

FLORIDA DEPARTMENT OF Environmental Protection

BOB MARTINEZ CENTER 2600 BLAIRSTONE ROAD TALLAHASSEE, FLORIDA 32399-2400 RICK SCOTT GOVERNOR

HERSCHEL T. VINYARD JR. SECRETARY

<mark>January 6, 2014</mark>

Mr. Jerome Ryan EarthMark Southwest Florida Mitigation, LLC c/o Jerome Ryan, Managing Member Post Office Box 621990 Oviedo, Florida 32762-1990

Dear Mr. Ryan:

RE: Corkscrew Regional Mitigation Bank ---Permit #0198035-001, Lee County ---Approval of Modification #0198035-023

Your request to modify this permit has been received and reviewed by Florida Department of Environmental Protection (Department) staff. This modification revises the target community types and success criteria for the Bank's restoration area based on a more detailed description of the Bank's site characteristics and historic natural communities typical of South Florida. This modification also eliminates phase boundaries and revises the construction plans. There is no change to the mitigation service area and there are no major changes to the construction schedule or the number mitigation credits assigned.

This major modification provides the opportunity to revise, clarify and update all permit documents to account for completed work, in addition to incorporating the current modifications described below. The attached modified permit, figures, and attachments will replace the original permit.

The original permit for the Corkscrew Regional Mitigation Bank (CRMB) was issued on June 4, 2004 and was later modified on February 10, 2006 and November 8, 2006. The ~632.5-acre CRMB project is designed to enhance water quality and wetland function by eliminating agricultural drainage and removing cattle, by grading and planting pasture areas to restore or create natural communities, by treating and managing exotic and nuisance vegetation on native lands, and by implementing a long-term management program, including prescribed fires. The project will enhance and restore a mosaic of freshwater marsh, wet prairie, hydric pine flatwoods, cypress and mixed wetland forests to be used as mitigation for future impacts to wetlands typical of these historic or disturbed systems within the service area. The bank was originally allocated 79.97 herbaceous and 271.4 forested freshwater credits, for a total of 351.37 potential credits. This modification allocates 80.08 herbaceous credits and 271.36 forested credits, for a total 351.44 potential credits.

It is the Department's intent to issue this permit modification pursuant to the requirements of Sections 373.4135 and 373.4136, F.S. and Rule 62-342, F.A.C. By copy of this letter and attached permit, we are notifying interested parties of the modification.

Corkscrew Regional Mitigation Bank Permit No. 0198035-001/023 Page 2

Under Chapters 373 and 403 of the Florida Statutes (F.S.) you (the applicant) are required to publish at your own expense the enclosed Notice of Proposed Agency Action. The notice must be published one time only within 30 days of the Department's issuance of the intended agency action. The notice must be published in the legal ad section of a newspaper (or newspapers) of general circulation meeting the requirements of section 50.031, F.S., in each county within the Mitigation Service Area. Where there is more than one newspaper of general circulation in these counties, the newspaper(s) used should be of significant circulation in the areas that may be affected by the permit. If you are uncertain that a newspaper meets these requirements, please contact the undersigned at the address or telephone number listed below.

The applicant must provide proof of publication to the Mining and Mitigation Section, Department of Environmental Protection 2600 Blair Stone Road, MS 3577, Tallahassee, Florida 32399-2400, within 30 days of the Department's issuance of the intended agency action, or within 21 days of the date of publication, whichever occurs sooner.

The Department's file on this matter is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at the Florida Department of Environmental Protection, Mining and Mitigation Program, 2600 Blair Stone Road, MS 3577, Tallahassee, Florida 32399-2400.

A person whose substantial interests are affected by the Department's action may petition for an administrative proceeding (hearing) in accordance with Section 120.57, Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Tallahassee, Florida 32399-3000. Petitions filed by the permittee and the parties listed below must be filed within 21 days of receipt of this letter. Petitioner shall mail a copy of the petition to the permittee at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Section 120.57, F.S.

The Petition shall contain the following information:

(a) The name, address, and telephone number of each petitioner, the permittee's name and address, the Department Permit File Number and the county in which the project is proposed;

(b) A statement of how and when each petitioner received notice of the Department's action or proposed action;

(c) A statement of how each petitioner's substantial interests are affected by the Department's action; or proposed action;

(d) A statement of the material facts disputed by petitioner, if any;

(e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action or proposed action;

(f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action or proposed action; and

Corkscrew Regional Mitigation Bank Permit No. 0198035-001/023 Page 3

(g) A statement of the relief sought by petitioner, stating precisely the action petitioner wants the Department to take with respect to the Department's action or proposed action.

If a petition is filed, the administrative hearing process is designed to formulate agency action. Accordingly, the Department's final action may be different from the position taken by it in this letter. Persons whose substantial interests will be affected by any decision of the Department with regard to the permit have the right to petition to become a party to the proceeding. The petition must conform to the requirements specified above and be filed (received) within 21 days of receipt of this notice in the Office of General Counsel at the above address of the Department. Failure to petition within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Section 120.57, F.S., and to participate as a party to this proceeding. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28-5.207, F.A.C.

This Notice constitutes final agency action unless a petition is filed in accordance with the above paragraphs or unless a request for extension of time in which to file a petition is filed within the time specified for filing a petition. Upon timely filing of a petition or a request for an extension of time this Notice will not be effective until further Order of the Department. Any party to this letter has the right to seek judicial review of the Order pursuant to Section 120.68, Florida Statutes, by the filing of a Notice of Appeal pursuant to Rule 9.110, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Office of General Counsel, 3900 Commonwealth Boulevard, Tallahassee, Florida 32399-3000; and by filing a copy with the appropriate District Court of Appeal. The Notice of Appeal must be filed within 30 days from the date the Notice of Permit Modification is filed with the Clerk of the Department.

Sincerely,

Calvin Alvarez, Program Administrator Mining and Mitigation Program 2600 Blair Stone Road, MS 3577 Tallahassee, FL 32399-2400

Attachments: Permit (with figures and attachments); Public Notice

Copies furnished to:

Andrew Woodruff – Passarella and Associates (Email) James B. Hodge – EarthMark (Email) Roxanne Clifton; Laura Layman; Marjorie Moore – SFWMD (Email) Teresa Frame; Deborah Wegmann – USACE (Email) Connie Cassler – USFWS (Email) Corkscrew Regional Mitigation Bank Permit No. 0198035-001/023 Page 4

Ron Miedema – USEPA (Email) James McLaughlin; Conservation Planning Services – FFWCC (Email) Gregory O'Connell; Vicki Tauxe – FDEP (Email) Mining and Mitigation Program File

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION NOTICE OF PERMIT MODIFICATION ISSUANCE

The Florida Department of Environmental Protection (Department) gives notice of its issuance of a major modification of the Corkscrew Regional Mitigation Bank (CRMB) Permit #0198035-001 (modification #0198035-023) to EarthMark Southwest Florida Mitigation, LLC, c/o Mr. Jerome Ryan, Post Office Box 621990, Oviedo, FL 32762. This modification eliminates phase boundaries and revises the construction plans, target community types, and success criteria. There is no change to the mitigation service area and are no major changes to the construction schedule, or the number mitigation credits assigned.

The activity is located in Lee County, approximately 9 miles east of I-75, directly north of Corkscrew Road in Section 20, Township 46 South, Range 27 East, Class III waters, and has a service area that includes portions of Lee, Hendry and Collier Counties. The location of CRMB is partially bordered by conservation properties that extend to the southwest, eventually connecting to Estero Bay.

The Department's file on this matter is available for public inspection during normal business hours at the Department's Mining and Mitigation Program, Bob Martinez Building, 2600 Blair Stone Road, MS 3577, Tallahassee, FL, 32399-2400. A copy of the modified permit can be requested by calling 850.413.7801 or emailing Matthew.S.Wilson@dep.state.fl.us.

A person whose substantial interests are affected by the changes to this permit may petition for an administrative proceeding (hearing) in accordance with Sections 120.569 and 120.57, Florida Statutes. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Tallahassee, Florida 32399-3000, within 21 days of publication of this notice. Petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. Failure to file a petition within this time period shall constitute a waiver of any right such person may have to request an administrative determination (hearing) under Sections 120.569 and 120.57, Florida Statutes.

The Petition shall contain the following information: (a) The name, address, and telephone number of each petitioner, the applicant's name and address, the Department Permit File Number and the county in which the project is located; (b) A statement of how and when each petitioner received notice of the Department's action; (c) A statement of how each petitioner's substantial interests are affected by the Department's action (changes to the conditions placed on this permit); (d) A statement of the material facts disputed by Petitioner, if any; (e) A statement of facts which petitioner contends warrant reversal or modification of the Department's action (changes to the conditions placed on this permit); (f) A statement of which rules or statutes petitioner contends require reversal or modification of the Department's action (changes to the conditions placed on this permit); and (g) A statement of the relief sought by petitioner, stating precisely the action petitioner wants the Department to take with respect to the Department's action.

Persons whose substantial interests will be affected by the changes to the permit have the right to petition to become a party to the proceeding. The petition must conform to the requirements specified above and be filed (received) within 21 days of publication of this notice in the Office of General Counsel at the above address of the Department. Failure to petition within the allowed time frame constitutes a waiver of any right such person has to request a hearing under Sections 120.569 and 120.57, F.S., and to participate as a party to this proceeding. Any subsequent intervention will only be at the approval of the presiding officer upon motion filed pursuant to Rule 28-5.207, F.A.C.

Mediation is not available.



FLORIDA DEPARTMENT OF Environmental Protection

BOB MARTINEZ CENTER 2600 BLAIRSTONE ROAD TALLAHASSEE, FLORIDA 32399-2400 RICK SCOTT GOVERNOR

HERSCHEL T. VINYARD JR. SECRETARY

MINING AND MITIGATION PROGRAM DEPARTMENT OF ENVIRONMENTAL PROTECTION STATE OF FLORIDA <u>MODIFIED PERMIT</u>

ENVIRONMENTAL RESOURCE/MITIGATION BANK PERMIT MODIFICATION

Permit No. 0198035-001 Original Issue Date: June 4, 2004 EarthMark Southwest Florida Mitigation, LLC C/o Mr. Jerome Ryan Post Office Box 621990 Oviedo, FL 32762-1990 Project: Corkscrew Regional Mitigation Bank Modification Number: 0198035-023 Modification Date: January 6, 2014 Expiration Date: Perpetual County: Lee

This permit is issued under the authority of Part IV of Chapter 373, Florida Statutes (F.S.), and Chapter 62-342, Florida Administrative Code (F.A.C.). The activity is not exempt from the requirement to obtain this mitigation bank/environmental resource permit. Pursuant to operating agreements executed between the Florida Department of Environmental Protection (Department) and the Water Management Districts, as referenced in Chapter 62-113, F.A.C., the Department is responsible for reviewing and taking final agency action on this activity.

This permit also constitutes certification of compliance with water quality standards under Section 401 of the Clean Water Act, 33 U.S.C. 1341, and a finding of consistency with Florida's Coastal Zone Management Program, as required by Section 307 of the Coastal Management Act.

A copy of this authorization also has been sent to the U.S. Army Corps of Engineers (USACOE) for review. The USACOE may require a separate permit. Failure to obtain this authorization prior to construction could subject you to enforcement action by that agency. You are hereby advised that authorizations also may be required by other federal, state, and local entities. This authorization does not relieve you from the requirements to obtain all other required permits and authorizations.

The above named permittee is hereby authorized to construct the work shown on the application and approved drawing(s), plans, and other documents attached hereto or on file with the Department and made a part hereof. This permit is subject to the limits, conditions, and locations of work shown in the attached drawings, and is also subject to the attached General Conditions and Specific Conditions, which are a binding part of this permit. You are advised to read and understand these drawings and conditions prior to commencing the authorized activities, and to ensure the work is conducted in conformance with all the terms, conditions, and drawings. If you are utilizing a contractor, the contractor also should read and understand these drawings and conditions prior to commencing the authorized activities. Failure

Permittee: Corkscrew Regional Mitigation Bank Permit Number: 0198035-001 (modification -023), Lee County Page 2 of 24

to comply with all drawings and conditions shall constitute grounds for revocation of the permit and appropriate enforcement action. Operation of the facility is not authorized except when determined to be in conformance with all applicable rules and with the general and specific conditions of this permit, as specifically described below.

PROJECT DESCRIPTION:

The Corkscrew Regional Mitigation Bank (CRMB) was established on 632.5± acres in Lee County, in accordance with Permit No. 0198035-001, originally issued June 4, 2004 and later modified on February 10, 2006 and November 8, 2006. The permittee is under contract with the South Florida Water Management District (SFWMD), who owns the property and will assume the long-term management. This major modification of the permit updates figures and specific conditions for clarity and to reflect changes in mitigation targets and permit conditions, principally based on additional topography and hydrology data. The project is designed to enhance water quality and wetland function by eliminating agricultural drainage and removing cattle, by grading and planting pasture areas to restore or create natural communities, by treating and managing exotic and nuisance vegetation on native lands, and by implementing a long-term management program, including prescribed fires. The project will enhance and restore a mosaic of freshwater marsh, wet prairie, hydric pine flatwoods, cypress and mixed wetland forests to be used as mitigation for future impacts to wetlands typical of these historic or disturbed systems within the service area. The bank was originally allocated 79.97 herbaceous and 271.4 forested freshwater credits, for a total of 351.37 potential credits. This modification allocates 80.08 herbaceous credits and 271.36 forested credits, for a total 351.44 potential credits.

PROJECT LOCATION:

The activity is located in Lee County, approximately 9 miles east of I-75, directly north of Corkscrew Road in Section 20, Township 46 South, Range 27 East, Class III waters (Figure 1), and has a service area that includes portions of Lee, Hendry and Collier Counties (Figure 2). The location of CRMB is partially bordered by conservation properties that extend to the southwest, eventually connecting to Estero Bay.

GENERAL CONDITIONS:

(1) The following general conditions are binding on all individual permits issued under this chapter, except where the conditions are not applicable to the authorized activity, or where the conditions must be modified to accommodate project-specific conditions.

(a) All activities shall be implemented following the plans, specifications and performance criteria approved by this permit. Any deviations must be authorized in a permit modification in accordance with Rule 62-330.315, F.A.C. Any deviations that are not so authorized may subject the permittee to enforcement action and revocation of the permit under Chapter 373, F.S.

(b) A complete copy of this permit shall be kept at the work site of the permitted activity during the construction phase, and shall be available for review at the work site upon request by the Agency staff. The permittee shall require the contractor to review the complete permit prior to beginning construction.

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(c) Activities shall be conducted in a manner that does not cause or contribute to violations of state water quality standards. Performance-based erosion and sediment control best management practices shall be installed immediately prior to, and be maintained during and after construction as needed, to prevent adverse impacts to the water resources and adjacent lands. Such practices shall be in accordance with the *State of Florida Erosion and Sediment Control Designer and Reviewer Manual (Florida Department of Environmental Protection and Florida Department of Transportation June 2007)*, and the *Florida Stormwater Erosion and Sedimentation Control Inspector's Manual (Florida Department of Environmental Protection, Nonpoint Source Management Section, Tallahassee, Florida, July 2008)*, which are both incorporated by reference in subparagraph 62-330.050(9)(b)5., F.A.C., unless a project-specific erosion and sediment control plan is approved or other water quality control measures are required as part of the permit.

(d) At least 48 hours prior to beginning the authorized activities, the permittee shall submit to the Agency a fully executed Form 62-330.350(1), "Construction Commencement Notice," [10-1-13], incorporated by reference herein (<u>http://www.flrules.org/Gateway/reference.asp?No=Ref-02505</u>), indicating the expected start and completion dates. A copy of this form may be obtained from the Agency, as described in subsection 62-330.010(5), F.A.C. If available, an Agency website that fulfills this notification requirement may be used in lieu of the form.

(e) Unless the permit is transferred under Rule 62-330.340, F.A.C., or transferred to an operating entity under Rule 62-330.310, F.A.C., the permittee is liable to comply with the plans, terms and conditions of the permit for the life of the project or activity.

(f) Within 30 days after completing construction of the entire project, or any independent portion of the project, the permittee shall provide the following to the Agency, as applicable:

1. For an individual, private single-family residential dwelling unit, duplex, triplex, or quadruplex – "Construction Completion and Inspection Certification for Activities Associated With a Private Single-Family Dwelling Unit" [Form 62-330.310(3)]; or

2. For all other activities – "As-Built Certification and Request for Conversion to Operational Phase" [Form 62-330.310(1)].

3. If available, an Agency website that fulfills this certification requirement may be used in lieu of the form.

(g) If the final operation and maintenance entity is a third party:

1. Prior to sales of any lot or unit served by the activity and within one year of permit issuance, or within 30 days of as- built certification, whichever comes first, the permittee shall submit, as applicable, a copy of the operation and maintenance documents (see sections 12.3 thru 12.3.3 of Volume I) as filed with the Department of State, Division of Corporations and a copy of any easement, plat, or deed restriction needed to operate or maintain the project, as recorded with the Clerk of the Court in the County in which the activity is located.

2. Within 30 days of submittal of the as-built certification, the permittee shall submit "Request for Transfer of Environmental Resource Permit to the Perpetual Operation Entity" [Form 62-330.310(2)] to transfer the permit to the operation and maintenance entity, along with the documentation requested in the form. If available, an Agency website that fulfills this transfer requirement may be used in lieu of the form.

(h) The permittee shall notify the Agency in writing of changes required by any other regulatory agency that require changes to the permitted activity, and any required modification of this permit must be obtained prior to implementing the changes.

(i) This permit does not:

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1. Convey to the permittee any property rights or privileges, or any other rights or privileges other than those specified herein or in Chapter 62-330, F.A.C.;

2. Convey to the permittee or create in the permittee any interest in real property;

3. Relieve the permittee from the need to obtain and comply with any other required federal, state, and local authorization, law, rule, or ordinance; or

4. Authorize any entrance upon or work on property that is not owned, held in easement, or controlled by the permittee.

(j) Prior to conducting any activities on state-owned submerged lands or other lands of the state, title to which is vested in the Board of Trustees of the Internal Improvement Trust Fund, the permittee must receive all necessary approvals and authorizations under Chapters 253 and 258, F.S. Written authorization that requires formal execution by the Board of Trustees of the Internal Improvement Trust Fund shall not be considered received until it has been fully executed.

(k) The permittee shall hold and save the Agency harmless from any and all damages, claims, or liabilities that may arise by reason of the construction, alteration, operation, maintenance, removal, abandonment or use of any project authorized by the permit.

(l) The permittee shall notify the Agency in writing:

1. Immediately if any previously submitted information is discovered to be inaccurate; and

2. Within 30 days of any conveyance or division of ownership or control of the property or the system, other than conveyance via a long-term lease, and the new owner shall request transfer of the permit in accordance with Rule 62-330.340, F.A.C. This does not apply to the sale of lots or units in residential or commercial subdivisions or condominiums where the stormwater management system has been completed and converted to the operation phase.

(m) Upon reasonable notice to the permittee, Agency staff with proper identification shall have permission to enter, inspect, sample and test the project or activities to ensure conformity with the plans and specifications authorized in the permit.

(n) If any prehistoric or historic artifacts, such as pottery or ceramics, stone tools or metal implements, dugout canoes, or any other physical remains that could be associated with Native American cultures, or early colonial or American settlement are encountered at any time within the project site area, work involving subsurface disturbance in the immediate vicinity of such discoveries shall cease. The permittee or other designee shall contact the Florida Department of State, Division of Historical Resources, Compliance and Review Section, at (850) 245-6333 or (800) 847-7278, as well as the appropriate permitting agency office. Such subsurface work shall not resume without verbal or written authorization from the Division of Historical Resources. If unmarked human remains are encountered, all work shall stop immediately and notification shall be provided in accordance with Section 872.05, F.S.

(o) Any delineation of the extent of a wetland or other surface water submitted as part of the permit application, including plans or other supporting documentation, shall not be considered binding unless a specific condition of this permit or a formal determination under Rule 62-330.201, F.A.C., provides otherwise.

(p) The permittee shall provide routine maintenance of all components of the stormwater management system to remove trapped sediments and debris. Removed materials shall be disposed of in a landfill or other uplands in a manner that does not require a permit under Chapter 62-330, F.A.C., or cause violations of state water quality standards.

(q) This permit is issued based on the applicant's submitted information that reasonably demonstrates that adverse water resource-related impacts will not be caused by the completed

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permit activity. If any adverse impacts result, the Agency will require the permittee to eliminate the cause, obtain any necessary permit modification, and take any necessary corrective actions to resolve the adverse impacts.

(r) A Recorded Notice of Environmental Resource Permit may be recorded in the county public records in accordance with subsection 62-330.090(7), F.A.C. Such notice is not an encumbrance upon the property.

(2) In addition to those general conditions in subsection (1) above, the Agency shall impose any additional project-specific special conditions necessary to assure the permitted activities will not be harmful to the water resources, as set forth in Rules 62-330.301 and 62-330.302, F.A.C., Volumes I and II, as applicable, and the rules incorporated by reference in this chapter.

SPECIFIC CONDITIONS: Please note that some specific conditions may further define or substitute for the General Conditions listed above. In addition, some Specific Conditions below have been updated in this modified permit to reflect the work that has already been accomplished since its original issuance on June 4, 2004. The Specific Condition numbers are the same as the original permit.

1. The permittee is hereby advised that Florida law states: "No person shall commence any excavation, construction, or other activity involving the use of sovereign or other lands of the state, title to which is vested in the Board of Trustees of the Internal Improvement Trust Fund or the Department of Environmental Protection under Chapter 253, until such person has received from the Board of Trustees of the Internal Improvement Trust Fund the required lease, license, easement, or other form of consent authorizing the proposed use." Pursuant to Florida Administrative Code Rule 18-14, if such work is done without consent, or if a person otherwise damages state land or products of state land, the Board of Trustees may levy administrative fines of up to \$10,000 per offense.

2. If historical or archaeological artifacts are discovered at any time within the project site the permittee shall immediately notify the district office and the Bureau of Historic Preservation, Division of Historical Resources.

Commencement requirements

3. Commencement notice was provided to the Department as required May 2006 (Phase 1), July 2006 (Phase 2), and January 2007 (Phase 3 and 4),

4. Unless otherwise specified, all reports and other information required for this permit shall be submitted to the Florida Department of Environmental Protection, Mining and Mitigation Program, MS 3577, 2600 Blair Stone Road, Tallahassee, Florida 32399-2400.

5. The following requirements were completed prior to construction and credit release and submitted to the Department as required.

a. A copy of the recorded clerk-of-the-court certified Conservation Easement was received by the Department as required in Specific Condition 8;

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b. A Qualified Mitigation Supervisor was retained as required in Specific Condition 7; and

c. Proof of financial responsibility was obtained as required in Specific Condition 9.

6. The mitigation bank permit and this major modification shall be perpetual unless revoked or modified.

7. <u>Project Oversight.</u> The permittee shall retain a qualified mitigation supervisor (QMS) to oversee all aspects of mitigation bank site implementation, management, monitoring, and corrective actions in this permit until final success criteria are met.

a. The QMS shall have the responsibility to ensure that the mitigation bank work is conducted in accordance with the permit.

b. The approved QMS is Andrew Woodruff of Passarella & Associates, Inc.

c. Within 30 days of the discharge of any approved QMS, the permittee shall submit the name and supporting documentation of a new QMS to the Department for its review and approval.

d. The permittee shall have the approved QMS review the conditions of this permit that pertain to environmental improvement to ascertain whether any criteria need to be modified or submitted as a minor modification.

e. The QMS is authorized to make minor changes to the configuration of the communities, water regulation and planting plans to adjust for on-site conditions without a formal permit modification, provided such modifications are consistent with and will enhance the bank's goals. Notice shall be given to the Department prior to or concurrent with the minor changes. The Department shall provide written approval or disapproval (may be e-mail) within 30 days of the notice. The permittee must remediate the alteration (including, as necessary, obtaining a permit modification) within 30 days if the changes are not authorized.

8. <u>Protection and Preservation.</u> The SFWMD property on which CRMB is implemented was preserved and protected in accordance with a conservation easement granted to the Board of Trustees to the Internal Improvement Trust Fund of the State of Florida on September 16, 2004 and recorded on Pages 2708-2711 of Book 04336, Lee County Records. The permittee provided title insurance, legal descriptions and surveys of the conservation easement, as required.

9. <u>Financial Assurance</u>. The permittee shall provide the Department with the financial responsibility mechanisms required by Rule 62-342.700 F.A.C. (September 12, 1995). The permittee shall secure financial assurance for implementation (construction activities, monitoring, maintenance, and reporting prior to success), and for long-term management activities as follows:

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- a. The permittee has established the financial assurance for the construction and implementation by Bond Safeguard Insurance Company surety bond numbers: 5033803, 5033804, and 5037164 as modified from time to time, payable into a Standby Trust Account, established March 3, 2008, and currently held by KeyBank National Association (Account No. T/A 20-10-252-1545760). The amount of Bond(s) 5033803, 5033804, and 5037164 is based on the estimated remaining costs for construction, monitoring and maintenance prior to success, and will be released following the determination that the bank has reached success criteria and the perpetual management trust is funded.
- b. The permittee has established the financial assurance for perpetual management by Bond Safeguard Insurance Company surety bond numbers: 5033809 and 5037165, as modified from time to time, payable into a Standby Trust Account, established March 3, 2008, and currently held by KeyBank National Association (Account No. T/A 20-10-252-1545760). The amount of financial assurance shall be adequate to provide interest (at an assumed 6% rate) equivalent to the annualized cost estimate for implementation of the management plan. Financial assurance for perpetual management that is not currently bonded has been funded in cash. The remaining bonds shall be released when the financial assurance for the corresponding bonds is funded in cash.
- c. All cost-estimates shall be reviewed and appropriate financial responsibility adjustments shall be conducted by the banker on a minimum of two-year intervals, in accordance with Rule 62-342.700 (11) F.A.C.
- d. The Department may draw upon the financial mechanisms required for the bank when the permittee has materially failed to comply with the terms and conditions of the permit and continues to be in noncompliance after thirty (30) days written notice has been provided to and received by the permittee.
- e. The interest earned from the principal deposited in the perpetual management Trust Account may be withdrawn for use by the permittee or Department-authorized operating entity for long-term management purposes once the mitigation bank has been assessed for final success criteria determination and any associated credit release. Disbursement shall be made by the trustee at the written direction of the Department in accordance with the trust agreement.
- f. A permittee must notify the Department by certified mail of the commencement of a voluntary or involuntary proceeding under Title 11 (Bankruptcy), U.S. Code, naming the permittee as debtor within 10 business days after the commencement of the proceeding.
- g. A permittee who fulfills the requirements of **sections 10.3.7 through 10.3.7.9**, by obtaining a letter of credit or performance bond will be deemed to be without the required financial assurance in the event of bankruptcy, insolvency or suspension or

revocation of the license or charter of the issuing institution. The permittee must reestablish in accordance with **sections 10.3.7 through 10.3.7.9**, a financial responsibility mechanism within 60 days after such event.

h. When transferring a permit, the new owner or person with legal control shall submit documentation to satisfy the financial responsibility requirements of sections 10.3.7 through 10.3.7.9. The prior owner or person with legal control of the project shall continue the financial responsibility mechanism until the Department has approved the permit transfer and substitute financial responsibility mechanism.

Mitigation Activities:

The goal of the mitigation activities, defined in Specific Conditions 10-13, 19, 22, and 23, is to establish a mosaic of native wetland and upland habitats in the existing pasture and enhance the native lands (Figure 3) resulting in the community configuration shown on Figure 4. The mitigation activities were implemented in four phases, and each phase consisted of one or more "cells" shown on Exhibit 6-A. Since construction has been completed in all phases and bonding requirements are in place, credit release associated with mitigation activities is no longer being assessed by phase.

10. <u>Construction</u>. The engineering details for the construction elements of the project are presented in the attached TKW Consulting Engineers, Inc. drawings (Exhibit 6). Construction at the site has been completed in accordance with the June 4, 2004, February 10, 2006, and November 8, 2006 permit conditions (or as hereby modified) as follows:

- a. Removed all cattle and erected a secure fence around the perimeter of the Bank.
- b. Installed two permanent adjustable outfalls structures at the south side of the project site, specifically in the southwestern corner (Control Structure No. 1) and the middle of the site (Control Structure No. 3), in accordance with Figure 5 and Exhibits 6-A and 6-D1/D2, to regulate hydroperiod fluctuations. Control elevation of the weirs have been temporarily set at approximately 28.3 ft. NGVD. A similar outfall structure (Water Control Structure No. 2) was to be constructed in the southeastern corner of the site in accordance with Exhibits 6-A and 6-D1/D2. Based on observed water levels, the requirement for construction of an outfall structure in the southeast corner of the site is not warranted and is no longer a construction requirement. Prior to the determination of final success, the control elevation of the two constructed outfall structures shall be fixed and the weir hardened with concrete to minimize maintenance.
- c. Construction has been completed in all phases and all temporary water control structures have been removed and restored. A permanent berm has been installed and planted along the southern perimeter of the project site.

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- d. Cells 5-8, depicted on Exhibit 6-A, were cross-disked or graded, during implementation of the respective phases, to the elevations shown in Exhibits 6-B and 6-C1/C2/C3, to eliminate both drainage swales and pasture grasses. The contours were designed to provide the proper elevation for the proposed communities. Cut material was used for onsite construction of berms and upland areas. The overall cut and fill plan is shown in Exhibit 6-G. Within the designed contour elevations, slight variations (0.1 0.2 feet) were incorporated to add topographic diversity. Proposed elevations are designed to meet hydrological targets in Specific Condition 23 for the proposed communities, assuming a wet season water elevation of approximately 28.3 feet NGVD (southern area) to 28.6 feet NGVD (northern area).
- e. Cells 1 and 2 in Phases I and IV, respectively, have been graded to the profiles shown in Exhibit 6-C1 to remove exotic vegetation and create an upland buffer adjacent to Corkscrew Road.
- f. As-built certifications, prepared by the Engineer of Record licensed in the State of Florida consistent with General Condition 6, have been submitted to document the achievement of grade and completion of any associated temporary or permanent water management structures. Written statements have been received from the QMS summarizing the construction activities and testifying that, within his/her supervision, those activities were conducted in accordance with permit drawings and conditions or indicating why, when, and where any construction plans were altered.
- g. The permittee constructed a temporary barn for maintenance equipment on uplands in the east central portion of the site in accordance with Figure 5. Unless determined by the Department to better long-term management and research goals, the barn shall be removed and the area planted with native, appropriate upland vegetation prior to the final Level 3 success determination.

11. <u>Planting</u>. Initial planting and seeding requirements of restoration areas has been completed. Supplemental planting of trees has been conducted to offset low survivorship. The QMS is responsible for determining the area to be planted and the plant materials to be used in order to optimize success and minimize exotic infestation. Re-vegetation activities shall be described in progress reports.

To expedite achievement of target communities, restored hydric pine flatwoods, restored cypress, and restored wet prairies will be inoculated with fine fuel perennial grass species including wiregrass (*Aristida* sp.), little blue maidencane (*Amphicarpum muhlenbergianum*), gulfdune paspalum (*Paspalum monostachyum*), and gulfdune muhly grass (*Muhlenbergia capillaris*) (Attachment A). The ground cover planting and/or reseeding shall be conducted within six months of this permit modification approval, unless another date is approved in writing by the Department. Supplemental planting/reseeding will occur in areas that exhibit high levels of nuisance or inappropriate species and remain below success level targets established in Specific Condition 23.

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Efforts to restore ground cover vegetation will continue to be reported in the monitoring reports. The ground cover planting shall be conducted at a season that optimizes the plants growth and survival.

12. Exotic and nuisance vegetation control. Initial removal of invasive exotic vegetation has been completed in accordance with original and previously modified permit conditions. Invasive exotic and nuisance vegetation, including but not limited to Brazilian pepper (*Schinus terebinthifolius*), melaleuca (*Melaleuca quinquenervia*), torpedo grass (*Panicum repens*), West Indian marsh grass (*Hymenachne amplexicaulis*), bahia grass (*Paspalum notatum*), cattail (*Typha spp.*), and primrose willow (*Ludwigia peruviana*), shall be controlled by appropriate measures including herbicide application and/or physical removal. Within the native areas, woody exotic vegetation will be treated by the cut stump method with application of appropriate herbicide. Herbaceous exotic/nuisance species will be controlled by physical removal (farm field grading, hand pulling) or treated by the application of appropriate approved herbicide. Non-target species shall be protected using best management practices. Exotic and nuisance species control will be conducted under the direction of the QMS and the direct supervision of a state-licensed professional herbicide applicator. Methods for treatment of exotic/nuisance species will be identified in progress reports.

13. Fire Management Plan: Prescribed fire shall be implemented to attain the proposed enhancement and as a long-term management tool to sustain the proposed communities and function. A successful burn was implemented in Cells 3 and 4 (shown on Attachment 6-A) within 2 years after the initial exotic vegetation treatment, and prior to release of credits associated with that burn. A second successful burn was conducted in Cells 3 and 4 in November and December 2011. Additionally, prescribed fire test plots were implemented December 2011 and August 2012 in restored farm fields. The site has been divided into five burn units, which shall be burned in accordance with the approved fire management plan in Attachment B. A conceptual fire prescription is included in the fire management plan; however, each prescribed burn activity will be developed and supervised by a certified burn specialist. A successful prescribed fire shall be implemented in at least 50 percent of restored farm fields prior to a final success determination for the bank. Following each prescribed burn activity conducted at the bank, the permittee shall submit documentation, signed by the QMS and certified burn specialist, that a burn was conducted, and provide a summary of the unit(s) and acres treated with assessment of burn success, including photographs. For the purposes of this permit, a successful burn shall mean the fire shall carry over a minimum of 70% of each targeted community within the burned area.

14. <u>Site Security:</u> Access to the site shall be restricted by a series of locked gates at all access points and fencing around the entire property perimeter with signs that say "South Florida Water Management District - No Trespassing – Environmentally Sensitive Lands". Maintenance and inspection of security issues shall be conducted pursuant to Special Condition 25.

15. Work schedule:

The following timetable provides a sequence of activities with both completion dates and approximate anticipated completion dates; however, the dates are relative estimates to be used as

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guidelines. Determination of success is based on Specific Condition 22, not the anticipated date in the following table.

Activity	Completion Date
Record Conservation Easement	July 2004
Financial Assurance Documentation	December 2013
Exotic Removal	December 2006
Construction/Planting of Restored Farm Fields	January 2012
Properties And Pure in Native Areas	December 2005 and
Prescribed Burn in Native Areas	December 2011
Level 1 Success	October 2012
Level 2 Success	Anticipated 2014
Level 3 Success	Anticipated 2014/2015
Bankwide Success	Anticipated 2015

Banking Operations

16. As specified in Rule 62-342.470(6) F.A.C., if at any time the bank is not in material compliance with the terms of this permit, no mitigation credits may be released or withdrawn. Mitigation credits shall again be available if the permittee comes back into compliance.

17. <u>Assessment of Credits</u>: As a result of mitigation activities, the Corkscrew Regional Mitigation Bank has the potential to provide for a total of 271.36 forested freshwater mitigation credits and 80.08 herbaceous freshwater mitigation credits following final bank wide success.

Credits were assessed using the Uniform Mitigation Assessment Method (UMAM), Chapter 62-345, F.A.C., and therefore include the assessment of time-lag and risk. An explanation of the credit assessment is included in Attachment C. These credits will be released incrementally, as detailed in Specific Condition 19.

18. <u>Ledger:</u> In order to track credit releases and withdrawals, a ledger shall be kept indicating all potential, released, withdrawn and available credits. The current ledger, indicating potential credits, is attached as Attachment D.

19. <u>Credit Release Schedule:</u> The release of credits will be tied to the completion of specified restoration activities and the attainment of the three levels of success as described in Specific Condition 23. The releases are based on the potential credits for the activities listed below, with the schedules being slightly different for natural habitat enhancement *vs.* farm field restoration, as shown in the following tables. All credits associated with the creation of wetlands from existing uplands shall be retained until that community type attains Success Level 3.

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Limancement	
% Credit Release	Activity
15	Conservation Easement and Financial Assurance
35	Initial exotic vegetation treatment
10	Implementation of successful prescribed burn
15	Attain Success Level 1
15	Attain Success Level 2
5	Attain Success Level 3
5	Attain Success Level 3 bank wide
100%	Total Credit Release

Enhancement

Restoration and Creation

% Credit Release	Activity
15	Conservation Easement and Financial Assurance
35	Grade and plant farm field and install berms and weirs, Time Zero report
15	Attain Success Level 1
15	Attain Success Level 2
15*	Attain Success Level 3
5	Attain Success Level 3 bank-wide
100%	Total Credit Release

* 15% plus creation retainage credits for creation of wetlands from uplands

This credit release schedule was considered during the credit assessment, including time-lag and risk. The following table represents a summary of the credit assessment and release by activity type. All credits are either enhanced or restoration/creation and allocated and released as "freshwater herbaceous," which includes enhanced and created marsh and enhanced, restored, and created wet prairie; and as "freshwater forested," which includes enhanced and restored hydric pine flatwoods enhanced cypress, restored cypress, and restored mixed hardwood wetlands. *Modified table follows:*

Activity	Specific Condition	Community Type	Total Credits Released	Forested Credits Released	Herbaceous Credits Released	Enhanced Forest Credits Remaining	Enhanced Herb Credits Remaining	Restored/Created Forest Credits Remaining	Restored/Created Herb Credits Remaining
Conservation									
and Financial									
Assurance	5,8&9	n/a	52.71	40.72	11.99				
Initial Exotic Removal	12	n/a	27.73	24.64	3.09				
Complete									
Time Zero	10 & 11	n/a	81.08	62.79	18.29				
Initial Prescribed									
Burn	13	n/a	7.92	7.04	0.88				
Success Level 1	23	n/a	46.63	37.47	9.16				
Success	22	E-HP				9.99			
Level 2	23	E-C				5.61			

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		E-WP				1.22		
		E-M				0.56		
		R-HP					23.04	
		R-C/MWH					0.85	
		R-WP						7.53
		E-HP			3.33			
		E-C			1.87			
~		E-WP				0.41		
Success Level 3	23	E-M				0.19		
		R-HP					23.04	
		R-C/MWH					0.85	
		R-WP						7.53
		C-HP					15.98	
Creation Retainage*	19	C-WP						0.58
		C-M						14.54
		E-HP			3.33			
		E-C			1.87			
Bank-wide		E-WP				0.41		
Success	22	E-M				0.19		
Level 3**		R-HP					7.68**	
		R-C/MWH					0.28	
		R-WP						2.51
		C-HP					1.00	
		C-WP						0.04
		C-M						0.91
Total Credits Released		172.66	43.41					
Total	Total Credits Remaining				25.99	2.97	72.71	33.63
С	redit Subtota	ıl	216.07				135.30	
Cre	dit Grand To	otal	351.4					

*Credits associated with creation activities, except for conservation easement and financial assurances, are released with achievement of Success Level 3

**Final credits associated with hydric pine to be evaluated based on final mapped configuration of this habitat type and demonstration of compliance with Specific Condition 22a.

Whenever a credit release activity has been successfully completed in accordance with the appropriate Specific Conditions, the permittee shall submit a minor modification request (with fee), along with supporting documentation, for the release of the appropriate number of credits. This request shall be made in writing to the Mining and Mitigation Program. The Department shall review the documentation, conduct a site visit to determine if the documentation is representative of on-site conditions, and perform a compliance review of the permit, prior to the issuance or denial of the minor modification to release credits. An updated ledger indicating the additional available credits shall be attached to the minor modification.

20. <u>Mitigation Credit Withdrawal:</u> Withdrawal of the mitigation bank credits as mitigation for wetland impacts shall be accomplished though a minor modification of this permit. Modification

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requests for credit withdrawal shall not require a modification fee. Modification requests shall be made in writing to the Mining and Mitigation Program in Tallahassee. Minor modification requests shall only be submitted by the bank permittee. The modification request shall include:

- a. a complete list of all Department or Water Management District permits (or other applicable regulatory actions) that require mitigation credits from the CRMB,
- b. the permit number, issue date and environmental permit processor/reviewer,
- c. an identification of the number and type of wetland credits required under each of these permits.

Minor modification approvals for credit withdrawal shall be issued only to the bank permittee. An updated mitigation bank credit ledger sheet shall be included by the Department as an attachment to each minor modification approval for credit withdrawal.

21. <u>Mitigation Service Area:</u> The mitigation service area (MSA) is the geographic area within which adverse impacts may be offset by the bank. The MSA for the Corkscrew Regional Mitigation Bank is depicted on Figure 2 and is generally described as lands west of SR 29, south of SR 80 and CR 867, and north and east of the landward edge of the Gulf of Mexico and Estero Bay. The MSA includes lands within Lee, Hendry, and Collier Counties.

As noted on Figure 2, the Bank will not be used as mitigation for marine, estuarine, barrier island, or coastal island habitat impacts or for impacts to riverine habitats associated with the Caloosahatchee River where they may occur within the MSA described above.

Success Criteria

22. <u>Final Success</u>: The bank shall enhance, restore or create the following communities: hydric and upland pine flatwoods, marsh and wet prairie, cypress, cypress heads, and mixed wetland hardwoods. The Bank shall be deemed successful when all of the following criteria have been met.

- a. Acreage: The communities listed above shall be enhanced or restored in the approximate configuration and acreage shown in Figure 5, with at least 521 acres determined to be wetlands or other surface waters pursuant to Chapter 62-340, F.A.C., based on as-built drawings, QMS certification and Department concurrence.
- b. **Bank Wide:** All communities have achieved 3rd level success for vegetation, wildlife utilization, and hydrology parameters, as identified in Specific Condition 23.
- c. Exotic and Nuisance Vegetation: The bank shall maintain less than 2% cover per acre with exotic vegetation (as listed in the FEPPC's 2003 Category 1) and less than 5% cover per acre with nuisance vegetation (including, but not limited to *Typha* spp., *Ludwigia peruviana, Eupatorium capillifolium,* and *Ambrosia* spp.). Additionally, *Myrica cerifera, Baccharis halimifolia,* and *Salix caroliniana* within the hydric pine

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flatwoods and herbaceous communities shall be less than 25% combined cover per acre.

- d. **Prescribed Burn:** At least one successful prescribed burn as described in Specific Condition 13 and Attachment B has been implemented within the native lands and within at least 50 percent of the farm field restoration.
- e. **Hydrology and Construction:** As-built documentation has been submitted for structures and graded areas in accordance with Specific Condition 10.f. and hydrological targets have been met in accordance with Specific Condition 23.
- f. **Compliance**: The structures in the bank have operated as designed, and the permittee has conducted all monitoring, inspection and maintenance activities required and submitted all required reports to the satisfaction of the Department.
- g. UMAM Assessment: Using the monitoring data and reports and in conjunction with the permittee, the Department shall inspect the site and conduct a UMAM analysis of each predominant community type in each phase. The overall UMAM score derived from this assessment shall indicate that each phase has attained or is clearly trending toward the "with bank" scores, as shown in Attachment C, that were used to determine the potential credits for the bank.

23. <u>Interim Release Criteria:</u> Progressive environmental enhancement or trending towards success provides environmental lift for which credits may be released incrementally prior to achieving all of the final success criteria. Therefore, a set of interim success criteria have been identified to document functional enhancement. The percentage of available credits and success criteria are split by community type between enhancement areas and restoration/creation areas, as outlined in Specific Condition 19. Remaining credits will be released according to enhanced and restored community type. The enhanced community types are Enhanced Uplands and Hydric Pine Flatwoods, Enhanced Cypress, Enhanced Wet Prairie, and Enhanced Marsh. The restored/created community types are Restored Uplands and Hydric Pine Flatwoods, Restored Cypress, Restored Mixed Wetland Hardwoods, Restored Wet Prairie, and Created Marsh.

Enhanced and Restored Upland and Hydric Pine Flatwoods Success Criteria Canopy/Shrub (Vegetation ≥ 1" DBH)

Ecological Parameter	Level 1	Level 2	Level 3
Minimum average trees per acre		200	150 ¹
Minimum average tree height		4.5	6
Maximum % cover by hardwood trees and woody shrubs			30 ²
Minimum % of trees greater than 10 feet in height			20
Planted trees show evidence of annual growth in height and/or base	Nos	Nos	NOG
diameter, and/or canopy circumference	yes	yes	yes
No exotic (EPPC 2003 List Category 1) trees or shrubs present	yes	yes	yes
Evidence of trees or shrubs producing seed			yes

^{1.} For Level 3 success, overall densities of pine trees within the planted hydric pine flatwoods shall approximate that of the native areas, and the Banker shall reduce the density, as necessary and in consultation with the IRT, to achieve this goal.

^{2.} Areas where hardwood trees or woody shrubs exceed 1.5 meters in height and have a collective canopy coverage of over 50% shall be limited to random spots of <1 acre and shall represent an insignificant feature in this community type.

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Ground Cover

Ecological Parameter	Level 1	Level 2	Level 3
Minimum % cover by native herbaceous species listed as OBL, FACW, or FAC ³	30	50	70
Maximum % cover by nuisance/inappropriate species ⁴	10	10	5
Maximum % cover by exotic (EPPC 2003 List Category 1) species immediately following maintenance activities	5	2	<15
Minimum # species of native plants within sampling plots ⁶	10	20	30
Evidence of natural reproduction of ground cover species		yes	yes

3. Upland assessment areas may also include UP species. Pursuant to 62-340, F.A.C., Aristida stricta is a FAC species.

4. Upland ragweeds and facultative dogfennel are early succession species to be managed; however, they will not count toward native cover or nuisance species cover for Success Level 1 or 2, provided that annual monitoring data and observation demonstrate a significant decrease in the actual cover of these species annually.

5. Level 3 requires no more than 2% per acre cover by exotic species immediately prior to final maintenance event.

6. Does not apply to Upland Assessment Areas. The native species appropriate for ground cover must be from approved species list (Attachment E, Table E-1 or appropriate for the community based on reference literature. Supplemental planting described in this modification to increase species diversity is required to be implemented prior to Level 3 release.

Wildlife Utilization*

Ecological Parameter	Level 1	Level 2	Level 3
Qualitative evidence of wildlife utilization	yes	yes	yes
Qualitative evidence of wildlife utilization, including use by native		Nos	NOG
wetland dependent bird and mammal species		yes	yes
Evidence of wetland dependent amphibian/reptile species (or no fewer		yes	6 species in 3
than 1 species less than occurring at reference wetland ⁷)			groups ⁸
Evidence of wetland dependent bird species (or no fewer than 2 species		NOS	10 species in
less than occurring at reference wetland ⁷)		yes	3 groups ⁹
Evidence of wetland dependent mammal species (or no fewer than 1		Nos	4 species with
species less than occurring at reference wetland ⁷)		yes	1 predator

* Upland Assessment Areas are presumed to have appropriate wildlife usage if hydric pine flatwoods meet wildlife utilization criteria.

7. Reference wetlands may be used at Level 3 only.

8. Amphibian/reptile functional groups include alligators, turtles, snakes, salamanders, tree frogs, and deep water frogs.

9. Bird functional groups include wading birds, shore birds, raptors, perching birds, anhinga/cormorants, and waterfowl.

Hydrology (not required for Upland Communities)

Ecological Parameter	Level 1	Level 2	Level 3
Minimum days of soil saturation (water levels within 6 in of surface) /or continuous inundation during a typical rainfall year ¹⁰		75/30	75/30
Plants appear healthy with no stress resulting from an improper hydroperiod	yes	yes	yes

10. Target hydroperiod criteria are based on typical annual rainfall. Should the Bank not receive typical rainfall for the second level of success determination, the Banker and DEP shall use an alternate mutually acceptable hydrologic criteria to determine success; however, for third level of success, the Bank shall demonstrate at least 2 years of success with typical rainfall.

Restored Cypress /Mixed Wetland Hardwoods Success Criteria Canopy/Shrub (Vegetation ≥ 1" DBH)

Ecological Parameter	Level 1	Level 2	Level 3
Minimum average appropriate trees per acre		200	150
Minimum average tree height	3	4.5	6

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Minimum % of trees greater than 10 feet in height			20
Planted trees show evidence of annual growth in height and/or base			
diameter, and/or canopy circumference	yes	yes	yes
No exotic (EPPC 2003 List Category 1) trees or shrubs present	yes	yes	yes
Evidence of trees or shrubs producing seed			yes

Ground Cover

Ecological Parameter	Level 1	Level 2	Level 3
Minimum % cover by native species listed as OBL, FACW, or FAC	25	50	75 ¹
Maximum % cover by nuisance/inappropriate species ²	10	10	5
Maximum % cover by exotic (EPPC 2003 List Category 1) species	5	2	<13
immediately following maintenance activities	5	2	<1
Maximum % cover by hardwood trees and woody shrubs			304
Minimum species richness of native plants within sampling plots	5	10	15
Evidence of natural reproduction of ground cover species		yes	yes

1. A lower % cover that is attributable to appropriate amounts of open water or shading will not count against success attainment.

2. Upland ragweeds and facultative dogfennel are early succession species to be managed; however, they will not count toward native cover or nuisance species cover for Success Level 1 or 2, provided that annual monitoring data and observation demonstrate a significant decrease in the actual cover of these species annually.

3. Level 3 requires no more than 2% cover by exotic species immediately prior to final maintenance event.

4. Areas where hardwood trees or woody shrubs exceed 1.5 meters in height and have a collective canopy coverage of over 50% shall be limited to random spots of <1 acre and shall represent an insignificant feature in this community type.

Wildlife Utilization

Ecological Parameter	Level 1	Level 2	Level 3
Qualitative evidence of wildlife utilization	yes	yes	yes
Qualitative evidence of wildlife utilization, including use by native wetland dependent bird and mammal species		yes	yes
Evidence of native species of fish (or no fewer than 1 species less than occurring at reference wetland ⁵)		1 species	3 species
Evidence of native wetland dependent amphibian/reptile species (or no fewer than 1 species less than occurring at reference wetland ⁵)		1 species	8 species in 4 groups ⁶
Evidence of native wetland dependent bird species (or no fewer than 2 species less than occurring at reference wetland ⁵)		1 species	10 species in 4 groups ⁷
Evidence of native wetland dependent mammal species (or no fewer than 1 species less than occurring at reference wetland ⁵)		1 species	4 species w/1 predator

5. Reference wetlands may be used at Level 3 only.

6. Amphibian/reptile functional groups include alligators, turtles, snakes, salamanders, tree frogs, and deep water frogs.

7. Bird functional groups include wading birds, shore birds, raptors, perching birds, anhinga/cormorants, and waterfowl.

Hydrology

Ecological Parameter	Level 1	Level 2	Level 3
Minimum days of soil saturation (water levels within 6 in of surface)/ or continuous inundation during a typical wet season rainfall year ⁸		90/60	90/60
Plants appear healthy with no stress resulting from an improper hydroperiod	yes	yes	yes

8. Target hydroperiod criteria are based on typical annual rainfall. Should the Bank not receive typical rainfall for the second level of success determination, the Banker and DEP shall use an alternate mutually acceptable hydrologic criteria to determine success; however, for third level of success, the Bank shall demonstrate at least 2 years of success with typical rainfall.

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Enhanced Cypress Success Criteria Canopy/Shrub (Vegetation ≥ 1" DBH)

Ecological Parameter	Level 1	Level 2	Level 3
Minimum average appropriate trees per acre	-	200	200
Minimum % of trees greater than 10 feet in height			20
No exotic (EPPC 2003 List Category 1) trees or shrubs present	yes	yes	yes
Evidence of trees or shrubs producing seed			yes

Ground Cover

Ecological Parameter	Level 1	Level 2	Level 3
Minimum % cover by native species listed as OBL, FACW, or FAC	25	50	75 ¹
Maximum % cover by nuisance/inappropriate species ²	10	10	5
Maximum % cover by exotic (EPPC 2003 List Category 1) species	5	2	<1 ³
immediately following maintenance activities	Ũ	-	
Minimum species richness of native plants within sampling plots	5	10	15
Evidence of natural reproduction of ground cover species		yes	yes

1. A lower % cover that is attributable to appropriate amounts of open water or shading will not count against success attainment.

2. Upland ragweeds and facultative dogfennel are early succession species to be managed; however, they will not count toward native cover or nuisance species cover for Success Level 1 or 2, provided that annual monitoring data and observation demonstrate a significant decrease in the actual cover of these species annually.

3. Level 3 requires no more than 2% cover by exotic species immediately prior to final maintenance event.

Wildlife Utilization

Ecological Parameter	Level 1	Level 2	Level 3
Qualitative evidence of wildlife utilization	yes	yes	yes
Qualitative evidence of wildlife utilization, including use by native wetland dependent bird and mammal species		yes	yes
Evidence of native species of fish (or no fewer than 1 species less than			
occurring at reference wetland ⁴)		1 species	3 species
Evidence of native wetland dependent amphibian/reptile species (or no		1 species	8 species in 4
fewer than 1 species less than occurring at reference wetland ⁴)		i species	groups ⁵
Evidence of native wetland dependent bird species (or no fewer than 2		1 species	10 species in
species less than occurring at reference wetland ⁴)			4 groups ⁶
Evidence of native wetland dependent mammal species (or no fewer		1	4 species w/1
than 1 species less than occurring at reference wetland ⁴)		1 species	predator

4. Reference wetlands may be used at Level 3 only.

5. Amphibian/reptile functional groups include alligators, turtles, snakes, salamanders, tree frogs, and deep water frogs.

6. Bird functional groups include wading birds, shore birds, raptors, perching birds, anhinga/cormorants, and waterfowl.

Hydrology

Ecological Parameter	Level 1	Level 2	Level 3
Minimum days of soil saturation (water levels within 6 in of surface) or inundation during a typical wet season rainfall year ⁷		120	120
Plants appear healthy with no stress resulting from an improper hydroperiod	yes	yes	yes

7. Target hydroperiod criteria are based on typical annual rainfall. Should the Bank not receive typical rainfall for the second level of success determination, the Banker and DEP shall use an alternate mutually acceptable hydrologic criteria to determine success; however, for third level of success, the Bank shall demonstrate at least 2 years of success with typical rainfall

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Enhanced and Restored Wet Prairie Success Criteria Ground Cover

Ecological Parameter	Level 1	Level 2	Level 3
Minimum % cover by native herbaceous species listed as OBL, FACW, or FAC, predominantly OBL and FACW	25	50	85
Maximum % cover by hardwood trees and woody shrubs			30 ¹
Maximum % cover by nuisance/inappropriate species ²	15	10	5
Maximum % cover by exotic (EPPC 2003 List Category 1) species immediately following maintenance activities	5	2	<13
Minimum #species of native herbaceous plants within sampling plots	5	10	15
Evidence of natural reproduction of ground cover species		yes	yes

1. Areas where hardwood trees or woody shrubs exceed 1.5 meters in height and have a collective canopy coverage of over 50% shall be limited to random spots of <1 acre and shall represent an insignificant feature in this community type.

2. Upland ragweeds and facultative dogfennel are early succession species to be managed; however, they will not count toward native cover or nuisance species cover for Success Level 1 or 2, provided that annual monitoring data and observation demonstrate a significant decrease in the actual cover of these species annually.

3. Level 3 requires no more than 2% cover by exotic species immediately prior to final maintenance event.

Wildlife Utilization

Ecological Parameter	Level 1	Level 2	Level 3
Qualitative evidence of wildlife utilization	yes	yes	yes
Qualitative evidence of wildlife utilization, including use by native wetland dependent bird and mammal species		yes	yes
Evidence of native species of fish (or no fewer than 1 species less than occurring at reference wetland ⁴)		1 species	3 species
Evidence of native wetland dependent amphibian / reptile species (or no fewer than 1 species less than occurring at reference wetland ⁴)		1 species	7 species in 4 groups ⁵
Evidence of native wetland dependent bird species (or no fewer than 2 species less than occurring at reference wetland ⁴)		1 species	12 species in 3 groups ⁶
Evidence of native wetland dependent mammal species (or no fewer than 1 species less than occurring at reference wetland ⁴)		1 species	2 species

4. Reference wetlands may be used at Level 3 only.

5. Amphibian/reptile functional groups include alligators, turtles, snakes, salamanders, tree frogs, and deep water frogs.

6. Bird functional groups include wading birds, shore birds, raptors, perching birds, anhinga/cormorants, and waterfowl.

Hydrology

Ecological Parameter	Level 1	Level 2	Level 3
Minimum days of soil saturation (water levels within 6 in of surface)/ or continuous inundation during a typical wet season rainfall year ⁷		90/45	90/45
Plants appear healthy with no stress resulting from an improper hydroperiod	yes	yes	yes

7. Target hydroperiod criteria are based on typical annual rainfall. Should the Bank not receive typical rainfall for the second level of success determination, the Banker and DEP shall use an alternate mutually acceptable hydrologic criteria to determine success; however, for third level of success, the Bank shall demonstrate at least 2 years of success with typical rainfall.

Enhanced and Created Marsh Success Criteria Ground Cover

Ecological Parameter	Level 1	Level 2	Level 3
Minimum % cover by native herbaceous species listed as OBL, FACW, or FAC, predominantly OBL and FACW	25	50	85
Maximum % cover by nuisance/inappropriate species ¹	15	10	5
Maximum % cover by exotic (EPPC 2003 List Category 1) species immediately following maintenance activities	5	2	<12
Minimum #species of native herbaceous plants within sampling plots	5	10	15
Evidence of natural reproduction of ground cover species		yes	yes

1. Upland ragweeds and facultative dogfennel are early succession species to be managed; however, they will not count toward native cover or nuisance species cover for Success Level 1 or 2, provided that annual monitoring data and observation demonstrate a significant decrease in the actual cover of these species annually.

2. Level 3 requires no more than 2% cover by exotic species immediately prior to final maintenance event.

Wildlife Utilization

Ecological Parameter	Level 1	Level 2	Level 3	
Qualitative evidence of wildlife utilization	yes	yes	yes	
Qualitative evidence of wildlife utilization, including use by native		VOS	NOS	
wetland dependent bird and mammal species		yes	yes	
Evidence of native species of fish (or no fewer than 1 species less than		1 species	3 species	
occurring at reference wetland ³)		1 species	5 species	
Evidence of native wetland dependent amphibian / reptile species (or		1 species	1 species	7 species in 4
no fewer than 1 species less than occurring at reference wetland ³)		1 species	groups ⁴	
Evidence of native wetland dependent bird species (or no fewer than 2		1 spacios	12 species in	
species less than occurring at reference wetland ³)		1 species	3 groups ⁵	
Evidence of native wetland dependent mammal species (or no fewer		1 spacios	2 spacios	
than 1 species less than occurring at reference wetland ³)		1 species	2 species	

3. Reference wetlands may be used at Level 3 only.

4. Amphibian/reptile functional groups include alligators, turtles, snakes, salamanders, tree frogs, and deep water frogs.

5. Bird functional groups include wading birds, shore birds, raptors, perching birds, anhinga/cormorants, and waterfowl.

Hydrology

Ecological Parameter	Level 1	Level 2	Level 3
Minimum days of soil saturation (water levels within 6 in of surface)/ or inundation during a typical wet season rainfall year ⁶		150/120	150/120
Plants appear healthy with no stress resulting from an improper hydroperiod	yes	yes	yes

6. Target hydroperiod criteria are based on typical annual rainfall. Should the Bank not receive typical rainfall for the second level of success determination, the Banker and DEP shall use an alternate mutually acceptable hydrologic criteria to determine success; however, for third level of success, the Bank shall demonstrate at least 2 years of success with typical rainfall.

Permittee: Corkscrew Regional Mitigation Bank Permit Number: 0198035-001 (modification -023), Lee County Page 21 of 24

Maintenance and Monitoring Provisions

24. <u>Turbidity Monitoring</u>: Construction is complete. Monitoring during construction was conducted in accordance with the original permit conditions.

25. <u>Inspections:</u> The permittee shall conduct inspections to include the following elements. Inspections shall be conducted semi-annually in perpetuity. Inspection field sheets shall be submitted with the semi-annual status reports (Specific Condition 28) and summarized in the annual reports (Specific Condition 29). These inspections will be for the specific purpose of identifying any problems or issues and resolving these as part of bank management and maintenance activities. At a minimum, the following items shall be reviewed during inspections.

- a. Construction: During implementation, the QMS shall inspect and oversee all mitigation activities (construction, planting, burning, exotic removal), inspect construction area, temporary berms, and outfall structures, and ensure that all procedures are being applied to optimize ecological enhancement and to not degrade wetland and/or surface water resources. After implementation, the permittee shall continue to regularly inspect structures and planted areas for maintenance needs. The efficacy of the activities and structures and any remedial actions planned or conducted shall be reported.
- b. Security: Inspection for security shall include signs, fences, and gates associated with the site, and notations of any unauthorized use or vandalism shall be reported and corrected. The condition and efficacy of the security feature and any remedial actions planned or conducted shall be reported.
- c. Exotic Vegetation: During all inspections and monitoring site visits, any occurrence of invasive exotic vegetation within the completed phases should be noted for follow-up treatment and reported.

26. <u>Management and Maintenance</u>: The wetlands are expected to be self-sustaining once the exotics are controlled, the hydrology enhanced, and native vegetation communities reestablished. Monitoring data and the QMS's professional judgment will dictate the type and frequency of maintenance activities during implementation. Maintenance activities after success shall continue in perpetuity in accordance with the long-term management plan (Attachment G). Bank maintenance activities shall include, but are not limited to:

- a. Manipulating control structures as necessary to optimize water levels during and after establishment of vegetation;
- b. Conducting prescribed burns, using licensed personnel and approved methodologies and in accordance with Specific Condition 13 and the fire management plan;
- c. Conducting annual inspections and treatment of exotic vegetation, as needed;
- d. Removing feral/exotic terrestrial animals such as feral hogs;
- e. Seeding or planting supplemental wetland vegetation as necessary to maintain the wetland functions and values;
- f. Maintaining temporary and permanent structures to repair washout or weakened areas, and remove debris; and
- g. During implementation, maintaining staff gauges and piezometers to ensure the proper

Permittee: Corkscrew Regional Mitigation Bank Permit Number: 0198035-001 (modification -023), Lee County Page 22 of 24

monitoring of surface and ground waters.

27. <u>Monitoring</u>: The Department has reviewed the revised monitoring plan in Attachment E and finds it to be adequate to evaluate progress toward restoration goals, identify impacts that may hamper attaining those goals, provide opportunities for scientific assessment of wetland functions and processes and demonstrate attainment of success criteria. It may be modified further as necessary to adapt to changing conditions and to update the list of acceptable ground cover species with Department approval without a formal permit modification. The acceptable ground cover list will be reviewed annually in conjunction with the annual monitoring reports, and as additional data become available.

Required monitoring includes:

- a. Annual qualitative vegetation monitoring;
- b. Quantitative vegetation monitoring for interim and final success determination;
- c. Water level monitoring weekly during the wet season and monthly during the dry season, referenced to continuous recording gauges;
- d. Qualitative and semi-quantitative wildlife monitoring.

28. <u>Progress Reports:</u> The permittee shall submit semi-annual status reports or letters each January and July containing the following information:

- a. Dates permitted construction or other mitigation activities were conducted or are anticipated;
- b. Brief description and extent of work completed since the previous report or since permit was issued;
- c. Site plan indicating areas where work has been completed;
- d. A description of any problems encountered and solutions undertaken;
- e. A brief description of the work and/or site management activities the permittee anticipates commencing, continuing or completing in the next six months;
- f. Site management undertaken, including type of management activities and dates each activity was undertaken; and
- g. A summary of the inspections conducted pursuant to Specific Condition 25.

29. <u>Annual Reports</u>: The Annual Report is a summary of the yearly quantitative and qualitative monitoring for success and an assessment of the degree to which the bank, or any phase thereof, is attaining success. This report shall be submitted within 45 days after completion of the vegetation monitoring and shall be prepared according to the format required and approved in accordance with Specific Condition 27, as well as include the information required by Specific Condition 28. This report shall be submitted, by the end of January each year, until the Bank site has been determined to be successful. The Annual Report that requests a determination of final success in accordance with Specific Condition 22 shall also include the following information:

- a. a summary of all of the previous Annual Reports, including, as appropriate, timeline graphics;
- b. a list of each success criteria and documentation of how and when it was attained;

Permittee: Corkscrew Regional Mitigation Bank Permit Number: 0198035-001 (modification -023), Lee County Page 23 of 24

- c. a notation of problems encountered in attaining the success criteria and how the problems were solved, and a notation of any exceptionally successful activity;
- d. a summary of compliance and/or enforcement submittals or actions during the implementation of the bank; and
- e. any other information helpful for the continued success of the mitigation.

30. <u>Compliance:</u> The permittee shall maintain a checklist showing all compliance activities required in this permit, and the actual or relative dates for these activities. This checklist, with appropriate items "checked", shall be included with each annual monitoring report submittal or credit release modification request.

Attached Figures:		Received Date:
Figure 1	Project Location Map	Received 9/18/2013
Figure 2	Mitigation Service Area	Received 9/18/2013
Figure 3	Existing FLUCCS Map	Received 9/18/2013
Figure 4	Proposed Mitigation Plan	Received 9/18/2013
Figure 5	Restoration Plan	Received 9/18/2013
Exhibit 6	Exhibit 6 for FDEP Permit	Received 9/18/2013 (except 6-A, 6-
		B, and 6-D-2, all received
		12/2/2013)
Attached Documents:		Received Date:
Attachment A	Supplemental Planting Plan	Received 12/17/2013
Attachment B	Prescribed Fire Management Plan	Received 12/11/2013
Attachment C	Credit Assessment	Received 12/11/2013
Attachment D	Current Ledger	Modified January 6, 2014
Attachment E	Monitoring Plan	Received 12/11/2013 (except Table
		E-1 received 1/2/2014)
Attachment F	Proposed Site Conditions for	Received 12/11/2013
	Restoration Areas	Received 12/11/2015
Attachment G	Long-Term Management Plan	Received 12/9/2013

Recommended by: Matt Wilson – ESIII, Mining and Mitigation Program

Executed in Tallahassee, Florida.

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

Calvin Alvarez, Program Administrator Mining and Mitigation Program 2600 Blair Stone Road, MS 3577 Tallahassee, FL 32399-2400 Permittee: Corkscrew Regional Mitigation Bank Permit Number: 0198035-001 (modification -023), Lee County Page 24 of 24

_____ pages attached

CERTIFICATE OF SERVICE

The undersigned duly designated deputy agency clerk hereby certifies that this **ENVIRONMENTAL RESOURCE PERMIT MODIFICATION** and all copies, were transmitted before the close of business on ______ to the above listed persons.

FILING AND ACKNOWLEDGMENT

FILED, on this date, under subsection 120.52(9), Florida Statutes, with the designated Department Clerk, receipt of which is hereby acknowledged.

Clerk

Date





Received by FDEP: 9/18/13





Received by FDEP: 9/18/13

СССТАЗОВЛОЕР Ремпт Мор RAI RESPONSE INFIGURE 4 РИСОЗЕО МПКАТОМ Р.4.М. 8-20-15. JMIL C TB SEP 18, 2015 - 3.4.8 M PLOTED BY. HALRONG



1 COORD AND ALL REPORT NO PAIL REPORT INFIGUE 5 RESTORTION PLAN 6-29-15,0WE TAR: BNI-C TB SEP 18, 2015 - 3.49M PLOTED BY: HOLDEN HARDNE

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6-A 6-B

BY **MARINER PROPERTIES DEVELOPMENT, INC.**






THIS STRUCTURE HAS BEEN ELIMINATED FROM THE CONSTRUCTION PLAN



THIS STRUCTURE HAS BEEN ELIMINATED FROM THE RESTORATION PLAN



141.

HORIZONTAL SCALE:	
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HORIZONTAL SCALE: VERTICAL SCALE:

Marsh (Approx. Elev.	Marsh (Approx. Elev. Range ± 27.5 - 28.0 feet)								
	Plant Density Rela								
Rhychospora Sp.	3' on Center	10-15%							
Panicum hemitomon	3' on Center	10-15%							
Juncus sp.	3' on Center	5-10%							
Spartina bakeri	3' on Cenler	10-15%							
Cladium jamaicense	3' on Center	1-5%							
Polygonium sp.	3' on Center	10-15%							
Eleocharis sp.	3' on Center	20-30%							
Baccopa caroliniana	3' on Center	10-15%							
Cana flaccida	3' on Center	10-15%							

	Plant Density	Relative %					
Sagittaria sp.	3' on Center	10-20%					
Thalla geniculata	3' on Center	5-10%					
Panicum hemitomon	3' on Center	10-15%					
Pontederia cordata	3' on Center	20-30%					
Juncus sp.	3' on Center	1-5%					
Cladium jamaicense	3' on Center	5-10%					
Polygonium sp.	3' on Center	5-10%					
Eleocharis sp.	3' on Center	20-30%					
sh (Elevation Generally less than 26.5 feet)							

	Plant Density	Relative %
Sagittaria sp	3' on Center	20-30%
Scirpus sp.	3' on Center	20-30%
Thalia geniculata	3' on Center	20-30%
Pontederia cordata	2' on Center	10-15%
Nuphar lutenum	3' on Cenler	5-10%
Nymphaea odorala	3' on Center	5-10%







THIS PAGE HAS BEEN ELIMINATED FROM THE CONSTRUCTION PLAN







Science) Clients (05811,00 Corkscrew Mithgation Bank/FDEP-2006/FDEP Exhibits - 061003/EXHIBIT 6F. dwg. Plotted: Oct 16, 2006 - 3:02pm by bob.bu





LEGEND



EXCAVATION AREA 1 - 4 FT. (20.5± AC.)

LINEAR UPLAND FEATURES AND MINOR CONTOUR AREA (CUT/FILL) TO ESTABLISH PERIMETER BERM (LESS THAN 1') (32.0± AC.) (SEE EXHIBIT 6-C-1)

LEVEL FARM FIELD FURROWS AND RIDGES (334.9± AC.)

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ATTACHMENT A: Supplemental Planting Plan

Ground Cover Supplemental Planting in Restored Wetlands

The objective is to restore a diverse ground cover to the hydric pine flatwoods, cypress, and wet prairie areas within the restored farm field. To expedite achievement of target communities, restored hydric pine, cypress, and wet prairie will be inoculated with fine fuel perennial grass species, including wiregrass (*Aristida* sp.), little blue maidencane (*Amphicarpum muhlenbergianum*), gulfdune paspalum (*Paspalum monostachyum*), and gulfdune muhly grass (*Muhlenbergia capillaris*); rushes, including *Rynchospora* sp. and *Juncus* sp.; as well as other available and appropriate ground cover that will improve the existing diversity. The ground cover planting and/or reseeding shall be conducted within 6 months of permit modification approval. Supplemental planting/reseeding will occur in areas that exhibit high levels of nuisance or inappropriate species. The Qualified Mitigation Supervisor is responsible for determining the area to be planted or reseeded and the plant materials to be used in order to optimize success and minimize exotic infestation.

The species that may be planted in the hydric pine, cypress, and wet prairie communities must be appropriate facultative (FAC), facultative wet (FACW), or obligate (OBL) species or species included on the Acceptable Ground Cover list. Acceptable plant material size may include bare root, plugs, and container. Species supplemented will be subject to availability and conditions at the time of planting. At least 50 percent of the supplemental plantings will include fine fuel perennial grass species identified in Table 1.

Common Name	Taxon	Habitat
Wiregrass	Aristida stricta	Pine
Gulfdune paspalum	Paspalum monostachyum	Pine/Cypress/Wet Prairie
Gulfdune muhly grass	Muhlenbergia capillaris	Pine/Wet Prairie
Little blue maidencane	Amphicarpum muhlenbergianum	Pine/Cypress/Wet Prairie
Maidencane	Panicum hemitomon	Pine/Cypress/Wet Prairie
Sand cordgrass	Spartina bakeri	Pine/Cypress/Wet Prairie
Sawgrass	Cladium jamaicense	Cypress/Wet Prairie
Yellow-eyed grass	<i>Xyris</i> sp.	Pine/Wet Prairie

Table 1.Supplemental Ground Cover Species to Comprise a Minimum 50 Percent of
the Plantings*

*Species may be added/deleted with Florida Department of Environmental Protection approval.

Canopy Cover Supplemental Planting in Restored Wetlands

Supplemental planting in restored hydric pine and cypress areas will be conducted as needed to maintain a minimum ten percent canopy closure as measured in any one acre area. Supplemental

trees will include the same species used during the initial establishment period. Bare root plantings will be conducted during winter months (January – February). Containerized plantings shall be conducted at a season that optimizes the plants' growth and survival. In areas that have exhibited high levels of die-off due to incompatible hydrologic regime, pine may be incorporated into cypress areas and vice-versa. Supplementing pine in cypress habitats and cypress in pine habitats will not exceed 10 percent of the forested wetland restoration area without prior consent of the Department. The Qualified Mitigation Supervisor is responsible for determining the area to be planted and the plant materials to be used in order to optimize success and minimize exotic infestation.

ATTACHMENT B: Prescribed Fire Management Plan

Introduction and Objectives

This Fire Management Plan was developed as a means of restoring historical communities and enhancing the natural mosaic of the site's communities. Prescribed burning is a land management practice essential in the maintenance of native vegetation and wildlife communities in Southwest Florida. Another important benefit of prescribed burning is fuel reduction, which prevents catastrophic wildfires and property damage.

The season of the prescribed burn has a marked effect on plant species. Most fires, including prescribed and natural burns, occur in March, April, May, and June. The literature suggests that late winter or early spring burns are more beneficial to slash pine (*Pinus elliottii*) while fall burns are more harmful. Summer burns are natural and beneficial to native grass species such as wiregrass. Native habitats within the Bank will be wet during the summer months (wet season), except during severe drought, making a summer prescribed burn difficult.

In addition to site restoration objectives and consideration, this burn plan has been prepared to comply with Florida's regulations regarding prescribed burning. All burns will be undertaken only under conditions that meet both the ecological goals as well as safety requirements. Adequate disked fire control lines will be installed and maintained around all burn units.

The prescribed burn fire management plan was prepared by Craig M. Smith and William R. Cox of Kevin L. Erwin Consulting Ecologist, Inc. Mr. Smith completed prescribed fire training (Certificate No. 932265), and Mr. Cox has been involved with prescribed burning in Florida since 1990.

The use of fire is a main component of the long-term management of the Bank site. Prescribed burning will facilitate meeting the following management objectives:

- Maintaining an open midstory stratum within the upland and hydric pine flatwood, wet prairie, and restored cypress communities by retarding growth of hardwood tree and shrub species and encouraging ground cover growth.
- Improving wildlife habitat by encouraging a diverse and healthy ground cover community.
- Facilitating long-term control of exotic species by killing colonizing plants before they mature and produce seed.
- Reducing potential for catastrophic fire by reducing otherwise potentially hazardous fuel loads.

Site Preparation and Safety Precautions

Prior to initiation of the prescribed burn plan, all large melaleuca (*Melaleuca quinquenervia*) will be treated and removed from the burn unit. No burning shall occur in areas that contain seed bearing melaleuca trees. (Fire has been shown to facilitate the spread of melaleuca when seed bearing trees are burned by stimulating the release of millions of seeds from the trees and by

exposing the mineral soil to those seeds.) Additionally, all Brazilian pepper (*Schinus terebinthifolius*) exceeding five feet in height should be treated at least four months prior to burning.

A fire break will be installed and periodically maintained near the perimeter of the property. This break will consist of a disked line, mowed line, or foam line located several feet inside the property fence. The selection of fire line type will be based on safety considerations and will minimize disturbance to the site to the extent practicable. The line will run adjacent to the wetland-planted upland buffer interface along the west, south, and east planted upland buffers. Internal fire breaks will also be established to divide the site into five burn units, A through E (Figure B-1). By burning the site in increments (as opposed to burning the entire site at one time) the diversity of the plant cover, and therefore of the wildlife habitat, will be maximized.

As stated above, fire lines of sufficient width for the fuel load in the burn unit will be in place and in good condition prior to ignition of a prescribed burn. All personnel present at the burn should carry Personal Protective Equipment including fire shelters. Local authorities (local fire department, highway patrol, sheriff's department) and adjacent landowners will be informed of the proposed burn schedule. Appropriate signage will be available on-site if smoke reduces visibility along Corkscrew Road. A cellular phone will be available on-site in case assistance is needed from the Division of Forestry.

Burn Frequency and Season

The frequency of prescribed burns will be based on fuel loads and will vary across the site. It is anticipated that the pine flatwoods, cypress savannas, and prairies will be burned at two to five year intervals.

Most prescribed burning occurs during the winter or early spring when temperatures are reduced and wind direction is more constant. The initial burn of each unit of the site will occur during the late winter. Winter burns are preferred to reduce high fuel loads. Backing or spot fire should be used when possible to consume dead fuels more completely and produce less smoke. Backing fires produce fewer pollutants and restrict visibility to a lesser degree than head fires. Following the initial burn, the season of year of prescribed burn will vary from late winter burns to early wet season burns. This will maximize the diversity of habitats created by the fire and increase biodiversity on the site.

The Bank is located in rural Lee County along the north side of Corkscrew Road. The site is greater than 9.5 miles southeast of the Southwest Florida International Airport, 8.5 miles east of Interstate 75, and 5 miles south of State Road 82. Potentially smoke-sensitive features in the vicinity of the Bank are: Corkscrew Road to the south, scattered homes along Happy Dale Lane $0.7\pm$ mile to the southeast, and along Six L's Farm Road $1.6\pm$ miles to the southwest. The Corkscrew Road. However, these features should not preclude the use of fire as a management tool at the Bank because no smoke-sensitive features are located within five miles to the north. The existing conservation lands to the north have burned on a periodic basis in the past to

improve forage for cattle and will continue to be burned in the future as part of that site's environmental restoration plan.

Prescription

A prescribed burn plan (prescription) will be prepared for each burn unit and will meet the Department of Forestry's prescribed burning requirements pursuant to The Prescribed Burning Act of 1990 (590.026 Florida Statutes) and associated administrative rules. This plan should define the range of conditions (temperature, humidity, wind direction and speed, minimum mixing height, dispersion index, and fuel moisture) and geographical area under which a fire will be allowed to burn or be ignited to obtain the given objectives. The parameters listed below provide the typical conditions under which burns will be conducted.

Parameter	Desired Conditions
Wind Direction	SW to SE
wind Direction	Any direction (northern native lands only)
Wind Speed (20 foot Forecast)	3 to 15 MPH
Transport Wind	7 to 20 MPH
Mixing Height	> 1,700 Feet
Dispersion Index	> 40
Relative Humidity	> 35 percent
Fine Fuel Moisture	Moderate

One of the objectives of the prescribed burn plan is to facilitate the control of exotic species. Therefore, backing fires that produce higher temperatures for longer time periods at the base of seedling trees and shrubs will be the predominant firing technique. Other techniques, such as flanking fire or strip head fire, may also be used as conditions warrant. The burn program and the exotic control program will be coordinated so that adequate time from the treatment of exotics to ignition of the fire will occur to allow seeds dispersed during the exotic control activity to germinate and begin to grow. Small seedling melaleuca and Brazilian pepper are susceptible to fire, provided there are adequate fuel levels.

ATTACHMENT C: Credit Assessment

In January 2001 (prior to the permit application), the Mitigation Bank Review Team (MBRT) met onsite to perform a Wetland Rapid Assessment Procedure (WRAP) assessment of the site. Twentyone sites were scored representing a total of 46 wetland polygons or assessment areas defined by the Bank consultant. In January 2004, the permittee elected to conduct a credit assessment using the Florida Uniform Mitigation Assessment Methodology (UMAM) (Chapter 62-345 F.A.C.) which will be the method used for state Environmental Resource Permit (ERP) permitting, and to account for the time lag and risk not assessed with the WRAP. The UMAM assessment was conducted by the Florida Department of Environmental Protection (Department) in conjunction with the permittee using the field information obtained during the WRAP assessment and the additional information provided during the permit application review. The attached Table C-1 represents the scores and Table C-2 provides a summary of the credit assessment.

Assessment areas were established based on whether they were native lands to be enhanced, farm fields to be restored, created wetlands, or uplands. They were further divided by existing and proposed community types and proximity to non-compatible land uses in either the current or proposed condition. Finally, polygons were sub-divided based on the degree of severity of exotic infestation or drainage in the current condition. Each of the upland and wetland assessment areas was scored in the current condition and in the reasonably expected condition, and the difference or anticipated "delta" was determined.

In general, the farm field assessment areas scored in the low range of minimal wetland function in the existing condition (<0.2) and in the near-optimal range for all of the proposed restored or created community types (~0.9), with an average delta of ~0.75. The current condition score for native lands ranged from a minimal functional score (~0.4) for those adjacent to and adversely affected by the pasture land use to a moderate function (~0.8) for those areas distant from the pasture and drainage systems and better supported by surrounding land uses. Most of these assessment areas have a reasonable expectation that, with the proposed enhancement and management activities, they will obtain an optimal function. The average delta in the native lands was 0.35.

The deltas of each assessment area were further assessed for time lag and risk. The credit release schedule, the criteria required for each credit release, and the long term management requirements were considered in determining the ecological risk, such that risk was determined to be *de minimis* (risk factor of 1.0). Time lag was assigned to the project with consideration of the release schedule which withholds all creation credits until 3rd level of success is attained and also withholds 5 percent of the total credits until all phases have reached 3rd level success. It was determined that 10 years (or a t-factor of 1.25) would be required after success criteria are reached for forested communities created or restored from farm fields to attain the expected UMAM scores. The 10 year assessment accounts for an average of the expected time for cypress communities and for hydric pine communities and in consideration of the phased project that is expected to take 6-10 years (or a t-factor of 1.14) was assigned to the upland 'enhancement' in the farm fields (which predominately functions as buffer around the bank and will have a more shrubby community, along

with cypress in some areas). The native-land enhancement, restored and created marsh assessment areas are not expected to require additional time after the final success determination and credit release.

A 2006 permit modification made minor revisions to phase boundaries and the proposed community configuration of the mitigation plan resulting in minor adjustment to the UMAM Assessment Table and credit total. The overall bank acreage and community ratio remained nearly identical. UMAM scores for different pre- and post-mitigation community assessment areas were reviewed within the context of the revised mitigation plan, but were not changed.

In 2013, the UMAM Assessment Table received minor revisions to update the post-restoration community types and allow for a small portion of restored hydric pine to be converted to uplands. The 2013 revisions did not change the overall bank acreage, community ratios, or credit totals. Post-restoration community types were updated to more accurately identify the targeted community types for the Bank's restoration area based on a more detailed description of the bank site characteristics and historic communities typical of South Florida. A small reduction in restored hydric pine habitat was reflected in the UMAM tables and in the updated mitigation plan. This change allowed for up to 9 acres of restored hydric pine habitat to be converted to uplands. Given the relatively new age of the restoration effort and limited hydrologic data with normal rainfall, the final acreage and configuration of these upland habitats, if any, will be identified with the Department at time of final success release.

Corkscrew Regional Mitigation Bank Revised UMAM Assessment (November 2013)

Table 1A. Phase I: Farmfield Restoration and Enhancement (Cells 1 and 5)

Dolugon #	Call #	FLU	JCCS	2013 Modified	Aonor	Curre	nt Condition S	cores	With-M	itigation	Scores	Delte	Time	DEC	Credita
rolygoli #	Cell#	Pre	Post	Community Type	Acres	Location	Water	Structure	Location	Water	Structure	Dena	Lag	RFG	Creans
3	5	6249c*	624	E-C	2.3	3	3	4	10	9	10	0.63	1.00	0.63	1.46
31	5	262	625/621	R-HP	18.2	2	1	0	10	9	9	0.83	1.25	0.67	12.13
32a	5	262	625/621/617	R-HP	39.5	2	1	0	9	9	9	0.80	1.25	0.64	25.28
30	5	2621	625/621/617	R-HP/C/MWH	45.7	3	2	1	10	9	9	0.73	1.25	0.59	26.79
Up	5	211	625/621	C-HP	3.6	0	0	0	10	8	9	0.90	1.25	0.72	2.59
Forested Mitigation in Farmfields Sub-totals		Sub-totals		109.3										68.25	
30	5	2621	641/643	R-WP	10.0	3	2	1	10	9	9	0.73	1.00	0.73	7.33
31	5	262	641/643	R-WP	0.1	2	1	1	10	9	9	0.80	1.00	0.80	0.08
32b	ෆ 1	262	641/643	R-WP	10.6	2	1	0	8	8	9	0.73	1.00	0.73	7.77
Herbaceo	us Mitigatio	on in Farmfields	Sub-totals		20.7										15.19
32b	1	262	Up	R-U	1.4	2	1	0	8	-	9	0.75	1.14	0.66	0.92
30**	25	2621	Up	R-U	0.8	3	2	1	8	-	9	0.65	1.14	0.57	0.46
32	1 5	262	Up	R-U	1.0	2	1	1	9	-	9	0.77	1.14	0.67	0.67
τ	Upland Rest	oration Sub-tota	als		3.2										2.05
Tot	al <mark>s f</mark> or Pha	se I Farmfield	Cells	-	133.2										85.49

* Native Habitat

** includes 0.14 acres of restored hydric pine habitats scored as upland. The final configuration of these additional uplands, if any, will be determined at time of Final Success determination

Table 1B. Phase I: Native Habitat Enhancement (Cells 3 and 4)

Dahugan #	0,11,4	FLU	JCCS	2013 Modified	Aanaa	Curre	nt Condition §	Scores	With-M	itigation	Scores	Dalfa	Time	DEC	Cruedite
Polygon #	$\frac{1}{0}$	Pre	Post	Community Type	Acres	Location	Water	Structure	Location	Water	Structure	Deita	Lag	RFG	Creatts
4	2 3	625a	625	E-HP	2.5	6	6	7	10	10	10	0.37	1.00	0.37	0.92
5	3	625a	625	E-HP	1.9	7	7	7	10	10	10	0.30	1.00	0.30	0.57
7	3	625a	624/625	E-HP	21.5	7	7	7	10	10	10	0.30	1.00	0.30	6.45
15	3	625	625	E-HP	1.5	7	7	8	10	10	10	0.27	1.00	0.27	0.40
17	3	625	625	E-HP	0.3	7	7	8	10	10	10	0.27	1.00	0.27	0.08
36	3	4159d	625	E-HP	5.0	6	5	4	10	10	10	0.50	1.00	0.50	2.50
37	3	4159d	625	E-HP	0.2	6	5	4	10	10	10	0.50	1.00	0.50	0.10
38	3	4159d	625	E-HP	1.4	6	5	4	10	10	10	0.50	1.00	0.50	0.70
40	3	625b	625	E-HP	0.9	5	4	6	10	10	10	0.50	1.00	0.50	0.45
41	3	625c	625	E-HP	0.9	5	4	5	10	10	10	0.53	1.00	0.53	0.48
42	3	625b	625	E-HP	0.3	5	4	6	10	10	10	0.50	1.00	0.50	0.15
43	3	625b	625	E-HP	0.8	5	4	6	10	10	10	0.50	1.00	0.50	0.40
20	4	625	624	E-C	1.6	5	6	8	10	10	10	0.37	1.00	0.37	0.59
20	4	625	625	E-HP	2.1	5	6	8	10	10	10	0.37	1.00	0.37	0.77
22	4	625	625	E-HP	15.8	7	6	8	10	10	10	0.30	1.00	0.30	4.74
24	4	625b	625	E-HP	5.2	5	4	6	10	10	10	0.50	1.00	0.50	2.60
27	4	625a	625	E-HP	10.2	5	6	6	10	10	10	0.43	1.00	0.43	4.42
39	4	4159d	625	E-HP	1.5	5	5	4	10	10	10	0.53	1.00	0.53	0.80
44	4	625b	625	E-HP	1.1	5	4	6	10	10	10	0.50	1.00	0.50	0.55

Table 1B. (Continued)

D.1	C.11.#	FLU	JCCS	2013 Modified		Curre	nt Condition S	Scores	With-M	itigation	Scores	Dille	Time	DEC	Care l'ite
Polygon #	Cell #	Pre	Post	Community Type	Acres	Location	Water	Structure	Location	Water	Structure	Detta	Lag	RFG	Credits
35	3	6249b	624	E-C	1.6	5	5	6	10	9	10	0.43	1.00	0.43	0.69
23	4	624	624	E-C	3.7	7	7	8	10	10	10	0.27	1.00	0.27	0.99
29	4	6249c	624	E-C	1.3	5	4	5	10	9	10	0.50	1.00	0.50	0.65
6	3	621	621	E-C	27.1	8	8	8	10	10	10	0.20	1.00	0.20	5.42
9	3	621	621	E-C	5.1	7	7	7	10	10	10	0.30	1.00	0.30	1.53
11	3	6219b	621	E-C	15.6	8	9	8	10	10	10	0.17	1.00	0.17	2.60
21	4	621	621	E-C	7.1	6	7	8	10	10	10	0.30	1.00	0.30	2.13
26	4	6219a	621	E-C	4.0	7	7	7	10	10	10	0.30	1.00	0.30	1.20
28	4	621	621	E-C	6.9	6	5	5	10	9	10	0.43	1.00	0.43	2.99
46	3	621**	621	E-C	0.1	8	8	4	10	10	10	0.33	1.00	0.33	0.03
8	3	621**	621	E-C	0.1	6	6	4	10	10	10	0.47	1.00	0.47	0.05
14	3	621**	621	E-C	0.7	7	7	4	10	10	10	0.40	1.00	0.40	0.28
Forested	Mitigation	in Native Cells	Sub-totals		148.0			-		-	-			-	46.22
8	3	6439a	643	E-WP	2.6	6	6	4	10	10	10	0.47	1.00	0.47	1.21
10	3	6439a	643	E-WP	1.7	7	7	4	10	10	10	0.40	1.00	0.40	0.68
14	23	6439a	643	E-WP	4.5	7	7	4	10	10	10	0.40	1.00	0.40	1.80
16	5 3	6439a	643	E-WP	1.4	7	7	4	10	10	10	0.40	1.00	0.40	0.56
18	№ 3	6439a	643	E-WP	3.1	7	7	4	10	10	10	0.40	1.00	0.40	1.24
19	-3	6439a	643	E-WP	1.4	7	7	4	10	10	10	0.40	1.00	0.40	0.56
12	<u> </u>	641	641	E-M	3.0	8	8	7	10	10	10	0.23	1.00	0.23	0.70
13		641	641	E-M	3.5	8	8	1	10	10	10	0.23	1.00	0.23	0.82
45		6419b	641	E-M	1.0	8	8	4	10	10	10	0.33	1.00	0.33	0.33
46		641b	641	E-M	0.8	8	8	4	10	10	10	0.33	1.00	0.33	0.27
25		04190	041	E-IVI	2.0	/	/	0	10	10	10	0.55	1.00	0.55	0.67
Herbaceou	us Mitigatic	on in Native Cell	s Sub-totals		25.0			1			1		1	1	8.84
Up	0 3	4119a	411	E-U	0.3	6	-	5	10	-	10	0.45	1.00	0.45	0.14
Up	. 3	411	411	E-U	3.9	6	-	6	10	-	10	0.40	1.00	0.40	1.56
Up	8 3	411	411	E-U	6.7	6	-	6	10	-	10	0.40	1.00	0.40	2.68
Up	03	411	411	E-U	29.0	6	-	6	10	-	10	0.40	1.00	0.40	11.60
Up	L 3	411	411	E-U	1.4	6	-	6	10	-	10	0.40	1.00	0.40	0.56
Up	3	411	411	E-U	0.5	6	-	6	10	-	10	0.40	1.00	0.40	0.20
Up	3	411	411	E-U	0.6	6	-	6	10	-	10	0.40	1.00	0.40	0.24
Up	2	411	411	E-U	0.9	6	-	0	10	-	10	0.40	1.00	0.40	0.36
Up	3	411	411	E-U E U	0.4	6	-	0	10	-	10	0.40	1.00	0.40	0.16
Up	4	411	411	E-U E U	0.1	0	-	0	10	-	10	0.40	1.00	0.40	0.04
Up	4	411	411	E-U E-U	2.0	6	-	6	10	-	10	0.40	1.00	0.40	0.08
Up	4	221	411	E-U E U	2.0	6	-	6	10	-	10	0.40	1.00	0.40	0.08
Up	3	321	321	E-U	2.7	5	-	6	10		10	0.40	1.00	0.40	0.00
Un	3	321	321	E-U	0.3	6	-	6	10	-	10	0.40	1.00	0.40	0.12
Un	3	211	Un	E-U	2.7	5	-	4	10	-	10	0.55	1.00	0.55	1 49
Up	3	210	Up	E-U	4.0	4	-	4	8	-	9	0.45	1.00	0.45	1.49
Nativ	e Unland F	nhancement Sul	p-totals	20	58.5			· ·	Ŭ			0.10	1.00	0.10	24.12
Tot	als for Pho	and I Nativo Hal	nitate		231.5										70 19
101	ais 101 P IIa	ise i mauve Hal	лася	-	431.3										19.18

** Forested inclusion in larger herbaceous polygon

Table 1C. Phase I Summary (Cells 1, 3, 4, and 5)

Mitigation Type		Acres								
Forested Mitigation Sub-totals	-	257.3				114.47				
Herbaceous Mitigation Sub-totals	-	45.7				24.02				
Upland Enhancement/Restoration Sub-totals	-	61.7				26.17				
Phase I Totals	-	364.7				164.67				

Table 2. Phase II

Polygon # Coll # FLUCCS 2013 Mod		2013 Modified	A	Curre	nt Condition S	Scores	With-M	itigation	Scores	Dolto Time	Time	DEC Cred	Credite		
Polygon #	Cell #	Pre	Post	Community Type	Acres	Location	Water	Structure	Location	Water	Structure	Delta	Lag	ĸrg	Creans
30	7	2621	625/621	R-HP/C	2.2	3	2	1	10	9	9	0.73	1.25	0.59	1.29
32a	7	262	625/621	R-HP/C	43.1	2	1	0	9	9	9	0.80	1.25	0.64	27.61
Up	7	211	625/621	C-HP/C	9.1	0	0	0	10	9	9	0.93	1.25	0.75	6.79
I	Forested Mi	tigation Sub-tota	als		54.4										35.69
30	∞^7	2621	641/643	R-WP	12.8	3	2	1	10	9	9	0.73	1.00	0.73	9.39
32a	5 7	262	641/643	R-WP	20.4	2	1	0	9	9	9	0.80	1.00	0.80	16.32
Up	- 7	211	641/643	C-WP	0.6	0	0	0	10	9	9	0.93	1.00	0.93	0.56
He	erbaceous N	litigation Sub-to	otals		33.8										26.27
30	7	2621	Up	R-U	0.9	3	2	1	10	-	9	0.75	1.14	0.66	0.59
32a**	7	262	Up	R-U	7.1	2	1	0	9	-	9	0.80	1.14	0.70	4.95
Uptand Restoration Sub-totals			8.0										5.55		
	Totals	For Phase II		-	96.2										67.51

** includes 6.06 acres of restored hydric pine habitats scored as upland. The final configuration of these additional uplands, if any, will be determined at time of Final Success determination
Table 3. PhasedII

Dolygon #	4	FLU	JCCS	2013 Modified	Aanaa	Curre	nt Condition S	Scores	With-M	itigation	Scores	Delte	Time	DEC	Credita
Folygon #	Gen #	Pre	Post	Community Type	Acres	Location	Water	Structure	Location	Water	Structure	Dena	Lag	REG	Creans
1	6	621*	621	E-C	5.9	3	3	4	10	9	10	0.63	1.00	0.63	3.76
2	6	6249b*	624	E-C	6.9	3	3	4	10	9	10	0.63	1.00	0.63	4.40
33	6	2621	625/621	R-C	2.2	3	2	1	10	9	9	0.73	1.25	0.59	1.29
32	6	262	621	R-C/MWH	7.5	2	1	0	9	9	9	0.80	1.25	0.64	4.78
32	6	262	625	R-HP	36.2	2	1	0	9	9	9	0.80	1.25	0.64	23.17
Up	6	211	625/621/617	C-HP	1.5	0	0	0	9	9	9	0.90	1.25	0.72	1.08
I	Forested Mit	tigation Sub-tota	als		60.2										38.48
32	6	262	Up	R-U	4.6	2	1	0	9	-	9	0.80	1.14	0.70	3.23
Up	6	211	Up	R-U	5.8	0	0	0	9	-	9	0.90	1.14	0.79	4.58
I	Upland Rest	oration Sub-tota	als		10.4										7.81
	Totals I	For Phase III		-	70.6										46.28

* Native Habitat Enhancement

Table 4. Phase IV

Dolmoon #	Call #	FLU	JCCS	2013 Modified	A	Curre	nt Condition S	Scores	With-M	itigation	Scores	Dalta	Time	DEC	Cruedite
Polygon #	Cell #	Pre	Post	Community Type	Acres	Location	Water	Structure	Location	Water	Structure	Delta	Lag	ĸrg	Credits
32a	8	262	625/621	R-HP	26.7	2	1	0	9	9	9	0.80	1.25	0.64	17.08
32b	2	262	625/621	R-HP	0.1	2	1	0	8	8	9	0.73	1.25	0.59	0.06
34a	8	262	625/621	R-HP	7.6	2	1	0	9	9	9	0.80	1.25	0.64	4.86
Up	8	211	625/621	C-HP	11.0	0	0	0	9	9	9	0.90	1.25	0.72	7.92
Up	2	211	625/621	C-HP	2.4	0	0	0	8	8	9	0.83	1.25	0.67	1.59
I	Forested Mi	tigation Sub-tota	als		47.8										31.52
32a	8	262	641/643	R-WP	6.4	2	1	0	9	9	9	0.80	1.00	0.80	5.12
32b	2	262	641/643	R-WP	2.8	2	1	0	8	8	9	0.73	1.00	0.73	2.05
34a	8	262	641/643	R-WP	2.6	2	1	1	9	9	9	0.77	1.00	0.77	1.99
34b	2	262	641/643	R-WP	3.1	2	1	0	8	8	9	0.73	1.00	0.73	2.27
Up	2	211	641/643	C-WP	0.2	0	0	0	8	8	9	0.83	1.00	0.83	0.17
Up	8	211	641/643	C-M	20.2	0	0	0	9	9	9	0.90	1.00	0.90	18.18
He	erbaceous N	litigation Sub-to	otals		35.3										29.79
32a	8	262	Up	R-U	9.2	2	1	0	9	-	9	0.80	1.14	0.70	6.46
32b	2	262	Up	R-U	1.9	2	1	0	6	-	9	0.65	1.14	0.57	1.08
34a	8	262	Up	R-U	1.4	2	1	0	9	-	9	0.80	1.14	0.70	0.98
34b	- 2	262	Up	R-U	1.0	2	1	0	6	-	9	0.65	1.14	0.57	0.57
Up	N 8	211	Up	R-U	0.9	2	-	0	9	-	9	0.80	1.14	0.70	0.63
Up	~ 2	211	Up	R-U	3.4	2	-	0	6	-	9	0.65	1.14	0.57	1.95
U	pl <mark>and Resto</mark>	oration Sub-total	ls**		17.8										11.68
	UT otals]	For Phase IV		-	100.9										72.98

** includes 2.93 threes of restored hydric pine habitats scored as upland. The final configuration of these additional uplands, if any, will be determined at time of Final Success determination

Table 5. UMAN Summary for Bank

Mitigation Activ	2013 Community Type	Acres	Total Adjusted Credits
Upland Enhancentent	E-U	58.5	24.12
Upland Restoration	R-U	39.4	27.08
Upland Enhance/Preserve Totals	-	97.9	51.20
Forested Enhancement	E-C	90.1	28.76
Forested Enhancement	E-HP	73.1	27.08
Forested Restoration	R-C/MWH	9.7	6.07
Forested Restoration	R-HP	219.3	138.27
Forested Creation	C-HP/C	27.6	19.98
Forested Mitigation Totals	-	419.7	220.16
Herbaceous Enhancement	E-M	10.3	2.78
Herbaceous Enhancement	E-WP	14.7	6.05
Herbaceous Restoration	R-WP	68.8	52.33
Herbaceous Creation	C-WP	0.8	0.73
Herbaceous Creation	C-M	20.2	18.18
Herbaceous Mitigation Totals	-	114.8	80.08
Totals for Bank		632.4	351.4

E-U = Enhanced Upland R-U = Restored Uplands E-C = Enhanced Cypress E-HP = Enhanced Hydric Pine R-C = Restored Cypress Savanna R-MWH = Restored Mixed Wetland Hardwoods R-HP = Restored Hydric Pine C-HP/C = Created Hydric Pine C-HP/C = Created Hydric Pine/Cypress E-M = Enhanced Marsh E-WP = Enhanced Wet Prairie R-WP = Restored Wet Prairie C-WP = Created Wet Prairie C-M = Created Marsh

Forested Freshwa	ater	total =	271.36				
Release Mod./	Permit	Issuing	Ledger	Credits	Credits		
Impact Permit	Date	Agency	Modification	Added	Used	Balance	Notes
release Phase 1		DEP	6/29/2007	21.13		21.13	CE, Financial,QMS
release Phase 1		DEP	6/29/2007	24.64		45.77	Exotic Treatment
release Phase 1		DEP	6/29/2007	23.72		69.49	Construction/Planting
release Phase 1		DEP	6/29/2007	7.04		76.53	Prescribed Burn
36-03802-P	2/14/2008	SFWMD	4/30/2008		3.33	73.20	FDOT-
36-06714-P	3/13/2008	SFWMD	4/30/2008		12.05	61.15	Delmack Dev.
36-04978-P	10/3/2007	SFWMD	6/20/2008		3.32	57.83	Colico
release Phase 2		DEP	7/21/2008	6.13		63.96	CE, Financial,QMS
release Phase 2		DEP	7/21/2008	11.92		75.88	Construction/Planting
release Phase 1		DEP	7/21/2008	20.72		96.60	Level 1 Success
36-06446-P	8/3/2007	SFWMD	2/12/2009		0.37	96.23	NN Partners #060524-11
36-06705-P	11/13/2008	SFWMD	6/18/2009		2.96	93.27	Southland #070731-24
176063-005	9/4/2009	DEP	12/10/2009		29.00	64.27	Uni Lake Mine
36-05268-P	1/13/2009	SFWMD	12/10/2009		9.53	54.74	PanInv-3 Oaks #070531-7
194206-005	2/2/2010	DEP	4/20/2011		2.42	52.32	Youngquist/WestLakeMine
194206-006	2/2/2010	DEP	4/20/2011		20.41	31.91	Youngquist/WestLakeMine
36-03802-P	3/24/2010	SFWMD	4/20/2011		0.08	31.83	DOT
36-07315-P	5/10/2010	SFWMD	4/20/2011		0.02	31.81	Lock-up-Evergreen
36-03802-P	8/23/2010	SFWMD	4/20/2011		0.46	31.35	DOT (I75-Luckett)100119-1
36-06983-P	3/8/2010	SFWMD	4/20/2011		1.40	29.95	Freedom Boat Co #070306-9
36-01363-S	10/21/2010	SFWMD	4/20/2011		0.11	29.84	DOT #100908-8
release Phase 4		DEP	6/17/2011	6.51		36.35	CE, Financial,QMS
release Phase 2		DEP	11/14/2011	5.11		41.46	Level 1 Success
36-04975-P	7/5/2011	SFWMD	2/6/2012		0.33	41.13	School District of Lee County
36-07425-P	10/5/2010	SFWMD	2/6/2012		12.12	29.01	Lee County DOT
TA 03-12	9/21/2007	DEP	2/29/2012		2.20	26.81	FPL #3 Transmission Line
36-07561-P	6/20/2011	SFWMD	5/1/2012		0.45	26.36	Premier Island Group, LLC
36-03802-P	2/6/2012	SFWMD	5/1/2012		16.72	9.64	FDOT-SW FL Int Airpt access to I-75
release Phase 3		DEP	5/30/2012	6.95		16.59	CE, Financial,QMS
release Phase 3		DEP	5/30/2012	15.83		32.42	construction/planting
release Phase 4		DEP	5/30/2012	11.32		43.74	construction/planting
36-03802-P	4/27/2012	SFWMD	6/13/2012		0.09	43.65	FDOT-SR 93 Noise Barrier
26-00597-P	11/21/2011	SFWMD	7/17/2012		1.58	42.07	FDOT-SR 80 - Birchwood to Dalton
release Phase 3		DEP	10/15/2012	6.79		48.86	Level 1 Success
release Phase 4		DEP	10/15/2012	4.85		53.71	Level 1 Success

Herbaceous Freshwater

total = 80.08

Release Mod./	Permit	Issuing	Ledger	Credits	Credits		
Impact Permit	Date	Agency	Modification	Added	Used	Balance	Notes
release Phase 1		DEP	6/29/2007	3.60		3.60	CE, Financial,QMS
release Phase 1		DEP	6/29/2007	3.09		6.69	Exotic Treatment
release Phase 1		DEP	6/29/2007	5.32		12.01	Construction/Planting
release Phase 1		DEP	6/29/2007	0.88		12.89	Prescribed Burn
release Phase 2		DEP	7/21/2008	3.94		16.83	CE, Financial,QMS
release Phase 2		DEP	7/21/2008	9.00		25.83	Construction/Planting
release Phase 1		DEP	7/21/2008	3.60		29.43	Level 1 Success
36-03802-P	6/12/2008	SFWMD	9/9/2008		5.59	23.84	DOT
36-06705-P	11/13/2008	SFWMD	6/18/2009		10.96	12.88	Southland #070731-24
194206-006	2/2/2010	DEP	4/20/2011		10.95	1.93	Youngquist/WestLakeMine
36-07278-P	4/29/2010	SFWMD	4/20/2011		0.04	1.89	FDOT
36-03802-P	10/7/2010	SFWMD	4/20/2011		0.06	1.83	DOT-Dist-1
release Phase 4		DEP	6/17/2011	4.45		6.28	CE, Financial,QMS
release Phase 2		DEP	11/14/2011	3.86		10.14	Level 1 Success
36-07562-P	10/24/2011	SFWMD	5/1/2012		0.92	9.22	Buckingham Gardens
36-03802-P	2/6/2012	SFWMD	5/1/2012		5.36	3.86	FDOT-SW FL Int Airpt access to I-75
release Phase 4		DEP	5/30/2012	3.97		7.83	construction/planting
26-00597-P	11/21/2011	SFWMD	7/17/2012		2.03	5.80	FDOT-SR 80 - Birchwood to Dalton
release Phase 4		DEP	10/15/2012	1.70		7.50	Level 1 Success

ATTACHMENT E: Monitoring Plan

Abstract: The monitoring of the restoration at Corkscrew Regional Mitigation Bank (Bank) consists of both quantitative and qualitative monitoring. The quantitative vegetation monitoring will be conducted after planting and prior to attainment of each level of success and will accompany the request for credit release. Monitoring will be reported for all areas that have been planted within the Bank. Parameters to be monitored consist of percent cover by species or grouping, species richness, and cover by exotic and nuisance species. Monitoring will also contain information on planted tree growth and density. Qualitative monitoring information to be included in the annual reports will consist of an overall hydrologic assessment of the wetland, an estimation of the percent cover and dominant species in each community, documentation of the presence or spread of nuisance species, wildlife utilization, and general biological integrity of the restored wetland. Monitoring activities initiated upon the completion of initial restoration activities will cease upon attainment of Success Level 3. The specific monitoring techniques to be employed in the monitoring of these wetlands are described below.

A. Quantitative Monitoring

i. <u>Vegetation</u>: Quantitative vegetation monitoring will occur at the end of the growing season (mid-September to mid-November) in the first season following restoration activities (as a baseline) or at any time prior to each request for a determination of success level attainment.

The percent vegetation cover within the enhanced and restored wetlands will be monitored using the line intercept methodology. One or more $300\pm$ foot long transects will be established in representative portions of each enhanced and restored community as shown in Figures E-1 and E-2. A measuring tape will be stretched along the transect and the plant(s) occurring directly below (ground cover) and above (canopy) the tape will be recorded at precise 3 foot intervals along the transect. Canopy species consist of all woody plants (trees and shrubs) greater than 3 feet in height. Ground cover species include all vegetation less than 3 feet in height and will be reported; however, percent cover will be totaled for each of the following categories: native herbaceous species; exotic species; nuisance species; and wax myrtle (*Myrica cerifera*), Carolina willow (*Salix caroliniana*), and saltbush (*Baccharis halimifolia*), as listed in the success criteria. Bare ground or water and open sky will also be recorded in this manner.

Species richness will be measured within 200 x 300 foot plots centered along the 300 foot line intercept transects. All ground cover species occurring within the plots will be recorded. The number of native herbaceous species will be reported for marsh and cypress communities. The number of native herbaceous species that are listed in the attached Table E-1 will be reported for the wet flatwoods and prairie community.

To document tree density, growth, and viability in planted areas, tree species, stem density, and height will be monitored using the "line strip" (belt transect) technique.^{1,2,3} These transects will be associated with each vegetation transect in the planted forest communities (Figure E-1).

The belt transects will be $300\pm$ feet in length and $33\pm$ feet in width (Figure E-2). Within each belt transect, the height and density of each planted tree will be recorded. Water depths and qualitative notes on the condition of each tree, including evidence of seed production or natural recruitment, will also be recorded.

ii. <u>Wildlife Utilization</u>: During the vegetation monitoring described above, observations of wildlife utilizing the wetlands will be recorded. These observations will consist of direct sightings, scat, tracks, or vocalizations. The species, relative abundance, and if apparent, the use (i.e., foraging, nesting, cover, etc.) of wildlife observed will be recorded for each community. For Success Levels 1 and 2, this semi-quantitative wildlife monitoring will be conducted along with the quantitative vegetation monitoring. Additional similar wildlife monitoring surveys may be conducted at other times during the year to integrate seasonal wildlife usage.

At Success Level 3, an additional quantitative monitoring may be conducted, if necessary. This will consist of observations of amphibian, reptiles, mammals, and birds within each community along pedestrian transects. In addition to the pedestrian surveys, trapping may be conducted along drift fences if needed to document attainment of Success Level 3. Trapping may occur for a period of eight days, three times a year (approximately April, June, and September). In the event that reference wetlands are used to meet the success criteria, the same monitoring methodology will be used during the same time period at the reference wetlands.

- iii. <u>Hydrologic Monitoring</u>: Staff gauges and/or shallow ground water wells have been established in representative areas of each community type (Figure E-1). Ground elevations have been surveyed for each monitoring location. Water levels will be recorded at 24-hour intervals and downloaded when the staff gauges are monitored. Rainfall data will be collected weekly from an on-site rain gauge. Water elevations will be reported relative to ground elevation. Twenty-two continuous recording monitoring wells have been established on-site to document hydrological patterns and serve as a reference for the other monitoring sites.
- iv. <u>Permanent Photographic Stations</u>: Panoramic photographs will be taken from permanently established stations at each transect (Figure E-2) during each qualitative and

¹Lindsey, A.A. 1955. Testing the Line Strip Method Against Full Tallies in Diverse Forest Types. Ecology 36:485-495.

²Woodin, H.E. and A.A. Lindsey. 1954. Juniper-Pinyon East of the Continental Divide as Analyzed by the Line Strip Method. Ecology 35:474-489.

³Bauer, H.L. 1943. The Statistical Analysis of Chaparral and Other Plant Communities By Means of Transect Samples. Ecology 24:45-60.

quantitative vegetation monitoring event. These photographs will provide additional documentation of the conditions within the wetland.

v. <u>Monitoring Locations</u>: The proposed monitoring locations are shown in the attached figures. Figure E-1 depicts the approximate location of the proposed vegetation transects, photograph stations, staff gauges, and wildlife and qualitative vegetation pedestrian transects. Figure E-2 depicts the approximate configuration of the percent ground cover monitoring transect, tree density and height monitoring plot, species richness monitoring plot, and photograph station for each monitoring location

B. Qualitative Monitoring

- i. <u>Vegetation</u>: Qualitative vegetation monitoring will occur annually at the end of the growing season. The condition of the vegetation, both ground cover and planted trees, will be qualitatively evaluated. This evaluation will consist of making observations throughout the enhanced, restored, and created wetlands and at the established monitoring transects, as noted in Figure E-1. Notes on general health and reproductive status of vegetation, estimates of cover and dominant species, notation of recruitment of new species, the presence or spread of nuisance/exotic species, and the hydrologic condition of the enhanced and restored wetlands will be recorded. An evaluation will be made regarding how representative the monitoring areas are relative to the community being measured. Potential problems and appropriate solutions will be identified.
- ii. <u>Photographic Stations</u>: Panoramic photographs will be taken from the permanently established stations at each transect. Additional photographs representing typical conditions will be taken. These photographs will provide additional documentation on the conditions within the wetland.
- iii. <u>Wildlife Utilization</u>: During the vegetation monitoring described above, observations of wildlife utilizing the restored wetlands will be recorded. These observations will consist of direct sightings, scat, tracks, or vocalizations.

C. Reporting

- i. <u>Frequency</u>: An annual monitoring report will be prepared after the vegetation monitoring is completed and analyzed and is due by January 31 of each year. This report may also contain a section that incorporates the required "Progress Report" for the previous six months. Data reported and analyzed will be segregated by community type.
- ii. <u>Results</u>: The report will contain a listing of all sampling dates and tabulated raw data for each type of data collected. Raw data include qualitative vegetation and wildlife field sheets for each transect, belt transect and sampling date, quantitative transect by transect, photographs, and hydrologic data by station and date. Raw data for vegetation will then be tabulated by transect for the appropriate success criteria per community. The raw hydrology data will also be presented on a single graph, with each monitoring location represented by a different point (or line, for continuous recording stations) at the same

scale relative to ground elevation (in inches or feet above or below ground surface vs. time). Wildlife data may be pooled, by community, from all sampling locations.

- iii. <u>Analysis</u>: An assessment of the qualitative data shall be discussed relative to its use in adaptive management, as a measure of the degree of trending toward success, and as an indicator of support for quantitative data. Analysis shall include a discussion of data relative to the criteria for each level of success in each community of each phase. To meet criteria for any success level for the community type:
 - 1. Each vegetation transect in the community type shall meet the appropriate community vegetation criteria, unless the preponderance of data indicates that the community type as a whole is attaining success criteria, and that any transect not meeting the criteria is, for some reason, not representative of site conditions;
 - 2. Each hydrology monitoring station in the community type shall meet the appropriate community hydrology criteria, unless the preponderance of data indicates that the community type as a whole is attaining success criteria, and that any location not meeting the criteria is, for some reason, not representative of site conditions; and
 - 3. The wildlife data shall meet the criteria for each community type.

If it is noted during sampling that an established transect is not representative of site conditions, that transect shall be moved to an appropriate location within the community, as approved by the Department.

For the final success determination, the report shall summarize all of the previous reports and provide information on when Level 3 success was attained for each community type. It shall contain photographic and qualitative documentation that the communities have maintained that level of success or greater. Finally, it shall provide information useful for the continued successful management of the site.

Scientific Name	Common Name
Agalinis sp.	False foxglove
Aletris lutea	Yellow colic-root
Amphicarpum muhlenbergianum	Blue maidencane
Andropogon brachystachyus	Shortspike bluestem
Andropogon glomeratus	Bushy bluestem
Andropogon glomeratus var. glaucopsis	Purple bluestem
Andropogon gyrans	Elliott's bluestem
Andropogon virginicus	Broomsedge
Andropogon virginicus var. glaucus	Chalky bluestem
Andropogon ternarius	Splitbeard bluestem
Apios americana	Potato-bean
Aristida beyrichiana	Wiregrass
Aristida patula	Tall threeawn
Aristida purpurascens	Arrowfeather
Aristida spiciformis	Bottlebrush threeawn
Aristida stricta	Wiregrass
Aster adnatus	Scaleleaf aster
Aster dumosus	Rice button aster
Aster subulatus	Annual marsh aster
Axonopus fissifolius	Southern carpet grass
Axonopus furcatus	Big carpetgrass
Bacopa innominata	Tropical water hyssop
Balduina angustifolia	Yellow buttons
Bigelowia nudata	Rayless goldenrod
Blechnum serrulatum	Swamp fern
Boltonia diffusa	Doll's daisy
Buchnera americana	Blue heart
Carex longii	Long's sedge
Centella asiatica	Asiatic pennywort
Carphephorus subtropicanus	Pineland purple
Chaptalia tomentosa	Pine daisy
Cirsium horridulum	Yellow thistle
Cladium jamaicense	Sawgrass
Coreopsis floridana	Florida tickseed
Coreopsis leavenworthii	Leavenworth's tickseed
<i>Cyperus croceus</i> ²	Baldwin flatsedge
Cyperus haspan	Haspan flatsedge
Cyperus ligularis ²	Swamp flatsedge

Table E-1.List of Acceptable Potential Ground Cover Species for Hydric Pine1

Scientific Name	Common Name
Cyperus polystachyos	Manyspike flatsedge
Cyperus retrorsus	Pinebarren flatsedge
<i>Cyperus surinamensis</i> ²	Tropical flatsedge
Dichanthelium commutatum	Witchgrass
Dichanthelium dichotomum	Witchgrass
Dichanthelium ensifolium	Low panicum
Dichanthelium erectifolium	Erectleaf witchgrass
Dichanthelium portoricense ³	Witchgrass
Dichanthelium strogosum var. glabrescens ³	Low panicum
Dichromena colorata	White-top sedge
Diodia virginiana	Virginia buttonweed
Drosera brevifolia	Dwarf sundew
Drosera capillaris	Pink sundew
Eleocharis baldwinii	Spikerush
Eleocharis flavescens	Pale spikerush
Eleocharis geniculata	Spikerush
Elephantopus elatus	Florida elephant's foot
Elionurus tripsacoides	Pan-american balsamscale
Elytraria caroliniensis	Elytraria
Eragrostis elliottii	Elliott's lovegrass
Erechtites hieracifolius	Fireweed
Erigeron vernus	Early whitetop fleabane
Eriocaulon decangulare	Tenangle pipewort
Eryngium aromaticum	Fragrant eryngium
Eryngium baldwinii	Baldwin's coyote-thistle
Eryngium yuccifolium	Button snakeroot
Eupatorium leptophyllum	Fennel
Eupatorium mikaniodes	Semaphore thoroughwort
Eupatorium mohrii	Mohr's eupatorium
Eustachys glauca	Saltmarsh fingergrass
Euthamia caroliniana	Slender goldenrod
Euthamia minor	Short-topped goldenrod
Fimbristylis autumnalis	Slender fimbry
Fimbristylis dichotoma	Tall fimbry
Fimbristylis puberula	Vahl's hairy fimbry
Flaveria lineatis	Yellow top
Fuirena breviseta	Umbrellagrass
Fuirena scirpoidea	Southern umbrellasedge
Helianthus agrestis	Southeastern sunflower
Helianthus angustifolius	Swamp sunflower
Heliotropium polyphyllum	Pineland heliotrope
Hydrocotyle umbellata	Water pennywort

Scientific Name	Common Name
Hypericum brachyphyllum	St. John's wort
Hypericum cistifolium	St. John's wort
Hypericum fasciculatum	Sandweed
Hypericum hypericoides ¹	St. John's wort
Hypericum myrtifolium	Myrtle-leaf St. John's wort
Hypericum reductum	Atlantic St. John's wort
Hypericum tetrapetalum	Heart-leaved St. John's wort
Hyptis alata	Musky mint
Ilex cassine	Dahoon holly
Iresine diffusa	Bloodleaf
Juncus marginatus	Grassleaf rush
Juncus megacephalus	Rush
Lachnanthes caroliniana	Redroot
Leersia hexandra	Southern cutgrass
Liatris garberi	Garber's gayfeather
Liatris gracilis	Slender gayfeather
Liatris laevigata	Longleaf blazing star
Linum medium	Stiff yellow flax
Lobelia glandulosa	Coastal plain lobelia
Lobelia paludosa	White lobelia
Ludwigia curtissii	Curtiss' seedbox
Ludwigia maritima	Seaside seedbox
Ludwigia microcarpa	Small-fruit seedbox
Lygodesmia aphylla	Roserush
Melanthera nivea	Snow squarestem
Melochia spicata	Chocolateweed
Melothria pendula	Creeping cucumber
Mitreola petiolata ³	Hornpod
Mitreola sessilifolia	Swamp hornpod
Muhlenbergia capillaris	Muhly grass
Oxypolis filiformis	Water dropwort
Panicum anceps	Beaked panicum
Panicum hemitomon	Maidencane
Panicum hians	Gaping panicgrass
Panicum longifolium	Panicgrass
Panicum rigidulum	Redtop panicum
Panicum tenerum	Bluejoint panicum
Paspalum blodgettii	Blodgett's paspalum
Paspalum caespitosum	Blue paspalum
Paspalum monostachyum	Gulfdune paspalum
Paspalum setaceum	Thin paspalum

Table E-1. (Continued)

Scientific Name	Common Name
Phyla nodiflora	Carpetweed
Physostegia purpurea	Purple dragonhead
Pinguicula pumila	Small butterwort
Pinus elliottii var. densa	South Florida slash pine
Piriqueta caroliniana	Piriqueta
Pityopsis graminifolia var. tracyi	Tracy's silkgrass
Pluchea odorata	Saltmarsh fleabane
Pluchea rosea	Godfrey's marsh fleabane
Polygala grandiflora	Large-flowered polygala
Polygala lutea	Wild bachelor's button
Polygala rugellii	Yellow milkwort
Polygonum punctatum ²	Dotted smartweed
Pterocaulon pycnostachyum	Blackroot
Ptilimnium capillaceum ²	Bishopweed
Rhexia mariana	Pale meadowbeauty
<i>Rhexia</i> spp.	Meadow beauty
Rhynchospora breviseta	Shortbristle beaksedge
Rhynchospora colorata	White-top sedge
Rhynchospora divergens	Spreading beaksedge
Rhynchospora fascicularis	Fasciculate beaksedge
Rhynchospora filifolia	Threadleaf beaksedge
Rhynchospora globularis	Globe beaksedge
Rhynchospora inundata	Narrowfruit horned beaksedge
Rhynchospora microcarpa	Southern beaksedge
Rhynchospora nitens	Shortbeak beaksedge
Rhynchospora odorata	Fragrant beaksedge
Rhynchospora pusilla	Fair beaksedge
Rhynchospora tracyi	Tracy's beakrush
Rubus trivialis	Southern dewberry
Rudbeckia hirta	Black-eyed susan
Sabal palmetto	Cabbage palm
Sabatia brevifolia	Shortleaf rosegentian
Sabatia grandiflora	Largeflower rosegentian
Sacciolepis striata ²	American cupscale
Sagittaria subulata ²	Arrowhead
Sarcostemma clausum	White vine
Schizachyrium scoparium	South Florida bluestem
Schizachyrium sanguineum	Crimson bluestem
Schizachyrium sp.	Schizachyrium
Scleria ciliata	Fringed nutrush

Table E-1. (Continued)

Scientific Name	Common Name
Scleria georgiana	Slenderfruit nutrush
Scleria pauciflora	Few-flowered nutrush
Scleria reticularis	Netted nutrush
Scoparia dulcis	Sweet broom
Serenoa repens	Saw palmetto
Setaria geniculata	Knotroot foxtail
Setaria parviflora	Knotroot foxtail
Solidago fistulosa	Pinebarren goldenrod
Solidago odora var. chapmanii	Chapman's goldenrod
Solidago stricta	Goldenrod
Spartina bakeri	Sand cordgrass
Spermacoce remota	Spermacoce
Spiranthes vernalis	Spring ladies' tresses
Stillingia sylvatica	Queen's delight
Symphyotrichum subulatum	Annual marsh aster
Syngonanthus flavidulus	Yellow hatpins
Tripsacum dactyloides	Eastern gamagrass
Xyris caroliniana	Carolina yellow-eyed grass
Xyris difformis var. floridana	Florida bog yellow-eyed grass
<i>Xyris elliottii</i>	Elliott's yellow-eyed grass
<i>Xyris jupicai</i> ²	Richard's yellow-eyed grass
<i>Xyris</i> sp.	Yellow-eyed-grass
<i>Xyris platylepis</i>	Tall yellow-eyed grass
Xyris smalliana	Small's yellow-eyed grass

Table E-1. (Continued)

¹Species may be added to or deleted from the list above with the mutual consent of the Banker and IRT. ²Species appropriate only in small amounts (up to five percent cover). ³Species accepted on Mitigation Banking Instrument (MBI) list.

ATTACHMENT F: Proposed Site Conditions for Restoration Areas

Corkscrew Regional Mitigation Bank's (CRMB) restoration area located in the old farm is generally flat with two isolated cypress areas that were not cleared for agricultural purposes. Prior to agricultural activities, the farmed area/restoration area was most likely a mosaic of uplands and short hydroperiod wetlands that surrounded the two longer hydroperiod cypress wetlands that still remain. There is no single FLUCFCS code that identifies this mosaic of natural community types. However, the combination of natural communities (i.e., hydric flatwoods, cypress, and wet prairies) more appropriately identifies the historic habitat type within the restoration area.

The U.S. Fish and Wildlife Service (USFWS) Multi-Species Recovery Plan for South Florida¹ describes hydric pine flatwoods as unique to South Florida and a distinct habitat that is in dynamic equilibrium between drought and flood. This community type seasonally functions as both a wetland (during the wet season from June to September) and upland (during the dry season from November to April). Hydric pine flatwoods occur on flat topography and sandy and/or marly soils. Inundation (water standing on the surface) typically occurs for one or more months during the rainy season; however, hydrologically impacted hydric pine flatwoods may have standing water for just 30 days. The USFWS states that water depths in hydric pine flatwoods vary throughout the seasonal hydrologic cycle with typical ranges from one to two feet above ground surface at the height of the wet season to three feet below ground in the late dry season. For most of the year, hydric pine flatwoods, as described by the USFWS,¹ have water within one foot above or below the ground surface.

At slightly lower elevations than hydric pine flatwoods, the cypress and wet prairie are geomorphically similar habitats that experience a widely fluctuating wetland hydroperiod marked by seasonal flooding and periodic low to moderate intensity fires that preclude encroachment by hardwood species. The hydrology and structure of these habitats are more akin to the existing restored cypress and restored marsh/wet prairie that currently exist in the old farm fields. The wet flatwoods and wet prairie community types described in the Florida Natural Areas Inventory (FNAI) Guide to the Natural Communities of Florida^{2,3} are also representative of the historic natural community types of the Bank site. Three similar natural communities are discussed by Michael Duever and others in the South Florida Water Management District's (SFWMD) technical publication titled *Pre-Development Vegetation Communities of Southern Florida.*^{4,5} These three community types are Hydric Flatwoods, Wet Prairie with Scattered

¹U.S. Fish and Wildlife Service. 1999. South Florida multi-species recovery plan. Atlanta, Georgia. Pages 3-231 – 3-269.

²Florida Natural Areas Inventory (FNAI). 1990. Guide to the natural communities of Florida. Florida Natural Areas Inventory and Florida Department of Natural Resources, Tallahassee, Florida.

³Florida Natural Areas Inventory (FNAI). 2010. Guide to the natural communities of Florida: 2010 edition. Florida Natural Areas Inventory, Tallahassee, Florida.

⁴Zahina, J.G., Said, W.P., Grein, R., and Duever, M. 2007. Pre-development vegetation communities of southern Florida. Technical publication HESM-02. South Florida Water Management District, West Palm Beach, Florida.

⁵Duever, M. 2004. Appendix B in Pre-development vegetation communities of southern Florida. Technical publication HESM-02. South Florida Water Management District. [Page B-25]

Trees, and Wet Prairie with Scattered Cypress. Hydric flatwoods and the wet prairie classifications are represented by a hydroperiod of two to six months. Duever^{4,5} describes wetland hydroperiods for hydric flatwoods as ranging from 30 to 60 days and wet prairie hydroperiods ranging from 60 to 180 days. Table 1 includes a reference to hydroperiods for wetland community types in Southwest Florida.

Average Annual Hydroperiod (Days Inundated)	Source	Notes
Marsh		
50 - 200	FNAI ^{2,3}	Depression Marsh (isolated, small)
Cypress		
60 - 180	Duever ⁵	
60 - 180	PSRP ⁶	
Wet Prairie		
50-100*	FNAI ^{2,3}	*Inundated or saturated; usually saturated, but only occasionally inundated
60 - 180	Zahina ⁴	
60 - 180	PSRP ⁶	
Hydric Hammock		
≤ 60	FNAI ^{2,3}	Generally saturated; seldom inundated over 60 days
30 - 60	Zahina ⁴	
< 60	PSRP ⁶	
Hydric Pine		
30 or more	FNAI ^{2,3}	Wet Flatwoods
30 - 60	Zahina ⁴	
30-60	PSRP ⁶	

Table 1.Hydroperiods by Habitat Type

With the appropriate fire frequency and seasonal alternation between drought and flood, hydric pine flatwoods can have the highest plant species diversity of any habitat in South Florida. The alternating upland and wetland conditions allow for both upland and wetland plant species to utilize the same habitat during different seasons.¹ According to the USFWS,¹ FNAI,^{2,3} and SFWMD⁴ community descriptions, canopy species present in hydric pine/wet flatwoods and wet prairies include scattered South Florida slash pine (*Pinus elliottii* var. *densa*) and pond cypress (*Taxodium ascendens*). Sub-canopy species, if present, include scattered wax myrtle (*Myrica cerifera*), pond cypress, slash pine, dahoon holly (*Ilex cassine*), sweetbay (*Magnolia virginiana*), Carolina willow (*Salix caroliniana*), cabbage palm (*Sabal palmetto*), and swamp bay (*Persea palustris*). Ground cover species include a large variety of species depending on the season, fire frequency, and wetness of the site. Representative species include grasses (e.g., *Muhlenbergia capillaris, Panicum hemitomon*, and *Spartina bakeri*); sedges (e.g., *Cladium jamaicense* and *Rhynchospora* spp.); St. John's wort (*Hypericum fasciculatum*); pipeworts (*Eriocaulon* spp.); yellow-eyed grass (*Xyris* spp.); marsh pinks (*Sabatia* spp.); and possibly terrestrial orchids

⁶Picayune Strand Restoration Project (PSRP) Biological Opinion. USFWS 2009.

(Spiranthes spp., Calopogon spp., and Pogonia ophioglossoides). Other ground cover species may include meadowbeauties (*Rhexia* spp.), and composites such as *Balduina* spp., *Carphephorus* spp., *Coreopsis* spp., *Eupatorium* spp., *Helianthus* spp., *Rudbeckia* spp., and *Solidago* spp.

The target condition of the Bank is one that, with appropriate continued management, will be similar to historical native structure and vegetation that includes upland and mesic pine, hydric flatwoods, cypress, wet prairie with scattered cypress and pine, marsh, and mixed wetland forest. The landscape, except for the deepest wetlands, will be managed primarily through the use of prescribed burning. Hydric flatwoods will be restored to historic conditions of widely spaced canopy of South Florida slash pines with lesser amounts of cypress, in an open landscape with a species-rich ground cover dominated by fire-dependent grasses and forbs and with shrubs maintained as coppice. The wet prairie landscape is found downslope of the hydric flatwoods. This nearly-treeless community would have a similar diverse ground cover, dominated by beak rushes, maidencane, and other grasses and forbs that carry fire. If trees are present, the canopy will consist of primarily cypress with lesser amounts of slash pine.

Shrubs, a minor component of this landscape, are maintained as coppice and often include wax myrtle and saltbush (*Baccharis halimifolia*). Hardwood trees or woody shrubs that exceed 1.5 meters in height with a collective canopy coverage of greater than 50 percent shall be limited to random spots of less than one acre and shall represent an insignificant feature in this community type. Overall, the landscape will be restored to an open landscape that will resemble historic conditions as shown in Photographs 1 through 5.

The restored ground cover will contain a diverse assemblage of wetland herbs. Typical ground cover species are listed in Table 2.

Scientific Name	Common Name
Agalinis spp.	False foxglove
Amphicarpum muhlenbergianum	Little blue maidencane
Andropogon glomeratus	Bluestem
Andropogon virginicus	Broomsedge
Aristida stricta	Wiregrass
Aristida spp.	Threeawn
Asclepias lanceolata	Milkweed
Asimina spp.	Pawpaw
Baccharus halimifolia	Groundsel tree
Cirsium spp.	Thistle
Coreopsis spp.	Tickseed
Dichanthelium spp.	Witchgrass
Helenium spp.	Sneezeweed
<i>Hypericum</i> spp.	St. John's wort
Juncus spp.	Rush

Table 2.Typical Hydric Pine Flatwood/Cypress /Wet Prairie Ground Cover as
Identified in Photographs 1 and 2
Table 2. (Continued)

Scientific Name	Common Name
Muhlenbergia capillaris	Muhly grass
Myrica cerifera	Wax myrtle
Panicum spp.	Maidencane
<i>Pluchea</i> spp.	Camphorweed
<i>Polygala</i> spp.	Milkwort
Rhynchospora spp.	Beaksedge
Serenoa repens	Saw palmetto
<i>Solidago</i> spp.	Goldenrod
Spartina bakeri	Cordgrass
Stillingia aquatica	Corkwood
<i>Xyris</i> spp.	Yellow-eyed grass

The photographs provided below are examples of structure within the range of expected outcomes for the named communities that reflect appropriate targets, but may vary in species and/or density of individual plants or strata.



Photograph 1 – Hydric Pine Flatwoods target – open landscape; South Florida slash pine with little shrub strata; lush, diverse ground cover.



Photograph 2 – Wet Prairie target – open landscape; sparse canopy of pine and cypress; little shrub strata; sparse, diverse ground cover.



Photograph 3



Photograph 4



Photograph 5

Photographs 3, 4, and 5 – Restored Cypress target – open landscape; sparse canopy of low growing cypress; little shrub strata; sparse, diverse ground cover. South Florida slash pine is an acceptable component in the canopy of this habitat.

CORKSCREW REGIONAL MITIGATION BANK LONG-TERM MANAGEMENT PLAN

December 9, 2013

INTRODUCTION

The Corkscrew Regional Mitigation Bank (Bank) is $632\pm$ acres located in Lee County, approximately 9 miles east of Interstate 75, directly north of Corkscrew Road in Section 20, Township 46 South, Range 27 East, Lee County. The Bank was established in accordance with Florida Department of Environmental Protection (FDEP) Environmental Resource/Mitigation Bank Permit No. 0198035-001. Details regarding proposed site conditions and prescribed fire management are included as attachments to the permit. The South Florida Water Management District (SFWMD) (Supervisor) owns the property and will assume the long-term management in perpetuity. Use of the site will be controlled and consistent with allowable uses outlined in the conservation easement.

The Bank was designed to enhance water quality and wetland function by eliminating agricultural drainage and removing cattle, by grading and planting pasture areas to restore or create natural communities, and by treating and managing exotic and nuisance vegetation on native lands. The Bank enhanced and restored a mosaic of freshwater marsh, wet prairie, hydric pine flatwoods, cypress, and mixed wetland forests to be used as mitigation for impacts to wetlands typical of these historic or disturbed systems within the service area.

Rule 62-342.450(4)(e) Florida Administrative Code, requires the Bank to provide a plan for long-term management. Ongoing management activities include control of exotic and nuisance vegetation, prescribed burning, site inspections, site security, feral hog (*Sus scrofa*) control, reporting/documentation, and general maintenance of data loggers, gates, fencing, signage, and water management structures. The implementation of management activities will be guided by this plan as described below.

NUISANCE AND EXOTIC VEGETATION CONTROL

Maintenance of the mitigation areas will occur annually, at a minimum, and more frequently as needed. Exotic vegetation will be maintained at less than one percent cover per acre. Nuisance species will be maintained at no more than five percent cover per acre. The goal of nuisance and exotic vegetation control is to restore the site to a self-sustaining natural area.

Invasive exotic and nuisance vegetation including, but not limited to, melaleuca (*Melaleuca quinquenervia*), Brazilian pepper (*Schinus terebinthifolius*), torpedograss (*Panicum repens*), West Indian marshgrass (*Hymenachne amplexicaulis*), caesarweed (*Urena lobata*), bahiagrass (*Paspalum notatum*), Bermuda grass (*Cynodon dactylon*), cattail (*Typha spp.*), and primrose willow (*Ludwigia peruviana*) shall be controlled by appropriate measures including herbicide application, prescribed burning, and/or physical removal. Applications will be conducted to

minimize damage to non-target species to the maximum extent practical. Non-target species shall be protected using best management practices at all times. Exotic and nuisance species control will be conducted under the direction of the Supervisor and the direct supervision of a state-licensed professional herbicide applicator. Exotic and/or nuisance species will be treated with the use of an approved herbicide in strict accordance with labeling instructions by a qualified applicator. Methods based on effective, ecologically-preferred alternatives may be implemented after review and approval by the Supervisor.

Chemical storage areas need to be kept neat and clean. All refuse generated at the Bank site needs to be disposed of in a responsible and timely manner. Absolutely no burning of refuse is permitted on the Bank.

The following are specific management activities that will be implemented to control exotic and nuisance vegetation:

1. Log herbicide applications daily.

Management activities and chemical applications will be logged daily by the chemical applicator and reported to the Supervisor on a weekly basis. It is the responsibility of the chemical applicator to insure the herbicide and application methods are being used effectively. Lack of effective control in any area following treatment (defined as less than 60 percent kill) must be noted and documented to the Supervisor. The chemical applicator is responsible for assessing possible reasons for lack of effective control following herbicide treatment and reviewing these reasons with the Supervisor.

2. Evaluate the existing herbicide mixes and their effectiveness at treating targets.

The Supervisor will review existing recommended treatment methods and rates with the chemical applicator. The Supervisor and chemical applicator will evaluate the kill ratio of existing methods, particularly in torpedograss treatment areas, and make recommendations to update or modify mixes to increase the effectiveness of the treatment program. Rotation of chemical mixes is recommended if the same mix has been used in persistent problem areas for three years or more.

3. Burning areas of dense exotics with prescribed fires that create high heat at the ground surface followed by herbicide treatment.

Prescribed fire can be used to reduce above ground biomass and improve the effectiveness of follow-up herbicide treatments. Burning prior to herbicide treatment helps to remove thick ground cover thatch and improves the herbicide to plant contact. Burning helps to expend a plant's stored energy reserves by triggering new production of stems and leaves and can improve the effectiveness of herbicide treatment. Burning torpedograss, especially during drier times of the year and during hotter periods of the day, is capable of producing lethal heat at rhizome level. A spray plan should initiate within 60 days following successful treatment by prescribed fire when new shoots are readily apparent.

4. Target hard to control torpedograss and other exotic vegetation with an increased frequency of spray treatment.

The number and frequency of spray treatments being conducted in exotic and nuisance vegetation areas will be tracked over time to determine the effectiveness of management activities and adjusted accordingly. Weather, prescribed fire, and water conditions will necessitate modifications to the schedule. Modifications to the schedule must be reviewed and approved by the Supervisor.

5. Conduct periodic inspections.

A trained ecologist will conduct semi-annual inspections of the entire Bank area for the presence of exotic or nuisance species, hydrologic concerns, or other items that could potentially adversely affect habitat conservation. Inspections will be used to evaluate effectiveness of the treatment program and identify targets for follow-up treatment. Water control structures will be inspected during both wet and dry seasons to ensure that they are operating as designed and structural integrity is not compromised.

6. Limit mechanical treatment to areas that cannot be effectively treated by prescribed fire alone.

Limiting the use of mowing to reduce vegetation height will help to reduce soil disturbance; reduce risk of spreading noxious exotic and nuisance vegetation species; improve heterogeneous, more natural mosaic of vegetation communities; and mimic natural processes that may elicit a more favorable regenerative response by native species.

7. Maintain cover and habitat for wildlife in mechanical treated areas.

Mechanical treatments, when authorized by the Supervisor, should seek to maintain cover and travel corridors for wildlife by leaving small patches of untreated ground cover in the landscape. Mechanical treatments should seek to avoid the mowed pasture effect.

PRESCRIBED BURNING

Prescribed burning will be conducted on a two to five year rotation with no more than 30 percent black acres per year to maintain an open mid-story stratum within the upland and hydric pine flatwood, wet prairie, and restored cypress communities. Prescribed fire will continue to be used with herbicide as a priority management tool to control the growth and spread of exotic vegetation. The following restoration and management activities will be implemented regarding the use of prescribed fire:

- 1. Continue to utilize prescribed fire as a precedent to herbicide treatment in areas with dense cover of exotic grass.
- 2. Burn as natural conditions permit.

Avoid limiting the use of prescribed fire to the dry season months. Wet season burns will elicit a differing and more natural vegetation response and should be included in the burn cycle when conditions permit.

MONITORING

Monitoring will be conducted every six months by a trained ecologist to document both dry season and wet season conditions. Monitoring will include a qualitative assessment of habitat condition to assess the condition of native vegetation; identify the location of exotic and nuisance vegetation to target for maintenance events; document water levels; assess the need for feral/exotic animal control; and assess the need for maintenance of fencing, signage, staff gauges and piezometers, and stormwater structures. The trained ecologist will provide a report to the Supervisor and the FDEP detailing qualitative observations, showing transect locations, and providing community descriptions and photographs.

SECURITY AND PERIODIC PATROLLING

The fence, gate, and "No Trespass" signs that currently surround the Bank must be maintained by the Supervisor in cases where trees, fire, wildlife, and/or persons trying to enter the Bank have damaged them. Measures to control and restrict public access will consist of the following:

- Annual maintenance of access gate at the property perimeter.
- Patrolling of the property to inspect security of the perimeters and identify problem areas.
- Annual inspections and maintenance of posted signage at property perimeters to restrict unauthorized access.

FERAL HOG CONTROL

If hog trapping is required, the Supervisor shall review a control plan with the trapper. The following protocols should be followed when implementing this method:

- Locate traps in or near the north end of the site by the shaded area where populations of hogs are likely to be larger and more active.
- Use cage, corral style, or standard hog traps.
- Traps must be checked daily.
- Examine fencing regularly to be sure the hogs are not finding ways through/under the fence.

GENERAL MAINTENANCE

There are two fixed weir, hardened control structures located at the south side of the Bank with discharge to the Corkscrew Road swale. Maintenance of these control structures will include

inspections to ensure flow is not obstructed and the control structures continue to function as intended. The low water crossings in the main entrance drive must remain unobstructed to facilitate the movement of water from east to west.

Main trails that currently exist on the Bank must be kept at grade. Use of mechanical equipment and vehicles is permitted on main pathways. Main pathways will be reviewed and established by the Supervisor. Main pathways may vary depending on time of year and water level conditions. Use of mechanical equipment and vehicles shall be minimized to the maximum extent practical when used off of main pathways. Use of mechanized equipment and vehicles is restricted from use in areas with saturated soils without consent of the Supervisor. Mechanized mowing, roller chopping, bush hogging, or disking is restricted from use without the consent of the Supervisor. Mechanical equipment used and kept on-site must be in safe working order. Any fluid leaks must be immediately repaired. The mechanical equipment operator is responsible for maintaining oil cleanup supplies on-site.