WETLANDS DELINEATION
AT
INTRACOASTAL PROPERTY
CAMERON PARISH, LOUISIANA

Prepared for:

Moffett Realty, Inc.
210 South Ryan
Lake Charles, LA 70601

October 28, 2008

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SUMMARY

An approximate 69-acre tract located between the Intracoastal Waterway and the South Fork of Black Bayou in Cameron Parish, Louisiana was evaluated for the presence of jurisdictional wetlands. The wetland delineation was performed in accordance with the procedures and methods as described in the U.S. Department of Army Corps of Engineers 1987 Manual for Wetland Delineations. Jurisdictional determinations were issued for the property in 1997 and 1999 (Account No.'s 199800267 and 199902508) and indicated that approximately two-thirds of the tract was wetlands. The results of this delineation are consistent with those determinations and indicate that approximately 40.3-acres of wetlands are located on the delineated property.

1.0 INTRODUCTION

Arabie Environmental Solutions, Inc. (Arabie Environmental) was retained to conduct a wetland delineation of an area located at Latitude 30° 1' 40.83", Longitude -93° 14' 5.53". The site is located north of the Intracoastal Waterway and south of the Southfork of Black's Bayou, in Section 12, Township 12 South, Range 9 West, in Cameron Parish, Louisiana. The purpose of the delineation was to evaluate the area for the potential presence of jurisdictional wetlands. A site location map is included as Figure 1 and a site diagram is included as Figure 2.

Scott Kemmerer and Regan Brown of Arabie Environmental performed the field evaluation on October 16, 2008. Mr. Kemmerer has a Bachelors of Science Degree in Marine Biology and has experience in wetland ecosystem evaluation and specialized training in wetland vegetation identification and in performing wetland delineations. Mr. Brown has a Masters of Science Degree in Environmental Science and has had specialized training in environmental investigations and in performing wetland delineations. Austin Arabie managed the project and reviewed the report. Mr. Arabie has over thirty years experience in environmental investigations and permitting, with over ten years experience in wetland delineations and wetland permitting. He has received specialized training in performing wetland delineations and in identifying wetland vegetation. Copies of the applicable Certificates of Training are included as Attachment A.

2.0 METHODOLOGY

The wetland delineation performed by Arabie Environmental was conducted in accordance with technical guidelines and methods for wetland delineations set forth by the U.S. Department of the Army Corps of Engineers (COE) in the 1987 Manual for Wetland Delineations. These technical guidelines and methods utilize a multi-parameter approach to identify and delineate wetlands for purposes of Section 404 of the Clean Water Act.

According to the COE 1987 Manual for Wetland Delineations, a site must have hydrophytic vegetation, hydric soils, and wetland hydrology in order for it to be classified

as a wetland.

The following definitions are from the COE 1987 Manual for Wetland Determinations:

Hydrophytic vegetation – the sum total of macrophytic plant life growing in water or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content. When hydrophytic vegetation comprises a community where indicators of hydric soils and wetland hydrology also occur, the area has wetland vegetation.

Hydric soils – a soil that is saturated, flooded, ponded long enough during the growing season to develop anaerobic conditions that favor the growth and regeneration of hydrophytic vegetation (US Department of Agriculture – Soil Conservation Service 1985). Hydric soils that occur in areas having positive indicators of hydrophytic vegetation and wetland hydrology are wetland soils.

Wetland hydrology – the sum total of wetness characteristics in areas that are inundated or have saturated soils for a sufficient duration to support hydrophytic vegetation.

Prior to the site visit, the Cameron Parish Soil Survey prepared by the United States Department of Agriculture-Natural Resources Conservation Service (USDA-NRCS) was reviewed. The purpose of that review was to determine the soil type as mapped by the USDA. As indicated by the Soil Survey for Cameron Parish, soils on the site consist of three soil types: Mowata-Vidrine silt loams (Mt), Larose muck (LE), and Udifluvents, 1 to 20 percent slopes (UD). Mowata-Vidrine silt loams and Larose muck are classified as hydric soils in Cameron Parish. In addition to the soils map, an infrared aerial photograph was reviewed. The infrared aerial photograph with the survey data overlain is included as Attachment B.

The delineation was begun by walking over the area and making a general evaluation of the topography and drainage features. Sample points were selected at appropriate locations to properly characterize the soil, vegetation, and hydrology. Three representative sample points were selected and a detailed evaluation was conducted at these locations. The data collected at these sample points were recorded on Wetland Data Forms. The Wetland Data Forms are included as Attachment C.

After a general evaluation of the tract and conducting data points, the wetlands and uplands were mapped using a Global Positioning System (GPS). Once GPS mapping was completed, geospatial data was imported into ArcView GIS for graphical display and land cover analysis.

3.0 SITE DESCRIPTION

The delineated tract is located north of the Intracoastal Waterway and south of the South Fork of Black Bayou in Cameron Parish, Louisiana.

The property is comprised of three distinct habitats. The northern portion of the property is comprised of marsh dominated by cordgrass. A large portion of the tract is comprised of a scrub/shrub habitat dominated by wax myrtle, Chinese tallow trees, and yaupon. The southern portion of the property is a pasture with scattered tallow trees and wax myrtle. A large spoil bank is located along a portion of the Intracoastal Waterway

Photographs of the sample locations were taken and are included as Attachment D.

4.0 FINDINGS

The tract of land was inspected with respect to the potential presence of wetlands. Three sample points were selected to characterize the property. At these sample points, the soils, hydrology, and vegetation were characterized and the information recorded on Wetland Data Forms. The findings of the delineation are described in the following sections.

4.1 VEGETATION

The typical dominant plant species that were encountered at the sample locations included the following:

NOT INDICATED

Rosa laevigata (Cherokee Rose)

FACULTATIVE

Baccharis halimifolia (Saltwater False-Willow)
Ilex vomitoria (Yaupon)
Rubus louisianus (Louisiana Blackberry
Triadica sebiferum (Chinese Tallow)

FACULTATIVE (+)

Myrica cerifera (Wax Myrtle)

FACULTATIVE WET

Celtis laevigata (Hackberry Tree)
Solidago sempervirens (Seaside Goldenrod)
Spartina patens (Saltmeadow Cordgrass)

FACULTATIVE WET (+)

Andropogon glomeratus (Bushy Bluestem)

Iva frutescens (Big-Leaf Sumpweed)
Juncus effusus (Soft Rush)

OBLIGATE

Salix nigra (Willow Tree)

All of the sample points exhibited a dominance of hydrophytic vegetation.

4.2 SOILS

The review of the Soil Survey indicated that the delineated tract is comprised of three soil types: Mowata-Vidrine silt loams (Mt), Larose muck (LE), and Udifluvents, 1 to 20 percent slopes (UD). Mowata-Vidrine silt loams and Larose muck are classified as hydric soils in Cameron Parish.

Mowata-Vidrine silt loams are level and poorly drained and somewhat poorly drained. They are on broad flats on the Gulf Coast Prairies. The landscape consists of broad flats that have many small, convex mounds. The mounds are circular and range from 50 to 150 feet in diameter and 1 to 6 feet in height. The Mowata soil is located in the intermound areas and comprises approximately 60% of the complex. The Vidrine is located on the mounds and comprises approximately 30% of the complex. According to the soil survey, areas are irregular in shape and range from 40 to 2,000 acres.

Larose muck is level and very poorly drained. It is in freshwater marshes and is ponded most of the time and frequently flooded. According to the soil survey, areas are irregular in shape and several hundred acres in size. Slopes are less than 1 percent.

Udifluvents, 1 to 20 percent slopes consists of sandy to clayey soil material that has been excavated from other places during the construction and maintenance of navigable waterways. These soils have no identifiable soil layers. They are variable in texture and slope. Areas range from irregular in shape to long and narrow and are from 20 to several hundred acres in size.

Soil sampling conducted during this investigation revealed that soils on the tract were consistent with the soil survey.

4.3 HYDROLOGY

General observations and inspection of soil samples were performed to evaluate for wetland hydrology. Potential primary indicators include inundated areas, saturated soil in the upper 12 inches, free water in the soil, water marks, drainage patterns of wetlands, and sediment deposits. During the course of this delineation, primary indicators were noted on the tract. In addition, some secondary indicators were noted. One primary indicator or two secondary indicators must be present for an area to have wetland hydrology.

5.0 CONCLUSIONS

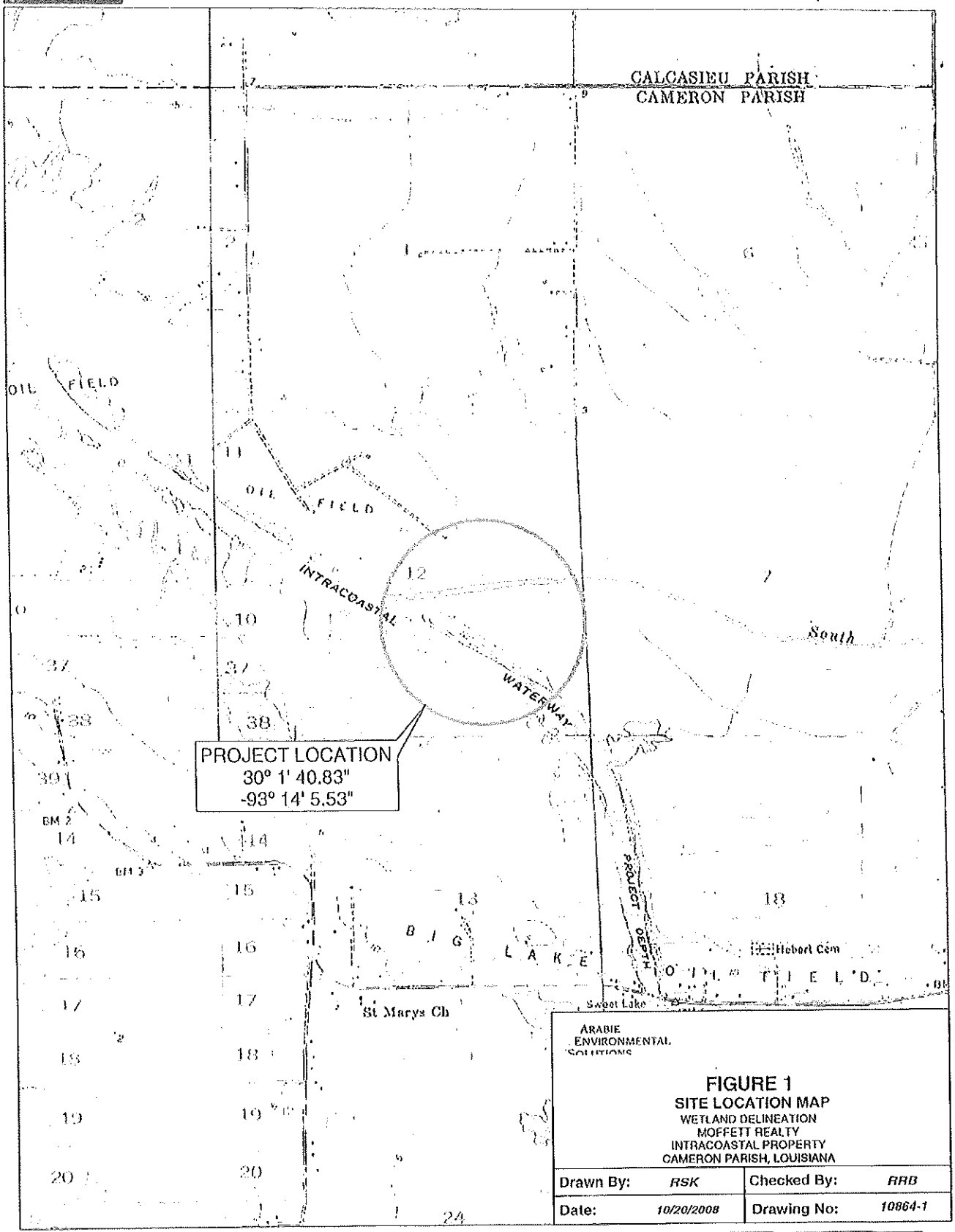
An approximate 69-acre property located north of the Intracoastal Waterway and south of the South Fork of Black Bayou in Cameron Parish, Louisiana was evaluated for the presence of wetlands. Wetland determinations were issued on the property in 1997 and 1999. The results of the determinations indicated that approximately a third of the tract was not wetlands. The results of this delineation were similar. Approximately 40.3-acres of wetlands were identified on the delineated property. The wetlands are mainly marsh dominated by cordgrass. Old pasture areas on the tract were determined to not be wetlands, as well as many areas dominated by a scrub/shrub habitat. The scrub/shrub habitat on the property was dominated by wax myrtle, yaupon, and tallow trees.

FIGURE 1

Site Location Map

DELORME

XMap® 5.2 GIS Editor



ARABIE ENVIRONMENTAL SOLUTIONS

FIGURE 1
SITE LOCATION MAP
WETLAND DELINEATION
MOFFETT REALTY
INTRACOASTAL PROPERTY
CAMERON PARISH, LOUISIANA

Drawn By:	RSK	Checked By:	RRB
Date:	10/20/2008	Drawing No:	10864-1

Data use subject to license

© DeLorme XMap® 5.2 GIS Editor

www.delorme.com

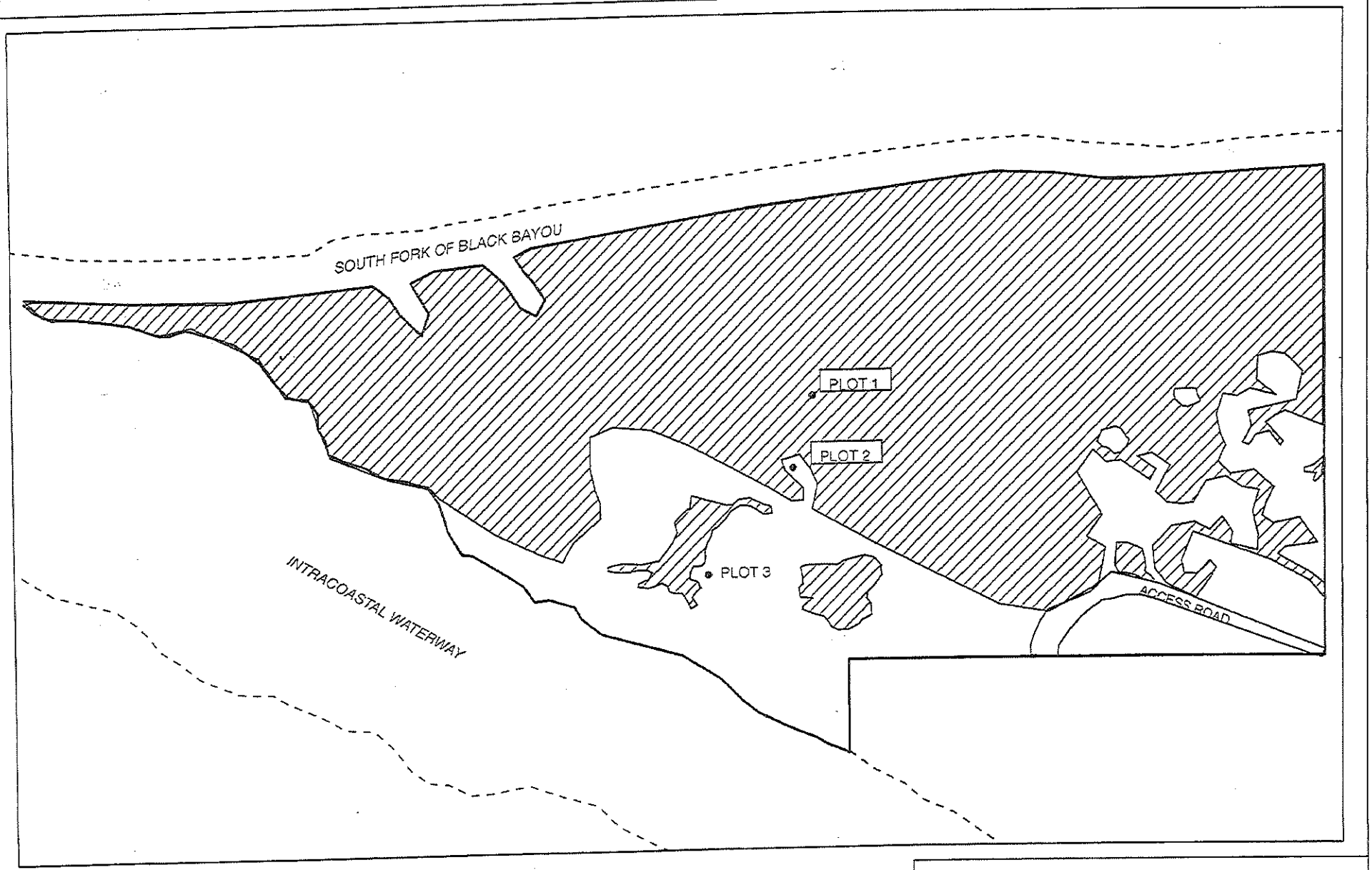
MN (2.3° E)

0 800 1600 2400 3200 4000 ft

Data Zoom 13-0

FIGURE 2

Site Diagram



ARABIE ENVIRONMENTAL SOLUTIONS

FIGURE 2
SITE DIAGRAM

WETLAND DELINEATION
MOFFETT REALTY
INTRACOASTAL PROPERTY
CAMERON PARISH, LOUISIANA

Drawn By:	RSK	Checked By:	RRB
Date:	10/23/2008	Drawing No.:	10864-2

ATTACHMENT A

Certificates of Training

The

WETLAND BIOGEOCHEMISTRY INSTITUTE

of

LOUISIANA STATE UNIVERSITY

and Agricultural and Mechanical College

Certifies that

R. Regan Brown

has successfully completed

Wetland Delineation Training Workshop

This training has been based in part on the U.S. Army Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1 (1987 Manual), as provided for in the training materials developed in conjunction with Section 307(e) of the Water Resources Development Act of 1990 for the Wetland Delineator Certification Program.

May 21, 1999
Granted on

Instructor

Instructor

Instructor

Certificate of Completion

TEXAS A&M SYSTEM

This is to certify that

R. Scott Kemmerer

has completed the

40 USCOE Hour Wetland Delineation Certification Course

John S. Jacob, Ph.D.
Environmental Quality Specialist
Course
Instructor

October 26, 2007

Date Completed

Texas Cooperative EXTENSION
The Texas A&M University System

TEXAS COASTAL WATERSHED PROGRAM

Sea Grant Texas

BIOTIC CONSULTANTS, Inc.

This Certifies that

R. Scott Kemmerer

Has completed the course entitled:

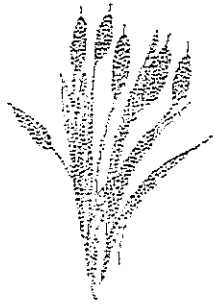
Wetland Plant Identification

Given at Lafayette, LA

On April 24-27, 2007

Robert H. Mohlenbrock

Course Coordinator



Certificate of Completion

Scott Kemmerer

Has completed a
Plant Identification Workshop
which includes 8 hours of classroom and 8 hours of field work

November 3-4 Lafayette, Louisiana

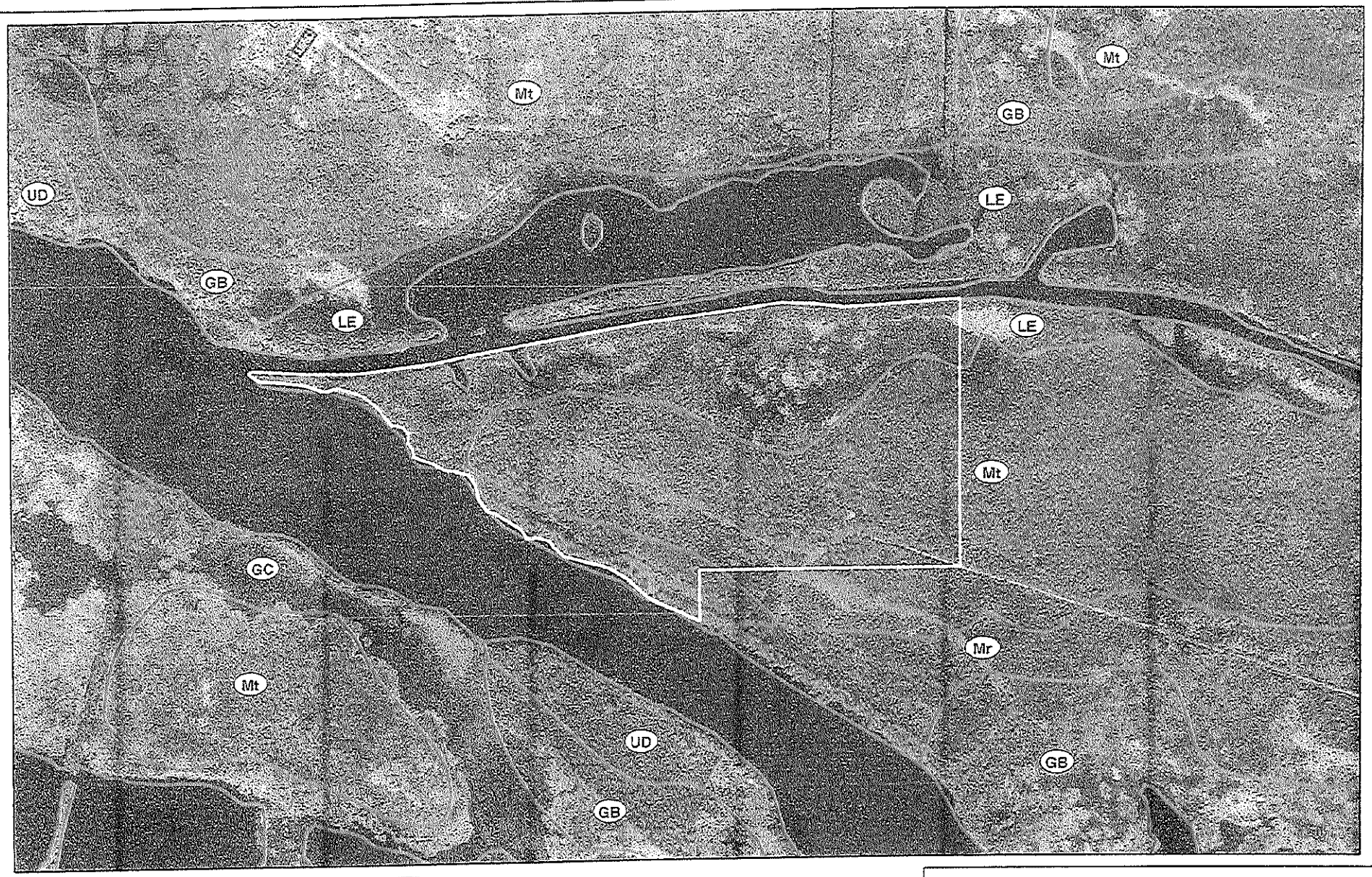
at

The 1999 Fall Meeting of the South Central Chapter
Society of Wetland Scientists

Garrie Landry, Instructor

ATTACHMENT B

Infrared Photography and Soils Map



PROPERTY BOUNDARY

SOIL CLASSIFICATION BOUNDARY

0 245 490 980 1,470 1,960 Feet

ARABIE ENVIRONMENTAL SOLUTIONS

ATTACHMENT B

INFRARED AERIAL PHOTOGRAPH AND SOILS MAP

WETLAND DELINEATION
MOFFETT REALTY
INTRACOASTAL PROPERTY
CAMERON PARISH, LOUISIANA

Drawn By:	RSK	Checked By:	RRB
Date:	10/20/2008	Drawing No.:	10864-B

ATTACHMENT C

Wetland Data Forms

WETLAND DATA FORM: ROUTINE ONSITE DETERMINATION METHOD

Project/Site: Intracoastal Property Date: 10/16/08 Plot ID: 1
Applicant/Owner: Moffett Realty County: Cameron Transect ID:
Investigator (s): S. Kemmerer, R. Brown State: Louisiana Community ID:

Do Normal Circumstances Exist On The Site?	Yes X	No		Explain:	
Is The Site Significantly Disturbed?	Yes	No X		Explain:	
Is The Area A Potential Problem Area?	Yes	No X		Explain:	

VEGETATION

Dominant Plant Species

	Scientific Name	Stratum	Indicator		Scientific Name	Stratum	Indicator
1.	*Baccharis halimofolia*	S/S	FAC	9.			
2.	*Iva frutescens*	S/S	FACW+	10.			
3.	*Spartina patens*	H	FACW	11.			
4.	*Triadica sebiferum*	S/S, T	FAC	12.			
5.	*Solidago sempervirens*	H	FACW	13.			
6.	*Juncus effusus*	H	FACW+	14.			
7.	*Rubus louisianus*	H	FAC	15.			
8.				16.			

Percent Of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): 7/7 100%

Remarks: Dominance of hydrophytic vegetation.

SOILS

Map Unit (Series and Phase): Mowata Series (Mt) Drainage Class: Poorly drained
Taxonomy (Subgroup): Typic Glossaqualfs Confirm Mapping Type? ___ Yes X No

Profile Description:

Depth	Horizon	Matrix Color	Mottle Description	Other
0-4"		10YR 4/1	comm., med., dist.	Silty loam
4-7"		10YR 6/2	comm., med., dist.	Silty loam
7-9"		10YR 5/1	comm., med., dist.	Silty loam
9-14"		10YR 5/2	few, med., dist	Silty loam

Hydric Soil Indicators:

no	Sulfidic Odor	yes	Gleyed or Low-Chroma Colors	yes	Listed on Local Hydric Soils List
no	Concretions	no	Aquic Moisture Regime	yes	Listed on National Hydric Soils List
no	Histosol	no	Reducing Conditions	no	High Organic Content In Surface Layer in Sandy Soil
no	Histic Epipedon		Other (Explain in Remarks)	no	Organic Streaking in Sandy Soils

Remarks: Hydric soils present.

HYDROLOGY

___ Recorded Data (Describe in Remarks)

Field Observations:
Depth of Surface Water: None
Depth to Free Water: 12"
Depth to Saturated Soils: 0"

Primary Wetland Hydrology Indicators:

no	Inundated
yes	Saturated in upper 12 Inches
no	Water Marks
no	Drift Lines
no	Sediment Deposits
no	Drainage Patterns in Wetlands

Secondary Wetland Hydrology Indicators:

yes	Oxidized Root Channels in upper 12 Inches
no	Water-Stained Leaves
yes	Local Soil Survey Data
yes	FAC-Neutral Test
	Other (Explain in Remarks)

Remarks: Wetland hydrology present.

WETLAND DETERMINATION

Hydrophytic Vegetation?	Yes X	No
Wetland Hydrology?	Yes X	No
Hydric Soils?	Yes X	No
Is Area A Wetland?	Yes X	No

Rational and Comments on Determination: Due to the presence of all three wetland indicators, this area is a wetland.

WETLAND DATA FORM: ROUTINE ONSITE DETERMINATION METHOD

Project/Site: Intracoastal Property | Date: 10/16/08 | Plot ID: 2
Applicant/Owner: Moffett Realty | County: Cameron | Transect ID:
Investigator (s): S. Kemmerer, R. Brown | State: Louisiana | Community ID:

Do Normal Circumstances Exist On The Site? Yes X No ___ Explain:
Is The Site Significantly Disturbed? Yes ___ No X Explain:
Is The Area A Potential Problem Area? Yes ___ No X Explain:

VEGETATION

Dominant Plant Species

	Scientific Name	Stratum	Indicator		Scientific Name	Stratum	Indicator
1.	*Rubus louisianus*	S/S	FAC	9.			
2.	*Triadica sebiferum*	S/S, T	FAC	10.			
3.	*Ilex vomitoria*	S/S	FAC	11.			
4.	*Celtis laevigata*	T	FACW	12.			
5.				13.			
6.				14.			
7.				15.			
8.				16.			

Percent Of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): 4/4 100%

Remarks: Dominance of hydrophytic vegetation.

SOILS

Map Unit (Series and Phase): Vidrine Series (Mt)
Taxonomy (Subgroup): Glossaquic Hapludalfs
Drainage Class: Somewhat poorly drained
Confirm Mapping Type? ___ Yes X No

Profile Description:

Depth	Horizon	Matrix Color	Mottle Description	Other
0-3"		10YR 2/1	None	Organic material
3-15"		10YR 5/2	many, med., prom.	Silty/Sandy Clay

Hydric Soil Indicators:

no	Sulfidic Odor	yes	Gleyed or Low-Chroma Colors	no	Listed on Local Hydric Soils List
no	Concretions	no	Aquic Moisure Regime	no	Listed on National Hydric Soils List
no	Histosol	no	Reducing Conditions	no	High Organic Content in Surface Layer In Sandy Soil
no	Histic Epipedon		Other (Explain In Remarks)	no	Organic Streaking in Sandy Soils

Remarks: Hydric soils present.

HYDROLOGY

___ Recorded Data (Describe in Remarks)

Field Observations:
Depth of Surface Water: None
Depth to Free Water: None to 14"
Depth to Saturated Soils: None to 14"

Primary Wetland Hydrology Indicators:

no	Inundated
no	Saturated in upper 12 inches
no	Water Marks
no	Drift Lines
no	Sediment Deposits
no	Drainage Patterns in Wetlands

Secondary Wetland Hydrology Indicators:

no	Oxidized Root Channels in upper 12 inches
no	Water-Stained Leaves
no	Local Soil Survey Data
yes	FAC-Neutral Test
	Other (Explain In Remarks)

Remarks: Wetland hydrology absent.

WETLAND DETERMINATION

Hydrophytic Vegetation?	Yes X	No ___
Wetland Hydrology?	Yes ___	No X
Hydric Soils?	Yes X	No ___
Is Area A Wetland?	Yes ___	No X

Rational and Comments on Determination: Due to the absence of wetland hydrology, this area is not a wetland.

WETLAND DATA FORM: ROUTINE ONSITE DETERMINATION METHOD

Project/Site: Intracoastal Property | Date: 10/16/08 | Plot ID: 3
Applicant/Owner: Moffett Realty | County: Cameron | Transect ID:
Investigator (s): S. Kemmerer, R. Brown | State: Louisiana | Community ID:

Do Normal Circumstances Exist On The Site?	Yes X	No		Explain:
Is The Site Significantly Disturbed?	Yes	No X		Explain:
Is The Area A Potential Problem Area?	Yes	No X		Explain:

VEGETATION

Dominant Plant Species

	Scientific Name	Stratum	Indicator		Scientific Name	Stratum	Indicator
1.	*Andropogon glomeratus*	H	FACW+	9.			
2.	*Rosa laevigata*	H	NI	10.			
3.	*Solidago sempervirens*	H	FACW	11.			
4.	*Salix nigra*	S/S, T	OBL	12.			
5.	*Iva frutescens*	S/S	FACW+	13.			
6.	*Myrica cerifera*	S/S	FAC+	14.			
7.	*Triadica sebiferum*	T	FAC	15.			
8.				16.			

Percent Of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): 6/7 86%

Remarks: Dominance of hydrophytic vegetation.

SOILS

Map Unit (Series and Phase): Vidrine Series (Mt)
Taxonomy (Subgroup): Glossaquic Hapludalfs
Drainage Class: Somewhat poorly drained
Confirm Mapping Type? Yes X No

Profile Description:

Depth	Horizon	Matrix Color	Mottle Description	Other
0-3"		10YR 4/2	None	Organic material
3-12"		10YR 5/3	comm., med., dist	Sandy loam
12-15"		10YR 5/2	comm., med., dist	Silty clay

Hydric Soil Indicators:

no	Sulfidic Odor	no	Gleyed or Low-Chroma Colors	no	Listed on Local Hydric Soils List
no	Concretions	no	Aquic Moisure Regime	no	Listed on National Hydric Soils List
no	Histosol	no	Reducing Conditions	no	High Organic Content in Surface Layer in Sandy Soil
no	Histic Epipedon		Other (Explain in Remarks)	no	Organic Streaking in Sandy Soils

Remarks: Hydric soils absent.

HYDROLOGY

Recorded Data (Describe in Remarks)

Field Observations:
Depth of Surface Water: None
Depth to Free Water: None to 15"
Depth to Saturated Soils: 13"

Primary Wetland Hydrology Indicators:

no	Inundated
no	Saturated in upper 12 Inches
no	Water Marks
no	Drift Lines
no	Sediment Deposits
no	Drainage Patterns in Wetlands

Secondary Wetland Hydrology Indicators:

no	Oxidized Root Channels in upper 12 Inches
no	Water-Stained Leaves
no	Local Soil Survey Data
yes	FAC-Neutral Test
	Other (Explain in Remarks)

Remarks: Wetland hydrology absent.

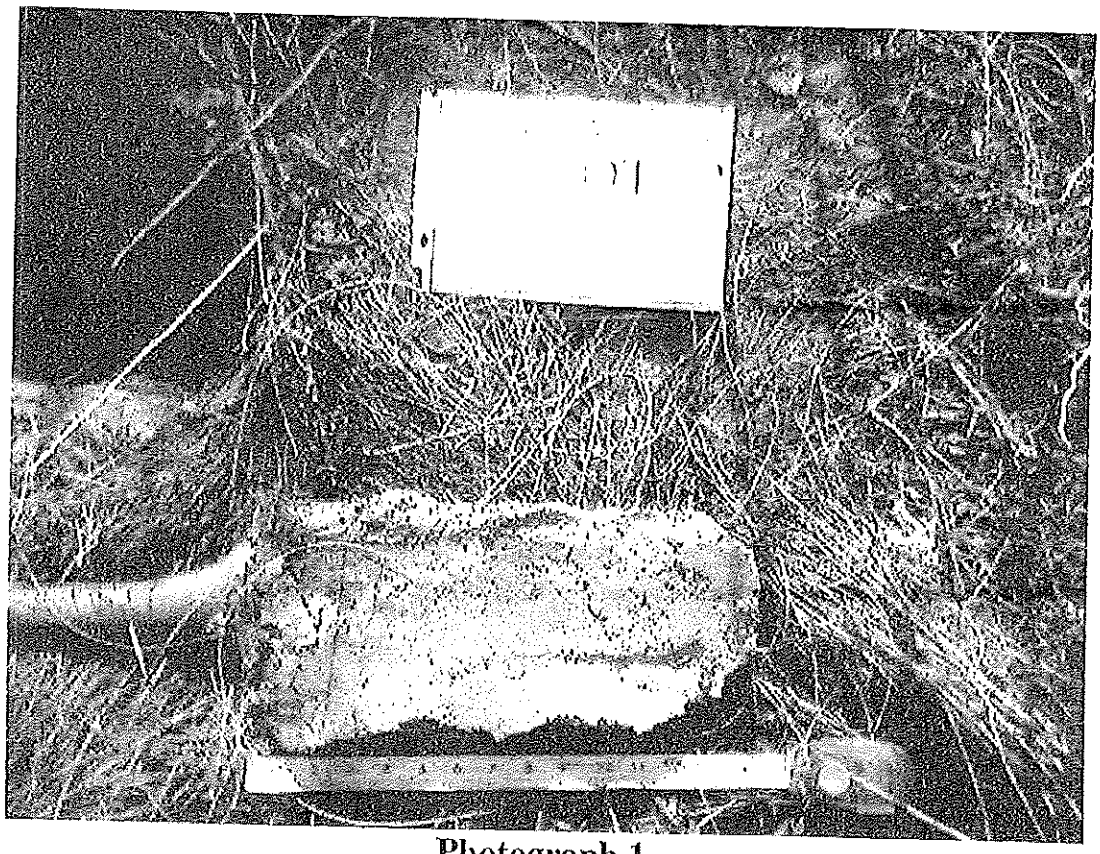
WETLAND DETERMINATION

Hydrophytic Vegetation?	Yes X	No
Wetland Hydrology?	Yes	No X
Hydric Soils?	Yes	No X
Is Area A Wetland?	Yes	No X

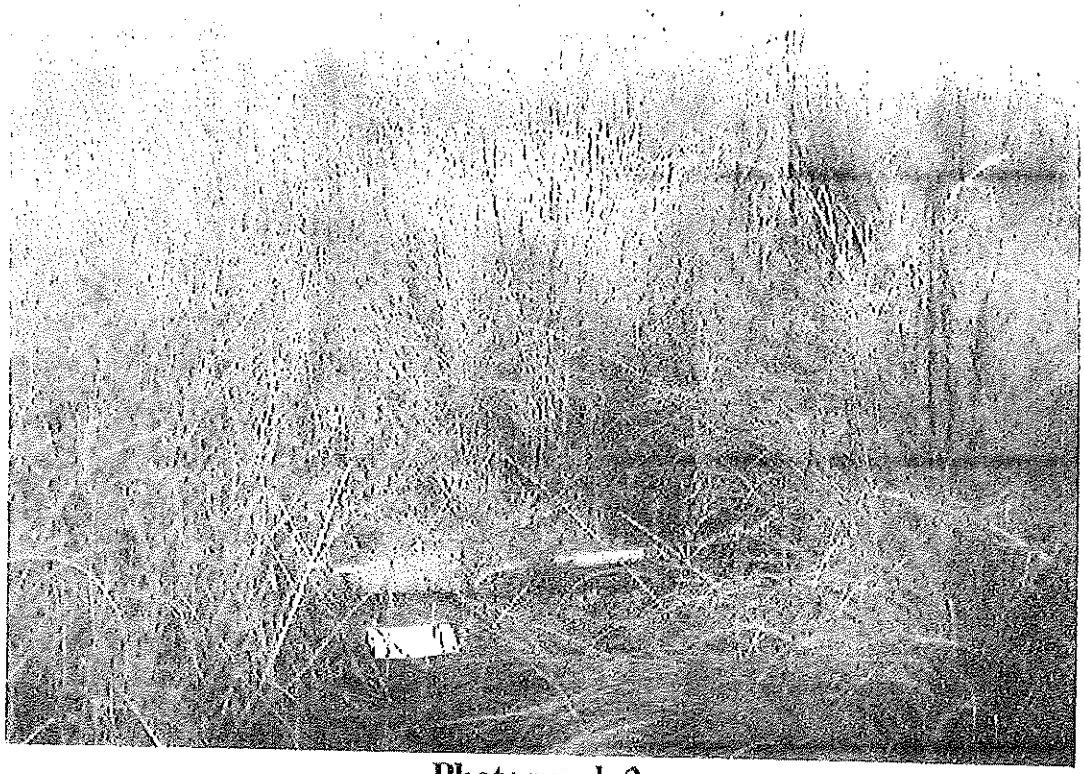
Rational and Comments on Determination: Due to the absence of hydric soils and wetland hydrology, this area is not a wetland.

ATTACHMENT D

Photographs of the Site



Photograph 1.
Plot 1.



Photograph 2.
View of Plot 1.

Photograph 3.
View of Plot 2.

Photograph 4.
Plot 3.

Photograph 5.
View of Plot 3.