

North Florida Saltwater Marsh Mitigation Bank

Prospectus

Prepared for:
Riverfront Associates, LLC

Prepared by:



November 2010

EC&D Project No. 10-031

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1.0 INTRODUCTION AND OVERVIEW

This prospectus is submitted with the goal of obtaining a Letter of Appropriateness from the U.S. Army Corps of Engineers (USACE) for the proposed North Florida Saltwater Marsh Mitigation Bank (NFSMMB). This prospectus provides information for the USACE to determine if the proposed NFSMMB will meet the reasonable assurance criteria pursuant to Chapter 373 Florida Statutes and the Federal Guidance for the Establishment, Use, and Operation of Mitigation Banks. It is anticipated that this prospectus will serve as the basis for creating the Mitigation Banking Instrument (MBI) for NFSMMB. Credits will be generated through restoration and enhancement of the wetland and upland communities. The Uniform Mitigation Assessment Method (UMAM) will determine the exact number of credits available.

1.1 Location

NFSMMB is comprised of approximately 80 acres in Duval County, Florida (Figures 1 and 2A). The project is within Township 1 South, Range 28 East, Section 26. NFSMMB is situated northeast of downtown Jacksonville on the St. Johns River, west of the Mayport Naval Station.

1.2 Land Owner and Current Land Use

The property is owned by Riverfront Associates, LLC, with the exception of the 100 foot Heritage River Road right of way. The land owners have been working through the road abandonment process with the City of Jacksonville. Staff members and the City Council support the abandonment of Heritage River Road in favor of the proposed access plan (Figure 2B). The land is currently vacant; however, the designated future land use is Rural Residential (RR).

2.0 BANK GOALS AND OBJECTIVES

The goal of NFSMMB is to provide compensatory wetland mitigation for projects with impacts to jurisdictional wetlands permitted by the U.S. Army Corps of Engineers (USACE) and the St. Johns River Water Management District (SJRWMD) under the ERP process. It is understood that applicants seeking to offset wetland impacts by purchase of credits from NFSMMB must demonstrate compliance with the Section 404(b)(1) and other federal regulations as applicable to their projects.

The restoration of this site will require the removal of fill material in order to restore and recreate the historically occurring salt marshes. The existing saltwater wetland areas will receive hydrologic enhancement through the removal of perimeter berms and the reestablishment of natural channels and flow paths to restore a more natural tidal flooding regime. Upland areas will be preserved by conservation easement to ensure that the adjacent wetland functions are not reduced by future development.

3.0 EXISTING CONDITIONS

3.1 Landscape Setting and Regional Significance

NFSMMB is located along the St. Johns River and is bounded to the north by Heckscher Drive and to the east by Sisters Creek. The Sisters Creek Joe Carlucci Boat Ramp is adjacent to the southeast corner of the property (Figure 2B). The property is surrounded by conservation lands including Timucuan Ecological and Historic Preserve and Little Talbot Island State Park (Figure 3). The conservation lands are managed by a combination of local, state, and federal agencies.

3.2 Topography

The NFSMMB property is relatively flat. Heritage River Road has an elevation of four feet while the interior area fluctuates between an elevation of two feet in the salt marshes and ten feet in the upland areas. The majority of the land is between elevations of six to eight feet (Figures 4 and 5).

3.3 Hydrology

Field investigations indicate significant alteration of the site's natural hydrology. The installation of berms, Heritage River Road, and one to four feet of fill has created a landscape level shift towards upland on much of the pre-existing salt marsh. These practices have effectively reduced the coverage of hydrophytic vegetation in some areas of the site. Figures 6, 7 and 8 show the shift in land cover over time.

3.4 Soils

According to Natural Resources Conservation Service (NRCS) mapping for Duval County, Florida, the majority of the site is covered by Arent (7) soil. The soil consists of a one to four foot layer of fill made up of altered marine deposits such as coarse sand and shell fragments obtained through dredging of the St. Johns River and remnants of a horizon from the historically present salt marsh. Figure 9 depicts the general location and extent of the NRCS soil types across the NFSMMB site.

3.5 Existing Land Uses and Vegetation

Eight vegetative community types have been identified on the property through GIS analysis of the 2004 SJRWMD Land Use/Land Cover data. The existing vegetative cover and classification according to the Florida Land Use Cover and Forms Classification System (FLUCFCS) (FDOT 1/99), approximate acreage, and brief description are provided below and are depicted on Figure 10A. In addition, Figure 10B shows the boundaries and descriptions of field observed land use and land cover.

Herbaceous Upland Non-forested, 3100

This area is characterized by prairie grasses which occur on the upland margins of the wetland zone and may be periodically inundated by water. This is a marginal area between marsh and upland forested areas and is mostly treeless with the exception of young eastern red cedars (*Juniperus virginiana*).

Mixed Upland Non-forested, 3300

According to historic aerials, this classification covers an area that contains the most recent layer of deposited fill material. Due to this disturbance, the trees are not as well established as in neighboring areas. The dominate species include live oak (*Quercus virginiana*) and eastern red cedar (*Juniperus virginiana*).

Upland Hardwood Forest, 4200

The uplands are dominated by Bahia grass (*Paspalum notatum*), eastern red cedar (*Juniper virginiana*), live oak (*Quercus virginiana*), and winged sumac (*Rhus copallinum*).

Upland Mixed Coniferous/Hardwood, 4340

This is an area of mixed forest occurring on an upland area adjacent to the St. Johns River and surrounding wetland depressions.

Reservoirs, 5300

These features are often five to ten feet lower than the surrounding land surface and hold open water year-round. Observed vegetation includes soft rush (*Juncus effusus* subsp. *solutus*), plume grass (*Saccharum giganteum*), giant reed (*Arundo donax*), and cattail (*Typha* sp.).

Saltwater Marshes, 6420

Typical tidal salt marshes dominated by *Spartina* sp., black needlerush (*Juncus roemerianus*), and glasswort (*Salicornia bigelovii*).

Wet Prairies, 6430

A community of grasses, sedges, rushes, and herbs, dominated by bighead rush (*Juncus megacephalus*), willow (*Salix* sp.), marsh pennywort (*Hydrocotyl umbellata*), and broom sedge (*Andropogon glomeratus*). They naturally occur on mineral soils that are inundated for a relatively short duration each year, but with prolonged soil saturation.

Mixed Scrub-Shrub Wetland, 6460

These wetland areas dominated by woody vegetation that is less than 20 feet in height due to the transitional or disturbed community on a drier part of the property. These wetlands are dominated by salt bush (*Baccharis halimifolia*), soft rush (*Juncus effusus*), bighead rush (*Juncus megacephalus*), willow (*Salix* sp.), marsh pennywort (*Hydrocotyl umbellata*), and broom sedge (*Andropogon glomeratus*).

4.0 WILDLIFE UTILIZATION AND PROTECTED SPECIES

4.1 Current Wildlife Utilization

Wildlife or evidence of wildlife observed by EC&D on the property during the site visit in July 2010 includes great blue heron (*Ardea herodias*), little blue heron (*Egretta caerulea*), mottled duck (*Anas fulvigula*), least tern (*Sterna antillarum*), laughing gull (*Larus atricilla*), osprey (*Pandion haliaetus*), white-tailed deer (*Odocoileus virginianus*), and armadillo (*Dasypus novemcinctus*). In addition, other parties have reported seeing a gray fox, raccoons, possums, several species of snakes (cottonmouth, copperhead, Eastern diamondback rattlesnake, coral snake, corn snake, coachwhip, and king snake), and an American alligator.

4.2 Expected Wildlife Utilization by Listed and Focal Species

Figure 11 shows the locations of Florida Natural Areas Inventory (FNAI) documented occurrences of listed species within the region. EC&D scientists observed a little blue heron while conducting preliminary fieldwork in July 2010. In addition to species directly observed onsite, the NFSMMB may provide habitat for the following animals listed as threatened, endangered or species of special concern by the U.S. Fish and Wildlife Service (USFWS) and/or the Florida Fish and Wildlife Conservation Commission (FWC):

Mammals: Atlantic Salt Marsh Mink (*Neovison vison lutensis*).

Birds: Macgillivray's Seaside Sparrow (*Ammodramus maritimus macgillivrayi*), Worthington's Marsh Wren (*Cistothorus palustris griseus*), Least Bittern (*Ixobrychus exilis*), Least Tern (*Sterna antillarum*), Red-cockaded Woodpecker (*Picoides borealis*), Wood Stork (*Mycteria americana*), Great Egret (*Ardea alba*).

Reptiles and Amphibians: American Alligator (*Alligator mississippiensis*), Eastern Indigo Snake (*Drymarchon couperi*), Eastern Diamondback Rattlesnake (*Crotalus adamanteus*), Florida Pine Snake (*Pituophis melanoleucus mugitus*), Striped Newt (*Notophthalmus perstriatus*).

Successful completion of the proposed enhancement and restoration objectives will improve habitat quality and suitability not only for the listed species discussed above but also for other wildlife that utilizes the river such as Atlantic Sturgeon (*Acipenser oxyrinchus oxyrinchus*), Shortnose Sturgeon (*Acipenser brevirostrum*), and Manatee (*Trichechus americana*). The proposed restoration activities will benefit a wide variety of mammals, birds, reptiles and amphibians by providing suitable habitat for these species.

4.3 Listed Plant Species

No listed plant species were observed during preliminary fieldwork in 2010. Restoration activities will result in improved habitat that could potentially support Bartram's Ixia (*Calydorea ceolestina*), Southern Lip Fern (*Cheilanthes microphylla*), Giant Orchid (*Pteroglossaspis ecristata*), Ciliate-leaf Tickseed (*Coreopsis integrifolia*), Florida Spiny-pod (*Matelea floridana*), and Florida Willow (*Salix floridana*). It is possible that these plants once occupied NFSMMB prior to the addition of the fill and the creation of Heritage River Road and may again become established once the natural hydrology and vegetative composition has been restored.

5.0 HISTORICAL CONDITIONS

5.1 Historical Use of the Property

A review of historic aerial photography maintained by the University of Florida reveals that during the mid to late 20th century the property was converted from salt marsh to the upland communities seen today. In 1943, most of the property consisted of salt marsh and tidal creeks with a few upland islands along the north boundary and in the southeast corner of the property. Heritage River Road existed at that time, but was probably recently constructed based on the prevalence of well developed tidal creeks along the southern property boundary. A 1952 photograph shows evidence of fill being disposed along the shores of the St. Johns River and Sisters Creek, including the subject property. Heckscher Drive was also completed prior to 1952, completely isolating the property from the marshes to the north. Minimal amounts of fill were deposited after the 1950s and the existing landforms and vegetative communities can be recognized in photographs taken from the 1990s.

5.2 Historical Structures and Archaeological Sites

A review of the National Register of Historic Places for Duval County, Florida revealed that no historic properties or archaeological sites are listed or currently eligible for listing on the proposed site. During

the proposed hydrological improvements, if archaeological artifacts are discovered, the Division of Historical Resources will be contacted immediately.

6.0 PROPOSED MITIGATION

6.1 Proposed Land Use, Vegetation and Hydrology Improvements

The overall goal of the mitigation activity at NFSMMB is to improve the ecological conditions of the project area and to restore the natural hydrological properties of the wetlands. Three types of mitigation activities are proposed: marsh restoration and creation, wetland enhancement, and upland preservation (Figure 12). During preliminary field inspections of the property it was apparent that three primary types of modifications would be beneficial in achieving the mitigation goals:

- Removal of one to four feet of fill in the salt marsh habitat;
- Removal of berms isolating existing wetlands;
- Removal of Heritage River Road and associated berms.

The following are descriptions of the mitigation types, existing and proposed vegetative classifications, proposed ecological conditions, and the mitigation implementation methods proposed.

6.2 Marsh Restoration and Creation

Community ID: MRC

Acres: 60.6

Existing FLUCFCS: 3100, 3300, 4200, 4340, 5300, 6430, 6460

Proposed FLUCFCS: 6420

The majority of the site will be restored to salt marsh dominated by salt marsh cord grass (*Spartina alterniflora*) and black needle rush (*Juncus roemerianus*). Currently, these areas are either freshwater wetlands or dry prairies/scrublands. The freshwater wetlands are dominated by salt bush (*Baccharis halimifolia*), soft rush (*Juncus effusus*), bighead rush (*Juncus megacephalus*), willow (*Salix sp.*), marsh pennywort (*Hydrocotyl umbellata*), broom sedge (*Andropogon glomeratus*), plume grass (*Saccharum giganteum*), giant reed (*Arundo donax*), and cattail (*Typha sp.*). The uplands are dominated by bahia grass (*Paspalum notatum*), eastern red cedar (*Juniper virginiana*), live oak (*Quercus virginiana*), and winged sumac (*Rhus copallinum*).

Approximately one to four feet of fill will be removed to achieve a final grade of 1.5 to 3.0 feet NGVD and restore salt marsh habitat. Currently, the area ranges in elevation from approximately 3 feet NGVD to 7 feet NGVD. The soils consist of coarse sand fill material above a thin layer of clay and muck deposited when the site was previously salt marsh. The thickness of the fill material varied by location, but the muck layer was typically encountered at an elevation of 1.5 to 2.0 feet NGVD. Once re-graded, most of the site will flood during high tide.

The area will be planted with bare root stock in appropriate zones and elevations within the marsh creation area (Figure 13). The plantings will be a combination of Saltmarsh Cordgrass (*Spartina alterniflora*), Needle Rush (*Juncus roemerianus*), Glasswort (*Salicornia bigelovii*), Marsh Hay Cordgrass (*Spartina patens*), Salt Grass (*Distichlis spicata*), Groundsel Tree (*Baccharis halimifolia*), and Wax Myrtle (*Myrica cerifera*). Although the plantings will not establish complete vegetative cover, they will provide

stability to the newly exposed soil and help remove sediment, organic matter and seeds from tidal flood waters and deposit this material onto the marsh surface.

The hydrologic connection to the St. Johns River will be restored by removing Heritage River Road and associated berms. The 100 foot right-of-way for Heritage River Road is not currently part of the NFSMMB property; however, the landowner is working with the City to have the road vacated. City staff support deeding the right-of-way for Heritage River Road to the mitigation bank once new access is provided to the Sister Creek Joe Carlucci Boat Ramp. This arrangement will improve safety for citizens wishing to access the boat ramp and increase the ecological value of the marsh restoration. The 7.8 acre right-of-way will be re-graded to an elevation of approximately 1.5 feet and will generate mitigation credits as part of the marsh restoration and creation area.

6.3 Wetland Enhancement

Community ID: WE

Acres: 15.6

Existing FLUCFCS: 4200, 4340, 6420, 6460, 6500

Proposed FLUCFCS: 6420, 6460, 6500

Portions of the property did not receive fill material and remained as salt marsh; however, installation of interior berms, construction of Heritage River Road, and filling of the remainder of the site have impaired historic hydrologic conditions and altered the flow of tidal water into and between the marshes. The hydrology of the wetland enhancement areas has been altered by the installation of perimeter berms and channelization of tidal flow into ditches. These areas will be enhanced by removing the perimeter berms and reestablishing historic hydrologic connections.

Wetland enhancement areas will be improved by removing Heritage River Road and the associated berms. Portions of the enhancement area include a brackish roadside ditch with no direct tidal influence. Some existing wetlands consist of salt marsh connected to the St. Johns River; however, there is minimal storage of tidal water due to the short distance between the river and Heritage River Road. Removing the road will restore the natural tidal flows and the hydrologic connection of isolated areas to the interior wetlands.

6.4 Upland Preservation

Community ID: UP

Acres 3.6

Existing FLUCFCS: 4200,

Proposed FLUCFCS: 4210, 4280

The remaining uplands will be placed under conservation easement while allowing for access and providing utilities to Sisters Creek Joe Carlucci Boat Ramp. The uplands are currently well vegetated by live oak, eastern red cedar, cabbage palm (*Sabal palmetto*), hickory (*Carya sp.*), and black cherry (*Prunus serotina*).

7.0 WITH BANK CONDITIONS

The "With Bank" conditions, after the proposed mitigation activities, include a return to historically present tidal salt marsh that presently makes up the majority of the surrounding conservation lands, with an associated increase in suitable habitat for a variety of listed wildlife species. The removal of the fill layer and re-grading of the land will allow the tidal flow to reset the more recently occurring succession that has pushed the land toward forested upland, and allow the saltwater marsh to thrive.

8.0 WITHOUT BANK CONDITIONS

Without the bank and the associated mitigation activities, the site will remain relatively unchanged. Currently, the uplands provide no benefit for the surrounding wetlands. In addition, the hydrology of the existing wetlands has been severely altered over time. There is also the possibility of future commercial or residential development on the property without the bank.

9.0 MONITORING AND MAINTENANCE

The proposed activities to restore and enhance NFSMMB will establish conditions which are anticipated to be self sufficient after five years; however, monitoring and maintenance will continue as necessary until the success criteria have been met. The need for long-term maintenance of NFSMMB is not anticipated. Specific methods for vegetative and hydrologic monitoring of enhancement and restoration areas will be outlined in the Mitigation Banking Instrument (MBI).

10.0 SERVICE AREA OF BANK

The anticipated service area for the NFSMMB includes Basin 3: Nassau River, Basin 4: the Northern St. John's River and Northern Coastal, and Basin 6: Tolomato River and Intercoastal Nested as shown on Figure 14.

11.0 POTENTIAL CUSTOMERS

Potential customers of NFSMMB include utilities, the Port Authority, the Florida Department of Transportation (FDOT), and local governments. Development pressure in the region is intense for both public and private infrastructure projects.

12.0 PROPOSED OWNERSHIP AND LONG-TERM MANAGEMENT

Riverfront Associates, LLC of Jacksonville, Florida will be the responsible entity for the construction, monitoring, and short-term operation of the proposed wetland mitigation bank. The landowner may partner with non-profit conservation and/or education organizations throughout the restoration process and into the long-term management phase of the project. The final details on ownership and long-term management, as well as financial and legal documentation, will be provided with the MBI.

13.0 QUALIFICATIONS OF THE SPONSOR

Environmental Consulting & Design, Inc. (EC&D), formerly operating as Creative Environmental Solutions (CES), has successfully permitted several mitigation banks in Florida and Georgia. EC&D's Cherry Creek Mitigation Bank was one of the first stream mitigation banks in Georgia. Currently, EC&D monitors and maintains Cherry Creek and Broxton Rocks Mitigation Banks.

Figures

**FIGURE 1:
SITE LOCATION
NORTH FLORIDA SALTWATER
MARSH MITIGATION BANK
DUVAL COUNTY, FLORIDA**

1 INCH EQUALS 2.5 MILES



MAP SCALE IS SET FOR MAPS PRINTED ON 8.5X11 PAPER

LEGEND

- PROPOSED BANK BOUNDARY +/- 80 AC.
- INTERSTATES
- US HIGHWAYS
- STATE & COUNTY ROADS
- LOCAL ROADS
- RAILWAYS
- CANAL/DITCH
- RIVER/STREAM
- LAKES & RIVERS
- CONSERVATION LAND
- DUVAL COUNTY
- FLORIDA COUNTIES



Address: 1000 West 1st Street, Suite 200
Gainesville, FL 32609
Phone: 352.351.4123
Fax: 352.351.0234

DATA SOURCES: DUVAL COUNTY, SJRWMD, USGS/NHD, FL DOT, BTS, FNAI, FDEP, US CENSUS (TIGER 2008), FGD, AND EC&D. DATA IS PROVIDED 'AS IS.' ACREAGES ARE APPROXIMATE & GIS DERIVED.

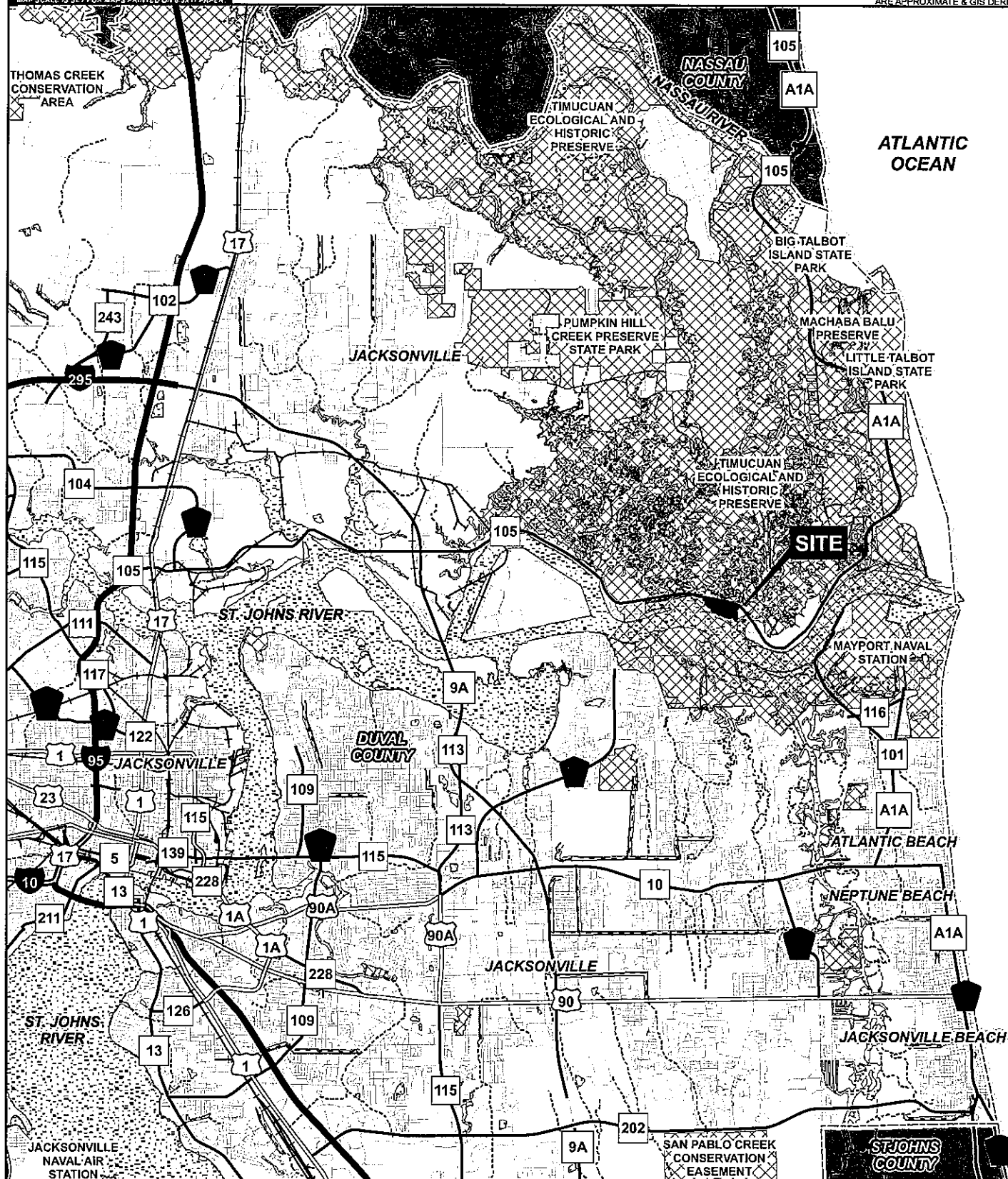


FIGURE 2A:
2009 TRUE COLOR AERIAL
NORTH FLORIDA
SALTWATER MARSH
MITIGATION BANK
DUVAL COUNTY, FLORIDA

LEGEND

-  PROPOSED BANK
BOUNDARY +/-80 AC.
-  STATE ROADS



1 INCH EQUALS 500 FEET

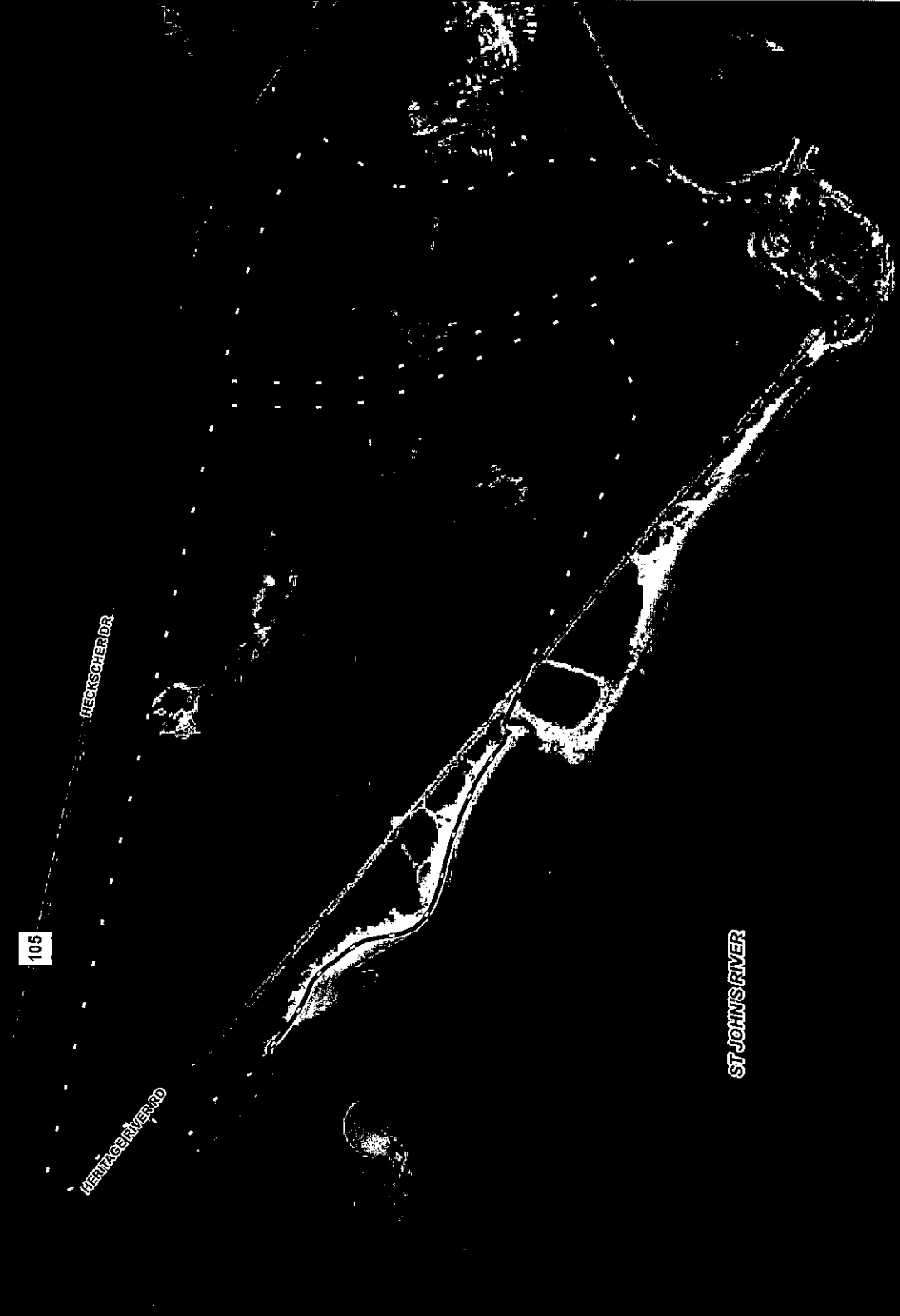
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MAP SCALE IS SET FOR MAPS PRINTED ON LEX11 PAPER

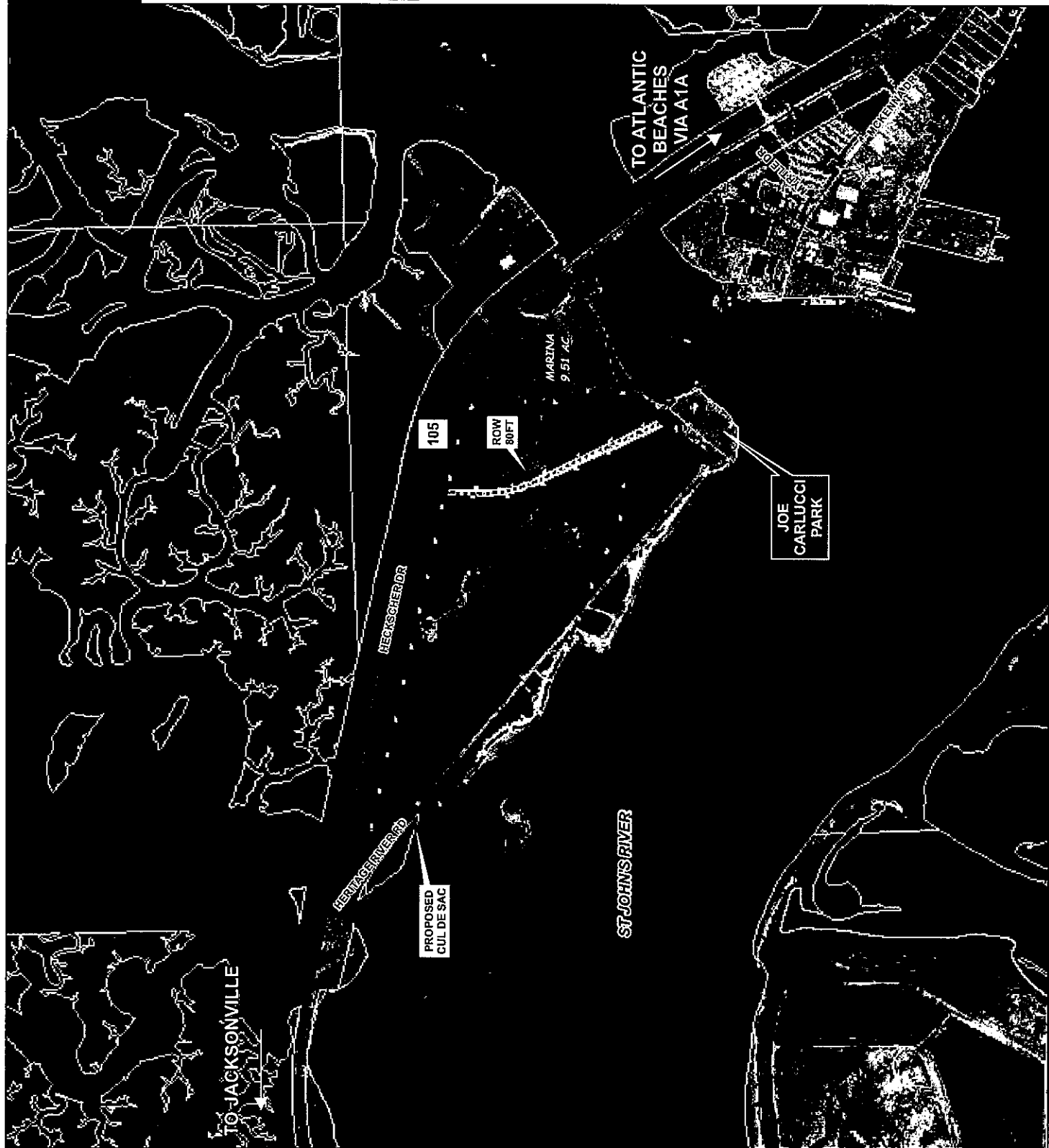
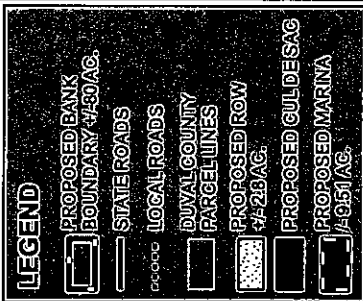


E&C&D
 Environmental Consulting & Design, Inc.
 3403 NW 19th Street, Suite 2
 Gainesville, FL 32606
 Phone: 352.371.1333
 Fax: 352.371.1334

DATA SOURCES: DUVAL COUNTY, SURVINO,
 USGS/NHD, FL DOT, B.T.S., FINAL FDEP,
 US CENSUS (TIGER 2000), FGDL, AND E&C&D.
 DATA IS PROVIDED "AS IS" ACRESSES
 ARE APPROXIMATE & GIS DERIVED.



**FIGURE 2B: CURRENT
AND PROPOSED ACCESS
2009 TRUE COLOR AERIAL
SALTWATER MARSH
MITIGATION BANK
DUVAL COUNTY, FLORIDA**



1 INCH EQUALS 1,000 FEET



MAP SCALE IS SET FOR MAPS PRINTED ON 8.5X11 PAPER.



PROFESSIONAL CONSULTING ENGINEERS, INC.

• 312.371.4330

1.311.333.0326

3443 NW 1st Street, Suite 8

Orlando, FL 32804

DATA SOURCES: DUVAL COUNTY, SJRWMD, USGS/NHD, FL DOT, BGS, FMA, FDEP, US CENSUS (TIGER 2008), FGL, AND EC&D. DATA IS PROVIDED "AS IS." ACRES/AGES ARE APPROXIMATE & GIS DERIVED.













**FIGURE 3: EXISTING
CONSERVATION LANDS
NORTH FLORIDA
SALTWATER MARSH
MITIGATION BANK
DUVAL COUNTY, FLORIDA**

1 INCH EQUALS 1.0 MILES

0 0.25 0.5 0.75 1
MILES

MAP SCALE IS SET FOR MAPS PRINTED ON 8 1/2 X 11 PAPER

LEGEND

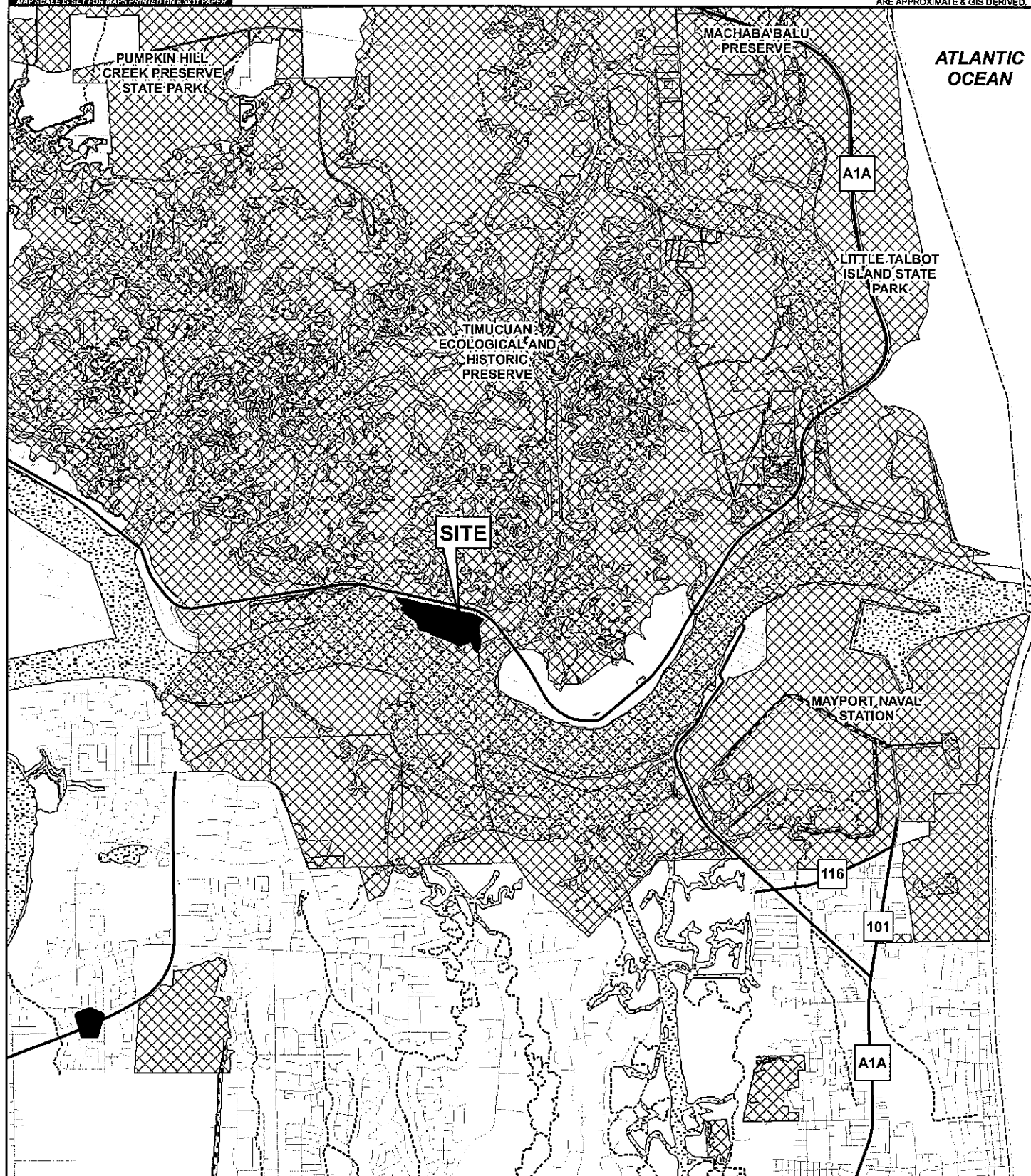
- | | |
|--|---|
|  PROPOSED BANK
BOUNDARY +/- 80 AC. |  CANAL/DITCH |
|  INTERSTATES |  RIVER/STREAM |
|  US HIGHWAYS |  LAKES & RIVERS |
|  STATE & COUNTY ROADS |  CONSERVATION LAND |
|  LOCAL ROADS |  DUVAL COUNTY |
|  RAILWAYS |  FLORIDA COUNTIES |



3405 1st Street, Suite 2
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PH 352.471.8330
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DATA SOURCES: DUVAL COUNTY, SJRWMD,
USGS/NHD, FL DOT, STS, FNAI, FDEP,
US CENSUS (TIGER 2008), FGL, AND EC&D.
DATA IS PROVIDED 'AS IS.' ACREAGES
ARE APPROXIMATE & GIS DERIVED.



**FIGURE 4:
LIDAR TOPOGRAPHY
2009 TRUE COLOR AERIAL
NORTH FLORIDA
SALTWATER MARSH
MITIGATION BANK
DUVAL COUNTY, FLORIDA**



1 INCH EQUALS 500 FEET



MAP SCALE IS SET FOR MAPS PRINTED ON 8.5X11 PAPER.



DATA SOURCES: DUVAL COUNTY, SURVIMD,
USGSNHD, FL DOT, BTS, FNAI, FDER,
US CENSUS (TIGER 2008), FGDL, AND EO&D.
DATA IS PROVIDED 'AS IS'. ACRES
ARE APPROXIMATE & GIS DERIVED.

3310-US19ISZ01V US PROSPECTUS\FIG4 LIDARTOPQ 8X11.MXD 10/13/2010

FIGURE 5: USGS
TOPOGRAPHIC QUADRANGLE
NORTH FLORIDA
SALTWATER MARSH
MITIGATION BANK
DUVAL COUNTY, FLORIDA

1 INCH EQUALS 2,000 FEET

0 1,000 2,000
FEET

MAP SCALE IS SET FOR MAPS PRINTED ON 8.5X11 PAPER

LEGEND



PROPOSED BANK BOUNDARY +/- 80 AC.

USGS QUADRANGLES

JACKSONVILLE BEACH (1964, rev. 1992)

MAYPORT (1964, rev. 1992)

NOTE: * AREA DOES NOT HAVE A PUBLIC LAND SURVEY DESIGNATION, BUT IS PART OF TOWNSHIP 1S, RANGE 28E.



Environmental Consulting & Design, Inc.

3400 NW 107th Street, Suite 200
Coral Springs, FL 33065
954.371.6332
954.371.6334

DATA SOURCES: SJRWMD, DUVAL COUNTY,
USGS/NHD, FL DOT, BGS, FNAI, FDEP,
US CENSUS (TIGER 2008), FGDL, AND EC&D.
DATA IS PROVIDED AS IS. ACRES
ARE APPROXIMATE & GIS DERIVED.

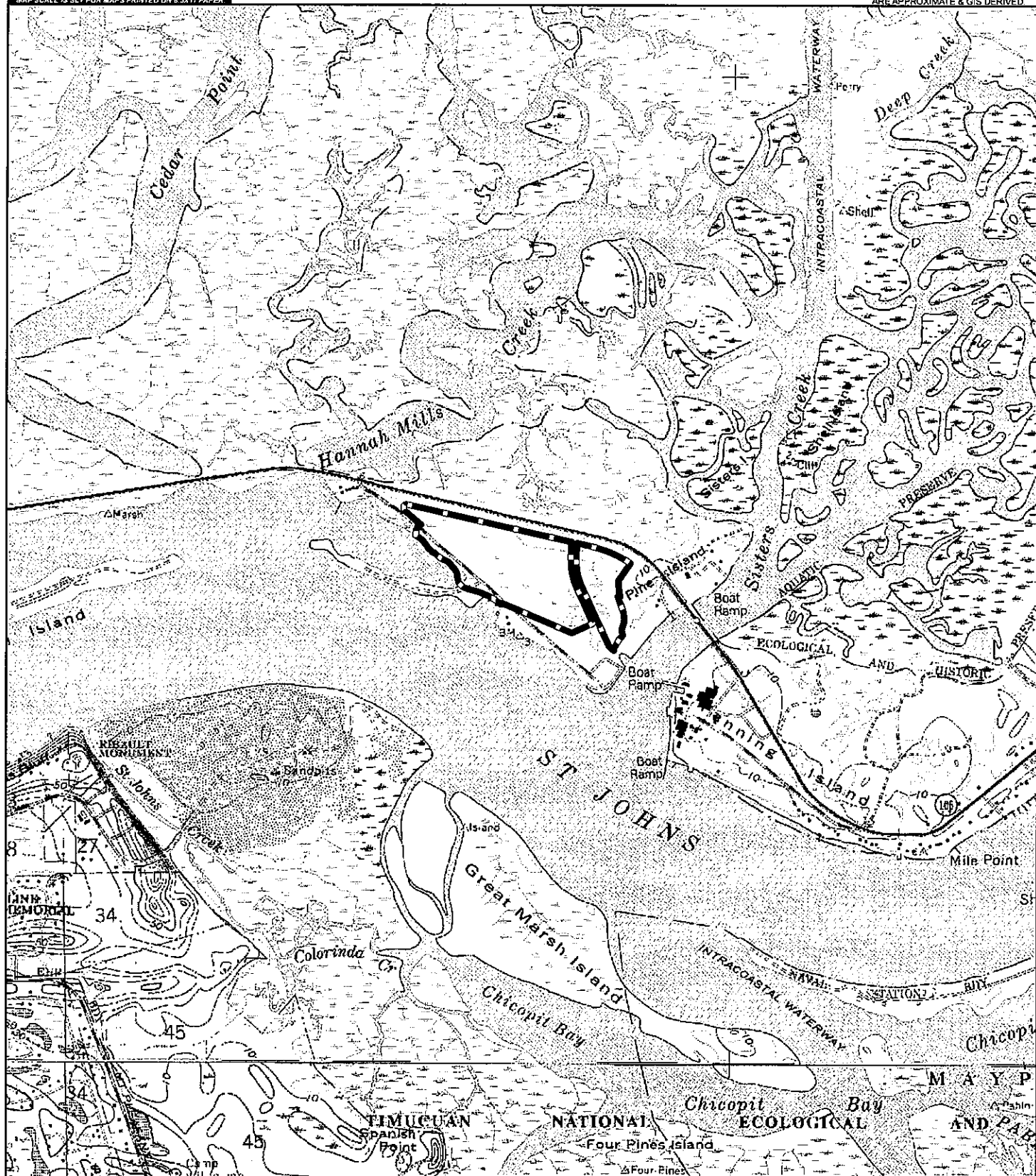


FIGURE 6:
1943 HISTORIC AERIAL
NORTH FLORIDA
SALTWATER MARSH
MITIGATION BANK
DUVAL COUNTY, FLORIDA

LEGEND

- PROPOSED BANK
BOUNDARY +/-80 AC.
- ROADS (CURRENT)



1 INCH EQUALS 500 FEET

0 250 500 FEET

MAP SCALE IS SET FOR MAPS PRINTED ON 8.5X11 PAPER.



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Fax: 352.333.0024
www.decandd.com

DATA SOURCES: DUVAL COUNTY, SURMAD,
UF MAP AND IMAGERY LIBRARY,
USGS/NHD, FL DOT, BGS, FNAI, FDER,
US CENSUS (TIGER 2008), FGD, AND EC&D.
DATA IS PROVIDED 'AS IS.' ACRES
ARE APPROXIMATE & GIS DERIVED.



FIGURE 7:
1952 HISTORIC AERIAL
NORTH FLORIDA
SALTWATER MARSH
MITIGATION BANK
DUVAL COUNTY, FLORIDA

LEGEND

-  PROPOSED BANK BOUNDARY +/-80 AC.
-  ROADS (CURRENT)



1 INCH EQUALS 500 FEET

0 250 500 FEET

MAP SCALE IS SET FOR MAPS PRINTED ON 8.5X11 PAPER.



Environmental Consulting & Design, Inc.

2005 N. 17th Street, Suite 100

Orlando, FL 32816

Phone: 407.333.1433

Fax: 407.333.0026

DATA SOURCES: DUVAL COUNTY SURVAIL,
 UF MAP AND IMAGERY LIBRARY,
 USGS/NHD, FL DOT, B.T.S. FNAI, FDEP,
 US CENSUS (TIGER 2000), FGL, AND EC&D.
 DATA IS PROVIDED AS IS. ACRES ARE
 APPROXIMATE & GIS DERIVED.



FIGURE 9:
 USDA NRCS SOILS
 2009 TRUE COLOR AERIAL
 NORTH FLORIDA
 SALTWATER MARSH
 MITIGATION BANK
 DUVAL COUNTY, FLORIDA

LEGEND

PROPOSED BANK
 BOUNDARY #130AG

USDA NRCS SOILS

- MAP UNIT, SOIL NAME**
- 7. ARENTS, NEARLY LEVEL
 - 68. TISONIA MUCKY PEAT, 0 TO 1 PERCENT SLOPES, VERY FREQUENTLY FLOODED
 - 69. URBAN LAND
 - 99. WATER



1 INCH EQUALS 500 FEET

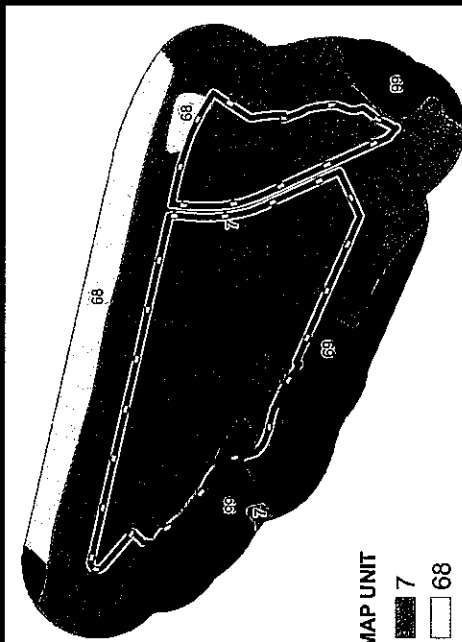
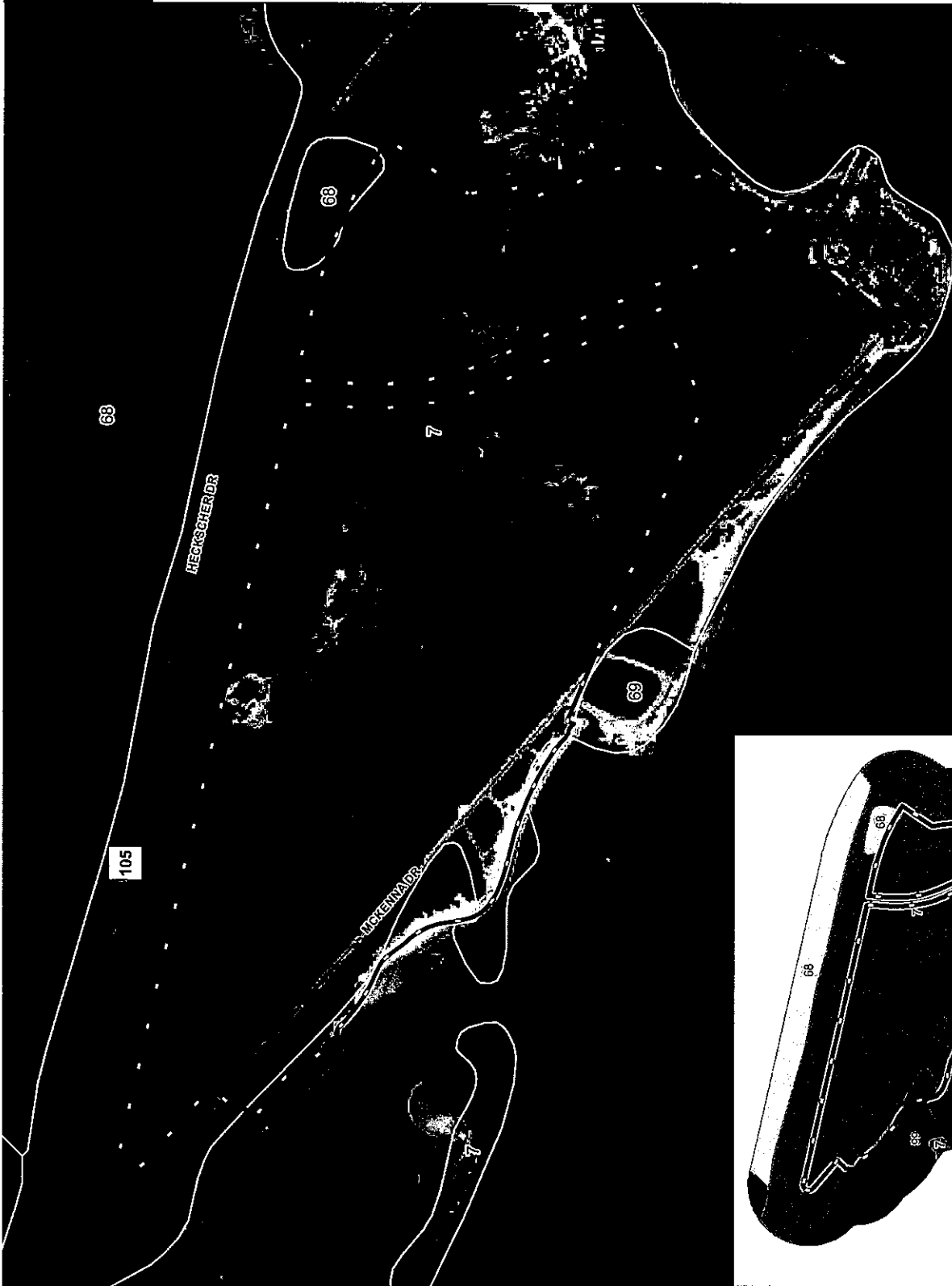
0 250 500 FEET

MAP SCALE IS SET FOR MAPS PRINTED ON A SKI PAPER.



Environmental Consulting & Design, Inc.
 3403 NW 9th Street, Suite 1
 Gainesville, FL 32606
 Phone: 352.371.6233
 Fax: 352.343.6224

DATA SOURCES: DUVAL COUNTY, SURVAIL, USDA NRCS, USGS NHD, FL DOT, FINAL FDEP, US CENSUS (TIGER 2008), FGD, AND ECAD. DATA IS PROVIDED AS IS. ACRES ARE APPROXIMATE & GIS DERIVED.



- MAP UNIT**
- 7
 - 68
 - 69
 - 99

FIGURE 10A:
2004 SJRWMD LAND USE
AND LAND COVER
2009 TRUE COLOR AERIAL
NORTH FLORIDA
SALTWATER MARSH
MITIGATION BANK
DUVAL COUNTY, FLORIDA

LEGEND



FLUCFCS CODE AND DESCRIPTION

- 1840: MARINAS & FISH CAMPS
- 3100: HERBACEOUS UPLAND NONFORESTED
- 3300: MIXED UPLAND NONFORESTED
- 4200: UPLAND HARDWOOD FORESTS
- 4340: UPLAND MIXED CONIFEROUS/HARDWOOD
- 5100: STREAMS AND WATERWAYS
- 5300: RESERVOIRS - PITS, RETENTION PONDS, DAMS
- 6420: SALTWATER MARSHES
- 6430: WET PRAIRIES
- 6460: MIXED SCRUB-SHRUB WETLAND
- 6500: NON-VEGETATED WETLAND
- 7410: RURAL LAND IN TRANSITION WITHOUT POSITIVE INDICATORS OF INTENDED ACTIVITY



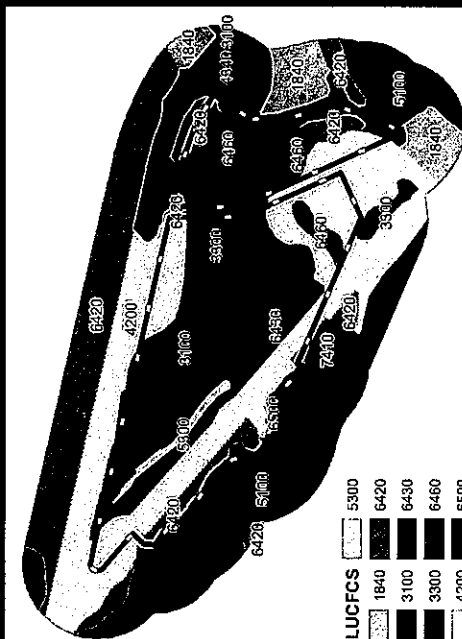
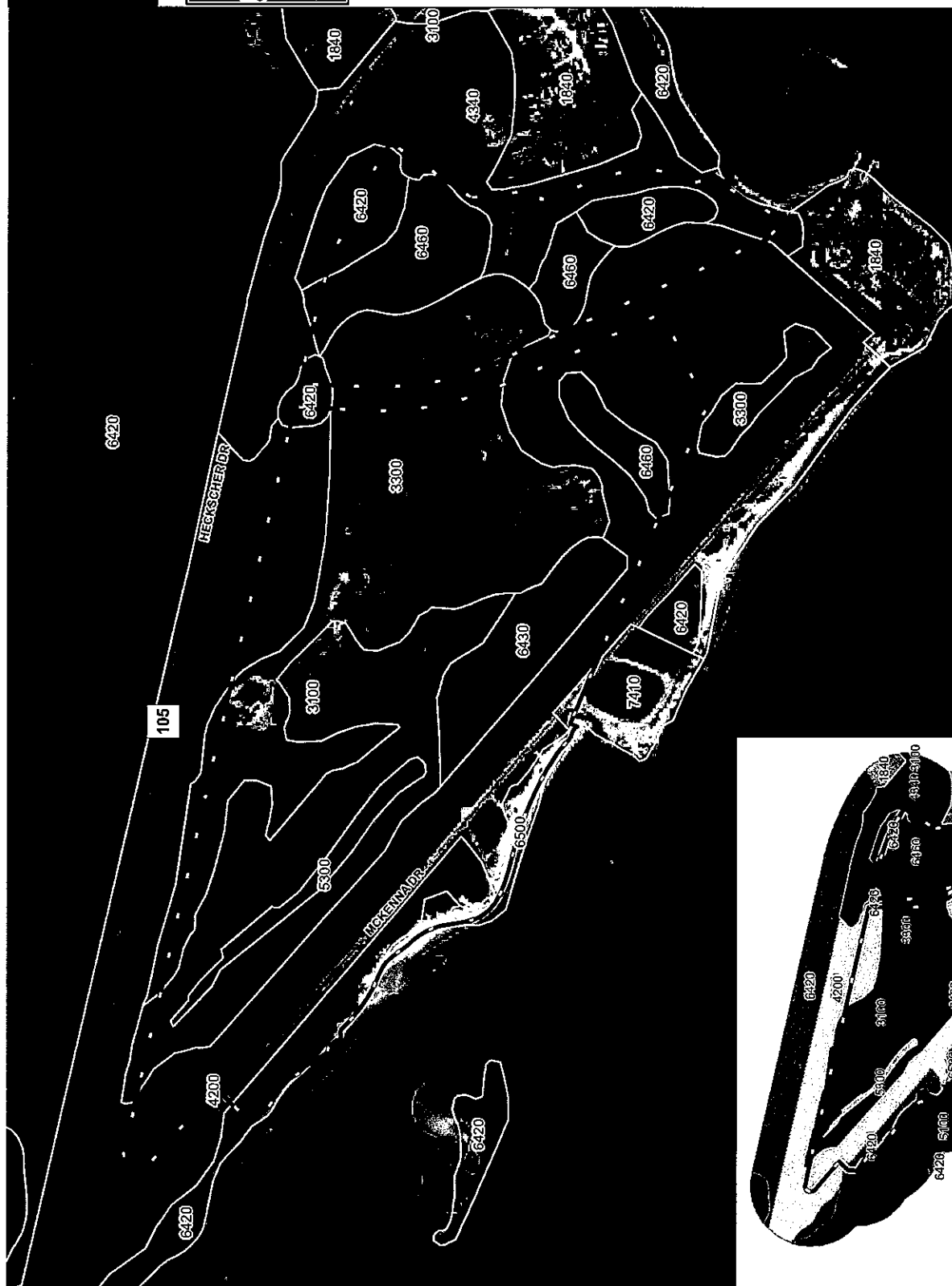
1 INCH EQUALS 500 FEET

0 250 500 FEET

MAP SCALE IS SET FOR MAPS PRINTED ON A5X11 PAPER.



DATA SOURCES: DUVAL COUNTY, SJRWMD, USGS/NHD, FL DOT, BRS, FNAI, FDEP, US CENSUS (TIGER 2008), FGBL, AND ECOLD. DATA IS PROVIDED AS IS; ACRES ARE APPROXIMATE & GIS DERIVED.



- FLUCFCS**
- 1840
 - 3100
 - 3300
 - 4200
 - 4340
 - 5100
 - 5300
 - 6420
 - 6430
 - 6460
 - 6500
 - 7410
 - 5100

FIGURE 10B:
OBSERVED LAND USE
AND LAND COVER
2009 TRUE COLOR AERIAL
NORTH FLORIDA
SALTWATER MARSH
MITIGATION BANK
DUVAL COUNTY, FLORIDA



LEGEND

PROPOSED BANK
BOUNDARY +/- 30 AC.

FLORIDA LAND USE,
COVER AND FORMS
CLASSIFICATION SYSTEM

- FLUCFCS CODE AND DESCRIPTION**
- 3100: Herbaceous upland nonforested, +/- 3.4 AC.
 - 3300: Mixed upland nonforested, +/- 20.4 AC.
 - 4200: Upland hardwood forests, +/- 5.6 AC.
 - 4340: Upland mixed coniferous/hardwood, +/- 11.0 AC.
 - 5430: Endorheic saltwater ponds within a salt marsh, +/- 2.8 AC.
 - 6420: Saltwater marshes, +/- 11.7 AC.
 - 6430: Wet prairies, +/- 21.8 AC.
 - 6460: Mixed scrub-shrub wetland, +/- 0.4 AC.
 - 6480: Mixed scrub-shrub wetland, +/- 1.3 AC.
 - 6500: Non-vegetated wetland, +/- 1.1 AC.
 - 7410: Rural land in transition without positive indicators of intended activity, +/- 0.2 AC.

OBSERVED LAND COVER WAS DETERMINED USING A SURVEYED METLAND DESIGNATION PROVIDED BY RIVERFRONT ASSOCIATES, INC. (RFA). TOPOGRAPHY, AERIAL INTERPRETATION AND LIMITED GROUND TRUTHING BY EC&D ENVIRONMENTAL SCIENTISTS.



1 INCH EQUALS 500 FEET

0 250 500 FEET

MAP SCALE IS SET FOR MAPS PRINTED ON 8.5X11 PAPER.



Environmental Consulting & Design, Inc.
3400 NW 1st Street, Suite 8
Gainesville, FL 32608
P 352.371.4333
F 352.333.0224

DATA SOURCES: DUVAL COUNTY, SURVWD, USGS/NHD, FL DOT, BGS, FNAI, FDER, US CENSUS (TIGER 2008), FGDL AND EC&D. DATA IS PROVIDED AS IS. ACRES ARE APPROXIMATE & GIS DERIVED.

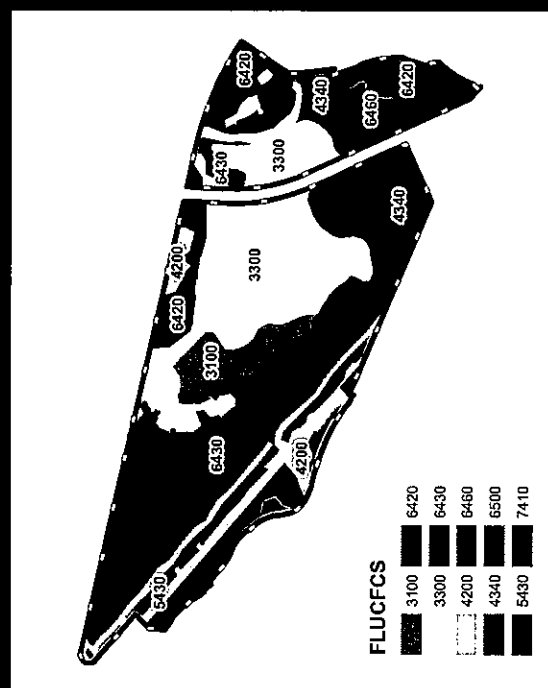


FIGURE 11: FNAI
DOCUMENTED OCCURRENCES &
FWC WILDLIFE HABITAT MODEL
NORTH FLORIDA
SALTWATER MARSH
MITIGATION BANK
DUVAL COUNTY, FLORIDA

LEGEND

-
- PROPOSED BANK
BOUNDARY +/- 80 AC.
1 MILE BUFFER
STATE ROADS

- MAJOR HYDROLOGY
FNAI DOCUMENTED
OCCURRENCES (S-RANK)


-  S1 (n=1)
  S2 (n=5)
  S3 (n=1)
  S4 (n=3)

- FWC WILDLIFE OBSERVED

- ENDANGERED (1)

- THREATENED (15)

- SPECIES OF SPECIAL CONCERN (32)**

- 
- WADING BIRD ROOKERY

- FWC INTEGRATED WILDLIFE
-
- HABITAT RANKING SYSTEM (2008)

- | | | |
|---------------------------------------|-----------------|-----------------------------|
| <input type="checkbox"/> 1 | Least important | <input type="checkbox"/> 6 |
| <input type="checkbox"/> 2 | | <input type="checkbox"/> 7 |
| <input type="checkbox"/> 3 | | <input type="checkbox"/> 8 |
| <input type="checkbox"/> 4 | | <input type="checkbox"/> 9 |
| <input checked="" type="checkbox"/> 5 | | <input type="checkbox"/> 10 |



1 INCH EQUALS 1,800 FEET

0 900 1,800 FEET



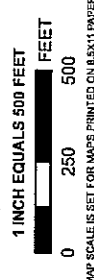
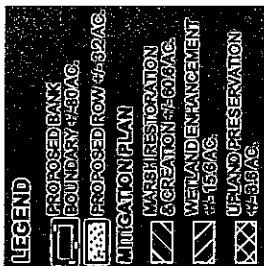
Governmental commitment to the environment is a key factor in the success of the environmental movement.

1403 NW 10th Street, Suite B
Beverly Hills, CA 90210

DATA SOURCES: DUVAL COUNTY, SJRWMD, USGS/NO, FL DOT, BRS, FWA, FDER, FFWCC, US CENSUS (TIGER 2008), FGDL, AND EC&D. DATA IS PROVIDED 'AS IS.' ACREAGES ARE APPROXIMATE & GIS DERIVED.



**FIGURE 12: PROPOSED
MITIGATION ACTIVITIES
2009 TRUE COLOR AERIAL
NORTH FLORIDA
SALTWATER MARSH
MITIGATION BANK
DUVAL COUNTY, FLORIDA**

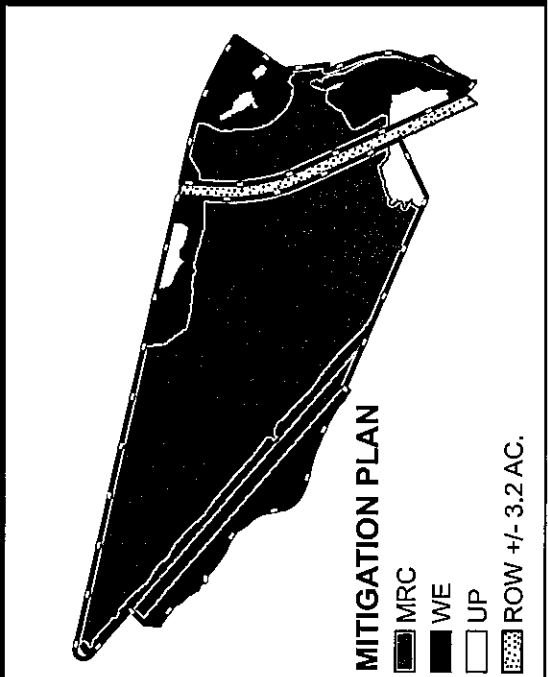


EC&D
Environmental Consulting & Design, Inc.
3601 NW 1st Street, Suite 8
Gainesville, FL 32606
P 352.333.6274
F 352.333.6274

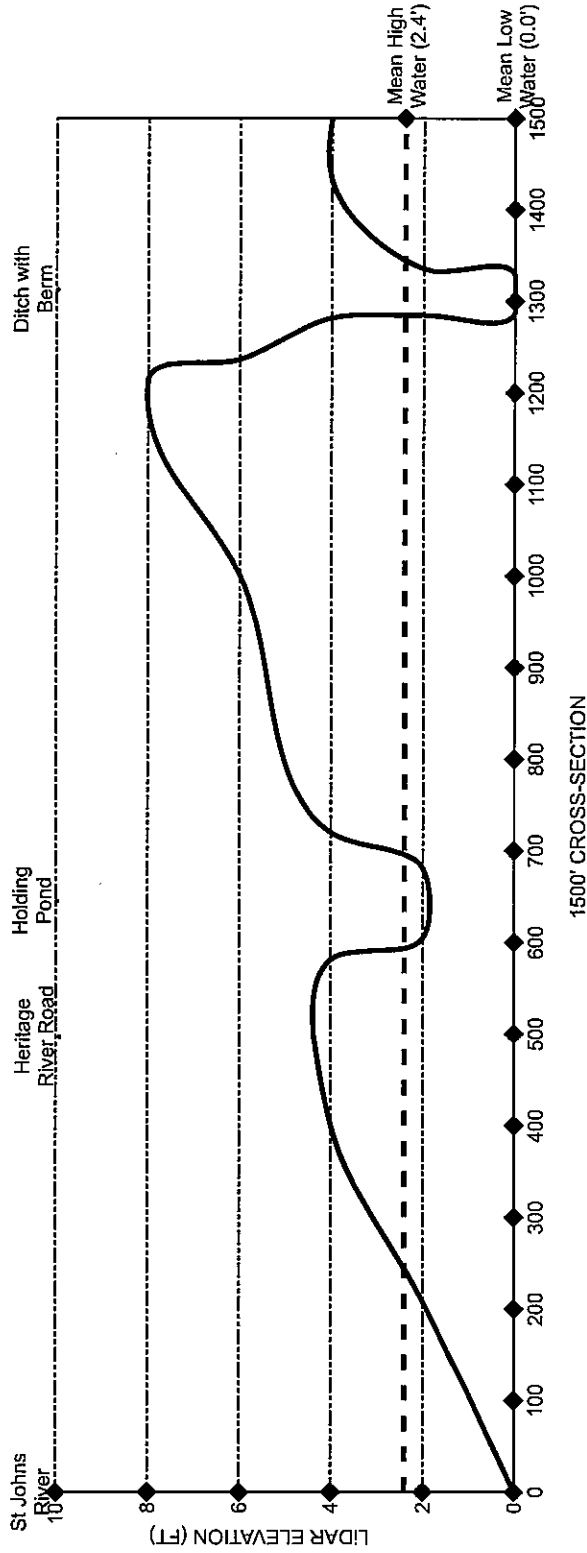
DATA SOURCES: DUVAL COUNTY, SRRWMD,
USGS NWI, FL DOT, BWS, FWA, FDEP,
US CENSUS (TIGER 2008), FGDL, AND EC&D.
DATA IS PROVIDED "AS IS." ACRES ARE
APPROXIMATE & GIS DERIVED.



105



A-A' EXISTING CONDITION



A-A' PROPOSED CONDITION

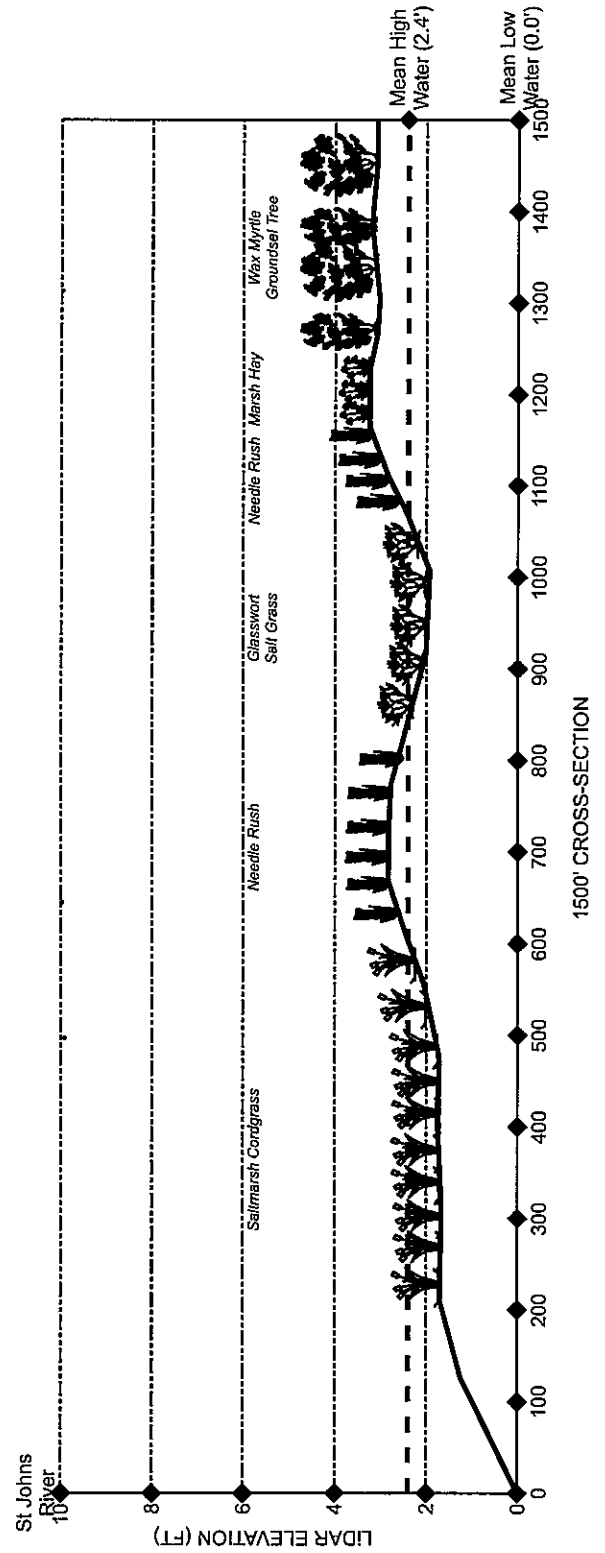
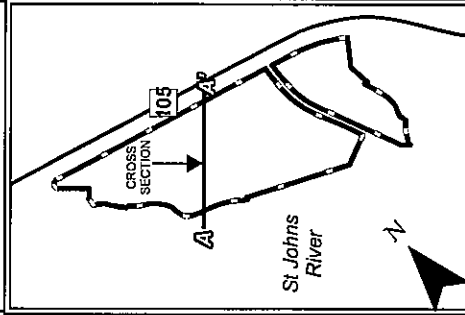


FIGURE 13:
CROSS-SECTION A-A'
NORTH FLORIDA
SALTWATER MARSH
MITIGATION BANK
DUVAL COUNTY, FLORIDA



2425 NW 10th Street, Suite 2
Gainesville, FL 32609
Phone: 352.371.0331
Fax: 352.333.0214
www.ecandd.com

DATA SOURCES: DUVAL COUNTY, SJRWMD,
USGS/NHD, FL DOT, BRS, FNAI, FDEP,
US CENSUS (TIGER 2000), FGD, AND EC&D.
DATA IS PROVIDED 'AS IS.' ACRESAGES
ARE APPROXIMATE & GIS DERIVED.

**FIGURE 14: PROPOSED
MITIGATION SERVICE AREA
NORTH FLORIDA
SALTWATER MARSH
MITIGATION BANK
DUVAL COUNTY, FLORIDA**

1 INCH EQUALS 8.0 MILES



MAP SCALE IS SET FOR MAPS PRINTED ON 8 1/2 X 11 PAPER

LEGEND

- PROPOSED BANK
BOUNDARY +/- 80 AC.
- INTERSTATES
- US HIGHWAYS
- RIVERS / LAKES
- SRWMD
- FLORIDA COUNTIES
- GEORGIA

MITIGATION BASINS (SJRWMD, 2008)

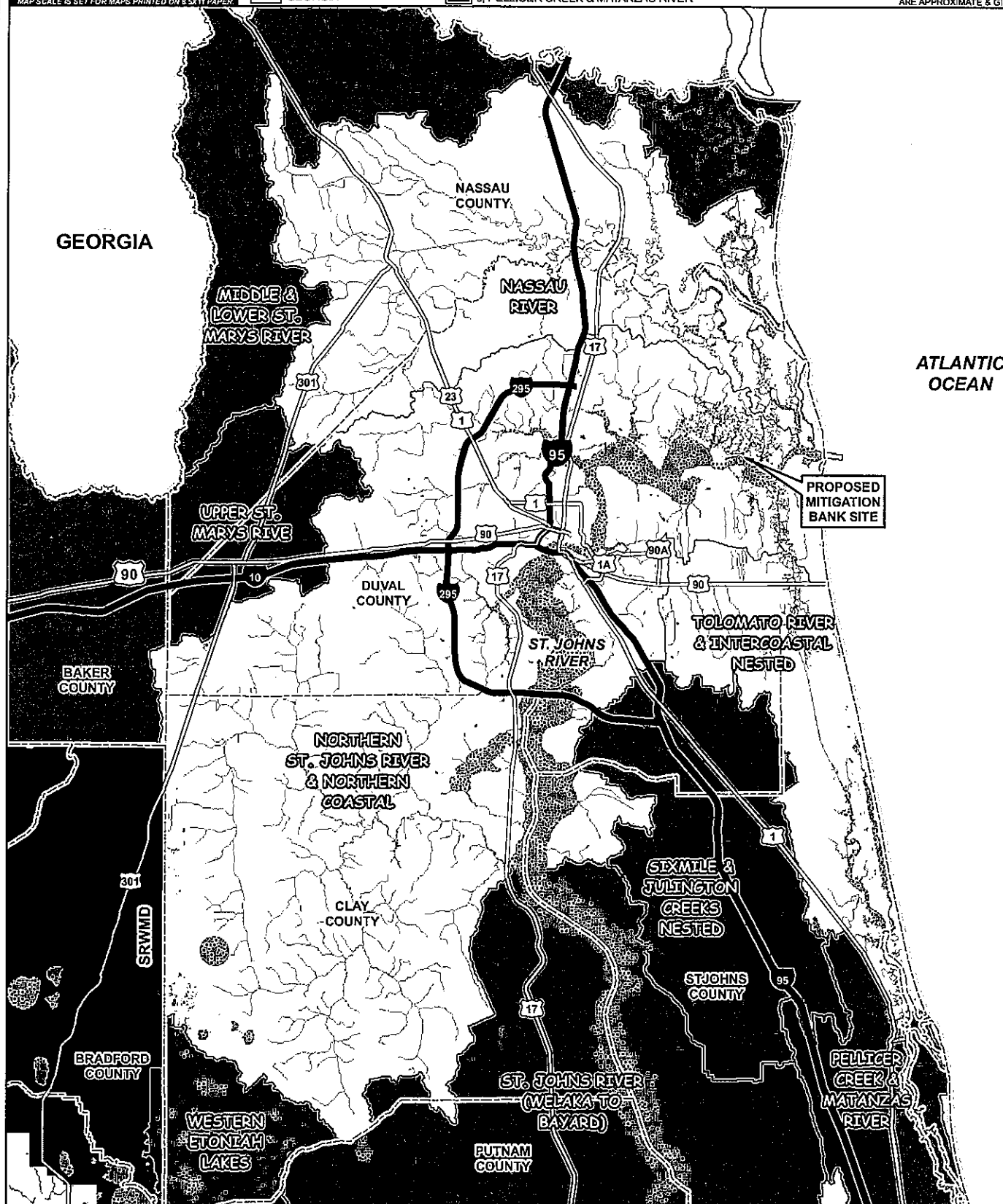
- 1, UPPER ST. MARYS RIVER
- 2, MIDDLE & LOWER ST. MARYS RIVER
- 3, NASSAU RIVER
- 4, NORTHERN ST. JOHNS RIVER & NORTHERN COASTAL
- 5, SIXMILE & JULINGTON CREEKS NESTED
- 6, TOLOMATO RIVER & INTRACOASTAL NESTED
- 7, WESTERN ETONIAH LAKES
- 8, ST. JOHNS RIVER (WELAKA TO BAYARD)
- 9, PELLICER CREEK & MATANZAS RIVER



3602 NW 10th Street, Suite 8
Gainesville, FL 32609

PH 352.477.4330
F 352.263.0734

DATA SOURCES: SJRWMD, DUVAL COUNTY,
USGS/NHD, FL DOT, BGS, FNAI, FDEP,
US CENSUS (TIGER 2008), FGDL, AND EC&D.
DATA IS PROVIDED 'AS IS.' ACRES
ARE APPROXIMATE & GIS DERIVED.



Attachment A
North Florida Saltwater Marsh
Mitigation Bank

Contact List

North Florida Saltwater Marsh Mitigation Bank Contacts

Bank Applicant

North Florida Saltwater Marsh Mitigation Bank, LLC
9428 Baymeadows Road, Suite 112
Jacksonville, FL 32256
Phone: (904) 737-9111
Fax: (904) 737-9777
Primary Contact: Thomas Beeckler
Email: thomas@beeckler.com

Applicant's Agent/Sponsor

Environmental Consulting & Design, Inc.
3603 NW 98th Street, Suite B
Gainesville, FL 32606
Phone: (352) 371-4333
Fax: (352) 333-0226
Primary Contact: Carl Salafrio
Email: csalafrio@ecdflorida.com

Land Owner

Riverfront Associates, LLC
9428 Baymeadows Road, Suite 112
Jacksonville, FL 32256
Phone: (904) 737-9111
Fax: (904) 737-9777
Primary Contact: Thomas Beeckler
Email: thomas@beeckler.com

Attachment B
North Florida Saltwater Marsh
Mitigation Bank

Draft Public Notice

Public Notice

Application No. #####
Notice No. #####

Date:
Closing Date:

1 TO ALL WHOM IT MAY CONCERN: The following mitigation bank prospectus has been submitted for an evaluation of its potential to provide compensatory mitigation for activities authorized by Department of the Army (DA) permits under the provisions of Section 404 of the Clean Water Act. This purpose of this notice is to inform you of the proposed prospectus and to solicit your comments and information to better enable us to make a reasonable decision on factors affecting the public interest. This notice is circulated in accordance with 33 CFR Part 332 Compensatory Mitigation for Losses of Aquatic Resources, effective date June 9, 2008.

2 SPONSOR: Environmental Consulting & Design, Inc.
c/o Carl Salafrio
3603 NW 98th Street, Suite B
Gainesville, Florida 32606

3 LOCATION: Southwest of Heckscher Drive, west of Sisters Creek, north of the St. Johns River, and east of Heritage River Road, in Duval County, Florida. W81° 28' 04.82" N30° 23' 45.36"

4 PURPOSE AND DESCRIPTION OF WORK: The sponsor has submitted a prospectus to the Jacksonville District Corps of Engineers and the other members of the Interagency Review Team (IRT) to develop and operate a wetland mitigation bank

Mitigation banks are defined as a site, or suite of sites, where resources (e.g., wetlands, streams, riparian areas) are restored, established, enhanced, and/or preserved for the purpose of providing compensatory mitigation for impacts authorized by DA permits pursuant to Section 10 of the Rivers and Harbors Act of 1899 and/or Section 404 of the Clean Water Act. In general, units of restored, established, enhanced, or preserved wetlands or streams are expressed as "credits" which may subsequently be withdrawn to offset "debits" incurred at a project development site. The Corps is responsible for authorizing the use of a particular mitigation bank on a project-specific basis and determining the number and availability of credits required to compensate for proposed impacts. Decisions rendered by the Corps will fully consider all comments submitted as part of the permit evaluation process.

The objective of the proposed mitigation bank is to institute an ecologically sound, well developed and feasible wetland and upland preservation and restoration plan that would generate credits to be used as compensatory mitigation for activities authorized by SJRWMD permits. The proposed wetland bank is located on 80 acres owned by Riverfront Associates, LLC and consists of 26.4 acres of wetlands and 53.6 acres of upland. Plans include the restoration and creation of 60.6 acres of marsh, enhancement of 15.6 acres of wetlands, and preservation of 3.6 acres of uplands. The prospectus and plans for the proposed bank are attached to this notice.

The proposed service area would include all portions of the Northern St. Johns River and Northern Coastal, Nassau River, and Tolomato River and Intercoastal Nested basins. This area includes portions of Duval, Clay, Nassau, and St. Johns Counties.

1 IMPACT ON NATURAL RESOURCES: The District Engineer has consulted the most recently available information and has determined that the project is not likely to affect the continued existence of any endangered species or threatened species, or result in the destruction or adverse modification of habitat of such species which has been determined to be critical. This Public Notice serves as a request to the U. S. Fish and Wildlife Service for any additional information they may have on whether any listed or proposed to be listed endangered or threatened species may be present in the area which would be affected by the activity, pursuant to Section 7(c) of the Endangered Species Act of 1972 (as amended).

2 IMPACT ON CULTURAL RESOURCES: The National Register of Historic Places has been consulted, and it has been determined that there are no properties currently listed on the register which would be directly affected by the proposed work. If we are made aware, as a result of comments received in response to this notice, or by other means, of specific archeological, scientific, prehistorical, or historical sites or structures which might be affected by the proposed work, the District Engineer will immediately take the appropriate action necessary pursuant to the National Historic Preservation Act of 1966 - Public Law 89-665 as amended (including Public Law 96-515).

3 PUBLIC INVOLVEMENT: Any person may request, in writing, within the comment period specified in the paragraph below entitled "RESPONSES," that a public hearing be held to consider this application. The requests for public hearing shall state, with particularity, the reasons for holding a public hearing.

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

The Corps of Engineers is soliciting comments from the public; Federal, state, and local agencies and officials; and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps of Engineers to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the overall public interest of the proposed activity. The evaluation of the impact of the activity on the public interest will include application of the guidelines promulgated by the Administrator, Environmental Protection Agency, under the authority of Section 404(b) of the Clean Water Act (40 CFR Part 230).

5 RESPONSES: A permit will be granted unless its issuance is found to be contrary to the public interest. Written statements concerning the proposed activity should be received in this office on or before the closing date of this Public Notice in order to become a part of the record and to be considered in the final determination. Any objections which are received during this period may be forwarded to the applicant for possible resolution before the determination is made whether to issue or

deny the requested permit. All responses to this notice should be directed to the Regulatory Branch, Attn: _____ at US Army Corps of Engineers, Jacksonville District, PO Box 4970, Jacksonville, Florida 32232; by telephoning (412) 395-7375, or by e-mail at _____ Please refer to ##### in all responses.

FOR THE DISTRICT ENGINEER:

/SIGNED/

Chief, Regulatory Branch

Attachment C
North Florida Saltwater Marsh
Mitigation Bank

Proposed Credit Release Schedule

Proposed Credit Release Schedule

	Percent of Total Credits Released
Completion of Initial Work (2012)	25%
Year 1 Annual Report (2013)	15%
Year 2 Annual Report (2014)	15%
Year 3 Annual Report (2015)	15%
Year 4 Annual Report (2016)	15%
Year 5 Annual Report (2017)	15%

Attachment D
North Florida Saltwater Marsh
Mitigation Bank

Photo Log



Along river on western property boundary facing southeast.



Along river on western property boundary facing northwest.



Example of tidal marsh near western property boundary.



Example of wetland vegetation within interior of property.



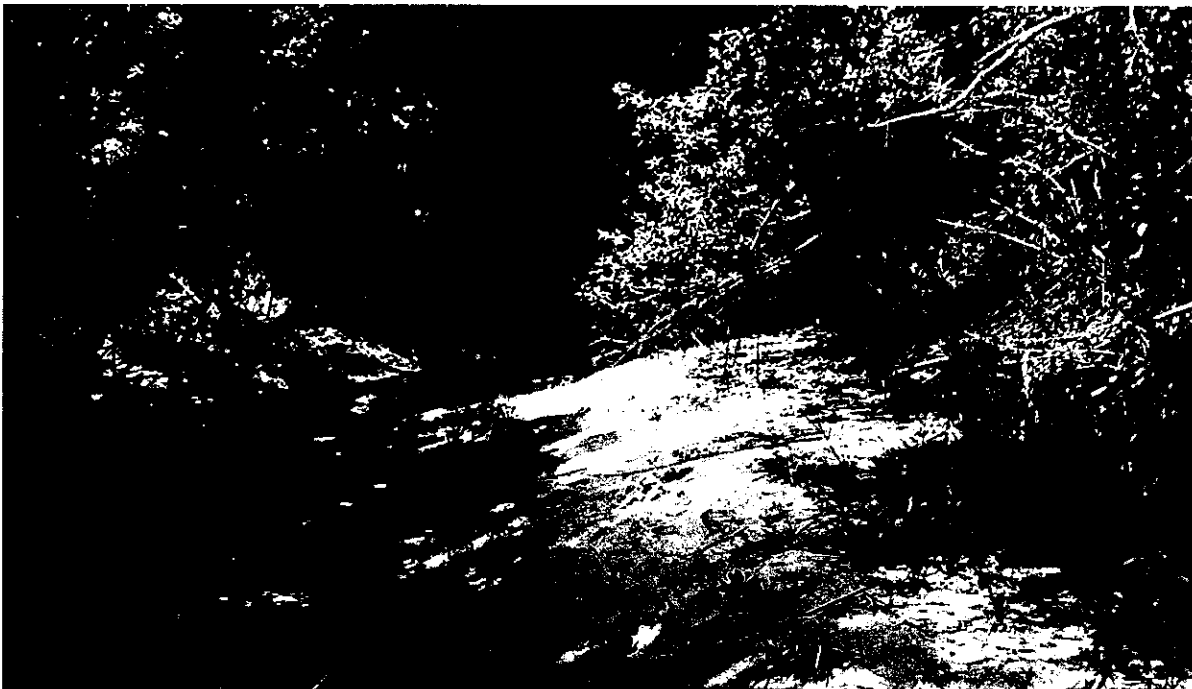
Example of tidal marsh along eastern property boundary.



Dried creek bed within interior of property.



Example of interior uplands.



Dried creek bed near eastern property boundary.