LABRANCHE EAST MARSH CREATION
PROJECT NO. PO-75

SURVEY REPORT

PREPARED FOR:

USDA NRCS

United States Department of Agriculture
Natural Resources Conservation Service

SEPTEMBER 2, 2010

SUBMITTED BY:

T. BAKER SMITH
PROFESSIONAL CONSULTANTS SINCE 1913

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PROJECT NO. PO-75
SURVEY REPORT

Prepared for: U.S.D.A.
Natural Resources Conservation Service
3737 Government St.
Alexandria, LA 71302

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Houma, LA 70363

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- Survey Field Notes (PDF Format)

SURVEY REPORT

LABRANCHE EAST MARSH CREATION
PROJECT NO. PO-75

1.0 INTRODUCTION

The purpose of the data collection tasks summarized in this report is to provide critical support information for planning and design of the Labranche East Marsh Creation Project (PO-75). The Services provided under this task order involved topographic and bathymetric field data collection, related data processing, and the organization of all data into a workable format for design purposes.

2.0 PROJECT OVERVIEW

The Labranche East Marsh Creation Project is an authorized PPL 19 Coastal Wetlands Planning, Protection, and Restoration Act (CWPPRA) Project. The project is co-sponsored by the Natural Resources Conservation Service (NRCS) and the Louisiana Office of Coastal Protection and Restoration (OCPR). The primary objective of this project is to convert an existing 729 acre shallow pond area to a healthy marsh platform by dredging sediment from Lake Ponchartrain. In addition, the project will nourish approximately 202 acres of existing marsh. The marsh creation site is located approximately 2 miles west of the eastern guide levee of the Bonnet Carre Floodway, between Interstate 10 and Lake Pontchartrain. The proposed borrow site is located in Lake Pontchartrain, approximately 2000' north of the end of the Eastern Guide levee of the Bonnet Carre Floodway.

3.0 DATA COLLECTION SUMMARY

During the period of June 2010 through August 2010, T. Baker Smith, Inc. (TBS) collected field data throughout the project area. This data collection task consisted of numerous topographic, bathymetric, and geophysical surveys throughout the marsh creation and borrow areas. Topographic and Bathymetric data was collected by a three-

man survey crew aboard an Airboat or Survey vessel w/ outboard motors. Geophysical data was collected by a two-man crew aboard a 26' hydrographic survey vessel.

3.1 GEOTECHNICAL SURVEYS

A total of sixteen (16) Geotechnical Bores were staked for position and surveyed for potential underground obstructions. The Bore positions were staked with cane poles and a magnetometer survey was performed within a 100' radius around each location. No significant magnetic anomalies were found within the specified radius at any of the bore locations.

3.2 MARSH CREATION FILL AREA SURVEYS

Topographic and Bathymetric surveys were performed along 46 transects located throughout the 729 acre marsh creation area. Surveys were also performed along an additional 31 cross-sections located at various bayous, cuts, and tidal openings connected to the marsh creation area. The spacing for elevations obtained in these surveys was every 25 feet or major changes in grade. Also, the perimeter marsh edge of the marsh creation area and interior islands was surveyed at 50' intervals or greater to accurately depict the feature. The results of the Marsh Creation Fill Area Surveys can be seen in Appendix 2.

3.3 LAKE PONTCHARTRAIN BATHYMETRIC SURVEYS

Bathymetric data was collected along thirteen (13) tracklines within the Lake Pontchartrain Borrow Area. Survey tracklines were spaced in an east to west configuration at 250' intervals. These tracklines were surveyed in a continuous manner using a 24' Hydrographic Survey vessel utilizing a 200 kHz fathometer and RTK positioning. Acoustic soundings were collected along each trackline at a 10 Hz rate. The results of the Lake Pontchartrain Bathymetric Survey can be seen in Appendix 4.

3.4 MARSH ELEVATION SURVEYS

In order to determine the average healthy marsh elevation for marsh creation construction, elevation surveys were performed at nineteen (19) different sites selected by NRCS field personnel. At each location, three marsh elevations were observed at the base of the plant root mass using RTK GPS. The results of the Marsh Elevation Surveys can be seen in Appendix 3.

3.5 MAGNETOMETER / SIDE SCAN SONAR SURVEYS

Magnetometer surveys were performed in both the borrow area and marsh creation area to determine the location of any possible oil and gas pipelines and other mettalic obstructions. The marsh creation area magnetometer survey was performed using a magnetic gradiometer from an Airboat. The survey was run on tracklines spaced at 500' intervals oriented in a manner to provide complete coverage of the area. This survey did not show any significant magnetic anomalies within the marsh creation area. Many PVC markers were found within the marsh creation area, but surveys did not register any magnetic signatures around the markers. Based on field investigations, these markers appear to have been placed to mark boat travel lanes and not underground utilities.

The Magnetometer survey performed in the Lake Pontchartrain Borrow area was performed using a 24' Survey Vessel and a Proton Magnetometer. The magnetometer survey was run on tracklines spaced at 100' intervals, oriented from East to West. The survey showed the existence of 2 possible pipelines crossing the proposed borrow area. The surveyed location of one of the pipelines (Air Products and Chemicals, Inc.) was confirmed by the LDNR pipeline database. However, the second pipeline was not documented in any of the known pipeline databases. One additional pipeline was detected outside of the borrow area boundary (Shell Pipeline), near the southeast corner of the area. A total of 284 magnetic anomalies were detected and identified during this survey. The large majority of these anomalies were determined to be crab traps placed by local fishermen. The results of the Borrow Area Magnetometer Survey can be seen in Appendix 5.

The Borrow Area was also surveyed using a Side Scan Sonar System. This survey was performed to determine the presence of any potential non-metallic obstructions located on or above the lake bottom within the borrow area. The Side-Scan Survey was performed concurrently with the Magnetometer survey, on identical tracklines. This survey did not reveal the presence of any significantly visible bottom obstructions. The survey does show a large area of anchor scars near the Air Products and Chemicals pipeline in the north–central portion of the borrow area. Also, several areas of unidentified bottom formations are visible at the north east corner of the borrow area. These areas are most likely clam shell (Rangia cuneata) reefs, which are known to exist in this area of the lake. The side scan sonar mosaic image can be seen in Appendix 5.

4.0 METHODOLOGY

4.1 SURVEY CONTROL AND DATUM INFORMATION

The horizontal and vertical survey control used for all data collection on this project was Benchmark "**876 2372 F TIDAL"**. This benchmark is part of NOAA's tidal benchmark network. Before this Benchmark was used for control purposes the published elevation and horizontal coordinates were verified from LSU's GULFNET Real-time RTK Network. The horizontal datum for all survey data collected is Louisiana State Plane, South Zone (1702), NAD 83, in U.S. Survey feet. The vertical datum for all data is NAVD 88, in U.S. Survey feet. Published data for the benchmark can be seen in Appendix 1.

4.2 TOPOGRAPHIC SURVEYS

Topographic Surveys were performed using a standard three-man survey crew, accessing the survey area by airboat. In areas with a clear, unobstructed view of the sky, a Trimble© model R7/R8 GPS RTK unit was used to collect the topographic field data. The manufacturer's stated accuracy of this unit is 2-3 cm horizontal, and 3-4 cm vertical.

All RTK GPS Survey information was stored digitally using a Trimble TSC-2 Data Collector.

In areas where tree canopy or other obstructions made RTK GPS impractical, the survey crew used conventional survey methods to collect the topographic data. Typically, two control points were set with RTK GPS in an unobstructed area. A 200' surveyors tape and level were then used to reference the surveyed point to the control points. Handwritten field notes were used to document all conventional survey data. For the subaqueous portions of cross-sections, data was collected by taking hand soundings using a Standard 25' Stadia Rod with a 6" diameter bottom plate. RTK GPS was used for horizontal positioning of each sounding. The soundings were also referenced to an RTK GPS observed tide reading for elevation reduction.

Topographic survey data was downloaded from the Trimble TSC-2 Data Collector into the Trimble Geomatics Office software for processing. This software allows for QA/QC of GPS data, and was used to check for instrument setup errors, antenna height errors, and other blunders. Sounding data was processed by manually entering the soundings and observed tide readings into a formatted spreadsheet. The spreadsheet was configured to automatically reduce each sounding from depths to NAVD88 elevations. These points were then exported and entered into AutoCAD Civil 3D for further processing. Using this point data, 3D surface models were produced for all areas. These surface models were used to generate elevation contours and profiles for the final deliverable drawings. The processed survey data was also exported to one complete digital text file containing point numbers, X, Y, Z coordinates, and point descriptions.

4.3 BATHYMETRIC SURVEYS

Bathymetric Surveys were performed using a standard three-man survey crew aboard the 24' Survey Vessel "Surveyor X." The bathymetric data was collected using a *Hydrotrac* digital echosounder interfaced with the *HYPACK MAX* survey navigation software in conjunction with the Trimble RTK GPS unit previously mentioned. Real - time position data was output from the GPS receiver to the *HYPACK* software 10 times

each second. Digital water depth data was also output from the depth sounder 20 times each second. The *HYPACK* software is able to use the above information to display course corrections to help the surveyor navigate the predefined track line. The software is also able to compute a precise, centimeter level, position of each sounding.

In order to ensure accurate measurements were being recorded, equipment checks and calibrations were performed several times each day. The digital depthsounder was calibrated several times a day for sound velocity corrections. This is performed by lowering an acoustic target, with precisely measured marks, below the transducer to the desired survey depth. The depthsounder's sound velocity correction factor is then adjusted so that the depthsounder reads the precise depth of the acoustic target. The measurements of the onboard GPS system were also checked by observing navigation checkpoints, or "Nav-checks", set throughout the project area.

Bathymetric survey data was transferred from the onboard laptop computer to the office for processing. The processing was accomplished by using Hypack's Single Beam Editor. The Hypack software allowed a profile-type review of the data, where any position or sounding outliers were manually removed. Once the data had been processed and gone through an internal QA/QC review, it was presorted and points spaced at 10' intervals along the line were exported in X,Y,Z format. These X,Y,Z point files were then imported into AutoCAD Civil 3D for grouping, management, and further QA/QC.

4.4 GEOPHYSICAL SURVEYS

Geophysical instruments used during this survey consisted of a Klein Model 3000 side scan sonar and a Marine Magnetics SeaSPY marine magnetometer. Horizontal positioning of the survey vessel was accomplished using HyPack® navigation software with a Trimble Model DSM 232 global positioning receiver. Horizontal accuracy of this positioning as stated by the manufacturer is ±3 meters. The magnetometer sensor was deployed 50 feet behind the positioning antenna and set at .1sec/gamma. The side scan sonar fish was towed alongside the vessel and was set at the 40-meter range, with frequency settings of 100 and 500 kHz simultaneously. Horizontal positioning of the

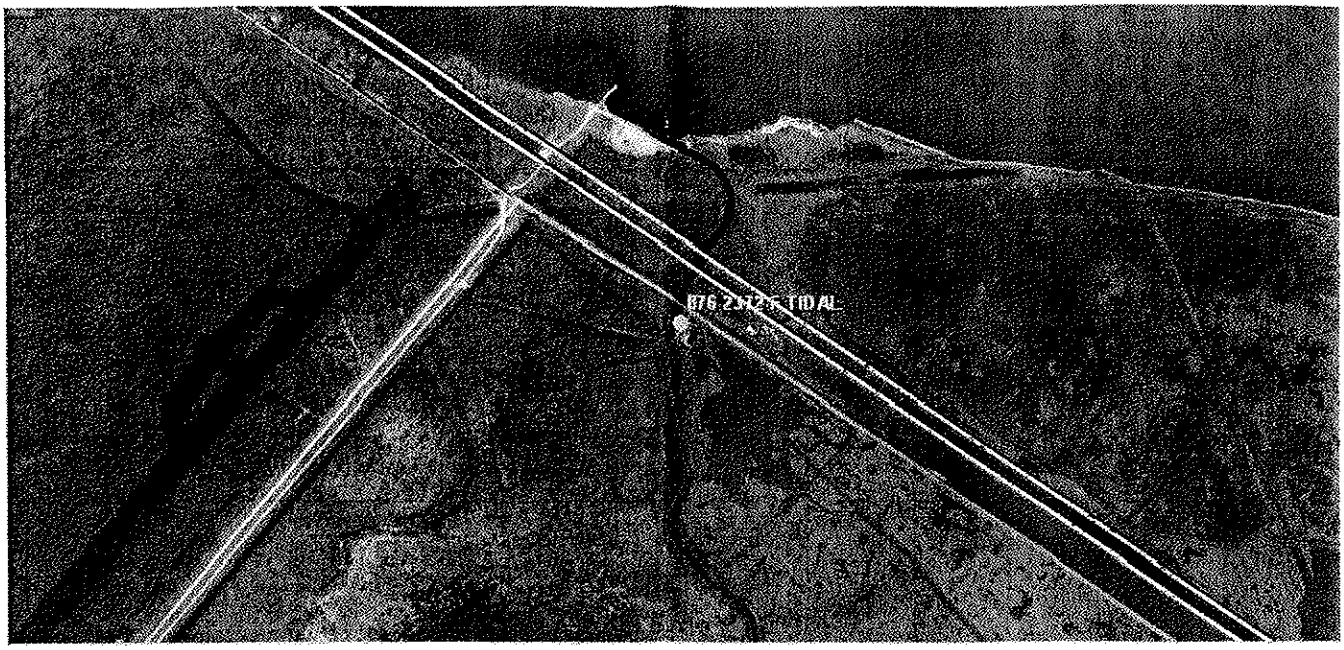
survey vessel was accomplished with a Differential Global Positioning System, which has a field accuracy of ± 3 meters.

All Magnetometer data was digitally recorded by an onboard laptop computer using the SeaSPY interface linked with the *HYPACK MAX* survey navigation software mentioned above. The magnetometer was set to a collection frequency of 10 Hz. The magnetic data was processed in Hypack to obtain the exact position, signature type, and strength of each anomaly. The Hypack processing software allows the user to view the magnetic data as actual magnetic field values along a continuous line. The user is able to easily pinpoint anomalies as deflections from the normal magnetic field and note the position based on the center of the signature. The magnetic contours are then exported in 20 gamma intervals to show the magnetic variation across the site. Each magnetic anomaly is interpreted based on its size, signature type, and actual field observations.

The Side scan sonar images were collected using a system consisting of a topside computer, VGA monitor, keyboard, mouse, graphic recorder, tow cable, and sonar towfish. The system contains an integrated navigational plotter which accepts standard NMEA 0183 input from the previously mentioned DGPS system. This allows vessel position to be displayed on the monitor and speed information to be used for controlling sonar ping rate. Sonar sweep can also be plotted in the navigation window for monitoring bottom coverage in the survey area. The hardware listed above is interfaced to the Klein SonarPro data acquisition and playback software package which runs on the topside computer. All sonar images are stored digitally and can be enhanced real-time or post-survey by numerous mathematical filters available in the program software. Digital side scan sonar imagery were processed and mosaiced using Triton Isis Software to produce geo-referenced TIF image files and plotted in plan view. The resulting mosaic was then used to identify individual acoustic targets representative of natural or man made objects resting on the bottom.

APPENDIX 1

Survey Benchmark Data Sheet



VICINITY MAP Not to Scale Reproduced from Louisiana 2005 DOQQ

Station Name: "876 2372 F TIDAL"

Location: Described by National Ocean Service 2003, located in Norco, from the intersection on Interstate Highway 310 and State Highway 61, proceed west along State Highway 61 for 10.62 km (6.60 mi) to the Bonne Cerre Spillway Road, go north on the Spillway Road for 5.47 km (3.40 mi) to a steel gate with a key lock, once thru the gate turn right and proceed to the Marsh Duck Hunt Club, the bench mark is 54.0 m (177.2 ft) south-southwest from the Southern Rail Road track, 16.90 m (55.45 ft) north-northeast from the northeast corner of the fish cleaning station on the pier, 14.70 m (48.23 ft) northwest of the northwest corner of the Marsh Duck Hunt Club building, 5.61 m (18.41 ft) south-southwest from the centerline of the boat ramp on the west side of the hunt club, and 0.32 m (1.05 ft) north of the witness post.

Monument Description: The datum point is the top of a stainless steel rod driven 23.2 m (76.1 ft) to refusal, in a sleeve extending to a depth of 1.5 m (4.9 ft) and encased in a 5-inch pvc pipe with an aluminum cover and concrete kick block.
Stamping: 2373 F 2003

Installation Date: 2003 **Date of Survey:** October 2005

Monument Established By: NOAA **For:** NOAA

Adjusted NAD83 Geodetic Position (1992)
Lat. 30°03'02.36539" N
Long. 090°22'04.43653" W

Adjusted NAD83 Datum LSZ (1702) Ft (1992)
N= 565,201.15
E= 3,586,265.26

Adjusted NAVD88 Height (2006.81)
Elevation = 1.71 feet (0.520 mtrs)

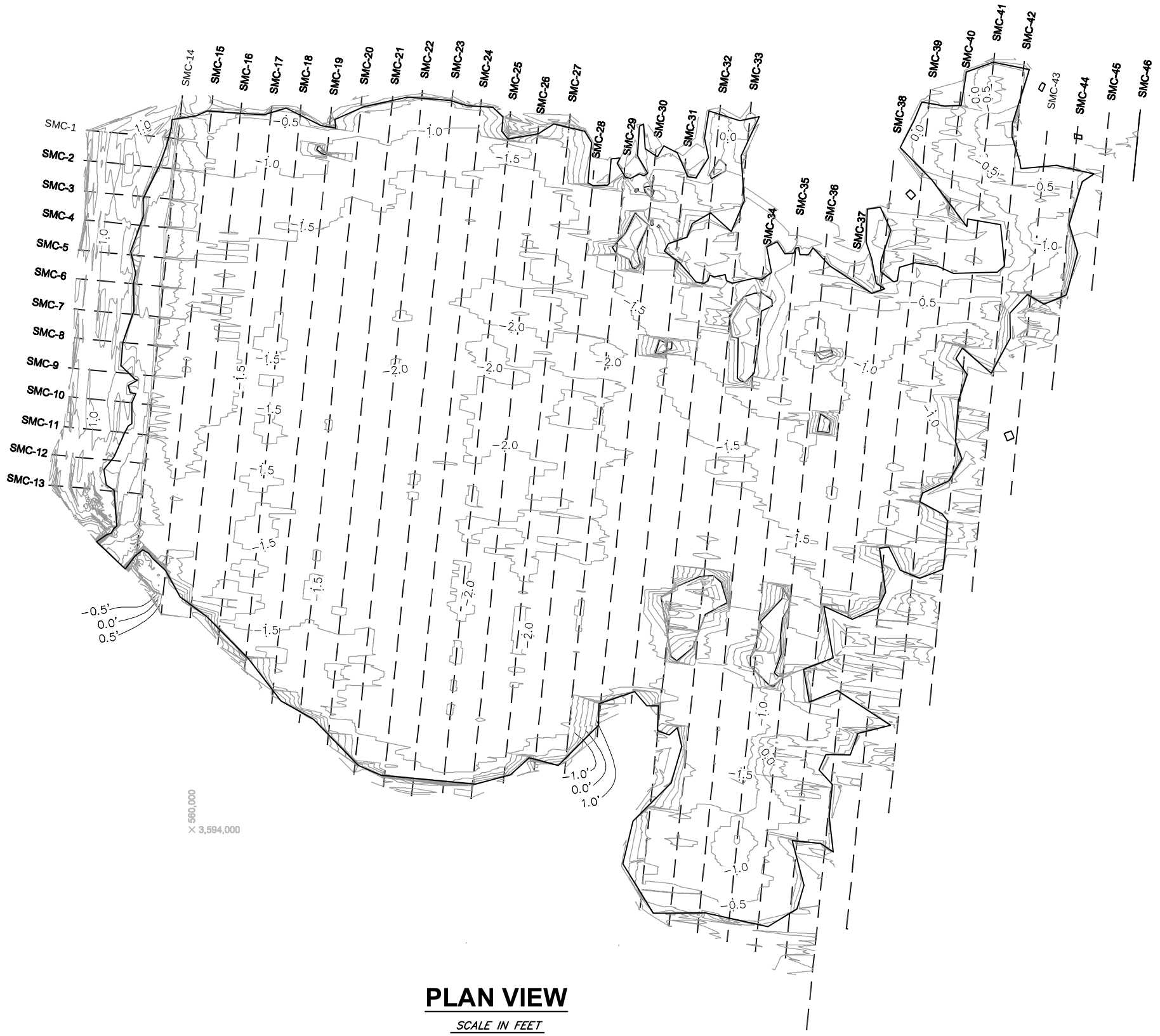
Ellipsoid Height = -25.782 mtrs.
Geoid03 Height = -26.302 mtrs. (2004.65)

NO PHOTO AVAILABLE

Adjusted Position Established John Chance Land Surveys, Inc. for the Coastal Protection & Restoration Authority of Louisiana, OCPR

APPENDIX 2

Marsh Creation Area Elevation Contours



SURVEY NOTES

1. HORIZONTAL POSITIONS ARE EXPRESSED IN LOUISIANA SOUTH ZONE (1702), NAD 83 DATUM, IN U.S. SURVEY FEET.
2. THE VERTICAL DATUM FOR ALL ELEVATIONS SHOWN IS NAVD 88 IN U.S. SURVEY FEET.

PLAN VIEW

SCALE IN FEET

1000' 500' 0' 1000'

LEGEND

- AREA BOUNDARY
- JUNE 2010 TBS SURVEY TRANSECTS
- 1.0' 0.5' CONTOURS

NOTES:

APPENDIX 2
MARSH CREATION
TRANSECTS AND
CONTOURS

DATE	REVISIONS	DRAWN BY	APPROVED BY

REVISIONS

T. BAKER SMITH
PROFESSIONAL CONSULTANTS SINCE 1913
(985) 868-1050 www.tbsmith.com

NRCS

FILE NAME:	MCA TOPO
TBS NO.:	2010.0408
DATE:	9/2/2010
PLOT SCALE:	NOTED
DRAWN BY:	LDE
APPROVED:	BJK
MAP NO.	

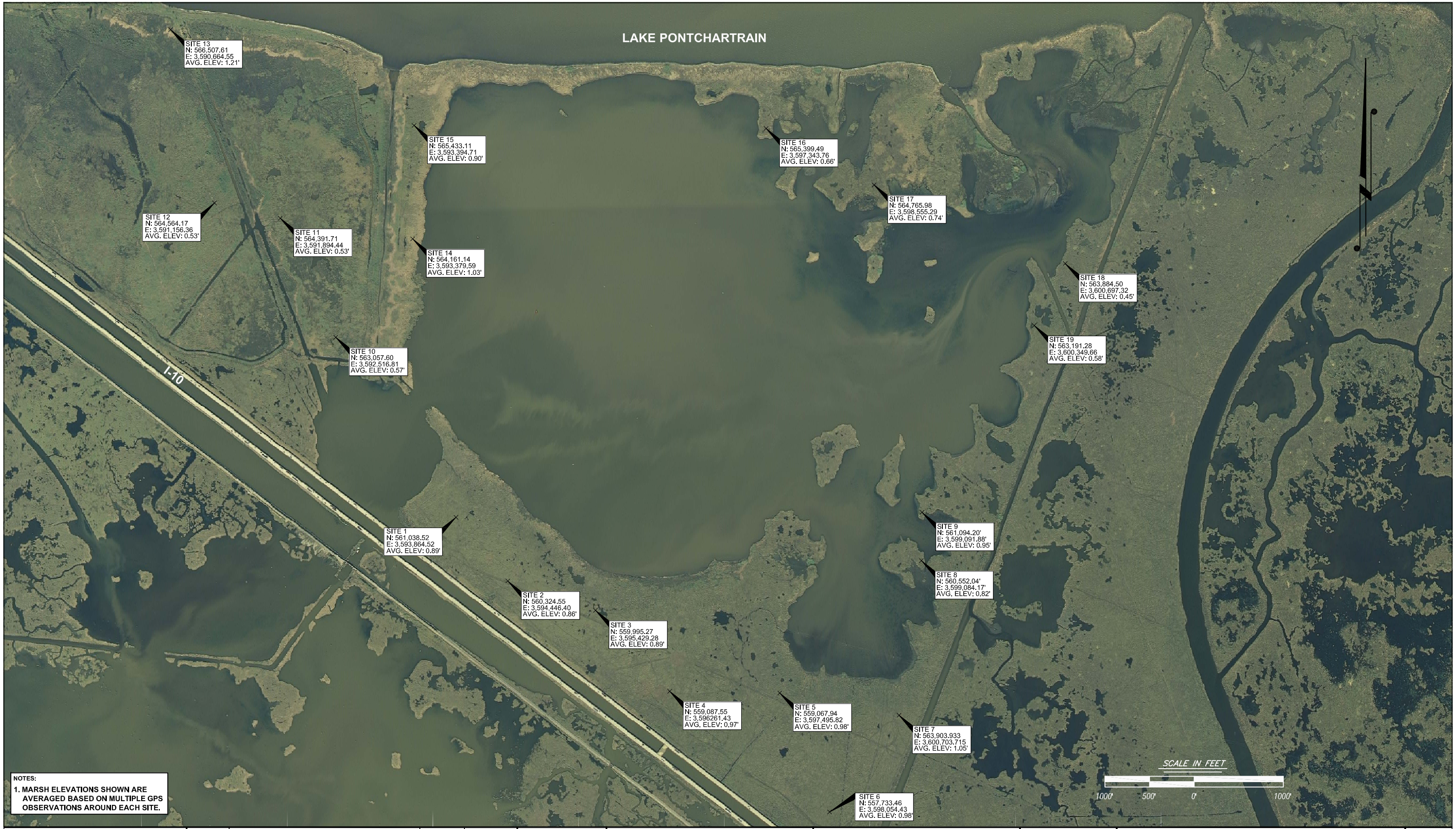
MARSH AREA CREATION
TRANSECTS AND CONTOURS

LABRANCHE EAST MARSH CREATION
PO-75
FOR
NATURAL RESOURCES CONSERVATION SERVICE
ST. CHARLES PARISH, LA

SHEET N
1
OF
25

APPENDIX 3

Marsh Creation Area - Average Marsh Elevations



NOTES:

1. MARSH ELEVATIONS SHOWN ARE AVERAGED BASED ON MULTIPLE GPS OBSERVATIONS AROUND EACH SITE.

APPENDIX 3
MARSH CREATION
MARSH ELEVATIONS

DATE	REVISIONS	DRAWN BY	APPROVED BY

REVISIONS

T. BAKER SMITH
PROFESSIONAL CONSULTANTS SINCE 1913
(985) 868-1050 www.tbsmith.com

NRCS

FILE NAME:	100408_Marsh Elev
TBS NO.:	2010.0408
DATE:	6-24-10
PLOT SCALE:	1:1000
DRAWN BY:	LDE
APPROVED:	BJK
MAP NO.	

AVERAGE MARSH ELEVATIONS

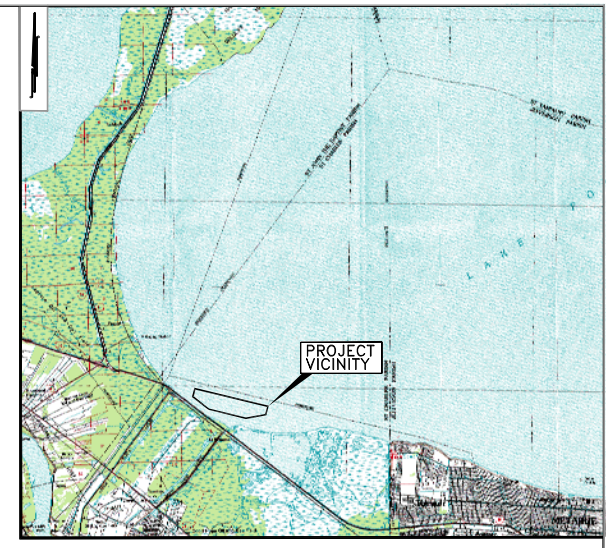
LABRANCHE EAST MARSH CREATION
PO-75
FOR
NATURAL RESOURCES CONSERVATION SERVICE
ST. CHARLES PARISH, LA

SHEET NO. 2 OF 25

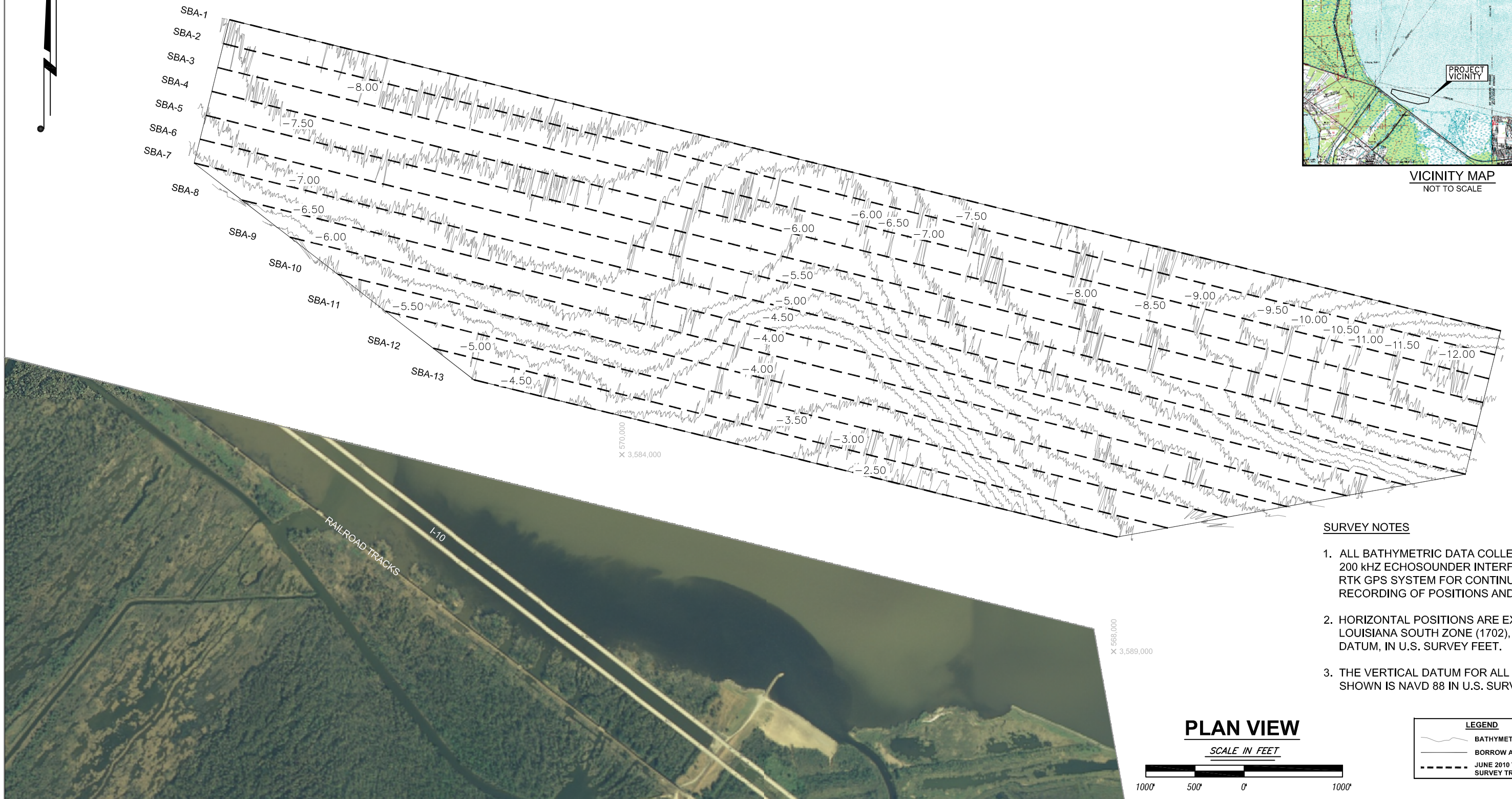
APPENDIX 4

Borrow Area - Elevation Contours and Survey Transects

LAKE PONTCHARTRAIN
ST. CHARLES PARISH



VICINITY MAP
NOT TO SCALE



SURVEY NOTES

1. ALL BATHYMETRIC DATA COLLECTED USING 200 kHZ ECHOSOUNDER INTERFACED WITH RTK GPS SYSTEM FOR CONTINUOUS RECORDING OF POSITIONS AND ELEVATIONS.
2. HORIZONTAL POSITIONS ARE EXPRESSED IN LOUISIANA SOUTH ZONE (1702), NAD 83 DATUM, IN U.S. SURVEY FEET.
3. THE VERTICAL DATUM FOR ALL ELEVATIONS SHOWN IS NAVD 88 IN U.S. SURVEY FEET.

PLAN VIEW

SCALE IN FEET

1000' 500' 0' 1000'

LEGEND
- BATHYMETRIC CONTOUR (0.5')
- BORROW AREA BOUNDARY
- JUNE 2010 TBS SURVEY TRANSECTS

NOTES:

APPENDIX 4

DATE	REVISIONS	DRAWN BY	APPROVED BY

REVISIONS

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NRCS

FILE NAME:	BA TRANSECTS
TBS NO.:	2010.0408
DATE:	9/2/2010
PLOT SCALE:	1"=1000'
DRAWN BY:	LDE
APPROVED:	BJK
MAP NO.	

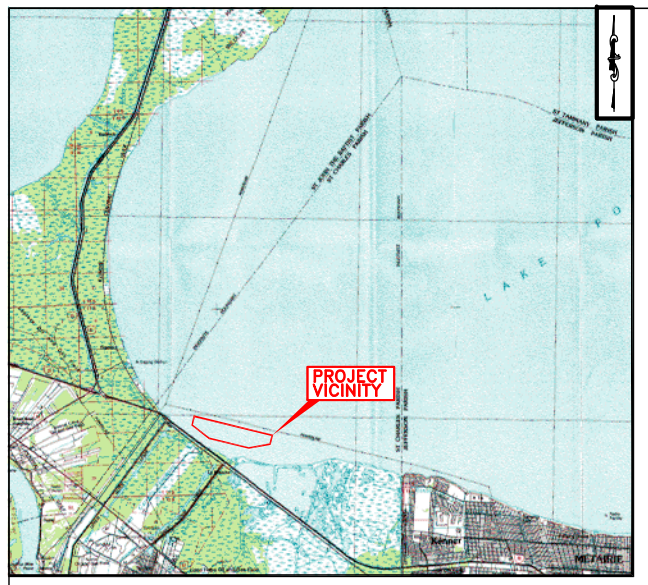
BORROW AREA TRANSECTS AND CONTOURS
LABRANCHE EAST MARSH CREATION
PO-75
FOR
NATURAL RESOURCES CONSERVATION SERVICE
ST. CHARLES PARISH, LA

SHEET NO. 1 OF 6

APPENDIX 5

Borrow Area – Side Scan and Magnetometer Survey Results

LAKE PONTCHARTRAIN
ST. CHARLES PARISH



VICINITY MAP
NOT TO SCALE

TRI-STATES PIPELINE NGL PIPELINE L.L.C.
(APPROX. POSITION PER LDNR PIPELINE DATABASE)

Legend

- MAGNETOMETER TARGET
- APPROXIMATE PIPELINE POSITION PER LDNR PIPELINE DATABASE
- PIPEPLINE POSITION PER TBS MAGNETOMETER SURVEY
- POSSIBLE PIPELINE POSITION PER TBS MAGNETOMETER SURVEY
- BOREHOLE LOCATION

LIMITS OF BORROW AREA

WILDRISE PIPELINE CO.
(APPROX. POSITION PER LDNR PIPELINE DATABASE)

POSSIBLE PIPELINE LOCATION PER TBS MAGENTOMETER SURVEY

BHBA-1
BHBA-2
BHBA-3
BHBA-4
BHBA-5

MATCH LINE (SEE SHEET 2)

Borehole No.	Northing	Easting	Depth (ft)
BHBA-1	573520	3580571	20
BHBA-2	572013	3582004	20
BHBA-3	572967	3583512	20
BHBA-4	571308	3584687	20
BHBA-5	572261	3586195	20
BHBA-6	570937	3586467	20
BHBA-7	571592	3589318	20
BHBA-8	570651	3592045	20

LA I-10

Railroad Tracks

NOTES:

SURVEY PERFORMED USING AUTOMATED GEOPHYSICAL SURVEY SYSTEM CONSISTING OF SIDE SCAN SONAR, PROTON MAGNETOMETER, DGPS & COMPUTER BASED DATA COLLECTION / NAVIGATION SYSTEM.

SURVEY PERFORMED JULY 14-16 & 19, 2010 BY T. BAKER SMITH, INC. WITH M/V ECHOTRAC.

ALL FOREIGN PIPELINE CROSSINGS SHOWN WERE DEPICTED UTILIZING DATA FROM PIPELINE ALIGNMENT SHEETS AND INTERPRETATION OF SONAR AND READINGS FROM MAGNETIC DETECTION EQUIPMENT.

ALL XY COORDINATES SHOWN ARE LOUISIANA SOUTH ZONE NORTH AMERICAN DATUM OF 1983. ALL LATITUDE AND LONGITUDE VALUES ARE GEOGRAPHIC NORTH AMERICAN DATUM OF 1983.

PLAN VIEW

1" = 300'
300' 150' 0 300' 600' 900'

NOTES:

APPENDIX 5

DATE	REVISIONS	DRAWN BY	APPROVED BY
	REVISIONS		

T. BAKER SMITH
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(985) 868-1050 www.tbsmith.com

NRCS

FILE NAME:	BA MAG PLAN W
TBS NO.:	2010.0408
DATE:	9/2/2010
PLOT SCALE:	1"= 300'
DRAWN BY:	E.T.G.
APPROVED:	W.M.B.
MAP NO.	

BORROW AREA
SIDE SCAN & MANGETOMETER SURVEY

LABRANCHE EAST MARSH CREATION
PO-75
FOR
NATURAL RESOURCES CONSERVATION SERVICE
ST. CHARLES PARISH, LA

SHEET NO. 1 OF 4

LAKE PONTCHARTRAIN
ST. CHARLES PARISH

TRI-STATES PIPELINE NGL PIPELINE L.L.C.

AIR PRODUCTS AND CHEMICALS, INC. PIPELINE
PIPELINE LOCATION PER TBS MAG SURVEY

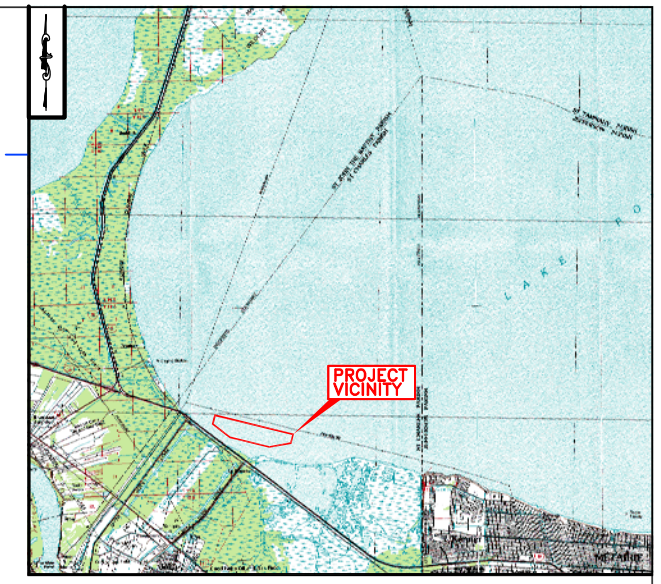
LIMITS OF BORROW AREA

MATCH LINE (SEE SHEET 1)

BHBA-6

BHBA-7

BHBA-8



VICINITY MAP
NOT TO SCALE

Borehole No.	Northing	Easting	Depth (ft)
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BHBA-4	571308	3584687	20
BHBA-5	572261	3586195	20
BHBA-6	570937	3586467	20
BHBA-7	571592	3589318	20
BHBA-8	570651	3592045	20

SHELL PIPELINE COMPANY LP
PIPELINE LOCATION PER TBS MAG SURVEY

Legend

- MAGNETOMETER TARGET
- APPROXIMATE PIPELINE POSITION PER LDNR PIPELINE DATABASE
- PIPEPLINE POSITION PER TBS MAGNETOMETER SURVEY
- POSSIBLE PIPELINE POSITION PER TBS MAGNETOMETER SURVEY
- BOREHOLE LOCATION

NOTES:

SURVEY PERFORMED USING AUTOMATED GEOPHYSICAL SURVEY SYSTEM CONSISTING OF SIDE SCAN SONAR, PROTON MAGNETOMETER, DGPS & COMPUTER BASED DATA COLLECTION / NAVIGATION SYSTEM.

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PLAN VIEW

300' 150' 0 300' 600' 900'

NOTES:

APPENDIX 5

DATE	REVISIONS	DRAWN BY	APPROVED BY
	REVISIONS		

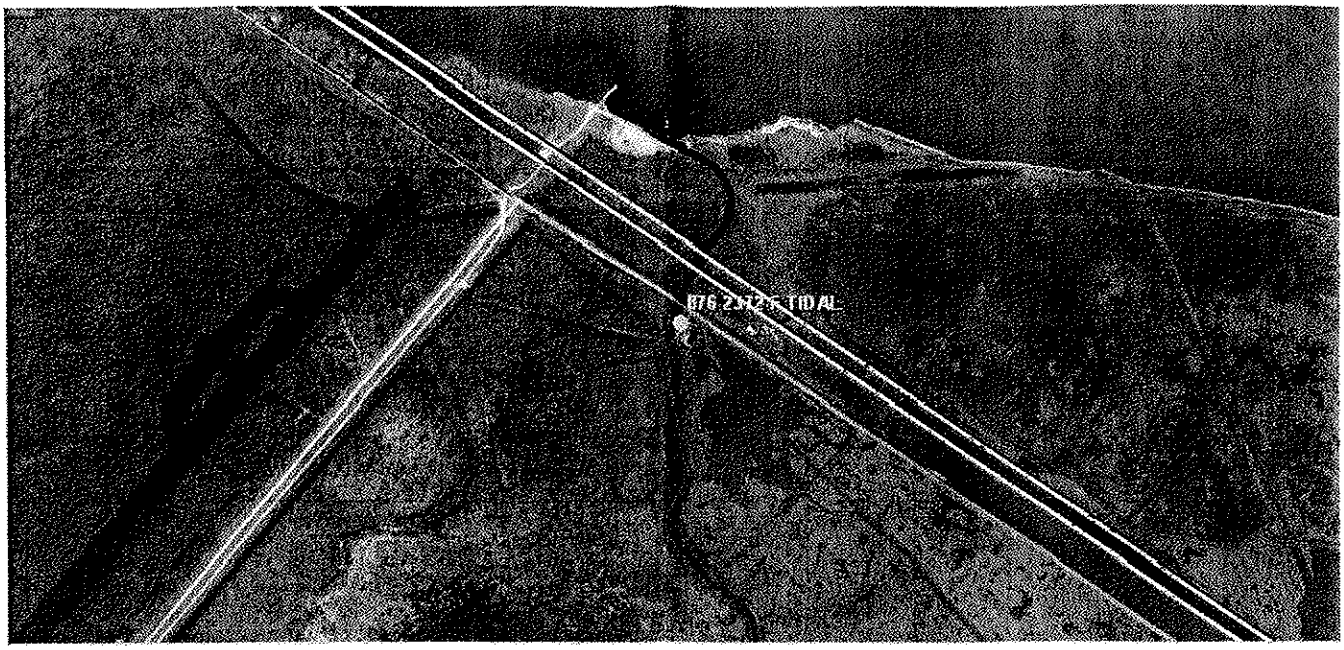
T. BAKER SMITH
PROFESSIONAL CONSULTANTS SINCE 1913
(985) 868-1050 www.tbsmith.com

NRCS

FILE NAME:	BA MAG PLAN E
TBS NO.:	2010.0408
DATE:	9/2/2010
PLOT SCALE:	1"= 300'
DRAWN BY:	E.T.G.
APPROVED:	W.M.B.
MAP NO.	

BORROW AREA
SIDE SCAN & MAGNETOMETER SURVEY
LABRANCHE EAST MARSH CREATION
PO-75
FOR
NATURAL RESOURCES CONSERVATION SERVICE
ST. CHARLES PARISH, LA

SHEET NO. 2 OF 4



VICINITY MAP Not to Scale Reproduced from Louisiana 2005 DOQQ

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Monument Description: The datum point is the top of a stainless steel rod driven 23.2 m (76.1 ft) to refusal, in a sleeve extending to a depth of 1.5 m (4.9 ft) and encased in a 5-inch pvc pipe with an aluminum cover and concrete kick block.
Stamping: 2373 F 2003

Installation Date: 2003 **Date of Survey:** October 2005

Monument Established By: NOAA **For:** NOAA

Adjusted NAD83 Geodetic Position (1992)
Lat. 30°03'02.36539" N
Long. 090°22'04.43653" W

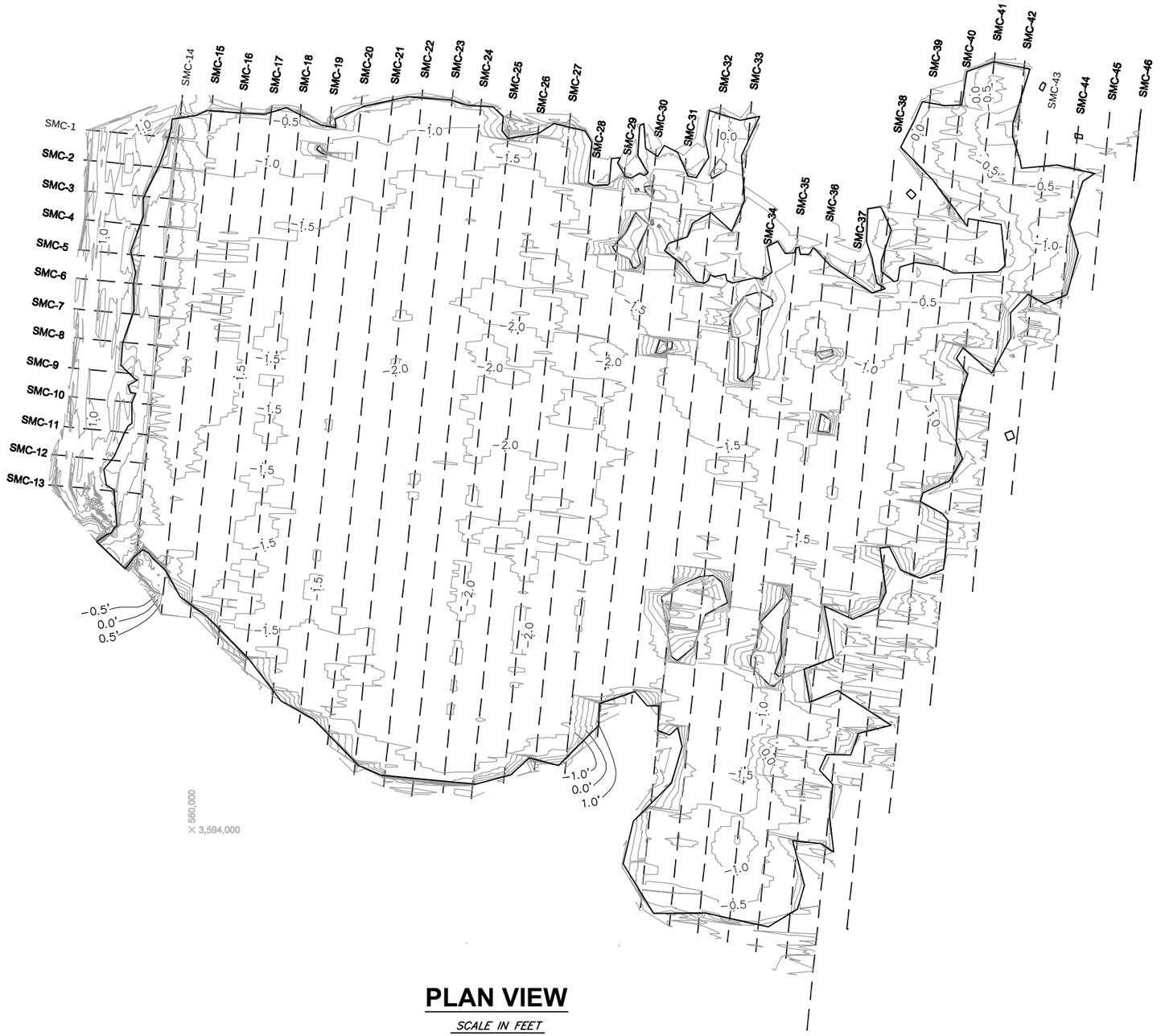
Adjusted NAD83 Datum LSZ (1702) Ft (1992)
N= 565,201.15
E= 3,586,265.26

Adjusted NAVD88 Height (2006.81)
Elevation = 1.71 feet (0.520 mtrs)

Ellipsoid Height = -25.782 mtrs.
Geoid03 Height = -26.302 mtrs. (2004.65)

NO PHOTO AVAILABLE

Adjusted Position Established John Chance Land Surveys, Inc. for the Coastal Protection & Restoration Authority of Louisiana, OCPR



SURVEY NOTES

1. HORIZONTAL POSITIONS ARE EXPRESSED IN LOUISIANA SOUTH ZONE (1702), NAD 83 DATUM, IN U.S. SURVEY FEET.
2. THE VERTICAL DATUM FOR ALL ELEVATIONS SHOWN IS NAVD 88 IN U.S. SURVEY FEET.

PLAN VIEW

SCALE IN FEET

1000' 500' 0' 1000'

LEGEND

- AREA BOUNDARY
- JUNE 2010 TBS SURVEY TRANSECTS
- 1.0' 0.5' CONTOURS

NOTES:

APPENDIX 2
MARSH CREATION
TRANSECTS AND
CONTOURS

DATE	REVISIONS	DRAWN BY	APPROVED BY

REVISIONS

T. BAKER SMITH
PROFESSIONAL CONSULTANTS SINCE 1913
(985) 868-1050 www.tbsmith.com

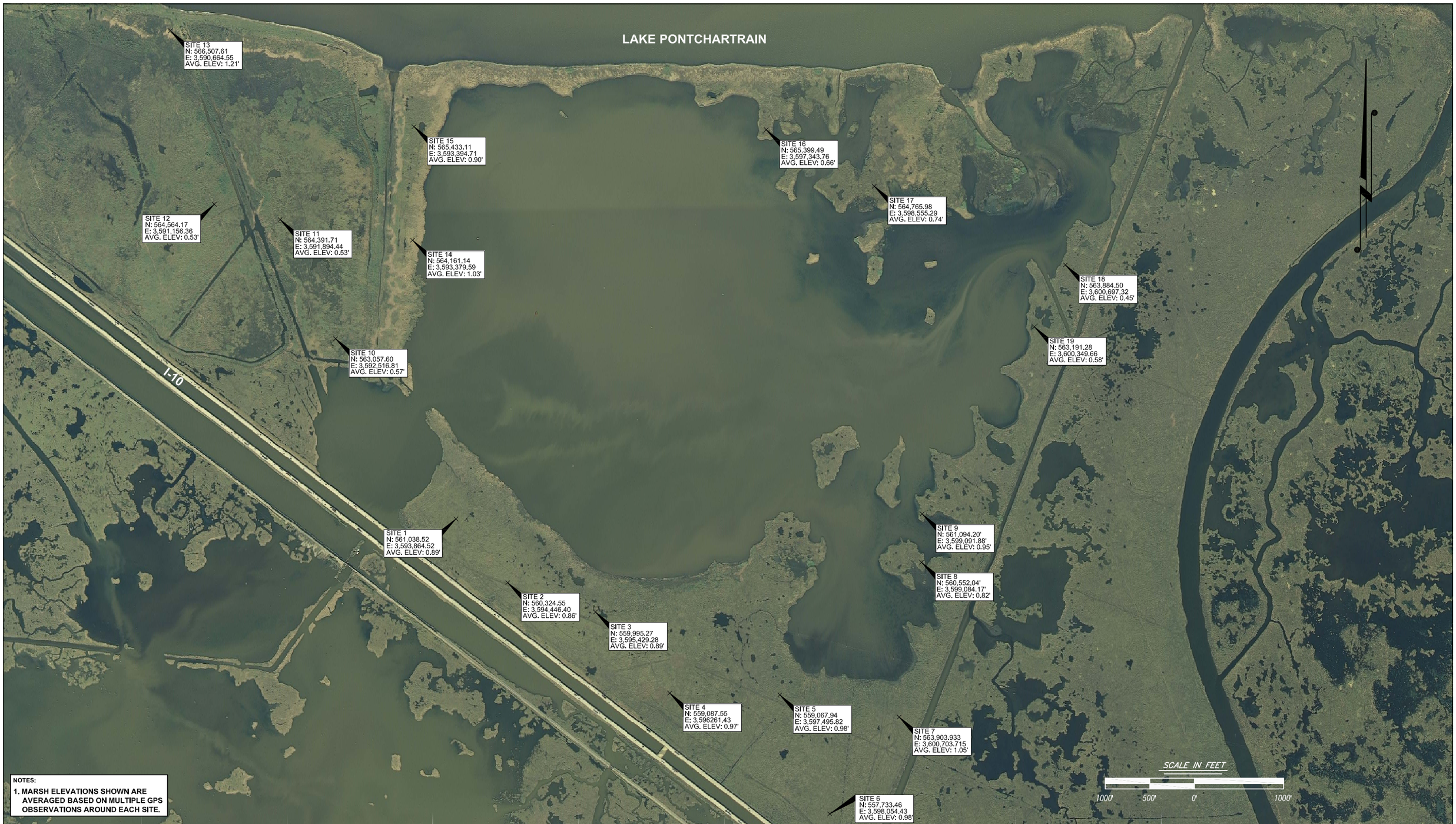
NRCS

FILE NAME:	MCA TOPO
TBS NO.:	2010.0408
DATE:	9/2/2010
PLOT SCALE:	NOTED
DRAWN BY:	LDE
APPROVED:	BJK
MAP NO.	

MARSH AREA CREATION
TRANSECTS AND CONTOURS

LABRANCHE EAST MARSH CREATION
PO-75
FOR
NATURAL RESOURCES CONSERVATION SERVICE
ST. CHARLES PARISH, LA

SHEET N
1
OF
25



NOTES:

1. MARSH ELEVATIONS SHOWN ARE AVERAGED BASED ON MULTIPLE GPS OBSERVATIONS AROUND EACH SITE.

APPENDIX 3
MARSH CREATION
MARSH ELEVATIONS

DATE	REVISIONS	DRAWN BY	APPROVED BY

REVISIONS

T. BAKER SMITH
PROFESSIONAL CONSULTANTS SINCE 1913
(985) 868-1050 www.tbsmith.com

NRCS

FILE NAME:	100408_Marsh Elev
TBS NO.:	2010.0408
DATE:	6-24-10
PLOT SCALE:	1:1000
DRAWN BY:	LDE
APPROVED:	BJK
MAP NO.	

AVERAGE MARSH ELEVATIONS

LABRANCHE EAST MARSH CREATION
PO-75
FOR
NATURAL RESOURCES CONSERVATION SERVICE
ST. CHARLES PARISH, LA

SHEET NO. 2 OF 25

SURVEY NOTES

1. MARSH CREATION AREA SURVEY PERFORMED USING MAGNETIC GRADIOMETER CAPABLE OF DETECTING FERROUS METAL OBJECTS
2. MAGNETIC SURVEY TRACKLINES WERE SPACED AT 500' INTERVALS ORIENTED IN THE NORTH-SOUTH DIRECTION
3. NO SIGNIFICATION MAGNETIC ANOMOLIES WERE OBSERVED ALONG ANY OF THE TRACKLINES.

LAKE PONTCHARTRAIN

BHMC-1
BHMC-3
BHMC-7
BHMC-4
BHMC-6
BHMC-2
BHMC-5
BHMC-8

LIMITS OF MARSH CREATION AREA

FIBER OPTIC PVC MARKERS (NO MAGNETIC SIGNATURE DETECTED)

I-10

ELECTRICAL TRANSMISSION LINE TOWER

ELECTRICAL TRANSMISSION LINE TOWER

ELECTRICAL TRANSMISSION LINE TOWER

BH NO.	NORTHING	EASTING	DEPTH
BHMC-1	564875	3594485	30
BHMC-2	562399	3593516	30
BHMC-3	564875	3596796	30
BHMC-4	563250	3595723	30
BHMC-5	561212	3595966	30
BHMC-6	563048	3597933	30
BHMC-7	563992	3599903	30
BHMC-8	560157	3598234	30

SCALE IN FEET
1000' 500' 0' 1000'

MARSH CREATION
MAGNETOMETER SURVEY
& SOIL BORING LOCATIONS

DATE	REVISIONS	DRAWN BY	APPROVED BY
	REVISIONS		

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PROFESSIONAL CONSULTANTS SINCE 1913
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NRCS

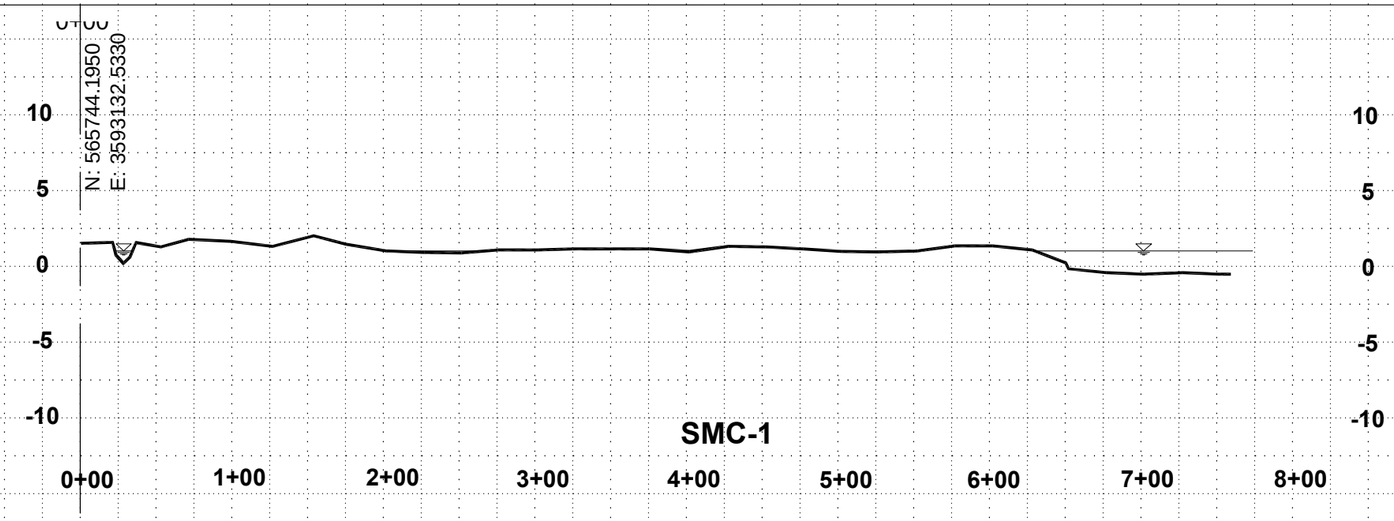
FILE NAME:	MC UTIL & BH LOC
TBS NO.:	2010.0408
DATE:	9/2/2010
PLOT SCALE:	1:1000
DRAWN BY:	BEA
APPROVED:	BJK
MAP NO.	

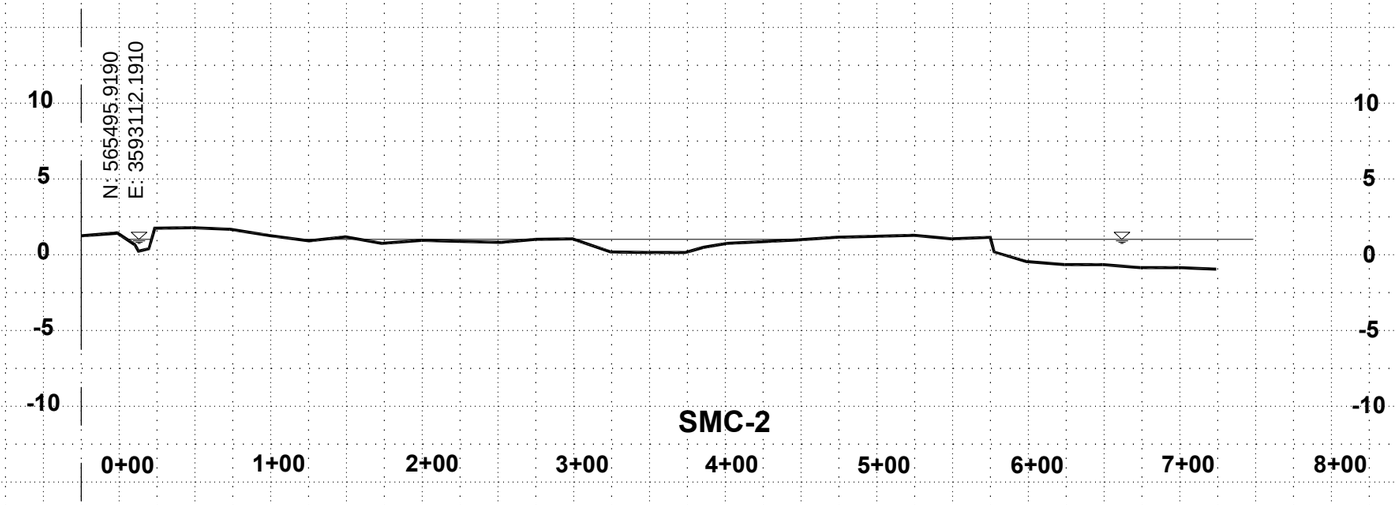
MARSH CREATION AREA
MAG/UTILITY SURVEY

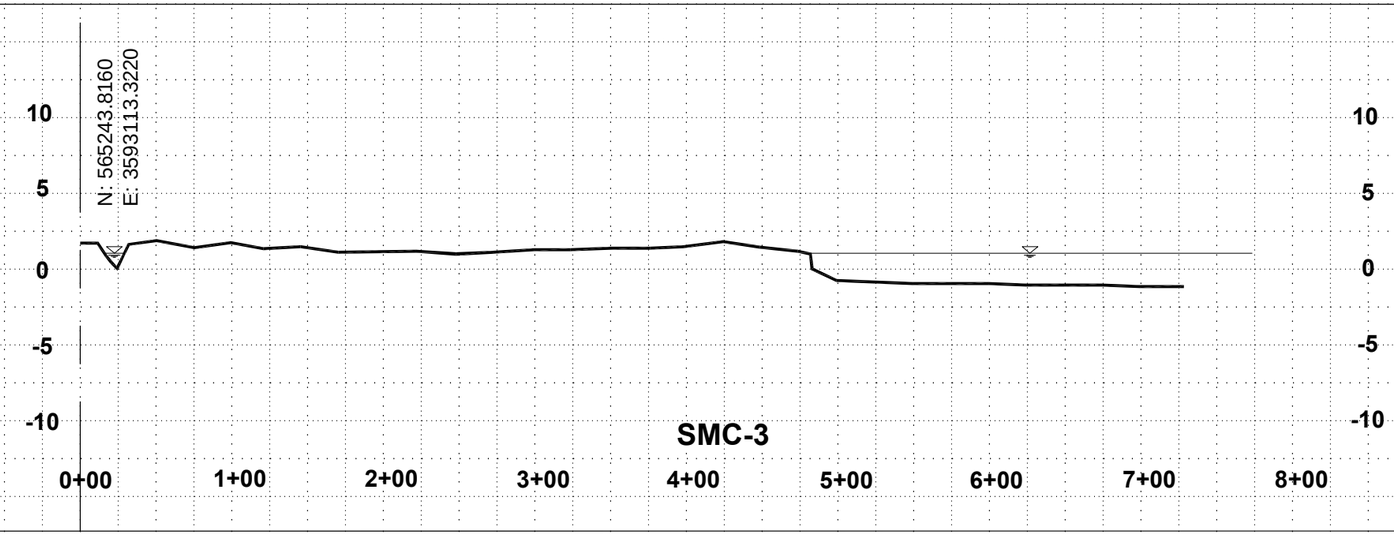
LABRANCHE EAST MARSH CREATION
PO-75
FOR
NATURAL RESOURCES CONSERVATION SERVICE
ST. CHARLES PARISH, LA

SHEET NO. 3 OF 25

VERTICAL: 1"=10'







NRCS

LEGEND

JUNE 2010
TBS SURVEY

MARSH CREATION AREA
CROSS-SECTIONS SMC-1 THRU SMC-3
LABRANCHE EAST MARSH CREATION
PO-75
FOR
NATURAL RESOURCES CONSERVATION SERVICE

FILE NAME: MARSH X-SECS
TBS NO.: 2010.0408
DATE: 9/2/2010
PLOT SCALE: NOTED
DRAWN BY: LDE
APPROVED: BJK

DRAWN BY	APPROVED BY	REVISIONS	DATE

T. BAKER SMITH
PROFESSIONAL CONSULTANTS SINCE 1973
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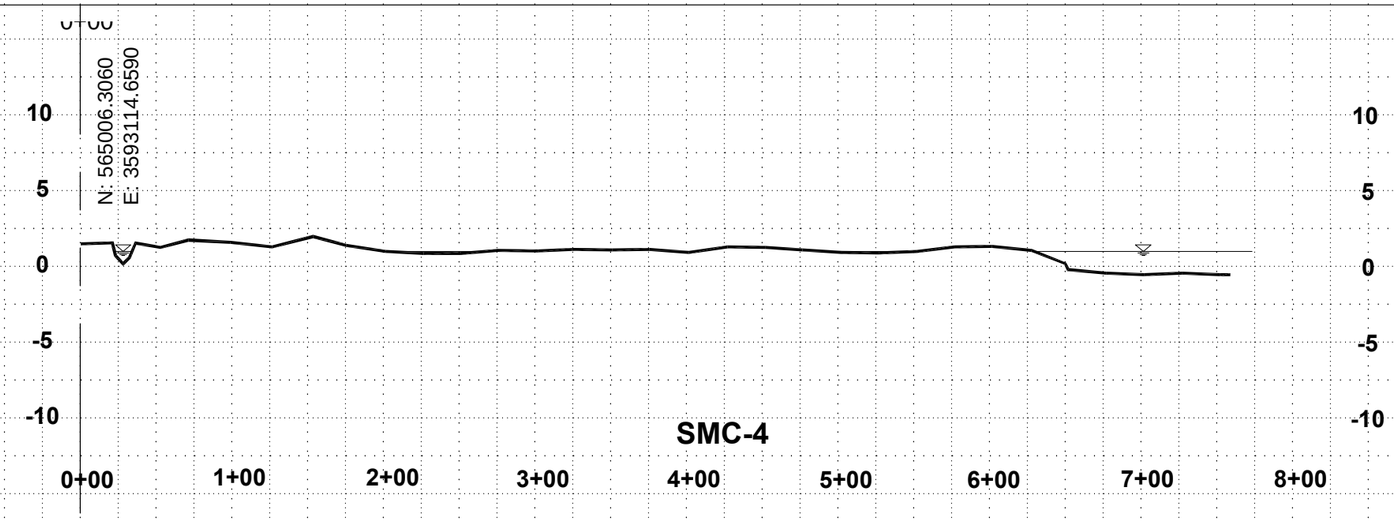
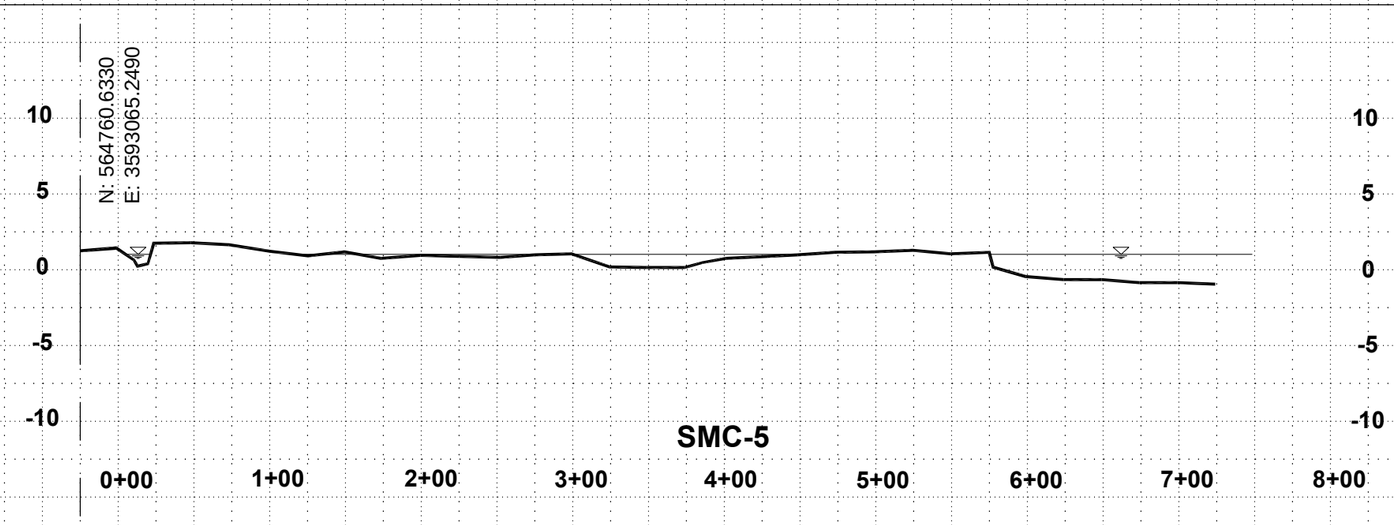
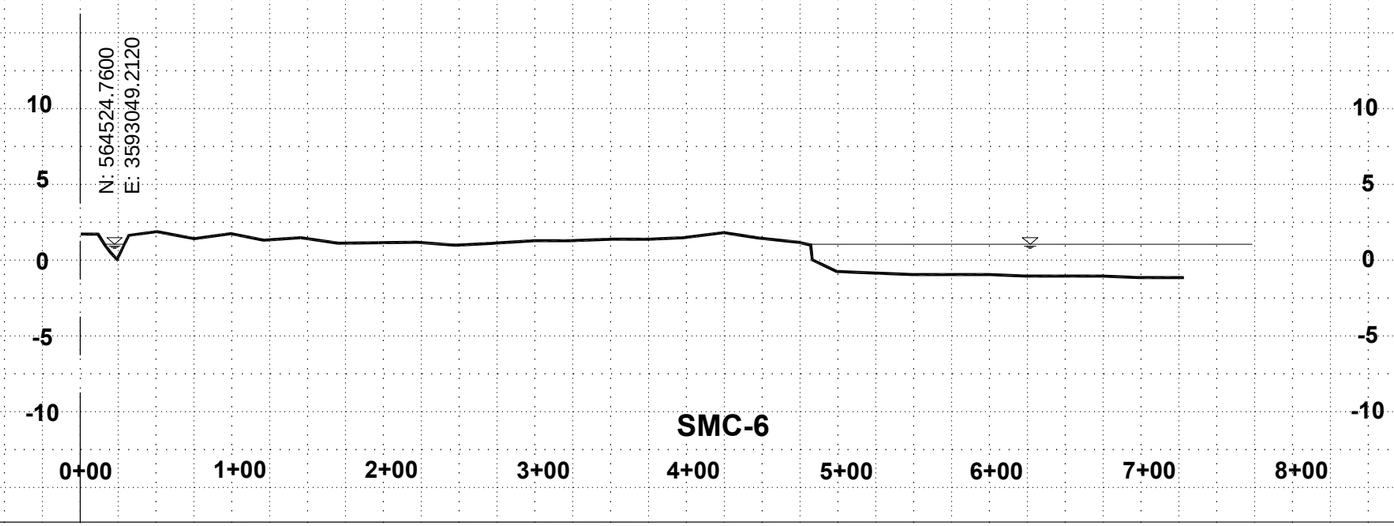
VERTICAL: 1"=10'







NRCS

LEGEND

JUNE 2010
TBS SURVEY

MARSH CREATION AREA
CROSS-SECTIONS SMC-4 THRU SMC-6
LABRANCHE EAST MARSH CREATION
PO-75
FOR
NATURAL RESOURCES CONSERVATION SERVICE

FILE NAME:	MARSH X-SECS
TBS NO.:	2010.0408
DATE:	9/2/2010
PLOT SCALE:	NOTED
DRAWN BY:	LDE
APPROVED:	BJK

DRAWN BY	APPROVED BY	REVISIONS	DATE

T. BAKER SMITH
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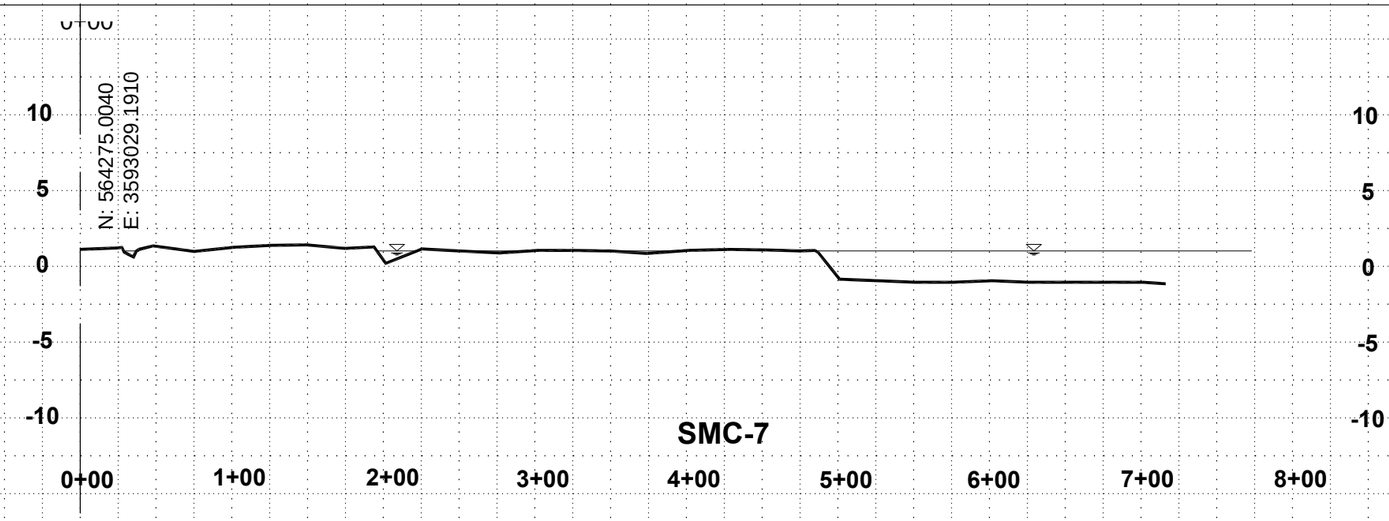
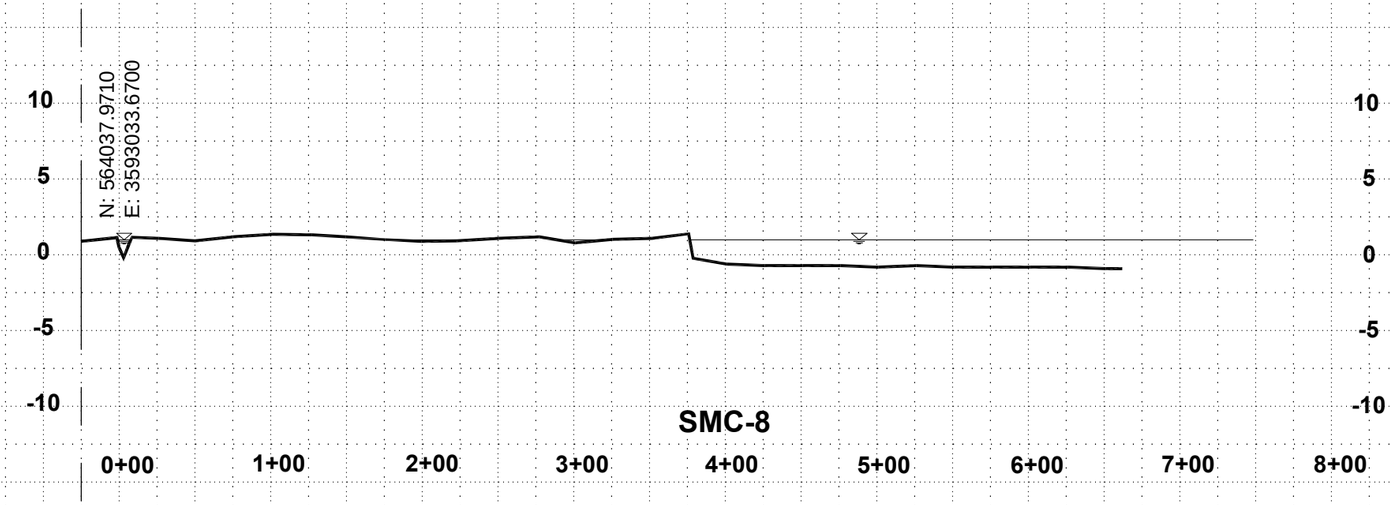
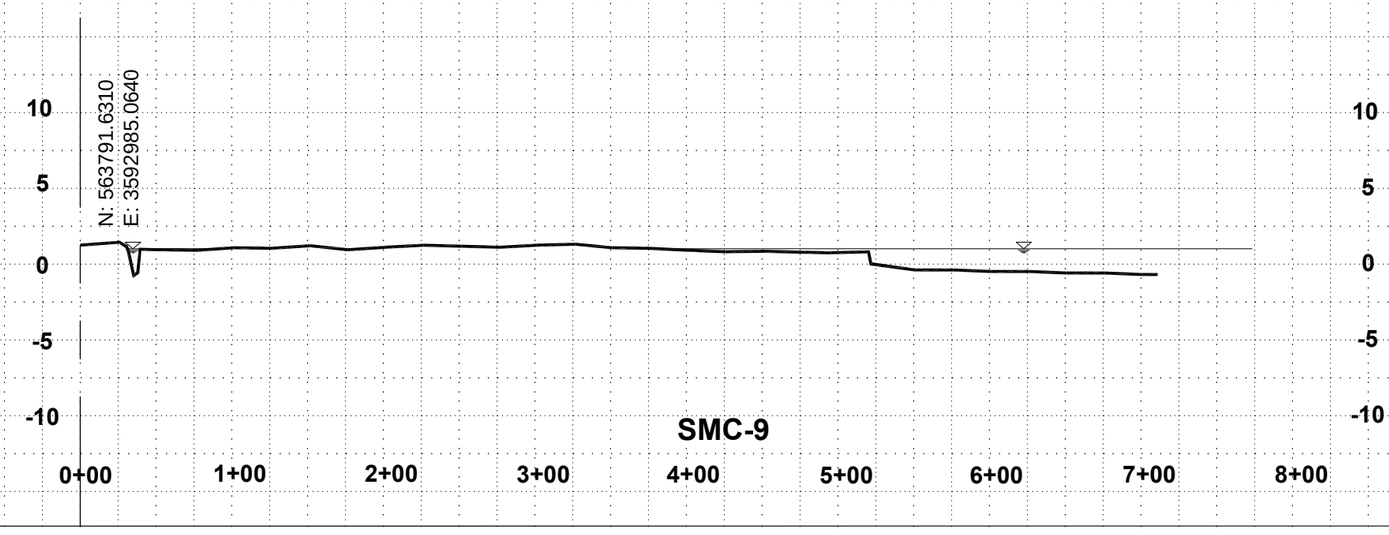
www.tbsmith.com

VERTICAL: 1"=10'







LEGEND

JUNE 2010
TBS SURVEY

NRCS

6 of 25

MARSH CREATION AREA
CROSS-SECTIONS SMC-7 THRU SMC-9

LABRANCHE EAST MARSH CREATION
PO-75
FOR
NATURAL RESOURCES CONSERVATION SERVICE

FILE NAME: MARSH X-SECS
TBS NO.: 2010.0408
DATE: 9/2/2010
PLOT SCALE: NOTED
DRAWN BY: LDE
APPROVED: BJK

DATE	REVISIONS	APPROVED BY	DRAWN BY

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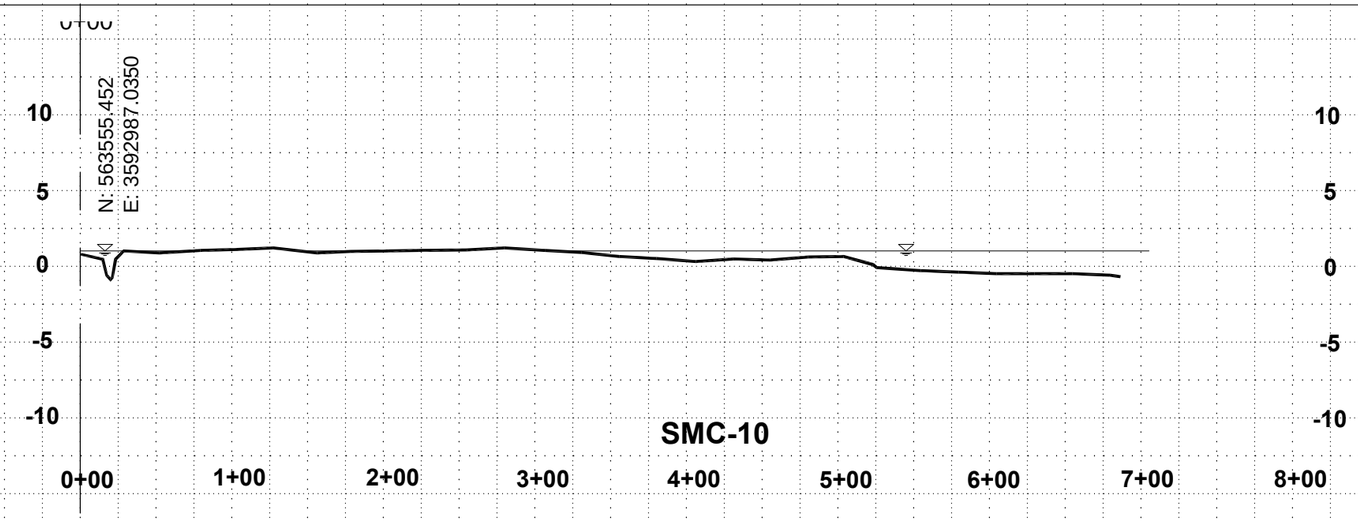
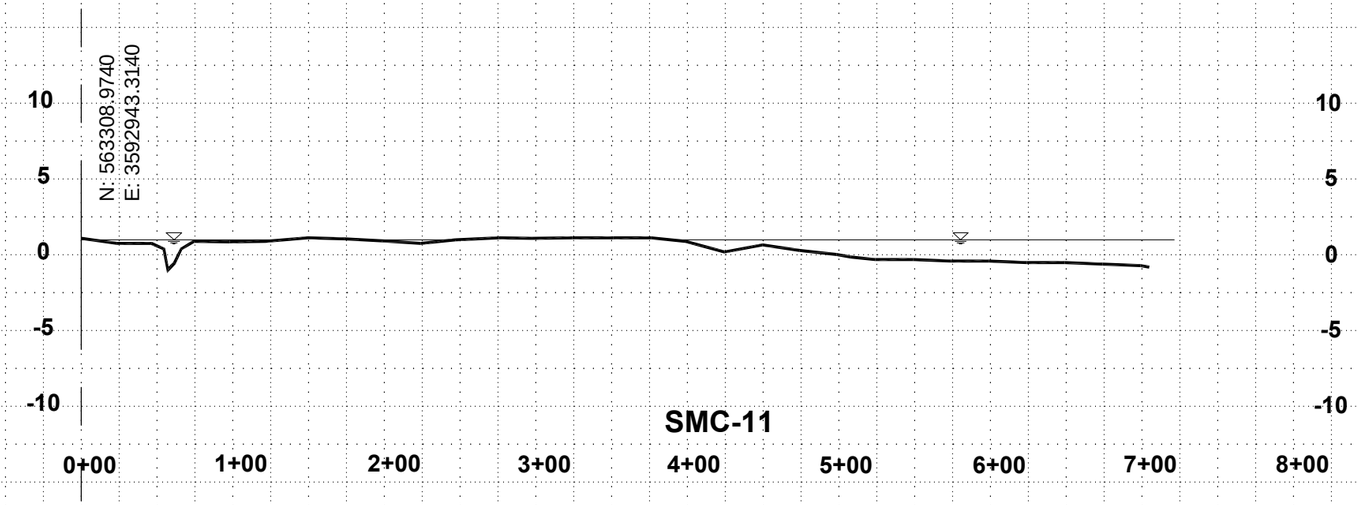
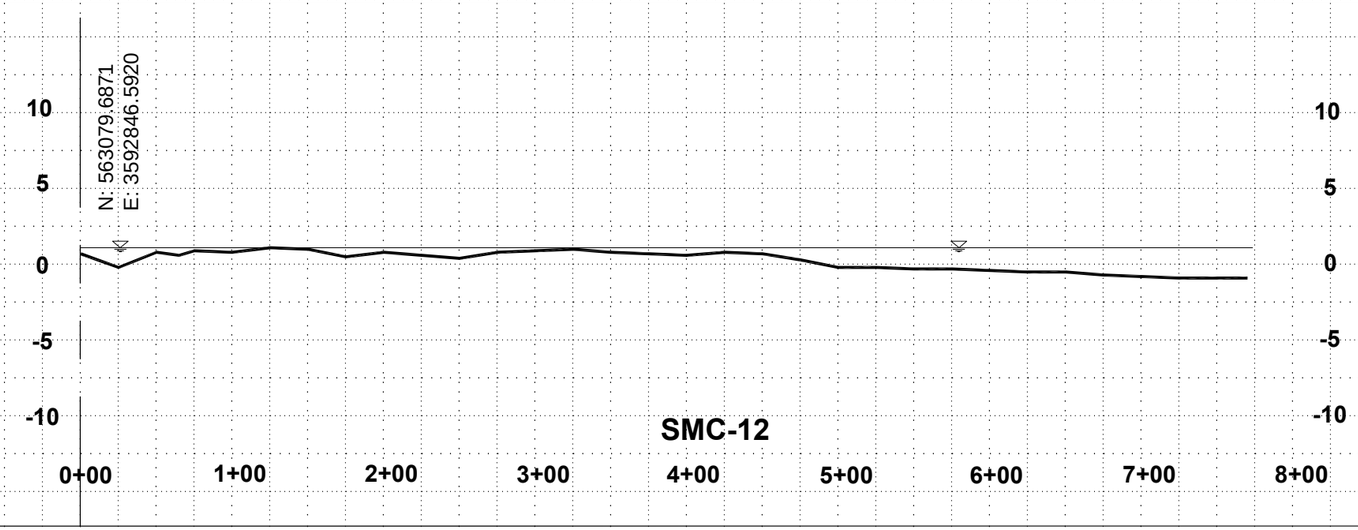
VERTICAL: 1"=10'







NRCS

LEGEND

JUNE 2010
TBS SURVEY

7 of 25

MARSH CREATION AREA
CROSS-SECTIONS SMC-10 THRU SMC-12
LABRANCHE EAST MARSH CREATION
PO-75
FOR
NATURAL RESOURCES CONSERVATION SERVICE

FILE NAME: MARSH X-SECS
TBS NO.: 2010.0408
DATE: 9/2/2010
PLOT SCALE: NOTED
DRAWN BY: LDE
APPROVED: BJK

DRAWN BY	APPROVED BY

REVISIONS	DATE

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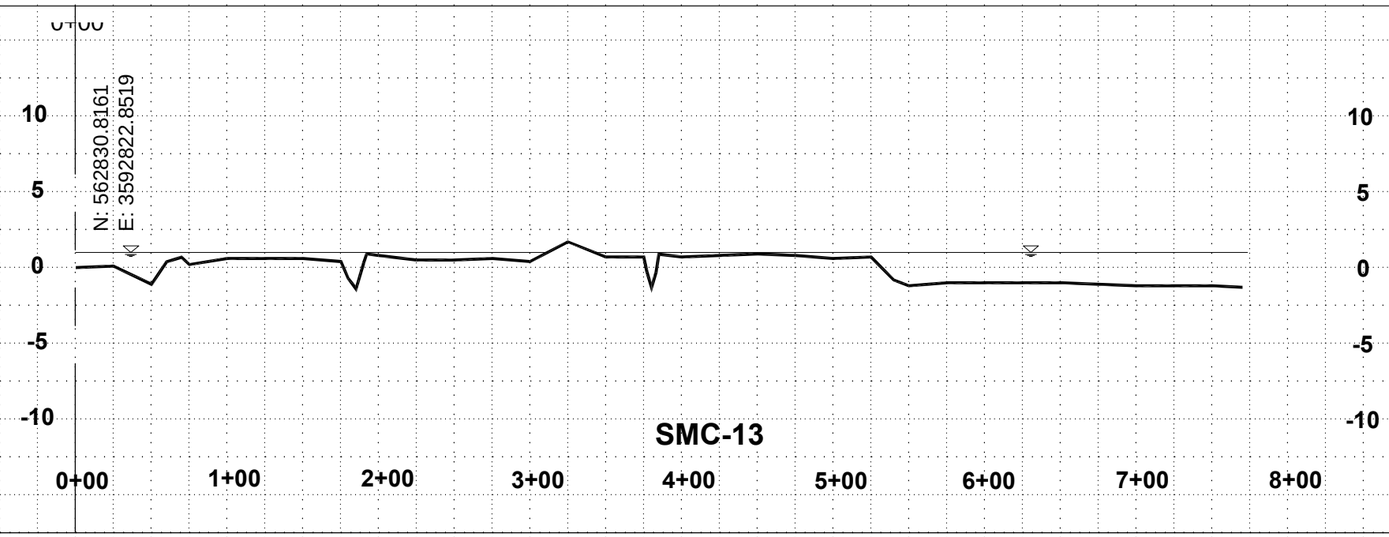
TBS



MARSH CREATION AREA
CROSS-SECTIONS SMC-13

LABRANCHE EAST MARSH CREATION
PO-75
FOR
NATURAL RESOURCES CONSERVATION SERVICE

FILE NAME: MARSH X-SECS
TBS NO.: 2010.0408
DATE: 9/2/2010
PLOT SCALE: NOTED
DRAWN BY: LDE
APPROVED: BJK

REVISIONS	DATE	DRAWN BY	APPROVED BY

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JUNE 2010
TBS SURVEY

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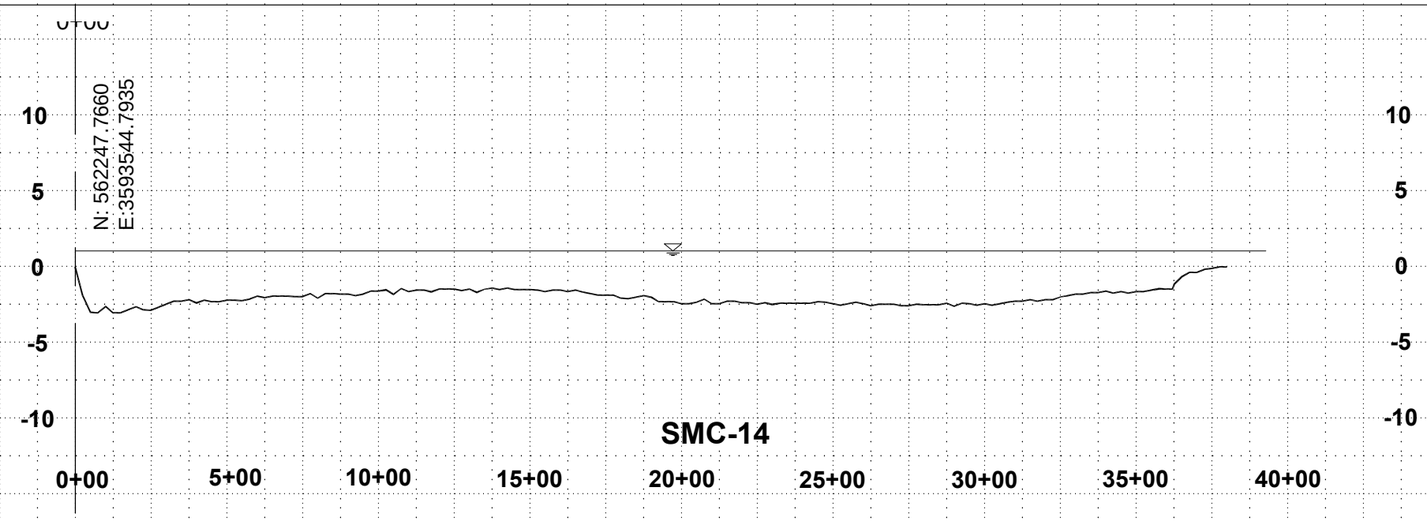
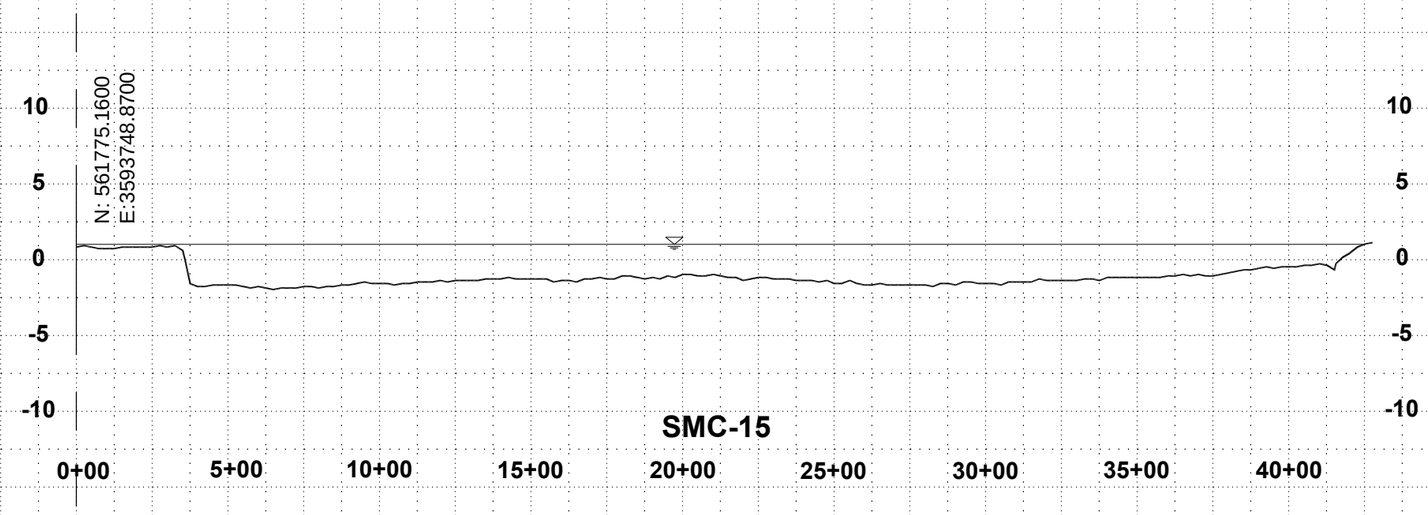
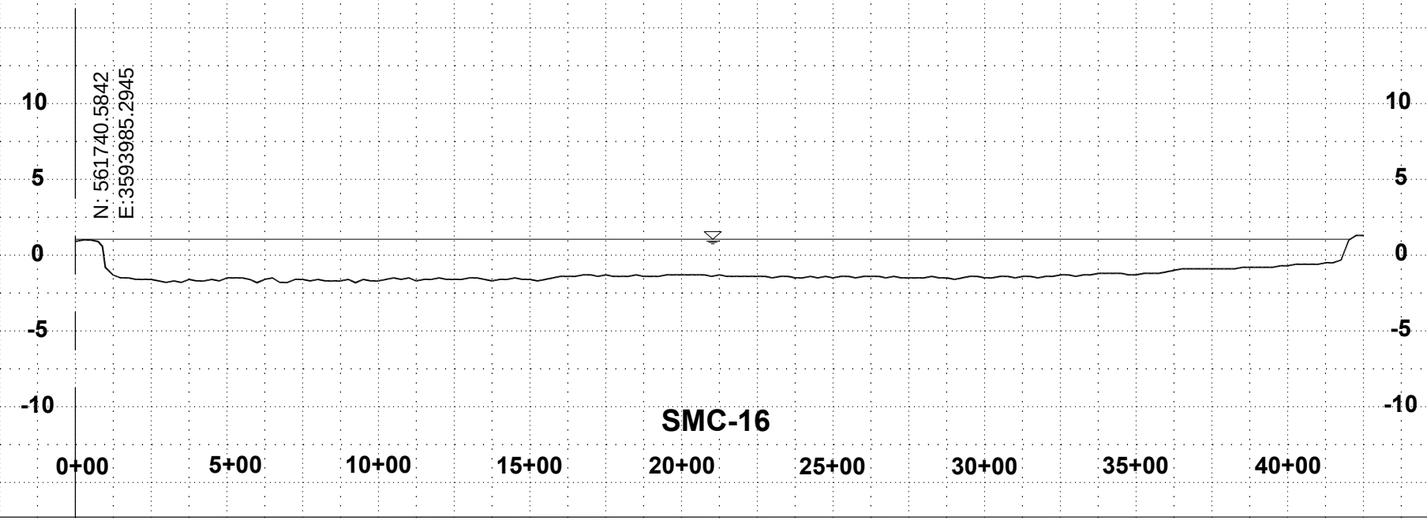
VERTICAL: 1"=10'







NRCS

LEGEND

JUNE 2010
TBS SURVEY

MARSH CREATION AREA
CROSS-SECTIONS SMC-14 THRU SMC-16

LABRANCHE EAST MARSH CREATION
PO-75
FOR
NATURAL RESOURCES CONSERVATION SERVICE

FILE NAME:	MARSH X-SECS
TBS NO.:	2010.0408
DATE:	9/2/2010
PLOT SCALE:	NOTED
DRAWN BY:	LDE
APPROVED:	BJK

DRAWN BY	APPROVED BY	REVISIONS	DATE

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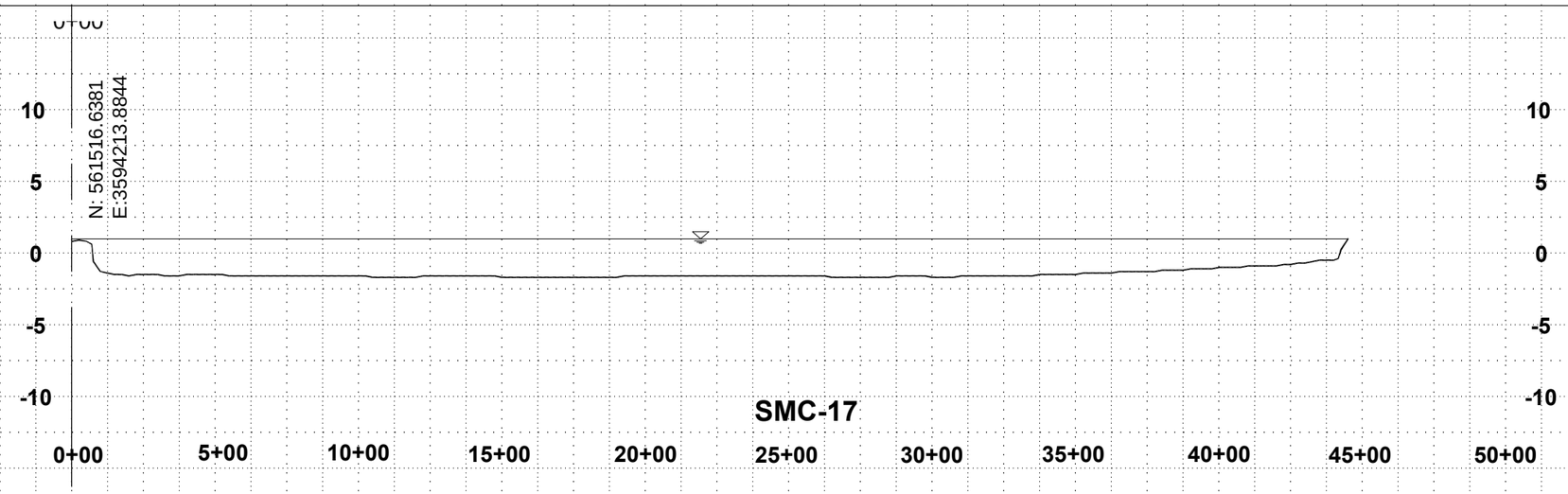
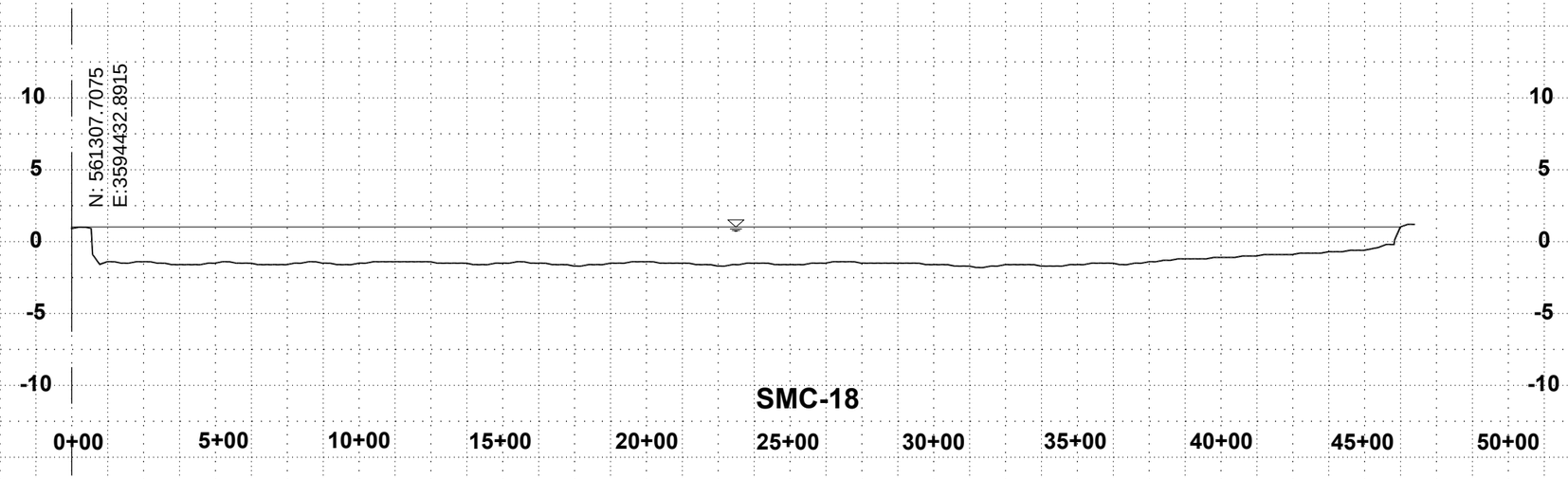
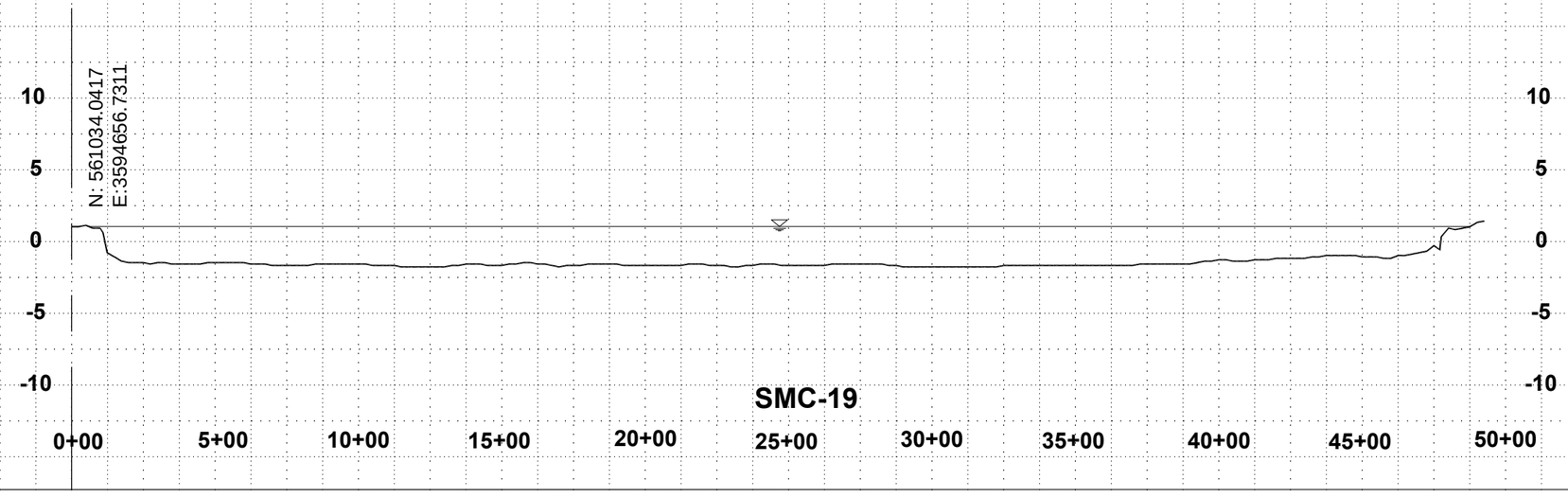
TBS

VERTICAL: 1"=10'







NRCS

LEGEND

JUNE 2010
TBS SURVEY

MARSH CREATION AREA
CROSS-SECTIONS SMC-17 THRU SMC-19

LABRANCHE EAST MARSH CREATION
PO-75
FOR
NATURAL RESOURCES CONSERVATION SERVICE

FILE NAME:	MARSH X-SECS
TBS NO.:	2010.0408
DATE:	9/2/2010
PLOT SCALE:	NOTED
DRAWN BY:	LDE
APPROVED:	BJK

DRAWN BY	APPROVED BY	REVISIONS	DATE

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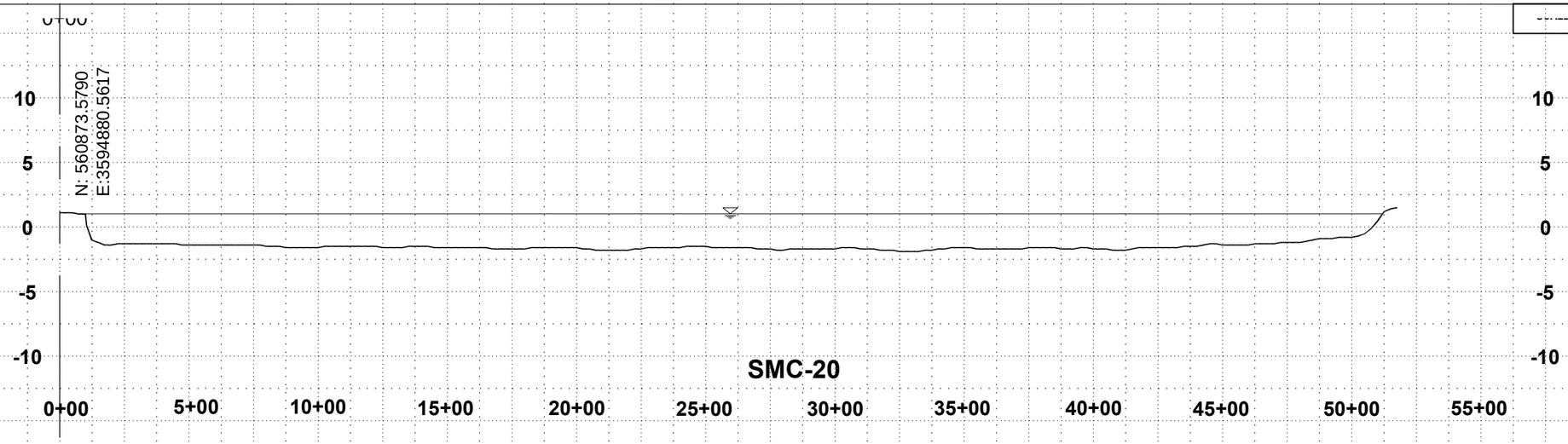
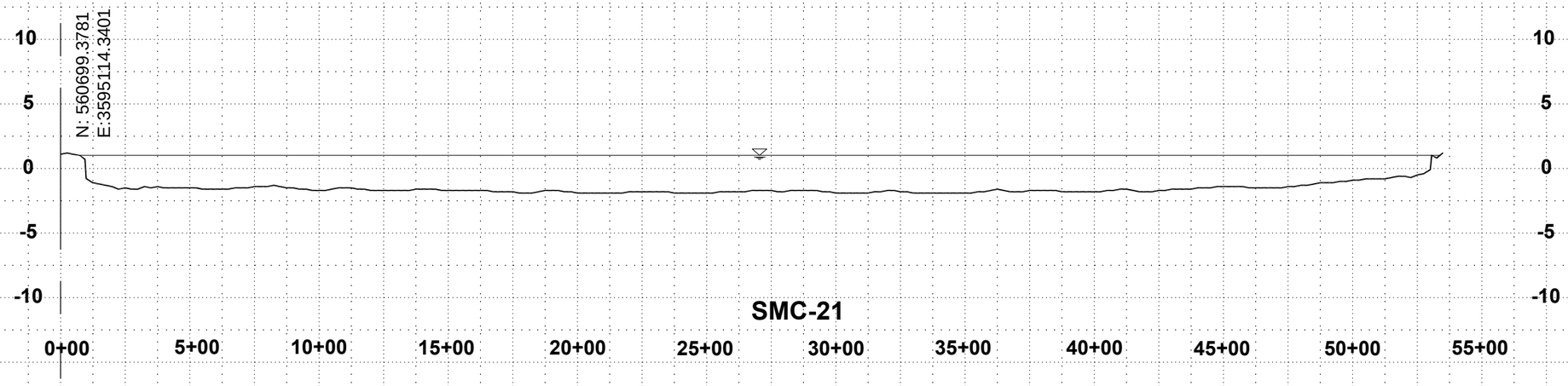
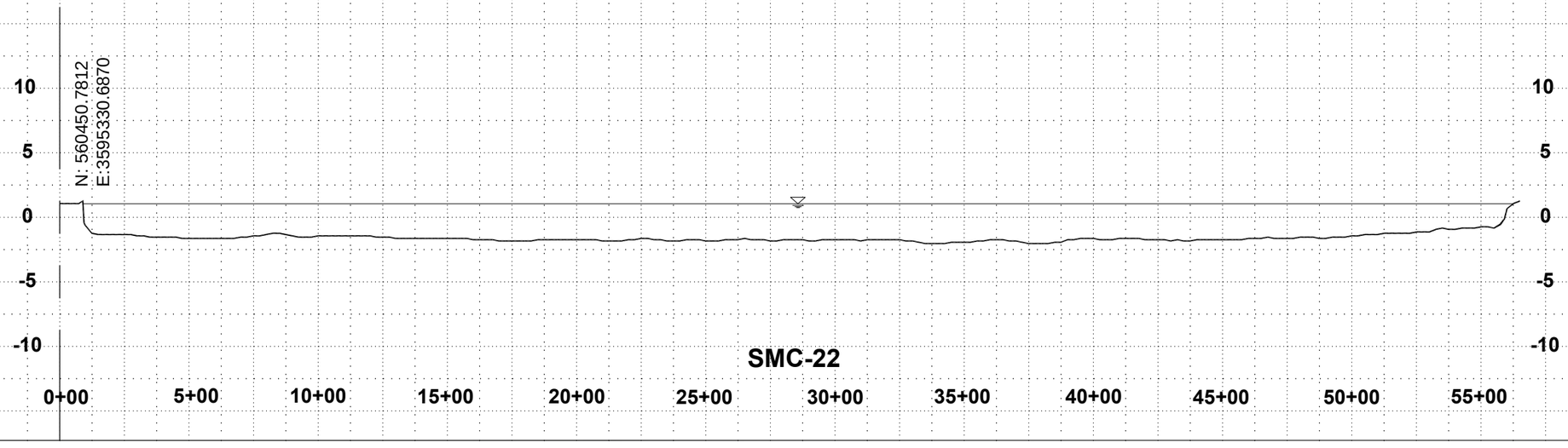
www.tbsmith.com
TBS

VERTICAL: 1"=10'







NRCS

LEGEND

JUNE 2010
TBS SURVEY

MARSH CREATION AREA
CROSS-SECTIONS SMC-20 THRU SMC-22
LABRANCHE EAST MARSH CREATION
PO-75
FOR
NATURAL RESOURCES CONSERVATION SERVICE

FILE NAME:	MARSH X-SECS
TBS NO.:	2010.0408
DATE:	9/2/2010
PLOT SCALE:	NOTED
DRAWN BY:	LDE
APPROVED:	BJK

DRAWN BY	APPROVED BY	REVISIONS	DATE

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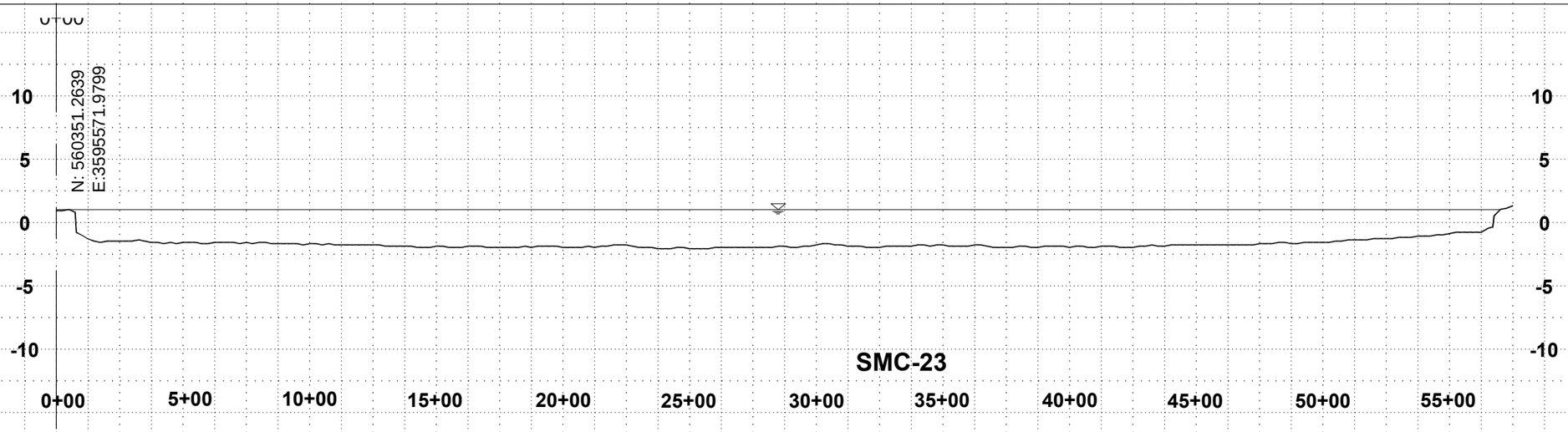
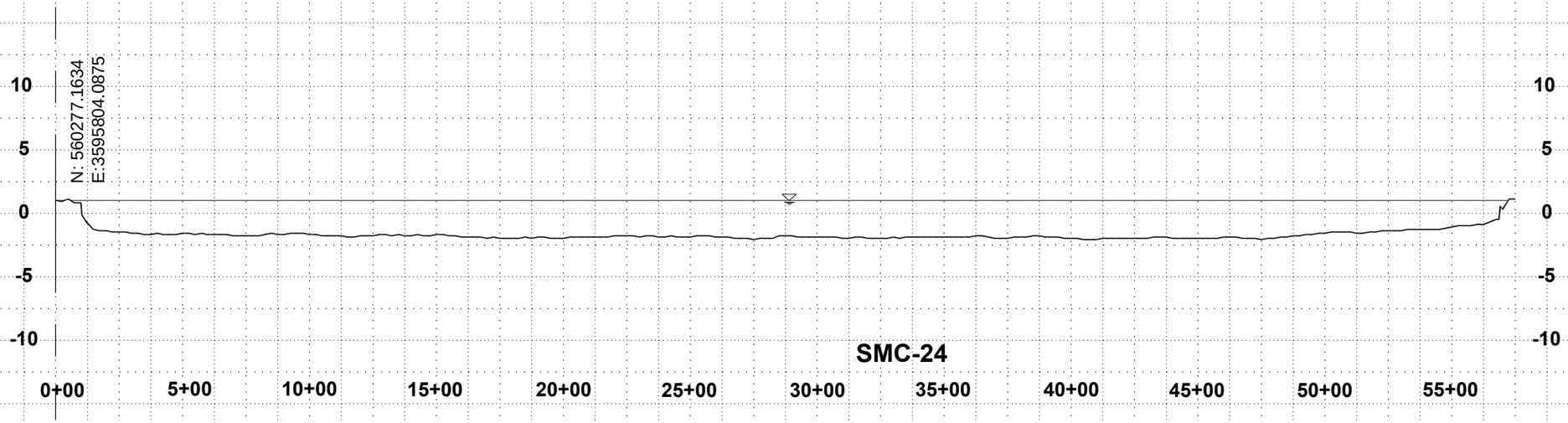
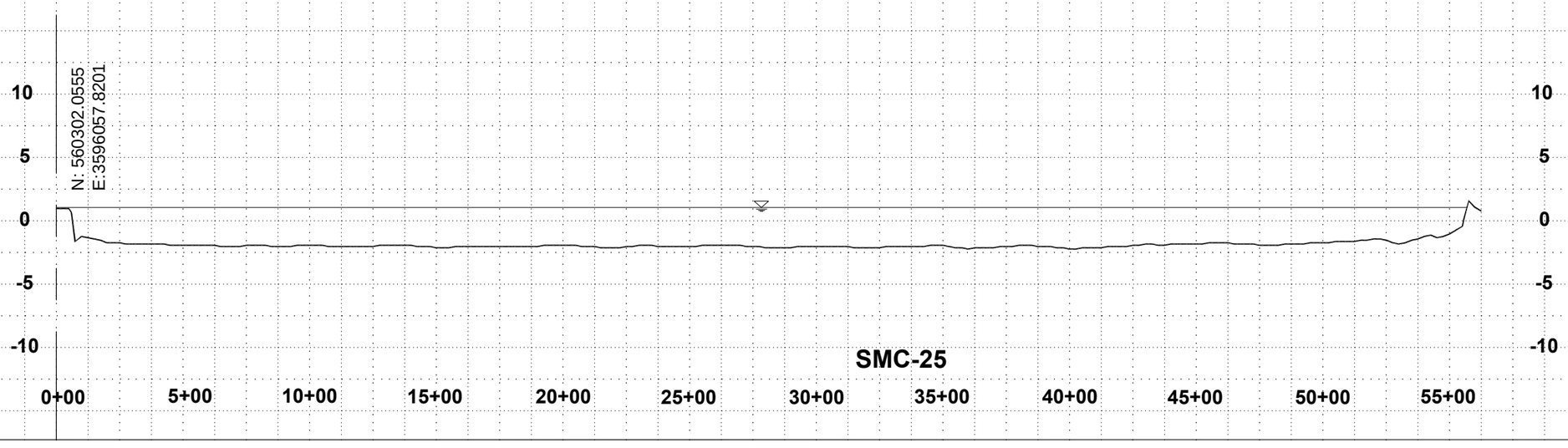
PROFESSIONAL CONSULTANTS SINCE 1913
(985) 868-1050
www.tbsmith.com
TBS

VERTICAL: 1"=10'







LEGEND

JUNE 2010
TBS SURVEY

NRCS

MARSH CREATION AREA
CROSS-SECTIONS SMC-23 THRU SMC-25
LABRANCHE EAST MARSH CREATION
PO-75
FOR
NATURAL RESOURCES CONSERVATION SERVICE

FILE NAME:	MARSH X-SECS
TBS NO.:	2010.0408
DATE:	9/2/2010
PLOT SCALE:	NOTED
DRAWN BY:	LDE
APPROVED:	BJK

DATE	REVISIONS	DRAWN BY	APPROVED BY

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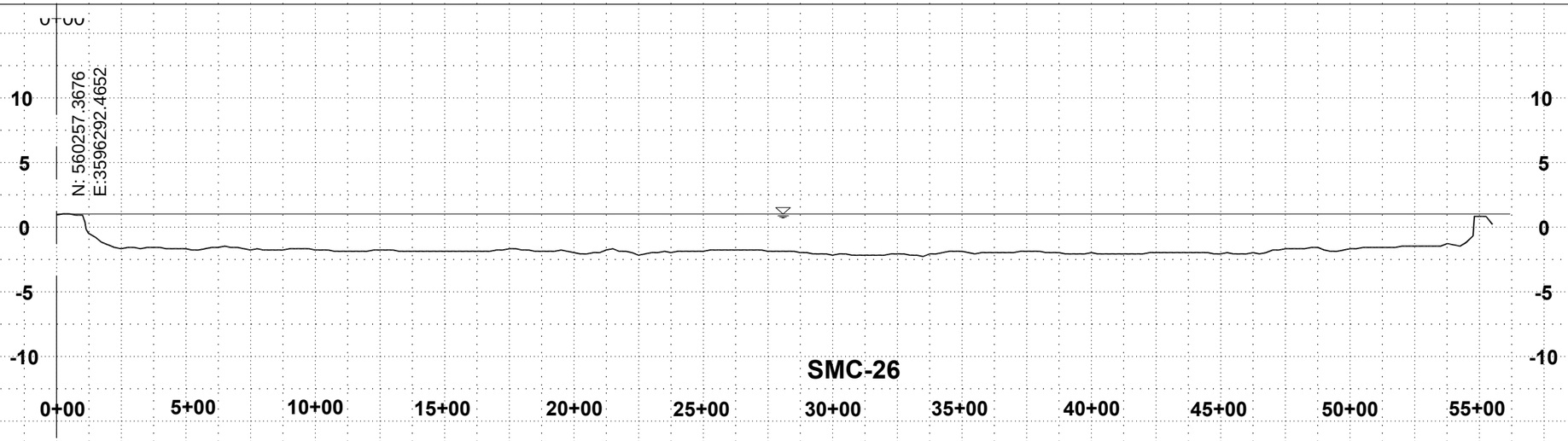
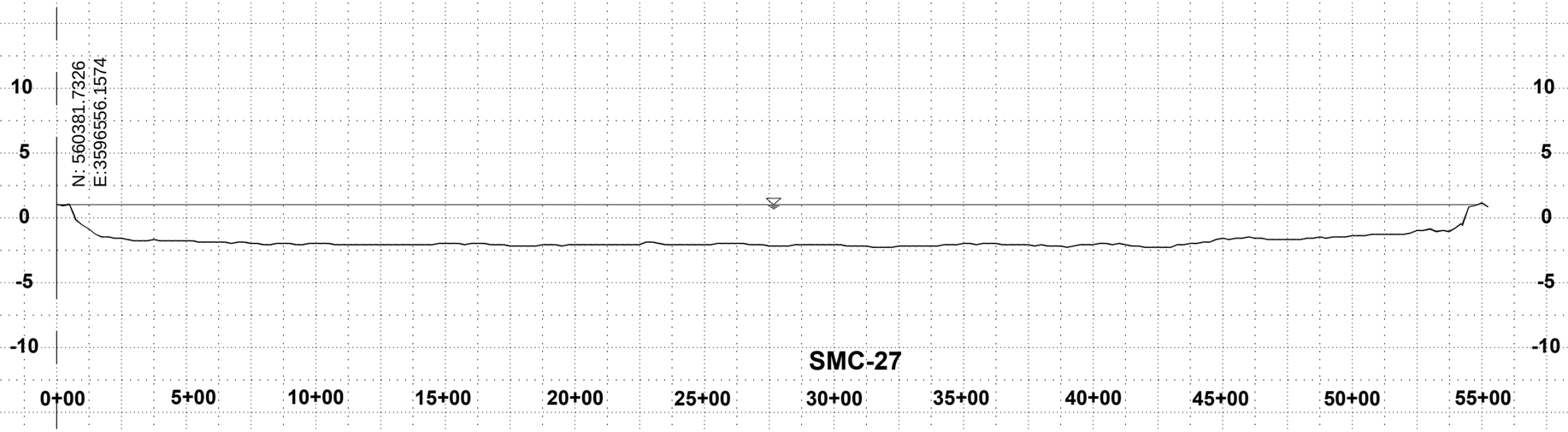
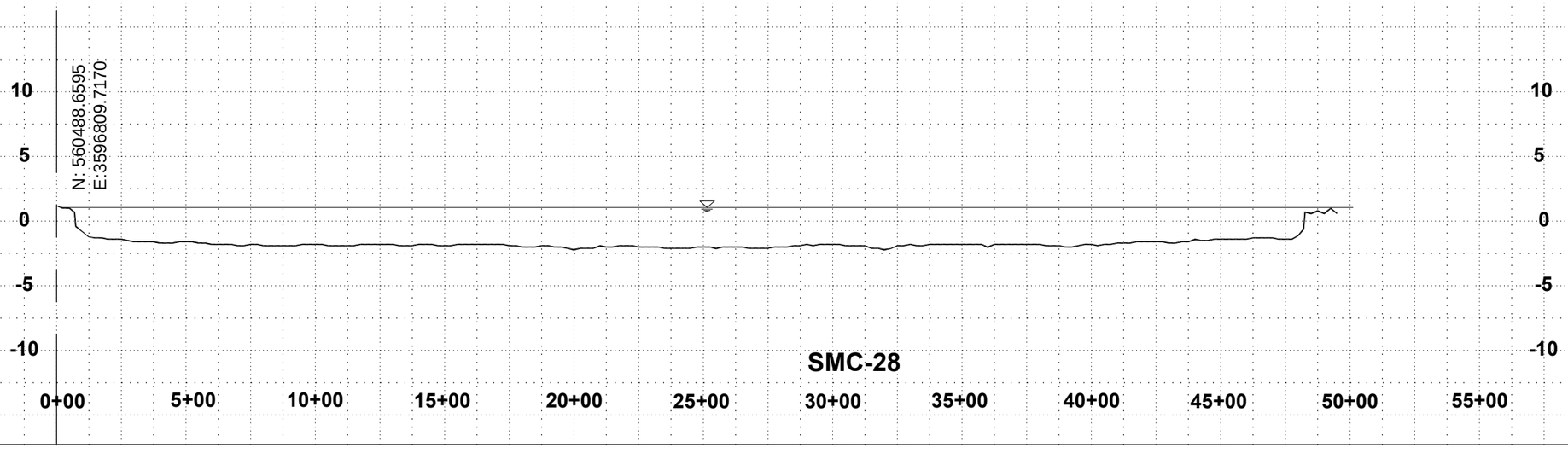
PROFESSIONAL CONSULTANTS SINCE 1913
(985) 868-1050
www.tbsmith.com
TBS

VERTICAL: 1"=10'







NRCS

LEGEND

JUNE 2010 TBS SURVEY

CROSS-SECTIONS OF TRANSECTS SMC-17 THROUGH SMC-19

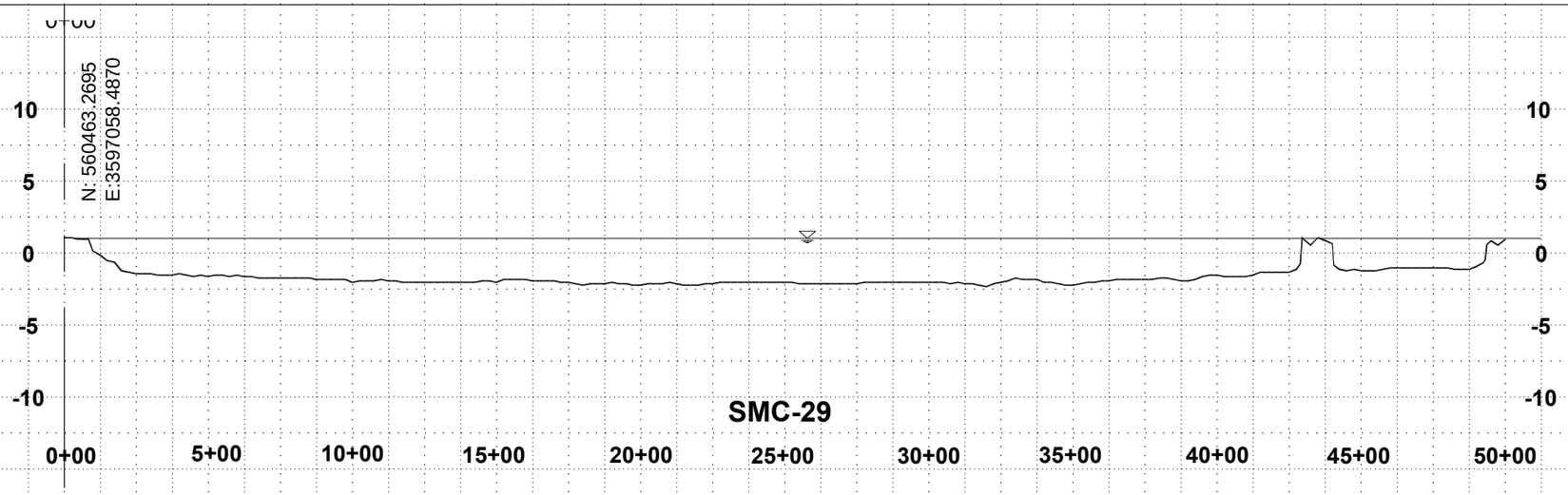
LABRANCHE EAST MARSH CREATION PO-75 FOR NATURAL RESOURCES CONSERVATION SERVICE

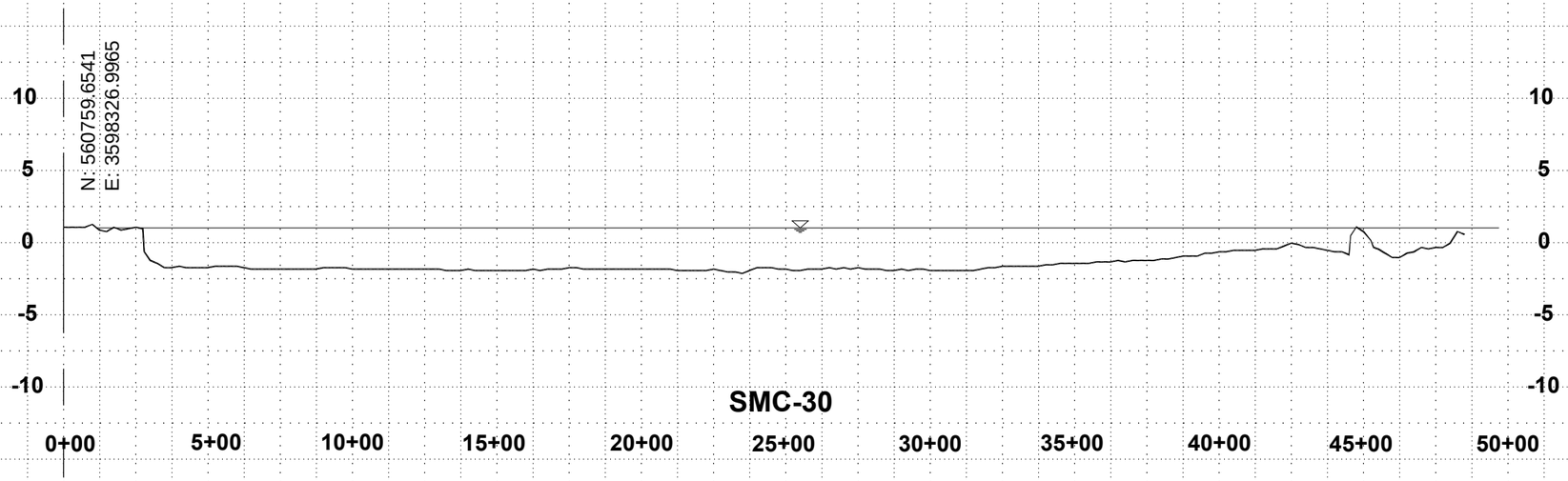
FILE NAME: 10.0408_Cross_Sect.
TBS NO.: 2010.0408
DATE: 07/29/10
PLOT SCALE: NOTED
DRAWN BY:
APPROVED: BJK

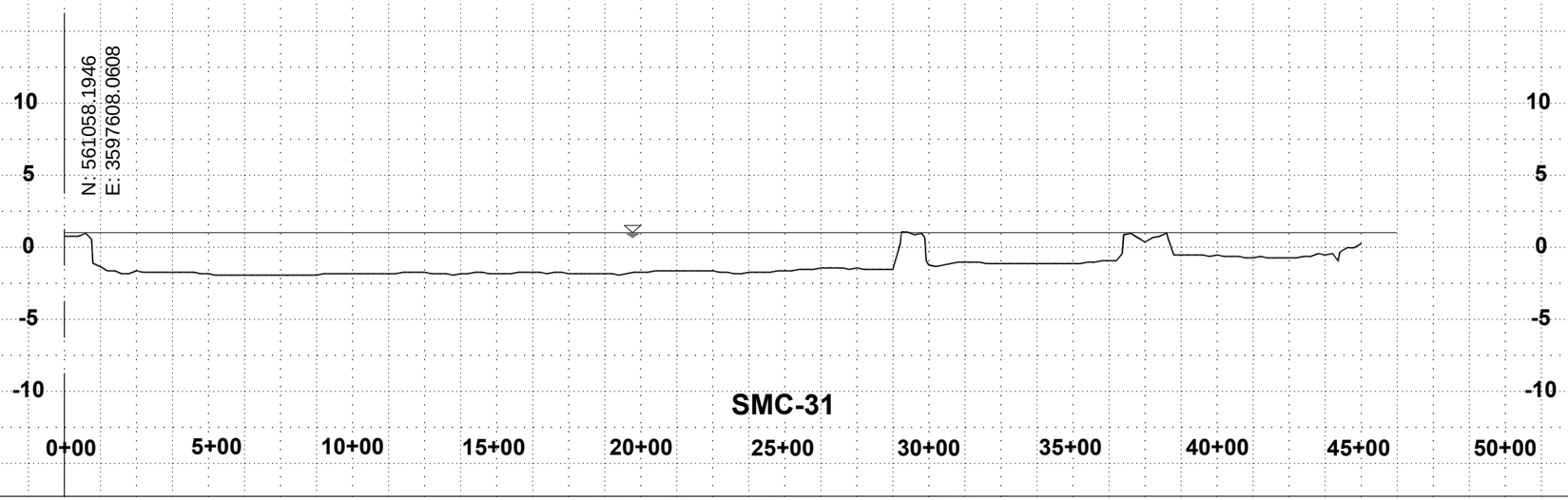
DATE	REVISIONS	DRAWN BY	APPROVED BY

T. BAKER SMITH
PROFESSIONAL CONSULTANTS SINCE 1913
(985) 868-1050
www.tbsmith.com
TBS

VERTICAL: 1"=10'







NRCS

LEGEND

JUNE 2010
TBS SURVEY

MARSH CREATION AREA
CROSS-SECTIONS SMC-29 THRU SMC-31
LABRANCHE EAST MARSH CREATION
PO-75
FOR
NATURAL RESOURCES CONSERVATION SERVICE

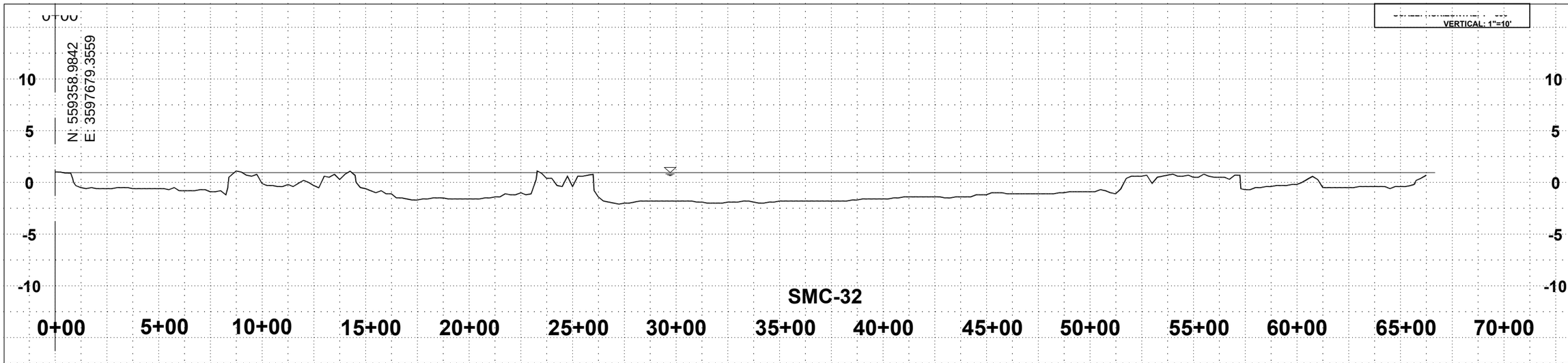
FILE NAME:	MARSH X-SECS
TBS NO.:	2010.0408
DATE:	9/2/2010
PLOT SCALE:	NOTED
DRAWN BY:	LDE
APPROVED:	BJK

REVISIONS	DATE	DRAWN BY	APPROVED BY

T. BAKER SMITH
PROFESSIONAL CONSULTANTS SINCE 1913
(985) 868-1050
www.tbsmith.com
TBS

VERTICAL: 1"=10'

N: 559358.9842
E: 3597679.3559



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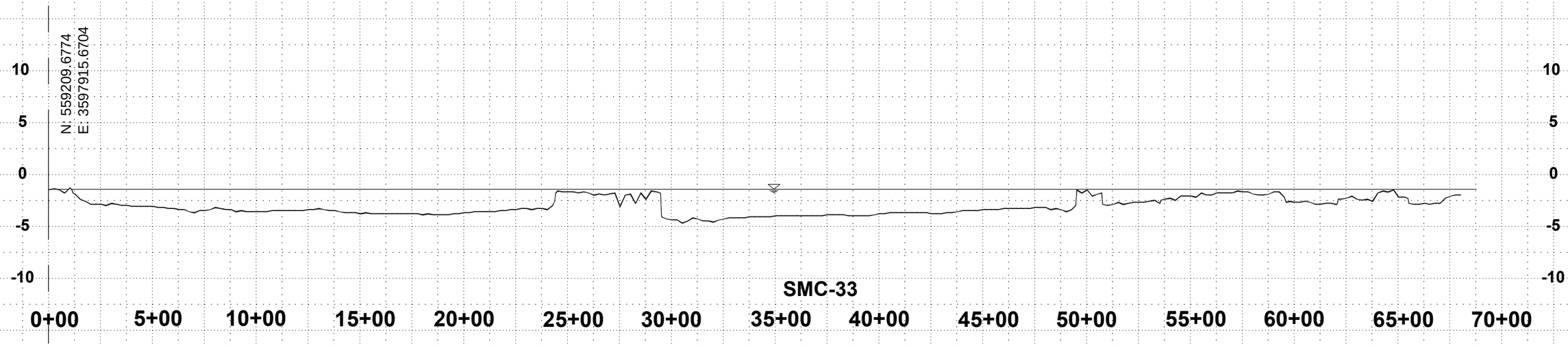

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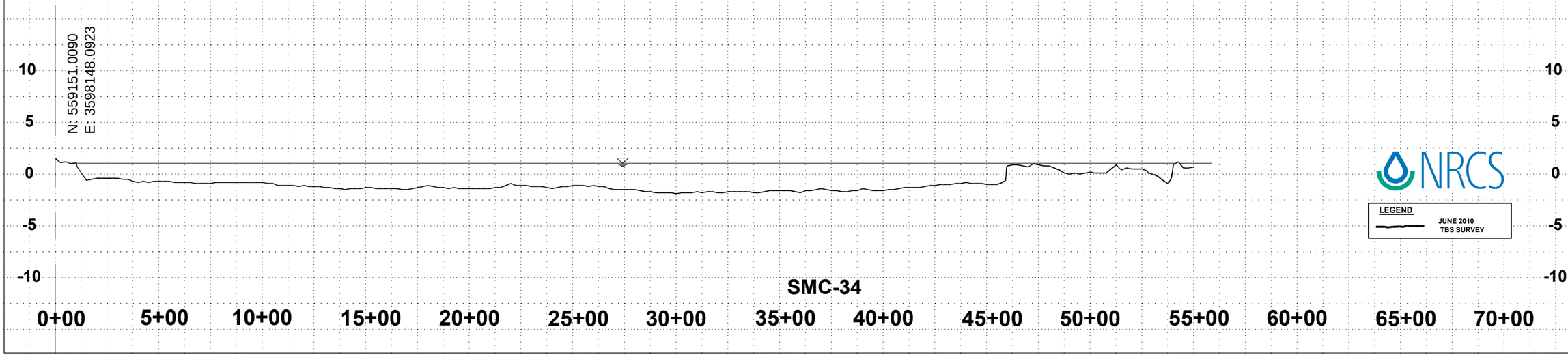

NRCS

LEGEND

JUNE 2010
TBS SURVEY

MARSH CREATION AREA
CROSS-SECTIONS SMC-32 THRU SMC-34
LABRANCHE EAST MARSH CREATION
PO-75
FOR
NATURAL RESOURCES CONSERVATION SERVICE

FILE NAME: MARSH X-SECS
TBS NO.: 2010.0408
DATE: 9/2/2010
PLOT SCALE: NOTED
DRAWN BY: LDE
APPROVED: BJK

DATE	REVISIONS	DRAWN BY	APPROVED BY

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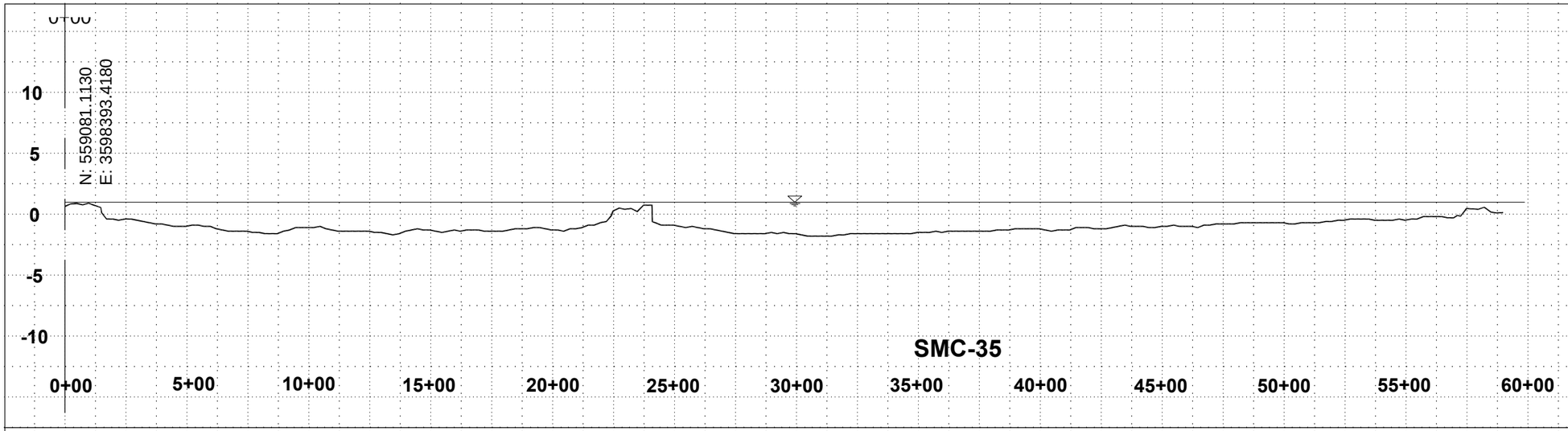
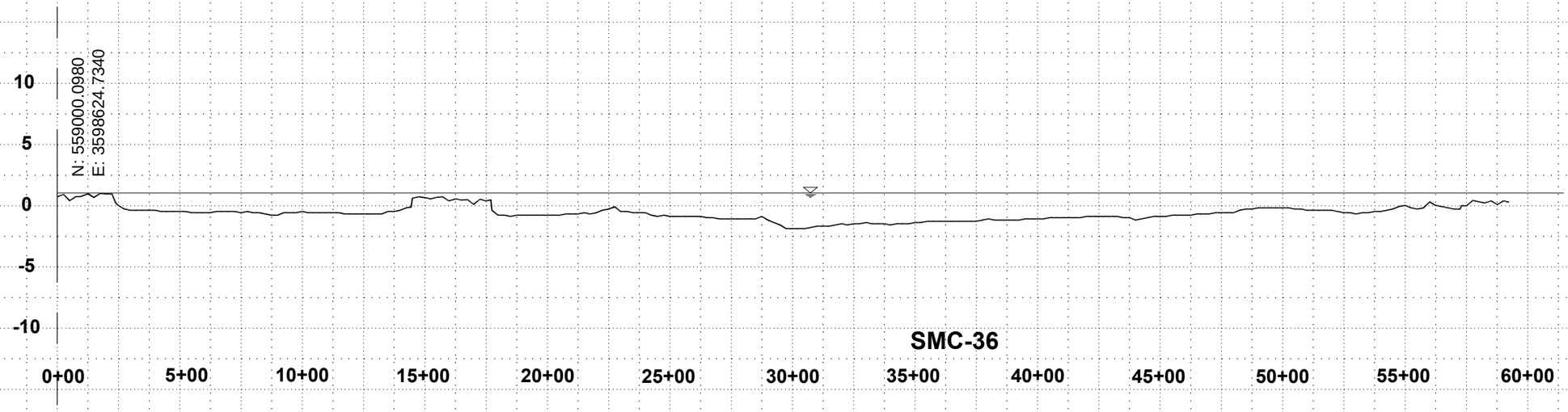
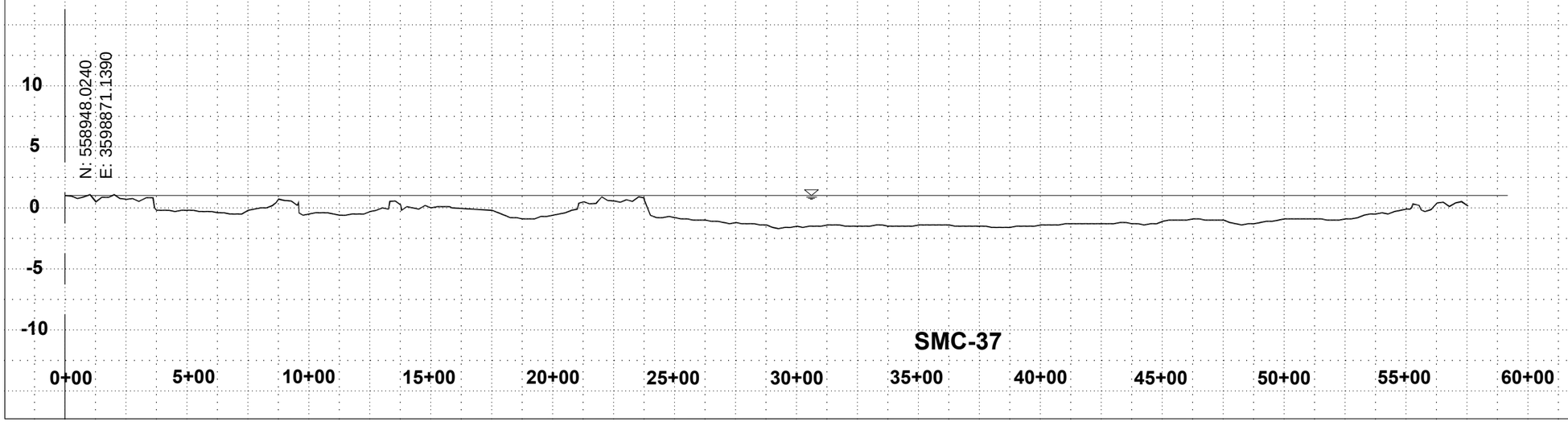
TBS

VERTICAL: 1"=10'







LEGEND

JUNE 2010 TBS SURVEY

NRCS

MARSH CREATION AREA
CROSS-SECTIONS SMC-35 THRU SMC-37
LABRANCHE EAST MARSH CREATION
PO-75
FOR
NATURAL RESOURCES CONSERVATION SERVICE

FILE NAME: MARSH X-SECS
TBS NO.: 2010.0408
DATE: 9/2/2010
PLOT SCALE: NOTED
DRAWN BY: LDE
APPROVED: BJK

DATE	REVISIONS	DRAWN BY	APPROVED BY

T. BAKER SMITH
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VERTICAL: 1"=10'

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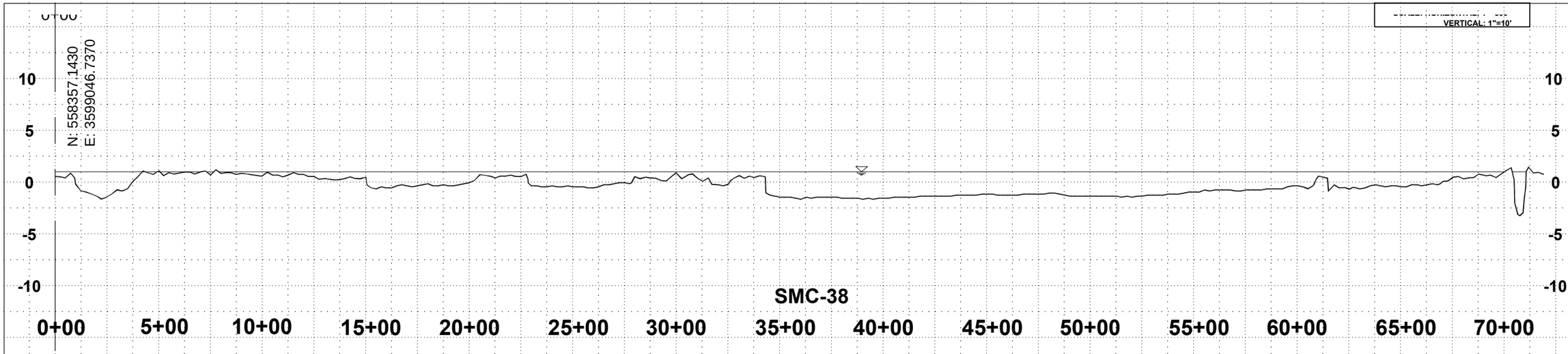

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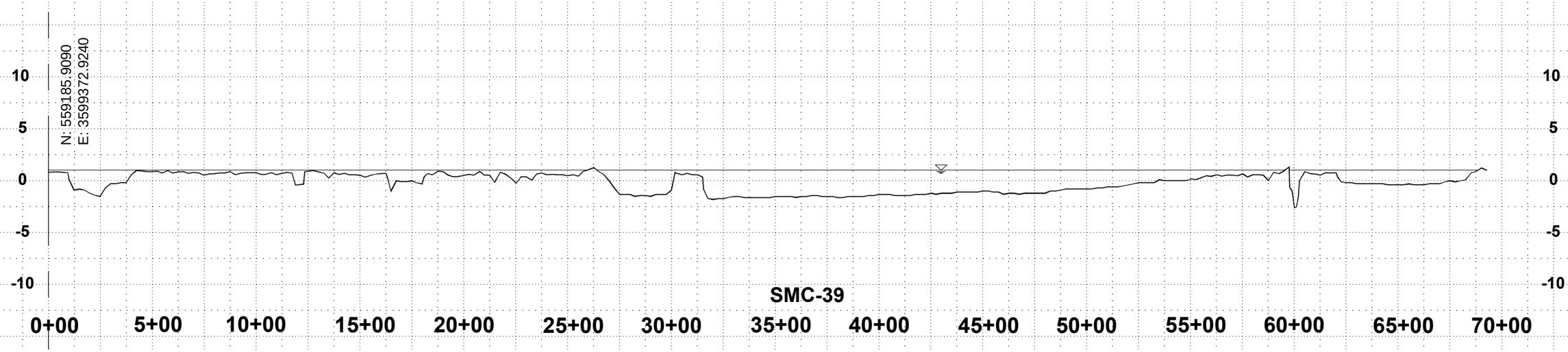

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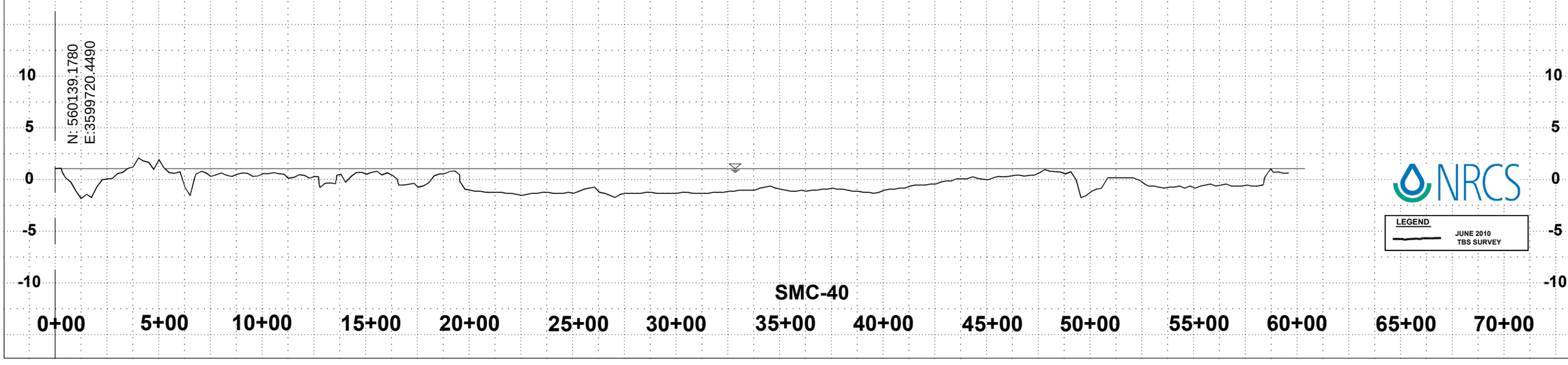

NRCS

LEGEND

JUNE 2010
TBS SURVEY

MARSH CREATION AREA
CROSS-SECTIONS SMC-38 THRU SMC-40
LABRANCHE EAST MARSH CREATION
PO-75
FOR
NATURAL RESOURCES CONSERVATION SERVICE

FILE NAME: MARSH X-SECS
TBS NO.: 2010.0408
DATE: 9/2/2010
PLOT SCALE: NOTED
DRAWN BY: LDE
APPROVED: BJK

DATE	REVISIONS	DRAWN BY	APPROVED BY

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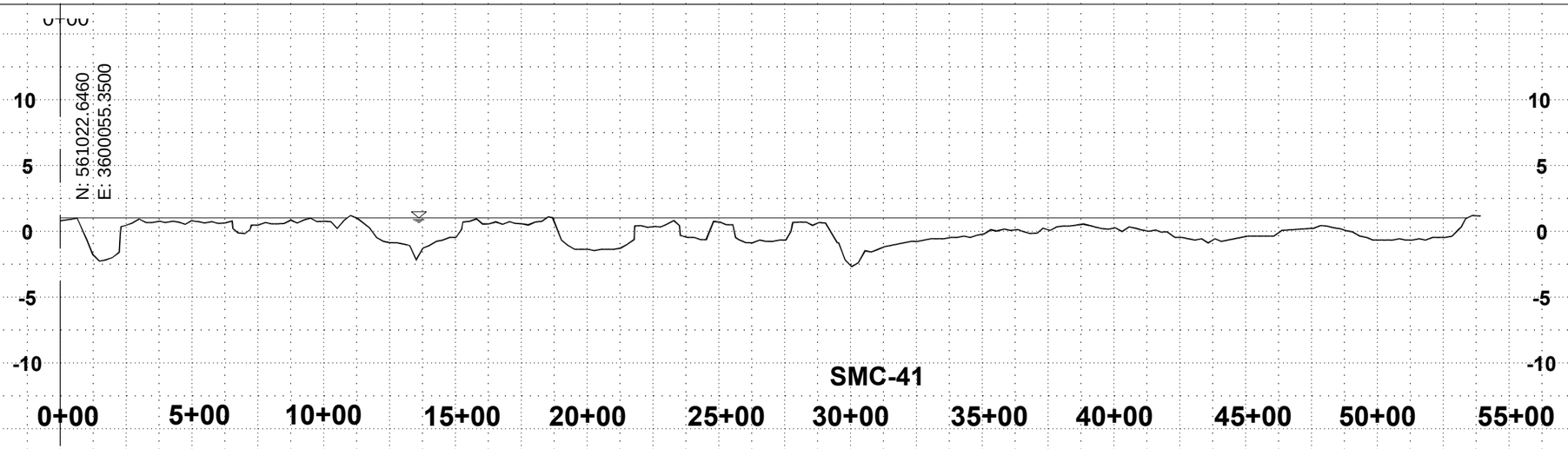
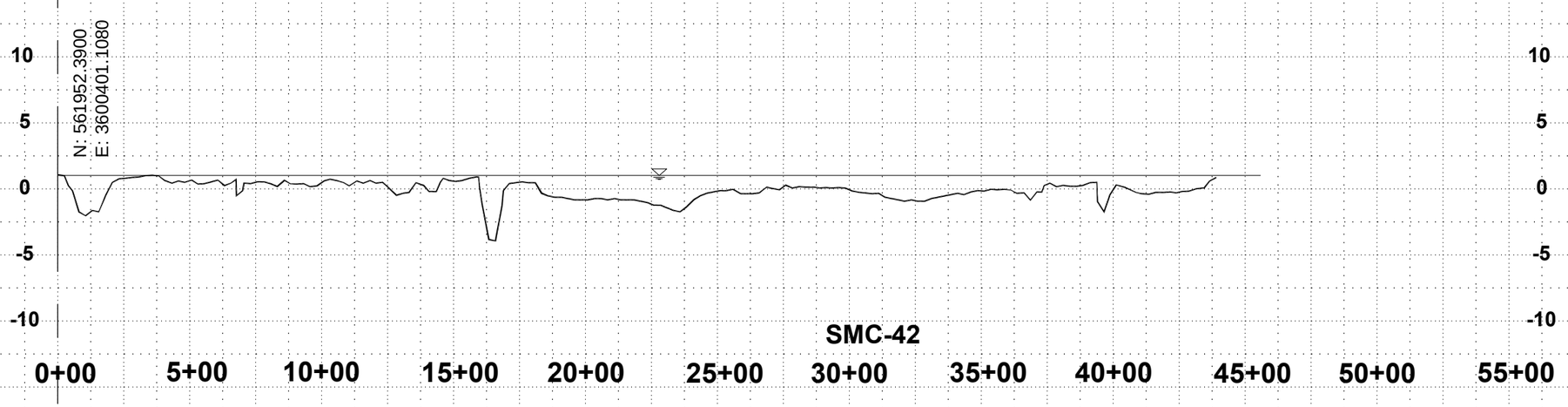
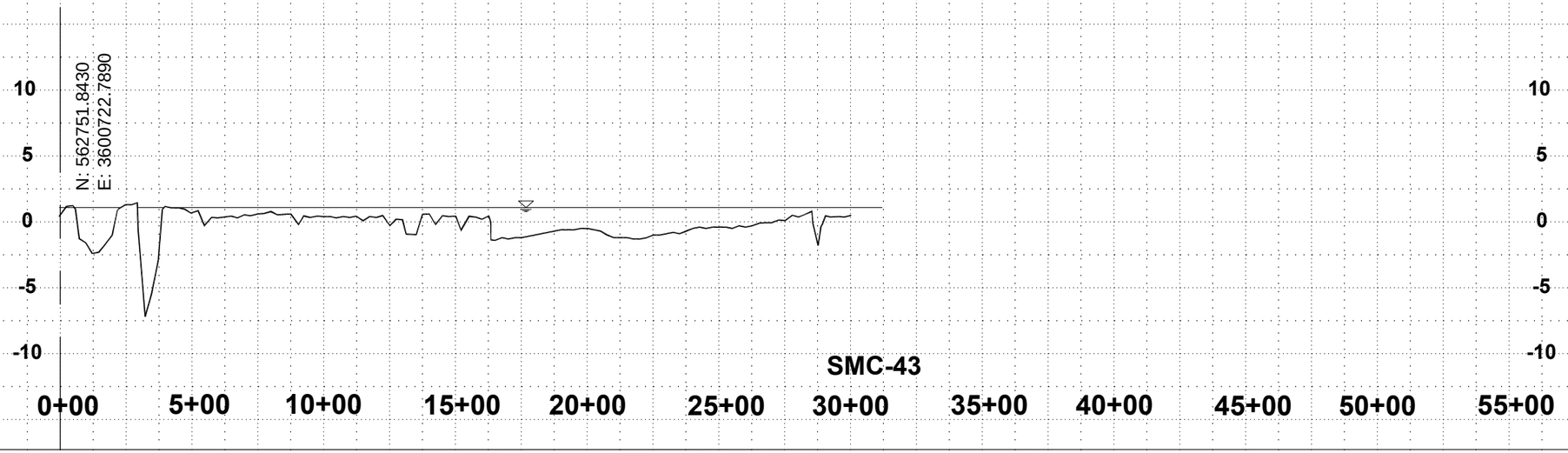
VERTICAL: 1"=10'







NRCS

LEGEND

JUNE 2010 TBS SURVEY

MARSH CREATION AREA
CROSS-SECTIONS SMC-41 THRU SMC-43
LABRANCHE EAST MARSH CREATION
PO-75
FOR
NATURAL RESOURCES CONSERVATION SERVICE

FILE NAME:	MARSH X-SECS
TBS NO.:	2010.0408
DATE:	9/2/2010
PLOT SCALE:	NOTED
DRAWN BY:	LDE
APPROVED:	BJK

DATE	REVISIONS	DRAWN BY	APPROVED BY

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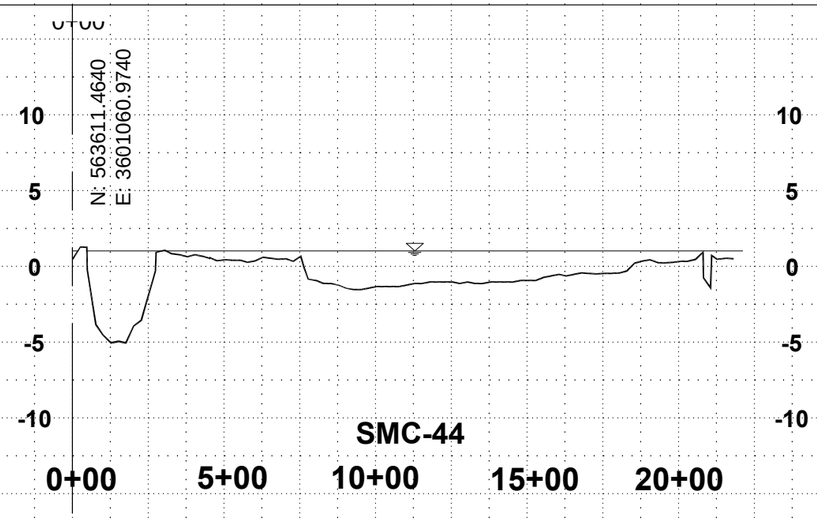
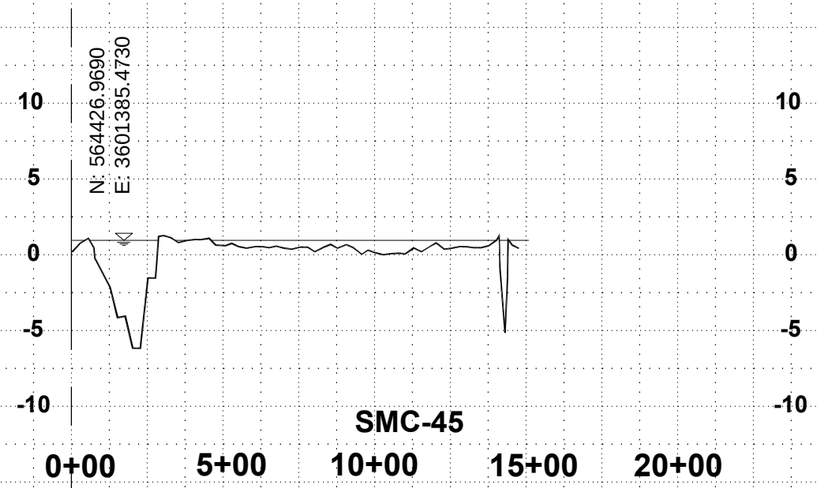
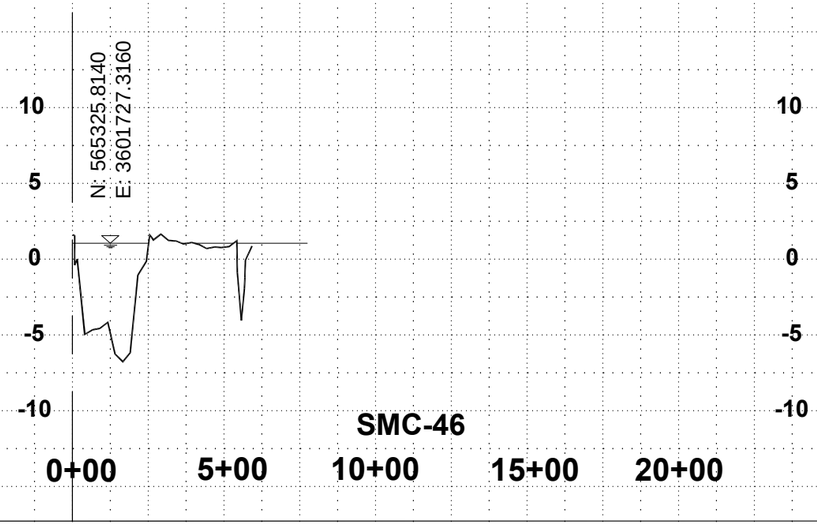
VERTICAL: 1"=10'







NRCS

LEGEND

JUNE 2010
TBS SURVEY

19 of 25

MARSH CREATION AREA
CROSS-SECTIONS SMC-44 THRU SMC-46
LABRANCHE EAST MARSH CREATION
PO-75
FOR
NATURAL RESOURCES CONSERVATION SERVICE

FILE NAME: MARSH X-SECS
TBS NO.: 2010.0408
DATE: 9/2/2010
PLOT SCALE: NOTED
DRAWN BY: LDE
APPROVED: BJK

DATE	REVISIONS	DRAWN BY	APPROVED BY

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PROFESSIONAL CONSULTANTS SINCE 1913
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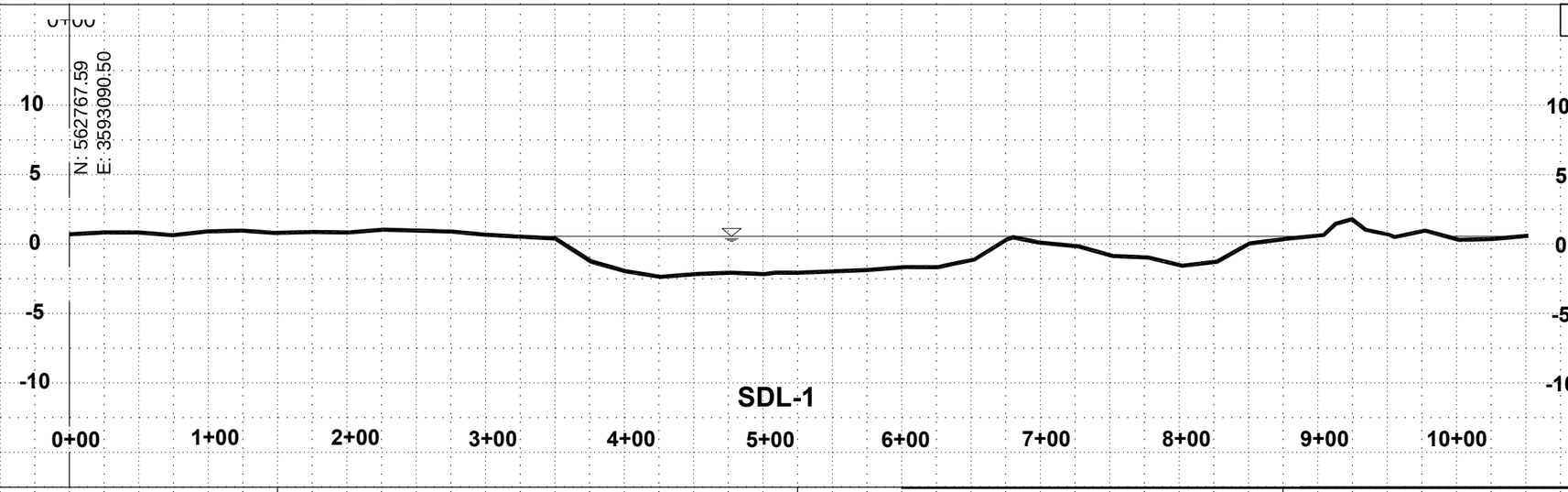
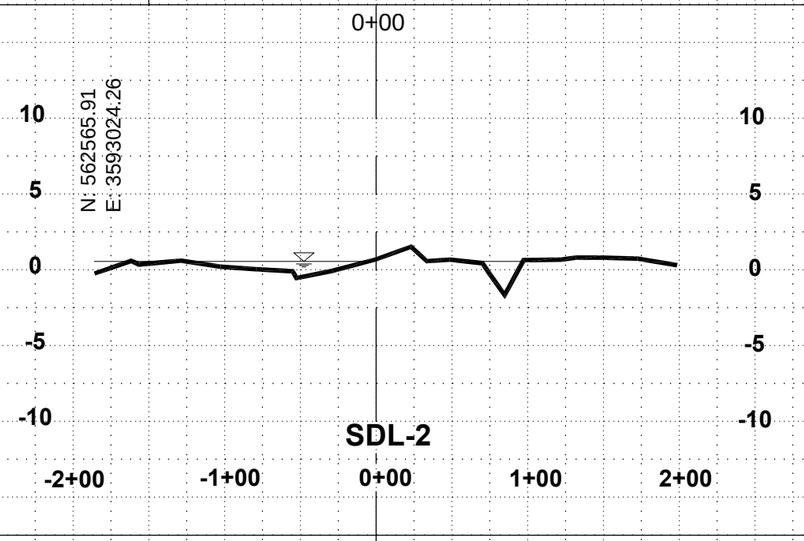
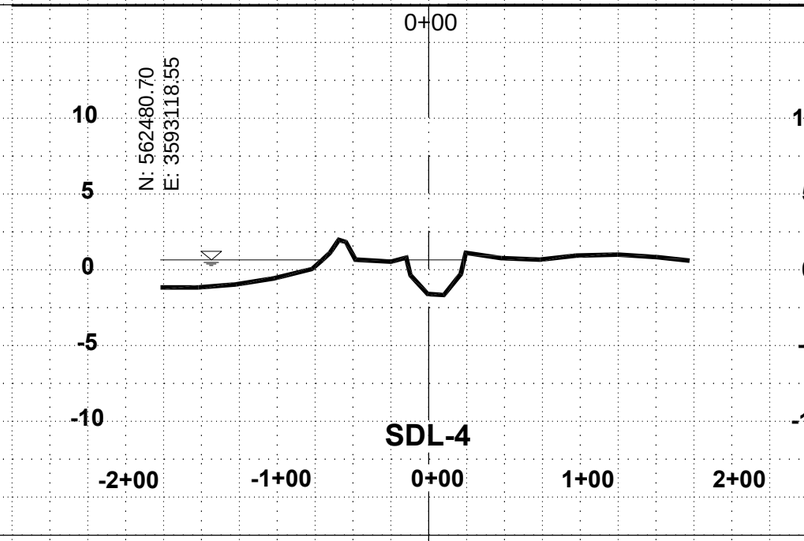
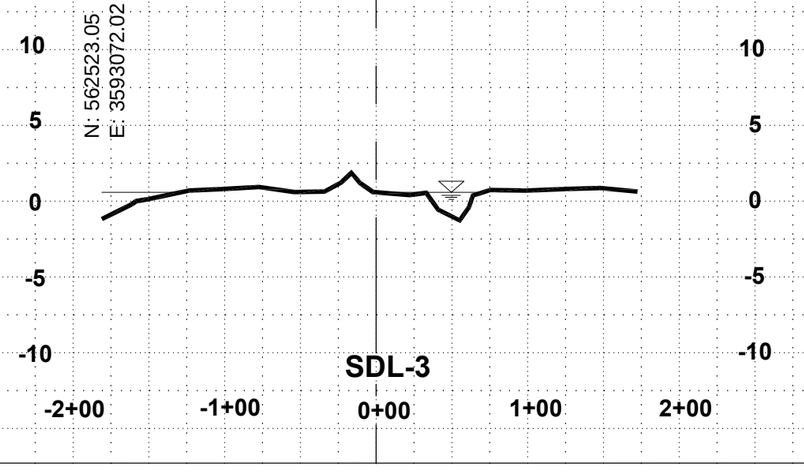
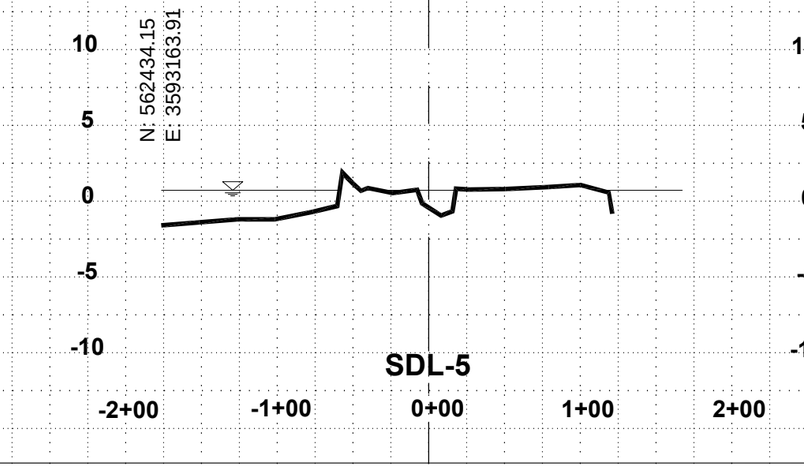
VERTICAL: 1"=10'











NRCS

LEGEND

JUNE 2010
TBS SURVEY

MARSH CREATION AREA
CROSS-SECTIONS SDL-1 THRU SDL-5
LABRANCHE EAST MARSH CREATION
PO-75
FOR
NATURAL RESOURCES CONSERVATION SERVICE

FILE NAME:	SDL SCD XS
TBS NO.:	2010.0408
DATE:	9/2/2010
PLOT SCALE:	NOTED
DRAWN BY:	LDE
APPROVED:	BJK

DRAWN BY	APPROVED BY	REVISIONS	DATE

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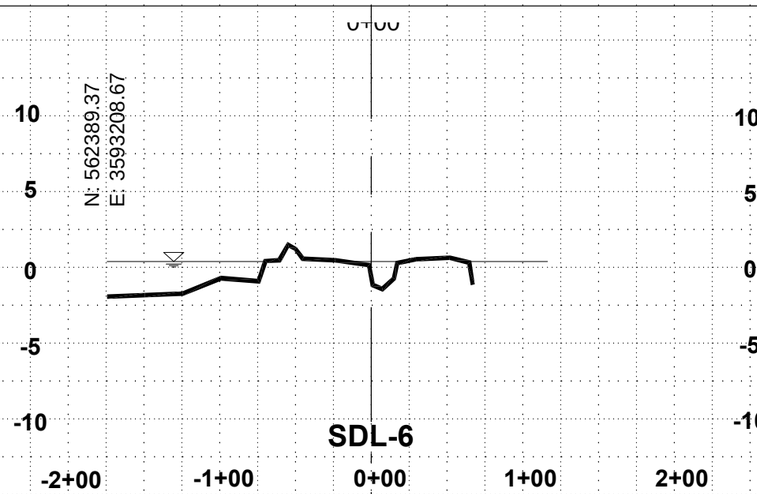
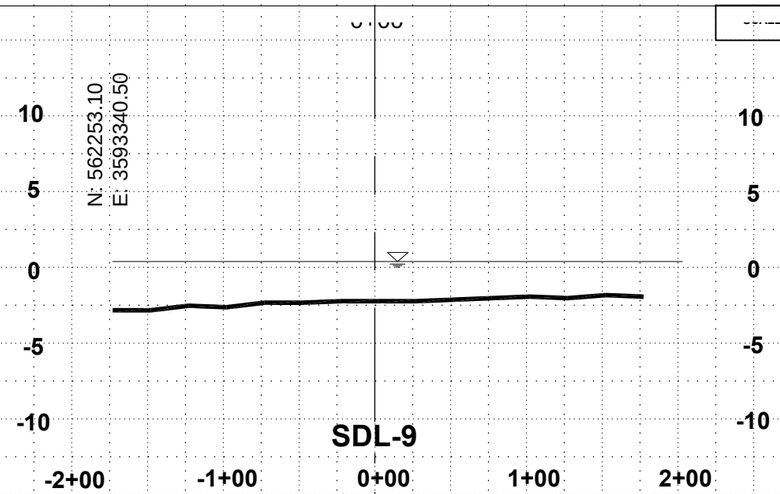
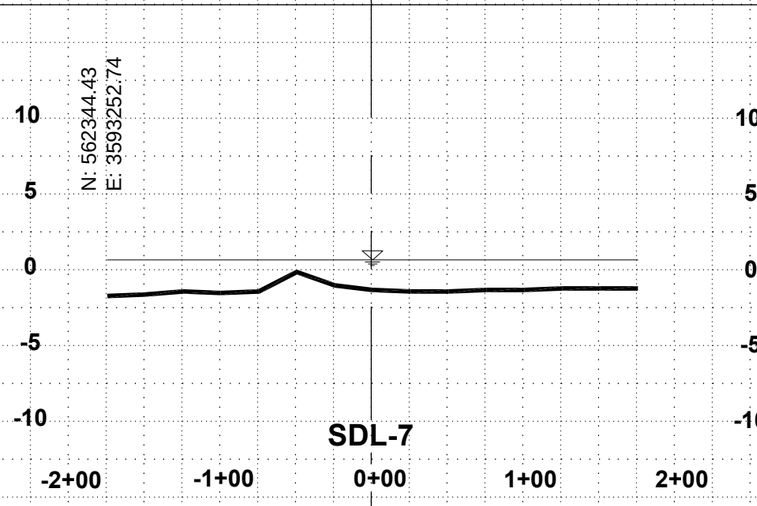
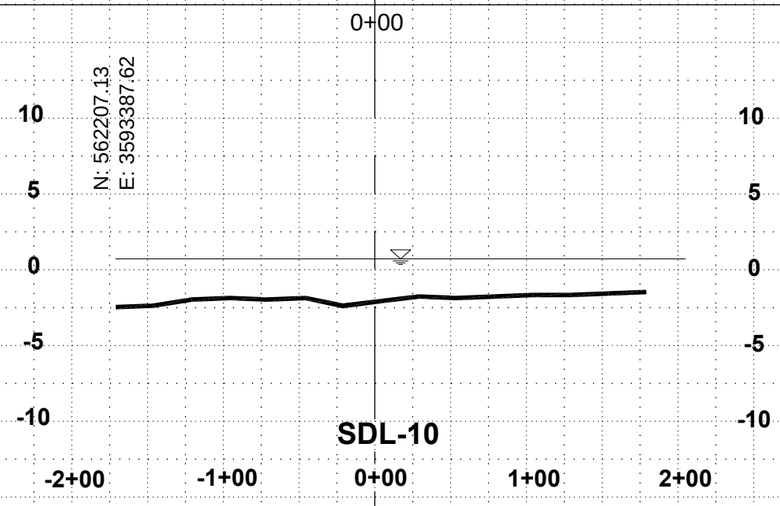
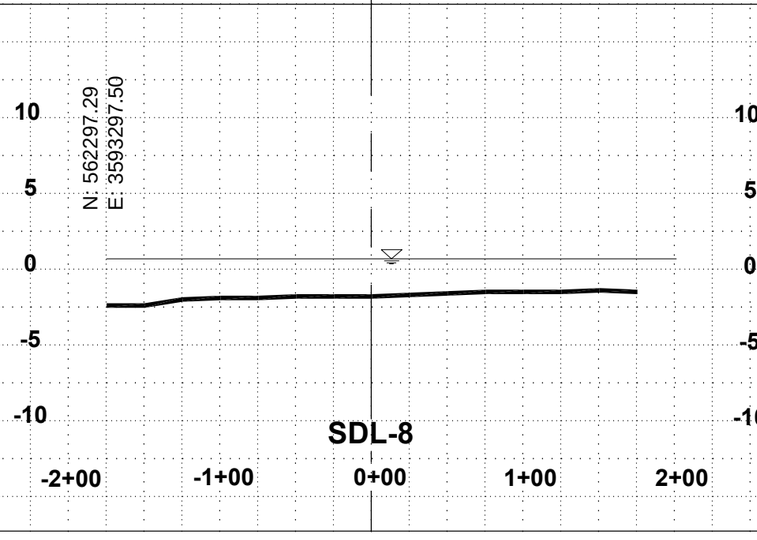
TBS

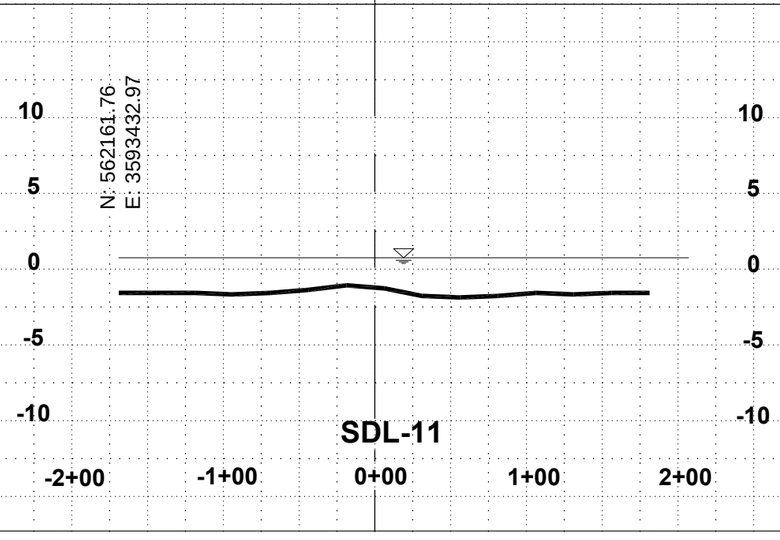












NRCS

LEGEND

JUNE 2010
TBS SURVEY

MARSH CREATION AREA
CROSS-SECTIONS SDL-6 THRU SDL-11
LABRANCHE EAST MARSH CREATION
PO-75
FOR
NATURAL RESOURCES CONSERVATION SERVICE

FILE NAME: SDL & SCD XS
TBS NO.: 2010.0408
DATE: 9/2/2010
PLOT SCALE: NOTED
DRAWN BY: LDE
APPROVED: BJK

DATE	REVISIONS	DRAWN BY	APPROVED BY

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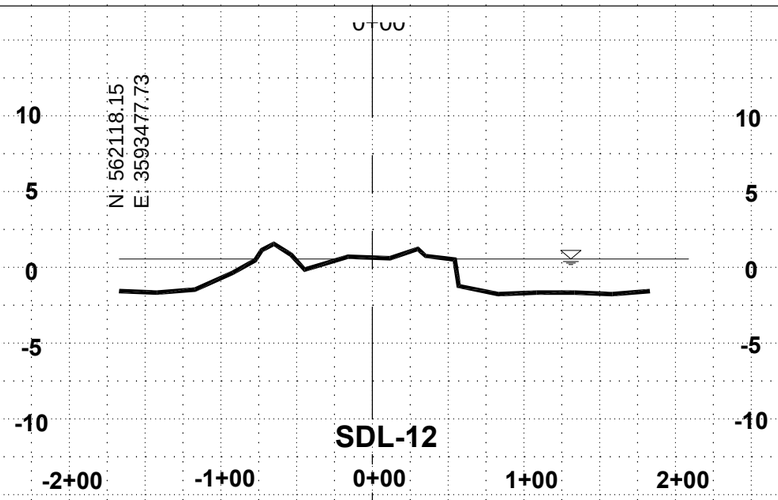
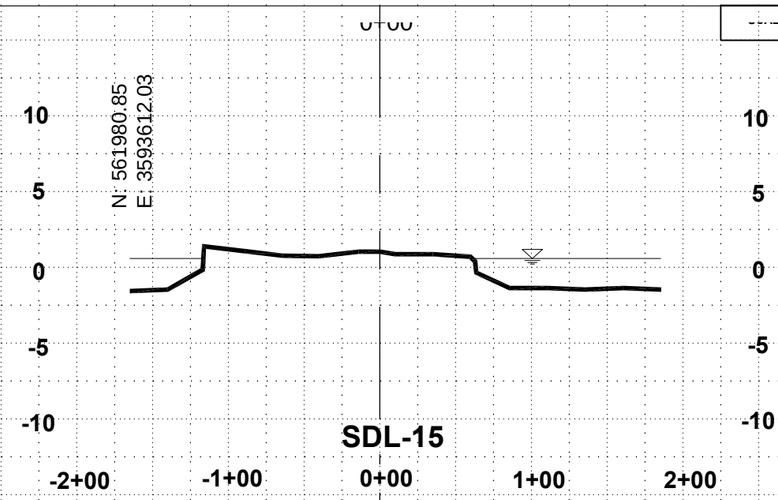
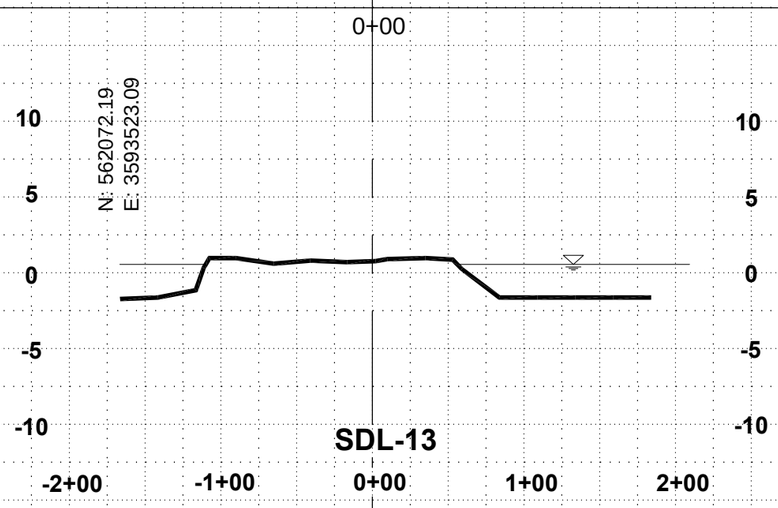
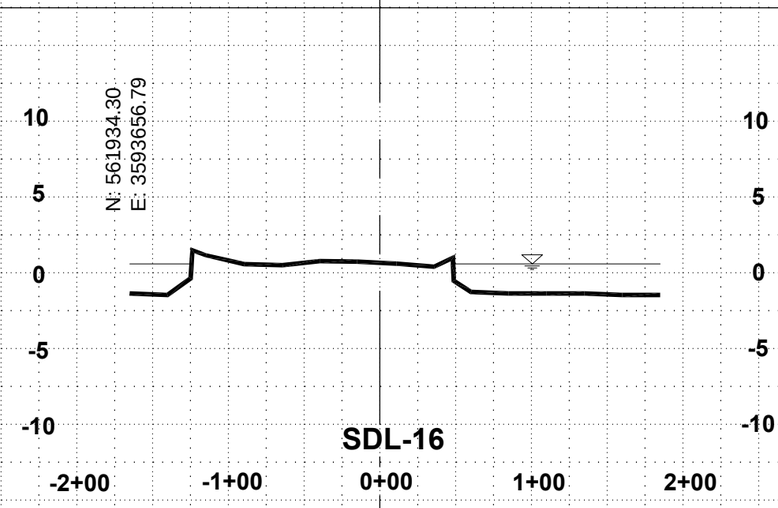
www.tbsmith.com
TBS

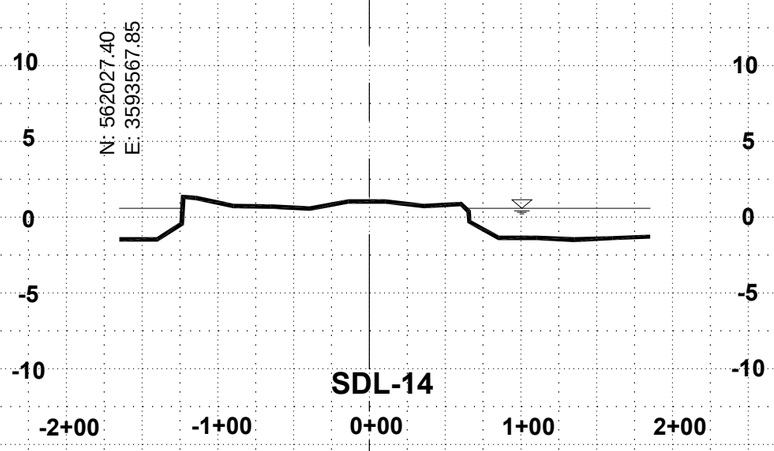
VERTICAL: 1"=10'











NRCS

LEGEND

JUNE 2010
TBS SURVEY

MARSH CREATION AREA
CROSS-SECTIONS SDL-12 THRU SDL-16
LABRANCHE EAST MARSH CREATION
PO-75
FOR
NATURAL RESOURCES CONSERVATION SERVICE

FILE NAME: SDL & SCD XS
TBS NO.: 2010.0408
DATE: 9/2/2010
PLOT SCALE: NOTED
DRAWN BY: LDE
APPROVED: BJK

DATE	REVISIONS	DRAWN BY	APPROVED BY

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PROFESSIONAL CONSULTANTS SINCE 1913
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TBS

VERTICAL: 1"=10'

NRCS

LEGEND

JUNE 2010
TBS SURVEY

23 of 25

MARSH CREATION AREA
CROSS-SECTIONS SCD-1 THRU SCD-6
LABRANCHE EAST MARSH CREATION
PO-75
FOR
NATURAL RESOURCES CONSERVATION SERVICE

FILE NAME: SDL & SCD XS
TBS NO.: 2010.0408
DATE: 9/2/2010
PLOT SCALE: NOTED
DRAWN BY: LDE
APPROVED: BJK

DATE	REVISIONS	DRAWN BY	APPROVED BY

T. BAKER SMITH
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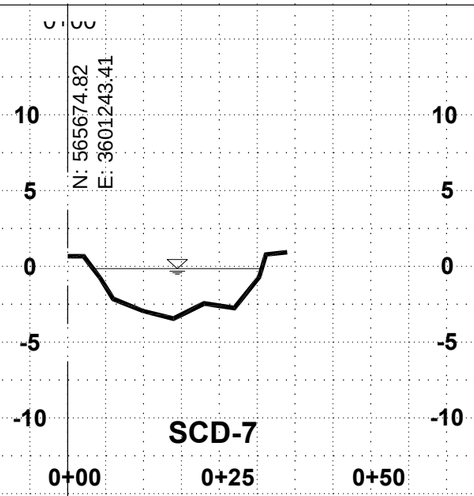
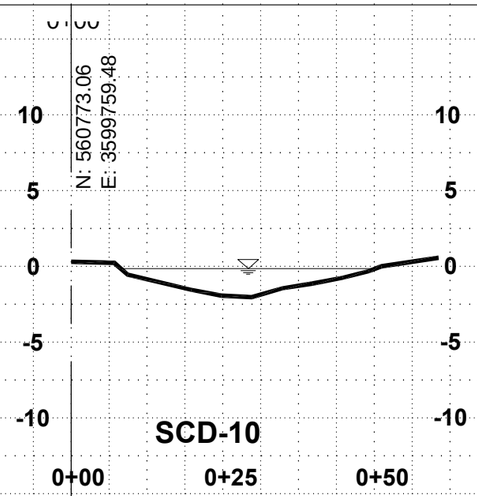
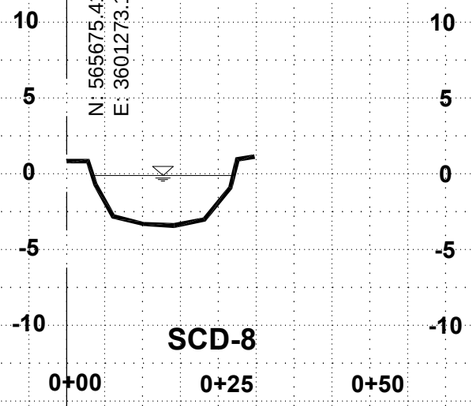
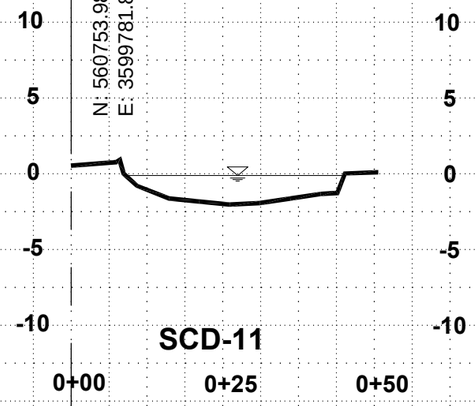
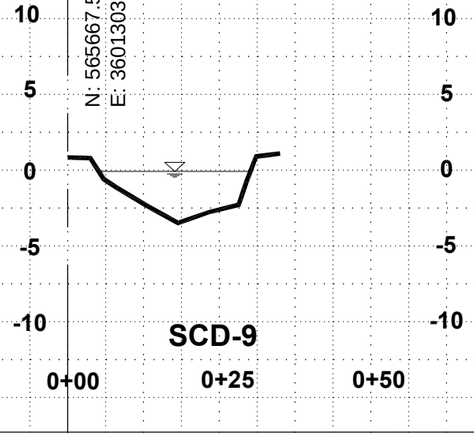
TBS

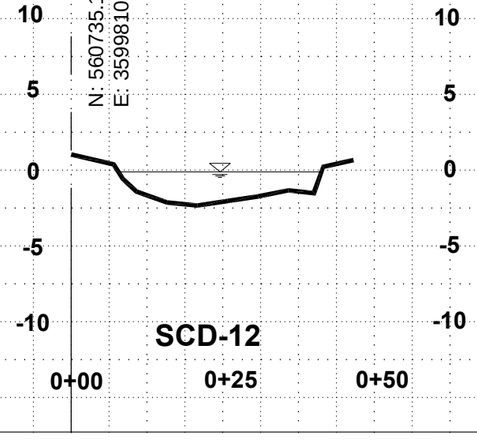












VERTICAL: 1"=10'

NRCS

LEGEND

JUNE 2010
TBS SURVEY

MARSH CREATION AREA
CROSS-SECTIONS SCD-7 THRU SCD-12

LABRANCHE EAST MARSH CREATION
PO-75
FOR
NATURAL RESOURCES CONSERVATION SERVICE

FILE NAME:	SDL & SCD XS
TBS NO.:	2010.0408
DATE:	9/2/2010
PLOT SCALE:	NOTED
DRAWN BY:	LDE
APPROVED:	BJK

DRAWN BY	APPROVED BY

REVISIONS

DATE

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www.tbsmith.com
TBS

VERTICAL: 1"=10'

LEGEND

JUNE 2010
TBS SURVEY

NRCS

MARSH CREATION AREA
CROSS-SECTIONS SCD-13 THRU SCD-15

LABRANCHE EAST MARSH CREATION
PO-75
FOR
NATURAL RESOURCES CONSERVATION SERVICE

FILE NAME: SDL & SCD XS
TBS NO.: 2010.0408
DATE: 9/2/2010
PLOT SCALE: NOTED
DRAWN BY: LDE
APPROVED: BJK

DATE	REVISIONS	DRAWN BY	APPROVED BY

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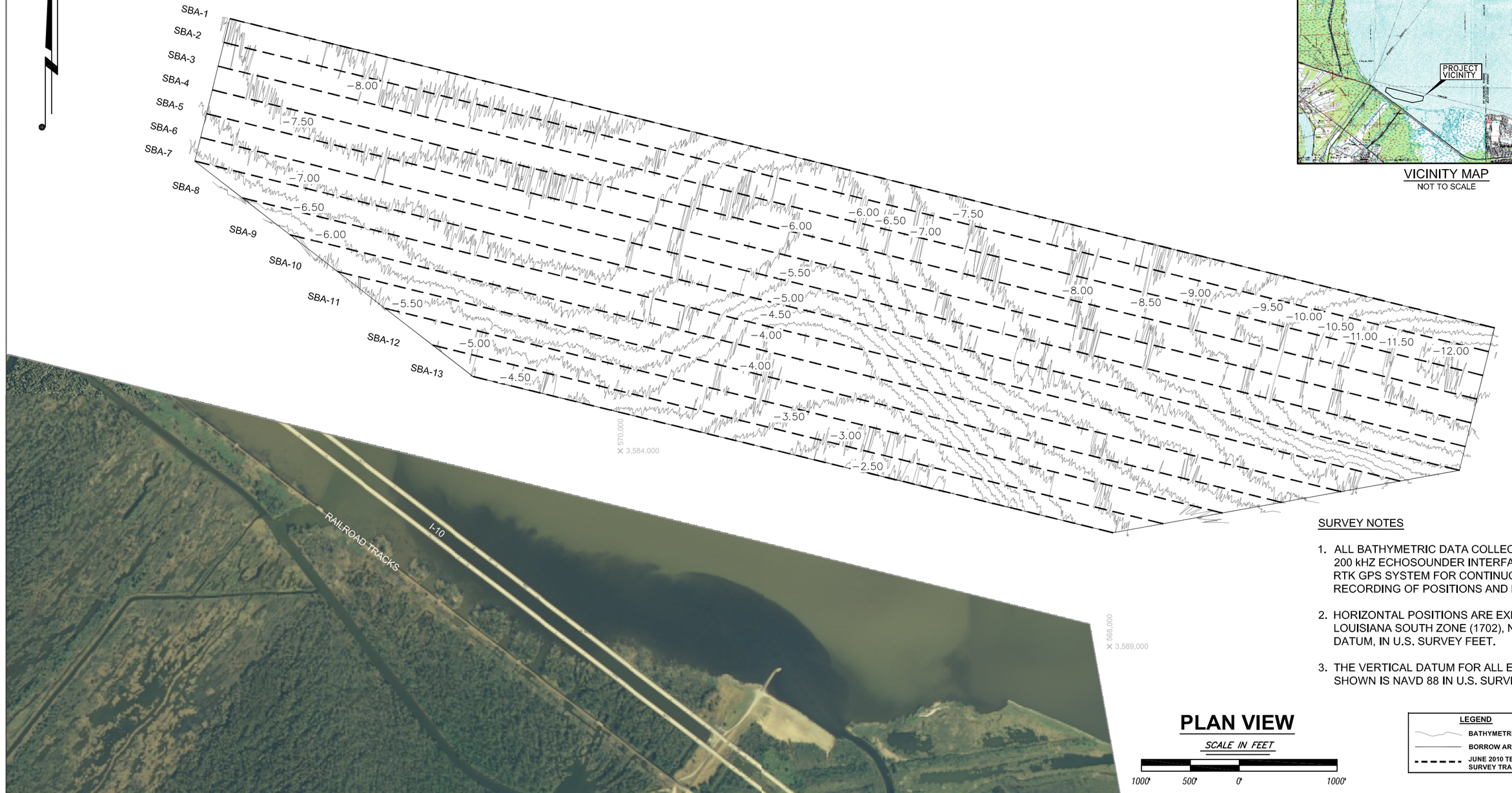
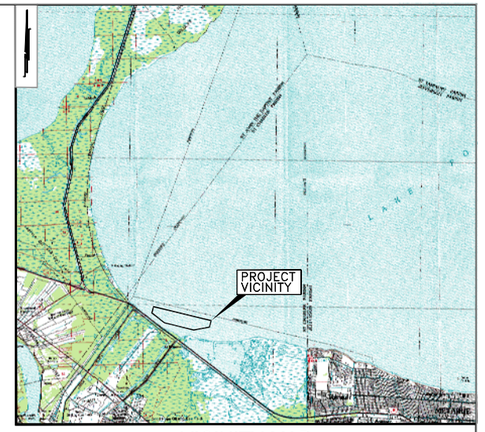
PROFESSIONAL CONSULTANTS SINCE 1913
(985) 868-1050
www.tbsmith.com
TBS

LAKE PONTCHARTRAIN
ST. CHARLES PARISH





VICINITY MAP
NOT TO SCALE

SURVEY NOTES

1. ALL BATHYMETRIC DATA COLLECTED USING 200 kHZ ECHOSOUNDER INTERFACED WITH RTK GPS SYSTEM FOR CONTINUOUS RECORDING OF POSITIONS AND ELEVATIONS.
2. HORIZONTAL POSITIONS ARE EXPRESSED IN LOUISIANA SOUTH ZONE (1702), NAD 83 DATUM, IN U.S. SURVEY FEET.
3. THE VERTICAL DATUM FOR ALL ELEVATIONS SHOWN IS NAVD 88 IN U.S. SURVEY FEET.

PLAN VIEW

SCALE IN FEET

1000' 500' 0' 1000'

LEGEND
- BATHYMETRIC CONTOUR (0.5')
- BORROW AREA BOUNDARY
- JUNE 2010 TBS SURVEY TRANSECTS

NOTES:

APPENDIX 4

DATE	REVISIONS	DRAWN BY	APPROVED BY
	REVISIONS		

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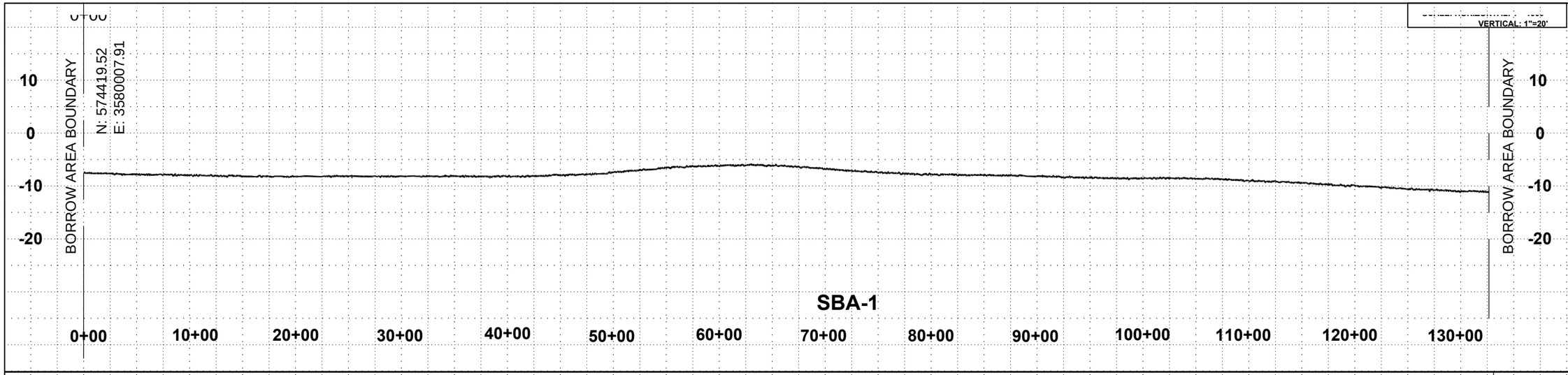
NRCS

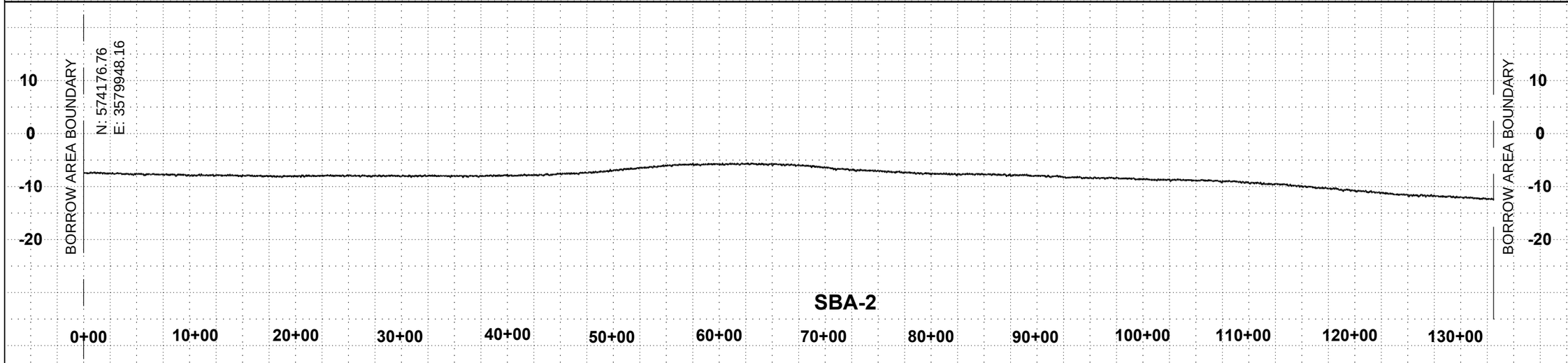
FILE NAME:	BA TRANSECTS
TBS NO.:	2010.0408
DATE:	9/2/2010
PLOT SCALE:	1"=1000'
DRAWN BY:	LDE
APPROVED:	BJK
MAP NO.	

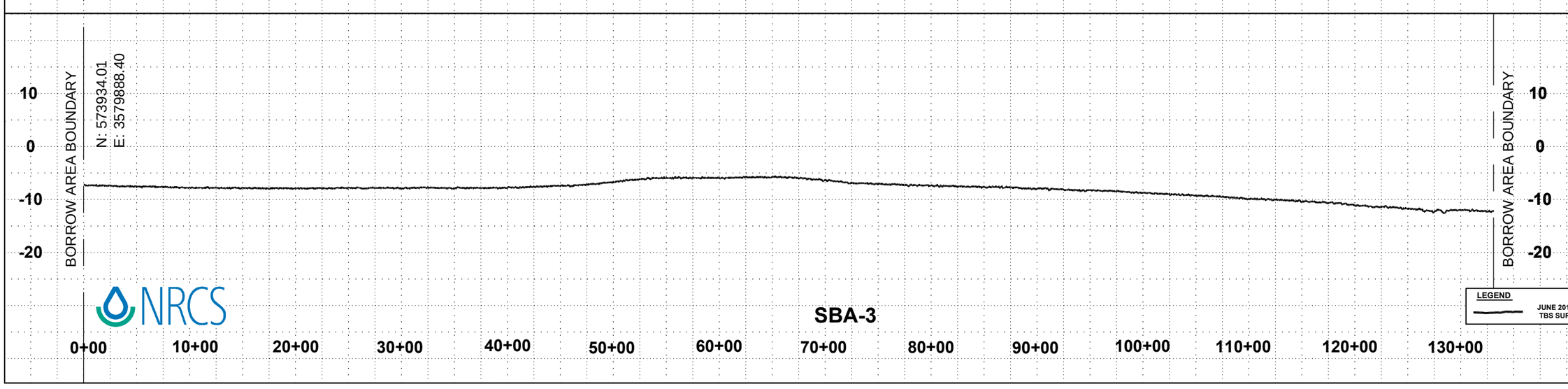
BORROW AREA TRANSECTS AND CONTOURS
LABRANCHE EAST MARSH CREATION
PO-75
FOR
NATURAL RESOURCES CONSERVATION SERVICE
ST. CHARLES PARISH, LA

SHEET NO. 1 OF 6

VERTICAL: 1"=20'







NRCS

BORROW AREA
CROSS SECTIONS SBA-1 THRU SBA-3
LABRANCHE EAST MARSH CREATION
PO-75
FOR
NATURAL RESOURCES CONSERVATION SERVICE

FILE NAME:	BA X-SECTIONS
TBS NO.:	2010.0408
DATE:	9/2/2010
PLOT SCALE:	NOTED
DRAWN BY:	LDE
APPROVED:	BJK

DRAWN BY	APPROVED BY	DATE	REVISIONS

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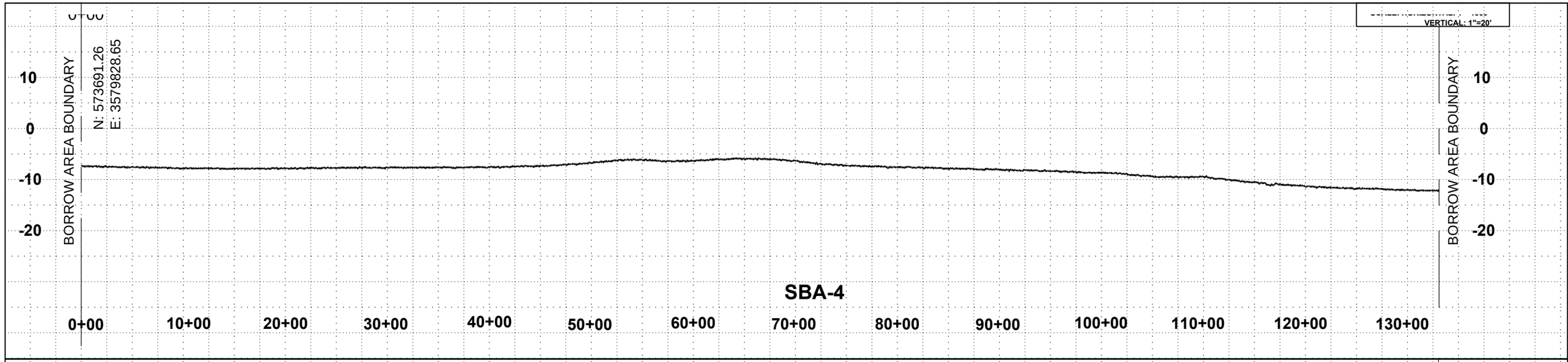
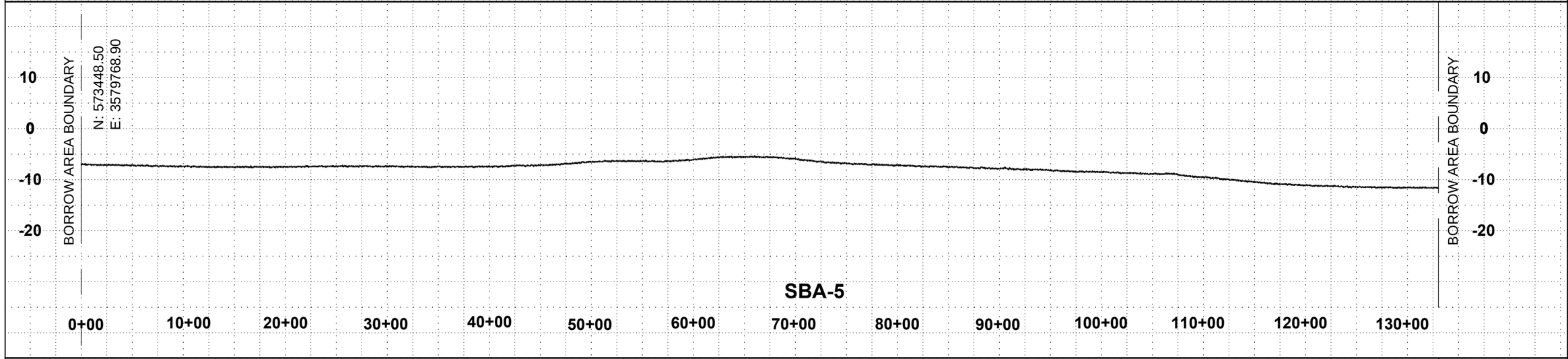
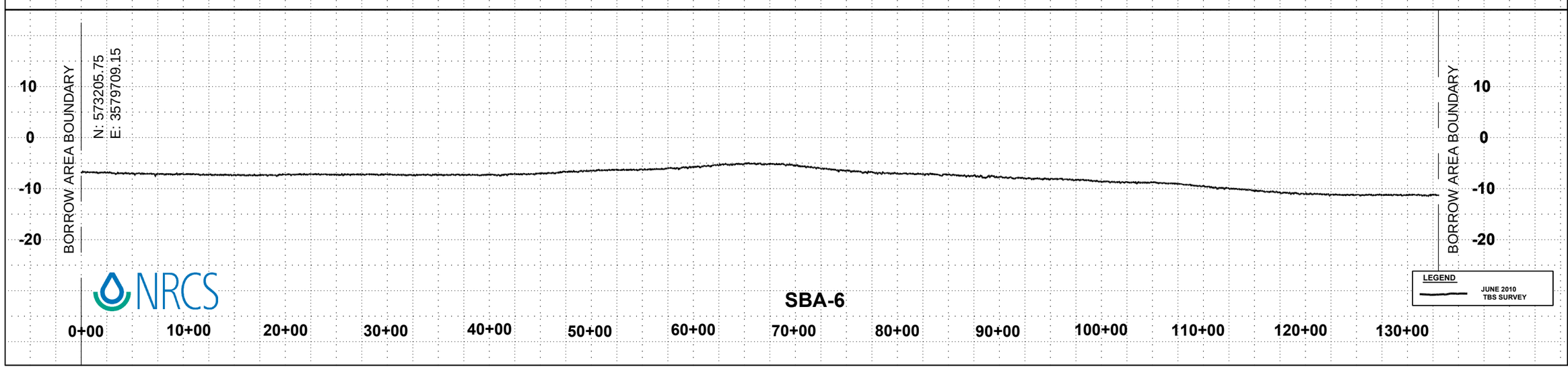
TBS







NRCS

3 of 6

BORROW AREA
CROSS SECTIONS SBA-4 THRU SBA-6
LABRANCHE EAST MARSH CREATION
PO-75
FOR
NATURAL RESOURCES CONSERVATION SERVICE

FILE NAME:	BA X-SECTIONS
TBS NO.:	2010.0408
DATE:	9/2/2010
PLOT SCALE:	NOTED
DRAWN BY:	LDE
APPROVED:	BJK

REVISIONS	DATE	DRAWN BY	APPROVED BY

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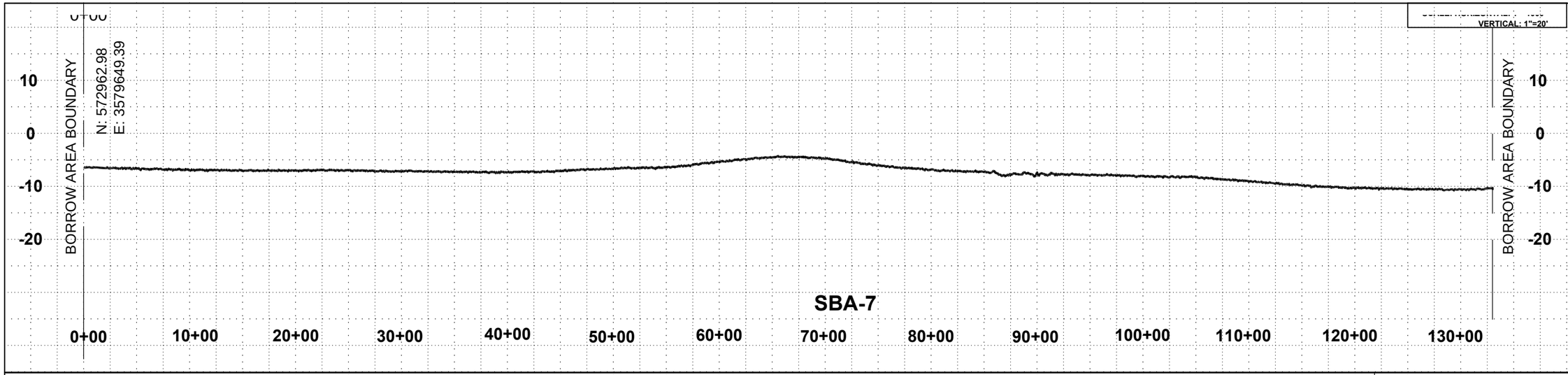
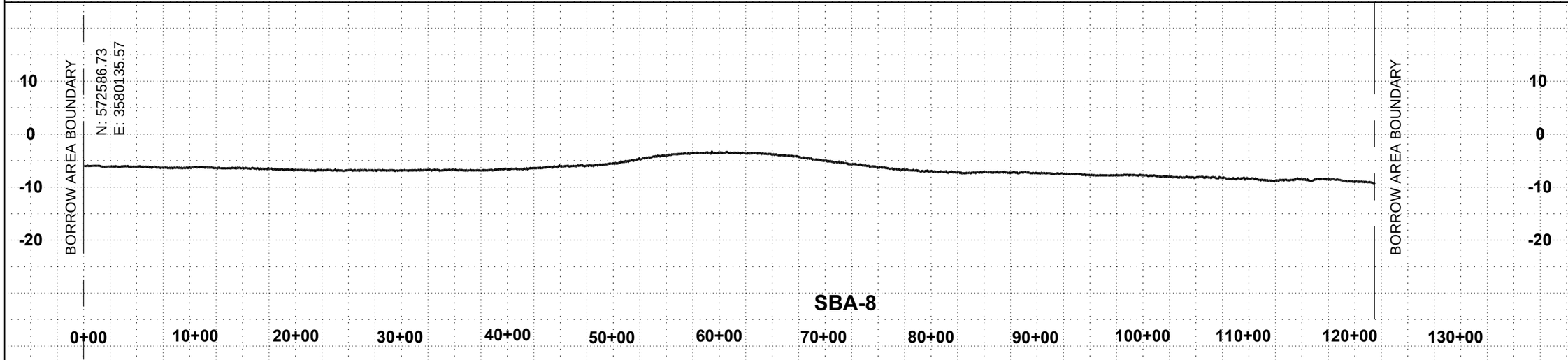
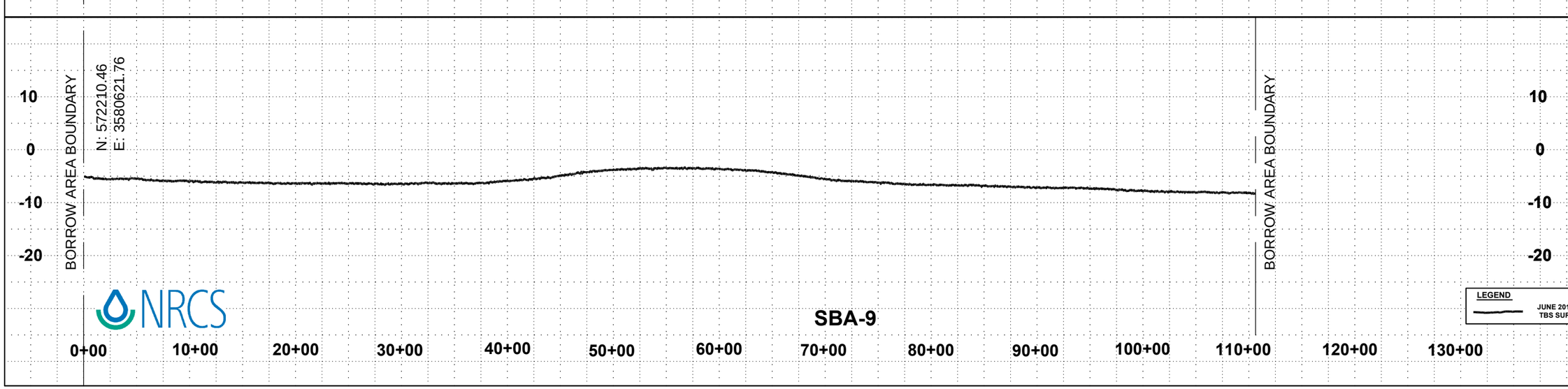
VERTICAL: 1"=20'







NRCS

BORROW AREA
CROSS SECTIONS SBA-7 THRU SBA-9
LABRANCHE EAST MARSH CREATION
PO-75
FOR
NATURAL RESOURCES CONSERVATION SERVICE

FILE NAME:	BA X-SECTIONS
TBS NO.:	2010.0408
DATE:	9/2/2010
PLOT SCALE:	NOTED
DRAWN BY:	LDE
APPROVED:	BJK

REVISIONS	DATE

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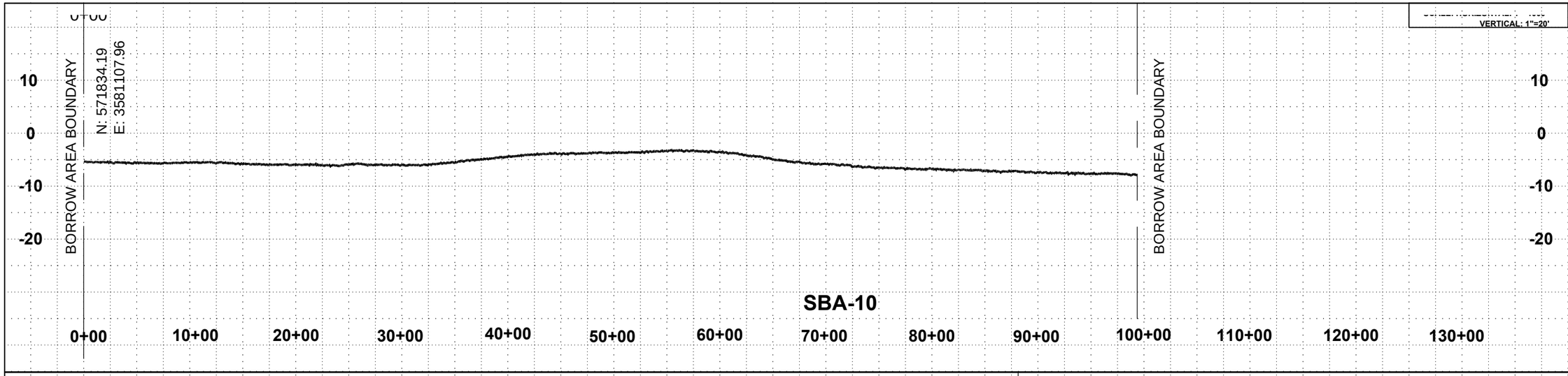
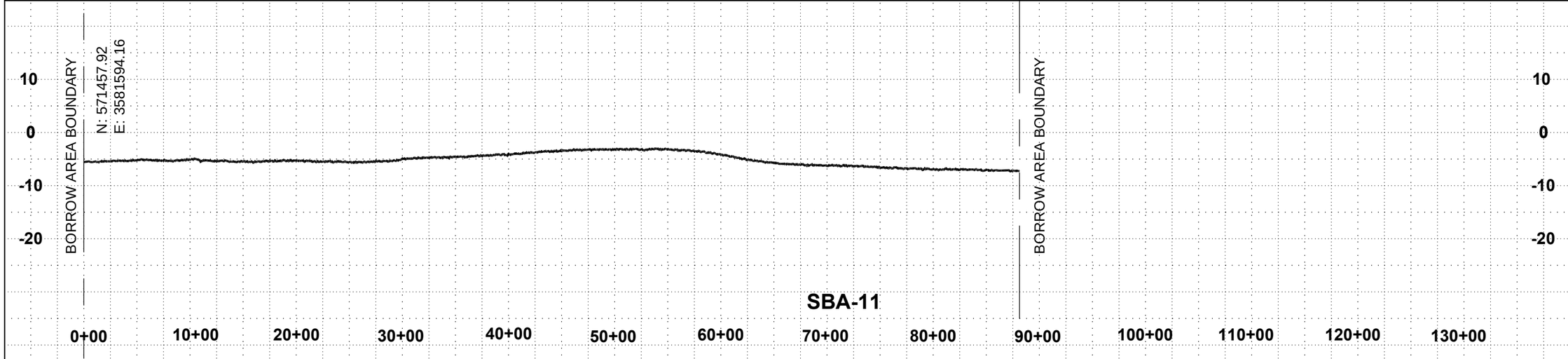
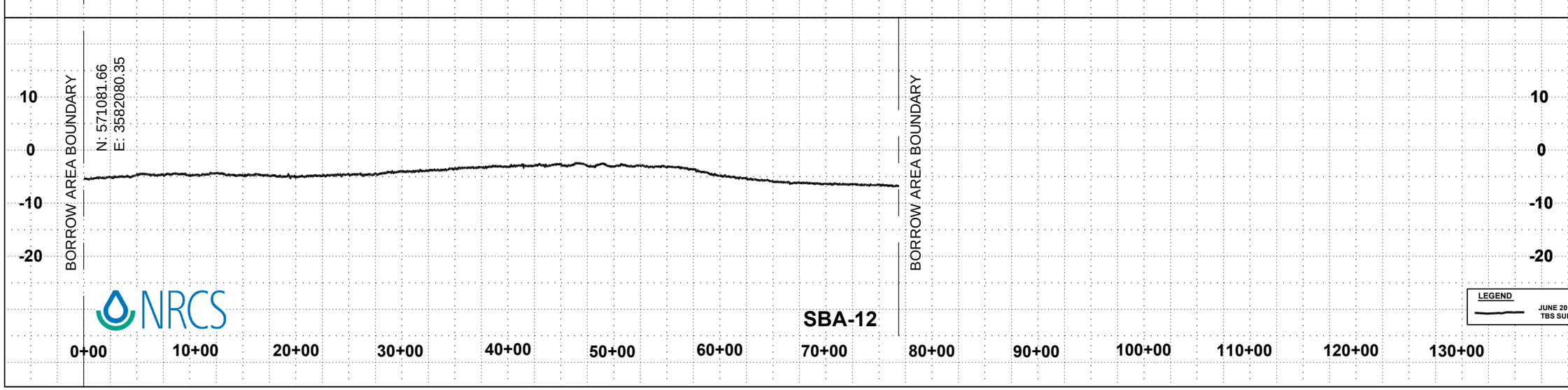
VERTICAL: 1"=20'







BORROW AREA
CROSS SECTIONS SBA-10 THRU SBA-12
LABRANCHE EAST MARSH CREATION
PO-75
FOR
NATURAL RESOURCES CONSERVATION SERVICE

FILE NAME:	BA X-SECTIONS
TBS NO.:	2010.0408
DATE:	9/2/2010
PLOT SCALE:	NOTED
DRAWN BY:	LDE
APPROVED:	BJK

REVISIONS	DATE	DRAWN BY	APPROVED BY

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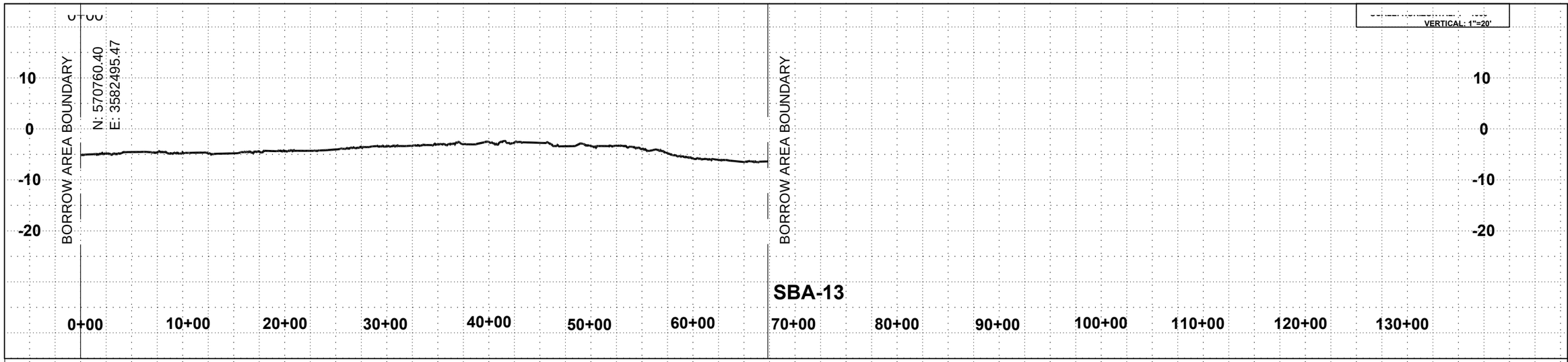

BORROW AREA
CROSS SECTIONS SBA-13

LABRANCHE EAST MARSH CREATION
PO-75
FOR
NATURAL RESOURCES CONSERVATION SERVICE

FILE NAME: BA X-SECTIONS
TBS NO.: 2010.0408
DATE: 9/2/2010
PLOT SCALE: NOTED
DRAWN BY: LDE
APPROVED: BJK

DATE	REVISIONS	DRAWN BY	APPROVED BY

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LEGEND
JUNE 2010 TBS SURVEY

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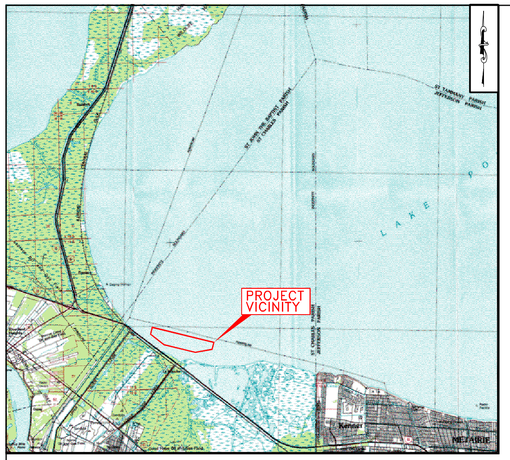
LAKE PONTCHARTRAIN
ST. CHARLES PARISH



VICINITY MAP
NOT TO SCALE

TRI-STATES PIPELINE NGL PIPELINE L.L.C.
(APPROX. POSITION PER LDNR PIPELINE DATABASE)

Legend
- MAGNETOMETER TARGET
- APPROXIMATE PIPELINE POSITION PER LDNR PIPELINE DATABASE
- PIPEPLINE POSITION PER TBS MAGNETOMETER SURVEY
- POSSIBLE PIPELINE POSITION PER TBS MAGNETOMETER SURVEY
- BOREHOLE LOCATION

LIMITS OF BORROW AREA

BHBA-1
BHBA-2
BHBA-3
BHBA-4
BHBA-5

WILPRISE PIPELINE CO
(APPROX. POSITON PER LDNR PIPELINE DATABASE)

POSSIBLE PIPELINE LOCATION PER TBS MAGENTOMETER SURVEY

LA I-10

Railroad Tracks

MATCH LINE (SEE SHEET 2)

Borehole No.	Northing	Easting	Depth (ft)
BHBA-1	573520	3580571	20
BHBA-2	572013	3582004	20
BHBA-3	572967	3583512	20
BHBA-4	571308	3584687	20
BHBA-5	572261	3586195	20
BHBA-6	570937	3586467	20
BHBA-7	571592	3589318	20
BHBA-8	570651	3592045	20

NOTES:

SURVEY PERFORMED USING AUTOMATED GEOPHYSICAL SURVEY SYSTEM CONSISTING OF SIDE SCAN SONAR, PROTON MAGNETOMETER, DGPS & COMPUTER BASED DATA COLLECTION / NAVIGATION SYSTEM.

SURVEY PERFORMED JULY 14-16 & 19, 2010 BY T. BAKER SMITH, INC. WITH M/V ECHOTRAC.

ALL FOREIGN PIPELINE CROSSINGS SHOWN WERE DEPICTED UTILIZING DATA FROM PIPELINE ALIGNMENT SHEETS AND INTERPRETATION OF SONAR AND READINGS FROM MAGNETIC DETECTION EQUIPMENT.

ALL XY COORDINATES SHOWN ARE LOUISIANA SOUTH ZONE NORTH AMERICAN DATUM OF 1983. ALL LATITUDE AND LONGITUDE VALUES ARE GEOGRAPHIC NORTH AMERICAN DATUM OF 1983.

PLAN VIEW

300' 150' 0 300' 600' 900'

NOTES:

APPENDIX 5

DATE	REVISIONS	DRAWN BY	APPROVED BY

REVISIONS

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PROFESSIONAL CONSULTANTS SINCE 1913
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NRCS

FILE NAME:	BA MAG PLAN W
TBS NO.:	2010.0408
DATE:	9/2/2010
PLOT SCALE:	1"= 300'
DRAWN BY:	E.T.G.
APPROVED:	W.M.B.
MAP NO.	

BORROW AREA
SIDE SCAN & MANGETOMETER SURVEY

LABRANCHE EAST MARSH CREATION
PO-75
FOR
NATURAL RESOURCES CONSERVATION SERVICE
ST. CHARLES PARISH, LA

SHEET NO. 1 OF 4

LAKE PONTCHARTRAIN
ST. CHARLES PARISH

TRI-STATES PIPELINE NGL PIPELINE L.L.C.

AIR PRODUCTS AND CHEMICALS, INC. PIPELINE
PIPELINE LOCATION PER TBS MAG SURVEY

LIMITS OF BORROW AREA

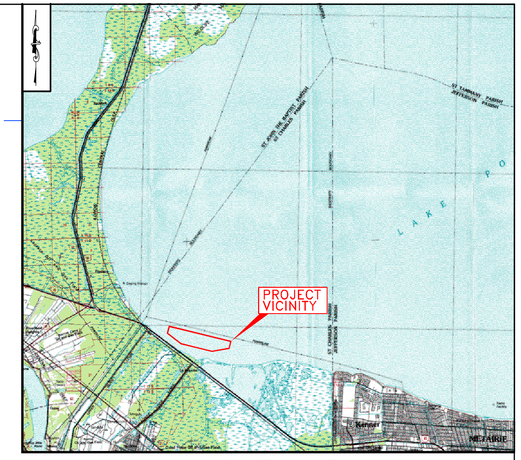
MATCH LINE (SEE SHEET 1)

BHBA-7

BHBA-8

BHBA-8

SHELL PIPELINE COMPANY LP
PIPELINE LOCATION PER TBS MAG SURVEY



VICINITY MAP
NOT TO SCALE

Borehole No.	Northing	Easting	Depth (ft)
BHBA-1	573520	3580571	20
BHBA-2	572013	3582004	20
BHBA-3	572967	3583512	20
BHBA-4	571308	3584687	20
BHBA-5	572261	3586195	20
BHBA-6	570937	3586467	20
BHBA-7	571592	3589318	20
BHBA-8	570651	3592045	20

Legend

- MAGNETOMETER TARGET
- APPROXIMATE PIPELINE POSITION PER LDNR PIPELINE DATABASE
- PIPEPLINE POSITION PER TBS MAGNETOMETER SURVEY
- POSSIBLE PIPELINE POSITION PER TBS MAGNETOMETER SURVEY
- BOREHOLE LOCATION

NOTES:

SURVEY PERFORMED USING AUTOMATED GEOPHYSICAL SURVEY SYSTEM CONSISTING OF SIDE SCAN SONAR, PROTON MAGNETOMETER, DGPS & COMPUTER BASED DATA COLLECTION / NAVIGATION SYSTEM.

SURVEY PERFORMED JULY 14-16 & 19, 2010 BY T. BAKER SMITH, INC. WITH M/V ECHOTRAC.

ALL FOREIGN PIPELINE CROSSINGS SHOWN WERE DEPICTED UTILIZING DATA FROM PIPELINE ALIGNMENT SHEETS AND INTERPRETATION OF SONAR AND READINGS FROM MAGNETIC DETECTION EQUIPMENT.

ALL XY COORDINATES SHOWN ARE LOUISIANA SOUTH ZONE NORTH AMERICAN DATUM OF 1983. ALL LATITUDE AND LONGITUDE VALUES ARE GEOGRAPHIC NORTH AMERICAN DATUM OF 1983.

PLAN VIEW

300' 150' 0 300' 600' 900'

NOTES:

APPENDIX 5

DATE	REVISIONS	DRAWN BY	APPROVED BY
	REVISIONS		

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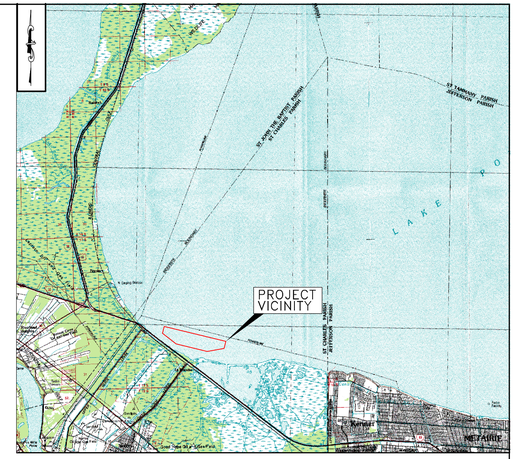
NRCS

FILE NAME:	BA MAG PLAN E
TBS NO.:	2010.0408
DATE:	9/2/2010
PLOT SCALE:	1"= 300'
DRAWN BY:	E.T.G.
APPROVED:	W.M.B.
MAP NO.	

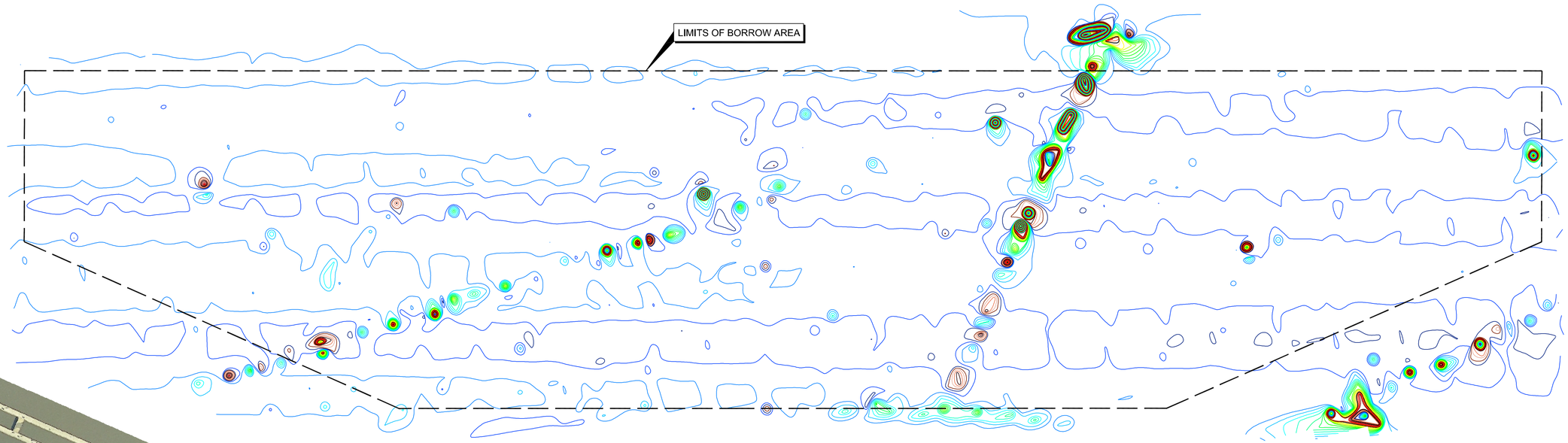
BORROW AREA
SIDE SCAN & MAGNETOMETER SURVEY
LABRANCHE EAST MARSH CREATION
PO-75
FOR
NATURAL RESOURCES CONSERVATION SERVICE
ST. CHARLES PARISH, LA

SHEET NO.
2
OF
4

LAKE PONTCHARTRAIN
ST. CHARLES PARISH

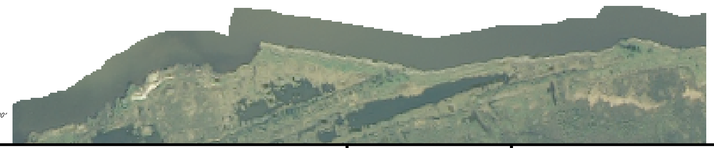


VICINITY MAP
NOT TO SCALE



PLAN VIEW

500' 250' 0 500' 1000' 1500'



Legend

Represents Magnetic Contours at 20 Gamma Intervals

NOTES:

SURVEY PERFORMED USING AUTOMATED GEOPHYSICAL SURVEY SYSTEM CONSISTING OF SIDE SCAN SONAR, PROTON MAGNETOMETER, DGPS & COMPUTER BASED DATA COLLECTION / NAVIGATION SYSTEM.

SURVEY PERFORMED JULY 14-16 & 19, 2010 BY T. BAKER SMITH, INC. WITH M/V ECHOTRAC.

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NOTES:

DATE	REVISIONS	DRAWN BY	APPROVED BY

REVISIONS

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NRCS

FILE NAME:	MAGNETIC CONT.
TBS NO.:	2010.0408
DATE:	9/2/2010
PLOT SCALE:	1" = 500'
DRAWN BY:	E.T.G.
APPROVED:	W.M.B.
MAP NO.	

BORROW AREA
MAGNETOMETER CONTOUR PLAN VIEW

LABRANCHE EAST MARSH CREATION
PO-75
FOR
NATURAL RESOURCES CONSERVATION SERVICE
ST. CHARLES PARISH, LA

SHEET NO. 3 OF 4

MAGNETIC ANOMOLY TABLES

Target Number	Gamma Size	X	Y	Lat-Local	Lon-Local	Sonar Description
1	71G	3579874.1	574423.6	30 04 34.1848 N	090 23 16.2935 W	Unknown
2	70G	3580484	574301.7	30 04 32.9283 N	090 23 9.3633 W	Crab Trap
3	113G	3581295	574093.4	30 04 30.7999 N	090 23 0.1526 W	Crab Trap
4	1674G	3589084.2	572198	30 04 11.3901 N	090 21 31.6838 W	Pipeline
5	100G	3581748.6	573896.2	30 04 28.8106 N	090 22 55 W	Crab Trap
6	126G	3587661.2	572455.1	30 04 14.0546 N	090 21 47.8539 W	Unknown
7	4746G	3589026.9	572124.7	30 04 10.6693 N	090 21 32.343 W	Pipeline
8	178G	3589516	571998.8	30 04 9.3819 N	090 21 26.7888 W	Unknown
9	150G	3582487.7	573608.1	30 04 25.8979 N	090 22 46.6239 W	Crab Trap
10	120G	3583919.2	573249.5	30 04 22.2299 N	090 22 30.3657 W	Unknown
11	50G	3584190.4	573185.9	30 04 21.5779 N	090 22 27.2852 W	Unknown
12	65G	3587651.9	572342	30 04 12.9358 N	090 21 47.9706 W	Unknown
13	103G	3588200.6	572199.2	30 04 11.4762 N	090 21 41.7397 W	Crab Trap
14	588G	3588949	572028.1	30 04 9.7197 N	090 21 33.2389 W	Pipeline
15	320G	3590875.5	571548.9	30 04 4.8135 N	090 21 11.3605 W	Crab Trap
16	65G	3581109.8	573847.8	30 04 28.3839 N	090 23 2.2836 W	Crab Trap
17	938G	3586604.7	572513.2	30 04 14.7181 N	090 21 59.8722 W	Crab Trap
18	175G	3587347.6	572315.6	30 04 12.7 N	090 21 51.4364 W	Crab Trap
19	1192G	3588887.3	571947	30 04 8.922 N	090 21 33.9489 W	Pipeline
20	60G	3592166.4	571118.2	30 04 0.4405 N	090 20 56.7114 W	Crab Trap
21	57G	3584228.5	572982	30 04 19.5564 N	090 22 26.871 W	Crab Trap
22	298G	3584776.8	572829.6	30 04 18 N	090 22 20.6453 W	Crab Trap
23	360G	3586781.2	572349.9	30 04 13.0869 N	090 21 57.8792 W	Crab Trap
24	72G	3588184.7	572001.8	30 04 9.5235 N	090 21 41.9397 W	Crab Trap
25	2403G	3588815.6	571856.4	30 04 8.0312 N	090 21 34.7737 W	Pipeline
26	104G	3582826.7	573219.4	30 04 22.0222 N	090 22 42.8025 W	Unknown
27	95G	3583094.7	573158	30 04 21.3923 N	090 22 39.7581 W	Crab Trap
28	789G	3588171.7	571914.4	30 04 8.6595 N	090 21 42.0961 W	Crab Trap
29	7468G	3588754	571767.9	30 04 7.1604 N	090 21 35.4833 W	Pipeline
30	290G	3585584.9	572434.9	30 04 14.0281 N	090 22 11.486 W	Crab Trap
31	5897G	3588685.3	571680.7	30 04 6.303 N	090 21 36.2736 W	Pipeline
32	52G	3583869.8	572761.4	30 04 17.4024 N	090 22 30.9744 W	Crab Trap
33	62G	3584604.4	572572.9	30 04 15.4756 N	090 22 22.6318 W	Crab Trap
34	101G	3584846.6	572538.2	30 04 15.112 N	090 22 19.8787 W	Crab Trap
35	1920G	3588625.2	571596.5	30 04 5.4745 N	090 21 36.9657 W	Pipeline
36	1362G	3592695.1	570590.9	30 03 55.1759 N	090 20 50.7462 W	Concrete Pile
37	202G	3582299.3	573044.1	30 04 20.3304 N	090 22 48.8215 W	Crab Trap
38	90G	3582933.5	572873.2	30 04 18.5864 N	090 22 41.6198 W	Crab Trap
39	76G	3584415.2	572510.3	30 04 14.8716 N	090 22 24.7911 W	Crab Trap
40	73G	3587047.8	571871	30 04 8.324 N	090 21 54.8911 W	Unknown
41	292G	3588446.5	571538.1	30 04 4.9115 N	090 21 39 W	Crab Trap
42	3232G	3588557.6	571503.4	30 04 4.5586 N	090 21 37.744 W	Pipeline
43	87G	3592688.1	570492.5	30 03 54.2024 N	090 20 50.8355 W	Concrete Pile
44	58G	3582223	572953.8	30 04 19.4428 N	090 22 49.6984 W	Crab Trap
45	63G	3582580.6	572865	30 04 18.5344 N	090 22 45.637 W	Crab Trap
46	327G	3585171.2	572235.2	30 04 12.0857 N	090 22 16.2134 W	Crab Trap
47	72G	3586167.8	571991.6	30 04 9.5913 N	090 22 4.8946 W	Unknown
48	289G	3587077.1	571762.8	30 04 7.2505 N	090 21 54.5681 W	Unknown
49	92G	3587452.5	571678	30 04 6.3797 N	090 21 50.3039 W	Unknown
50	71G	3587550.6	571653.3	30 04 6.127 N	090 21 49.1898 W	Unknown
51	6880G	3588499.7	571427.4	30 04 3.8112 N	090 21 38.4103 W	Pipeline
52	503G	3581282.6	573077.6	30 04 20.7456 N	090 23 0.3895 W	Crab Trap
53	85G	3585531.4	572039.4	30 04 10.1175 N	090 22 12.1327 W	Unknown
54	243G	3586166.4	571880	30 04 8.4867 N	090 22 4.9212 W	Unknown
55	83G	3586908	571703.4	30 04 6.6767 N	090 21 56.4982 W	Unknown
56	3715G	3588425.6	571325.3	30 04 2.8067 N	090 21 39.2634 W	Pipeline
57	483G	3580050.6	572440	30 04 14.535 N	090 23 14.471 W	Unknown
58	61G	3580999.5	574256.6	30 04 32.4396 N	090 23 3.5004 W	Crab Trap
59	56G	3580543.2	572443.1	30 04 14.5254 N	090 23 8.8644 W	Unknown
60	147G	3581225.1	573061.5	30 04 20.591 N	090 23 1.0455 W	Unknown
61	309G	3580821.8	571381.9	30 04 3.9979 N	090 23 5.7937 W	Unknown
62	765G	3581326.6	571423.5	30 04 4.3683 N	090 23 0.0448 W	Unknown
63	1548G	3581870.4	571465.6	30 04 4.7404 N	090 22 53.8521 W	Unknown
64	53G	3582233.6	572963.6	30 04 19.539 N	090 22 49.5769 W	Crab Trap
65	140G	3582584.1	572332.6	30 04 13.2639 N	090 22 45.6476 W	Unknown
66	289G	3582382.2	571495.4	30 04 4.9932 N	090 22 48.0246 W	Unknown
67	66G	3582201.4	570756.7	30 03 57.6958 N	090 22 50.1522 W	Unknown
68	70G	3582939	571639.4	30 04 6.3728 N	090 22 41.6742 W	Unknown
69	302G	3582907.4	571525.6	30 04 5.2489 N	090 22 42.0447 W	Unknown
70	70G	3582831.2	571239.4	30 04 2.4221 N	090 22 42.939 W	Crab Trap
71	54G	3582770.4	570993.9	30 03 59.997 N	090 22 43.6542 W	Unknown

Target Number	Gamma Size	X	Y	Lat-Local	Lon-Local	Sonar Description
72	156G	3583476.4	571730.1	30 04 7.2262 N	090 22 35.5497 W	Crab Trap
73	2190G	3583403.7	571568.7	30 04 5.6346 N	090 22 36.3924 W	Unknown
74	173G	3583260.8	570901.7	30 03 59.0438 N	090 22 38.082 W	Unknown
75	443G	3583185.8	570614.1	30 03 56.2031 N	090 22 38.9628 W	Unknown
76	100G	3583956.2	571614.2	30 04 6.0393 N	090 22 30.1002 W	Unknown
77	120G	3583683.8	570360.5	30 03 53.6516 N	090 22 33.3195 W	Unknown
78	81G	3584481.4	571636.3	30 04 6.2145 N	090 22 24.121 W	Unknown
79	420G	3584150.7	570319.7	30 03 53.2091 N	090 22 28 W	Unknown
80	51G	3585316.8	572990.6	30 04 19.5511 N	090 22 14.4841 W	Crab Trap
81	102G	3585084.7	571970.3	30 04 9.4706 N	090 22 17.2231 W	Crab Trap
82	87G	3585075.3	571928.5	30 04 9.0576 N	090 22 17.3341 W	Crab Trap
83	170G	3585008.4	571696.2	30 04 6.7637 N	090 22 18.1177 W	Crab Trap
84	3014G	3585580.9	571950.6	30 04 9.2344 N	090 22 11.5779 W	Unknown
85	313G	3585522.4	571725.5	30 04 7.011 N	090 22 12.2652 W	Unknown
86	2821G	3585357.3	571095.6	30 04 0.7894 N	090 22 14.2044 W	Unknown
87	137G	3586117.3	571963	30 04 9.3124 N	090 22 5.4721 W	Unknown
88	130G	3586067	571761.5	30 04 7.322 N	090 22 6.0638 W	Unknown
89	214G	3585760.9	570615.9	30 03 56 N	090 22 9.6571 W	Crab Trap
90	50G	3585748.2	570503.3	30 03 54.8938 N	090 22 9.8124 W	Crab Trap
91	113G	3587106.8	571796.4	30 04 7.5806 N	090 21 54.2268 W	Unknown
92	100G	3586922.8	571059.5	30 04 0.3016 N	090 21 56.3917 W	Unknown
93	61G	3586765.5	570381.3	30 03 53.6013 N	090 21 58.247 W	Unknown
94	83G	3587572.6	571671.4	30 04 6.3043 N	090 21 48.9377 W	Unknown
95	120G	3587489	571428	30 04 3.9019 N	090 21 49.9126 W	Crab Trap
96	2461G	3588174.4	571945.5	30 04 8.9671 N	090 21 42.0624 W	Crab Trap
97	272G	3587880.8	570763.4	30 03 57.2903 N	090 21 45.5177 W	Crab Trap
98	4442G	3588561.4	571527.2	30 04 4.7939 N	090 21 37.6985 W	Pipeline
99	3477G	3589314.6	572545.4	30 04 14.8095 N	090 21 29.028 W	Pipeline
100	126G	3588534.4	569257.7	30 03 42.3307 N	090 21 38.225 W	Unknown
101	68G	3590110.7	571510.5	30 04 4.4981 N	090 21 20.0681 W	Unknown
102	57G	3589892.4	570595.1	30 03 55.4551 N	090 21 22.6413 W	Unknown
103	50G	3589882.2	570551.7	30 03 55.0263 N	090 21 22.7616 W	Crab Trap
104	60G	3589762.4	570054.8	30 03 50.1177 N	090 21 24.1732 W	Crab Trap
105	105G	3590347.2	570385	30 03 53.3369 N	090 21 17.486 W	Unknown
106	106G	3591166.5	571624.8	30 04 5.5402 N	090 21 8.0413 W	Crab Trap
107	1658G	3590460.5	568720.8	30 03 36.8537 N	090 21 16.3584 W	Unknown
108	2371G	3590993.5	568847	30 03 38.0578 N	090 21 10.2807 W	Pipeline
109	3766G	3591535.8	568990	30 03 39.4274 N	090 21 4.0955 W	Pipeline
110	70G	3592226.2	569659.4	30 03 45.995 N	090 20 56.1735 W	Unknown
111	666G	3592101.8	569115.2	30 03 40.6186 N	090 20 57.6423 W	Unknown
112	360G	3592665.5	569261.2	30 03 42.0159 N	090 20 51.2132 W	Pipeline
113	3951G	3585516.9	571951.5	30 04 9.2486 N	090 22 12.3062 W	Unknown
114	402G	3586158.4	571792	30 04 7.6163 N	090 22 5.0207 W	Unknown
115	188G	3586744.3	571646.8	30 04 6.1301 N	090 21 58.3667 W	Crab Trap
116	50G	3588269.3	571268.7	30 04 2.2596 N	090 21 41.0477 W	Crab Trap
117	584G	3588377.2	571252.9	30 04 2.0941 N	090 21 39.8213 W	Pipeline
118	69G	3589573.9	570951.8	30 03 59.0129 N	090 21 26.2314 W	Unknown
119	50G	3580942.6	573065.8	30 04 20.6567 N	090 23 4.2602 W	Crab Trap
120	140G	3581268.8	572984.7	30 04 19.8271 N	090 23 0.5553 W	Crab Trap
121	188G	3582317.6	572732.6	30 04 17.2454 N	090 22 48.6427 W	Crab Trap
122	54G	3584155.7	572274.7	30 04 12.5609 N	090 22 27.7669 W	Unknown
123	3401G	3585516.3	571947.5	30 04 9.2091 N	090 22 12.3134 W	Unknown
124	88G	3586157.2	571791.2	30 04 7.6085 N	090 22 5.0344 W	Unknown
125	83G	3586749.1	571647.2	30 04 6.1336 N	090 21 58.312 W	Crab Trap
126	63G	3587986.7	571332.3	30 04 2.9129 N	090 21 44.2577 W	Crab Trap
127	70G	3588267.5	571264.9	30 04 2.2221 N	090 21 41.0685 W	Crab Trap
128	405G	3588370.2	571245.5	30 04 2.0215 N	090 21 39.9016 W	Pipeline
129	50G	3589572.5	570958	30 03 59.0744 N	090 21 26.2467 W	Unknown
130	50G	3589613.5	570944.9	30 03 58.9412 N	090 21 25.7814 W	Unknown
131	50G	3580462.3	573071.6	30 04 20.7534 N	090 23 9.726 W	Unknown
132	92G	3580794.1	572987	30 04 19.8888 N	090 23 5.9577 W	Crab Trap
133	147G	3582276.2	572623.8	30 04 16.1718 N	090 22 49.1242 W	Crab Trap
134	292G	3582906	572468.4	30 04 14.5817 N	090 22 41.9712 W	Crab Trap
135	165G	3582932.3	572462.9	30 04 14.525 N	090 22 41.6724 W	Crab Trap
136	50G	3584542	572066.3	30 04 10.466 N	090 22 23.3903 W	Crab Trap
137	2575G	3585856.7	571748.4	30 04 7.2099 N	090 22 8.4584 W	Unknown
138	50G	3586903.8	571490.4	30 04 4.5686 N	090 21 56.5665 W	Crab Trap
139	9600G	3588294.7	571145.8	30 04 1.0409 N	090 21 40.7705 W	Pipeline
140	50G	3588724.7	570966.3	30 03 59.2279 N	090 21 35.8942 W	Crab Trap
141	5344G	3588237.9	571078.7	30 04 0.3814 N	090 21 41.4234 W	Pipeline
142	188G	3587898.4	571164.2	30 04 1.2563 N	090 21 45.2788 W	Crab Trap
143	73G	3587734.4	571207.9	30 04 1.7026 N	090 21 47.141 W	Crab Trap

Target Number	Gamma Size	X	Y	Lat-Local	Lon-Local	Sonar Description
144	361G	3585566.6	571735.6	30 04 7.1073 N	090 22 11.7612 W	Unknown
145	361G	3583354.6	572282.1	30 04 12.7005 N	090 22 36.8834 W	Crab Trap
146	286G	3582763.8	572420.6	30 04 14.1202 N	090 22 43.5941 W	Crab Trap
147	50G	3582396.6	572506.2	30 04 14.9978 N	090 22 47.765 W	Unknown
148	447G	3580105.6	572963.9	30 04 19.7165 N	090 23 13.7958 W	Crab Trap
149	212G	3582600.5	572346.7	30 04 13.4022 N	090 22 45.4596 W	Crab Trap
150	2157G	3585199.8	571704.8	30 04 6.8329 N	090 22 15.9386 W	Unknown
151	6229G	3588159	570983.7	30 03 59.4477 N	090 21 42.3305 W	Pipeline
152	207G	3581759.4	572459.3	30 04 14.586 N	090 22 55.0214 W	Crab Trap
153	399G	3582499.3	572287.2	30 04 12.8215 N	090 22 46.617 W	Crab Trap
154	92G	3584535.3	571768.9	30 04 7.5226 N	090 22 23.4949 W	Unknown
155	1133G	3584917.5	571676.5	30 04 6.5762 N	090 22 19.154 W	Unknown
156	138G	3587885.2	570959.5	30 03 59.2311 N	090 21 45.4488 W	Crab Trap
157	753G	3588096.4	570904.6	30 03 58.6699 N	090 21 43.0505 W	Pipeline
158	109G	3590751.6	570235.9	30 03 51.8268 N	090 21 12.8983 W	Crab Trap
159	105G	3581668.9	572370.7	30 04 13.7164 N	090 22 56.0598 W	Crab Trap
160	573G	3582370.9	572196.7	30 04 11.9362 N	090 22 48.0868 W	Crab Trap
161	75G	3583894.5	571817.7	30 04 8.0588 N	090 22 30.783 W	Unknown
162	52G	3583981.4	571801	30 04 7.8863 N	090 22 29.7957 W	Unknown
163	1298G	3584596.2	571651.4	30 04 6.3545 N	090 22 22.8131 W	Unknown
164	549G	3588024.9	570811.1	30 03 57.7504 N	090 21 43.8732 W	Pipeline
165	1386G	3590043.9	570308.2	30 03 52.6023 N	090 21 20.9451 W	Crab Trap
166	74G	3587477.2	570857	30 03 58.2507 N	090 21 50.1019 W	Unknown
167	464G	3587971	570727.7	30 03 56.9293 N	090 21 44.4947 W	Pipeline
168	93G	3590074.1	570213	30 03 51.6574 N	090 21 20.6106 W	Crab Trap
169	53G	3591860.4	569793.7	30 03 47.3555 N	090 21 0.3231 W	Crab Trap
170	143G	3587111	570841.6	30 03 58.1289 N	090 21 54.2708 W	Crab Trap
171	172G	3587929.8	570631.4	30 03 55.9795 N	090 21 44.9728 W	Pipeline
172	51G	3590388.9	570029.5	30 03 49.8144 N	090 21 17.046 W	Crab Trap
173	229G	3586250.7	570930.7	30 03 59.0827 N	090 22 4.0529 W	Crab Trap
174	347G	3586501.3	570873.9	30 03 58.4995 N	090 22 1.2064 W	Crab Trap
175	52G	3587823.6	570536.7	30 03 55.051 N	090 21 46.1906 W	Pipeline
176	2255G	3586043.5	570888.5	30 03 58.6823 N	090 22 6.4149 W	Crab Trap
177	201G	3587873.4	570441.7	30 03 54.1065 N	090 21 45.633 W	Unknown
178	388G	3586400.2	570691.1	30 03 56.6985 N	090 22 2.3745 W	Crab Trap
179	158G	3587709.2	570374.8	30 03 53.458 N	090 21 47.5081 W	Pipeline
180	226G	3592432.6	569223.1	30 03 41.6586 N	090 20 53.8673 W	Pipeline
181	846G	3592259.2	569154.7	30 03 40.9962 N	090 20 55.8473 W	Pipeline
182	246G	3587644.1	570286.3	30 03 52.5874 N	090 21 48.2574 W	Pipeline
183	1271G	3582280.1	571491.7	30 04 4.965 N	090 22 49.187 W	Unknown
184	72G	3583131	571282.8	30 04 2.827 N	090 22 39.523 W	Crab Trap
185	86G	3583759.1	571130.3	30 04 1.2655 N	090 22 32.3894 W	Crab Trap
186	194G	3584389.4	570994.5	30 03 59.869 N	090 22 25.2292 W	Crab Trap
187	100G	3585057.2	570811.8	30 03 58 N	090 22 17.6468 W	Unknown
188	121G	3586878.4	570383.2	30 03 53.6107 N	090 21 56.962 W	Unknown
189	184G	3587577.2	570176.2	30 03 51.5031 N	090 21 49.0294 W	Pipeline
190	104G	3589956.7	569641.4	30 03 46 N	090 21 22 W	Crab Trap
191	684G	3592052.5	569118	30 03 40.6505 N	090 20 58.2031 W	Pipeline
192	3331G	3581986.6	571466.2	30 04 4.7367 N	090 22 52.5296 W	Unknown
193	1487G	3582090.9	571444.4	30 04 4.5124 N	090 22 51.3446 W	Unknown
194	220G	3586688.2	570322.2	30 03 53.0227 N	090 21 59.1324 W	Unknown
195	60G	3583217.4	571163.7	30 04 1.6409 N	090 22 38.551 W	Crab Trap
196	125G	3587509.2	570126.1	30 03 51.0129 N	090 21 49.8081 W	Pipeline
197	188G	3588109.9	569961.6	30 03 49.3342 N	090 21 42.9879 W	Crab Trap
198	133G	3590107.6	569489.5	30 03 44.4927 N	090 21 20.2996 W	Crab Trap
199	1212G	3591856.3	569060.7	30 03 40.1 N	090 21 0.4414 W	Pipeline
200	286G	3581607.6	571452.7	30 04 4.6343 N	090 22 56.8441 W	Unknown
201	199G	3581651.8	571447	30 04 4.5742 N	090 22 56.3416 W	Unknown
202	293G	3581793.5	571410	30 04 4.1963 N	090 22 54.7325 W	Debris
203	144G	3583639.6	570962.8	30 03 59.6173 N	090 22 33.7653 W	Unknown
204	918G	3584067.2	570858.2	30 03 58.5465 N	090 22 28.909 W	Crab Trap
205	50G	3584530.3	570734.9	30 03 57.2876 N	090 22 23.6504 W	Unknown
206	112G	3587448	570022.9	30 03 49.9965 N	090 21 50.5145 W	Pipeline
207	72G	3588027.6	569897.1	30 03 48.7026 N	090 21 43.9307 W	Crab Trap
208	127G	3588758.2	569707.3	30 03 46.7624 N	090 21 35.6347 W	Unknown
209	264G	3590905	569181.5	30 03 41.3765 N	090 21 11.2552 W	Crab Trap
210	462G	3591620.9	568998.4	30 03 39.5033 N	090 21 3.1263 W	Pipeline
211	960G	3581328	571412.8	30 04 4.2623 N	090 23 0.0299 W	Unknown
212	118G	3581410	571404.5	30 04 4.1734 N	090 22 59.0975 W	Crab Trap
213	104G	3583088.1	570986.4	30 03 59.8965 N	090 22 40.0394 W	Unknown
214	327G	3583699.9	570853.8	30 03 58.5334 N	090 22 33.0894 W	Crab Trap
215	524G	3584219.1	570711	30 03 57.0768 N	090 22 27.1943 W	Crab Trap

Target Number	Gamma Size	X	Y	Lat-Local	Lon-Local	Sonar Description
216	483G	3584297.2	570712.7	30 03 57.0872 N	090 22 26.3053 W	Crab Trap
217	140G	3584357.2	570692.2	30 03 56.8793 N	090 22 25.6244 W	Unknown
218	269G	3584715.3	570591.9	30 03 55.8567 N	090 22 21.5587 W	Unknown
219	141G	3585597.8	570378.9	30 03 53.6749 N	090 22 11.5359 W	Unknown
220	105G	3586761.5	570100.6	30 03 50.823 N	090 21 58.3195 W	Unknown
221	104G	3587122	570013	30 03 49.9257 N	090 21 54.2253 W	Crab Trap
222	107G	3587164.2	570000.1	30 03 49.7945 N	090 21 53.7463 W	Unknown
223	48G	3587371.3	569949.6	30 03 49.2773 N	090 21 51.3944 W	Pipeline
224	166G	3588859.7	569591.7	30 03 45.6096 N	090 21 34.4908 W	Crab Trap
225	1072G	3591444.9	568958.4	30 03 39.1223 N	090 21 5.133 W	Pipeline
226	342G	3581111.5	571407.6	30 04 4.2285 N	090 23 2.4943 W	Unknown
227	598G	3581291.9	571374.7	30 04 3.8881 N	090 23 0.4443 W	Unknown
228	65G	3583644.3	570788.9	30 03 57.8955 N	090 22 33.7283 W	Crab Trap
229	75G	3585988.4	570218.3	30 03 52.0526 N	090 22 7.1062 W	Crab Trap
230	605G	3586175	570172.7	30 03 51.5857 N	090 22 4.987 W	Crab Trap
231	169G	3587350	569889.8	30 03 48.6871 N	090 21 51.6425 W	Pipeline
232	116G	3589483.8	569363.8	30 03 43.3011 N	090 21 27.4106 W	Unknown
233	743G	3580879.3	571393.9	30 04 4.112 N	090 23 5.1382 W	Unknown
234	89G	3581021	571345.1	30 04 3.6173 N	090 23 3.5301 W	Unknown
235	182G	3582173.6	571060.2	30 04 0.7024 N	090 22 50.4398 W	Crab Trap
236	64G	3583574	570706.8	30 03 57.0886 N	090 22 34.5362 W	Unknown
237	231G	3586518.3	569997.6	30 03 49.8238 N	090 22 1.097 W	Unknown
238	150G	3586750.8	569931.6	30 03 49.151 N	090 21 58.4575 W	Unknown
239	60G	3586853.8	569920.1	30 03 49.0286 N	090 21 57.2864 W	Unknown
240	198G	3587292.2	569810.5	30 03 47.907 N	090 21 52.3079 W	Pipeline
241	122G	3582399.4	570900.7	30 03 59.105 N	090 22 47.8852 W	Unknown
242	229G	3582888.8	570782.9	30 03 57.8985 N	090 22 42.3268 W	Crab Trap
243	73G	3583138	570730	30 03 57.3543 N	090 22 39.4958 W	Debris
244	62G	3584347.1	570424.4	30 03 54.2292 N	090 22 25.7649 W	Unknown
245	125G	3586520.7	569884.2	30 03 48.701 N	090 22 1.0806 W	Crab Trap
246	91G	3587553.8	569631.5	30 03 46.1132 N	090 21 49.3481 W	Crab Trap
247	126G	3587775.1	569585.3	30 03 45.6373 N	090 21 46.8342 W	Crab Trap
248	77G	3590361.2	568949	30 03 39.121 N	090 21 17.4662 W	Unknown
249	58G	3581353	571044.2	30 04 0.6115 N	090 22 59.7802 W	Unknown
250	521G	3581780	570947.6	30 03 59.6202 N	090 22 54.9298 W	Crab Trap
251	65G	3581864.3	570924.7	30 03 59.3866 N	090 22 53.9726 W	Crab Trap
252	70G	3582286.4	570823.6	30 03 58.3511 N	090 22 49.1785 W	Unknown
253	53G	3582509.6	570761.8	30 03 57.7209 N	090 22 46.6442 W	Crab Trap
254	534G	3584116.3	570373	30 03 53.7395 N	090 22 28.3964 W	Crab Trap
255	70G	3584185.2	570349.8	30 03 53.5042 N	090 22 27.6145 W	Crab Trap
256	109G	3584589.2	570248.1	30 03 52.464 N	090 22 23.0266 W	Unknown
257	598G	3585844.6	569945.8	30 03 49.3672 N	090 22 8.7688 W	Unknown
258	570G	3586556.2	569775.4	30 03 47.6211 N	090 22 0.687 W	Unknown
259	738G	3586578.2	569768.5	30 03 47.5509 N	090 22 0.4373 W	Unknown
260	184G	3586671.5	569743.2	30 03 47.2927 N	090 21 59.378 W	Unknown
261	569G	3586735.5	569733.3	30 03 47.1893 N	090 21 58.6506 W	Unknown
262	296G	3587159.4	569627.7	30 03 46.1086 N	090 21 53.8368 W	Pipeline
263	1180G	3590695.1	568771.9	30 03 37.3397 N	090 21 13.6837 W	Pipeline
264	50G	3581916.6	572098.4	30 04 11 N	090 22 53.2665 W	Crab Trap
265	63G	3581958.8	572084.6	30 04 10.8605 N	090 22 52.7875 W	Crab Trap
266	1499G	3582173	572030.1	30 04 10.3034 N	090 22 50.3549 W	Crab Trap
267	50G	3582793.3	571875.8	30 04 8.7249 N	090 22 43.31 W	Crab Trap
268	225G	3583887.7	571612.5	30 04 6.0281 N	090 22 30.88 W	Unknown
269	1395G	3583628.3	571574.1	30 04 5.6694 N	090 22 33.8358 W	Unknown
270	591G	3584753.6	571315.4	30 04 3.0154 N	090 22 21.0538 W	Unknown
271	2040G	3580765.1	572169.1	30 04 11.7949 N	090 23 6.3648 W	Unknown
272	50G	3582793.8	571666.3	30 04 6.651 N	090 22 43.3242 W	Unknown
273	2309G	3583226.9	571556.1	30 04 5.5244 N	090 22 38.4057 W	Unknown
274	74G	3584100.2	571340.6	30 04 3.319 N	090 22 28.4875 W	Crab Trap
275	2574G	3584407.7	571266.1	30 04 2.5561 N	090 22 24.995 W	Unknown
276	865G	3584536.3	571259	30 04 2.4751 N	090 22 23.5322 W	Unknown
277	117G	3585376.8	571057.6	30 04 0.4117 N	090 22 13.9861 W	Unknown
278	77G	3585945.6	570928.7	30 03 59.0884 N	090 22 7.5252 W	Crab Trap
279	61G	3579900.9	572295.2	30 04 13.1139 N	090 23 16.1883 W	Unknown
280	1570G	3583009.6	571534.4	30 04 5.3276 N	090 22 40.8807 W	Unknown
281	63G	3584505.4	571150.2	30 04 1.4007 N	090 22 23.8942 W	Crab Trap
282	68G	3582261.2	572113.8	30 04 11.1247 N	090 22 49.3432 W	Crab Trap
283	174G	3584246.3	571630.1	30 04 6.1726 N	090 22 26.7972 W	Unknown
284	104G	3584807.6	571490.7	30 04 4.7462 N	090 22 20.4225 W	Unknown

NOTES:

DATE	REVISIONS	DRAWN BY	APPROVED BY

REVISIONS

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FILE NAME:	BA GAMMA TBLE
TBS NO.:	2010.0408
DATE:	9/2/2010
PLOT SCALE:	N.T.S.
DRAWN BY:	E.T.G.
APPROVED:	W.M.B.
MAP NO.	

NATURAL RESOURCES
MAGNETIC ANOMOLY TABLES

LABRANCHE EAST MARSH CREATION
PO-75
FOR
NATURAL RESOURCES CONSERVATION SERVICE
ST. CHARLES PARISH, LA

SHEET NO.
4
OF
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