 ft	0.012 ft	0.686
DSTR --> BS32-SM-01 (PV78)	**Az.**	111°26'45.8"	0.005 sec	-0.071 sec	-3.933
	ΔHt.	-19.693 ft	0.027 ft	-0.093 ft	-0.759
	Ellip Dist.	203980.751 ft	0.006 ft	0.009 ft	0.294
MARY --> TBM 100 (PV323)	**Az.**	145°32'08.1"	0.011 sec	0.163 sec	3.898
	ΔHt.	-6.256 ft	0.025 ft	-0.083 ft	-0.633
	Ellip Dist.	87735.872 ft	0.005 ft	-0.005 ft	-0.247
SBCH --> TBM 100 (PV150)	**Az.**	238°42'13.3"	0.030 sec	-0.265 sec	-3.845
	ΔHt.	-32.592 ft	0.024 ft	-0.034 ft	-0.635
	Ellip Dist.	30877.027 ft	0.005 ft	-0.041 ft	-3.693
MARY --> BS32-SM-01 (PV69)	**Az.**	156°57'20.6"	0.011 sec	-0.106 sec	-3.297
	ΔHt.	-5.626 ft	0.027 ft	-0.068 ft	-0.640
	Ellip Dist.	104649.088 ft	0.005 ft	-0.055 ft	-3.661
MARY --> SBCH (PV247)	**Az.**	126°30'08.2"	0.007 sec	-0.016 sec	-0.654
	ΔHt.	26.336 ft	0.015 ft	-0.001 ft	-0.023
	Ellip Dist.	94546.895 ft	0.003 ft	0.040 ft	3.637
MARY --> TBM 100 (PV97)	**Az.**	145°32'08.1"	0.011 sec	-0.046 sec	-1.525
	ΔHt.	-6.256 ft	0.025 ft	0.013 ft	0.162
	Ellip Dist.	87735.872 ft	0.005 ft	0.046 ft	3.628
SBCH --> TBM 100 (PV320)	**Az.**	238°42'13.3"	0.030 sec	0.024 sec	0.326
	ΔHt.	-32.592 ft	0.024 ft	0.000 ft	-0.002
	Ellip Dist.	30877.027 ft	0.005 ft	0.041 ft	3.533
BVHS --> BS32-SM-01 (PV64)	**Az.**	322°00'54.8"	0.006 sec	0.061 sec	3.503
	ΔHt.	-33.779 ft	0.027 ft	-0.085 ft	-0.803
	Ellip Dist.	194644.160 ft	0.006 ft	-0.005 ft	-0.199
BVHS --> GRIS (PV268)	**Az.**	261°44'16.5"	0.004 sec	0.044 sec	3.451
	ΔHt.	-4.627 ft	0.015 ft	0.079 ft	1.251
	Ellip Dist.	177502.918 ft	0.004 ft	0.007 ft	0.466
GRIS --> TBM 100 (PV129)	**Az.**	17°24'31.7"	0.005 sec	0.047 sec	3.415
	ΔHt.	-29.782 ft	0.025 ft	-0.005 ft	-0.050
	Ellip Dist.	212898.264 ft	0.005 ft	-0.017 ft	-0.699
MARY --> TBM 100 (PV134)	**Az.**	145°32'08.1"	0.011 sec	-0.036 sec	-1.000
	ΔHt.	-6.256 ft	0.025 ft	-0.016 ft	-0.181
	Ellip Dist.	87735.872 ft	0.005 ft	0.046 ft	3.403

BVHS --> TBM 100 (PV371)	**Az.**	327°57'20.1"	0.005 sec	0.027 sec	1.975
	ΔHt.	-34.409 ft	0.025 ft	0.012 ft	0.143
	Ellip Dist.	209214.000 ft	0.005 ft	-0.079 ft	-3.403
SBCH --> TBM 100 (PV308)	**Az.**	238°42'13.3"	0.030 sec	0.188 sec	2.481
	ΔHt.	-32.592 ft	0.024 ft	-0.033 ft	-0.519
	Ellip Dist.	30877.027 ft	0.005 ft	0.037 ft	3.223
BVHS --> BS32-SM-01 (PV19)	**Az.**	322°00'54.8"	0.006 sec	-0.040 sec	-3.148
	ΔHt.	-33.779 ft	0.027 ft	-0.034 ft	-0.438
	Ellip Dist.	194644.160 ft	0.006 ft	-0.005 ft	-0.295
BVHS --> SBCH (PV261)	**Az.**	336°22'08.3"	0.003 sec	0.037 sec	3.081
	ΔHt.	-1.818 ft	0.015 ft	0.035 ft	0.463
	Ellip Dist.	211010.768 ft	0.003 ft	0.019 ft	1.018
MARY --> TBM 100 (PV265)	**Az.**	145°32'08.1"	0.011 sec	0.001 sec	0.046
	ΔHt.	-6.256 ft	0.025 ft	0.029 ft	0.351
	Ellip Dist.	87735.872 ft	0.005 ft	-0.040 ft	-3.025
LMCN --> TBM 100 (PV122)	**Az.**	54°03'24.8"	0.003 sec	0.025 sec	3.018
	ΔHt.	-32.676 ft	0.025 ft	-0.024 ft	-0.235
	Ellip Dist.	354426.185 ft	0.005 ft	0.009 ft	0.329
GRIS --> TBM 100 (PV157)	**Az.**	17°24'31.7"	0.005 sec	0.050 sec	2.992
	ΔHt.	-29.782 ft	0.025 ft	0.035 ft	0.300
	Ellip Dist.	212898.264 ft	0.005 ft	-0.004 ft	-0.130
LMCN --> BS32-SM-01 (PV84)	**Az.**	56°32'10.8"	0.003 sec	-0.027 sec	-2.926
	ΔHt.	-32.046 ft	0.026 ft	-0.082 ft	-0.791
	Ellip Dist.	333734.145 ft	0.006 ft	0.007 ft	0.282
LMCN --> SBCH (PV250)	**Az.**	54°23'24.0"	0.002 sec	0.016 sec	2.925
	ΔHt.	-0.084 ft	0.015 ft	-0.005 ft	-0.082
	Ellip Dist.	385228.399 ft	0.004 ft	0.016 ft	0.996
HOUM --> BS32-SM-01 (PV91)	**Az.**	78°20'24.9"	0.004 sec	-0.027 sec	-2.870
	ΔHt.	-43.330 ft	0.027 ft	-0.063 ft	-0.658
	Ellip Dist.	304465.800 ft	0.006 ft	0.012 ft	0.494
BVHS --> TBM 100 (PV316)	**Az.**	327°57'20.1"	0.005 sec	-0.056 sec	-2.849
	ΔHt.	-34.409 ft	0.025 ft	-0.050 ft	-0.325
	Ellip Dist.	209214.000 ft	0.005 ft	0.013 ft	0.353
MARY --> BVHS (PV264)	**Az.**	147°03'50.0"	0.002 sec	0.024 sec	2.848
	ΔHt.	28.153 ft	0.015 ft	-0.011 ft	-0.151
	Ellip Dist.	296905.579 ft	0.003 ft	0.020 ft	1.036
DSTR --> TBM 100 (PV356)	**Az.**	104°17'59.8"	0.005 sec	0.044 sec	2.789
	ΔHt.	-20.323 ft	0.025 ft	0.105 ft	0.950
	Ellip Dist.	204790.219 ft	0.005 ft	0.076 ft	2.842
MARY --> SBCH (PV151)	**Az.**	126°30'08.2"	0.007 sec	0.005 sec	0.135
	ΔHt.	26.336 ft	0.015 ft	-0.064 ft	-0.633

	Ellip Dist.	94546.895 ft	0.003 ft	-0.043 ft	-2.831
DSTR --> TBM 100 (PV106)	**Az.**	104°17'59.8"	0.005 sec	0.017 sec	1.282
	ΔHt.	-20.323 ft	0.025 ft	-0.042 ft	-0.491
	Ellip Dist.	204790.219 ft	0.005 ft	0.057 ft	2.760
MARY --> TBM 100 (PV209)	**Az.**	145°32'08.1"	0.011 sec	0.044 sec	1.389
	ΔHt.	-6.256 ft	0.025 ft	0.016 ft	0.186
	Ellip Dist.	87735.872 ft	0.005 ft	-0.038 ft	-2.720
DSTR --> BVHS (PV273)	**Az.**	126°07'42.9"	0.002 sec	0.019 sec	2.701
	ΔHt.	14.086 ft	0.016 ft	-0.019 ft	-0.244
	Ellip Dist.	384972.602 ft	0.004 ft	0.017 ft	0.836
SBCH --> TBM 100 (PV196)	**Az.**	238°42'13.3"	0.030 sec	0.171 sec	2.698
	ΔHt.	-32.592 ft	0.024 ft	-0.002 ft	-0.038
	Ellip Dist.	30877.027 ft	0.005 ft	0.011 ft	1.185
BVHS --> TBM 100 (PV260)	**Az.**	327°57'20.1"	0.005 sec	0.043 sec	2.687
	ΔHt.	-34.409 ft	0.025 ft	0.045 ft	0.414
	Ellip Dist.	209214.000 ft	0.005 ft	0.062 ft	2.283
HOUM --> BS32-SM-01 (PV14)	**Az.**	78°20'24.9"	0.004 sec	0.024 sec	2.612
	ΔHt.	-43.330 ft	0.027 ft	-0.038 ft	-0.394
	Ellip Dist.	304465.800 ft	0.006 ft	-0.009 ft	-0.358
LMCN --> SBCH (PV278)	**Az.**	54°23'24.0"	0.002 sec	0.015 sec	2.608
	ΔHt.	-0.084 ft	0.015 ft	-0.003 ft	-0.043
	Ellip Dist.	385228.399 ft	0.004 ft	0.004 ft	0.226
MARY --> BS32-SM-01 (PV2)	**Az.**	156°57'20.6"	0.011 sec	0.035 sec	1.258
	ΔHt.	-5.626 ft	0.027 ft	-0.016 ft	-0.189
	Ellip Dist.	104649.088 ft	0.005 ft	0.035 ft	2.598
HOUM --> TBM 100 (PV120)	**Az.**	74°24'48.0"	0.003 sec	0.024 sec	2.564
	ΔHt.	-43.960 ft	0.025 ft	-0.027 ft	-0.273
	Ellip Dist.	318409.606 ft	0.005 ft	0.047 ft	1.799
DSTR --> GRIS (PV357)	**Az.**	151°55'08.8"	0.002 sec	0.019 sec	2.527
	ΔHt.	9.459 ft	0.016 ft	-0.024 ft	-0.408
	Ellip Dist.	287850.107 ft	0.004 ft	-0.006 ft	-0.375
SBCH --> GRIS (PV248)	**Az.**	202°28'01.7"	0.003 sec	0.025 sec	2.480
	ΔHt.	-2.809 ft	0.016 ft	0.011 ft	0.159
	Ellip Dist.	237019.363 ft	0.004 ft	-0.021 ft	-1.141
GRIS --> TBM 100 (PV101)	**Az.**	17°24'31.7"	0.005 sec	0.034 sec	2.407
	ΔHt.	-29.782 ft	0.025 ft	0.061 ft	0.606
	Ellip Dist.	212898.264 ft	0.005 ft	0.002 ft	0.074
GRIS --> TBM 100 (PV328)	**Az.**	17°24'31.7"	0.005 sec	-0.048 sec	-2.399
	ΔHt.	-29.782 ft	0.025 ft	-0.080 ft	-0.537
	Ellip Dist.	212898.264 ft	0.005 ft	-0.029 ft	-0.911
MARY --> TBM 100 (PV324)	**Az.**	145°32'08.1"	0.011 sec	0.128 sec	2.375

	ΔHt.	-6.256 ft	0.025 ft	0.028 ft	0.196
	Ellip Dist.	87735.872 ft	0.005 ft	-0.013 ft	-0.627
MARY --> LMCN (PV277)	**Az.**	220°35'20.0"	0.002 sec	0.013 sec	2.373
	ΔHt.	26.420 ft	0.015 ft	0.039 ft	0.713
	Ellip Dist.	366770.058 ft	0.004 ft	0.002 ft	0.126
HOUM --> TBM 100 (PV119)	**Az.**	74°24'48.0"	0.003 sec	0.015 sec	1.816
	ΔHt.	-43.960 ft	0.025 ft	-0.020 ft	-0.258
	Ellip Dist.	318409.606 ft	0.005 ft	0.045 ft	2.350
HOUM --> TBM 100 (PV176)	**Az.**	74°24'48.0"	0.003 sec	-0.024 sec	-2.331
	ΔHt.	-43.960 ft	0.025 ft	0.014 ft	0.123
	Ellip Dist.	318409.606 ft	0.005 ft	-0.005 ft	-0.203
GRIS --> TBM 100 (PV269)	**Az.**	17°24'31.7"	0.005 sec	-0.030 sec	-2.307
	ΔHt.	-29.782 ft	0.025 ft	-0.018 ft	-0.204
	Ellip Dist.	212898.264 ft	0.005 ft	0.010 ft	0.427
DSTR --> TBM 100 (PV274)	**Az.**	104°17'59.8"	0.005 sec	-0.033 sec	-2.257
	ΔHt.	-20.323 ft	0.025 ft	-0.006 ft	-0.059
	Ellip Dist.	204790.219 ft	0.005 ft	-0.015 ft	-0.660
BVHS --> TBM 100 (PV148)	**Az.**	327°57'20.1"	0.005 sec	0.043 sec	2.250
	ΔHt.	-34.409 ft	0.025 ft	-0.047 ft	-0.394
	Ellip Dist.	209214.000 ft	0.005 ft	-0.054 ft	-1.762
SBCH --> BS32-SM-01 (PV27)	**Az.**	221°17'39.4"	0.021 sec	-0.063 sec	-1.177
	ΔHt.	-31.961 ft	0.027 ft	-0.034 ft	-0.377
	Ellip Dist.	53216.825 ft	0.006 ft	0.032 ft	2.249
SBCH --> TBM 100 (PV206)	**Az.**	238°42'13.3"	0.030 sec	0.132 sec	2.238
	ΔHt.	-32.592 ft	0.024 ft	-0.039 ft	-1.045
	Ellip Dist.	30877.027 ft	0.005 ft	0.000 ft	0.050
GRIS --> TBM 100 (PV185)	**Az.**	17°24'31.7"	0.005 sec	-0.035 sec	-2.232
	ΔHt.	-29.782 ft	0.025 ft	0.074 ft	0.672
	Ellip Dist.	212898.264 ft	0.005 ft	0.020 ft	0.789
LMCN --> TBM 100 (PV168)	**Az.**	54°03'24.8"	0.003 sec	0.022 sec	2.222
	ΔHt.	-32.676 ft	0.025 ft	-0.094 ft	-0.783
	Ellip Dist.	354426.185 ft	0.005 ft	0.048 ft	1.479
LMCN --> TBM 100 (PV112)	**Az.**	54°03'24.8"	0.003 sec	0.017 sec	2.212
	ΔHt.	-32.676 ft	0.025 ft	0.017 ft	0.193
	Ellip Dist.	354426.185 ft	0.005 ft	0.030 ft	1.460
HOUM --> BS32-SM-01 (PV13)	**Az.**	78°20'24.9"	0.004 sec	0.017 sec	2.148
	ΔHt.	-43.330 ft	0.027 ft	0.020 ft	0.270
	Ellip Dist.	304465.800 ft	0.006 ft	-0.010 ft	-0.553
DSTR --> BS32-SM-01 (PV5)	**Az.**	111°26'45.8"	0.005 sec	0.034 sec	2.133
	ΔHt.	-19.693 ft	0.027 ft	-0.061 ft	-0.557
	Ellip Dist.	203980.751 ft	0.006 ft	0.030 ft	0.936

LMCN --> TBM 100 (PV178)	**Az.**	54°03'24.8"	0.003 sec	-0.020 sec	-2.127
	ΔHt.	-32.676 ft	0.025 ft	0.036 ft	0.304
	Ellip Dist.	354426.185 ft	0.005 ft	0.002 ft	0.093
BVHS --> SBCH (PV149)	**Az.**	336°22'08.3"	0.003 sec	-0.022 sec	-2.120
	ΔHt.	-1.818 ft	0.015 ft	0.004 ft	0.070
	Ellip Dist.	211010.768 ft	0.003 ft	0.001 ft	0.035
GRIS --> TBM 100 (PV213)	**Az.**	17°24'31.7"	0.005 sec	-0.029 sec	-2.109
	ΔHt.	-29.782 ft	0.025 ft	0.002 ft	0.016
	Ellip Dist.	212898.264 ft	0.005 ft	0.007 ft	0.304
DSTR --> TBM 100 (PV125)	**Az.**	104°17'59.8"	0.005 sec	0.010 sec	0.659
	ΔHt.	-20.323 ft	0.025 ft	-0.016 ft	-0.169
	Ellip Dist.	204790.219 ft	0.005 ft	0.053 ft	2.073
BVHS --> TBM 100 (PV317)	**Az.**	327°57'20.1"	0.005 sec	-0.047 sec	-2.048
	ΔHt.	-34.409 ft	0.025 ft	0.090 ft	0.616
	Ellip Dist.	209214.000 ft	0.005 ft	-0.007 ft	-0.164
HOUM --> BS32-SM-01 (PV63)	**Az.**	78°20'24.9"	0.004 sec	-0.013 sec	-2.048
	ΔHt.	-43.330 ft	0.027 ft	0.050 ft	1.061
	Ellip Dist.	304465.800 ft	0.006 ft	0.004 ft	0.322
MARY --> DSTR (PV362)	**Az.**	261°58'38.3"	0.005 sec	0.000 sec	-0.017
	ΔHt.	14.067 ft	0.016 ft	0.005 ft	0.085
	Ellip Dist.	150056.200 ft	0.003 ft	-0.021 ft	-2.047
MARY --> GRIS (PV154)	**Az.**	182°56'07.0"	0.002 sec	0.010 sec	0.924
	ΔHt.	23.526 ft	0.015 ft	-0.114 ft	-1.236
	Ellip Dist.	275820.760 ft	0.003 ft	-0.050 ft	-2.001
LMCN --> BS32-SM-01 (PV56)	**Az.**	56°32'10.8"	0.003 sec	-0.010 sec	-1.996
	ΔHt.	-32.046 ft	0.026 ft	0.003 ft	0.071
	Ellip Dist.	333734.145 ft	0.006 ft	0.006 ft	0.509
HOUM --> TBM 100 (PV287)	**Az.**	74°24'48.0"	0.003 sec	-0.018 sec	-1.983
	ΔHt.	-43.960 ft	0.025 ft	0.035 ft	0.377
	Ellip Dist.	318409.606 ft	0.005 ft	-0.007 ft	-0.298
MARY --> LMCN (PV165)	**Az.**	220°35'20.0"	0.002 sec	0.014 sec	1.978
	ΔHt.	26.420 ft	0.015 ft	-0.092 ft	-1.142
	Ellip Dist.	366770.058 ft	0.004 ft	-0.021 ft	-0.893
SBCH --> GRIS (PV99)	**Az.**	202°28'01.7"	0.003 sec	-0.016 sec	-1.973
	ΔHt.	-2.809 ft	0.016 ft	-0.039 ft	-0.781
	Ellip Dist.	237019.363 ft	0.004 ft	-0.008 ft	-0.606
LMCN --> BS32-SM-01 (PV8)	**Az.**	56°32'10.8"	0.003 sec	0.014 sec	1.970
	ΔHt.	-32.046 ft	0.026 ft	0.008 ft	0.115
	Ellip Dist.	333734.145 ft	0.006 ft	-0.014 ft	-0.839
DSTR --> LMCN (PV107)	**Az.**	199°02'07.2"	0.002 sec	-0.013 sec	-1.956
	ΔHt.	12.353 ft	0.016 ft	-0.032 ft	-0.741

	Ellip Dist.	272864.493 ft	0.003 ft	-0.006 ft	-0.475
DSTR --> TBM 100 (PV237)	**Az.**	104°17'59.8"	0.005 sec	-0.040 sec	-1.948
	ΔHt.	-20.323 ft	0.025 ft	0.009 ft	0.067
	Ellip Dist.	204790.219 ft	0.005 ft	-0.040 ft	-1.043
LMCN --> BS32-SM-01 (PV9)	**Az.**	56°32'10.8"	0.003 sec	0.015 sec	1.941
	ΔHt.	-32.046 ft	0.026 ft	-0.028 ft	-0.317
	Ellip Dist.	333734.145 ft	0.006 ft	-0.019 ft	-0.863
DSTR --> LMCN (PV79)	**Az.**	199°02'07.2"	0.002 sec	-0.016 sec	-1.938
	ΔHt.	12.353 ft	0.016 ft	0.052 ft	0.759
	Ellip Dist.	272864.493 ft	0.003 ft	0.000 ft	0.024
BVHS --> TBM 100 (PV92)	**Az.**	327°57'20.1"	0.005 sec	0.024 sec	1.936
	ΔHt.	-34.409 ft	0.025 ft	0.070 ft	0.859
	Ellip Dist.	209214.000 ft	0.005 ft	-0.028 ft	-1.372
BVHS --> TBM 100 (PV147)	**Az.**	327°57'20.1"	0.005 sec	0.020 sec	1.316
	ΔHt.	-34.409 ft	0.025 ft	-0.010 ft	-0.101
	Ellip Dist.	209214.000 ft	0.005 ft	-0.045 ft	-1.899
LMCN --> HOUM (PV169)	**Az.**	350°49'38.0"	0.006 sec	0.033 sec	1.882
	ΔHt.	11.284 ft	0.015 ft	0.073 ft	1.340
	Ellip Dist.	124248.014 ft	0.003 ft	0.000 ft	0.013
HOUM --> SBCH (PV251)	**Az.**	72°59'34.4"	0.002 sec	0.013 sec	1.866
	ΔHt.	-11.369 ft	0.016 ft	-0.015 ft	-0.227
	Ellip Dist.	348163.018 ft	0.004 ft	0.015 ft	0.835
DSTR --> HOUM (PV114)	**Az.**	218°44'30.2"	0.004 sec	-0.020 sec	-1.856
	ΔHt.	23.637 ft	0.016 ft	-0.003 ft	-0.074
	Ellip Dist.	173385.555 ft	0.004 ft	0.010 ft	0.787
SBCH --> BS32-SM-01 (PV41)	**Az.**	221°17'39.4"	0.021 sec	0.020 sec	0.629
	ΔHt.	-31.961 ft	0.027 ft	0.025 ft	0.733
	Ellip Dist.	53216.825 ft	0.006 ft	-0.016 ft	-1.850
MARY --> TBM 100 (PV153)	**Az.**	145°32'08.1"	0.011 sec	-0.114 sec	-1.847
	ΔHt.	-6.256 ft	0.025 ft	-0.098 ft	-0.598
	Ellip Dist.	87735.872 ft	0.005 ft	0.010 ft	0.427
MARY --> DSTR (PV243)	**Az.**	261°58'38.3"	0.005 sec	-0.010 sec	-0.623
	ΔHt.	14.067 ft	0.016 ft	0.046 ft	0.763
	Ellip Dist.	150056.200 ft	0.003 ft	-0.020 ft	-1.810
DSTR --> LMCN (PV275)	**Az.**	199°02'07.2"	0.002 sec	0.014 sec	1.791
	ΔHt.	12.353 ft	0.016 ft	0.027 ft	0.477
	Ellip Dist.	272864.493 ft	0.003 ft	-0.004 ft	-0.283
HOUM --> TBM 100 (PV232)	**Az.**	74°24'48.0"	0.003 sec	-0.024 sec	-1.785
	ΔHt.	-43.960 ft	0.025 ft	0.024 ft	0.159
	Ellip Dist.	318409.606 ft	0.005 ft	-0.009 ft	-0.215
MARY --> HOUM (PV172)	**Az.**	238°50'55.3"	0.002 sec	0.019 sec	1.767

	ΔHt.	37.704 ft	0.015 ft	-0.033 ft	-0.302
	Ellip Dist.	301055.871 ft	0.004 ft	-0.033 ft	-1.116
GRIS --> TBM 100 (PV329)	**Az.**	17°24'31.7"	0.005 sec	-0.038 sec	-1.750
	ΔHt.	-29.782 ft	0.025 ft	0.058 ft	0.365
	Ellip Dist.	212898.264 ft	0.005 ft	-0.043 ft	-0.930
DSTR --> GRIS (PV330)	**Az.**	151°55'08.8"	0.002 sec	-0.014 sec	-1.749
	ΔHt.	9.459 ft	0.016 ft	0.004 ft	0.059
	Ellip Dist.	287850.107 ft	0.004 ft	-0.001 ft	-0.033
DSTR --> GRIS (PV74)	**Az.**	151°55'08.8"	0.002 sec	-0.016 sec	-1.742
	ΔHt.	9.459 ft	0.016 ft	0.064 ft	0.852
	Ellip Dist.	287850.107 ft	0.004 ft	-0.011 ft	-0.589
BVHS --> GRIS (PV255)	**Az.**	261°44'16.5"	0.004 sec	-0.024 sec	-1.741
	ΔHt.	-4.627 ft	0.015 ft	0.012 ft	0.169
	Ellip Dist.	177502.918 ft	0.004 ft	-0.014 ft	-0.796
MARY --> TBM 100 (PV190)	**Az.**	145°32'08.1"	0.011 sec	0.022 sec	0.607
	ΔHt.	-6.256 ft	0.025 ft	0.041 ft	0.392
	Ellip Dist.	87735.872 ft	0.005 ft	-0.027 ft	-1.731
MARY --> DSTR (PV331)	**Az.**	261°58'38.3"	0.005 sec	0.001 sec	0.076
	ΔHt.	14.067 ft	0.016 ft	-0.007 ft	-0.113
	Ellip Dist.	150056.200 ft	0.003 ft	0.018 ft	1.703
LMCN --> HOUM (PV85)	**Az.**	350°49'38.0"	0.006 sec	0.008 sec	0.426
	ΔHt.	11.284 ft	0.015 ft	-0.019 ft	-0.313
	Ellip Dist.	124248.014 ft	0.003 ft	0.019 ft	1.703
LMCN --> SBCH (PV110)	**Az.**	54°23'24.0"	0.002 sec	-0.009 sec	-1.649
	ΔHt.	-0.084 ft	0.015 ft	0.039 ft	0.713
	Ellip Dist.	385228.399 ft	0.004 ft	-0.001 ft	-0.102
BVHS --> GRIS (PV212)	**Az.**	261°44'16.5"	0.004 sec	-0.018 sec	-1.645
	ΔHt.	-4.627 ft	0.015 ft	-0.028 ft	-0.595
	Ellip Dist.	177502.918 ft	0.004 ft	0.002 ft	0.157
HOUM --> SBCH (PV285)	**Az.**	72°59'34.4"	0.002 sec	0.011 sec	1.643
	ΔHt.	-11.369 ft	0.016 ft	0.040 ft	0.584
	Ellip Dist.	348163.018 ft	0.004 ft	-0.001 ft	-0.087
HOUM --> GRIS (PV171)	**Az.**	115°46'45.8"	0.002 sec	0.006 sec	0.715
	ΔHt.	-14.178 ft	0.015 ft	-0.068 ft	-1.085
	Ellip Dist.	271352.668 ft	0.003 ft	-0.028 ft	-1.623
HOUM --> TBM 100 (PV349)	**Az.**	74°24'48.0"	0.003 sec	0.008 sec	0.573
	ΔHt.	-43.960 ft	0.025 ft	-0.061 ft	-0.396
	Ellip Dist.	318409.606 ft	0.005 ft	-0.052 ft	-1.619
GRIS --> BS32-SM-01 (PV28)	**Az.**	17°04'11.5"	0.006 sec	-0.016 sec	-1.602
	ΔHt.	-29.152 ft	0.027 ft	0.040 ft	0.892
	Ellip Dist.	187438.212 ft	0.005 ft	0.005 ft	0.417

LMCN --> SBCH (PV82)	**Az.**	54°23'24.0"	0.002 sec	-0.009 sec	-1.589
	ΔHt.	-0.084 ft	0.015 ft	-0.044 ft	-0.690
	Ellip Dist.	385228.399 ft	0.004 ft	0.007 ft	0.368
SBCH --> GRIS (PV267)	**Az.**	202°28'01.7"	0.003 sec	0.009 sec	1.067
	ΔHt.	-2.809 ft	0.016 ft	0.023 ft	0.467
	Ellip Dist.	237019.363 ft	0.004 ft	-0.021 ft	-1.584
DSTR --> SBCH (PV249)	**Az.**	98°41'52.8"	0.003 sec	0.013 sec	1.169
	ΔHt.	12.268 ft	0.016 ft	-0.110 ft	-1.575
	Ellip Dist.	227344.451 ft	0.004 ft	-0.020 ft	-1.059
BVHS --> SBCH (PV253)	**Az.**	336°22'08.3"	0.003 sec	0.014 sec	1.252
	ΔHt.	-1.818 ft	0.015 ft	0.015 ft	0.225
	Ellip Dist.	211010.768 ft	0.003 ft	-0.028 ft	-1.560
HOUM --> GRIS (PV240)	**Az.**	115°46'45.8"	0.002 sec	0.014 sec	1.511
	ΔHt.	-14.178 ft	0.015 ft	-0.003 ft	-0.040
	Ellip Dist.	271352.668 ft	0.003 ft	-0.011 ft	-0.632
DSTR --> BVHS (PV17)	**Az.**	126°07'42.9"	0.002 sec	-0.008 sec	-1.508
	ΔHt.	14.086 ft	0.016 ft	0.058 ft	1.024
	Ellip Dist.	384972.602 ft	0.004 ft	0.007 ft	0.497
DSTR --> BS32-SM-01 (PV50)	**Az.**	111°26'45.8"	0.005 sec	-0.015 sec	-1.501
	ΔHt.	-19.693 ft	0.027 ft	0.044 ft	0.833
	Ellip Dist.	203980.751 ft	0.006 ft	0.010 ft	0.682
MARY --> BVHS (PV208)	**Az.**	147°03'50.0"	0.002 sec	0.010 sec	1.487
	ΔHt.	28.153 ft	0.015 ft	0.011 ft	0.229
	Ellip Dist.	296905.579 ft	0.003 ft	-0.011 ft	-0.788
LMCN --> TBM 100 (PV224)	**Az.**	54°03'24.8"	0.003 sec	-0.011 sec	-1.475
	ΔHt.	-32.676 ft	0.025 ft	0.001 ft	0.011
	Ellip Dist.	354426.185 ft	0.005 ft	0.008 ft	0.407
SBCH --> GRIS (PV71)	**Az.**	202°28'01.7"	0.003 sec	-0.014 sec	-1.471
	ΔHt.	-2.809 ft	0.016 ft	0.046 ft	0.670
	Ellip Dist.	237019.363 ft	0.004 ft	-0.006 ft	-0.313
DSTR --> LMCN (PV354)	**Az.**	199°02'07.2"	0.002 sec	0.011 sec	1.469
	ΔHt.	12.353 ft	0.016 ft	-0.012 ft	-0.240
	Ellip Dist.	272864.493 ft	0.003 ft	-0.002 ft	-0.140
DSTR --> LMCN (PV336)	**Az.**	199°02'07.2"	0.002 sec	-0.013 sec	-1.449
	ΔHt.	12.353 ft	0.016 ft	-0.059 ft	-0.701
	Ellip Dist.	272864.493 ft	0.003 ft	-0.012 ft	-0.567
LMCN --> TBM 100 (PV341)	**Az.**	54°03'24.8"	0.003 sec	-0.012 sec	-0.965
	ΔHt.	-32.676 ft	0.025 ft	-0.026 ft	-0.164
	Ellip Dist.	354426.185 ft	0.005 ft	-0.048 ft	-1.445
DSTR --> TBM 100 (PV218)	**Az.**	104°17'59.8"	0.005 sec	-0.014 sec	-1.017
	ΔHt.	-20.323 ft	0.025 ft	0.011 ft	0.125

	Ellip Dist.	204790.219 ft	0.005 ft	-0.033 ft	-1.437
BVHS --> TBM 100 (PV203)	**Az.**	327°57'20.1"	0.005 sec	-0.021 sec	-1.359
	ΔHt.	-34.409 ft	0.025 ft	0.087 ft	0.808
	Ellip Dist.	209214.000 ft	0.005 ft	0.037 ft	1.427
LMCN --> TBM 100 (PV280)	**Az.**	54°03'24.8"	0.003 sec	-0.011 sec	-1.425
	ΔHt.	-32.676 ft	0.025 ft	-0.058 ft	-0.638
	Ellip Dist.	354426.185 ft	0.005 ft	0.022 ft	0.922
LMCN --> TBM 100 (PV342)	**Az.**	54°03'24.8"	0.003 sec	-0.009 sec	-0.742
	ΔHt.	-32.676 ft	0.025 ft	0.114 ft	0.735
	Ellip Dist.	354426.185 ft	0.005 ft	-0.061 ft	-1.420
BVHS --> SBCH (PV39)	**Az.**	336°22'08.3"	0.003 sec	-0.006 sec	-0.608
	ΔHt.	-1.818 ft	0.015 ft	-0.066 ft	-1.415
	Ellip Dist.	211010.768 ft	0.003 ft	0.014 ft	1.066
HOUM --> SBCH (PV117)	**Az.**	72°59'34.4"	0.002 sec	-0.008 sec	-1.412
	ΔHt.	-11.369 ft	0.016 ft	-0.005 ft	-0.098
	Ellip Dist.	348163.018 ft	0.004 ft	0.002 ft	0.126
SBCH --> BS32-SM-01 (PV26)	**Az.**	221°17'39.4"	0.021 sec	-0.057 sec	-1.411
	ΔHt.	-31.961 ft	0.027 ft	-0.020 ft	-0.349
	Ellip Dist.	53216.825 ft	0.006 ft	0.010 ft	1.002
DSTR --> BVHS (PV105)	**Az.**	126°07'42.9"	0.002 sec	0.007 sec	1.393
	ΔHt.	14.086 ft	0.016 ft	-0.026 ft	-0.542
	Ellip Dist.	384972.602 ft	0.004 ft	0.005 ft	0.409
HOUM --> TBM 100 (PV350)	**Az.**	74°24'48.0"	0.003 sec	-0.003 sec	-0.179
	ΔHt.	-43.960 ft	0.025 ft	0.108 ft	0.675
	Ellip Dist.	318409.606 ft	0.005 ft	-0.061 ft	-1.393
MARY --> BVHS (PV322)	**Az.**	147°03'50.0"	0.002 sec	0.010 sec	1.391
	ΔHt.	28.153 ft	0.015 ft	-0.049 ft	-0.911
	Ellip Dist.	296905.579 ft	0.003 ft	0.003 ft	0.201
MARY --> SBCH (PV67)	**Az.**	126°30'08.2"	0.007 sec	0.010 sec	0.350
	ΔHt.	26.336 ft	0.015 ft	0.008 ft	0.114
	Ellip Dist.	94546.895 ft	0.003 ft	-0.016 ft	-1.389
BVHS --> TBM 100 (PV259)	**Az.**	327°57'20.1"	0.005 sec	-0.005 sec	-0.246
	ΔHt.	-34.409 ft	0.025 ft	0.061 ft	0.470
	Ellip Dist.	209214.000 ft	0.005 ft	0.046 ft	1.378
SBCH --> GRIS (PV155)	**Az.**	202°28'01.7"	0.003 sec	-0.012 sec	-1.373
	ΔHt.	-2.809 ft	0.016 ft	-0.024 ft	-0.415
	Ellip Dist.	237019.363 ft	0.004 ft	-0.018 ft	-1.041
DSTR --> GRIS (PV294)	**Az.**	151°55'08.8"	0.002 sec	-0.001 sec	-0.147
	ΔHt.	9.459 ft	0.016 ft	-0.009 ft	-0.119
	Ellip Dist.	287850.107 ft	0.004 ft	-0.025 ft	-1.363
DSTR --> BS32-SM-01 (PV4)	**Az.**	111°26'45.8"	0.005 sec	0.017 sec	1.357

	ΔHt.	-19.693 ft	0.027 ft	0.023 ft	0.263
	Ellip Dist.	203980.751 ft	0.006 ft	0.010 ft	0.453
LMCN --> BVHS (PV369)	**Az.**	85°26'19.6"	0.002 sec	0.000 sec	0.074
	ΔHt.	1.734 ft	0.015 ft	0.058 ft	1.354
	Ellip Dist.	401123.001 ft	0.004 ft	0.006 ft	0.507
LMCN --> HOUM (PV121)	**Az.**	350°49'38.0"	0.006 sec	-0.020 sec	-1.333
	ΔHt.	11.284 ft	0.015 ft	-0.003 ft	-0.078
	Ellip Dist.	124248.014 ft	0.003 ft	0.004 ft	0.452
LMCN --> GRIS (PV239)	**Az.**	88°50'56.1"	0.003 sec	0.013 sec	1.331
	ΔHt.	-2.893 ft	0.015 ft	-0.002 ft	-0.039
	Ellip Dist.	224520.702 ft	0.003 ft	0.012 ft	0.714
DSTR --> LMCN (PV235)	**Az.**	199°02'07.2"	0.002 sec	0.009 sec	1.136
	ΔHt.	12.353 ft	0.016 ft	-0.076 ft	-1.296
	Ellip Dist.	272864.493 ft	0.003 ft	0.002 ft	0.106
HOUM --> GRIS (PV115)	**Az.**	115°46'45.8"	0.002 sec	0.009 sec	1.295
	ΔHt.	-14.178 ft	0.015 ft	-0.030 ft	-0.614
	Ellip Dist.	271352.668 ft	0.003 ft	-0.006 ft	-0.471
HOUM --> BVHS (PV174)	**Az.**	102°10'14.8"	0.002 sec	-0.001 sec	-0.235
	ΔHt.	-9.551 ft	0.015 ft	-0.026 ft	-0.429
	Ellip Dist.	429359.320 ft	0.004 ft	-0.021 ft	-1.272
DSTR --> BVHS (PV368)	**Az.**	126°07'42.9"	0.002 sec	0.007 sec	1.266
	ΔHt.	14.086 ft	0.016 ft	0.026 ft	0.455
	Ellip Dist.	384972.602 ft	0.004 ft	0.002 ft	0.110
MARY --> HOUM (PV116)	**Az.**	238°50'55.3"	0.002 sec	-0.008 sec	-1.261
	ΔHt.	37.704 ft	0.015 ft	0.028 ft	0.579
	Ellip Dist.	301055.871 ft	0.004 ft	0.003 ft	0.255
MARY --> HOUM (PV284)	**Az.**	238°50'55.3"	0.002 sec	0.009 sec	1.255
	ΔHt.	37.704 ft	0.015 ft	-0.011 ft	-0.205
	Ellip Dist.	301055.871 ft	0.004 ft	-0.005 ft	-0.357
LMCN --> HOUM (PV281)	**Az.**	350°49'38.0"	0.006 sec	0.019 sec	1.249
	ΔHt.	11.284 ft	0.015 ft	-0.023 ft	-0.510
	Ellip Dist.	124248.014 ft	0.003 ft	-0.003 ft	-0.327
MARY --> BVHS (PV254)	**Az.**	147°03'50.0"	0.002 sec	-0.010 sec	-1.217
	ΔHt.	28.153 ft	0.015 ft	-0.020 ft	-0.310
	Ellip Dist.	296905.579 ft	0.003 ft	-0.001 ft	-0.044
BVHS --> BS32-SM-01 (PV20)	**Az.**	322°00'54.8"	0.006 sec	-0.015 sec	-0.919
	ΔHt.	-33.779 ft	0.027 ft	-0.048 ft	-0.484
	Ellip Dist.	194644.160 ft	0.006 ft	-0.034 ft	-1.216
LMCN --> TBM 100 (PV234)	**Az.**	54°03'24.8"	0.003 sec	-0.013 sec	-1.213
	ΔHt.	-32.676 ft	0.025 ft	0.031 ft	0.216
	Ellip Dist.	354426.185 ft	0.005 ft	0.012 ft	0.345

MARY --> BS32-SM-01 (PV1)	**Az.**	156°57'20.6"	0.011 sec	0.023 sec	1.004
	ΔHt.	-5.626 ft	0.027 ft	0.007 ft	0.094
	Ellip Dist.	104649.088 ft	0.005 ft	0.014 ft	1.211
HOUM --> TBM 100 (PV231)	**Az.**	74°24'48.0"	0.003 sec	-0.011 sec	-1.208
	ΔHt.	-43.960 ft	0.025 ft	0.019 ft	0.219
	Ellip Dist.	318409.606 ft	0.005 ft	-0.011 ft	-0.496
LMCN --> BVHS (PV167)	**Az.**	85°26'19.6"	0.002 sec	-0.006 sec	-1.208
	ΔHt.	1.734 ft	0.015 ft	0.016 ft	0.311
	Ellip Dist.	401123.001 ft	0.004 ft	0.004 ft	0.302
DSTR --> GRIS (PV158)	**Az.**	151°55'08.8"	0.002 sec	0.002 sec	0.242
	ΔHt.	9.459 ft	0.016 ft	-0.021 ft	-0.270
	Ellip Dist.	287850.107 ft	0.004 ft	-0.025 ft	-1.200
SBCH --> GRIS (PV40)	**Az.**	202°28'01.7"	0.003 sec	-0.009 sec	-1.190
	ΔHt.	-2.809 ft	0.016 ft	0.030 ft	0.687
	Ellip Dist.	237019.363 ft	0.004 ft	-0.003 ft	-0.237
MARY --> BVHS (PV152)	**Az.**	147°03'50.0"	0.002 sec	-0.007 sec	-0.693
	ΔHt.	28.153 ft	0.015 ft	-0.089 ft	-1.042
	Ellip Dist.	296905.579 ft	0.003 ft	-0.027 ft	-1.187
GRIS --> BS32-SM-01 (PV35)	**Az.**	17°04'11.5"	0.006 sec	0.007 sec	0.587
	ΔHt.	-29.152 ft	0.027 ft	0.064 ft	0.892
	Ellip Dist.	187438.212 ft	0.005 ft	-0.020 ft	-1.186
LMCN --> GRIS (PV108)	**Az.**	88°50'56.1"	0.003 sec	0.010 sec	1.183
	ΔHt.	-2.893 ft	0.015 ft	-0.005 ft	-0.103
	Ellip Dist.	224520.702 ft	0.003 ft	0.000 ft	0.010
HOUM --> SBCH (PV173)	**Az.**	72°59'34.4"	0.002 sec	-0.003 sec	-0.368
	ΔHt.	-11.369 ft	0.016 ft	-0.066 ft	-0.755
	Ellip Dist.	348163.018 ft	0.004 ft	-0.028 ft	-1.178
DSTR --> TBM 100 (PV162)	**Az.**	104°17'59.8"	0.005 sec	-0.016 sec	-0.656
	ΔHt.	-20.323 ft	0.025 ft	0.040 ft	0.267
	Ellip Dist.	204790.219 ft	0.005 ft	0.043 ft	1.170
BVHS --> SBCH (PV21)	**Az.**	336°22'08.3"	0.003 sec	-0.011 sec	-1.169
	ΔHt.	-1.818 ft	0.015 ft	-0.020 ft	-0.403
	Ellip Dist.	211010.768 ft	0.003 ft	0.004 ft	0.334
MARY --> SBCH (PV303)	**Az.**	126°30'08.2"	0.007 sec	-0.006 sec	-0.235
	ΔHt.	26.336 ft	0.015 ft	-0.002 ft	-0.031
	Ellip Dist.	94546.895 ft	0.003 ft	0.012 ft	1.168
SBCH --> GRIS (PV304)	**Az.**	202°28'01.7"	0.003 sec	0.014 sec	1.162
	ΔHt.	-2.809 ft	0.016 ft	0.014 ft	0.155
	Ellip Dist.	237019.363 ft	0.004 ft	0.003 ft	0.137
MARY --> DSTR (PV187)	**Az.**	261°58'38.3"	0.005 sec	0.005 sec	0.354
	ΔHt.	14.067 ft	0.016 ft	-0.039 ft	-0.668

	Ellip Dist.	150056.200 ft	0.003 ft	-0.012 ft	-1.155
MARY --> TBM 100 (PV302)	**Az.**	145°32'08.1"	0.011 sec	0.065 sec	1.148
	ΔHt.	-6.256 ft	0.025 ft	0.031 ft	0.187
	Ellip Dist.	87735.872 ft	0.005 ft	-0.004 ft	-0.180
MARY --> SBCH (PV191)	**Az.**	126°30'08.2"	0.007 sec	-0.008 sec	-0.382
	ΔHt.	26.336 ft	0.015 ft	-0.029 ft	-0.575
	Ellip Dist.	94546.895 ft	0.003 ft	0.011 ft	1.148
DSTR --> LMCN (PV163)	**Az.**	199°02'07.2"	0.002 sec	0.010 sec	1.136
	ΔHt.	12.353 ft	0.016 ft	-0.031 ft	-0.428
	Ellip Dist.	272864.493 ft	0.003 ft	0.006 ft	0.299
DSTR --> BVHS (PV77)	**Az.**	126°07'42.9"	0.002 sec	-0.008 sec	-1.136
	ΔHt.	14.086 ft	0.016 ft	0.048 ft	0.659
	Ellip Dist.	384972.602 ft	0.004 ft	0.008 ft	0.431
MARY --> GRIS (PV266)	**Az.**	182°56'07.0"	0.002 sec	0.001 sec	0.161
	ΔHt.	23.526 ft	0.015 ft	0.029 ft	0.545
	Ellip Dist.	275820.760 ft	0.003 ft	-0.016 ft	-1.132
DSTR --> TBM 100 (PV334)	**Az.**	104°17'59.8"	0.005 sec	0.011 sec	0.508
	ΔHt.	-20.323 ft	0.025 ft	0.184 ft	1.132
	Ellip Dist.	204790.219 ft	0.005 ft	-0.028 ft	-0.775
MARY --> LMCN (PV109)	**Az.**	220°35'20.0"	0.002 sec	-0.007 sec	-1.130
	ΔHt.	26.420 ft	0.015 ft	-0.017 ft	-0.259
	Ellip Dist.	366770.058 ft	0.004 ft	-0.001 ft	-0.073
DSTR --> HOUM (PV282)	**Az.**	218°44'30.2"	0.004 sec	0.013 sec	1.120
	ΔHt.	23.637 ft	0.016 ft	-0.032 ft	-0.609
	Ellip Dist.	173385.555 ft	0.004 ft	-0.008 ft	-0.599
DSTR --> HOUM (PV355)	**Az.**	218°44'30.2"	0.004 sec	0.014 sec	1.118
	ΔHt.	23.637 ft	0.016 ft	-0.007 ft	-0.113
	Ellip Dist.	173385.555 ft	0.004 ft	0.008 ft	0.513
DSTR --> GRIS (PV238)	**Az.**	151°55'08.8"	0.002 sec	0.010 sec	1.116
	ΔHt.	9.459 ft	0.016 ft	-0.025 ft	-0.343
	Ellip Dist.	287850.107 ft	0.004 ft	-0.016 ft	-0.854
LMCN --> SBCH (PV53)	**Az.**	54°23'24.0"	0.002 sec	-0.003 sec	-0.621
	ΔHt.	-0.084 ft	0.015 ft	-0.048 ft	-1.107
	Ellip Dist.	385228.399 ft	0.004 ft	-0.005 ft	-0.397
BVHS --> GRIS (PV327)	**Az.**	261°44'16.5"	0.004 sec	-0.013 sec	-1.102
	ΔHt.	-4.627 ft	0.015 ft	0.011 ft	0.196
	Ellip Dist.	177502.918 ft	0.004 ft	-0.012 ft	-0.823
DSTR --> BVHS (PV161)	**Az.**	126°07'42.9"	0.002 sec	-0.005 sec	-0.708
	ΔHt.	14.086 ft	0.016 ft	0.017 ft	0.225
	Ellip Dist.	384972.602 ft	0.004 ft	-0.022 ft	-1.102
LMCN --> GRIS (PV55)	**Az.**	88°50'56.1"	0.003 sec	0.009 sec	1.102

	ΔHt.	-2.893 ft	0.015 ft	0.001 ft	0.023
	Ellip Dist.	224520.702 ft	0.003 ft	-0.005 ft	-0.411
MARY --> DSTR (PV159)	**Az.**	261°58'38.3"	0.005 sec	0.026 sec	1.094
	ΔHt.	14.067 ft	0.016 ft	-0.058 ft	-0.525
	Ellip Dist.	150056.200 ft	0.003 ft	-0.006 ft	-0.337
MARY --> GRIS (PV34)	**Az.**	182°56'07.0"	0.002 sec	0.001 sec	0.074
	ΔHt.	23.526 ft	0.015 ft	0.001 ft	0.030
	Ellip Dist.	275820.760 ft	0.003 ft	-0.015 ft	-1.087
HOUM --> SBCH (PV60)	**Az.**	72°59'34.4"	0.002 sec	-0.006 sec	-1.083
	ΔHt.	-11.369 ft	0.016 ft	-0.032 ft	-0.691
	Ellip Dist.	348163.018 ft	0.004 ft	0.002 ft	0.128
LMCN --> HOUM (PV343)	**Az.**	350°49'38.0"	0.006 sec	-0.017 sec	-1.076
	ΔHt.	11.284 ft	0.015 ft	0.022 ft	0.405
	Ellip Dist.	124248.014 ft	0.003 ft	0.008 ft	0.859
LMCN --> GRIS (PV276)	**Az.**	88°50'56.1"	0.003 sec	0.009 sec	1.070
	ΔHt.	-2.893 ft	0.015 ft	0.050 ft	0.995
	Ellip Dist.	224520.702 ft	0.003 ft	0.000 ft	0.018
LMCN --> BVHS (PV313)	**Az.**	85°26'19.6"	0.002 sec	-0.001 sec	-0.246
	ΔHt.	1.734 ft	0.015 ft	-0.060 ft	-1.066
	Ellip Dist.	401123.001 ft	0.004 ft	0.007 ft	0.455
MARY --> SBCH (PV207)	**Az.**	126°30'08.2"	0.007 sec	0.021 sec	1.002
	ΔHt.	26.336 ft	0.015 ft	0.043 ft	0.837
	Ellip Dist.	94546.895 ft	0.003 ft	-0.010 ft	-1.066
DSTR --> SBCH (PV160)	**Az.**	98°41'52.8"	0.003 sec	0.002 sec	0.127
	ΔHt.	12.268 ft	0.016 ft	0.014 ft	0.172
	Ellip Dist.	227344.451 ft	0.004 ft	-0.024 ft	-1.057
HOUM --> SBCH (PV229)	**Az.**	72°59'34.4"	0.002 sec	0.002 sec	0.339
	ΔHt.	-11.369 ft	0.016 ft	0.048 ft	1.054
	Ellip Dist.	348163.018 ft	0.004 ft	0.007 ft	0.584
MARY --> GRIS (PV361)	**Az.**	182°56'07.0"	0.002 sec	0.007 sec	1.039
	ΔHt.	23.526 ft	0.015 ft	-0.005 ft	-0.110
	Ellip Dist.	275820.760 ft	0.003 ft	-0.003 ft	-0.193
MARY --> GRIS (PV44)	**Az.**	182°56'07.0"	0.002 sec	-0.004 sec	-0.559
	ΔHt.	23.526 ft	0.015 ft	0.025 ft	0.573
	Ellip Dist.	275820.760 ft	0.003 ft	-0.013 ft	-1.037
BVHS --> TBM 100 (PV204)	**Az.**	327°57'20.1"	0.005 sec	-0.005 sec	-0.381
	ΔHt.	-34.409 ft	0.025 ft	-0.001 ft	-0.014
	Ellip Dist.	209214.000 ft	0.005 ft	0.024 ft	1.030
HOUM --> BVHS (PV90)	**Az.**	102°10'14.8"	0.002 sec	0.006 sec	1.030
	ΔHt.	-9.551 ft	0.015 ft	0.042 ft	0.625
	Ellip Dist.	429359.320 ft	0.004 ft	0.001 ft	0.075

BVHS --> SBCH (PV65)	**Az.**	336°22'08.3"	0.003 sec	-0.010 sec	-0.887
	ΔHt.	-1.818 ft	0.015 ft	-0.062 ft	-1.029
	Ellip Dist.	211010.768 ft	0.003 ft	0.002 ft	0.122
BVHS --> TBM 100 (PV315)	**Az.**	327°57'20.1"	0.005 sec	-0.022 sec	-1.025
	ΔHt.	-34.409 ft	0.025 ft	-0.005 ft	-0.037
	Ellip Dist.	209214.000 ft	0.005 ft	0.022 ft	0.567
MARY --> HOUM (PV88)	**Az.**	238°50'55.3"	0.002 sec	0.007 sec	1.019
	ΔHt.	37.704 ft	0.015 ft	0.024 ft	0.394
	Ellip Dist.	301055.871 ft	0.004 ft	-0.012 ft	-0.693
LMCN --> HOUM (PV352)	**Az.**	350°49'38.0"	0.006 sec	-0.013 sec	-0.890
	ΔHt.	11.284 ft	0.015 ft	-0.015 ft	-0.339
	Ellip Dist.	124248.014 ft	0.003 ft	-0.009 ft	-1.016
HOUM --> GRIS (PV283)	**Az.**	115°46'45.8"	0.002 sec	0.005 sec	0.620
	ΔHt.	-14.178 ft	0.015 ft	0.057 ft	1.011
	Ellip Dist.	271352.668 ft	0.003 ft	0.000 ft	0.029
MARY --> GRIS (PV98)	**Az.**	182°56'07.0"	0.002 sec	-0.006 sec	-0.886
	ΔHt.	23.526 ft	0.015 ft	-0.015 ft	-0.301
	Ellip Dist.	275820.760 ft	0.003 ft	-0.013 ft	-1.011
LMCN --> BVHS (PV16)	**Az.**	85°26'19.6"	0.002 sec	-0.003 sec	-0.661
	ΔHt.	1.734 ft	0.015 ft	0.009 ft	0.181
	Ellip Dist.	401123.001 ft	0.004 ft	0.013 ft	1.005
BVHS --> GRIS (PV30)	**Az.**	261°44'16.5"	0.004 sec	-0.011 sec	-1.004
	ΔHt.	-4.627 ft	0.015 ft	-0.018 ft	-0.369
	Ellip Dist.	177502.918 ft	0.004 ft	0.007 ft	0.517
LMCN --> HOUM (PV113)	**Az.**	350°49'38.0"	0.006 sec	-0.004 sec	-0.234
	ΔHt.	11.284 ft	0.015 ft	0.052 ft	1.001
	Ellip Dist.	124248.014 ft	0.003 ft	0.004 ft	0.370
MARY --> BVHS (PV310)	**Az.**	147°03'50.0"	0.002 sec	0.001 sec	0.125
	ΔHt.	28.153 ft	0.015 ft	-0.055 ft	-0.992
	Ellip Dist.	296905.579 ft	0.003 ft	0.000 ft	0.006
DSTR --> TBM 100 (PV293)	**Az.**	104°17'59.8"	0.005 sec	0.004 sec	0.158
	ΔHt.	-20.323 ft	0.025 ft	-0.023 ft	-0.141
	Ellip Dist.	204790.219 ft	0.005 ft	-0.040 ft	-0.985
MARY --> TBM 100 (PV246)	**Az.**	145°32'08.1"	0.011 sec	-0.043 sec	-0.915
	ΔHt.	-6.256 ft	0.025 ft	-0.002 ft	-0.013
	Ellip Dist.	87735.872 ft	0.005 ft	-0.018 ft	-0.982
HOUM --> GRIS (PV87)	**Az.**	115°46'45.8"	0.002 sec	0.009 sec	0.981
	ΔHt.	-14.178 ft	0.015 ft	0.043 ft	0.643
	Ellip Dist.	271352.668 ft	0.003 ft	-0.015 ft	-0.851
LMCN --> BVHS (PV111)	**Az.**	85°26'19.6"	0.002 sec	0.001 sec	0.282
	ΔHt.	1.734 ft	0.015 ft	-0.042 ft	-0.981

	Ellip Dist.	401123.001 ft	0.004 ft	0.005 ft	0.379
MARY --> HOUM (PV189)	**Az.**	238°50'55.3"	0.002 sec	-0.007 sec	-0.980
	ΔHt.	37.704 ft	0.015 ft	-0.023 ft	-0.375
	Ellip Dist.	301055.871 ft	0.004 ft	0.004 ft	0.239
MARY --> GRIS (PV298)	**Az.**	182°56'07.0"	0.002 sec	0.003 sec	0.328
	ΔHt.	23.526 ft	0.015 ft	0.023 ft	0.376
	Ellip Dist.	275820.760 ft	0.003 ft	-0.017 ft	-0.978
HOUM --> SBCH (PV139)	**Az.**	72°59'34.4"	0.002 sec	0.001 sec	0.136
	ΔHt.	-11.369 ft	0.016 ft	-0.029 ft	-0.588
	Ellip Dist.	348163.018 ft	0.004 ft	0.014 ft	0.978
MARY --> GRIS (PV186)	**Az.**	182°56'07.0"	0.002 sec	-0.007 sec	-0.977
	ΔHt.	23.526 ft	0.015 ft	-0.006 ft	-0.107
	Ellip Dist.	275820.760 ft	0.003 ft	0.000 ft	-0.030
MARY --> BVHS (PV198)	**Az.**	147°03'50.0"	0.002 sec	-0.007 sec	-0.975
	ΔHt.	28.153 ft	0.015 ft	-0.029 ft	-0.560
	Ellip Dist.	296905.579 ft	0.003 ft	0.011 ft	0.786
DSTR --> TBM 100 (PV335)	**Az.**	104°17'59.8"	0.005 sec	0.021 sec	0.852
	ΔHt.	-20.323 ft	0.025 ft	0.056 ft	0.354
	Ellip Dist.	204790.219 ft	0.005 ft	-0.043 ft	-0.973
DSTR --> SBCH (PV137)	**Az.**	98°41'52.8"	0.003 sec	0.001 sec	0.125
	ΔHt.	12.268 ft	0.016 ft	-0.004 ft	-0.075
	Ellip Dist.	227344.451 ft	0.004 ft	0.014 ft	0.968
BVHS --> SBCH (PV93)	**Az.**	336°22'08.3"	0.003 sec	-0.003 sec	-0.329
	ΔHt.	-1.818 ft	0.015 ft	0.044 ft	0.962
	Ellip Dist.	211010.768 ft	0.003 ft	0.003 ft	0.270
LMCN --> GRIS (PV220)	**Az.**	88°50'56.1"	0.003 sec	0.008 sec	0.956
	ΔHt.	-2.893 ft	0.015 ft	-0.001 ft	-0.013
	Ellip Dist.	224520.702 ft	0.003 ft	0.003 ft	0.286
GRIS --> BS32-SM-01 (PV73)	**Az.**	17°04'11.5"	0.006 sec	0.017 sec	0.956
	ΔHt.	-29.152 ft	0.027 ft	-0.081 ft	-0.719
	Ellip Dist.	187438.212 ft	0.005 ft	-0.010 ft	-0.381
BVHS --> SBCH (PV318)	**Az.**	336°22'08.3"	0.003 sec	0.009 sec	0.945
	ΔHt.	-1.818 ft	0.015 ft	-0.001 ft	-0.010
	Ellip Dist.	211010.768 ft	0.003 ft	-0.006 ft	-0.385
LMCN --> GRIS (PV295)	**Az.**	88°50'56.1"	0.003 sec	-0.007 sec	-0.733
	ΔHt.	-2.893 ft	0.015 ft	-0.025 ft	-0.459
	Ellip Dist.	224520.702 ft	0.003 ft	-0.014 ft	-0.928
MARY --> BVHS (PV43)	**Az.**	147°03'50.0"	0.002 sec	-0.002 sec	-0.304
	ΔHt.	28.153 ft	0.015 ft	0.037 ft	0.927
	Ellip Dist.	296905.579 ft	0.003 ft	-0.003 ft	-0.231
DSTR --> HOUM (PV236)	**Az.**	218°44'30.2"	0.004 sec	0.011 sec	0.824

	ΔHt.	23.637 ft	0.016 ft	-0.063 ft	-0.921
	Ellip Dist.	173385.555 ft	0.004 ft	0.002 ft	0.118
HOUM --> BVHS (PV118)	**Az.**	102°10'14.8"	0.002 sec	0.002 sec	0.419
	ΔHt.	-9.551 ft	0.015 ft	-0.043 ft	-0.912
	Ellip Dist.	429359.320 ft	0.004 ft	0.006 ft	0.444
HOUM --> GRIS (PV296)	**Az.**	115°46'45.8"	0.002 sec	-0.007 sec	-0.859
	ΔHt.	-14.178 ft	0.015 ft	-0.013 ft	-0.218
	Ellip Dist.	271352.668 ft	0.003 ft	-0.014 ft	-0.909
MARY --> LMCN (PV188)	**Az.**	220°35'20.0"	0.002 sec	-0.005 sec	-0.899
	ΔHt.	26.420 ft	0.015 ft	-0.018 ft	-0.343
	Ellip Dist.	366770.058 ft	0.004 ft	0.003 ft	0.220
HOUM --> BVHS (PV370)	**Az.**	102°10'14.8"	0.002 sec	-0.003 sec	-0.714
	ΔHt.	-9.551 ft	0.015 ft	0.044 ft	0.894
	Ellip Dist.	429359.320 ft	0.004 ft	0.011 ft	0.811
MARY --> LMCN (PV338)	**Az.**	220°35'20.0"	0.002 sec	-0.003 sec	-0.660
	ΔHt.	26.420 ft	0.015 ft	-0.037 ft	-0.778
	Ellip Dist.	366770.058 ft	0.004 ft	0.011 ft	0.888
LMCN --> BVHS (PV257)	**Az.**	85°26'19.6"	0.002 sec	-0.005 sec	-0.881
	ΔHt.	1.734 ft	0.015 ft	0.012 ft	0.196
	Ellip Dist.	401123.001 ft	0.004 ft	-0.001 ft	-0.074
DSTR --> SBCH (PV216)	**Az.**	98°41'52.8"	0.003 sec	0.001 sec	0.158
	ΔHt.	12.268 ft	0.016 ft	0.043 ft	0.878
	Ellip Dist.	227344.451 ft	0.004 ft	-0.006 ft	-0.435
BVHS --> GRIS (PV100)	**Az.**	261°44'16.5"	0.004 sec	-0.009 sec	-0.873
	ΔHt.	-4.627 ft	0.015 ft	0.033 ft	0.705
	Ellip Dist.	177502.918 ft	0.004 ft	0.005 ft	0.378
HOUM --> BVHS (PV314)	**Az.**	102°10'14.8"	0.002 sec	-0.003 sec	-0.612
	ΔHt.	-9.551 ft	0.015 ft	-0.049 ft	-0.862
	Ellip Dist.	429359.320 ft	0.004 ft	0.012 ft	0.788
DSTR --> SBCH (PV305)	**Az.**	98°41'52.8"	0.003 sec	-0.009 sec	-0.859
	ΔHt.	12.268 ft	0.016 ft	0.000 ft	-0.007
	Ellip Dist.	227344.451 ft	0.004 ft	0.004 ft	0.210
MARY --> HOUM (PV133)	**Az.**	238°50'55.3"	0.002 sec	0.000 sec	-0.037
	ΔHt.	37.704 ft	0.015 ft	0.014 ft	0.300
	Ellip Dist.	301055.871 ft	0.004 ft	0.012 ft	0.858
MARY --> HOUM (PV59)	**Az.**	238°50'55.3"	0.002 sec	-0.005 sec	-0.854
	ΔHt.	37.704 ft	0.015 ft	0.023 ft	0.518
	Ellip Dist.	301055.871 ft	0.004 ft	0.003 ft	0.202
DSTR --> GRIS (PV33)	**Az.**	151°55'08.8"	0.002 sec	-0.006 sec	-0.853
	ΔHt.	9.459 ft	0.016 ft	0.036 ft	0.634
	Ellip Dist.	287850.107 ft	0.004 ft	-0.008 ft	-0.552

MARY --> DSTR (PV103)	**Az.**	261°58'38.3"	0.005 sec	0.011 sec	0.853
	ΔHt.	14.067 ft	0.016 ft	0.021 ft	0.446
	Ellip Dist.	150056.200 ft	0.003 ft	0.003 ft	0.327
DSTR --> BVHS (PV333)	**Az.**	126°07'42.9"	0.002 sec	-0.004 sec	-0.575
	ΔHt.	14.086 ft	0.016 ft	-0.059 ft	-0.852
	Ellip Dist.	384972.602 ft	0.004 ft	0.007 ft	0.388
MARY --> BS32-SM-01 (PV45)	**Az.**	156°57'20.6"	0.011 sec	-0.005 sec	-0.275
	ΔHt.	-5.626 ft	0.027 ft	0.024 ft	0.591
	Ellip Dist.	104649.088 ft	0.005 ft	-0.007 ft	-0.852
LMCN --> SBCH (PV166)	**Az.**	54°23'24.0"	0.002 sec	-0.005 sec	-0.849
	ΔHt.	-0.084 ft	0.015 ft	0.009 ft	0.151
	Ellip Dist.	385228.399 ft	0.004 ft	0.005 ft	0.286
HOUM --> BVHS (PV202)	**Az.**	102°10'14.8"	0.002 sec	-0.003 sec	-0.576
	ΔHt.	-9.551 ft	0.015 ft	-0.046 ft	-0.845
	Ellip Dist.	429359.320 ft	0.004 ft	0.004 ft	0.264
MARY --> LMCN (PV221)	**Az.**	220°35'20.0"	0.002 sec	0.005 sec	0.841
	ΔHt.	26.420 ft	0.015 ft	-0.011 ft	-0.176
	Ellip Dist.	366770.058 ft	0.004 ft	0.003 ft	0.198
DSTR --> BVHS (PV48)	**Az.**	126°07'42.9"	0.002 sec	-0.001 sec	-0.140
	ΔHt.	14.086 ft	0.016 ft	0.020 ft	0.390
	Ellip Dist.	384972.602 ft	0.004 ft	0.012 ft	0.837
MARY --> BVHS (PV366)	**Az.**	147°03'50.0"	0.002 sec	0.001 sec	0.158
	ΔHt.	28.153 ft	0.015 ft	0.038 ft	0.835
	Ellip Dist.	296905.579 ft	0.003 ft	0.011 ft	0.830
MARY --> BVHS (PV18)	**Az.**	147°03'50.0"	0.002 sec	-0.006 sec	-0.832
	ΔHt.	28.153 ft	0.015 ft	0.032 ft	0.621
	Ellip Dist.	296905.579 ft	0.003 ft	0.003 ft	0.220
HOUM --> TBM 100 (PV175)	**Az.**	74°24'48.0"	0.003 sec	-0.002 sec	-0.173
	ΔHt.	-43.960 ft	0.025 ft	0.084 ft	0.682
	Ellip Dist.	318409.606 ft	0.005 ft	0.026 ft	0.830
BVHS --> SBCH (PV309)	**Az.**	336°22'08.3"	0.003 sec	0.009 sec	0.827
	ΔHt.	-1.818 ft	0.015 ft	0.041 ft	0.702
	Ellip Dist.	211010.768 ft	0.003 ft	0.009 ft	0.549
MARY --> SBCH (PV321)	**Az.**	126°30'08.2"	0.007 sec	0.017 sec	0.826
	ΔHt.	26.336 ft	0.015 ft	-0.027 ft	-0.531
	Ellip Dist.	94546.895 ft	0.003 ft	0.001 ft	0.078
MARY --> DSTR (PV299)	**Az.**	261°58'38.3"	0.005 sec	-0.013 sec	-0.822
	ΔHt.	14.067 ft	0.016 ft	-0.004 ft	-0.065
	Ellip Dist.	150056.200 ft	0.003 ft	-0.003 ft	-0.299
DSTR --> HOUM (PV180)	**Az.**	218°44'30.2"	0.004 sec	-0.010 sec	-0.820
	ΔHt.	23.637 ft	0.016 ft	-0.001 ft	-0.024

	Ellip Dist.	173385.555 ft	0.004 ft	0.006 ft	0.414
SBCH --> GRIS (PV211)	**Az.**	202°28'01.7"	0.003 sec	-0.007 sec	-0.812
	ΔHt.	-2.809 ft	0.016 ft	-0.035 ft	-0.651
	Ellip Dist.	237019.363 ft	0.004 ft	-0.001 ft	-0.088
DSTR --> HOUM (PV344)	**Az.**	218°44'30.2"	0.004 sec	-0.006 sec	-0.471
	ΔHt.	23.637 ft	0.016 ft	-0.055 ft	-0.810
	Ellip Dist.	173385.555 ft	0.004 ft	-0.003 ft	-0.157
BVHS --> BS32-SM-01 (PV38)	**Az.**	322°00'54.8"	0.006 sec	0.007 sec	0.719
	ΔHt.	-33.779 ft	0.027 ft	-0.028 ft	-0.665
	Ellip Dist.	194644.160 ft	0.006 ft	0.010 ft	0.792
MARY --> LMCN (PV244)	**Az.**	220°35'20.0"	0.002 sec	-0.002 sec	-0.350
	ΔHt.	26.420 ft	0.015 ft	-0.007 ft	-0.137
	Ellip Dist.	366770.058 ft	0.004 ft	0.012 ft	0.792
DSTR --> BVHS (PV256)	**Az.**	126°07'42.9"	0.002 sec	-0.005 sec	-0.790
	ΔHt.	14.086 ft	0.016 ft	-0.054 ft	-0.781
	Ellip Dist.	384972.602 ft	0.004 ft	-0.007 ft	-0.383
HOUM --> BVHS (PV15)	**Az.**	102°10'14.8"	0.002 sec	-0.004 sec	-0.787
	ΔHt.	-9.551 ft	0.015 ft	0.004 ft	0.082
	Ellip Dist.	429359.320 ft	0.004 ft	0.008 ft	0.583
MARY --> GRIS (PV130)	**Az.**	182°56'07.0"	0.002 sec	0.000 sec	0.049
	ΔHt.	23.526 ft	0.015 ft	0.018 ft	0.391
	Ellip Dist.	275820.760 ft	0.003 ft	-0.011 ft	-0.786
LMCN --> TBM 100 (PV290)	**Az.**	54°03'24.8"	0.003 sec	-0.010 sec	-0.785
	ΔHt.	-32.676 ft	0.025 ft	0.004 ft	0.027
	Ellip Dist.	354426.185 ft	0.005 ft	-0.028 ft	-0.776
DSTR --> LMCN (PV6)	**Az.**	199°02'07.2"	0.002 sec	-0.005 sec	-0.779
	ΔHt.	12.353 ft	0.016 ft	0.035 ft	0.740
	Ellip Dist.	272864.493 ft	0.003 ft	-0.007 ft	-0.541
BVHS --> GRIS (PV367)	**Az.**	261°44'16.5"	0.004 sec	0.000 sec	0.019
	ΔHt.	-4.627 ft	0.015 ft	-0.032 ft	-0.661
	Ellip Dist.	177502.918 ft	0.004 ft	0.010 ft	0.779
MARY --> SBCH (PV25)	**Az.**	126°30'08.2"	0.007 sec	0.004 sec	0.186
	ΔHt.	26.336 ft	0.015 ft	-0.002 ft	-0.040
	Ellip Dist.	94546.895 ft	0.003 ft	-0.007 ft	-0.775
DSTR --> SBCH (PV24)	**Az.**	98°41'52.8"	0.003 sec	-0.004 sec	-0.398
	ΔHt.	12.268 ft	0.016 ft	0.044 ft	0.775
	Ellip Dist.	227344.451 ft	0.004 ft	0.000 ft	0.010
DSTR --> SBCH (PV193)	**Az.**	98°41'52.8"	0.003 sec	0.007 sec	0.775
	ΔHt.	12.268 ft	0.016 ft	0.009 ft	0.157
	Ellip Dist.	227344.451 ft	0.004 ft	0.008 ft	0.519
DSTR --> BVHS (PV312)	**Az.**	126°07'42.9"	0.002 sec	-0.003 sec	-0.475

	ΔHt.	14.086 ft	0.016 ft	-0.051 ft	-0.774
	Ellip Dist.	384972.602 ft	0.004 ft	0.005 ft	0.289
HOUM --> BVHS (PV258)	**Az.**	102°10'14.8"	0.002 sec	-0.004 sec	-0.771
	ΔHt.	-9.551 ft	0.015 ft	-0.029 ft	-0.433
	Ellip Dist.	429359.320 ft	0.004 ft	-0.008 ft	-0.479
MARY --> LMCN (PV52)	**Az.**	220°35'20.0"	0.002 sec	-0.004 sec	-0.769
	ΔHt.	26.420 ft	0.015 ft	0.018 ft	0.487
	Ellip Dist.	366770.058 ft	0.004 ft	-0.002 ft	-0.151
DSTR --> TBM 100 (PV181)	**Az.**	104°17'59.8"	0.005 sec	-0.007 sec	-0.422
	ΔHt.	-20.323 ft	0.025 ft	0.069 ft	0.606
	Ellip Dist.	204790.219 ft	0.005 ft	-0.022 ft	-0.765
HOUM --> BVHS (PV61)	**Az.**	102°10'14.8"	0.002 sec	-0.001 sec	-0.288
	ΔHt.	-9.551 ft	0.015 ft	0.035 ft	0.758
	Ellip Dist.	429359.320 ft	0.004 ft	-0.001 ft	-0.102
GRIS --> TBM 100 (PV241)	**Az.**	17°24'31.7"	0.005 sec	-0.010 sec	-0.496
	ΔHt.	-29.782 ft	0.025 ft	0.018 ft	0.124
	Ellip Dist.	212898.264 ft	0.005 ft	0.027 ft	0.758
MARY --> BVHS (PV68)	**Az.**	147°03'50.0"	0.002 sec	-0.004 sec	-0.557
	ΔHt.	28.153 ft	0.015 ft	0.043 ft	0.729
	Ellip Dist.	296905.579 ft	0.003 ft	0.012 ft	0.757
LMCN --> GRIS (PV80)	**Az.**	88°50'56.1"	0.003 sec	-0.008 sec	-0.755
	ΔHt.	-2.893 ft	0.015 ft	0.016 ft	0.252
	Ellip Dist.	224520.702 ft	0.003 ft	-0.002 ft	-0.127
HOUM --> GRIS (PV184)	**Az.**	115°46'45.8"	0.002 sec	0.000 sec	0.036
	ΔHt.	-14.178 ft	0.015 ft	-0.040 ft	-0.751
	Ellip Dist.	271352.668 ft	0.003 ft	0.002 ft	0.142
MARY --> GRIS (PV242)	**Az.**	182°56'07.0"	0.002 sec	-0.005 sec	-0.575
	ΔHt.	23.526 ft	0.015 ft	0.001 ft	0.014
	Ellip Dist.	275820.760 ft	0.003 ft	-0.013 ft	-0.751
BVHS --> GRIS (PV156)	**Az.**	261°44'16.5"	0.004 sec	-0.009 sec	-0.750
	ΔHt.	-4.627 ft	0.015 ft	-0.031 ft	-0.639
	Ellip Dist.	177502.918 ft	0.004 ft	0.003 ft	0.194
HOUM --> TBM 100 (PV288)	**Az.**	74°24'48.0"	0.003 sec	-0.007 sec	-0.478
	ΔHt.	-43.960 ft	0.025 ft	0.006 ft	0.037
	Ellip Dist.	318409.606 ft	0.005 ft	-0.029 ft	-0.747
MARY --> LMCN (PV132)	**Az.**	220°35'20.0"	0.002 sec	-0.004 sec	-0.745
	ΔHt.	26.420 ft	0.015 ft	0.010 ft	0.199
	Ellip Dist.	366770.058 ft	0.004 ft	-0.004 ft	-0.287
HOUM --> BVHS (PV146)	**Az.**	102°10'14.8"	0.002 sec	-0.004 sec	-0.741
	ΔHt.	-9.551 ft	0.015 ft	-0.001 ft	-0.018
	Ellip Dist.	429359.320 ft	0.004 ft	0.006 ft	0.439

BVHS --> GRIS (PV311)	**Az.**	261°44'16.5"	0.004 sec	0.004 sec	0.239
	ΔHt.	-4.627 ft	0.015 ft	0.012 ft	0.142
	Ellip Dist.	177502.918 ft	0.004 ft	0.016 ft	0.734
MARY --> HOUM (PV346)	**Az.**	238°50'55.3"	0.002 sec	0.003 sec	0.456
	ΔHt.	37.704 ft	0.015 ft	-0.036 ft	-0.730
	Ellip Dist.	301055.871 ft	0.004 ft	0.005 ft	0.379
MARY --> LMCN (PV81)	**Az.**	220°35'20.0"	0.002 sec	-0.004 sec	-0.730
	ΔHt.	26.420 ft	0.015 ft	0.013 ft	0.245
	Ellip Dist.	366770.058 ft	0.004 ft	-0.001 ft	-0.045
DSTR --> GRIS (PV102)	**Az.**	151°55'08.8"	0.002 sec	0.005 sec	0.728
	ΔHt.	9.459 ft	0.016 ft	-0.015 ft	-0.303
	Ellip Dist.	287850.107 ft	0.004 ft	-0.008 ft	-0.630
GRIS --> TBM 100 (PV297)	**Az.**	17°24'31.7"	0.005 sec	-0.016 sec	-0.727
	ΔHt.	-29.782 ft	0.025 ft	-0.021 ft	-0.128
	Ellip Dist.	212898.264 ft	0.005 ft	-0.011 ft	-0.285
MARY --> DSTR (PV271)	**Az.**	261°58'38.3"	0.005 sec	-0.004 sec	-0.270
	ΔHt.	14.067 ft	0.016 ft	0.043 ft	0.715
	Ellip Dist.	150056.200 ft	0.003 ft	0.001 ft	0.116
MARY --> BVHS (PV96)	**Az.**	147°03'50.0"	0.002 sec	0.003 sec	0.449
	ΔHt.	28.153 ft	0.015 ft	-0.030 ft	-0.699
	Ellip Dist.	296905.579 ft	0.003 ft	0.001 ft	0.079
MARY --> HOUM (PV228)	**Az.**	238°50'55.3"	0.002 sec	0.005 sec	0.697
	ΔHt.	37.704 ft	0.015 ft	-0.027 ft	-0.418
	Ellip Dist.	301055.871 ft	0.004 ft	0.009 ft	0.596
LMCN --> SBCH (PV222)	**Az.**	54°23'24.0"	0.002 sec	0.001 sec	0.151
	ΔHt.	-0.084 ft	0.015 ft	0.030 ft	0.696
	Ellip Dist.	385228.399 ft	0.004 ft	0.007 ft	0.612
LMCN --> BVHS (PV145)	**Az.**	85°26'19.6"	0.002 sec	-0.003 sec	-0.695
	ΔHt.	1.734 ft	0.015 ft	0.002 ft	0.051
	Ellip Dist.	401123.001 ft	0.004 ft	-0.004 ft	-0.374
MARY --> BVHS (PV142)	**Az.**	147°03'50.0"	0.002 sec	0.004 sec	0.689
	ΔHt.	28.153 ft	0.015 ft	0.003 ft	0.074
	Ellip Dist.	296905.579 ft	0.003 ft	0.001 ft	0.123
MARY --> GRIS (PV70)	**Az.**	182°56'07.0"	0.002 sec	-0.006 sec	-0.677
	ΔHt.	23.526 ft	0.015 ft	0.035 ft	0.526
	Ellip Dist.	275820.760 ft	0.003 ft	-0.005 ft	-0.283
LMCN --> BVHS (PV340)	**Az.**	85°26'19.6"	0.002 sec	-0.003 sec	-0.674
	ΔHt.	1.734 ft	0.015 ft	-0.002 ft	-0.033
	Ellip Dist.	401123.001 ft	0.004 ft	0.010 ft	0.638
DSTR --> GRIS (PV214)	**Az.**	151°55'08.8"	0.002 sec	-0.001 sec	-0.106
	ΔHt.	9.459 ft	0.016 ft	-0.022 ft	-0.432

	Ellip Dist.	287850.107 ft	0.004 ft	-0.009 ft	-0.670
DSTR --> BVHS (PV200)	**Az.**	126°07'42.9"	0.002 sec	0.003 sec	0.474
	ΔHt.	14.086 ft	0.016 ft	-0.011 ft	-0.208
	Ellip Dist.	384972.602 ft	0.004 ft	0.009 ft	0.658
DSTR --> SBCH (PV104)	**Az.**	98°41'52.8"	0.003 sec	0.006 sec	0.658
	ΔHt.	12.268 ft	0.016 ft	0.013 ft	0.249
	Ellip Dist.	227344.451 ft	0.004 ft	-0.001 ft	-0.077
LMCN --> HOUM (PV57)	**Az.**	350°49'38.0"	0.006 sec	-0.005 sec	-0.364
	ΔHt.	11.284 ft	0.015 ft	-0.019 ft	-0.511
	Ellip Dist.	124248.014 ft	0.003 ft	-0.006 ft	-0.656
LMCN --> SBCH (PV339)	**Az.**	54°23'24.0"	0.002 sec	-0.003 sec	-0.655
	ΔHt.	-0.084 ft	0.015 ft	0.035 ft	0.630
	Ellip Dist.	385228.399 ft	0.004 ft	0.008 ft	0.528
DSTR --> LMCN (PV291)	**Az.**	199°02'07.2"	0.002 sec	0.003 sec	0.354
	ΔHt.	12.353 ft	0.016 ft	0.000 ft	-0.003
	Ellip Dist.	272864.493 ft	0.003 ft	-0.011 ft	-0.653
MARY --> GRIS (PV210)	**Az.**	182°56'07.0"	0.002 sec	0.003 sec	0.445
	ΔHt.	23.526 ft	0.015 ft	-0.004 ft	-0.071
	Ellip Dist.	275820.760 ft	0.003 ft	-0.009 ft	-0.651
BVHS --> SBCH (PV141)	**Az.**	336°22'08.3"	0.003 sec	0.006 sec	0.649
	ΔHt.	-1.818 ft	0.015 ft	-0.018 ft	-0.419
	Ellip Dist.	211010.768 ft	0.003 ft	0.001 ft	0.088
LMCN --> GRIS (PV183)	**Az.**	88°50'56.1"	0.003 sec	0.001 sec	0.168
	ΔHt.	-2.893 ft	0.015 ft	-0.004 ft	-0.085
	Ellip Dist.	224520.702 ft	0.003 ft	0.008 ft	0.647
MARY --> SBCH (PV263)	**Az.**	126°30'08.2"	0.007 sec	0.011 sec	0.462
	ΔHt.	26.336 ft	0.015 ft	0.025 ft	0.409
	Ellip Dist.	94546.895 ft	0.003 ft	0.007 ft	0.643
DSTR --> SBCH (PV332)	**Az.**	98°41'52.8"	0.003 sec	-0.001 sec	-0.151
	ΔHt.	12.268 ft	0.016 ft	-0.040 ft	-0.642
	Ellip Dist.	227344.451 ft	0.004 ft	0.008 ft	0.490
DSTR --> GRIS (PV182)	**Az.**	151°55'08.8"	0.002 sec	0.005 sec	0.634
	ΔHt.	9.459 ft	0.016 ft	0.014 ft	0.242
	Ellip Dist.	287850.107 ft	0.004 ft	-0.001 ft	-0.043
DSTR --> GRIS (PV126)	**Az.**	151°55'08.8"	0.002 sec	0.001 sec	0.175
	ΔHt.	9.459 ft	0.016 ft	0.033 ft	0.631
	Ellip Dist.	287850.107 ft	0.004 ft	0.003 ft	0.178
GRIS --> BS32-SM-01 (PV36)	**Az.**	17°04'11.5"	0.006 sec	0.002 sec	0.099
	ΔHt.	-29.152 ft	0.027 ft	-0.033 ft	-0.312
	Ellip Dist.	187438.212 ft	0.005 ft	-0.015 ft	-0.621
DSTR --> HOUM (PV292)	**Az.**	218°44'30.2"	0.004 sec	0.007 sec	0.613

	ΔHt.	23.637 ft	0.016 ft	-0.020 ft	-0.358
	Ellip Dist.	173385.555 ft	0.004 ft	-0.003 ft	-0.194
LMCN --> GRIS (PV337)	**Az.**	88°50'56.1"	0.003 sec	-0.001 sec	-0.125
	ΔHt.	-2.893 ft	0.015 ft	-0.020 ft	-0.385
	Ellip Dist.	224520.702 ft	0.003 ft	0.008 ft	0.611
SBCH --> GRIS (PV29)	**Az.**	202°28'01.7"	0.003 sec	-0.005 sec	-0.609
	ΔHt.	-2.809 ft	0.016 ft	0.000 ft	0.004
	Ellip Dist.	237019.363 ft	0.004 ft	-0.004 ft	-0.313
DSTR --> HOUM (PV86)	**Az.**	218°44'30.2"	0.004 sec	-0.009 sec	-0.609
	ΔHt.	23.637 ft	0.016 ft	0.037 ft	0.472
	Ellip Dist.	173385.555 ft	0.004 ft	-0.005 ft	-0.226
SBCH --> GRIS (PV326)	**Az.**	202°28'01.7"	0.003 sec	-0.005 sec	-0.606
	ΔHt.	-2.809 ft	0.016 ft	-0.027 ft	-0.459
	Ellip Dist.	237019.363 ft	0.004 ft	-0.006 ft	-0.391
HOUM --> GRIS (PV62)	**Az.**	115°46'45.8"	0.002 sec	0.003 sec	0.480
	ΔHt.	-14.178 ft	0.015 ft	0.009 ft	0.203
	Ellip Dist.	271352.668 ft	0.003 ft	-0.008 ft	-0.603
BVHS --> GRIS (PV199)	**Az.**	261°44'16.5"	0.004 sec	-0.007 sec	-0.602
	ΔHt.	-4.627 ft	0.015 ft	0.012 ft	0.245
	Ellip Dist.	177502.918 ft	0.004 ft	-0.004 ft	-0.272
HOUM --> BVHS (PV348)	**Az.**	102°10'14.8"	0.002 sec	0.001 sec	0.123
	ΔHt.	-9.551 ft	0.015 ft	-0.037 ft	-0.597
	Ellip Dist.	429359.320 ft	0.004 ft	-0.003 ft	-0.169
MARY --> SBCH (PV135)	**Az.**	126°30'08.2"	0.007 sec	0.006 sec	0.312
	ΔHt.	26.336 ft	0.015 ft	-0.015 ft	-0.359
	Ellip Dist.	94546.895 ft	0.003 ft	0.005 ft	0.575
HOUM --> SBCH (PV195)	**Az.**	72°59'34.4"	0.002 sec	-0.003 sec	-0.574
	ΔHt.	-11.369 ft	0.016 ft	0.003 ft	0.063
	Ellip Dist.	348163.018 ft	0.004 ft	0.004 ft	0.305
DSTR --> BVHS (PV217)	**Az.**	126°07'42.9"	0.002 sec	0.000 sec	0.083
	ΔHt.	14.086 ft	0.016 ft	-0.003 ft	-0.065
	Ellip Dist.	384972.602 ft	0.004 ft	-0.008 ft	-0.566
BVHS --> GRIS (PV37)	**Az.**	261°44'16.5"	0.004 sec	-0.006 sec	-0.558
	ΔHt.	-4.627 ft	0.015 ft	-0.009 ft	-0.234
	Ellip Dist.	177502.918 ft	0.004 ft	0.001 ft	0.087
MARY --> DSTR (PV46)	**Az.**	261°58'38.3"	0.005 sec	-0.005 sec	-0.401
	ΔHt.	14.067 ft	0.016 ft	-0.002 ft	-0.040
	Ellip Dist.	150056.200 ft	0.003 ft	-0.005 ft	-0.557
MARY --> HOUM (PV301)	**Az.**	238°50'55.3"	0.002 sec	-0.004 sec	-0.555
	ΔHt.	37.704 ft	0.015 ft	-0.010 ft	-0.187
	Ellip Dist.	301055.871 ft	0.004 ft	0.005 ft	0.323

HOUM --> SBCH (PV307)	**Az.**	72°59'34.4"	0.002 sec	-0.002 sec	-0.276
	ΔHt.	-11.369 ft	0.016 ft	0.001 ft	0.009
	Ellip Dist.	348163.018 ft	0.004 ft	0.009 ft	0.554
DSTR --> LMCN (PV123)	**Az.**	199°02'07.2"	0.002 sec	-0.004 sec	-0.551
	ΔHt.	12.353 ft	0.016 ft	0.021 ft	0.382
	Ellip Dist.	272864.493 ft	0.003 ft	0.002 ft	0.105
SBCH --> GRIS (PV136)	**Az.**	202°28'01.7"	0.003 sec	0.003 sec	0.411
	ΔHt.	-2.809 ft	0.016 ft	0.026 ft	0.547
	Ellip Dist.	237019.363 ft	0.004 ft	-0.006 ft	-0.420
LMCN --> HOUM (PV177)	**Az.**	350°49'38.0"	0.006 sec	0.003 sec	0.188
	ΔHt.	11.284 ft	0.015 ft	0.025 ft	0.547
	Ellip Dist.	124248.014 ft	0.003 ft	-0.001 ft	-0.102
HOUM --> SBCH (PV89)	**Az.**	72°59'34.4"	0.002 sec	0.004 sec	0.538
	ΔHt.	-11.369 ft	0.016 ft	-0.033 ft	-0.481
	Ellip Dist.	348163.018 ft	0.004 ft	0.002 ft	0.122
MARY --> DSTR (PV3)	**Az.**	261°58'38.3"	0.005 sec	-0.001 sec	-0.059
	ΔHt.	14.067 ft	0.016 ft	-0.022 ft	-0.442
	Ellip Dist.	150056.200 ft	0.003 ft	0.005 ft	0.537
DSTR --> HOUM (PV170)	**Az.**	218°44'30.2"	0.004 sec	-0.001 sec	-0.038
	ΔHt.	23.637 ft	0.016 ft	0.046 ft	0.524
	Ellip Dist.	173385.555 ft	0.004 ft	-0.006 ft	-0.260
MARY --> DSTR (PV215)	**Az.**	261°58'38.3"	0.005 sec	0.001 sec	0.090
	ΔHt.	14.067 ft	0.016 ft	0.008 ft	0.153
	Ellip Dist.	150056.200 ft	0.003 ft	0.005 ft	0.523
LMCN --> HOUM (PV289)	**Az.**	350°49'38.0"	0.006 sec	-0.006 sec	-0.395
	ΔHt.	11.284 ft	0.015 ft	-0.025 ft	-0.522
	Ellip Dist.	124248.014 ft	0.003 ft	0.003 ft	0.317
MARY --> LMCN (PV300)	**Az.**	220°35'20.0"	0.002 sec	-0.003 sec	-0.506
	ΔHt.	26.420 ft	0.015 ft	0.002 ft	0.039
	Ellip Dist.	366770.058 ft	0.004 ft	-0.005 ft	-0.364
HOUM --> BVHS (PV230)	**Az.**	102°10'14.8"	0.002 sec	-0.001 sec	-0.291
	ΔHt.	-9.551 ft	0.015 ft	0.023 ft	0.494
	Ellip Dist.	429359.320 ft	0.004 ft	0.002 ft	0.122
SBCH --> GRIS (PV192)	**Az.**	202°28'01.7"	0.003 sec	-0.002 sec	-0.221
	ΔHt.	-2.809 ft	0.016 ft	0.008 ft	0.151
	Ellip Dist.	237019.363 ft	0.004 ft	-0.007 ft	-0.493
DSTR --> HOUM (PV11)	**Az.**	218°44'30.2"	0.004 sec	-0.005 sec	-0.467
	ΔHt.	23.637 ft	0.016 ft	0.026 ft	0.491
	Ellip Dist.	173385.555 ft	0.004 ft	-0.007 ft	-0.483
LMCN --> BVHS (PV223)	**Az.**	85°26'19.6"	0.002 sec	-0.002 sec	-0.491
	ΔHt.	1.734 ft	0.015 ft	0.002 ft	0.046

	Ellip Dist.	401123.001 ft	0.004 ft	0.005 ft	0.401
DSTR --> GRIS (PV49)	**Az.**	151°55'08.8"	0.002 sec	0.003 sec	0.487
	ΔHt.	9.459 ft	0.016 ft	0.023 ft	0.443
	Ellip Dist.	287850.107 ft	0.004 ft	0.002 ft	0.172
DSTR --> SBCH (PV47)	**Az.**	98°41'52.8"	0.003 sec	-0.002 sec	-0.200
	ΔHt.	12.268 ft	0.016 ft	-0.026 ft	-0.486
	Ellip Dist.	227344.451 ft	0.004 ft	0.002 ft	0.139
HOUM --> SBCH (PV347)	**Az.**	72°59'34.4"	0.002 sec	0.003 sec	0.485
	ΔHt.	-11.369 ft	0.016 ft	0.005 ft	0.097
	Ellip Dist.	348163.018 ft	0.004 ft	-0.004 ft	-0.265
DSTR --> GRIS (PV270)	**Az.**	151°55'08.8"	0.002 sec	-0.004 sec	-0.484
	ΔHt.	9.459 ft	0.016 ft	0.003 ft	0.055
	Ellip Dist.	287850.107 ft	0.004 ft	-0.006 ft	-0.396
DSTR --> BVHS (PV144)	**Az.**	126°07'42.9"	0.002 sec	0.001 sec	0.177
	ΔHt.	14.086 ft	0.016 ft	0.025 ft	0.420
	Ellip Dist.	384972.602 ft	0.004 ft	0.008 ft	0.482
LMCN --> BVHS (PV83)	**Az.**	85°26'19.6"	0.002 sec	-0.003 sec	-0.481
	ΔHt.	1.734 ft	0.015 ft	-0.009 ft	-0.145
	Ellip Dist.	401123.001 ft	0.004 ft	-0.004 ft	-0.231
HOUM --> GRIS (PV128)	**Az.**	115°46'45.8"	0.002 sec	-0.003 sec	-0.469
	ΔHt.	-14.178 ft	0.015 ft	0.003 ft	0.064
	Ellip Dist.	271352.668 ft	0.003 ft	0.000 ft	0.013
LMCN --> SBCH (PV138)	**Az.**	54°23'24.0"	0.002 sec	-0.002 sec	-0.289
	ΔHt.	-0.084 ft	0.015 ft	-0.026 ft	-0.463
	Ellip Dist.	385228.399 ft	0.004 ft	-0.001 ft	-0.073
MARY --> SBCH (PV42)	**Az.**	126°30'08.2"	0.007 sec	0.006 sec	0.305
	ΔHt.	26.336 ft	0.015 ft	-0.019 ft	-0.455
	Ellip Dist.	94546.895 ft	0.003 ft	-0.002 ft	-0.211
DSTR --> LMCN (PV179)	**Az.**	199°02'07.2"	0.002 sec	-0.001 sec	-0.172
	ΔHt.	12.353 ft	0.016 ft	-0.011 ft	-0.224
	Ellip Dist.	272864.493 ft	0.003 ft	-0.006 ft	-0.454
LMCN --> HOUM (PV225)	**Az.**	350°49'38.0"	0.006 sec	-0.003 sec	-0.185
	ΔHt.	11.284 ft	0.015 ft	-0.018 ft	-0.446
	Ellip Dist.	124248.014 ft	0.003 ft	-0.001 ft	-0.114
MARY --> LMCN (PV7)	**Az.**	220°35'20.0"	0.002 sec	0.001 sec	0.140
	ΔHt.	26.420 ft	0.015 ft	0.020 ft	0.431
	Ellip Dist.	366770.058 ft	0.004 ft	-0.003 ft	-0.275
LMCN --> GRIS (PV164)	**Az.**	88°50'56.1"	0.003 sec	-0.004 sec	-0.426
	ΔHt.	-2.893 ft	0.015 ft	0.010 ft	0.207
	Ellip Dist.	224520.702 ft	0.003 ft	-0.001 ft	-0.047
DSTR --> SBCH (PV272)	**Az.**	98°41'52.8"	0.003 sec	0.001 sec	0.137

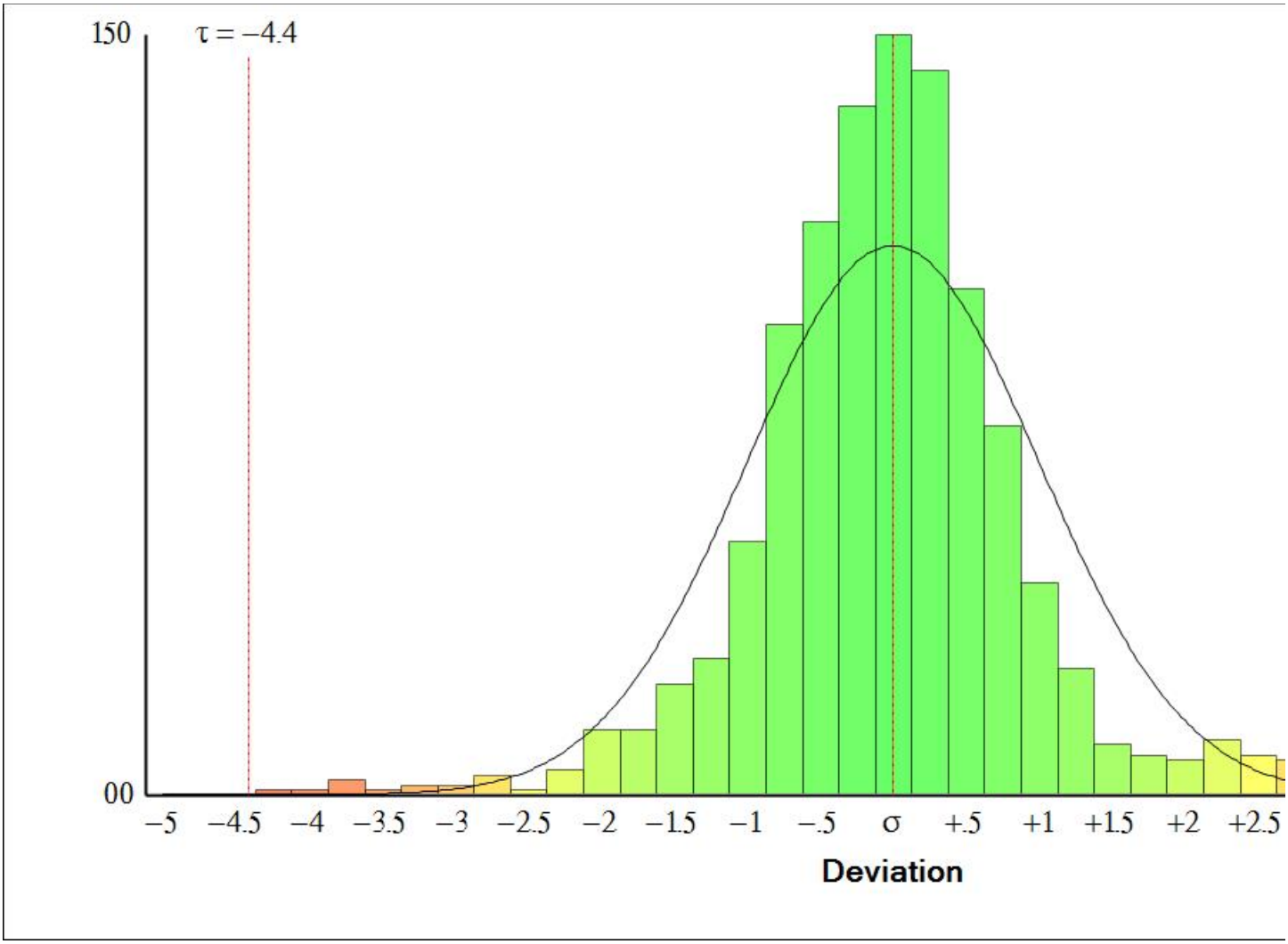
	ΔHt.	12.268 ft	0.016 ft	0.005 ft	0.077
	Ellip Dist.	227344.451 ft	0.004 ft	0.007 ft	0.419
HOUM --> GRIS (PV31)	**Az.**	115°46'45.8"	0.002 sec	0.002 sec	0.286
	ΔHt.	-14.178 ft	0.015 ft	-0.021 ft	-0.413
	Ellip Dist.	271352.668 ft	0.003 ft	-0.004 ft	-0.312
DSTR --> HOUM (PV58)	**Az.**	218°44'30.2"	0.004 sec	-0.005 sec	-0.412
	ΔHt.	23.637 ft	0.016 ft	0.012 ft	0.231
	Ellip Dist.	173385.555 ft	0.004 ft	0.000 ft	-0.002
LMCN --> BVHS (PV54)	**Az.**	85°26'19.6"	0.002 sec	0.002 sec	0.408
	ΔHt.	1.734 ft	0.015 ft	0.012 ft	0.290
	Ellip Dist.	401123.001 ft	0.004 ft	-0.004 ft	-0.323
LMCN --> GRIS (PV127)	**Az.**	88°50'56.1"	0.003 sec	-0.003 sec	-0.407
	ΔHt.	-2.893 ft	0.015 ft	0.009 ft	0.202
	Ellip Dist.	224520.702 ft	0.003 ft	-0.003 ft	-0.234
MARY --> DSTR (PV75)	**Az.**	261°58'38.3"	0.005 sec	0.007 sec	0.404
	ΔHt.	14.067 ft	0.016 ft	-0.012 ft	-0.150
	Ellip Dist.	150056.200 ft	0.003 ft	-0.003 ft	-0.224
MARY --> HOUM (PV12)	**Az.**	238°50'55.3"	0.002 sec	0.001 sec	0.089
	ΔHt.	37.704 ft	0.015 ft	0.010 ft	0.186
	Ellip Dist.	301055.871 ft	0.004 ft	-0.006 ft	-0.396
DSTR --> LMCN (PV51)	**Az.**	199°02'07.2"	0.002 sec	-0.003 sec	-0.395
	ΔHt.	12.353 ft	0.016 ft	0.010 ft	0.231
	Ellip Dist.	272864.493 ft	0.003 ft	-0.003 ft	-0.277
MARY --> HOUM (PV245)	**Az.**	238°50'55.3"	0.002 sec	-0.003 sec	-0.390
	ΔHt.	37.704 ft	0.015 ft	0.007 ft	0.114
	Ellip Dist.	301055.871 ft	0.004 ft	-0.001 ft	-0.055
DSTR --> HOUM (PV124)	**Az.**	218°44'30.2"	0.004 sec	0.004 sec	0.350
	ΔHt.	23.637 ft	0.016 ft	0.022 ft	0.383
	Ellip Dist.	173385.555 ft	0.004 ft	0.006 ft	0.386
MARY --> SBCH (PV95)	**Az.**	126°30'08.2"	0.007 sec	0.004 sec	0.185
	ΔHt.	26.336 ft	0.015 ft	0.018 ft	0.364
	Ellip Dist.	94546.895 ft	0.003 ft	-0.003 ft	-0.350
BVHS --> SBCH (PV197)	**Az.**	336°22'08.3"	0.003 sec	-0.001 sec	-0.130
	ΔHt.	-1.818 ft	0.015 ft	0.005 ft	0.086
	Ellip Dist.	211010.768 ft	0.003 ft	0.005 ft	0.360
MARY --> LMCN (PV363)	**Az.**	220°35'20.0"	0.002 sec	-0.001 sec	-0.138
	ΔHt.	26.420 ft	0.015 ft	0.010 ft	0.196
	Ellip Dist.	366770.058 ft	0.004 ft	-0.005 ft	-0.358
MARY --> HOUM (PV364)	**Az.**	238°50'55.3"	0.002 sec	-0.002 sec	-0.349
	ΔHt.	37.704 ft	0.015 ft	-0.012 ft	-0.219
	Ellip Dist.	301055.871 ft	0.004 ft	0.003 ft	0.250

HOUM --> GRIS (PV227)	**Az.**	115°46'45.8"	0.002 sec	0.002 sec	0.344
	ΔHt.	-14.178 ft	0.015 ft	0.014 ft	0.296
	Ellip Dist.	271352.668 ft	0.003 ft	-0.003 ft	-0.261
BVHS --> SBCH (PV205)	**Az.**	336°22'08.3"	0.003 sec	0.002 sec	0.242
	ΔHt.	-1.818 ft	0.015 ft	0.015 ft	0.336
	Ellip Dist.	211010.768 ft	0.003 ft	-0.002 ft	-0.134
LMCN --> GRIS (PV358)	**Az.**	88°50'56.1"	0.003 sec	0.002 sec	0.190
	ΔHt.	-2.893 ft	0.015 ft	0.013 ft	0.318
	Ellip Dist.	224520.702 ft	0.003 ft	-0.002 ft	-0.158
MARY --> GRIS (PV325)	**Az.**	182°56'07.0"	0.002 sec	-0.001 sec	-0.134
	ΔHt.	23.526 ft	0.015 ft	-0.018 ft	-0.310
	Ellip Dist.	275820.760 ft	0.003 ft	0.002 ft	0.146
LMCN --> SBCH (PV194)	**Az.**	54°23'24.0"	0.002 sec	0.000 sec	0.015
	ΔHt.	-0.084 ft	0.015 ft	0.009 ft	0.159
	Ellip Dist.	385228.399 ft	0.004 ft	0.004 ft	0.309
LMCN --> GRIS (PV32)	**Az.**	88°50'56.1"	0.003 sec	0.003 sec	0.306
	ΔHt.	-2.893 ft	0.015 ft	-0.003 ft	-0.066
	Ellip Dist.	224520.702 ft	0.003 ft	0.003 ft	0.251
BVHS --> GRIS (PV143)	**Az.**	261°44'16.5"	0.004 sec	-0.003 sec	-0.268
	ΔHt.	-4.627 ft	0.015 ft	0.015 ft	0.304
	Ellip Dist.	177502.918 ft	0.004 ft	-0.002 ft	-0.111
DSTR --> SBCH (PV76)	**Az.**	98°41'52.8"	0.003 sec	-0.004 sec	-0.302
	ΔHt.	12.268 ft	0.016 ft	0.005 ft	0.064
	Ellip Dist.	227344.451 ft	0.004 ft	0.006 ft	0.278
BVHS --> GRIS (PV72)	**Az.**	261°44'16.5"	0.004 sec	0.000 sec	-0.025
	ΔHt.	-4.627 ft	0.015 ft	-0.014 ft	-0.224
	Ellip Dist.	177502.918 ft	0.004 ft	0.005 ft	0.295
HOUM --> GRIS (PV345)	**Az.**	115°46'45.8"	0.002 sec	0.001 sec	0.105
	ΔHt.	-14.178 ft	0.015 ft	0.017 ft	0.291
	Ellip Dist.	271352.668 ft	0.003 ft	-0.002 ft	-0.144
LMCN --> BVHS (PV201)	**Az.**	85°26'19.6"	0.002 sec	-0.001 sec	-0.228
	ΔHt.	1.734 ft	0.015 ft	-0.014 ft	-0.288
	Ellip Dist.	401123.001 ft	0.004 ft	0.001 ft	0.114
LMCN --> HOUM (PV10)	**Az.**	350°49'38.0"	0.006 sec	-0.001 sec	-0.089
	ΔHt.	11.284 ft	0.015 ft	-0.012 ft	-0.283
	Ellip Dist.	124248.014 ft	0.003 ft	-0.001 ft	-0.110
LMCN --> SBCH (PV23)	**Az.**	54°23'24.0"	0.002 sec	-0.001 sec	-0.271
	ΔHt.	-0.084 ft	0.015 ft	-0.003 ft	-0.059
	Ellip Dist.	385228.399 ft	0.004 ft	0.001 ft	0.099
DSTR --> HOUM (PV226)	**Az.**	218°44'30.2"	0.004 sec	0.003 sec	0.240
	ΔHt.	23.637 ft	0.016 ft	-0.016 ft	-0.253

	Ellip Dist.	173385.555 ft	0.004 ft	0.001 ft	0.080
HOUM --> GRIS (PV359)	**Az.**	115°46'45.8"	0.002 sec	-0.001 sec	-0.105
	ΔHt.	-14.178 ft	0.015 ft	0.012 ft	0.234
	Ellip Dist.	271352.668 ft	0.003 ft	0.000 ft	-0.005
HOUM --> SBCH (PV22)	**Az.**	72°59'34.4"	0.002 sec	-0.001 sec	-0.233
	ΔHt.	-11.369 ft	0.016 ft	-0.005 ft	-0.092
	Ellip Dist.	348163.018 ft	0.004 ft	-0.001 ft	-0.097
MARY --> DSTR (PV131)	**Az.**	261°58'38.3"	0.005 sec	-0.003 sec	-0.226
	ΔHt.	14.067 ft	0.016 ft	-0.010 ft	-0.216
	Ellip Dist.	150056.200 ft	0.003 ft	-0.001 ft	-0.089
LMCN --> SBCH (PV306)	**Az.**	54°23'24.0"	0.002 sec	0.001 sec	0.217
	ΔHt.	-0.084 ft	0.015 ft	-0.008 ft	-0.165
	Ellip Dist.	385228.399 ft	0.004 ft	0.002 ft	0.148
LMCN --> HOUM (PV233)	**Az.**	350°49'38.0"	0.006 sec	0.003 sec	0.183
	ΔHt.	11.284 ft	0.015 ft	-0.003 ft	-0.051
	Ellip Dist.	124248.014 ft	0.003 ft	-0.002 ft	-0.171
DSTR --> LMCN (PV219)	**Az.**	199°02'07.2"	0.002 sec	0.000 sec	-0.063
	ΔHt.	12.353 ft	0.016 ft	-0.007 ft	-0.121
	Ellip Dist.	272864.493 ft	0.003 ft	-0.002 ft	-0.109

Histogram of Standardized Residuals

Critical Tau Value: 4.4
Observations Failing the Tau Test: 0



Covariance Terms

From Point	To Point		Components	A-posteriori Error	Horiz. Precision (Ratio)	3D Precision (Ratio)
TBM 100	BVHS	**Az.**	147°46'58.0"	0.004 sec	1 : 48468839	1 : 48472468
		ΔHt.	34.580 ft	0.024 ft		
		ΔElev.	28.829 ft	0.024 ft		
		Ellip Dist.	209214.002 ft	0.004 ft		
TBM 100	DSTR	**Az.**	284°36'42.6"	0.005 sec	1 : 37851281	1 : 37868791
		ΔHt.	20.292 ft	0.026 ft		
		ΔElev.	21.788 ft	0.026 ft		
		Ellip Dist.	204790.221 ft	0.005 ft		
TBM 100	GRIS	**Az.**	197°30'28.2"	0.005 sec	1 : 40128778	1 : 40105361
		ΔHt.	29.999 ft	0.027 ft		
		ΔElev.	24.618 ft	0.027 ft		
		Ellip Dist.	212898.267 ft	0.005 ft		
TBM 100	HOUM	**Az.**	254°53'33.5"	0.004 sec	1 : 51522137	1 : 51534663
		ΔHt.	44.080 ft	0.027 ft		

		ΔElev.	42.571 ft	0.027 ft		
		Ellip Dist.	318409.609 ft	0.006 ft		
TBM 100	LMCN	**Az.**	234°30'10.9"	0.003 sec	1 : 55797097	1 : 55793473
		ΔHt.	32.921 ft	0.024 ft		
		ΔElev.	28.929 ft	0.024 ft		
		Ellip Dist.	354426.189 ft	0.006 ft		
TBM 100	MARY	**Az.**	325°36'49.3"	0.011 sec	1 : 20320168	1 : 20322516
		ΔHt.	6.187 ft	0.024 ft		
		ΔElev.	7.964 ft	0.024 ft		
		Ellip Dist.	87735.872 ft	0.004 ft		
TBM 100	SBCH	**Az.**	58°39'44.2"	0.030 sec	1 : 6514194	1 : 6513452
		ΔHt.	32.572 ft	0.024 ft		
		ΔElev.	33.119 ft	0.024 ft		
		Ellip Dist.	30877.027 ft	0.005 ft		
BS32-SM-01	BVHS	**Az.**	141°49'44.6"	0.006 sec	1 : 37792946	1 : 37829941
		ΔHt.	33.924 ft	0.026 ft		
		ΔElev.	28.915 ft	0.026 ft		
		Ellip Dist.	194644.162 ft	0.005 ft		
BS32-SM-01	DSTR	**Az.**	291°44'38.2"	0.006 sec	1 : 32868111	1 : 32891693
		ΔHt.	19.636 ft	0.029 ft		
		ΔElev.	21.874 ft	0.029 ft		
		Ellip Dist.	203980.752 ft	0.006 ft		
BS32-SM-01	GRIS	**Az.**	197°09'19.0"	0.007 sec	1 : 32425532	1 : 32401517
		ΔHt.	29.343 ft	0.028 ft		
		ΔElev.	24.704 ft	0.028 ft		
		Ellip Dist.	187438.214 ft	0.006 ft		
BS32-SM-01	HOUM	**Az.**	258°48'19.8"	0.004 sec	1 : 44662959	1 : 44666852
		ΔHt.	43.425 ft	0.029 ft		
		ΔElev.	42.657 ft	0.029 ft		
		Ellip Dist.	304465.803 ft	0.007 ft		
BS32-SM-01	LMCN	**Az.**	236°58'06.5"	0.004 sec	1 : 48704767	1 : 48685237
		ΔHt.	32.265 ft	0.026 ft		
		ΔElev.	29.015 ft	0.026 ft		
		Ellip Dist.	333734.149 ft	0.007 ft		
BS32-SM-01	MARY	**Az.**	337°01'12.2"	0.011 sec	1 : 20639101	1 : 20650627
		ΔHt.	5.531 ft	0.026 ft		
		ΔElev.	8.050 ft	0.026 ft		
		Ellip Dist.	104649.088 ft	0.005 ft		
BS32-SM-01	SBCH	**Az.**	41°14'21.2"	0.021 sec	1 : 9528062	1 : 9517853
		ΔHt.	31.916 ft	0.027 ft		
		ΔElev.	33.205 ft	0.027 ft		
		Ellip Dist.	53216.825 ft	0.006 ft		
BVHS	GRIS	**Az.**	261°44'16.5"	0.004 sec	1 : 51559609	1 : 51510884
		ΔHt.	-4.581 ft	0.013 ft		
		ΔElev.	-4.211 ft	0.013 ft		
		Ellip Dist.	177502.919 ft	0.003 ft		

BVHS	SBCH	**Az.**	336°22'08.3"	0.003 sec	1 : 73952114	1 : 73912448
		ΔHt.	-2.008 ft	0.014 ft		
		ΔElev.	4.290 ft	0.014 ft		
		Ellip Dist.	211010.770 ft	0.003 ft		
DSTR	BVHS	**Az.**	126°07'42.9"	0.002 sec	1 : 98705374	1 : 98674647
		ΔHt.	14.288 ft	0.017 ft		
		ΔElev.	7.041 ft	0.017 ft		
		Ellip Dist.	384972.603 ft	0.004 ft		
DSTR	GRIS	**Az.**	151°55'08.8"	0.003 sec	1 : 61625547	1 : 61641214
		ΔHt.	9.707 ft	0.022 ft		
		ΔElev.	2.830 ft	0.022 ft		
		Ellip Dist.	287850.107 ft	0.005 ft		
DSTR	HOUM	**Az.**	218°44'30.2"	0.004 sec	1 : 43159257	1 : 43147879
		ΔHt.	23.788 ft	0.017 ft		
		ΔElev.	20.782 ft	0.017 ft		
		Ellip Dist.	173385.555 ft	0.004 ft		
DSTR	LMCN	**Az.**	199°02'07.2"	0.003 sec	1 : 59502723	1 : 59495824
		ΔHt.	12.629 ft	0.017 ft		
		ΔElev.	7.141 ft	0.017 ft		
		Ellip Dist.	272864.493 ft	0.005 ft		
DSTR	SBCH	**Az.**	98°41'52.8"	0.004 sec	1 : 52489823	1 : 52496230
		ΔHt.	12.280 ft	0.019 ft		
		ΔElev.	11.331 ft	0.019 ft		
		Ellip Dist.	227344.453 ft	0.004 ft		
HOUM	BVHS	**Az.**	102°10'14.8"	0.002 sec	1 : 92494000	1 : 92516296
		ΔHt.	-9.501 ft	0.015 ft		
		ΔElev.	-13.741 ft	0.015 ft		
		Ellip Dist.	429359.322 ft	0.005 ft		
HOUM	GRIS	**Az.**	115°46'45.8"	0.003 sec	1 : 59414784	1 : 59444529
		ΔHt.	-14.081 ft	0.019 ft		
		ΔElev.	-17.952 ft	0.019 ft		
		Ellip Dist.	271352.670 ft	0.005 ft		
HOUM	SBCH	**Az.**	72°59'34.4"	0.003 sec	1 : 65298586	1 : 65306482
		ΔHt.	-11.508 ft	0.020 ft		
		ΔElev.	-9.452 ft	0.020 ft		
		Ellip Dist.	348163.022 ft	0.005 ft		
LMCN	BVHS	**Az.**	85°26'19.6"	0.003 sec	1 : 85068616	1 : 85095001
		ΔHt.	1.659 ft	0.000 ft		
		ΔElev.	-0.100 ft	0.000 ft		
		Ellip Dist.	401123.004 ft	0.005 ft		
LMCN	GRIS	**Az.**	88°50'56.1"	0.004 sec	1 : 52946268	1 : 52973790
		ΔHt.	-2.922 ft	0.013 ft		
		ΔElev.	-4.311 ft	0.013 ft		
		Ellip Dist.	224520.704 ft	0.004 ft		
LMCN	HOUM	**Az.**	350°49'37.9"	0.006 sec	1 : 37942928	1 : 37928735
		ΔHt.	11.159 ft	0.015 ft		

		ΔElev.	13.642 ft	0.015 ft		
		Ellip Dist.	124248.015 ft	0.003 ft		
LMCN	SBCH	**Az.**	54°23'24.0"	0.003 sec	1 : 68997270	1 : 69002049
		ΔHt.	-0.349 ft	0.014 ft		
		ΔElev.	4.190 ft	0.014 ft		
		Ellip Dist.	385228.404 ft	0.006 ft		
MARY	BVHS	**Az.**	147°03'49.9"	0.000 sec	1 : 0	1 : 0
		ΔHt.	28.393 ft	0.000 ft		
		ΔElev.	20.865 ft	0.000 ft		
		Ellip Dist.	296905.580 ft	0.000 ft		
MARY	DSTR	**Az.**	261°58'38.3"	0.006 sec	1 : 38799036	1 : 38809781
		ΔHt.	14.105 ft	0.017 ft		
		ΔElev.	13.824 ft	0.017 ft		
		Ellip Dist.	150056.201 ft	0.004 ft		
MARY	GRIS	**Az.**	182°56'07.0"	0.003 sec	1 : 77523717	1 : 77587160
		ΔHt.	23.812 ft	0.013 ft		
		ΔElev.	16.654 ft	0.013 ft		
		Ellip Dist.	275820.760 ft	0.004 ft		
MARY	HOUM	**Az.**	238°50'55.3"	0.003 sec	1 : 62711519	1 : 62740618
		ΔHt.	37.894 ft	0.015 ft		
		ΔElev.	34.607 ft	0.015 ft		
		Ellip Dist.	301055.871 ft	0.005 ft		
MARY	LMCN	**Az.**	220°35'20.0"	0.003 sec	1 : 74427421	1 : 74472973
		ΔHt.	26.734 ft	0.000 ft		
		ΔElev.	20.965 ft	0.000 ft		
		Ellip Dist.	366770.058 ft	0.005 ft		
MARY	SBCH	**Az.**	126°30'08.2"	0.007 sec	1 : 33266421	1 : 33276772
		ΔHt.	26.385 ft	0.014 ft		
		ΔElev.	25.155 ft	0.014 ft		
		Ellip Dist.	94546.896 ft	0.003 ft		
SBCH	GRIS	**Az.**	202°28'01.6"	0.004 sec	1 : 55438174	1 : 55427396
		ΔHt.	-2.573 ft	0.019 ft		
		ΔElev.	-8.501 ft	0.019 ft		
		Ellip Dist.	237019.364 ft	0.004 ft		

North Delacroix Island Marsh Creation Project

NAD83 (2011) Epoch 2010.00 - NAVD88 (Geoid12B) U.S. Survey Feet

Monument	Latitude	Longitude	Ellipsoid Hgt	Northing	Easting	Elev.	Description
BS32-SM-01	29d45'29.24794"	-89d47'02.06576"	-80.658	460856.721	3772450.518	2.642	Deep Rod
TBM 100	29d49'26.33881"	-89d45'23.16328"	-81.314	484922.988	3780837.279	2.728	TBM

SECTION C

Topographic Survey

RTK Points Listing – (See Folder C for Digital Points Listing)

Fenstermaker's Top of Water NAVD88 Geoid12B

Point	Northing	Easting	Elev	Description	Time	Date
119-1001	473,136.50	3,779,651.18	1.44	WATER_TOP	11:05:02_AM	4/29/2021
119-1002	472,747.22	3,782,733.44	1.47	WATER_TOP	11:05:05_AM	4/29/2021
120-131	473,984.35	3,768,944.11	1.15	WATER_TOP	8:31:17_AM	4/30/2021
120-200	473,310.85	3,783,444.63	0.84	WATER_TOP	9:11:46_AM	4/30/2021
120-649	473,786.70	3,783,662.99	0.89	WATER_TOP	10:39:08_AM	4/30/2021
126-201	478,346.31	3,779,351.24	0.40	WATER_TOP	9:31:24_AM	5/6/2021
126-805	470,122.50	3,779,782.04	0.48	WATER_TOP	12:50:42_PM	5/6/2021
131-1617	474,771.85	3,779,005.58	0.40	WATER_TOP	9:25:25_AM	5/11/2021
133-100	481,824.99	3,763,056.10	0.56	WATER_TOP	7:23:15_AM	5/13/2021
134-100	481,824.67	3,763,056.69	0.77	WATER_TOP	8:33:38_AM	5/14/2021
135-100	478,810.62	3,754,661.27	0.91	WATER_TOP	8:19:28_AM	5/15/2021
136-100	481,815.89	3,763,053.62	0.80	WATER_TOP	7:35:20_AM	5/16/2021
209-15000	478,547.58	3,759,278.30	0.76	WATER_TOP	8:02:14_AM	5/28/2021
158-210a	480,929.05	3,781,409.13	1.16	WATER_TOP	12:39:28_AM	6/7/2021
211-500	477,862.37	3,758,237.39	0.68	WATER_TOP	10:29:55_AM	6/30/2021
211-501	478,546.96	3,759,638.26	0.45	WATER_TOP	10:53:13_AM	6/30/2021
193-1000	478,273.38	3,758,964.76	0.70	WATER_TOP	12:04:26_PM	7/12/2021
208-15000	475,647.62	3,764,756.41	0.71	WATER_TOP	8:10:23_AM	7/27/2021
241-2000	476,516.64	3,784,295.30	0.45	WATER_TOP	10:15:26_AM	7/29/2021
241-2001	478,826.91	3,779,050.20	0.55	WATER_TOP	10:12:29_AM	7/29/2021
214-100	454,412.67	3,801,320.70	0.71	WATER_TOP	10:08:01_AM	8/2/2021
214-101	480,447.96	3,808,079.53	0.52	WATER_TOP	11:38:07_AM	8/2/2021
215-100	465,382.38	3,776,480.90	0.45	WATER_TOP	7:56:20_AM	8/3/2021
215-101	465,746.48	3,799,332.45	0.59	WATER_TOP	12:53:00_PM	8/3/2021
215-102	465,679.50	3,777,202.27	0.44	WATER_TOP	3:53:57_PM	8/3/2021
216-100	466,230.45	3,786,895.37	0.28	WATER_TOP	8:16:26_AM	8/4/2021
216-101	474,811.15	3,787,434.59	0.64	WATER_TOP	10:46:32_AM	8/4/2021
216-102	465,515.97	3,800,226.56	0.98	WATER_TOP	11:39:49_AM	8/4/2021
166-01_Bathy	475,949.08	3,763,928.71	0.82	WATER_TOP	9:56:26_AM	6/15/2021
166-02_Bathy	477,242.29	3,761,735.93	0.79	WATER_TOP	10:29:17 AM	6/15/2021
166-03_Bathy	476,874.39	3,761,696.09	0.74	WATER_TOP	11:30:15 AM	6/15/2021
166-04_Bathy	477,187.78	3,760,966.51	0.82	WATER_TOP	12:32:06 PM	6/15/2021
166-05_Bathy	477,289.90	3,759,870.67	0.88	WATER_TOP	1:29:53 PM	6/15/2021
166-06_Bathy	477,099.89	3,758,646.28	0.95	WATER_TOP	2:29:09 PM	6/15/2021
166-07_Bathy	476,732.26	3,757,744.80	0.97	WATER_TOP	3:08:20 PM	6/15/2021
167-01_Bathy	478,753.73	3,759,208.13	0.32	WATER_TOP	8:35:24 AM	6/16/2021
167-02_Bathy	478,261.41	3,758,307.62	0.28	WATER_TOP	9:31:45 AM	6/16/2021
167-03_Bathy	478,861.16	3,758,518.74	0.28	WATER_TOP	10:30:03 AM	6/16/2021
167-04_Bathy	478,926.89	3,758,055.50	0.28	WATER_TOP	11:30:25 AM	6/16/2021
167-05_Bathy	479,070.14	3,757,617.44	0.31	WATER_TOP	12:30:44 PM	6/16/2021
167-06_Bathy	479,043.07	3,757,124.71	0.33	WATER_TOP	1:23:35 PM	6/16/2021
168-01_Bathy	479,058.13	3,756,611.16	0.86	WATER_TOP	8:30 AM	6/17/2021
168-02_Bathy	479,281.22	3,756,287.54	0.93	WATER_TOP	9:30 AM	6/17/2021
168-03_Bathy	479,553.28	3,755,765.66	0.92	WATER_TOP	10:30 AM	6/17/2021
168-04_Bathy	479,467.57	3,754,936.71	1.14	WATER_TOP	11:30 AM	6/17/2021

CRMS0146 Top of Water

CRMS Station	Date	Time	Elev
CRMS0146-H01	11:00:00	4/29/2021	1.46
CRMS0146-H01	11:00:00	4/29/2021	1.46
CRMS0146-H01	8:00:00	4/30/2021	0.8
CRMS0146-H01	9:00:00	4/30/2021	0.92
CRMS0146-H01	11:00:00	4/30/2021	1.13
CRMS0146-H01	9:00:00	5/6/2021	0.46
CRMS0146-H01	13:00:00	5/6/2021	0.82
CRMS0146-H01	9:00:00	5/11/2021	0.68
CRMS0146-H01	7:00:00	5/13/2021	0.63
CRMS0146-H01	9:00:00	5/14/2021	0.69
CRMS0146-H01	8:00:00	5/15/2021	0.27
CRMS0146-H01	8:00:00	5/16/2021	0.58
CRMS0146-H01	8:00:00	5/28/2021	0.27
CRMS0146-H01	13:00:00	6/7/2021	1.44

Difference

Fenstermaker Top of Water minus CRMS0146
-0.02
0.01
0.35
-0.08
-0.24
-0.06
-0.34
-0.28
-0.07
0.08
0.64
0.22
0.49
-0.28

0.03 AVG.

SECTION D

Bathymetric Survey

Points Listing -(See Folder D for Digital Points Listing)

135 Regency Square · Lafayette, LA 70508 · 337.237.2200 phone · 337.232.3299 fax
www.fenstermaker.com

SECTION E

Magnetometer Survey

Table of Anomalies

Pipeline Probing Results

North Delacroix Marsh Creation and Terracing Project

Marsh Creation Magnetometer Anomalies Tabulation

RTK Point	Northing	Easting	Gamma	Duration	Type	Description
123-1-MC	471,591.76	3,781,617.62	6613.8	11	COMPLEX	Unknown Debris
123-2-MC	473,571.36	3,779,809.60	66.2	40.7	DIPOLE	Unknown Debris
123-3-MC	472,490.52	3,782,086.02	147.5	56.9	DIPOLE	Unknown Debris
123-4-MC	475,869.39	3,778,470.80	311.5	95.8	COMPLEX	Old duck blinds
123-5-MC	475,420.35	3,779,056.32	2906.8	133.5	MONOPOLE	Metal trash
123-6-MC	472,892.54	3,782,362.44	1593	94.7	DIPOLE	Crab trap
124-7-MC	472,667.81	3,782,666.31	693.3	104.1	DIPOLE	Unknown Debris
124-8-MC	472,879.37	3,783,190.78	58.6	9.2	DIPOLE	Unknown Debris
124-9-MC	473,696.81	3,782,163.68	52.3	150.7	DIPOLE	Unknown Debris
124-10-MC	474,787.08	3,780,696.73	82.5	53.6	DIPOLE	Unknown Debris
124-11-MC	478,220.41	3,778,753.07	5476.4	289.8	MONOPOLE	Unknown Debris
124-12-MC	478,480.64	3,779,159.15	58.8	17.2	DIPOLE	Old duck blinds
124-13-MC	478,496.52	3,779,135.31	76.2	13.2	DIPOLE	Unknown Debris
126-14-MC	474,023.69	3,783,432.18	252.8	107.5	COMPLEX	Unknown Debris
127-15-MC	472,591.16	3,782,340.09	176.1	34.6	DIPOLE	Unknown Debris
127-16-MC	472,539.93	3,782,299.21	761.1	62.2	COMPLEX	Unknown Debris
127-17-MC	475,243.09	3,782,470.24	388.8	303.7	DIPOLE	Unknown Debris
127-18-MC	476,467.13	3,783,394.98	189.1	60.5	MONOPOLE	Unknown Debris
127-19-MC	472,549.98	3,779,171.74	111.4	26.6	DIPOLE	Unknown Debris
127-20-MC	477,093.43	3,781,358.63	929	70.1	DIPOLE	Unknown Debris
127-21-MC	477,285.67	3,781,507.82	102.4	73.7	MONOPOLE	Unknown Debris
144-22-MC	478,878.98	3,779,016.48	57.6	82.2	MONOPOLE	Unknown Debris
144-23-MC	477,153.52	3,782,219.98	461.6	149.5	COMPLEX	Unknown Debris
144-24-MC	476,967.24	3,785,285.03	57.1	73.6	DIPOLE	Unknown Debris
144-25-MC	475,076.23	3,784,229.41	7106.6	7.3	MONOPOLE	Crab trap
144-26-MC	474,404.46	3,784,065.12	178.4	16	MONOPOLE	Unknown Debris
144-27-MC	474,507.81	3,784,145.98	70.8	15.2	MONOPOLE	Unknown Debris
144-28-MC	474,063.11	3,783,762.54	8294.5	64.7	COMPLEX	Crab trap
144-29-MC	473,984.00	3,783,502.71	8375.7	192.5	COMPLEX	Crab trap
144-30-MC	472,982.36	3,783,086.45	9545.2	253.3	COMPLEX	Crab trap
144-31-MC	472,856.24	3,782,701.79	83.6	16.4	MONOPOLE	DEBRIS/TRASH
144-32-MC	472,763.24	3,782,672.14	203.7	38.1	DIPOLE	Unknown Debris
144-33-MC	472,712.00	3,782,645.13	124.9	17	MONOPOLE	Unknown Debris
144-34-MC	472,683.80	3,782,617.71	6011.2	11.1	COMPLEX	Crab trap
144-35-MC	472,684.25	3,782,597.54	8199.4	15.4	COMPLEX	Crab trap
144-36-MC	472,559.80	3,782,444.04	8795.2	123	COMPLEX	Crab trap
144-37-MC	475,818.86	3,781,954.16	452	73.5	MONOPOLE	Unknown Debris
144-38-MC	475,617.49	3,784,333.17	360.5	23.4	DIPOLE	Unknown Debris
144-39-MC	474,346.38	3,784,115.62	787.1	31.1	DIPOLE	Unknown Debris
144-40-MC	474,002.06	3,783,824.42	7825.5	34.6	COMPLEX	Crab trap
144-41-MC	473,995.66	3,783,743.67	7545.6	77.4	COMPLEX	Crab trap
144-42-MC	473,928.93	3,783,538.06	8041.1	111.3	COMPLEX	Crab trap
144-43-MC	473,656.87	3,783,329.23	3654.2	23.1	COMPLEX	Unknown Debris
144-44-MC	472,960.23	3,783,276.00	316.1	26.3	MONOPOLE	Unknown Debris
144-45-MC	472,911.08	3,783,117.74	8489.2	239.8	COMPLEX	Crab trap

144-46-MC	472,838.62	3,782,865.62	6757.1	164.9	MONOPOLE	Crab trap
144-47-MC	472,650.16	3,782,644.86	175.8	41.6	COMPLEX	Unknown Debris
144-48-MC	472,607.83	3,782,603.56	328.4	29.2	COMPLEX	Unknown Debris
144-49-MC	472,493.13	3,782,509.60	7984.9	20.7	COMPLEX	Unknown Debris
144-50-MC	472,522.08	3,782,369.83	9385.6	157.1	COMPLEX	Unknown Debris
144-51-MC	472,502.86	3,782,069.21	5422.7	26	COMPLEX	Crab trap
144-52-MC	471,048.26	3,780,638.49	8386.5	58.5	COMPLEX	Unknown Debris
144-53-MC	470,992.76	3,780,494.82	8268.9	11.1	MONOPOLE	Unknown Debris
144-54-MC	470,859.65	3,780,327.93	8367.4	16.7	COMPLEX	Crab trap
144-55-MC	470,850.44	3,780,250.92	9067.9	98.9	COMPLEX	Unknown Debris
144-56-MC	470,626.87	3,779,875.50	215.3	15.9	COMPLEX	Unknown Debris
144-57-MC	470,664.50	3,779,609.37	4267.9	11.5	COMPLEX	Unknown Debris
144-58-MC	470,692.43	3,779,437.67	5309	13.7	COMPLEX	Unknown Debris
144-59-MC	470,716.91	3,779,284.14	7437.9	19.9	COMPLEX	Unknown Debris
144-60-MC	475,818.76	3,778,486.65	2887.3	22.1	DIPOLE	Old duck blinds
144-61-MC	478,532.12	3,779,579.51	145.7	27.9	MONOPOLE	Unknown Debris
144-62-MC	477,159.27	3,782,101.10	83.9	37.7	COMPLEX	Unknown Debris
144-63-MC	477,060.12	3,782,289.19	281.1	21.1	MONOPOLE	Unknown Debris
144-64-MC	476,735.75	3,783,019.40	76.6	34.6	MONOPOLE	Unknown Debris
145-65-MC	476,971.19	3,783,702.64	108.5	19.6	MONOPOLE	Unknown Debris
145-66-MC	477,974.30	3,784,635.20	1404.4	36.9	DIPOLE	Unknown Debris
145-67-MC	478,048.20	3,784,711.37	641.6	40.7	DIPOLE	Unknown Debris
145-68-MC	479,085.50	3,784,291.53	100.7	13.5	DIPOLE	Unknown Debris
145-69-MC	479,071.73	3,782,927.53	6660.3	15.8	DIPOLE	Crab trap
145-70-MC	479,420.09	3,783,255.71	480.4	18.6	DIPOLE	Unknown Debris
145-71-MC	479,494.10	3,783,327.76	736.7	17.7	DIPOLE	Unknown Debris
145-72-MC	479,604.73	3,783,437.70	54	18.1	DIPOLE	Unknown Debris
145-73-MC	480,507.00	3,782,902.59	169.3	85.4	COMPLEX	Unknown Debris
145-74-MC	480,301.58	3,782,708.14	272.9	46.2	DIPOLE	Crab trap
145-75-MC	479,431.08	3,781,892.75	54.8	27.1	MONOPOLE	Sign
145-76-MC	481,026.76	3,782,017.81	130.8	98.2	COMPLEX	Unknown Debris
145-77-MC	481,664.71	3,781,248.58	59.1	21.8	DIPOLE	Unknown Debris
145-78-MC	481,204.91	3,780,813.74	350	47.4	DIPOLE	Unknown Debris
146-79-MC	477,928.48	3,781,007.86	81.4	1.9	COMPLEX	Unknown Debris
146-80-MC	477,931.44	3,780,990.89	4498.3	3.6	MONOPOLE	Unknown Debris
146-81-MC	478,244.87	3,780,999.23	315.3	68.7	DIPOLE	Unknown Debris
146-82-MC	476,997.63	3,782,726.08	3920.8	25.6	COMPLEX	Crab trap
146-83-MC	479,463.69	3,780,429.54	7723.7	46.2	COMPLEX	Crab trap
146-84-MC	477,084.81	3,782,966.77	85.5	10.5	MONOPOLE	Unknown Debris
146-85-MC	476,807.91	3,783,627.76	61.7	33.6	MONOPOLE	Old duck blinds/logs
146-86-MC	478,102.77	3,782,246.67	1435.1	38.7	COMPLEX	Unknown Debris
146-87-MC	479,800.45	3,780,445.33	54.4	44	MONOPOLE	Unknown Debris
147-88-MC	479,871.12	3,780,721.76	959	7.7	DIPOLE	Unknown Debris
147-89-MC	476,547.97	3,784,274.83	267.4	30.4	MONOPOLE	Unknown Debris
147-90-MC	476,904.14	3,783,882.75	2023.1	30	MONOPOLE	Unknown Debris
147-91-MC	479,324.68	3,781,671.10	994.4	55.2	DIPOLE	Unknown Debris
147-92-MC	478,956.46	3,782,068.36	375	18.5	MONOPOLE	Unknown Debris
147-93-MC	477,190.31	3,783,951.19	1991	39.3	DIPOLE	Unknown Debris

147-94-MC	476,864.57	3,784,665.18	3220.2	36.8	COMPLEX	Unknown Debris
147-95-MC	477,172.17	3,784,325.91	269.1	38.3	DIPOLE	Unknown Debris
147-96-MC	478,343.25	3,783,091.65	166.1	27.5	MONOPOLE	Unknown Debris
147-97-MC	479,470.28	3,781,883.56	432.4	30.2	DIPOLE	Unknown Debris
147-98-MC	480,931.65	3,780,692.64	73	15.7	DIPOLE	Sunken timber
147-99-MC	479,913.11	3,781,775.14	793.6	56.5	MONOPOLE	Crab trap
147-100-MC	479,077.30	3,782,666.79	382.3	57.6	MONOPOLE	Unknown Debris
147-101-MC	478,934.87	3,782,814.80	54.1	45.9	DIPOLE	Unknown Debris
147-102-MC	477,844.43	3,784,347.87	160.3	85.4	MONOPOLE	Unknown Debris
147-103-MC	476,916.52	3,785,337.62	52.9	31.2	MONOPOLE	Unknown Debris
147-104-MC	478,468.27	3,783,694.22	92.1	16	MONOPOLE	Unknown Debris
147-105-MC	478,492.17	3,783,668.33	79.2	14.9	DIPOLE	Unknown Debris
147-106-MC	479,332.08	3,782,758.65	59.9	53.4	MONOPOLE	Unknown Debris
147-107-MC	480,747.52	3,781,263.30	363.8	24.6	MONOPOLE	Unknown Debris
147-108-MC	481,525.05	3,780,796.04	217.1	125.7	COMPLEX	Unknown Debris
147-109-MC	480,930.71	3,781,418.93	156.2	49.6	MONOPOLE	Underwater metal object
147-110-MC	479,354.83	3,783,100.89	65.6	46.2	MONOPOLE	Unknown Debris
147-111-MC	479,238.64	3,783,230.02	189.6	51.6	DIPOLE	Unknown Debris
147-112-MC	478,969.28	3,783,881.98	178.2	24.9	MONOPOLE	Unknown Debris
147-113-MC	479,094.65	3,783,750.20	189.3	24.7	MONOPOLE	Unknown Debris
147-114-MC	479,128.96	3,783,714.70	243	33	DIPOLE	Unknown Debris
147-115-MC	479,220.69	3,783,611.06	474.4	80.6	COMPLEX	Unknown Debris
147-116-MC	479,396.74	3,783,434.14	226.4	23.9	MONOPOLE	Unknown Debris
147-117-MC	479,442.68	3,783,389.32	1119.5	24.3	DIPOLE	Unknown Debris
147-118-MC	479,749.11	3,783,057.69	141.5	23.3	MONOPOLE	Crab trap
147-119-MC	480,707.99	3,782,026.76	173.9	15.4	DIPOLE	Unknown Debris
147-120-MC	480,942.41	3,781,852.75	7570.9	29	COMPLEX	Unknown Debris
147-121-MC	481,854.92	3,780,804.39	67.4	13.2	MONOPOLE	Unknown Debris
147-122-MC	482,449.23	3,780,522.84	77.9	20.8	DIPOLE	Unknown Debris
147-123-MC	482,326.62	3,780,668.92	742	20	DIPOLE	Unknown Debris
147-124-MC	482,194.87	3,780,806.32	99.2	12.8	DIPOLE	Sign pole
147-125-MC	482,141.89	3,780,875.43	2048.6	18.3	DIPOLE	Crab trap
147-126-MC	481,640.38	3,781,392.98	1427.8	21.2	COMPLEX	Crab trap
147-127-MC	481,555.42	3,781,478.48	101.1	21.4	MONOPOLE	Crab trap
147-128-MC	481,409.50	3,781,637.26	1747.2	21.7	COMPLEX	Crab trap
147-129-MC	481,350.42	3,781,702.12	3000.2	29.5	DIPOLE	Crab trap
147-130-MC	481,240.67	3,781,821.09	82.4	29.5	DIPOLE	Crab trap
147-131-MC	481,073.05	3,781,993.09	101	29.9	MONOPOLE	Crab trap
147-132-MC	481,011.89	3,782,058.14	1030	22.4	DIPOLE	Unknown Debris
147-133-MC	479,436.60	3,783,745.16	51.6	12.3	DIPOLE	Unknown Debris
147-134-MC	479,418.83	3,783,762.64	825.9	18.8	COMPLEX	Unknown Debris
147-135-MC	479,128.08	3,784,069.14	137.6	5.8	MONOPOLE	Unknown Debris
148-136-MC	482,373.51	3,780,833.49	306.9	20	MONOPOLE	Crab trap
148-137-MC	482,264.54	3,780,952.91	100.8	22.1	MONOPOLE	Crab trap
148-138-MC	482,230.41	3,780,992.34	473.8	22.8	DIPOLE	Unknown Debris
148-139-MC	482,197.36	3,781,023.09	93.2	22.7	MONOPOLE	Unknown Debris
148-140-MC	482,155.00	3,781,066.69	469.4	15	DIPOLE	Crab trap
148-141-MC	481,884.80	3,781,357.19	2084.6	22	MONOPOLE	Crab trap

148-142-MC	480,757.03	3,782,561.41	64.8	43.7	COMPLEX	Unknown Debris
148-143-MC	480,182.07	3,783,172.77	111	45.1	COMPLEX	Unknown Debris
148-144-MC	480,027.60	3,783,323.38	1173.6	502.6	COMPLEX	Crab trap
148-145-MC	479,288.66	3,784,099.28	288.9	62.9	DIPOLE	Unknown Debris
148-146-MC	478,324.43	3,784,450.64	81.3	37.3	DIPOLE	Unknown Debris
148-147-MC	478,275.22	3,784,475.68	259.1	9.1	DIPOLE	Unknown Debris
148-148-MC	478,154.86	3,784,503.60	143.1	34.5	COMPLEX	Unknown Debris
148-149-MC	478,084.06	3,784,544.84	99.9	24.6	MONOPOLE	Unknown Debris
148-150-MC	477,662.26	3,784,966.69	227.8	159.9	COMPLEX	Unknown Debris
148-151-MC	477,365.78	3,785,274.28	568	51.2	DIPOLE	Unknown Debris
148-152-MC	477,258.96	3,785,372.60	257.5	68.2	COMPLEX	Unknown Debris
152-153-MC	478,130.03	3,779,013.58	953.6	12.3	DIPOLE	Old duck blinds
152-154-MC	477,491.83	3,778,523.05	1727.7	23	DIPOLE	Crab trap
152-155-MC	478,370.93	3,779,816.13	476.1	22	DIPOLE	Unknown Debris
152-156-MC	477,408.91	3,780,971.62	67.6	102.8	COMPLEX	Unknown Debris

North Delacroix Marsh Creation and Terracing Project

Borrow Site Magnetometer Anomalies Tabulation

RTK Point	Northing	Easting	Gamma	Duration	Type	Description
1-BA	475,716.15	3,764,265.36	245.2	94.6	COMPLEX	Unknown Debris
2-BA	475,810.55	3,764,138.59	161.3	73.3	COMPLEX	Unknown Debris
3-BA	476,238.13	3,763,497.81	152.3	49.5	DIPOLE	Unknown Debris
4-BA	477,056.01	3,762,247.56	128.3	70.6	DIPOLE	Unknown Debris
5-BA	477,272.10	3,761,926.07	384.6	54.5	DIPOLE	Unknown Debris
6-BA	477,823.46	3,761,080.94	172.9	44.2	MONOPOLE	Unknown Debris
7-BA	478,067.57	3,760,686.53	94.3	32.6	MONOPOLE	Unknown Debris
8-BA	478,229.89	3,760,449.12	232.5	92.3	DIPOLE	Unknown Debris
9-BA	478,449.05	3,759,865.17	216.8	99.4	DIPOLE	Unknown Debris
10-BA	477,558.71	3,761,285.96	67	68.5	DIPOLE	Unknown Debris
11-BA	477,499.30	3,761,415.02	103.1	96.3	MONOPOLE	Unknown Debris
12-BA	477,413.58	3,761,475.90	125.3	51.3	DIPOLE	Unknown Debris
13-BA	477,302.24	3,761,612.90	283.5	95.5	DIPOLE	Unknown Debris
14-BA	477,252.59	3,761,855.46	68.1	65.9	DIPOLE	Unknown Debris
15-BA	476,284.22	3,763,239.43	63.8	65.2	MONOPOLE	Unknown Debris
16-BA	475,753.70	3,764,033.73	61.2	83.5	DIPOLE	Unknown Debris
17-BA	476,450.06	3,762,794.24	442.8	62.8	DIPOLE	Unknown Debris
18-BA	476,525.60	3,762,672.53	163.2	40.5	MONOPOLE	Unknown Debris
19-BA	476,782.56	3,762,299.23	324.9	45.2	DIPOLE	Unknown Debris
20-BA	477,456.27	3,761,262.61	617.9	92	MONOPOLE	Unknown Debris
21-BA	478,554.34	3,759,613.44	5032.4	254.6	DIPOLE	Unknown Debris
22-BA	478,578.28	3,759,330.94	734.5	277.2	MONOPOLE	Pipeline
23-BA	478,375.66	3,759,695.49	231.9	223	COMPLEX	Wellhead
24-BA	478,110.45	3,760,076.84	80	65.3	MONOPOLE	Unknown Debris
25-BA	477,672.65	3,760,704.78	187.2	152.7	COMPLEX	Unknown Debris
26-BA	477,559.02	3,760,918.71	198.4	83.8	DIPOLE	Unknown Debris
27-BA	477,519.21	3,760,986.44	181.4	67.1	DIPOLE	Unknown Debris
28-BA	477,430.96	3,761,119.34	180	104.5	COMPLEX	Unknown Debris
29-BA	477,321.38	3,761,277.38	211.7	102.1	COMPLEX	Unknown Debris
30-BA	477,264.25	3,761,426.16	159.2	97.9	DIPOLE	Unknown Debris
31-BA	477,064.01	3,761,675.19	22.3	67	DIPOLE	SSS 003
32-BA	476,991.80	3,761,793.88	350.8	155.6	COMPLEX	SSS 0032/Avoidance 100ft
33-BA	476,845.94	3,762,027.98	181.2	89.4	DIPOLE	Unknown Debris
34-BA	476,424.34	3,762,666.53	227.2	93.3	DIPOLE	Unknown Debris
35-BA	476,285.74	3,762,862.18	159.3	118.1	DIPOLE	Unknown Debris
36-BA	475,869.18	3,763,527.04	355.8	88.3	DIPOLE	Unknown Debris
37-BA	475,610.61	3,763,850.96	229	77.7	DIPOLE	Unknown Debris
38-BA	475,546.84	3,763,951.56	136.9	96.8	DIPOLE	Unknown Debris
39-BA	475,480.76	3,764,117.87	116.3	159.6	COMPLEX	Unknown Debris
40-BA	475,513.80	3,763,854.44	267.7	104.7	DIPOLE	Unknown Debris
41-BA	475,598.87	3,763,742.50	195.3	77	DIPOLE	Unknown Debris
42-BA	475,828.02	3,763,380.27	143.9	77.6	DIPOLE	Unknown Debris
43-BA	475,886.37	3,763,312.20	96.2	107.6	COMPLEX	Unknown Debris
44-BA	476,070.46	3,763,036.51	116.7	48.4	DIPOLE	Unknown Debris

45-BA	476,625.99	3,762,176.95	82.8	100.4	DIPOLE	Unknown Debris
46-BA	477,090.66	3,761,472.96	78.2	53.3	MONOPOLE	Unknown Debris
47-BA	477,171.86	3,761,350.37	79.2	46.7	DIPOLE	Unknown Debris
48-BA	477,171.86	3,761,350.37	279.7	101.2	DIPOLE	Unknown Debris
49-BA	477,171.86	3,761,350.37	112.5	140.4	DIPOLE	Unknown Debris
50-BA	477,171.86	3,761,350.37	187.3	104.5	DIPOLE	Unknown Debris
51-BA	477,171.86	3,761,350.37	153.7	240.1	COMPLEX	Unknown Debris
52-BA	477,171.86	3,761,350.37	92.9	70.5	MONOPOLE	Unknown Debris
53-BA	478,285.88	3,759,651.62	964.8	374.1	COMPLEX	Wellhead
54-BA	477,633.04	3,760,643.09	299.3	154.2	DIPOLE	Unknown Debris
55-BA	477,525.25	3,760,791.92	283.6	202.3	COMPLEX	Unknown Debris
56-BA	477,371.44	3,761,054.66	92.3	75	DIPOLE	Unknown Debris
57-BA	476,958.73	3,761,640.23	106.1	34.3	DIPOLE	Unknown Debris
58-BA	476,859.33	3,761,821.66	207.3	40.4	DIPOLE	Unknown Debris
59-BA	476,622.10	3,762,190.24	190.5	186.3	COMPLEX	Unknown Debris
60-BA	476,142.54	3,762,872.75	108.1	62.7	DIPOLE	Unknown Debris
61-BA	475,871.47	3,763,322.15	153.2	83.3	COMPLEX	Unknown Debris
62-BA	475,585.25	3,763,749.40	192.3	45.3	COMPLEX	Unknown Debris
63-BA	475,205.35	3,764,287.85	166.1	40.6	DIPOLE	Unknown Debris
64-BA	476,256.70	3,762,565.47	369.4	53.9	DIPOLE	Unknown Debris
65-BA	476,324.34	3,762,444.42	86.6	40.6	MONOPOLE	Unknown Debris
66-BA	476,917.06	3,761,562.44	156.1	69.9	COMPLEX	Unknown Debris
67-BA	477,142.82	3,761,202.82	347.9	81.6	DIPOLE	Unknown Debris
68-BA	477,242.05	3,761,063.42	92.4	65	MONOPOLE	Unknown Debris
69-BA	477,614.81	3,760,529.27	67.5	34.6	DIPOLE	Unknown Debris
70-BA	478,377.85	3,759,114.30	509.5	161.2	DIPOLE	Pipeline
71-BA	477,889.42	3,759,833.34	377.6	144	MONOPOLE	SSS 0056
72-BA	477,541.07	3,760,423.94	201.8	188.9	COMPLEX	Unknown Debris
73-BA	477,402.44	3,760,626.08	454.6	201.5	COMPLEX	Unknown Debris
74-BA	477,133.20	3,761,013.50	189.1	131.3	DIPOLE	Unknown Debris
75-BA	476,870.30	3,761,434.55	340.8	126.1	DIPOLE	Unknown Debris
76-BA	476,749.17	3,761,624.05	111.7	51.8	MONOPOLE	Unknown Debris
77-BA	476,673.35	3,761,729.20	173.8	108.4	COMPLEX	Unknown Debris
78-BA	476,587.06	3,761,664.23	191.2	147.4	COMPLEX	Unknown Debris
79-BA	477,125.16	3,760,940.61	56.4	58.6	DIPOLE	Unknown Debris
80-BA	477,172.89	3,760,818.00	80.8	51	DIPOLE	Unknown Debris
81-BA	477,765.50	3,759,868.97	200.4	78.5	DIPOLE	Unknown Debris
82-BA	477,900.46	3,759,661.35	75.6	36.4	MONOPOLE	Unknown Debris
83-BA	478,008.41	3,759,338.21	846.4	94.3	DIPOLE	SSS 0059, SSS 0060
84-BA	477,321.49	3,760,371.73	96.3	71.6	MONOPOLE	Unknown Debris
85-BA	476,786.15	3,761,208.83	75.7	39.2	MONOPOLE	Unknown Debris
86-BA	476,614.05	3,761,467.80	73.2	58.3	DIPOLE	Unknown Debris
87-BA	477,711.96	3,759,628.65	154.8	149.6	DIPOLE	Unknown Debris
88-BA	477,853.60	3,759,233.73	117.6	90.5	DIPOLE	Unknown Debris
89-BA	476,590.61	3,761,124.47	551.7	90.6	DIPOLE	Unknown Debris
90-BA	477,284.43	3,759,891.20	184.9	96.9	COMPLEX	SSS 0037
91-BA	477,975.35	3,758,847.56	99.3	139.1	COMPLEX	Unknown Debris

92-BA	477,981.24	3,758,633.35	617.7	187.4	DIPOLE	Pipeline
93-BA	476,922.23	3,760,071.15	260.3	59.7	MONOPOLE	Unknown Debris
94-BA	476,972.46	3,759,979.72	69	45.7	MONOPOLE	Unknown Debris
95-BA	477,677.99	3,758,910.37	426.8	53	MONOPOLE	Unknown Debris
96-BA	477,753.92	3,758,759.38	159.3	37.8	DIPOLE	Unknown Debris
97-BA	477,852.71	3,758,479.81	399.6	135.3	DIPOLE	Pipeline
98-BA	477,714.09	3,758,692.57	135.9	73.3	MONOPOLE	Unknown Debris
99-BA	476,784.10	3,759,906.04	92.1	36.5	DIPOLE	Unknown Debris
100-BA	476,890.18	3,759,771.84	110.5	40.4	DIPOLE	Unknown Debris
101-BA	477,301.78	3,758,968.45	296.4	113.7	MONOPOLE	Unknown Debris
102-BA	476,958.97	3,759,485.06	180.7	74.3	DIPOLE	Unknown Debris
103-BA	477,002.02	3,759,215.76	85.3	24.5	MONOPOLE	Unknown Debris
104-BA	477,043.25	3,759,168.81	159.1	31.2	DIPOLE	Unknown Debris
105-BA	477,576.72	3,758,193.94	784.2	87.8	DIPOLE	Pipeline
106-BA	477,279.01	3,758,669.03	149.2	40	MONOPOLE	Unknown Debris
107-BA	477,224.55	3,758,742.69	206	45.7	DIPOLE	Unknown Debris
108-BA	477,026.81	3,758,998.84	61	47.9	DIPOLE	Unknown Debris
109-BA	476,812.80	3,759,096.84	151.8	66.3	COMPLEX	Unknown Debris
110-BA	477,516.09	3,758,089.02	350.3	129.2	MONOPOLE	Pipeline
111-BA	477,417.10	3,758,016.93	2251.3	106.9	MONOPOLE	Pipeline
112-BA	477,314.87	3,757,870.21	811.8	116	DIPOLE	Pipeline
113-BA	476,898.93	3,758,270.85	132.8	49.3	MONOPOLE	Unknown Debris
114-BA	476,612.46	3,758,713.36	145.8	72.7	DIPOLE	Unknown Debris
115-BA	477,153.95	3,757,714.37	540.4	204	MONOPOLE	Pipeline
116-BA	477,097.24	3,757,628.90	1921	111.6	MONOPOLE	Pipeline
117-BA	477,021.48	3,757,542.31	392.2	86.4	DIPOLE	Pipeline
118-BA	476,785.94	3,757,950.67	150.3	62.3	DIPOLE	Unknown Debris
119-BA	476,778.23	3,757,752.98	198.1	57	DIPOLE	Unknown Debris
120-BA	476,754.03	3,757,797.02	134.4	48.8	DIPOLE	Unknown Debris
121-BA	476,956.05	3,757,471.37	395.2	138.6	COMPLEX	Pipeline
122-BA	476,870.07	3,757,370.13	404	178.4	DIPOLE	Pipeline
123-BA	476,757.17	3,757,407.02	190.3	57.2	MONOPOLE	Unknown Debris
124-BA	476,841.58	3,757,310.59	313.2	120.3	DIPOLE	Pipeline
125-BA	476,524.90	3,756,605.25	756.6	124.3	COMPLEX	SSS 0097, Pipeline
126-BA	477,459.68	3,757,744.36	147.5	35.1	DIPOLE	Unknown Debris
127-BA	477,876.53	3,758,236.29	5509.9	225.3	MONOPOLE	Wellhead
128-BA	478,627.88	3,759,112.49	686	108.4	DIPOLE	Unknown Debris
129-BA	478,737.07	3,759,243.29	174.9	66.4	MONOPOLE	Unknown Debris
130-BA	479,684.15	3,760,383.87	83.6	61.9	MONOPOLE	Unknown Debris
131-BA	480,106.02	3,760,874.56	73	33.3	DIPOLE	SSS 0080
132-BA	479,952.62	3,760,584.55	141.9	50.9	MONOPOLE	Unknown Debris
133-BA	479,846.00	3,760,339.13	183.1	222.9	DIPOLE	Unknown Debris
134-BA	478,089.89	3,758,314.86	176.5	163.4	MONOPOLE	Unknown Debris
135-BA	477,336.77	3,757,288.33	121.8	238.9	COMPLEX	SSS 0121
136-BA	477,769.39	3,757,789.45	70.6	121.1	DIPOLE	SSS 0114
137-BA	477,860.66	3,757,912.31	85	90.6	DIPOLE	Unknown Debris
138-BA	479,271.48	3,759,561.54	118.8	179.6	DIPOLE	Unknown Debris

139-BA	479,510.70	3,759,895.62	71.4	88	MONOPOLE	SSS 0103
140-BA	479,836.93	3,760,093.05	342	76.1	DIPOLE	Unknown Debris
141-BA	479,340.74	3,759,489.20	72.7	30	DIPOLE	Unknown Debris
142-BA	478,118.81	3,758,054.85	73.6	41.6	MONOPOLE	Unknown Debris
143-BA	477,342.21	3,757,154.59	109.3	89.7	MONOPOLE	Unknown Debris
144-BA	476,735.77	3,756,417.42	4134.8	199.2	COMPLEX	SSS 0123, Pipeline
145-BA	477,260.84	3,756,883.21	140.4	111.5	DIPOLE	SSS 0124
146-BA	477,329.90	3,756,974.28	71.4	60.1	MONOPOLE	Unknown Debris
147-BA	479,286.09	3,759,280.48	157.3	94	DIPOLE	Unknown Debris
148-BA	479,561.15	3,759,590.14	120	130.7	DIPOLE	Unknown Debris
149-BA	480,288.88	3,760,468.71	131.7	98.7	DIPOLE	Unknown Debris
150-BA	480,334.33	3,760,359.72	165.6	52.9	DIPOLE	Unknown Debris
151-BA	480,303.23	3,760,295.42	505	63.7	DIPOLE	Unknown Debris
152-BA	478,251.65	3,757,900.19	156.6	64.7	DIPOLE	Unknown Debris
153-BA	477,369.99	3,756,849.51	129.5	70.6	DIPOLE	Unknown Debris
154-BA	477,326.20	3,756,785.79	144.4	54.2	DIPOLE	Unknown Debris
155-BA	477,128.72	3,756,419.26	152.2	43.2	DIPOLE	Unknown Debris
156-BA	477,820.36	3,757,223.14	133.4	68.2	DIPOLE	Unknown Debris
157-BA	479,016.30	3,758,638.05	130.1	46.6	MONOPOLE	Unknown Debris
158-BA	479,764.37	3,759,540.52	54.4	63.8	MONOPOLE	Unknown Debris
159-BA	480,013.03	3,759,827.63	59.9	42.8	MONOPOLE	SSS 0140
160-BA	479,950.95	3,759,618.03	391.2	69.6	DIPOLE	Unknown Debris
161-BA	479,855.38	3,759,490.38	65.6	47.5	DIPOLE	Unknown Debris
162-BA	479,467.47	3,759,029.02	108.7	59.7	MONOPOLE	Unknown Debris
163-BA	479,309.35	3,758,865.97	68.6	41.9	DIPOLE	Unknown Debris
164-BA	478,090.90	3,757,402.57	69.1	48.4	DIPOLE	Unknown Debris
165-BA	477,984.28	3,757,270.81	197.4	113.8	COMPLEX	Unknown Debris
166-BA	477,516.23	3,756,527.36	644.5	86.8	DIPOLE	Unknown Debris
167-BA	478,860.45	3,758,139.87	153.2	52.6	DIPOLE	Unknown Debris
168-BA	479,333.85	3,758,697.58	62.1	42.4	MONOPOLE	Unknown Debris
169-BA	479,249.97	3,758,463.51	379.4	60.4	DIPOLE	SSS 0143
170-BA	479,163.76	3,758,354.69	135.8	72.9	MONOPOLE	Unknown Debris
171-BA	477,203.04	3,756,035.88	1722.4	187.9	COMPLEX	Pipeline
172-BA	477,824.48	3,756,601.08	149.6	60.2	MONOPOLE	Unknown Debris
173-BA	478,297.78	3,757,160.53	110.4	93.2	MONOPOLE	Unknown Debris
174-BA	479,055.69	3,758,078.92	164.7	50.8	MONOPOLE	Unknown Debris
175-BA	479,108.78	3,758,142.68	381.4	64.1	DIPOLE	Unknown Debris
176-BA	479,190.91	3,758,241.69	101.9	70.6	DIPOLE	Unknown Debris
177-BA	479,329.01	3,758,387.77	234.5	79.4	DIPOLE	Unknown Debris
178-BA	479,621.61	3,758,738.59	309.2	91	DIPOLE	Unknown Debris
179-BA	480,264.72	3,759,502.03	228.9	61.2	DIPOLE	Unknown Debris
180-BA	480,034.33	3,759,081.66	145.9	90.5	DIPOLE	Unknown Debris
181-BA	479,705.80	3,758,689.78	64.9	91	DIPOLE	Unknown Debris
182-BA	478,695.51	3,757,494.36	270.9	112	COMPLEX	Unknown Debris
183-BA	477,999.80	3,756,678.52	134	110.9	COMPLEX	Unknown Debris
184-BA	477,687.74	3,756,244.20	63.7	53.9	DIPOLE	Unknown Debris
185-BA	477,444.67	3,755,830.19	473.8	335.5	COMPLEX	Pipeline

186-BA	478,042.32	3,756,561.14	219.4	94.9	DIPOLE	Unknown Debris
187-BA	480,231.70	3,759,014.15	318.1	86.7	DIPOLE	Unknown Debris
188-BA	480,078.92	3,758,836.08	374.6	177.7	COMPLEX	Unknown Debris
189-BA	479,543.35	3,758,184.50	202.9	62.1	MONOPOLE	Unknown Debris
190-BA	479,033.82	3,757,586.71	59.1	61.7	DIPOLE	Unknown Debris
191-BA	478,419.56	3,756,876.92	72.9	57.1	MONOPOLE	Unknown Debris
192-BA	478,148.02	3,756,346.91	548.5	126.8	DIPOLE	Unknown Debris
193-BA	478,439.49	3,756,705.76	216.7	54.6	MONOPOLE	Unknown Debris
194-BA	478,962.27	3,757,368.71	196.2	60.9	DIPOLE	Unknown Debris
195-BA	479,028.89	3,757,439.39	136.1	59.4	DIPOLE	Unknown Debris
196-BA	479,975.62	3,758,535.13	647.6	97.3	DIPOLE	Unknown Debris
197-BA	480,439.50	3,759,097.17	135.7	55.8	DIPOLE	Unknown Debris
198-BA	479,802.74	3,758,179.78	64.9	48.8	DIPOLE	SSS 0160
199-BA	479,629.59	3,757,985.68	121.1	29.6	MONOPOLE	Unknown Debris
200-BA	478,907.09	3,757,105.88	108.2	43.6	MONOPOLE	Unknown Debris
201-BA	478,101.27	3,756,161.52	80	45	MONOPOLE	Unknown Debris
202-BA	477,656.15	3,755,659.84	1417.9	216.1	DIPOLE	Pipeline
203-BA	478,439.54	3,756,395.89	70.2	41.5	MONOPOLE	Unknown Debris
204-BA	478,843.69	3,756,896.56	230.8	53.6	MONOPOLE	Unknown Debris
205-BA	479,595.36	3,757,795.17	1762.3	127.5	COMPLEX	SSS 0173
206-BA	479,810.23	3,757,992.14	82.2	106.6	MONOPOLE	Unknown Debris
207-BA	479,972.17	3,758,096.75	61.6	59.9	MONOPOLE	Unknown Debris
208-BA	479,629.58	3,757,687.62	231.4	200.8	COMPLEX	Unknown Debris
209-BA	478,753.03	3,756,620.23	69.8	90.4	DIPOLE	Unknown Debris
210-BA	478,467.65	3,756,301.98	72.4	136.7	DIPOLE	Unknown Debris
211-BA	480,043.03	3,757,999.51	142.3	38.8	MONOPOLE	Unknown Debris
212-BA	479,954.96	3,757,887.29	398.5	55.7	DIPOLE	Unknown Debris
213-BA	479,698.60	3,757,606.09	55.6	49.1	MONOPOLE	Unknown Debris
214-BA	477,929.41	3,755,386.64	1635.6	191.5	MONOPOLE	Pipeline
215-BA	479,135.86	3,756,770.56	349.9	118.6	MONOPOLE	Unknown Debris
216-BA	479,786.01	3,757,541.98	56.7	263.8	COMPLEX	Unknown Debris
217-BA	479,714.48	3,757,294.91	185.5	64	MONOPOLE	Unknown Debris
218-BA	479,479.02	3,757,038.46	114.3	219.9	COMPLEX	Unknown Debris
219-BA	478,113.06	3,755,267.56	1630.1	102.4	COMPLEX	Unknown Debris
220-BA	478,277.69	3,755,463.86	310.9	24.6	MONOPOLE	Unknown Debris
221-BA	478,099.43	3,755,266.29	714.1	156.7	COMPLEX	Pipeline
222-BA	478,310.99	3,755,496.98	165.5	81.9	MONOPOLE	SSS 0200, SSS 0204
223-BA	478,500.12	3,755,730.37	89.7	120.4	DIPOLE	Unknown Debris
224-BA	478,873.40	3,756,149.53	76.4	20.3	MONOPOLE	Unknown Debris
225-BA	479,979.16	3,757,467.52	106	66	MONOPOLE	Unknown Debris
226-BA	478,565.05	3,755,621.56	99.9	103.2	DIPOLE	Unknown Debris
227-BA	478,472.97	3,755,356.43	72.4	85	DIPOLE	Unknown Debris
228-BA	479,692.11	3,756,820.37	110.1	40.2	MONOPOLE	Unknown Debris
229-BA	480,363.19	3,757,623.88	223.8	75.5	MONOPOLE	Unknown Debris
230-BA	480,235.04	3,757,356.92	226.8	70.5	MONOPOLE	Unknown Debris
231-BA	479,653.26	3,756,621.07	210.5	62	DIPOLE	Unknown Debris
232-BA	479,217.83	3,756,074.04	165.6	37.8	DIPOLE	Unknown Debris

233-BA	478,353.40	3,755,070.06	752.7	126.3	COMPLEX	Pipeline
234-BA	479,552.67	3,756,396.64	127.3	42.3	MONOPOLE	Unknown Debris
235-BA	479,650.95	3,756,469.39	1155.9	88.5	COMPLEX	Unknown Debris
236-BA	479,827.06	3,756,639.77	78.3	39.5	MONOPOLE	Unknown Debris
237-BA	479,984.52	3,756,866.59	128.9	35.7	MONOPOLE	Unknown Debris
238-BA	480,334.86	3,757,116.19	110	54.3	MONOPOLE	Unknown Debris
239-BA	479,505.53	3,756,038.17	263.3	26.3	MONOPOLE	Unknown Debris
240-BA	479,359.68	3,755,944.19	383.6	54.7	DIPOLE	SSS 0226
241-BA	479,308.85	3,755,895.50	50	63.9	COMPLEX	SSS 0225
242-BA	478,594.16	3,754,878.84	1735.5	133	DIPOLE	Unknown Debris
243-BA	480,036.20	3,756,593.04	72.6	43.3	MONOPOLE	Unknown Debris
244-BA	480,166.44	3,756,578.81	197.7	63.4	MONOPOLE	Unknown Debris
245-BA	479,911.33	3,756,294.80	52.5	42.6	MONOPOLE	Unknown Debris
246-BA	479,613.20	3,755,943.79	78.5	56.6	MONOPOLE	Unknown Debris
247-BA	479,107.91	3,755,369.84	57	62.6	MONOPOLE	SSS 0235
248-BA	478,961.73	3,754,994.59	65.4	11.3	MONOPOLE	Wellhead
249-BA	478,965.51	3,755,016.41	111	5.4	DIPOLE	Wellhead
250-BA	478,965.51	3,755,016.41	722	5.3	MONOPOLE	Wellhead
251-BA	478,970.87	3,755,048.17	269.5	5.5	DIPOLE	Unknown Debris
252-BA	479,174.31	3,755,264.08	114.2	261.1	MONOPOLE	Wellhead
253-BA	479,531.88	3,755,701.50	242.6	136.4	COMPLEX	Unknown Debris
254-BA	479,848.92	3,755,923.54	104.7	33.7	MONOPOLE	Unknown Debris
255-BA	479,430.84	3,755,434.24	99.9	40.5	MONOPOLE	Unknown Debris
256-BA	479,206.21	3,755,169.02	922.8	175.5	MONOPOLE	Wellhead
257-BA	478,786.79	3,754,651.08	1923.5	163.6	DIPOLE	Pipeline
258-BA	479,171.16	3,754,973.75	493.7	56.2	DIPOLE	Unknown Debris
259-BA	479,948.17	3,755,883.48	55	46.4	MONOPOLE	Unknown Debris
260-BA	479,947.24	3,755,732.10	80.9	62.9	DIPOLE	Unknown Debris
261-BA	479,762.84	3,755,514.04	68.9	42	MONOPOLE	Unknown Debris
262-BA	479,031.45	3,754,474.15	1784.2	135	DIPOLE	Pipeline
263-BA	479,385.55	3,754,916.09	73.8	33.1	MONOPOLE	Unknown Debris
264-BA	479,703.16	3,755,281.32	174.8	33	MONOPOLE	Unknown Debris
265-BA	479,593.80	3,755,005.89	153.3	65.9	DIPOLE	Unknown Debris
266-BA	479,433.35	3,754,637.05	83.5	46.6	DIPOLE	Unknown Debris
267-BA	479,250.78	3,754,281.02	890.3	126.5	MONOPOLE	Pipeline
268-BA	478,813.03	3,759,566.57	1360.1	92.7	MONOPOLE	Pipeline
269-BA	478,683.64	3,759,483.50	849.2	443.1	MONOPOLE	Pipeline
270-BA	476,728.79	3,762,539.85	163.5	104.7	MONOPOLE	Unknown Debris
271-BA	476,694.99	3,762,255.15	172.6	108.3	COMPLEX	Unknown Debris
272-BA	475,747.11	3,763,705.32	136.1	94.3	COMPLEX	Unknown Debris
273-BA	475,360.99	3,764,109.26	74.7	98.8	COMPLEX	Unknown Debris
274-BA	478,578.46	3,759,306.99	210.2	171	MONOPOLE	Pipeline
275-BA	478,465.54	3,759,168.07	552.4	181.4	MONOPOLE	Pipeline
276-BA	478,439.84	3,759,027.71	314.6	25.6	DIPOLE	Unknown Debris
277-BA	478,276.37	3,759,287.97	117.9	54.4	MONOPOLE	Unknown Debris
278-BA	477,796.59	3,760,029.59	176.9	55.1	MONOPOLE	Unknown Debris
279-BA	478,330.35	3,759,008.02	328.3	100.4	MONOPOLE	Pipeline

280-BA	476,405.52	3,761,942.25	55.2	35.9	MONOPOLE	Unknown Debris
281-BA	478,250.88	3,758,976.42	870.8	139.4	MONOPOLE	Pipeline
282-BA	477,485.21	3,759,907.86	83.1	105.6	COMPLEX	Unknown Debris
283-BA	478,216.57	3,758,861.02	338.2	113	DIPOLE	Unknown Debris
284-BA	478,107.67	3,758,808.77	390.3	216.3	DIPOLE	Pipeline
285-BA	477,648.03	3,759,515.07	53.7	71.8	MONOPOLE	Unknown Debris
286-BA	475,405.55	3,764,769.15	1379.8	203.5	COMPLEX	Unknown Debris
287-BA	478,673.30	3,759,402.47	1300.9	186.6	MONOPOLE	Unknown Debris
288-BA	476,159.11	3,763,051.24	93.2	137.8	COMPLEX	Unknown Debris
289-BA	478,050.77	3,758,700.87	217.4	108.2	MONOPOLE	SSS 0063
290-BA	476,710.01	3,760,548.21	122.3	49.1	MONOPOLE	Unknown Debris
291-BA	477,882.23	3,758,787.47	55	45.9	DIPOLE	Unknown Debris
292-BA	477,919.43	3,758,557.91	666.2	96.1	MONOPOLE	Pipeline
293-BA	477,776.71	3,758,420.95	1265.9	138.1	DIPOLE	Pipeline
294-BA	477,715.41	3,758,332.74	448	213.5	COMPLEX	Pipeline
295-BA	476,902.63	3,759,561.26	85.2	40.3	MONOPOLE	Unknown Debris
296-BA	477,650.78	3,758,246.19	1087.2	99.4	MONOPOLE	Pipeline
297-BA	477,391.76	3,758,610.32	174.6	37.9	MONOPOLE	Unknown Debris
298-BA	477,440.35	3,758,202.53	70.5	36.2	MONOPOLE	Unknown Debris
299-BA	477,263.29	3,758,488.78	31.9	74.6	MONOPOLE	Unknown Debris
300-BA	477,366.57	3,757,924.31	716.8	54.7	MONOPOLE	Pipeline
301-BA	477,178.35	3,758,045.74	176	40	MONOPOLE	Unknown Debris
302-BA	477,217.37	3,757,758.83	840.5	102.3	MONOPOLE	Pipeline
303-BA	476,964.08	3,757,631.44	63.4	31.8	MONOPOLE	Unknown Debris
304-BA	477,952.16	3,758,174.09	264.8	430.1	MONOPOLE	Wellhead
305-BA	476,803.46	3,756,709.78	94.4	79.4	MONOPOLE	Unknown Debris
306-BA	477,135.58	3,756,996.46	52.4	65.8	MONOPOLE	Unknown Debris
307-BA	478,077.75	3,758,152.80	54.9	67.8	MONOPOLE	Unknown Debris
308-BA	478,546.51	3,758,701.56	48.4	74.8	MONOPOLE	Unknown Debris
309-BA	479,878.49	3,760,287.06	45.2	132	MONOPOLE	Unknown Debris
310-BA	480,330.13	3,760,650.38	74.5	29.5	MONOPOLE	Unknown Debris
311-BA	478,664.17	3,758,527.82	50	23.4	MONOPOLE	Unknown Debris
312-BA	476,992.80	3,756,246.93	1077.1	165.8	COMPLEX	Pipeline
313-BA	480,424.90	3,759,856.94	144	71.6	MONOPOLE	Unknown Debris
314-BA	478,732.43	3,757,536.89	270.9	125.9	MONOPOLE	Unknown Debris
315-BA	479,852.13	3,758,399.67	54.7	36.1	MONOPOLE	SSS 0167
316-BA	478,034.02	3,755,789.74	58.6	47.4	MONOPOLE	Unknown Debris
317-BA	479,614.02	3,757,174.40	45.4	56.5	DIPOLE	Unknown Debris
318-BA	478,730.34	3,756,138.97	49.2	49.4	MONOPOLE	Unknown Debris
319-BA	477,961.98	3,755,143.98	170.3	16.9	MONOPOLE	Unknown Debris
320-BA	478,653.63	3,755,878.88	51	55.9	MONOPOLE	Unknown Debris
321-BA	478,820.49	3,756,080.04	77.2	100.8	MONOPOLE	Unknown Debris
322-BA	479,743.70	3,756,886.88	46.3	50.2	MONOPOLE	Unknown Debris

SECTION F

Marsh Elevation Survey
RTK Points Listing

135 Regency Square · Lafayette, LA 70508 · 337.237.2200 phone · 337.232.3299 fax
www.fenstermaker.com

North Delacroix Marsh Creation and Terracing Project

Marsh Elevation Surveys

Point No.	Northing	Easting	Elevation	Description
118-2000	477,363.81	3,778,869.87	0.70	Top of Root Mass
118-2003	477,364.06	3,778,899.27	1.00	Top of Root Mass
118-2004	477,363.76	3,778,929.71	0.60	Top of Root Mass
118-2007	477,363.98	3,778,958.21	0.75	Top of Root Mass
118-2008	477,364.36	3,778,989.04	0.68	Top of Root Mass
118-2011	477,394.02	3,778,988.90	0.60	Top of Root Mass
118-2012	477,394.20	3,778,959.01	0.63	Top of Root Mass
118-2014	477,393.99	3,778,929.12	0.76	Top of Root Mass
118-2016	477,394.50	3,778,899.18	0.89	Top of Root Mass
118-2019	477,393.70	3,778,869.07	0.45	Top of Root Mass
118-2021	477,423.70	3,778,868.77	0.64	Top of Root Mass
118-2022	477,423.95	3,778,899.37	0.83	Top of Root Mass
118-2024	477,424.25	3,778,928.66	0.87	Top of Root Mass
118-2027	477,424.35	3,778,959.45	0.66	Top of Root Mass
118-2028	477,424.31	3,778,989.54	0.84	Top of Root Mass
118-2030	477,454.53	3,778,990.47	0.89	Top of Root Mass
118-2033	477,453.53	3,778,959.11	0.83	Top of Root Mass
118-2034	477,454.60	3,778,929.46	0.40	Top of Root Mass
118-2036	477,454.55	3,778,898.85	0.71	Top of Root Mass
118-2038	477,454.55	3,778,868.43	0.72	Top of Root Mass
118-2041	472,283.13	3,781,245.98	1.11	Top of Root Mass
118-2043	472,254.29	3,781,244.96	0.47	Top of Root Mass
118-2045	472,225.86	3,781,245.97	0.84	Top of Root Mass
118-2046	472,194.81	3,781,246.28	1.08	Top of Root Mass
118-2049	472,163.42	3,781,246.14	1.04	Top of Root Mass
118-2050	472,164.06	3,781,215.51	1.20	Top of Root Mass
118-2053	472,194.44	3,781,215.51	1.22	Top of Root Mass
118-2054	472,224.26	3,781,215.48	1.30	Top of Root Mass
118-2057	472,256.29	3,781,215.44	0.82	Top of Root Mass
118-2058	472,286.21	3,781,214.21	1.31	Top of Root Mass
118-2061	472,282.93	3,781,187.14	1.27	Top of Root Mass
118-2062	472,254.65	3,781,186.24	1.31	Top of Root Mass
118-2065	472,223.85	3,781,185.80	0.94	Top of Root Mass
118-2066	472,193.50	3,781,185.76	1.16	Top of Root Mass
118-2069	472,164.81	3,781,186.06	0.92	Top of Root Mass
118-2070	472,163.64	3,781,157.12	1.07	Top of Root Mass
118-2073	472,191.24	3,781,156.23	1.07	Top of Root Mass
118-2074	472,222.50	3,781,156.80	1.18	Top of Root Mass
118-2077	472,253.41	3,781,156.20	1.39	Top of Root Mass
118-2078	472,282.13	3,781,154.06	1.28	Top of Root Mass
118-2081	472,283.82	3,781,125.56	1.56	Top of Root Mass
118-2082	472,253.52	3,781,125.23	1.44	Top of Root Mass
118-2085	472,225.13	3,781,127.21	1.21	Top of Root Mass
118-2086	472,196.30	3,781,124.99	1.25	Top of Root Mass

118-2089	472,166.54	3,781,125.29	1.39	Top of Root Mass
118-2091	470,253.16	3,780,324.31	0.77	Top of Root Mass
118-2092	470,252.49	3,780,355.34	0.93	Top of Root Mass
118-2095	470,251.15	3,780,383.32	0.85	Top of Root Mass
118-2097	470,249.48	3,780,414.88	1.03	Top of Root Mass
118-2099	470,252.70	3,780,446.09	0.99	Top of Root Mass
118-2101	470,221.84	3,780,444.96	0.79	Top of Root Mass
118-2103	470,222.27	3,780,413.74	0.91	Top of Root Mass
118-2104	470,221.73	3,780,386.37	1.10	Top of Root Mass
118-2107	470,222.72	3,780,354.31	0.99	Top of Root Mass
118-2108	470,222.31	3,780,323.37	1.05	Top of Root Mass
118-2111	470,191.00	3,780,322.70	1.24	Top of Root Mass
118-2112	470,191.72	3,780,354.04	1.22	Top of Root Mass
118-2115	470,193.87	3,780,384.62	1.00	Top of Root Mass
118-2116	470,191.89	3,780,414.36	1.18	Top of Root Mass
118-2119	470,192.77	3,780,444.57	0.80	Top of Root Mass
118-2120	470,161.82	3,780,444.78	0.91	Top of Root Mass
118-2123	470,133.01	3,780,445.50	0.79	Top of Root Mass
118-2124	470,131.90	3,780,414.38	0.95	Top of Root Mass
118-2127	470,162.60	3,780,414.83	1.12	Top of Root Mass
118-2128	470,162.31	3,780,384.47	0.74	Top of Root Mass
118-2131	470,133.07	3,780,384.44	0.97	Top of Root Mass
118-2132	470,131.82	3,780,355.36	0.78	Top of Root Mass
118-2135	470,163.39	3,780,354.32	0.71	Top of Root Mass
118-2136	470,162.82	3,780,324.24	0.78	Top of Root Mass
118-2139	470,132.94	3,780,323.56	0.89	Top of Root Mass
Average Elevation of Vegetation Root Mass			0.95	

Point No.	Northing	Easting	Elevation	Description
118-2001	477,363.66	3,778,869.69	0.42	NG-Mudline
118-2002	477,364.30	3,778,899.36	0.89	NG-Mudline
118-2005	477,363.30	3,778,929.56	-0.32	NG-Mudline
118-2006	477,364.09	3,778,958.68	0.57	NG-Mudline
118-2009	477,364.53	3,778,988.99	0.52	NG-Mudline
118-2010	477,394.30	3,778,988.63	-0.79	NG-Mudline
118-2013	477,394.28	3,778,958.59	0.36	NG-Mudline
118-2015	477,394.13	3,778,928.67	0.70	NG-Mudline
118-2017	477,394.47	3,778,899.61	-0.13	NG-Mudline
118-2018	477,393.93	3,778,869.15	-0.28	NG-Mudline
118-2020	477,423.66	3,778,869.01	-1.64	NG-Mudline
118-2023	477,424.22	3,778,899.29	-0.24	NG-Mudline
118-2025	477,424.21	3,778,929.21	-0.79	NG-Mudline
118-2026	477,424.44	3,778,959.19	-0.46	NG-Mudline
118-2029	477,424.66	3,778,989.59	-0.74	NG-Mudline
118-2031	477,454.76	3,778,990.04	-0.93	NG-Mudline
118-2032	477,454.14	3,778,958.87	-0.15	NG-Mudline
118-2035	477,454.83	3,778,929.50	0.01	NG-Mudline

118-2037	477,454.32	3,778,898.85	-0.65	NG-Mudline
118-2039	477,454.57	3,778,868.37	-0.40	NG-Mudline
118-2040	472,283.13	3,781,245.86	0.49	NG-Mudline
118-2042	472,254.34	3,781,245.00	-0.71	NG-Mudline
118-2044	472,225.76	3,781,245.92	0.49	NG-Mudline
118-2047	472,194.86	3,781,246.26	0.09	NG-Mudline
118-2048	472,163.40	3,781,246.16	0.24	NG-Mudline
118-2051	472,164.08	3,781,215.69	0.37	NG-Mudline
118-2052	472,194.48	3,781,215.32	0.68	NG-Mudline
118-2055	472,224.12	3,781,215.55	-0.14	NG-Mudline
118-2056	472,256.05	3,781,215.50	0.12	NG-Mudline
118-2059	472,285.87	3,781,214.43	0.39	NG-Mudline
118-2060	472,283.09	3,781,187.08	0.77	NG-Mudline
118-2063	472,254.71	3,781,186.07	-0.02	NG-Mudline
118-2064	472,223.44	3,781,185.45	0.33	NG-Mudline
118-2067	472,193.88	3,781,185.47	0.58	NG-Mudline
118-2068	472,165.09	3,781,185.91	0.35	NG-Mudline
118-2071	472,163.58	3,781,157.27	0.20	NG-Mudline
118-2072	472,191.44	3,781,156.46	0.34	NG-Mudline
118-2075	472,222.73	3,781,156.78	0.67	NG-Mudline
118-2076	472,253.76	3,781,156.19	0.66	NG-Mudline
118-2079	472,281.89	3,781,153.63	0.52	NG-Mudline
118-2080	472,284.17	3,781,125.70	0.95	NG-Mudline
118-2083	472,253.11	3,781,125.51	0.17	NG-Mudline
118-2084	472,225.11	3,781,127.14	0.54	NG-Mudline
118-2087	472,195.65	3,781,125.49	0.46	NG-Mudline
118-2088	472,166.44	3,781,125.02	0.53	NG-Mudline
118-2090	470,252.55	3,780,324.81	-0.42	NG-Mudline
118-2093	470,252.80	3,780,355.13	-0.32	NG-Mudline
118-2094	470,251.17	3,780,382.78	-0.11	NG-Mudline
118-2096	470,250.47	3,780,415.20	0.03	NG-Mudline
118-2098	470,252.89	3,780,445.65	0.42	NG-Mudline
118-2100	470,221.98	3,780,445.23	0.54	NG-Mudline
118-2102	470,222.83	3,780,414.49	-0.18	NG-Mudline
118-2105	470,221.92	3,780,386.14	0.96	NG-Mudline
118-2106	470,222.95	3,780,354.57	0.68	NG-Mudline
118-2109	470,222.14	3,780,323.60	0.46	NG-Mudline
118-2110	470,191.70	3,780,324.69	1.39	NG-Mudline
118-2113	470,191.06	3,780,354.34	0.94	NG-Mudline
118-2114	470,193.57	3,780,384.57	-0.02	NG-Mudline
118-2117	470,192.24	3,780,414.27	0.25	NG-Mudline
118-2118	470,192.23	3,780,444.59	0.44	NG-Mudline
118-2121	470,161.59	3,780,445.13	-0.10	NG-Mudline
118-2122	470,132.68	3,780,444.99	-0.62	NG-Mudline
118-2125	470,132.18	3,780,414.65	-0.12	NG-Mudline
118-2126	470,162.51	3,780,414.50	-0.53	NG-Mudline
118-2129	470,162.32	3,780,384.46	-0.30	NG-Mudline

118-2130	470,133.23	3,780,384.91	0.08	NG-Mudline
118-2133	470,131.86	3,780,355.13	-0.04	NG-Mudline
118-2134	470,162.91	3,780,354.41	-0.30	NG-Mudline
118-2137	470,162.81	3,780,324.19	0.65	NG-Mudline
118-2138	470,132.62	3,780,323.46	-0.04	NG-Mudline
	Average Elevation of Mudline		0.13	

SECTION G

Survey Fieldnotes

JOB# 221328.00C FILE: 042821CK

COASTAL PROTECTION AND RESTORATION
CPRA - NORTH DELACROIX MARSH CREATION
DELACROIX
ST. BERNARD PARISH, LA.
R-8 BASE W/ R12 ROVER

1000- BASE @ BS-325M-01

2000-2139 NS/ MISC

ERICK K.
HANNORA-

TRUCK #200
AIRBOAT

04-28-21

SUNNY/HOT

CREW SHOT IN MUDLINE AND ROOT BALL FOR HEALTHY MARSH SURVEY ON ALL THREE LOCATIONS.


L-2
T-2
T-3
T-4
T-5
T-6
T-7
T-8
T-9
T-10
T-11
T-12
T-13
T-14
T-15
T-16
T-17
T-18
T-19
T-20
T-21
T-22
T-23
T-24
T-25
T-26
T-27
T-28
T-29
T-30
T-31
T-32
T-1
SEE INSET 1
PUMP STATION
JACK'S CANAL
BAYOU JUANITA
500.0' (TYP.)
500.0' (TYP.)
04/29/21
04292IEK

JOB# 221328B.00C FILE: 042921CK

COASTAL PROTECTION AND RESTORATION AUTHORITY
CPRA - NORTH DELACROIX MARSH CREATION
DELACROIX
SAINT BERNARD PARISH, LA.
R-8S BASE W/ R-8T ROVER

1000 BASE @ BS32-SM.01

2000-3263 NG / WATER BODY / LEVEE

ERICK K.
HUNNERA.

TRUCK #200
AIRBOAT

04-29-21
SUNNY/HOT

TODAY CREW STARTED TOPO ON TRANSECT LINES FOR THE MARSH CREATION AREA. LINES T-23 - T-32 WERE DONE TODAY.

SOB# 2213288.00C FILE: 053021EK

COASTAL PROTECTION AND RESTORATION AUTHORITY
CPRA - NORTH DELACROIX MARSH CREATION
DELACROIX
SAINT BERNARD PARISH, LA.
R-8° BASE W/R-12° ROVER

1000 BASE @ BS32-SM-01

100-131 WATER-TOP / WATER BOTTOM
(ACCESS ROUTE RECON)

200-649 NG / WATER-BOTTOM / WATER-TOP
(TRANSECT LINES T-22 - T-21)

8046

ERICK K.
HUNNER A.

TRUCK #300
AIRBOAT

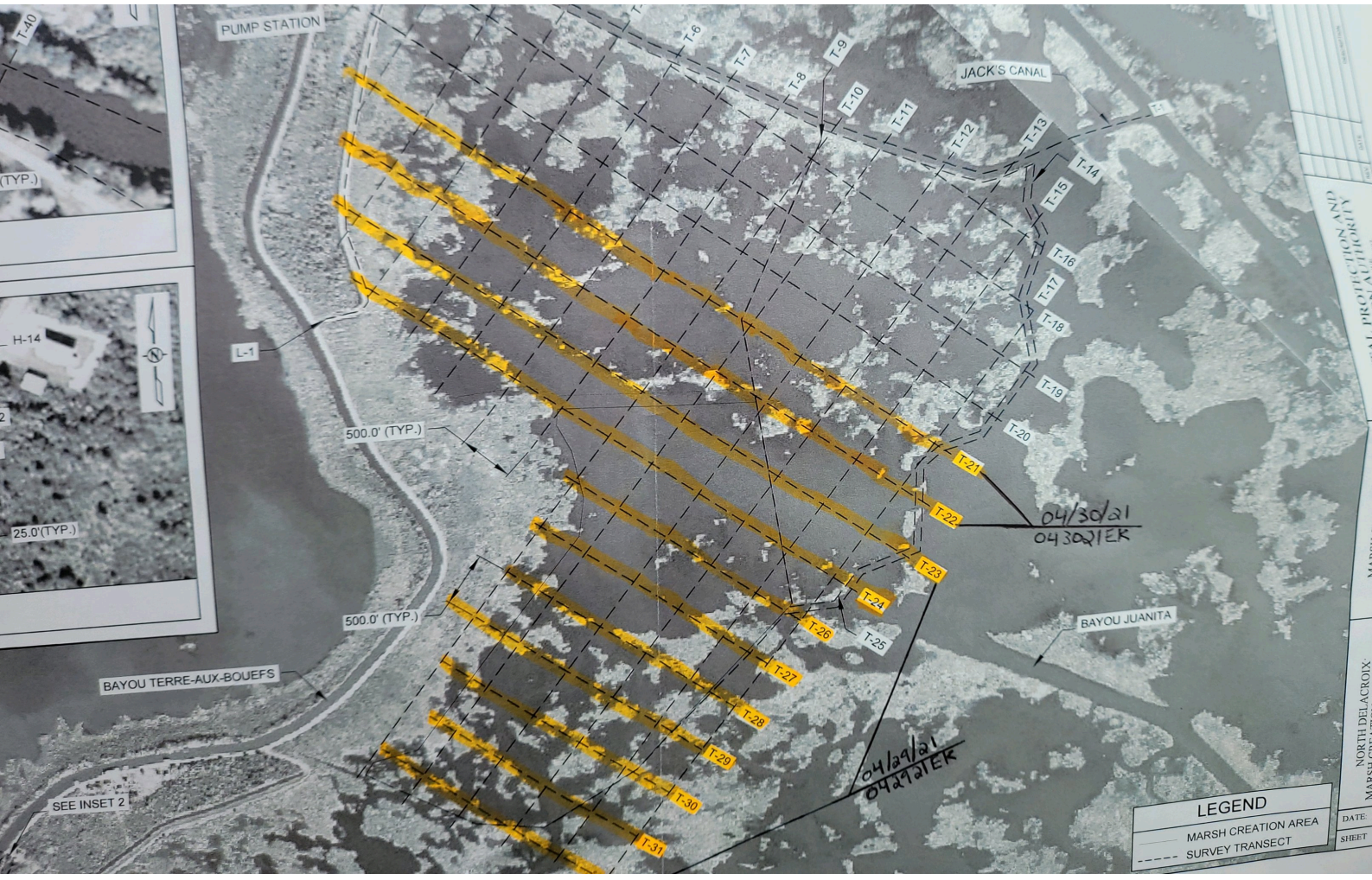
04/30/21
CLOUDY / HOT

58

CREW WENT & TOOK WATER BOTTOM SHOTS DOWN ACCESS ROUTE TO INVESTIGATE WATER DEPTHS FOR FUTURE PART OF SURVEY.

TOPS WATER BOTTOM & MARSH ON LINES T-22 & T-21

8046


PUMP STATION
JACK'S CANAL
L-1
500.0' (TYP.)
500.0' (TYP.)
25.0'(TYP.)
BAYOU TERRE-AUX-BOUEFS
BAYOU JUANITA
SEE INSET 2
T-6
T-7
T-8
T-9
T-10
T-11
T-12
T-13
T-14
T-15
T-16
T-17
T-18
T-19
T-20
T-21
T-22
T-23
T-24
T-25
T-26
T-27
T-28
T-29
T-30
T-31
04/30/21
04/29/21
LEGEND
MARSH CREATION AREA
SURVEY TRANSECT
NORTH DELACROIX
DATE:
SHEET


50.0' (TYP.)
INSET 1
1" = 150'
H-14
H-1
H-3
H-2
H-4
H-6
H-8
H-10
25.0'(TYP.)
INSET 2
1" = 200'
L-1
500.0' (TYP.)
500.0' (TYP.)
05/03/21
05032IEK
MAG
04/30/21
04302IEK
04/29/21
04292IEK
JACK'S CANAL
BAYOU TERRE-AUX-BOUEFS
BAYOU JUANITA
SEE INSET 2
HWY300
RIPRAP
T-1
T-5
T-6
T-7
T-8
T-9
T-10
T-11
T-12
T-13
T-14
T-15
T-16
T-17
T-18
T-19
T-20
T-21
T-22
T-23
T-24
T-25
T-26
T-27
T-28
T-29
T-30
T-31
T-32

JOB# 2213288.00C FILE: 050421EK

COASTAL PROTECTION & RESTORATION AUTHORITY

CPRA - NORTH DELACROIX MARSH CREATION

DELACROIX

STAINT BERNARD PARISH, LA.

R-8^S BASE W/ R-8^S ROVER + HYPACK

100 BASE / SET POINT (050321EK1R)

1000 CHECK POINT (BS32-SM-01)

ERICK K. HUNNERA.

TRUCK # 216

AIRBOAT

05/03/21

CLOUDY / WINDY

CREW RAN G-882 ON TRANSECT LINES T-24 / T-26 - T-32


SEE INSET 1
PUMP STATION
L-1
L-2
T-1
T-2
T-3
T-4
T-5
T-6
T-7
T-8
T-9
T-10
T-11
T-12
T-13
T-14
T-15
T-16
T-17
T-18
T-19
T-20
T-21
T-22
T-23
T-24
T-25
T-26
T-27
T-28
T-29
T-30
T-31
T-32
JACK'S CANAL
500.0' (TYP.)
500.0' (TYP.)
05/03/21
050321EK
MAG
04/30/21
043021EK
05/04/21
050421EK
04/29/21
042921EK
BAYOU JUANITA
LEGEN
MARSH CRE
SURVEY TR

JOB# 22132 88.002 FILE: 05042 GK

COASTAL PROTECTION AND RESTORATION AUTHORITY
CPRA N-DELACROIX PROJECT
DELACROIX
SAINT BERNARD PARISH, LA.
R-8^{S} BASE W/ R12^{I} & R-8^{S} WITH HYPACK

100	BASE @ (05032EKIR)
101-102	CD-CHECK (BS32-SM-01)
103-645	NG/WATER BOTTOM/LEVEE

8046 645

ERICK K.
HUNNER A.

AIRBOAT

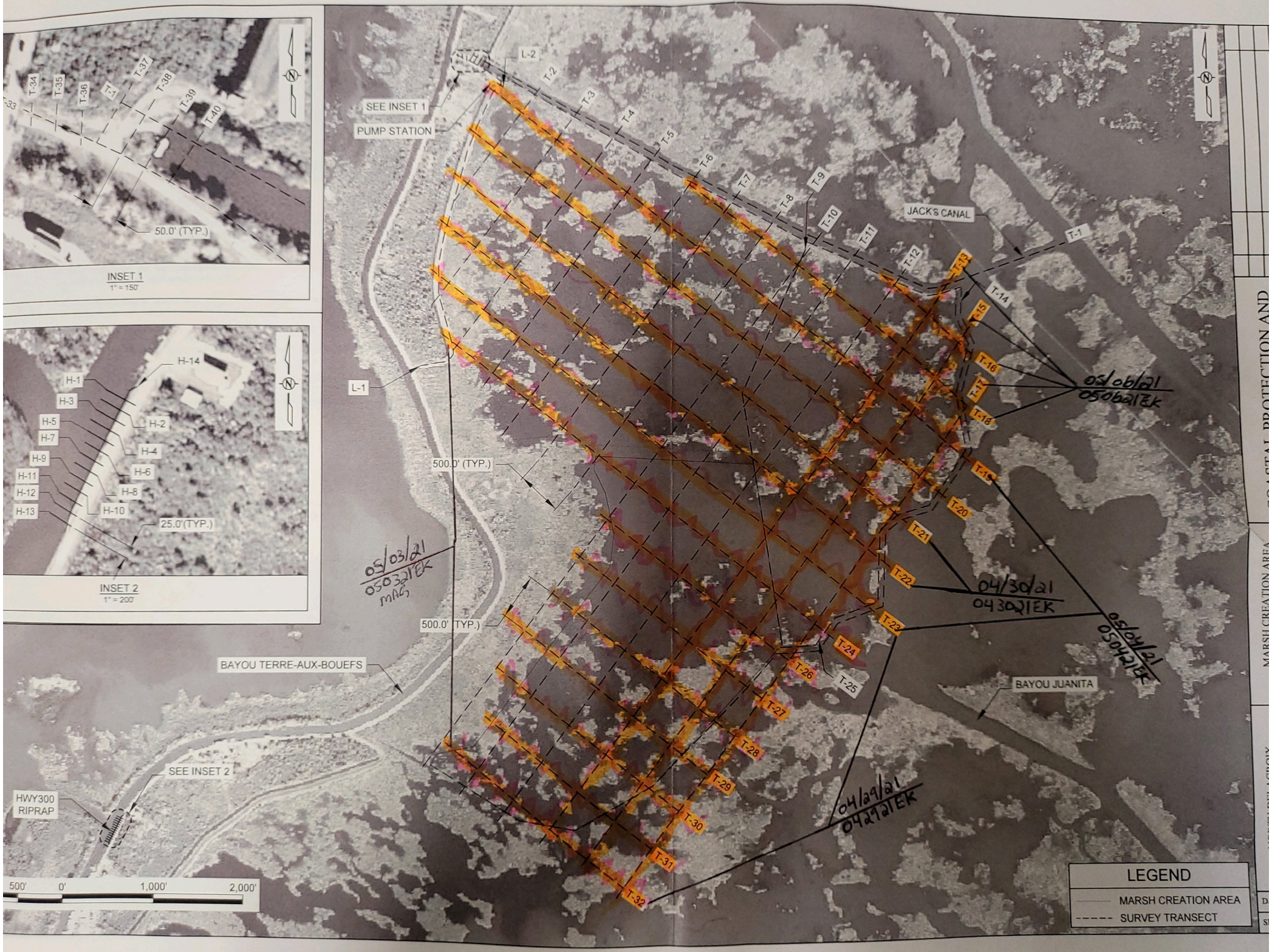
05-04-21

CLOUDY/WIND/
RAIN 12:30-1:30

TODAY RAN MAG AND TOPO ON
TRANSECT LINES T-19 & T-23

CREW WAS ON STAND DOWN
FROM 12:30-1:30 DEW
TO RAIN & LIGHTNING

8046


INSET 1
1" = 150'
T-34
T-35
T-36
T-37
T-38
T-39
T-40
50.0' (TYP.)
INSET 2
1" = 200'
H-14
H-1
H-3
H-5
H-7
H-9
H-11
H-12
H-13
H-2
H-4
H-6
H-8
H-10
25.0'(TYP.)
SEE INSET 1
PUMP STATION
L-2
L-1
T-1
T-2
T-3
T-4
T-5
T-6
T-7
T-8
T-9
T-10
T-11
T-12
T-13
T-14
T-15
T-16
T-17
T-18
T-19
T-20
T-21
T-22
T-23
T-24
T-25
T-26
T-27
T-28
T-29
T-30
T-31
T-32
JACK'S CANAL
500.0' (TYP.)
500.0' (TYP.)
05/03/21
050321EK
mag
05/06/21
050621EK
04/30/21
043021EK
05/04/21
050421EK
04/29/21
042921EK
BAYOU TERRE-AUX-BOUEFS
BAYOU JUANITA
SEE INSET 2
HWY300
RIPRAP
500' 0' 1,000' 2,000'
LEGEND
MARSH CREATION AREA
SURVEY TRANSECT
MARSH CREATION AREA

JOB#2213288.00C

FILE: 050621EK

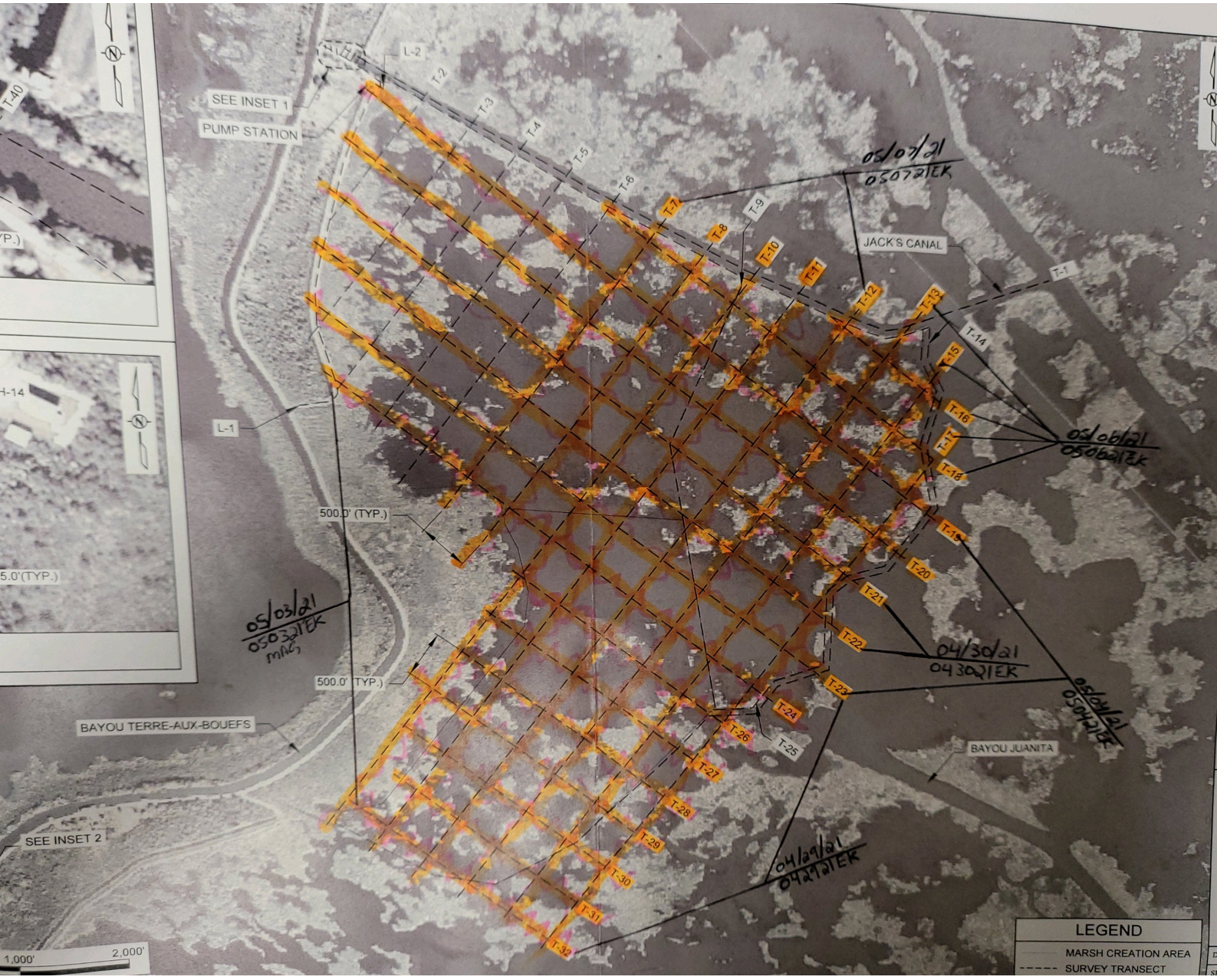
COASTAL PROTECTION & RESTORATION AUTHORITY
N. DELACRIOX MARSH CREATION
DELACRIOX LA.
ST. BERNARD PARISH, LA.
R-8S ROVER W/ R-8S BASE

100	CP RTK (030321EKIR)
101	CP CHECK
200-229	WATER TOP / NG / WATER BOTTOM
230-236	LEVEE
237-1467	WATER BOTTOM / NG

TRUCK #200 05/06/21

CREW GOT WATER BOTTOM SHOTS
AND MARSH ELEVATION SHOTS
WHILE PULLING THE MAG
ALONG LINES T-13 / T-15-T-18

* SEE PHOTO of MAP *


SEE INSET 1
PUMP STATION
L-2
T-2
T-3
T-4
T-5
T-6
T-7
T-8
T-9
T-10
T-11
T-12
T-13
T-14
T-15
T-16
T-17
T-18
T-19
T-20
T-21
T-22
T-23
T-24
T-25
T-26
T-27
T-28
T-29
T-30
T-31
T-32
T-1
JACK'S CANAL
L-1
500.0' (TYP.)
500.0' TYP.)
BAYOU TERRE-AUX-BOUEFS
BAYOU JUANITA
SEE INSET 2
05/07/21
05/06/21
05/03/21
04/30/21
04/29/21
1,000'
2,000'
LEGEND
MARSH CREATION AREA
SURVEY TRANSECT

JOB#2213288.00C

FILE: 050621EK

COASTAL PROTECTION & RESTORATION AUTHORITY
N. DELACRIOX MARSH CREATION
DELACRIOX LA.
ST. BERNARD PARISH, LA.
R-8S ROVER W/ R-8S BASE

100	CP RTK (030321EKIR)
101	CP CHECK
200-229	WATER/TOP / NG / WATER BOTTOM
230-236	LEVEE
237-1467	WATER BOTTOM / NG

TRUCK #200 05/06/21

CREW GOT WATER BOTTOM SHOTS
AND MARSH ELEVATION SHOTS
WHILE PULLING THE MAG
ALONG LINES T-13 / T-15-T-18

* SEE PHOTO of MAP *


INSET 1
1" = 150'
T-35
T-36
T-1
T-37
T-38
T-39
T-40
50.0' (TYP.)
INSET 2
1" = 200'
H-14
H-1
H-3
H-2
H-4
H-6
H-8
H-10
25.0'(TYP.)
L-2
SEE INSET 1
PUMP STATION
L-1
T-2
T-3
T-4
T-5
T-6
T-7
T-8
T-9
T-10
T-11
T-12
T-13
T-14
T-15
T-16
T-17
T-18
T-19
T-20
T-21
T-22
T-23
T-24
T-25
T-26
T-27
T-28
T-29
T-30
T-31
T-1
JACK'S CANAL
500.0' (TYP.)
500.0' (TYP.)
BAYOU TERRE-AUX-BOUEFS
BAYOU JUANITA
SEE INSET 2
05/11/21EK
05/07/21EK
05/06/21EK
05/03/21EK
MAG
04/30/21EK
05/04/21EK
04/29/21EK
LEGEND
COASTAL PROTECTION AND RESTORATION AUTHORITY
150 TERRACE AVENUE
BATON ROUGE, LOUISIANA 70802
MARSH CREATION AREA
SURVEY TRANSECTS
NORTH DELACROIX
MARSH CREATION & TERRACING
STATE PROJECT NUMBER: BS-0041
DESIGNED BY: STEPHEN COOK, E.I.
DATE: FEBRUARY
REV.
DATE
DESCRIPTION
BY

JOB# 221328.00C FILE: 051121EK

COASTAL PROTECTION AND RESTORATION
CPRA - N. DELACROIX PROJECT
DELACROIX
ST. BERNARD PARISH, LA.
R-8' BASE W/ R-12' ROVER

100 BASE POINT @ (05032/EK/R)
1000 CHECK POINT (BS32-SM-01)
100-101 CR CHECK
1468-2084 WATER BODY / NG (ELEV. SHOTS ON TRANSECTS)

ERICK K.
CHASE B.
TRUCK #211
AIRBOAT
05/11/21
CLOUDY/RAIN

BREW COMPLETED ELEVATION TOPO FOR MARSH CREATION AREA

TRANSECT LINES (T-2 / T-6)



INSET 1
1" = 150'
50.0' (TYP.)
INSET 2
1" = 200'
25.0'(TYP.)
SEE INSET 1
PUMP STATION
L-1
L-2
JACK'S CANAL
500.0' (TYP.)
BAYOU TERRE-AUX-BOUEFS
BAYOU JUANITA
SEE INSET 2
WY300
RIPRAP
05/11/21EK
05/07/21
05/24/21EK
05/06/21
05/03/21
05/04/21
04/30/21
04/29/21
LEGEND
MARSH CREATION AREA
SURVEY TRANSECT
0'
1,000'
2,000'
COASTAL PROTECTION AND RESTORATION AUTHORITY
150 TERRACE AVENUE
BATON ROUGE, LOUISIANA 70802
MARSH CREATION AREA SURVEY TRANSECTS
NORTH DELACROIX MARSH CREATION & TERRACING
REV.
DATE
DESCRIPTION
DATE: FE
SHEET 4

JOB# 2213288.00C FILE: 052421EK

COASTAL PROTECTION & RESTORATION AUTHORITY
CPRA - NORTH DELACROIX PROJECT
DELACROIX
ST. BERNARD PARISH, LA.
R-8 BASE W/ R-12 ROVER

100	BASE @ (052321EK1R)
1000-	CHECK POINT
10-11	CP-CHK (BS32-SM-01)
334-1281	MISC / WATER BOTTOM

8046

ERICK K.
ANTHONY S.

TRUCK #200
AIRBOAT

05/24/21
SUNNY/HOT

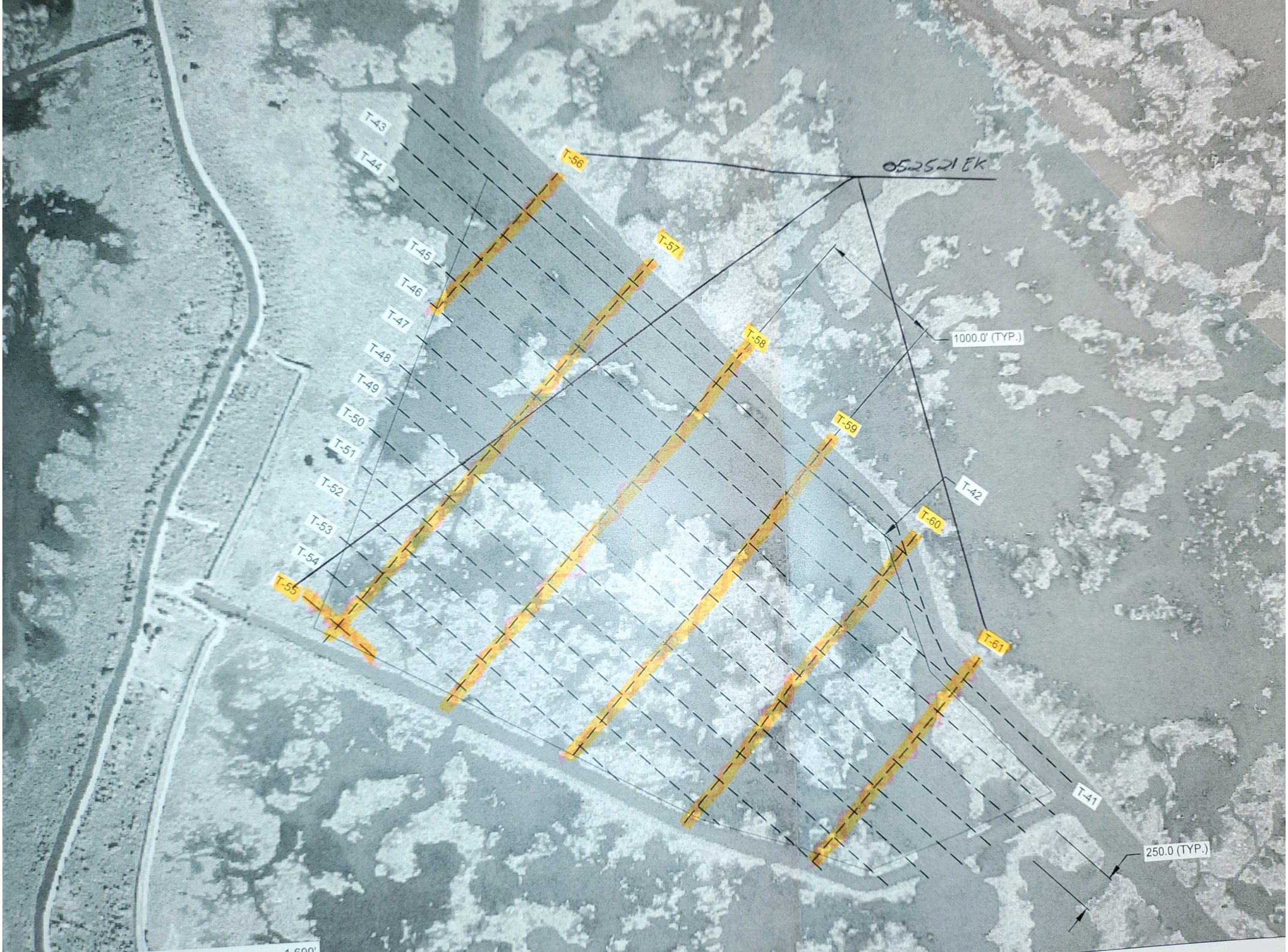
64

TODAY CREW RAN MAG
ON LINES T-1, T-9, T-14, & T-25
ALSO GETTING WATER BOTTOM
SHOTS ALONG SAME LINES

* SEE PHOTO ATTACHED *

8046

T-33
T-34
T-35
T-36
T-37
T-38
T-39
T-40
OSAGE RIVER
50.0' (TYP.)


T-43
T-44
T-56
05.25.21 EK
T-45
T-57
T-46
T-47
T-58
1000.0' (TYP.)
T-48
T-49
T-59
T-50
T-51
T-42
T-52
T-60
T-53
T-54
T-55
T-61
T-41
250.0 (TYP.)

JOB# 23/3288.00C FILE: 052521CK

COASTAL PROTECTION & RESTORATION AUTHORITY
CPRA N. DELACROIX PROJECT
DELACROIX ISLAND
ST. BERNARD PARISH, LA.
R-8's BASE W/ R-12's ROVER

100	BASE (052521CKR)
1000	CHECKPOINT (RS32-SN-01)
KL-102	CP-CHECK
103-139	NG (ELEVATIONS NEAR PUMP STATION)
200-628	MISC/WATER BOTTOM
1283-1288	

8046

ERICK L.
ANTHONY S.

TRUCK #200
AIRBOAT

05/25/21
SUNNY/HOT

65

TODAY CREW STARTED ON RECON AREA.
RAN MAG & GOT WATER BOTTOM SHOTS W/ MARSH ELEV. ON LINE T-55 - T-61.

CREW ALSO COLLECTED NG SHOTS ON LINES T-34 - T-38

SEE PHOTOS ATTACHED

8046


SURVEY T
T-43
T-44
T-45
T-46
T-47
T-48
T-49
T-50
T-51
T-52
T-53
T-54
T-55
T-56
T-57
T-58
T-59
T-60
T-61
T-42
T-41
1000.0' (TYP.)
250.0 (TYP.)
05-25-21EK
05-26-21EK

JOB# 22132888.00C FILE: 052621CK

COASTAL PROTECTION & RESTORATION AUTHORITY
CPRA - N. DELACROIX PROJECT
DELACROIX
ST. BERNARD PARISH, LA.
R-8's BASE w/ R-12's ROVER

100 BASE (CS032IEKIR)

1000 CHECK POINT (BS32-SM-01)

101-102 CP CHECKS

200-993 MISC. /WATER BOTTOM

CRICK K.
ANTHONY S.

TRUCK #200
AIRBOAT

05/26/21
SUNNY / HOT

TODAY CONTINUED RUNNING MAG AND GETTING MARSH ELEVATIONS IN RECON AREA. CREW RAN LINES T-50 / T-54

* SEE ATTATCHMENT PHOTO *

JOB# 2213288.00C FILE: 052521EK

COASTAL PROTECTION & RESTORATION AUTHORITY

CPRA- N. DELACROIX PROJECT

DELACROIX

ST. BERNARD PARISH, LA.

R-8's BASE W/ R-12's ROVER

100	BASE (050321EK1R)
1000	CHECK POINT (BS32-SM-01)
101-102	CP-CHECK
200-1819	MISC. / WATER BOTTOM

8046

CRICK. TRUCK #200 05/27/21
ANTHONY'S. AIRBOAT SUNNY/HOT

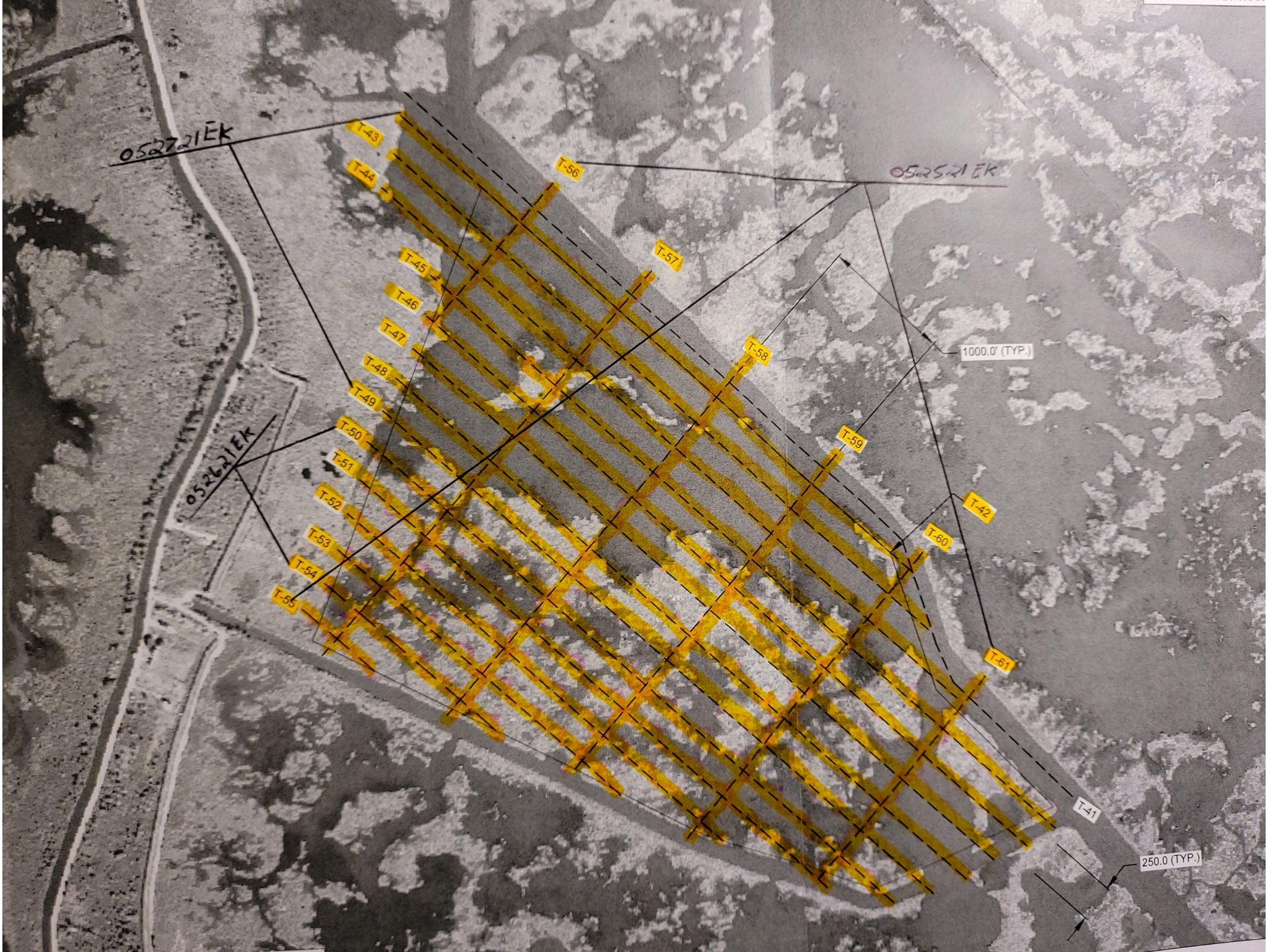
67

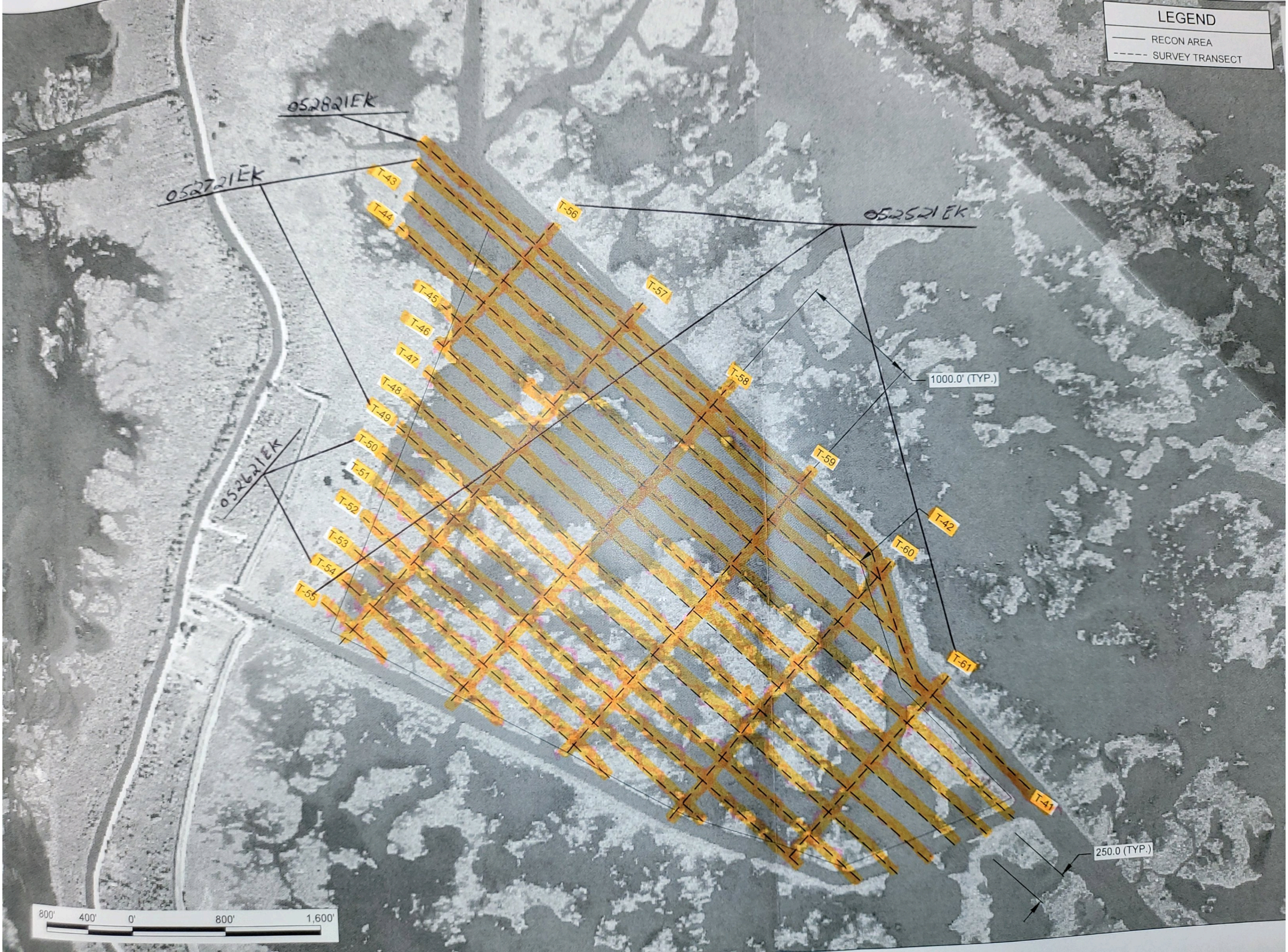
TODAY CREW CONTINUED RUNNING MBG & GETTING MARSH ELEVATIONS IN RECON AREA.

CREW RAN LINES T-42 & T-49

SEE PHOTO ATTACHED

8046


052721EK
052621EK
052521EK
T-43
T-44
T-45
T-46
T-47
T-48
T-49
T-50
T-51
T-52
T-53
T-54
T-55
T-56
T-57
T-58
T-59
T-60
T-61
T-42
T-41
1000.0' (TYP.)
250.0 (TYP.)


LEGEND
RECON AREA
SURVEY TRANSECT
052821EK
052721EK
052521EK
052621EK
T-41
T-42
T-43
T-44
T-45
T-46
T-47
T-48
T-49
T-50
T-51
T-52
T-53
T-54
T-55
T-56
T-57
T-58
T-59
T-60
T-61
1000.0' (TYP.)
250.0 (TYP.)
800' 400' 0' 800' 1,600'

Job# 2213288.00L FILE: 052821EK

COASTAL PROTECTION & RESTORATION AUTHORITY
CPRA - N. DELACROIX PROJECT
DELACROIX
ST. BERNARD PARISH, LA.
R-8 BASE W/ R-12 ROVER

100 BASE (052321EK1R)
1000 CHECK POINT (BS32-SM-01)

101-102 CP. CHECK

200-445 MISC. / WATER BOTTOM

8046

ERICK K.
ANTHONY S.

TRUCK #200
AIRBOAT

05/28/21
SUNNY / HOT

68

TODAY CREW RAN LAST LINE IN RECON AREA T-41.
RECON AREA IS COMPLETE

* SEE PHOTO of map *

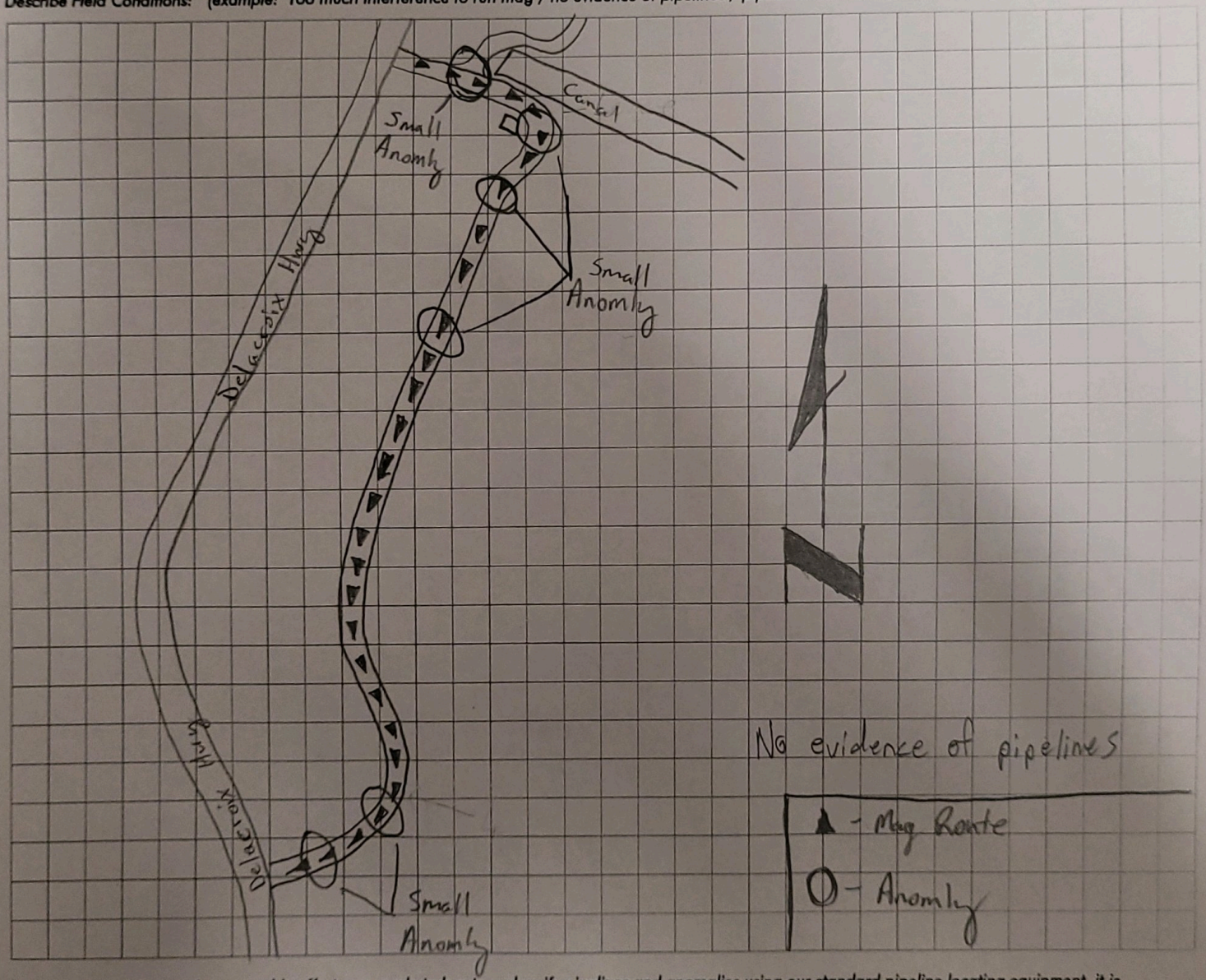
8046

Magnetometer Survey Report

C H FENSTERMAKER & ASSOCIATES, INC
Engineers · Surveyors
Environmental Consultants

Client: Coastal Protection and Restoration Authority Job # 2213288,000 Date: 6/1/21
Project Name: North Delacroix Marsh Creation Abstr. /Sec. _____ T ___ R ___
Parish/City: St. Bernard State: LA Area (Field) Levee
PC Book & Page #'s: _____ Mag Operator: Anthony Stelly
Terrain: Gravel and Grass Water depth: 2

Illustrate below: North Arrow, shot numbers, pipelines, ditches, anomalies, visual right of ways, etc.
Describe Field Conditions: (example: Too much interference to run mag / no evidence of pipelines / pipelines discovered, but more may exist)



Please be advised, that while reasonable efforts are made to locate and verify pipelines and anomalies using our standard pipeline locating equipment, it is impossible to be 100% effective. As such, we advise using caution when performing work as there is a possibility that pipelines and other hazards, such as fiber optic cables, pvc pipelines, etc. may exist undetected on site.

PC signature: _____ Mag. Op. signature: _____ PM signature: _____

JOB# 22132288.00C

FILE: 0601216K
0601216K2

COASTAL PROTECTION & RESTORATION AUTHORITY
CPRA - N. DELACROIX PROJECT
DELACROIX
ST. BERNARD PARISH, LA.

R-8^{S} BASE w/ R-12^{I} & R-8^{S} ROVER

100	CHECK POINT (BS32-SM-01)
100	BASE POINT (0503216K1R)
200-201	CP-CHECK
202-363	NG (LEVEE)
400-525	WATERBODY
526-534	BULKHEAD
535	MISC (CRAB TRAP)
536-762	WATER BODY (DCP ACCESS)
0601216K2	*MAG ROUTE
2000-2041	MAG ROUTE

8046

Crickk.
ANTHONY S.
BLAKE V.

TRUCK # 200
TAGUNG

06/01/21
SUNNY/HOT

69

TODAY CREW RAN MAG & GOT ELEVATIONS ON TRANSECT LINE ALONG LEVEE. CREW ALSO GOT WATER BOTTOM SHOTS AND RAN MAG ALONG HWY 300 & DCP ACCESS.

SEE PHOTOS OF WORK AREA

8046

SOB# 2213288.00C FILE: 060221EK

COASTAL PROTECTION & RESTORATION AUTHORITY
CPRA - N. DELACRIOX PROJECT
DELACRIOX
ST. BERNARD PARISH, LA.

R-8S BASE W/ R-12I & R-8S ROVER

100	BASE POINT (05032IEKIR)
1000	CHECK POINT (BS32-SM-01)
200-201	CP-CHECK
202-499	WATER-BODY

ERICK K.
ANTHONY S.
BLAKE U.

TRUCK #200
TAGLINE

06/02/21
CLOUDY/WARM

TODAY CREW CONTINUED AND COMPLETE ALL LINES ON THE DPC ACCESS LINES. CREW RAN MAG & GOT WATER BOTTOM ELEV.

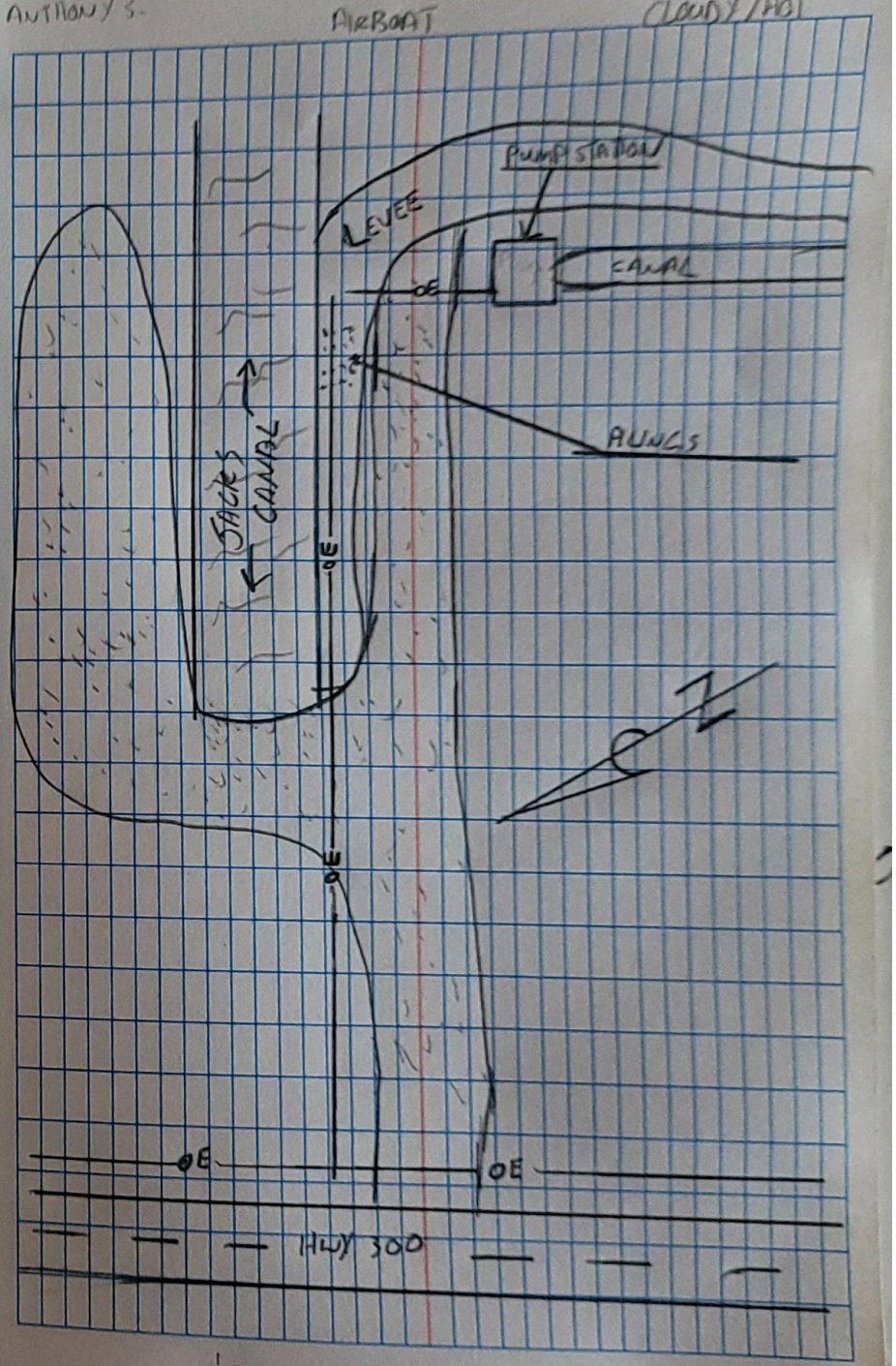
0

SOB# 2213288.00C FILE: 060721ERK

COASTAL PROTECTION & RESTORATION AUTHORITY
CPRA - N. DELACROIX PROJECT
DELACROIX
ST. BERNARD PARISH, LA.
R-8^S BASE W/ R-12^I ROVER

100	BASE (050321ERK1R)
1000	CHECK POINT (BS32-SM-01)
200-201	CP-CHECK
202-220	LEVEE
300-322	LOGS & OLD DOCK BLINDS
323-329	CONCRETE SUPPORT FOR TOWER ANCHOR
330-333	DOCK
334-341	UTILITY
343-349	PLATFORM
350-353	PILING CLUSTER *SEE PHOTO*

ERICK S.
ANTHONY S.
TRUCK #200
AIRBOAT
06/07/21
CLOUDY/HOT



PROJECT: 2213288.00c CREW: Hanner.A, Dylan.B
FILE: 060721HA Weather: Hot, Sunny
DATE: 6-7-21
EQUIPMENT USED: R-10 rover, RBS BASE, 2M POLE,
Land mag
POINT I.D:
BASE POINT 050321EKIR
CHK POINT BS32-SM-01
10, 11 CP-CHK 2-GPS observed control
200- Crab trap
201 Crab trap
202 Crab trap
203 Sign POLE
204 Crab trap
205 Crab trap
206 Sunk wood timber
207 Sunk wood timber
208 underwater Metal object
209 *
210 Water TAP
2000-2409 Mag rouse

* Ran Mag rouses over anomalies 122, 123, 124, 125, 136, 137, 138, 139, 140, 121, 108, 78, 98, 107, 109, 120.

* Found wooden object at anomaly 98, shot 4 points on each end of it. Found metal or concrete object at anomaly 120, shot 4 points on each end of it. Ran box around 120 and had no signal.

1

JOB# 2213288.DOC FILE: 060821EK

COASTAL PROTECTION & RESTORATION AUTHORITY
CPRA - N. DELACROIX PROJECT
DELACROIX
ST. BERNARD PARISH, LA.
R12 ROVER W/VRS

1000	CHECK POINT (BS32-SM-01)
100-101	CP-CHECK
200-201	CULV. (PUMP STATION DISCHARGE)
301-57	MAG ROUTE
300-1030	MAG ROUTE
2000-2006	MISC. (ANOMALIES)

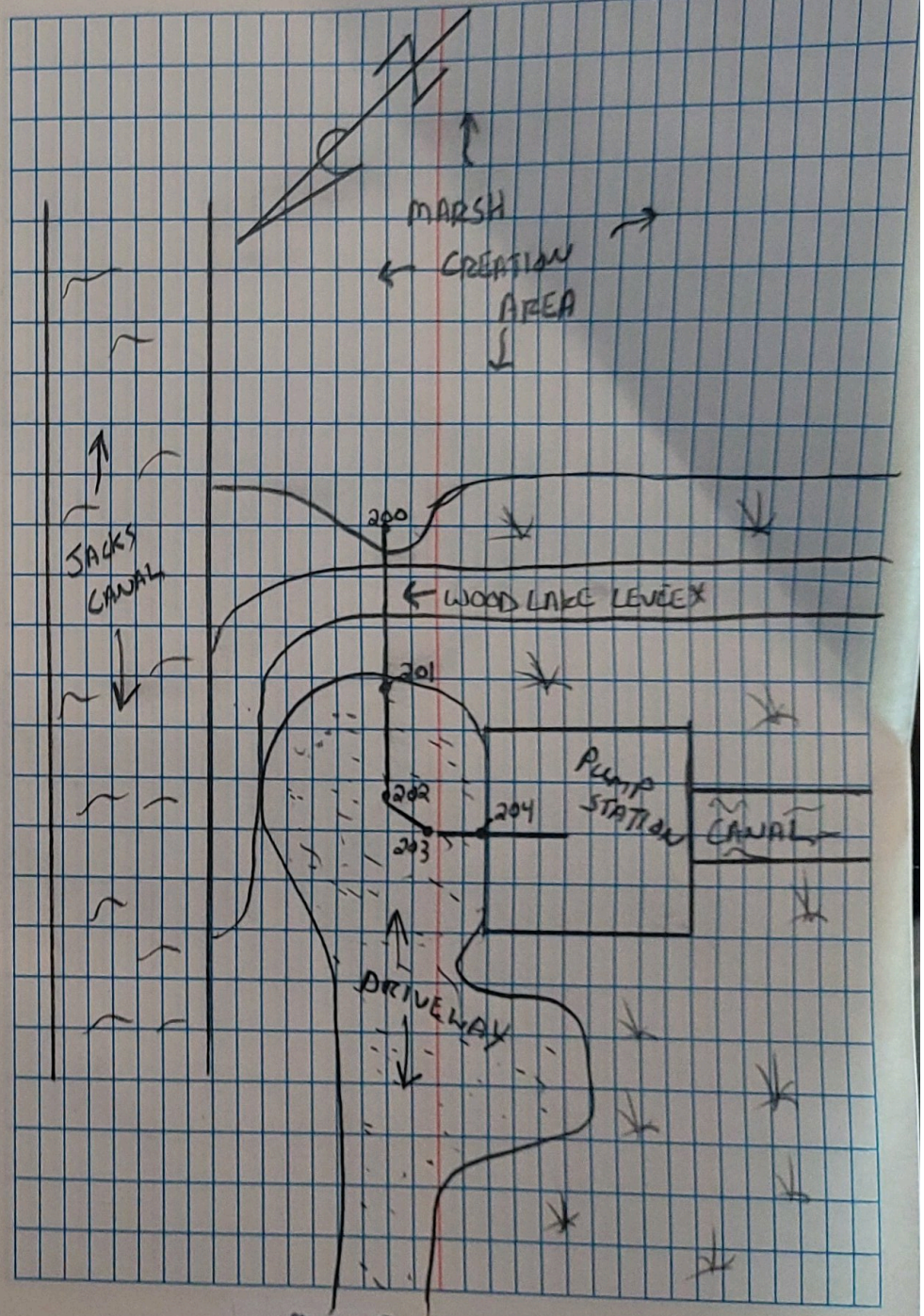
8146

CRICK K.
ANTHONY S.

TRUCK #200
AIRBOAT

06/08/21
SUNNY/HOT

1



8146

PROJECT: 2213088.00r CREW: Hunnor, A, Dylan, B

FILE: 00098140A WEATHER: HOT, Sunny

DATE: 6-9-21

EQUIPMENT USED: [illegible] ROVER, 2M POLE, LAND MAG

POINT I.D.

CHK POINT BS32-SM-01

10, 11	CP-CHK	2-Gas observed control
200-	MISC	(Crab Trap)
201	WATER	TOP
202-223	MISC	(Crab trap)
224	SIGN	
2000-2755	MAG ROUTE	

RAN MAG AROUND ANOMOLIES

#77	#142	#88
#126	#73	#87
#127	#74	#83
#128	#143	
#129	#144	
#130	#118	
#131	#99	
#76	#97	
#132	#91	
#119	#75	

* RAN MAG AROUND ANOMOLIES, FOUND NO OBJECTS BESIDES CRAB TRAPS.

File: 071221BG

10

Job# 2213288.00C

Coastal Protection and Restoration Authority
North Delacroix Marsh Creation
Sec 29-32 T14S R14E
St. Bernard Parish

Base @ CP 052120TG1S

Tie-in Points:

(H: 0.077 V: -0.018) 998-999 Check on CP 052120TG2R

1000 Top of water

1001-1002 Existing Pipeline (flagged Light Blue)

Note: Logged static file on CP 052120TG1S
Using R8s on a 2 meter Pole
File: 12761931
Start = 9:56 Am
Stop = 1:04 pm

8075

Benjy Gabriel
Dylan Breaux
Bryant Rowles

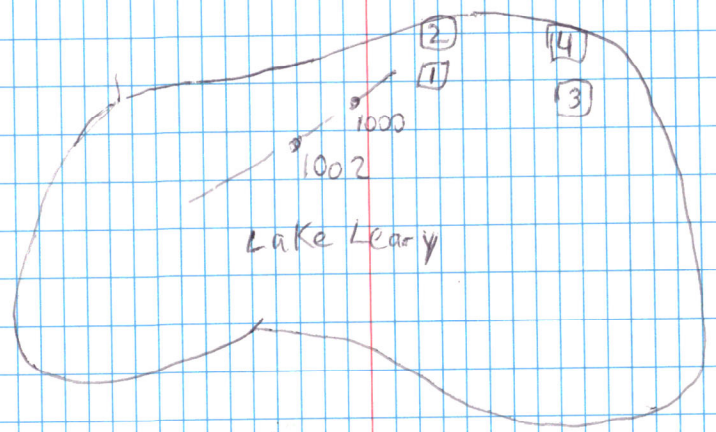
Trimble - RTK
R8s - Base & Rover
W/ TSC 7
Tinker & Rasor

N

LB# 13/BB# 7
Serigne Boat Launch

10

July 12, 2021
Overcast
Afternoon Thunder Storms



Note:
Begin probing on existing pipeline
& Took pictures of existing bulkhead as instructed
Squared numbers depict pictures, descriptions on file
Rain ended Crew's day

8

14

JOB# 2213288 FILE: 07/12/21Ek

COASTAL PROTECTION & RESTORATION AUTHORITY
CPRA - N. DELACROIX PROJECT
DELACROIX LA.
ST. BERNARD PARISH, LA.
R-G$ ROVER SUMPED OFF OF BENGY G.'S BASE

BASE POINT 05212OTG1S

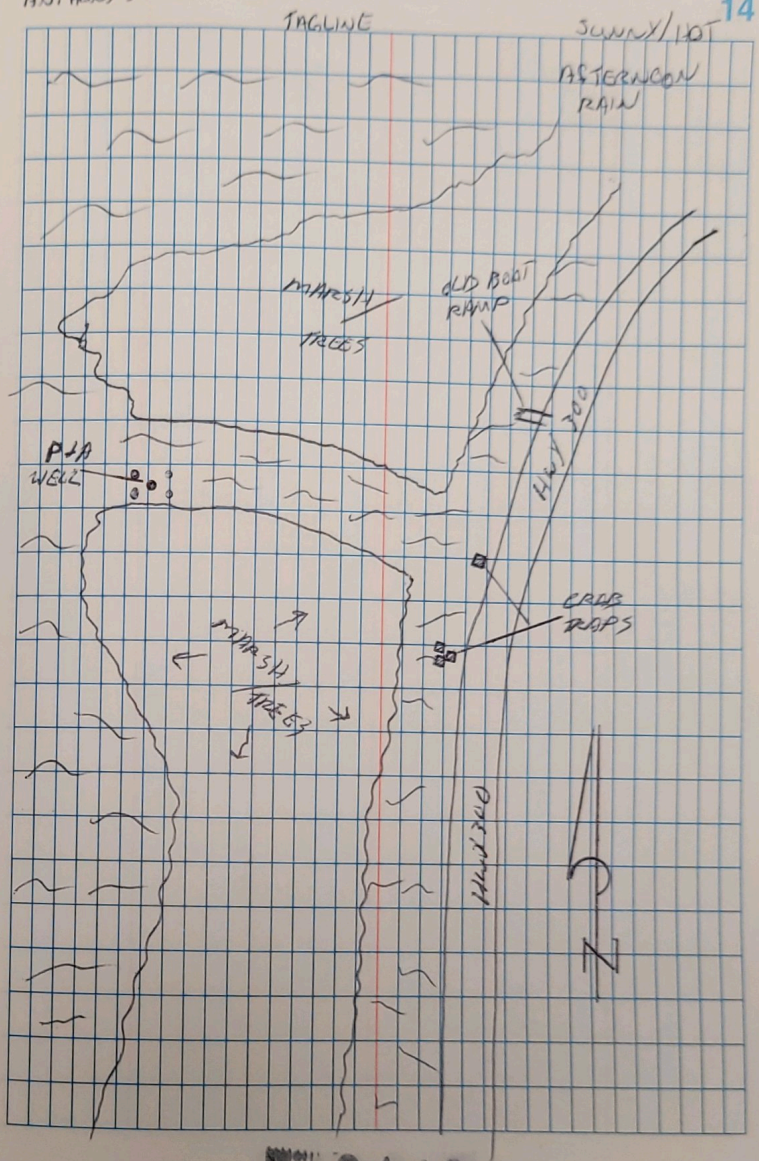
100-126 PROBED LOCATIONS MG1-MG27

200-318 MISC. (MAG ROUTE)

1000 3 x CRAB TRAPS
1001 CRAB TRAP
1002 OLD CONCRETE BOAT RAMP
1003 PLA WELL
1004 PILING
1005 PILING

8146

Erick K.
ANTHONY S.
TRUCK #200
TAGLINE
07/12/21
SUNNY/HOT
AFTERNOON RAIN



14

8146

File: 07132IBG

11

Job # 22132880C

Coastal Protection and Restoration Authority
North Delacroix Marsh Creation
Sec 29-32 T14S R14E
St. Bernard Parish

Base @ CP 052120TG1S

Tie-in Points:

(H: 0.023
V: -0.011)

1-2	Check on CP 052120TG2R
3	Top of water
5-10	Existing Pipeline (flagged Light Blue)
11-599	mag Route
600	Anomaly

Note: Logged static file on CP052120TG1S
using R8s on a 2 meter Pole
File: 1276 1940
Start: 7:14 Am
Stop: 4:08 pm

8075

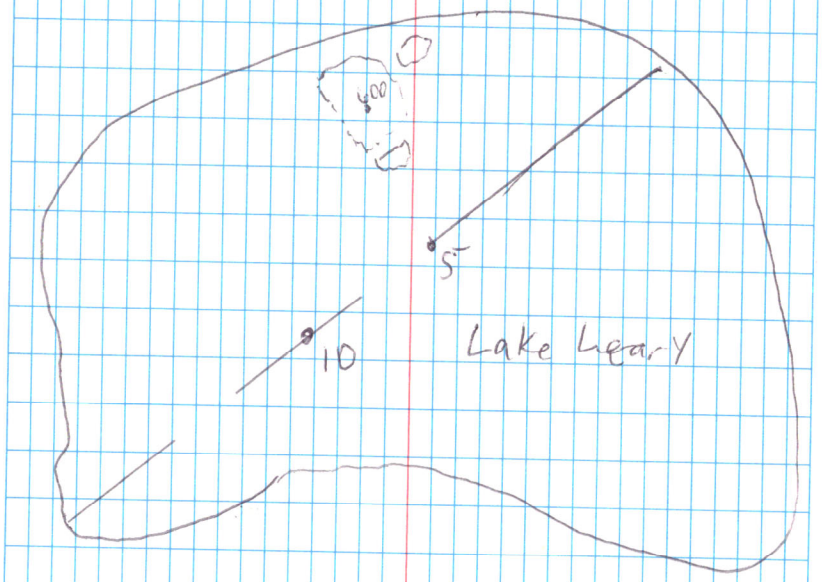
Benjy Gabriel
Dylan Breaux
Bryant Rowles

Trimble - RTK
R8s - Base & Rover
W/ TSC 7
Tinker & Razor
Cesium Mag

LB#131 BB#7
Serigne Boat Launch

11

July 13, 2021
Partly Cloudy
Slight Wind in Afternoon



Note: Continued proving Colonial Pipeline through project area
Begin investigating anomalies, as directed by Erick Kidder

8075

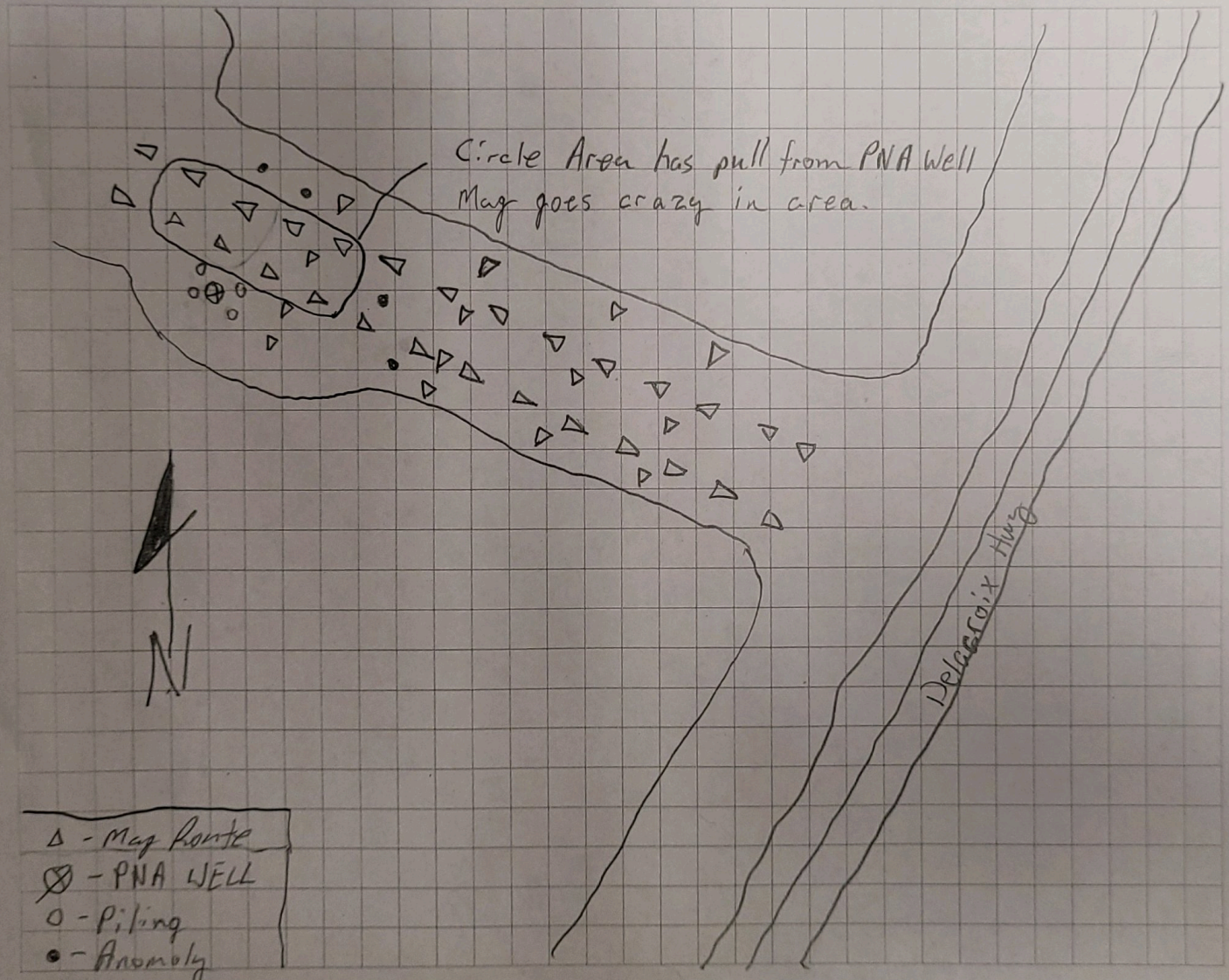
C.H. FENSTERMAKER & ASSOCIATES, INC.

Engineers · Surveyors
Environmental Consultants

Magnetometer Survey Report

Client: Coastal Protection and Restoration Job # 2213288.006 Date: 7-13-21
Project Name: CPRA - North Delacroix Marsh Abstr. /Sec. _____ T ___ R ___
Parish/City: St. Bernard State: LA Area (Field) _____
PC Book & Page #'s: 8144 PAGES 1415 Mag Operator: Anthony Stelly
Terrain: Water Water depth: 2 to 4 ft

Illustrate below: North Arrow, shot numbers, pipelines, ditches, anomalies, visual right of ways, etc.
Describe Field Conditions: (example: Too much interference to run mag / no evidence of pipelines / pipelines discovered, but more may exist)



Please be advised, that while reasonable efforts are made to locate and verify pipelines and anomalies using our standard pipeline locating equipment, it is impossible to be 100% effective. As such, we advise using caution when performing work as there is a possibility that pipelines and other hazards, such as fiber optic cables, pvc pipelines, etc. may exist undetected on site.

PC signature: _____ Mag. Op. signature: _____ PM signature: _____

Owner: Campbell, David (Assistant Director), Survey
Approved By: Broussard, Gibby (Director), Survey

Next Review Date: 01/06/2011
CorpSurv-131, Version: 4

JOB# 221328B.00C FILE# 071321 EK

COASTAL PROTECTION & RESTORATION AUTHORITY
CPRA - N. DELACROIX PROJECT
DELACROIX LA -
ST. BERNARD PARISH, LA.
R-8's ROVER W/ VRS

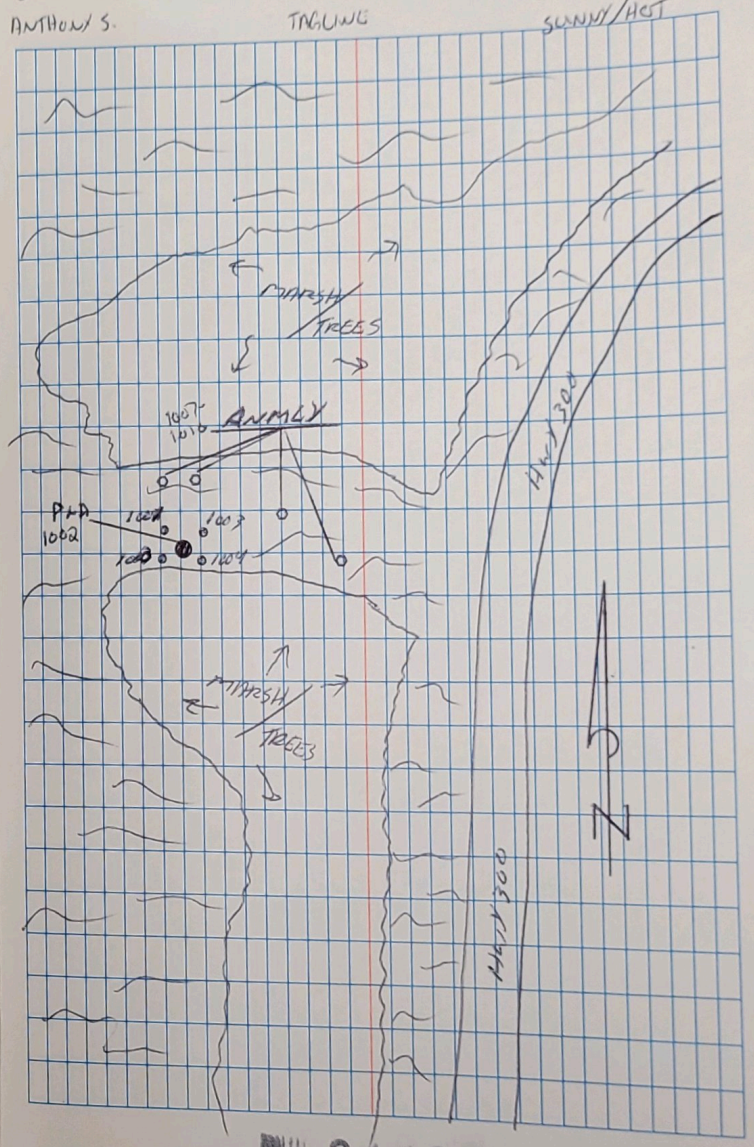
100-586	MAG-ROUTE
1000-1001	PILING
1002	WELL ANA
1003-1004	PILING
1005-1006	MISC. (CRAB TRAP)
1007-1010	ANMLY
1011-1043	MISC. (CRAB BOAY)
2000-2195	MAG ROUTE

8146

ERICK K.
ANTHONY S.

TRUCK #200
TAGLING

07/13/21
SUNNY/HOT



8146

File: 071421BG

12 Job#2213288.00C

Coastal Protection and Restoration Authority
North Delacroix Marsh Creation
Sec 29-32 T14s R14E
St. Bernard Parish

Base @ CP 052120TG1S

Tie-in Points:

(H: 0.019
V: 0.005)

1-2 Check on CP 052120TG2R

3 Top of water

4-10 Existing Pipeline (Flagged Yellow)

Note: Logged static file on CP 052120TG1S
Using R8s on a 2 meter Pole
File: 12761950
Start = 8:25 Am
Stop = 3:21 pm

8075

Benjy Gabriel
Dylan Breaux
Bryant Rowles

Trimble RTK
R8s - Base & Rover
W/TSC 7
Water Set Probe

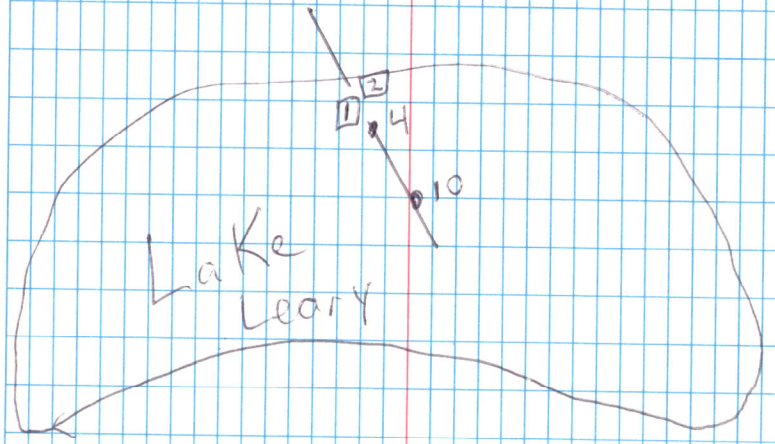
LB#13/BB#7
Serigne Boat Launch

12 July 14, 2021

N

Partly Cloudy
Slight Wind
Light Chop
Strong Afternoon Wind

Note:
Squared numbers are pictures
descriptions on file



Note:
Begin probing on existing
pipeline on west edge of
project area. Route of pipe
caused crew to use "walking
method" to probe out

* Strong winds and seas ended crew's day *

8075

File: 071521BG

13

Job # 2213288.00c

Coastal Protection and Restoration Authority

North Delacroix Marsh Creation

Sec 29.32 T14S R14E

St. Bernard Parish

Base @ CP ~~071521~~ OS2120TGIS

Tie-in Points:

(H: 0.019 V: 0.011)

1-2	check on CP OS2120TG2R
3	Top of water
4-11	Existing Pipeline (flagged yellow)

Notes: Logged static file on CP OS2120TGIS
Using RBs on a 2 meter Pole
File: 1276 1960
Start: 7:46 Am
Stop: 1:53 pm

8075

Benjy Gabriel
Dylan Breaux
Bryant Rowles

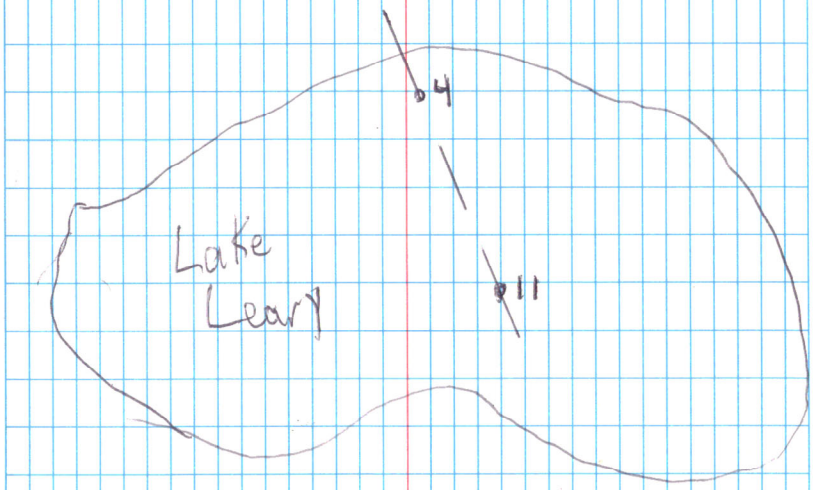
Trimble RTK
RBs Base & Rover
W/TSC 7
Tinker & Kaster
water Set Probe

LB#13/BB#7
Serigne Boat Launch

13

July 15, 2021

Overcast
Calm Morning
Lighting in Afternoon



Notes: continued probing Gulf South Pipeline through Project Area
Used Tinker and Raster On hit obtained
Lighting storm ended crew's day

8075

File: 07162IBC

14

Job# 22132880oc

Coastal Protection and Restoration Authority
North Delacroix Marsh Creation
Sec 29-32 T14S R14E
St. Bernard Parish

Base @ CP 052120T615

Tie in Points:

(H: 0.026 V: 0.003) 1-2 Check on CP 052120T628

3 Top of Water

4-6 Existing Pipeline (flagged yellow)

7 Anomaly

10-945 Mag Route

Notes: Logged data static file on CP052120T615
Using R8s on a 2 meter Pole
Files 1276 1970
Start= 7:28 Am
Stop= 12:26 pm

8075

Benjy Gabriel
Dylan Breaux
Bryant Rowles

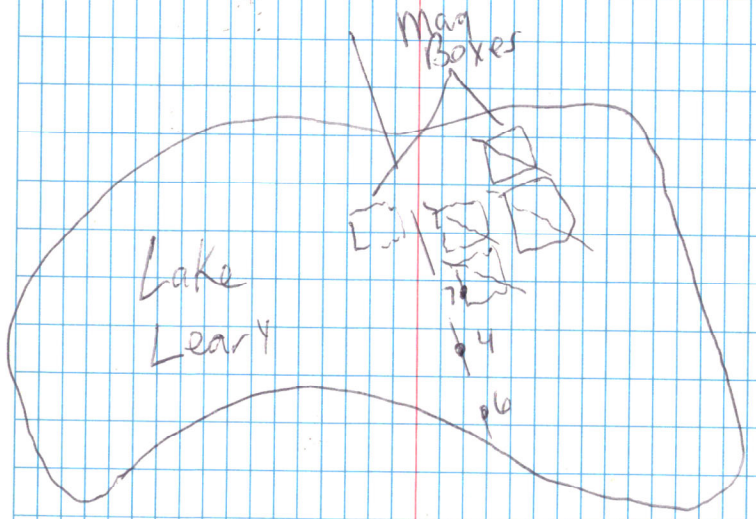
Trimble - RTK
R8s Base & Rover
w/ TSC7
Tinker & Raser
Cesium Mag

LB#13/BB#7
Serigne Boat Launch

14

N

July 16, 2021
Overcast
Calm Morning
Lightning and Winds in Afternoon



Notes
Completed probing of Gulf South P/L
Begin investigations anomaly clusters as instructed
Lighting and strong winds ended crew's day

8075

70

FILE: 072121JF JOB: 2213288.00C

C.P.R.A.

North Delacroix Marsh Creation

Lake Lery Delacroix, LA St. Bernard Parish

Base @ 052120TG1S with Trimble R12 on 2M Pole Measuring to Bottom of quick release

PT #	Description
3-4	CP_CHK (0521TG2R) H=0.002 V=0.021
3000-3038	MAG_ROUTE/ran mag around. 1260, 1259, 1254
3039-3082	MAG_ROUTE/ran mag around 1246, 1239
3083-3109	MAG_ROUTE/ran mag around. 1240, 1241
3110-3133	MAG_ROUTE/ran mag around 1232
3134-3185	MAG_ROUTE/ran mag around 1224, 1321, 1318
3186-3221	MAG_ROUTE/ran mag around 1209
3222-3269	MAG_ROUTE/ran mag around 1193, 1191
3270-3299	MAG_ROUTE/ran mag around 1173,
3300-3363	MAG_ROUTE/ran mag around 1164, 1165, 1156
3364-3430	MAG_ROUTE/ran mag around. 1152, 1142, 1307, 1134
3431-3467	MAG_ROUTE/ran mag around 1304, 1127
6000	ANMLY/Good mag signal. Probed no hit. will investigate further
3468-3517	MAG_ROUTE/ran mag around 1136, 1137
3518-3548	MAG_ROUTE/ran mag around. 1126
3549-3599	MAG_ROUTE/ran mag around 1135, 1143, 1146, 1153
3600-3639	MAG_ROUTE/ran mag around. 1154, 1145, 1306
3640-3665	MAG_ROUTE/ran mag around. 1305
6001	ANMLY/mag signal nothing found possible trash
3666-3695	MAG_ROUTE/ran mag around. 1155

8079

Josh. E
Dylan. B
Bryant. R

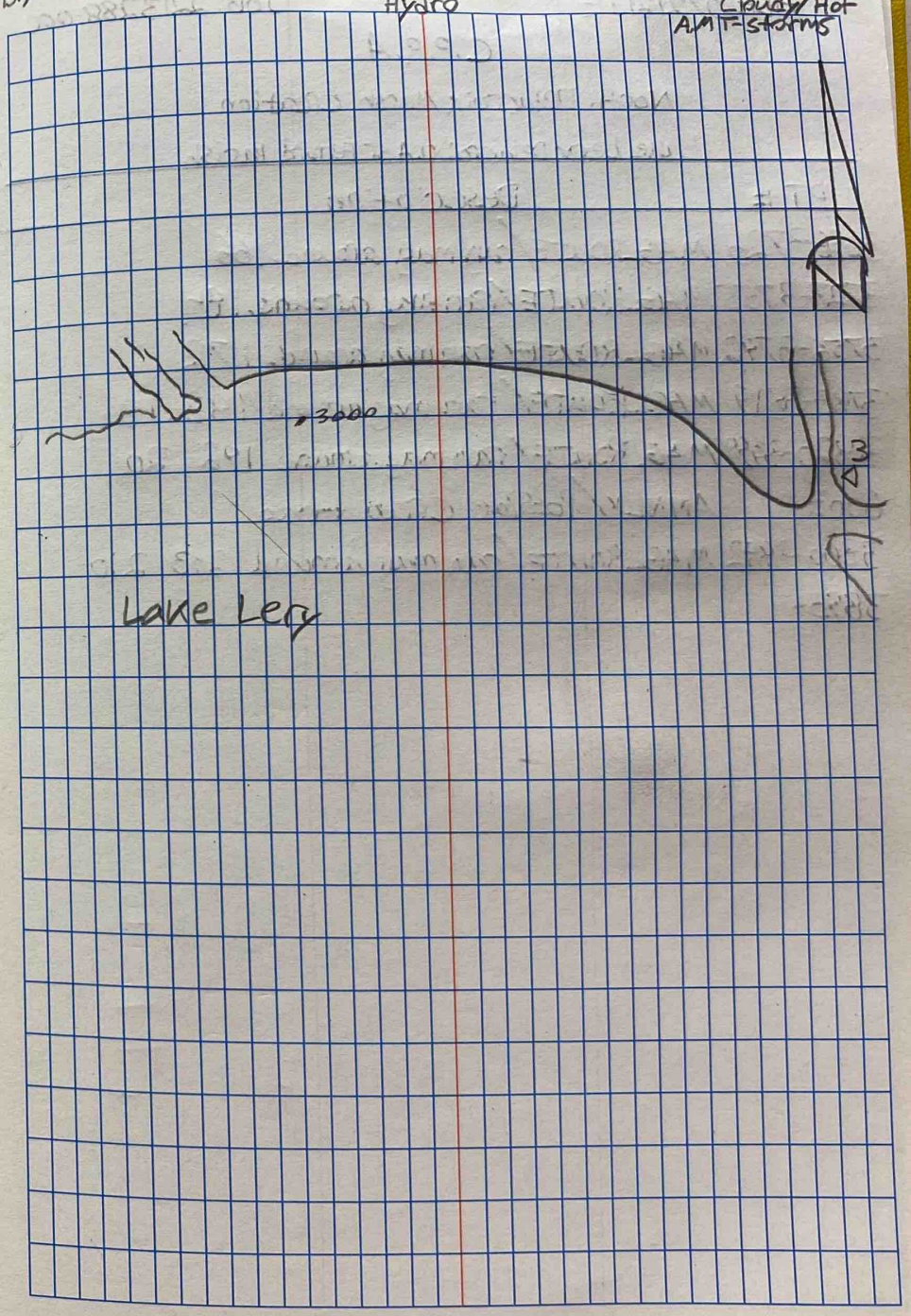
RTK
mag

Hydro

7/21/21

70

Cloudy/Hot
AMT=Storms



8079

71

FILE: 072121JF JOB: 2213288.00C

C.P.R.A

North Delacroix Marsh creation

Lake Lery Delacroix LA St. Bernard Parish

PT #	Description
3696-3726	MAG_ROUTE/ran mag around. 166
3727-3755	MAG_ROUTE/ran mag around. 184
3756-3782	MAG_ROUTE/ran mag around. 172
3783-3819	MAG_ROUTE/ ran mag around 183, 186
3820-3859	MAG_ROUTE/ran mag around 192, 201
6003	ANNLY/Possible crab trap
3860-3892	MAG_ROUTE/ran mag around 203, 210
3893-	

8079

Josh.F
Dylan.B
Bryant.R

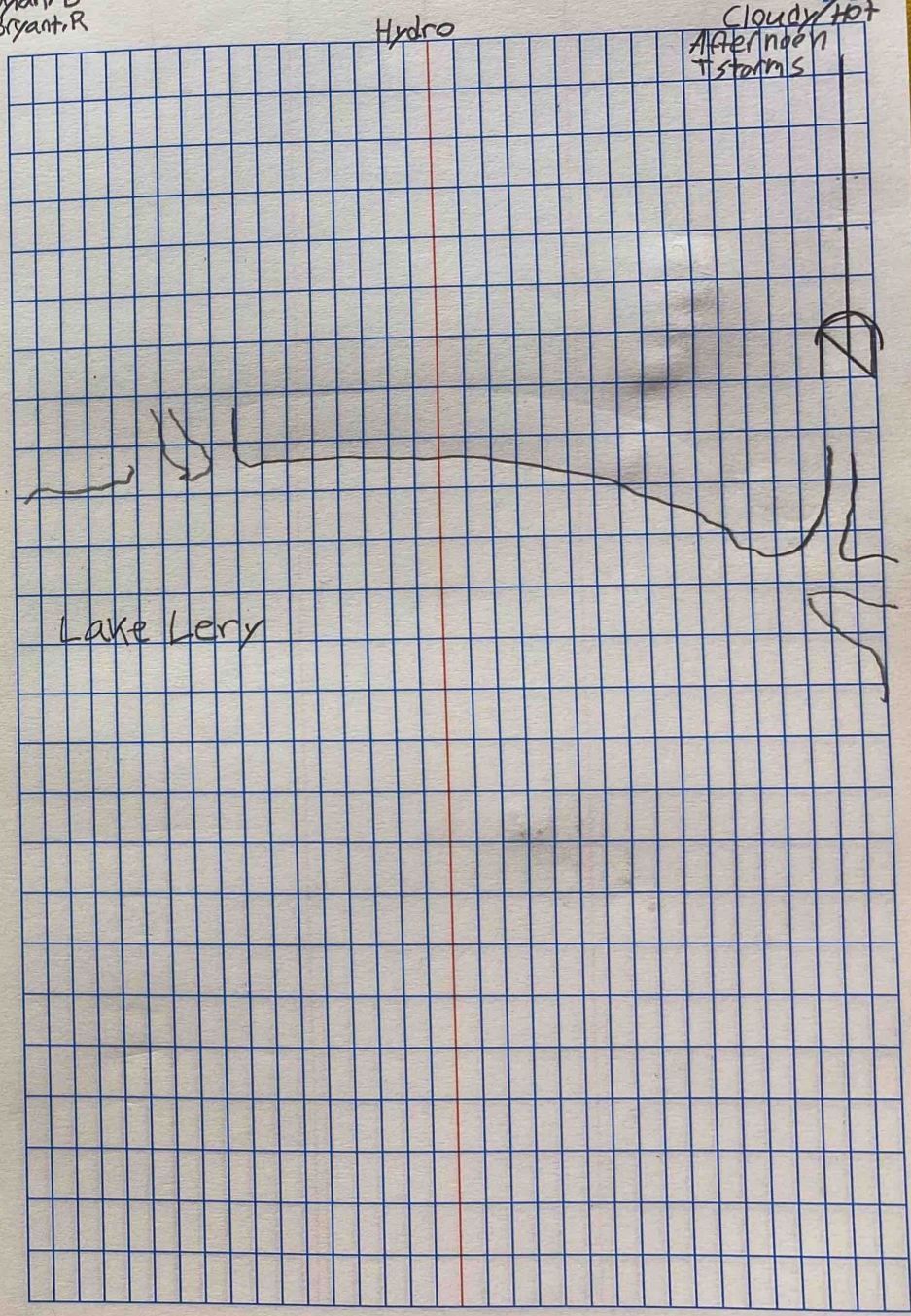
RTK
mag

Hydro

7/21/21

71

Cloudy/Hot
Afternoon
Tstorms



8079

FILE: 072221JE JOB: 2213288.00C

C.P.R.A.

North Delacroix Marsh creation

Lake Lery Delacroix, LA St. Bernard Parish

Base @ 052120TG1S with Trimble R12 on 2M Pole Measuring to Bottom of quick release.

PT #	Description
3-4	CP_CHK (052120TG2R) H= 0.080 V=0.013
4000-4069	MAG_ROUTE/ran mag around 237, 243, 244
4070-4093	MAG_ROUTE/ran mag around 245
4094-4118	MAG_ROUTE/ran mag around 236
4119-4188	MAG_ROUTE/ran mag around 231, 235, 234
6000	ANMLX / Possible crab Trap no Hit
4189-4215	MAG_ROUTE/ran mag around. 261
4216-4240	MAG_ROUTE/ran mag around. 264
4241-4295	MAG_ROUTE/ran mag around. 253, 255
4296-4349	MAG_ROUTE/ran mag around. 247, 252, 256
6001	ANMLY / Probed no hit
4350-4388	MAG_ROUTE/ran mag around 251, 249, 248
4389-4463	MAG_ROUTE/ran mag around 263, 266, 265
4464-4500	MAG_ROUTE/ran mag around. 320
4501-4530	MAG_ROUTE/ran mag around 226, 223,
4531-4567	MAG_ROUTE/ran mag around. 227
4568-4591	MAG_ROUTE/ran mag around. 222, 220
4592-4632	MAG_ROUTE/ran mag around. 319
4633-4663	MAG_ROUTE/ran mag around. 316
4664-4687	MAG_ROUTE/ran mag around. 123

8079

Josh. E
Dylan. B
Bryant. R

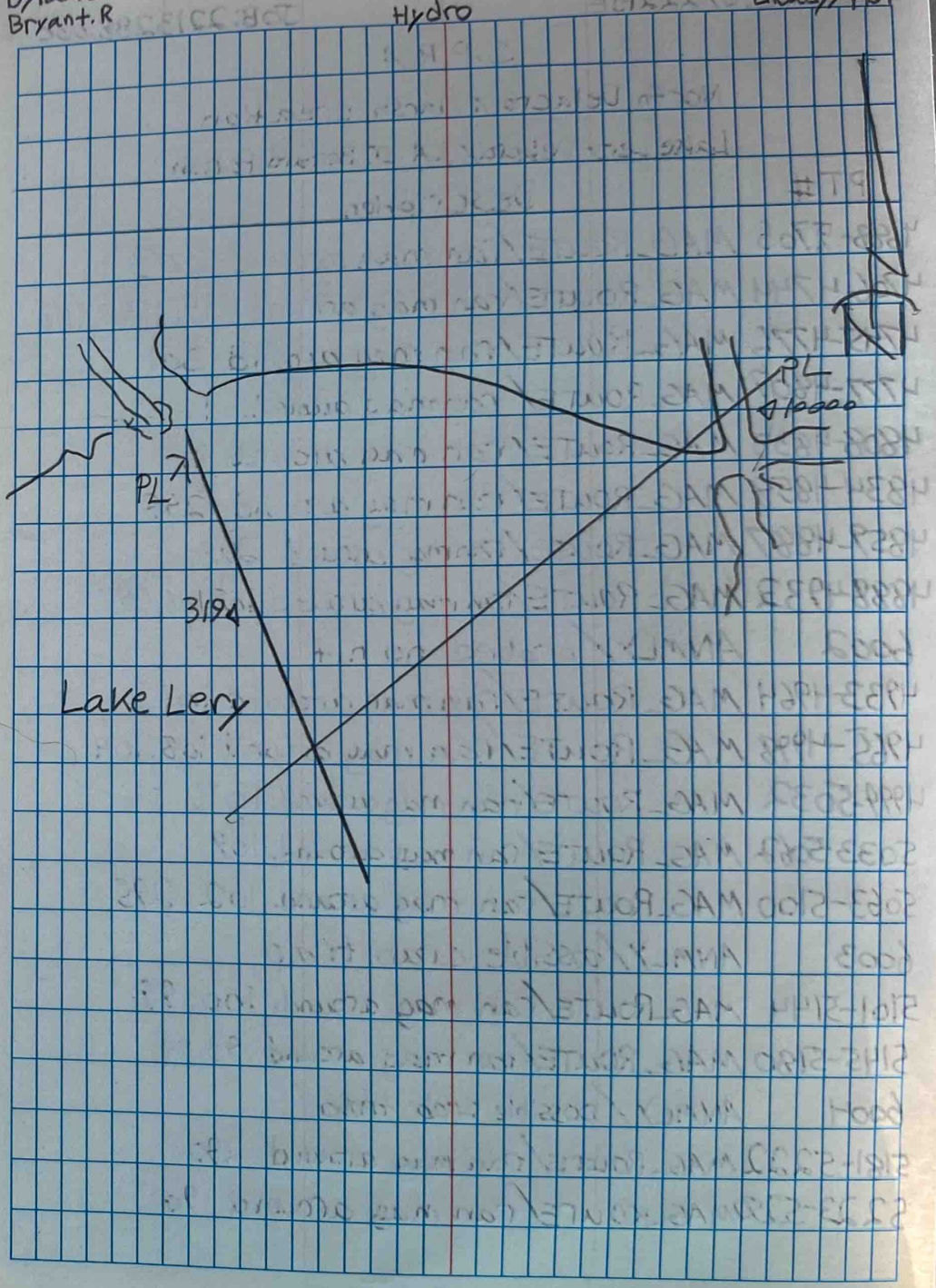
RTK mag

Hydro

7/22/21

72

Cloudy/Hot



8079

FILE: 07221JE JOB: 2213288.00c

C.P.R.A

North Delacroix Marsh Creation

Lake Lery Delacroix, LA St. Bernard Parish

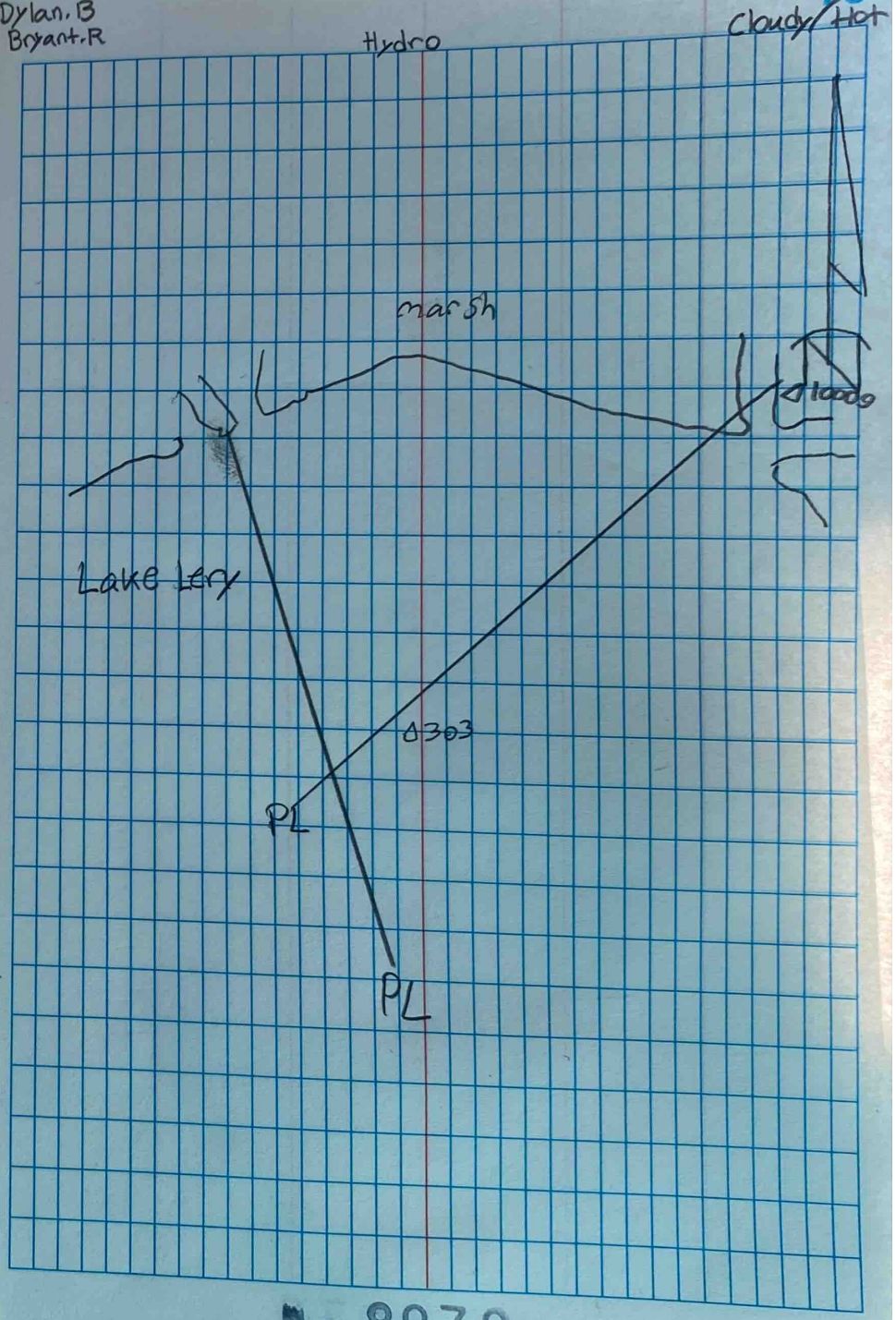
PT #	Description
4688-4705	MAG_ROUTE/ran mag around 303
4706-4744	MAG_ROUTE/ran mag around 119, 120, 118
4745-4776	MAG_ROUTE/ran mag around 301
4777-4807	MAG_ROUTE/ran mag around. 113
4808-4833	MAG_ROUTE/ran mag around 114
4834-4858	MAG_ROUTE/ran mag around 298
4859-4887	MAG_ROUTE/ran mag around 299
4888-4932	MAG_ROUTE/ran mag around 107, 106, 297
6002	ANMLY/probed no hit
4933-4964	MAG_ROUTE/ran mag around 101
4965-4998	MAG_ROUTE/ran mag around 108, 104
4999-5032	MAG_ROUTE/ran mag around. 103
5033-5062	MAG_ROUTE/ran mag around. 109
5063-5100	MAG_ROUTE/ran mag around. 102, 295
6003	ANMLY/possible crab trap.
5101-5144	MAG_ROUTE/ran mag around. 100, 99
5145-5180	MAG_ROUTE/ran mag around 93, 94
6004	ANMLY/possible crab trap
5181-5222	MAG_ROUTE/ran mag around 290
5223-5259	MAG_ROUTE/ran mag around 90

7/22/21

Josh.E
Dylan.B
Bryant.R

RTK
mag

Cloudy/Hot



FILE: 072621JE JOB: 2213288.00C

C.P.R.A

North Delacroix Marsh Creation

Lake Lery Delacroix, LA St. Bernard Parish

Base @ 052120TG15 with Trimble R12 on 2m Pole Measuring to Bottom of Quick Release

PT #	Description
3-4	CP_CHK (052120TG28) H=0.039 V=0.020
7000-7049	MAG_ROUTE/ran mag around 21, 23, 53
11000	ANMLY/ Good mag signal proped no hit
7050-7068	MAG_ROUTE/ran mag around 9
7069-7097	MAG_ROUTE/ran mag around 277
11001	ANMLY/ probed no hit possible trash
7098-7110	MAG_ROUTE/ran mag around 70, 275, 22, 274
	To close to PL will investigate when we probe line
7111-7136	MAG_ROUTE/ran mag around. 24
7137-7186	MAG_ROUTE/ ran mag around 7, 8
7187-7207	MAG_ROUTE/ ran mag around. 6
7208-7255	MAG_ROUTE/ran mag around. 72, 69, 54, 25
7256-7315	MAG_ROUTE/ ran mag around 27, 26, 55, 73.
7316-7345	MAG_ROUTE/ ran mag around. 56, 28
7346-7383	MAG_ROUTE/ ran mag around 68, 67
7384-7441	MAG_ROUTE/ ran mag around 66, 75, 57, 31
7442-7482	MAG_ROUTE/ ran mag around. 46, 47, 30
7483-7526	MAG_ROUTE/ ran mag around 13, 12, 11
7527-7561	MAG_ROUTE/ ran mag around. 10, 20, 29
11002	ANMLY/ Probed Hit something metal. 6 ^{H_2O} o cover

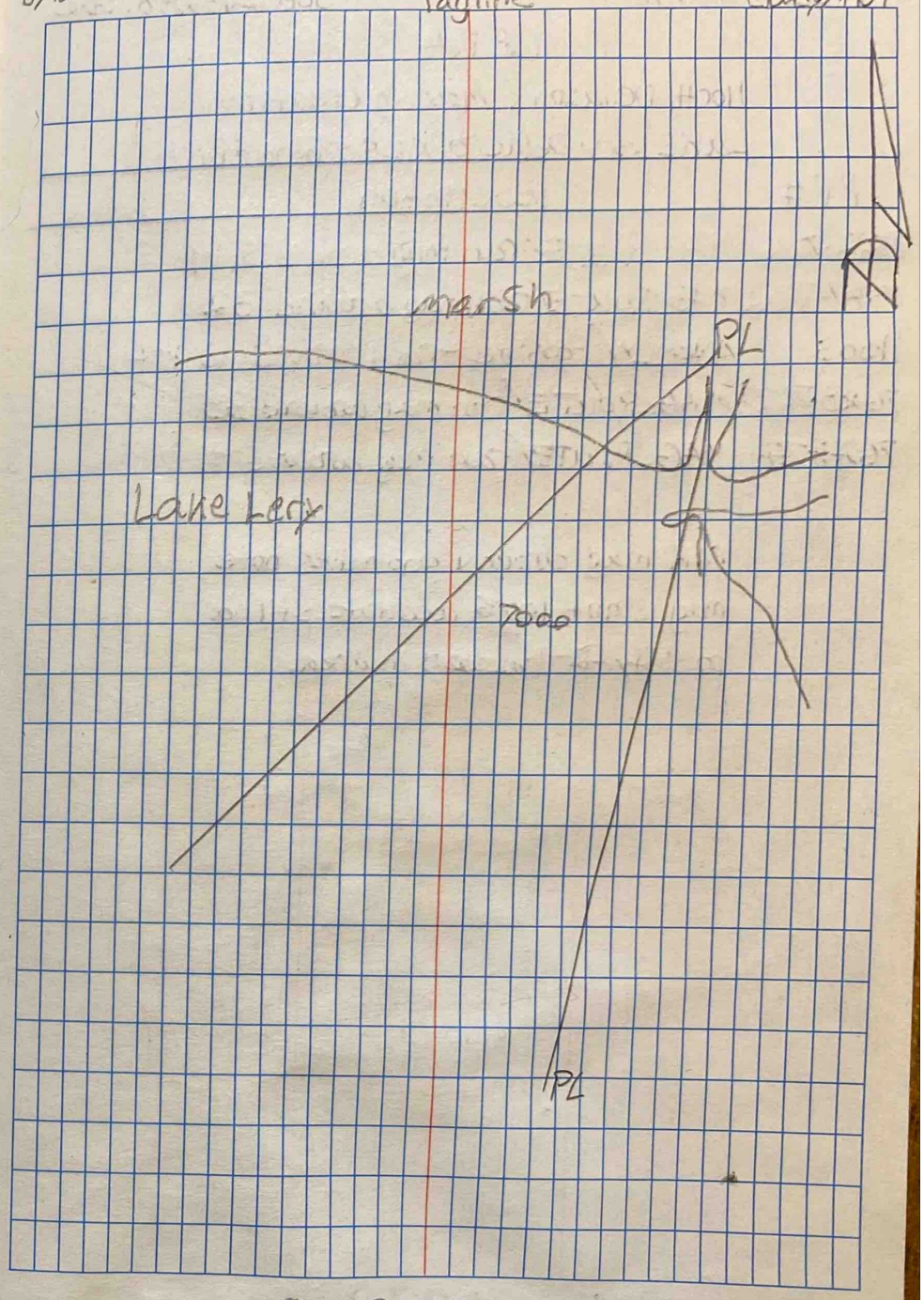
Josh. E
Bryant. R
Dylan. B

RTK mag

7/26/21

Tagline

Cloudy/Hot



FILE: 072621JE JOB: 2213288.00C

C.P.R.A

North Delacroix Marsh Creation

Lake Lery Delacroix, LA St. Bernard Parish

PT #	Description
7562-7586	MAG_ROUTE/ran mag around. S, 14
7587-7602	MAG_ROUTE/ran mag around 32
11003	ANOMLY/Possible trash probed no hit.
7603-7623	MAG_ROUTE/ran mag around 33
7624-7644	MAG_ROUTE/ran mag around 4.

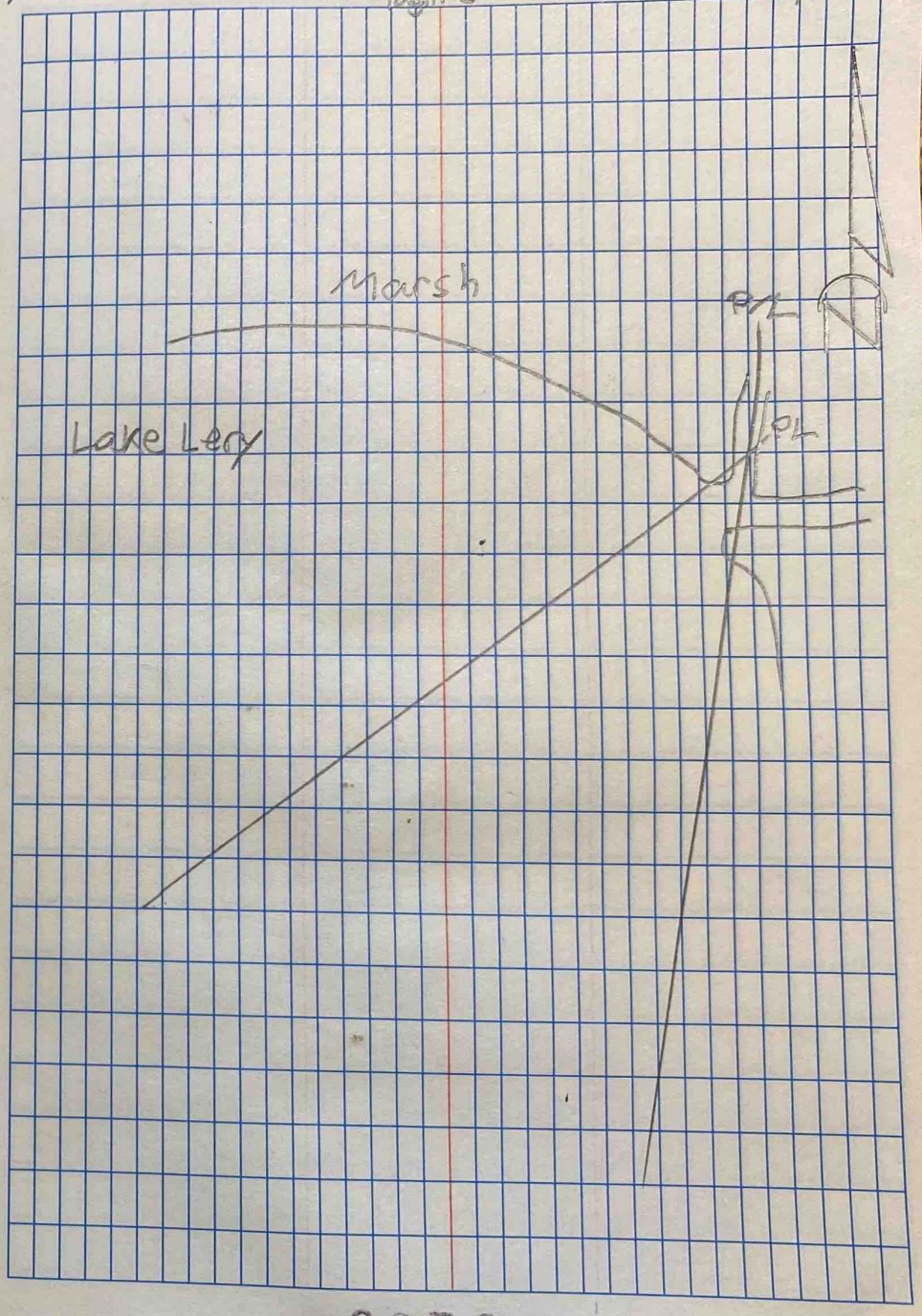
ran mag around anomalies note mag is not 100% accurate. Still a possiblity for hazdaors in area.

Josh, E
Bryant. R
Dylan, B

RTK
mag
Tagline

7/26/21

Cloudy/Hot



77

FILE: 072721JE JOB: 221328.00C

C.P.R.A

North Delacroix Marsh creation

Lake Lery Delacroix LA. St. Bernard Parish

Base @ 052120TG1S with Trimble R12 on 2M Pole Measuring to Bottom of quick release

PT#	Description
3000-3001	CP_CHK (052120TG2R) H=0.065 V=0.014
15000,15001	WATER_TOP/ 8:10,
8000-8042	MAG_ROUTE/ran mag around 45, 59, 271, 19
8043-8065	MAG_ROUTE/ran mag around 270
8066-8103	MAG_ROUTE/ran mag around 34, 18, 17
8104-8132	MAG_ROUTE/ran mag around 65, 64
8133-8162	MAG_ROUTE/ran mag around. 60, 35
8163-8188	MAG_ROUTE/ran mag around. 44, 288
8189-8225	MAG_ROUTE/ran mag around. 15, 3
8226-8267	MAG_ROUTE/ran mag around. 36, 42, 61, 36
8268-8286	MAG_ROUTE/ran mag around 272
8287-8328	MAG_ROUTE/ran mag around 41, 62, 37, 40, 38
8329-8374	MAG_ROUTE/ran mag around 1, 2, 16
8375-8432	MAG_ROUTE/ran mag around. 39, 273, 63
8433-8457	MAG_ROUTE/ ran mag around. 286
12000-12007	PL_EX/Probed and tied-in targa PL every ± 200' used Red flagging on cane Poles.
12500-12506	PL_EX/Probed and tied-in PL every ± 200'

8079

Josh. E
Bryant. R
Dylan. B

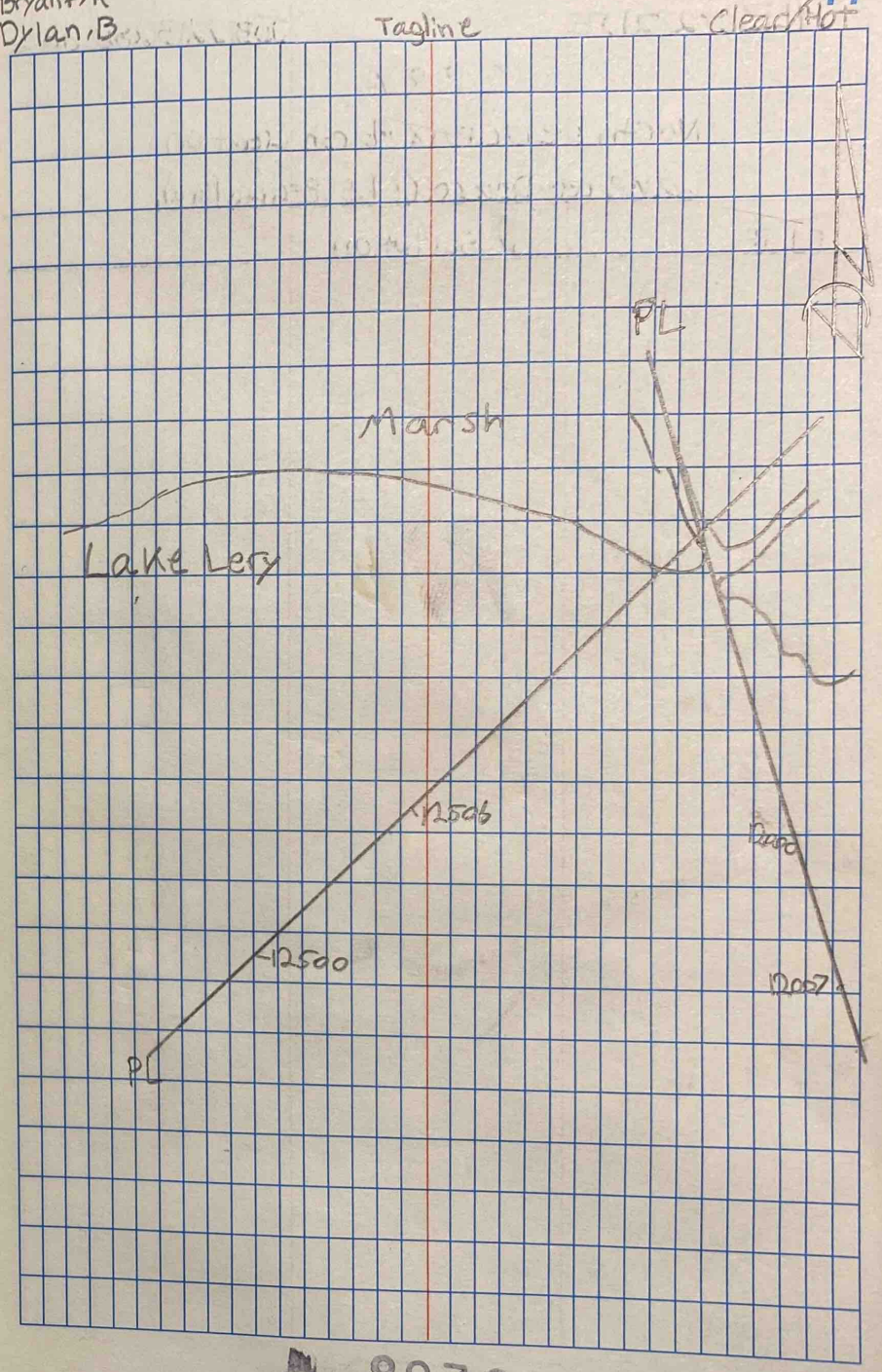
RTK
mag

Tagline

7/27/21

77

Clear/Hot



8079

FILE: 072821JE JOB: 2213288.00C

C.P.R.A

North Delacroix Marsh Creation

Lake Lery Delacroix LA. St. Bernard Parish

Base @ 052120TG1S with Trimble R12 on 2M Pole Measuring to Bottom of Quick Release

PT #	Description
10000-10001	CP_CHK (052120TG2R) H=0.054 V=0.028
12507-12521	PL_EX / Probed and marked colonial PL every +-200' used Blue flagging on cane Poles
15000	WATER_TOP
13000-13005	PL_EX / Probed and marked Gulfsouth PL every +-200' used Yellow flagging on cane Poles

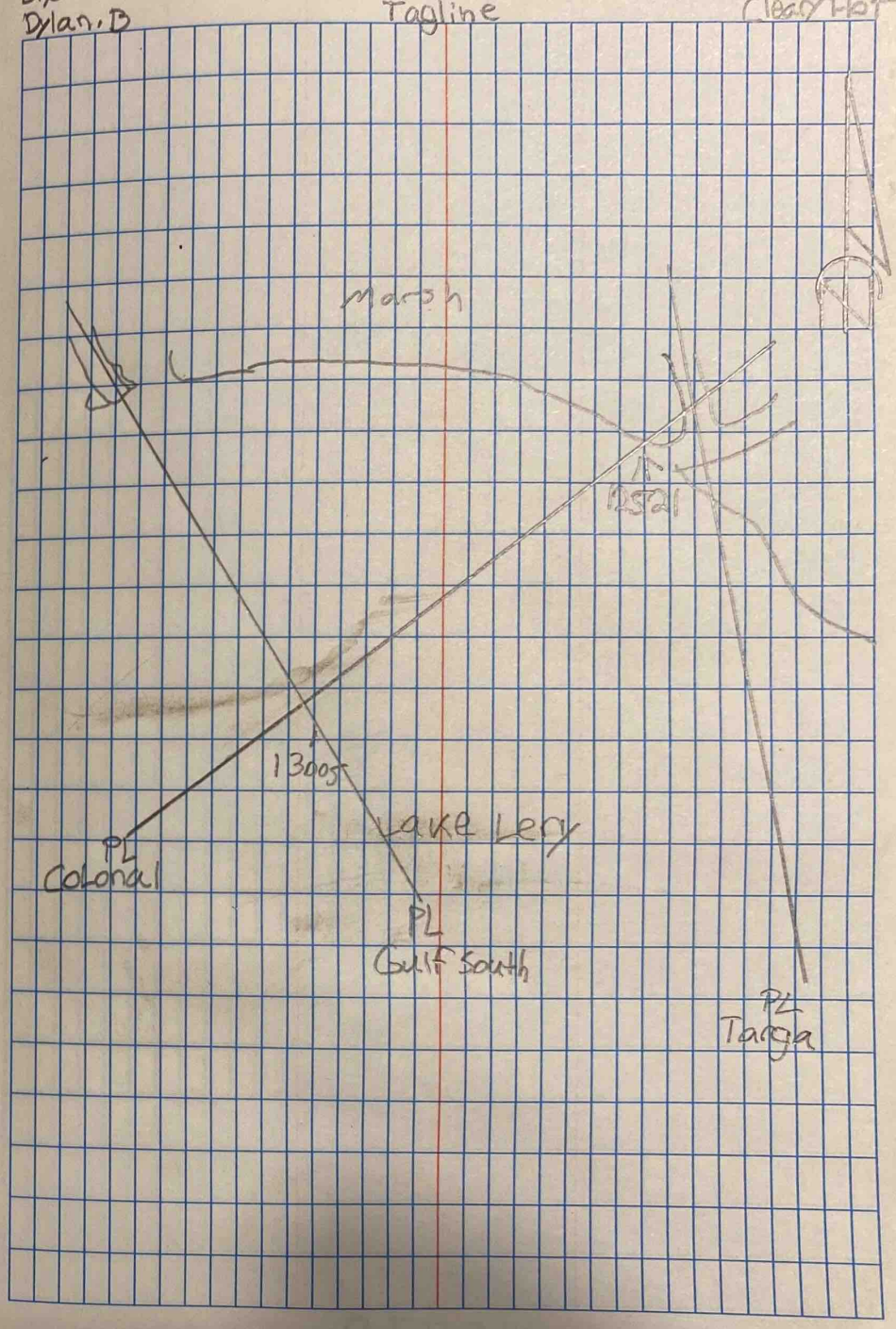
Josh. E
Bryant. R
Dylan. D

RTK
mag

Tagline

7/28/21

Clear/Hot



1

FILE: 073021JE JOB: 221B288.00C

C.P.R.A

North Delacroix Marsh creation

Lake Lery Delacroix, LA St. Bernard Parish

Logged on 052120TG1S start time 6:10 am - 10:58

Logged on BS32-SM-01 start time 6:39am - 9:56am

Base @ 052120TG1S with Trimble R12 on 2m Pole Measuring to Bottom of Quick Release

PT #	Description
34	CP_CHK (052120TG2R) H=0.056 V=0.034
500-501	WATER_TOP/
100	ANMLY/ hit something metal in 6' H2O with 1' of cover not sure what it is.
200	ANMLY/ Probed around not hit. Hard Sand in 10' area around anomaly. Possible trash.

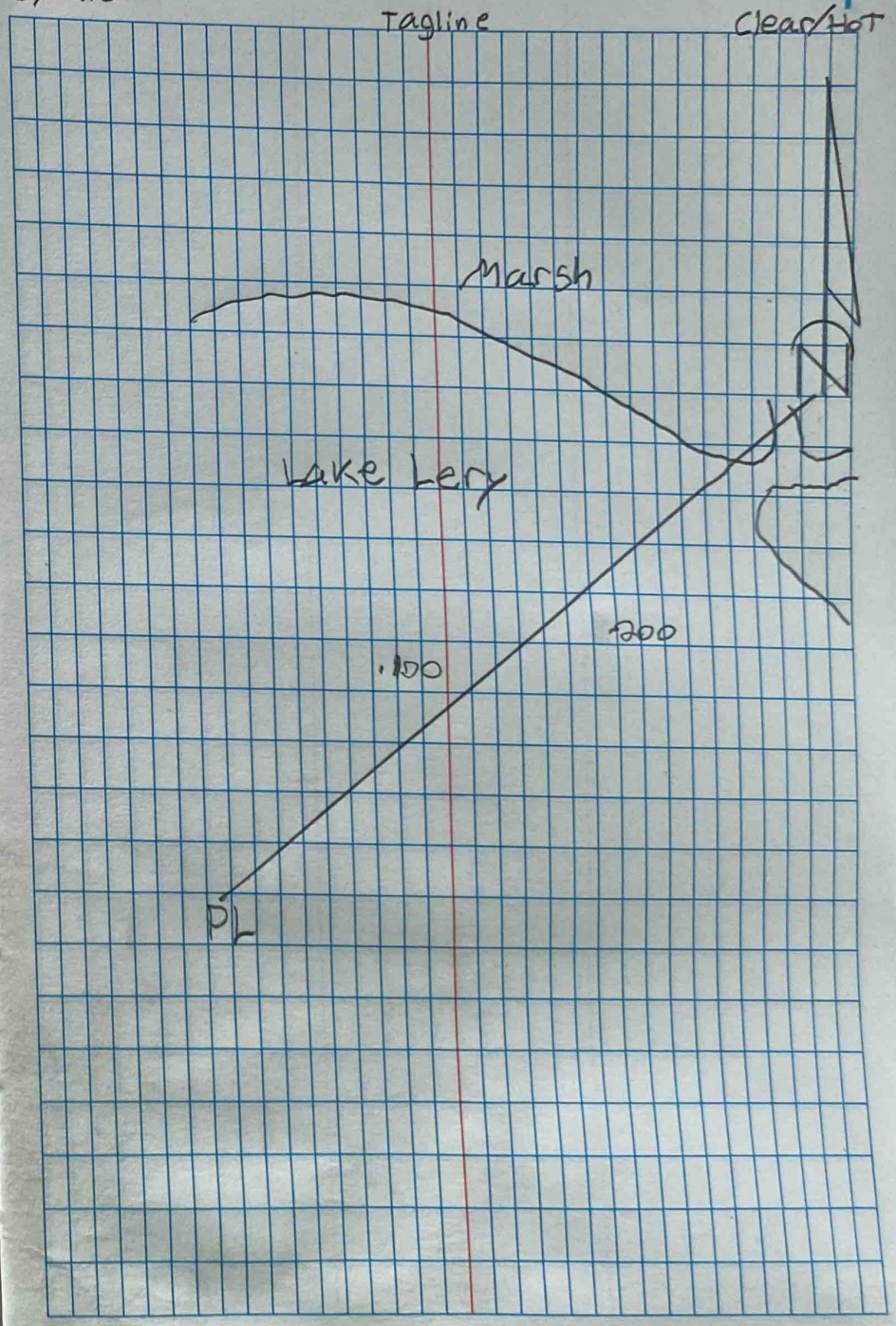
Josh. E
Bryant. R.
Dylan. B

RTK

7/30/21

1

Clear/Hot



34

2213288.00C FILE: 081721EK

COASTAL PROTECTION & RESTORATION AUTHORITY
N. DELACROIX MARSH CREATION
DELACROIX, LA.
ST. BERNARD PARISH, LA
R-8s ROVER W/ VRS

1 CP.RTK
0 CP.MON

10:11 CP-CHECK

19-20 WATER TOP
21-31 WATER BODY
100-566 NG / WATER BODY

8146

ERICK K.
JASON D.

TRUCK #206
AIRBOAT

08/17/21
SUNNY/HOT

34

CREW TOOK WATER BOTTOM SHOTS & MARSH ELEV. SHOTS IN RECON & MARSH CREATION AREA.

1

8146

SECTION H

Photos




BS32-SM-01






BS32-SM-01




END OF THE WORLD
BS32-SM-01


BS32-SM-01


BS32-SM


M-01


maker
CROIX
021 12:27 PM
26"N 89°46'34.25"W
lacroix Hwy, St Bernard, LA 70085, USA


Fenstermaker
N. DELACROIX
07.12.2021 12:27 PM
29°47'6.35"N 89°46'34.21"W
5543 Delacroix Hwy, St Bernard, LA 70085, USA


X
2:46 PM
9°46'38.5"W
x Hwy, St Bernard, LA 70085, USA


ker
ROIX
1 12:46 PM
"N 89°46'39.28"W
croix Hwy, St Bernard, LA 70085, USA

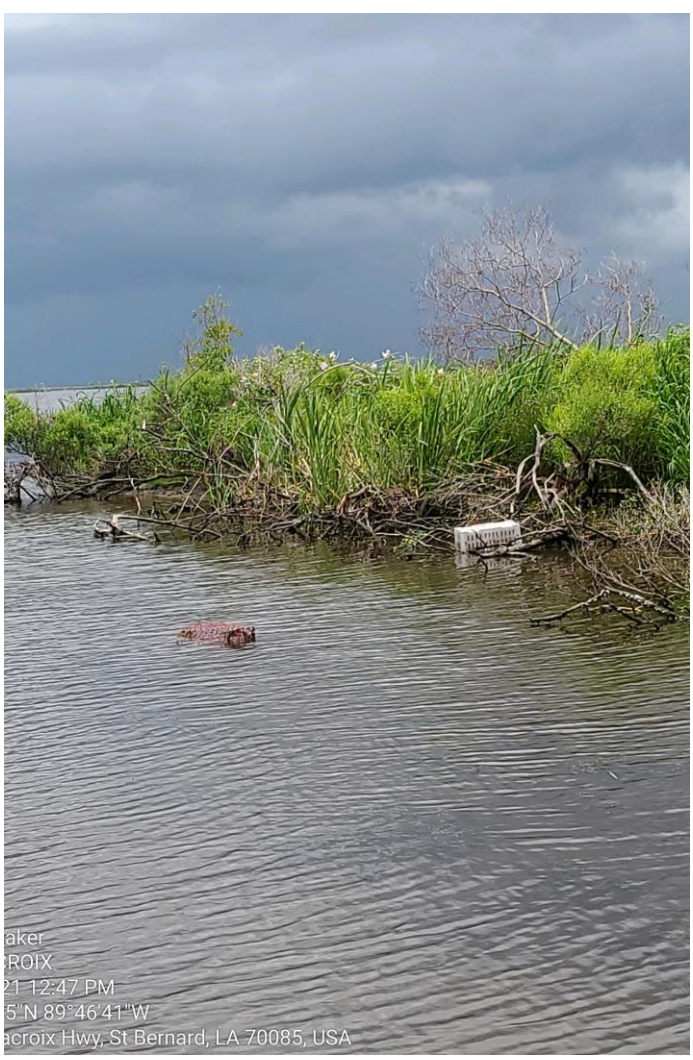

DELACROIX ISLAND
termaker
ELACROIX
2.2021 12:28 PM
7'6.21"N 89°46'33.59"W
Delacroix Hwy, St Bernard, LA 70085, USA


Fenstermaker
N. DELACROIX
07.12.2021 12:27 PM
29°47'6.35"N 89°46'34.21"W
5543 Delacroix Hwy, St Bernard, LA 70085, USA


aker
ROIX
21 12:47 PM
5"N 89°46'41.8"W
acroix Hwy, St Bernard, LA 70085, USA


Fenstermaker
N. DELACROIX
07.13.2021 07:51 AM
29°47'9.02"N 89°46'43.34"W
5246-6488 Delacroix Hwy, St Bernard, LA 70085, USA

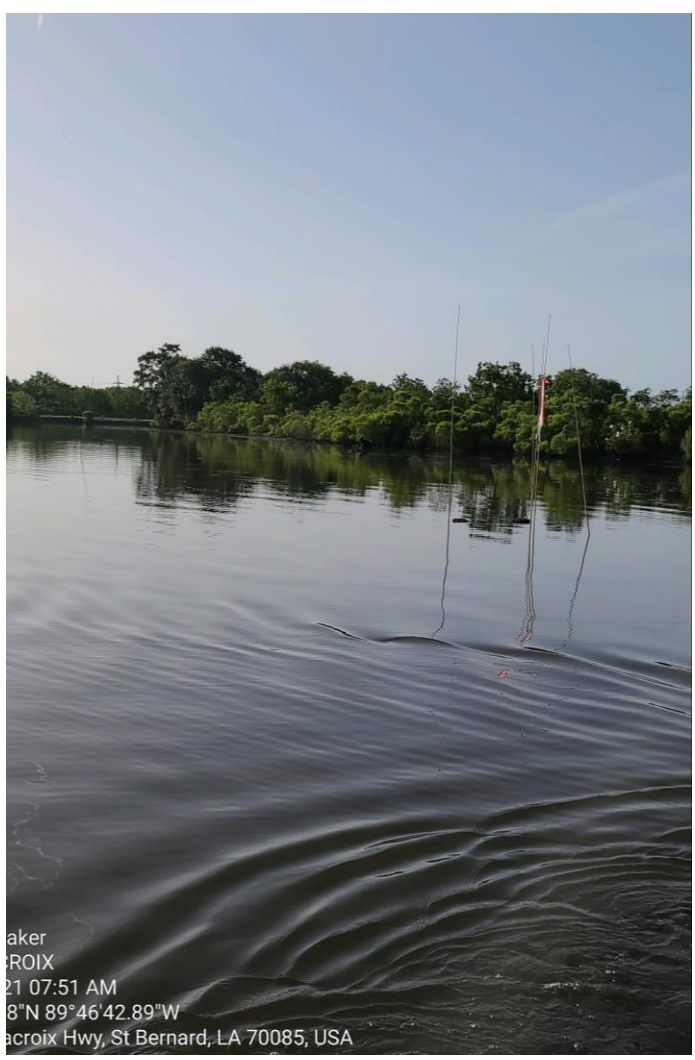

Fenstermaker
N. DELACROIX
07.13.2021 06:41 AM
29°47'8.82"N 89°46'42.22"W
5557 Delacroix Hwy, St Bernard, LA 70085, USA


aker
ROIX
21 12:47 PM
5"N 89°46'41"W
acroix Hwy, St Bernard, LA 70085, USA

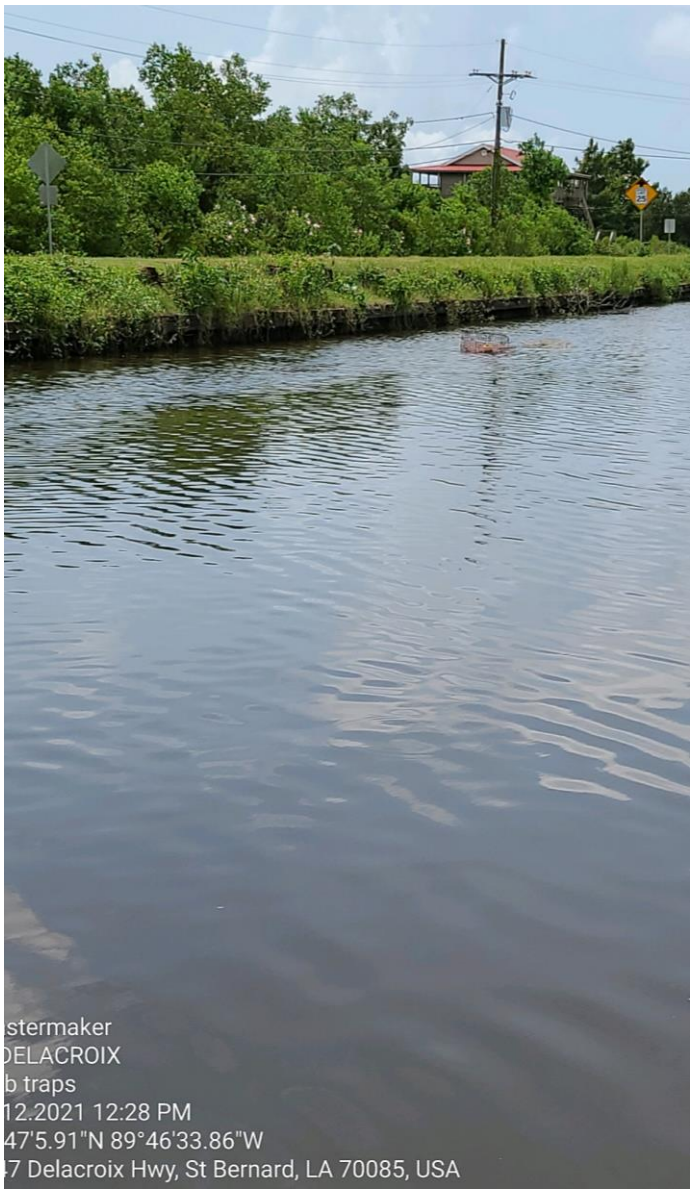

ter
OIX
12:40 PM
6"N 89°46'37.99"W
roix Hwy, St Bernard, LA 70085, USA


51 PM
9°46'36.13"W
Hwy, St Bernard, LA 70085, USA


termaker
ELACROIX
3.2021 07:51 AM
7'9.02"N 89°46'43.34"W
6488 Delacroix Hwy, St Bernard, LA 70085, USA


aker
ROIX
21 07:51 AM
8"N 89°46'42.89"W
acroix Hwy, St Bernard, LA 70085, USA


stermaker
DELACROIX
b traps
12.2021 12:46 PM
47'6.92"N 89°46'33.84"W
1 Delacroix Hwy, St Bernard, LA 70085, USA


stermaker
DELACROIX
b traps
12.2021 12:28 PM
47'5.91"N 89°46'33.86"W
7 Delacroix Hwy, St Bernard, LA 70085, USA

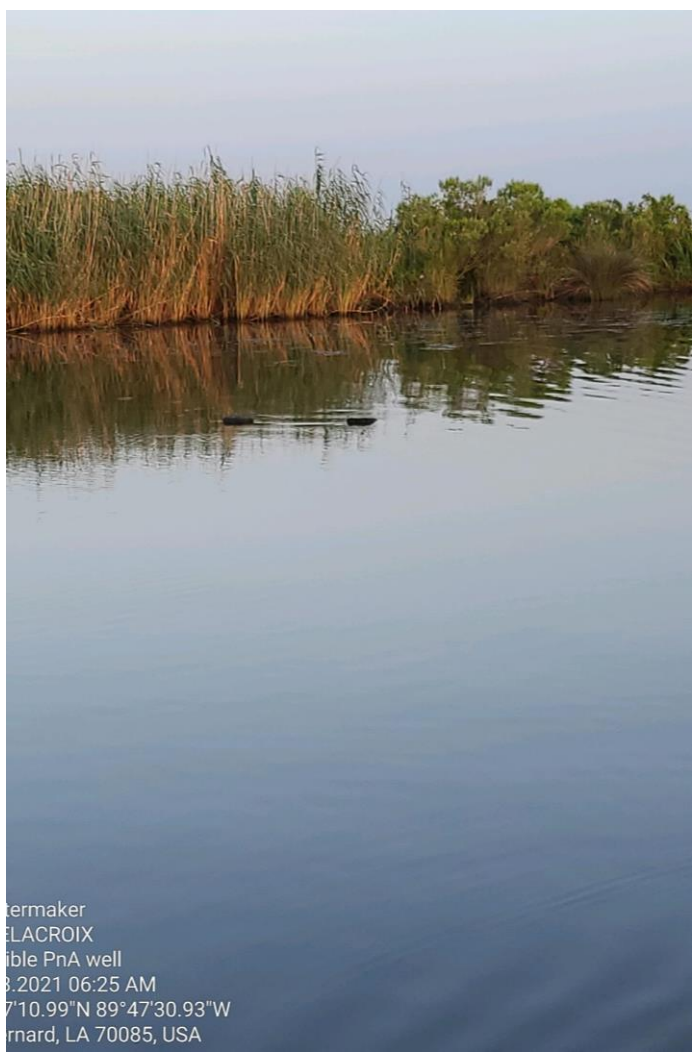

naker
CROIX
p
021 06:42 AM
12"N 89°46'42.04"W
lacroix Hwy, St Bernard, LA 70085, USA


Fenstermaker
N. DELACROIX
Mag signal hit trash about 2' down
07.13.2021 07:50 AM
29°52'14.84"N 89°52'6.56"W
2300 Gina Dr, St Bernard, LA 70085, USA

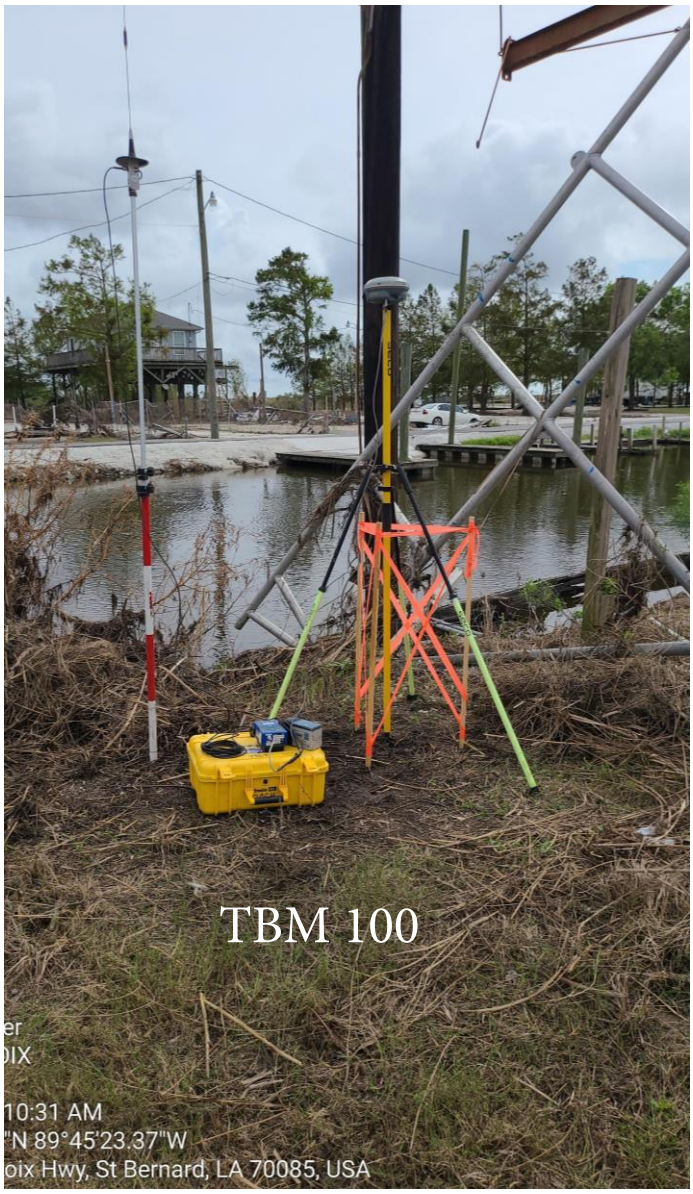

maker
ACROIX
021 12:47 PM
.9"N 89°46'43.14"W
elacroix Hwy, St Bernard, LA 70085, USA


Fenstermaker
N. DELACROIX
Possible p n a well rod on concrete
07.12.2021 12:59 PM
29°47'8.86"N 89°46'42.41"W
5557 Delacroix Hwy, St Bernard, LA 70085, USA


rmaker
ACROIX
ell
2021 06:39 AM
55.38"N 89°46'37.97"W
Delacroix Hwy, St Bernard, LA 70085, USA


termaker
ELACROIX
ible PnA well
3.2021 06:25 AM
7'10.99"N 89°47'30.93"W
rnard, LA 70085, USA


TBM 100
stermaker
ELACROIX
100(80D Nail)
8 2021 10:26 AM
9'26.44"N 89°45'23.25"W
Delacroix Hwy, St Bernard, LA 70085, USA


TBM 100
er
IX
10:31 AM
"N 89°45'23.37"W
oix Hwy, St Bernard, LA 70085, USA


Fenstermaker
N. DELACROIX
Possible PnA well
07.13.2021 06:27 AM
29°47'8.76"N 89°46'42.17"W
5557 Delacroix Hwy, St Bernard, LA 70085, USA


South East Elevation
POS: 29°48'38.05", -89°50'28.94" ±16ft
ww.fenstermaker.com
14 Jul 2021, 8:55:12 A


N
NE
0
30
60
OS: 29°48'48.89", -89°48'56.60" ±16ft
nstermaker.com
12 Jul 2021, 10:23:03


W
NW
N
270
300
330
0
POS: 29°48'39.76", -89°50'30.53" ±16
w.fenstermaker.com
14 Jul 2021, 8:56


N
NE
E
0
30
60
90
POS: 29°48'48.10", -89°48'57.17" ±16ft
v.fenstermaker.com
12 Jul 2021, 10:22:41 AM

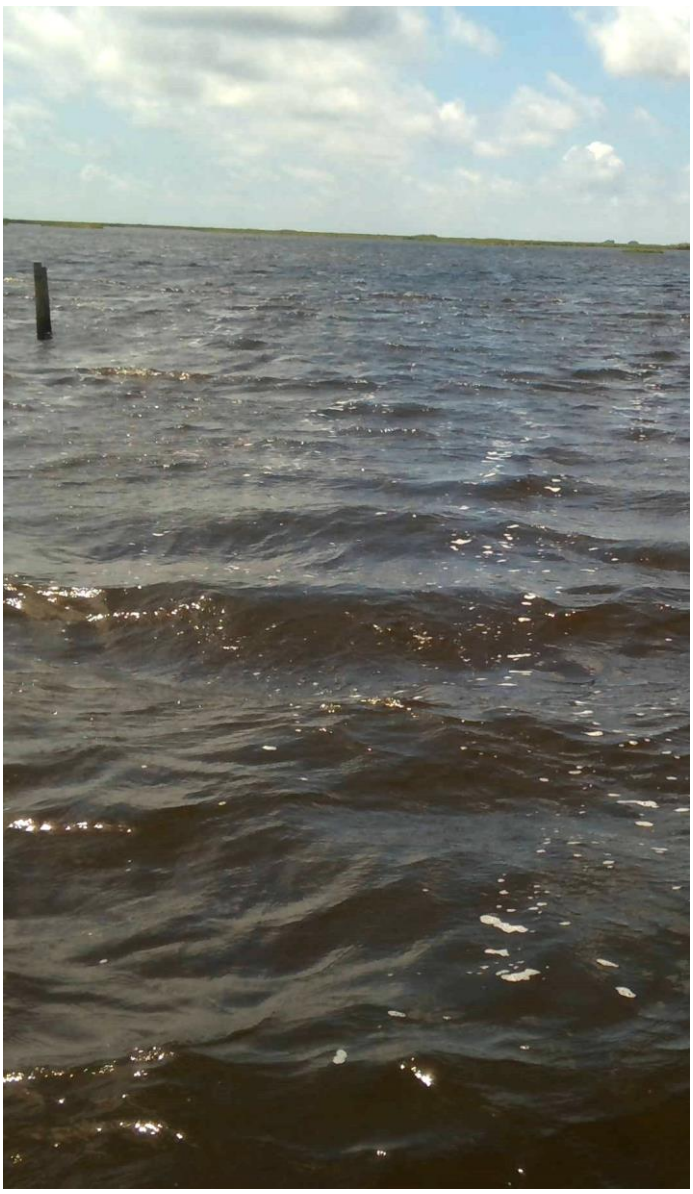

NW
N
NE
330
0
30
60
POS: 29°48'41.92", -89°48'42.55" ±32ft
www.fenstermaker.com
12 Jul 2021, 10:29:30

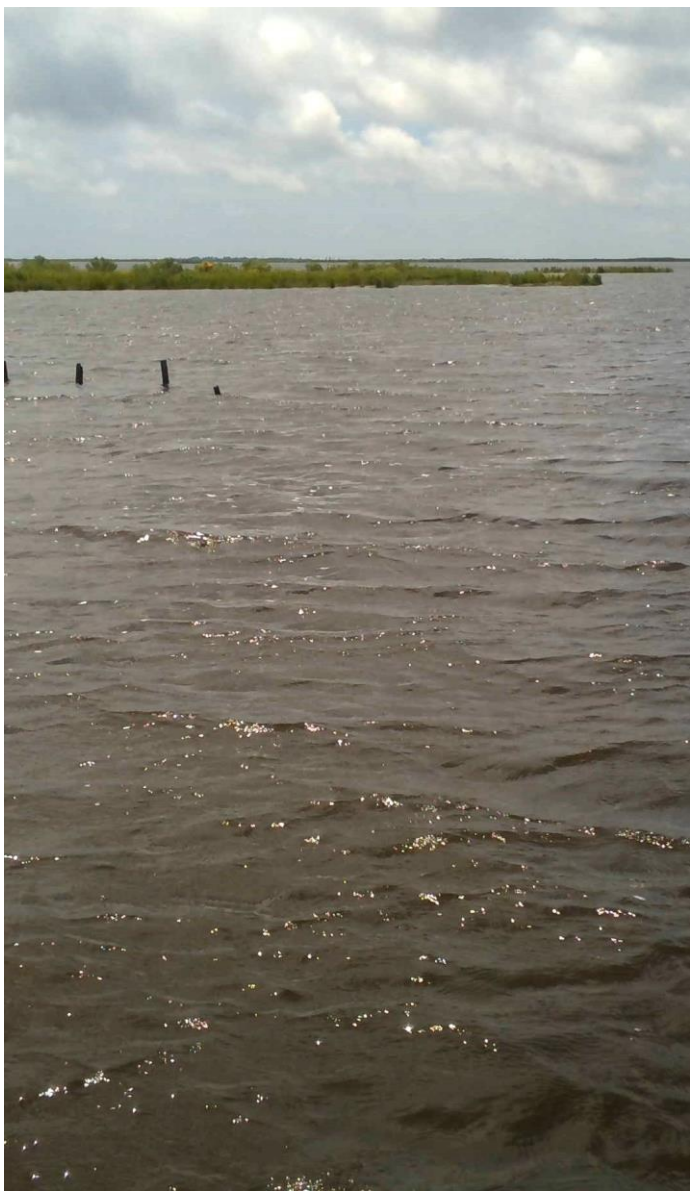


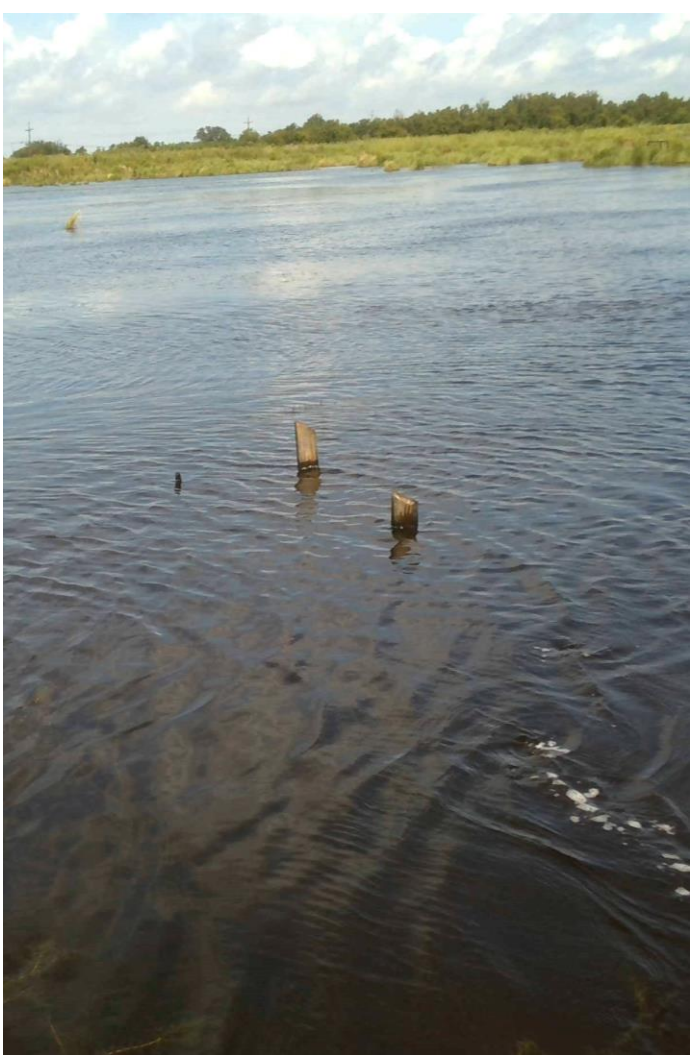



NW
N
NE
300
330
0
30
POS: 29°48'42.34", -89°48'42.27" ±16ft
www.fenstermaker.com
12 Jul 2021, 10:29:45



































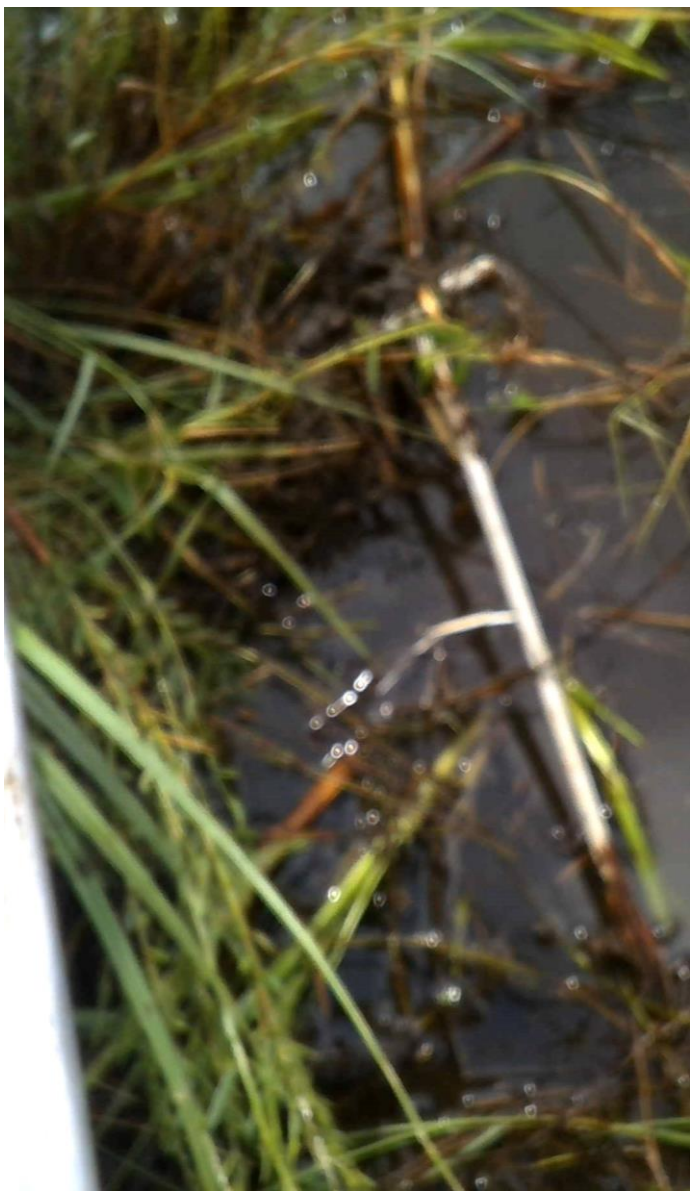


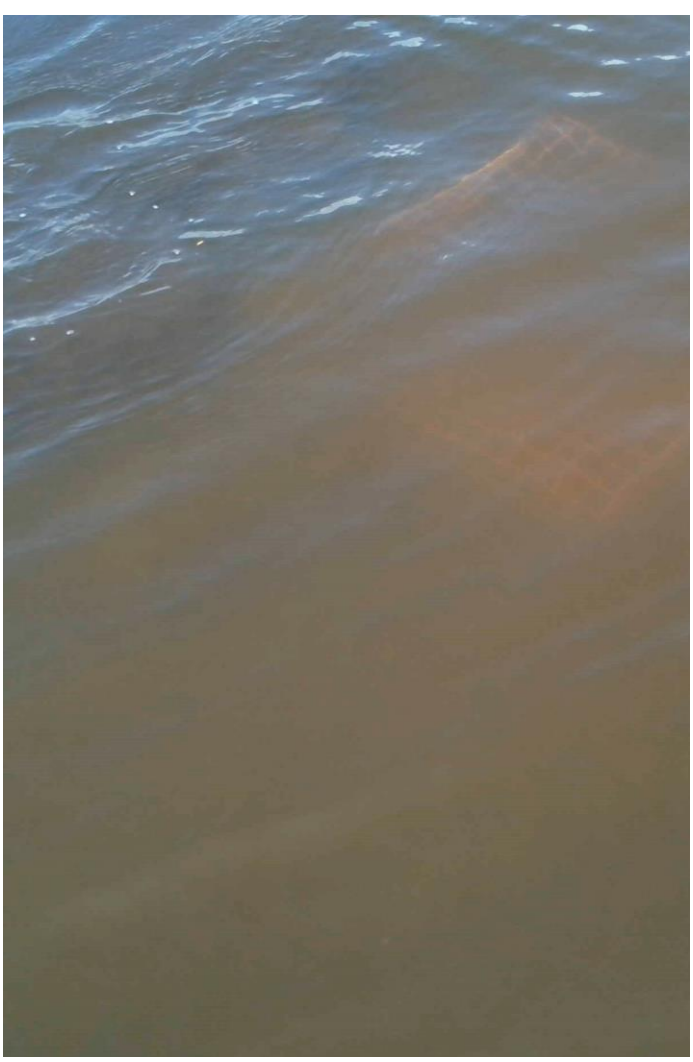
















SECTION I

Phase I Archaeological Assessment

135 Regency Square · Lafayette, LA 70508 · 337.237.2200 phone · 337.232.3299 fax
www.fenstermaker.com

Phase I Submerged Cultural Resources and Remote Sensing Investigation for the North Delacroix Marsh Creation and Terracing Project (BS-41), Lake Lery, St. Bernard and Plaquemines Parishes, Louisiana

State Report #22-XXXX

DRAFT REPORT

September 2021

Prepared for:

TerraSond
16420 Park Ten Place #100
Houston, Texas

and

C.H. Fenstermaker & Associates, LLC
445 North Blvd, Suite 650
Baton Rouge, Louisiana

and

Coastal Protection and
Restoration Authority
Louisiana Governor's Office
150 Terrace Ave
Baton Rouge, Louisiana

Prepared By:

Coastal Environments, Inc.
525 S. Carancahua St.
Corpus Christi, Texas

Lead Federal Agency:

National Marine Fisheries
Service – Southeast Regional
263 13th Ave South
St. Petersburg, Florida

PHASE I SUBMERGED CULTURAL RESOURCES AND REMOTE SENSING INVESTIGATION FOR THE NORTH DELACROIX MARSH CREATION AND TERRACING PROJECT (BS-41), LAKE LERY, ST. BERNARD AND PLAQUEMINES PARISHES, LOUISIANA

DRAFT REPORT

September 2021

By

Hunter W. Whitehead
and
Miguel Gutierrez

Submitted to:

TerraSond
16420 Park Ten Place #100
Houston, Texas 77084

Coastal Environments, Inc.
525 S. Carancahua St.
Corpus Christi, Texas 78412

Hunter Whitehead, M.A., RPA
Principal Investigator

Abstract

Coastal Environments, Inc. was contracted by TerraSond to conduct an archaeological assessment of remote sensing data over a proposed borrow area and dredging corridor in the waters of Lake Lery within St. Bernard and Plaquemines Parishes, Louisiana. The project area measured approximate 540 acres (218 hectares). The project was requested by the Louisiana Coastal Protection and Restoration Authority (CPRA), as part of their North Delacroix Marsh Restoration Project (BS-41). The proposed borrow area will be used to extract material to be create and nourish approximately 389 acres (157 hectares) of marsh and construct approximately 8,548 linear feet (2,605 meters) of terraces. The survey was designed following Section 106 Field Standards issued by the Louisiana Division of Archaeology (LDA); the report adheres to Section 106 Report Standards. An Antiquities Permit was not required by LDA for the geophysical survey.

The remote sensing survey was conducted by Fenstermaker, with the assistance of a CEI marine archaeologist between 15 June and 12 July 2021. CEI was tasked with the acquisition of subbottom profiler datasets during the survey, interpretation of data for the proposed borrow area and dredge access corridor, and preparation of an archaeological assessment. A total of 251 sonar contacts and 322 magnetic anomalies were identified. Sonar Contact 0032 and its magnetic correlate Magnetic Anomaly 0032 exhibits characteristics of a modern shallow draft fishing or work vessel and is recommended for avoidance as a hazard and potential cultural resource. It is recommended that the side scan contact to be avoided is not eligible for inclusion on the National Register of Historic Places under Criterion A, B or C; eligibility under Criterion D, however, remains undetermined. If avoided by the recommended distances stipulated in this report, the anomalies should not be impacted by the proposed dredging operations. Subbottom data recorded a homogenous sediment structure throughout the survey area; no evidence of high potential paleolandscapes such as incised estuarine channels, levees, or shell middens was observed.

Table of Contents

Abstract ii

List of Figures v

List of Tables vi

Acknowledgements vii

Chapter 1: Introduction 1-1
Definition of the Project Area 1-4
Organization of the Report 1-4

Chapter 2: Natural and Historical Settings of the Project Area 2-1
Natural Setting of the Survey Area 2-1
Cultural Setting of the Survey Area 2-1
Historical Setting of the Survey Area 2-4
Anthropogenic Bottom-Disturbing Activities 2-5
Known Sites and Previous Investigations near the Survey Area 2-6
Known Sites 2-6
Previous Investigations 2-8

Chapter 3: Submerged Cultural Resources 3-1
Introduction 3-1
Survey Equipment 3-2
Remote Sensing and Sediment Probing Survey Results and Interpretation 3-5
Side Scan Sonar Data 3-5
Magnetometer Data 3-7
Subbottom Profiler Data 3-9
Sediment Probing Analysis 3-10

Chapter 4: Conclusions and Recommendations 4-1

APPENDIX A: Data Samples and Magnetic Anomalies A-1

APPENDIX B: Maps B-1

APPENDIX C: Subbottom Profiles..... C-1

APPENDIX D: Survey Logs D-1

APPENDIX E: Unanticipated Discovery Plan..... E-1

List of Figures

1-1. Lake Lery overview map including the borrow area and the dredge access corridor 1-2

3-1. Plan view diagram of survey vessel Hydro I and equipment offsets 3-2

3-2. Fenstermaker-owned survey vessel, Hydro I 3-3

3-3. Online survey acquisition computers and navigation screen inside the cabin of the Hydro I 3-4

3-4. Sediment probing operations aboard Hydro I 3-5

3-5. Sonar Contacts 0194 and 0198 which exhibit the rectangular characteristics of fishing traps 3-6

3-6. Sonar Contact 0032 which appears to exhibit hull-shaped features indicative of a boat 3-7

3-7. Correlations between magnetic anomalies and known infrastructure within Lake Lery 3-9

3-8. Sediment probing locations within the dredge access corridor 3-10

LIST OF TABLES

2-1. Archaeological sites near the survey area 2-7

2-2. Previous cultural resources investigations near the survey area 2-8

3-1. Survey equipment offsets for Hydro I 3-3

ACKNOWLEDGEMENTS

The authors wish to express our gratitude to several individuals who provided aid and assistance in this project. First, we wish to thank Scott Croft who was the contracting manager with TerraSond. The post-processing of the subbottom profiles was completed by Felix Ziwu, also of TerraSond. We also would like to acknowledge Fenstermaker project manager, Justin Bordelon and members of the survey crew Erick Kidder and Anthony Stelly. Lastly, we would like to thank Coastal Environments, Inc. employee, Hope Bridgeman for her assistance with the side scan sonar dataset processing.

CHAPTER 1

INTRODUCTION

Coastal Environments, Inc. (CEI) was contracted by TerraSond for a marine archaeological report based on interpretation of geophysical remote sensing data collected over a proposed borrow area and dredging corridor in Lake Lery, St Bernard and Plaquemines Parishes, Louisiana (Figures 1-1). The work is being funded by the Coastal Protection and Restoration Authority (CPRA) in partnership with the National Marine Fisheries Service (NMFS) to supply sediment for the Delacroix Marsh Creation and Terracing Project (BS-41). The proposed borrow area and dredging corridor encompasses approximately 540 acres (218 hectares) of lakebed. The remote sensing survey, which included acquisition of side scan sonar, magnetometer, and subbottom profiler data, was conducted by C. H. Fenstermaker & Associates (Fenstermaker) between 15 June and 12 July 2021. The survey was designed by Fenstermaker with input from CEI to ensure compliance with Section 106 Field Standards issued by the Louisiana Division of Archaeology (LDA). Fenstermaker determined that the dredge corridor was too shallow for traditional geophysical survey with towed sensors, and so a sediment probing plan was developed by CEI to evaluate the presence of cultural materials. An Antiquities Permit was not required by LDA for the geophysical survey.

In conjunction with the field investigations, data from previous cultural resource surveys recorded in the LDA Online Cultural Resources Map were examined, and the location of previously documented shipwrecks and archaeological sites identified, to assess the potential for encountering known submerged resources. Additionally, pertinent historical, archaeological, and cartographic sources were reviewed to assess the potential for encountering previously undocumented resources. The assessment of shipwreck potential in the survey area relied on several factors, including information available on the history of vessel use in the vicinity of Lake Lery, reported vessel losses in the area, and any natural and anthropogenic impacts on documented wrecks known to have occurred in the project area.

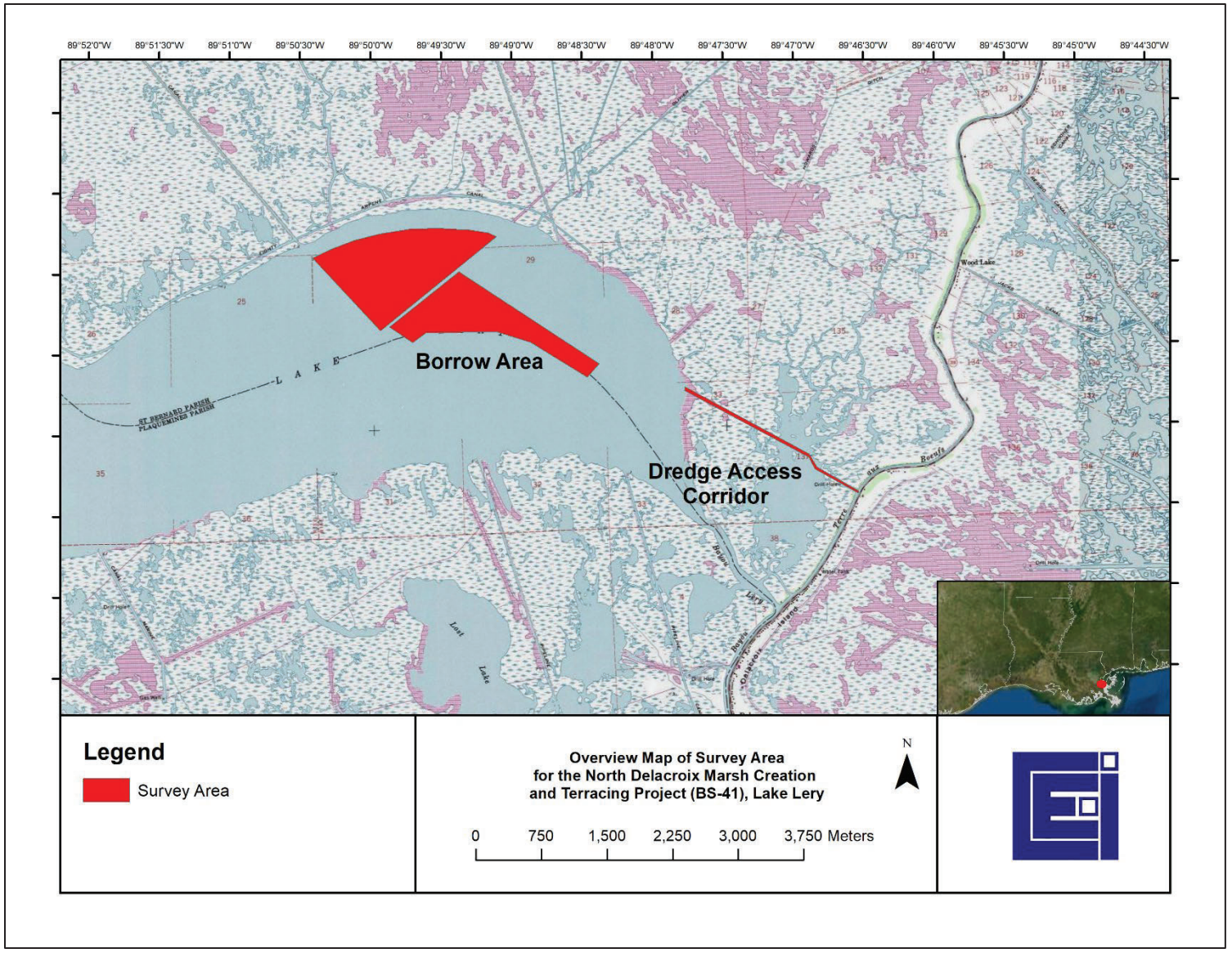


Figure 1-1. Lake Lery overview map including the borrow area and the dredge access corridor.

Definition of the Project Area

The objective of the project is to create and nourish approximately 389 acres (157 hectares) of marsh and construct approximately 8,548 linear feet (ft.) (2605 meters [m]) of terraces by hydraulically dredging material from a nearby borrow source and pumping it to designated fill sites. The borrow area is located on the northern portion of Lake Lery, approximately 2.5 miles (mi) (four kilometers [km]) northwest of Delacroix. Systematic transects were surveyed in the borrow survey area spaced at 30 meter (~100 ft) intervals. The dredge corridor extends in a northwest direction approximately 1.4 miles from Bayou Terre aux Boeufs. The overall survey area is depicted on the Delacroix, LA 7.5-minute USGS quadrangle map (Figure 1-1).

Organization of the Report

The natural and historical settings of the project area are presented in Chapter 2, which provides basic information on the history of settlement near Delacroix Island during historic times and emphasizes maritime history of the region and the area's shipwreck potential. Chapter 2 also addresses the known archaeological sites in the area, as well as previous investigations conducted near the survey area. Chapter 3 discusses the submerged cultural resources field methods and results of the investigations conducted for this study. Conclusions and recommendations are presented in Chapter 4.

CHAPTER 2

NATURAL AND HISTORICAL SETTINGS OF THE PROJECT AREA

Natural Setting of the Survey Area

The East Delacroix Marsh Creation (BS-41) Project vicinity lies within the deltaic plain of the Mississippi River, on Holocene deltaic deposits (Heinrich et al. 2011). The deltaic plain consists of six major Holocene delta complexes with the older complexes and lobes eroded, buried, and/or replaced by the younger ones. Four of these complexes (the Maringouin, Teche, St. Bernard, and Lafourche) are deteriorating, while two (the Atchafalaya and Plaquemines Balize/Modern) are actively prograding. Near-surface deposits in the project area are associated with the St. Bernard complex (Heinrich et al. 2011). Saucier (1994) placed the formation of this delta lobe at about 4500 B.P., but Tornqvist et al. (1966) have argued that it began later, ca. 3500 B.P. This delta lobe remained active until the formation of the Lafourche delta lobe about 1500 B.P. Deposition then largely halted, and subsidence and erosion became the dominant processes at work in the project region.

Vegetation in the region has historically consisted of marsh grasses composed of marsh-hay cord grass, salt grass, black rush, three cornered grass, roseau cane, and other plant species (Poplin et al. 1987). The diverse animal populations of the region included mink (*Mustela vison*) and other semi-aquatic mammals such as muskrat (*Ondatra zibethicus*), nutria (*Myocastor coypus*), and rice rat (*Oryzomys palustris*). Of these, only nutria were not present in Louisiana during prehistoric times, being introduced by fur farmers during the early twentieth century. Reptile species in the region include alligators (*Alligator mississippiensis*), diamond-backed water snakes (*N. rhombifera*), and a variety of frogs, toads and salamanders (Nowak et al. 2010; Chabreck 1988).

Cultural Setting of the Survey Area

The initial emergence and subsequent settlement of prehistoric hunters and gatherers in the New World has long been a controversial issue within the archaeological community. It is generally accepted that the first human inhabitants of the Western Hemisphere migrated during the Late Pleistocene period when Asiatic peoples travelled to North America across the

exposed land mass of Beringia. This mass is presently submerged beneath the Bering and Chukchi seas, but during the Late Wisconsin glaciation, Beringia was a vast plain characterized by arctic vegetation and megafauna. The ice-free isthmus provided East Asians (including inhabitants of what are now the Japanese and Philippine islands) and Siberian groups with direct access to what is now the interior of modern Alaska.

Once across the land bridges, these small bands of hunters and gatherers migrated south from Alaska. The traditional theory of early Paleoindian colonization suggests that the first human groups crossed Canada through an ice–free corridor that opened between the two parts of the Canadian ice sheet (the Laurentide ice sheet to the east and the Cordilleran to the west)(Kelly and Todd 1988). Paleoindian groups are then thought to have radiated across North America following herds of megafauna that included mammoths, mastodons, ancient bison, and caribou. However, modern research has shown the initial peopling of North America to have been a much more complex and dynamic process (Braje et al. 2020; Meltzer 2003). The exact date of when this southward migration took place is a current source of debate among archaeologists. However, recent genetics research indicates that the first wave of New World inhabitants migrated southward during the Late Pleistocene sometime between ca. 17.5 and 14.6 thousand years ago (Waters 2019).

Traditionally, the onset of the Paleoindian period has been defined by the appearance of the Clovis technological complex, which includes distinctive fluted lanceolate points, bone and ivory tools, and blade cores (Collins 2002; Haynes 2002). Waters and Stafford (2014) argue for an adjusted temporal duration for Clovis-age artifacts of approximately 13,000 to 12,600 cal BP. However, there is now growing evidence for cultural deposits that predate Clovis-age artifacts (Adovasio et al. 1978; Adovasio et al. 1990; Collins 2014; Dillehay 1997; Goebel et al. 2008; Lowery et al. 2010; Wagner and McAvoy 2004; Waters et al. 2018). Securely dated sites across North and South America with credible evidence for human activity date as early as 15,000 cal BP (Waters and Stanford 2014). By about 12,000 years ago, human populations had colonized most of North and South America.

Small groups of Paleoindian hunters and foragers adapted to various niches within their primary habitats. These niche habitats existed across North America during the last Pleistocene glacial stage and Holocene deltaic transition. Plants and animals are most plentiful along the lines where the primary habitats of earth, water, and air intersect, such as the shores of lakes, rivers, and seas. Many archaeological sites from the late Pleistocene and early Holocene periods are associated with coastal and glacial lake shorelines, as well as floodplain terraces along major water courses, where a wide variety of plant and animal resources could be exploited with minimal effort and risk.

Archaeological evidence of Paleoindians in Louisiana is present as far south as the Plio-Pleistocene terrace uplands within East Baton Rouge, Livingston, and East Feliciana Parishes (Saunders 1994). However, there is very little potential for discovering Paleoindian or Archaic cultural material within the proposed survey area as it lies within the recent (~1,000 yBP) Mississippi Delta depositional zone. Human occupation in the lower deltaic plain of the Mississippi River begins with the St. Bernard complex, dating 5,500 to 1,000 years ago during the middle Holocene (Saucier 1963). Permanent human settlement across the southeastern Louisiana landscape may have been limited due to the frequency and severity of flood events prior to about 3,000 yBP, when modern sea-level was attained and shorelines stabilized. It is also possible that evidence for older settlements have been destroyed by erosion and the the dynamic morphological nature of the region's terrain. The attainment of modern sea-levels and emergence of stable coastal and estuarine ecosystems also coincides with the start of the region's Woodland Period. This period is identified by the widespread use of various types of ceramic vessels and is divided into three sub-periods represented by four sub-cultures: Early Woodland (800 BC – AD 1) represented by the Tchefuncte culture, Middle Woodland (AD 1 – AD 400) represented by the Marksville culture, and Late Woodland (AD 400 – AD 1200) represented by the Baytown/Troyville and Coles Creek cultures.

The watercraft used by native populations in Louisiana was the dugout canoe, carved from a single log. It is unknown how far back in antiquity their use goes because relatively few specimens have been identified for study, and fewer still have been reliably dated. Due to the use of a similar construction technique through time, it is nearly impossible to visually determine whether a dugout specimen is native in origin, or if it is a pirogue made and used by European settlers. Among the few well-studied dugouts for which there are reliable radiocarbon dates is the Kelly Dugout Canoe, recovered from the banks of the Red River near the community of Dixie in Caddo Parish. This canoe measures approximately 31 feet long, 2 feet wide, and is carved from a single cypress log. Two radiocarbon dates taken from wood samples of this cypress dugout are A.D. 1065 +/- 70 and A.D. 1005 +/- 65. Another notable example is the Fluker's Bluff Canoe found on the Amite River in St. Helena Parish. This canoe measures approximately 12 feet long and produced a tentative radiocarbon date of A.D. 1222. Fragments of another dugout were recovered from the coastal marshes of Cameron Parish east of Sabine Lake in southwest Louisiana. The fragments measure approximately 21 feet long, 3 feet wide, and produced a radiocarbon date of A.D. 1490. Lake Salvador in St. Charles Parish produced a partial dugout canoe which measured approximately 27 feet long and produced three radiocarbon dates between A.D. 1540 and 1650 (Saltus and Pearson 2010:318).

Several prehistoric dugouts have been found in south Louisiana, where conditions for their preservation are often good. This is because there are many natural settings where sunken watercraft can become quickly buried in fine-grained sediments, which can produce anaerobic conditions conducive to the preservation of organic materials, including wood. Subsidence is

a natural process in this area. Therefore, deltaic landforms and the archaeological sites located on them have sunk below the present ground surface and are often covered in marsh or water (Saltus & Pearson 2010:306). It is certainly possible that prehistoric dugouts could be buried and preserved in these sediments, but there is a low probability of identifying them through the field and remote-sensing techniques employed in this study. Identification would only be possible if a dugout was spotted washing out of beach deposits along the lake shore, or if one lay on a borrow area surface and could be identified in side-scan sonar records.

Historical Setting of the Survey Area

The Louisiana historic period encompasses Spanish, French, and American settlement. The first European contact in Louisiana occurred in 1528 when the Pánfilo de Narváez expedition arrived in Florida and traveled the Gulf coast to Mexico City. About a decade later in 1539, Hernando De Soto arrived in Florida and marched inland, eventually reaching Louisiana. Both expeditions were considered failures and the region was not significantly explored again until it was visited by the French explorer Sieur de la Salle approximately 140 years later. In 1682, La Salle embarked on an expedition to secure fur trading relationships with the Native Americans in the interior and claimed the area along the Mississippi River and named the territory Louisiana in the king's honor (Jeter et al. 1989).

The territory that would become modern Louisiana was exchanged between France and Spain several times over the century that followed. The first exchange occurred in 1712 when King Louis XIV granted Louisiana to Antoine Crozat, Marquis de Chatel. Little investment in the territory occurred during Spain's brief ownership, and Crozat released the charter back to France in 1717. In 1763, the French were defeated by the English in the Seven Years War leading France to again cede the Louisiana territory to Spain as payment for their assistance during the conflict. In 1778, Spain ordered hundreds of colonists from the Canary Islands to settle the areas near New Orleans including St. Bernard and Plaquemines Parishes. These Spaniards would be known as Los Isleños; they would eventually set up fishing and hunting communities in the area.

The first regular European use of Louisiana waterways began in the late 17th century around the time when French explorer Pierre LeMoyne d'Iberville circumnavigated Lake Pontchartrain and visited the site that would later become New Orleans. French efforts to colonize the region largely revolved around the lower Mississippi River area (McWilliams 1981). By 1705, French use of Lake Pontchartrain and associated waterways is apparent; however, no immediate settlement was established until around 1720 when Leon Michel Durvergci was instructed by the Company of the Indies to transfer colonists by boat from Biloxi to what is known today as the Iberville River. As the French colony developed, Lake

Pontchartrain served as a primary transportation route between the interior of Louisiana and the French settlements of Biloxi and Mobile via Pass Manchac in the west and the Rigolets in the East.

Pearson et al. (1989) notes that the watercraft found on this important early navigation route would have included smaller vessel types such as bateaus, pirogues, and galleys. These early colonial period vessels transported cargo throughout the state and traveled the Mississippi River in large convoys. Many kinds of flatboats and keelboats were also in use during this time (Saltus & Pearson 2010:318-319). The 1763 Treaty of Paris transferred ownership of the north shore of Lake Pontchartrain to the British and the southern portions to Spain (Hastings 2009). A small naval battle occurred on Lake Pontchartrain during the American Revolutionary War between HMS West Florida and the Continental Navy schooner, USS Morris (Ellis 1981). The 1783 Treaty of Paris concluded the war, leaving Spain with the previously British-occupied north shore. In 1800, Spain once again ceded Louisiana to France, who in turn sold it to the United States in 1803 as part of the Louisiana Purchase. By the 1820s steamboats were a fairly common sight on American waterways, including Lake Pontchartrain. New Orleans occupied a strategic location on the lower Mississippi delta, leading to its use as an important port of trade throughout the Spanish, French, British, and American occupational periods. Lake Pontchartrain was also a strategically important waterway, and the Union Blockade based there during the American Civil War stifled the Confederacy's marine commerce.

Among the notable colonial period shipwrecks found in the state of Louisiana are the Spanish three-masted frigate *El Nuevo Constante*, which was discovered in Cameron Parish, and the Ballast Pile Wreck, which was discovered in St. Bernard Parish where the project area is located. El Nuevo Constante was part of a Spanish merchant fleet that embarked from Veracruz, Mexico in 1766 that was destined for Spain. In early September, the fleet encountered a hurricane while sailing in the northern Gulf of Mexico and was battered by the storm for three days. Damage from the storm resulted in *El Nuevo Constante* taking on water, and the vessel was purposefully run aground in ten feet of water approximately one quarter mile off of the Louisiana coast. The wreck was discovered in 1979, and subsequent excavations at the wreck site resulted in the recovery of various cargo items in relatively good state of preservation. These included several thousand pounds of copper, dyes such as cochineal, annatto, and indigo, ceramics, and precious metals like copper, gold, and silver. The bottom of the hull was well-preserved under the sediment and yielded a considerable amount of information on 18th century ship construction. The Ballast Pile Wreck was discovered in state waters off the northern Chandeleur Islands (St. Bernard Parish) in 1989 and was soon after investigated by Texas A&M University. The wreckage consisted of a pile of stone ballast, pottery sherds, lead artifacts, and six iron cannons. Markings on the cannons indicate that they were cast in Sweden between 1771 and 1784 (Saltus & Pearson 2010:319).

Historic maritime activity in the vicinity of the project area is extensive from the 17th to the 20th century (Pearson et al. 1989). During this period, maritime shipping, fishing, shipbuilding, and tourism activities increased relative to regional development. The project area lies in an area influenced by early French, Spanish, British, and United States maritime activities. However, while the region as a whole is of a high probability for shipwreck presence due to its proximity to New Orleans, the area in and around Lake Lery has a low potential for shipwreck preservation due to natural factors such as sediment composition, water depth, and man-made factors such as offshore development.

Anthropogenic Bottom-Disturbing Activities

Environmental processes such as storm events, flooding, and tidal fluctuations are the primary cause of sediment transportation in the survey area. Local marsh deterioration and land loss are triggered by processes of subsidence, erosion, and saltwater intrusion. Hurricanes and other powerful storms have exacerbated erosive progressions of artificial levees in the area. Twentieth century anthropogenic disturbance near the survey area consists of dredging activities and pipeline construction. According to the National Pipeline Mapping System (NPMS) Public Viewer (2021), two pipelines are present within the survey area (operated by Colonial Pipeline Company and Gulf South Pipeline Company). The State of Louisiana Strategic Online Natural Resources Information System (2021) indicates there are also several well heads located within the survey area. This existing infrastructure can be seen in the magnetometer data presented below.

Known Sites and Previous Investigations near the Survey Area

As part of the archaeological assessment for the proposed borrow area and dredge access corridor, background research was conducted to determine if any known sites would be impacted by the proposed activities and identify previous investigations within the vicinity of the project area.

Known Sites

Archaeological site forms on file at the Division of Archaeology, Louisiana Department of Culture, Recreation and Tourism (LDOA), were consulted to determine if any known sites were located within one mile (1.6 km) of the project area; seven sites are recorded within that radius (Table 2-1).

Table 2-1. Archaeological sites near the survey area.

Site No.	Age	Site Type	NRHP Eligibility
16PL23	Coles Creek, Plaquemine	Midden	Not Eligible
16SB41	Tchula to Mississippian periods	Midden	Undetermined
16SB59	Coles Creek to Mississippian periods	Midden	Not Eligible
16SB81	Coles Creek to Mississippian periods	Midden	Undetermined
16SB82	Coles Creek to Mississippian periods	Midden	Undetermined
16SB197	Tchefuncte, Coles Creek, Plaquemine, and Mississippian	Midden	Undetermined
16SB203	Historic (Unknown)	Historic Camp	Undetermined

Three known sites lie within one mile (1.6 km) of the borrow area within Lake Lery (16PL23; 16SB41; and 16SB59). In 1952, ceramics associated with Coles Creek and Plaquemine periods were recorded on the south embankment of Lake Lery (16PL23). The site was revisited twice in subsequent years, and condition was determined to be wave-washed, destroyed, or subsided. Site 16SB41 is located at the confluence of the Kenilworth, St. Mary, and Olivier Canals near the north shore of Lake Lery and consists of shell middens and ceramic material associated with Tchula to Mississippian periods. The site has been investigated on several occasions, most recently by R. Christopher Goodwin and Associates, Inc. in 1988. Site 16SB59 is a shell midden associated with the Coles Creek to Mississippian periods and is located along the north shore of Lake Lery. According to the site form, the site had previously been dredged and thus was determined "Not Eligible" for listing to the National Register of Historic Places (NRHP).

Four known sites lie within one mile (1.6 km) of the dredge access corridor that connects Lake Lery to Bayou Terreaux Boeufs. In 2017, ELOS Environmental, LLC (ELOS) personnel revisited sites 16SB81 and 16SB82 (Coles Creek to Mississippian), 16SB197 (Tchefuncte, Coles Creek, Plaquemine, and Mississippian), and 16SB203 (a historic camp site). ELOS recommended these sites to be recorded as having undetermined eligibility for listing to the NRHP. Sites 16SB81 and 16SB197 were revisited again in 2020 by CEI during a Phase I cultural resources survey. CEI encountered shell deposits in two areas at site 16SB81 but did not observe any cultural material in association with site 16SB197.

Previous Investigations

As indicated in Table 2-2, there have been several investigations undertaken within one mile (1.6 km) of the survey area. Within proximity of the borrow area in Lake Lery, this includes two Phase I marine investigations (Westrick 2020; Whitehead 2021), a Phase I marine/terrestrial investigation along the northwestern shore (Nowak et al. 2010), and a Phase I terrestrial survey along the northwestern shore (Hano 2021). Two surveys have occurred within one mile (1.6 km) of the dredge access corridor; a phase I terrestrial survey (Barnes 2017) and a Phase I marine/terrestrial survey along Bayou Terre Aux Bouef. Essentially, the current investigation is an extension of the previous investigation by Whitehead (2021).

Table 2-2. Previous cultural resources investigations near the survey area.

Date	Report No.	Project	Author	Affiliation
2010	22-3406	Phase I Cultural Resources Survey of the Proposed Caernarvon Freshwater Diversion Project, St Bernard and Plaquemines Parishes, Louisiana	Troy J. Nowak et al.	R. Christopher Goodwin & Associates, Inc.
2017	22-5733	Phase I Cultural Resources Survey for the Proposed Shoreline Protection along Bayou Terre Aux Boeufs and Bayou Gentilly in Plaquemines and St. Bernard Parishes	Dean A. Barnes	ELOS Environmental, LLC
2020	22-6477	Phase 1 Survey Mid-Breton Land Bridge Marsh Creation and Terracing Project (BS-0032) St. Bernard and Plaquemines Parishes, Louisiana	Robert F. Westrick	JMB Companies, Inc.
2021	22-6679	Phase I Cultural Resources Survey of the East Delacroix Marsh Creation Project (BS-37), St. Bernard Parish, Louisiana	Bryan S. Haley et al.	Coastal Environments, Inc.
2021	22-6680	Phase I Archaeological Assessment of Areas to be Affected by the East Delacroix Marsh Creation and Terracing Project (BS-0037) Saint Bernard Parish, Louisiana	Hunter W. Whitehead	TerraSond Limited
2021	22-6701	Phase I Cultural Resource Assessment Survey for the Proposed Lake Lery Phase III Marsh Creation and Rim Restoration located in St Bernard Parish, LA	Walter Hano	ELOS Environmental, LLC

A search of historical literature and digital shipwreck databases did not find known wrecks to be present in the survey area. In addition to the historical literature, CEI examined a series of digital databases containing information on vessel losses in the region. These included the Automated Wrecks and Obstructions Information System, known as AWOIS, and a database of wrecks and obstructions known as the Wrecks and Obstructions File maintained by the National Oceanic and Atmospheric Administration (NOAA). The latter database consists principally of items that the National Ocean Survey, a branch of NOAA, considers to be hazards to navigation. In addition to AWOIS, several digital databases containing information on vessel losses and unidentified submerged obstructions maintained by CEI were reviewed for entries relevant to the survey area. None of these databases showed any wrecked vessels in the survey area.

CHAPTER 3

SUBMERGED CULTURAL RESORUCES

Introduction

This chapter presents the field methods and results of a remote sensing survey for a proposed borrow area and dredge access corridor in Lake Lery in St. Bernard and Plaquemines Parishes, Louisiana (See Figures 1-1 and 1-2). The remote sensing survey was designed as Phase I, reconnaissance-level effort designed to locate and delineate the presence of submerged cultural resources that could be impacted by the proposed undertaking. An archaeological assessment was required for the proposed borrow area and dredge access corridor which covered approximately 540 acres (218 hectares). The survey was designed following Section 106 Field Standards issued by the LDA, and the resulting report adheres to Section 106 reporting standards for assessments having negative findings. An Antiquities Permit was not required by LDA for the geophysical survey.

The underwater survey was conducted by Fenstermaker with input from an onboard CEI marine archaeologist to ensure that the survey design adhered to state guidelines. Systematic coverage of the survey area was achieved by surveying along primary lines across the proposed borrow area using line spacing intervals of 30-meters (~98 ft.). The survey was conducted between 15 June and 12 July 2021 aboard the Fenstermaker-owned survey vessel *Hydro I* (see Figure 3-1, Figure 3-2, and Table 3-1). Following the completion of field investigations, the raw data files and initial processed data (Sonarwiz sonar projects, Hypack-generate magnetic anomalies, and Kingdom-generated subbottom profiles) were provided to CEI for completing the archaeological assessment.

Fenstermaker determined that the survey methods used for assessing the borrow area would not be effective in the dredge access corridor as the water depth across the corridor was too shallow to safely undertake a traditional geophysical survey with towed sensors. As a result, CEI developed an alternative survey plan that included probing sediments in areas with high archaeological probability based on historical maps and geologic/environmental interpretation. The probing plan was submitted to CPRA for approval, and subsequently accepted, prior to implementation of the survey.

Survey Equipment

The underwater survey was conducted using equipment and procedures intended to meet submerged cultural resource survey standards for field work requested by LDA. Two differential-enabled GPS systems provided real-time positioning and were integrated with a survey laptop running HyPack navigation software for positioning and magnetometer data collection (see Figure 3-3). Offsets and cable out were integrated into HyPack for the magnetometer; sonar and subbottom offsets were entered directly into the corresponding acquisition systems. The survey datum and all deliverables use feet as the standard measurement and reference the Louisiana State Plane Coordinate System (South Zone), as well as the North American Datum of 1983 (NAD83).

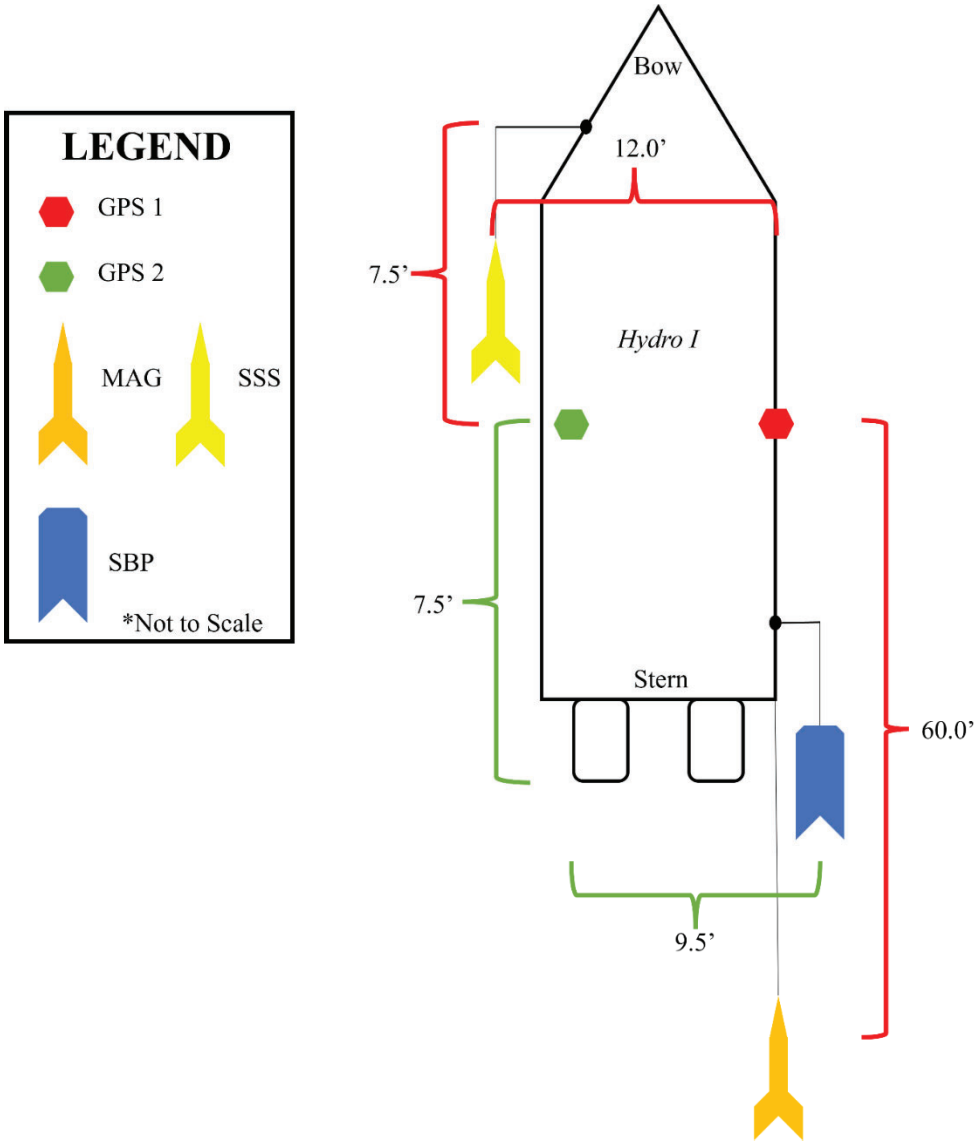


Figure 3-1. Plan view diagram of survey vessel *Hydro I* and equipment offsets.



Figure 3-2. Fenstermaker-owned survey vessel, *Hydro I.*

Table 3-1. Survey equipment offsets for *Hydro I.*

Equipment	X Offset (+STBD) (feet)	Y Offset (+Bow) (feet)
Primary GPS Antenna (SSS, MAG, NAV)	0.00	0.00
Side Scan Sonar	-12.00	7.50
Magnetometer	0.00	-60.00
Secondary GPS Antenna (SBP)	0.00	0.00
Subbottom Profiler	9.50	-7.50



Figure 3-3. Online survey acquisition computers and navigation screen inside the cabin of the *Hydro I.*

Digital geophysical systems included an Edgetech 4125 dual frequency side-scan sonar operating at 75-meter per channel range, an Edgetech 3100 SB424 subbottom profiler operating at 4-24 kHz, and a Geometrics G-882 total field magnetometer. Data quality was generally good for the magnetometer and subbottom profiler, and re-runs were completed whenever data quality was deemed unacceptable. Side scan sonar data were acquired at a range of 75-meters per channel, but the outer extents of the channels were obscured by surface waves and organic material in the water column.

Survey of the dredge access corridor was conducted from *Hydro I* and involved systematic probing of high probability areas with a 10-ft steel T-probe. This method of probing is considered to be an effective means for locating deposits of shell commonly associated with prehistoric sites in this region (Figure 3-4).



Figure 3-4. Sediment probing operations aboard *Hydro I.*

Remote Sensing and Sediment Probing Survey Results and Interpretation

Side Scan Sonar Data

Side scan sonar instrumentation is used to record and illustrate textural and compositional changes in the seafloor. It does this by emitting dual fan-shaped pulses of sound and then producing an acoustic reflection upon receiving the reflected sound pulses. The resulting acoustic imagery highlights changes in density along the seafloor and is an effective means for detecting compositional anomalies and submerged objects, including shipwrecks. The Edgetech 4125 was operated at frequencies of 400/900 kHz. Field data were recorded in the native JSF file format during acquisition, and once acquired were reviewed in Edgetech Discover software for anomalies including potential cultural deposits. Post-processing

included bottom tracking, gain processing, and GeoTiff mosaicking within SonarWiz.

The side scan sonar data recorded a moderately to weakly reflective bottom across the majority of the survey area. Overall, the survey area is densely littered with active and inactive fishing traps as observed during the field survey and during office interpretation. Many sonar contacts were identified during a line-by-line review of the data and were selected based on size, shape, correspondence with magnetic anomalies, and reflectivity. Sonar data recorded a total of 251 contacts, most of which were rectangular to irregularly shaped, measuring approximately 1 m by 1 m. The rectangular features were interpreted as fishing traps, which are ubiquitous throughout coastal waters in Louisiana (Figure 3-5). All sonar contacts are tabulated in Appendix A.

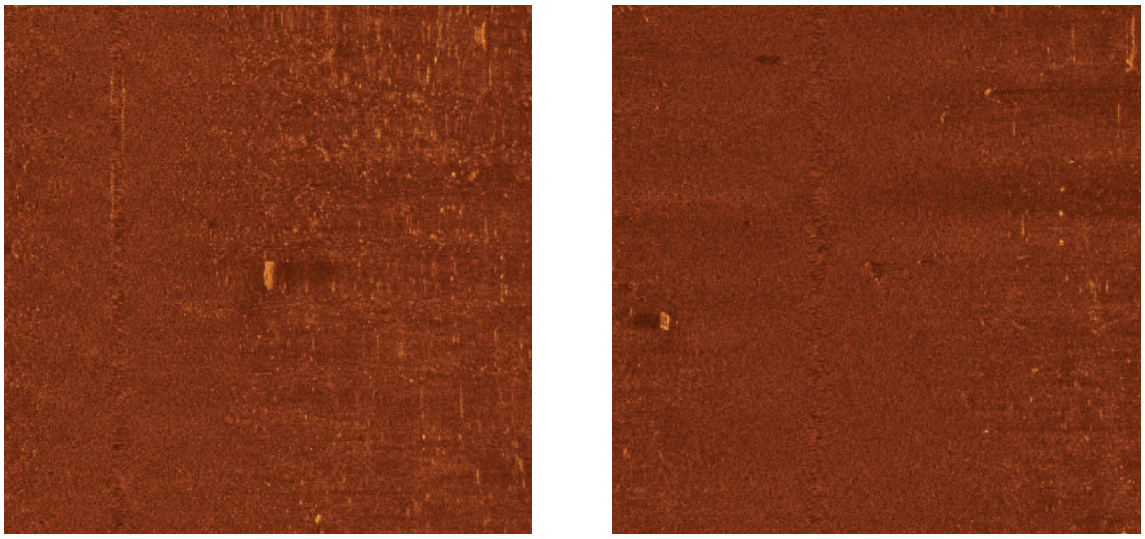


Figure 3-5. Sonar Contacts 0194 and 0198 which exhibit the rectangular characteristics of fishing traps.

Sonar Contact 0032 (Figure 3-6) is interpreted as a possible modern boat which measures approximately 20 ft (6 m) in length, seven (7) ft (2 m) in width, with a measurable height above the bottom of approximately two (2) feet (0.6 m). The contact correlates with the complex Magnetic Anomaly 0032 which exhibits an amplitude of 350 nT with a duration of 155 ft (47 m). The apparent vessel exhibits what appears to be a center console helm which is indicative of a modern shallow draft fishing or work boat. It is possible that the vessel either sank within Lake Lery or was relocated to its current position from elsewhere by one or more large storm events. It is recommended that Sonar Contact 0032 be avoided by a distance of 100 ft (30 m) on an archaeological and hazard basis until it can be assessed through direct physical examination.

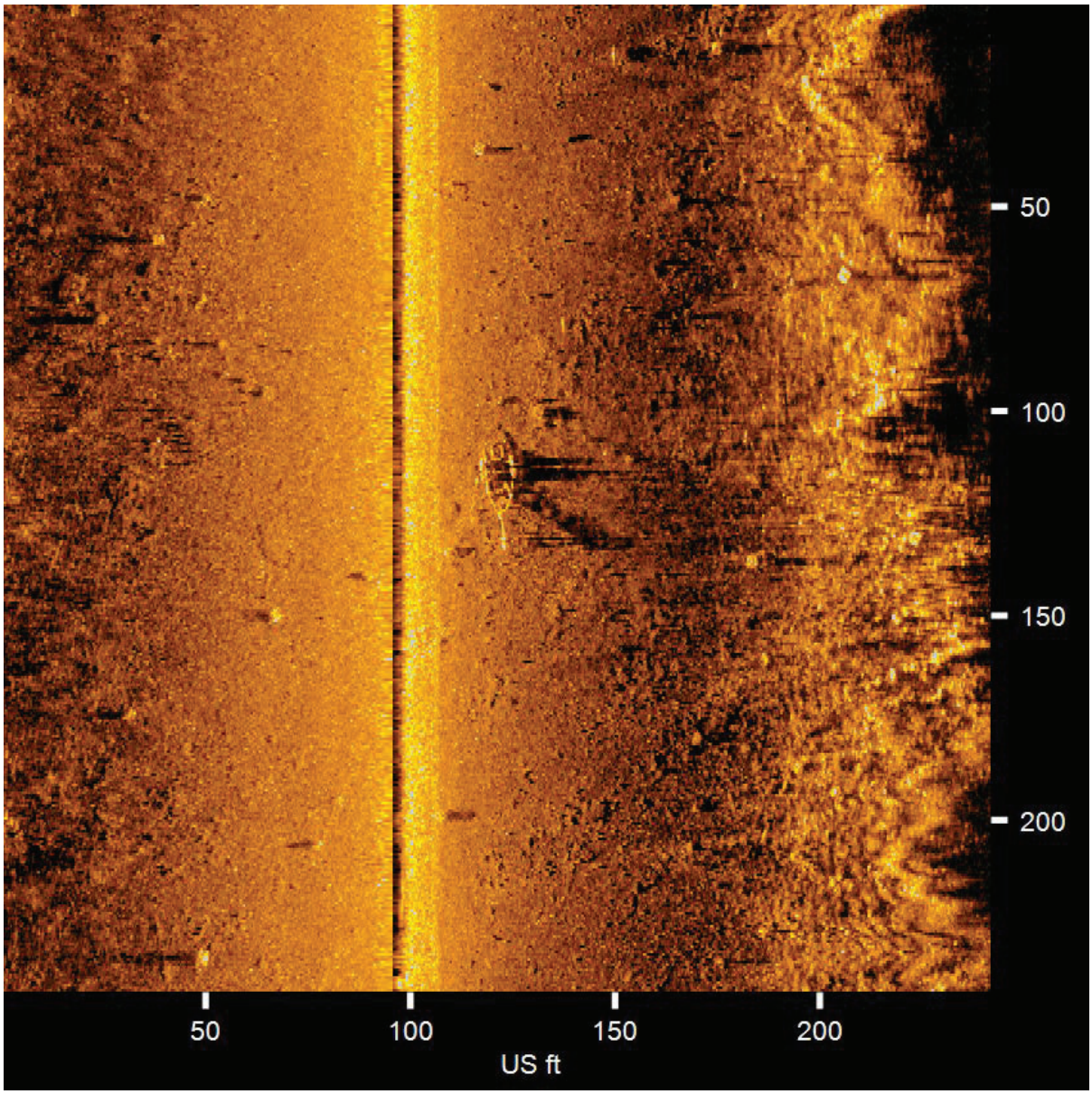


Figure 3-6. Sonar Contact 0032 which appears to exhibit hull-shaped features indicative of a boat.

All other sonar contacts were interpreted as modern debris and crab/fishing traps, reflecting the intensive commercial use of this area in the modern era. The interpreted contacts are plotted on the maps included in Appendix B.

Magnetometer Data

Marine magnetometers are passive sensors that record the Earth's ambient magnetic field and are used by archaeologists to detect variations in the total magnetic field which may

be indicative of shipwrecks or other cultural deposits. Irregularities in the Earth's magnetic field (anomalies) can result from the presence of ferrous materials that have been altered by human activity. Magnetometers may also detect variations within the total magnetic field, which are caused by natural geologic features. The marine magnetometer utilized for this survey, the G-882, is a self-oscillating split-beam Cesium Vapor system that has a sensitivity of 0.001 nT/√Hz RMS with an absolute accuracy of 0.1nT. The sampling rate was set at 10Hz, and the instrument was positioned far enough away from the survey vessel to limit interference. The total field was cleaned of any erroneous readings and corrected for layback within SonarWiz. These data were then gridded and contoured (see Appendix B). Due to the high number of small amplitude anomalies recorded during the survey, specific interpretation was limited to only those anomalies having an amplitude greater than 20nT (see Appendix A).

The ambient magnetic field averaged 46,600 nT across the survey grid. A total of 322 anomalies were subject to interpretation based on magnetometer data. Each anomaly was plotted and is illustrated in Appendix B. Many of the anomalies recorded in the survey area were interpreted as man-made objects. A total of 21 magnetic anomalies were attributed to the numerous fishing traps and other debris identified in the side scan sonar datasets. Forty-nine of the magnetic anomalies that were recorded within the survey area correlate with known energy infrastructure, including two pipelines and five wellheads (Figure 3-7). The remaining magnetic anomalies could not be identified as they do not correlate directly with observed sonar targets or identifiable subbottom features. Uncorrelated anomalies may be associated with unclustered debris on the lake bottom, targets exhibiting unexplained magnetic amplitudes, or targets exhibiting long durations similar to what a buried shipwreck might produce. Each of the uncorrelated magnetic anomalies are identified and annotated in the magnetic anomaly table (Appendix A).

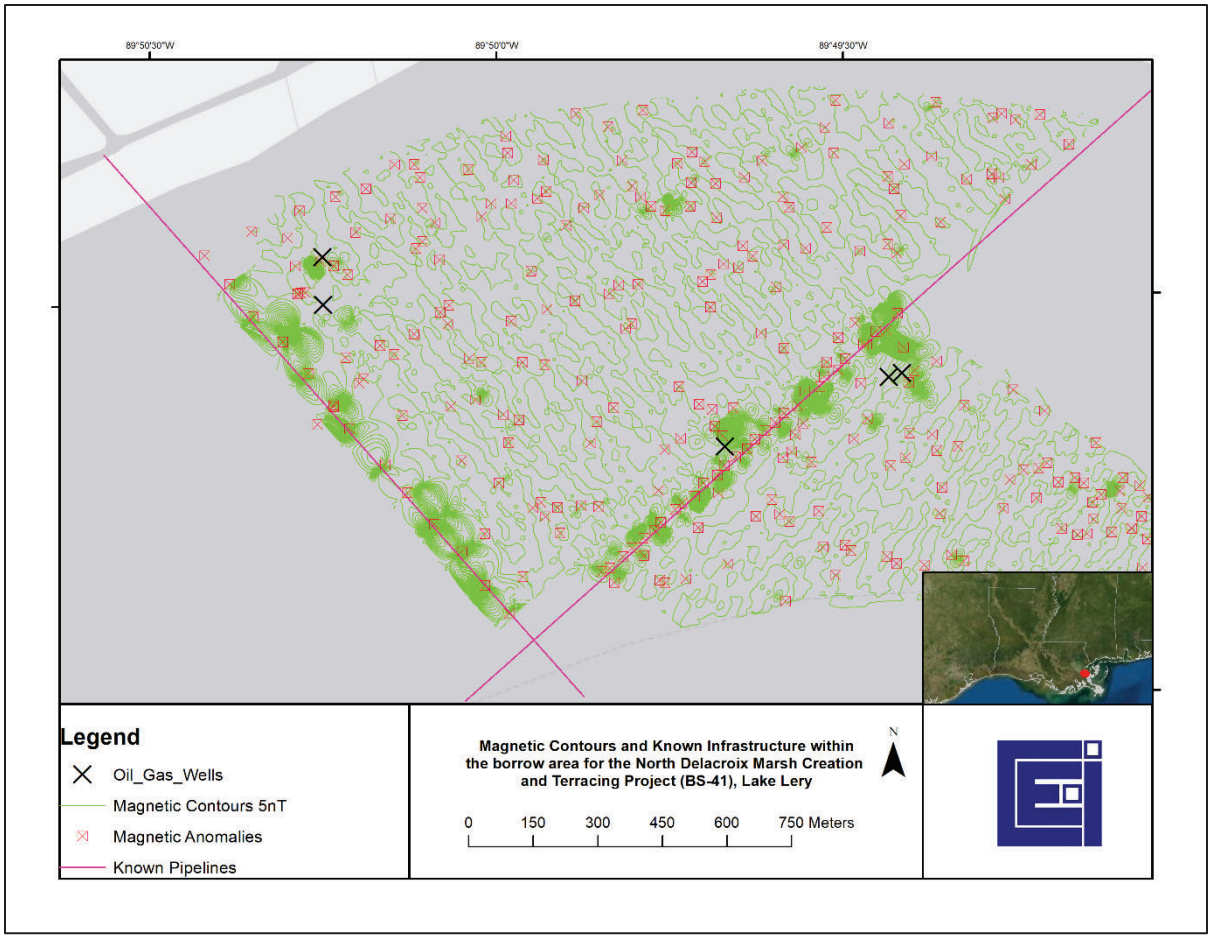


Figure 3-7. Correlations between magnetic anomalies and known infrastructure within Lake Lery.

Subbottom Profiler Data

Subbottom profiling is used to record the internal structure of subsurface sediments and is a balance between high resolution of near-seafloor stratigraphy and penetration into deeper sediment structures. The subbottom profiler used for this survey, the Edgetech 3100 SB424 subbottom profiler, was operated at 4-24 kHz and was set to a ping rate of 4 Hz and a transmit level of 20%.

When evaluated, data obtained by the subbottom profiler revealed a mostly homogenous geologic structure across the survey area with minimal stratigraphic layering to a penetration depth of approximately 25 ft. (~7 m). The upper sediments were recorded as one stratigraphic unit that is expressed continuously throughout the study area. These sediments exhibit a chaotic bedding reflection that is indicative of the coarse, reworked soil typically observed in a deltaic sediment sequence.

Small diffraction anomalies were observed within the subbottom data, but they do not appear to represent identifiable cultural features such as levees or shell middens. In fact, no submerged landforms having a higher probability for prehistoric archaeological site presence or preservation were detected in the subbottom datasets. As is typical for the geology of this region, several areas were interpreted as having gas pockets in the sediment based on exhibiting an attenuated acoustic signal. This phenomenon is not present throughout the entire dataset and the geologic structure can be clearly interpreted in each profile. Annotated and unannotated subbottom data profiles are included in Appendix C of this report.

Sediment Probing Analysis

Areas of high archaeological potential were identified by CEI archaeologists based on historical maps and geologic/environmental interpretation, resulting in the investigation of 27 discrete locations. None of the investigated locations exhibited evidence of cultural deposits. Probing locations are illustrated in Figure 3-8 and tabulated in Appendix A.

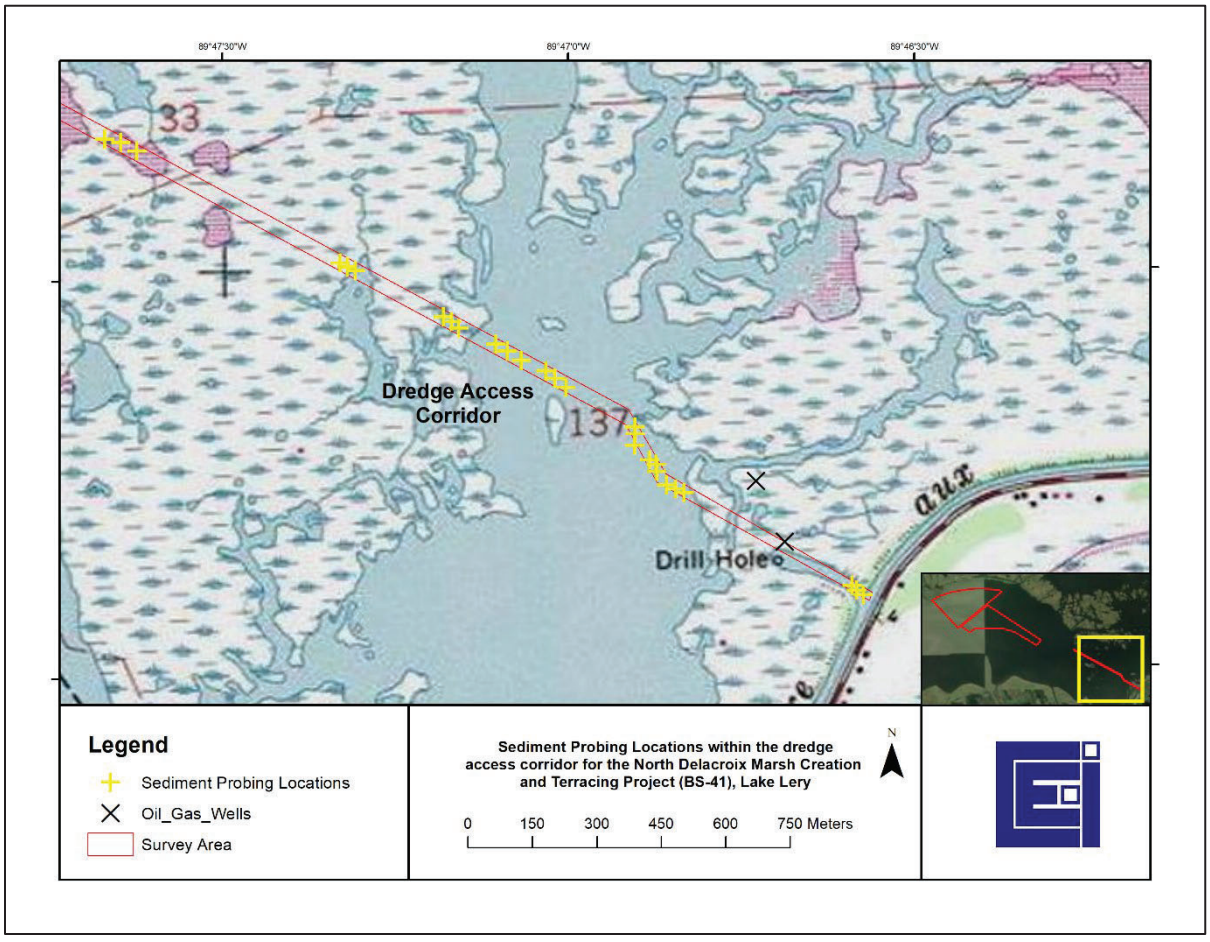


Figure 3-8. Sediment probing locations within the dredge access corridor.

CHAPTER 4

CONCLUSIONS AND RECOMMENDATIONS

A marine remote sensing and sediment probing survey was conducted over a proposed borrow area and dredge access corridor consisting of approximately 540 acres (~218 ha) in Lake Lery, St. Bernard and Plaquemines Parishes, Louisiana. The borrow area will be the source of material used in the North Delacroix Marsh Restoration Project (BS-41), under funding from CPRA. The remote sensing and sediment probing survey, which included acquisition of side scan sonar, magnetometer, and subbottom profiler data, was conducted by Fenstermaker with oversight by a CEI marine archaeologist between 15 June and 12 July 2021.

Based on the examination and interpretation of the SSS, MAG, and SBP datasets, CEI determined that 251 SSS contacts and 322 magnetic anomalies are present within the survey area. No interpretable sub-surface hazards were viewed in the SBP datasets. Neither archaeological deposits nor terrain features with higher potential to feature them were interpreted within the SBP datasets. One sonar anomaly, SSS Contact 0032 (also associated with Magnetic Anomaly 0032), represents what appears to be a modern shallow-draft fishing or work vessel. CEI recommends that Sonar Contact 0032 be avoided by a distance of 100 ft (30 m) on an archaeological and hazard basis until such time as it can be more thoroughly assessed through direct physical examination. The remaining SSS contacts and MAG anomalies do not warrant avoidance recommendations based on archaeological potential. However, caution is advised during any bottom disturbing activities near these targets as it remains possible that deposits associated with historic shipwrecks may have been obscured by modern debris, causing them to go undetected by the geophysical survey instruments.

Sub-surface data across the survey area exhibits a mostly homogenous geologic structure. No evidence was found for the presence of terrain features having a higher likelihood for yielding buried prehistoric deposits, such as incised estuarine channels and natural levees. Subsurface sediments were probed in shallower areas where sonar could not be used. No shell middens or other features of interest were detected through sediment probing.

In the event that archeological deposits are identified during dredging operations, such as wooden planking or other cultural materials that are potentially indicative of a shipwreck, aboriginal or historic pottery, indigenous chipped or ground stone tools, bone or shell tools, shell middens, or historic trash deposits, all work in the immediate vicinity must cease and the Louisiana Division of Archaeology contacted to initiate post-review discovery procedures.

References Cited

Adovasio, James M., J. D. Gunn, J. Donahue, and R. Stuckenrath
1978 Meadowcroft Rockshelter, 1977: An Overview. *American Antiquity* 43(4):632-651.

Adovasio, James M., J. Donahue, and R. Stuckenrath
1990 The Meadowcroft Rockshelter Radiocarbon Chronology 1975-1990. *American Antiquity* 55(2):348-354.

Barnes, Dean A.
2017 *Final Phase I Cultural Resources Survey for the Proposed Shoreline Protection along Bayou Terre Aux Boeufs and Bayou Gentilly in Plaquemines and St. Bernard Parishes.* ELOS Environmental, LLC, Hammond, Louisiana. Submitted to St. Bernard Parish Government, Chalmette, Louisiana.

Bense, Judith A.
1994 *Archaeology of the Southeastern United States: Paleoindian to World War 1*. Academic Press. New York.

Braje, Todd J., Jon M. Erlandson, Torben C. Rick, Loren Davis, Tom Dillehay, Daryl W. Fedje, Duane Froese, Amy Gusick, Quentin Mackie, Duncan McLaren, Bonnie Pitblado, Jennifer Raff, Leslie Reeder-Myers, and Michael R. Waters.
2020 Fladmark + 40: What Have We Learned about a Potential Pacific Coast Peopling of the Americas?. *American Antiquity* 85 (1), pp. 1-21.

Chabreck, Robert H.
1988 *Coastal Marshes. Ecology and Wildlife Management*. University of Minnesota Press, Minnesota.

Collins, Michael B.
2002 The Gault Site, Texas, and Clovis Research. *Athena Review* 3(2):24-36.

Collins, Michael B. (editor)
2014 *Initial Peopling of the Americas: Context, Findings, and Issues*. Cambridge World Prehistory Series. Cambridge University Press, Cambridge, UK.

Dillehay, Tom D. (editor)
1997 *Monte Verde: A Late Pleistocene Settlement in Chile. Vol. II: The Archaeological Context and Interpretation*. Smithsonian Institution Press, Washington D.C.

Ellis, Frederick S.
1981 *St. Tammany Parish, L'autre Cote de Lac*. Pelican Publishing, Gretna, Louisiana.

Garrison, Ervan G.; Charles P. Giammona, Frank J. Kelly, Anthony. R. Tripp, and Gary. A. Wolff
1989 *Historic Shipwrecks and Magnetic Anomalies of the Northern Gulf of Mexico: Reevaluation of Archaeological Resource Management Zone 1. Volume II: Technical Narrative*. OCS Study No. 89-0024. Gulf of Mexico OCS Regional Office, Minerals Management Service, U.S. Department of the Interior, New Orleans.

Goebel, Ted, Michael R. Waters, and Dennis H. O'Rourke
2008 The Late Pleistocene Dispersal of Modern Humans in the Americas. *Science* 319:1497-1502.

Haley, Bryan S., Benjamin Davis, Michael Carpenter, and David B. Kelley
2021 *Phase I Cultural Resources Survey of the East Delacroix Marsh Creation (BS-37), St. Bernard Parish, Louisiana*. Coastal Environments, Inc., Baton Rouge. Submitted to Moffatt and Nichol, Baton Rouge.

Hano, Walter
2021 *Phase I Cultural Resource Assessment Survey for the Proposed Lake Lery Phase III Marsh Creation and Rim Restoration located in St Bernard Parish, LA*. ELOS Environmental, LLC, Hammond, Louisiana. Submitted to All South Consulting Engineers, LLC., Metairie, Louisiana.

Hastings, R. W.
2009 *The Lakes of Pontchartrain: Their History and Environments*. University Press of Mississippi, Jackson.

Haynes, G.
2002 *The Early Settlement of North America: The Clovis Era*. Cambridge University Press, Cambridge, England.

Heinrich, Paul V., Richard P. McCulloh, and Marty Horn
2011 New Orleans 30 x 60 Minute Geologic Quadrangle. Louisiana Geological Survey.

Jeter, Marvin D., Jerome C. Rose, Ishmael Williams Jr., and Anna M. Harmon
1989 *Archeology and Bioarcheology of the Lower Mississippi Valley and Trans-Mississippi South in Arkansas and Louisiana*. Arkansas Archaeological Survey Research Series No. 37. Final Report submittied to the U.S. Army Corps of Engineers, Southwestern Division Study Unit 6 of the Southwestern Division of Archaeological Overview. Contract No. DACW63-84-C-0149.

Kelly, Robert L. and Lawrence C. Todd
1988 Coming into the Country: Early Paleoindian Hunting and Mobility. *American Antiquity* 53(2):231-244.

Lowery, D. L., M. A. O'Neal, J. S. Wah, D. P., and D. J. Stanford
2010 Late Pleistocene Upland Stratigraphy of the Western Delmarva Peninsula, USA. *Quaternary Science Review* 29(1472):1-9.

McWilliams, R. G.
1981 *Iberville's Gulf Journals*. University of Alabama Press, Alabama.

Meltzer, David J.
2003 Peopling of North America. *The Quaternary Period in the United States Volume I*, edited by A. R. Gillespie, S. C. Porter, and B. F. Atwater, pp. 539-563

Muckelroy, Keith
1998 The Archaeology of Shipwrecks. In *Maritime Archaeology; A Reader of Substantive and Theoretical Contributions,* edited by L. E. Babits and H. Van Tilburg, pp. 23-38. Plenum Press, New York.

National Pipeline Mapping System
2021 National Pipeline Mapping System Public Viewer. Electronic document, https://pvnpms.phmsa.dot.gov/PublicViewer/, accessed 20 August 2021.

Nowak, Troy J., Nathanael Heller, Susan Barrett Smith, and Kathryn A. Ryberg
2010 *Phase I Cultural Resources Survey of the Proposed Caernarvon Freshwater Diversion Project, St. Bernard and Plaquemines Parishes, Louisiana*. R. Christopher Goodwin & Associates, Inc., Frederick, Maryland. Submitted to New Orleans District, U.S. Army Corps of Engineers.

Pearson, Charles E., George J. Castille, Donald Davis, Thomas E. Redard, and Allen R. Saltus
1989 *A History of Waterborne Commerce and Transportation within the U.S. Army Corps of Engineers New Orleans District and an Inventory of Known Underwater Cultural Resources*. Coastal Environments, Inc., Baton Rouge. Submitted to New Orleans District, U.S. Army Corps of Engineers.

Poplin, Eric, Carol J. Popin, and Paul C. Armstrong
1987 *Cultural Resources Survey of the Caernarvon Diversion Site, Mississippi Delta Region, Louisiana*. R. Christopher Goodwin & Associates, Inc., New Orleans. Submitted to the U.S. Army Corps of Engineers, New Orleans District.

Saltus, Allen R. and Charles E. Pearson
2010 Underwater Archaeology. In *Archaeology of Louisiana*, edited by Mark A. Rees, pp. 306-328. Louisiana State University Press, Baton Rouge.

Saucier, Roger T.
1963 *Recent Geomorphic History of the Pontchartrain Basin, Louisiana*. Technical Report No. 16. Coastal Studies Institute, Louisiana State University, Baton Rouge.

1994 *Geomorphology and Quaternary Geologic History of the Lower Mississippi Valley*, Vol. 1. U.S. Army Waterways Experiment Station, Vicksburg.

Saunders, Rebecca
1994 *Annual Report for Management Units 4 and 5*. Report 22-1876 on file with the Division of Archaeology. Regional Archaeology Program, Museum of Natural Science, Louisiana State University.

State of Louisiana Department of Natural Resources
2021 National Pipeline Mapping System Public Viewer. Electronic document, http://sonris-www.dnr.state.la.us/gis/agsweb/IE/JSViewer /index.html?TemplateID=181/, accessed 20 August 2021.

Tornqvist, Torbijorn E., Tristram R. Kidder, Whiteney J. Autin, Klaas van der Born, Arie F. M. de Jong, Cornelis J. W. Klerks, Els M. A. Sniders, Joep E. A. Storms, Remke L. van Dam, and Michael C. Wiemann
1966 A Revised Chronology for Mississippi River Subdeltas, *Science* 273:1693-1696.

Wagner, Daniel P., and Joseph M. McAvoy
2004 Pedoarchaeology of Cactus Hill, a Sandy Paleoindian Site in Southeastern Virginia, U.S.A. *Geoarchaeology* 19(4):297-322.

Waters, Michael R.
2019 Late Pleistocene exploration and settlement of the Americas by modern humans. *Science* 365(6449).

Waters, Michael R., and Thomas W. Stafford, Jr.
2014 The First Americans: A Review of the Evidence for the Late-Pleistocene Peopling of the Americas. In *Paleoamerican Odyssey*, edited by Ketron Graf, and Michael R. Waters, pp. 543-562. Texas A&M University Press, College Station.

Waters, Michael R., Joshua L. Keene, Steven L. Forman, Elton R. Prewitt, David L. Carlson, and James E. Wiederhold
2018 Pre-Clovis Projectile Points at the Debra L. Friedkin Site, Texas — Implications for the Late Pleistocene Peopling of the Americas. *Science Advances* 2018:4.

Westrick, Robert F.
2020 *Phase 1 Survey Mid-Breton Land Bridge Marsh Creation and Terracing Project (BS-0032) St. Bernard and Plaquemines Parishes, Louisiana*. JMB Companies, Inc. Submitted to Coastal Protection and Restoration Authority, Baton Rouge.

Whitehead, Hunter W.
2021 *Phase I Archaeological Assessment of Areas to be Affected by the East Delacroix Marsh Creation and Terracing Project (BS-0037) Saint Bernard Parish, Louisiana*. TerraSond Limited, Houston. Submitted to C. H. Fenstermaker and Associates, LLC, Lafayette.

APPENDIX A

DATA SAMPLES AND MAGNETIC ANOMALIES

MAG Anomaly	Y	X	Amplitude (nT)	Duration (ft)	Type	Correlation/Rec. Avoidance
Anomaly0001	475716.15	3764265.36	245.2	94.6	COMPLEX	
Anomaly0002	475810.55	3764138.59	161.3	73.3	COMPLEX	
Anomaly0003	476238.13	3763497.81	152.3	49.5	DIPOLE	
Anomaly0004	477056.01	3762247.56	128.3	70.6	DIPOLE	
Anomaly0005	477272.1	3761926.07	384.6	54.5	DIPOLE	
Anomaly0006	477823.46	3761080.94	172.9	44.2	MONOPOLE	
Anomaly0007	478067.57	3760686.53	94.3	32.6	MONOPOLE	
Anomaly0008	478229.89	3760449.12	232.5	92.3	DIPOLE	
Anomaly0009	478449.05	3759865.17	216.8	99.4	DIPOLE	
Anomaly0010	477558.71	3761285.96	67	68.5	DIPOLE	
Anomaly0011	477499.3	3761415.02	103.1	96.3	MONOPOLE	
Anomaly0012	477413.58	3761475.9	125.3	51.3	DIPOLE	
Anomaly0013	477302.24	3761612.9	283.5	95.5	DIPOLE	
Anomaly0014	477252.59	3761855.46	68.1	65.9	DIPOLE	
Anomaly0015	476284.22	3763239.43	63.8	65.2	MONOPOLE	
Anomaly0016	475753.7	3764033.73	61.2	83.5	DIPOLE	
Anomaly0017	476450.06	3762794.24	442.8	62.8	DIPOLE	
Anomaly0018	476525.6	3762672.53	163.2	40.5	MONOPOLE	
Anomaly0019	476782.56	3762299.23	324.9	45.2	DIPOLE	
Anomaly0020	477456.27	3761262.61	617.9	92	MONOPOLE	
Anomaly0021	478554.34	3759613.44	5032.4	254.6	DIPOLE	
Anomaly0022	478578.28	3759330.94	734.5	277.2	MONOPOLE	Pipeline
Anomaly0023	478375.66	3759695.49	231.9	223	COMPLEX	Wellhead
Anomaly0024	478110.45	3760076.84	80	65.3	MONOPOLE	
Anomaly0025	477672.65	3760704.78	187.2	152.7	COMPLEX	
Anomaly0026	477559.02	3760918.71	198.4	83.8	DIPOLE	
Anomaly0027	477519.21	3760986.44	181.4	67.1	DIPOLE	
Anomaly0028	477430.96	3761119.34	180	104.5	COMPLEX	
Anomaly0029	477321.38	3761277.38	211.7	102.1	COMPLEX	
Anomaly0030	477264.25	3761426.16	159.2	97.9	DIPOLE	
Anomaly0031	477064.01	3761675.19	22.3	67	DIPOLE	SSS 0033
Anomaly0032	476991.8	3761793.88	350.8	155.6	COMPLEX	SSS 0032/Avoidance 100ft
Anomaly0033	476845.94	3762027.98	181.2	89.4	DIPOLE	
Anomaly0034	476424.34	3762666.53	227.2	93.3	DIPOLE	
Anomaly0035	476285.74	3762862.18	159.3	118.1	DIPOLE	
Anomaly0036	475869.18	3763527.04	355.8	88.3	DIPOLE	
Anomaly0037	475610.61	3763850.96	229	77.7	DIPOLE	
Anomaly0038	475546.84	3763951.56	136.9	96.8	DIPOLE	
Anomaly0039	475480.76	3764117.87	116.3	159.6	COMPLEX	
Anomaly0040	475513.8	3763854.44	267.7	104.7	DIPOLE	
Anomaly0041	475598.87	3763742.5	195.3	77	DIPOLE	
Anomaly0042	475828.02	3763380.27	143.9	77.6	DIPOLE	
Anomaly0043	475886.37	3763312.2	96.2	107.6	COMPLEX	
Anomaly0044	476070.46	3763036.51	116.7	48.4	DIPOLE	
Anomaly0045	476625.99	3762176.95	82.8	100.4	DIPOLE	
Anomaly0046	477090.66	3761472.96	78.2	53.3	MONOPOLE	
Anomaly0047	477171.86	3761350.37	79.2	46.7	DIPOLE	

Anomaly0048	477171.86	3761350.37	279.7	101.2	DIPOLE	
Anomaly0049	477171.86	3761350.37	112.5	140.4	DIPOLE	
Anomaly0050	477171.86	3761350.37	187.3	104.5	DIPOLE	
Anomaly0051	477171.86	3761350.37	153.7	240.1	COMPLEX	
Anomaly0052	477171.86	3761350.37	92.9	70.5	MONOPOLE	
Anomaly0053	478285.88	3759651.62	964.8	374.1	COMPLEX	Wellhead
Anomaly0054	477633.04	3760643.09	299.3	154.2	DIPOLE	
Anomaly0055	477525.25	3760791.92	283.6	202.3	COMPLEX	
Anomaly0056	477371.44	3761054.66	92.3	75	DIPOLE	
Anomaly0057	476958.73	3761640.23	106.1	34.3	DIPOLE	
Anomaly0058	476859.33	3761821.66	207.3	40.4	DIPOLE	
Anomaly0059	476622.1	3762190.24	190.5	186.3	COMPLEX	
Anomaly0060	476142.54	3762872.75	108.1	62.7	DIPOLE	
Anomaly0061	475871.47	3763322.15	153.2	83.3	COMPLEX	
Anomaly0062	475585.25	3763749.4	192.3	45.3	COMPLEX	
Anomaly0063	475205.35	3764287.85	166.1	40.6	DIPOLE	
Anomaly0064	476256.7	3762565.47	369.4	53.9	DIPOLE	
Anomaly0065	476324.34	3762444.42	86.6	40.6	MONOPOLE	
Anomaly0066	476917.06	3761562.44	156.1	69.9	COMPLEX	
Anomaly0067	477142.82	3761202.82	347.9	81.6	DIPOLE	
Anomaly0068	477242.05	3761063.42	92.4	65	MONOPOLE	
Anomaly0069	477614.81	3760529.27	67.5	34.6	DIPOLE	
Anomaly0070	478377.85	3759114.3	509.5	161.2	DIPOLE	Pipeline
Anomaly0071	477889.42	3759833.34	377.6	144	MONOPOLE	SSS 0056
Anomaly0072	477541.07	3760423.94	201.8	188.9	COMPLEX	
Anomaly0073	477402.44	3760626.08	454.6	201.5	COMPLEX	
Anomaly0074	477133.2	3761013.5	189.1	131.3	DIPOLE	
Anomaly0075	476870.3	3761434.55	340.8	126.1	DIPOLE	
Anomaly0076	476749.17	3761624.05	111.7	51.8	MONOPOLE	
Anomaly0077	476673.35	3761729.2	173.8	108.4	COMPLEX	
Anomaly0078	476587.06	3761664.23	191.2	147.4	COMPLEX	
Anomaly0079	477125.16	3760940.61	56.4	58.6	DIPOLE	
Anomaly0080	477172.89	3760818	80.8	51	DIPOLE	
Anomaly0081	477765.5	3759868.97	200.4	78.5	DIPOLE	
Anomaly0082	477900.46	3759661.35	75.6	36.4	MONOPOLE	
Anomaly0083	478008.41	3759338.21	846.4	94.3	DIPOLE	SSS 0059, SSS 0060
Anomaly0084	477321.49	3760371.73	96.3	71.6	MONOPOLE	
Anomaly0085	476786.15	3761208.83	75.7	39.2	MONOPOLE	
Anomaly0086	476614.05	3761467.8	73.2	58.3	DIPOLE	
Anomaly0087	477711.96	3759628.65	154.8	149.6	DIPOLE	
Anomaly0088	477853.6	3759233.73	117.6	90.5	DIPOLE	
Anomaly0089	476590.61	3761124.47	551.7	90.6	DIPOLE	
Anomaly0090	477284.43	3759891.2	184.9	96.9	COMPLEX	SSS 0037
Anomaly0091	477975.35	3758847.56	99.3	139.1	COMPLEX	
Anomaly0092	477981.24	3758633.35	617.7	187.4	DIPOLE	Pipeline
Anomaly0093	476922.23	3760071.15	260.3	59.7	MONOPOLE	
Anomaly0094	476972.46	3759979.72	69	45.7	MONOPOLE	
Anomaly0095	477677.99	3758910.37	426.8	53	MONOPOLE	

Anomaly0096	477753.92	3758759.38	159.3	37.8	DIPOLE	
Anomaly0097	477852.71	3758479.81	399.6	135.3	DIPOLE	Pipeline
Anomaly0098	477714.09	3758692.57	135.9	73.3	MONOPOLE	
Anomaly0099	476784.1	3759906.04	92.1	36.5	DIPOLE	
Anomaly0100	476890.18	3759771.84	110.5	40.4	DIPOLE	
Anomaly0101	477301.78	3758968.45	296.4	113.7	MONOPOLE	
Anomaly0102	476958.97	3759485.06	180.7	74.3	DIPOLE	
Anomaly0103	477002.02	3759215.76	85.3	24.5	MONOPOLE	
Anomaly0104	477043.25	3759168.81	159.1	31.2	DIPOLE	
Anomaly0105	477576.72	3758193.94	784.2	87.8	DIPOLE	Pipeline
Anomaly0106	477279.01	3758669.03	149.2	40	MONOPOLE	
Anomaly0107	477224.55	3758742.69	206	45.7	DIPOLE	
Anomaly0108	477026.81	3758998.84	61	47.9	DIPOLE	
Anomaly0109	476812.8	3759096.84	151.8	66.3	COMPLEX	
Anomaly0110	477516.09	3758089.02	350.3	129.2	MONOPOLE	Pipeline
Anomaly0111	477417.1	3758016.93	2251.3	106.9	MONOPOLE	Pipeline
Anomaly0112	477314.87	3757870.21	811.8	116	DIPOLE	Pipeline
Anomaly0113	476898.93	3758270.85	132.8	49.3	MONOPOLE	
Anomaly0114	476612.46	3758713.36	145.8	72.7	DIPOLE	
Anomaly0115	477153.95	3757714.37	540.4	204	MONOPOLE	Pipeline
Anomaly0116	477097.24	3757628.9	1921	111.6	MONOPOLE	Pipeline
Anomaly0117	477021.48	3757542.31	392.2	86.4	DIPOLE	Pipeline
Anomaly0118	476785.94	3757950.67	150.3	62.3	DIPOLE	
Anomaly0119	476778.23	3757752.98	198.1	57	DIPOLE	
Anomaly0120	476754.03	3757797.02	134.4	48.8	DIPOLE	
Anomaly0121	476956.05	3757471.37	395.2	138.6	COMPLEX	Pipeline
Anomaly0122	476870.07	3757370.13	404	178.4	DIPOLE	Pipeline
Anomaly0123	476757.17	3757407.02	190.3	57.2	MONOPOLE	
Anomaly0124	476841.58	3757310.59	313.2	120.3	DIPOLE	Pipeline
Anomaly0125	476524.9	3756605.25	756.6	124.3	COMPLEX	SSS 0097, Pipeline
Anomaly0126	477459.68	3757744.36	147.5	35.1	DIPOLE	
Anomaly0127	477876.53	3758236.29	5509.9	225.3	MONOPOLE	Wellhead
Anomaly0128	478627.88	3759112.49	686	108.4	DIPOLE	
Anomaly0129	478737.07	3759243.29	174.9	66.4	MONOPOLE	
Anomaly0130	479684.15	3760383.87	83.6	61.9	MONOPOLE	
Anomaly0131	480106.02	3760874.56	73	33.3	DIPOLE	SSS 0080
Anomaly0132	479952.62	3760584.55	141.9	50.9	MONOPOLE	
Anomaly0133	479846	3760339.13	183.1	222.9	DIPOLE	
Anomaly0134	478089.89	3758314.86	176.5	163.4	MONOPOLE	
Anomaly0135	477336.77	3757288.33	121.8	238.9	COMPLEX	SSS 0121
Anomaly0136	477769.39	3757789.45	70.6	121.1	DIPOLE	SSS 0114
Anomaly0137	477860.66	3757912.31	85	90.6	DIPOLE	
Anomaly0138	479271.48	3759561.54	118.8	179.6	DIPOLE	
Anomaly0139	479510.7	3759895.62	71.4	88	MONOPOLE	SSS 0103
Anomaly0140	479836.93	3760093.05	342	76.1	DIPOLE	
Anomaly0141	479340.74	3759489.2	72.7	30	DIPOLE	
Anomaly0142	478118.81	3758054.85	73.6	41.6	MONOPOLE	
Anomaly0143	477342.21	3757154.59	109.3	89.7	MONOPOLE	

Anomaly0144	476735.77	3756417.42	4134.8	199.2	COMPLEX	SSS 0123, Pipeline
Anomaly0145	477260.84	3756883.21	140.4	111.5	DIPOLE	SSS 0124
Anomaly0146	477329.9	3756974.28	71.4	60.1	MONOPOLE	
Anomaly0147	479286.09	3759280.48	157.3	94	DIPOLE	
Anomaly0148	479561.15	3759590.14	120	130.7	DIPOLE	
Anomaly0149	480288.88	3760468.71	131.7	98.7	DIPOLE	
Anomaly0150	480334.33	3760359.72	165.6	52.9	DIPOLE	
Anomaly0151	480303.23	3760295.42	505	63.7	DIPOLE	
Anomaly0152	478251.65	3757900.19	156.6	64.7	DIPOLE	
Anomaly0153	477369.99	3756849.51	129.5	70.6	DIPOLE	
Anomaly0154	477326.2	3756785.79	144.4	54.2	DIPOLE	
Anomaly0155	477128.72	3756419.26	152.2	43.2	DIPOLE	
Anomaly0156	477820.36	3757223.14	133.4	68.2	DIPOLE	
Anomaly0157	479016.3	3758638.05	130.1	46.6	MONOPOLE	
Anomaly0158	479764.37	3759540.52	54.4	63.8	MONOPOLE	
Anomaly0159	480013.03	3759827.63	59.9	42.8	MONOPOLE	SSS 0140
Anomaly0160	479950.95	3759618.03	391.2	69.6	DIPOLE	
Anomaly0161	479855.38	3759490.38	65.6	47.5	DIPOLE	
Anomaly0162	479467.47	3759029.02	108.7	59.7	MONOPOLE	
Anomaly0163	479309.35	3758865.97	68.6	41.9	DIPOLE	
Anomaly0164	478090.9	3757402.57	69.1	48.4	DIPOLE	
Anomaly0165	477984.28	3757270.81	197.4	113.8	COMPLEX	
Anomaly0166	477516.23	3756527.36	644.5	86.8	DIPOLE	
Anomaly0167	478860.45	3758139.87	153.2	52.6	DIPOLE	
Anomaly0168	479333.85	3758697.58	62.1	42.4	MONOPOLE	
Anomaly0169	479249.97	3758463.51	379.4	60.4	DIPOLE	SSS 0143
Anomaly0170	479163.76	3758354.69	135.8	72.9	MONOPOLE	
Anomaly0171	477203.04	3756035.88	1722.4	187.9	COMPLEX	Pipeline
Anomaly0172	477824.48	3756601.08	149.6	60.2	MONOPOLE	
Anomaly0173	478297.78	3757160.53	110.4	93.2	MONOPOLE	
Anomaly0174	479055.69	3758078.92	164.7	50.8	MONOPOLE	
Anomaly0175	479108.78	3758142.68	381.4	64.1	DIPOLE	
Anomaly0176	479190.91	3758241.69	101.9	70.6	DIPOLE	
Anomaly0177	479329.01	3758387.77	234.5	79.4	DIPOLE	
Anomaly0178	479621.61	3758738.59	309.2	91	DIPOLE	
Anomaly0179	480264.72	3759502.03	228.9	61.2	DIPOLE	
Anomaly0180	480034.33	3759081.66	145.9	90.5	DIPOLE	
Anomaly0181	479705.8	3758689.78	64.9	91	DIPOLE	
Anomaly0182	478695.51	3757494.36	270.9	112	COMPLEX	
Anomaly0183	477999.8	3756678.52	134	110.9	COMPLEX	
Anomaly0184	477687.74	3756244.2	63.7	53.9	DIPOLE	
Anomaly0185	477444.67	3755830.19	473.8	335.5	COMPLEX	Pipeline
Anomaly0186	478042.32	3756561.14	219.4	94.9	DIPOLE	
Anomaly0187	480231.7	3759014.15	318.1	86.7	DIPOLE	
Anomaly0188	480078.92	3758836.08	374.6	177.7	COMPLEX	
Anomaly0189	479543.35	3758184.5	202.9	62.1	MONOPOLE	
Anomaly0190	479033.82	3757586.71	59.1	61.7	DIPOLE	
Anomaly0191	478419.56	3756876.92	72.9	57.1	MONOPOLE	

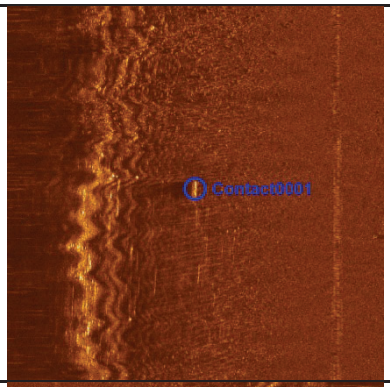
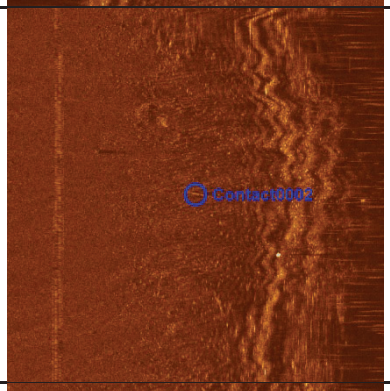
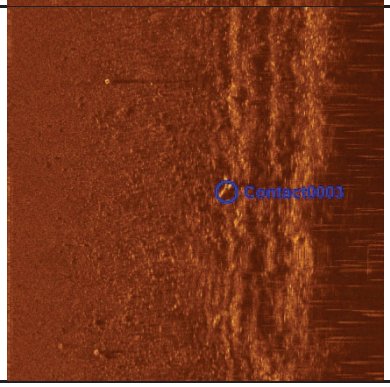
Anomaly0192	478148.02	3756346.91	548.5	126.8	DIPOLE	
Anomaly0193	478439.49	3756705.76	216.7	54.6	MONOPOLE	
Anomaly0194	478962.27	3757368.71	196.2	60.9	DIPOLE	
Anomaly0195	479028.89	3757439.39	136.1	59.4	DIPOLE	
Anomaly0196	479975.62	3758535.13	647.6	97.3	DIPOLE	
Anomaly0197	480439.5	3759097.17	135.7	55.8	DIPOLE	
Anomaly0198	479802.74	3758179.78	64.9	48.8	DIPOLE	SSS 0160
Anomaly0199	479629.59	3757985.68	121.1	29.6	MONOPOLE	
Anomaly0200	478907.09	3757105.88	108.2	43.6	MONOPOLE	
Anomaly0201	478101.27	3756161.52	80	45	MONOPOLE	
Anomaly0202	477656.15	3755659.84	1417.9	216.1	DIPOLE	Pipeline
Anomaly0203	478439.54	3756395.89	70.2	41.5	MONOPOLE	
Anomaly0204	478843.69	3756896.56	230.8	53.6	MONOPOLE	
Anomaly0205	479595.36	3757795.17	1762.3	127.5	COMPLEX	SSS 0173
Anomaly0206	479810.23	3757992.14	82.2	106.6	MONOPOLE	
Anomaly0207	479972.17	3758096.75	61.6	59.9	MONOPOLE	
Anomaly0208	479629.58	3757687.62	231.4	200.8	COMPLEX	
Anomaly0209	478753.03	3756620.23	69.8	90.4	DIPOLE	
Anomaly0210	478467.65	3756301.98	72.4	136.7	DIPOLE	
Anomaly0211	480043.03	3757999.51	142.3	38.8	MONOPOLE	
Anomaly0212	479954.96	3757887.29	398.5	55.7	DIPOLE	
Anomaly0213	479698.6	3757606.09	55.6	49.1	MONOPOLE	
Anomaly0214	477929.41	3755386.64	1635.6	191.5	MONOPOLE	Pipeline
Anomaly0215	479135.86	3756770.56	349.9	118.6	MONOPOLE	
Anomaly0216	479786.01	3757541.98	56.7	263.8	COMPLEX	
Anomaly0217	479714.48	3757294.91	185.5	64	MONOPOLE	
Anomaly0218	479479.02	3757038.46	114.3	219.9	COMPLEX	
Anomaly0219	478113.06	3755267.56	1630.1	102.4	COMPLEX	Pipeline
Anomaly0220	478277.69	3755463.86	310.9	24.6	MONOPOLE	
Anomaly0221	478099.43	3755266.29	714.1	156.7	COMPLEX	Pipeline
Anomaly0222	478310.99	3755496.98	165.5	81.9	MONOPOLE	SSS 0200, SSS 0204
Anomaly0223	478500.12	3755730.37	89.7	120.4	DIPOLE	
Anomaly0224	478873.4	3756149.53	76.4	20.3	MONOPOLE	
Anomaly0225	479979.16	3757467.52	106	66	MONOPOLE	
Anomaly0226	478565.05	3755621.56	99.9	103.2	DIPOLE	
Anomaly0227	478472.97	3755356.43	72.4	85	DIPOLE	
Anomaly0228	479692.11	3756820.37	110.1	40.2	MONOPOLE	
Anomaly0229	480363.19	3757623.88	223.8	75.5	MONOPOLE	
Anomaly0230	480235.04	3757356.92	226.8	70.5	MONOPOLE	
Anomaly0231	479653.26	3756621.07	210.5	62	DIPOLE	
Anomaly0232	479217.83	3756074.04	165.6	37.8	DIPOLE	
Anomaly0233	478353.4	3755070.06	752.7	126.3	COMPLEX	Pipeline
Anomaly0234	479552.67	3756396.64	127.3	42.3	MONOPOLE	
Anomaly0235	479650.95	3756469.39	1155.9	88.5	COMPLEX	
Anomaly0236	479827.06	3756639.77	78.3	39.5	MONOPOLE	
Anomaly0237	479984.52	3756866.59	128.9	35.7	MONOPOLE	
Anomaly0238	480334.86	3757116.19	110	54.3	MONOPOLE	
Anomaly0239	479505.53	3756038.17	263.3	26.3	MONOPOLE	

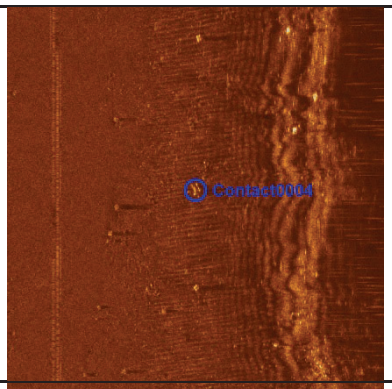
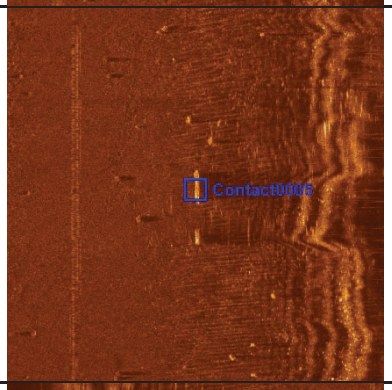
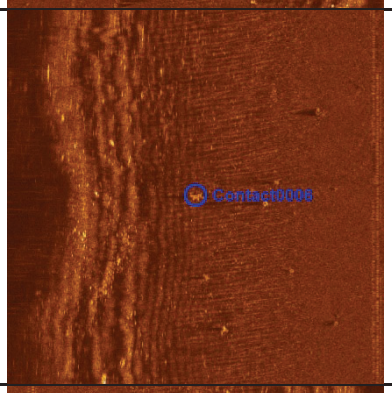
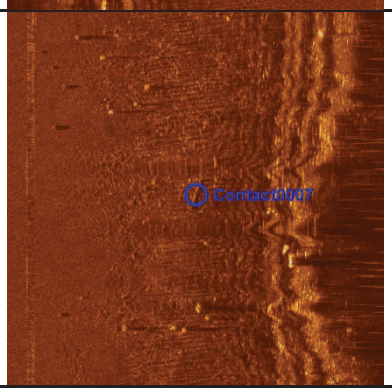
Anomaly0240	479359.68	3755944.19	383.6	54.7	DIPOLE	SSS 0226
Anomaly0241	479308.85	3755895.5	50	63.9	COMPLEX	SSS 0225
Anomaly0242	478594.16	3754878.84	1735.5	133	DIPOLE	
Anomaly0243	480036.2	3756593.04	72.6	43.3	MONOPOLE	
Anomaly0244	480166.44	3756578.81	197.7	63.4	MONOPOLE	
Anomaly0245	479911.33	3756294.8	52.5	42.6	MONOPOLE	
Anomaly0246	479613.2	3755943.79	78.5	56.6	MONOPOLE	
Anomaly0247	479107.91	3755369.84	57	62.6	MONOPOLE	SSS 0235
Anomaly0248	478961.73	3754994.59	65.4	11.3	MONOPOLE	Wellhead
Anomaly0249	478965.51	3755016.41	111	5.4	DIPOLE	Wellhead
Anomaly0250	478965.51	3755016.41	722	5.3	MONOPOLE	Wellhead
Anomaly0251	478970.87	3755048.17	269.5	5.5	DIPOLE	
Anomaly0252	479174.31	3755264.08	114.2	261.1	MONOPOLE	Wellhead
Anomaly0253	479531.88	3755701.5	242.6	136.4	COMPLEX	
Anomaly0254	479848.92	3755923.54	104.7	33.7	MONOPOLE	
Anomaly0255	479430.84	3755434.24	99.9	40.5	MONOPOLE	
Anomaly0256	479206.21	3755169.02	922.8	175.5	MONOPOLE	Wellhead
Anomaly0257	478786.79	3754651.08	1923.5	163.6	DIPOLE	Pipeline
Anomaly0258	479171.16	3754973.75	493.7	56.2	DIPOLE	
Anomaly0259	479948.17	3755883.48	55	46.4	MONOPOLE	
Anomaly0260	479947.24	3755732.1	80.9	62.9	DIPOLE	
Anomaly0261	479762.84	3755514.04	68.9	42	MONOPOLE	
Anomaly0262	479031.45	3754474.15	1784.2	135	DIPOLE	Pipeline
Anomaly0263	479385.55	3754916.09	73.8	33.1	MONOPOLE	
Anomaly0264	479703.16	3755281.32	174.8	33	MONOPOLE	
Anomaly0265	479593.8	3755005.89	153.3	65.9	DIPOLE	
Anomaly0266	479433.35	3754637.05	83.5	46.6	DIPOLE	
Anomaly0267	479250.78	3754281.02	890.3	126.5	MONOPOLE	Pipeline
Anomaly0268	478813.03	3759566.57	1360.1	92.7	MONOPOLE	Pipeline
Anomaly0269	478683.64	3759483.5	849.2	443.1	MONOPOLE	Pipeline
Anomaly0270	476728.79	3762539.85	163.5	104.7	MONOPOLE	
Anomaly0271	476694.99	3762255.15	172.6	108.3	COMPLEX	
Anomaly0272	475747.11	3763705.32	136.1	94.3	COMPLEX	
Anomaly0273	475360.99	3764109.26	74.7	98.8	COMPLEX	
Anomaly0274	478578.46	3759306.99	210.2	171	MONOPOLE	Pipeline
Anomaly0275	478465.54	3759168.07	552.4	181.4	MONOPOLE	Pipeline
Anomaly0276	478439.84	3759027.71	314.6	25.6	DIPOLE	
Anomaly0277	478276.37	3759287.97	117.9	54.4	MONOPOLE	
Anomaly0278	477796.59	3760029.59	176.9	55.1	MONOPOLE	
Anomaly0279	478330.35	3759008.02	328.3	100.4	MONOPOLE	Pipeline
Anomaly0280	476405.52	3761942.25	55.2	35.9	MONOPOLE	
Anomaly0281	478250.88	3758976.42	870.8	139.4	MONOPOLE	Pipeline
Anomaly0282	477485.21	3759907.86	83.1	105.6	COMPLEX	
Anomaly0283	478216.57	3758861.02	338.2	113	DIPOLE	
Anomaly0284	478107.67	3758808.77	390.3	216.3	DIPOLE	Pipeline
Anomaly0285	477648.03	3759515.07	53.7	71.8	MONOPOLE	
Anomaly0286	475405.55	3764769.15	1379.8	203.5	COMPLEX	
Anomaly0287	478673.3	3759402.47	1300.9	186.6	MONOPOLE	

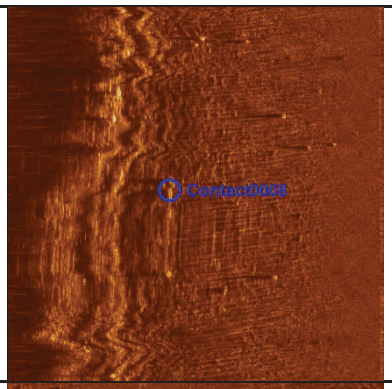
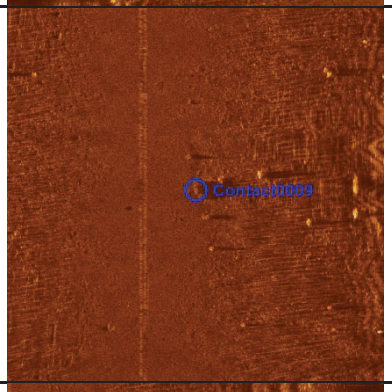
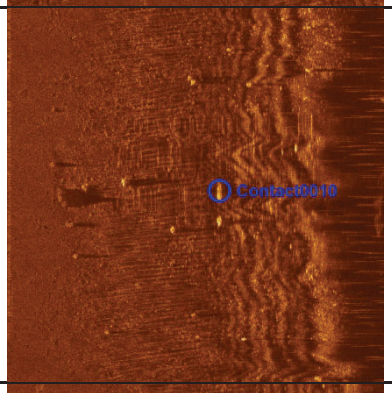
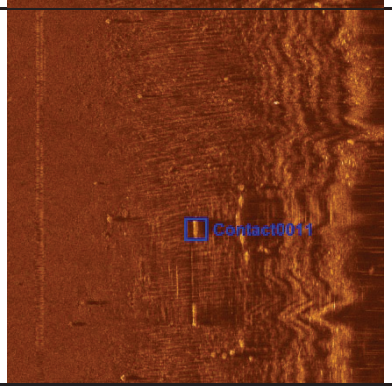
Anomaly0288	476159.11	3763051.24	93.2	137.8	COMPLEX	
Anomaly0289	478050.77	3758700.87	217.4	108.2	MONOPOLE	SSS 0063
Anomaly0290	476710.01	3760548.21	122.3	49.1	MONOPOLE	
Anomaly0291	477882.23	3758787.47	55	45.9	DIPOLE	
Anomaly0292	477919.43	3758557.91	666.2	96.1	MONOPOLE	Pipeline
Anomaly0293	477776.71	3758420.95	1265.9	138.1	DIPOLE	Pipeline
Anomaly0294	477715.41	3758332.74	448	213.5	COMPLEX	Pipeline
Anomaly0295	476902.63	3759561.26	85.2	40.3	MONOPOLE	
Anomaly0296	477650.78	3758246.19	1087.2	99.4	MONOPOLE	Pipeline
Anomaly0297	477391.76	3758610.32	174.6	37.9	MONOPOLE	
Anomaly0298	477440.35	3758202.53	70.5	36.2	MONOPOLE	
Anomaly0299	477263.29	3758488.78	31.9	74.6	MONOPOLE	
Anomaly0300	477366.57	3757924.31	716.8	54.7	MONOPOLE	Pipeline
Anomaly0301	477178.35	3758045.74	176	40	MONOPOLE	
Anomaly0302	477217.37	3757758.83	840.5	102.3	MONOPOLE	Pipeline
Anomaly0303	476964.08	3757631.44	63.4	31.8	MONOPOLE	
Anomaly0304	477952.16	3758174.09	264.8	430.1	MONOPOLE	Wellhead
Anomaly0305	476803.46	3756709.78	94.4	79.4	MONOPOLE	
Anomaly0306	477135.58	3756996.46	52.4	65.8	MONOPOLE	
Anomaly0307	478077.75	3758152.8	54.9	67.8	MONOPOLE	
Anomaly0308	478546.51	3758701.56	48.4	74.8	MONOPOLE	
Anomaly0309	479878.49	3760287.06	45.2	132	MONOPOLE	
Anomaly0310	480330.13	3760650.38	74.5	29.5	MONOPOLE	
Anomaly0311	478664.17	3758527.82	50	23.4	MONOPOLE	
Anomaly0312	476992.8	3756246.93	1077.1	165.8	COMPLEX	Pipeline
Anomaly0313	480424.9	3759856.94	144	71.6	MONOPOLE	
Anomaly0314	478732.43	3757536.89	270.9	125.9	MONOPOLE	
Anomaly0315	479852.13	3758399.67	54.7	36.1	MONOPOLE	SSS 0167
Anomaly0316	478034.02	3755789.74	58.6	47.4	MONOPOLE	
Anomaly0317	479614.02	3757174.4	45.4	56.5	DIPOLE	
Anomaly0318	478730.34	3756138.97	49.2	49.4	MONOPOLE	
Anomaly0319	477961.98	3755143.98	170.3	16.9	MONOPOLE	
Anomaly0320	478653.63	3755878.88	51	55.9	MONOPOLE	
Anomaly0321	478820.49	3756080.04	77.2	100.8	MONOPOLE	
Anomaly0322	479743.7	3756886.88	46.3	50.2	MONOPOLE	

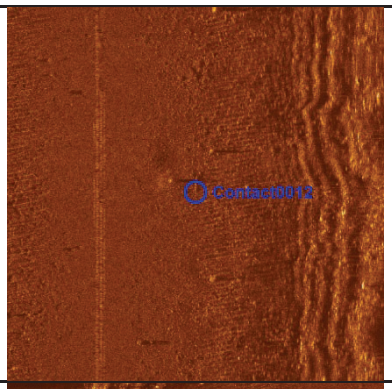
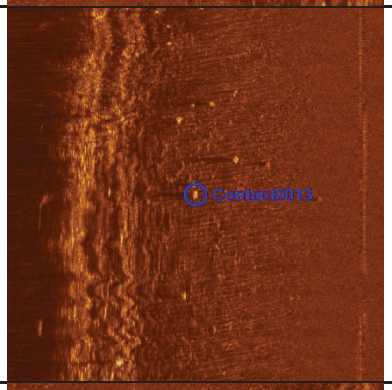
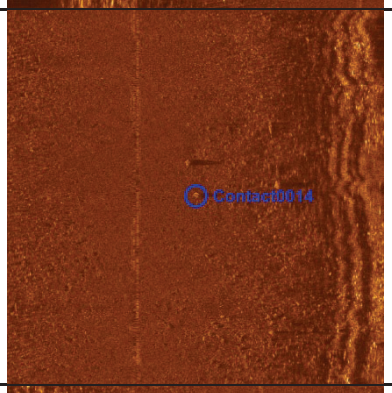
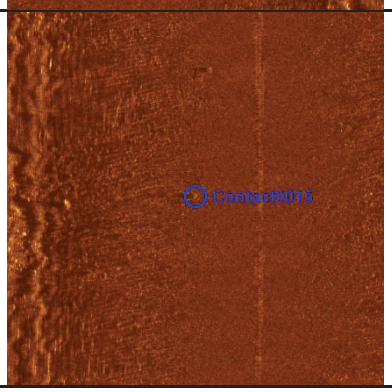
Sidescan Sonar Contact Report

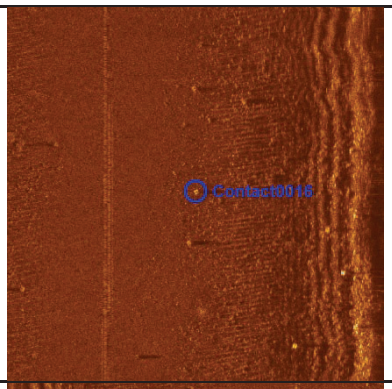
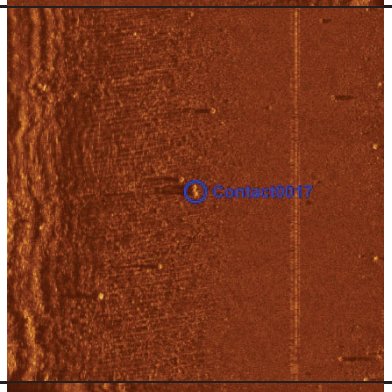
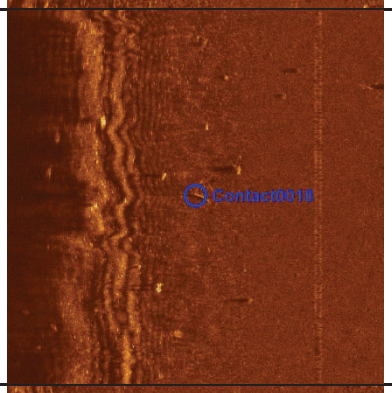
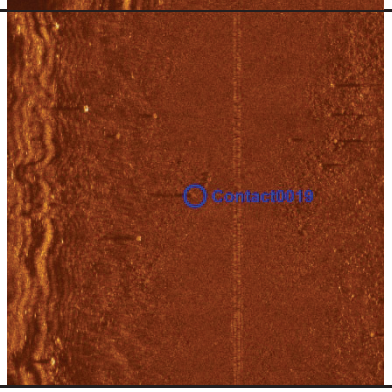
Generated by Fenstermaker & Associates

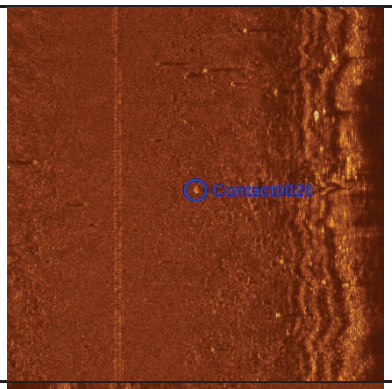
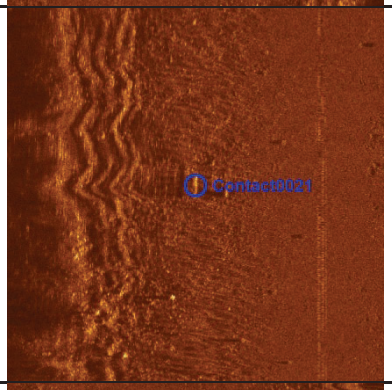
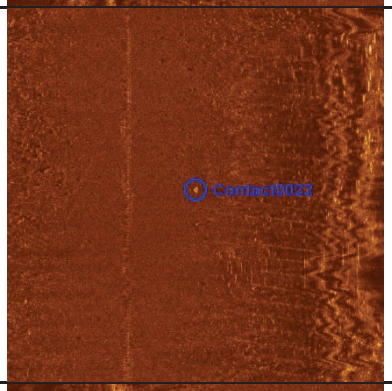
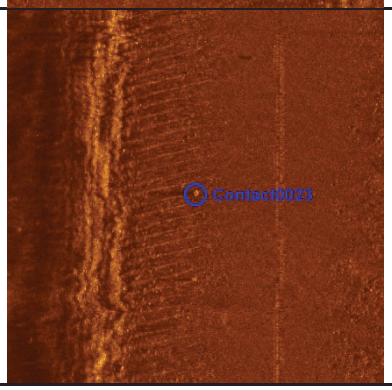
Target Image	Target Info	User Entered Info
	**Contact0001** • Click Position 29.8068808454 -89.8224767271 (WGS84) (X) 3759979.73 (Y) 478422.14 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615155628.jsf • Range to target: 90.21 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615155628	**Dimensions and attributes** • Target Width: 2.92 US ft • Target Height: 0.69 US ft • Target Length: 13.81 US ft • Target Shadow: 18.82 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0002** • Click Position 29.8072376474 -89.8220489644 (WGS84) (X) 3760113.67 (Y) 478553.66 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615155628.jsf • Range to target: 88.14 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615155628	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 12.35 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0003** • Click Position 29.8058894574 -89.8194918417 (WGS84) (X) 3760931.05 (Y) 478074.14 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615155628.jsf • Range to target: 140.68 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615155628	**Dimensions and attributes** • Target Width: 7.26 US ft • Target Height: 0.00 US ft • Target Length: 16.95 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:

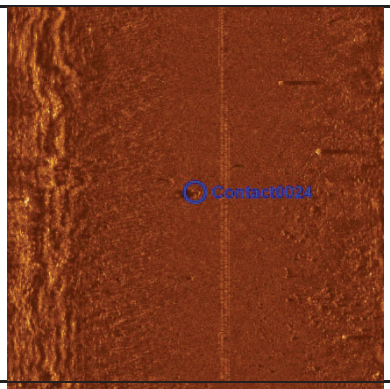
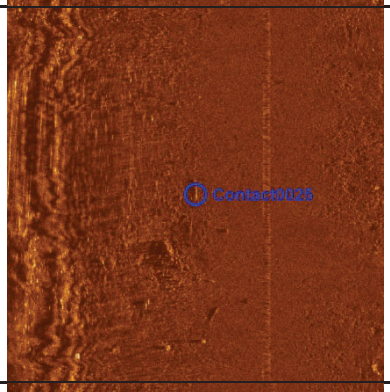
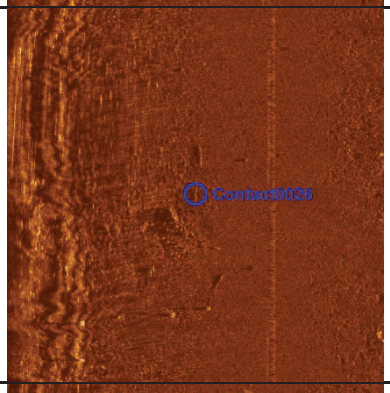
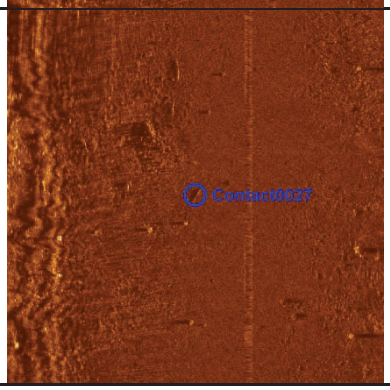
	**Contact0004** • Click Position 29.8012647833 -89.8119333289 (WGS84) (X) 3763350.34 (Y) 476424.26 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615155628.jsf • Range to target: 89.87 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615155628	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0005** • Click Position 29.8006578525 -89.8111548964 (WGS84) (X) 3763600.14 (Y) 476206.85 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615155628.jsf • Range to target: 77.08 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615155628	**Dimensions and attributes** • Target Width: 2.50 US ft • Target Height: 1.33 US ft • Target Length: 48.06 US ft • Target Shadow: 32.97 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0006** • Click Position 29.7999256084 -89.8108007414 (WGS84) (X) 3763715.99 (Y) 475942.08 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615155628.jsf • Range to target: 115.10 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615155628	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0007** • Click Position 29.7994167123 -89.8087263685 (WGS84) (X) 3764376.32 (Y) 475765.78 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615155628.jsf • Range to target: 105.77 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615155628	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 21.96 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:

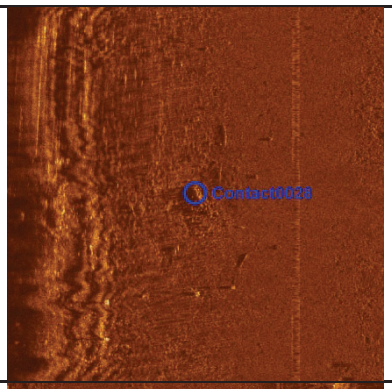
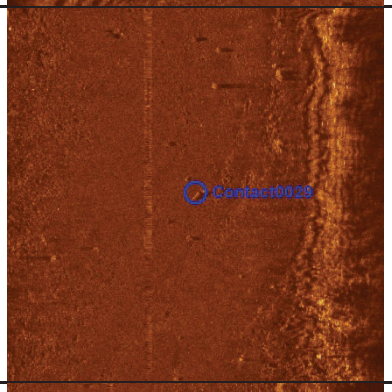
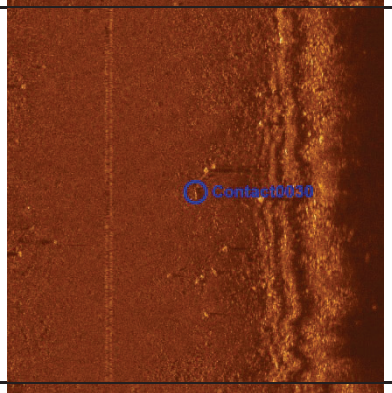
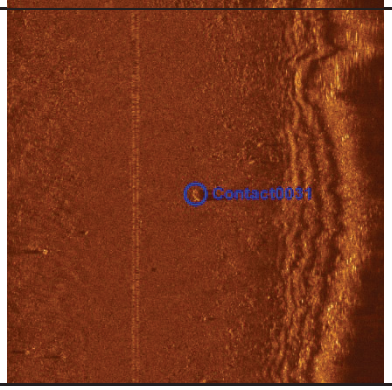
	**Contact0008** • Click Position 29.7987096084 -89.8088772785 (WGS84) (X) 3764331.88 (Y) 475508.03 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615155628.jsf • Range to target: 137.22 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615155628	**Dimensions and attributes** • Target Width: 4.68 US ft • Target Height: 0.00 US ft • Target Length: 25.78 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0009** • Click Position 29.7988838056 -89.8082319053 (WGS84) (X) 3764535.71 (Y) 475574.09 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615155628.jsf • Range to target: 33.87 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615155628	**Dimensions and attributes** • Target Width: 4.10 US ft • Target Height: 2.23 US ft • Target Length: 14.98 US ft • Target Shadow: 28.19 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0010** • Click Position 29.7991237129 -89.8080628628 (WGS84) (X) 3764588.16 (Y) 475662.04 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615155628.jsf • Range to target: 136.18 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615155628	**Dimensions and attributes** • Target Width: 3.34 US ft • Target Height: 0.00 US ft • Target Length: 10.96 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0011** • Click Position 29.7987812581 -89.8076657636 (WGS84) (X) 3764715.76 (Y) 475539.19 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615155628.jsf • Range to target: 99.89 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615155628	**Dimensions and attributes** • Target Width: 40.96 US ft • Target Height: 0.00 US ft • Target Length: 73.05 US ft • Target Shadow: 0.00 US ft • Classification1: Piles • Classification2: • Area: • Block: • Description:

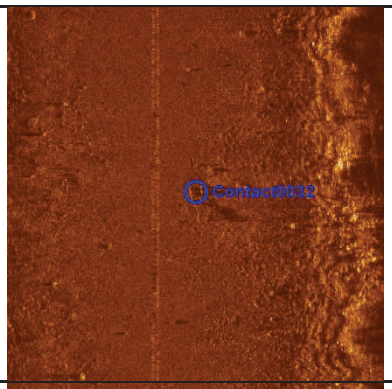
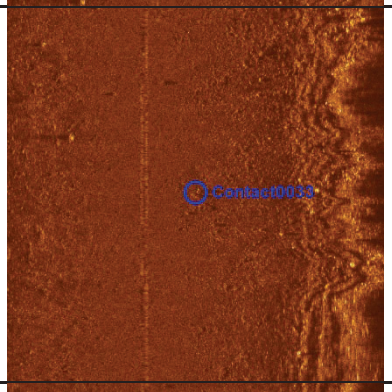
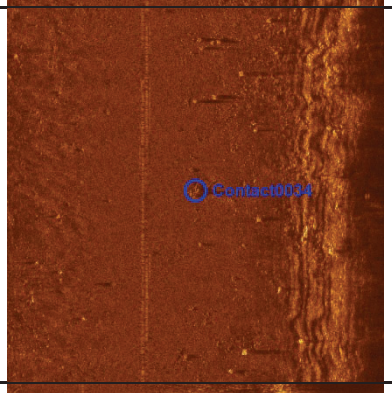
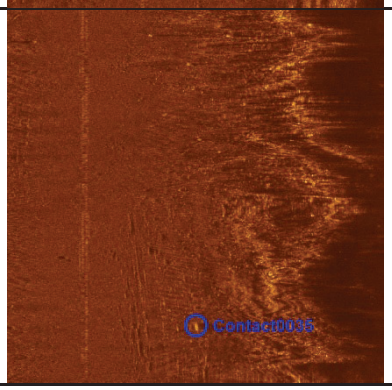
	**Contact0012** • Click Position 29.8044186100 -89.8174546431 (WGS84) (X) 3761584.17 (Y) 477547.85 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615155628.jsf • Range to target: 61.87 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615155628	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 14.31 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0013** • Click Position 29.8011369503 -89.8128249814 (WGS84) (X) 3763068.18 (Y) 476374.02 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615155628.jsf • Range to target: 106.80 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615155628	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: Typical Crab Trap • Classification2: • Area: • Block: • Description:
	**Contact0014** • Click Position 29.8076444098 -89.8230330867 (WGS84) (X) 3759799.64 (Y) 478697.46 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615155628.jsf • Range to target: 38.37 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615155628	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: Typical Crab Trap • Classification2: • Area: • Block: • Description:
	**Contact0015** • Click Position 29.8064305552 -89.8214236319 (WGS84) (X) 3760315.85 (Y) 478262.81 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615155628.jsf • Range to target: 40.09 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615155628	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: Typical Crab Trap • Classification2: • Area: • Block: • Description:

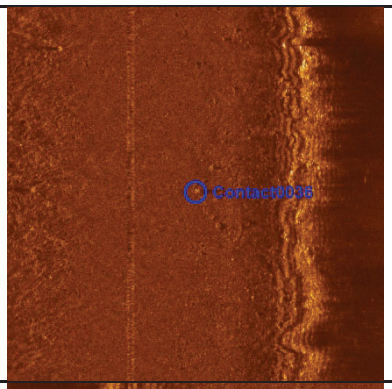
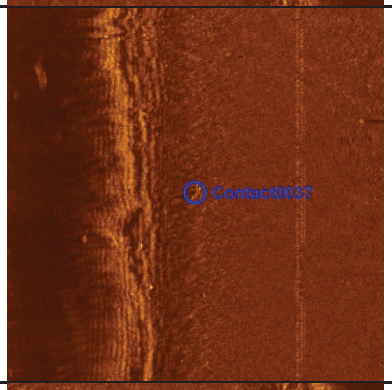
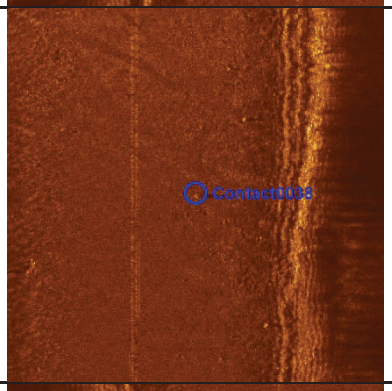
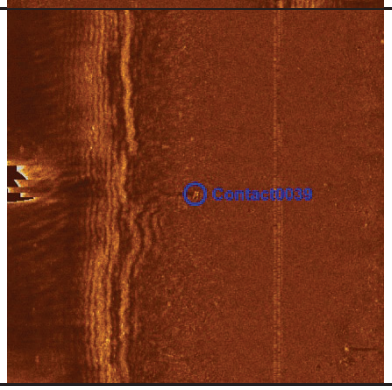
	**Contact0016** • Click Position 29.8030868943 -89.8152068816 (WGS84) (X) 3762303.40 (Y) 477073.05 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615155628.jsf • Range to target: 56.69 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615155628	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: Typical Crab Trap • Classification2: • Area: • Block: • Description:
	**Contact0017** • Click Position 29.7993353328 -89.8095654279 (WGS84) (X) 3764110.61 (Y) 475732.65 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615155628.jsf • Range to target: 63.25 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615155628	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: Typical Crab Trap • Classification2: • Area: • Block: • Description:
	**Contact0018** • Click Position 29.8002716340 -89.8107803388 (WGS84) (X) 3763720.79 (Y) 476067.99 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615161732.jsf • Range to target: 78.46 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615161732	**Dimensions and attributes** • Target Width: 3.88 US ft • Target Height: 0.00 US ft • Target Length: 8.10 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0019** • Click Position 29.8015610356 -89.8132246730 (WGS84) (X) 3762939.38 (Y) 476526.55 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615161732.jsf • Range to target: 26.61 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615161732	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 2.32 US ft • Target Length: 15.99 US ft • Target Shadow: 26.26 US ft • Classification1: • Classification2: • Area: • Block: • Description:

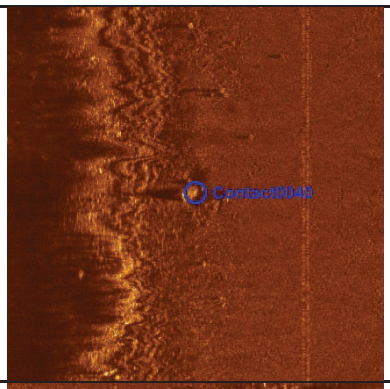
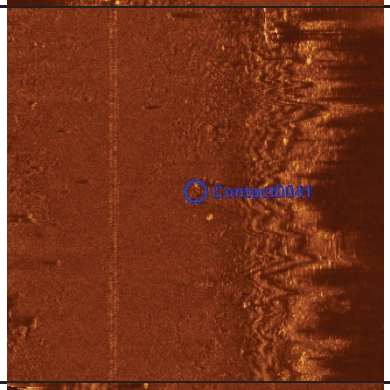
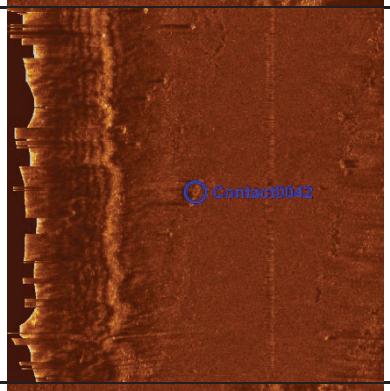
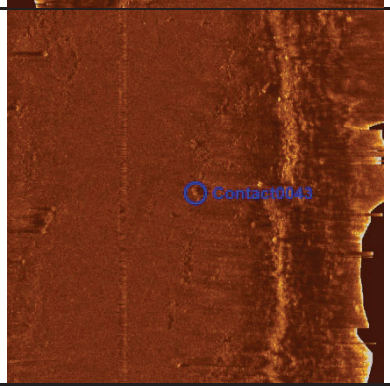
	**Contact0020** • Click Position 29.8017510632 -89.8139935743 (WGS84) (X) 3762694.62 (Y) 476592.41 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615161732.jsf • Range to target: 49.77 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615161732	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: Typical Crab Trap • Classification2: • Area: • Block: • Description:
	**Contact0021** • Click Position 29.8034915594 -89.8160922545 (WGS84) (X) 3762020.68 (Y) 477216.47 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615161732.jsf • Range to target: 80.19 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615161732	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0022** • Click Position 29.8072486240 -89.8233013773 (WGS84) (X) 3759716.46 (Y) 478552.42 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615161732.jsf • Range to target: 44.59 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615161732	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: Typical Crab Trap • Classification2: • Area: • Block: • Description:
	**Contact0023** • Click Position 29.8073245281 -89.8241125389 (WGS84) (X) 3759458.86 (Y) 478576.63 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615163900.jsf • Range to target: 53.57 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615163900	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: Typical Crab Trap • Classification2: • Area: • Block: • Description:

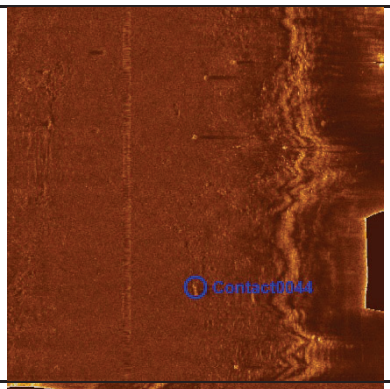
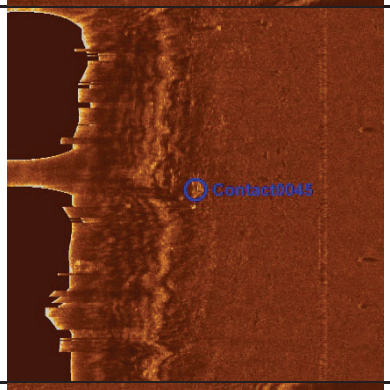
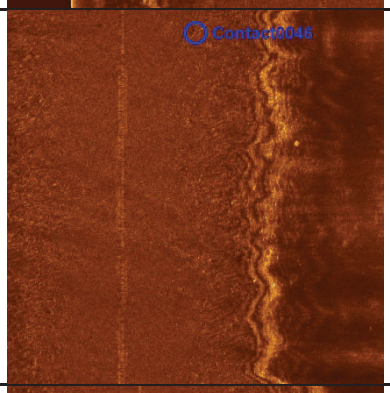
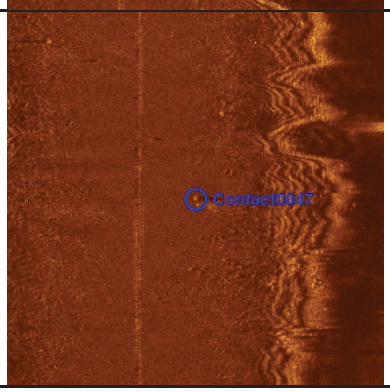
	**Contact0024** • Click Position 29.8057273756 -89.8212167304 (WGS84) (X) 3760384.84 (Y) 478007.98 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615163900.jsf • Range to target: 18.32 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615163900	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0025** • Click Position 29.7982076781 -89.8085653766 (WGS84) (X) 3764433.23 (Y) 475326.83 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615163900.jsf • Range to target: 45.28 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615163900	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 14.22 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0026** • Click Position 29.7981649363 -89.8085205718 (WGS84) (X) 3764447.64 (Y) 475311.48 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615163900.jsf • Range to target: 48.39 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615163900	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 16.12 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0027** • Click Position 29.7980987176 -89.8083532946 (WGS84) (X) 3764501.01 (Y) 475288.11 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615163900.jsf • Range to target: 33.87 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615163900	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 12.95 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:

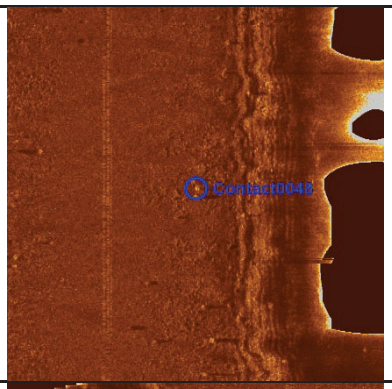
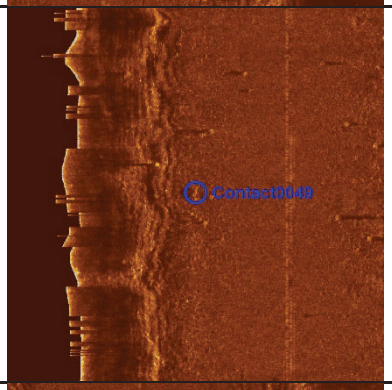
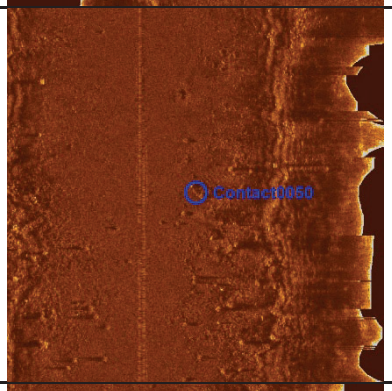
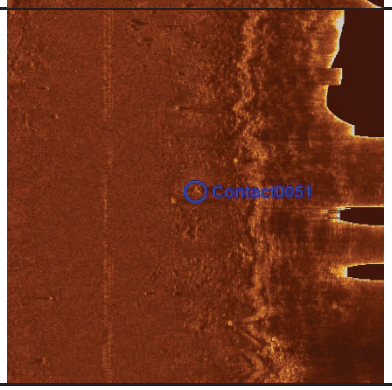
	**Contact0028** • Click Position 29.7981086224 -89.8085206708 (WGS84) (X) 3764447.88 (Y) 475291.00 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615163900.jsf • Range to target: 64.29 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615163900	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: Disturbed Water Bottom • Classification2: • Area: • Block: • Description:
	**Contact0029** • Click Position 29.7986474551 -89.8097590434 (WGS84) (X) 3764052.54 (Y) 475481.71 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615170859.jsf • Range to target: 30.76 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615170859	**Dimensions and attributes** • Target Width: 1.30 US ft • Target Height: 0.85 US ft • Target Length: 8.50 US ft • Target Shadow: 6.45 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0030** • Click Position 29.8018906921 -89.8153523832 (WGS84) (X) 3762263.02 (Y) 476637.47 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615170859.jsf • Range to target: 55.65 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615170859	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0031** • Click Position 29.8023440943 -89.8160023645 (WGS84) (X) 3762054.71 (Y) 476799.61 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615170859.jsf • Range to target: 38.71 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615170859	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:

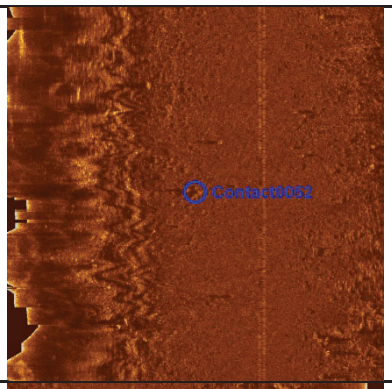
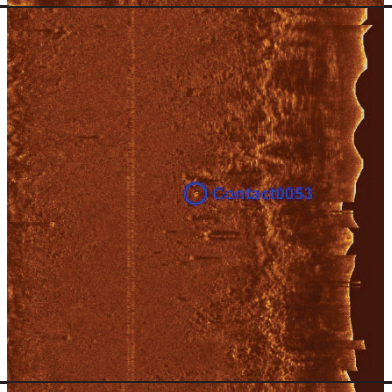
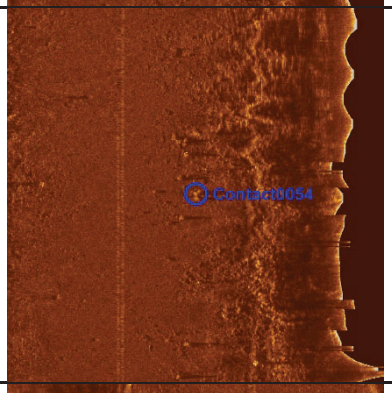
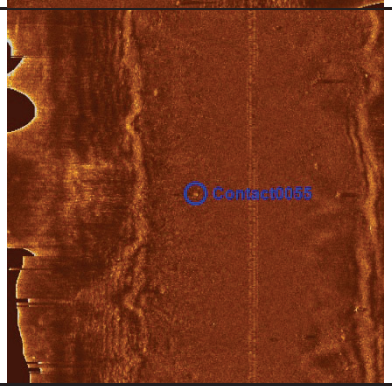
	**Contact0032** • Click Position 29.8028021646 -89.8167303407 (WGS84) (X) 3761821.64 (Y) 476963.12 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615170859.jsf • Range to target: 25.89 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615170859	**Dimensions and attributes** • Target Width: 7.95 US ft • Target Height: 0.00 US ft • Target Length: 17.98 US ft • Target Shadow: 0.00 US ft • Classification1: Possible Boat • Classification2: • Area: • Block: • Description:
	**Contact0033** • Click Position 29.8030051753 -89.8171608500 (WGS84) (X) 3761684.14 (Y) 477035.13 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615170859.jsf • Range to target: 33.07 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615170859	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0034** • Click Position 29.8042609012 -89.8193070433 (WGS84) (X) 3760997.48 (Y) 477482.74 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615170859.jsf • Range to target: 32.82 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615170859	**Dimensions and attributes** • Target Width: 4.12 US ft • Target Height: 1.54 US ft • Target Length: 8.43 US ft • Target Shadow: 18.95 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0035** • Click Position 29.8051475897 -89.8205425899 (WGS84) (X) 3760601.40 (Y) 477799.98 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615170859.jsf • Range to target: 71.02 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615170859	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:

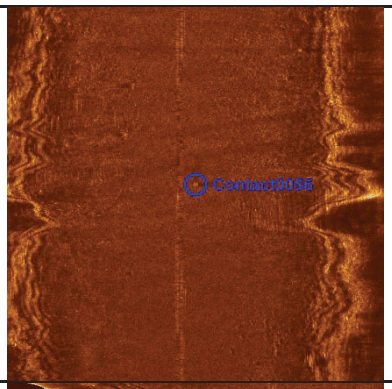
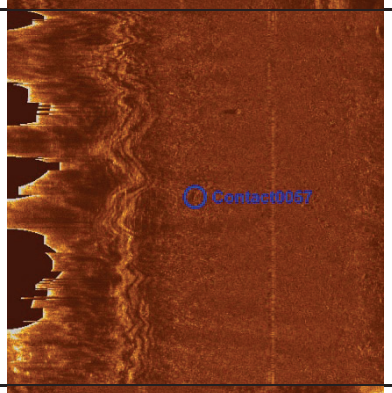
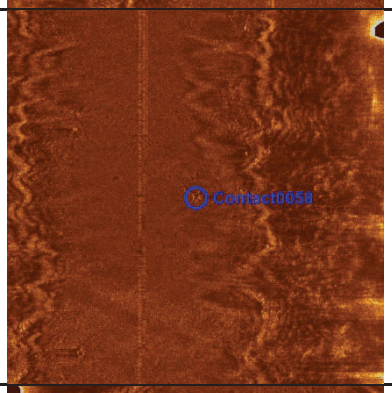
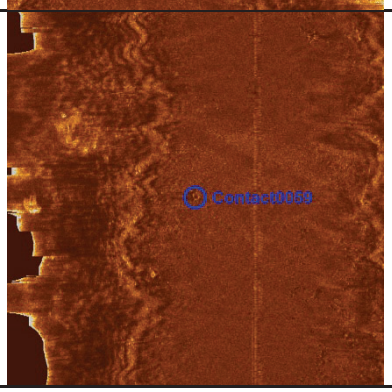
	**Contact0036** • Click Position 29.8041562877 -89.8243480997 (WGS84) (X) 3759399.34 (Y) 477423.61 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615172519.jsf • Range to target: 41.79 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615172519	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0037** • Click Position 29.8037132586 -89.8228835459 (WGS84) (X) 3759865.91 (Y) 477268.63 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615172519.jsf • Range to target: 66.66 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615172519	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0038** • Click Position 29.8040178911 -89.8229953990 (WGS84) (X) 3759828.98 (Y) 477378.94 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615172519.jsf • Range to target: 39.48 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615172519	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: Typical Crab Trap • Classification2: • Area: • Block: • Description:
	**Contact0039** • Click Position 29.8036902558 -89.8222411120 (WGS84) (X) 3760069.75 (Y) 477262.95 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615172519.jsf • Range to target: 52.30 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615172519	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:

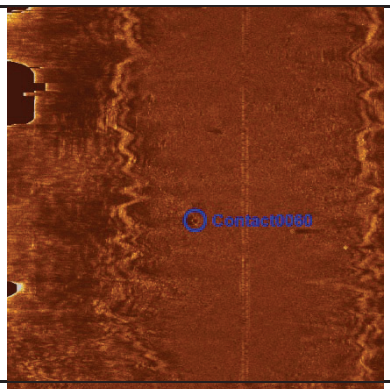
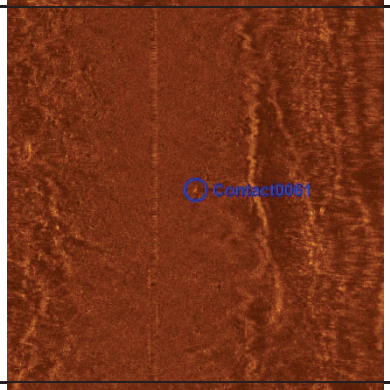
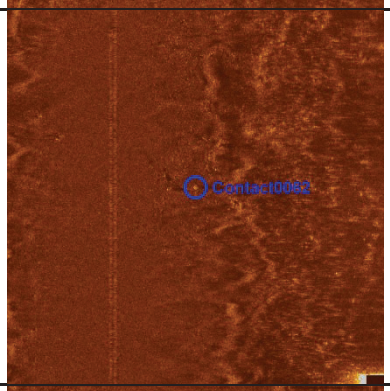
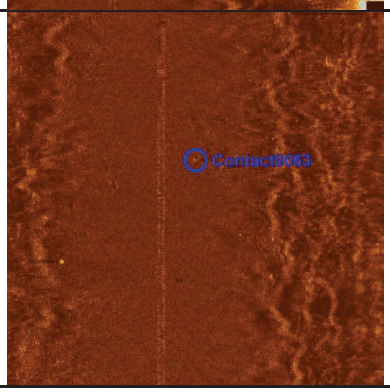
	**Contact0040** • Click Position 29.8021345688 -89.8165584901 (WGS84) (X) 3761879.35 (Y) 476721.09 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615172519.jsf • Range to target: 70.51 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615172519	**Dimensions and attributes** • Target Width: 23.11 US ft • Target Height: 1.42 US ft • Target Length: 30.16 US ft • Target Shadow: 32.87 US ft • Classification1: Large Debris Area • Classification2: • Area: • Block: • Description:
	**Contact0041** • Click Position 29.8025399983 -89.8165569385 (WGS84) (X) 3761877.89 (Y) 476868.51 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615172519.jsf • Range to target: 52.82 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615172519	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0042** • Click Position 29.7982177935 -89.8097766009 (WGS84) (X) 3764049.04 (Y) 475325.40 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615172519.jsf • Range to target: 47.94 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615172519	**Dimensions and attributes** • Target Width: 4.31 US ft • Target Height: 1.58 US ft • Target Length: 19.07 US ft • Target Shadow: 22.56 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0043** • Click Position 29.7984658703 -89.8096698784 (WGS84) (X) 3764081.69 (Y) 475416.06 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615172519.jsf • Range to target: 46.92 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615172519	**Dimensions and attributes** • Target Width: 1.93 US ft • Target Height: 0.00 US ft • Target Length: 6.34 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:

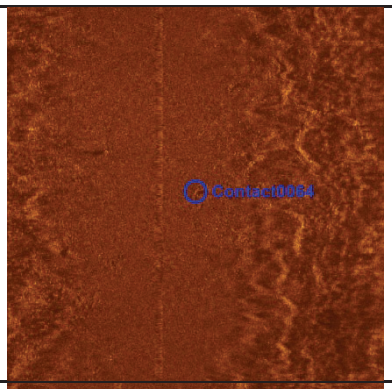
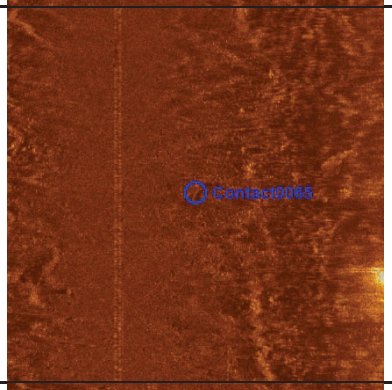
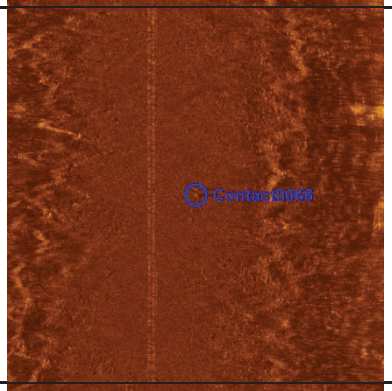
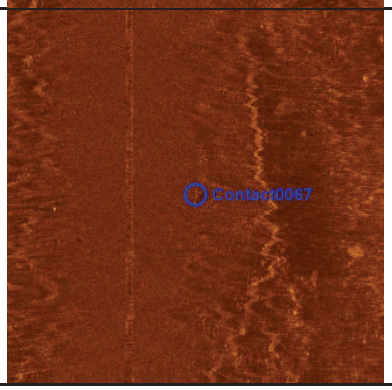
	**Contact0044** • Click Position 29.7974154038 -89.8079449639 (WGS84) (X) 3764633.82 (Y) 475041.36 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615172519.jsf • Range to target: 44.35 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615172519	**Dimensions and attributes** • Target Width: 2.19 US ft • Target Height: 0.71 US ft • Target Length: 9.91 US ft • Target Shadow: 7.49 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0045** • Click Position 29.7976072393 -89.8088704149 (WGS84) (X) 3764339.39 (Y) 475107.21 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615172519.jsf • Range to target: 81.53 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615172519	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0046** • Click Position 29.8072484715 -89.8252108074 (WGS84) (X) 3759110.95 (Y) 478544.39 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615181653.jsf • Range to target: 47.94 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615181653	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 11.75 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0047** • Click Position 29.8065722542 -89.8240546359 (WGS84) (X) 3759480.83 (Y) 478303.33 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615181653.jsf • Range to target: 36.92 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615181653	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: Typical Crab Trap • Classification2: • Area: • Block: • Description:

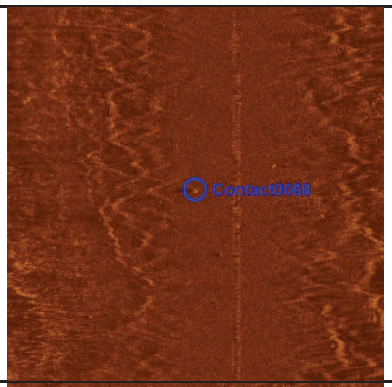
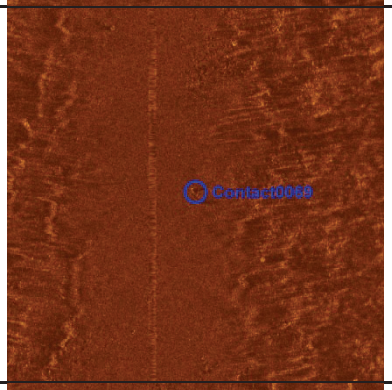
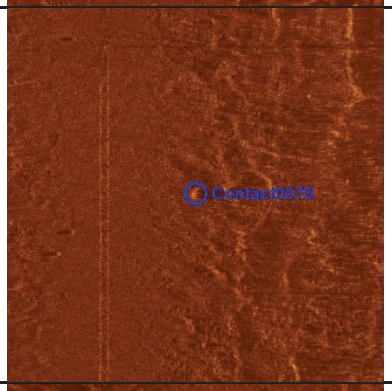
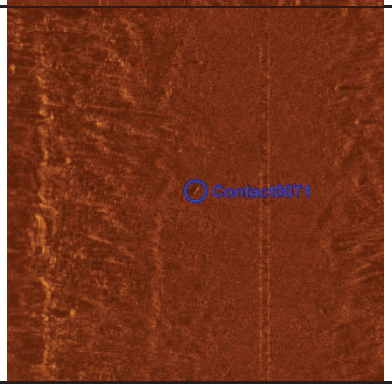
	**Contact0048** • Click Position 29.8048777925 -89.8209491877 (WGS84) (X) 3760473.76 (Y) 477700.17 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615181653.jsf • Range to target: 57.43 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615181653	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0049** • Click Position 29.8036910604 -89.8196966810 (WGS84) (X) 3760876.66 (Y) 477273.90 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615181653.jsf • Range to target: 59.99 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615181653	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0050** • Click Position 29.8029037145 -89.8178489537 (WGS84) (X) 3761466.41 (Y) 476995.35 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615181653.jsf • Range to target: 34.61 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615181653	**Dimensions and attributes** • Target Width: 6.20 US ft • Target Height: 0.00 US ft • Target Length: 10.91 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0051** • Click Position 29.8007519506 -89.8140547940 (WGS84) (X) 3762680.02 (Y) 476228.86 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615181653.jsf • Range to target: 56.66 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615181653	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:

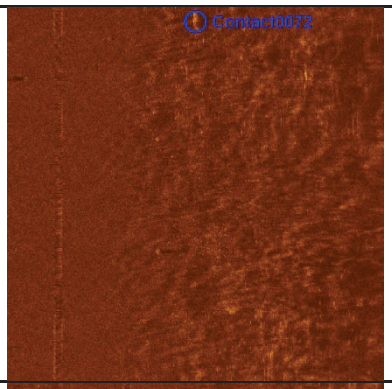
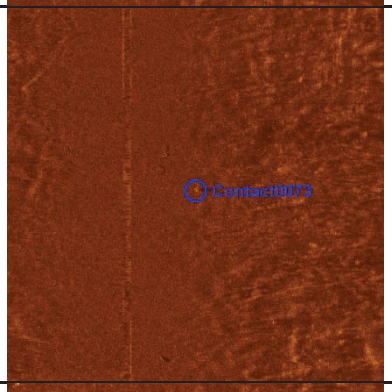
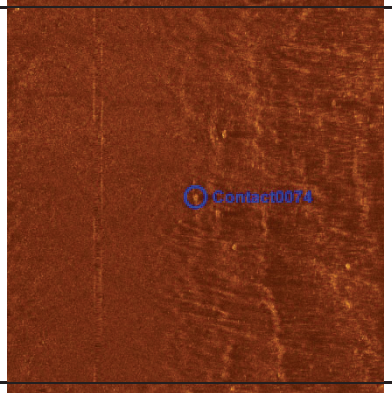
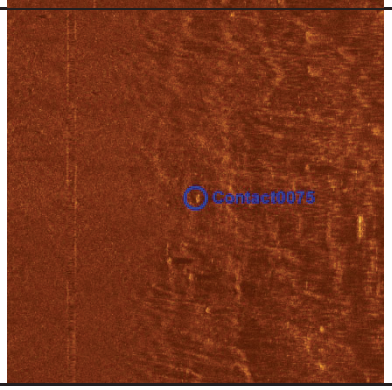
	**Contact0052** • Click Position 29.8018542356 -89.8163775284 (WGS84) (X) 3761938.09 (Y) 476619.91 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615183203.jsf • Range to target: 42.56 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615183203	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0053** • Click Position 29.8018181570 -89.8167950702 (WGS84) (X) 3761805.85 (Y) 476605.04 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615183203.jsf • Range to target: 41.79 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615183203	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0054** • Click Position 29.8018297282 -89.8168760861 (WGS84) (X) 3761780.10 (Y) 476608.91 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615183203.jsf • Range to target: 48.46 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615183203	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0055** • Click Position 29.8040285183 -89.8201906092 (WGS84) (X) 3760718.40 (Y) 477394.54 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615183203.jsf • Range to target: 36.15 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615183203	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:

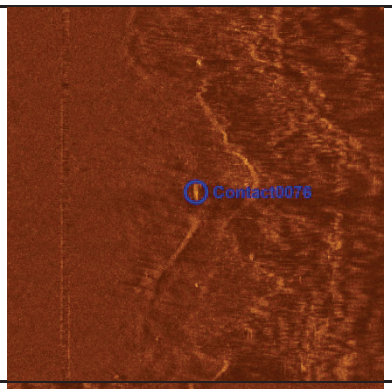
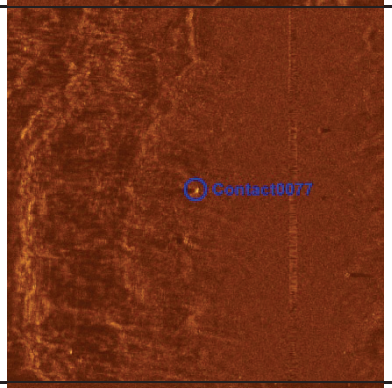
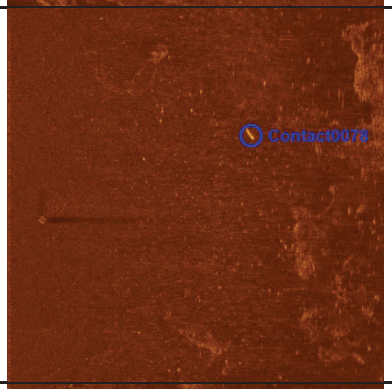
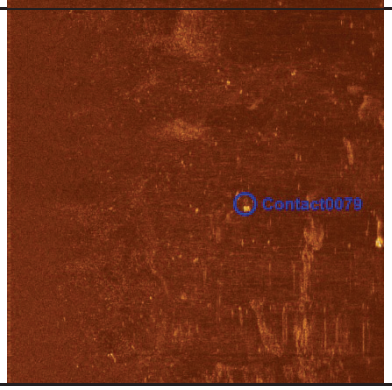
	**Contact0056** • Click Position 29.8054570045 -89.8229615489 (WGS84) (X) 3759832.81 (Y) 477902.37 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615183203.jsf • Range to target: 10.26 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615183203	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0057** • Click Position 29.8067245649 -89.8247205943 (WGS84) (X) 3759268.91 (Y) 478355.93 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615183203.jsf • Range to target: 48.46 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615183203	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0058** • Click Position 29.8060865990 -89.8245407069 (WGS84) (X) 3759329.01 (Y) 478124.71 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615184548.jsf • Range to target: 34.61 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615184548	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0059** • Click Position 29.8057967018 -89.8243287446 (WGS84) (X) 3759397.62 (Y) 478020.18 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615184548.jsf • Range to target: 39.74 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615184548	**Dimensions and attributes** • Target Width: 3.22 US ft • Target Height: 0.00 US ft • Target Length: 5.09 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:

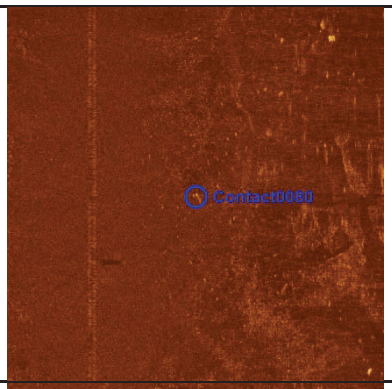
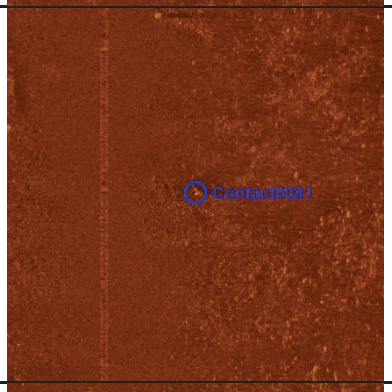
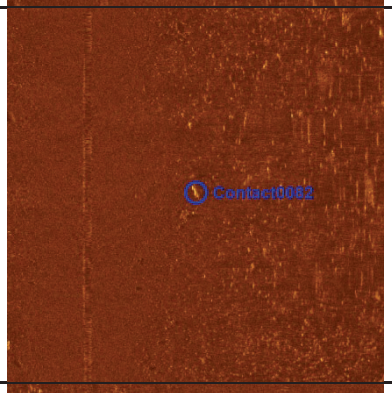
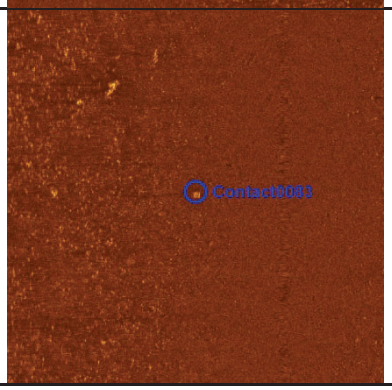
	**Contact0060** • Click Position 29.8057436408 -89.8243784932 (WGS84) (X) 3759382.10 (Y) 478000.68 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615185908.jsf • Range to target: 31.79 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615185908	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0061** • Click Position 29.8029496460 -89.8209720990 (WGS84) (X) 3760475.74 (Y) 476998.96 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615192046.jsf • Range to target: 27.18 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615192046	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0062** • Click Position 29.8048324763 -89.8244074284 (WGS84) (X) 3759377.28 (Y) 477669.24 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615192046.jsf • Range to target: 53.07 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615192046	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0063** • Click Position 29.8059549820 -89.8265315606 (WGS84) (X) 3758698.30 (Y) 478068.54 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615193046.jsf • Range to target: 22.31 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615193046	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:

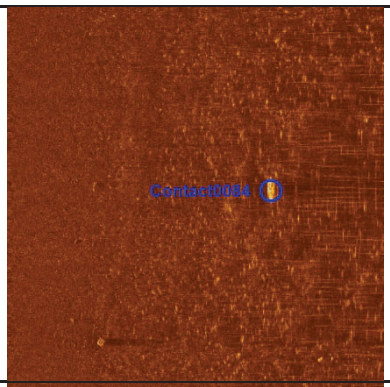
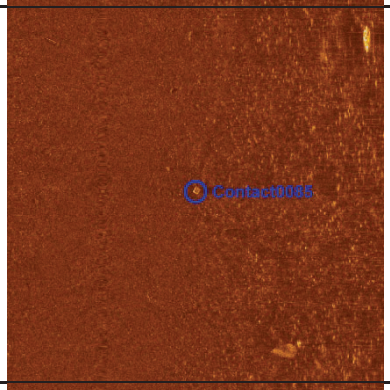
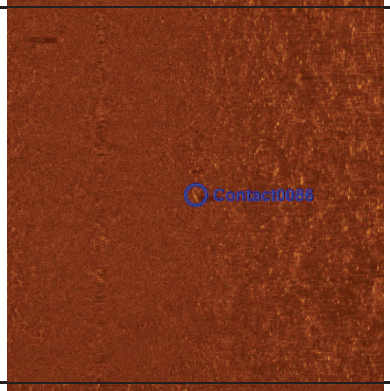
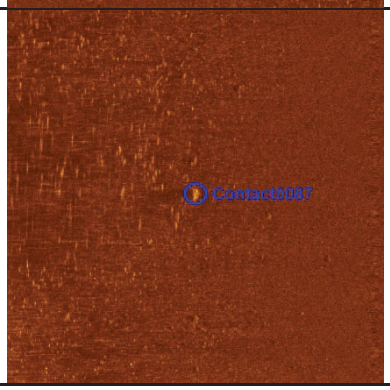
	**Contact0064** • Click Position 29.8050739701 -89.8250258901 (WGS84) (X) 3759180.00 (Y) 477754.47 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615193046.jsf • Range to target: 23.84 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615193046	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0065** • Click Position 29.8041971543 -89.8242866750 (WGS84) (X) 3759418.62 (Y) 477438.72 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615193905.jsf • Range to target: 50.00 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615193905	**Dimensions and attributes** • Target Width: 3.40 US ft • Target Height: 0.00 US ft • Target Length: 9.36 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0066** • Click Position 29.8045216987 -89.8247553889 (WGS84) (X) 3759268.42 (Y) 477554.78 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615193905.jsf • Range to target: 28.72 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615193905	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0067** • Click Position 29.8045978592 -89.8274470103 (WGS84) (X) 3758414.48 (Y) 477571.24 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615201652.jsf • Range to target: 42.56 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615201652	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:

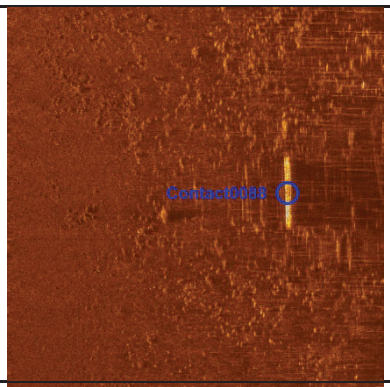
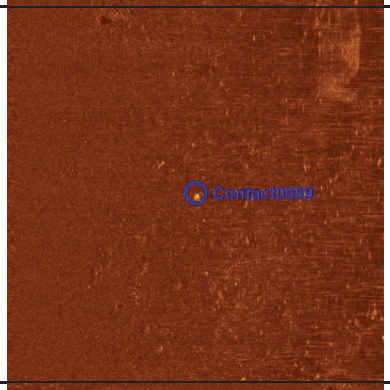
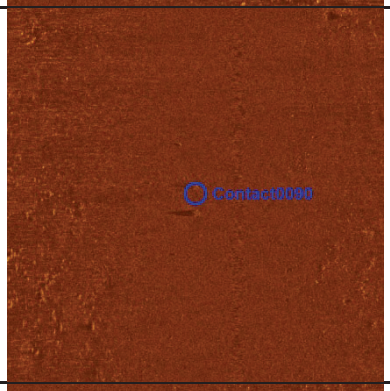
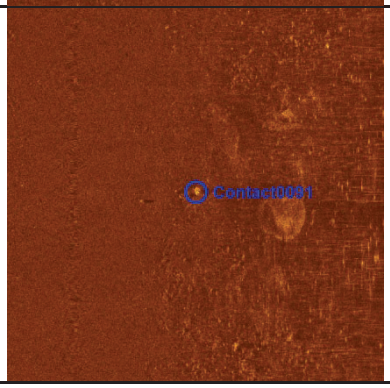
	**Contact0068** • Click Position 29.8045248791 -89.8280180714 (WGS84) (X) 3758233.73 (Y) 477542.33 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615202329.jsf • Range to target: 26.15 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615202329	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: Typical Crab Trap • Classification2: • Area: • Block: • Description:
	**Contact0069** • Click Position 29.8034890343 -89.8274663803 (WGS84) (X) 3758413.64 (Y) 477167.97 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615203521.jsf • Range to target: 27.95 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615203521	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0070** • Click Position 29.8029006081 -89.8267184975 (WGS84) (X) 3758653.62 (Y) 476957.12 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615204104.jsf • Range to target: 58.46 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615204104	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0071** • Click Position 29.8031632760 -89.8276284735 (WGS84) (X) 3758363.79 (Y) 477048.84 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615204604.jsf • Range to target: 44.10 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615204604	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 4.10 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:

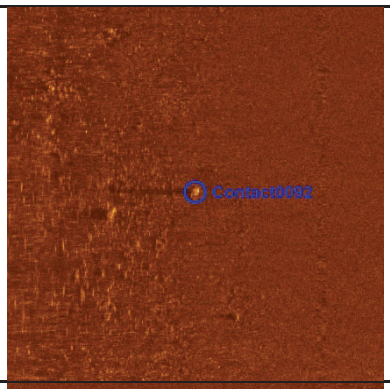
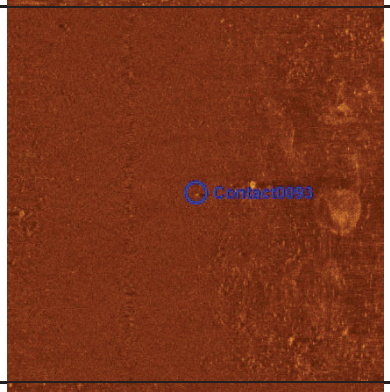
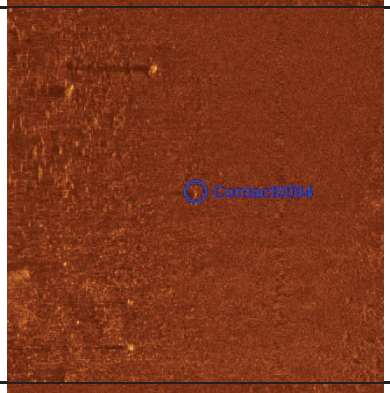
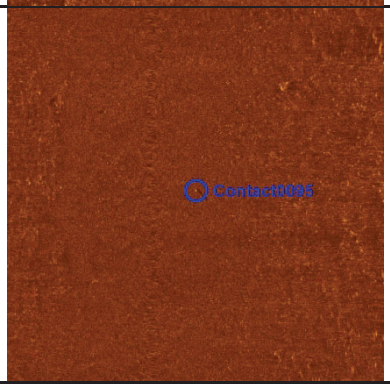
	**Contact0072** • Click Position 29.8015012001 -89.8279525197 (WGS84) (X) 3758268.96 (Y) 476443.13 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615210012.jsf • Range to target: 88.20 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615210012	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0073** • Click Position 29.8020863290 -89.8287168522 (WGS84) (X) 3758023.77 (Y) 476652.71 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615210012.jsf • Range to target: 43.84 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615210012	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0074** • Click Position 29.8029708892 -89.8291186996 (WGS84) (X) 3757892.11 (Y) 476972.68 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615210012.jsf • Range to target: 62.56 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615210012	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0075** • Click Position 29.8030710489 -89.8291954677 (WGS84) (X) 3757867.29 (Y) 477008.78 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615210012.jsf • Range to target: 79.48 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615210012	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:

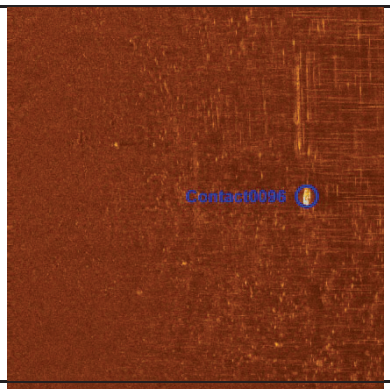
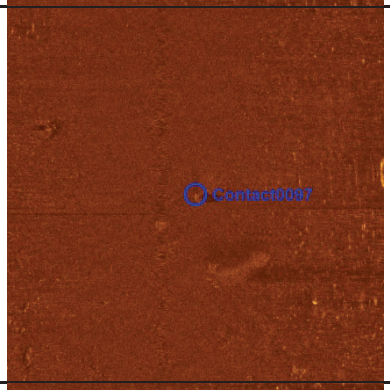
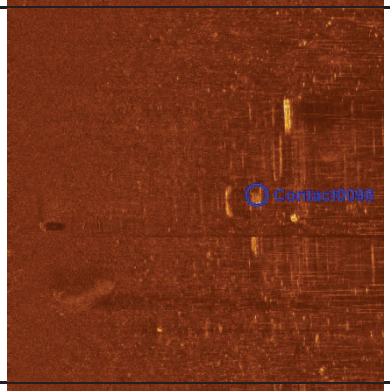
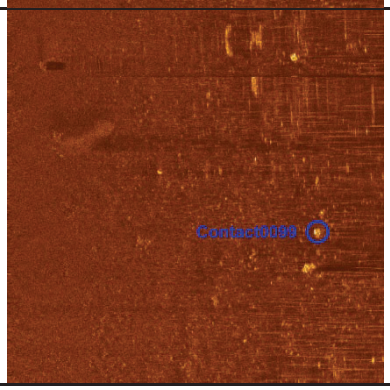
	**Contact0076** • Click Position 29.8024771045 -89.8304337503 (WGS84) (X) 3757477.43 (Y) 476787.66 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615211354.jsf • Range to target: 83.58 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615211354	**Dimensions and attributes** • Target Width: 2.94 US ft • Target Height: 0.00 US ft • Target Length: 9.16 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0077** • Click Position 29.8024108220 -89.8299188085 (WGS84) (X) 3757641.05 (Y) 476765.70 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061521EK\SIDE SCAN\20210615211354.jsf • Range to target: 62.30 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210615211354	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0078** • Click Position 29.8117725848 -89.8186690834 (WGS84) (X) 3761163.69 (Y) 480216.82 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616142100.jsf • Range to target: 104.08 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616142100	**Dimensions and attributes** • Target Width: 1.84 US ft • Target Height: 0.00 US ft • Target Length: 5.26 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0079** • Click Position 29.8113783278 -89.8192326961 (WGS84) (X) 3760986.86 (Y) 480071.09 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616142100.jsf • Range to target: 101.52 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616142100	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:

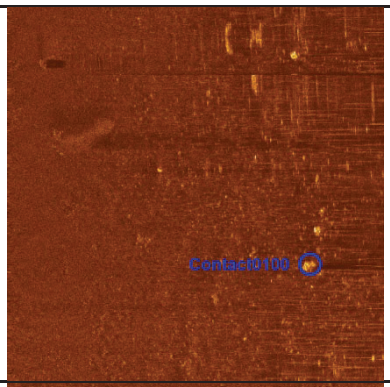
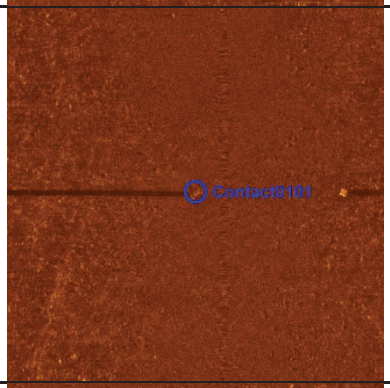
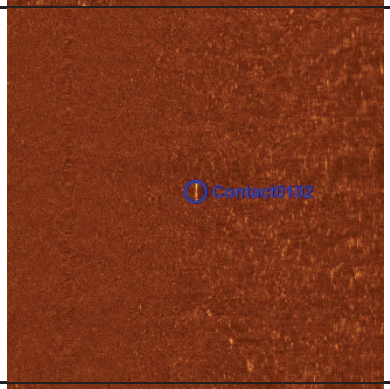
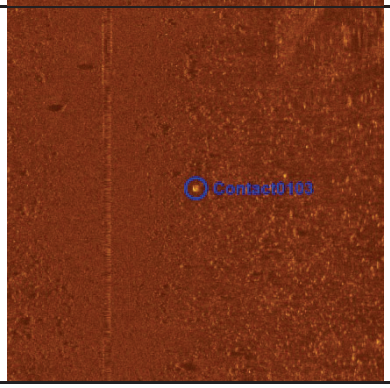
	**Contact0080** • Click Position 29.8114333740 -89.8194886222 (WGS84) (X) 3760905.44 (Y) 480090.04 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616142100.jsf • Range to target: 44.26 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616142100	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0081** • Click Position 29.8107984402 -89.8203956793 (WGS84) (X) 3760620.86 (Y) 479855.36 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616142100.jsf • Range to target: 39.14 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616142100	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0082** • Click Position 29.8101273418 -89.8213083378 (WGS84) (X) 3760334.67 (Y) 479607.52 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616142100.jsf • Range to target: 46.14 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616142100	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0083** • Click Position 29.8089484750 -89.8234112334 (WGS84) (X) 3759673.48 (Y) 479170.06 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616142100.jsf • Range to target: 37.77 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616142100	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:

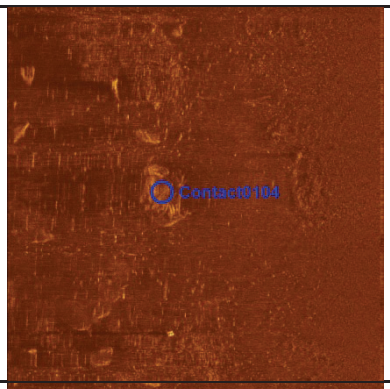
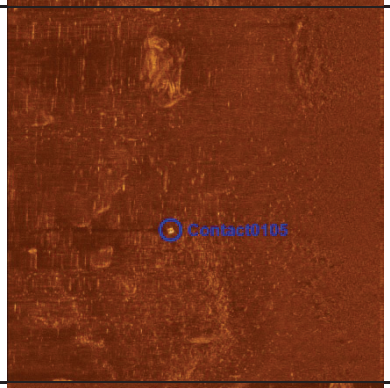
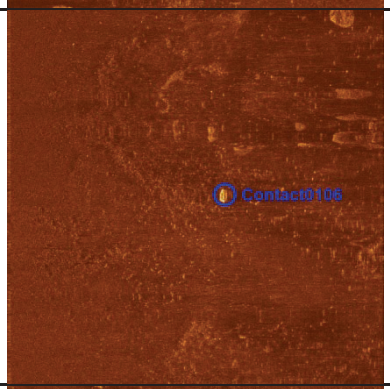
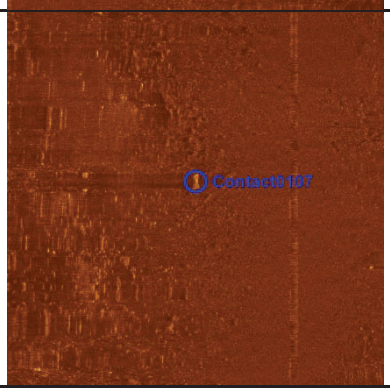
	**Contact0084** • Click Position 29.8080866533 -89.8238564637 (WGS84) (X) 3759536.42 (Y) 478854.83 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616142100.jsf • Range to target: 112.62 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616142100	**Dimensions and attributes** • Target Width: 3.14 US ft • Target Height: 0.00 US ft • Target Length: 11.78 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0085** • Click Position 29.8081421826 -89.8241493241 (WGS84) (X) 3759443.28 (Y) 478873.79 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616142100.jsf • Range to target: 39.65 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616142100	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: Typical Crab Trap • Classification2: • Area: • Block: • Description:
	**Contact0086** • Click Position 29.8075978498 -89.8248783912 (WGS84) (X) 3759214.69 (Y) 478672.82 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616142100.jsf • Range to target: 40.67 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616142100	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0087** • Click Position 29.8063457657 -89.8271613682 (WGS84) (X) 3758496.71 (Y) 478208.01 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616142100.jsf • Range to target: 76.39 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616142100	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:

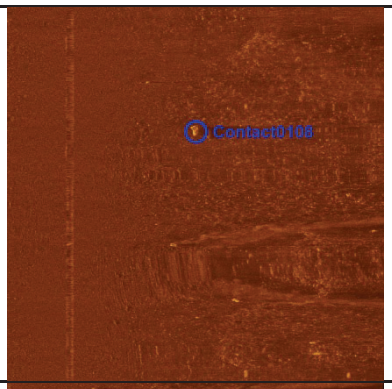
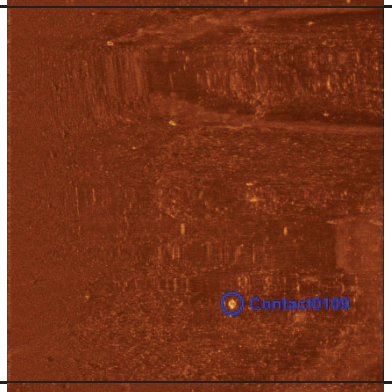
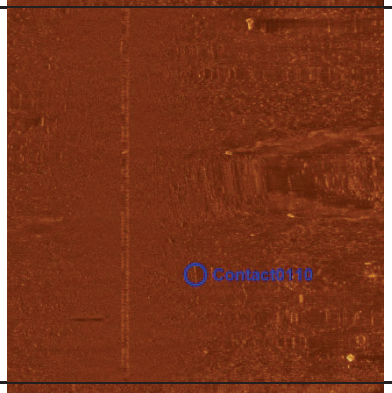
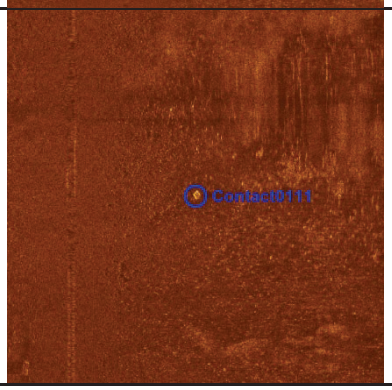
	**Contact0088** • Click Position 29.8053657653 -89.8276095783 (WGS84) (X) 3758359.26 (Y) 477849.79 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616142100.jsf • Range to target: 119.46 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616142100	**Dimensions and attributes** • Target Width: 2.36 US ft • Target Height: 0.00 US ft • Target Length: 31.38 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0089** • Click Position 29.8050187098 -89.8282799516 (WGS84) (X) 3758148.32 (Y) 477720.80 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616142100.jsf • Range to target: 79.13 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616142100	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0090** • Click Position 29.8052175021 -89.8284851541 (WGS84) (X) 3758082.30 (Y) 477792.23 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616142100.jsf • Range to target: 18.12 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616142100	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0091** • Click Position 29.8047561317 -89.8287585664 (WGS84) (X) 3757997.80 (Y) 477623.33 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616142100.jsf • Range to target: 52.30 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616142100	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:

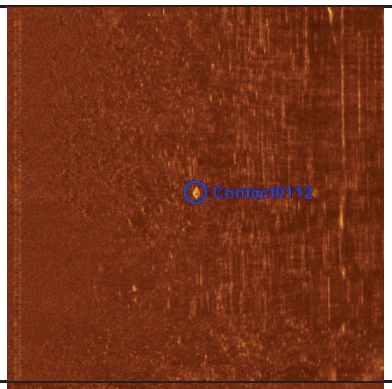
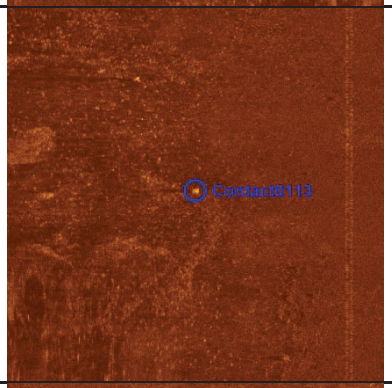
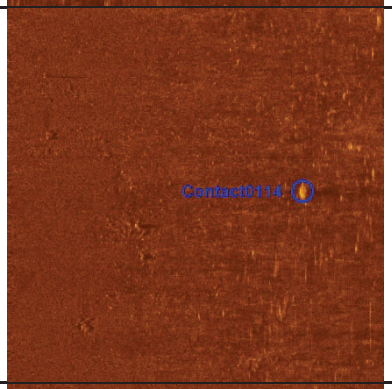
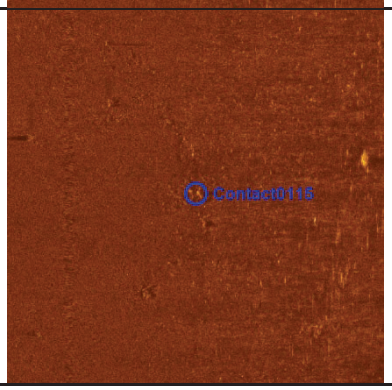
	**Contact0092** • Click Position 29.8048249634 -89.8292093321 (WGS84) (X) 3757854.52 (Y) 477646.48 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616142100.jsf • Range to target: 54.00 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616142100	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0093** • Click Position 29.8048034351 -89.8288117497 (WGS84) (X) 3757980.71 (Y) 477640.31 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616142100.jsf • Range to target: 28.37 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616142100	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0094** • Click Position 29.8046917414 -89.8293080809 (WGS84) (X) 3757823.84 (Y) 477597.63 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616142100.jsf • Range to target: 35.72 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616142100	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0095** • Click Position 29.8027805613 -89.8316764411 (WGS84) (X) 3757081.88 (Y) 476892.83 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616142100.jsf • Range to target: 18.80 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616142100	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:

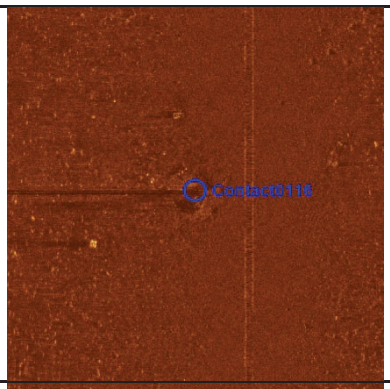
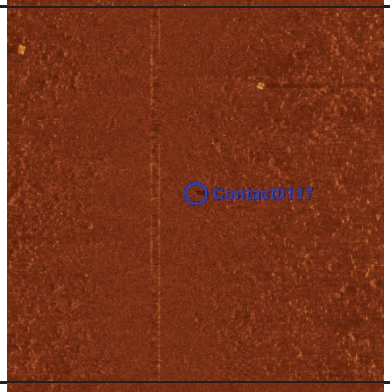
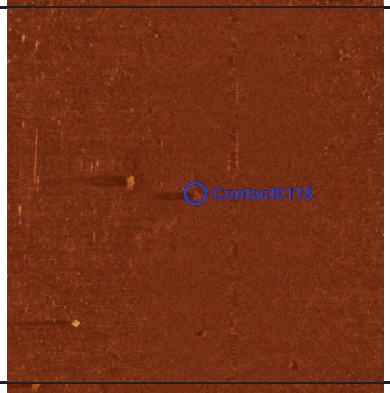
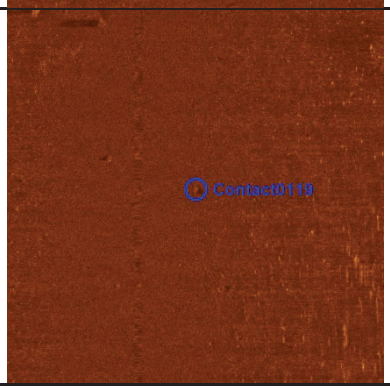
	**Contact0096** • Click Position 29.8023578128 -89.8317938871 (WGS84) (X) 3757046.65 (Y) 476738.62 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616142100.jsf • Range to target: 128.01 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616142100	**Dimensions and attributes** • Target Width: 3.79 US ft • Target Height: 0.00 US ft • Target Length: 8.15 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0097** • Click Position 29.8018422050 -89.8330840745 (WGS84) (X) 3756639.95 (Y) 476545.78 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616142100.jsf • Range to target: 14.36 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616142100	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0098** • Click Position 29.8016208278 -89.8329380752 (WGS84) (X) 3756687.30 (Y) 476465.89 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616142100.jsf • Range to target: 106.64 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616142100	**Dimensions and attributes** • Target Width: 45.85 US ft • Target Height: 0.00 US ft • Target Length: 68.88 US ft • Target Shadow: 0.00 US ft • Classification1: Debris • Classification2: • Area: • Block: • Description:
	**Contact0099** • Click Position 29.8014900136 -89.8330337409 (WGS84) (X) 3756657.59 (Y) 476417.92 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616142100.jsf • Range to target: 132.62 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616142100	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:

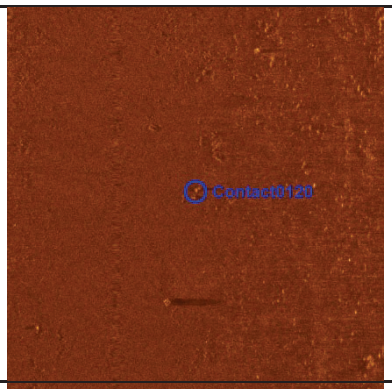
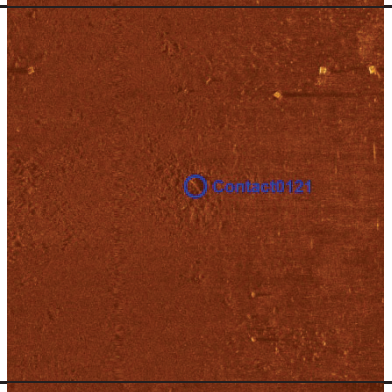
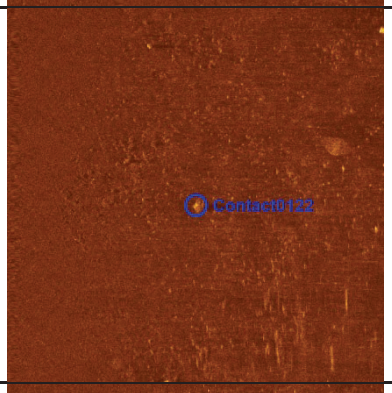
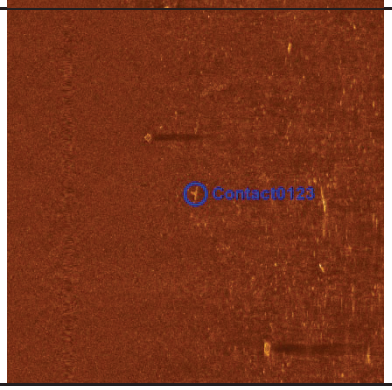
	**Contact0100** • Click Position 29.8014785791 -89.8330664828 (WGS84) (X) 3756647.26 (Y) 476413.63 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616142100.jsf • Range to target: 129.20 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616142100	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0101** • Click Position 29.8077680787 -89.8251323050 (WGS84) (X) 3759133.36 (Y) 478733.66 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616144038.jsf • Range to target: 11.96 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616144038	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0102** • Click Position 29.8083310220 -89.8247155694 (WGS84) (X) 3759262.82 (Y) 478940.10 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616144038.jsf • Range to target: 54.52 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616144038	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0103** • Click Position 29.8097989582 -89.8226159710 (WGS84) (X) 3759921.59 (Y) 479482.64 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616144038.jsf • Range to target: 37.94 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616144038	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:

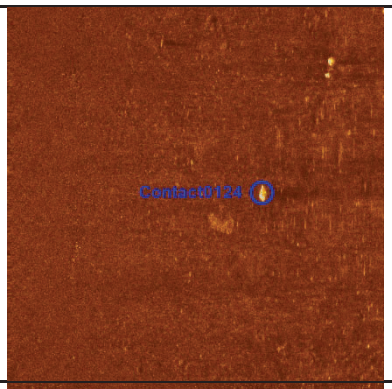
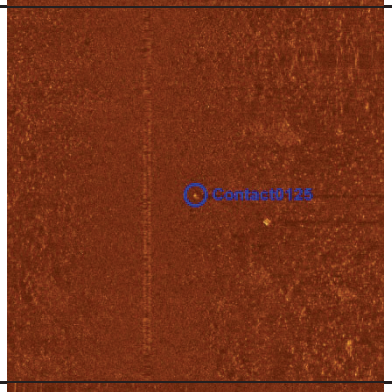
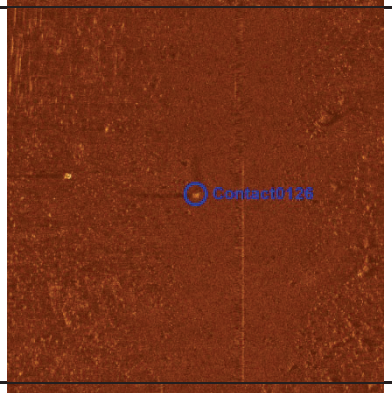
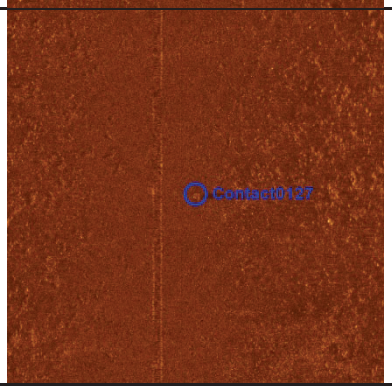
	**Contact0104** • Click Position 29.8109133483 -89.8203228068 (WGS84) (X) 3760643.42 (Y) 479897.45 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616144038.jsf • Range to target: 94.68 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616144038	**Dimensions and attributes** • Target Width: 19.28 US ft • Target Height: 0.00 US ft • Target Length: 30.86 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0105** • Click Position 29.8109872353 -89.8202076671 (WGS84) (X) 3760679.57 (Y) 479924.80 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616144038.jsf • Range to target: 91.09 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616144038	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: Typical Crab Trap • Classification2: • Area: • Block: • Description:
	**Contact0106** • Click Position 29.8109029031 -89.8202768114 (WGS84) (X) 3760658.05 (Y) 479893.85 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616144038.jsf • Range to target: 92.80 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616144038	**Dimensions and attributes** • Target Width: 3.16 US ft • Target Height: 0.00 US ft • Target Length: 6.66 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0107** • Click Position 29.8112991576 -89.8203131040 (WGS84) (X) 3760644.64 (Y) 480037.78 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616144038.jsf • Range to target: 42.04 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616144038	**Dimensions and attributes** • Target Width: 2.27 US ft • Target Height: 0.00 US ft • Target Length: 6.57 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:

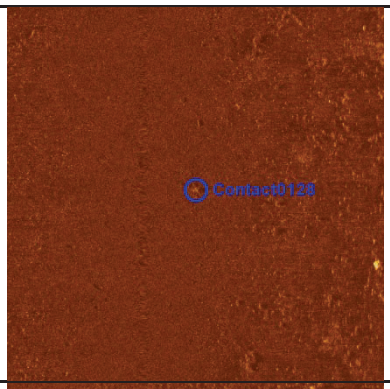
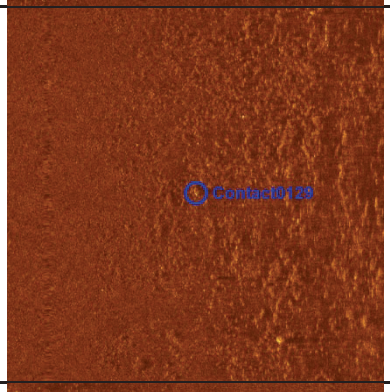
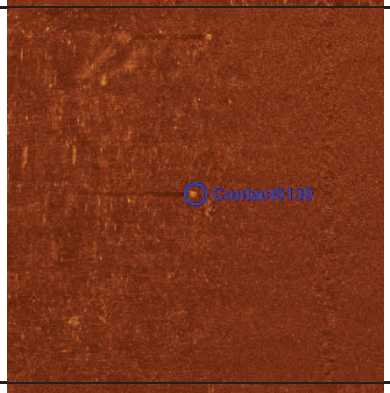
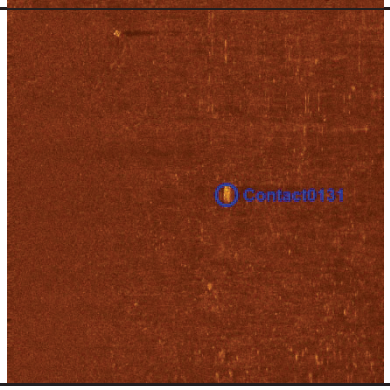
	**Contact0108** • Click Position 29.8111438855 -89.8206316246 (WGS84) (X) 3760544.38 (Y) 479979.99 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616144038.jsf • Range to target: 53.66 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616144038	**Dimensions and attributes** • Target Width: 2.56 US ft • Target Height: 0.00 US ft • Target Length: 4.10 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0109** • Click Position 29.8111278956 -89.8206240129 (WGS84) (X) 3760546.87 (Y) 479974.20 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616144038.jsf • Range to target: 96.05 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616144038	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0110** • Click Position 29.8113408715 -89.8206298707 (WGS84) (X) 3760543.99 (Y) 480051.62 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616144038.jsf • Range to target: 30.08 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616144038	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 9.15 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0111** • Click Position 29.8108186391 -89.8209359888 (WGS84) (X) 3760449.43 (Y) 479860.45 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616144038.jsf • Range to target: 53.15 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616144038	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: Typical Crab Trap • Classification2: • Area: • Block: • Description:

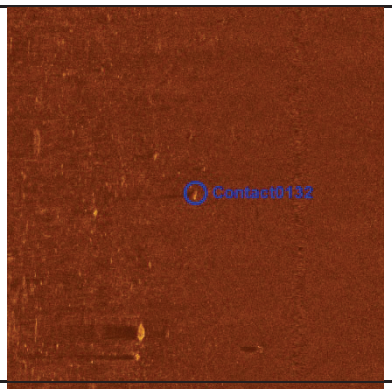
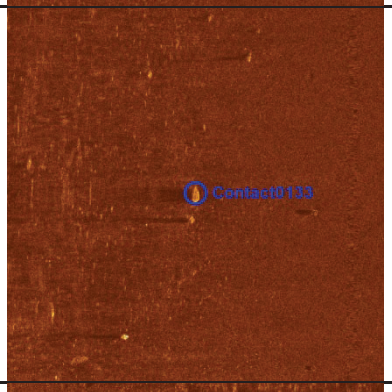
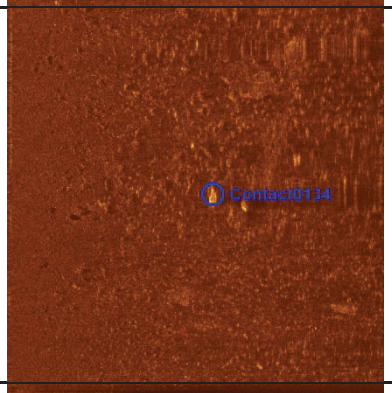
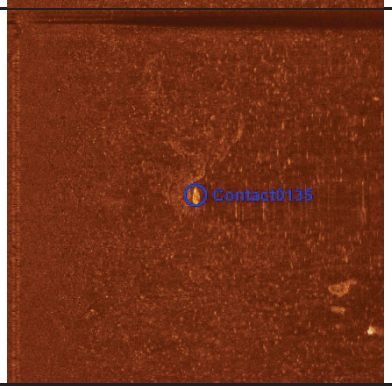
	**Contact0112** • Click Position 29.8112108232 -89.8206130321 (WGS84) (X) 3760549.96 (Y) 480004.40 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616144038.jsf • Range to target: 75.88 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616144038	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0113** • Click Position 29.8109916643 -89.8202395307 (WGS84) (X) 3760669.45 (Y) 479926.28 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616144038.jsf • Range to target: 65.63 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616144038	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0114** • Click Position 29.8051259998 -89.8294619780 (WGS84) (X) 3757772.96 (Y) 477754.89 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616150232.jsf • Range to target: 126.13 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616150232	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0115** • Click Position 29.8049940251 -89.8292883948 (WGS84) (X) 3757828.64 (Y) 477707.63 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616150232.jsf • Range to target: 54.18 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616150232	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:

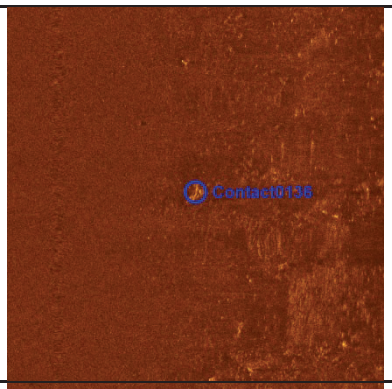
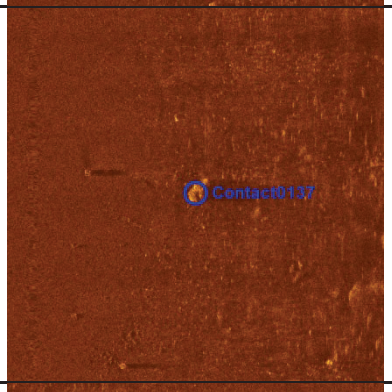
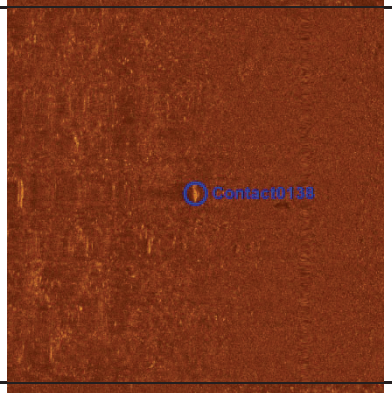
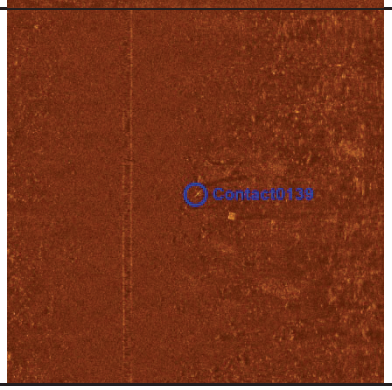
	**Contact0116** • Click Position 29.8098123013 -89.8230097718 (WGS84) (X) 3759796.65 (Y) 479485.85 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616151926.jsf • Range to target: 22.90 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616151926	**Dimensions and attributes** • Target Width: 20.15 US ft • Target Height: 2.37 US ft • Target Length: 20.44 US ft • Target Shadow: 50.91 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0117** • Click Position 29.8094634860 -89.8233384489 (WGS84) (X) 3759694.09 (Y) 479357.64 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616151926.jsf • Range to target: 17.26 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616151926	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0118** • Click Position 29.8065973144 -89.8274089685 (WGS84) (X) 3758416.99 (Y) 478298.45 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616151926.jsf • Range to target: 15.89 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616151926	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 1.75 US ft • Target Length: 0.00 US ft • Target Shadow: 15.35 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0119** • Click Position 29.8064229102 -89.8275679467 (WGS84) (X) 3758367.41 (Y) 478234.37 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616151926.jsf • Range to target: 24.78 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616151926	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:

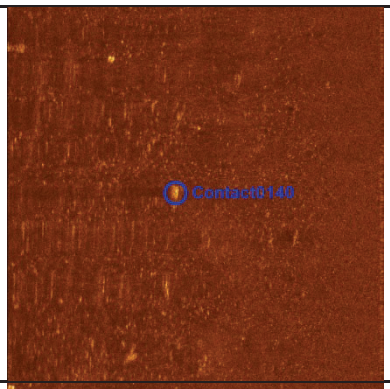
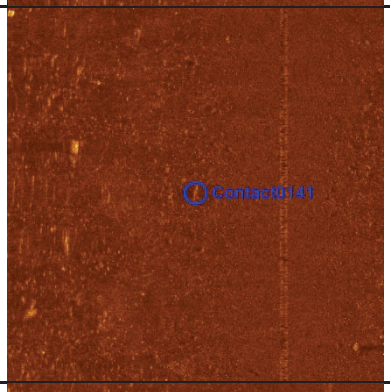
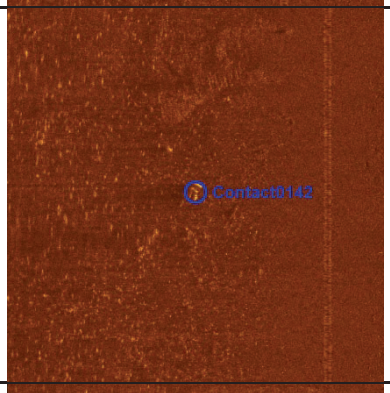
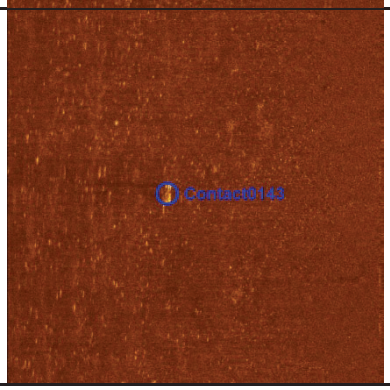
	**Contact0120** • Click Position 29.8052943900 -89.8290842858 (WGS84) (X) 3757891.94 (Y) 477817.70 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616151926.jsf • Range to target: 34.01 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616151926	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0121** • Click Position 29.8039423676 -89.8309766168 (WGS84) (X) 3757298.28 (Y) 477318.20 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616151926.jsf • Range to target: 32.98 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616151926	**Dimensions and attributes** • Target Width: 1.66 US ft • Target Height: 0.00 US ft • Target Length: 8.24 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0122** • Click Position 29.8035518086 -89.8312497375 (WGS84) (X) 3757213.53 (Y) 477175.05 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616151926.jsf • Range to target: 77.42 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616151926	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0123** • Click Position 29.8024779223 -89.8338387548 (WGS84) (X) 3756397.59 (Y) 476773.81 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616153831.jsf • Range to target: 54.35 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616153831	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:

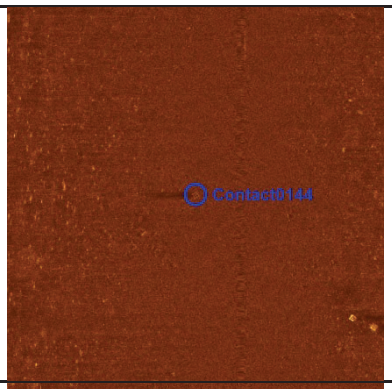
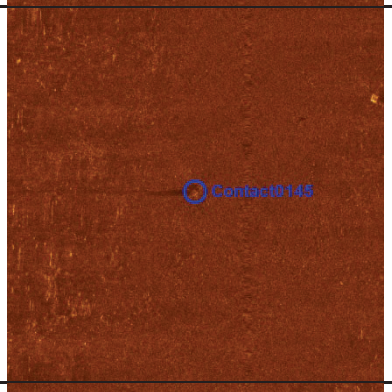
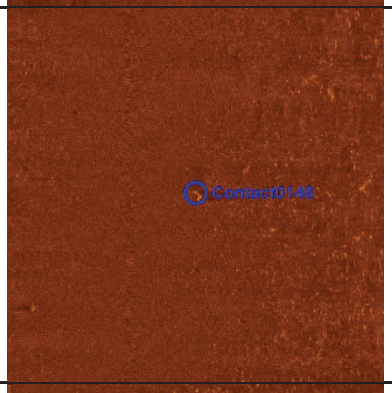
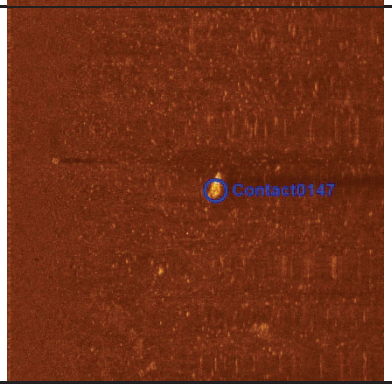
	**Contact0124** • Click Position 29.8037777922 -89.8323334293 (WGS84) (X) 3756868.78 (Y) 477252.72 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616153831.jsf • Range to target: 108.69 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616153831	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0125** • Click Position 29.8112520562 -89.8218057567 (WGS84) (X) 3760171.54 (Y) 480014.41 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616155746.jsf • Range to target: 20.74 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616155746	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0126** • Click Position 29.8103853523 -89.8233239456 (WGS84) (X) 3759694.27 (Y) 479692.91 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616155746.jsf • Range to target: 18.43 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616155746	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0127** • Click Position 29.8095691625 -89.8241891778 (WGS84) (X) 3759423.81 (Y) 479392.51 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616155746.jsf • Range to target: 16.36 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616155746	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:

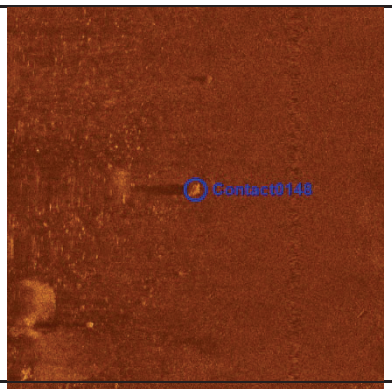
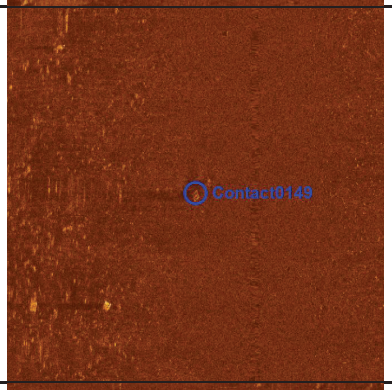
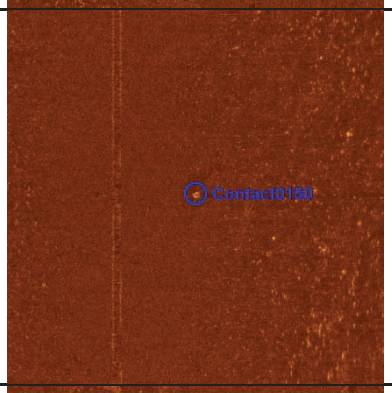
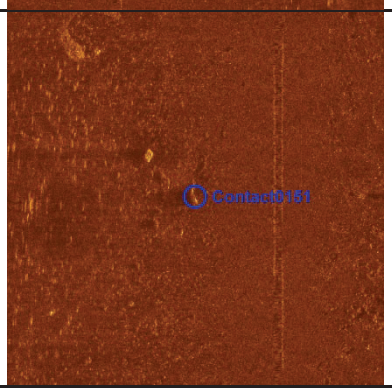
	**Contact0128** • Click Position 29.8081384784 -89.8262346929 (WGS84) (X) 3758782.00 (Y) 478863.74 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616155746.jsf • Range to target: 22.58 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616155746	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0129** • Click Position 29.8046708560 -89.8308690797 (WGS84) (X) 3757328.91 (Y) 477583.54 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616155746.jsf • Range to target: 63.13 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616155746	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0130** • Click Position 29.8034081886 -89.8330394986 (WGS84) (X) 3756646.63 (Y) 477115.39 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616161349.jsf • Range to target: 56.91 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616161349	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0131** • Click Position 29.8039577266 -89.8330366640 (WGS84) (X) 3756644.91 (Y) 477315.22 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616161349.jsf • Range to target: 93.54 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616161349	**Dimensions and attributes** • Target Width: 2.24 US ft • Target Height: 0.00 US ft • Target Length: 8.36 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:

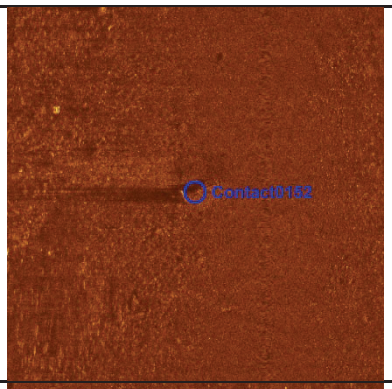
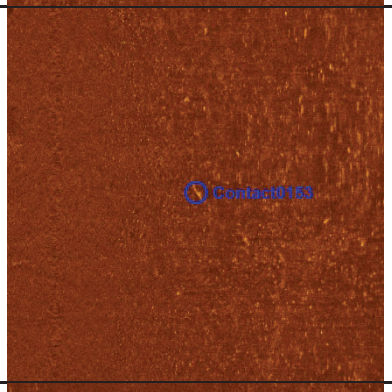
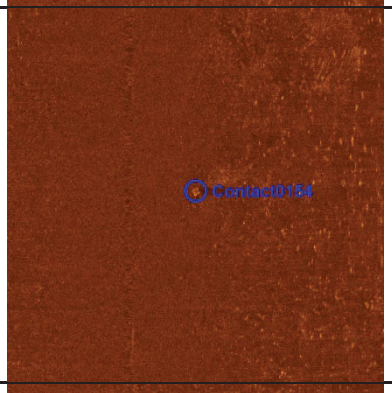
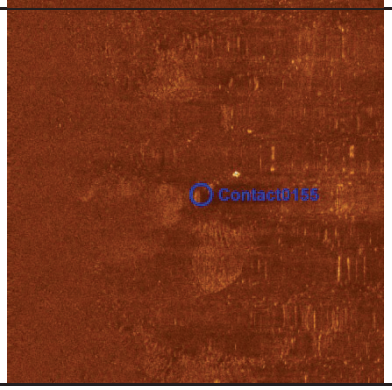
	**Contact0132** • Click Position 29.8037155832 -89.8326901127 (WGS84) (X) 3756755.96 (Y) 477228.62 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616161349.jsf • Range to target: 44.01 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616161349	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0133** • Click Position 29.8037635230 -89.8325008871 (WGS84) (X) 3756815.75 (Y) 477246.83 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616161349.jsf • Range to target: 67.28 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616161349	**Dimensions and attributes** • Target Width: 3.34 US ft • Target Height: 0.00 US ft • Target Length: 6.80 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0134** • Click Position 29.8103807385 -89.8240637128 (WGS84) (X) 3759459.71 (Y) 479688.14 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616161349.jsf • Range to target: 87.78 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616161349	**Dimensions and attributes** • Target Width: 2.86 US ft • Target Height: 1.52 US ft • Target Length: 7.74 US ft • Target Shadow: 64.33 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0135** • Click Position 29.8119805934 -89.8217830570 (WGS84) (X) 3760175.25 (Y) 480279.41 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616161349.jsf • Range to target: 76.72 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616161349	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:

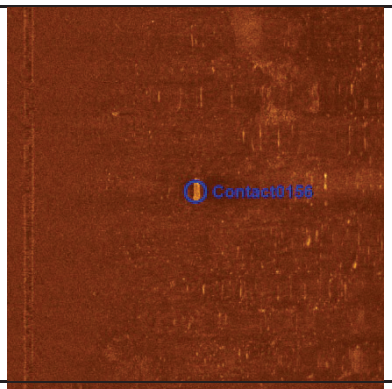
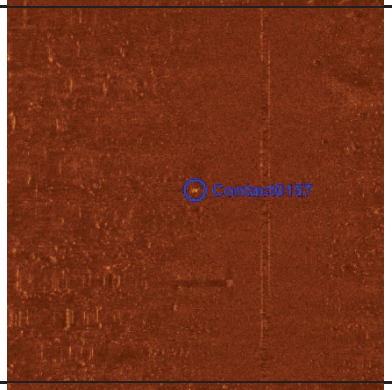
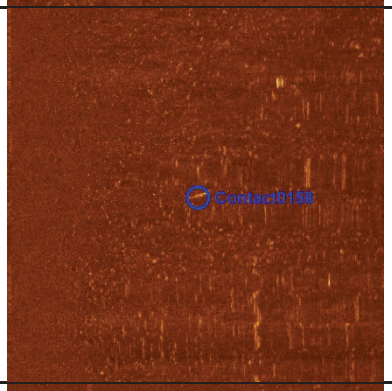
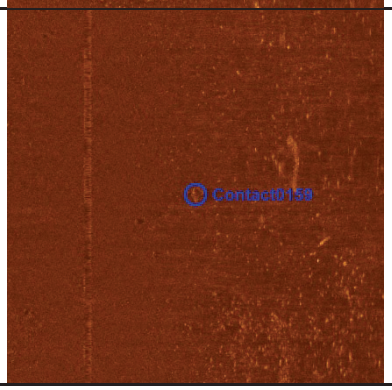
	**Contact0136** • Click Position 29.8041880287 -89.8335037942 (WGS84) (X) 3756495.68 (Y) 477397.03 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616165027.jsf • Range to target: 58.75 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616165027	**Dimensions and attributes** • Target Width: 3.40 US ft • Target Height: 0.00 US ft • Target Length: 7.38 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0137** • Click Position 29.8058311428 -89.8312479257 (WGS84) (X) 3757203.24 (Y) 478003.87 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616165027.jsf • Range to target: 69.12 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616165027	**Dimensions and attributes** • Target Width: 6.61 US ft • Target Height: 0.00 US ft • Target Length: 12.55 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0138** • Click Position 29.8077907260 -89.8279316967 (WGS84) (X) 3758245.52 (Y) 478730.22 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616165027.jsf • Range to target: 46.54 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616165027	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0139** • Click Position 29.8090008688 -89.8265755555 (WGS84) (X) 3758669.79 (Y) 479175.91 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616165027.jsf • Range to target: 29.26 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616165027	**Dimensions and attributes** • Target Width: 2.51 US ft • Target Height: 0.00 US ft • Target Length: 10.31 US ft • Target Shadow: 0.00 US ft • Classification1: Debris • Classification2: • Area: • Block: • Description:

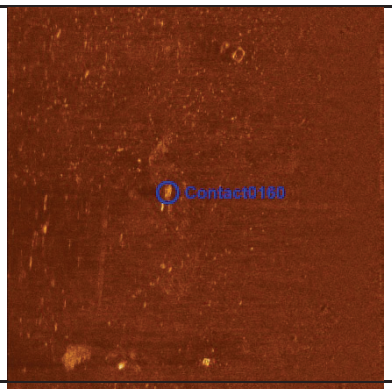
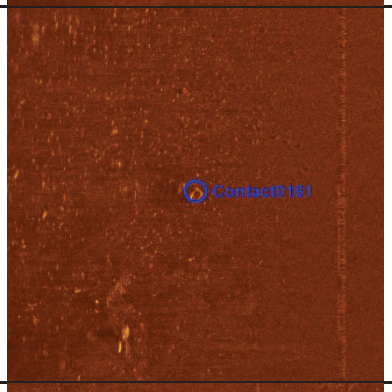
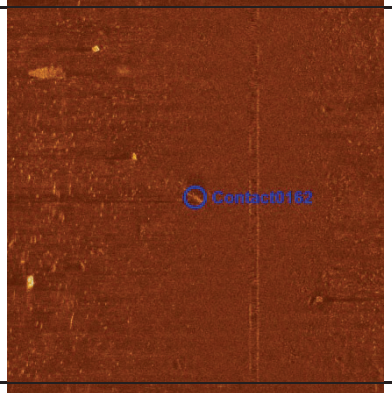
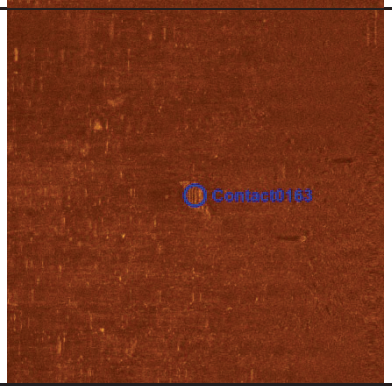
	**Contact0140** • Click Position 29.8112442131 -89.8229198244 (WGS84) (X) 3759818.31 (Y) 480006.90 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616165027.jsf • Range to target: 88.93 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616165027	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0141** • Click Position 29.8113855083 -89.8229775968 (WGS84) (X) 3759799.31 (Y) 480058.03 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616165027.jsf • Range to target: 37.79 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616165027	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0142** • Click Position 29.8116718353 -89.8236125679 (WGS84) (X) 3759596.58 (Y) 480159.49 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616170551.jsf • Range to target: 56.45 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616170551	**Dimensions and attributes** • Target Width: 3.17 US ft • Target Height: 0.00 US ft • Target Length: 7.36 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0143** • Click Position 29.8092344079 -89.8272057349 (WGS84) (X) 3758468.83 (Y) 479258.20 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616170551.jsf • Range to target: 92.62 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616170551	**Dimensions and attributes** • Target Width: 3.26 US ft • Target Height: 0.00 US ft • Target Length: 10.23 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:

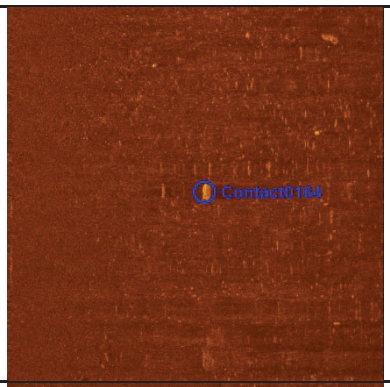
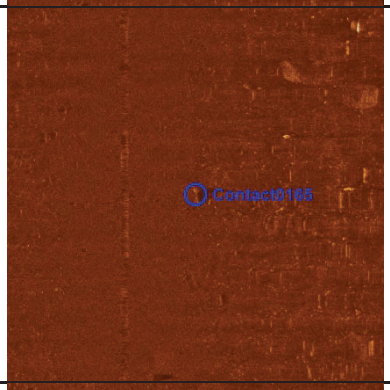
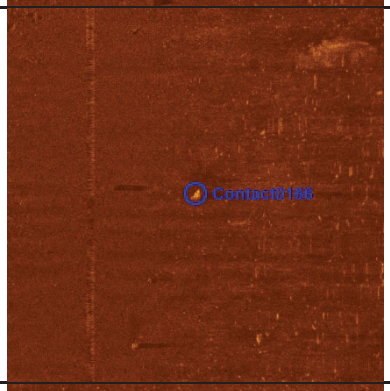
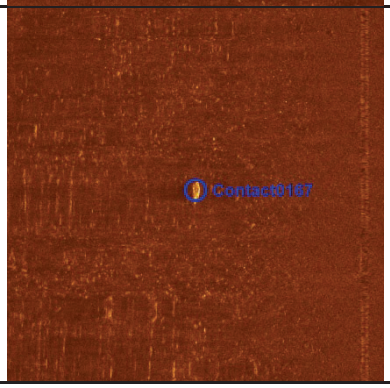
	**Contact0144** • Click Position 29.8074278563 -89.8293725296 (WGS84) (X) 3757790.34 (Y) 478592.27 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616170551.jsf • Range to target: 19.35 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616170551	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: Typical Crab Trap • Classification2: • Area: • Block: • Description:
	**Contact0145** • Click Position 29.8050639180 -89.8328350445 (WGS84) (X) 3756703.58 (Y) 477718.30 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616172518.jsf • Range to target: 22.12 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616172518	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0146** • Click Position 29.8073123228 -89.8299609592 (WGS84) (X) 3757604.30 (Y) 478547.81 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616172518.jsf • Range to target: 28.34 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616172518	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0147** • Click Position 29.8122093687 -89.8234395559 (WGS84) (X) 3759648.87 (Y) 480355.68 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616172518.jsf • Range to target: 88.93 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616172518	**Dimensions and attributes** • Target Width: 4.32 US ft • Target Height: 0.00 US ft • Target Length: 12.34 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:

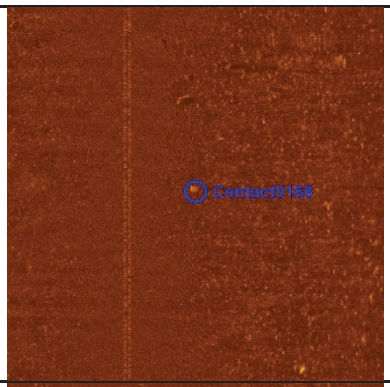
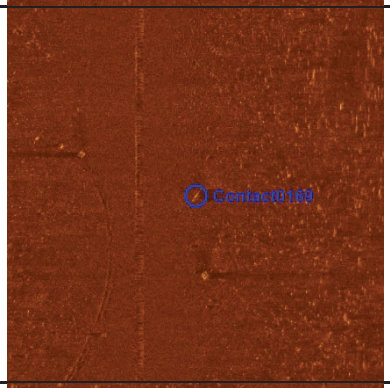
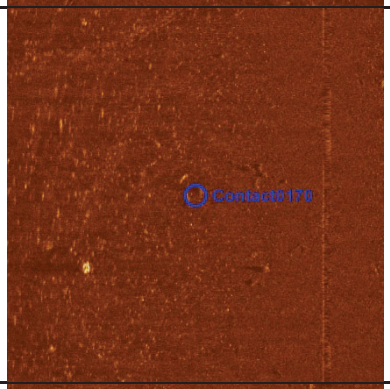
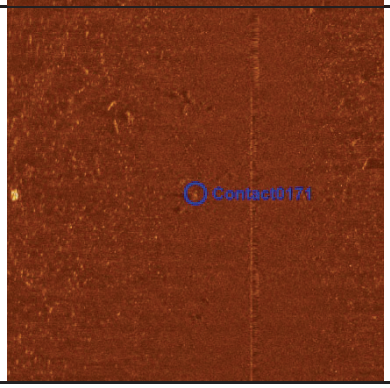
	**Contact0148** • Click Position 29.8057685859 -89.8327259827 (WGS84) (X) 3756734.81 (Y) 477974.98 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616175740.jsf • Range to target: 42.16 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616175740	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0149** • Click Position 29.8089190811 -89.8284834068 (WGS84) (X) 3758065.18 (Y) 479138.21 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616175740.jsf • Range to target: 25.34 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616175740	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: Typical Crab Trap • Classification2: • Area: • Block: • Description:
	**Contact0150** • Click Position 29.8114704193 -89.8254583642 (WGS84) (X) 3759012.24 (Y) 480078.55 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616181241.jsf • Range to target: 33.64 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616181241	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0151** • Click Position 29.8109511269 -89.8265620933 (WGS84) (X) 3758664.73 (Y) 479885.12 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616181241.jsf • Range to target: 35.48 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616181241	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:

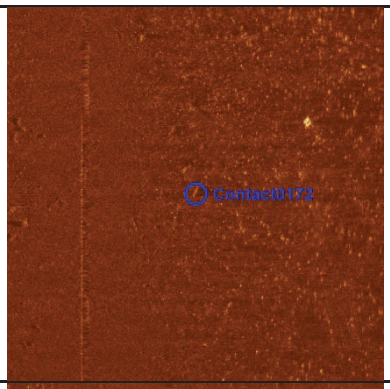
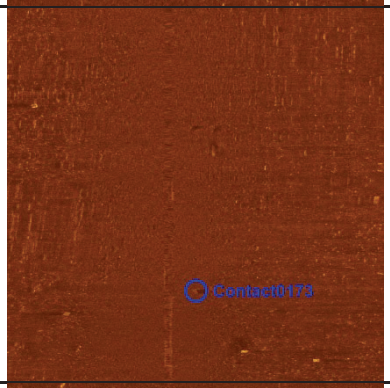
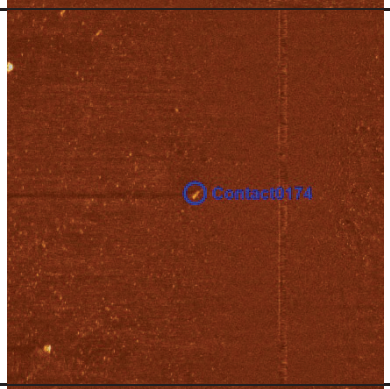
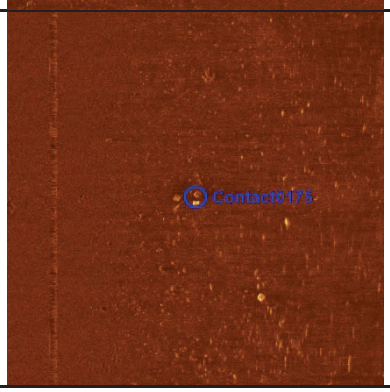
	**Contact0152** • Click Position 29.8084751095 -89.8299743273 (WGS84) (X) 3757594.51 (Y) 478970.57 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616181241.jsf • Range to target: 29.95 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616181241	**Dimensions and attributes** • Target Width: 4.28 US ft • Target Height: 2.85 US ft • Target Length: 13.22 US ft • Target Shadow: 62.02 US ft • Classification1: Debris • Classification2: • Area: • Block: • Description:
	**Contact0153** • Click Position 29.8082498302 -89.8298434176 (WGS84) (X) 3757637.10 (Y) 478889.20 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616181241.jsf • Range to target: 59.67 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616181241	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 8.83 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0154** • Click Position 29.8092535375 -89.8285947862 (WGS84) (X) 3758028.26 (Y) 479259.37 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616181241.jsf • Range to target: 28.80 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616181241	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: Typical Crab Trap • Classification2: • Area: • Block: • Description:
	**Contact0155** • Click Position 29.8060447544 -89.8339674540 (WGS84) (X) 3756339.80 (Y) 478070.25 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616182640.jsf • Range to target: 82.71 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616182640	**Dimensions and attributes** • Target Width: 2.38 US ft • Target Height: 0.00 US ft • Target Length: 6.94 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:

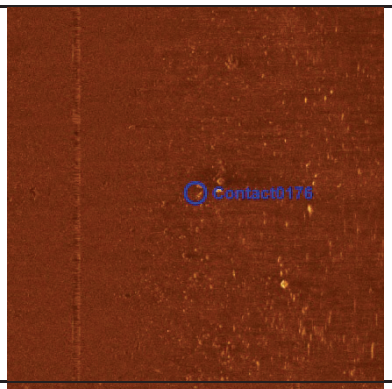
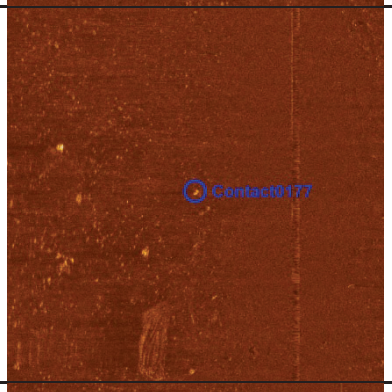
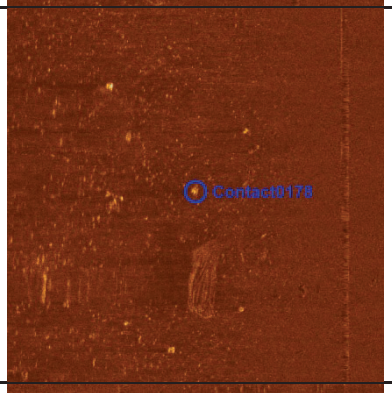
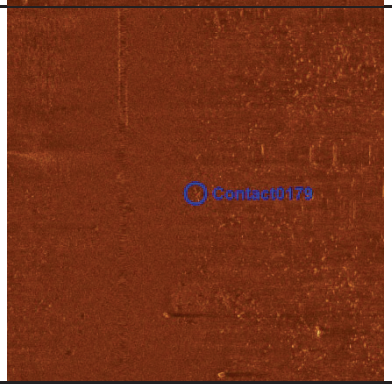
	**Contact0156** • Click Position 29.8094156644 -89.8292095234 (WGS84) (X) 3757832.55 (Y) 479315.76 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616182640.jsf • Range to target: 71.19 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616182640	**Dimensions and attributes** • Target Width: 2.59 US ft • Target Height: 0.00 US ft • Target Length: 10.71 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0157** • Click Position 29.8096517353 -89.8283841334 (WGS84) (X) 3758093.16 (Y) 479405.04 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616182640.jsf • Range to target: 29.95 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616182640	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0158** • Click Position 29.8125831112 -89.8248536345 (WGS84) (X) 3759198.68 (Y) 480485.67 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616182640.jsf • Range to target: 81.56 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616182640	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 9.76 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0159** • Click Position 29.8104854457 -89.8278004240 (WGS84) (X) 3758274.28 (Y) 479710.62 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616184042.jsf • Range to target: 46.08 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616184042	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:

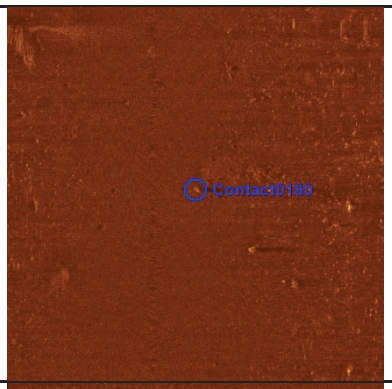
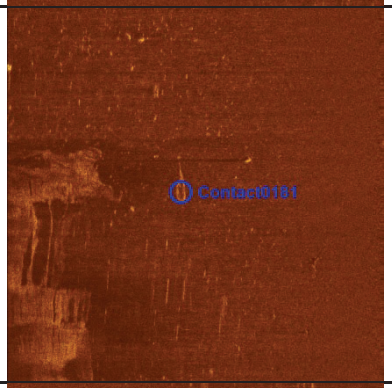
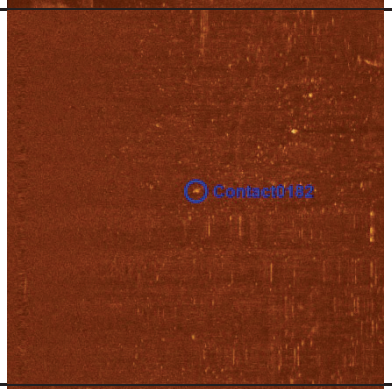
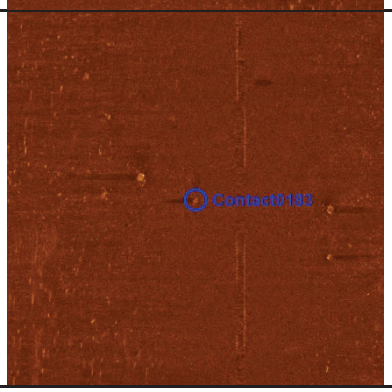
	**Contact0160** • Click Position 29.8107747353 -89.8280832306 (WGS84) (X) 3758183.21 (Y) 479814.64 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616184042.jsf • Range to target: 92.16 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616184042	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0161** • Click Position 29.8108229186 -89.8278633869 (WGS84) (X) 3758252.70 (Y) 479833.07 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616184042.jsf • Range to target: 62.21 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616184042	**Dimensions and attributes** • Target Width: 4.17 US ft • Target Height: 0.00 US ft • Target Length: 5.44 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0162** • Click Position 29.8088685877 -89.8303420570 (WGS84) (X) 3757476.02 (Y) 479112.12 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616184042.jsf • Range to target: 25.11 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616184042	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 2.58 US ft • Target Length: 15.23 US ft • Target Shadow: 75.03 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0163** • Click Position 29.8046681650 -89.8360695325 (WGS84) (X) 3755679.73 (Y) 477560.97 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616185718.jsf • Range to target: 75.34 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616185718	**Dimensions and attributes** • Target Width: 7.91 US ft • Target Height: 0.00 US ft • Target Length: 11.09 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:

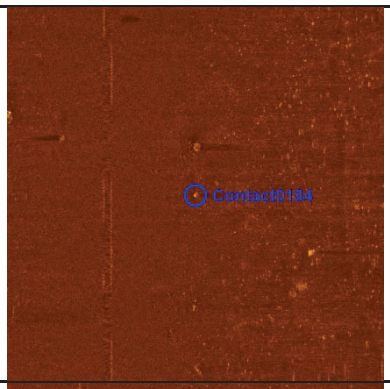
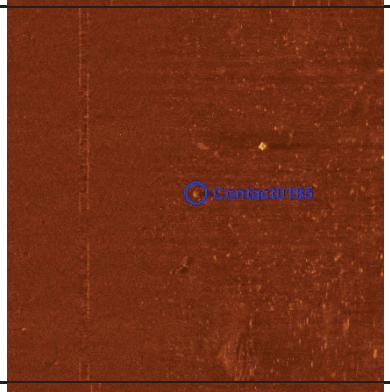
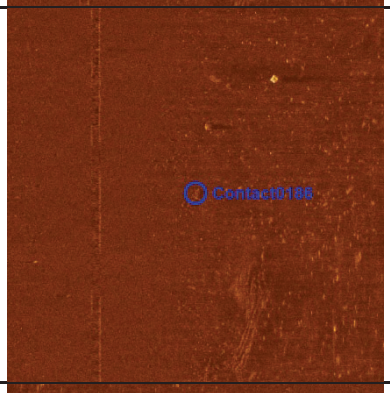
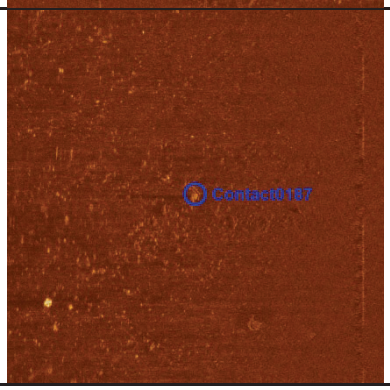
	**Contact0164** • Click Position 29.8056425204 -89.8356060455 (WGS84) (X) 3755822.08 (Y) 477917.19 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616185718.jsf • Range to target: 84.10 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616185718	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0165** • Click Position 29.8087007853 -89.8309939460 (WGS84) (X) 3757270.10 (Y) 479048.39 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616185718.jsf • Range to target: 30.18 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616185718	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0166** • Click Position 29.8107100091 -89.8282876709 (WGS84) (X) 3758118.69 (Y) 479790.25 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616185718.jsf • Range to target: 44.93 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616185718	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0167** • Click Position 29.8108799754 -89.8274454825 (WGS84) (X) 3758384.94 (Y) 479855.56 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616185718.jsf • Range to target: 72.11 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616185718	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:

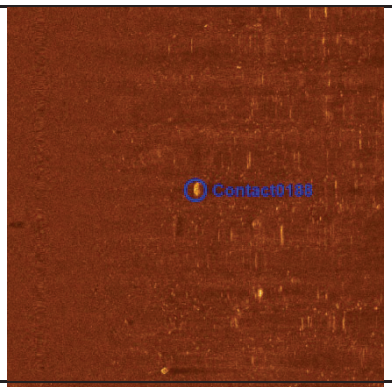
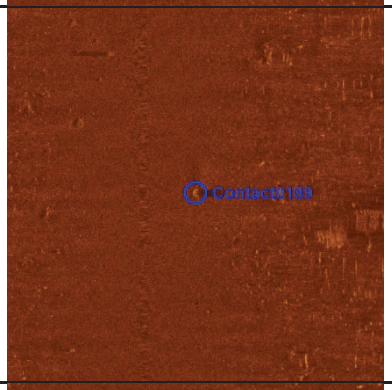
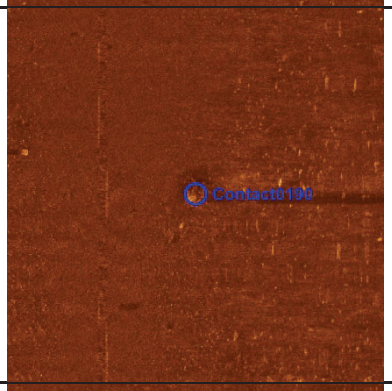
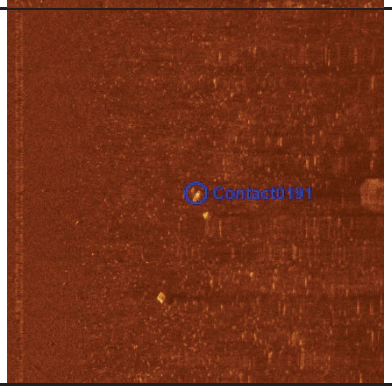
	**Contact0168** • Click Position 29.8119617640 -89.8264456920 (WGS84) (X) 3758696.81 (Y) 480253.09 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616185718.jsf • Range to target: 29.26 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616185718	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0169** • Click Position 29.8116383674 -89.8273377788 (WGS84) (X) 3758415.47 (Y) 480131.78 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616191848.jsf • Range to target: 23.96 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616191848	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0170** • Click Position 29.8114390278 -89.8279352899 (WGS84) (X) 3758226.95 (Y) 480056.80 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616191848.jsf • Range to target: 55.99 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616191848	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0171** • Click Position 29.8113213246 -89.8279437633 (WGS84) (X) 3758224.83 (Y) 480013.97 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616191848.jsf • Range to target: 25.34 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616191848	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:

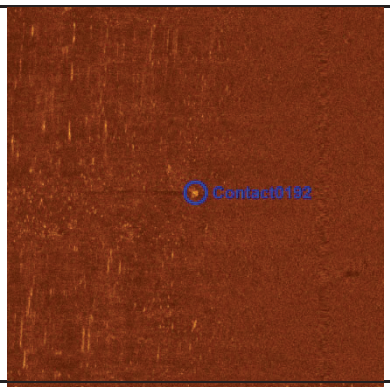
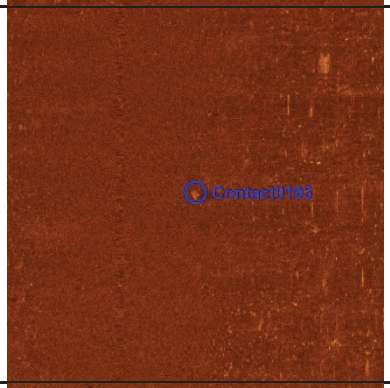
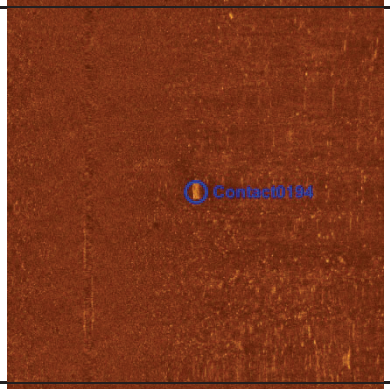
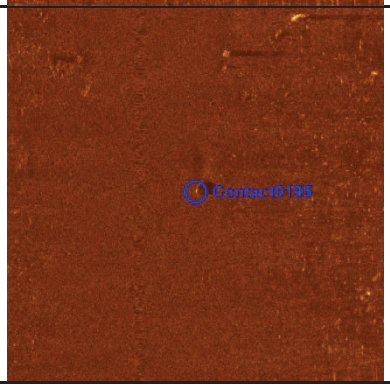
	**Contact0172** • Click Position 29.8111904593 -89.8277671050 (WGS84) (X) 3758281.47 (Y) 479967.12 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616191848.jsf • Range to target: 47.23 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616191848	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0173** • Click Position 29.8101409290 -89.8293499040 (WGS84) (X) 3757784.57 (Y) 479578.90 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616191848.jsf • Range to target: 11.75 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616191848	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0174** • Click Position 29.8098892644 -89.8302155737 (WGS84) (X) 3757511.26 (Y) 479483.78 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616191848.jsf • Range to target: 37.32 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616191848	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0175** • Click Position 29.8094092229 -89.8303481317 (WGS84) (X) 3757471.51 (Y) 479308.68 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616191848.jsf • Range to target: 60.83 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616191848	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:

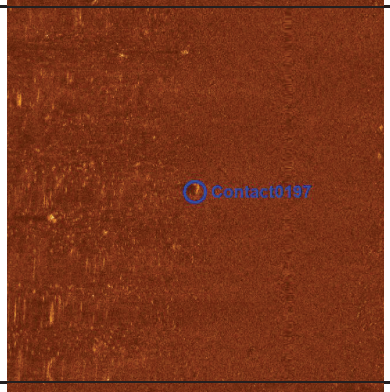
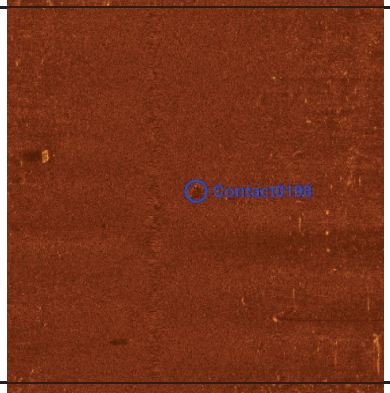
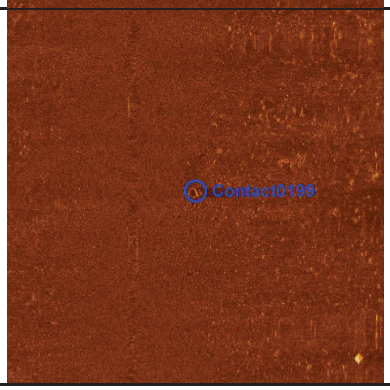
	**Contact0176** • Click Position 29.8094208003 -89.8303785905 (WGS84) (X) 3757461.80 (Y) 479312.76 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616191848.jsf • Range to target: 50.92 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616191848	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0177** • Click Position 29.8097338066 -89.8304407001 (WGS84) (X) 3757440.61 (Y) 479426.32 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616191848.jsf • Range to target: 42.85 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616191848	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0178** • Click Position 29.8097225624 -89.8305463750 (WGS84) (X) 3757407.16 (Y) 479421.79 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616191848.jsf • Range to target: 63.82 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616191848	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0179** • Click Position 29.8089396433 -89.8309340434 (WGS84) (X) 3757287.96 (Y) 479135.49 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616191848.jsf • Range to target: 31.10 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616191848	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:

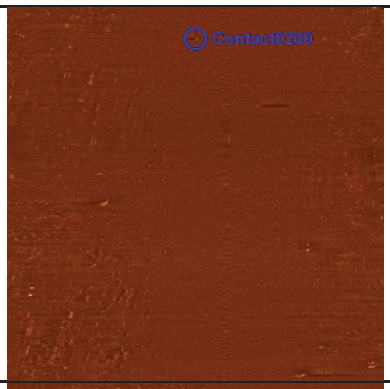
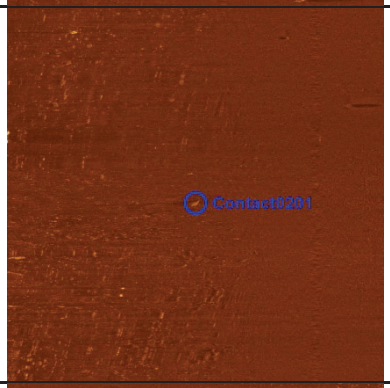
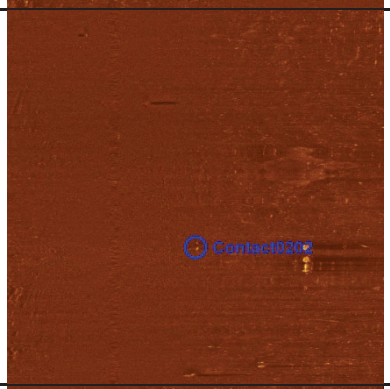
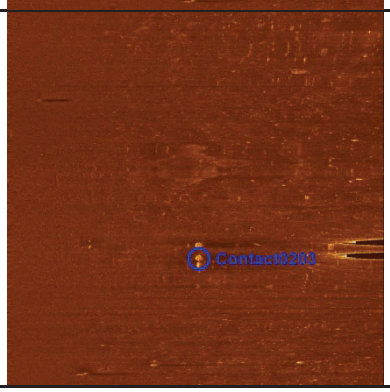
	**Contact0180** • Click Position 29.8088625976 -89.8310931234 (WGS84) (X) 3757237.88 (Y) 479106.82 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616191848.jsf • Range to target: 17.97 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616191848	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0181** • Click Position 29.8086423276 -89.8319666534 (WGS84) (X) 3756961.92 (Y) 479023.09 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616191848.jsf • Range to target: 86.63 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616191848	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0182** • Click Position 29.8081964358 -89.8317754343 (WGS84) (X) 3757024.68 (Y) 478861.75 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616191848.jsf • Range to target: 74.42 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616191848	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0183** • Click Position 29.8081034580 -89.8323790747 (WGS84) (X) 3756833.70 (Y) 478825.43 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616191848.jsf • Range to target: 19.35 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616191848	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:

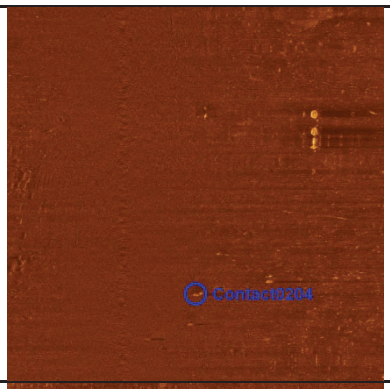
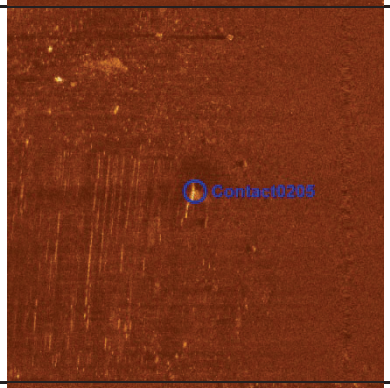
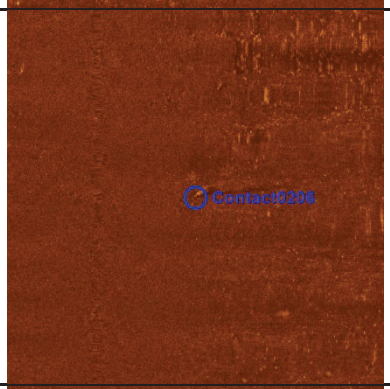
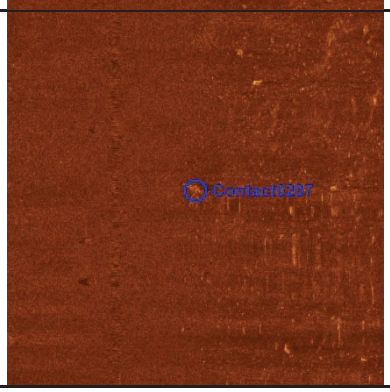
	**Contact0184** • Click Position 29.8079359108 -89.8323387920 (WGS84) (X) 3756847.28 (Y) 478764.68 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616191848.jsf • Range to target: 37.56 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616191848	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0185** • Click Position 29.8067218524 -89.8339836008 (WGS84) (X) 3756331.46 (Y) 478316.39 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616191848.jsf • Range to target: 47.69 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616191848	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0186** • Click Position 29.8066852909 -89.8340774301 (WGS84) (X) 3756301.88 (Y) 478302.71 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616191848.jsf • Range to target: 42.62 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616191848	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0187** • Click Position 29.8064990298 -89.8350150270 (WGS84) (X) 3756005.44 (Y) 478231.09 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616191848.jsf • Range to target: 69.81 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616191848	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:

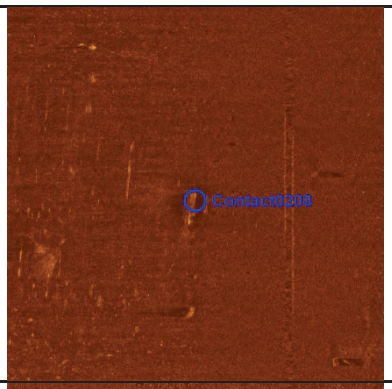
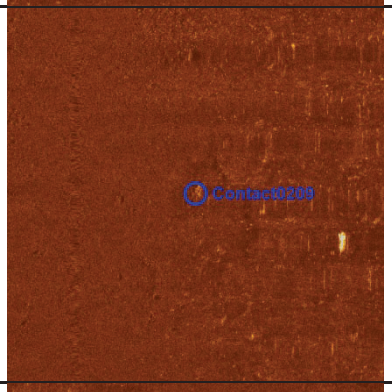
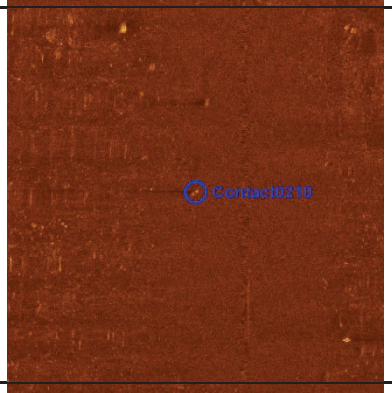
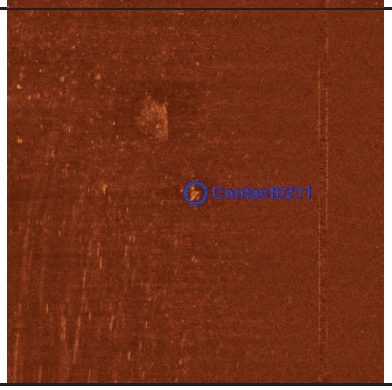
	**Contact0188** • Click Position 29.8067783578 -89.8347440855 (WGS84) (X) 3756090.03 (Y) 478333.78 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616193641.jsf • Range to target: 66.35 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616193641	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0189** • Click Position 29.8076250416 -89.8334315613 (WGS84) (X) 3756502.22 (Y) 478647.10 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616193641.jsf • Range to target: 22.35 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616193641	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0190** • Click Position 29.8104154540 -89.8295911157 (WGS84) (X) 3757706.77 (Y) 479677.72 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616193641.jsf • Range to target: 39.63 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616193641	**Dimensions and attributes** • Target Width: 13.45 US ft • Target Height: 2.34 US ft • Target Length: 11.24 US ft • Target Shadow: 73.42 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0191** • Click Position 29.8124700645 -89.8269380776 (WGS84) (X) 3758538.24 (Y) 480435.87 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061621EK\SIDE SCAN\20210616193641.jsf • Range to target: 75.34 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210616193641	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:

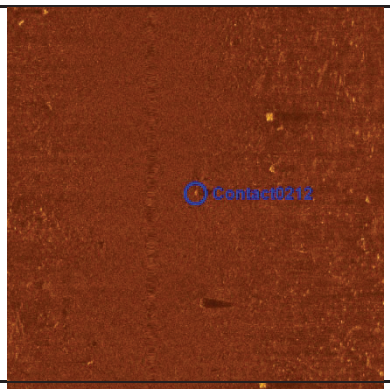
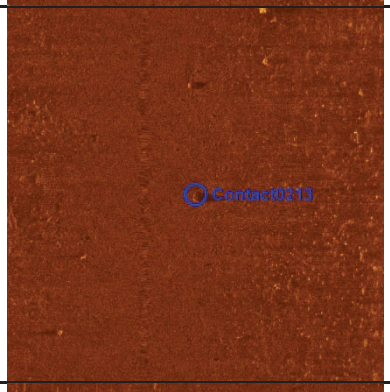
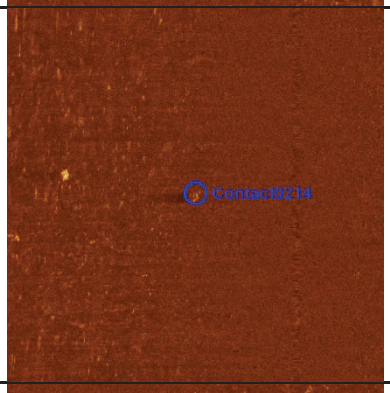
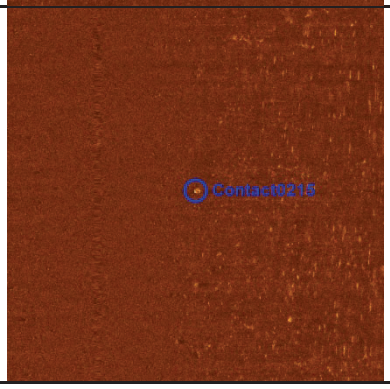
	**Contact0192** • Click Position 29.8057484396 -89.8364569936 (WGS84) (X) 3755551.73 (Y) 477952.18 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061721EK\SIDE SCAN\20210617141615.jsf • Range to target: 54.60 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210617141615	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0193** • Click Position 29.8095342411 -89.8313653477 (WGS84) (X) 3757148.35 (Y) 479349.91 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061721EK\SIDE SCAN\20210617141615.jsf • Range to target: 32.26 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210617141615	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0194** • Click Position 29.8110336379 -89.8293209101 (WGS84) (X) 3757789.50 (Y) 479903.63 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061721EK\SIDE SCAN\20210617141615.jsf • Range to target: 45.85 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210617141615	**Dimensions and attributes** • Target Width: 3.39 US ft • Target Height: 0.00 US ft • Target Length: 9.78 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0195** • Click Position 29.8068313127 -89.8361589116 (WGS84) (X) 3755641.11 (Y) 478347.17 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061721EK\SIDE SCAN\20210617144116.jsf • Range to target: 24.19 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210617144116	**Dimensions and attributes** • Target Width: 0.95 US ft • Target Height: 1.04 US ft • Target Length: 7.37 US ft • Target Shadow: 7.64 US ft • Classification1: • Classification2: • Area: • Block: • Description:

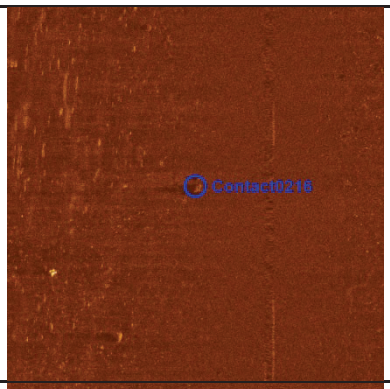
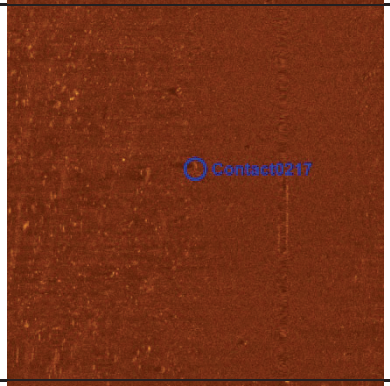
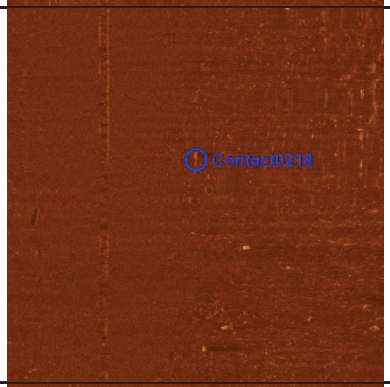
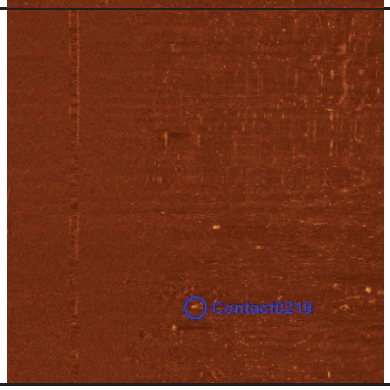
	**Contact0196** • Click Position 29.8074110405 -89.8350797646 (WGS84) (X) 3755980.57 (Y) 478562.45 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061721EK\SIDE SCAN\20210617144116.jsf • Range to target: 26.27 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210617144116	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0197** • Click Position 29.8077286581 -89.8344903850 (WGS84) (X) 3756165.96 (Y) 478680.38 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061721EK\SIDE SCAN\20210617144116.jsf • Range to target: 39.40 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210617144116	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0198** • Click Position 29.8084989388 -89.8337184939 (WGS84) (X) 3756407.07 (Y) 478963.68 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061721EK\SIDE SCAN\20210617144116.jsf • Range to target: 18.20 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210617144116	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0199** • Click Position 29.8122905959 -89.8284176148 (WGS84) (X) 3758069.94 (Y) 480364.44 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061721EK\SIDE SCAN\20210617144116.jsf • Range to target: 26.96 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210617144116	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:

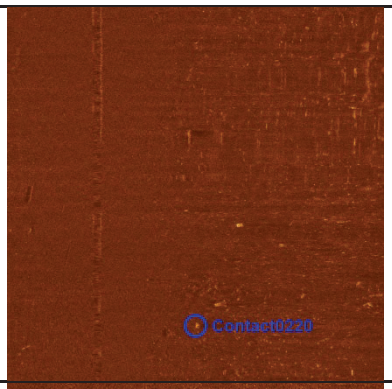
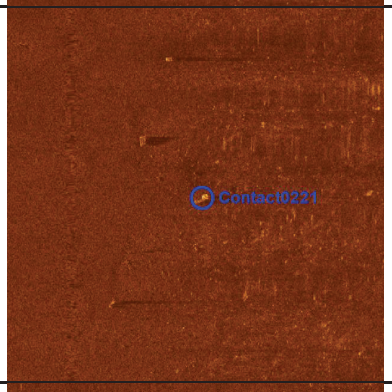
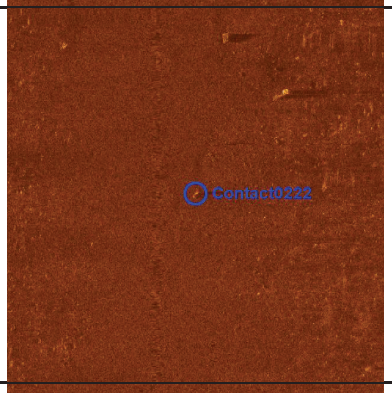
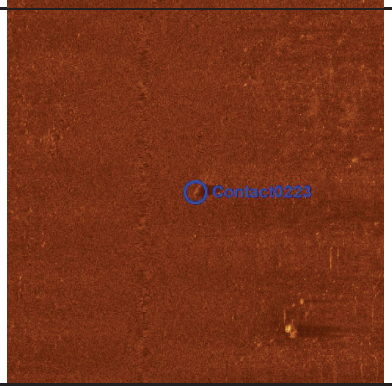
	**Contact0200** • Click Position 29.8068078685 -89.8365367958 (WGS84) (X) 3755521.39 (Y) 478337.08 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061721EK\SIDE SCAN\20210617145746.jsf • Range to target: 12.67 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210617145746	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0201** • Click Position 29.8068026610 -89.8363468112 (WGS84) (X) 3755581.66 (Y) 478335.97 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061721EK\SIDE SCAN\20210617145746.jsf • Range to target: 51.38 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210617145746	**Dimensions and attributes** • Target Width: 2.20 US ft • Target Height: 0.00 US ft • Target Length: 4.53 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0202** • Click Position 29.8068772986 -89.8363118311 (WGS84) (X) 3755592.40 (Y) 478363.26 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061721EK\SIDE SCAN\20210617145746.jsf • Range to target: 34.56 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210617145746	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0203** • Click Position 29.8067841633 -89.8362056336 (WGS84) (X) 3755626.52 (Y) 478329.83 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061721EK\SIDE SCAN\20210617145746.jsf • Range to target: 81.79 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210617145746	**Dimensions and attributes** • Target Width: 2.20 US ft • Target Height: 0.00 US ft • Target Length: 11.64 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:

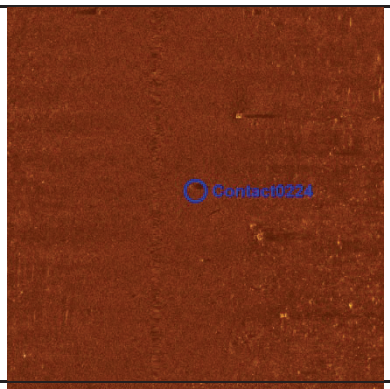
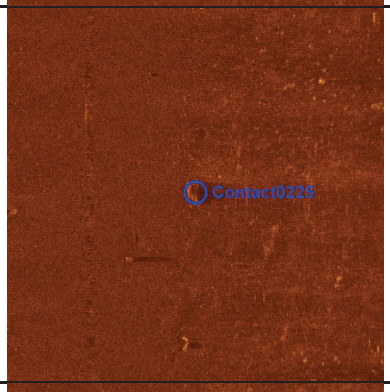
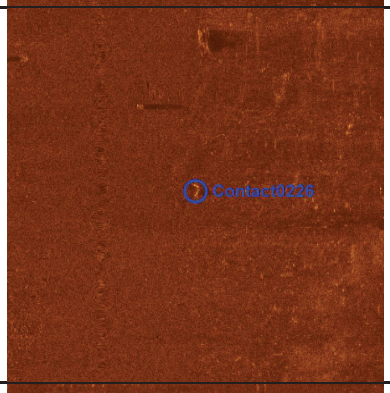
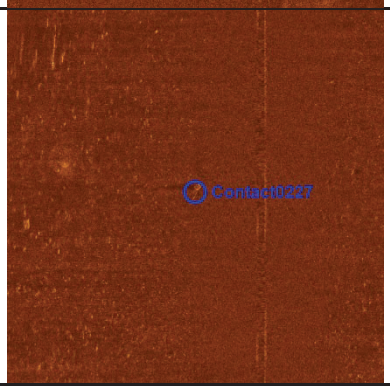
	**Contact0204** • Click Position 29.8067284211 -89.8364925295 (WGS84) (X) 3755535.80 (Y) 478308.38 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061721EK\SIDE SCAN\20210617145746.jsf • Range to target: 31.10 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210617145746	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0205** • Click Position 29.8075197666 -89.8358594508 (WGS84) (X) 3755732.80 (Y) 478598.75 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061721EK\SIDE SCAN\20210617150752.jsf • Range to target: 64.51 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210617150752	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0206** • Click Position 29.8073052309 -89.8365309484 (WGS84) (X) 3755520.88 (Y) 478517.96 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061721EK\SIDE SCAN\20210617151929.jsf • Range to target: 42.16 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210617151929	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0207** • Click Position 29.8104487950 -89.8321345668 (WGS84) (X) 3756900.07 (Y) 479679.26 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061721EK\SIDE SCAN\20210617151929.jsf • Range to target: 34.33 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210617151929	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:

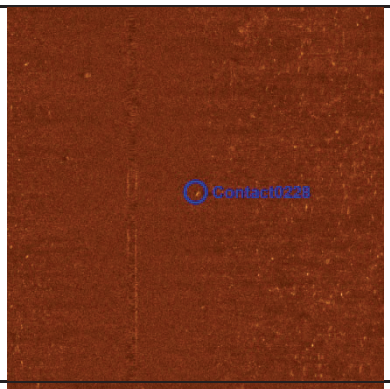
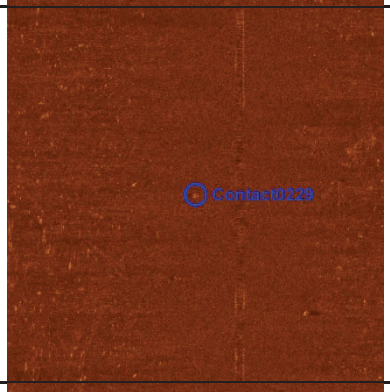
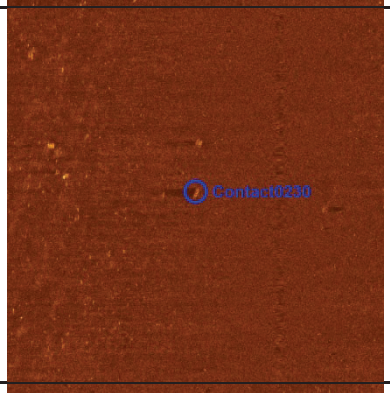
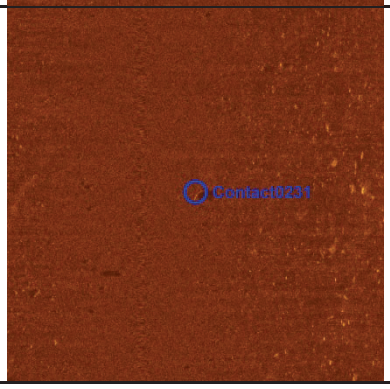
	**Contact0208** • Click Position 29.8102349279 -89.8329472362 (WGS84) (X) 3756643.38 (Y) 479598.12 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061721EK\SIDE SCAN\20210617152822.jsf • Range to target: 39.86 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210617152822	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0209** • Click Position 29.8075686563 -89.8372031582 (WGS84) (X) 3755306.46 (Y) 478610.96 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061721EK\SIDE SCAN\20210617154026.jsf • Range to target: 51.61 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210617154026	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0210** • Click Position 29.8109508740 -89.8320347815 (WGS84) (X) 3756929.32 (Y) 479862.25 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061721EK\SIDE SCAN\20210617154026.jsf • Range to target: 20.97 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210617154026	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0211** • Click Position 29.8114729198 -89.8323277934 (WGS84) (X) 3756833.92 (Y) 480050.86 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061721EK\SIDE SCAN\20210617155529.jsf • Range to target: 54.37 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210617155529	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:

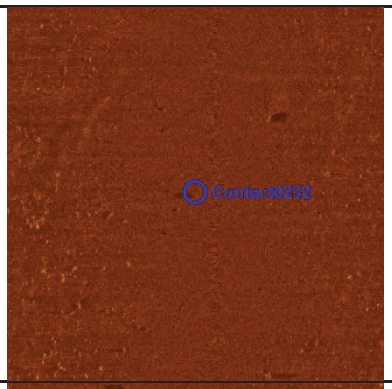
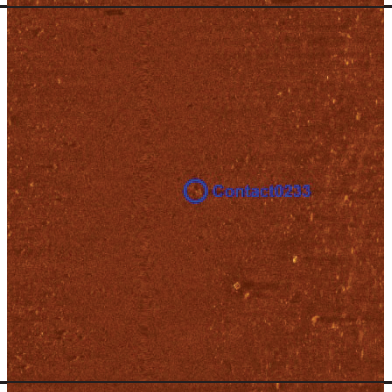
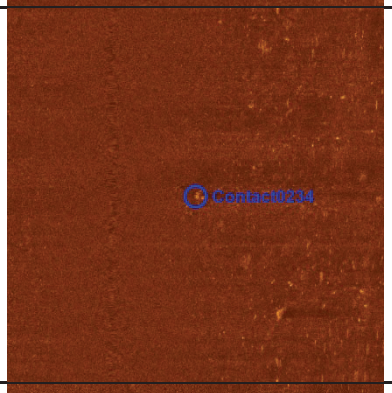
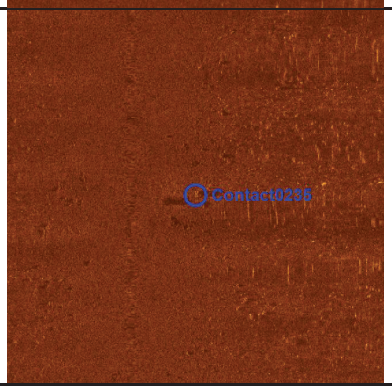
	**Contact0212** • Click Position 29.8098024703 -89.8341984211 (WGS84) (X) 3756248.68 (Y) 479435.68 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061721EK\SIDE SCAN\20210617155529.jsf • Range to target: 18.89 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210617155529	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0213** • Click Position 29.8097149633 -89.8343065664 (WGS84) (X) 3756214.80 (Y) 479403.41 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061721EK\SIDE SCAN\20210617155529.jsf • Range to target: 21.89 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210617155529	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0214** • Click Position 29.8093402958 -89.8352585059 (WGS84) (X) 3755914.72 (Y) 479263.22 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061721EK\SIDE SCAN\20210617155529.jsf • Range to target: 43.08 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210617155529	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0215** • Click Position 29.8090325513 -89.8353012284 (WGS84) (X) 3755902.63 (Y) 479151.14 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061721EK\SIDE SCAN\20210617155529.jsf • Range to target: 41.93 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210617155529	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:

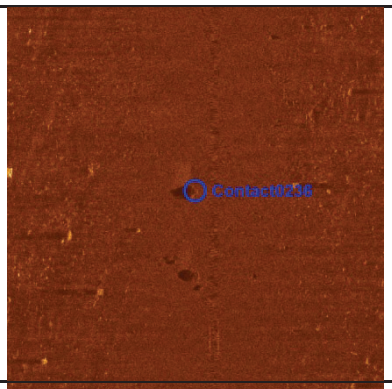
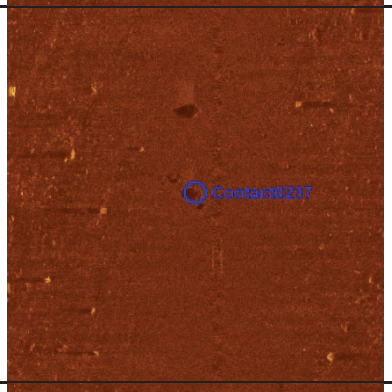
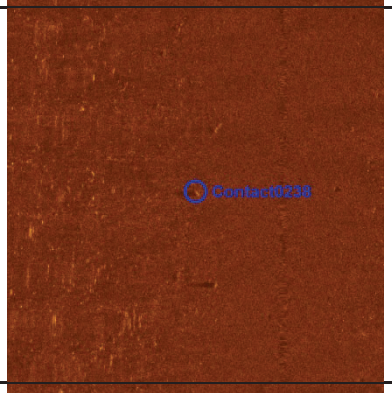
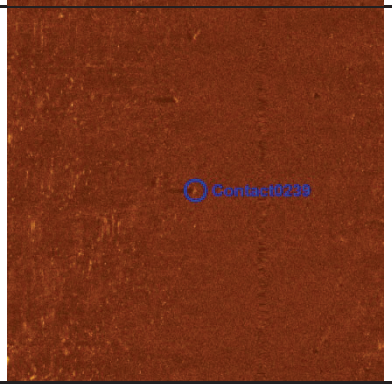
	**Contact0216** • Click Position 29.8084614363 -89.8363944348 (WGS84) (X) 3755558.68 (Y) 478938.94 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061721EK\SIDE SCAN\20210617155529.jsf • Range to target: 31.56 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210617155529	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0217** • Click Position 29.8087428555 -89.8360874638 (WGS84) (X) 3755654.68 (Y) 479042.55 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061721EK\SIDE SCAN\20210617155529.jsf • Range to target: 37.32 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210617155529	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0218** • Click Position 29.8080734929 -89.8365488927 (WGS84) (X) 3755511.54 (Y) 478797.24 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061721EK\SIDE SCAN\20210617155529.jsf • Range to target: 39.17 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210617155529	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0219** • Click Position 29.8079497871 -89.8368833397 (WGS84) (X) 3755406.07 (Y) 478750.87 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061721EK\SIDE SCAN\20210617155529.jsf • Range to target: 51.84 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210617155529	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:

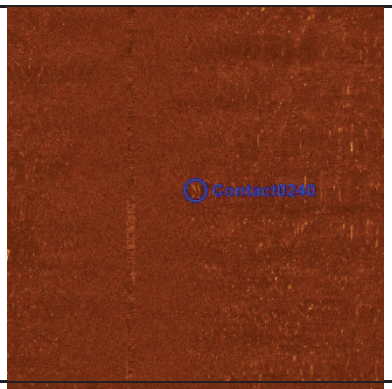
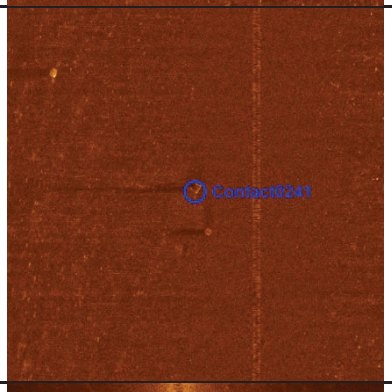
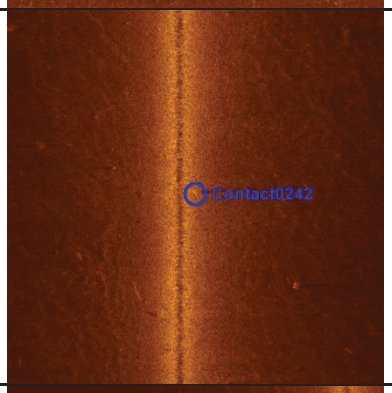
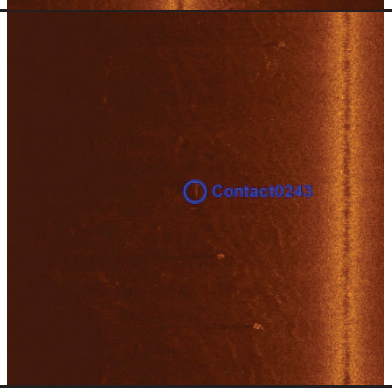
	**Contact0220** • Click Position 29.8079917936 -89.8368895942 (WGS84) (X) 3755403.89 (Y) 478766.12 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061721EK\SIDE SCAN\20210617155529.jsf • Range to target: 41.93 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210617155529	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0221** • Click Position 29.8081783457 -89.8375382020 (WGS84) (X) 3755197.32 (Y) 478831.27 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061721EK\SIDE SCAN\20210617161107.jsf • Range to target: 54.37 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210617161107	**Dimensions and attributes** • Target Width: 2.71 US ft • Target Height: 0.00 US ft • Target Length: 6.49 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0222** • Click Position 29.8081824829 -89.8373487288 (WGS84) (X) 3755257.38 (Y) 478833.56 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061721EK\SIDE SCAN\20210617161107.jsf • Range to target: 17.05 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210617161107	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0223** • Click Position 29.8083189021 -89.8370973024 (WGS84) (X) 3755336.47 (Y) 478884.20 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061721EK\SIDE SCAN\20210617161107.jsf • Range to target: 22.58 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210617161107	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:

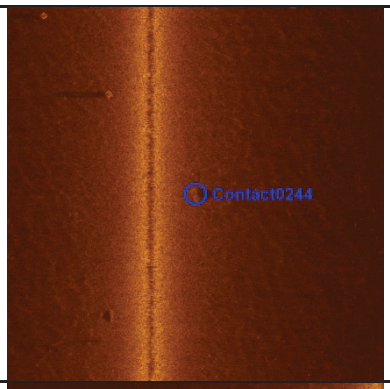
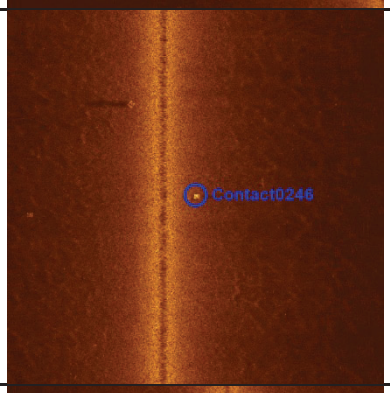
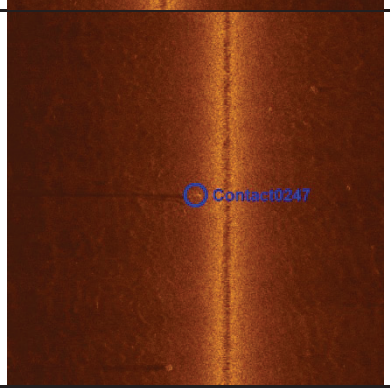
	**Contact0224** • Click Position 29.8086965769 -89.8365906302 (WGS84) (X) 3755495.34 (Y) 479023.63 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061721EK\SIDE SCAN\20210617161107.jsf • Range to target: 17.05 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210617161107	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0225** • Click Position 29.8095067908 -89.8354463523 (WGS84) (X) 3755854.36 (Y) 479322.99 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061721EK\SIDE SCAN\20210617161107.jsf • Range to target: 45.16 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210617161107	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0226** • Click Position 29.8096208996 -89.8352828940 (WGS84) (X) 3755905.65 (Y) 479365.16 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061721EK\SIDE SCAN\20210617161107.jsf • Range to target: 40.32 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210617161107	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0227** • Click Position 29.8116626933 -89.8329713690 (WGS84) (X) 3756628.93 (Y) 480117.19 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061721EK\SIDE SCAN\20210617161545.jsf • Range to target: 28.11 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210617161545	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:

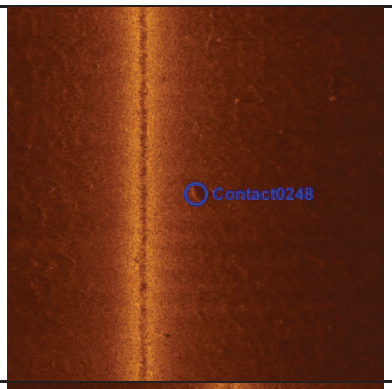
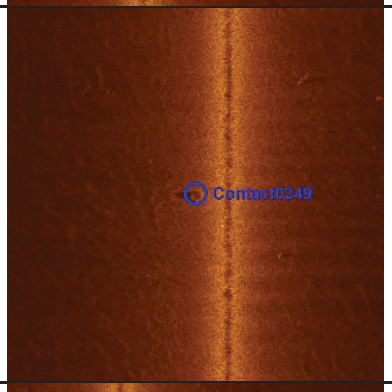
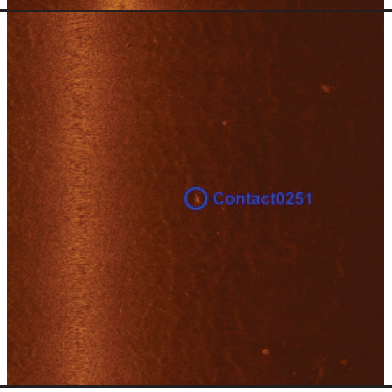
	**Contact0228** • Click Position 29.8117153818 -89.8326215713 (WGS84) (X) 3756739.60 (Y) 480137.80 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061721EK\SIDE SCAN\20210617161545.jsf • Range to target: 27.19 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210617161545	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0229** • Click Position 29.8119034507 -89.8326062748 (WGS84) (X) 3756743.56 (Y) 480206.25 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061721EK\SIDE SCAN\20210617161545.jsf • Range to target: 18.89 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210617161545	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0230** • Click Position 29.8097004769 -89.8357349900 (WGS84) (X) 3755761.91 (Y) 479392.22 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061721EK\SIDE SCAN\20210617161545.jsf • Range to target: 35.71 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210617161545	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0231** • Click Position 29.8090824209 -89.8362418314 (WGS84) (X) 3755604.12 (Y) 479165.38 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061721EK\SIDE SCAN\20210617161545.jsf • Range to target: 23.50 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210617161545	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:

	**Contact0232** • Click Position 29.8090879797 -89.8363867294 (WGS84) (X) 3755558.14 (Y) 479166.80 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061721EK\SIDE SCAN\20210617161545.jsf • Range to target: 7.83 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210617161545	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0233** • Click Position 29.8088929495 -89.8365283905 (WGS84) (X) 3755514.15 (Y) 479095.30 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061721EK\SIDE SCAN\20210617161545.jsf • Range to target: 21.89 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210617161545	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0234** • Click Position 29.8084971734 -89.8370165393 (WGS84) (X) 3755361.23 (Y) 478949.36 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061721EK\SIDE SCAN\20210617161545.jsf • Range to target: 35.71 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210617161545	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0235** • Click Position 29.8089665140 -89.8370101671 (WGS84) (X) 3755361.02 (Y) 479120.05 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061721EK\SIDE SCAN\20210617162509.jsf • Range to target: 27.65 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210617162509	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:

	**Contact0236** • Click Position 29.8096558197 -89.8366118926 (WGS84) (X) 3755484.05 (Y) 479372.35 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061721EK\SIDE SCAN\20210617163635.jsf • Range to target: 7.83 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210617163635	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0237** • Click Position 29.8095976761 -89.8367005618 (WGS84) (X) 3755456.20 (Y) 479350.84 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061721EK\SIDE SCAN\20210617163635.jsf • Range to target: 9.22 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210617163635	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0238** • Click Position 29.8090443371 -89.8376016675 (WGS84) (X) 3755173.08 (Y) 479145.90 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061721EK\SIDE SCAN\20210617164413.jsf • Range to target: 37.32 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210617164413	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0239** • Click Position 29.8091342901 -89.8375173742 (WGS84) (X) 3755199.38 (Y) 479178.96 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061721EK\SIDE SCAN\20210617164413.jsf • Range to target: 28.34 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210617164413	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:

	**Contact0240** • Click Position 29.8119068836 -89.8339972327 (WGS84) (X) 3756302.47 (Y) 480201.72 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061721EK\SIDE SCAN\20210617164413.jsf • Range to target: 27.88 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210617164413	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0241** • Click Position 29.8114043376 -89.8352707353 (WGS84) (X) 3755901.03 (Y) 480013.70 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\061721EK\SIDE SCAN\20210617165252.jsf • Range to target: 26.04 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210617165252	**Dimensions and attributes** • Target Width: 3.41 US ft • Target Height: 0.00 US ft • Target Length: 5.46 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0242** • Click Position 29.8103537141 -89.8384874908 (WGS84) (X) 3754885.97 (Y) 479618.35 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\071221EK SIDE SCAN\20210712155103.jsf • Range to target: 7.04 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210712155103	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0243** • Click Position 29.8102372574 -89.8391555559 (WGS84) (X) 3754674.67 (Y) 479573.24 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\071221EK SIDE SCAN\20210712155103.jsf • Range to target: 65.70 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210712155103	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:

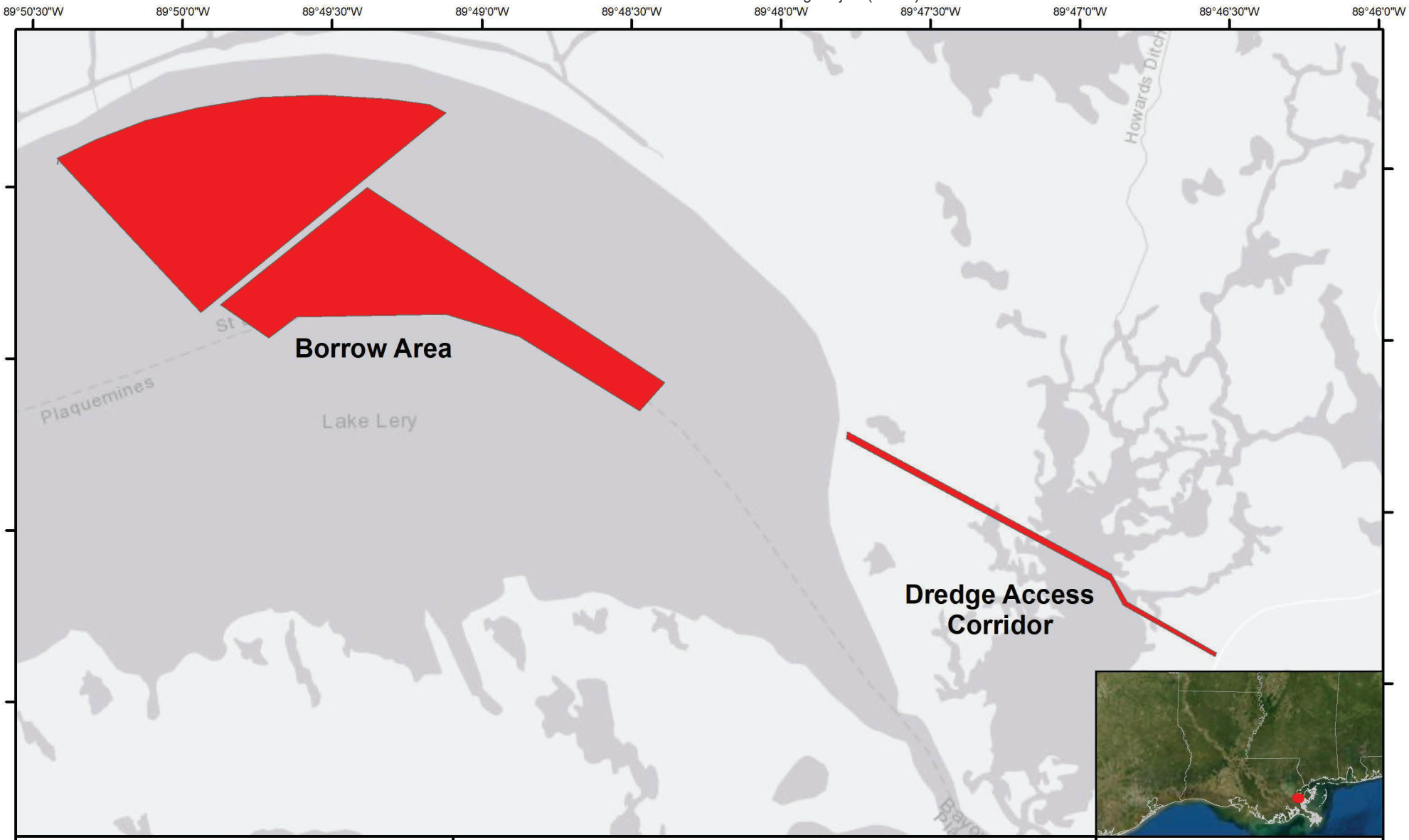
	**Contact0244** • Click Position 29.8099559324 -89.8386575762 (WGS84) (X) 3754833.92 (Y) 479473.01 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\071221EK SIDE SCAN\20210712155344.jsf • Range to target: 19.71 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210712155344	**Dimensions and attributes** • Target Width: 2.59 US ft • Target Height: 0.80 US ft • Target Length: 5.58 US ft • Target Shadow: 6.68 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0245** • Click Position 29.8103610165 -89.8376618743 (WGS84) (X) 3755147.74 (Y) 479624.42 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\071221EK SIDE SCAN\20210712155344.jsf • Range to target: 113.80 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210712155344	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 30.92 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0246** • Click Position 29.8111625993 -89.8362797776 (WGS84) (X) 3755582.20 (Y) 479921.62 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\071221EK SIDE SCAN\20210712155924.jsf • Range to target: 14.31 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210712155924	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0247** • Click Position 29.8107751370 -89.8369895071 (WGS84) (X) 3755358.98 (Y) 479777.79 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\071221EK SIDE SCAN\20210712155924.jsf • Range to target: 13.37 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210712155924	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:

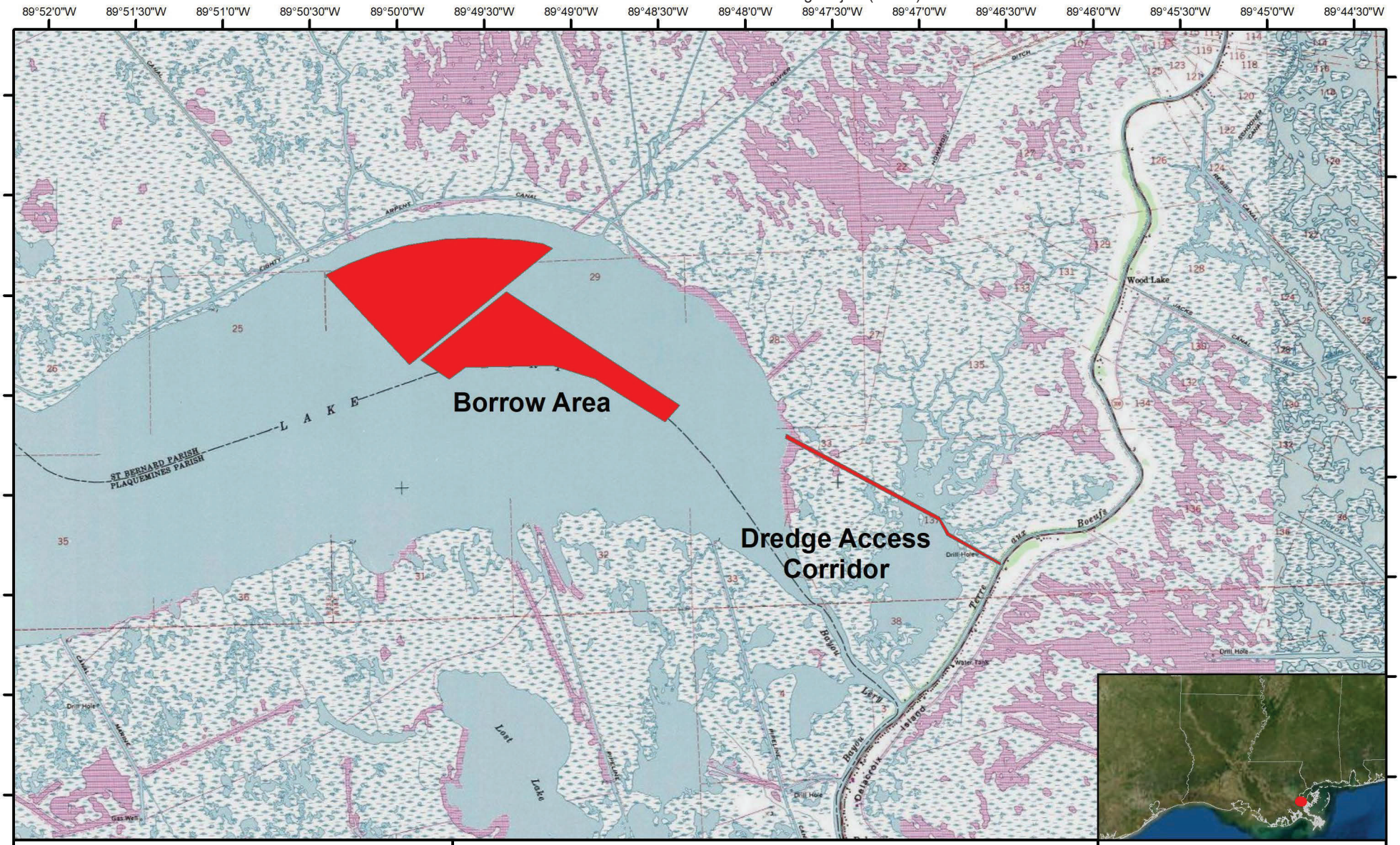
	**Contact0248** • Click Position 29.8098689696 -89.8380222915 (WGS84) (X) 3755035.78 (Y) 479444.01 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\071221EK SIDE SCAN\20210712155924.jsf • Range to target: 22.99 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210712155924	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0249** • Click Position 29.8091857238 -89.8392319407 (WGS84) (X) 3754655.43 (Y) 479190.57 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\071221EK SIDE SCAN\20210712155924.jsf • Range to target: 14.08 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210712155924	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0250** • Click Position 29.8091618382 -89.8390168879 (WGS84) (X) 3754723.74 (Y) 479182.77 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\071221EK SIDE SCAN\20210712155924.jsf • Range to target: 32.38 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210712155924	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:
	**Contact0251** • Click Position 29.8108123043 -89.8366751334 (WGS84) (X) 3755458.50 (Y) 479792.61 (Projected Coordinates) • Acoustic Source File: T:\2021\2213288\BORROW AREA DATA\071221EK SIDE SCAN\20210712160542.jsf • Range to target: 50.68 US ft • Heading: 0.000 Degrees • Event Number: (-1) • Line Name: 20210712160542	**Dimensions and attributes** • Target Width: 0.00 US ft • Target Height: 0.00 US ft • Target Length: 0.00 US ft • Target Shadow: 0.00 US ft • Classification1: • Classification2: • Area: • Block: • Description:

Test Number	X	Y	Water Depth	Depth of Penetration	Sediment
MG01	474091.861	3768908.007	~3ft	~6ft	Soft mud
MG02	474066.352	3769030.941	4ft	6ft	Soft mud
MG03	474001.463	3769151.89	4ft	6ft	Soft mud
MG04	473145.902	3770705.107	3ft	7ft	Soft mud
MG05	473115.89	3770762.549	3ft	7ft	Soft mud
MG06	473089.981	3770821.89	3ft	7.5ft	Soft mud
MG07	472736.965	3771494.332	4ft	6.5ft	Soft mud
MG08	472700.233	3771557.09	4ft	7ft	Soft mud
MG09	472648.853	3771610.135	4ft	7ft	Soft mud
MG10	472527.704	3771895.547	3.5ft	7ft	Soft mud
MG11	472475.493	3771984.177	4ft	7ft	Soft mud
MG12	472403.865	3772089.509	4ft	7ft	Soft mud
MG13	472321.796	3772277.592	4ft	7ft	Soft mud
MG14	472267.452	3772346.628	4ft	7ft	Soft mud
MG15	472198.067	3772431.835	4ft	7ft	Soft mud
MG16	471893.951	3772958.321	4ft	7ft	Soft mud
MG17	471844.44	3772962.251	4ft	7ft	Soft mud
MG18	471755.642	3772956.727	4ft	7ft	Soft mud
MG19	471645.369	3773069.212	4ft	7ft	Soft mud
MG20	471611.507	3773120.058	4ft	7ft	Soft mud
MG21	471557.062	3773124.287	4ft	7ft	Soft mud
MG22	471452.549	3773199.208	4ft	7ft	Soft mud
MG23	471422.132	3773269.142	4ft	7ft	Soft mud
MG24	471393.1	3773333.918	4ft	7ft	Soft mud
MG25	470686.054	3774615.995	3ft	8ft	Soft mud
MG26	470649.163	3774651.16	4ft	7ft	Soft mud
MG27	470615.232	3774703.976	5ft	6.5ft	Soft mud

APPENDIX B

MAPS


89°50'30"W
89°50'0"W
89°49'30"W
89°49'0"W
89°48'30"W
89°48'0"W
89°47'30"W
89°47'0"W
89°46'30"W
89°46'0"W
Howards Ditch
Borrow Area
Plaquemines
Lake Lery
Dredge Access Corridor
Legend
Survey Area
Overview Map of Survey Area
for the North Delacroix Marsh Creation
and Terracing Project (BS-41), Lake Lery
N
0
440
880
1,320
1,760
2,200 Meters



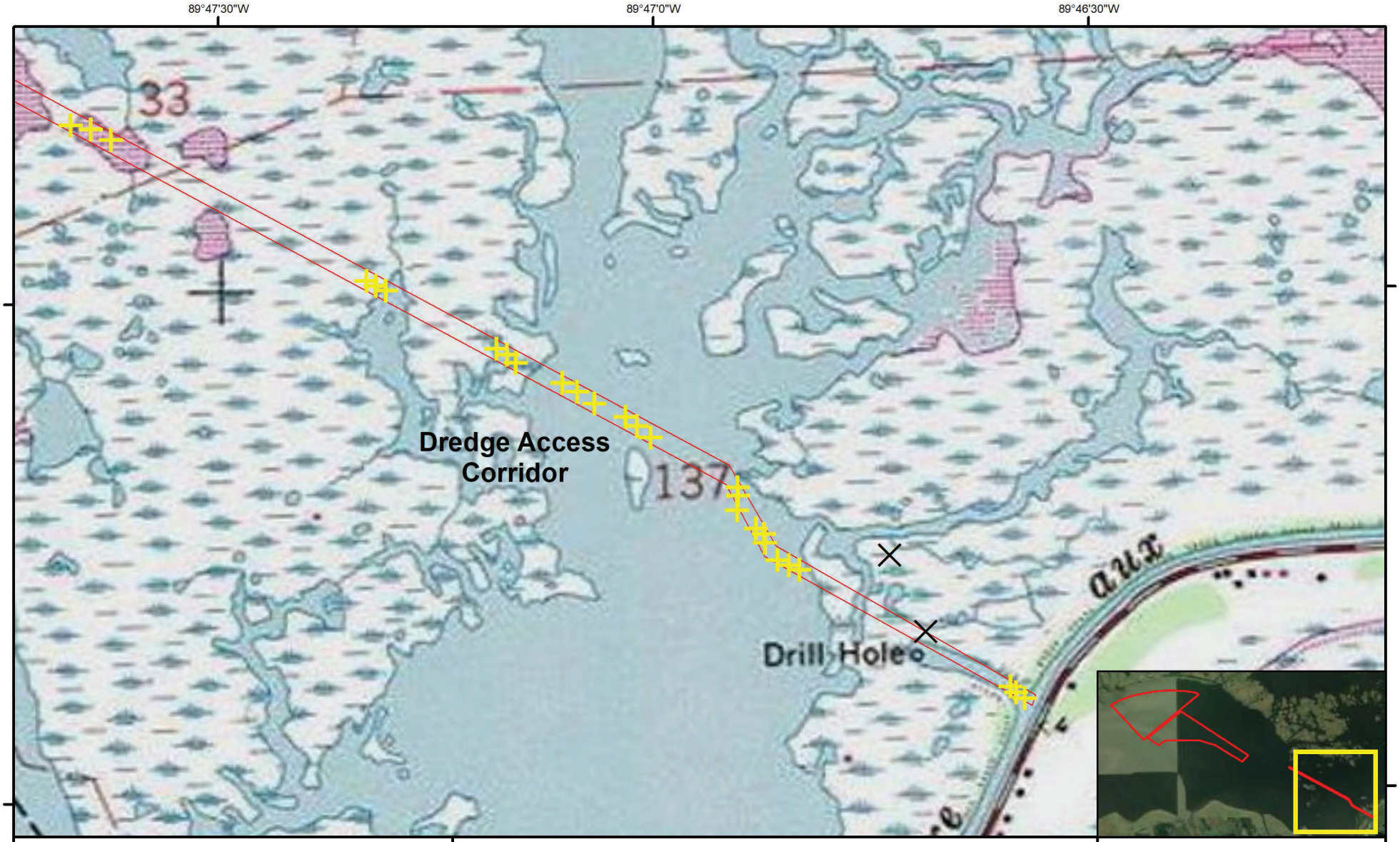
Legend

Survey Area

Overview Map of Survey Area for the North Delacroix Marsh Creation and Terracing Project (BS-41), Lake Lery

N

0 750 1,500 2,250 3,000 3,750 Meters



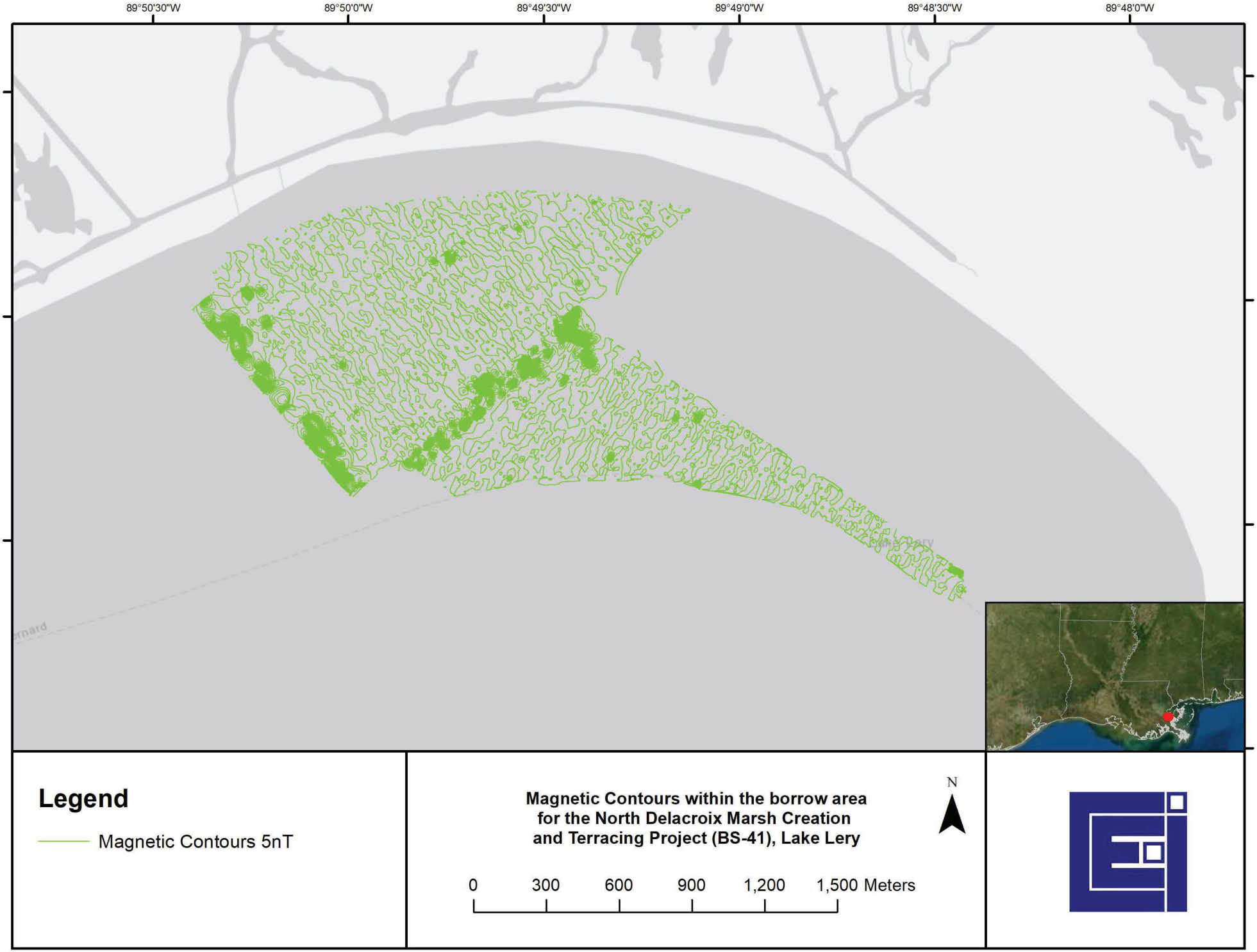
Legend

- Sediment Probing Locations
- Oil_Gas_Wells
- Survey Area

Sediment Probing Locations within the dredge access corridor for the North Delacroix Marsh Creation and Terracing Project (BS-41), Lake Lery

N

0 150 300 450 600 750 Meters



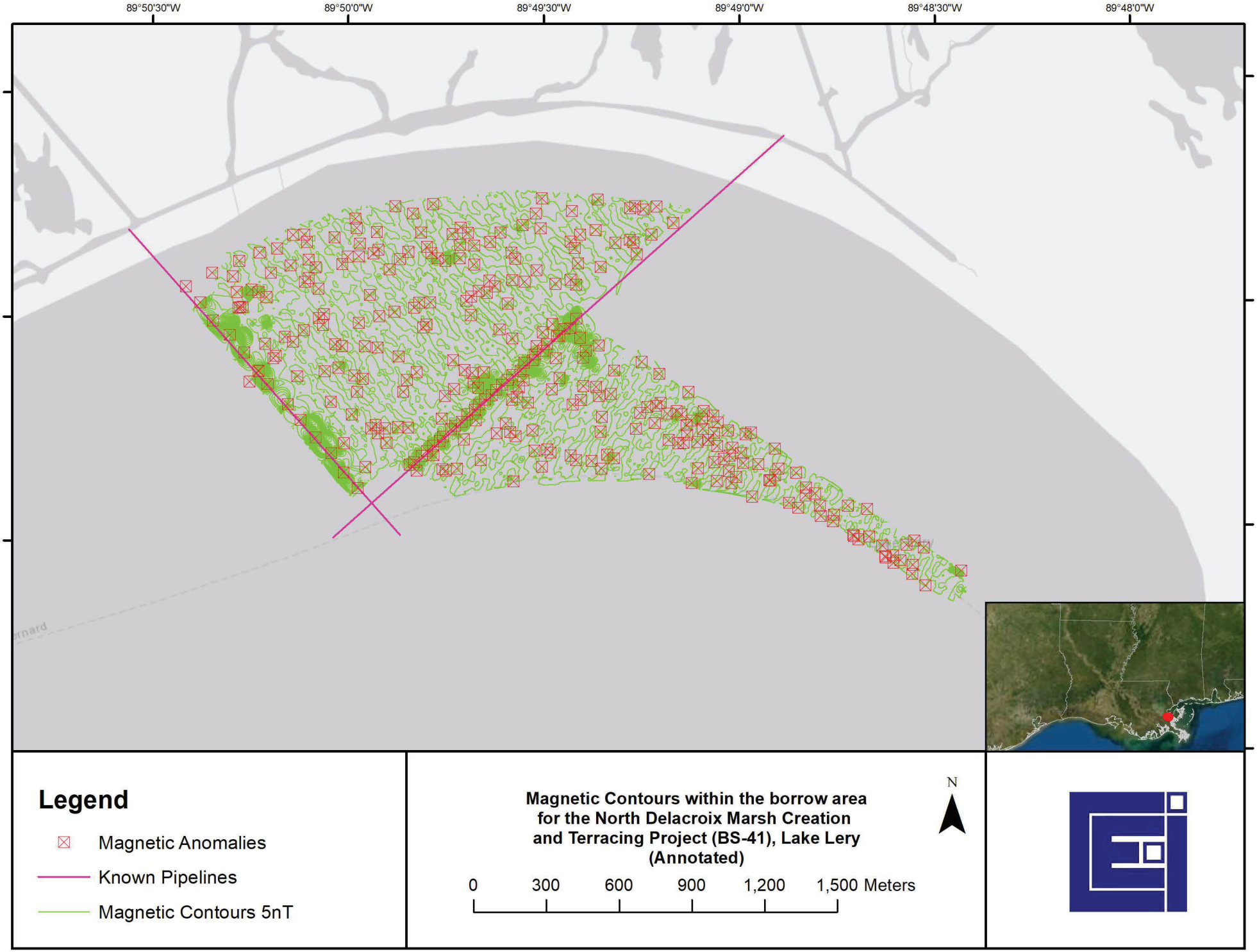
Legend

Magnetic Contours 5nT

Magnetic Contours within the borrow area for the North Delacroix Marsh Creation and Terracing Project (BS-41), Lake Lery

N

0 300 600 900 1,200 1,500 Meters



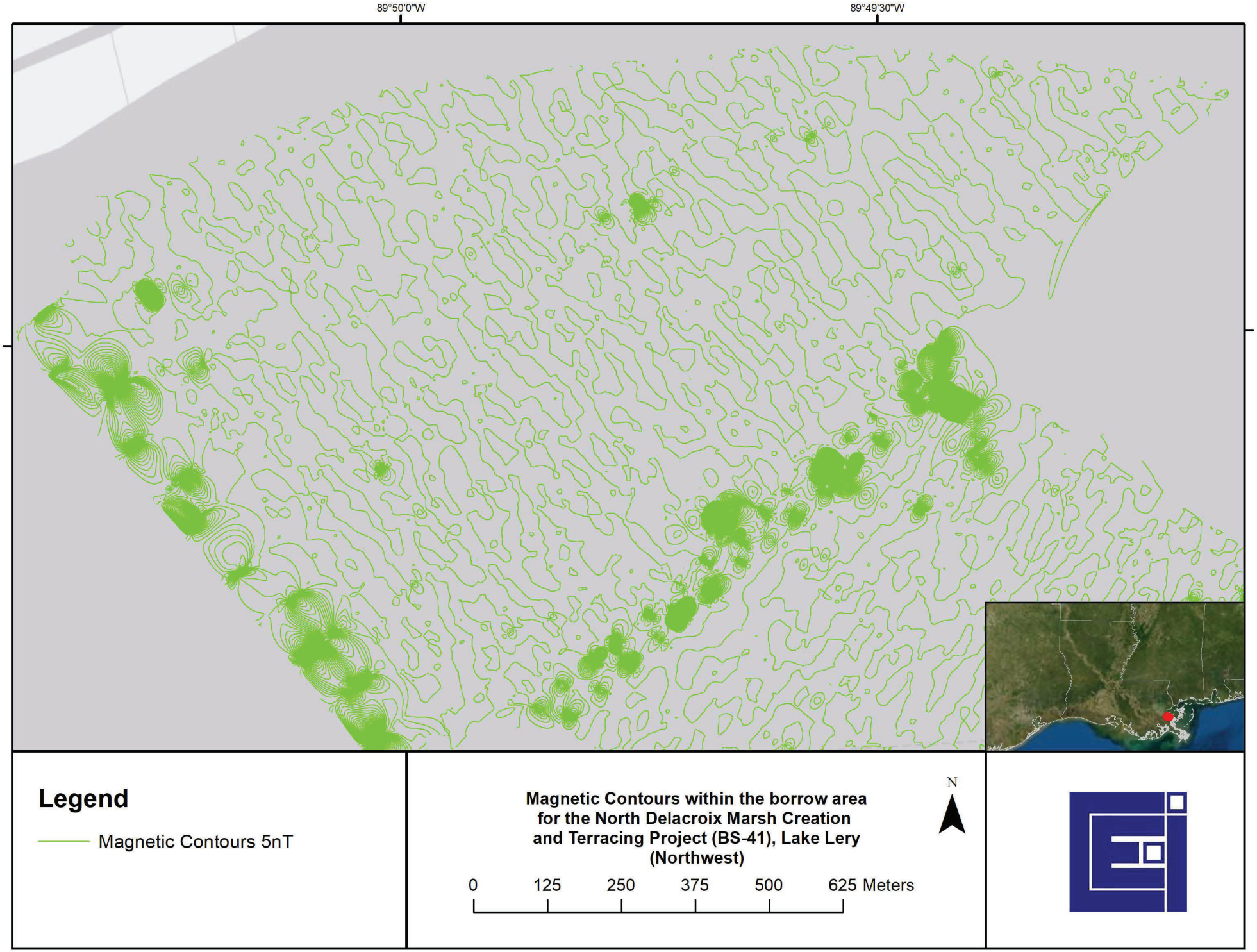
Legend

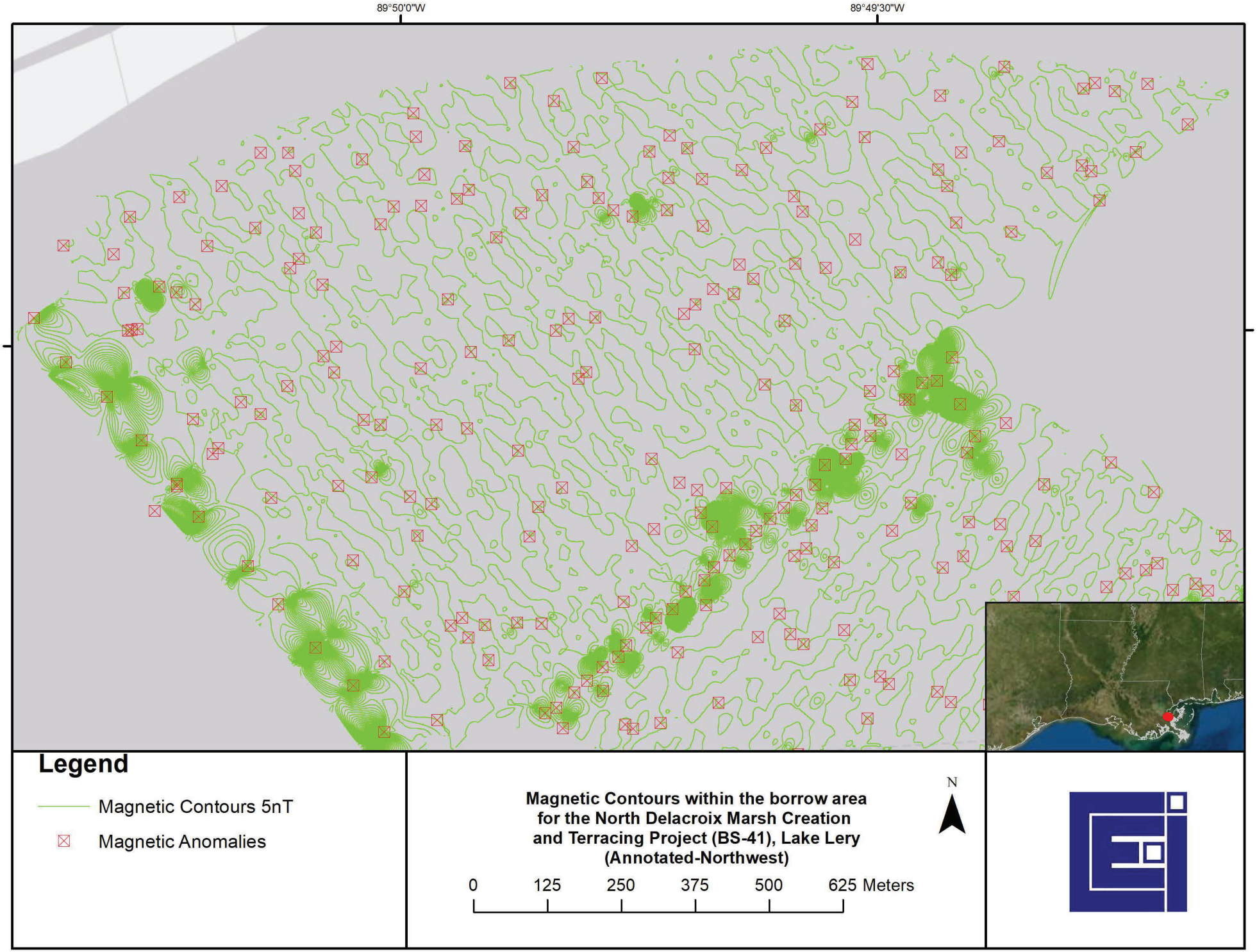
- Magnetic Anomalies
- Known Pipelines
- Magnetic Contours 5nT

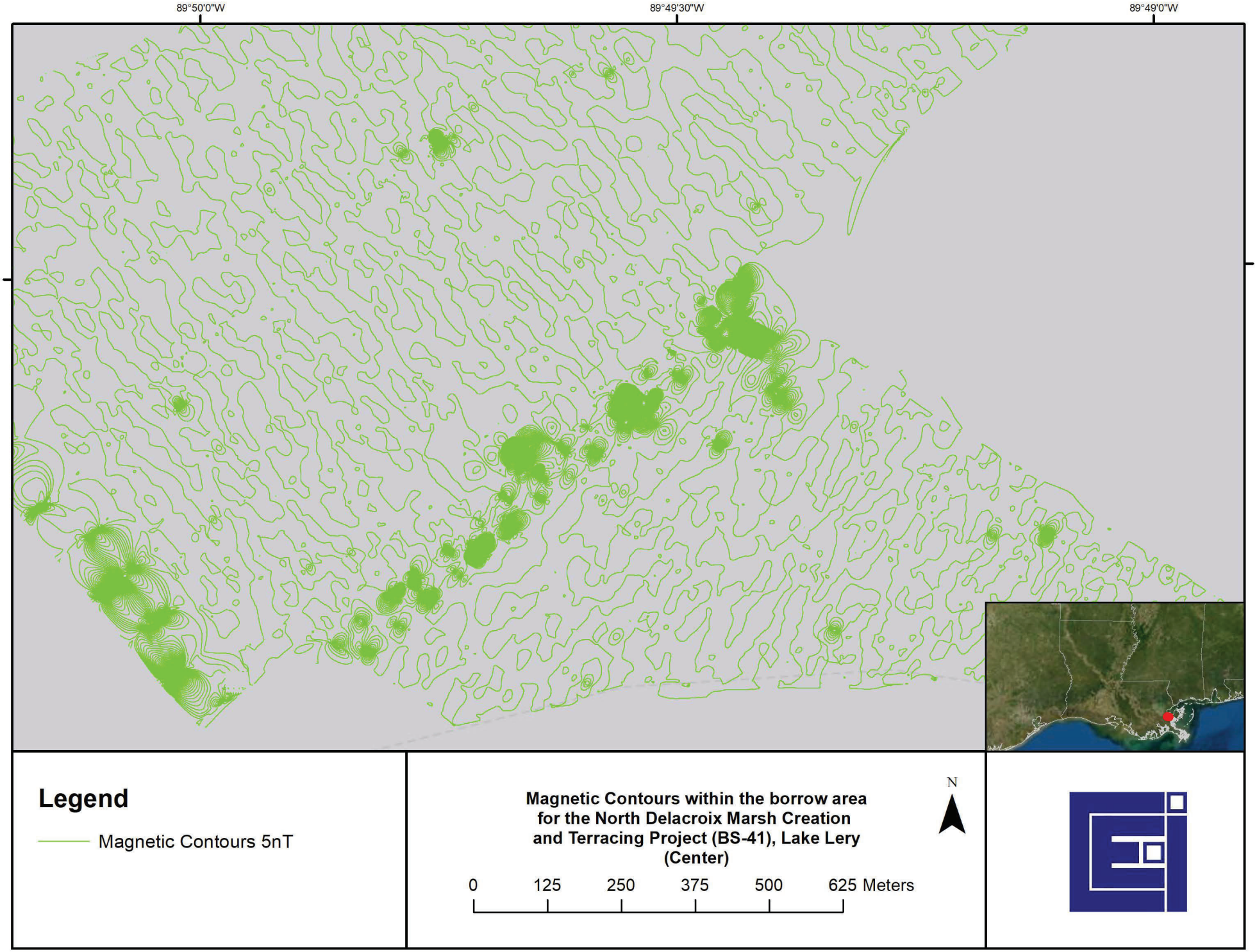
Magnetic Contours within the borrow area for the North Delacroix Marsh Creation and Terracing Project (BS-41), Lake Lery (Annotated)

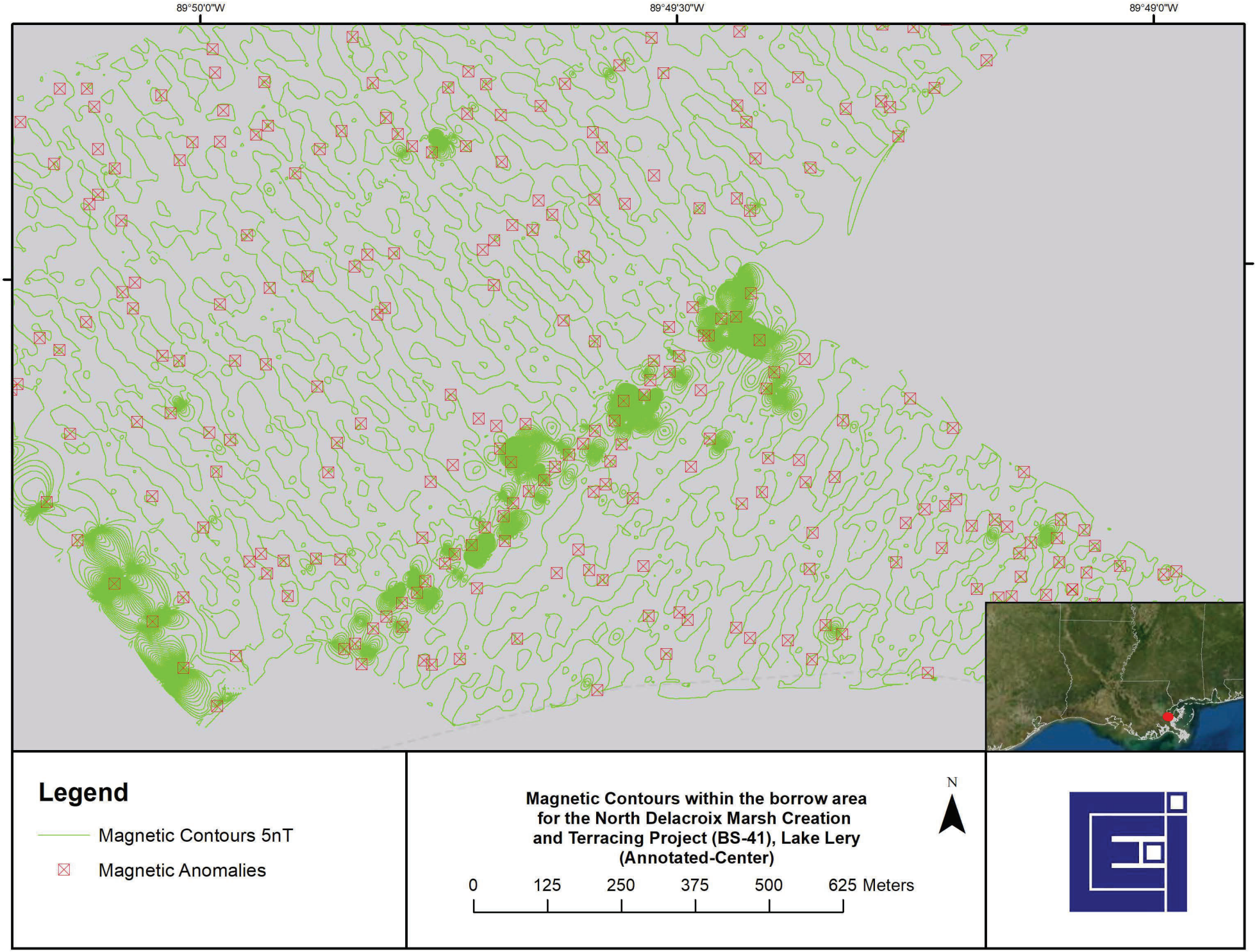
N

0 300 600 900 1,200 1,500 Meters


89°50'0"W
89°49'30"W
Legend
Magnetic Contours 5nT
Magnetic Contours within the borrow area for the North Delacroix Marsh Creation and Terracing Project (BS-41), Lake Lery (Northwest)
N
0
125
250
375
500
625 Meters


89°50'0"W
89°49'30"W
Legend
Magnetic Contours 5nT
Magnetic Anomalies
Magnetic Contours within the borrow area for the North Delacroix Marsh Creation and Terracing Project (BS-41), Lake Lery (Annotated-Northwest)
N
0
125
250
375
500
625 Meters


89°50'0"W
89°49'30"W
89°49'0"W
Legend
Magnetic Contours 5nT
Magnetic Contours within the borrow area for the North Delacroix Marsh Creation and Terracing Project (BS-41), Lake Lery (Center)
N
0
125
250
375
500
625 Meters


89°50'0"W
89°49'30"W
89°49'0"W
Legend
Magnetic Contours 5nT
Magnetic Anomalies
Magnetic Contours within the borrow area for the North Delacroix Marsh Creation and Terracing Project (BS-41), Lake Lery (Annotated-Center)
N
0
125
250
375
500
625 Meters



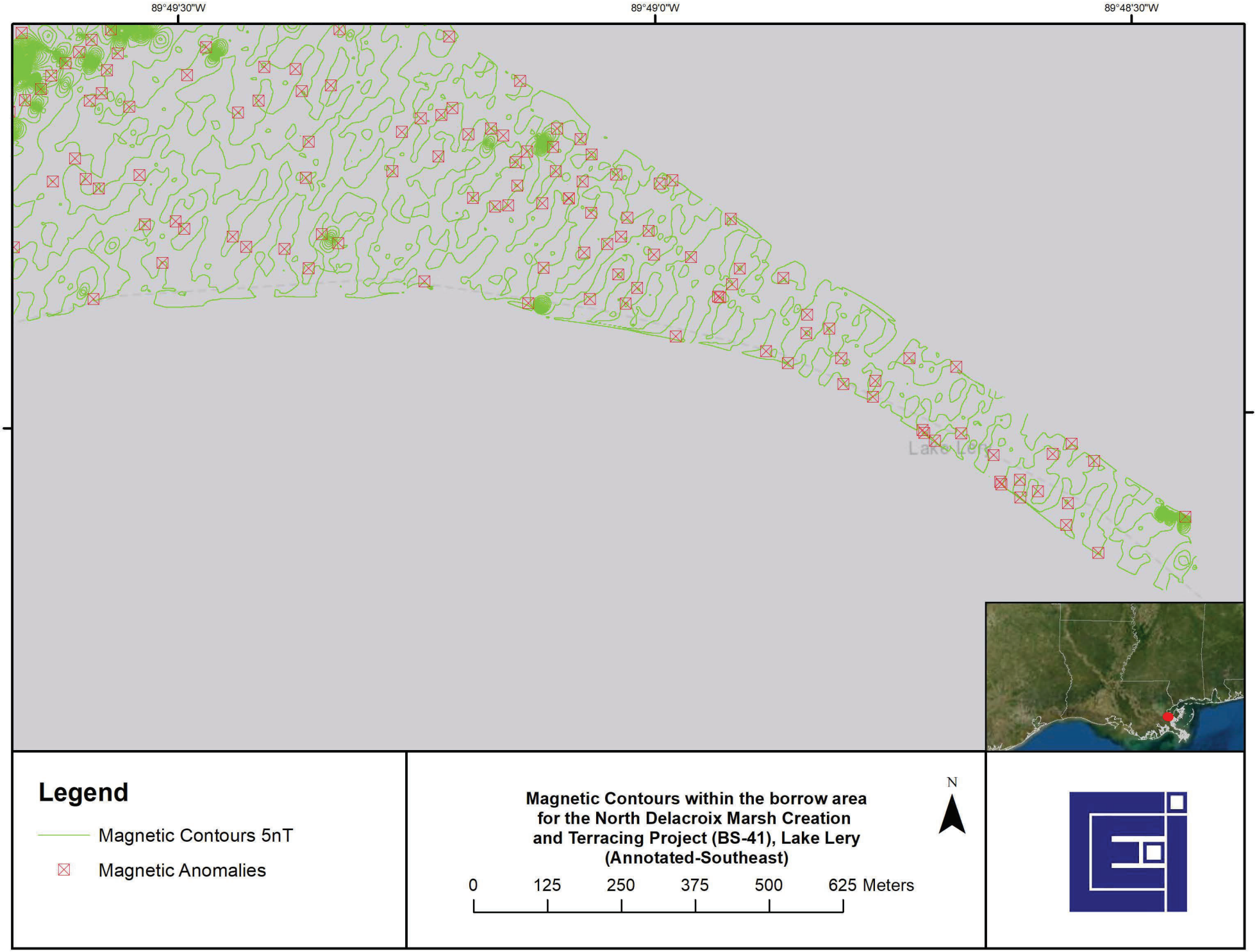
Legend

Magnetic Contours 5nT

Magnetic Contours within the borrow area for the North Delacroix Marsh Creation and Terracing Project (BS-41), Lake Lery (Southeast)

N

0 125 250 375 500 625 Meters



Legend

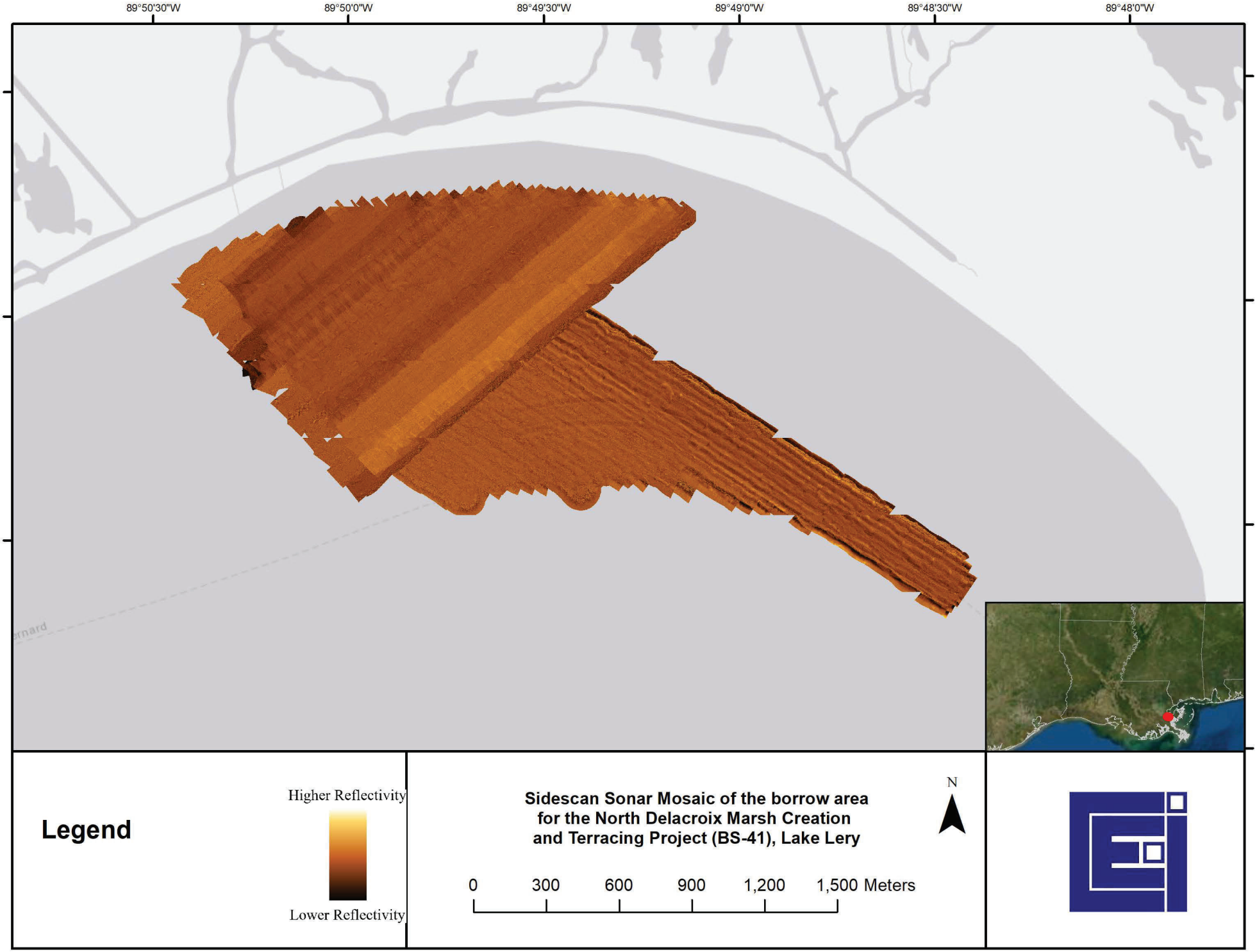
- Magnetic Contours 5nT
- Magnetic Anomalies

Magnetic Contours within the borrow area for the North Delacroix Marsh Creation and Terracing Project (BS-41), Lake Lery (Annotated-Southeast)

N

0 125 250 375 500 625 Meters


89°50'30"W
89°50'0"W
89°49'30"W
Legend
Oil_Gas_Wells
Magnetic Contours 5nT
Magnetic Anomalies
Known Pipelines
Magnetic Contours and Known Infrastructure within the borrow area for the North Delacroix Marsh Creation and Terracing Project (BS-41), Lake Lery
N
0
150
300
450
600
750 Meters



Legend

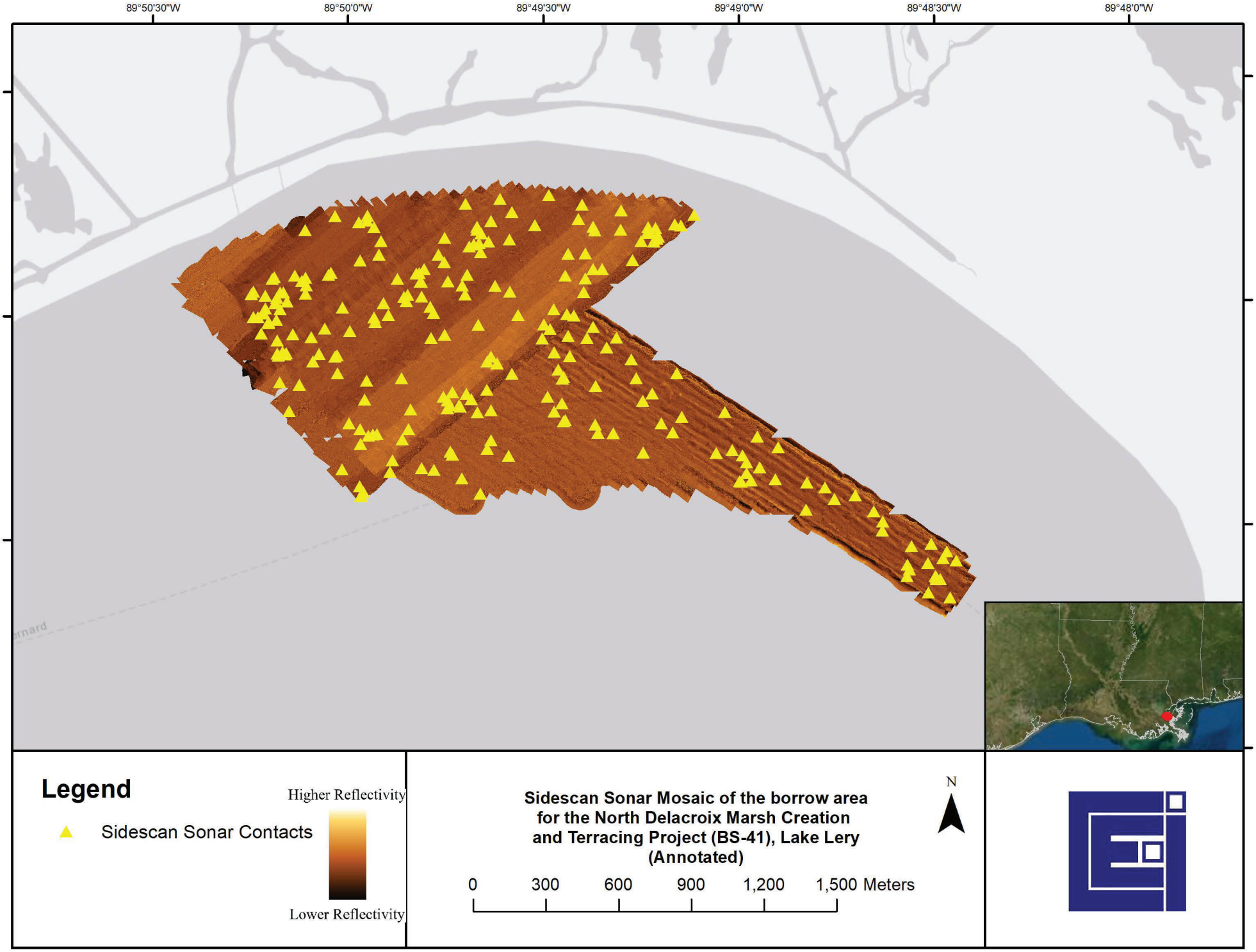
Higher Reflectivity

Lower Reflectivity

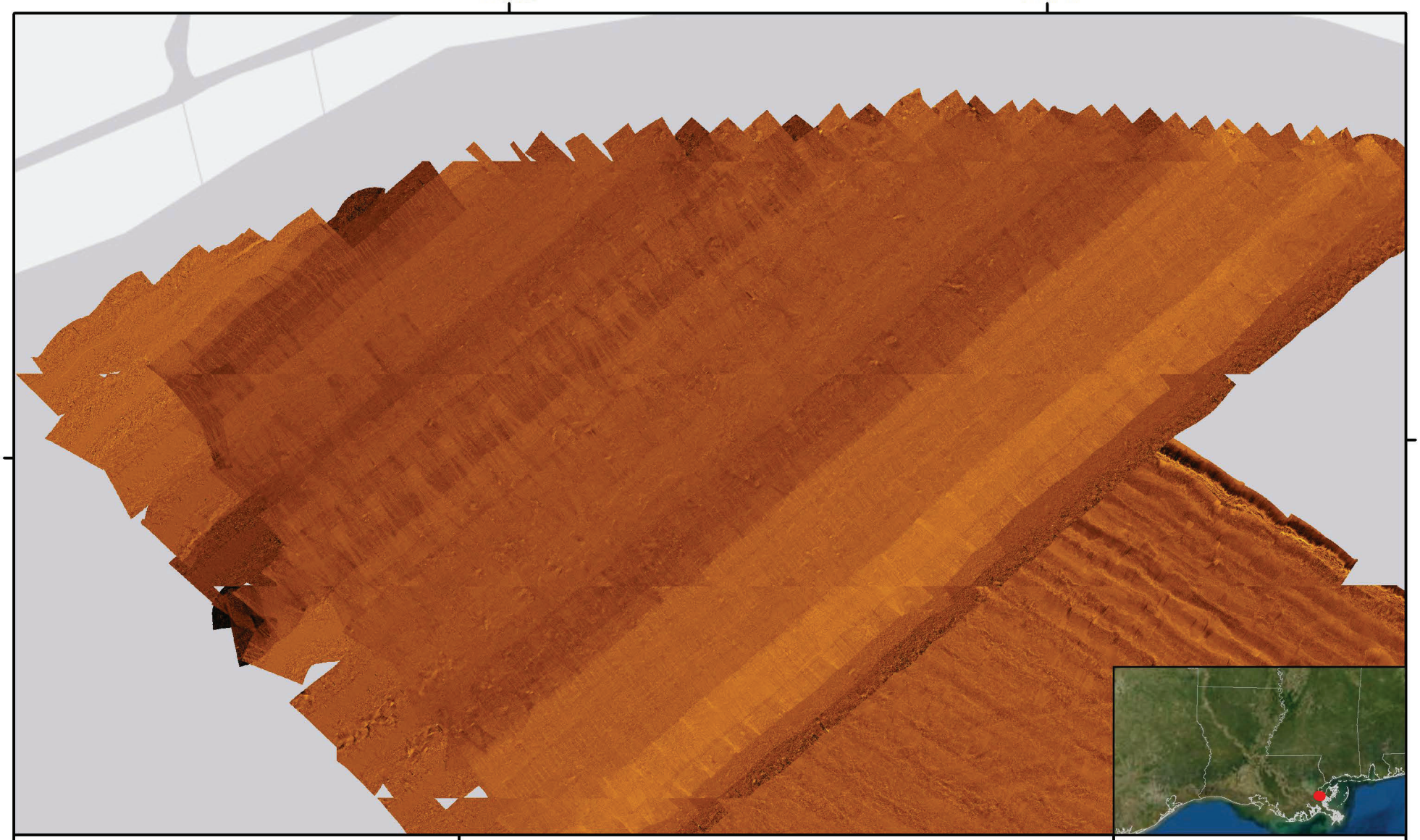
Sidescan Sonar Mosaic of the borrow area for the North Delacroix Marsh Creation and Terracing Project (BS-41), Lake Lery

N

0 300 600 900 1,200 1,500 Meters


89°50'30"W
89°50'0"W
89°49'30"W
89°49'0"W
89°48'30"W
89°48'0"W
Legend
Sidescan Sonar Contacts
Higher Reflectivity
Lower Reflectivity
Sidescan Sonar Mosaic of the borrow area for the North Delacroix Marsh Creation and Terracing Project (BS-41), Lake Lery (Annotated)
N
0
300
600
900
1,200
1,500 Meters

89°50'0"W 89°49'30"W



Legend

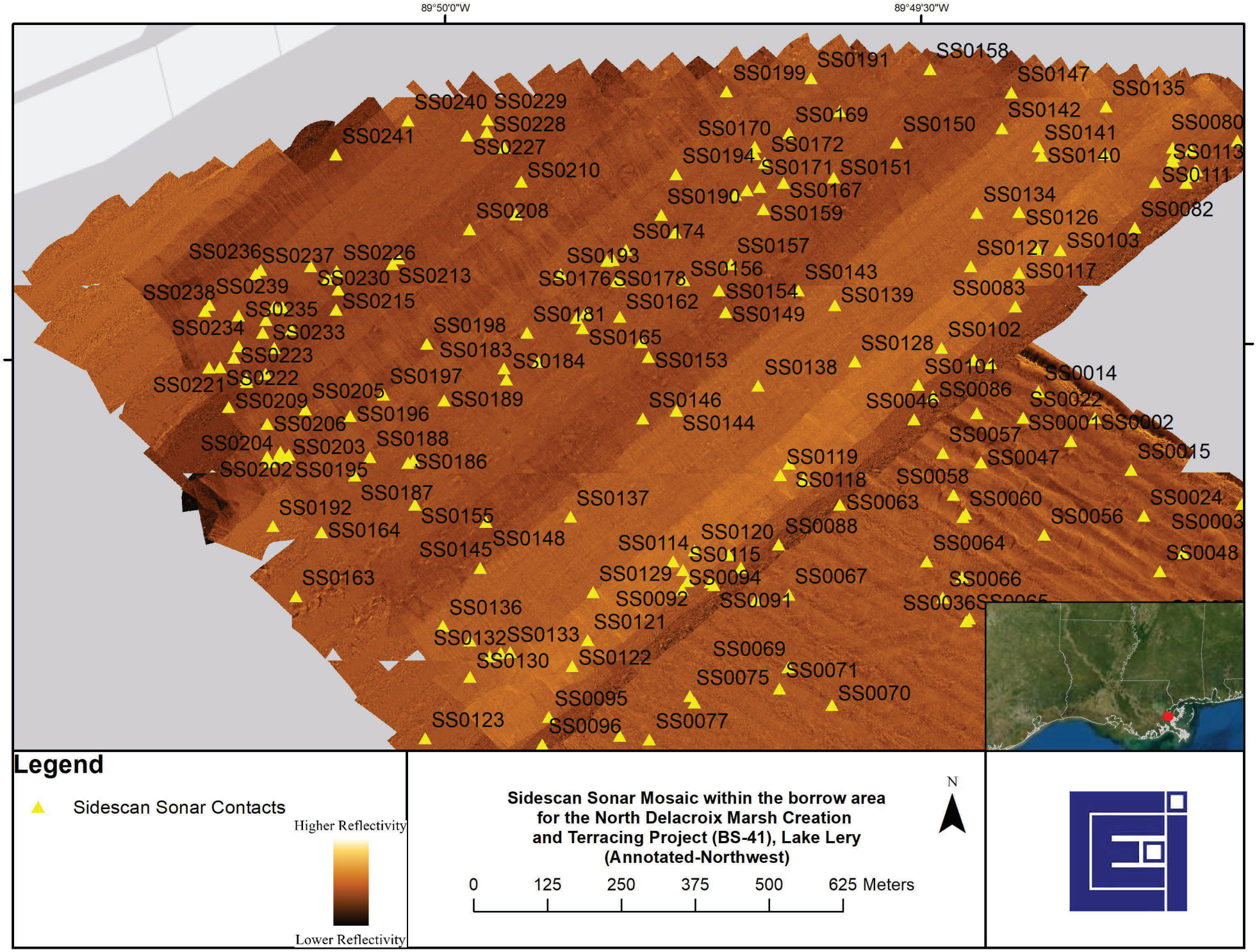
Higher Reflectivity

Lower Reflectivity

Sidescan Sonar Mosaic of the borrow area for the North Delacroix Marsh Creation and Terracing Project (BS-41), Lake Lery (Northwest)

N

0 125 250 375 500 625 Meters



Legend

- Sidescan Sonar Contacts

Higher Reflectivity

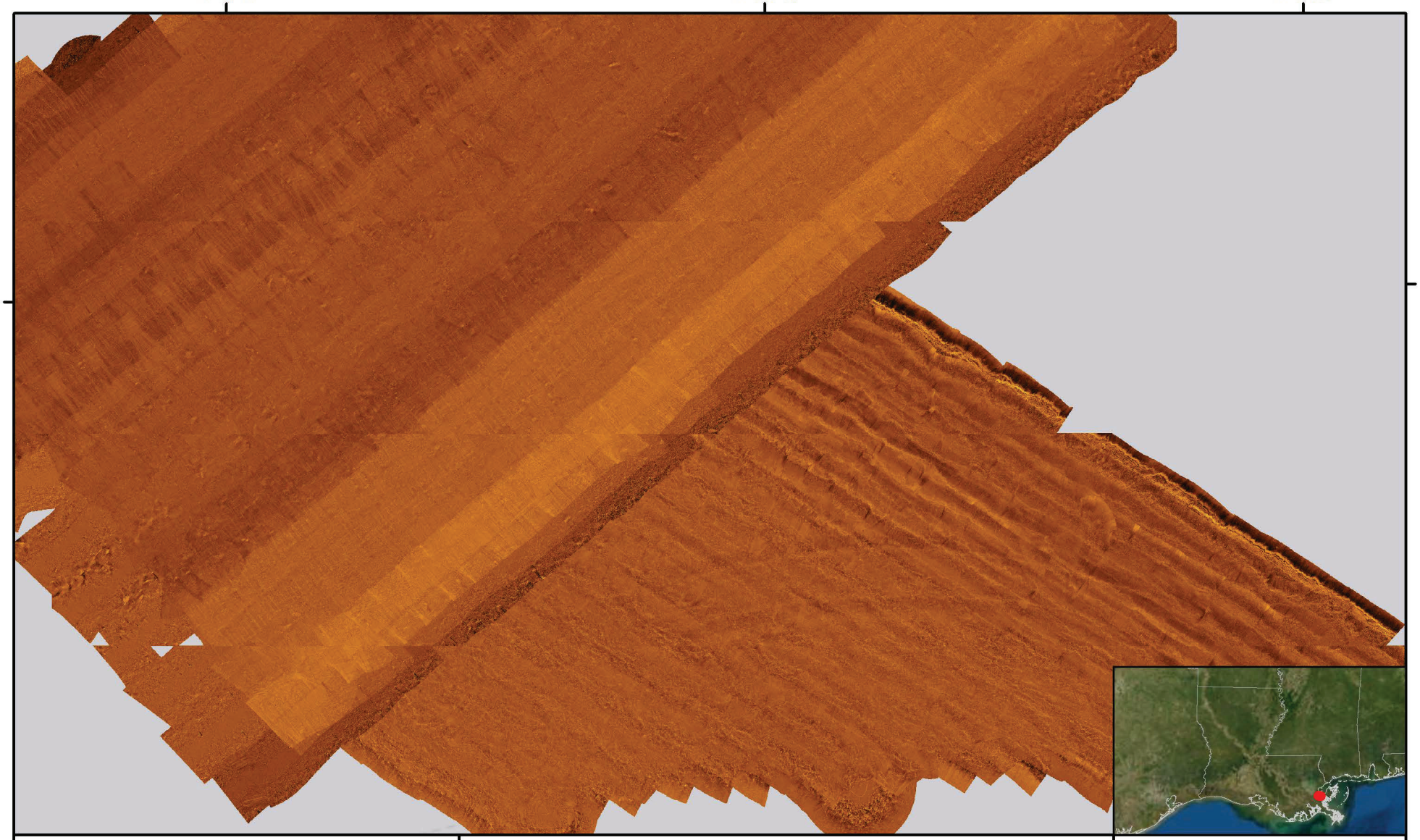
Lower Reflectivity

Sidescan Sonar Mosaic within the borrow area for the North Delacroix Marsh Creation and Terracing Project (BS-41), Lake Lery (Annotated-Northwest)

N

0 125 250 375 500 625 Meters

89°50'0"W 89°49'30"W 89°49'0"W



Legend

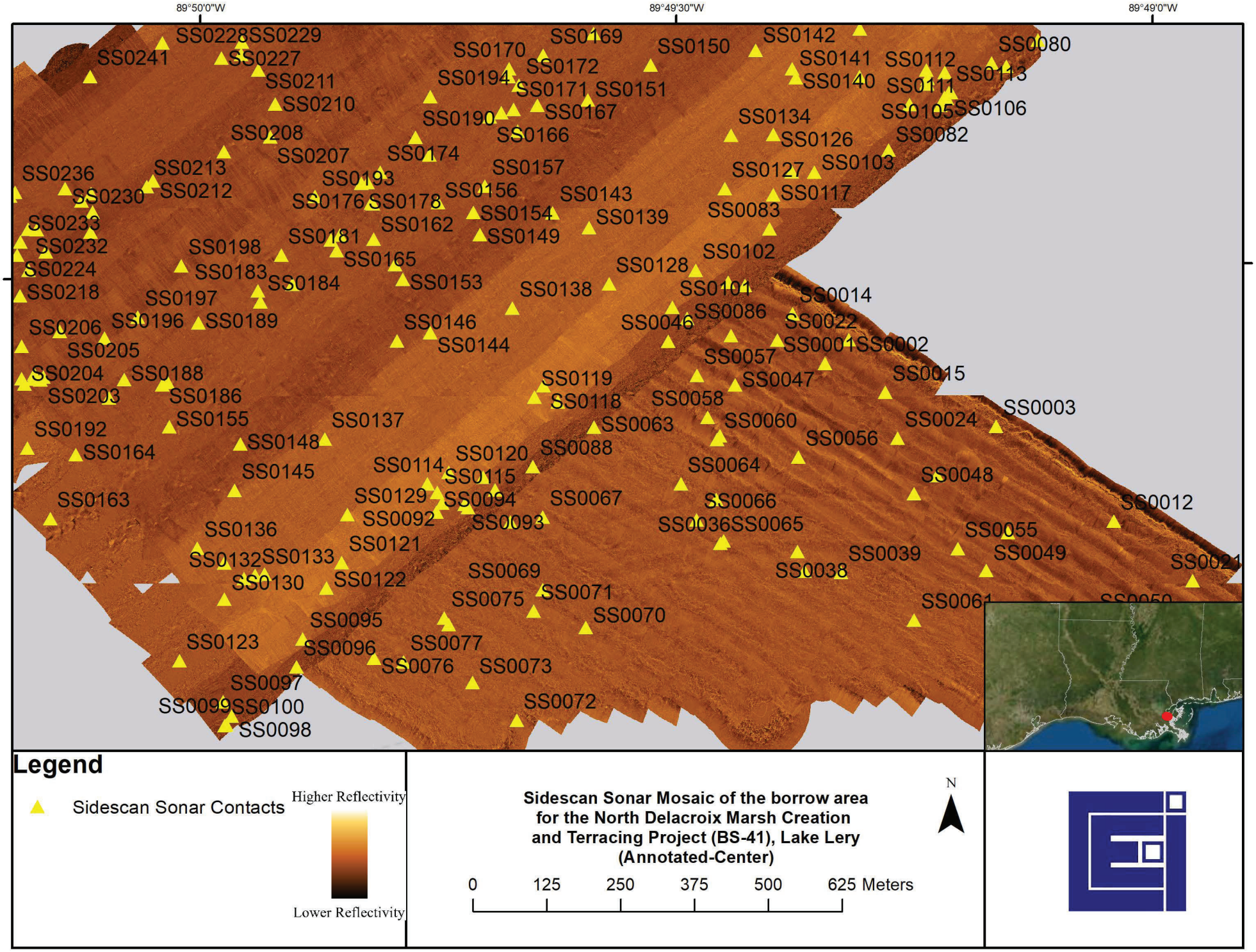
Higher Reflectivity

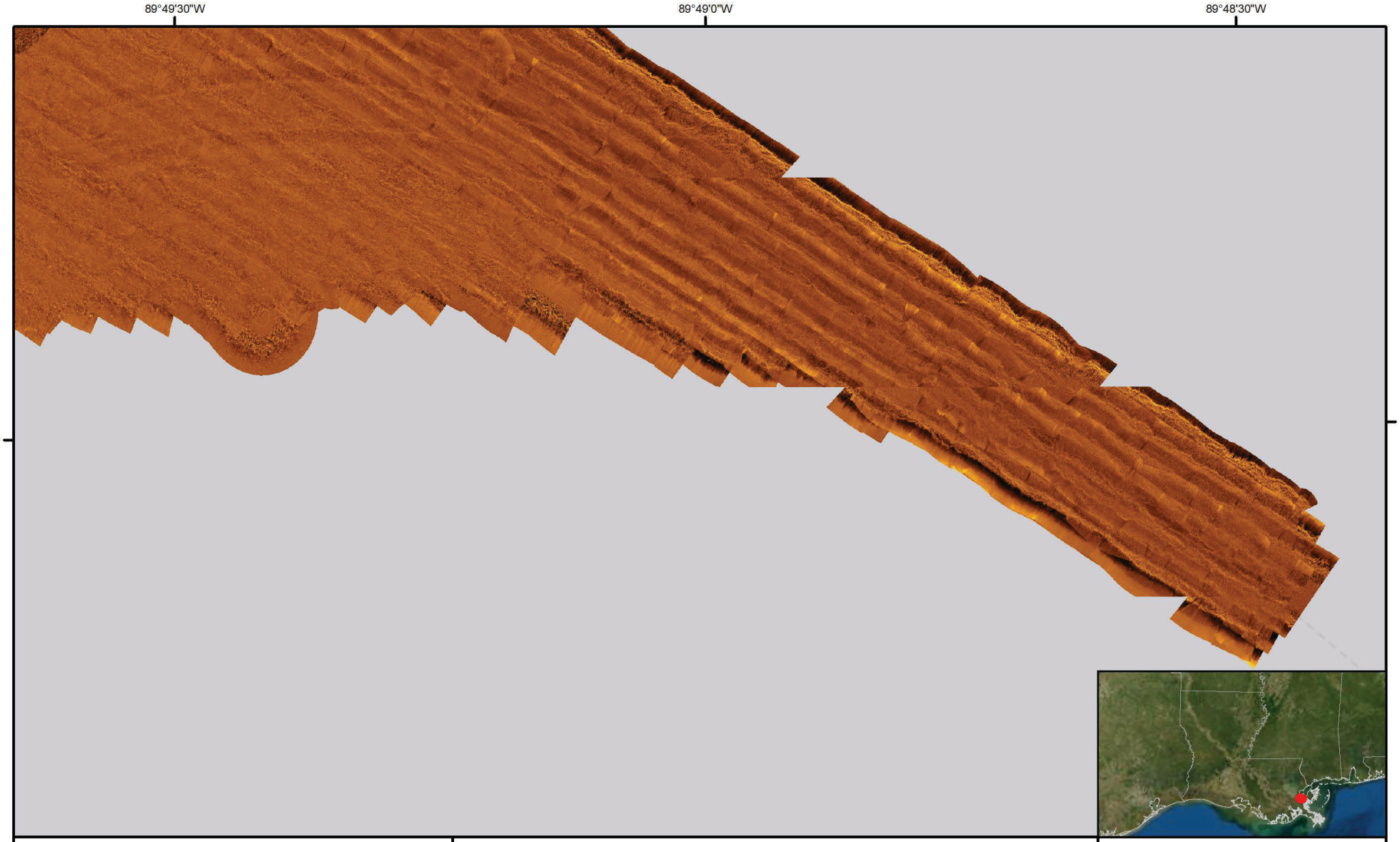
Lower Reflectivity

Sidescan Sonar Mosaic of the borrow area for the North Delacroix Marsh Creation and Terracing Project (BS-41), Lake Lery (Center)

N

0 125 250 375 500 625 Meters


89°50'0"W
89°49'30"W
89°49'0"W
SS0228
SS0229
SS0241
SS0227
SS0211
SS0210
SS0208
SS0207
SS0236
SS0213
SS0230
SS0212
SS0233
SS0232
SS0224
SS0218
SS0197
SS0206
SS0196
SS0189
SS0205
SS0204
SS0188
SS0203
SS0186
SS0192
SS0155
SS0164
SS0148
SS0145
SS0163
SS0136
SS0132
SS0133
SS0130
SS0123
SS0097
SS0099
SS0100
SS0098
SS0170
SS0169
SS0172
SS0194
SS0171
SS0151
SS0190
SS0167
SS0166
SS0174
SS0157
SS0193
SS0156
SS0176
SS0178
SS0154
SS0162
SS0149
SS0181
SS0198
SS0165
SS0183
SS0184
SS0153
SS0138
SS0146
SS0144
SS0119
SS0118
SS0137
SS0120
SS0088
SS0114
SS0115
SS0129
SS0094
SS0067
SS0092
SS0093
SS0121
SS0122
SS0069
SS0071
SS0075
SS0095
SS0096
SS0077
SS0076
SS0073
SS0072
SS0070
SS0150
SS0142
SS0141
SS0112
SS0080
SS0140
SS0111
SS0113
SS0105
SS0106
SS0134
SS0126
SS0082
SS0127
SS0103
SS0117
SS0083
SS0139
SS0102
SS0128
SS0101
SS0014
SS0086
SS0046
SS0022
SS0001
SS0002
SS0057
SS0047
SS0015
SS0058
SS0003
SS0063
SS0060
SS0024
SS0056
SS0064
SS0048
SS0066
SS0012
SS0036
SS0065
SS0055
SS0039
SS0049
SS0038
SS0021
SS0061
SS0050
Legend
Sidescan Sonar Contacts
Higher Reflectivity
Lower Reflectivity
Sidescan Sonar Mosaic of the borrow area for the North Delacroix Marsh Creation and Terracing Project (BS-41), Lake Lery (Annotated-Center)
N
0
125
250
375
500
625 Meters

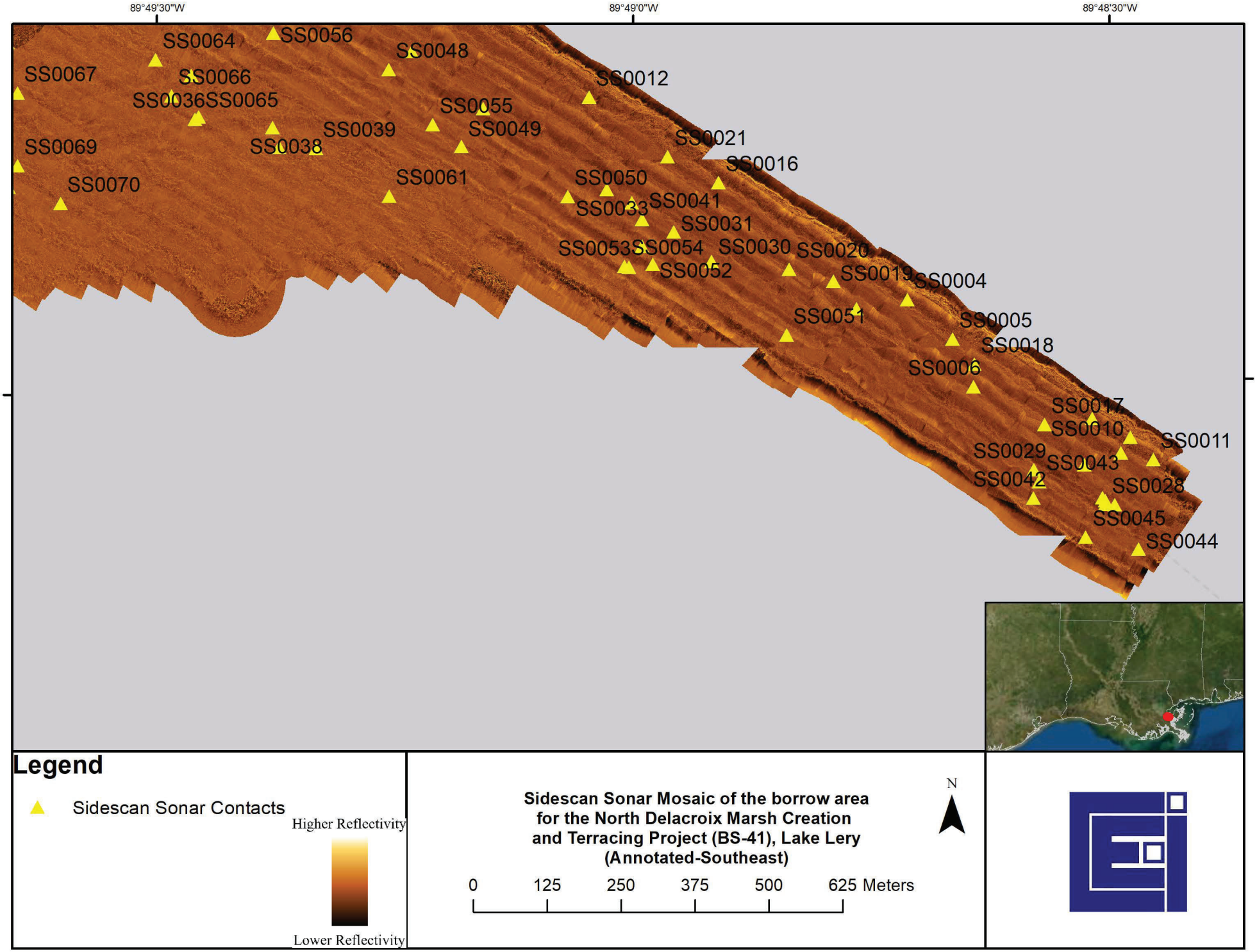


Legend

Sidescan Sonar Mosaic of the borrow area for the North Delacroix Marsh Creation and Terracing Project (BS-41), Lake Lery (Southeast)

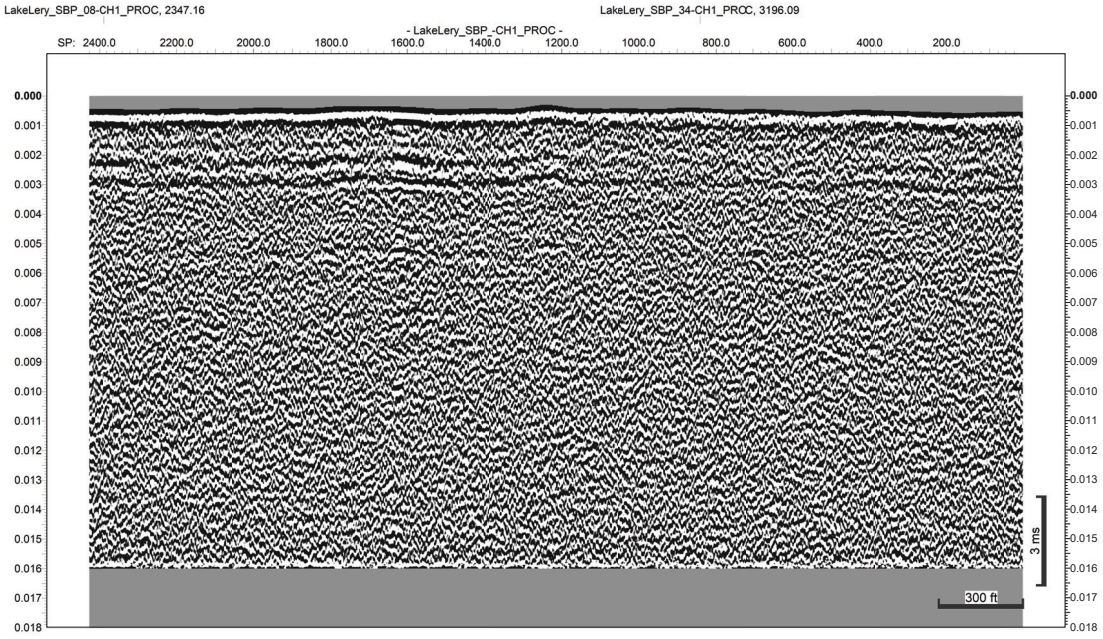
N

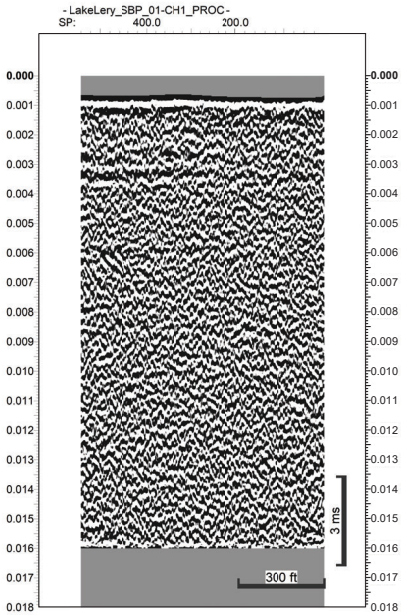
0 125 250 375 500 625 Meters


89°49'30"W
89°49'0"W
89°48'30"W
SS0064
SS0056
SS0048
SS0067
SS0066
SS0012
SS0036
SS0065
SS0055
SS0039
SS0049
SS0021
SS0069
SS0038
SS0016
SS0061
SS0050
SS0070
SS0041
SS0033
SS0031
SS0053
SS0054
SS0030
SS0020
SS0052
SS0019
SS0004
SS0051
SS0005
SS0018
SS0006
SS0017
SS0010
SS0011
SS0029
SS0043
SS0042
SS0028
SS0045
SS0044
Legend
Sidescan Sonar Contacts
Higher Reflectivity
Lower Reflectivity
Sidescan Sonar Mosaic of the borrow area for the North Delacroix Marsh Creation and Terracing Project (BS-41), Lake Lery (Annotated-Southeast)
N
0
125
250
375
500
625 Meters

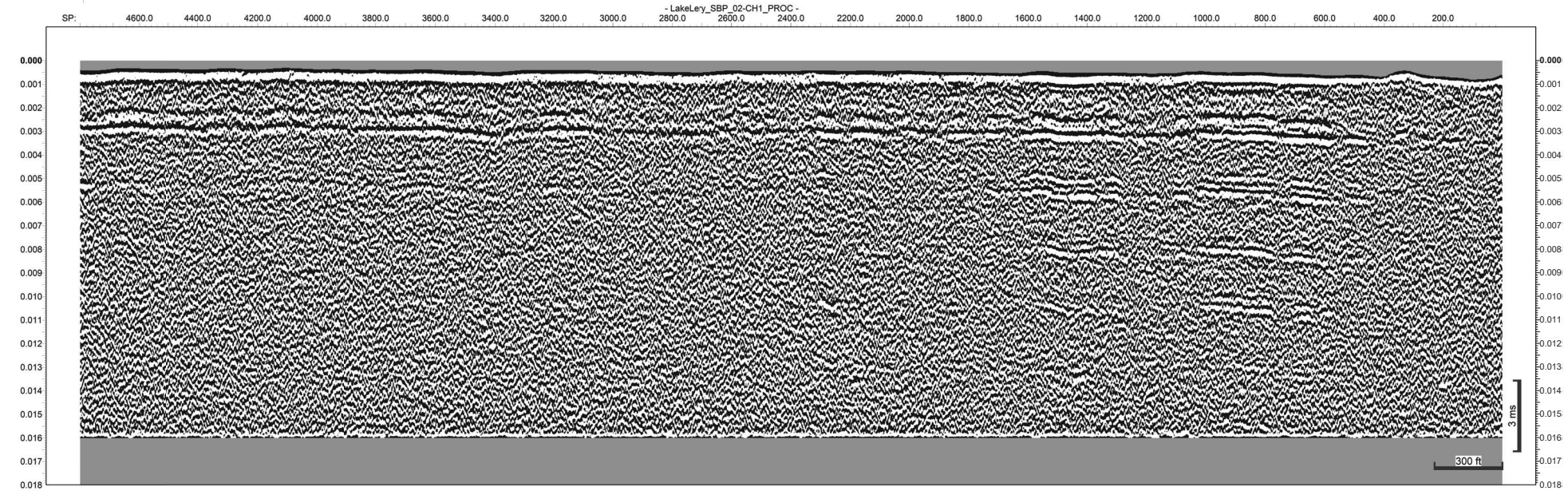
APPENDIX C

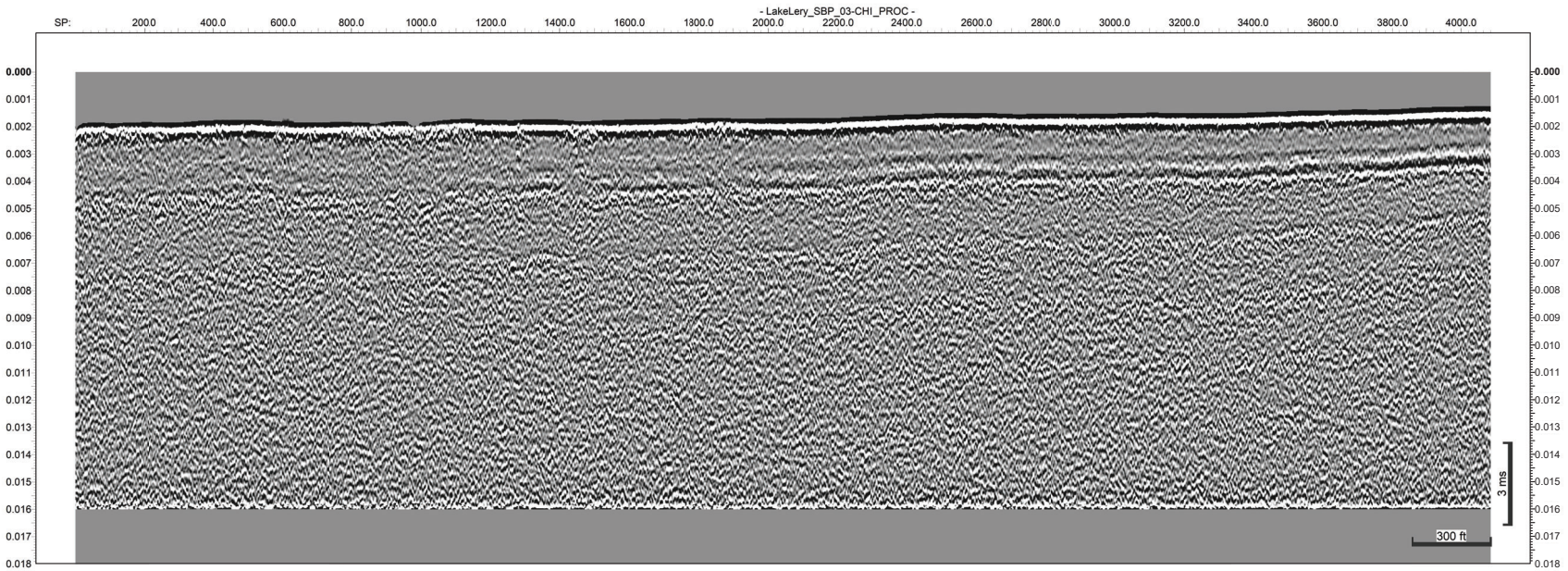
SUBBOTTOM PROFILES

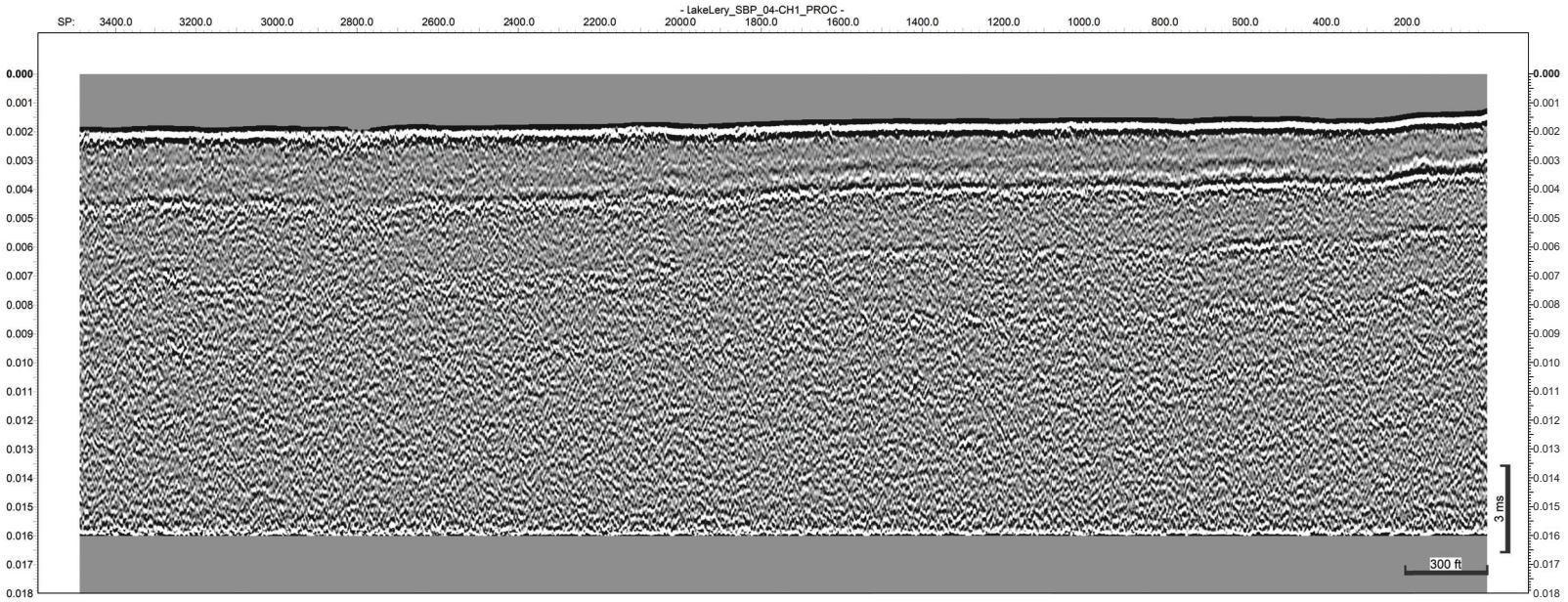

LakeLery_SBP_08-CH1_PROC, 2347.16
LakeLery_SBP_34-CH1_PROC, 3196.09
- LakeLery_SBP_-CH1_PROC -
SP: 2400.0
2200.0
2000.0
1800.0
1600.0
1400.0
1200.0
1000.0
800.0
600.0
400.0
200.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
300 ft

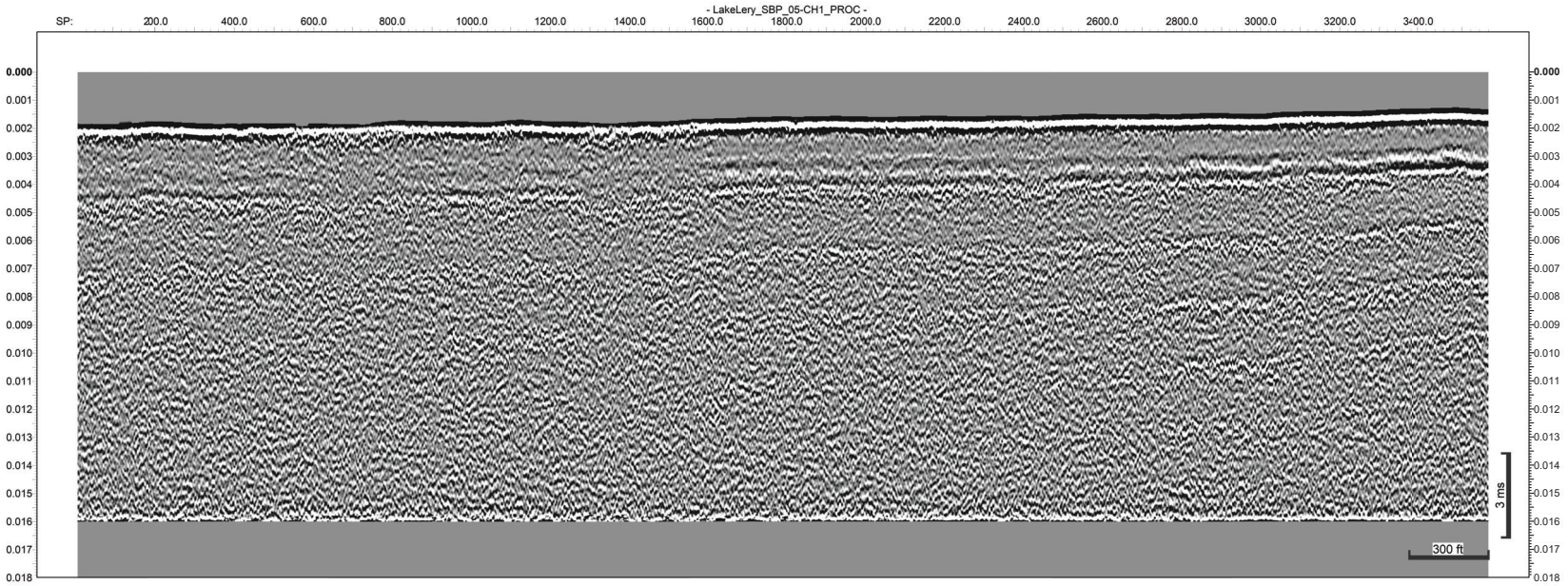

- LakeLery_SBP_01-CH1_PROC-
SP:
400.0
200.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
300 ft

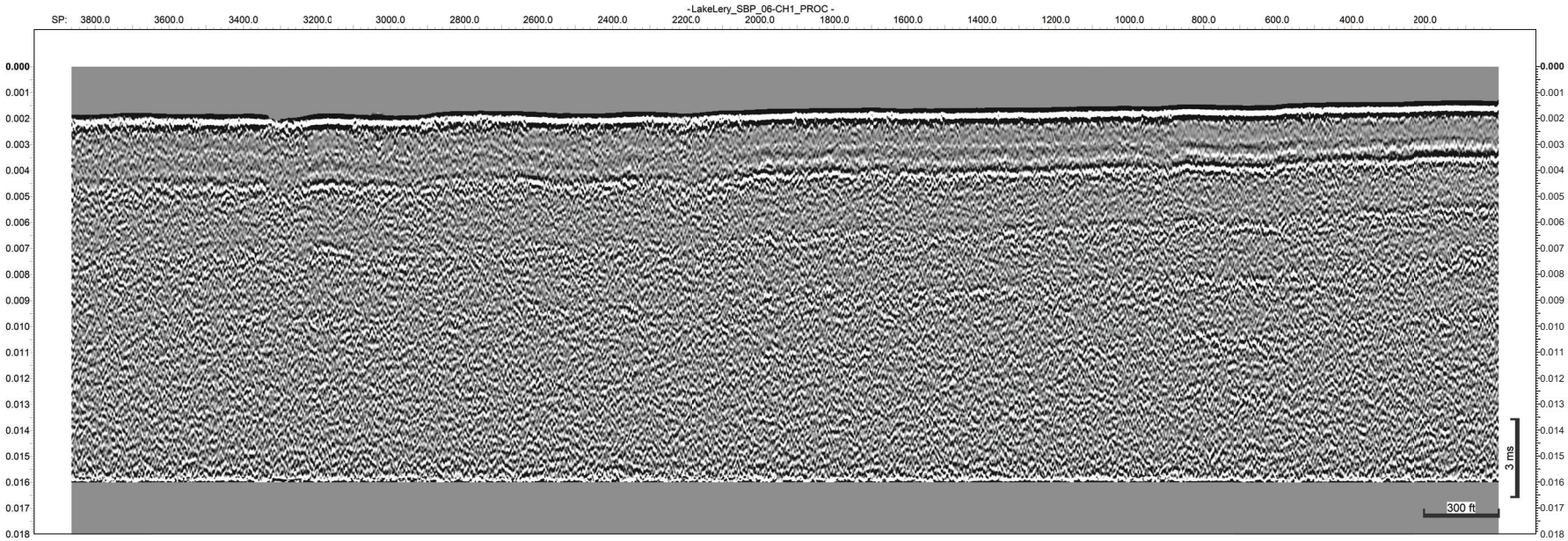
LakeLery_SBP_08-CH1_PROC, 2734.20

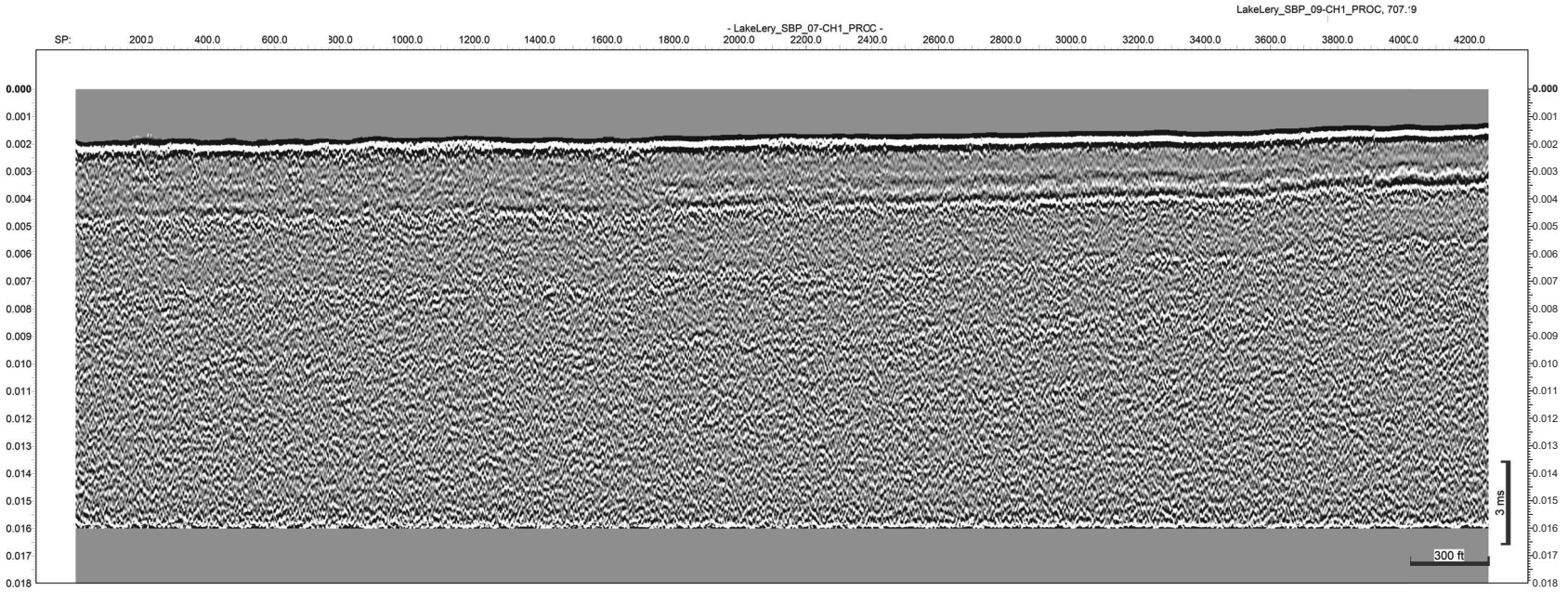


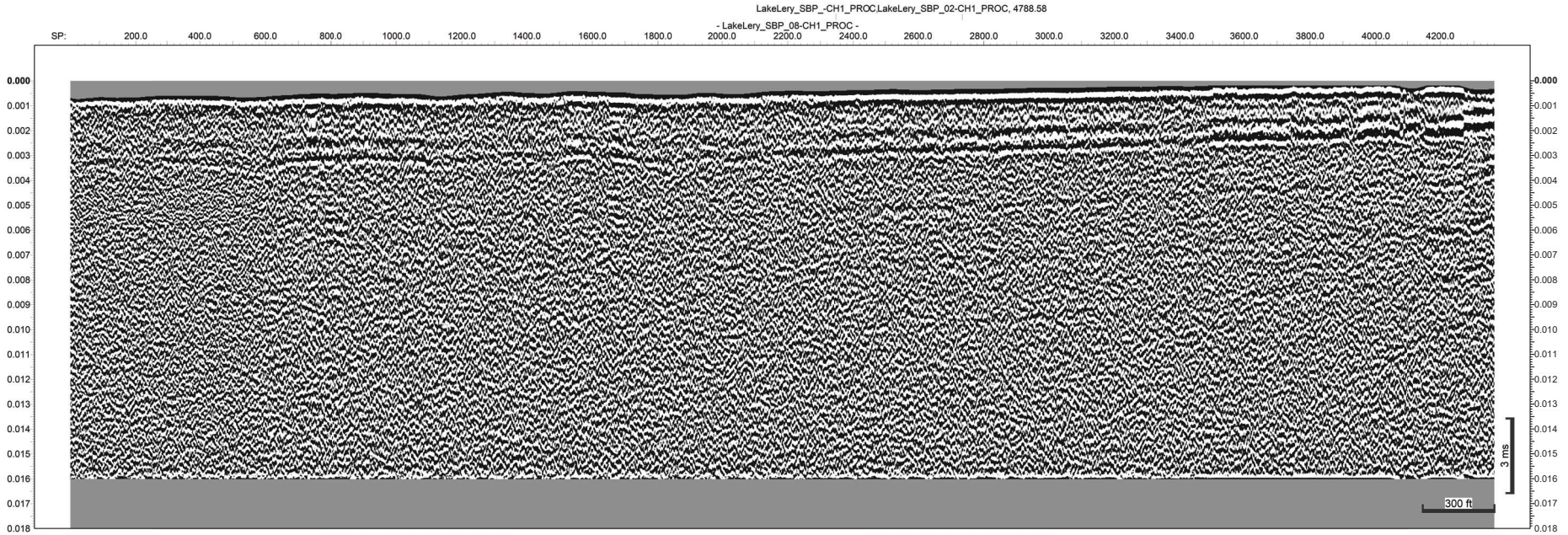

- LakeLery_SBP_03-CHI_PROC -
SP:
200.0
400.0
600.0
800.0
1000.0
1200.0
1400.0
1600.0
1800.0
2000.0
2200.0
2400.0
2600.0
2800.0
3000.0
3200.0
3400.0
3600.0
3800.0
4000.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
300 ft

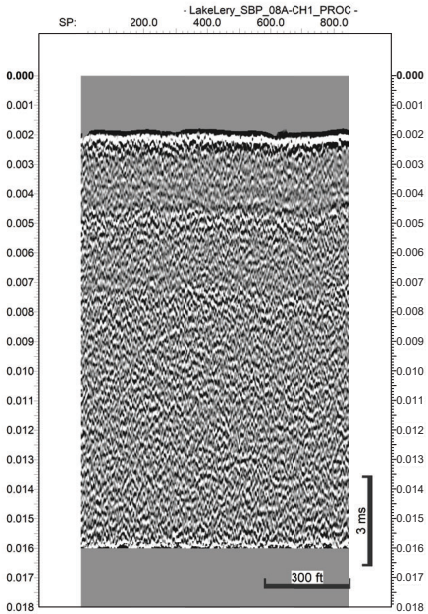

- LakeLery_SBP_04-CH1_PROC -
SP:
3400.0
3200.0
3000.0
2800.0
2600.0
2400.0
2200.0
2000.0
1800.0
1600.0
1400.0
1200.0
1000.0
800.0
600.0
400.0
200.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
300 ft

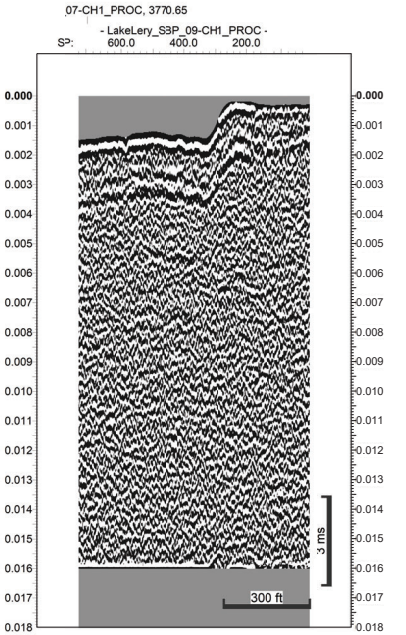

- LakeLery_SBP_05-CH1_PROC -
SP:
200.0
400.0
600.0
800.0
1000.0
1200.0
1400.0
1600.0
1800.0
2000.0
2200.0
2400.0
2600.0
2800.0
3000.0
3200.0
3400.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
300 ft

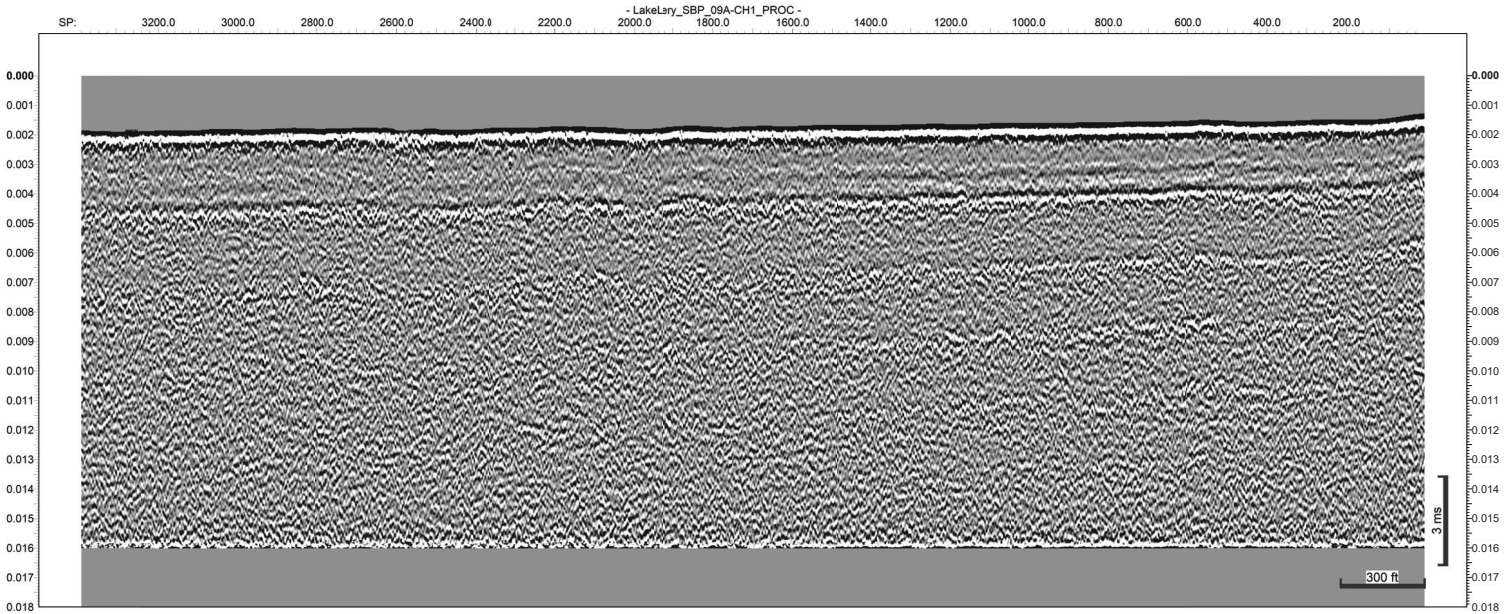

- LakeLery_SBP_06-CH1_PROC -
SP: 3800.0 3600.0 3400.0 3200.0 3000.0 2800.0 2600.0 2400.0 2200.0 2000.0 1800.0 1600.0 1400.0 1200.0 1000.0 800.0 600.0 400.0 200.0
0.000 0.001 0.002 0.003 0.004 0.005 0.006 0.007 0.008 0.009 0.010 0.011 0.012 0.013 0.014 0.015 0.016 0.017 0.018
3 ms
300 ft

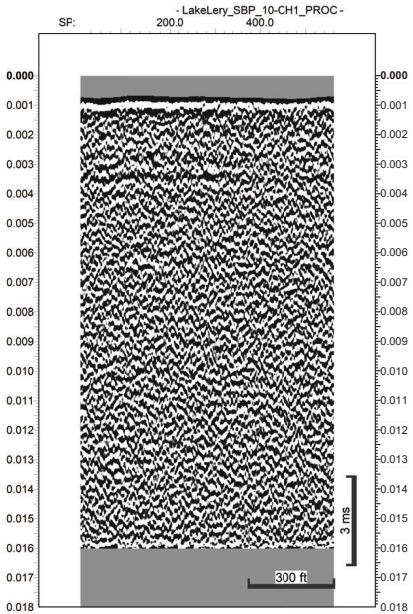

LakeLery_SBP_09-CH1_PROC, 707.:9
- LakeLery_SBP_07-CH1_PROC -
SP:
200.0
400.0
600.0
800.0
1000.0
1200.0
1400.0
1600.0
1800.0
2000.0
2200.0
2400.0
2600.0
2800.0
3000.0
3200.0
3400.0
3600.0
3800.0
4000.0
4200.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
300 ft

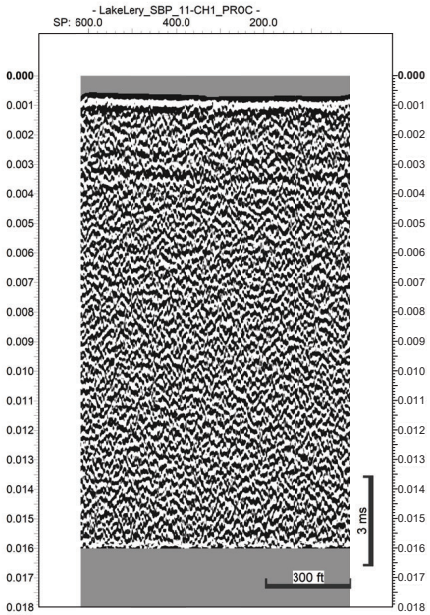

LakeLery_SBP_-CH1_PROC.LakeLery_SBP_02-CH1_PROC, 4788.58
- LakeLery_SBP_08-CH1_PROC -
SP:
200.0
400.0
600.0
800.0
1000.0
1200.0
1400.0
1600.0
1800.0
2000.0
2200.0
2400.0
2600.0
2800.0
3000.0
3200.0
3400.0
3600.0
3800.0
4000.0
4200.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
300 ft

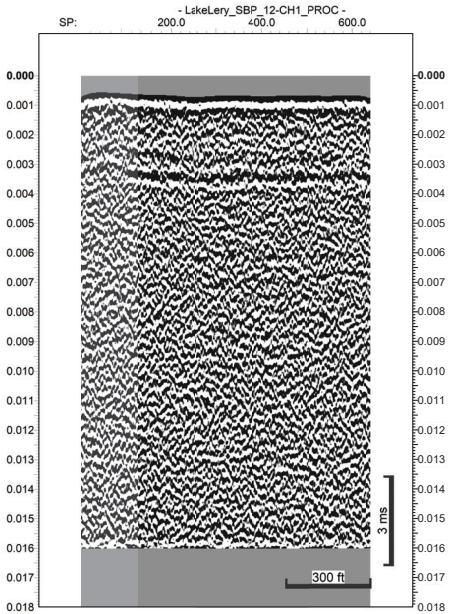

LakeLery_SBP_08A-CH1_PROC -
SP:
200.0
400.0
600.0
800.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
300 ft

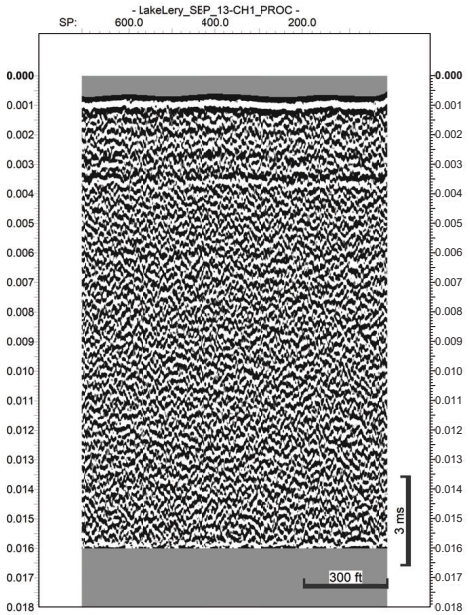

07-CH1_PROC, 3770.65
- LakeLery_S3P_09-CH1_PROC -
SP:
600.0
400.0
200.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
300 ft

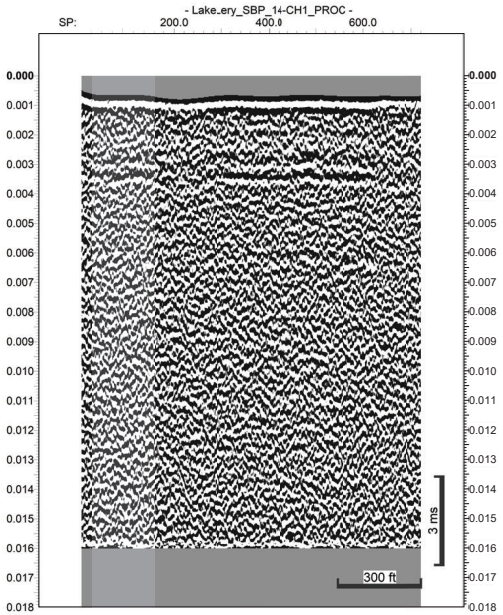

- LakeLary_SBP_09A-CH1_PROC -
SP:
3200.0
3000.0
2800.0
2600.0
2400.0
2200.0
2000.0
1800.0
1600.0
1400.0
1200.0
1000.0
800.0
600.0
400.0
200.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
300 ft

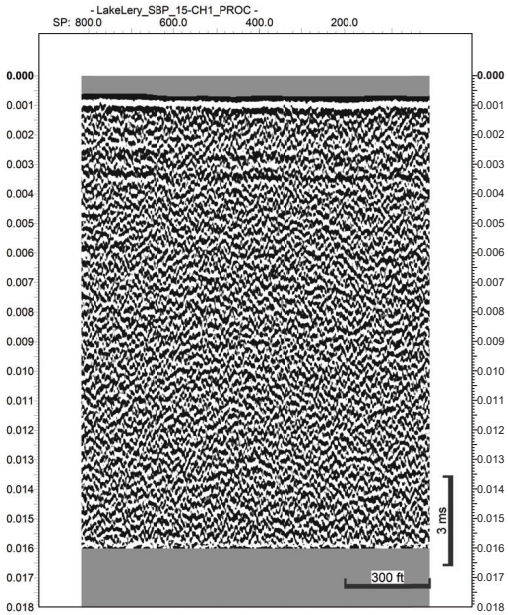

- LakeLery_SBP_10-CH1_PROC -
SP:
200.0
400.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
300 ft

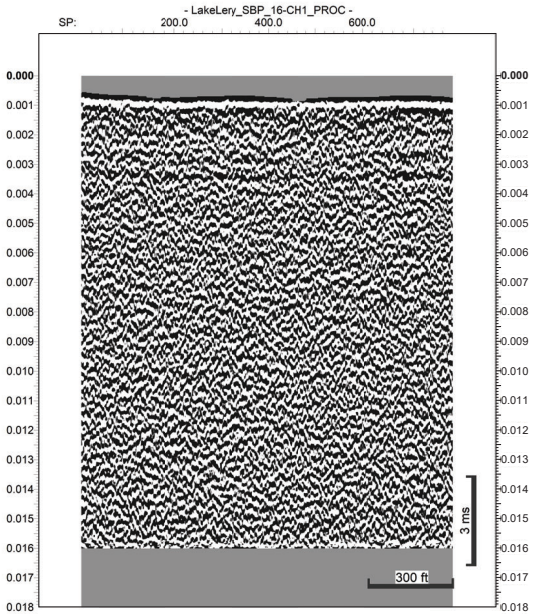

- LakeLery_SBP_11-CH1_PR0C -
SP: 800.0
400.0
200.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
300 ft

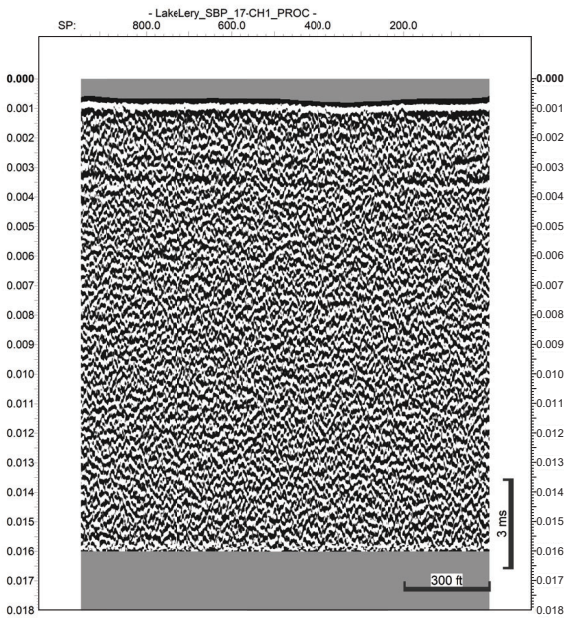

- LakeLery_SBP_12-CH1_PROC -
SP:
200.0
400.0
600.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
300 ft

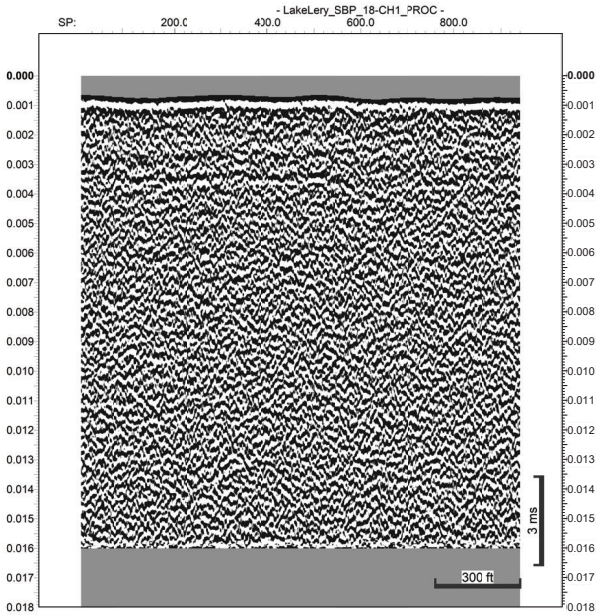

- LakeLery_SEP_13-CH1_PROC -
SP:
600.0
400.0
200.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
300 ft

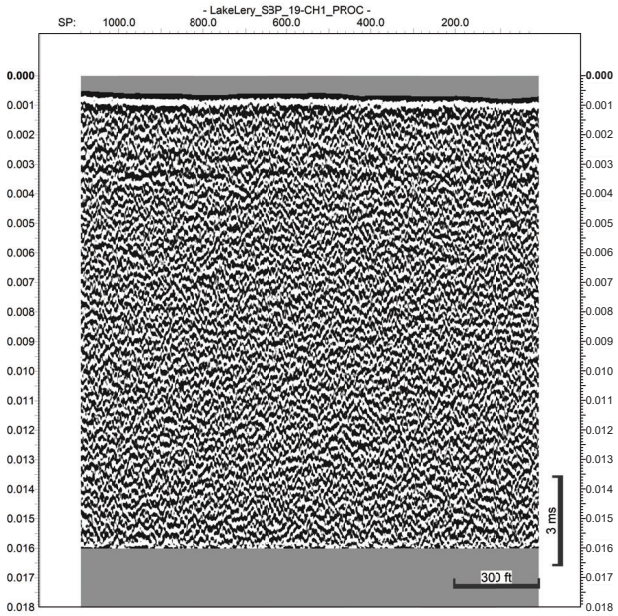

- Lake_ery_SBP_14-CH1_PROC -
SP:
200.0
400.0
600.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
300 ft

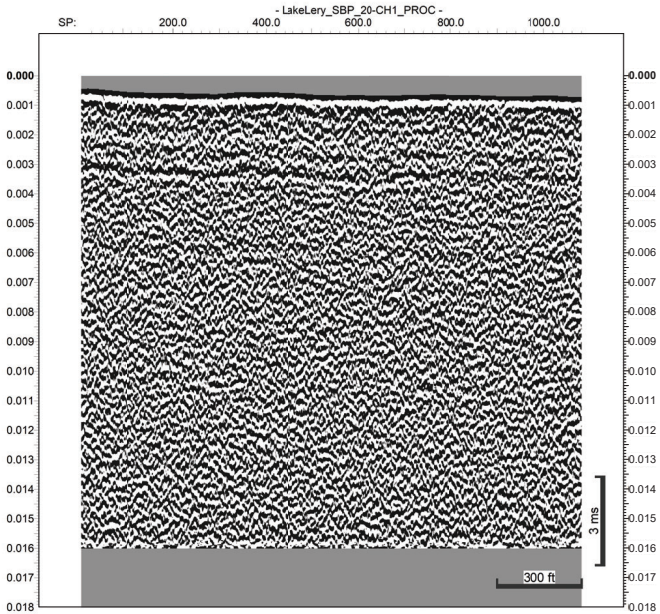

- LakeLery_S3P_15-CH1_PROC -
SP: 800.0
600.0
400.0
200.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
300 ft

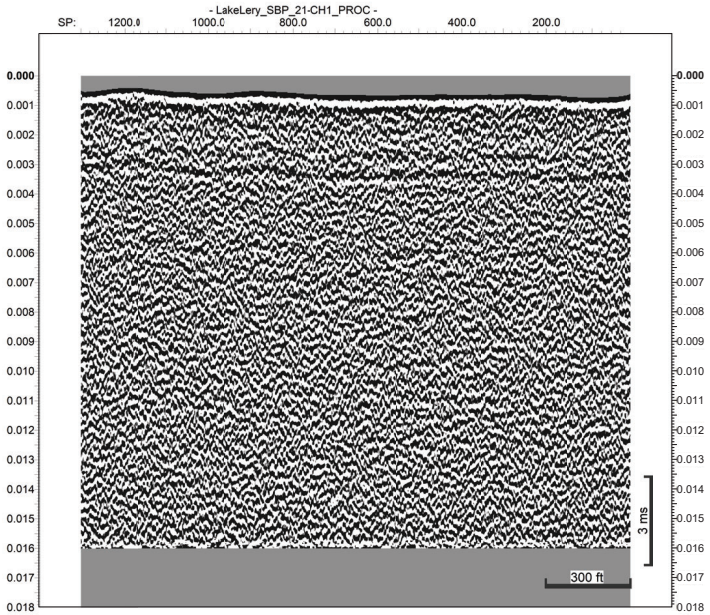

- LakeLery_SBP_16-CH1_PROC -
SP:
200.0
400.0
600.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
300 ft

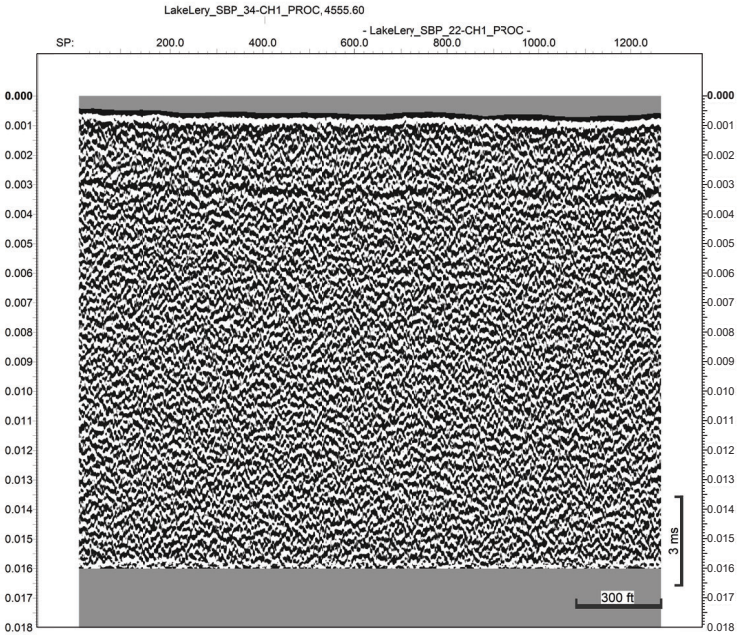

- LakeLery_SBP_17-CH1_PROC -
SP:
800.0
600.0
400.0
200.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
300 ft

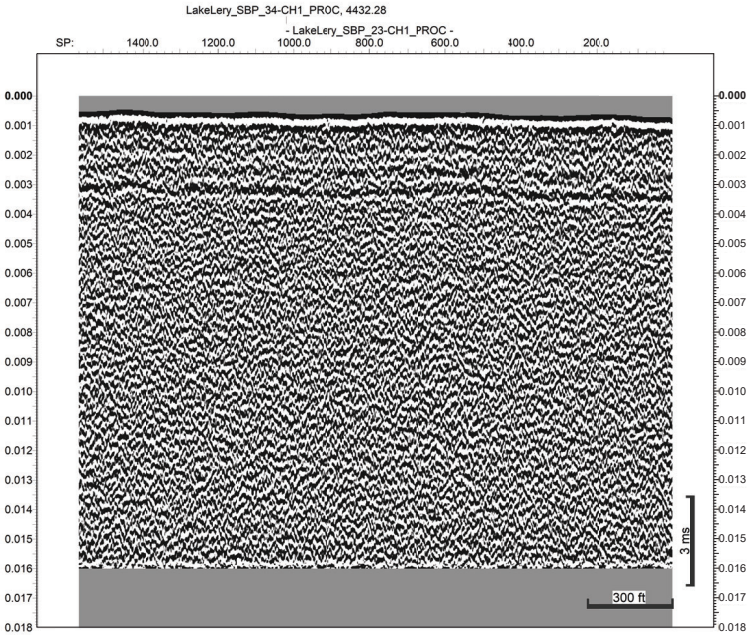

- LakeLery_SBP_18-CH1_?ROC -
SP:
200.0
400.0
600.0
800.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
300 ft

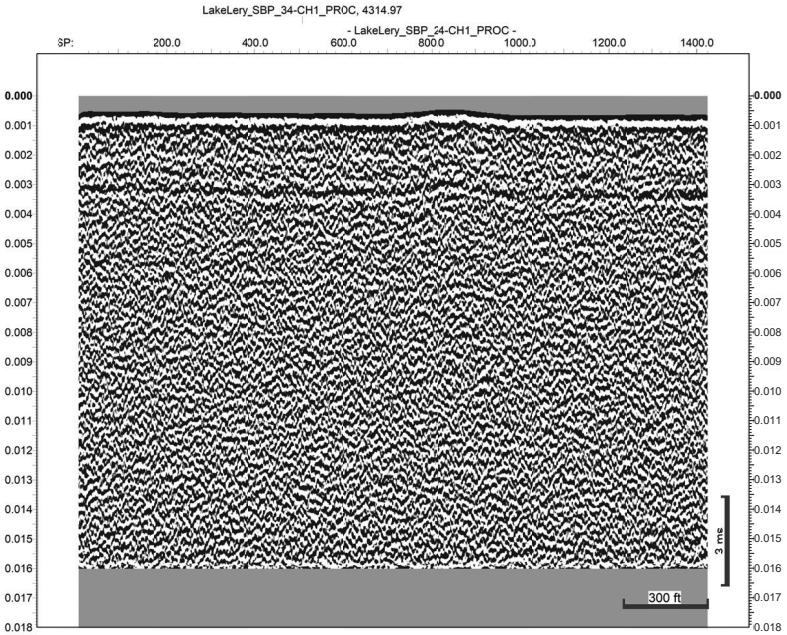

- LakeLery_S3P_19-CH1_PROC -
SP:
1000.0
800.0
600.0
400.0
200.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
300 ft

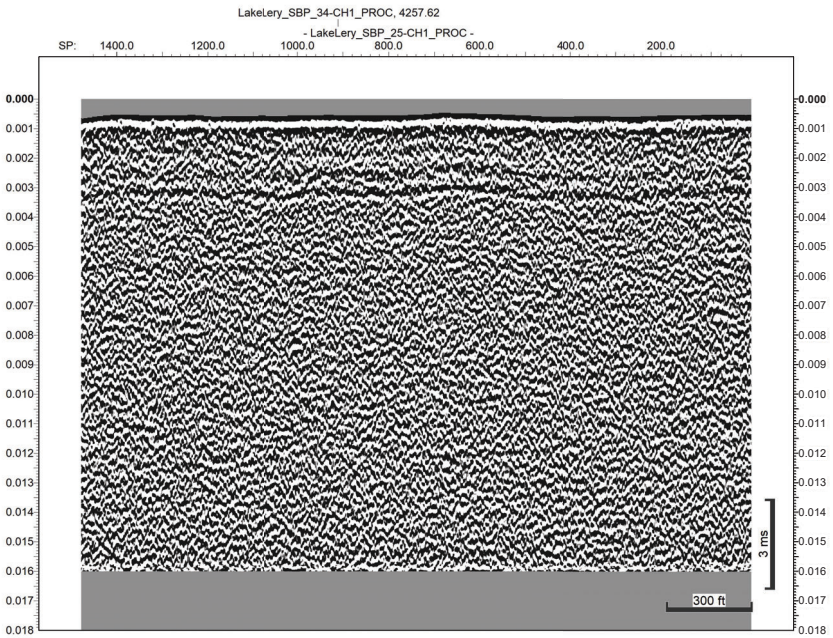

- LakeLery_SBP_20-CH1_PROC -
SP:
200.0
400.0
600.0
800.0
1000.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
300 ft

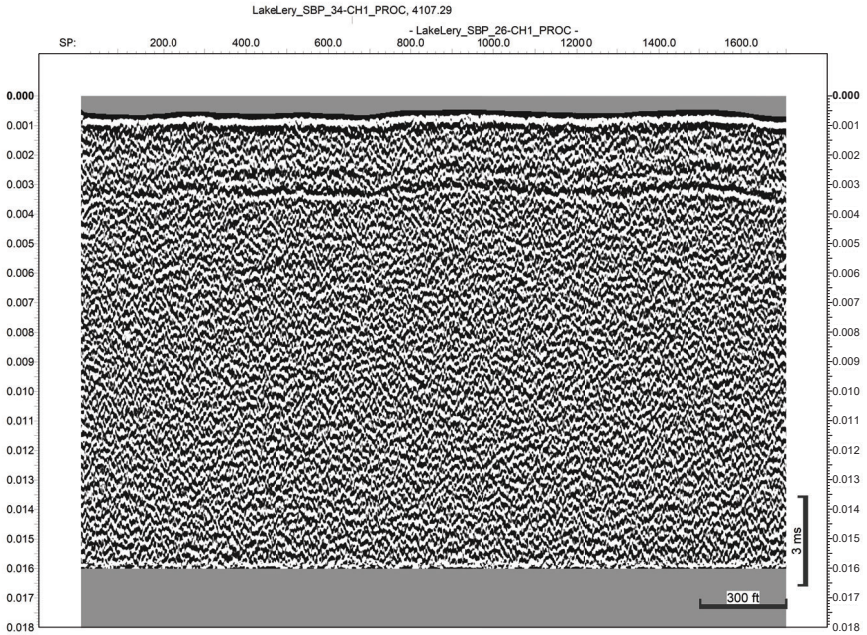

- LakeLery_SBP_21-CH1_PROC -
SP:
1200.0
1000.0
800.0
600.0
400.0
200.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
300 ft

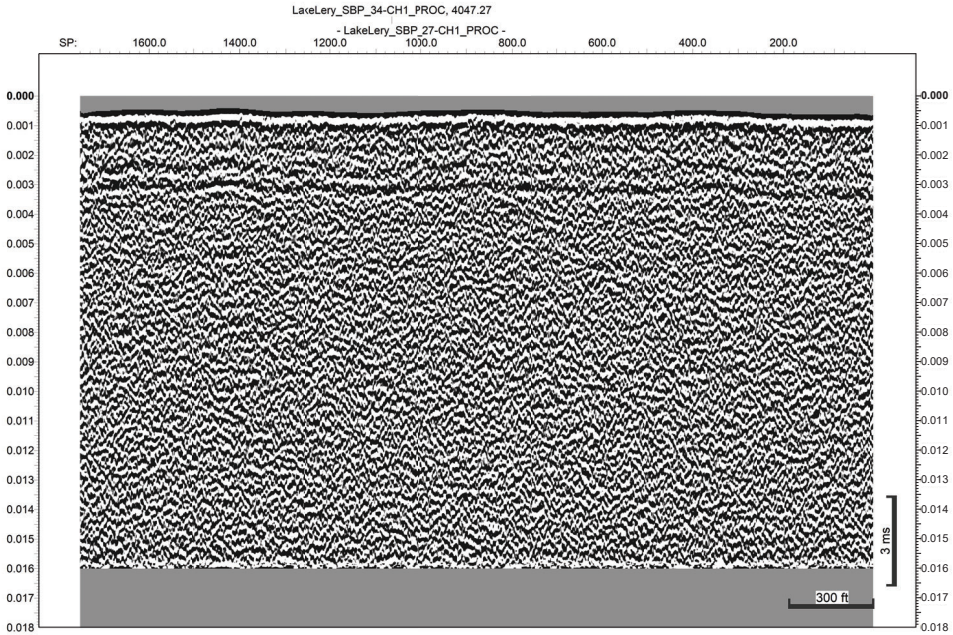

LakeLery_SBP_34-CH1_PROC, 4555.60
- LakeLery_SBP_22-CH1_PROC -
SP:
200.0
400.0
600.0
800.0
1000.0
1200.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
300 ft

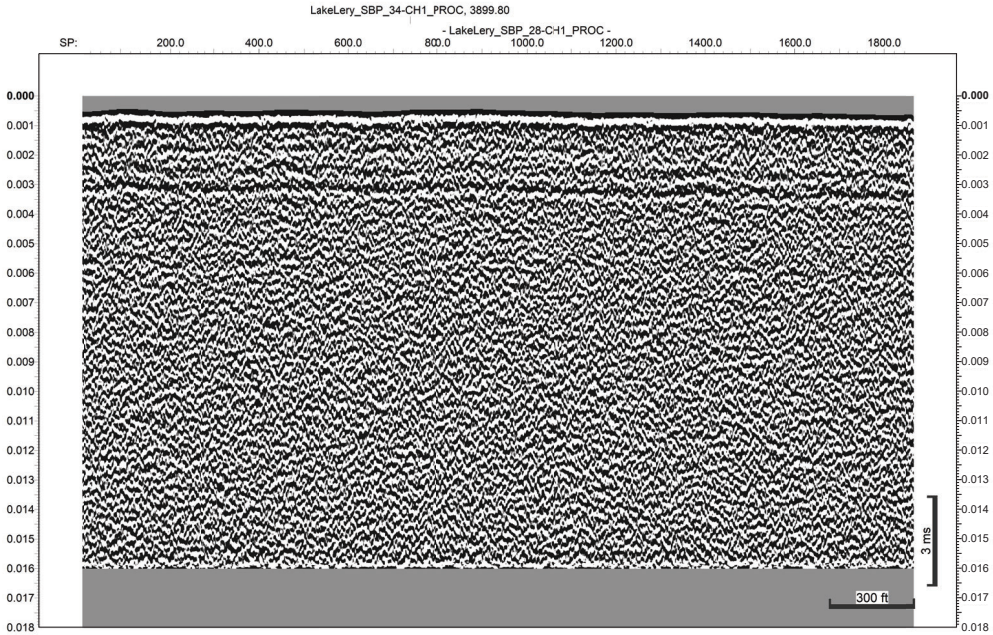

LakeLery_SBP_34-CH1_PR0C, 4432.28
- LakeLery_SBP_23-CH1_PROC -
SP:
1400.0
1200.0
1000.0
800.0
600.0
400.0
200.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
300 ft

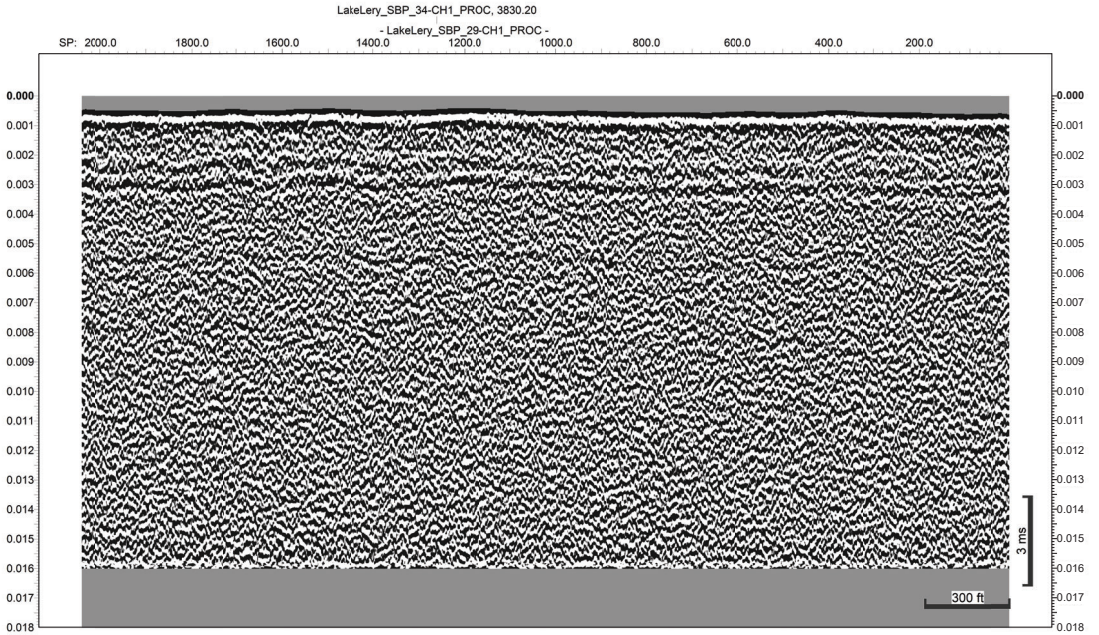

LakeLery_SBP_34-CH1_PR0C, 4314.97
- LakeLery_SBP_34-CH1_PROC -
SP:
200.0
400.0
600.0
800.0
1000.0
1200.0
1400.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
300 ft

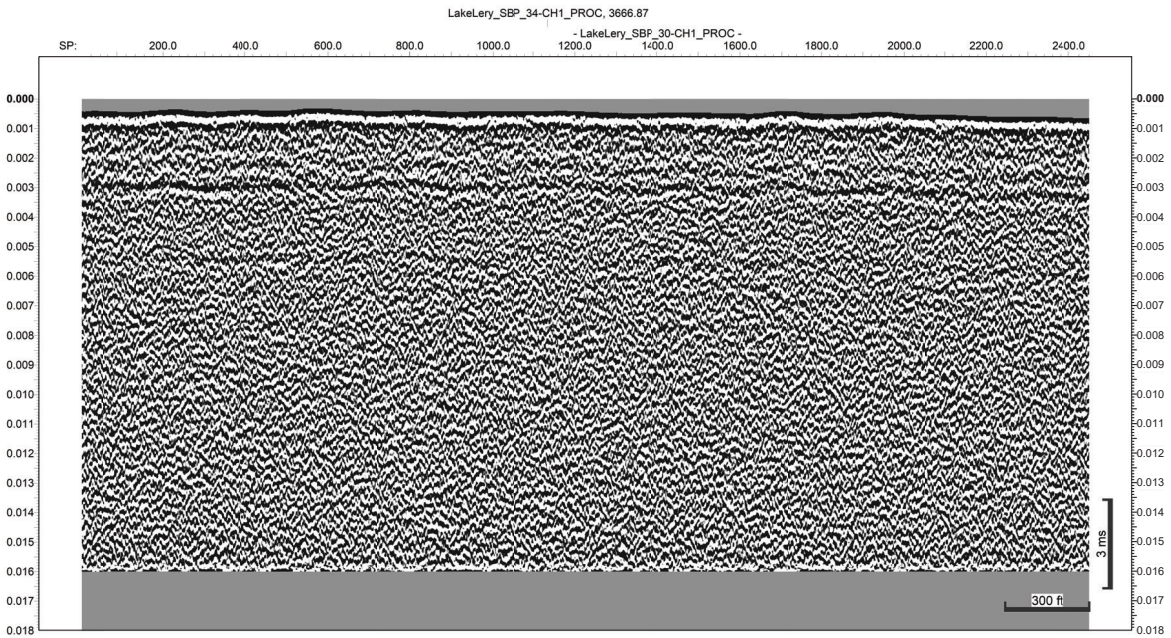

LakeLery_SBP_34-CH1_PROC, 4257.62
- LakeLery_SBP_25-CH1_PROC -
SP:
1400.0
1200.0
1000.0
800.0
600.0
400.0
200.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
300 ft

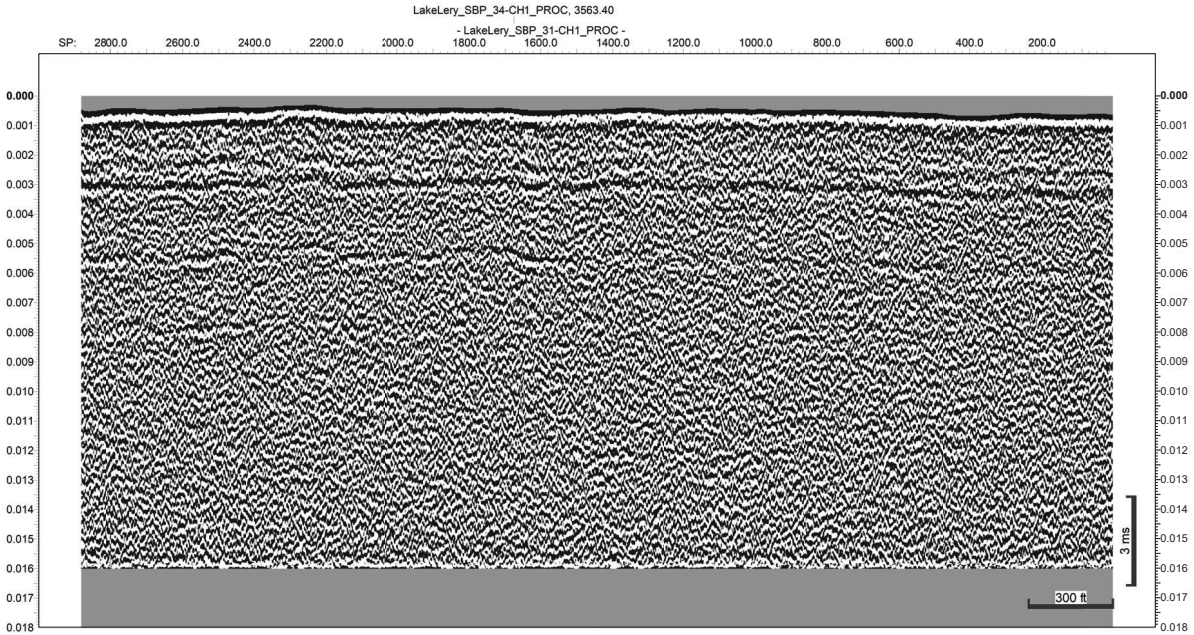

LakeLery_SBP_34-CH1_PROC, 4107.29
- LakeLery_SBP_26-CH1_PROC -
SP:
200.0
400.0
600.0
800.0
1000.0
1200.0
1400.0
1600.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
300 ft

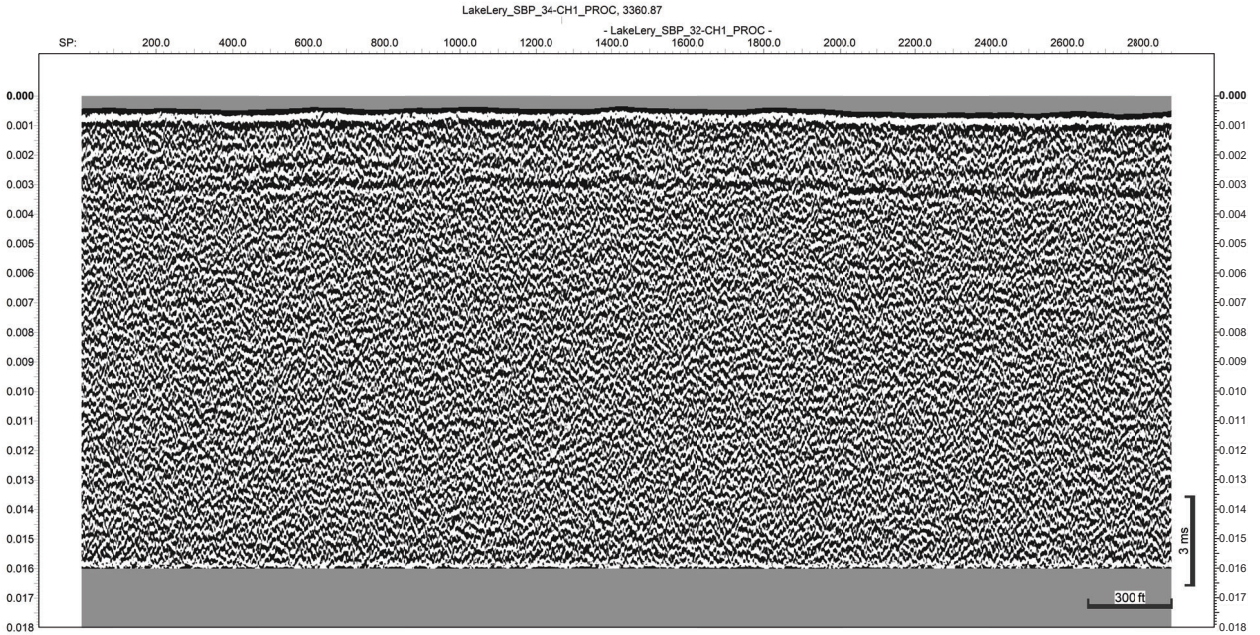

LakeLery_SBP_34-CH1_PROC, 4047.27
- LakeLery_SBP_27-CH1_PROC -
SP:
1600.0
1400.0
1200.0
1000.0
800.0
600.0
400.0
200.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
300 ft

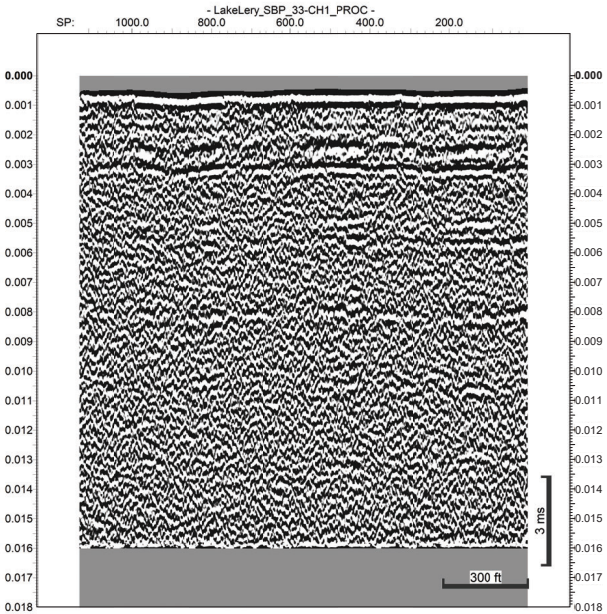

LakeLery_SBP_34-CH1_PROC, 3899.80
- LakeLery_SBP_28-CH1_PROC -
SP:
200.0
400.0
600.0
800.0
1000.0
1200.0
1400.0
1600.0
1800.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
300 ft

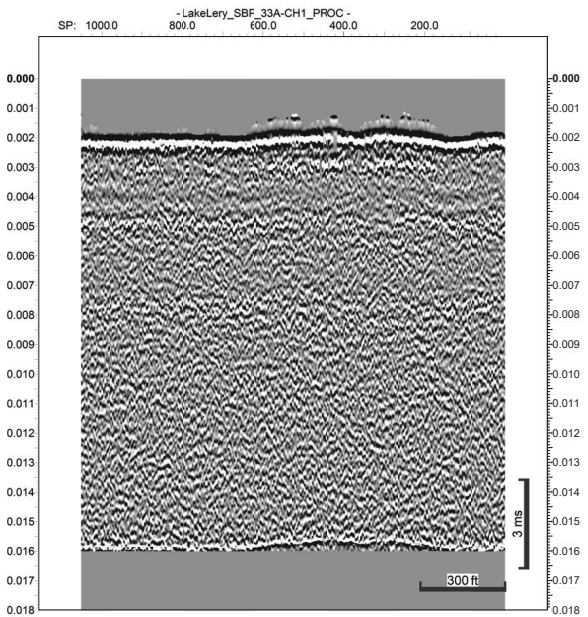

LakeLery_SBP_34-CH1_PROC, 3830.20
- LakeLery_SBP_29-CH1_PROC -
SP: 2000.0
1800.0
1600.0
1400.0
1200.0
1000.0
800.0
600.0
400.0
200.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
300 ft

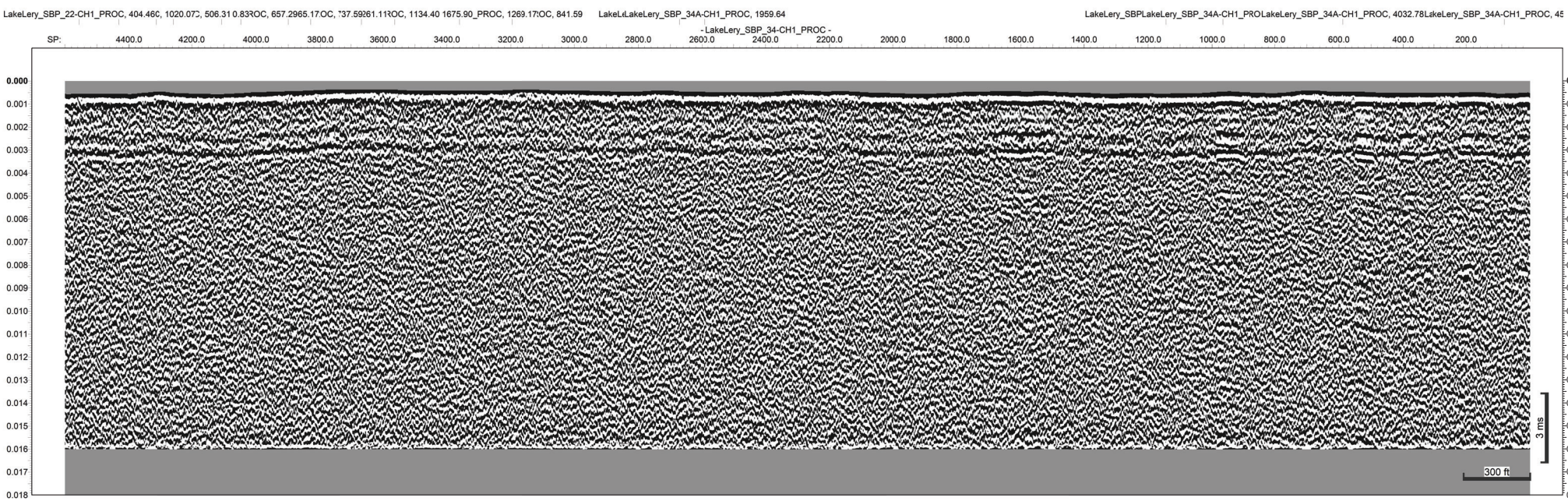

LakeLery_SBP_34-CH1_PROC, 3666.87
- LakeLery_SBP_30-CH1_PROC -
SP:
200.0
400.0
600.0
800.0
1000.0
1200.0
1400.0
1600.0
1800.0
2000.0
2200.0
2400.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
300 ft

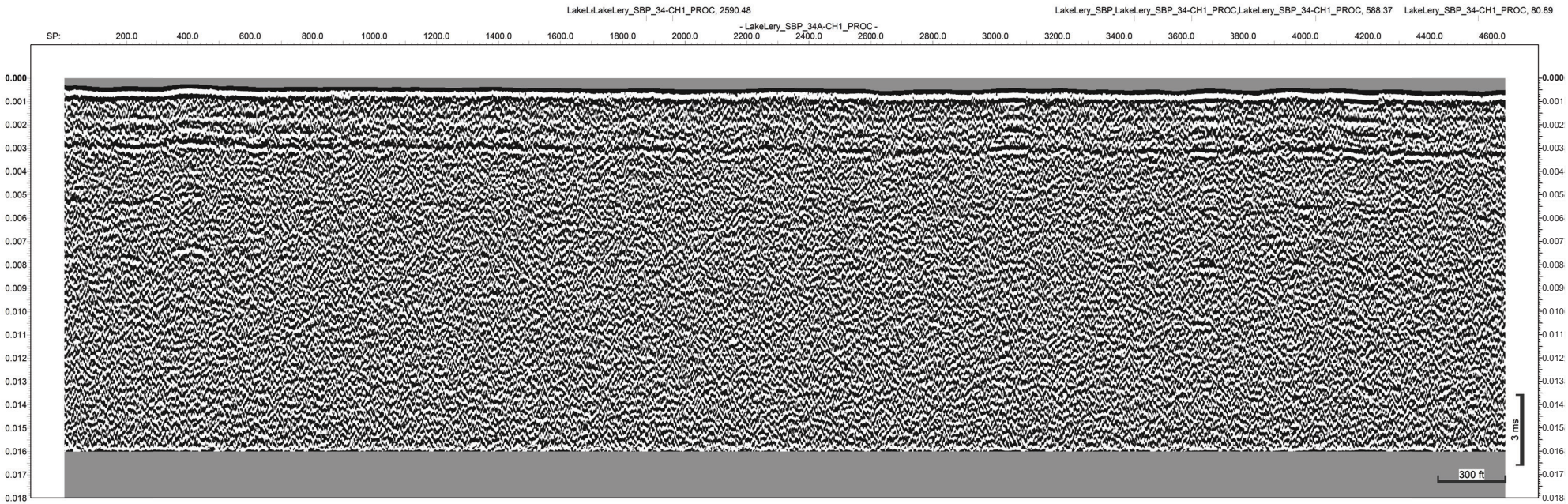

LakeLery_SBP_34-CH1_PROC, 3563.40
- LakeLery_SBP_31-CH1_PROC -
SP: 2800.0 2600.0 2400.0 2200.0 2000.0 1800.0 1600.0 1400.0 1200.0 1000.0 800.0 600.0 400.0 200.0
0.000 0.001 0.002 0.003 0.004 0.005 0.006 0.007 0.008 0.009 0.010 0.011 0.012 0.013 0.014 0.015 0.016 0.017 0.018
3 ms
300 ft

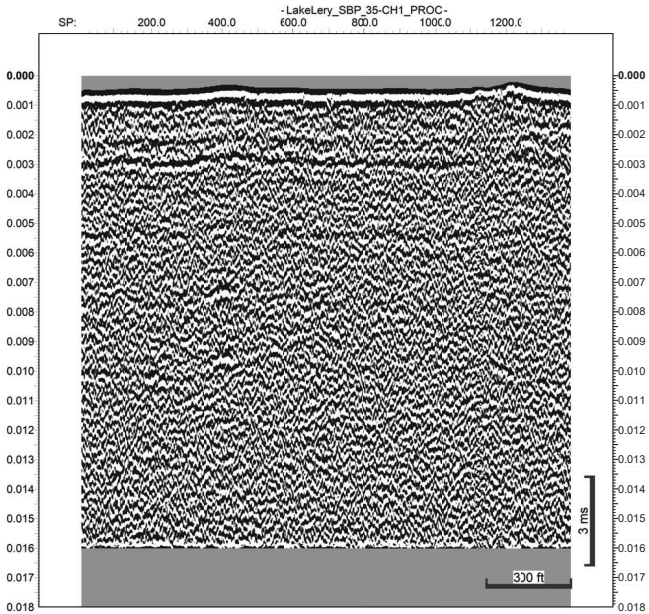

LakeLery_SBP_34-CH1_PROC, 3360.87
- LakeLery_SBP_32-CH1_PROC -
SP:
200.0
400.0
600.0
800.0
1000.0
1200.0
1400.0
1600.0
1800.0
2000.0
2200.0
2400.0
2600.0
2800.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
300 ft

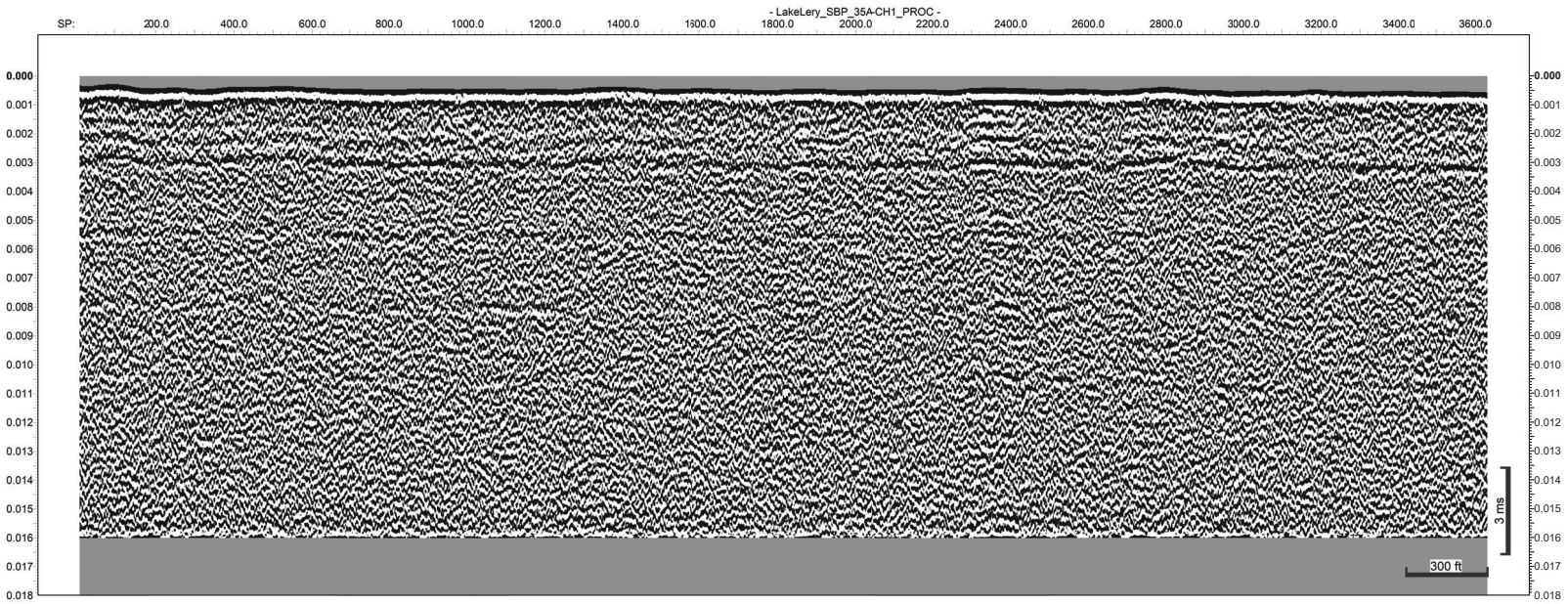

- LakeLery_SBP_33-CH1_PROC -
SP:
1000.0
800.0
600.0
400.0
200.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
300 ft

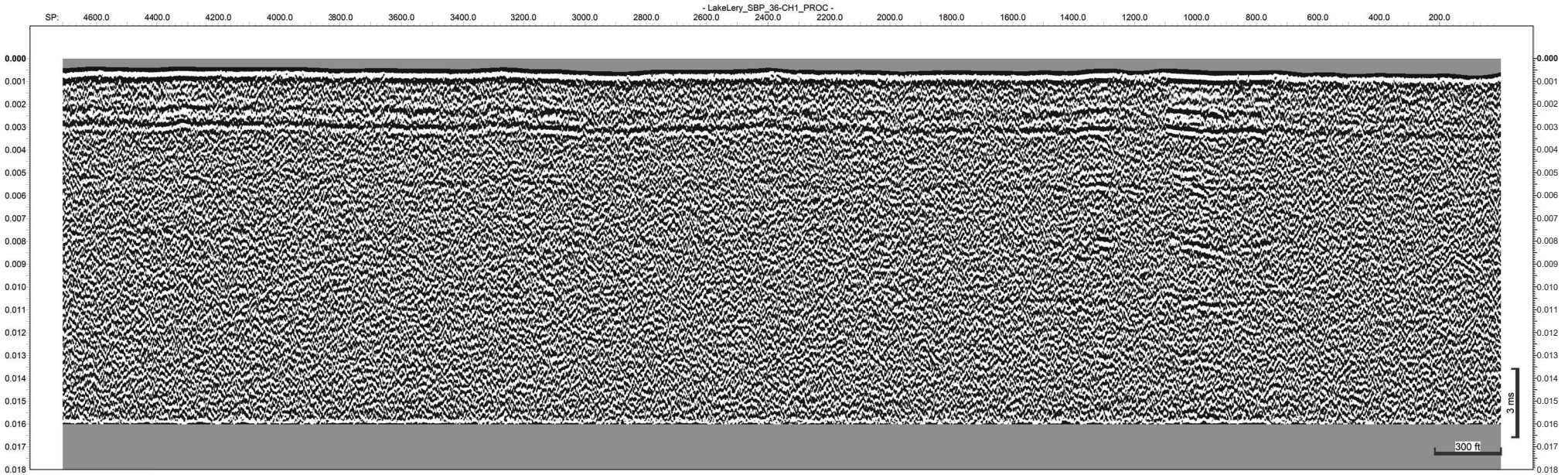

- LakeLery_SBF_33A-CH1_PROC -
SP: 1000.0
800.0
600.0
400.0
200.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
300 ft

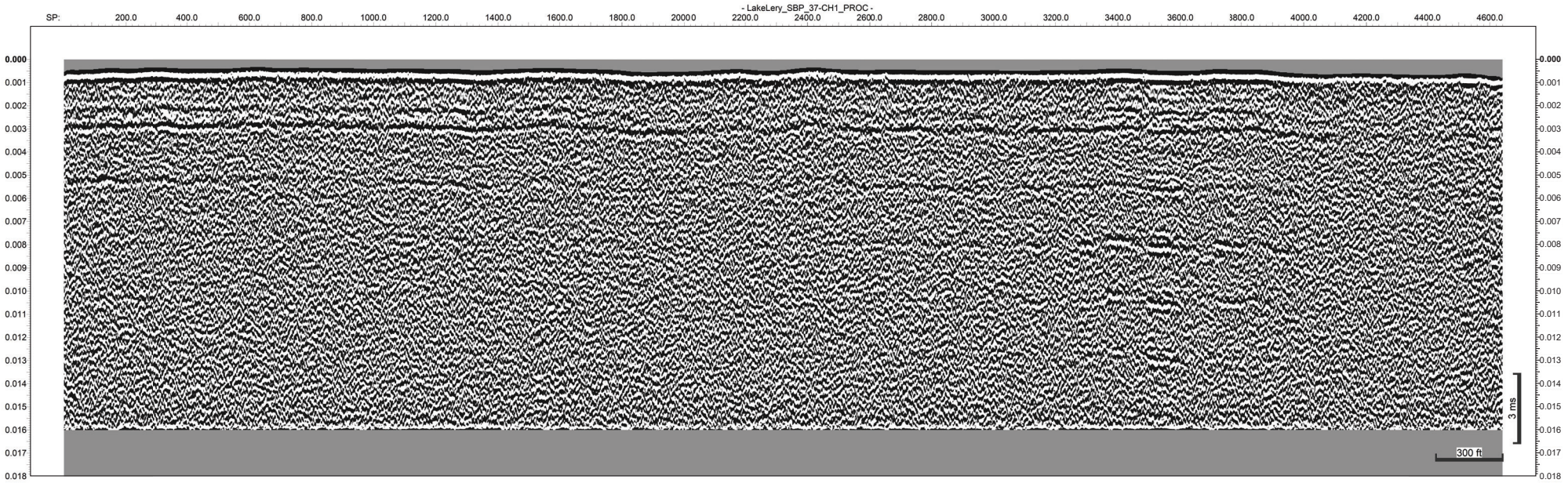

LakeLery_SBP_22-CH1_PROC, 404.46C, 1020.07?, 506.31 0.83?OC, 657.2965.17OC, ?37.59261.11?OC, 1134.40 1675.90_PROC, 1269.17?OC, 841.59
LakeLeLakeLery_SBP_34A-CH1_PROC, 1959.64
LakeLery_SBPLakeLery_SBP_34A-CH1_PROLakeLery_SBP_34A-CH1_PROC, 4032.78LakeLery_SBP_34A-CH1_PROC, 45
- LakeLery_SBP_34-CH1_PROC -
SP:
4400.0 4200.0 4000.0 3800.0 3600.0 3400.0 3200.0 3000.0 2800.0 2600.0 2400.0 2200.0 2000.0 1800.0 1600.0 1400.0 1200.0 1000.0 800.0 600.0 400.0 200.0
0.000 0.001 0.002 0.003 0.004 0.005 0.006 0.007 0.008 0.009 0.010 0.011 0.012 0.013 0.014 0.015 0.016 0.017 0.018
3 ms
300 ft

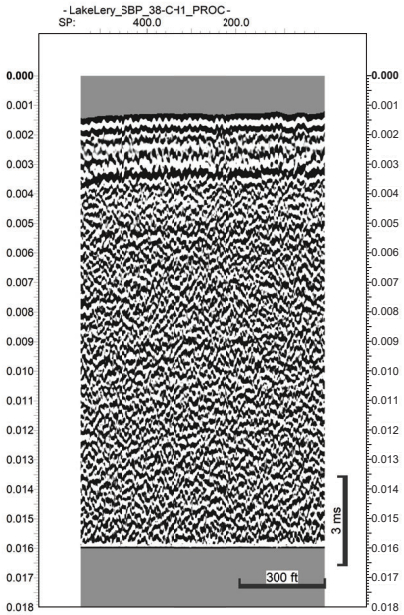

LakeLeLakeLery_SBP_34-CH1_PROC, 2590.48
- LakeLery_SBP_34A-CH1_PROC -
LakeLery_SBP,LakeLery_SBP_34-CH1_PROC,LakeLery_SBP_34-CH1_PROC, 588.37
LakeLery_SBP_34-CH1_PROC, 80.89
SP:
200.0
400.0
600.0
800.0
1000.0
1200.0
1400.0
1600.0
1800.0
2000.0
2200.0
2400.0
2600.0
2800.0
3000.0
3200.0
3400.0
3600.0
3800.0
4000.0
4200.0
4400.0
4600.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
300 ft

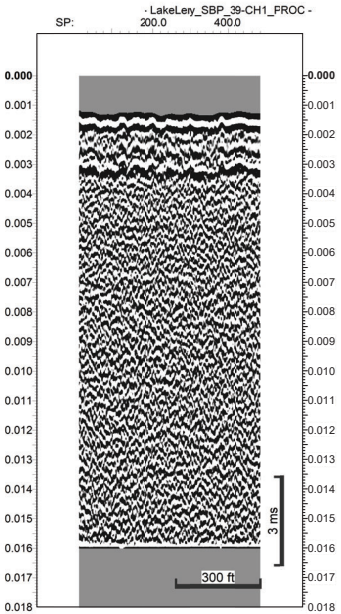

- LakeLery_SBP_35-CH1_PROC -
SP:
200.0
400.0
600.0
800.0
1000.0
1200.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
330 ft

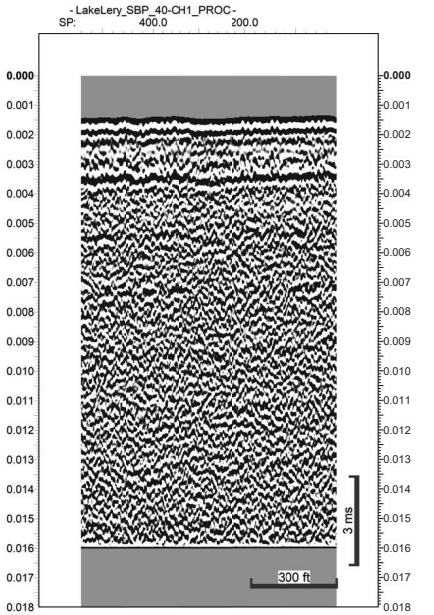

- LakeLery_SBP_35A-CH1_PROC -
SP:
200.0
400.0
600.0
800.0
1000.0
1200.0
1400.0
1600.0
1800.0
2000.0
2200.0
2400.0
2600.0
2800.0
3000.0
3200.0
3400.0
3600.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
300 ft

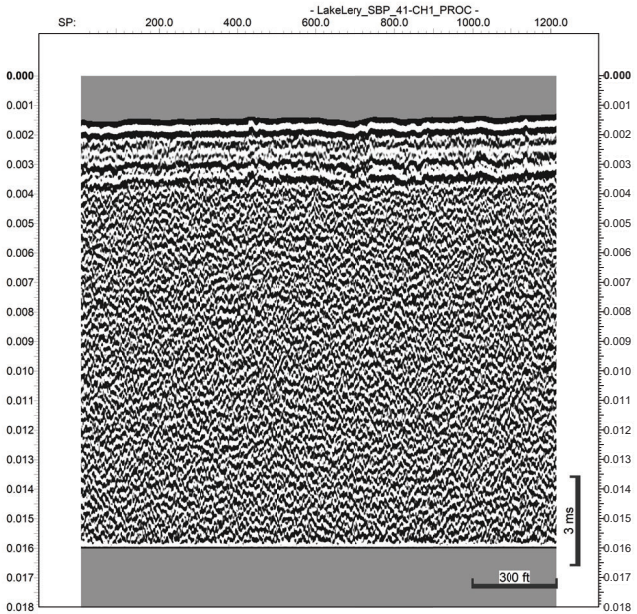

- LakeLery_SBP_36-CH1_PROC -
SP:
4600.0
4400.0
4200.0
4000.0
3800.0
3600.0
3400.0
3200.0
3000.0
2800.0
2600.0
2400.0
2200.0
2000.0
1800.0
1600.0
1400.0
1200.0
1000.0
800.0
600.0
400.0
200.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
300 ft

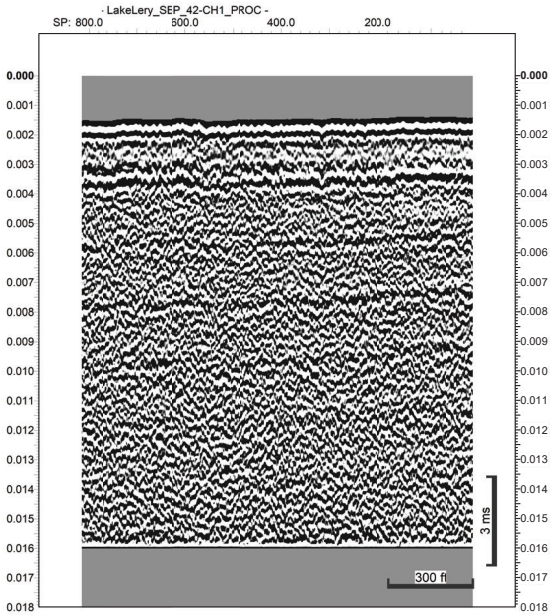

- LakeLery_SBP_37-CH1_PROC -
SP:
200.0
400.0
600.0
800.0
1000.0
1200.0
1400.0
1600.0
1800.0
2000.0
2200.0
2400.0
2600.0
2800.0
3000.0
3200.0
3400.0
3600.0
3800.0
4000.0
4200.0
4400.0
4600.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
300 ft

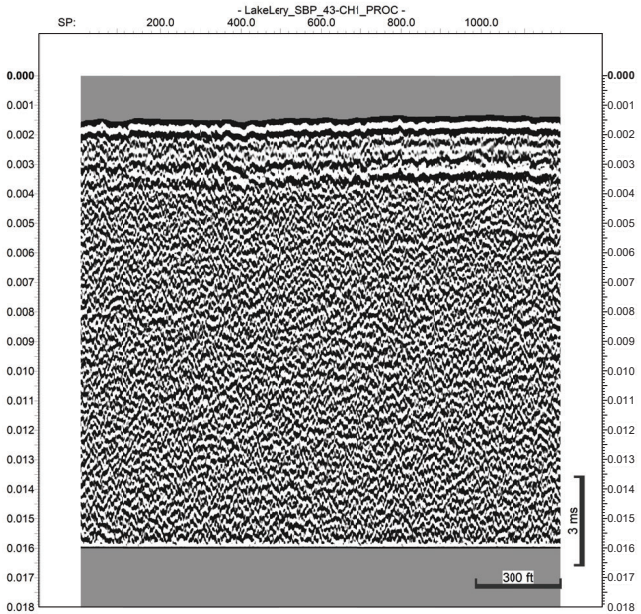

- LakeLery_3BP_38-C-11_PROC -
SP:
400.0
200.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
300 ft

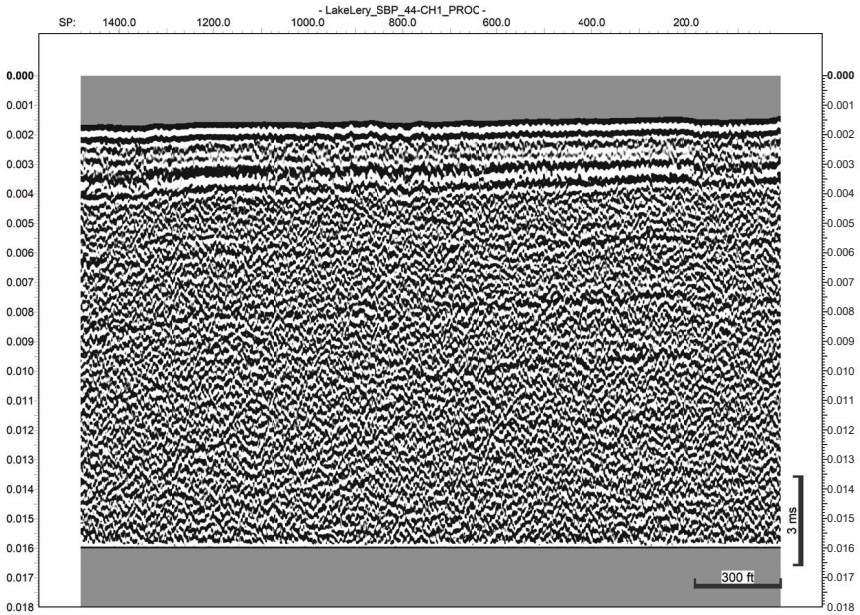

· LakeLery_SBP_39-CH1_FROC -
SP:
200.0
400.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
300 ft

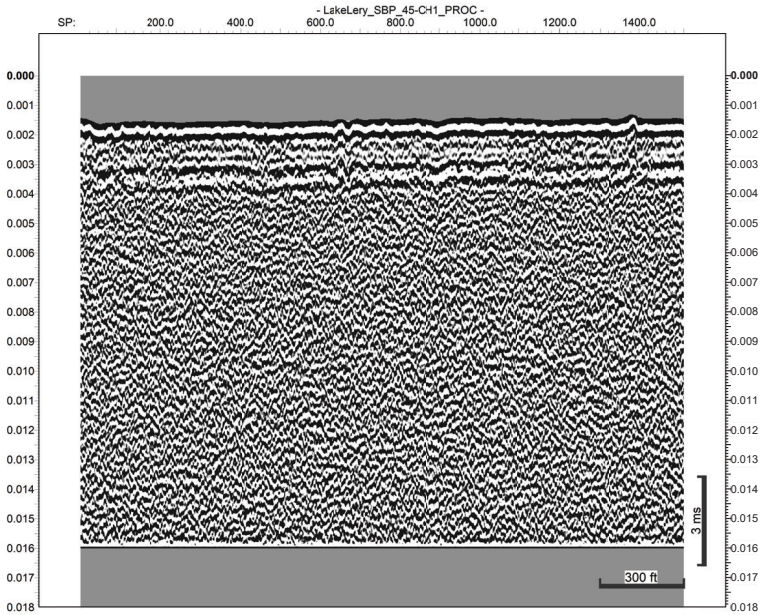

- LakeLery_SBP_40-CH1_PROC -
SP:
400.0
200.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
300 ft

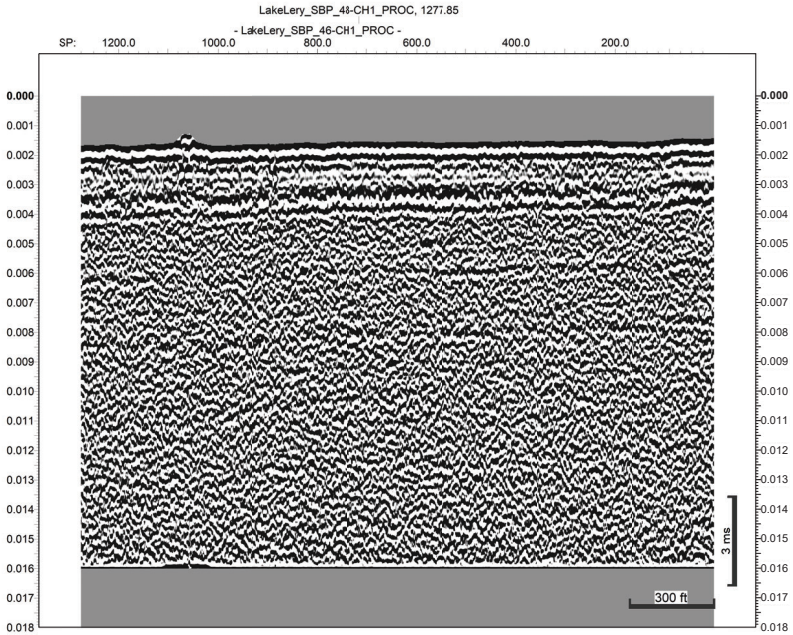

- LakeLery_SBP_41-CH1_PROC -
SP:
200.0
400.0
600.0
800.0
1000.0
1200.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
300 ft

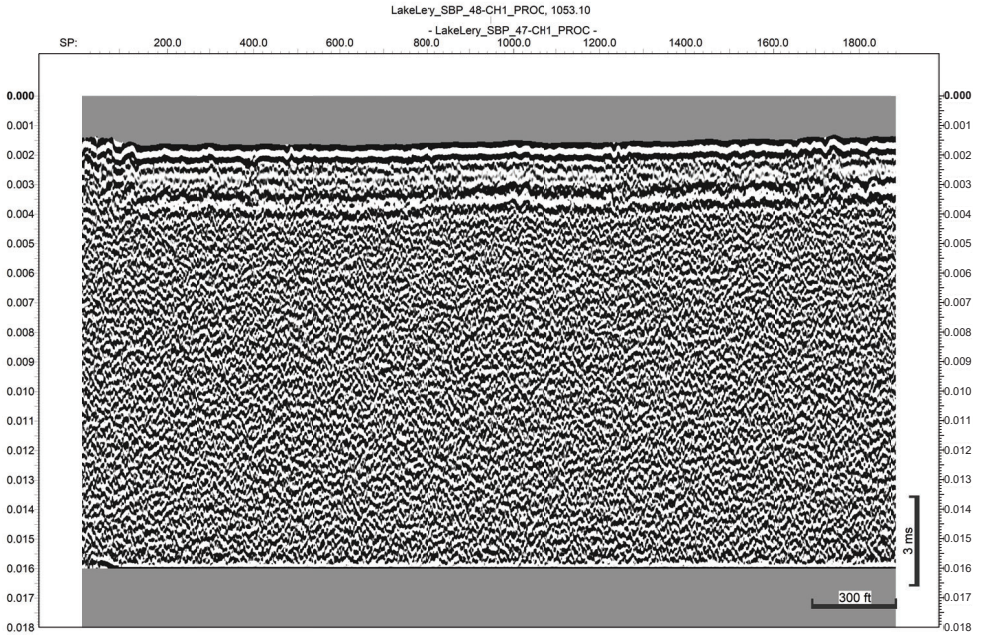

· LakeLery_SEP_42-CH1_PROC -
SP: 800.0
600.0
400.0
200.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
300 ft

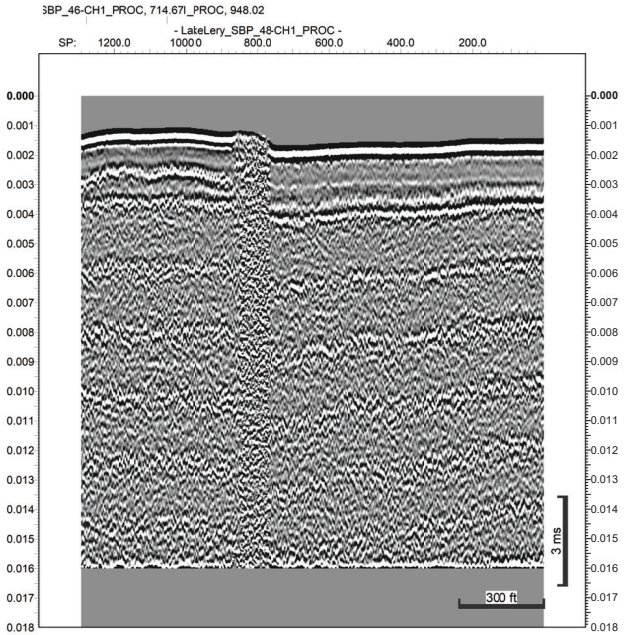

- LakeLery_SBP_43-CH!_PROC -
SP:
200.0
400.0
600.0
800.0
1000.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
300 ft

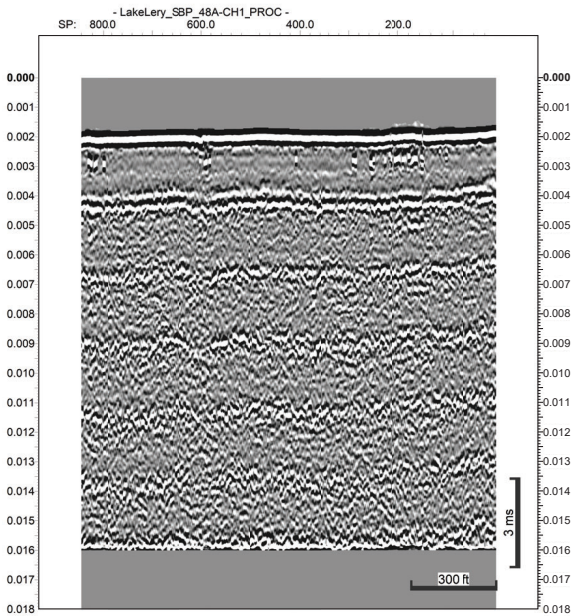

- LakeLery_SBP_44-CH1_PROC -
SP:
1400.0
1200.0
1000.0
800.0
600.0
400.0
200.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
300 ft

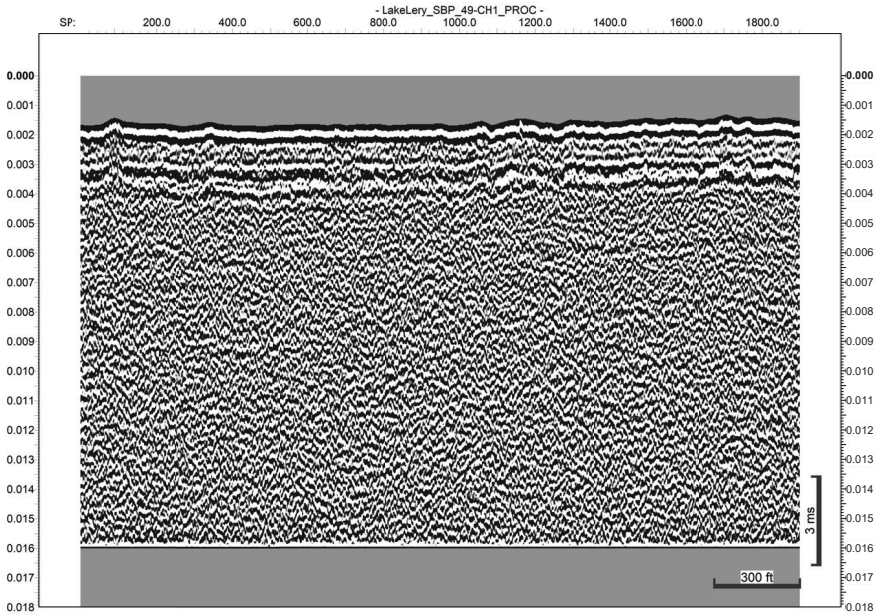

- LakeLery_SBP_45-CH1_PROC -
SP:
200.0
400.0
600.0
800.0
1000.0
1200.0
1400.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
300 ft

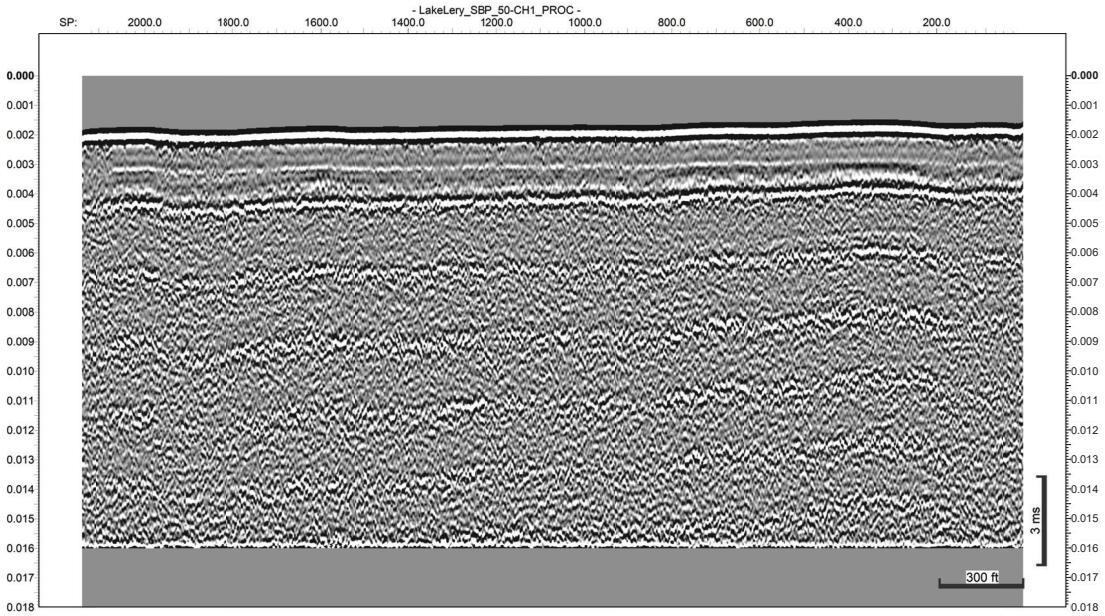

LakeLery_SBP_48-CH1_PROC, 1277.85
- LakeLery_SBP_46-CH1_PROC -
SP:
1200.0
1000.0
800.0
600.0
400.0
200.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
300 ft

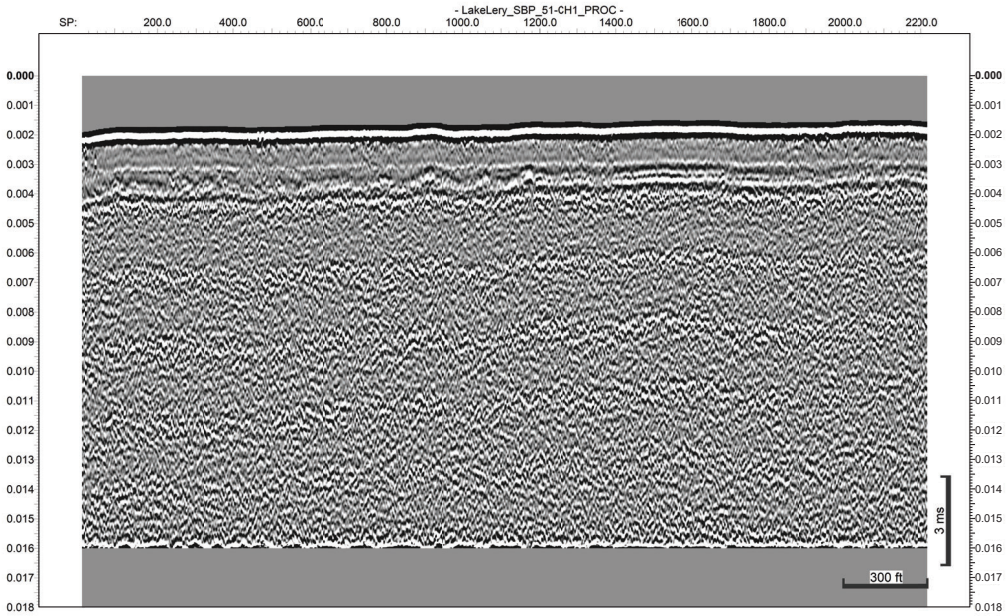

LakeLery_SBP_48-CH1_PROC, 1053.10
- LakeLery_SBP_47-CH1_PROC -
SP:
200.0
400.0
600.0
800.0
1000.0
1200.0
1400.0
1600.0
1800.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
300 ft

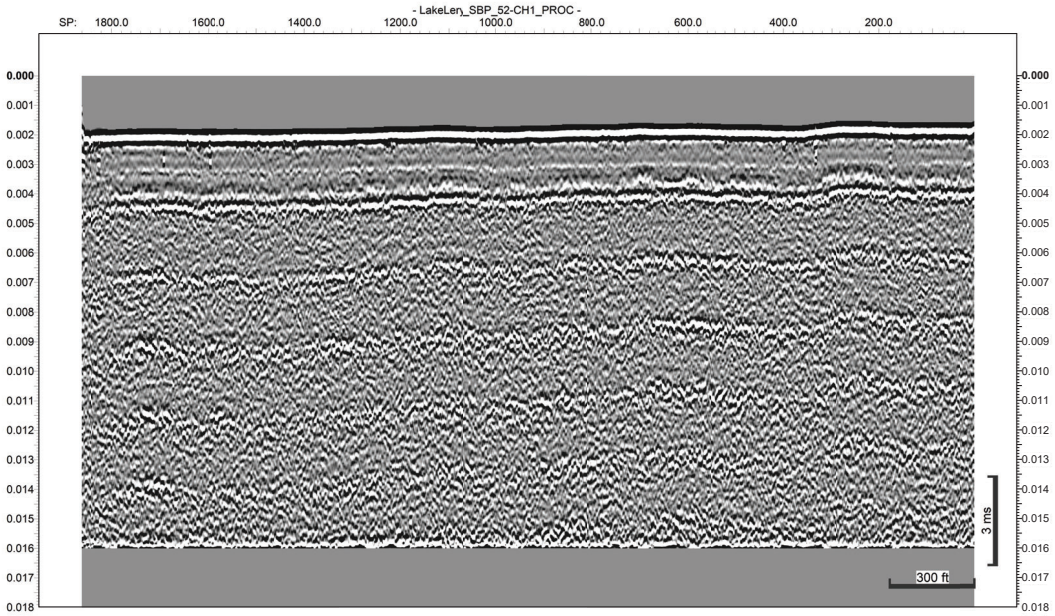

SBP_46-CH1_PROC, 714.67l_PROC, 948.02
- LateLery_SBP_48-CH1_PROC -
SP: 1200.0 1000.0 800.0 600.0 400.0 200.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
300 ft

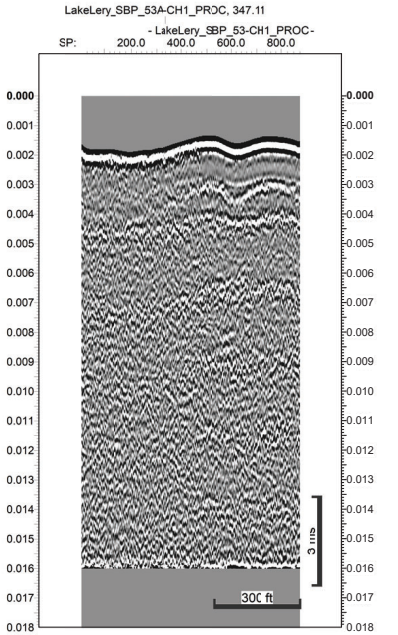

- LakeLery_SBP_48A-CH1_PROC -
SP: 800.0
600.0
400.0
200.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
300 ft

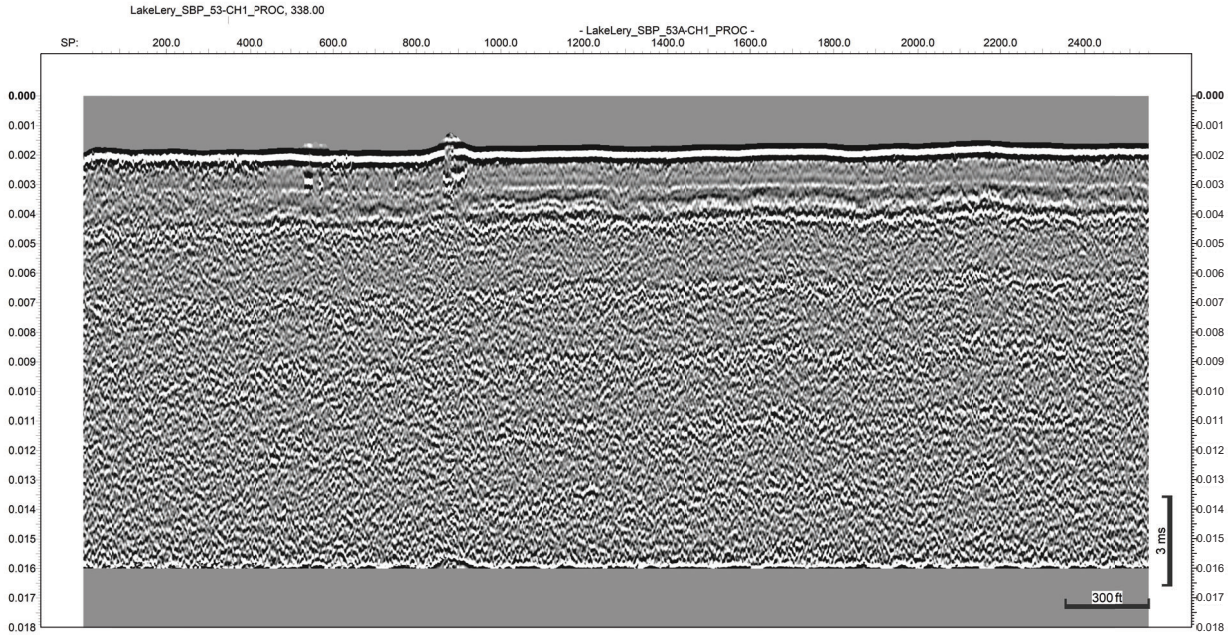

- LakeLery_SBP_49-CH1_PROC -
SP:
200.0
400.0
600.0
800.0
1000.0
1200.0
1400.0
1600.0
1800.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
300 ft

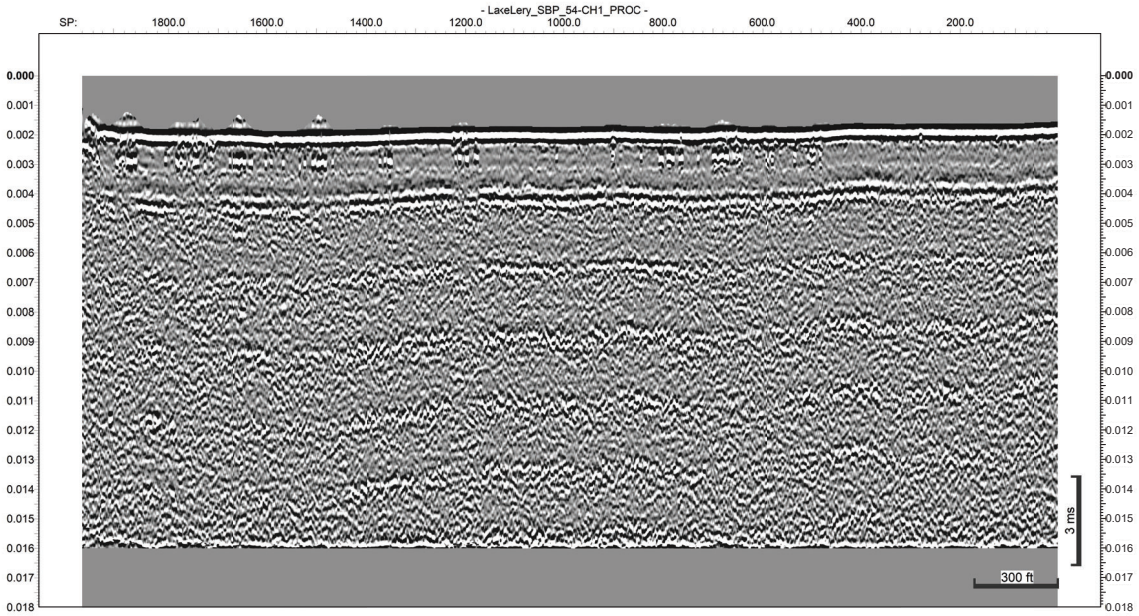

- LakeLery_SBP_50-CH1_PROC -
SP:
2000.0
1800.0
1600.0
1400.0
1200.0
1000.0
800.0
600.0
400.0
200.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
300 ft

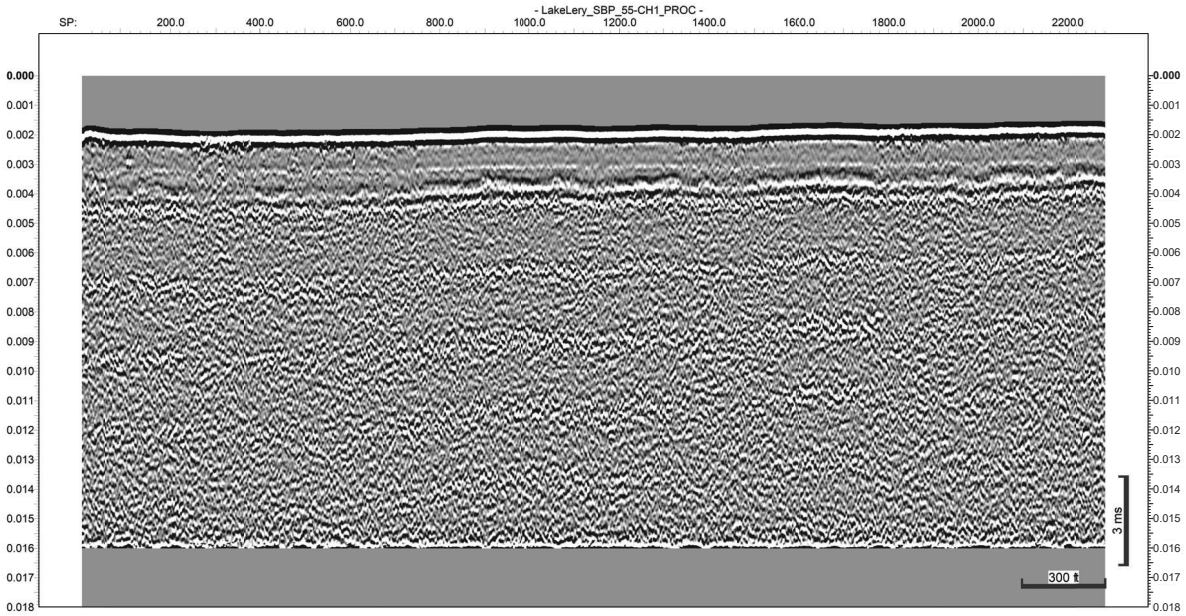

- LakeLery_SBP_51-CH1_PROC -
SP:
200.0
400.0
600.0
800.0
1000.0
1200.0
1400.0
1600.0
1800.0
2000.0
2200.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
300 ft

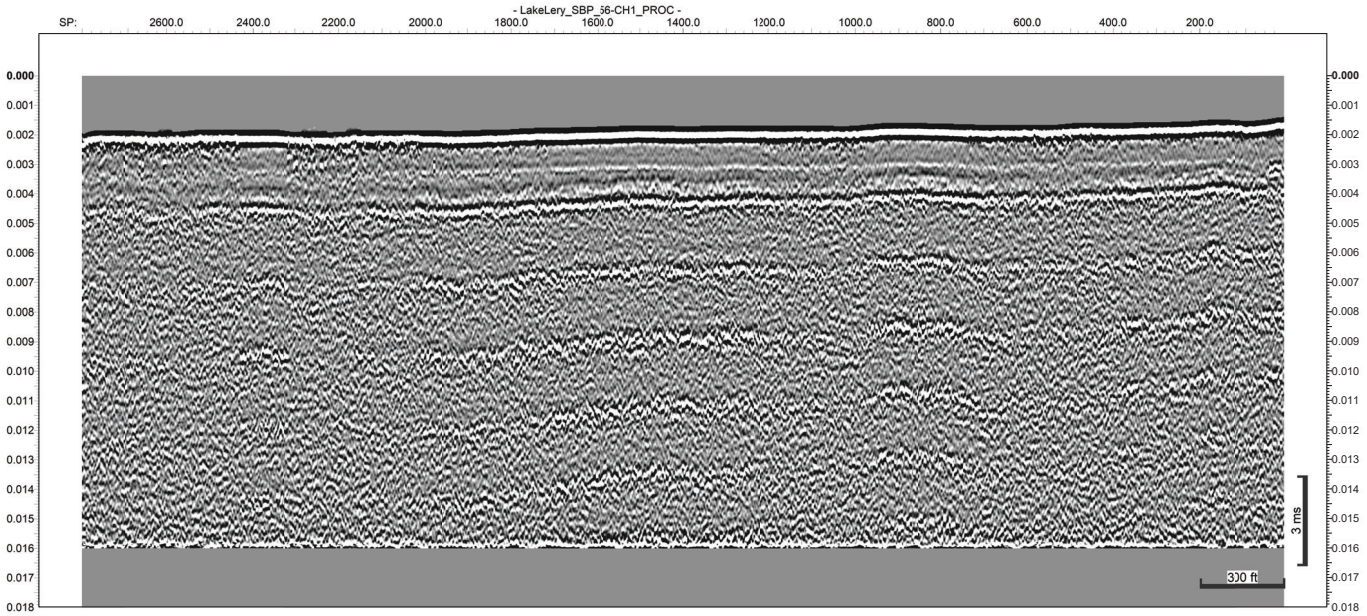

- LakeLery_SBP_52-CH1_PROC -
SP: 1800.0 1600.0 1400.0 1200.0 1000.0 800.0 600.0 400.0 200.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
300 ft

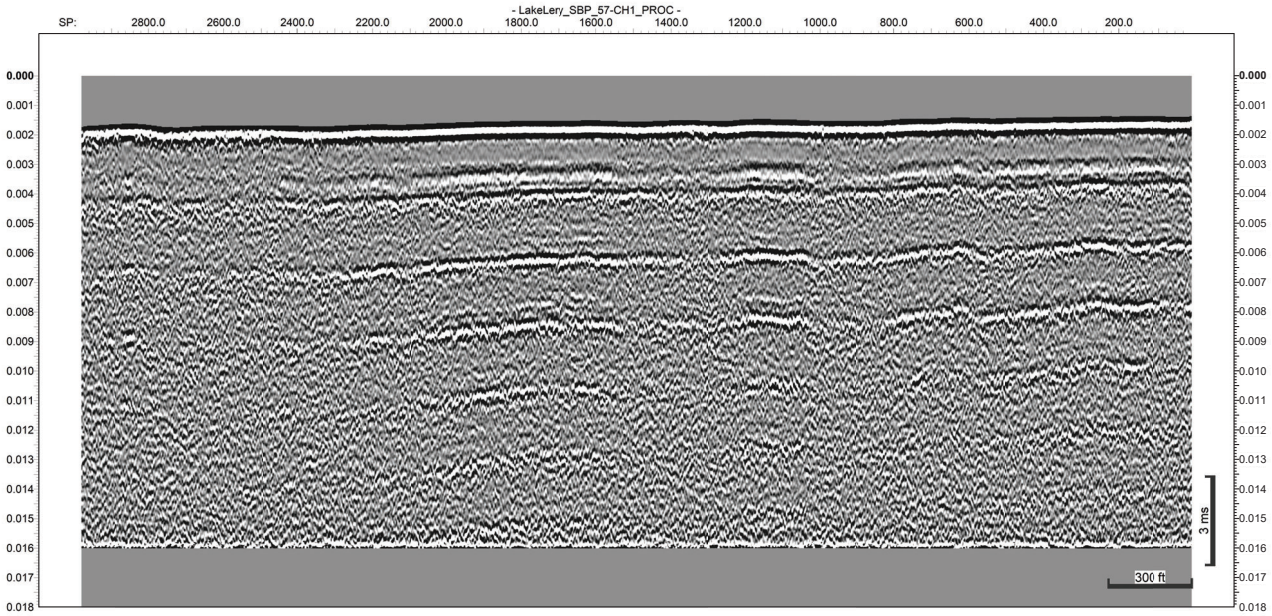

LakeLery_SBP_53A-CH1_PROC, 347.11
- LakeLery_SBP_53-CH1_PROC -
SP:
200.0
400.0
600.0
800.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
300 ft

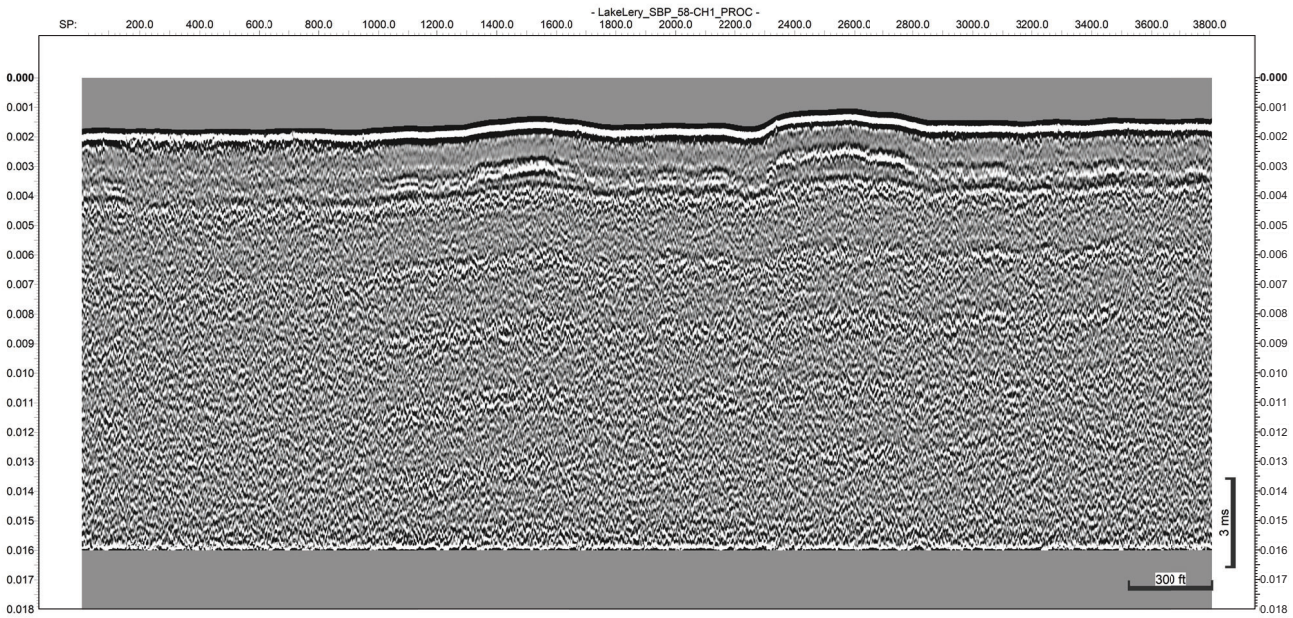

LakeLery_SBP_53-CH1_?ROC, 338.00
- LakeLery_SBP_53A-CH1_PROC -
SP:
200.0
400.0
600.0
800.0
1000.0
1200.0
1400.0
1600.0
1800.0
2000.0
2200.0
2400.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
300 ft

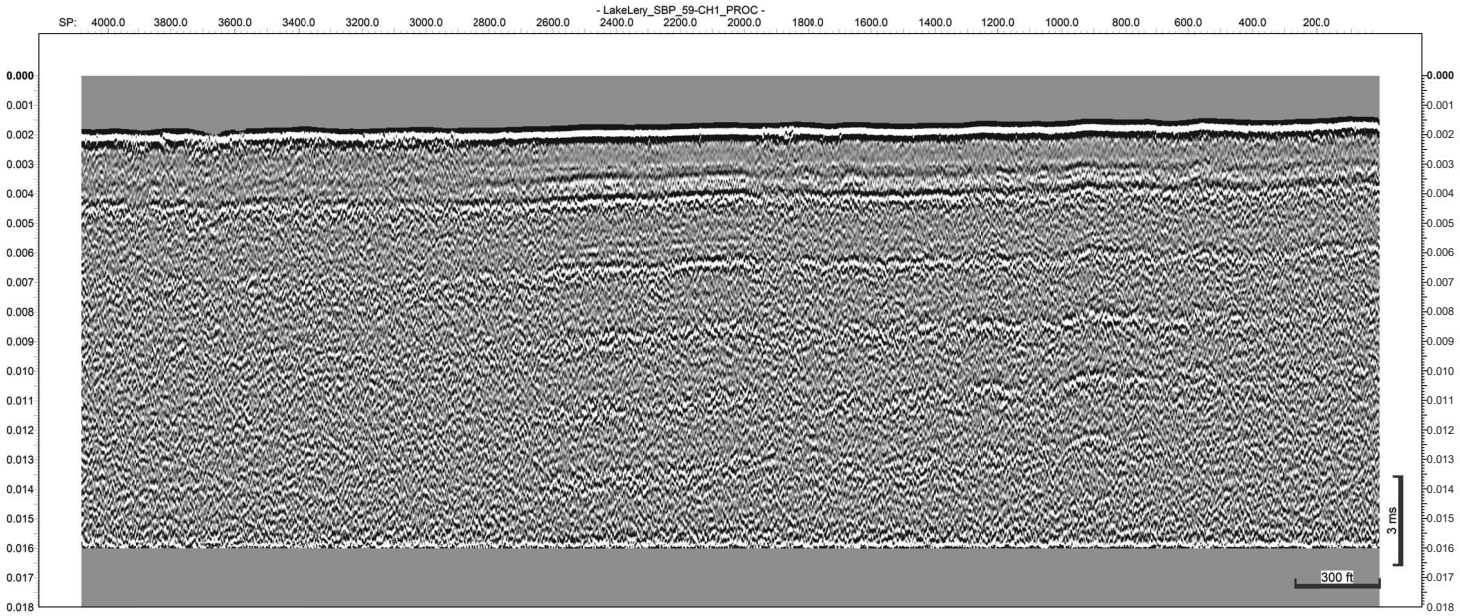

- LaxeLery_SBP_54-CH1_PROC -
SP:
1800.0
1600.0
1400.0
1200.0
1000.0
800.0
600.0
400.0
200.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
300 ft

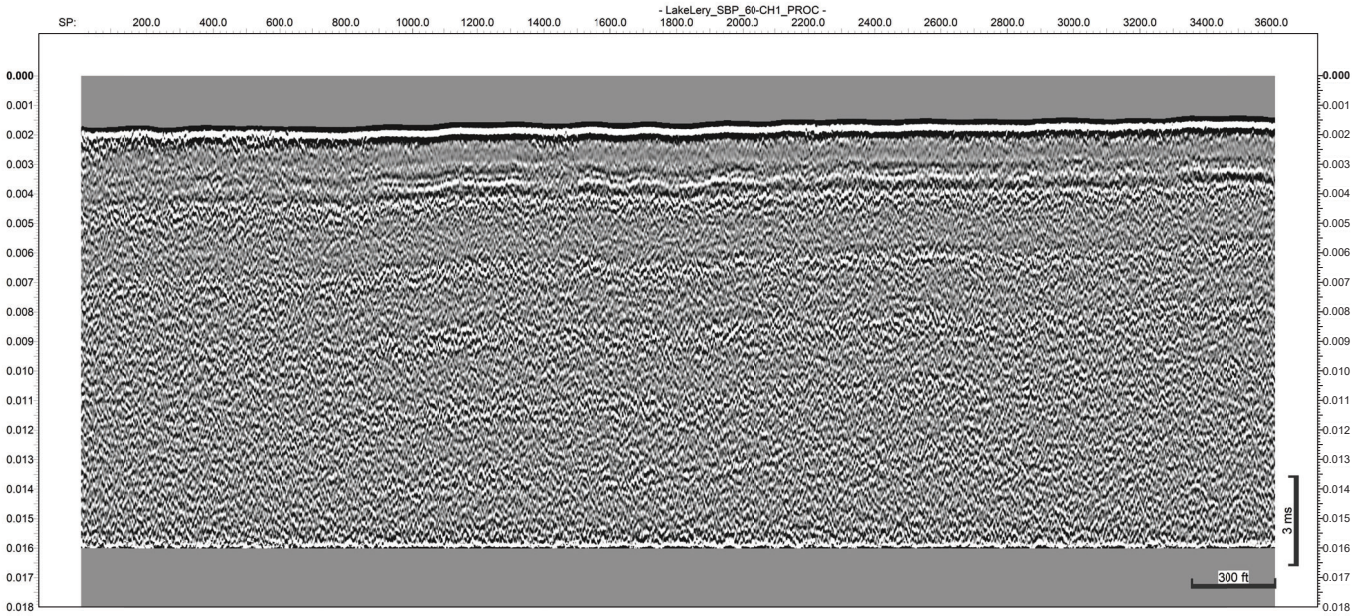

- LakeLery_SBP_55-CH1_PROC -
SP:
200.0
400.0
600.0
800.0
1000.0
1200.0
1400.0
1600.0
1800.0
2000.0
2200.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
300 ft

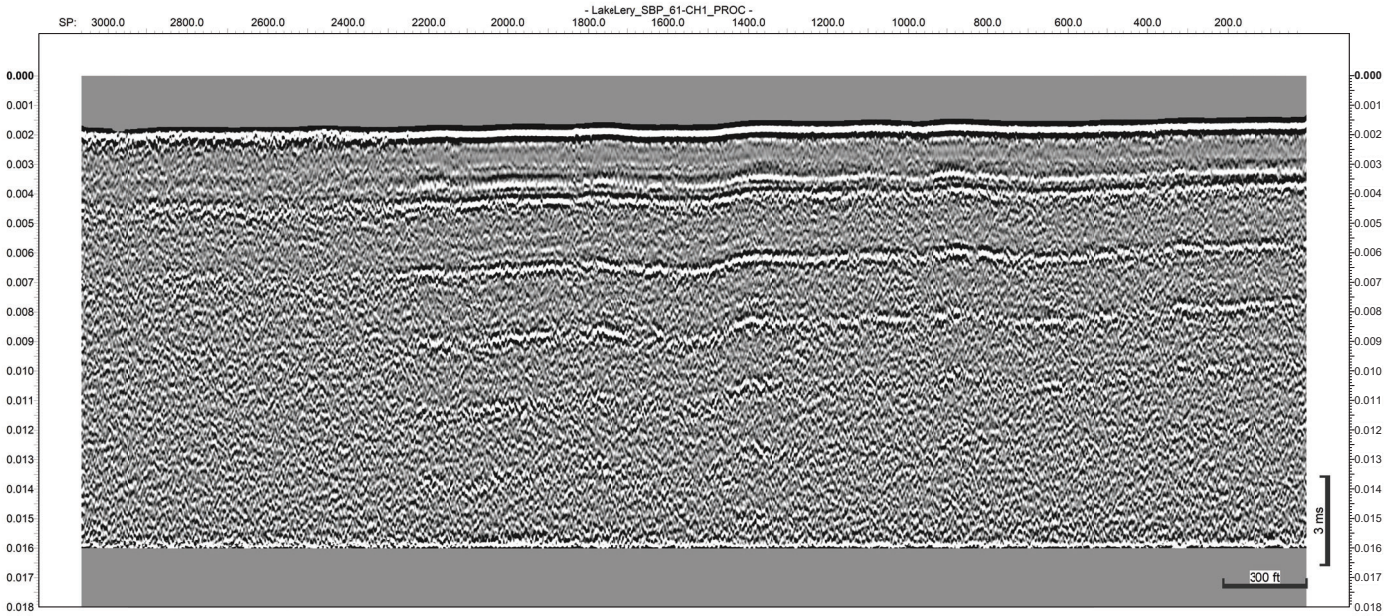

- LakeLery_SBP_56-CH1_PROC -
SP:
2600.0
2400.0
2200.0
2000.0
1800.0
1600.0
1400.0
1200.0
1000.0
800.0
600.0
400.0
200.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
300 ft

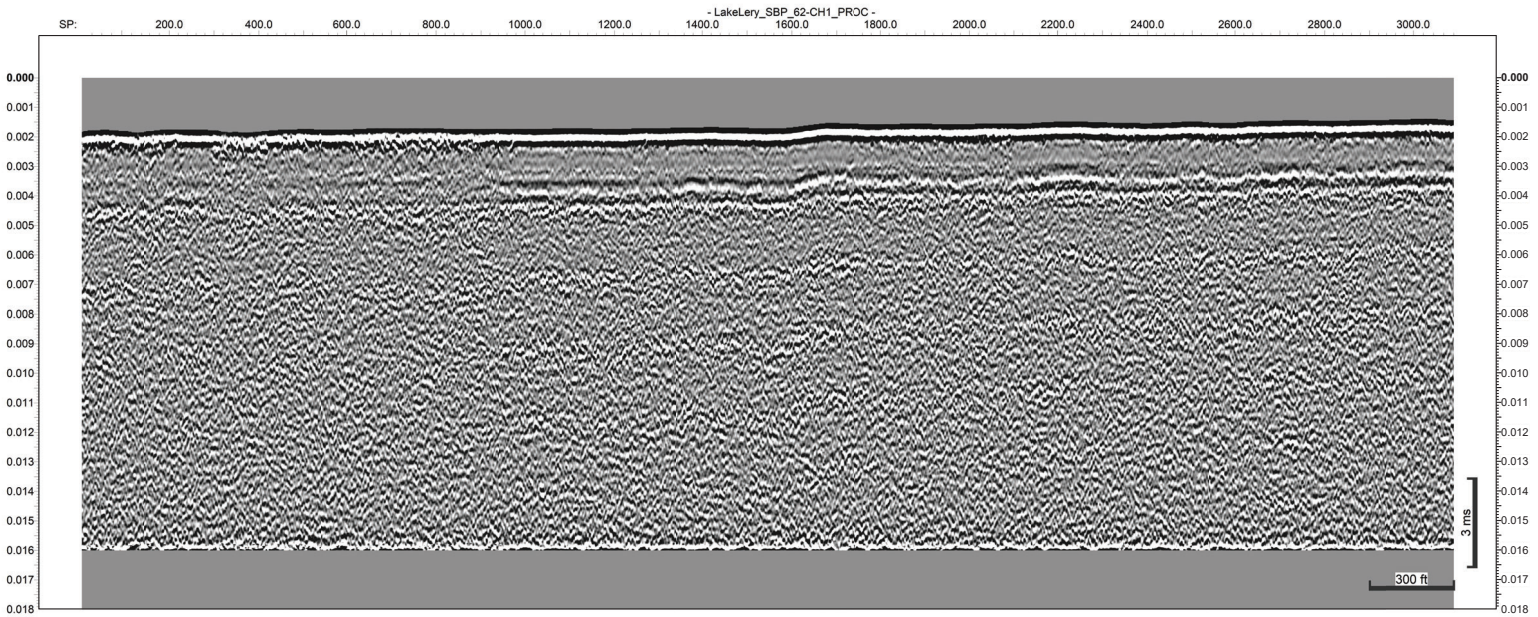

- LakeLery_SBP_57-CH1_PROC -
SP:
2800.0
2600.0
2400.0
2200.0
2000.0
1800.0
1600.0
1400.0
1200.0
1000.0
800.0
600.0
400.0
200.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
300 ft

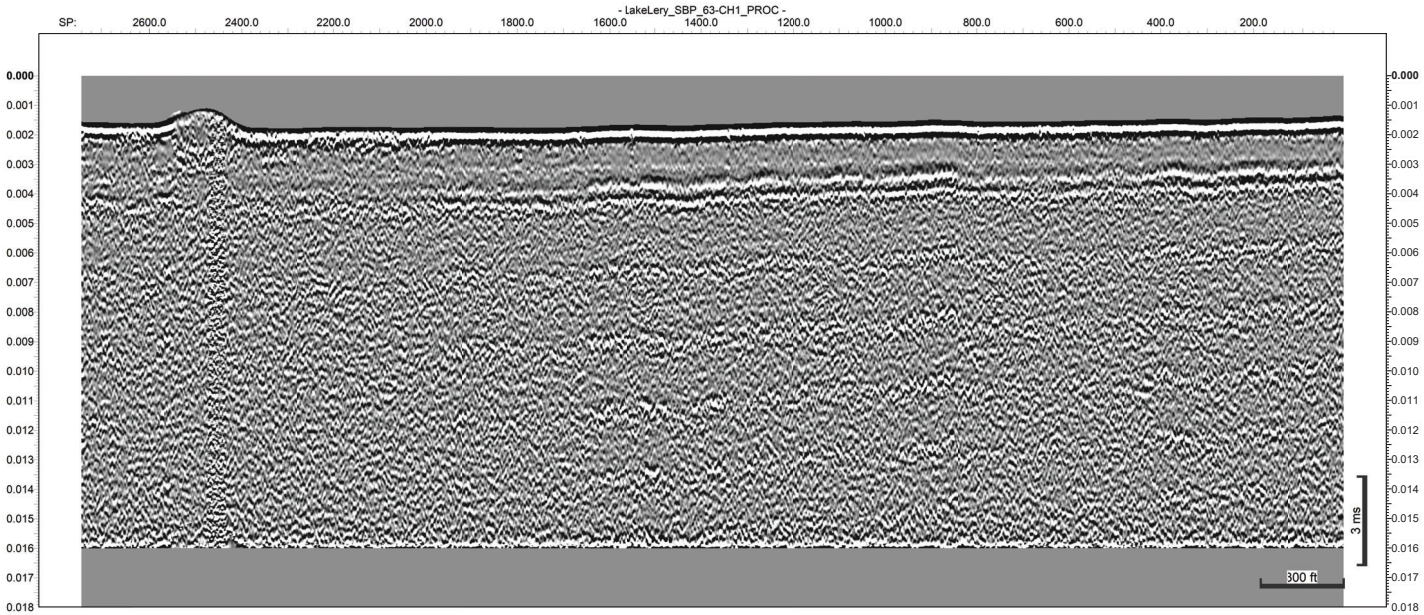

- LakeLery_SBP_58-CH1_PROC -
SP:
200.0
400.0
600.0
800.0
1000.0
1200.0
1400.0
1600.0
1800.0
2000.0
2200.0
2400.0
2600.0
2800.0
3000.0
3200.0
3400.0
3600.0
3800.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
300 ft

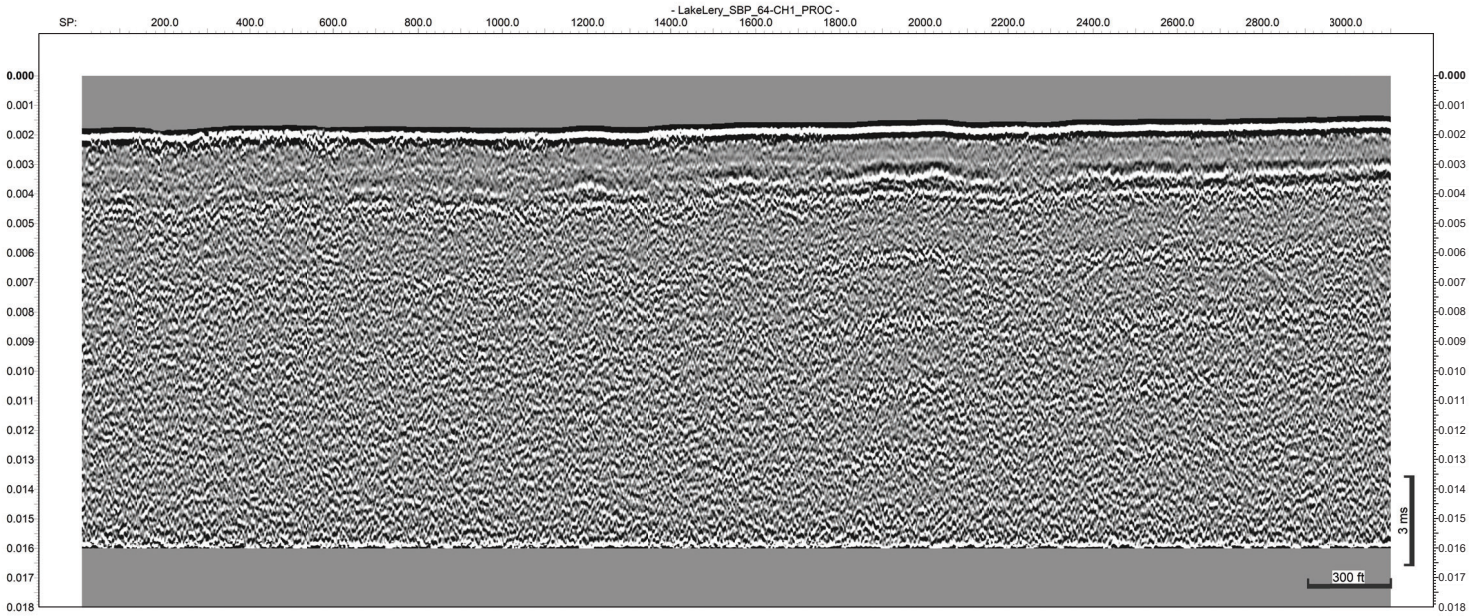

- LakeLery_SBP_59-CH1_PROC -
SP: 4000.0 3800.0 3600.0 3400.0 3200.0 3000.0 2800.0 2600.0 2400.0 2200.0 2000.0 1800.0 1600.0 1400.0 1200.0 1000.0 800.0 600.0 400.0 200.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
300 ft

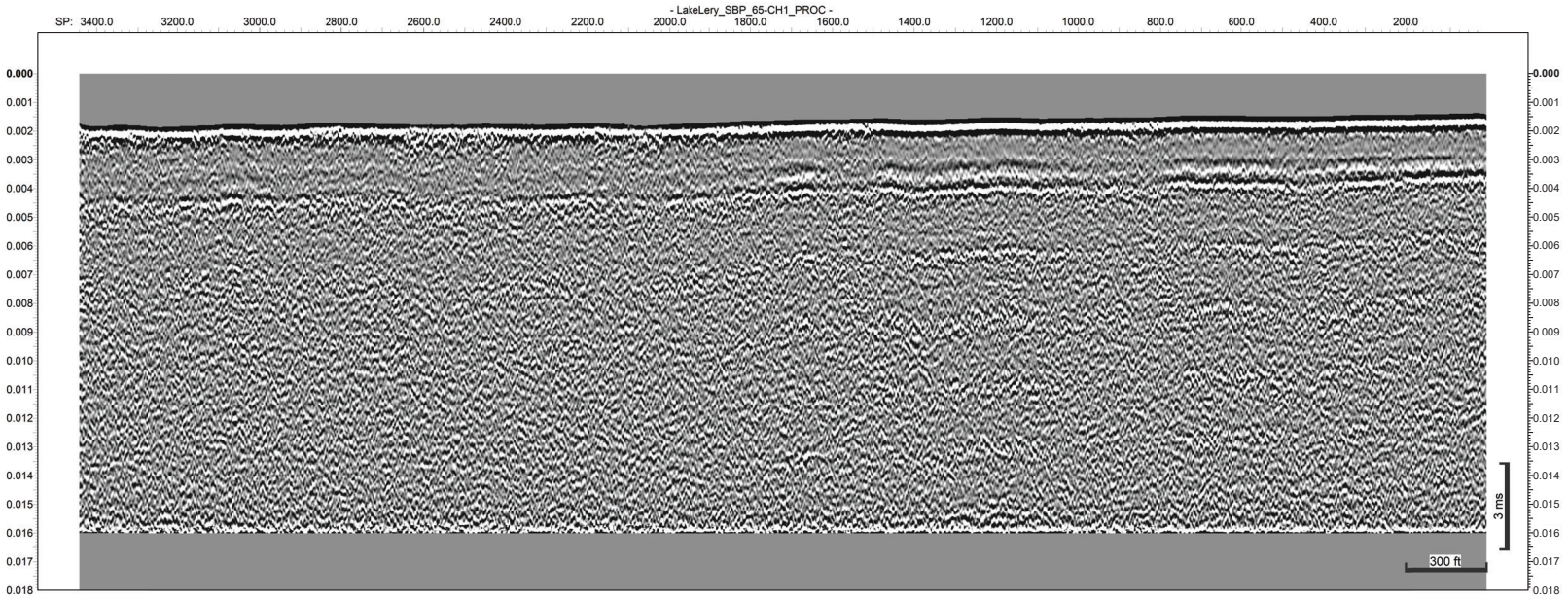

- LakeLery_SBP_60-CH1_PROC -
SP:
200.0
400.0
600.0
800.0
1000.0
1200.0
1400.0
1600.0
1800.0
2000.0
2200.0
2400.0
2600.0
2800.0
3000.0
3200.0
3400.0
3600.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
300 ft

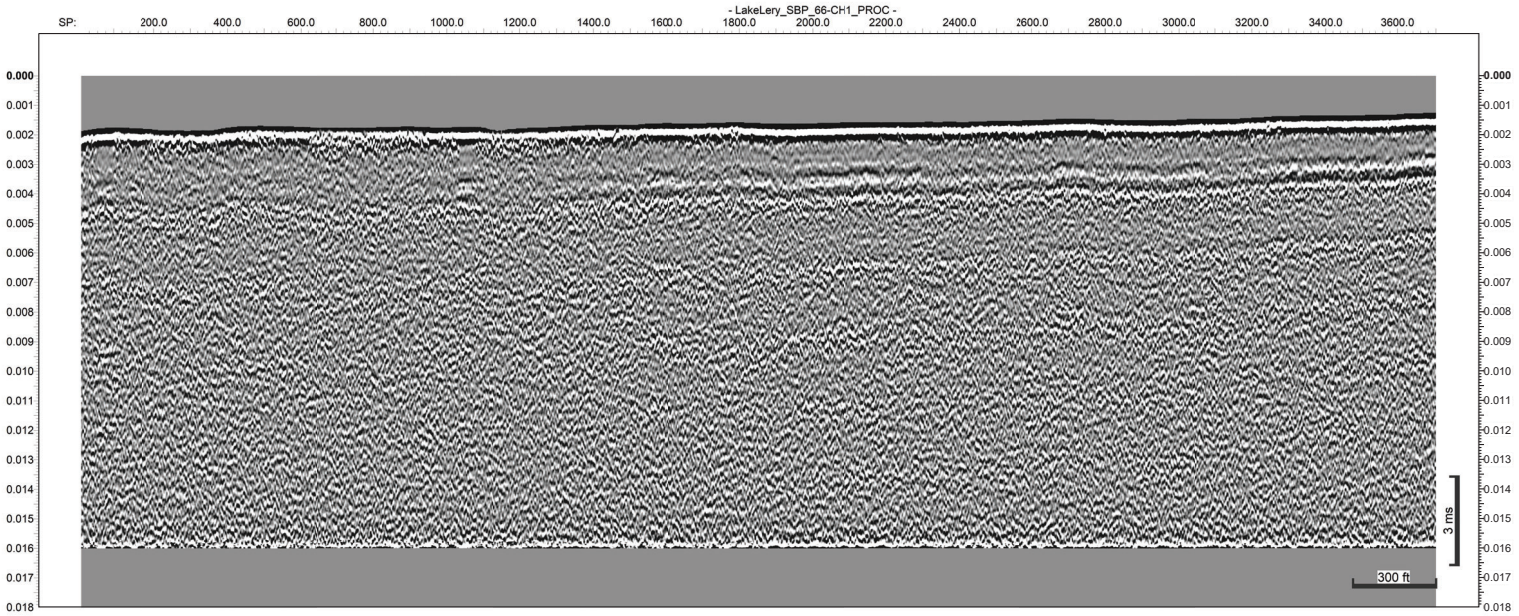

- LakeLery_SBP_61-CH1_PROC -
SP: 3000.0 2800.0 2600.0 2400.0 2200.0 2000.0 1800.0 1600.0 1400.0 1200.0 1000.0 800.0 600.0 400.0 200.0
0.000 0.001 0.002 0.003 0.004 0.005 0.006 0.007 0.008 0.009 0.010 0.011 0.012 0.013 0.014 0.015 0.016 0.017 0.018
3 ms
300 ft

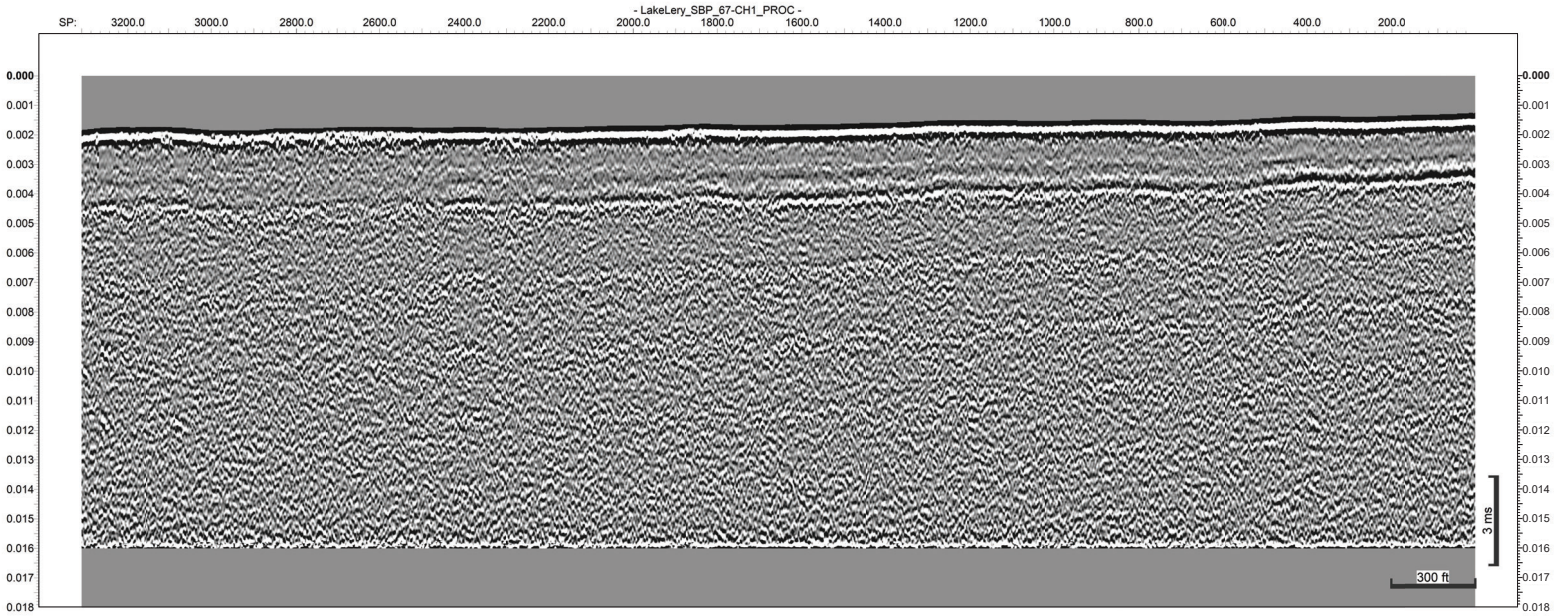

- LakeLery_SBP_62-CH1_PROC -
SP:
200.0
400.0
600.0
800.0
1000.0
1200.0
1400.0
1600.0
1800.0
2000.0
2200.0
2400.0
2600.0
2800.0
3000.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
300 ft


- lakeLery_SBP_63-CH1_PROC -
SP:
2600.0
2400.0
2200.0
2000.0
1800.0
1600.0
1400.0
1200.0
1000.0
800.0
600.0
400.0
200.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
300 ft


- LakeLery_SBP_64-CH1_PROC -
SP:
200.0
400.0
600.0
800.0
1000.0
1200.0
1400.0
1600.0
1800.0
2000.0
2200.0
2400.0
2600.0
2800.0
3000.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
300 ft


- LakeLery_SBP_65-CH1_PROC -
SP: 3400.0
3200.0
3000.0
2800.0
2600.0
2400.0
2200.0
2000.0
1800.0
1600.0
1400.0
1200.0
1000.0
800.0
600.0
400.0
200.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
300 ft


- LakeLery_SBP_66-CH1_PROC -
SP:
200.0
400.0
600.0
800.0
1000.0
1200.0
1400.0
1600.0
1800.0
2000.0
2200.0
2400.0
2600.0
2800.0
3000.0
3200.0
3400.0
3600.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
300 ft


- LakeLery_SBP_67-CH1_PROC -
SP:
3200.0
3000.0
2800.0
2600.0
2400.0
2200.0
2000.0
1800.0
1600.0
1400.0
1200.0
1000.0
800.0
600.0
400.0
200.0
0.000
0.001
0.002
0.003
0.004
0.005
0.006
0.007
0.008
0.009
0.010
0.011
0.012
0.013
0.014
0.015
0.016
0.017
0.018
3 ms
300 ft

APPENDIX D

SURVEY LOGS

Line Number	Start of Line	End of Line	Line Direction	Notes
June 15th				
1036 Troubleshooting Single Beam				
Buoy Minefield - Caught 2 Bouys *Bouy Caught				
02	1056	1116	303°	
Offline shortly to avoid buoy				
37	1117	1133	128°	
36	1135	1155	303°	
35	1156	1200	128°	
Caught buoy - ended line				
35A	1205	1220	128°	
34	1222	1240	303°	
GPS battery died 1240 offline				
34A	1247	1306	128°	
33	1309	1317	303°	Disregard - Check 33 + DNP File possible rename
33	1317	1327	303°	Run partial start
32	1329	1341	128°	
31	1342	1354	303°	
30	1355	1405	128°	
29	1407	1416	303°	
28	1417	1425	128°	
27	1427	1434	303°	
26	1435	1443	128°	
25	1444	1450	303°	
24	1451	1457	128°	
23	1458	1505	303°	
22	1506	1511	128°	
21	1513	1518	303°	
20	1520	1524	128°	
19	1526	1531	303°	
18	1532	1536	128°	
17	1537	1541	303°	
16	1542	1546	128°	
15	1547	1551	303°	
14	1552	1555	128°	
13	1556	1559	303°	
12	1600	1603	128°	
11	1605	1607	303°	
10	1610	1613	128°	
01	1613	1616	303°	
1633 RTK Control Point - Pick Up Base				
1700 Back at dock				
June 16th				

0727 Fueling				
0802 RTK Control Point				
0814 RTK Control Point - Base Station				
0835 Deploy Gear				
0841 Troubleshoot GPS to SBES connection				
0907 Finish Troubleshoot				
08	0917	0936	50°	
Rerun first minute of line				
09	0937	0940	229°	
Stopped line - Avoiding buoys - buoy caught				
09A	0953	1007	229°	
08A	1009	1013	50°	
07	1016	1034	50°	
06	1035	1051	229°	
05	1054	1109	50°	
04	1110	1125	229°	
03	1128	1145	50°	
67	1147	1200	229°	
66	1202	1218	50°	
65	1222	1236	229°	
64	1240	1253	50°	
63	1254	1306	229°	
62	1309	1322	50°	
61	1323	1336	229°	
60	1337	1352	50°	
59	1354	1411	229°	
58	1413	1431	50°	
Caught buoy				
57	1433	1446	229°	
1455 Recover gear				
1504 RTK Control Point - Pick up base				
1528 Back at dock				
June 17th				
0730 Fueling				
0744 Leave dock				
0756 RTK Control Point - Base station				
Troublesooting SSS				
33A	0853	0858	303°	
56	0916	0924	229°	
55	0927	0937	50°	
54	0938	0946	229°	
Caught buoy				
53	0954	0958	50°	Ended - Buoy snag
53A	1004	1015	50°	

52	1019	1024	229°	
51	1025	1034	50°	Caught buoy
50	1037	1046	229°	
49	1052	1100	50°	Caught buoy
48	1101	1106	229°	Caught buoy
48A	1107	1111	229°	
47	1112	1120	50°	
46	1122	1127	229°	
45	1133	1139	50°	
44	1141	1147	229°	
43	1149	1154	50°	
Generator failure				
SSS Troublesooting				
42	1239	1243	229°	No SSS
41	1247	1252	50°	No SSS
40	1254	1256	229°	No SSS
39	1258	1300	50°	No SSS
38	1301	1304	229°	No SSS
Troubleshoot SSS				
1538 RTK Control Point - Pick up base station				
1608 Back at dock				
Edgetech topside completely malfunctioned				
Fenstermaker ….. Dropped off SSS fish				
1800 SSS Setup				
1838 Leave dock for SSS reruns				
42	1855	1903	50°	Offline, buoy
41	1907	1913	229°	Offline, buoy
40	1917	1921	50°	Offline, buoy
39	1923	1925	229°	
38	1928	1932	50°	
1958 Back at dock				

APPENDIX E

UNANTICIPATED DISCOVERY PLAN

PLAN AND PROCEDURES
ADDRESSING UNANTICIPATED DISCOVERIES
OF CULTURAL RESOURCES AND HUMAN REMAINS

I. INTRODUCTION

Coastal Environments, Inc. (CEI) under contract with C. H. Fenstermaker & Associates, LLC. (Fenstermaker) is conducting cultural resource investigations of the area where it proposes to construct the North Delacroix (BS-0041) Marsh Creation and Terracing Project. The investigations are being conducted to determine if the proposed project would affect any potential historic properties. This document outlines the procedure Fenstermaker and CEI will follow to prepare for and address any unanticipated discoveries. It also provides direction to Fenstermaker as to the proper procedure to follow in the event that an unanticipated discovery of historic properties or human remains is made during survey activities.

II. TRAINING AND ORIENTATION

The Resident Project Representative (RPR), a representative of CPRA, will be responsible for advising survey personnel on the procedure to follow in the event that an unanticipated discovery is made.

A. Stop work immediately if they observe any indications of the presence of cultural materials (artifacts or other man-made features) or possible human bone.

B. Contact the RPR as soon as possible.

C. Comply with unanticipated discovery procedures.

D. Treat human remains with dignity and respect.

III. PROCEDURE WHEN CULTURAL MATERIALS ARE OBSERVED

Cultural materials include man-made objects (prehistoric and historic period items such as pottery, glass, and stone or metal tools) and features (e.g. pits, hearths and remnants of structures).

A. Stop work in the immediate vicinity of the observed cultural materials.

1. Notify the RPR of the discovery

2. If RPR believes that an unanticipated discovery has been made

   a. RPR directs all ground-disturbing activities within 100 feet of the discovery to stop
   b. RPR will protect and secure the evidence in place by delineating the find with flagging or fencing

B. Minimize movement of vehicles and equipment in area immediately surrounding the discovery.

C. RPR will immediately notify CPRA's Construction Manager.

D. Construction Manager will immediately notify the designated CPRA contacts by telephone with written confirmation (via email). (If primary contact cannot be reached, notify the indicated alternate.)

CPRA Contact	*Alternate CPRA Contact*
Jessica Diez	Elizabeth Davoli
Project Manager	Environmental Section
150 Terrace Avenue	150 Terrace Avenue
Baton Rouge, LA 70802	Baton Rouge, LA 70802
Phone: (225) 342-1477	Phone: (225) 342-4616
Email: Jessica.diez@la.gov	Email: Elizabeth.davoli@la.gov

E. Within 24 hours, if possible, a professional archaeologist will examine the location of the discovery, accompanied by the RPR.

1. If the archaeologist determines that the discovery is not a cultural resource, the archaeologist will immediately advise the RPR and CPRA's Construction Manager, any of who will have the authority to remove the stop-work order. The archaeologist will submit a letter report including photographs of the discovery site to the CPRA contact within 5 business days.

2. If the archaeologist determines that the discovery is a cultural resource, the archaeologist will immediately advise the RPR who will notify the CPRA contact. The CPRA contact will notify the SHPO by telephone, with written confirmation by email.

LA SHPO Contact
Dr. Charles "Chip" McGimsey
LA State Archaeologist
Division of Archaeology
Dept. of Culture Recreation & Tourism
1051 N. Third Street, Rm. 319
P.O. Box 44247
Baton Rouge, Louisiana 70804
Phone: (225) 342-8170
Email: cmcgimsey@crt.la.gov

3. The State Archaeologist will notify any Native American tribes that have indicated an interest in the area.

F. Notifications to SHPO about observations of cultural material will:

1. Explain whether the archeologist believes the resource is significant, or

2. Describe a scope-of-work for evaluating the significance of the resource and evaluating project effects on it.

3. Invite the Native American tribes to observe the implementation of any proposed work.

4. All work to evaluate significance and project effects will be confined to the project's area of potential effect.

G. When the evaluation of cultural resources is complete:

1. CPRA will notify the SHPO by telephone and report the opinion of the project archaeologist about the potential significance of the resource.

2. Within 15 days following the field investigation, the archaeologist will provide CPRA a written report describing the results of the fieldwork.

3. If the resource is believed to be significant, the archaeologist will recommend mitigation measures, which may include data recovery.

4. If SHPO concurs that the site is eligible, SHPO will notify NMFS in writing if mitigation is required.

H. Upon receipt of authorization from NMFS, implementation of mitigation measures will begin immediately.

1. CPRA will advise SHPO when all mitigation measures have been completed.

2. If construction has been halted, CPRA will also request authorization from NMFS to recommence construction.

3. CPRA will submit a summary report describing the results of mitigation to the SHPO within 30 days of notification that mitigation fieldwork has been completed.

4. If archeological data recovery is a component of the mitigation plan, a full report will be submitted to the SHPO in accordance with a schedule to be established in consultation with NMFS.

IV. PROCEDURE WHEN HUMAN REMAINS AND/OR POTENTIALLY HUMAN SKELETAL MATERIALS ARE OBSERVED

Human remains are physical remains of a human body including, but not limited to, bones, teeth, hair, ashes, and preserved soft tissues (mummified or otherwise preserved) of an individual. Remains may be articulated or disarticulated bones or teeth. If human remains are encountered follow the procedures specified in the Unmarked Human Burial Sites Preservation Act (R.S. 8:671-681).

A. Workers will treat all human remains with dignity and respect.

B. Immediately stop work in the vicinity of an unanticipated discovery involving potentially human remains.

C. Immediately notify the RPR about the find.

D. If the RPR believes that potentially human skeletal remains have been found, RPR will stop all ground-disturbing activities within 100 feet of the potential discovery.

1. Protect and secure the evidence of the discovery.

2. Delineate area with flagging or safety fencing.

3. Minimize movement by vehicles and equipment in the immediate vicinity of the discovery.

E. RPR will immediately notify the CPRA contact who will, in turn, immediately notify the designated NMFS and SHPO contacts:

CPRA Contact
Jessica Diez
Project Manager
150 Terrace Avenue
Baton Rouge, LA 70802

Phone: (225) 342-1477
Email: Jessica.diez@la.gov

Alternate CPRA Contact
Elizabeth Davoli
Environmental Section
150 Terrace Avenue
Baton Rouge, LA 70802

Phone: (225) 342-4616
Email: Elizabeth.davoli@la.gov

NMFS Contact
Brandon Howard
Project Manager
5757 Corporate Blvd., Suite 375
Baton Rouge, LA 70808
Phone: (225) 380-0050
Email: Brandon.howard@noaa.gov

LA SHPO Contact
Dr. Charles “Chip” McGimsey
LA State Archaeologist

Division of Archaeology
Dept. of Culture Recreation & Tourism
1051 N. Third Street, Rm. 319
P.O. Box 44247
Baton Rouge, Louisiana 70804
Phone: (225) 342-8170
Email: cmcgimsey@crt.la.gov

F. Within 24 hours of the discovery, if possible, a professional archaeologist will examine the discovery to determine if the remains are human.

1. The services of a physical anthropologist or other qualified professional will be retained if the archaeologist is unable to determine if the remains are human.

G. If the skeletal remains are determined not human, the individual making the determination will immediately advise the CPRA contact.

1. The archaeologist will submit a letter report including photographs of the discovery site to the CPRA contact within 7 business days of the determination.

H. If the skeletal remains are human, the CPRA contact will notify the Parish Sheriff's office and Coroner's office, and the SHPO contact.

St. Bernard Parish Sheriff
James Pohlmann
Sheriff
2 Courthouse Square
Chalmette, Louisiana 70043
Phone: (504) 271-2501

St. Bernard Parish Coroner
Gregory Fernandez, M.D.
Coroner
901 W. Judge Perez Drive
Chalmette, Louisiana 70043
Phone: (504) 826-9250

APPENDIX E

Equipment Specifications

Trimble R12

GNSS SYSTEM



KEY FEATURES

- Next generation Trimble® ProPoint™ GNSS positioning engine. Engineered for improved accuracy and productivity in challenging GNSS conditions.
- 672-channel solution with Trimble 360 satellite tracking technology
- Trimble SurePoint™ tilt compensation and precise position capture
- Trimble xFill® correction outage technology
- Support for RTK level precision Trimble CenterPoint® RTX corrections technology
- Optimized for Trimble Access™ field software
- Android™ and iOS platform support
- Cellular, Bluetooth®, Wi-Fi data connectivity
- Military-spec rugged design and IP-67 rating
- Ergonomic form factor
- All day battery with built-in status indicator
- 6 GB internal memory

Learn more:
geospatial.trimble.com/R12

PERFORMANCE SPECIFICATIONS

GNSS MEASUREMENTS

	Constellation agnostic, flexible signal tracking and improved positioning[1] in challenging environments with Trimble ProPoint GNSS technology	
	Increased measurement productivity and traceability with Trimble SurePoint eBubble tilt compensation	
	Advanced Trimble Custom Survey GNSS chips with 672 channels	
	Reduced downtime due to loss of radio signal or cellular connectivity with Trimble xFill technology	
	Signals tracked simultaneously	GPS: L1C, L1C/A, L2C, L2E, L5 GLONASS: L1C/A, L1P, L2C/A, L2P, L3 SBAS (WAAS, EGNOS, GAGAN, MSAS): L1C/A, L5 Galileo: E1, E5A, E5B, E5 AltBOC, E6[2] BeiDou: B1, B1C, B2, B2A, B3 QZSS: L1C/A, L1S, L1C, L2C, L5, L6 NavIC (IRNSS): L5 L-band: CenterPoint RTX
	Iridium filtering above 1616 MHz allows antenna to be used up to 20 m away from iridium transmitter	
	Japanese LTE filtering below 1510 MHz allows antenna to be used up to 100 m away from Japanese LTE cell tower	
	Digital Signal Processor (DSP) techniques to detect and recover from spoofed GNSS signals	
	Advanced Receiver Autonomous Integrity Monitoring (RAIM) algorithm to detect and reject problem satellite measurements to improve position quality	
	Improved protection from erroneous ephemeris data	
	Positioning Rates	1 Hz, 2 Hz, 5 Hz, 10 Hz, and 20 Hz

POSITIONING PERFORMANCE[3]

CODE DIFFERENTIAL GNSS POSITIONING

	Horizontal	0.25 m + 1 ppm RMS
	Vertical	0.50 m + 1 ppm RMS
	SBAS[4]	typically <5 m 3DRMS

STATIC GNSS SURVEYING

High-Precision Static		
	Horizontal	3 mm + 0.1 ppm RMS
	Vertical	3.5 mm + 0.4 ppm RMS
Static and Fast Static		
	Horizontal	3 mm + 0.5 ppm RMS
	Vertical	5 mm + 0.5 ppm RMS

REAL TIME KINEMATIC SURVEYING

Single Baseline <30 km		
	Horizontal	8 mm + 1 ppm RMS
	Vertical	15 mm + 1 ppm RMS
Network RTK[5]		
	Horizontal	8 mm + 0.5 ppm RMS
	Vertical	15 mm + 0.5 ppm RMS
RTK start-up time for specified precisions[6]		2 to 8 seconds

TRIMBLE RTX™ TECHNOLOGY (SATELLITE AND CELLULAR/INTERNET (IP))

CenterPoint RTX[7]		
	Horizontal	2 cm RMS
	Vertical	5 cm RMS
	RTX convergence time for specified precisions - Worldwide	< 3 min
	RTX QuickStart convergence time for specified precisions	< 5 min
	RTX convergence time for specified precisions in select regions (Trimble RTX Fast Regions)	< 1 min

TRIMBLE XFILL[8]

	Horizontal	RTK[9] + 10 mm/minute RMS
	Vertical	RTK[9] + 20 mm/minute RMS

HARDWARE

PHYSICAL

Dimensions (W×H)	11.9 cm x 13.6 cm (4.6 in x 5.4 in)	
Weight	1.12 kg (2.49 lb) with internal battery, internal radio with UHF antenna, 3.95 kg (8.71 lb) items above plus range pole, Trimble TSC7 controller & bracket	
Temperature[10]		
	Operating	–40 °C to +65 °C (–40 °F to +149 °F)
	Storage	–40 °C to +75 °C (–40 °F to +167 °F)
Humidity		100%, condensing
Ingress protection		IP67 dustproof, protected from temporary immersion to depth of 1 m (3.28 ft)
Shock and vibration (Tested and meets the following environmental standards)		
	Shock	Non-operating: Designed to survive a 2 m (6.6 ft) pole drop onto concrete. Operating: to 40 G, 10 msec, sawtooth
	Vibration	MIL-STD-810F, FIG.514.5C-1

ELECTRICAL

	Power 11 to 24 V DC external power input with over-voltage protection on Port 1 and Port 2 (7-pin Lemo)	
	Rechargeable, removable 7.4 V, 3.7 Ah Lithium-ion smart battery with LED status indicators	
	Power consumption is 4.2 W in RTK rover mode with internal radio[11]	
Operating times on internal battery[12]		
	450 MHz receive only option	6.5 hours
	450 MHz receive/transmit option (0.5 W)	6.0 hours
	450 MHz receive/transmit option (2.0 W)	5.5 hours
	Cellular receive option	6.5 hours

COMMUNICATIONS AND DATA STORAGE

Serial	3-wire serial (7-pin Lemo)	
USB v2.0	Supports data download and high speed communications	
Radio modem	Fully Integrated, sealed 450 MHz wide band receiver/transmitter with frequency range of 403 MHz to 473 MHz, support of Trimble, Pacific Crest, and SATEL radio protocols:	
	Transmit power	2 W
	Range	3–5 km typical / 10 km optimal[13]
Cellular[14]	Integrated, 3.5 G modem, HSDPA 7.2 Mbps (download), GPRS multi-slot class 12, EDGE multi-slot class 12, Penta-band UMTS/HSDPA (WCDMA/FDD) 800/850/900/1900/2100 MHz, Quad-band EGSM 850/900/1800/1900 MHz, GSM CSD, 3GPP LTE	
Bluetooth	Version 4.1[15]	
Wi-Fi	802.11 b,g, access point and client mode, WPA/WPA2/WEP64/WEP128 encryption	
I/O ports	Serial, USB, TCP/IP, IBSS/NTRIP, Bluetooth	
Data storage	6 GB internal memory	
Data format	CMR+, CMRx, RTCM 2.1, RTCM 2.3, RTCM 3.0, RTCM 3.1, RTCM 3.2 input and output	
	24 NMEA outputs, GSOF, RT17 and RT27 outputs	

WEBUI

	Offers simple configuration, operation, status, and data transfer
	Accessible via Wi-Fi, Serial, USB, and Bluetooth

SUPPORTED CONTROLLERS & FIELD SOFTWARE

	Trimble TSC7, Trimble T10, Trimble T7, Android and iOS devices running supported apps
	Trimble Access 2019.10 or later

CERTIFICATIONS

	FCC Part 15 (Class B device), 24, 32; CE Mark; RCM; PTCRB; BT SIG

Trimble R12 GNSS SYSTEM



1 Challenging GNSS environments are locations where the receiver has sufficient satellite availability to achieve minimum accuracy requirements, but where the signal may be partly obstructed by and/or reflected off of trees, buildings, and other objects. Actual results may vary based on user's geographic location and atmospheric activity, scintillation levels, GNSS constellation health and availability, and level of multipath and signal occlusion.
2 The current capability in the receivers is based on publicly available information. As such, Trimble cannot guarantee that these receivers will be fully compatible with a future generation of Galileo satellites or signals.
3 Precision and reliability may be subject to anomalies due to multipath, obstructions, satellite geometry, and atmospheric conditions. The specifications stated recommend the use of stable mounts in an open sky view, EMI and multipath clean environment, optimal GNSS constellation configurations, along with the use of survey practices that are generally accepted for performing the highest-order surveys for the applicable application including occupation times appropriate for baseline length. Baselines longer than 30 km require precise ephemeris and occupations up to 24 hours may be required to achieve the high precision static specification.
4 Depends on SBAS system performance.
5 Network RTK PPM values are referenced to the closest physical base station.
6 May be affected by atmospheric conditions, signal multipath, obstructions and satellite geometry. Initialization reliability is continuously monitored to ensure highest quality.
7 RMS performance based on repeatable in field measurements. Achievable accuracy and initialization time may vary based on type and capability of receiver and antenna, user's geographic location and atmospheric activity, scintillation levels, GNSS constellation health and availability and level of multipath including obstructions such as large trees and buildings.
8 Accuracies are dependent on GNSS satellite availability. xFill positioning without a Trimble CenterPoint RTX subscription ends after 5 minutes of radio downtime. xFill positioning with a CenterPoint RTX subscription will continue beyond 5 minutes providing the Trimble RTX solution has converged, with typical precisions not exceeding 6 cm horizontal, 14 cm vertical or 3 cm horizontal, 7 cm vertical in Trimble RTX Fast regions. xFill is not available in all regions, check with your local sales representative for more information.
9 RTK refers to the last reported precision before the correction source was lost and xFill started.
10 Receiver will operate normally to –40 °C, internal batteries are rated from –20 °C to +60 °C (ambient +50 °C).
11 Tracking GPS, GLONASS and SBAS satellites.
12 Varies with temperature and wireless data rate. When using a receiver and internal radio in the transmit mode, it is recommended that an external 6 Ah or higher battery is used.
13 Varies with terrain and operating conditions.
14 Due to local regulations, the integrated cellular modem cannot be enabled in China, Taiwan, or Brazil. A Trimble controller integrated cellular modem or external cellular modem can be used to obtain GNSS corrections via an IP (Internet Protocol) connection.
15 Bluetooth type approvals are country specific.

Specifications subject to change without notice.

GET IT ON Google play

Made for iPhone | iPad

Contact your local Trimble Authorized Distribution Partner for more information

NORTH AMERICA
Trimble Inc.
10368 Westmoor Dr
Westminster CO 80021
USA

EUROPE
Trimble Germany GmbH
Am Prime Parc 11
65479 Raunheim
GERMANY

ASIA-PACIFIC
Trimble Navigation
Singapore PTE Limited
3 HarbourFront Place
#13-02 HarbourFront Tower Two
Singapore 099254
SINGAPORE

© 2019–2021, Trimble Inc. All rights reserved. Trimble, the Globe & Triangle logo, CenterPoint, and xFill are trademarks of Trimble Inc., registered in the United States and in other countries. Access, ProPoint, SurePoint, Trimble RTX and VRS are trademarks of Trimble Inc. iPad and iPhone are trademarks of Apple Inc., registered in the U.S. and other countries. Google, Google Play, and other marks are trademarks of Google LLC. Wi-Fi is a registered trademark of Wi-Fi Alliance. The Bluetooth word mark and logos are owned by the Bluetooth SIG, Inc. and any use of such marks by Trimble Inc. is under license. Galileo is developed under a License of the European Union and the European Space Agency. All other trademarks are the property of their respective owners.
PN 022516-481D (07/21)

4125i

SIDE SCAN SONAR SYSTEM

FEATURES

- Ultra high resolution images
- Lightweight for one person deployment
- Standard heading, pitch, roll & pressure sensors
- Choice of dual simultaneous frequencies
- Runs on AC or DC
- Pole mount option for shallow water use

APPLICATIONS

- Hydrographic Surveys
- Geological Surveys
- Search & Recovery
- Channel/Clearance Surveys
- Bridge/Pier/Harbor Wall Inspection
- Hull Inspections



EdgeTech's 4125i Side Scan Sonar System was designed with both the Search & Recovery (SAR) and shallow water survey communities in mind. The 4125i utilizes EdgeTech's Full Spectrum® CHIRP technology, which provides higher resolution imagery at ranges up to 50% greater than non-CHIRP systems operating at the same frequency. This translates into more accurate results and faster surveys, thus cutting down on costs.

Two dual simultaneous frequency sets are available for the 4125i depending on the application. The 400/900 kHz set is the perfect tool for shallow water survey applications, providing an ideal combination of range and resolution. The 600/1600 kHz set is ideally suited for customers that require ultra high resolution imagery in order to detect very small targets (SAR).



The 4125i system can be powered by both AC and DC for added versatility and is delivered in portable rugged cases for ease of transport from site-to-site. As is standard with all of EdgeTech's towed side scan systems, the 4125i comes with a safety recovery system which will prevent the loss of a towfish if it becomes snagged on an obstacle during a survey.

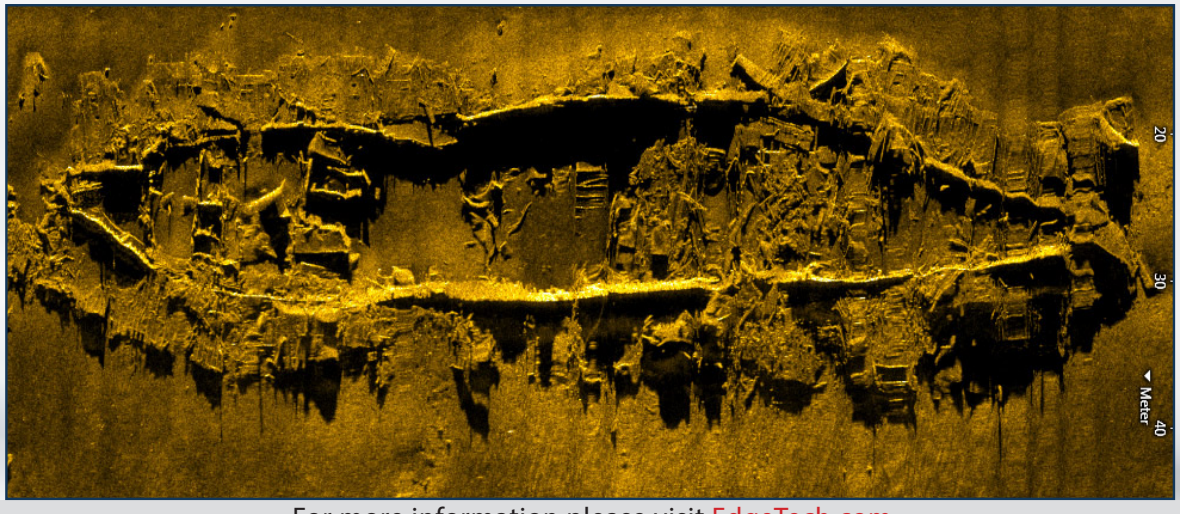
A standard 4125i System comes with a rugged stainless steel towfish and a portable water resistant topside processor including a laptop computer (Optional: Splash Proof/Ruggedized Laptop). A 50 meter Kevlar tow cable is included as standard with customer-specified lengths also available. Multiple options are available such as a v-fin depressor, keel weight, pole mount and hull scan bracket for added versatility.

4125i

SIDE SCAN SONAR SYSTEM

KEY SPECIFICATIONS

SONAR	
Frequencies (Dual Simultaneous)	Choice of either a 400/900 kHz or 600/1600 kHz towfish
Pulse Type	EdgeTech's Full Spectrum® CHIRP
Operating Range	150m @ 400 kHz, 75m @ 900 kHz; 120m @ 600 kHz, 35m @ 1600 kHz
Horizontal Beam Width	0.46° @ 400 kHz, 0.28° @ 900 kHz; 0.33° @ 600 kHz, 0.20° @ 1600 kHz
Vertical Beam Width	50°
Resolution Across Track	400 kHz: 2.3 cm, 900 kHz: 1.0 cm, 600 kHz: 1.5 cm, 1600 kHz: 0.6 cm
TOWFISH	
Diameter	9.5 cm (3.75 inches)
Length	112 cm (44 inches)
Weight in Air	20 kg (44 pounds)
Tow Cable Type	Coaxial up to 600m max length (will provide a typical operational depth down to 200m)
Max Depth Rating of Towfish	200m
Material	Stainless Steel
Standard Sensors	Heading, Pitch, Roll, Pressure (Depth)
TOPSIDE PROCESSOR	
Power Input	12-24 VDC or 115/230 VAC, 50/60 Hz
Connections	AC, DC, Ethernet (to laptop), Towfish
Hardware	Laptop Computer (Optional: Splash Proof/Ruggedized Laptop)
Operating System	Windows® 7 & Windows® 10
Acquisition Software	EdgeTech DISCOVER
SYSTEM OPTIONS	
	Keel weight, v-fin depressor wing, pole mount, quick change hull scan bracket



For more information please visit EdgeTech.com

info@EdgeTech.com | USA 1.508.291.0057

EdgeTech
An Affiliate of ORE Offshore

3100

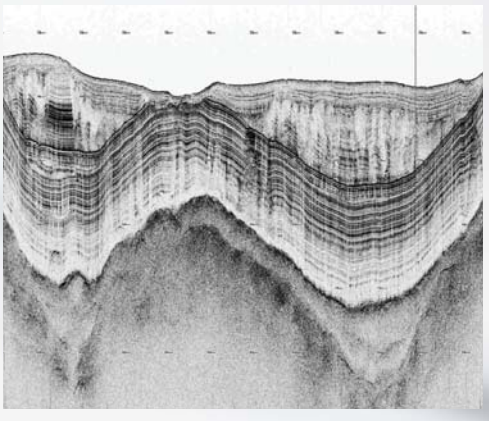
PORTABLE SUB-BOTTOM PROFILING SYSTEM

FEATURES

- Portable
- Low power requirement (runs on AC or DC)
- Choice of towfish depending on the application
- Pole mount option for shallow water surveys
- Easy to setup and operate

APPLICATIONS

- Geological Surveys
- Geohazard Surveys
- Buried Object Location
- Mining/Dredging Surveys
- Bridge/Shoreline Scour Surveys
- Pipeline and Cable Location





The 3100 is EdgeTech's portable version of their highly successful sub-bottom profiler product line. The system utilizes EdgeTech's Full Spectrum CHIRP technology which provides higher resolution imagery of the sub-bottom structure and greater penetration.

The 3100 is ideally suited for use in rivers, lakes, ponds and shallow water ocean applications up to 300m max depth. The system was designed for customers that require a portable system that can be used from smaller boats while not wanting to sacrifice image quality.

A 3100 system comes with a choice of two towfish; either the SB-424 or SB-216S. These towfish operate at different frequency ranges and selection between the two depends on the type of application. The 424 operates at 4-24 kHz and will provide slightly higher resolution but less penetration. The 216S operates at 2-16 kHz and provides slightly less resolution but greater penetration. Along with a towfish, the 3100 system comes with a portable splash-proof topside processor with laptop computer running EdgeTech's DISCOVER software for display of the sonar data. The system comes standard with a 35m tow cable with customer-specified lengths also available.

EdgeTech
An Affiliate of ORE Offshore

3100

PORTABLE SUB-BOTTOM PROFILING SYSTEM

KEY SPECIFICATIONS

TOWFISH	SB- 216S	SB- 424
Frequency Range	2-16 kHz	4-24 kHz
Vertical Resolution (depends on pulse selected)	6-10 cm	4-8 cm
Penetration		
In coarse calcareous sand	6m	2m
In clay	80m	40m
Length	105 cm (41”)	77 cm (30”)
Width	67 cm (26”)	50 cm (20”)
Height	40 cm (16”)	34 cm (13”)
Weight in Air	76 kg (167 lbs.)	45 kg (100 lbs.)
Weight in Water	32 kg (70 lbs.)	18 kg (40 lbs.)
Max Depth Rating of Towfish	300 meters	
TOPSIDE PROCESSOR		
Hardware	Rugged, portable splashproof enclosure	
Operating System	Windows XP	
Display	Splashproof semi-rugged laptop	
Archive	DVD-R/W	
File Format	SEG-Y	
I/O	Ethernet	
Power Input	110/220 VAC or 12 VDC	



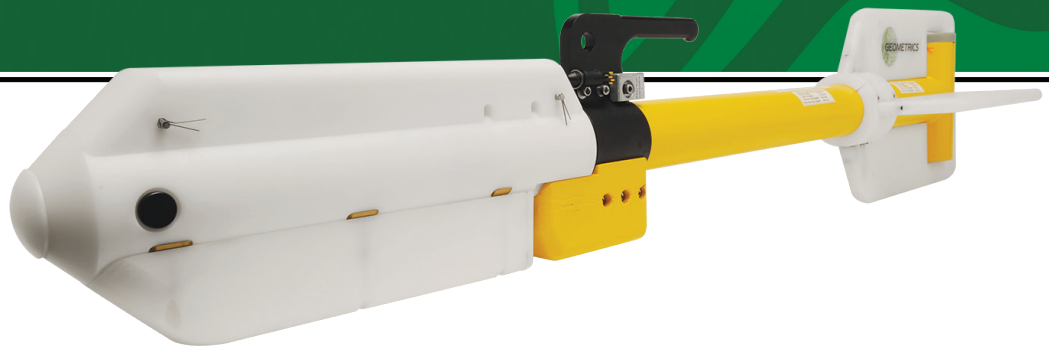
SB-216S TOWFISH



SB-424 TOWFISH

G-882
Cesium Marine Magnetometer

GEOMETRICS
Innovation • Experience • Results



Geometrics' G-882 Marine Magnetometer is the leading marine system in the industry with over 1,000 systems sold! The G-882 is the only system that meets the standards for UXO clearance in the North Sea.

This very high-resolution Cesium vapor marine magnetometer is low in cost, small in size, and offers flexibility for professional surveys in shallow or deep water. Use your personal computer with our MagLog™ software to log, display and print GPS position and magnetic field data.

The system directly interfaces to all major side-scan manufacturers for tandem tow configurations. Being small and lightweight, it is easily deployed and operated by one person. But add several streamlined weight collars and the system can quickly weigh more than 100 lbs for deep-tow applications.

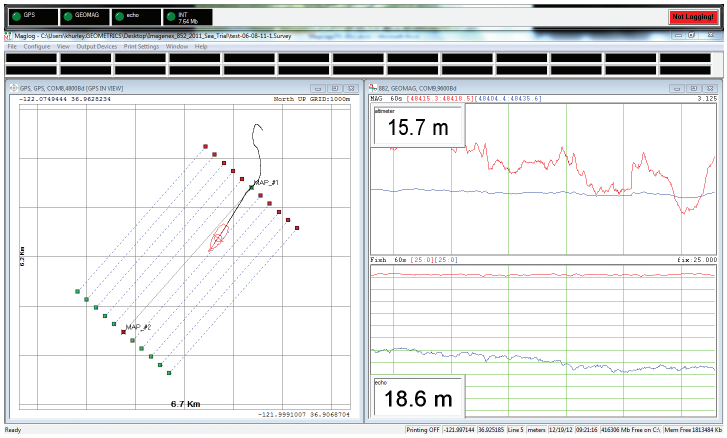
This marine magnetometer system is particularly well-suited for the detection and mapping of all sizes of ferrous objects. This includes anchors, chains, cables, pipelines, ballast stones and other scattered shipwreck debris, munitions of all sizes (UXO), aircraft, engines and any other object with a magnetic expression. The G-882 is also perfect for geological studies. Its high sensitivity and high sample rates are maintained for all applications.

Objects as small as a 5-inch screwdriver are readily detected provided that the sensor is close to the seafloor and within practical detection range (refer to table on back).

FEATURES & BENEFITS

- **Cesium Vapor High Performance** – Highest detection range and high probability of detecting all sized ferrous targets.
- **Streamlined Design for Tow Safety** – Low probability of fouling in fishing lines or rocks. Rugged fiber-wound fiberglass housing.
- **Sample at up to 20Hz** – Unparalleled data density while also covering larger areas per day.
- **Sensor can be Rotated for Optimal Signal** – Can be used worldwide.
- **Easy Portability and Handling** – No winch required. Built-in easy-carry handle. Operable by a single man; only 44 lb with 200 ft cable.
- **Combine Multiple Systems for Increased Coverage** – Internal CM-221 Mini-counter provides multi-sensor sync and data concatenation, allowing side-by-side coverage which maximizes detection of small targets and reduces noise.
- **Export Version Available** – Use anywhere in the world without need for an export license (except embargoed countries). See specifications.

SPECIFICATIONS | G-882 Cesium Marine Magnetometer



MagLogLite™ Data Logging software is included with each magnetometer and allows recording and display of data and position with automatic anomaly detection. Additional software options include: MagLog Pro™, advanced logging software; MagMap™, a plotting and contouring package; and MagPick™ post-acquisition processing software.

MAGNETOMETER / ELECTRONICS

Operating Principle: Self-oscillating split-beam Cesium vapor (non-radioactive).

Operating Range: 20,000 to 100,000 nT.

Operating Zones: The earth's field vector should be at an angle greater than 10° from the sensor's equator and greater than 6° away from the sensor's long axis. Automatic hemisphere switching.

Noise: <0.004 nT/$\sqrt{\text{Hz}}_{\text{rms}}$. (SX (export) version: <0.02 nT/$\sqrt{\text{Hz}}_{\text{rms}}$).

Max Sample Rate: 20 Hz.

Heading Error: < 1 nT (over entire 360° spin).

Output: RS-232 at 1,200 to 19,200 Baud.

Power: 24 to 32 VDC, 0.75 A at power-on and 0.5 A thereafter.

MECHANICAL

Sensor Fish

DIA: 7 cm; L: 137 cm (2.75x54 in) (with fin assembly).
Weight: 18 kg (40 lb).

Includes sensor and electronics and 1 main weight. Additional collar weights are 6.4 kg (14 lb) each; total of 5 capable.

Tow Cable

DIA: 12 mm; L: 800 m (0.47 in x 2,625 ft).
Weight: 7.7 kg (17 lb) with terminations.
Break strength: 1,630 kg (3,600 lb)
Bend diameter: 30 cm (12 in).

Typical Detection Range for Common Objects

1.	Ship: 1000 tons	0.5 to 1 nT at 800 ft (244 m)
2.	Anchor: 20 tons	0.8 to 1.25 nT at 400 ft (120 m)
3.	Automobile	1 to 2 nT at 100 ft (30 m)
4.	Light Aircraft	0.5 to 2 nT at 40 ft (12 m)
5.	Pipeline (12 inch)	1 to 2 nT at 200 ft (60 m)
6.	Pipeline (6 inch)	1 to 2 nT at 100 ft (30 m)
7.	Iron: 100 kg	1 to 2 nT at 50 ft (15 m)
8.	Iron: 100 lb	0.5 to 1 nT at 30 ft (9 m)
9.	Iron: 10 lb	0.5 to 1 nT at 20 ft (6 m)
10.	Iron: 1 lb	0.5 to 1 nT at 10 ft (3 m)
11.	Screwdriver: 5-inch	0.5 to 2 nT at 12 ft (4 m)
12.	Bomb: 1000 lb	1 to 5 nT at 100 ft (30 m)
13.	Bomb: 500 lb	0.5 to 5 nT at 50 ft (16 m)
14.	Grenade	0.5 to 2 nT at 10 ft (3 m)
15.	Shell: 20 mm	0.5 to 2 nT at 5 ft (1.8 m)

ENVIRONMENTAL

Operating Temperature: -35°C to +50°C (-30°F to +122°F).

Storage Temperature: -45°C to +70°C (-48°F to +158°F).

Altitude: 9,000 m (30,000 ft).

Depth: 4,000 psi (2,730 m; 8956 ft).

Water Tight: O-Ring sealed for up to 4,000 psi depth operation.

ACCESSORIES

Standard: Operation manual, shipping/storage container, ship kit with tools and hardware, power supply, MagLogLite™, MagMap™ and MagPick™ processing software, depth transducer, altimeter.

Optional: Steel tow cable to 6,000 m (19,600 ft) with telemetry, longitudinal or transverse gradiometer, plastic Pelican® case, MagLogPro™, collar weights.

Specifications subject to change without notice.

GEOMETRICS
Innovation • Experience • Results

GEOMETRICS INC. 2190 Fortune Drive, San Jose, California 95131, USA
Tel: 408-954-0522 • Fax: 408-954-0902 • Email: sales@geometrics.com

GEOMETRICS EUROPE 20 Eden Way, Pages Industrial Park, Leighton Buzzard LU7 4TZ, UK
Tel: 44-1525-383438 • Fax: 44-1525-382200 • Email: chris@georentals.co.uk

GEOMETRICS CHINA Laurel Geophysical Instruments Limited
8F. Building 1 , Damei Plaza, 7 Qingnian Road, Chaoyang District, Beijing, 100025 China
Tel: +86-10-85850099 • Fax: +86-10-85850991 • laurel@laurelgeophysics.com.cn