

BEAR POINT MITIGATION BANK LONG-TERM MANAGEMENT PLAN

1.00 INTRODUCTION

The Bear Point Mitigation Bank (BPMB) project site is located in Sections 12 and 13, Township 35S, Range 40E, St. Lucie County, Florida (Figure 1 of 2). The BPMB project site comprises approximately 317 acres and is bordered to the north, west, and south by the Indian River Lagoon (IRL), and to the east by vacant wetland properties and State Road A1A (SR-A1A). A residential community borders a portion of the bank site to the north. The site is located within St. Lucie County Mosquito Control District (SLCMCD) Impoundment #1, south of the Ft. Pierce Inlet (Figure 2 of 2).

R.L. Weigt Environmental Consultants, Inc. (RLW) has been retained by SLCMCD to prepare this long-term management plan for the existing on-site wetland preserve area and all associated BPMB infrastructure located on-site. The following addresses the current status of the wetland preserve area, the current status of associated on-site BPMB infrastructure, and the long-term management responsibilities required to sustain success criteria in perpetuity.

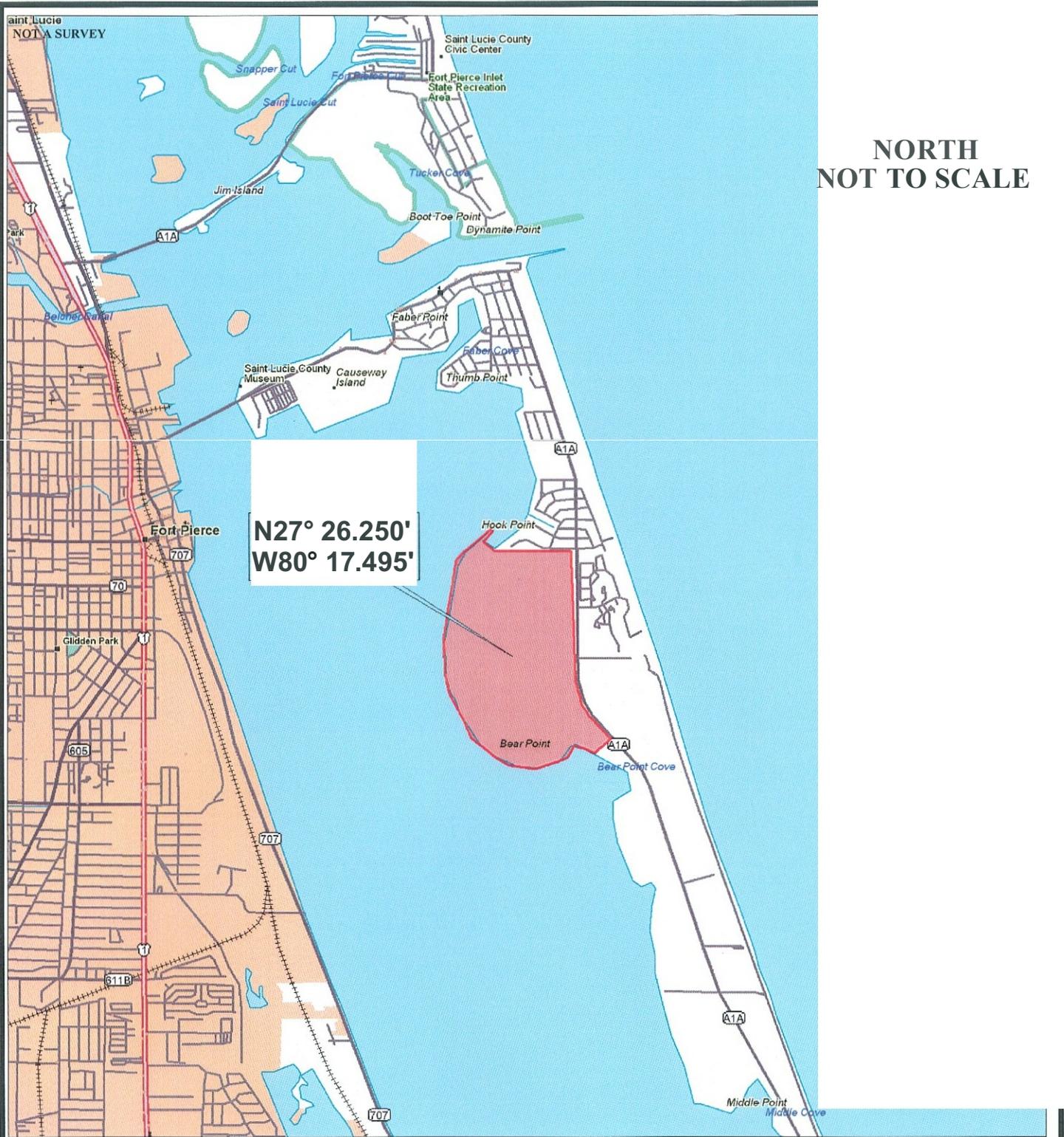
2.00 EXISTING CONDITIONS

2.01 Wetland Preserve Area

The BPMB currently provides viable and sustainable ecological and hydrological functions to the IRL. Invasive exotic vegetation listed as Category I by the Florida Exotic Pest Plant Council (FLEPPC) and nuisance vegetation exists at <1% coverage per acre. The minimal coverage of invasive exotic and nuisance species consist of only seedlings sprouted since the 4th Annual BPMB Monitoring Report. Exotic vegetation treatment areas previously

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**NORTH
NOT TO SCALE**



SOURCE: DELORME STREET ATLAS USA, DELUXE.

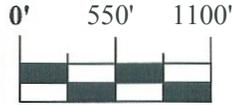
ST. LUCIE COUNTY	SEC.	TWP.	R.	RLW JOB NO.:	DRAWING NAME:	DATE:	FIGURE:
FLORIDA	12, 13	35S	40E	96-015.14	01 - LOCATION.DWG	2 SEPTEMBER 2008	1 OF 2
LATITUDE: N27° 26.250'		LONGITUDE: W080° 17.495'		DESIGNED BY: CCJ	DRAWN BY: CCJ	CHECKED BY: <i>MA</i>	

BEAR POINT MITIGATION BANK
LONG-TERM MANAGEMENT PLAN
LOCATION MAP

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NOTA SURVEY



SCALE: 1" = 1100'



SOURCE: CULVERT PLACEMENT PLAN BY HAZEN AND SAWYER, ENVIRONMENTAL ENGINEERS & SCIENTISTS, FEBRUARY 2003; MONITORING PLAN BY R.L. WEIGT, ENVIRONMENTAL CONSULTANTS, INC.; AND ST. LUCIE COUNTY MOSQUITO CONTROL DISTRICT.

ST. LUCIE COUNTY	FLORIDA	SEC. 12, 13	TWP. 35S	R. 40E	RLW JOB NO.: 96-015.14	DRAWING NAME: 02 - AERIAL.DWG	DATE: 2 SEPTEMBER 2008	FIGURE: 2 OF 2
LATITUDE: N27° 26.250'		LONGITUDE: W080° 17.495'			DESIGNED BY: CCJ	DRAWN BY: CCJ	CHECKED BY: <i>MAH</i>	

BEAR POINT MITIGATION BANK
 LONG-TERM MANAGEMENT PLAN
 2006 AERIAL PHOTOGRAPH

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infested with Brazilian pepper now consist of >80% coverage with native, wetland, and estuarine species, such as red mangroves. Natural recruitment of red, black, and white mangroves is continuously occurring throughout the mitigation bank.

Submergent aquatic vegetation (SAV), in the form of seagrasses, has not been negatively affected by the project. Interpretation of historic and current aerial photograph surveys depicts normal fluctuations in seagrass density and distribution. Monitoring of sample quadrats at the end of five end-of-culvert locations in the IRL documented healthy seagrass coverages and species diversity from September 2004 through June 2008. Manatee grass, shoal grass, and Johnson's grass dominate the monitoring quadrats.

For over two years, the BPMB has also continually demonstrated high wildlife utilization and species diversity. The BPMB is currently being used by over nineteen (19) different fish species, twenty-six (26) different wetland dependent bird species, and seven (7) different aquatic macroinvertebrates. Wildlife is well distributed throughout the northern and southern halves of the BRMB. Nuisance insects, such as mosquitos, are also being controlled well in the process of maintaining a healthy wetland preserve that is conducive to increased wildlife diversity.

Based on the abiotic water quality data for the last two years of monitoring, it is evident that water quality at BPMB has also remained well within permitted parameters. Temperature has not exceeded 32.91°C, which is well below the maximum allowable reading of 35°C. Salinity has been below the 40 ppt maximum and has reached a maximum reading of only 38.57 ppt. Additionally, pH has remained above 6.87 and has easily been sustained above the 6.0 minimum. Dissolved oxygen is required to be 2.0 ppm at a minimum and the hydrological results have never been lower than 2.04 ppm. Eh has also consistently remained above 0.20 mv and well above its 0.1 mv minimum, as required by the Florida Department of Environmental Protection (FDEP) permit. All biotic water quality parameters have maintained a non-reducing environment and remain supportive of a healthy, estuarine, mangrove community.

2.02 Associated On-Site Infrastructure

All associated infrastructure is installed and operational. The culverts and pumps have been fully functional for four (4) years and have operated in accordance with the permit. Water levels within the impoundment have been maintained at +1.8' NGVD (+/- 0.2') during the pumping season and have had at least one drawdown. The non-pumping season has maintained water levels within the impoundment perimeter that have differed from the IRL by no more than 0.2' under typical conditions.

Routine maintenance has not only maintained the permitted hydrological conditions on-site, but it has also prevented the need for any major intervention on-site. Within the two (2) years prior to success evaluation, no intervention in the form of major levee or culvert repair, erosion repair or eradication of undesirable vegetation other than permit-specified exotic vegetation control has been employed. Fencing and signage has been maintained to promote site security, and litter or waste is removed from the BPMB weekly.

3.00 LONG-TERM MANAGEMENT RESPONSIBILITIES

The BPMB has been determined to be fully successful according to FDEP Permit #0175246-001 and U.S. Army Corps of Engineers (COE) Permit #SAJ-1997-7812. All required semi-annual status reports and annual reports for the BPMB have been submitted to the satisfaction of the FDEP and COE. SLCMCD has fulfilled its monitoring obligations, as defined by the FDEP and agreed upon by the COE.

In order to sustain permit success criteria at the BPMB, the SLCMCD will continue the permit-specified operational regime, the permit-specified inspection protocol, and any maintenance and management activities that are deemed necessary. The following activities will be conducted within one month of any noted problems with security, construction integrity, operation or exotic vegetation:

- Repairs to levee, culverts, inspection walkways, water quality monitoring stations, etc;
- Adaptive management of gates to maximize water circulation and exchange;
- Maintaining site security (fencing and signage located on the levee at the northeast and southeast edges of the bank site), and inspecting and clearing any signs of litter or waste disposal; and
- eradication of any invasive exotic or nuisance vegetation observed.

Eradication of invasive exotic and nuisance vegetation will be conducted on the levee and within the impoundment. Woody exotic vegetation will be treated by basal bark application of an appropriate herbicide. Herbaceous exotics (primarily grasses located on the levee) will be controlled by appropriate herbicide application or hand pulling. Non-target species will be protected using best management practices (BMP's), such as spot treatment. Only approved herbicides will be applied under the direct supervision of a state-licensed professional herbicide applicator.

4.00 CONCLUSION

BPMB remains in compliance with all specified conditions of FDEP Permit #0175246-001 and COE Permit #SAJ-1997-7812. The existing on-site wetland preserve area provides viable and sustainable ecological and hydrological functions to the IRL. All pertinent biotic and abiotic conditions on-site are conducive to a healthy, estuarine, mangrove community. The associated on-site BPMB infrastructure, such as culverts and levees, has remained fully functional for four (4) years. Routine maintenance and adaptive management have maintained the permitted hydrological functions on-site. Within the two (2) years prior to success evaluation, no major intervention other than permit-specified exotic vegetation control has been employed on-site.

In order to sustain permit success criteria at the BPMB, the SLCMCD will continue the permit-specified operational regime, the permit specified inspection protocol, and any maintenance

and management activities that are deemed necessary. Management activities associated with on-site BPMB infrastructure will be conducted within one month of any noted problems. The BPMB FDEP Permit #0175246-001, COE Permit #SAJ-1997-7812, and Long-Term Management Plan will guide the successful operation of the mitigation bank in perpetuity.