

***Live Oak No. 2
Community Development
District***

September 17, 2026

Agenda Package

**Meeting to be held at:
Live Oak Clubhouse
9401 Oak Preserve Boulevard
Tampa, Florida 33647**

2005 PAN AM CIRCLE, SUITE 300
TAMPA, FL 33706

CLEAR PARTNERSHIPS



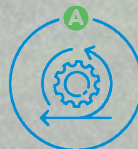
COLLABORATION



LEADERSHIP



EXCELLENCE



ACCOUNTABILITY



RESPECT

Live Oak II Community Development District

Board of Supervisors

Elizabeth Hubbard, Chairperson
Ronald Dell, Vice Chairperson
Artur Araujo, Assistant Secretary
William Jones, Assistant Secretary

District Staff

Kristee Cole, District Manager
Tracy Robin, District Counsel
Vincent Galiano, District Engineer
Elizabeth Coons, District Accountant
Diana Kapatsyna, District Admin

Regular Meeting Agenda

Thursday, September 17, 2026, at 6:30 p.m.

The Regular Meeting of the **Live Oak II Community Development District** will be held on **September 17, 2026, at 6:30 p.m. at the Live Oak Clubhouse, 9401 Oak Preserve Boulevard, Tampa, Florida 33647.**

THE REGULAR MEETING OF BOARD OF SUPERVISORS

1. CALL TO ORDER/ROLL CALL

2. PUBLIC COMMENTS

(Each individual has the opportunity to comment and is limited to three (3) minutes for such comment)

3. CONSENT AGENDA

- A. Consideration of the Regular Meeting Minutes of August 20, 2026.....Page 3
- B. Consideration of the Financial Statement (August 2026).....Page 6
- C. Review of Snapshot and Cash Analysis.....Page 18

4. STAFF REPORTS

- A. District Accountant
- B. District Counsel
- C. District Engineer
 - i. Consideration of Phase 2B Littoral Shelf Evaluation and Planting Recommendations - Ponds 12-1, 12-2, 12-3 and 13-1 Proposals.....Page 20
- D. District Manager

5. BUSINESS ITEMS

6. BOARD OF SUPERVISORS REQUESTS AND COMMENTS

7. ADJOURNMENT

1 **MINUTES OF MEETING**
2 **LIVE OAK NO. 2 COMMUNITY DEVELOPMENT DISTRICT**
3

4 The regular meeting of the Board of Supervisors of Live Oak No. 2 Community Development
5 District was held Thursday, August 20, 2026, at 6:32 p.m. at the Live Oak Clubhouse 9401 Oak
6 Preserve Boulevard, Tampa, Florida 33647.

7
8 Present and constituting a quorum were:
9

10 Elizabeth Hubbard	Chairman
11 Ronald Dell	Vice Chairman
12 Artur Araujo	Assistant Secretary
13 William Jones	Assistant Secretary

14

15 Also present, either in person or via Zoom Video Communications, were:
16

17 Kristee Cole	District Manager, Inframark
18 Vincent Galiano	District Engineer, Ardurra

19

20 *This is not a certified or verbatim transcript but rather represents the context and summary of the*
21 *meeting. The full meeting is available in audio format upon request. Contact the District Office*
22 *for any related costs for an audio copy.*
23

24 **FIRST ORDER OF BUSINESS** **Call to Order and Roll Call**

25 Ms. Cole called the meeting to order at 6:32 p.m.
26

27 **SECOND ORDER OF BUSINESS** **Audience Comments**

28 Audience comments were held until District Engineer section of the agenda.
29

30 **THIRD ORDER OF BUSINESS** **Consent Agenda**

31 **A. Consideration of the Regular Meeting Minutes of May 21, 2026**

32 **B. Consideration of Financial Statement and Check Register (May 2025-July 2026)**

33 **C. Review of the Snapshot**

34 On MOTION by Ms. Hubbard, seconded by Mr. Araujo, with all in
35 favor, the consent agenda was approved.
36

37
38 **FOURTH ORDER OF BUSINESS** **Staff Reports**

39 **A. District Accountant**

40 **i. Discussion regarding Truist Account**

41 On MOTION by Mr. Dell, seconded by Ms. Hubbard, with all in
42 favor, to transfer funds from Truist into a new Valley account.
43

B. District Counsel

Not present and no report.

D. District Manager

Ms. Cole informed the Board that the next meeting will be held on September 17, 2026, at 6:30 p.m.

FIFTH ORDER OF BUSINESS

Business Items

A. Public Hearing on Fiscal Year 2026-2027 Final Budget and Levying the O&M Assessment

On MOTION by Mr. Dell, seconded by Ms. Hubbard, with all in favor, to open the public hearing on Fiscal Year 2026-2027 Final Budget and Levying the O&M Assessments.

On MOTION by Mr. Dell, seconded by Ms. Hubbard, with all in favor, to close the public hearing on Fiscal Year 2026-2027 Final Budget and Levying the O&M Assessments.

i. Consideration of Resolution 2026-03, Adopting Final Budget for FY 2027

On MOTION by Mr. Dell, seconded by Ms. Hubbard, with all in favor, adopted Resolution 2026-03, Adopting Final Budget for FY 2027.

ii. Consideration of Resolution 2026-04, Levying O&M Assessments

On MOTION by Ms. Hubbard, seconded by Mr. Dell, with all in favor, adopted Resolution 2026-04, Levying O&M Assessment.

B. Consideration of Resolution 2026-05, Goal and Objectives

On MOTION by Mr. Dell, seconded by Ms. Hubbard, with all in favor, adopted Resolution 2026-05, Goals and Objectives.

C. Consideration of Resolution 2026-06, Setting FY 2027 Annual Meeting Schedule

On MOTION by Mr. Dell, seconded by Ms. Hubbard, with all in favor, adopted Resolution 2026-06, Setting FY 2027 Annual Meeting Schedule.

Recess began 6:39 p.m.

Recess ended 6:44 p.m.

SIXTH ORDER OF BUSINESS

Staff Report Continued

C. District Engineer

i. Consideration of Phase 2B Littoral Shelf Evaluation and Planting Recommendation Ponds 12-1, 12-2, 12-3 and 13-1

There were audience comments regarding receding water levels within the pond.

The Board tabled this proposal until further review from the District Engineer for the appropriate scope has been determined for the work requested.

ii. Consideration of Proposal for Pond 9-5

On MOTION by Ms. Hubbard, seconded by Mr. Araujo, with all in favor, approves the proposal for Pond 9-5 in a NTE of \$12,500.00.

SEVENTH ORDER OF BUSINESS

Board of Supervisors Request and Comments

None.

EIGHTH ORDER OF BUSINESS

Adjournment

On MOTION by Mr. Dell, seconded by Ms. Hubbard, with all in favor, the meeting was adjourned at 7:54 p.m.

Secretary/Assistant Secretary

Chairman/Vice Chairman

***Live Oak No. 2
Community
Development
District***

Financial Report

August 31, 2026

CLEAR PARTNERSHIPS



Table of Contents

FINANCIAL STATEMENTS

Balance Sheet - All Funds	Page 1
Statement of Revenues, Expenditures and Changes in Fund Balances	
General Fund	Pages 2 - 3
Debt Service Fund	Page 4

SUPPORTING SCHEDULES

Non-Ad Valorem Special Assessments	Page 5
Cash & Investment Report	Page 6
Truist Bank Reconciliation	Page 7
Check Register	Pages 8

LIVE OAK NO. 2

Community Development District

Financial Report

(Unaudited)

Aug 31, 2026

Balance Sheet

August 31, 2026

ACCOUNT DESCRIPTION	SERIES 2016		
	GENERAL FUND	DEBT SERVICE FUND	TOTAL
<u>ASSETS</u>			
Cash - Checking Account	\$ 57,130	\$ -	\$ 57,130
Investments:			
Money Market Account	897,099	-	897,099
Reserve Fund	-	276,000	276,000
Revenue Fund	-	396,821	396,821
Prepaid Trustee Fees	2,074	-	2,074
TOTAL ASSETS	\$ 956,303	\$ 672,821	\$ 1,629,124
<u>LIABILITIES</u>			
Accounts Payable	\$ 4,900	\$ -	\$ 4,900
TOTAL LIABILITIES	4,900	-	4,900
<u>FUND BALANCES</u>			
Nonspendable:			
Prepaid Trustee Fees	2,074	-	2,074
Restricted for:			
Debt Service	-	672,821	672,821
Assigned to:			
Operating Reserves	64,492	-	64,492
Reserves - Ponds	249,860	-	249,860
Unassigned:	634,977	-	634,977
TOTAL FUND BALANCES	\$ 951,403	\$ 672,821	\$ 1,624,224
TOTAL LIABILITIES & FUND BALANCES	\$ 956,303	\$ 672,821	\$ 1,629,124

Statement of Revenues, Expenditures and Changes in Fund Balances
For the Period Ending August 31, 2026

ACCOUNT DESCRIPTION	ANNUAL ADOPTED BUDGET	YEAR TO DATE BUDGET	YEAR TO DATE ACTUAL	VARIANCE (\$) FAV(UNFAV)	AUG-26 ACTUAL
REVENUES					
Interest - Investments	\$ 15,000	\$ 13,750	\$ 30,213	\$ 16,463	\$ 2,603
Interest - Tax Collector	-	-	893	893	-
Special Assmnts- Tax Collector	253,094	253,094	253,093	(1)	-
Special Assmnts- Discounts	(10,124)	(10,124)	(9,480)	644	-
TOTAL REVENUES	257,970	256,720	274,719	17,999	2,603

EXPENDITURES**Administration**

P/R-Board of Supervisors	6,000	6,000	2,400	3,600	-
FICA Taxes	459	459	61	398	-
ProfServ-Arbitrage Rebate	600	600	-	600	-
ProfServ-Dissemination Agent	1,000	1,000	-	1,000	-
ProfServ-Engineering	25,000	22,917	23,762	(845)	-
ProfServ-Legal Services	3,000	2,750	3,787	(1,037)	530
ProfServ-Mgmt Consulting	41,200	37,767	37,767	-	3,433
ProfServ-Special Assessment	12,500	12,500	12,500	-	-
ProfServ-Trustee Fees	3,971	3,655	4,148	(493)	-
Auditing Services	3,700	3,700	3,825	(125)	-
Postage and Freight	500	458	12	446	-
Insurance - General Liability	8,957	8,957	8,468	489	-
Printing and Binding	300	275	-	275	-
Legal Advertising	900	825	538	287	153
Miscellaneous Services	300	300	1,482	(1,182)	112
Misc-Assessment Collection Cost	5,062	5,062	4,872	190	-
Misc-Contingency	7,905	7,246	1,013	6,233	75
Misc-Web Hosting	2,604	2,387	2,383	4	217
Office Supplies	100	92	-	92	-
Annual District Filing Fee	175	175	175	-	-
Total Administration	124,233	117,125	107,193	9,932	4,520

Field

Contracts-Envirom'l Monitoring	5,800	5,317	-	5,317	-
Contracts-Landscape	42,500	38,958	37,620	1,338	3,420
Contracts-Lakes	22,000	20,167	19,393	774	1,763
Utility - General	-	-	6,669	(6,669)	1,175
R&M-Fence	5,000	4,583	-	4,583	-

Statement of Revenues, Expenditures and Changes in Fund Balances
For the Period Ending August 31, 2026

ACCOUNT DESCRIPTION	ANNUAL ADOPTED BUDGET	YEAR TO DATE BUDGET	YEAR TO DATE ACTUAL	VARIANCE (\$) FAV(UNFAV)	AUG-26 ACTUAL
R&M-Lake	7,500	6,875	-	6,875	-
R&M-Wetland Monitoring	8,000	7,333	-	7,333	-
Misc-Contingency	11,755	10,775	6,349	4,426	699
Capital Improvements	-	-	49,100	(49,100)	-
Reserve - Ponds	31,182	31,182	16,587	14,595	-
Total Field	133,737	125,190	135,718	(10,528)	7,057
TOTAL EXPENDITURES	257,970	242,315	242,911	(596)	11,577
Excess (deficiency) of revenues					
Over (under) expenditures	-	14,405	31,808	17,403	(8,974)
Net change in fund balance	\$ -	\$ 14,405	\$ 31,808	\$ 17,403	\$ (8,974)
FUND BALANCE, BEGINNING (OCT 1, 2025)	919,595	919,595	919,595		
FUND BALANCE, ENDING	\$ 919,595	\$ 934,000	\$ 951,403		

Statement of Revenues, Expenditures and Changes in Fund Balances
For the Period Ending August 31, 2026

ACCOUNT DESCRIPTION	ANNUAL ADOPTED BUDGET	YEAR TO DATE BUDGET	YEAR TO DATE ACTUAL	VARIANCE (\$) FAV(UNFAV)	AUG-26 ACTUAL
<u>REVENUES</u>					
Interest - Investments	\$ 200	\$ 183	\$ 26,241	\$ 26,058	\$ 1,992
Special Assmnts- Tax Collector	600,454	600,454	600,454	-	-
Special Assmnts- Discounts	(24,018)	(24,018)	(22,491)	1,527	-
TOTAL REVENUES	576,636	576,619	604,204	27,585	1,992
<u>EXPENDITURES</u>					
<u>Administration</u>					
Misc-Assessment Collection Cost	12,009	12,009	11,559	450	-
Total Administration	12,009	12,009	11,559	450	-
<u>Debt Service</u>					
Principal Debt Retirement	385,000	385,000	385,000	-	-
Interest Expense	170,915	170,915	170,915	-	-
Total Debt Service	555,915	555,915	555,915	-	-
TOTAL EXPENDITURES	567,924	567,924	567,474	450	-
Excess (deficiency) of revenues Over (under) expenditures	8,712	8,695	36,730	28,035	1,992
Net change in fund balance	\$ 8,712	\$ 8,695	\$ 36,730	\$ 28,035	\$ 1,992
FUND BALANCE, BEGINNING (OCT 1, 2025)	636,091	636,091	636,091		
FUND BALANCE, ENDING	\$ 644,803	\$ 644,786	\$ 672,821		

LIVE OAK NO. 2

Community Development District

Supporting Schedules

Aug 31, 2026

LIVE OAK NO. 2**Community Development District**

**Non-Ad Valorem Special Assessments
(Hillsborough County Tax Collector - Monthly Collection Distributions)
For the Fiscal Year Ending September 30, 2026**

					ALLOCATION BY FUND	
Date Received	Net Amount Rcv'd	Discount / (Penalties) Amount	Tax Coll Cost	Gross Amount Received	General Fund	Debt Service Fund
Assessments Levied FY '26				\$853,548	\$253,094	\$600,454
Allocation %				100%	30%	70%
11/07/25	\$ 11,030	\$ 574	\$ 225	\$ 11,829	\$ 3,508	\$ 8,322
11/14/25	36,623	1,557	747	38,928	11,543	27,385
11/21/25	37,695	1,603	769	40,067	11,881	28,186
12/05/25	85,270	3,625	1,740	90,636	26,875	63,760
12/07/25	537,811	22,867	10,976	571,653	169,506	402,147
12/15/25	39,049	1,496	797	41,342	12,259	29,083
01/06/26	9,321	287	190	9,799	2,906	6,893
02/04/26	12,335	269	252	12,855	3,812	9,043
03/10/26	7,129	75	145	7,350	2,179	5,170
04/07/26	15,992	-	326	16,318	4,839	11,479
05/07/26	5,449	(162)	111	5,398	1,601	3,798
06/05/26	971	(29)	20	962	285	676
06/17/26	6,470	(192)	132	6,410	1,901	4,509
TOTAL	\$ 805,145	\$ 31,971	\$ 16,432	\$ 853,548	\$ 253,093	\$ 600,454
% COLLECTED					100%	100%
TOTAL O/S					(\$0)	\$0

Cash and Investment Report

*August 31, 2026***General Fund**

<u>Account Name</u>	<u>Bank Name</u>	<u>Investment Type</u>	<u>Maturity</u>	<u>Yield</u>	<u>Balance</u>
Checking Account-Operating	Truist	n/a	n/a	1.41	\$57,130
Money Market Account	BankUnited	n/a	n/a	3.32	\$897,099
Subtotal GF					\$954,229

Debt Service Funds

<u>Account Name</u>	<u>Bank Name</u>	<u>Investment Type</u>	<u>Maturity</u>	<u>Yield</u>	<u>Balance</u>
Series 2016 Reserve Fund	US Bank	US Bank US Bank Gcts	n/a	3.50	\$276,000
Series 2016 Revenue Fund	US Bank	US Bank US Bank Gcts	n/a	3.50	\$396,821
Subtotal DS					\$672,821
Total					\$1,627,050

Bank Account Statement

Live Oak No. 2 CDD

Tuesday, September 8, 2026

Page 1

ECOONS 1

Bank Account No. 9534

Statement No. 08-26

Statement Date 08/31/2026

G/L Account No. 101003 Balance	58,305.67	Statement Balance	58,522.33
		Outstanding Deposits	0.00
Positive Adjustments	0.00		
Subtotal	58,305.67	Subtotal	58,522.33
Negative Adjustments	0.00	Outstanding Checks	-216.66
Ending G/L Balance	58,305.67	Ending Balance	58,305.67

Posting Date	Document Type	Document No.	Vendor	Description	Amount	Cleared Amount	Difference
Outstanding Checks							
08/12/2026	Payment	100128	VGLOBAL TECH	Inv: 8791			-216.66
Total Outstanding Checks							-216.66

Outstanding Deposits

Total Outstanding Deposits

LIVE OAK NO. 2 COMMUNITY DEVELOPMENT DISTRICT

Payment Register by Fund

For the Period from 08/01/2026 to 08/31/2026

(Sorted by Check / ACH No.)

Fund No.	Date	Payee	Invoice No.	Payment Description	Invoice / GL Description	G/L Account #	Amount Paid
<u>GENERAL FUND - 001</u>							
CHECK # 100124							
001	08/12/26	INFRAMARK LLC	186036	District Management and Recording Storage Fee	ProfServ-Mgmt Consulting	531027-51201	\$3,433.33
001	08/12/26	INFRAMARK LLC	186036	District Management and Recording Storage Fee	Misc-Contingency	549900-51301	\$75.00
Check Total							\$3,508.33
CHECK # 100125							
001	08/12/26	DRIGGERS ENGINEERING SERVICE	TL15646	Field Density Testing	Misc-Contingency	549900-53901	\$699.00
Check Total							\$699.00
CHECK # 100126							
001	08/12/26	OUTDOOR PROFESSIONAL LLC	4495	Aug - 2026-Landscape Maintenance	Contracts-Landscape	534050-53901	\$3,420.00
Check Total							\$3,420.00
CHECK # 100127							
001	08/12/26	BUSINESS OBSERVER INC	26-02679H	Legal Advertising for Public Hearing	Legal Advertising	548002-51301	\$153.12
Check Total							\$153.12
CHECK # 100128							
001	08/12/26	VGLOBAL TECH	8791	Aug -2026- WEB MAINT-Global Tec	Misc-Web Hosting	549915-51301	\$216.66
Check Total							\$216.66
CHECK # 100129							
001	08/12/26	TIGRIS AQUATIC SERVICES LLC	4379148	Aug -2026 Aquatics Maintenance	Contracts-Lakes	534084-53901	\$1,763.00
Check Total							\$1,763.00
CHECK # 100130							
001	08/26/26	STRALEY ROBIN VERICKER	28952	District Counsel July 1, 2026 - July 31, 2026	ProfServ-Legal Services	531023-51401	\$530.00
Check Total							\$530.00
CHECK # 300014							
001	08/11/26	TAMPA ELECTRIC	072126-5127-ACH	Electric from June 16, 2026 - July 15, 2026	Utility - General	543001-53901	\$853.57
Check Total							\$853.57
CHECK # 300015							
001	08/26/26	TAMPA ELECTRIC	081926-5127-ACH	SVC PRD 07/13/26-08/13/26	Utility - General	543001-53901	\$1,175.34
Check Total							\$1,175.34
Fund Total							\$12,319.02

Total Checks Paid	\$12,319.02
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LIVE OAK NO. II COMMUNITY DEVELOPMENT DISTRICT

Financial Snapshot September 10, 2026

- **Current Cash Balances:**
 - o Truist Bank Operating: \$51,642.34
 - o Bank United Money Market: \$897,099.02
 - o US Bank Reserve: \$ 276,000.00
 - o US Bank Revenue: \$396,821.15
- **Assessment collections:**
 - o We are 100% fully collected on the tax roll
- **Expenses:**
 - o Current expenses make up 98% of the annual budget through the bigging of September 10, 2026.
 - o We would need an Amendment in place by the end of FY26.
 - o Total expenses for the first 11 months through the beginning of September 10, 2026 are approximately \$251,898. This figure may change as we finalize the September financials.

LIVE OAK NO. 2

Cash Flow Projection

9/10/2026

	<u>Balances</u>	<u>Interest Rate</u>
Operating Account - Truist Bank 9534	51,642.34	1.40%
Bank United Money Market Account - 0186	897,099.02	3.32%
Less: Current Outstanding AP	<u>(3,498.75)</u>	
Estimated Cash Available Today	<u>945,242.61</u>	
Outstanding FY26 Tax Roll	-	
Estimated Total Cash Available with Tax Roll	<u>945,242.61</u>	

Projections:

Monthly Average Spend (12 Months from Oct 25- Sept 26 Beginning of the month)	21,497.00
Total Monthly Average Spend	<u>21,497.00</u>
Average Spend to YE (12 months Oct 25 -September 10, 2026 Beginning)	214,970.00
Expected Cash Flow at YE (9/30/26)	<u>730,272.61</u>
Average Spend 1st QTR FY27 (2 mos avg spend)	42,994.00
Expected Need through 1st QTR FY27	<u>687,278.61</u>

**tax roll revenue for the new FY is received in December*



To: Kristee Cole
Live Oak CDD/Live Oak II

From: Michael Peck, P.E. (Ardurra)

Project Number: 2004-0037-12

Date: September 3, 2026

Project Name: Live Oak Preserve Phase
2B – Pond Bank Evaluation
(ASA #04)

POND BANK EVALUATION

Per Additional Services Addendum (ASA) #04, Ardurra Group Inc. (Ardurra) was tasked to:

- Evaluate the side banks of Pond 12-1, Pond 12-2 (Live Oak Preserve Phase 2B), and Pond 14-5 (Live Oak Preserve Phase 2A).
- Conduct site observations of the side slopes and provide an assessment of the extent of repairs needed.
- Prepare an exhibit identifying the pond bank repair locations.
- Provide recommended repair options based on the severity of the observed erosion.

Pond locations are shown on **Attachment 1** Live Oak Aerial.

SITE OBSERVATIONS

Prior to conducting site observations, Ardurra reviewed the as-built drawings for Live Oak Preserve Phase 2A (dated 06/28/2004) and Live Oak Preserve Phase 2B (dated 09/04/2004) relative to pond top of bank (TOB), weir, bleed-down, design seasonal high water (SHW), grade break, and pond bottom elevations. Additionally, the plans were reviewed in conjunction with Hillsborough County parcel data to confirm the extent of the private parcels and pond/berm limits. All three ponds were designed to be wet detention ponds, with a 20ft maintenance berm surrounding the ponds.

Ardurra visited the site on Tuesday April 7, 2026, and evaluated Pond 12-1, Pond 12-2, and Pond 14-5 relative to conditions at the time of the visit, focusing on the noted bank erosion issues.

POND 12-1

POND 12-1	
T.O.B.	60.00
Weir Elev.	58.50
Design SHW	58.00
Bleed-down Orifice	57.98
Grade Break	56.00
Water Level (4/7/26)	~51
Bottom	48.50

Observed conditions Pond 12-1:

- Water levels were approximately 7ft below the design SHW (see Photo 121-10 below for visual reference).
- An abrupt vertical drop/lip, ranging in height from 12" to 18" or more, is present around the entire perimeter of the pond (see Photo 121-10 below for visual reference).



Photo 121-10

- Between the lip and water, the exposed pond bank and bottom is bare sandy soil, devoid of any noteworthy vegetation. This is the case in the main body of the pond as well as in the littoral zone (reference Photos 121-12 and 121-19 below).
- The littoral zone area of the pond was completely dry, with no visible evidence of recent inundation. Only small, isolated clusters of vegetation were present (see Photo 121-12 below).



Photo 121-12



Photo 121-19

- Visual evidence of persistent damaging erosion along the eastern edge of the pond (behind homes). Concentrated runoff has carved rills/channels into the exposed pond bottom, indicating water levels have been low for an extended period of time (if at SHW, the water would absorb the energy from the runoff and would not scour/carve the pond bottom). Refer to Photos 121-06, 121-08, 121-26, 121-27, and 121-28 below. All instances of this condition are on the eastern bank of the pond (behind homes).



Photo 121-06



Photo 121-08



Photo 121-26



Photo 121-27



Photo 121-28

- Multiple locations of severe erosion and bank failure/sloughing on eastern bank. Home owners have implemented temporary repair measures (gravel, rock, sod blankets, etc.) in several locations in an attempt to stabilize the bank. These locations appear to align with areas between the homes, where runoff may be concentrated by lot grading before spilling over the lip into the pond. See Photos 121-01, 121-11, 121-14, 121-22, 121-23, and 121-25 below for a visual reference.



Photo 121-01



Photo 121-11



Photo 121-14



Photo 121-22



Photo 121-23



Photo 121-25

- Ardurra observed no significant erosion on the northern, southern, or western pond banks (areas with no adjacent homes).

POND 12-2

POND 12-2	
T.O.B.	59.00
Weir Elev.	57.89
Design SHW	57.00
Bleed-down Orifice	56.98
Grade Break	47.70
Water Level (4/7/26)	~ 51
Bottom	42.60

Observed conditions Pond 12-2:

- Water levels were approximately 6ft below the design SHW (see Photo 122-40 below for visual reference).
- An abrupt vertical drop/lip, ranging in height from 12" to 18" or more, is present around the entire perimeter of the pond (see Photos 122-43 and 122-44 below for visual reference).



Photo 122-40



Photo 122-43



Photo 122-44

- Visual evidence of persistent damaging erosion along the western edge of the pond (behind homes). Concentrated runoff has carved rills/channels into the exposed pond bottom, indicating water levels have been low for an extended period of time (if at SHW, the water would absorb the energy from the runoff and would not scour/carve the pond bottom). Refer to Photos 122-14, 122-16, 122-17, 122-19, and 122-35 below. All instances of this condition are on the western bank of the pond (behind homes). The “corner” area on the western bank is in danger of collapse (Photo 122-57 below).



Photo 122-14



Photo 122-16



Photo 122-17



Photo 122-19



Photo 122-35



Photo 122-57

- Multiple locations of severe erosion and bank failure/sloughing on western bank. These locations appear to align with areas between the homes, where runoff may be concentrated by lot grading before spilling over the lip into the pond. See Photos 121-01, 121-11, 121-14, 121-22, 121-23, and 121-25 below for a visual reference.



Photo 122-03



Photo 122-07



Photo 122-37



Photo 122-38



Photo 122-42



Photo 122-62

- The littoral zone area of the pond was completely dry, with no visible evidence of recent inundation. Only small, isolated clusters of vegetation were present (see Photo 122-20 below).



Photo 122-20

POND 14-5

POND 14-5	
T.O.B.	59.00
Weir Elev.	58.61
Orifice Elev.	57.33
Design SHW	57.00
Grade Break	54.00
Water Level (4/7/26)	~47
Bottom	44.50

Observed conditions Pond 14-5:

- Water levels were more than 10ft below the design SHW (see Photo 145-05 on next page for visual reference).



Photo 145-05

- Pond banks surrounding culvert (both uphill and downhill) in northwest corner of pond have failed and are severely eroded. Culvert support has been compromised, and culvert is in danger of breaking/failing. Ad hoc repairs (rip rap, concrete rubble, sections of articulated concrete mat) both above and below the culvert have been ineffective. Discharge from culvert has carved a significant channel into the exposed pond bottom, indicating large amounts of material have been deposited in deeper sections of the pond. Refer to Photos 145-03, 145-04, 145-09, 145-10, 145-19, and 145-22 below.



Photo 145-03



Photo 145-04



Photo 145-10



Photo 145-22



Photo 145-09



Photo 145-19

- Pond banks adjacent to the inflow culvert in the center portion of the northern shoreline are failing. Discharge from the culvert onto bare/exposed soils has resulted in major erosion and material transfer into the pond, leaving a “sump” or hole at the outfall which has progressed beneath the mitered end section (MES) of the culvert. The sump has been filled with concrete rubble, as well as the open space beneath the MES, in an attempt to halt the erosion and prevent the MES from failing/breaking off. Refer to Photos 145-07 and 145-18 on the following page.



Photo 145-07



Photo 145-18

- An abrupt vertical drop/lip, ranging in height from 12" to 18" or more (in some areas approaching 2ft), is present around the entire perimeter of the pond (see Photos 145-01, 145-05, 145-12, and 145-17 below for visual reference). Although there are areas where runoff is eroding the "lip," there are no areas of severe erosion on the northern (behind homes) shore of the pond – the exceptions being in the areas around the two inflow culverts.



Photo 145-01



Photo 145-05



Photo 145-12



Photo 145-17

EVALUATION AND RECOMMENDATIONS

Pond 12-1 and Pond 12-2 Evaluation

Located nearly adjacent to one another, the conditions and extent of erosion are nearly identical at Pond 12-1 and Pond 12-2. The littoral zones in each pond are dehydrated, lack vegetation, and appear to have been in this condition (not submerged) for an extended period of time. With water levels significantly less than the design SHW in the ponds, large areas of non-vegetated bare earth are exposed between the actual water level and the pond top of bank. The areas where the pond banks have eroded and are in need of repair occur only behind the homes (eastern shoreline of Pond 12-1, western shoreline of Pond 12-2) – no instances of bank erosion requiring repair were noted on the shorelines abutting preserve areas.

Erosion due to water levels below SHW elevation:

- Low water levels have caused extensive areas of what should be submerged pond bottom area to instead be exposed earth/soil, which is not anchored or stabilized by any vegetation.
- Stormwater runoff from the yards and berm area behind the homes has carved rills and small channels into the exposed areas, indicating this condition has persisted for an extended period of time. When the water levels are at or above SHW, the energy from runoff entering the pond is absorbed and dissipated by the water surface, and no rills or channels would be formed on the pond bottom.
- The soil material from the rills and channels has been transported and deposited into the deeper areas of the pond.

Erosion due to “lip” condition at top of bank:

- As stormwater runoff flows over the “lip” and drops into the pond, it is accelerated by gravity and erodes the lip face (headcutting). Over time, and especially during larger or more intense storm events, the lip face is “cut” and progresses landward (away from the pond) as more flow equates to more energy, which in turn results in greater damage. Headcutting is a major driver of landscape degradation and results in loss of material, bank instability, sloughing, and eventually bank failure.
- All of the material that has been “removed” from the pond banks has been transported and deposited in the deeper areas of the pond (no evidence of soil accumulation on the exposed pond bottom area).
- The erosion resulting from the presence of the lip is not increased or decreased by the water level in the pond. So long as the water level in the pond is lower than the edge of the lip, erosion will occur as flows pass across it and drop down.
- In locations where the bank edge has been destabilized, the headcutting has progressed rapidly.
- The lot grading of the homes adjacent to the pond correctly direct runoff to the area between the homes, and then towards the ponds. In addition, many of the homes were observed to have downspouts discharging to the area between the homes as well, further increasing the runoff that is conveyed to the pond. As a result, flows to the ponds in line with the spaces between the homes are greater than those areas directly behind

the homes. The areas where bank sloughing/failure and severe erosion appear to be in line with these flow paths.

Pond 12-1 and Pond 12-2 Recommendations

Areas where intervention is needed to address erosion issues have been classified as “High Priority” and “Medium Priority” pursuant to the severity of the issue. If corrective actions are not implemented in these areas, the banks will continue to degrade and eventually fail. These areas have been identified on **Attachment 2** for Pond 12-1 and 12-2.

High Priority – at these locations, the bank has been destabilized and is in various stages of sloughing, degradation, and distress. Voids have formed and progressed towards homes. In several instances, homeowners have attempted to halt the process with ad hoc repairs (gravel, erosion blankets, grass clippings, soil material, etc.). To properly address these areas and prevent continued erosion problems:

- Bank material should be removed to a horizontal distance from the lip equal to four times the drop height at that location to a depth equal to the drop height, or until all damaged/destabilized material has been removed – whichever distance is greater. For example, if the drop height at the lip is 1ft, the bank face should be excavated 1ft vertically from surface to a distance of 4ft beyond the lip/face. The horizontal distance from the lip face to the extent of the landward excavation shall be designated “X” for this discussion.
- Clean fill material, free of debris and organic material, should then be placed and compacted to create a gradual slope (4:1 or flatter) from the landward extent of the excavation to the lip face, after which the slope can increase to a maximum of 3:1 to match existing grade (MEG) before the distance “X” beyond the lip face into/onto the exposed bare soil. See **Figure 1**.
- The area excavated should extend a minimum of 4ft along the pond bank on either side of the identified area at a maximum slope of 3:1 (drop height may dictate greater than 4ft). See **Figure 2**.
- Turf Reinforcement Mat (TRM) meeting the requirements of FDOT Type 2 TRM E-3 should then be installed per manufacturer specifications (overlap, staking, etc. per manufacturer specifications are crucial) on the slope.
- The TRM should then be filled with topsoil and either seeded or hydroseeded with the desired grass species. TRM can instead be covered/planted with sod, but it is not the preferred option (special steps must be taken to eliminate trapped air and encourage root to soil contact to increase survivability chances).

Areas repaired as described above will result in stabilized slopes, eliminate the lip/drop, and be able to withstand flow volumes and velocities far greater than sod/grass alone. Once vegetation (either seeded grass or sod) is established on the TRM, it can be mowed per usual methods. Should small quantities of additional material be required to complete the slope construction it can be scraped (do not create channels or holes) from the exposed pond bank/bottom in an area away from the repairs. If excess material remains after slope construction, it can spread on the exposed pond bank/bottom to fill any rills or small channels that have formed.

Medium Priority – at these locations, bank degradation is in the early stages and headcutting of any noteworthy severity is not present. However, if left unrepaired, successive intense or severe storm events could quickly change these to High Priority areas (erosion will progress quickly). To properly address these areas and prevent continued erosion problems:

- Bank material should be removed to a horizontal distance from the lip equal to four times the drop height at that location to a depth equal to the drop height, or until all damaged/destabilized material has been removed – whichever distance is greater. For example, if the drop height at the lip is 1ft, the bank face should be excavated 1ft vertically from surface to a distance of 4ft beyond the lip/face. The horizontal distance from the lip face to the extent of the landward excavation shall be designated “X” for this discussion.
- Clean fill material, free of debris and organic material, should then be placed and compacted to create a gradual slope (4:1 or flatter) from the landward extent of the excavation to the lip face, after which the slope can increase to a maximum of 3:1 to match existing grade (MEG) before the distance “X” beyond the lip face into/onto the exposed bare soil. See **Figure 1**.
- The area excavated should extend a minimum of 4ft along the pond bank on either side of the identified area at a maximum slope of 3:1 (drop height may dictate greater than 4ft). See **Figure 2**.
- Sod should then be placed/planted on the slope on the slope.

In these areas, unlike the “High Priority” areas, simple removal of the identified pond bank/lip areas and replacement with the gradual 4:1 or flatter sod-covered slope will be sufficient to stabilize the bank and prevent further erosion. Runoff volumes and velocities at these locations are less (not aligned with the spaces between homes) and current erosion is a function only of the vertical drop.

After the above actions have been implemented in the High and Medium Priority areas, the rills and small channels that remain (beyond the newly created slopes that extend “into” the pond) should be smoothed by spreading the adjacent soil to fill (clean fill not required). Future runoff from the repaired upslope areas, even if water levels remain such that the areas remain exposed, will be diffused and not concentrated, and should not propagate similar rills or channels. Should small quantities of additional material be required to complete the slope construction it can be scraped (do not create channels or holes) from the exposed pond bank/bottom in an area away from the repairs. If excess material remains after slope construction, it can spread on the exposed pond bank/bottom to fill any rills or small channels that have formed.

Pond 14-5 Evaluation

The water level in Pond 14-5 was severely low at the time of the site visit. Review of aerial imagery indicates that, except for periods immediately during and after extreme storm events, the pond water level does not inundate the littoral shelf. Due to such continuous and persistent low water levels, it is possible that the integrity of the pond bottom has been compromised or breached. Investigation of the pond bottom condition and integrity is beyond the scope of this evaluation. The persistent low water elevations have resulted in large swaths of the pond banks, which were designed to be submerged, to be exposed to erosion from stormwater runoff. The low water levels

have also left the inflow culverts well above the water line, exposing the supporting soil/bank around them to erosion as well. The pond banks around the two inflow culverts on the northern bank of the pond (one in the NW corner and the other near the center) have experienced very severe erosion, extending to the area supporting the MES structures and putting those structures in jeopardy of collapse. Discharge from these culverts, rather being dissipated by the water which should be present, instead flow onto exposed bare soil and have carved dramatic channels into the pond bottom. As the soil around the culverts erodes, the created drop/lip is headcutting and progressing upslope through the berm area towards the homes on the north side of the pond.

Pond 14-5 Recommendations

Areas where intervention is needed to address erosion issues have been classified as “High Priority” and “Medium Priority” pursuant to the severity of the issue. If corrective actions are not implemented in these areas, the banks will continue to degrade and eventually fail. These areas have been identified on **Attachment 3** for Pond 14-5.

High Priority – at these locations, the bank has been severely compromised and/or failed. Soils beneath the MES of the culvert has been scoured away by erosion and temporary repairs have been made (concrete rubble and/or soil material stacked to support the structure). Additional temporary repair measures have been implemented in the areas upslope of the culverts. To properly address these areas and prevent continued erosion problems:

Culvert in NW corner of Pond 14-5:

- Bank has sloughed/failed completely adjacent to and upslope of the culvert, with the failed area soon to be endangering homeowner’s fencing and property. The culvert and MES remain intact, but the ME has been undermined, and soil is disappearing from beneath it.
- Unstable and compromised material, along with the debris and apparatus used to enact temporary repairs, must be removed to reach stable/native bank material.
- Clean fill material must then be placed to restore the original pond bank slope, position, and grade per the plans. Material should be placed in 8-12” lifts and compacted. Based on a visual comparison of the amount of material “missing” from the bank and the pond bank as shown on the plans, fill material will need to be imported.
- Once the pond bank has been restored to the original dimensions/extent/slopes, Turf Reinforcement Mat (TRM) meeting the requirements of FDOT Type 2 TRM E-3 should then be installed per manufacturer specifications (overlap, staking, etc. per manufacturer specifications are crucial) on the slope.
 - The TRM should be installed beginning a minimum of 5ft beyond (towards homes) the top of the restored bank and extend down the slope to 5ft below/beyond the MES.
 - The TRM should then be filled with topsoil and either seeded or hydroseeded with the desired grass species. TRM can instead be covered/planted with sod, but it is not the preferred option (special steps must be taken to eliminate trapped air and encourage root to soil contact to increase survivability chances).
 - The 5ft wide section of TRM at the outfall of the culvert should not be seeded/hydroseed/sodded. Instead, cover with filter fabric (Mirafi 500x or equivalent) and toe into slope a minimum of 10ft from the end of the culvert. This

area should then be filled with riprap meeting FDOT Bank and Shore specifications.

- After slope has been restored and stabilized, existing pond bottom material should be spread to fill the channel that has been carved into the pond bottom at this location.

Culvert in center area of north bank and culvert on western bank of Pond 14-5:

- Remove compromised material and excavate bank on either side of culvert to a distance equal to four (4) times the height of the lip/vertical drop. Bank area excavated should extend a minimum of 10ft horizontally to either side of the culvert. The horizontal distance from the lip face to the extent of the landward excavation shall be designated “X” for this discussion.
- Clean fill material, free of debris and organic material, should then be placed and compacted to create a gradual slope (4:1 or flatter) from the landward extent of the excavation to the lip face, after which the slope can increase to a maximum of 3:1 to match existing grade (MEG) before the distance “X” beyond the lip face into/onto the exposed bare soil. See **Attachment 1**.
- Turf Reinforcement Mat (TRM) meeting the requirements of FDOT Type 2 TRM E-3 should then be installed per manufacturer specifications (overlap, staking, etc. per manufacturer specifications are crucial) on the slope.
- The TRM should then be filled with topsoil and either seeded or hydroseeded with the desired grass species. TRM can instead be covered/planted with sod, but it is not the preferred option (special steps must be taken to eliminate trapped air and encourage root to soil contact to increase survivability chances).
- Compromised material and concrete rubble should be removed from the area beneath and immediately downstream of the MES. Clean fill material should then be placed in the void and sump area and compacted to restore original grade per plans.
- A 5ft wide section at the outfall of the culvert should be covered with filter fabric (Mirafi 500x or equivalent) and toed into slope/pond bottom a minimum of 10ft from the end of the culvert. This area should then be filled with riprap meeting FDOT Bank and Shore specifications.

Medium Priority – at these locations, bank degradation is in the early stages and headcutting of any noteworthy severity is not present. However, if left unrepaired, successive intense or severe storm events could quickly change these to High Priority areas (erosion will progress quickly). To properly address these areas and prevent continued erosion problems:

- Bank material should be removed to a horizontal distance from the lip equal to four times the drop height at that location to a depth equal to the drop height, or until all damaged/destabilized material has been removed – whichever distance is greater. For example, if the drop height at the lip is 1ft, the bank face should be excavated 1ft vertically from surface to a distance of 4ft beyond the lip/face. The horizontal distance from the lip face to the extent of the landward excavation shall be designated “X” for this discussion.

- Clean fill material, free of debris and organic material, should then be placed and compacted to create a gradual slope (4:1 or flatter) from the landward extent of the excavation to the lip face, after which the slope can increase to a maximum of 3:1 to match existing grade (MEG) before the distance "X" beyond the lip face into/onto the exposed bare soil. See **Attachment 1**.
- The area excavated should extend a minimum of 4ft along the pond bank on either side of the identified area at a maximum slope of 3:1 (drop height may dictate greater than 4ft). See **Attachment 2**.
- Sod should then be placed/planted on the slope on the slope.

In these areas, unlike the "High Priority" areas, simple removal of the identified pond bank/lip areas and replacement with the gradual 4:1 or flatter sod-covered slope will be sufficient to stabilize the bank and prevent further erosion. Runoff volumes and velocities at these locations are less (not aligned with the spaces between homes) and current erosion is a function only of the vertical drop.

After the above actions have been implemented in the High and Medium Priority areas, the rills and small channels that remain (beyond the newly created slopes that extend "into" the pond) should be smoothed by spreading the adjacent soil to fill (clean fill not required). Future runoff from the repaired upslope areas, even if water levels remain such that the areas remain exposed, will be diffused and not concentrated, and should not propagate similar rills or channels. Should small quantities of additional material be required to complete the slope construction it can be scraped (do not create channels or holes) from the exposed pond bank/bottom in an area away from the repairs. If excess material remains after slope construction, it can spread on the exposed pond bank/bottom to fill any rills or small channels that have formed.

Attachment 1: Live Oak Preserve Aerial



Bank Erosion



ATTACHMENT 3 (POND 14-5)

Bank Erosion



Bank erosion repair locations

Legend

- MediumPriority
- HighPriority



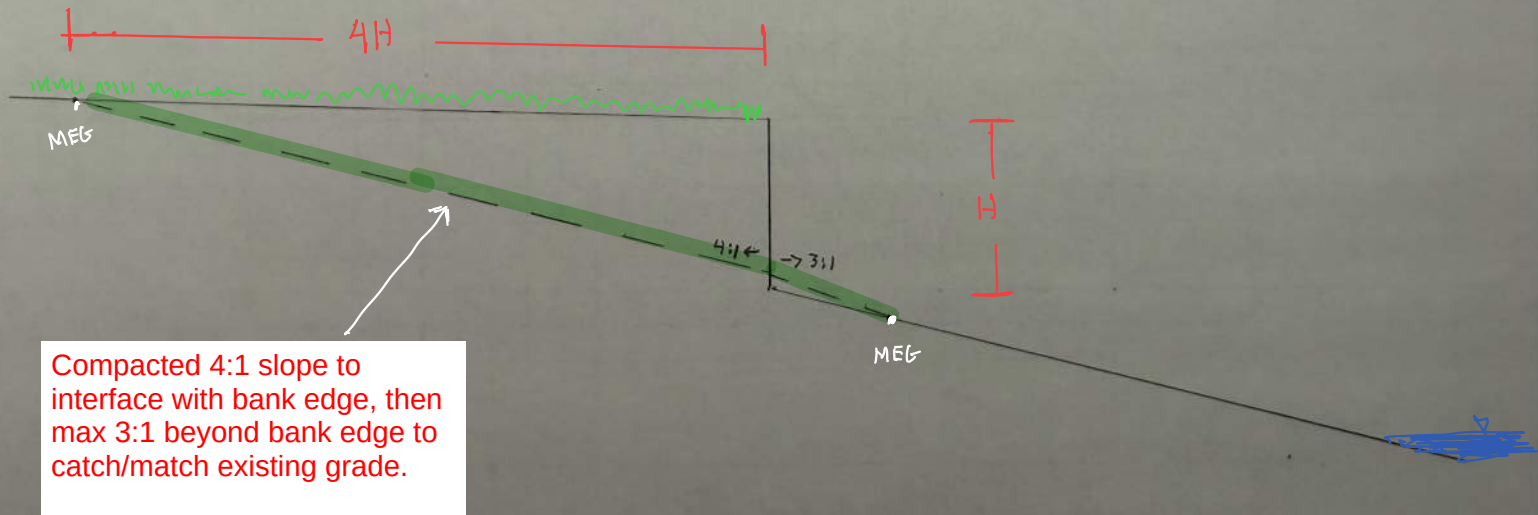
SCALE - FEET
0 50 100

LIVE OAK PRESERVE

GRAPHIC REPRESENTATIONS ARE GENERAL IN NATURE AND SHOULD BE USED FOR PLANNING PURPOSES ONLY

FIGURE 1

After removal of debris and organics, excavated material to be used to create proposed slope. Additional material, if needed, can be scraped from exposed pond bottom/slope away from area of repair.



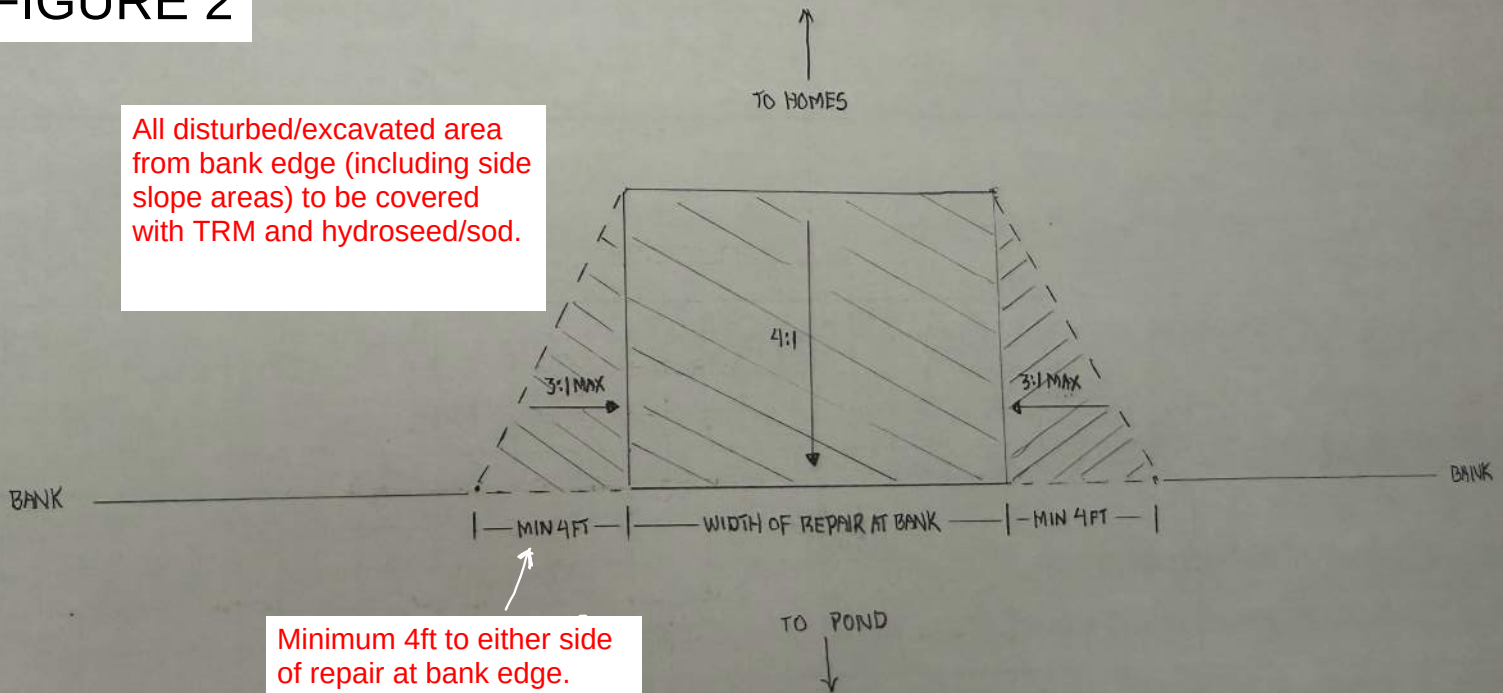
Compacted 4:1 slope to interface with bank edge, then max 3:1 beyond bank edge to catch/match existing grade.

H = HEIGHT OF DROP AT BANK
EDGE IN AREA OF REPAIR

COVER WITH TRM AND HYDROSEED/SOD

FIGURE 2

All disturbed/excavated area from bank edge (including side slope areas) to be covered with TRM and hydroseed/sod.



Minimum 4ft to either side of repair at bank edge. Greater as dictated by max 3:1 slope and drop height (i.e. 2ft drop will require 6ft)



One-Time Work Order Agreement

Customer Name: Live Oak No 2 CDD

Property Contact: Kristee Cole

Work Order Description: Lakebank Restoration- Entire Homeowner's Shoreline

Premier Lakes Consultant: Alex Kurth

Consultant Phone Number: 239-707-1575

This Agreement, dated **September 10th, 2026**, is made by and between Premier Lakes, Inc., hereinafter known as "Premier Lakes," and **Live Oak No. 2 CDD**, hereinafter known as "Customer."

Both Customer and Premier Lakes agree to the following terms and conditions:

1. **General Conditions:** Premier Lakes will provide the contract services enumerated below to the Customer under the terms and conditions of this Agreement, and the Customer agrees to pay Premier Lakes for those services as listed below under the terms and conditions of this agreement.
2. **Service Area:** The "Service Area" is described as **12-1, 12-2, and 14-5**.
3. **One-Time Services:** Premier Lakes will perform **lakebank restoration as follows:**
 - a. **Lake 12-1**
 - i. **Grade 13,000 sqft of lake bank with fill sourced from the lake.**
 - ii. **Install 13,000 sqft of TRM material with hydroseeding.**
 - b. **Lake 12-2**
 - i. **Grade 14,400 sqft of lake bank with fill sourced from the lake.**
 - ii. **Install 14,400 sqft of TRM material with hydroseeding.**
 - c. **Lake 14-5**
 - i. **Grade 9,200 sqft of lake bank with fill sourced from the lake.**
 - ii. **Install 9,200 sqft of TRM material with hydroseeding.**
 - iii. **Stabilize and rip rap culvert outflows**
 - d. **All repairs to follow engineers recommendations as provided.**
4. **Payment Terms:** The total agreement amount is **\$215,000.00**. A 50% deposit is due upon the execution of this agreement. The remaining 50% will be invoiced upon completion of services. The customer agrees to pay Premier Lakes within thirty (30) days of the invoice. If the customer fails to pay any invoice within sixty (60) days of the invoice date, then a service charge of 1% per month (12% per annum) will be charged to the customer by Premier Lakes on balances not paid within sixty (60) days.



5. **Forms of Payment:** Premier Lakes accepts payment by check.
6. **Contract Void Ab Initio:** This contract will be void ab initio if Premier Lakes, in its sole discretion, determines that the condition of the Service Area has materially declined between the date of this Agreement and the commencement date of the Agreement. If Premier Lakes commences services under this Agreement, this paragraph will not apply.
7. **Force Majeure:** Premier Lakes shall not be liable for any delay in performing the Services nor for any failure to provide the Services due to any cause beyond its reasonable control.
8. **Enforcement and Governing Law:** A default by either Party under this agreement shall entitle the other Party to all remedies available at law or in equity, which shall include, but not be limited to, the right to damages and injunctive relief under Florida law.
9. **Safety:** Premier Lakes agrees to use its best efforts and specialized equipment, products, and procedures to provide safe and effective results hereunder, and Premier Lakes will use all due care to protect the property of the Customer. Premier Lakes will not be liable for plant damage due to disease, pestilence, flood, weather, or any other means unrelated to Premier Lakes' activities. In addition, some collateral damage to beneficial plants might be necessary to treat nuisance plants. Premier Lakes will use its best efforts and professional expertise to limit any damage to beneficial plants, but in no event will Premier Lakes be liable for collateral damage that is less than ten percent (10%) of the beneficial plant population.
10. **Insurance:** Premier Lakes will maintain general liability and other insurances as necessary, given the scope and nature of the services. Premier Lakes will be responsible for those damages, claims, causes of action, injuries, or legal costs to the extent of its direct negligence or misconduct. No party to this agreement will be liable to the other for incidental, consequential, or purely economic damages.
11. **E-Verify:** Premier Lakes utilizes the federal E-Verify program in contracts with public employers as required by Florida State Law and acknowledges all the provisions of Florida Statute 448.095 are incorporated herein by reference and hereby certifies it will comply with the same.
12. **Limited Offer:** This proposal expires sixty (60) days from the issuance date unless modified in writing by Premier Lakes.

Total Agreement Amount: \$215,000.00

Accepted and Approved:

Live Oak No 2 CDD

Signature:

Printed Name:

Title:

Date:

Customer Address for Notice Purposes:

Premier Lakes, Inc.

Signature:

Name: Alex Kurth

Title: President

Date:

Please Remit All Payments & Contracts to: 1936 Bruce B Downs Blvd, Suite 308, Wesley Chapel, FL 33544.



To: Kristee Cole
Live Oak CDD/Live Oak II

From: Michael Peck, P.E. (Ardurra)

Project Number: 2004-0037-12

Date: September 3, 2026

Project Name: Live Oak Preserve Phase
2B – Pond Bank Evaluation
(ASA #04)

POND BANK EVALUATION

Per Additional Services Addendum (ASA) #04, Ardurra Group Inc. (Ardurra) was tasked to:

- Evaluate the side banks of Pond 12-1, Pond 12-2 (Live Oak Preserve Phase 2B), and Pond 14-5 (Live Oak Preserve Phase 2A).
- Conduct site observations of the side slopes and provide an assessment of the extent of repairs needed.
- Prepare an exhibit identifying the pond bank repair locations.
- Provide recommended repair options based on the severity of the observed erosion.

Pond locations are shown on **Attachment 1** Live Oak Aerial.

SITE OBSERVATIONS

Prior to conducting site observations, Ardurra reviewed the as-built drawings for Live Oak Preserve Phase 2A (dated 06/28/2004) and Live Oak Preserve Phase 2B (dated 09/04/2004) relative to pond top of bank (TOB), weir, bleed-down, design seasonal high water (SHW), grade break, and pond bottom elevations. Additionally, the plans were reviewed in conjunction with Hillsborough County parcel data to confirm the extent of the private parcels and pond/berm limits. All three ponds were designed to be wet detention ponds, with a 20ft maintenance berm surrounding the ponds.

Ardurra visited the site on Tuesday April 7, 2026, and evaluated Pond 12-1, Pond 12-2, and Pond 14-5 relative to conditions at the time of the visit, focusing on the noted bank erosion issues.

POND 12-1

POND 12-1	
T.O.B.	60.00
Weir Elev.	58.50
Design SHW	58.00
Bleed-down Orifice	57.98
Grade Break	56.00
Water Level (4/7/26)	~51
Bottom	48.50

Observed conditions Pond 12-1:

- Water levels were approximately 7ft below the design SHW (see Photo 121-10 below for visual reference).
- An abrupt vertical drop/lip, ranging in height from 12" to 18" or more, is present around the entire perimeter of the pond (see Photo 121-10 below for visual reference).



Photo 121-10

- Between the lip and water, the exposed pond bank and bottom is bare sandy soil, devoid of any noteworthy vegetation. This is the case in the main body of the pond as well as in the littoral zone (reference Photos 121-12 and 121-19 below).
- The littoral zone area of the pond was completely dry, with no visible evidence of recent inundation. Only small, isolated clusters of vegetation were present (see Photo 121-12 below).



Photo 121-12



Photo 121-19

- Visual evidence of persistent damaging erosion along the eastern edge of the pond (behind homes). Concentrated runoff has carved rills/channels into the exposed pond bottom, indicating water levels have been low for an extended period of time (if at SHW, the water would absorb the energy from the runoff and would not scour/carve the pond bottom). Refer to Photos 121-06, 121-08, 121-26, 121-27, and 121-28 below. All instances of this condition are on the eastern bank of the pond (behind homes).



Photo 121-06



Photo 121-08



Photo 121-26



Photo 121-27



Photo 121-28

- Multiple locations of severe erosion and bank failure/sloughing on eastern bank. Home owners have implemented temporary repair measures (gravel, rock, sod blankets, etc.) in several locations in an attempt to stabilize the bank. These locations appear to align with areas between the homes, where runoff may be concentrated by lot grading before spilling over the lip into the pond. See Photos 121-01, 121-11, 121-14, 121-22, 121-23, and 121-25 below for a visual reference.



Photo 121-01



Photo 121-11



Photo 121-14



Photo 121-22



Photo 121-23



Photo 121-25

- Ardurra observed no significant erosion on the northern, southern, or western pond banks (areas with no adjacent homes).

POND 12-2

POND 12-2	
T.O.B.	59.00
Weir Elev.	57.89
Design SHW	57.00
Bleed-down Orifice	56.98
Grade Break	47.70
Water Level (4/7/26)	~ 51
Bottom	42.60

Observed conditions Pond 12-2:

- Water levels were approximately 6ft below the design SHW (see Photo 122-40 below for visual reference).
- An abrupt vertical drop/lip, ranging in height from 12" to 18" or more, is present around the entire perimeter of the pond (see Photos 122-43 and 122-44 below for visual reference).



Photo 122-40



Photo 122-43



Photo 122-44

- Visual evidence of persistent damaging erosion along the western edge of the pond (behind homes). Concentrated runoff has carved rills/channels into the exposed pond bottom, indicating water levels have been low for an extended period of time (if at SHW, the water would absorb the energy from the runoff and would not scour/carve the pond bottom). Refer to Photos 122-14, 122-16, 122-17, 122-19, and 122-35 below. All instances of this condition are on the western bank of the pond (behind homes). The “corner” area on the western bank is in danger of collapse (Photo 122-57 below).



Photo 122-14



Photo 122-16



Photo 122-17



Photo 122-19



Photo 122-35



Photo 122-57

- Multiple locations of severe erosion and bank failure/sloughing on western bank. These locations appear to align with areas between the homes, where runoff may be concentrated by lot grading before spilling over the lip into the pond. See Photos 121-01, 121-11, 121-14, 121-22, 121-23, and 121-25 below for a visual reference.



Photo 122-03



Photo 122-07



Photo 122-37



Photo 122-38



Photo 122-42



Photo 122-62

- The littoral zone area of the pond was completely dry, with no visible evidence of recent inundation. Only small, isolated clusters of vegetation were present (see Photo 122-20 below).



Photo 122-20

POND 14-5

POND 14-5	
T.O.B.	59.00
Weir Elev.	58.61
Orifice Elev.	57.33
Design SHW	57.00
Grade Break	54.00
Water Level (4/7/26)	~47
Bottom	44.50

Observed conditions Pond 14-5:

- Water levels were more than 10ft below the design SHW (see Photo 145-05 on next page for visual reference).



Photo 145-05

- Pond banks surrounding culvert (both uphill and downhill) in northwest corner of pond have failed and are severely eroded. Culvert support has been compromised, and culvert is in danger of breaking/failing. Ad hoc repairs (rip rap, concrete rubble, sections of articulated concrete mat) both above and below the culvert have been ineffective. Discharge from culvert has carved a significant channel into the exposed pond bottom, indicating large amounts of material have been deposited in deeper sections of the pond. Refer to Photos 145-03, 145-04, 145-09, 145-10, 145-19, and 145-22 below.



Photo 145-03



Photo 145-04



Photo 145-10



Photo 145-22



Photo 145-09



Photo 145-19

- Pond banks adjacent to the inflow culvert in the center portion of the northern shoreline are failing. Discharge from the culvert onto bare/exposed soils has resulted in major erosion and material transfer into the pond, leaving a “sump” or hole at the outfall which has progressed beneath the mitered end section (MES) of the culvert. The sump has been filled with concrete rubble, as well as the open space beneath the MES, in an attempt to halt the erosion and prevent the MES from failing/breaking off. Refer to Photos 145-07 and 145-18 on the following page.



Photo 145-07



Photo 145-18

- An abrupt vertical drop/lip, ranging in height from 12" to 18" or more (in some areas approaching 2ft), is present around the entire perimeter of the pond (see Photos 145-01, 145-05, 145-12, and 145-17 below for visual reference). Although there are areas where runoff is eroding the "lip," there are no areas of severe erosion on the northern (behind homes) shore of the pond – the exceptions being in the areas around the two inflow culverts.



Photo 145-01



Photo 145-05



Photo 145-12



Photo 145-17

EVALUATION AND RECOMMENDATIONS

Pond 12-1 and Pond 12-2 Evaluation

Located nearly adjacent to one another, the conditions and extent of erosion are nearly identical at Pond 12-1 and Pond 12-2. The littoral zones in each pond are dehydrated, lack vegetation, and appear to have been in this condition (not submerged) for an extended period of time. With water levels significantly less than the design SHW in the ponds, large areas of non-vegetated bare earth are exposed between the actual water level and the pond top of bank. The areas where the pond banks have eroded and are in need of repair occur only behind the homes (eastern shoreline of Pond 12-1, western shoreline of Pond 12-2) – no instances of bank erosion requiring repair were noted on the shorelines abutting preserve areas.

Erosion due to water levels below SHW elevation:

- Low water levels have caused extensive areas of what should be submerged pond bottom area to instead be exposed earth/soil, which is not anchored or stabilized by any vegetation.
- Stormwater runoff from the yards and berm area behind the homes has carved rills and small channels into the exposed areas, indicating this condition has persisted for an extended period of time. When the water levels are at or above SHW, the energy from runoff entering the pond is absorbed and dissipated by the water surface, and no rills or channels would be formed on the pond bottom.
- The soil material from the rills and channels has been transported and deposited into the deeper areas of the pond.

Erosion due to “lip” condition at top of bank:

- As stormwater runoff flows over the “lip” and drops into the pond, it is accelerated by gravity and erodes the lip face (headcutting). Over time, and especially during larger or more intense storm events, the lip face is “cut” and progresses landward (away from the pond) as more flow equates to more energy, which in turn results in greater damage. Headcutting is a major driver of landscape degradation and results in loss of material, bank instability, sloughing, and eventually bank failure.
- All of the material that has been “removed” from the pond banks has been transported and deposited in the deeper areas of the pond (no evidence of soil accumulation on the exposed pond bottom area).
- The erosion resulting from the presence of the lip is not increased or decreased by the water level in the pond. So long as the water level in the pond is lower than the edge of the lip, erosion will occur as flows pass across it and drop down.
- In locations where the bank edge has been destabilized, the headcutting has progressed rapidly.
- The lot grading of the homes adjacent to the pond correctly direct runoff to the area between the homes, and then towards the ponds. In addition, many of the homes were observed to have downspouts discharging to the area between the homes as well, further increasing the runoff that is conveyed to the pond. As a result, flows to the ponds in line with the spaces between the homes are greater than those areas directly behind

the homes. The areas where bank sloughing/failure and severe erosion appear to be in line with these flow paths.

Pond 12-1 and Pond 12-2 Recommendations

Areas where intervention is needed to address erosion issues have been classified as “High Priority” and “Medium Priority” pursuant to the severity of the issue. If corrective actions are not implemented in these areas, the banks will continue to degrade and eventually fail. These areas have been identified on **Attachment 2** for Pond 12-1 and 12-2.

High Priority – at these locations, the bank has been destabilized and is in various stages of sloughing, degradation, and distress. Voids have formed and progressed towards homes. In several instances, homeowners have attempted to halt the process with ad hoc repairs (gravel, erosion blankets, grass clippings, soil material, etc.). To properly address these areas and prevent continued erosion problems:

- Bank material should be removed to a horizontal distance from the lip equal to four times the drop height at that location to a depth equal to the drop height, or until all damaged/destabilized material has been removed – whichever distance is greater. For example, if the drop height at the lip is 1ft, the bank face should be excavated 1ft vertically from surface to a distance of 4ft beyond the lip/face. The horizontal distance from the lip face to the extent of the landward excavation shall be designated “X” for this discussion.
- Clean fill material, free of debris and organic material, should then be placed and compacted to create a gradual slope (4:1 or flatter) from the landward extent of the excavation to the lip face, after which the slope can increase to a maximum of 3:1 to match existing grade (MEG) before the distance “X” beyond the lip face into/onto the exposed bare soil. See **Figure 1**.
- The area excavated should extend a minimum of 4ft along the pond bank on either side of the identified area at a maximum slope of 3:1 (drop height may dictate greater than 4ft). See **Figure 2**.
- Turf Reinforcement Mat (TRM) meeting the requirements of FDOT Type 2 TRM E-3 should then be installed per manufacturer specifications (overlap, staking, etc. per manufacturer specifications are crucial) on the slope.
- The TRM should then be filled with topsoil and either seeded or hydroseeded with the desired grass species. TRM can instead be covered/planted with sod, but it is not the preferred option (special steps must be taken to eliminate trapped air and encourage root to soil contact to increase survivability chances).

Areas repaired as described above will result in stabilized slopes, eliminate the lip/drop, and be able to withstand flow volumes and velocities far greater than sod/grass alone. Once vegetation (either seeded grass or sod) is established on the TRM, it can be mowed per usual methods. Should small quantities of additional material be required to complete the slope construction it can be scraped (do not create channels or holes) from the exposed pond bank/bottom in an area away from the repairs. If excess material remains after slope construction, it can spread on the exposed pond bank/bottom to fill any rills or small channels that have formed.

Medium Priority – at these locations, bank degradation is in the early stages and headcutting of any noteworthy severity is not present. However, if left unrepaired, successive intense or severe storm events could quickly change these to High Priority areas (erosion will progress quickly). To properly address these areas and prevent continued erosion problems:

- Bank material should be removed to a horizontal distance from the lip equal to four times the drop height at that location to a depth equal to the drop height, or until all damaged/destabilized material has been removed – whichever distance is greater. For example, if the drop height at the lip is 1ft, the bank face should be excavated 1ft vertically from surface to a distance of 4ft beyond the lip/face. The horizontal distance from the lip face to the extent of the landward excavation shall be designated “X” for this discussion.
- Clean fill material, free of debris and organic material, should then be placed and compacted to create a gradual slope (4:1 or flatter) from the landward extent of the excavation to the lip face, after which the slope can increase to a maximum of 3:1 to match existing grade (MEG) before the distance “X” beyond the lip face into/onto the exposed bare soil. See **Figure 1**.
- The area excavated should extend a minimum of 4ft along the pond bank on either side of the identified area at a maximum slope of 3:1 (drop height may dictate greater than 4ft). See **Figure 2**.
- Sod should then be placed/planted on the slope on the slope.

In these areas, unlike the “High Priority” areas, simple removal of the identified pond bank/lip areas and replacement with the gradual 4:1 or flatter sod-covered slope will be sufficient to stabilize the bank and prevent further erosion. Runoff volumes and velocities at these locations are less (not aligned with the spaces between homes) and current erosion is a function only of the vertical drop.

After the above actions have been implemented in the High and Medium Priority areas, the rills and small channels that remain (beyond the newly created slopes that extend “into” the pond) should be smoothed by spreading the adjacent soil to fill (clean fill not required). Future runoff from the repaired upslope areas, even if water levels remain such that the areas remain exposed, will be diffused and not concentrated, and should not propagate similar rills or channels. Should small quantities of additional material be required to complete the slope construction it can be scraped (do not create channels or holes) from the exposed pond bank/bottom in an area away from the repairs. If excess material remains after slope construction, it can spread on the exposed pond bank/bottom to fill any rills or small channels that have formed.

Pond 14-5 Evaluation

The water level in Pond 14-5 was severely low at the time of the site visit. Review of aerial imagery indicates that, except for periods immediately during and after extreme storm events, the pond water level does not inundate the littoral shelf. Due to such continuous and persistent low water levels, it is possible that the integrity of the pond bottom has been compromised or breached. Investigation of the pond bottom condition and integrity is beyond the scope of this evaluation. The persistent low water elevations have resulted in large swaths of the pond banks, which were designed to be submerged, to be exposed to erosion from stormwater runoff. The low water levels

have also left the inflow culverts well above the water line, exposing the supporting soil/bank around them to erosion as well. The pond banks around the two inflow culverts on the northern bank of the pond (one in the NW corner and the other near the center) have experienced very severe erosion, extending to the area supporting the MES structures and putting those structures in jeopardy of collapse. Discharge from these culverts, rather being dissipated by the water which should be present, instead flow onto exposed bare soil and have carved dramatic channels into the pond bottom. As the soil around the culverts erodes, the created drop/lip is headcutting and progressing upslope through the berm area towards the homes on the north side of the pond.

Pond 14-5 Recommendations

Areas where intervention is needed to address erosion issues have been classified as “High Priority” and “Medium Priority” pursuant to the severity of the issue. If corrective actions are not implemented in these areas, the banks will continue to degrade and eventually fail. These areas have been identified on **Attachment 3** for Pond 14-5.

High Priority – at these locations, the bank has been severely compromised and/or failed. Soils beneath the MES of the culvert has been scoured away by erosion and temporary repairs have been made (concrete rubble and/or soil material stacked to support the structure). Additional temporary repair measures have been implemented in the areas upslope of the culverts. To properly address these areas and prevent continued erosion problems:

Culvert in NW corner of Pond 14-5:

- Bank has sloughed/failed completely adjacent to and upslope of the culvert, with the failed area soon to be endangering homeowner’s fencing and property. The culvert and MES remain intact, but the ME has been undermined, and soil is disappearing from beneath it.
- Unstable and compromised material, along with the debris and apparatus used to enact temporary repairs, must be removed to reach stable/native bank material.
- Clean fill material must then be placed to restore the original pond bank slope, position, and grade per the plans. Material should be placed in 8-12” lifts and compacted. Based on a visual comparison of the amount of material “missing” from the bank and the pond bank as shown on the plans, fill material will need to be imported.
- Once the pond bank has been restored to the original dimensions/extent/slopes, Turf Reinforcement Mat (TRM) meeting the requirements of FDOT Type 2 TRM E-3 should then be installed per manufacturer specifications (overlap, staking, etc. per manufacturer specifications are crucial) on the slope.
 - The TRM should be installed beginning a minimum of 5ft beyond (towards homes) the top of the restored bank and extend down the slope to 5ft below/beyond the MES.
 - The TRM should then be filled with topsoil and either seeded or hydroseeded with the desired grass species. TRM can instead be covered/planted with sod, but it is not the preferred option (special steps must be taken to eliminate trapped air and encourage root to soil contact to increase survivability chances).
 - The 5ft wide section of TRM at the outfall of the culvert should not be seeded/hydroseed/sodded. Instead, cover with filter fabric (Mirafi 500x or equivalent) and toe into slope a minimum of 10ft from the end of the culvert. This

area should then be filled with riprap meeting FDOT Bank and Shore specifications.

- After slope has been restored and stabilized, existing pond bottom material should be spread to fill the channel that has been carved into the pond bottom at this location.

Culvert in center area of north bank and culvert on western bank of Pond 14-5:

- Remove compromised material and excavate bank on either side of culvert to a distance equal to four (4) times the height of the lip/vertical drop. Bank area excavated should extend a minimum of 10ft horizontally to either side of the culvert. The horizontal distance from the lip face to the extent of the landward excavation shall be designated "X" for this discussion.
- Clean fill material, free of debris and organic material, should then be placed and compacted to create a gradual slope (4:1 or flatter) from the landward extent of the excavation to the lip face, after which the slope can increase to a maximum of 3:1 to match existing grade (MEG) before the distance "X" beyond the lip face into/onto the exposed bare soil. See **Attachment 1**.
- Turf Reinforcement Mat (TRM) meeting the requirements of FDOT Type 2 TRM E-3 should then be installed per manufacturer specifications (overlap, staking, etc. per manufacturer specifications are crucial) on the slope.
- The TRM should then be filled with topsoil and either seeded or hydroseeded with the desired grass species. TRM can instead be covered/planted with sod, but it is not the preferred option (special steps must be taken to eliminate trapped air and encourage root to soil contact to increase survivability chances).
- Compromised material and concrete rubble should be removed from the area beneath and immediately downstream of the MES. Clean fill material should then be placed in the void and sump area and compacted to restore original grade per plans.
- A 5ft wide section at the outfall of the culvert should be covered with filter fabric (Mirafi 500x or equivalent) and toed into slope/pond bottom a minimum of 10ft from the end of the culvert. This area should then be filled with riprap meeting FDOT Bank and Shore specifications.

Medium Priority – at these locations, bank degradation is in the early stages and headcutting of any noteworthy severity is not present. However, if left unrepaired, successive intense or severe storm events could quickly change these to High Priority areas (erosion will progress quickly). To properly address these areas and prevent continued erosion problems:

- Bank material should be removed to a horizontal distance from the lip equal to four times the drop height at that location to a depth equal to the drop height, or until all damaged/destabilized material has been removed – whichever distance is greater. For example, if the drop height at the lip is 1ft, the bank face should be excavated 1ft vertically from surface to a distance of 4ft beyond the lip/face. The horizontal distance from the lip face to the extent of the landward excavation shall be designated "X" for this discussion.

- Clean fill material, free of debris and organic material, should then be placed and compacted to create a gradual slope (4:1 or flatter) from the landward extent of the excavation to the lip face, after which the slope can increase to a maximum of 3:1 to match existing grade (MEG) before the distance "X" beyond the lip face into/onto the exposed bare soil. See **Attachment 1**.
- The area excavated should extend a minimum of 4ft along the pond bank on either side of the identified area at a maximum slope of 3:1 (drop height may dictate greater than 4ft). See **Attachment 2**.
- Sod should then be placed/planted on the slope on the slope.

In these areas, unlike the "High Priority" areas, simple removal of the identified pond bank/lip areas and replacement with the gradual 4:1 or flatter sod-covered slope will be sufficient to stabilize the bank and prevent further erosion. Runoff volumes and velocities at these locations are less (not aligned with the spaces between homes) and current erosion is a function only of the vertical drop.

After the above actions have been implemented in the High and Medium Priority areas, the rills and small channels that remain (beyond the newly created slopes that extend "into" the pond) should be smoothed by spreading the adjacent soil to fill (clean fill not required). Future runoff from the repaired upslope areas, even if water levels remain such that the areas remain exposed, will be diffused and not concentrated, and should not propagate similar rills or channels. Should small quantities of additional material be required to complete the slope construction it can be scraped (do not create channels or holes) from the exposed pond bank/bottom in an area away from the repairs. If excess material remains after slope construction, it can spread on the exposed pond bank/bottom to fill any rills or small channels that have formed.

Attachment 1: Live Oak Preserve Aerial



ATTACHMENT 2 (12-1, 12-2)

Bank Erosion



Eroded pond bank areas requiring repairs

Legend

- Medium Priority
- High Priority



SCALE - FEET

0 0 0

LIVE OAK PRESERVE

GRAPHIC REPRESENTATIONS ARE GENERAL IN NATURE AND SHOULD BE USED FOR PLANNING PURPOSES ONLY

ATTACHMENT 3 (POND 14-5)

Bank Erosion



Bank erosion repair locations

Legend

- Medium Priority
- High Priority



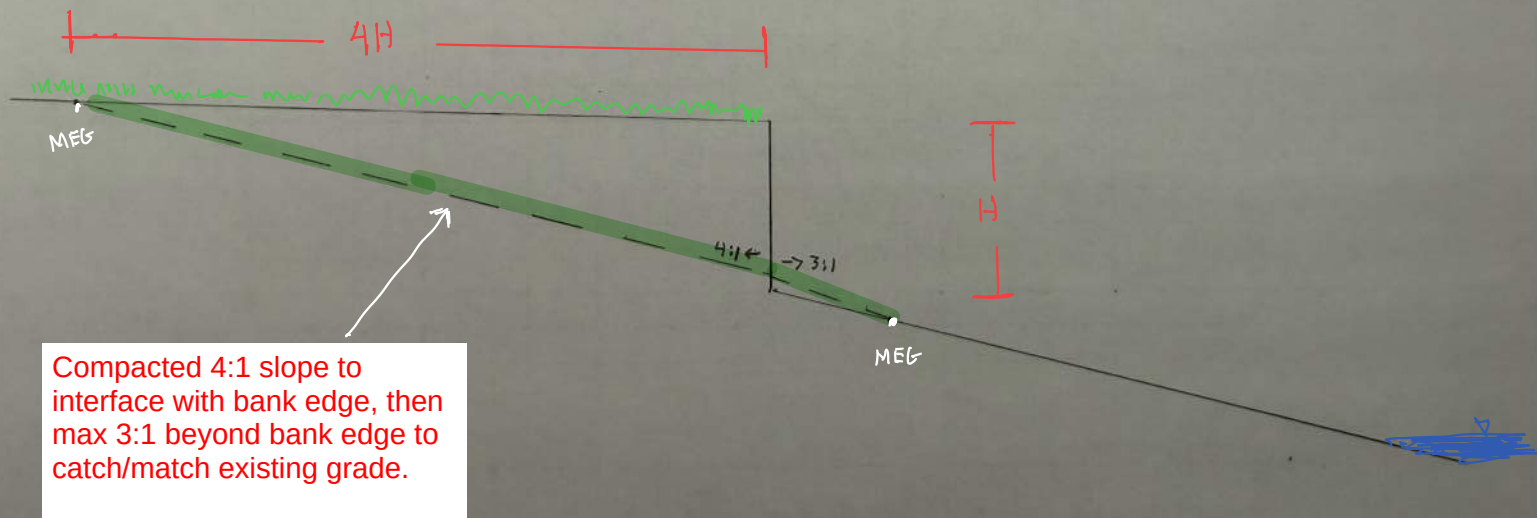
SCALE - FEET
0 50 100

LIVE OAK PRESERVE

GRAPHIC REPRESENTATIONS ARE GENERAL IN NATURE AND SHOULD BE USED FOR PLANNING PURPOSES ONLY

FIGURE 1

After removal of debris and organics, excavated material to be used to create proposed slope. Additional material, if needed, can be scraped from exposed pond bottom/slope away from area of repair.



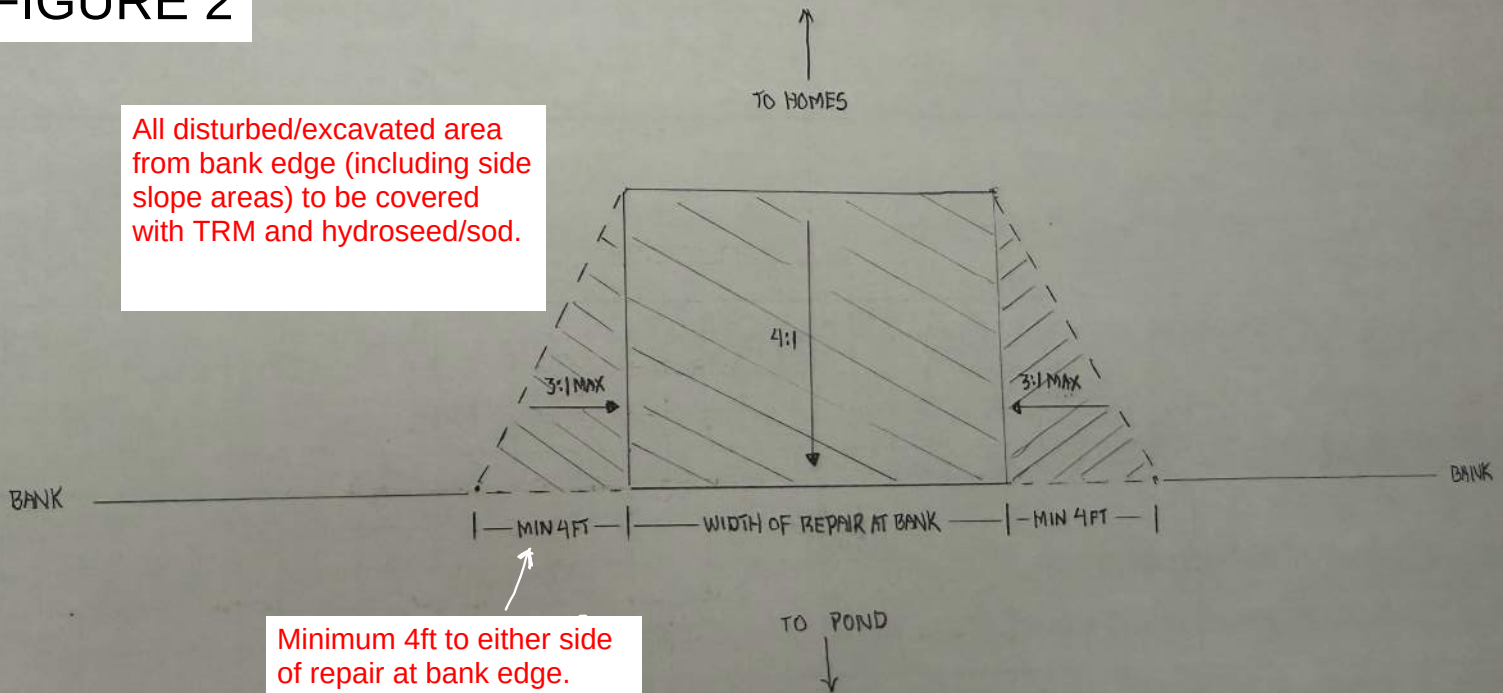
Compacted 4:1 slope to interface with bank edge, then max 3:1 beyond bank edge to catch/match existing grade.

H = HEIGHT OF DROP AT BANK
EDGE IN AREA OF REPAIR

COVER WITH TRM AND HYDROSEED/SOD

FIGURE 2

All disturbed/excavated area from bank edge (including side slope areas) to be covered with TRM and hydroseed/sod.



Minimum 4ft to either side of repair at bank edge. Greater as dictated by max 3:1 slope and drop height (i.e. 2ft drop will require 6ft)



One-Time Work Order Agreement

Customer Name: Live Oak No 2 CDD

Property Contact: Kristee Cole

Work Order Description: Lakebank Restoration- Medium & High Only

Premier Lakes Consultant: Alex Kurth

Consultant Phone Number: 239-707-1575

This Agreement, dated **September 10th, 2026**, is made by and between Premier Lakes, Inc., hereinafter known as "Premier Lakes," and **Live Oak No. 2 CDD**, hereinafter known as "Customer."

Both Customer and Premier Lakes agree to the following terms and conditions:

1. **General Conditions:** Premier Lakes will provide the contract services enumerated below to the Customer under the terms and conditions of this Agreement, and the Customer agrees to pay Premier Lakes for those services as listed below under the terms and conditions of this agreement.
2. **Service Area:** The "Service Area" is described as **12-1, 12-2, and 14-5**.
3. **One-Time Services:** Premier Lakes will perform **lakebank restoration as follows:**
 - a. **Lake 12-1**
 - i. **Grade 9,200 sqft of lake bank with fill sourced from the lake.**
 - ii. **Install 9,200 sqft of TRM material with hydroseeding.**
 - b. **Lake 12-2**
 - i. **Grade 12,200 sqft of lake bank with fill sourced from the lake.**
 - ii. **Install 12,200 sqft of TRM material with hydroseeding.**
 - c. **Lake 14-5**
 - i. **Grade 9,200 sqft of lake bank with fill sourced from the lake.**
 - ii. **Install 9,200 sqft of TRM material with hydroseeding.**
 - iii. **Stabilize and rip rap culvert outflows**
 - d. **All repairs to follow engineers recommendations as provided.**
4. **Payment Terms:** The total agreement amount is **\$185,350.00**. A 50% deposit is due upon the execution of this agreement. The remaining 50% will be invoiced upon completion of services. The customer agrees to pay Premier Lakes within thirty (30) days of the invoice. If the customer fails to pay any invoice within sixty (60) days of the invoice date, then a service charge of 1% per month (12% per annum) will be charged to the customer by Premier Lakes on balances not paid within sixty (60) days.



5. **Forms of Payment:** Premier Lakes accepts payment by check.
6. **Contract Void Ab Initio:** This contract will be void ab initio if Premier Lakes, in its sole discretion, determines that the condition of the Service Area has materially declined between the date of this Agreement and the commencement date of the Agreement. If Premier Lakes commences services under this Agreement, this paragraph will not apply.
7. **Force Majeure:** Premier Lakes shall not be liable for any delay in performing the Services nor for any failure to provide the Services due to any cause beyond its reasonable control.
8. **Enforcement and Governing Law:** A default by either Party under this agreement shall entitle the other Party to all remedies available at law or in equity, which shall include, but not be limited to, the right to damages and injunctive relief under Florida law.
9. **Safety:** Premier Lakes agrees to use its best efforts and specialized equipment, products, and procedures to provide safe and effective results hereunder, and Premier Lakes will use all due care to protect the property of the Customer. Premier Lakes will not be liable for plant damage due to disease, pestilence, flood, weather, or any other means unrelated to Premier Lakes' activities. In addition, some collateral damage to beneficial plants might be necessary to treat nuisance plants. Premier Lakes will use its best efforts and professional expertise to limit any damage to beneficial plants, but in no event will Premier Lakes be liable for collateral damage that is less than ten percent (10%) of the beneficial plant population.
10. **Insurance:** Premier Lakes will maintain general liability and other insurances as necessary, given the scope and nature of the services. Premier Lakes will be responsible for those damages, claims, causes of action, injuries, or legal costs to the extent of its direct negligence or misconduct. No party to this agreement will be liable to the other for incidental, consequential, or purely economic damages.
11. **E-Verify:** Premier Lakes utilizes the federal E-Verify program in contracts with public employers as required by Florida State Law and acknowledges all the provisions of Florida Statute 448.095 are incorporated herein by reference and hereby certifies it will comply with the same.
12. **Limited Offer:** This proposal expires sixty (60) days from the issuance date unless modified in writing by Premier Lakes.

Total Agreement Amount: \$185,350.00

Accepted and Approved:

Live Oak No 2 CDD

Signature:

Printed Name:

Title:

Date:

Customer Address for Notice Purposes:

Premier Lakes, Inc.

Signature:

Name: Alex Kurth

Title: President

Date:

Please Remit All Payments & Contracts to: 1936 Bruce B Downs Blvd, Suite 308, Wesley Chapel, FL 33544.



To: Kristee Cole
Live Oak CDD/Live Oak II

From: Michael Peck, P.E. (Ardurra)

Project Number: 2004-0037-12

Date: September 3, 2026

Project Name: Live Oak Preserve Phase
2B – Pond Bank Evaluation
(ASA #04)

POND BANK EVALUATION

Per Additional Services Addendum (ASA) #04, Ardurra Group Inc. (Ardurra) was tasked to:

- Evaluate the side banks of Pond 12-1, Pond 12-2 (Live Oak Preserve Phase 2B), and Pond 14-5 (Live Oak Preserve Phase 2A).
- Conduct site observations of the side slopes and provide an assessment of the extent of repairs needed.
- Prepare an exhibit identifying the pond bank repair locations.
- Provide recommended repair options based on the severity of the observed erosion.

Pond locations are shown on **Attachment 1** Live Oak Aerial.

SITE OBSERVATIONS

Prior to conducting site observations, Ardurra reviewed the as-built drawings for Live Oak Preserve Phase 2A (dated 06/28/2004) and Live Oak Preserve Phase 2B (dated 09/04/2004) relative to pond top of bank (TOB), weir, bleed-down, design seasonal high water (SHW), grade break, and pond bottom elevations. Additionally, the plans were reviewed in conjunction with Hillsborough County parcel data to confirm the extent of the private parcels and pond/berm limits. All three ponds were designed to be wet detention ponds, with a 20ft maintenance berm surrounding the ponds.

Ardurra visited the site on Tuesday April 7, 2026, and evaluated Pond 12-1, Pond 12-2, and Pond 14-5 relative to conditions at the time of the visit, focusing on the noted bank erosion issues.

POND 12-1

POND 12-1	
T.O.B.	60.00
Weir Elev.	58.50
Design SHW	58.00
Bleed-down Orifice	57.98
Grade Break	56.00
Water Level (4/7/26)	~51
Bottom	48.50

Observed conditions Pond 12-1:

- Water levels were approximately 7ft below the design SHW (see Photo 121-10 below for visual reference).
- An abrupt vertical drop/lip, ranging in height from 12" to 18" or more, is present around the entire perimeter of the pond (see Photo 121-10 below for visual reference).



Photo 121-10

- Between the lip and water, the exposed pond bank and bottom is bare sandy soil, devoid of any noteworthy vegetation. This is the case in the main body of the pond as well as in the littoral zone (reference Photos 121-12 and 121-19 below).
- The littoral zone area of the pond was completely dry, with no visible evidence of recent inundation. Only small, isolated clusters of vegetation were present (see Photo 121-12 below).



Photo 121-12



Photo 121-19

- Visual evidence of persistent damaging erosion along the eastern edge of the pond (behind homes). Concentrated runoff has carved rills/channels into the exposed pond bottom, indicating water levels have been low for an extended period of time (if at SHW, the water would absorb the energy from the runoff and would not scour/carve the pond bottom). Refer to Photos 121-06, 121-08, 121-26, 121-27, and 121-28 below. All instances of this condition are on the eastern bank of the pond (behind homes).



Photo 121-06



Photo 121-08



Photo 121-26



Photo 121-27



Photo 121-28

- Multiple locations of severe erosion and bank failure/sloughing on eastern bank. Home owners have implemented temporary repair measures (gravel, rock, sod blankets, etc.) in several locations in an attempt to stabilize the bank. These locations appear to align with areas between the homes, where runoff may be concentrated by lot grading before spilling over the lip into the pond. See Photos 121-01, 121-11, 121-14, 121-22, 121-23, and 121-25 below for a visual reference.



Photo 121-01



Photo 121-11



Photo 121-14



Photo 121-22



Photo 121-23



Photo 121-25

- Ardurra observed no significant erosion on the northern, southern, or western pond banks (areas with no adjacent homes).

POND 12-2

POND 12-2	
T.O.B.	59.00
Weir Elev.	57.89
Design SHW	57.00
Bleed-down Orifice	56.98
Grade Break	47.70
Water Level (4/7/26)	~ 51
Bottom	42.60

Observed conditions Pond 12-2:

- Water levels were approximately 6ft below the design SHW (see Photo 122-40 below for visual reference).
- An abrupt vertical drop/lip, ranging in height from 12" to 18" or more, is present around the entire perimeter of the pond (see Photos 122-43 and 122-44 below for visual reference).



Photo 122-40



Photo 122-43



Photo 122-44

- Visual evidence of persistent damaging erosion along the western edge of the pond (behind homes). Concentrated runoff has carved rills/channels into the exposed pond bottom, indicating water levels have been low for an extended period of time (if at SHW, the water would absorb the energy from the runoff and would not scour/carve the pond bottom). Refer to Photos 122-14, 122-16, 122-17, 122-19, and 122-35 below. All instances of this condition are on the western bank of the pond (behind homes). The “corner” area on the western bank is in danger of collapse (Photo 122-57 below).



Photo 122-14



Photo 122-16



Photo 122-17



Photo 122-19



Photo 122-35



Photo 122-57

- Multiple locations of severe erosion and bank failure/sloughing on western bank. These locations appear to align with areas between the homes, where runoff may be concentrated by lot grading before spilling over the lip into the pond. See Photos 121-01, 121-11, 121-14, 121-22, 121-23, and 121-25 below for a visual reference.



Photo 122-03



Photo 122-07



Photo 122-37



Photo 122-38



Photo 122-42



Photo 122-62

- The littoral zone area of the pond was completely dry, with no visible evidence of recent inundation. Only small, isolated clusters of vegetation were present (see Photo 122-20 below).



Photo 122-20

POND 14-5

POND 14-5	
T.O.B.	59.00
Weir Elev.	58.61
Orifice Elev.	57.33
Design SHW	57.00
Grade Break	54.00
Water Level (4/7/26)	~47
Bottom	44.50

Observed conditions Pond 14-5:

- Water levels were more than 10ft below the design SHW (see Photo 145-05 on next page for visual reference).



Photo 145-05

- Pond banks surrounding culvert (both uphill and downhill) in northwest corner of pond have failed and are severely eroded. Culvert support has been compromised, and culvert is in danger of breaking/failing. Ad hoc repairs (rip rap, concrete rubble, sections of articulated concrete mat) both above and below the culvert have been ineffective. Discharge from culvert has carved a significant channel into the exposed pond bottom, indicating large amounts of material have been deposited in deeper sections of the pond. Refer to Photos 145-03, 145-04, 145-09, 145-10, 145-19, and 145-22 below.



Photo 145-03



Photo 145-04



Photo 145-10



Photo 145-22



Photo 145-09



Photo 145-19

- Pond banks adjacent to the inflow culvert in the center portion of the northern shoreline are failing. Discharge from the culvert onto bare/exposed soils has resulted in major erosion and material transfer into the pond, leaving a “sump” or hole at the outfall which has progressed beneath the mitered end section (MES) of the culvert. The sump has been filled with concrete rubble, as well as the open space beneath the MES, in an attempt to halt the erosion and prevent the MES from failing/breaking off. Refer to Photos 145-07 and 145-18 on the following page.



Photo 145-07



Photo 145-18

- An abrupt vertical drop/lip, ranging in height from 12" to 18" or more (in some areas approaching 2ft), is present around the entire perimeter of the pond (see Photos 145-01, 145-05, 145-12, and 145-17 below for visual reference). Although there are areas where runoff is eroding the "lip," there are no areas of severe erosion on the northern (behind homes) shore of the pond – the exceptions being in the areas around the two inflow culverts.



Photo 145-01



Photo 145-05



Photo 145-12



Photo 145-17

EVALUATION AND RECOMMENDATIONS

Pond 12-1 and Pond 12-2 Evaluation

Located nearly adjacent to one another, the conditions and extent of erosion are nearly identical at Pond 12-1 and Pond 12-2. The littoral zones in each pond are dehydrated, lack vegetation, and appear to have been in this condition (not submerged) for an extended period of time. With water levels significantly less than the design SHW in the ponds, large areas of non-vegetated bare earth are exposed between the actual water level and the pond top of bank. The areas where the pond banks have eroded and are in need of repair occur only behind the homes (eastern shoreline of Pond 12-1, western shoreline of Pond 12-2) – no instances of bank erosion requiring repair were noted on the shorelines abutting preserve areas.

Erosion due to water levels below SHW elevation:

- Low water levels have caused extensive areas of what should be submerged pond bottom area to instead be exposed earth/soil, which is not anchored or stabilized by any vegetation.
- Stormwater runoff from the yards and berm area behind the homes has carved rills and small channels into the exposed areas, indicating this condition has persisted for an extended period of time. When the water levels are at or above SHW, the energy from runoff entering the pond is absorbed and dissipated by the water surface, and no rills or channels would be formed on the pond bottom.
- The soil material from the rills and channels has been transported and deposited into the deeper areas of the pond.

Erosion due to “lip” condition at top of bank:

- As stormwater runoff flows over the “lip” and drops into the pond, it is accelerated by gravity and erodes the lip face (headcutting). Over time, and especially during larger or more intense storm events, the lip face is “cut” and progresses landward (away from the pond) as more flow equates to more energy, which in turn results in greater damage. Headcutting is a major driver of landscape degradation and results in loss of material, bank instability, sloughing, and eventually bank failure.
- All of the material that has been “removed” from the pond banks has been transported and deposited in the deeper areas of the pond (no evidence of soil accumulation on the exposed pond bottom area).
- The erosion resulting from the presence of the lip is not increased or decreased by the water level in the pond. So long as the water level in the pond is lower than the edge of the lip, erosion will occur as flows pass across it and drop down.
- In locations where the bank edge has been destabilized, the headcutting has progressed rapidly.
- The lot grading of the homes adjacent to the pond correctly direct runoff to the area between the homes, and then towards the ponds. In addition, many of the homes were observed to have downspouts discharging to the area between the homes as well, further increasing the runoff that is conveyed to the pond. As a result, flows to the ponds in line with the spaces between the homes are greater than those areas directly behind

the homes. The areas where bank sloughing/failure and severe erosion appear to be in line with these flow paths.

Pond 12-1 and Pond 12-2 Recommendations

Areas where intervention is needed to address erosion issues have been classified as “High Priority” and “Medium Priority” pursuant to the severity of the issue. If corrective actions are not implemented in these areas, the banks will continue to degrade and eventually fail. These areas have been identified on **Attachment 2** for Pond 12-1 and 12-2.

High Priority – at these locations, the bank has been destabilized and is in various stages of sloughing, degradation, and distress. Voids have formed and progressed towards homes. In several instances, homeowners have attempted to halt the process with ad hoc repairs (gravel, erosion blankets, grass clippings, soil material, etc.). To properly address these areas and prevent continued erosion problems:

- Bank material should be removed to a horizontal distance from the lip equal to four times the drop height at that location to a depth equal to the drop height, or until all damaged/destabilized material has been removed – whichever distance is greater. For example, if the drop height at the lip is 1ft, the bank face should be excavated 1ft vertically from surface to a distance of 4ft beyond the lip/face. The horizontal distance from the lip face to the extent of the landward excavation shall be designated “X” for this discussion.
- Clean fill material, free of debris and organic material, should then be placed and compacted to create a gradual slope (4:1 or flatter) from the landward extent of the excavation to the lip face, after which the slope can increase to a maximum of 3:1 to match existing grade (MEG) before the distance “X” beyond the lip face into/onto the exposed bare soil. See **Figure 1**.
- The area excavated should extend a minimum of 4ft along the pond bank on either side of the identified area at a maximum slope of 3:1 (drop height may dictate greater than 4ft). See **Figure 2**.
- Turf Reinforcement Mat (TRM) meeting the requirements of FDOT Type 2 TRM E-3 should then be installed per manufacturer specifications (overlap, staking, etc. per manufacturer specifications are crucial) on the slope.
- The TRM should then be filled with topsoil and either seeded or hydroseeded with the desired grass species. TRM can instead be covered/planted with sod, but it is not the preferred option (special steps must be taken to eliminate trapped air and encourage root to soil contact to increase survivability chances).

Areas repaired as described above will result in stabilized slopes, eliminate the lip/drop, and be able to withstand flow volumes and velocities far greater than sod/grass alone. Once vegetation (either seeded grass or sod) is established on the TRM, it can be mowed per usual methods. Should small quantities of additional material be required to complete the slope construction it can be scraped (do not create channels or holes) from the exposed pond bank/bottom in an area away from the repairs. If excess material remains after slope construction, it can spread on the exposed pond bank/bottom to fill any rills or small channels that have formed.

Medium Priority – at these locations, bank degradation is in the early stages and headcutting of any noteworthy severity is not present. However, if left unrepaired, successive intense or severe storm events could quickly change these to High Priority areas (erosion will progress quickly). To properly address these areas and prevent continued erosion problems:

- Bank material should be removed to a horizontal distance from the lip equal to four times the drop height at that location to a depth equal to the drop height, or until all damaged/destabilized material has been removed – whichever distance is greater. For example, if the drop height at the lip is 1ft, the bank face should be excavated 1ft vertically from surface to a distance of 4ft beyond the lip/face. The horizontal distance from the lip face to the extent of the landward excavation shall be designated “X” for this discussion.
- Clean fill material, free of debris and organic material, should then be placed and compacted to create a gradual slope (4:1 or flatter) from the landward extent of the excavation to the lip face, after which the slope can increase to a maximum of 3:1 to match existing grade (MEG) before the distance “X” beyond the lip face into/onto the exposed bare soil. See **Figure 1**.
- The area excavated should extend a minimum of 4ft along the pond bank on either side of the identified area at a maximum slope of 3:1 (drop height may dictate greater than 4ft). See **Figure 2**.
- Sod should then be placed/planted on the slope on the slope.

In these areas, unlike the “High Priority” areas, simple removal of the identified pond bank/lip areas and replacement with the gradual 4:1 or flatter sod-covered slope will be sufficient to stabilize the bank and prevent further erosion. Runoff volumes and velocities at these locations are less (not aligned with the spaces between homes) and current erosion is a function only of the vertical drop.

After the above actions have been implemented in the High and Medium Priority areas, the rills and small channels that remain (beyond the newly created slopes that extend “into” the pond) should be smoothed by spreading the adjacent soil to fill (clean fill not required). Future runoff from the repaired upslope areas, even if water levels remain such that the areas remain exposed, will be diffused and not concentrated, and should not propagate similar rills or channels. Should small quantities of additional material be required to complete the slope construction it can be scraped (do not create channels or holes) from the exposed pond bank/bottom in an area away from the repairs. If excess material remains after slope construction, it can spread on the exposed pond bank/bottom to fill any rills or small channels that have formed.

Pond 14-5 Evaluation

The water level in Pond 14-5 was severely low at the time of the site visit. Review of aerial imagery indicates that, except for periods immediately during and after extreme storm events, the pond water level does not inundate the littoral shelf. Due to such continuous and persistent low water levels, it is possible that the integrity of the pond bottom has been compromised or breached. Investigation of the pond bottom condition and integrity is beyond the scope of this evaluation. The persistent low water elevations have resulted in large swaths of the pond banks, which were designed to be submerged, to be exposed to erosion from stormwater runoff. The low water levels

have also left the inflow culverts well above the water line, exposing the supporting soil/bank around them to erosion as well. The pond banks around the two inflow culverts on the northern bank of the pond (one in the NW corner and the other near the center) have experienced very severe erosion, extending to the area supporting the MES structures and putting those structures in jeopardy of collapse. Discharge from these culverts, rather being dissipated by the water which should be present, instead flow onto exposed bare soil and have carved dramatic channels into the pond bottom. As the soil around the culverts erodes, the created drop/lip is headcutting and progressing upslope through the berm area towards the homes on the north side of the pond.

Pond 14-5 Recommendations

Areas where intervention is needed to address erosion issues have been classified as “High Priority” and “Medium Priority” pursuant to the severity of the issue. If corrective actions are not implemented in these areas, the banks will continue to degrade and eventually fail. These areas have been identified on **Attachment 3** for Pond 14-5.

High Priority – at these locations, the bank has been severely compromised and/or failed. Soils beneath the MES of the culvert has been scoured away by erosion and temporary repairs have been made (concrete rubble and/or soil material stacked to support the structure). Additional temporary repair measures have been implemented in the areas upslope of the culverts. To properly address these areas and prevent continued erosion problems:

Culvert in NW corner of Pond 14-5:

- Bank has sloughed/failed completely adjacent to and upslope of the culvert, with the failed area soon to be endangering homeowner’s fencing and property. The culvert and MES remain intact, but the ME has been undermined, and soil is disappearing from beneath it.
- Unstable and compromised material, along with the debris and apparatus used to enact temporary repairs, must be removed to reach stable/native bank material.
- Clean fill material must then be placed to restore the original pond bank slope, position, and grade per the plans. Material should be placed in 8-12” lifts and compacted. Based on a visual comparison of the amount of material “missing” from the bank and the pond bank as shown on the plans, fill material will need to be imported.
- Once the pond bank has been restored to the original dimensions/extent/slopes, Turf Reinforcement Mat (TRM) meeting the requirements of FDOT Type 2 TRM E-3 should then be installed per manufacturer specifications (overlap, staking, etc. per manufacturer specifications are crucial) on the slope.
 - The TRM should be installed beginning a minimum of 5ft beyond (towards homes) the top of the restored bank and extend down the slope to 5ft below/beyond the MES.
 - The TRM should then be filled with topsoil and either seeded or hydroseeded with the desired grass species. TRM can instead be covered/planted with sod, but it is not the preferred option (special steps must be taken to eliminate trapped air and encourage root to soil contact to increase survivability chances).
 - The 5ft wide section of TRM at the outfall of the culvert should not be seeded/hydroseed/sodded. Instead, cover with filter fabric (Mirafi 500x or equivalent) and toe into slope a minimum of 10ft from the end of the culvert. This

area should then be filled with riprap meeting FDOT Bank and Shore specifications.

- After slope has been restored and stabilized, existing pond bottom material should be spread to fill the channel that has been carved into the pond bottom at this location.

Culvert in center area of north bank and culvert on western bank of Pond 14-5:

- Remove compromised material and excavate bank on either side of culvert to a distance equal to four (4) times the height of the lip/vertical drop. Bank area excavated should extend a minimum of 10ft horizontally to either side of the culvert. The horizontal distance from the lip face to the extent of the landward excavation shall be designated “X” for this discussion.
- Clean fill material, free of debris and organic material, should then be placed and compacted to create a gradual slope (4:1 or flatter) from the landward extent of the excavation to the lip face, after which the slope can increase to a maximum of 3:1 to match existing grade (MEG) before the distance “X” beyond the lip face into/onto the exposed bare soil. See **Attachment 1**.
- Turf Reinforcement Mat (TRM) meeting the requirements of FDOT Type 2 TRM E-3 should then be installed per manufacturer specifications (overlap, staking, etc. per manufacturer specifications are crucial) on the slope.
- The TRM should then be filled with topsoil and either seeded or hydroseeded with the desired grass species. TRM can instead be covered/planted with sod, but it is not the preferred option (special steps must be taken to eliminate trapped air and encourage root to soil contact to increase survivability chances).
- Compromised material and concrete rubble should be removed from the area beneath and immediately downstream of the MES. Clean fill material should then be placed in the void and sump area and compacted to restore original grade per plans.
- A 5ft wide section at the outfall of the culvert should be covered with filter fabric (Mirafi 500x or equivalent) and toed into slope/pond bottom a minimum of 10ft from the end of the culvert. This area should then be filled with riprap meeting FDOT Bank and Shore specifications.

Medium Priority – at these locations, bank degradation is in the early stages and headcutting of any noteworthy severity is not present. However, if left unrepaired, successive intense or severe storm events could quickly change these to High Priority areas (erosion will progress quickly). To properly address these areas and prevent continued erosion problems:

- Bank material should be removed to a horizontal distance from the lip equal to four times the drop height at that location to a depth equal to the drop height, or until all damaged/destabilized material has been removed – whichever distance is greater. For example, if the drop height at the lip is 1ft, the bank face should be excavated 1ft vertically from surface to a distance of 4ft beyond the lip/face. The horizontal distance from the lip face to the extent of the landward excavation shall be designated “X” for this discussion.

- Clean fill material, free of debris and organic material, should then be placed and compacted to create a gradual slope (4:1 or flatter) from the landward extent of the excavation to the lip face, after which the slope can increase to a maximum of 3:1 to match existing grade (MEG) before the distance "X" beyond the lip face into/onto the exposed bare soil. See **Attachment 1**.
- The area excavated should extend a minimum of 4ft along the pond bank on either side of the identified area at a maximum slope of 3:1 (drop height may dictate greater than 4ft). See **Attachment 2**.
- Sod should then be placed/planted on the slope on the slope.

In these areas, unlike the "High Priority" areas, simple removal of the identified pond bank/lip areas and replacement with the gradual 4:1 or flatter sod-covered slope will be sufficient to stabilize the bank and prevent further erosion. Runoff volumes and velocities at these locations are less (not aligned with the spaces between homes) and current erosion is a function only of the vertical drop.

After the above actions have been implemented in the High and Medium Priority areas, the rills and small channels that remain (beyond the newly created slopes that extend "into" the pond) should be smoothed by spreading the adjacent soil to fill (clean fill not required). Future runoff from the repaired upslope areas, even if water levels remain such that the areas remain exposed, will be diffused and not concentrated, and should not propagate similar rills or channels. Should small quantities of additional material be required to complete the slope construction it can be scraped (do not create channels or holes) from the exposed pond bank/bottom in an area away from the repairs. If excess material remains after slope construction, it can spread on the exposed pond bank/bottom to fill any rills or small channels that have formed.

Attachment 1: Live Oak Preserve Aerial



ATTACHMENT 2 (12-1, 12-2)

Bank Erosion



Eroded pond bank areas requiring repairs

Legend

- Medium Priority
- High Priority



SCALE - FEET

0 0 0

LIVE OAK PRESERVE

GRAPHIC REPRESENTATIONS ARE GENERAL IN NATURE AND SHOULD BE USED FOR PLANNING PURPOSES ONLY

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ATTACHMENT 3 (POND 14-5)

Bank Erosion



Bank erosion repair locations

Legend

- Medium Priority
- High Priority



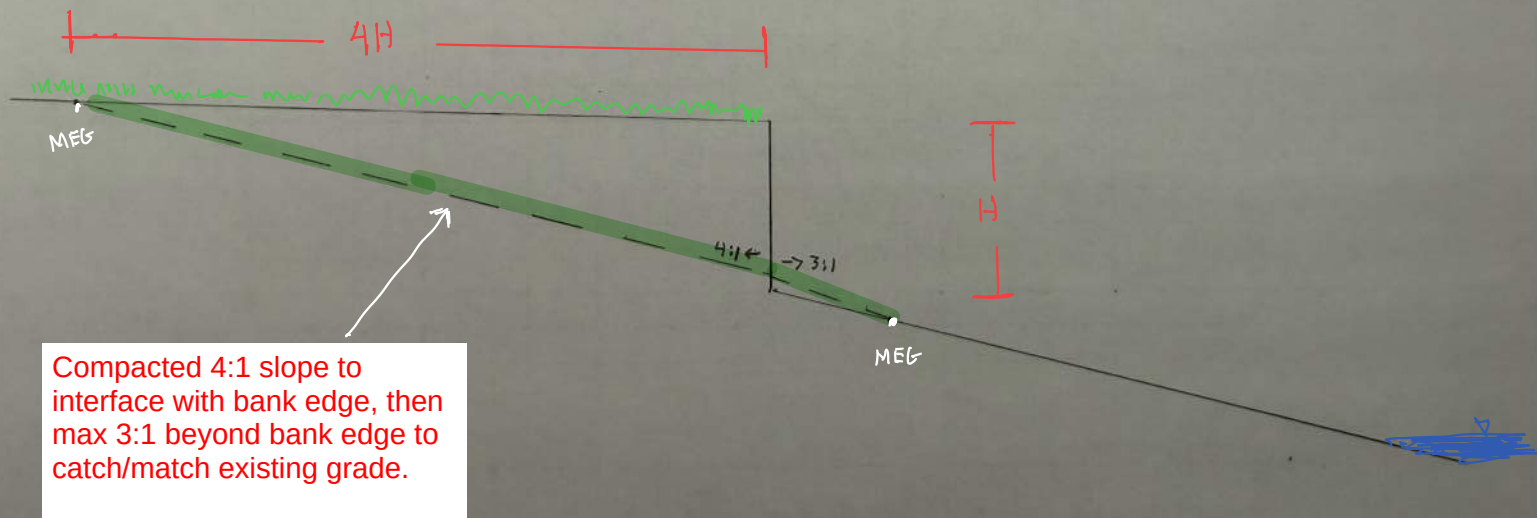
SCALE - FEET
0 50 100

LIVE OAK PRESERVE

GRAPHIC REPRESENTATIONS ARE GENERAL IN NATURE AND SHOULD BE USED FOR PLANNING PURPOSES ONLY

FIGURE 1

After removal of debris and organics, excavated material to be used to create proposed slope. Additional material, if needed, can be scraped from exposed pond bottom/slope away from area of repair.



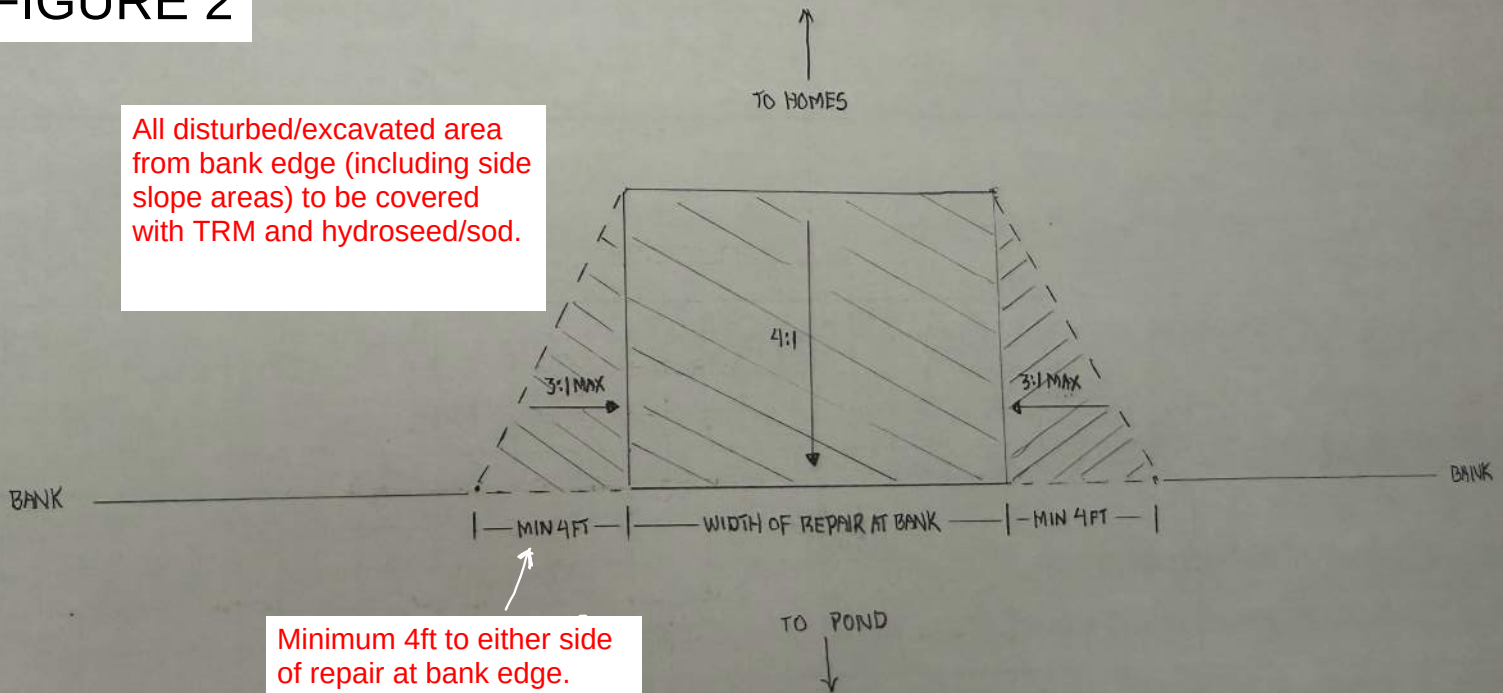
Compacted 4:1 slope to interface with bank edge, then max 3:1 beyond bank edge to catch/match existing grade.

H = HEIGHT OF DROP AT BANK
EDGE IN AREA OF REPAIR

COVER WITH TRM AND HYDROSEED/SOD

FIGURE 2

All disturbed/excavated area from bank edge (including side slope areas) to be covered with TRM and hydroseed/sod.



Minimum 4ft to either side of repair at bank edge. Greater as dictated by max 3:1 slope and drop height (i.e. 2ft drop will require 6ft)

Site Masters of Florida, LLC
5551 Bloomfield Blvd.
Lakeland, FL 33810
Phone: (813) 917-9567
Email: tim.sitemastersofflorida@yahoo.com

PROPOSAL

Live Oak CDD

Pond Erosion Repairs

9/10/2026

Remediate erosion on ponds 12-1, 12-2, and 14-5 in accordance with recommendations provided by District Engineer in report dated 9/3/26.

Pond slope repairs to include:

- removal of grass and soil on 4:1 slope up from drop-off to meet existing 20:1 maintenance berm grade
- load, haul and dispose excess soil to offsite facility
- placement of turf reinforcement mat (P300 LW)
- top soil fill
- bahia sod

"MES/FES" repairs to include

- removal of unstable and/or compromised soil material
- removal of concrete rubble and other non native materials
- regrade slopes to original design
- clean fill to be provided as needed
- placement of turf reinforcement mat (P300 LW)
- top soil
- bahia sod
- mirafi 500X fabric and rip rap

Site Masters of Florida, LLC

5551 Bloomfield Blvd.

Lakeland, FL 33810

Phone: (813) 917-9567

Email: tim.sitemastersofflorida@yahoo.com

Pond 12-1

Slope length	450 LF	\$80/LF	\$36,000
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Pond 12-2

Slope length	570 LF	\$80/LF	\$45,600
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Pond 14-5

(MES/FES repairs)	3 each	(total)	\$52,500
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Slope length	400 LF	\$80/LF	\$32,000
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Staging area and access path restoration			\$25,000
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Total			\$191,100
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Notes:

- pricing based on unencumbered access to work locations via CDD drainage easements
- watering of sod for 30 days as needed is included
- mutually agreed upon CDD common area to be utilized for staging materials



LIVE OAK 2 CDD

Tampa, FL

Proposal for Pond Erosion Repair Services

Contractor Qualifications.....	Page	2
Company Profile.....	Page	2
Safety and Training.....	Page	3
QA/QC.....	Page	3
Personnel Qualifications/ Professional Licenses.....	Page	4
Relevant Experience.....	Page	6



Contractor Qualifications

Crosscreek Environmental, Inc. is a leader in quality lake and wetland management services. We strive to develop environmentally conscious methods of providing aquatic waterway management. Our staff of highly trained and licensed technicians and service managers are ready to provide quality service and complete customer satisfaction. Our offices are conveniently located near your community and will be staffed with adequate equipment and personnel to complete this project. This proposal provides the professional credentials of our staff, as well as examples of relevant experience demonstrating our ability to handle a project of this nature.

Company Profile

Crosscreek Environmental, Inc. is a full-scale restoration company located in Southwest Florida. With over 75 years of combined experience, Crosscreek Environmental provides comprehensive, environmentally friendly, expert solutions for maintaining the beauty and health of Florida's ponds, lakes, wetlands, and shorelines. Our licensed, certified, and highly qualified team provides a full roster of services for stabilization, restoration, management, and maintenance of these valuable waterways. We serve developers, government municipalities, homeowners associations, and management companies, successfully implementing the entire project lifecycle. From engineering and design to permitting, installation, management, and maintenance, we're helping our clients restore, protect, and manage Florida's most valuable resource: water.

Our extensive repeat business testifies to our reliability and expertise, and we're determined to earn new business through rapid response, quick turnaround, generous communications, consistent follow-up, and successful results. Our commitment to excellent customer service is backed by solid scientific knowledge, experience, and one-stop services including:

- Lake bank restoration
- Lake maintenance
- Erosion control
- Wetland Mitigation
- Wetland creation
- Wetland management
- Wetland maintenance
- Littoral shelf planting
- Florida native nursery
- Florida native plants
- Shoreline restoration
- Shoreline erosion control
- Fountain installation
- Fountain maintenance
- Aeration installation
- Aeration maintenance



Equipment & Tools

Crosscreek Environmental has one of the most extensive and diversified groups of equipment that has been custom designed for Shoreline Restoration and Pond/Wetland Management. This includes:

- 10 Hydraulic Dredges
- 1 Full size Dredge (Truxor)
- 50 4-wheel drive Pickup Trucks
- 3 Dump Trailers- 10 yd capacity each
- 3 Skid Steers
- 12 Custom Built Spray Machines
- 2 12inch Woodchippers
- 3 Menzi Muck Machines
- 6 Custom Built Spray-Rigged Airboats & John Boats
- Chainsaws, machetes and other applicable tools

Safety and Training

Some divisions of Crosscreek Environmental, Inc work in potentially very hazardous conditions. There is no job so important, no service so urgent, that we cannot take time to perform our jobs safely. Safety will always be a critical and paramount part of our company's culture.

Rigorous safety and training programs are fundamental to our business philosophy. We are an active participant in numerous national and industry-specific safety organizations and have an active Safety Program. Safety is one of the key measures in our staff's annual performance ratings. We at Crosscreek Environmental, Inc. also have a drug-free workplace with a zero-tolerance policy.

A core training program is completed by all staff before project start-up wherein safety is a major component. This training is reinforced throughout the year with formal monthly safety meetings, as well as weekly field training and daily briefings. The training includes classroom and practical sessions to ensure 'book' learning is converted into knowledge that is used in the field.

QA/QC and Customer Service

Our Quality Assurance and Quality Control Programs are second-to-none. Crosscreek Environmental, Inc. is dedicated to continuous improvement in all facets of our operations, evaluating even those that are performing well, to ensure there are no further improvements that can be made. We continually strive to identify better processes, materials, and procedures for accomplishing our work. One of our core business philosophies is to continually look to the future and anticipate problems that may arise and be ready with the appropriate solution.



When the restoration crew is on-site, they will make any additional notes that they feel are relative to ensuring the health of the waterways of your community. If there are any issues which need immediate attention the applicator will notify the general manager and he will assign the proper person to take a firsthand look at the issue or he will look for himself. When issues have been noted and observed by the project or general manager, issues will be immediately brought to the property manager's attention.

Personnel Qualifications/Professional Licenses

All Crosscreek Environmental managers and spray technicians are required to be licensed to apply pesticides within the state they are working in and are trained annually in identification and application techniques for aquatic vegetation management. Some personnel credentials available for this project are:

Licenses

- Aquatic, Right-of-Way, Demonstration and Research, and Natural Areas
- Florida Public Health Pest Control • Florida DEP Stormwater Management Inspector

Educational Degrees

- Bachelors in Fisheries Biology and General Biology
- Bachelors in Limnology (Water Chemistry)
- Bachelors in Environmental Horticulture
- Bachelors in Environmental Science and Policy

Project Management

Carlton Campbell/ President/CEO

Mr. Campbell has over Thirty (30) years in the environmental field. He was the co-founder of Aquatic Plants of Florida in 1996 and later founded Crosscreek Environmental. He attended South Florida University where he received a degree in Environmental Science. Carlton is a hands-on President and wants to always make sure his customers are happy, and his employees are taken care of.

Derek Wagner/ General Manager

Mr. Wagner has twenty (20) years' experience with erosion control and aquatic/wetland vegetation and management and is the General Manager of Crosscreek Environmental. He oversees all operations of the company including sales and budgeting of projects and is certified as a Stormwater Management Inspector. His experience and training allow him to act as resident biologist for this project.



George Bowling / Sales Manager

Mr. Bowling has been in the industry serving the stormwater community for over twenty-five (25) years. He is fully trained in identifying customers' needs and helping them develop the appropriate plan to manage their needs. He is also fully licensed and trained in aquatic & natural areas herbicide applications. His experience provides a unique opportunity for all customers and their daily stormwater needs.

Matt Jones/ Operations Manager

Mr. Jones has over five (5) years of industry experience with pond maintenance and restoration of shorelines. He oversees all daily operations including scheduling and staffing. Mr. Jones also coordinates all customer interactions from project planning to final walk through and any follow-up work.

C.J. Greene/ Lead Ecologist

Mr. Greene holds a Bachelors degree in Environmental Science and Policy from the University of South Florida. He has nearly 20 years of experience in Florida ecology, aquatic and terrestrial monitoring and management, along with extensive experience pertaining to environmental permitting, compliance, and management of the complex local, State, and Federal agency regulations.

Crosscreek Environmental is experienced at managing multiple erosion control/wetland/aquatic projects for several customers across Florida. Our managers will simply incorporate this project into the scheduling with other current projects to allow for completion in a timely fashion. Personnel and equipment can be drawn from other locations to ensure the proper staffing for this project. Crosscreek Environmental provides the resources necessary to complete this project in the required timeframe.



Crosscreek Environmental, Inc.
111 61st Street East
Palmetto, FL 34221
Ph: 941-479-7811
www.crosscreekenv.com

Relevant Experience

Following are relevant specific references which show the diversity of skills Crosscreek Environmental, Inc. will bring to this project.

JOB TITLE: **ESTERO COUNTRY CLUB / THE VINES**
WORK PERFORMED: RESTORATION OF SHORELINE UTILIZING FABRIC & FILL DIRT WITH RIP RAP
SCOPE OF WORK: PREP WORK OF APPROXIMATELY 2,000 LINEAR FEET OF LAKE BANK FOR RESTORATION. GRADING OF REPAIRED AREA TO MATCH EXISTING SLOPE. INSTALLATION OF AQUATIC PLANTS AND BAHIA SOD TO STABILIZE AND REPAIR ANY AREA DISTURBED BY INSTALLATION OF GEOTEXTILE.
WORK COMPLETED ON: MARCH AND APRIL OF 2022
PROJECT TOTAL: \$175,000.00
CONTACT: ROBERT DUMONT
PHONE: (630) 352-1979
EMAIL: BOBBYDUMONT@YAHOO.COM

JOB TITLE: **AUDUBON COUNTRY CLUB/ FOUNDATION**
WORK PERFORMED: RESTORATION OF 1,600 LN FT OF SHORELINE UTILIZING GEOTUBE, RIP RAP, FILL DIRT, GEOWEB REPAIR AND RESTORATION OF SHORELINE USING 7" GEOTUBE. SLOPE GEOTUBE WITH RIP RAP ALONG THE TOE. FILL IN BANK DEPRESSIONS WITH DIRT AND SOD.
WORK COMPLETED ON: MAY OF 2022
PROJECT TOTAL: \$100,000.00
CONTACT: GARY SHIREY
PHONE: (239) 822-7194
EMAIL: GSHIREY@PRECEDENTMGT.COM

JOB TITLE: **US WATERS**
WORK PERFORMED: RESTORATION OF SHORELINE UTILIZING GEOTUBE
SCOPE OF WORK: MECHANICALLY RESTORED LAKE BANKS UTILIZING MENZI MUCK, THEN SLOPED AND ADDED RIP RAP TO SEVERAL AREAS ON LAKE BANKS AROUND WATER PLANT.
WORK COMPLETED ON: JANUARY OF 2023
PROJECT TOTAL: \$211,500.00
CONTACT: JON VOLPENDESTA
EMAIL: JVOLPENDESTA@USWATERCORP.NET



Crosscreek Environmental, Inc.
111 61st Street East
Palmetto, FL 34221
Ph: 941-479-7811
www.crosscreekenv.com

JOB TITLE: **WATERLEFE**
WORK PERFORMED: VARIOUS TYPES OF EROSION CONTROL, INCLUDING: RIP RAP, GEOTUBE MATTING, FILL & SOD.
SCOPE OF WORK: INSTALLATION OF APPROXIMATELY 4,000 LINEAR FEET OF GEOTUBE. DOWNSPOUT DRAINS WERE EXTENDED UNDER THE GEOTUBE INTO THE POND. MULTIPLE PLANTINGS AND RIP RAP INSTALLATION.
WORK COMPLETED ON: ON GOING
PROJECT TOTAL: \$400,000+
CONTACT: RICK SCHAPPACHER
PHONE: (941) 748-8340
EMAIL: RICK@SCHAPPACHERENG.COM

JOB TITLE: **CROSS CREEK HOA**
WORK PERFORMED: RESTORATION OF SHORELINE UTILIZING MENZI MUCK
SCOPE OF WORK: RESTORATION OF APPROXIMATELY 18,000 LINEAR FEET OF SHORELINE UTILIZING MENZI MUCK AND COCONUT FIBER. RESOD ALL REPAIRED AREAS, MULTIPLE PLANTINGS, AND RIP RAP INSTALLATION.
WORK COMPLETED ON: ON GOING
PROJECT TOTAL: \$1,000,000+
CONTACT: GEORGE PRIETO
PHONE: (716) 818-7660
EMAIL: GPRIETO@PRECEDENTMGT.COM



Crosscreek Environmental, Inc.
111 61st Street East
Palmetto, FL 34221
admin@crosscreekenv.com

Estimate

Date	Estimate #
8/10/2026	15830

Name / Address

Live Oak 2 CDD
313 Campus St
Celebration, FL 34747
Kristee Cole

* Estimate Good For 30 Days

Description	Qty	Rate	Total
Live Oak 2 CDD Shore Shield - Alternative Method Supply and installation of all labor, equipment and materials needed to install 770 feet (red and yellow areas per the BDI RFP) of 7' FW404 woven geotextile tube to repair and control erosion. B.E.S.T. installation will include following scope of work: * Prep work of lake bank for installation of B.E.S.T. geotextile tube. * Grading of repaired area to match existing slope. * Installation of coir turf reinforcement matting prior to sod installation. * Installation of Bahia sod to stabilize and repair any area disturbed by installation of B.E.S.T. geotextile tube. * Extending of corrugated drain pipes within work area to waters edge if needed. * Irrigation or other PVC piping is not included and will need to be extended by others. 30% deposit due prior to commencement of work. Amount to be deducted from final invoice. **It will be the Owners responsibility to keep sod watered once Contract Work has been completed.	1,690	65.00	109,850.00
Please sign and return if accepted:		Total	\$109,850.00

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 Palmetto, FL 34221
 admin@crosscreekenv.com

Estimate

Date	Estimate #
9/8/2026	16025

Name / Address
Live Oak 2 CDD 313 Campus St Celebration, FL 34747 Kristee Cole

* Estimate Good For 30 Days

Description	Qty	Rate	Total
Live Oak 2 CDD Shoreline Restoration Provide all labor, equipment, materials, and incidentals necessary to regrade and stabilize approximately 1,360 linear feet of pond shoreline in the areas identified in the Ardurra Engineering Pond Bank Evaluation (red and blue highlighted areas). Work shall include the excavation and removal of all failed, sloughed, undermined, and otherwise destabilized bank material. At each identified erosion location, the bank shall be excavated landward from the pond lip a horizontal distance equal to four (4) times the vertical drop height at that location and to a depth equal to the drop height, or until all damaged and unstable material has been removed, whichever results in the greater excavation extent. This horizontal setback distance shall be designated as "X." Excavation shall extend a minimum of five (5) feet beyond each side of the visible erosion area to ensure complete removal of compromised soils. All excavated materials will remain on the site and will be used to fill voids and low spots in the pond as directed by the engineer. Following excavation, the areas will be final graded to establish a stable slope of 4H:1V or flatter, transitioning smoothly from the landward excavation limits to the pond bank and shoreline. Once grading is complete, a Turf Reinforcement Mat (TRM) meeting the requirements of FDOT Type 2 TRM (E-3) shall be installed in strict accordance with the manufacturer's recommendations, including all required overlaps, anchoring trenches, pins, staples, and staking requirements to ensure long-term slope stability and erosion protection. Following TRM installation, the mat shall be topsoiled and hydroseeded and/or Bahia sod shall be installed over the prepared surface and secured as necessary to achieve full soil contact and establishment. Crosscreek Environmental shall take all necessary measures to eliminate voids beneath the sod and promote root-to-soil contact. Damaged areas resulting from construction activities shall be restored to pre-construction condition. All disturbed areas shall be stabilized upon completion of earthwork operations. Contractor shall maintain erosion and sediment controls throughout construction and perform all work in accordance with applicable local regulations and engineering recommendations. Assumptions:	1,360	68.00	92,480.00

Total

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Date	Estimate #
9/8/2026	16025

Name / Address

Live Oak 2 CDD
313 Campus St
Celebration, FL 34747
Kristee Cole

* Estimate Good For 30 Days

Description	Qty	Rate	Total
-Access to all work areas will be provided and any required easements or access agreements will be secured prior to mobilization. -Pricing is based on unrestricted access to the shoreline restoration areas. -Any required permits, easements, or access agreements will be obtained before construction begins. **Irrigation is highly recommended for newly installed sod** 30% deposit due prior to commencement of work. Amount to be deducted from final invoice.		0.00	0.00
Please sign and return if accepted:		Total	\$92,480.00

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Crosscreek Environmental, Inc.
111 61st Street East
Palmetto, FL 34221
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Estimate

Date	Estimate #
8/10/2026	15832

Name / Address

Live Oak 2 CDD
313 Campus St
Celebration, FL 34747
Kristee Cole

* Estimate Good For 30 Days

Description	Qty	Rate	Total
Live Oak 2 CDD Culvert Restoration and Stabilization Pond 14-5 Culvert Restoration and Stabilization Scope to include the following: Pond 14-5 Northwest Corner - Provide all labor, equipment, materials, and incidentals necessary to restore and stabilize the failed pond bank adjacent to the culvert outfall located at the northwest corner of Pond 14-5. Work shall include the removal and disposal of all failed, sloughed, undermined, and otherwise unstable bank material, including any debris, temporary repair materials, and obstructions necessary to expose competent native soil and establish a stable foundation for reconstruction. Particular care shall be taken to protect the existing culvert and mitered end section (MES), which are to remain in place. Crosscreek Environmental shall address undermining beneath the MES by removing unsuitable material and restoring support around the structure. Clean imported fill material and/or excavated sediment, free of debris, organic matter, and unsuitable soils, shall be furnished and placed as required to restore the pond bank to its original alignment, elevation, and side slopes consistent with the approved construction plans and adjacent undisturbed bank sections. Fill material shall be placed in lifts of 8 to 12 inches and compacted to provide a stable and uniform embankment. Upon completion of grading, a Turf Reinforcement Mat (TRM) meeting the requirements of FDOT Type 2 TRM (E-3) shall be installed in accordance with the manufacturer's specifications, including all required overlaps, anchoring trenches, pins, staples, and staking requirements. The TRM installation shall begin a minimum of five (5) feet landward of the restored bank crest and extend continuously downslope to a point at least five (5) feet beyond and below the culvert outfall and MES. The installed TRM shall be backfilled with topsoil and vegetated. As part of this scope, the reinforced slope shall be sodded with Bahia sod, installed in a manner that ensures full contact between the sod and underlying soil and TRM. Contractor shall take all necessary measures to eliminate air voids and promote successful root establishment. A five-foot (5') wide section centered on the culvert outfall shall remain free of sod. This area shall be protected with Mirafi 500X filter fabric or approved equal, extending a minimum of ten (10) feet downstream from the end of the culvert and keyed into the slope as required. The fabric-protected area shall then be covered	1	28,850.00	28,850.00
Total			

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Kristee Cole

* Estimate Good For 30 Days

Description	Qty	Rate	Total
with riprap meeting FDOT Bank and Shore Riprap Specifications to provide armored erosion protection at the discharge location. Following completion of bank reconstruction and stabilization, accumulated pond bottom material shall be redistributed and graded as necessary to fill and restore the erosion channel that has formed within the pond bottom adjacent to the culvert outfall. All disturbed areas shall be restored to pre-construction condition. Contractor shall furnish and maintain all required erosion and sediment control measures throughout construction and complete the work in accordance with applicable engineering recommendations, FDOT standards, and local regulatory requirements. Assumptions: -Existing culvert pipe and MES are structurally sound and will remain in service. -Unrestricted access to the repair area will be provided prior to mobilization. -Any required permits, easements, or access agreements will be obtained before construction begins. Pond 14-5 North Bank Center Culvert and Western Bank Culvert - Provide all labor, equipment, materials, and incidentals necessary to repair and stabilize the eroded pond banks adjacent to the culvert outfalls located at the center of the north bank and on the western bank of Pond 14-5. Work shall include the excavation and removal of all compromised, sloughed, undermined, and unstable soil adjacent to each culvert outfall. Excavation shall extend landward from the lip of the erosion area a horizontal distance equal to four (4) times the vertical drop height at each location and continue until all unstable material has been removed. The horizontal distance from the lip face to the landward excavation limit shall be designated as "X." Excavation limits shall extend a minimum of ten (10) feet horizontally on both sides of each culvert to ensure complete removal of compromised material and provide a stable repair area. Clean imported fill material, free of debris, organic matter, and unsuitable soils, shall be furnished and placed as necessary to reconstruct the eroded embankments. Fill shall be placed in controlled lifts and compacted to create a stable slope of 8H:1V or flatter, extending from the landward limits of excavation to the repaired pond bank and shoreline. Finished grades shall transition			
Total			

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Estimate

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8/10/2026	15832

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313 Campus St
Celebration, FL 34747
Kristee Cole

* Estimate Good For 30 Days

Description	Qty	Rate	Total
smoothly into existing undisturbed grades and match the original design intent of the pond bank. Following grading operations, a Turf Reinforcement Mat (TRM) meeting the requirements of FDOT Type 2 TRM (E-3) shall be installed over the repaired slopes in strict accordance with the manufacturer's recommendations, including all anchoring trenches, overlaps, stakes, staples, and fastening requirements necessary to ensure long-term erosion protection. After installation, the TRM shall be filled with topsoil and vegetated. As part of this scope, Bahia sod shall be installed over the reinforced slope and watered as necessary to promote establishment. Contractor shall take appropriate measures to ensure full contact between the sod, soil, and TRM and eliminate air pockets that could reduce vegetation survivability. At each culvert outfall, all compromised material, voids, and concrete rubble located beneath and immediately downstream of the existing mitered end section (MES) shall be removed and disposed of offsite. Clean fill material shall then be placed and compacted to restore the original grades and eliminate scour holes, sumps, and void areas around the culvert outfall. To provide permanent outfall protection, a five-foot (5') wide riprap apron centered on each culvert discharge shall be installed. The apron shall consist of Mirafi 500X filter fabric or approved equal, extending a minimum of ten (10) feet beyond the culvert outlet and keyed into the slope and pond bottom as required. The protected area shall then be covered with FDOT-approved Bank and Shore Riprap to provide erosion resistance and dissipate discharge flows at the culvert outfalls. Upon completion, all disturbed areas shall be restored to pre-construction condition. Contractor shall furnish and maintain all necessary erosion and sediment control measures throughout construction and shall perform all work in accordance with applicable engineering recommendations, FDOT standards, and local regulatory requirements. Assumptions: -Existing culvert pipes and mitered end sections (MES) are structurally sound and will remain in place. -Unrestricted access to the repair area will be provided prior to mobilization. -Any required permits, easements, or access agreements will be obtained before			
Total			

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Estimate

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8/10/2026	15832

Name / Address

Live Oak 2 CDD
313 Campus St
Celebration, FL 34747
Kristee Cole

* Estimate Good For 30 Days

Description	Qty	Rate	Total
construction begins. **Irrigation is highly recommended for newly installed sod** 30% deposit due prior to commencement of work. Amount to be deducted from final invoice.		0.00	0.00
Please sign and return if accepted:		Total	\$28,850.00

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Estimate

Date	Estimate #
8/10/2026	15833

Name / Address

Live Oak 2 CDD
313 Campus St
Celebration, FL 34747
Kristee Cole

* Estimate Good For 30 Days

Description	Qty	Rate	Total
Live Oak 2 CDD Littoral Shelf Planting			
Planting of Littoral Shelf in Pond 12-1 with a mix of 850 Pickerelweed, Jointed Spike Rush, and Arrowhead on 3' centers as identified in the Ardurra Engineering Memorandum	850	1.30	1,105.00
Planting of Littoral Shelf in Pond 12-2 with a mix of 850 Pickerelweed, Jointed Spike Rush, and Arrowhead on 3' centers as identified in the Ardurra Engineering Memorandum	850	1.30	1,105.00
Planting of Littoral Shelf in Pond 12-3 with a mix of 370 Pickerelweed, Jointed Spike Rush, and Arrowhead on 3' centers as identified in the Ardurra Engineering Memorandum	370	1.30	481.00
Planting of Littoral Shelf in Pond 13-1 with a mix of 1,090 Pickerelweed, Jointed Spike Rush, and Arrowhead on 3' centers as identified in the Ardurra Engineering Memorandum	1,090	1.30	1,417.00
30% deposit due prior to commencement of work. Amount to be deducted from final invoice.			
Please sign and return if accepted:		Total	\$4,108.00

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LIVE OAK PRESERVE PHASE 2B

POND SHORELINE RESTORATION



720' Shoreline Restoration

680' Shoreline Restoration

PLANT ADOPTION LANDSCAPE LLC

Google Earth

400 ft



LIVE OAK PRESERVE PHASE 2B

POND SHORELINE RESTORATION



Culvert Repair

Culvert Repair

290' Shoreline Restoration

Culvert Repair

B.E.S.T. RESTORATION BEFORE AND AFTER



BEFORE



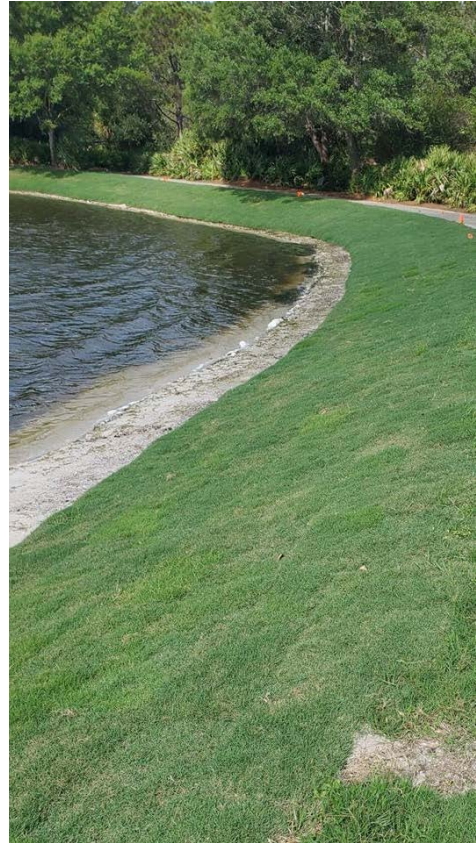
AFTER



B.E.S.T. RESTORATION BEFORE AND AFTER



BEFORE



AFTER



B.E.S.T. INSTALLATION



Lower woven B.E.S.T. Tube with "sacrificial"
Non-Woven B.E.S.T. Tube



Non-Woven B.E.S.T Tube splayed open prior to hand grading



Final hand graded shoreline prior to Coconut Coir TRM and/or Sod



Coconut Coir TRM (If used) prior to sod

B.E.S.T. NATURAL SHORELINE SYSTEM

General Equivalent Product Substitution Package

Bank Erosion Stabilization Tube (B.E.S.T.) for Pond and Lake Shoreline Restoration

Prepared by Crosscreek Environmental, Inc.
4830 West Kennedy Boulevard, Suite 600, Tampa, FL 33609
Office: 941-479-7811 | www.crosscreekenvironmental.com

Submittal Position

The B.E.S.T. Natural Shoreline System is submitted as a complete, functionally equivalent shoreline restoration system for projects requiring stabilization of eroded pond or lake shorelines. The system provides structural toe containment, fill retention, erosion resistance, hydraulic relief, finished grade restoration, and vegetated bank stabilization using documented geosynthetic and erosion-control components.

System Component	Standard Product / Method	Documented Function
Primary shoreline stabilization element	Bank Erosion Stabilization Tube (B.E.S.T.) filled geotextile tube using SoilTain PP40 woven polypropylene geotextile	Continuous structural containment, toe support, fill retention, dewatering during hydraulic filling, and resistance to shoreline migration.
Vegetation establishment and surface erosion protection	ETC-100 double-net 100% coconut coir erosion control blanket with sod and/or shoreline plantings	Immediate erosion protection while root systems establish across the restored bank surface.
Anchoring and restraint	Pine stakes, braided polypropylene rope, tie-backs, deadman anchors, earth anchors, or increased anchor density at curves and hydraulic stress points as field conditions require	Maintains alignment during filling, settlement, vegetation establishment, and long-term shoreline loading.
Finish grade restoration	Excavation/regrade, tube placement, backfill, compaction where practical, coir blanket, sod, and final cleanup	Restores stable shoreline profile while avoiding unprotected erodible bank at completion.

1. Engineer-Facing Transmittal

To the Owner, Engineer, and Selection Committee:

Crosscreek Environmental, Inc. submits the B.E.S.T. Natural Shoreline System for consideration as an approved equal or acceptable alternate shoreline restoration system. This package is written as a complete general product submittal for pond and lake shoreline restoration work where the contract documents allow equivalent products, approved equals, or alternate shoreline stabilization systems.

B.E.S.T. is a complete shoreline stabilization method, not a loose collection of materials. The system uses a filled woven geotextile tube to stabilize the shoreline toe and contain restoration material, then integrates the restored bank with coir blanket, sod, and/or shoreline vegetation so the finished condition is a stabilized natural shoreline rather than an exposed hard edge.

The system provides the same essential performance outcomes sought by living-shoreline and open-containment systems: stable shoreline geometry, contained fill, reduced erosion, resistance to downslope movement, hydraulic relief through the geotextile, and long-term vegetative stabilization of the restored bank.

- The installed shoreline shall meet the lines, grades, elevations, and restoration limits accepted by the Owner or Engineer.
- The B.E.S.T. tube shall be placed continuously along the approved alignment with secure transitions, connected sections, and no unsupported gaps.
- Anchoring shall be adjusted to actual slope, soil, waterline, curves, outfalls, and hydraulic exposure so the system is not dependent on temporary placement stakes alone.
- The finished bank shall receive continuous erosion-control and vegetation stabilization coverage from the upland transition to the waterline zone.
- Installation quality control shall include grade verification, material verification, staged filling observation, anchoring inspection, backfill inspection, vegetation completion, and final photographic documentation.

2. Standard System Cross Section

The B.E.S.T. Natural Shoreline System is installed as a stabilized toe and bank restoration section. The standard configuration places the filled woven geotextile tube at the eroded shoreline face, regrades the bank where needed, restores the finished side slope, and protects the finished soil surface with coconut reinforcement mat, sod, and/or vegetation to the high-water line.

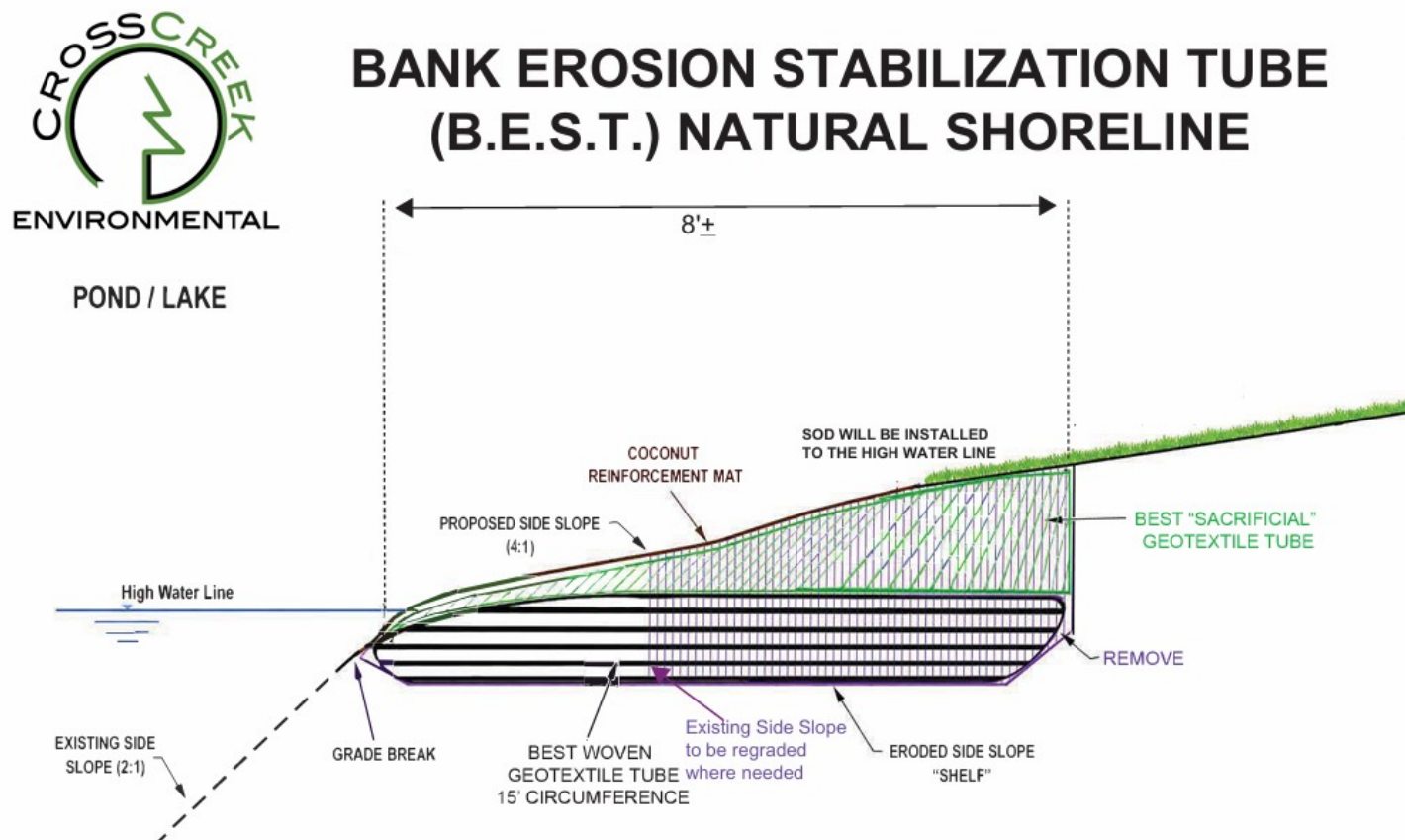


Figure 1. B.E.S.T. Natural Shoreline standard installation section.

3. Functional Equivalency Statement

B.E.S.T. is not represented as an identical manufacturing match to every named living-shoreline product. It is represented as a functionally equivalent shoreline restoration system because it satisfies the same engineering intent through a different but measurable configuration.

Required Shoreline Function	B.E.S.T. Standard Performance Response
Toe stabilization	The filled geotextile tube creates a continuous stabilized shoreline edge at the erosion line, reducing progressive toe loss and bank sloughing.
Containment of restoration material	The woven geotextile tube fully encapsulates approved fill material and retains the restored shoreline mass within a defined structural element.
Hydraulic relief and dewatering	The SoilTain PP40 woven geotextile provides flow rate and permittivity values that allow water to pass through the fabric during filling and consolidation while retaining soil particles.
Resistance to movement	System stability is achieved through tube mass, consolidated fill, geotextile confinement, backfill key-in, and field-adjusted anchoring/tie-back methods at locations requiring additional restraint.
Vegetation establishment	The coir blanket and sod/planting layer establish in the restored soil zone over and behind the tube, creating a vegetated finished shoreline surface while the tube protects the toe.
Finished shoreline geometry	The installation includes pregrade, excavation where needed, tube alignment, staged filling, backfill, and finish grading to achieve the accepted shoreline profile.
Inspection and acceptance	Installation can be verified by material data sheets, alignment checks, fill observations, anchor checks, grade review, vegetation coverage, and final photographs.

4. Material Data Summary

4.1 SoilTain PP40 Woven Geotextile Tube Fabric

The B.E.S.T. tube uses SoilTain PP40 woven polypropylene geotextile. The manufacturer data sheet identifies the geotextile as a woven fabric made of polypropylene yarns that maintain relative position in a stable network and are inert to biological degradation and naturally encountered chemicals, alkalis, and acids.

Property	Test Method	Published Value	Submittal Relevance
Wide-width tensile strength - machine direction	ASTM D-4595	2,800 lb/ft / 40.8 kN/m	Supports structural containment strength along the tube.
Wide-width tensile strength - cross-machine direction	ASTM D-4595	2,800 lb/ft / 40.8 kN/m	Supports strength across the tube and at the shoreline face.
Apparent opening size (AOS)	ASTM D-4751	30 US sieve / 0.60 mm	Supports soil retention and filtration behavior.
Flow rate	ASTM D-4491	50 gal/min/ft ² / 2036 liters/min/m ²	Supports hydraulic filling, dewatering, and relief of pore water.
Permittivity	ASTM D-4491	0.70 sec-1	Supports water passage through fabric while retaining fill.
UV resistance, 500 hours	ASTM D-4355	>80%	Supports durability during construction and exposure.

4.2 ETC-100 Double-Net Coconut Coir Blanket

The vegetative stabilization layer uses ETC-100 double-net 100% coconut coir blanket. The blanket is mechanically bound between two layers of heavy-duty UV-stabilized polypropylene netting and stitched with UV-stabilized polypropylene thread. The product provides temporary erosion control while vegetation establishes across the restored shoreline surface.

Property	Test Method	Published Value	Submittal Relevance
Mass per unit area	ASTM D-6566	6.02 oz/yd ²	Supports erosion-control blanket density and coverage.
Thickness	ASTM 6525	214 mils	Provides surface protection and slope conformity.
Light penetration	ASTM D-6567	25%	Allows vegetation establishment through the blanket.
Tensile strength	ASTM D-6818	207 x 201 lb/ft	Supports resistance to tearing and displacement during establishment.
Elongation	ASTM D-6818	20% max	Supports stable placement across graded slopes.
Resiliency	ASTM D-6524	94%	Supports blanket durability and recovery.
Permissible velocity, un-vegetated	ASTM 6460	4.8 ft/sec	Supports erosion protection before full vegetation establishment.
Shear stress, un-vegetated	ASTM 6460	2.2 lb/ft ²	Supports resistance to near-surface erosion forces.
Seedling emergence	ASTM 7322	144%	Supports vegetation establishment.

5. General Approved-Equal Comparison Matrix

This comparison addresses the common review categories used by engineers when evaluating a B.E.S.T. substitution against named living-shoreline, open-containment, mesh, or geotextile shoreline systems.

Engineer Review Category	Common Specified-System Requirement	B.E.S.T. Equivalent Response	Engineer Acceptance Basis
Material construction	Specified system may use knitted HDPE mesh, open mesh, proprietary fabric, or another named geosynthetic.	B.E.S.T. uses a woven polypropylene geotextile tube with published tensile strength, AOS, flow rate, permittivity, and UV-resistance values.	Functional equivalency is based on measurable performance values for containment, filtration, dewatering, and durability rather than identical manufacturing method.
Fill containment	System must retain restoration material and prevent migration from the shoreline face.	B.E.S.T. fully encapsulates approved fill material in a continuous geotextile tube and connects adjacent sections to create a continuous stabilization element.	The filled tube provides positive confinement of the restoration material and reduces exposure of unconsolidated fill to waterline erosion.
Vegetation integration	System must support a living or natural shoreline condition.	B.E.S.T. combines structural toe support with ETC-100 coir blanket, sod, and/or shoreline plantings installed in the restored root-zone soil.	The completed system produces a vegetated bank surface; the tube protects the toe while roots establish through the soil and coir layer.
Anchoring / movement resistance	System must resist downslope movement, flotation, lateral displacement, and end failure.	B.E.S.T. uses tube mass, consolidated fill, backfill key-in, stakes, rope, tie-backs, deadman anchors, earth anchors, and increased anchor density where hydraulic or soil conditions require.	Anchoring is selected to actual field exposure and can be inspected by anchor type, spacing, embedment, and special-condition details.
Conformance to grade	System must fit the designed shoreline profile and restoration limits.	B.E.S.T. includes excavation/regrade where needed, controlled tube placement, staged filling, backfill, and finish grading.	Finished grade, waterline relationship, and stabilized limits are directly verifiable in the field.
Damage tolerance and repairability	System must maintain integrity after normal installation handling and minor field damage.	B.E.S.T. fabric is inspected during installation and repaired by geotextile patching, overlap, sewing, mechanical fastening, or replacement of damaged sections where damage exceeds field-repair limits.	Repair details provide a clear acceptance path and prevent minor punctures from becoming uncontrolled loss points.
Quality control	Owner and Engineer need enforceable installation controls.	B.E.S.T. installation includes material verification, alignment checks, staged fill monitoring, anchor inspection, connection inspection, final grading, vegetation coverage, and photographs.	The system is reviewable at each stage rather than dependent on hidden or unverifiable assumptions.

6. Standard Anchoring and Stability Approach

The B.E.S.T. system is not limited to temporary placement stakes. Standard installation uses stakes and rope for alignment and initial stabilization, and the completed anchoring approach increases in strength where field conditions require additional restraint. The anchoring method is selected based on observed slope, soil strength, waterline, curve geometry, outfalls, hydraulic exposure, and transition conditions.

Field Condition	Standard B.E.S.T. Anchoring Response	Performance Purpose
Standard straight shoreline reach	2 in. x 2 in. pine stakes and braided polypropylene rope for placement and settlement control, with tie-backs added where slope or soil conditions require.	Maintains alignment during filling, dewatering, backfill, and vegetation establishment.
Curves, points, and outside radii	Closer stake spacing, supplemental rope restraint, and tie-backs to stable ground or buried deadman anchors.	Controls lateral displacement and tension concentration at outside curves.
Outfalls, inflows, and localized hydraulic stress	Supplemental tie-backs, anchor clusters, hard-point transition protection, scour protection, and denser restraint layout.	Addresses concentrated flow, scour, and localized hydraulic loading.
Soft banks or unstable near-shore soils	Longer tie-backs to stable ground, buried deadman anchors, earth anchors, or geogrid reinforcement where approved.	Transfers load beyond the weak near-bank soil zone.
Tube ends and transitions	Closed/wrapped tube ends, overlap or keyed transition, anchor clusters, compacted backfill, and protected termination grades.	Prevents end bypass erosion, edge unraveling, and terminal displacement.

7. Standard Installation Procedure

1. Perform a pre-installation site walk to document existing shoreline grades, waterline, access, utilities, irrigation, outfalls, trees, structures, and visible constraints.
2. Clear vegetation, debris, roots, stumps, and obstructions within the installation corridor as needed to allow stable tube placement and finish grading.
3. Excavate and regrade the existing bank where needed to create the accepted shoreline section while limiting unnecessary outward encroachment into the pond or lake.
4. Place B.E.S.T. tube sections along the accepted alignment and connect adjacent sections to form a continuous shoreline stabilization element.
5. Hydraulically fill the tube with approved dredged material, clean fill, or other accepted earthen material in controlled stages to promote uniform tube shape, dewatering, and consolidation.
6. Install stakes, rope, tie-backs, deadman anchors, earth anchors, or increased anchoring at curves, outfalls, soft soils, transitions, and other locations requiring additional restraint.
7. Backfill behind the tube to eliminate voids, support positive drainage, and tie the tube into the restored bank profile. Compact backfill where practical and appropriate for the site.
8. Install ETC-100 coconut coir blanket and sod or shoreline plantings across the restored bank so no erodible soil remains unprotected at final completion.
9. Complete cleanup, final grade review, vegetation coverage review, photo documentation, and owner/engineer walkthrough of the stabilized shoreline limits.

8. Installation Quality Control and Acceptance Checklist

Inspection Stage	Acceptance Standard
Pre-installation site walk	Utilities, irrigation, trees, structures, access constraints, waterline, outfalls, and existing bank condition are reviewed before work begins.
Grade preparation	Excavation and regrade create a stable bearing surface and accepted shoreline section without leaving unstable voids or over-steepened exposed bank.
Material verification	SoilTain PP40 geotextile, ETC-100 coir blanket, fill material, rope, stakes, and anchor materials match the system submittal.
Tube placement	Tube alignment, elevation, section connections, terminal ends, and transitions are checked before and during filling.
Filling operations	Tube is filled in controlled stages with monitoring for uniform shape, dewatering, settlement, and

Inspection Stage	Acceptance Standard
Anchoring	overstressing of seams or connections.
Backfill and finish grade	Anchor type, spacing, tie-back length, special-condition anchors, transition anchors, and curve/outfall reinforcement are installed as field conditions require.
Vegetation stabilization	Voids behind the tube are eliminated; finished bank blends into the accepted shoreline profile; compacted areas are stable and drain properly.
Final acceptance	Coir blanket, sod, and/or plantings provide continuous coverage from upland transition through the waterline zone as applicable.
	Final cleanup, photographs, punch-list items, stabilized limits, and visible grade conditions are documented.

9. Standard Performance and Warranty Commitment

Crosscreek Environmental installs B.E.S.T. as a complete shoreline stabilization system. The standard performance intent is that the installed system will maintain a stable restored shoreline edge, contain placed restoration material, resist uncontrolled downslope displacement, and leave the completed bank protected by erosion-control and vegetation stabilization measures.

- The installed tube sections shall remain continuous and securely connected, with no uncontrolled loss of contained fill from properly installed tube sections.
- The shoreline face shall not be left with exposed erodible soil at final completion where coir, sod, planting, or other stabilization is part of the accepted scope.
- Anchor and transition locations shall be installed to resist ordinary site loading, settlement, and waterline conditions observed at the time of construction.
- Minor settlement associated with consolidation of fill material is expected and does not constitute a defect when the system remains stable and functional.
- Performance exclusions include extreme storm events, abnormal water-level changes, vandalism, unauthorized excavation, irrigation failure, drought, disease, pests, owner maintenance failures, animal damage, buried debris, unmarked utilities, and changed site conditions outside the accepted construction scope.

10. Recommended Approval Basis

The B.E.S.T. Natural Shoreline System is suitable for approval as an equal or acceptable alternate when the reviewing authority accepts functional equivalency based on performance outcomes rather than identical product form. Approval may be based on the following enforceable criteria:

- Published geotextile strength, filtration, flow, permittivity, and UV-resistance data support the primary containment element.
- Published coir blanket values support surface erosion protection and vegetation establishment during the early stabilization period.
- The standard cross section demonstrates restoration of shoreline geometry, structural toe support, coir/sod coverage, and waterline transition.
- The anchoring approach provides field-verifiable restraint methods for standard reaches, curves, outfalls, soft soils, and tube ends.
- The quality-control checklist gives the Owner and Engineer inspection points during installation and final acceptance.
- The warranty and performance language provides a clear distinction between system workmanship, normal settlement, vegetation maintenance, and excluded abnormal conditions.

11. Supporting Documents Included in This Package

Included Support	What It Proves
Standard B.E.S.T. Natural Shoreline cross section	Shows typical tube location, high-water line relationship, proposed side slope, coconut reinforcement mat, sod/vegetation zone, existing eroded shelf, and regrade area.
SoilTain PP40 Woven Data Sheet	Provides published geotextile properties for tensile strength, AOS, flow rate, permittivity, and UV resistance.
ETC-100 Erosion Control Blanket Data Sheet	Provides published coir blanket properties for mass, thickness, light penetration, tensile strength, elongation, permissible velocity, shear stress, and seedling emergence.
General comparison matrix	Demonstrates functional equivalency to named living-shoreline, open-containment, mesh, or geotextile shoreline systems.
Anchoring and QC procedures	Defines field-verifiable installation controls, restraint options, acceptance points, and special-condition responses.

Appendix A - SoilTain PP40 Woven Data Sheet



SoilTain PP40 Woven Data Sheet

Hydraulic Engineering

Soiltain® is a woven geotextile comprised of high quality polypropylene yarns woven into a stable network such that the yarns retain their relative positions. The geotextile is inert to biological degradation and naturally encountered chemicals, alkalis, and acids. Soiltain® geotextiles have been developed to produce geotextile tubes, reinforce steepened slopes, embankments over soft soils, and landfill liners. Soiltain® woven textiles are produced at HUESKER's manufacturing facility that has achieved ISO 9001 certification for its systematic approach to quality in development, manufacture, inspection, sales and application support of geosynthetics.

PHYSICAL PROPERTIES OF SOILTAIN® PP40 Woven

PROPERTY	TEST	ENGLISH units ¹	SI units ¹
Wide Width Tensile Strength			
Machine Direction (MD)	ASTM D-4595	2,800 lb/ft	40.8 kN/m
Cross Machine Direction (CMD)	ASTM D-4595	2,800 lb/ft	40.8 kN/m
Apparent Opening Size (AOS)	ASTM D-4751	30 US sieve	0.60 mm
Flow Rate	ASTM D-4491	50 gal/min/ft ²	2036 liters/m/m ²
Permittivity	ASTM D-4491	Sec ~1	0.70
UV Resistance (500 hours)	ASTM D-4355	> 80%	> 80%

¹ Minimum average roll values are based on a 95% confidence level. MD-Machine Direction CMD-Cross Machine Direction

All rolls of Soiltain® are encased in a sturdy polyethylene wrap to shield the fabric from rain, dirt, dust and ultraviolet light. Contact HUESKER for information on our product warranty



www.HUESKER.com | E-mail: marketing.us@HUESKER.com | Phone: 704.588.5500



Manufacturer data sheet used for B.E.S.T. tube fabric properties.

Appendix B - ETC-100 Erosion Control Blanket Data Sheet

PRODUCT SPECIFICATIONS



ETC-100 Erosion Control Blanket

ETC-100 Double Net 100% Coconut Coir Blanket

ETC-100 is a coir fiber matrix that is mechanically bound between two layers of heavy-duty UV-Stabilized Polypropylene Netting. The blanket is mechanically bound (stitched) by parallel stitching with UV-Stabilized High Denier Polypropylene thread. The product is engineered to maintain high tensile strength and elongation properties under saturated/shear stress conditions while continuing to promote accelerated seedling emergence. Functional longevity of ETC-100 is typically 24-36 months, however, actual results may vary depending on climatic and soil conditions.

Part Numbers	ETC-100	ETC-200	ETC-500	ETC-1000
Blanket Size	8 ft x 112.5 ft	16 ft x 112.5 ft	8 ft x 562.5 ft	16 ft x 562.5 ft
Rolls per Pallet	25	25	4	4
Rolls per Truck Load	650	300	104	48
Netting	Double Net - HD UV Stabilized Green/Photodegradable/Polypropylene			
Opening Size	0.5 in x 0.5 in			
Stitching Thread	UV Stabilized Polypropylene			
Stitching Frequency	2 in			
Fill	100% Coconut Coir			
Packaging	Each Roll is Individually Stretched Wrapped with a Label			

*MARV VALUES			
PROPERTY	TEST METHOD	ENGLISH	METRIC
Physical			
Mass/Unit Area	ASTM D 6566	6.02 oz/yd ²	
Thickness	ASTM 6525	214 mils	
Light Penetration (%Passing)	ASTM D 6567	25%	
Color	Visual	Natural/Tan	
Mechanical			
Tensile Strength	ASTM D 6818	207 X 201 lb/ft	
Elongation	ASTM D 6818	20%(max)	
Resiliency	ASTM D 6524	94%	
Flexibility	ASTM D 6575	No Results	
Endurance			
UV Resistance @ 500 Hours	ASTM D 4355	NA	
Design Performance			
Velocity (Un-Vegetated)	ASTM 6460	4.8ft/s	
Shear Stress (Un-Vegetated)	ASTM 6460	2.2lbs/ft	
Maximum C Factor (Un-Vegetated)	ASTM 6459	.031	
Seedling Emergence	ASTM 7322	144%	
Roll Sizes		8X112.5' / 16'X112.5'	

Notes:

1. Permissible Velocity and Shear Stress numbers are representative of bench scale testing. Site conditions including site preparation, climatic condition, soil compositions may affect these numbers in the field.
2. Marv Values Represent the Minimum Average Roll Values from Random Samples taken in accordance with NTPEP and AASHTO Requirements.
3. Design Performance Criteria for Vegetated Velocity, Shear Stress, and "C Factor" are measured values given the industry standard testing procedures and field performance results for Extended Term RECP's manufactured to FHWA Type IV standards and with similar physical properties. The customer and user of the product should assume ultimate responsibility for determining the suitability of ETC-100 on their projects



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Manufacturer data sheet used for coir blanket erosion-control properties.