

# **ARBORWOOD (BRIDGETOWN PHASE)**

## **LAKE BANK INSPECTION REPORT**

**May 2018**

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PREPARED FOR:

ARBORWOOD COMMUNITY DEVELOPMENT DISTRICT

SPECIAL DISTRICT SERVICES, INC.

27499 RIVERVIEW CENTER BLVD, SUITE 253

BONITA SPRINGS, FL 34134

PREPARED BY:



**J.R. EVANS**  
**ENGINEERING**

9351 CORKSCREW ROAD DRIVE, SUITE 102

ESTERO, FLORIDA 33928

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JOSH R. EVANS, P.E.  
FLORIDA LICENSE NO. 57436

## **OVERVIEW**

In a continuing effort to monitor and report on the functionality of The Arborwood Stormwater Management System (SWMS), an inspection of the SWMS was performed in February and March of 2018. Inspections included field observations of all lake banks within the Bridgetown Phase of the Arborwood SWMS to determine the extent of existing stabilization and any areas of erosion. This report outlines the observations made and identifies areas of concern which need maintenance/repair, and any recommended additional inspections/monitoring.

## **GENERAL PROJECT INFORMATION**

- Project Location: Arborwood, Lee County, FL
- SFWMD Master Permit No.: 36-04853-P
- Dates of Inspection:
  - Lake Banks: February/March 2018 (field observation by J.R. Evans Engineering, P.A.)

## **LAKE BANK INSPECTION**

Field observation of the lakes within the Bridgetown Phase of the Arborwood SWMS was performed in February and March 2018. All lakes within the Bridgetown Phase were inspected. Lake stabilization consists of grassed shorelines at varying slopes.

Within the Bridgetown Phase of the SWMS, there were areas of erosion noted on grassed shorelines, including areas of minor erosion that require maintenance/repair to prevent substantial erosion or failure, and areas of extensive erosion that require immediate corrective action to remediate the shorelines. It is recommended that corrective action is taken to remediate shorelines identified as having “minor erosion” and “extensive erosion” within this report.

Included as Exhibit A to this report is an exhibit identifying the lake shorelines that were inspected, with color-coded identification to delineate shorelines that were satisfactory (green), shorelines with “minor erosion” (yellow) and shorelines with “extensive erosion” (red). The exhibit also identifies reference numbers for photographs which are included as Exhibit B to this report. Please note that in general, only photos of problem areas are included within this report and the photos were taken during the dry season.

## **SUMMARY**

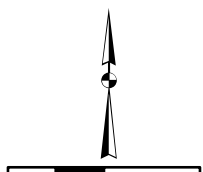
It is also recommended that continuing inspections of The Arborwood SWMS be performed to monitor the condition of the SWMS. A SWMS of this nature requires continuing maintenance to ensure functionality of the system, and inspections by a registered professional engineer are integral to identify problem areas and/or confirm that the system is functioning adequately.

## **EXHIBIT A**

### **LAKE SUMMARY AND IDENTIFICATION EXHIBIT**



N



0 450 900'  
SCALE: 1" = 900'



**J.R. EVANS**  
ENGINEERING

**J.R. EVANS ENGINEERING, P.A.**

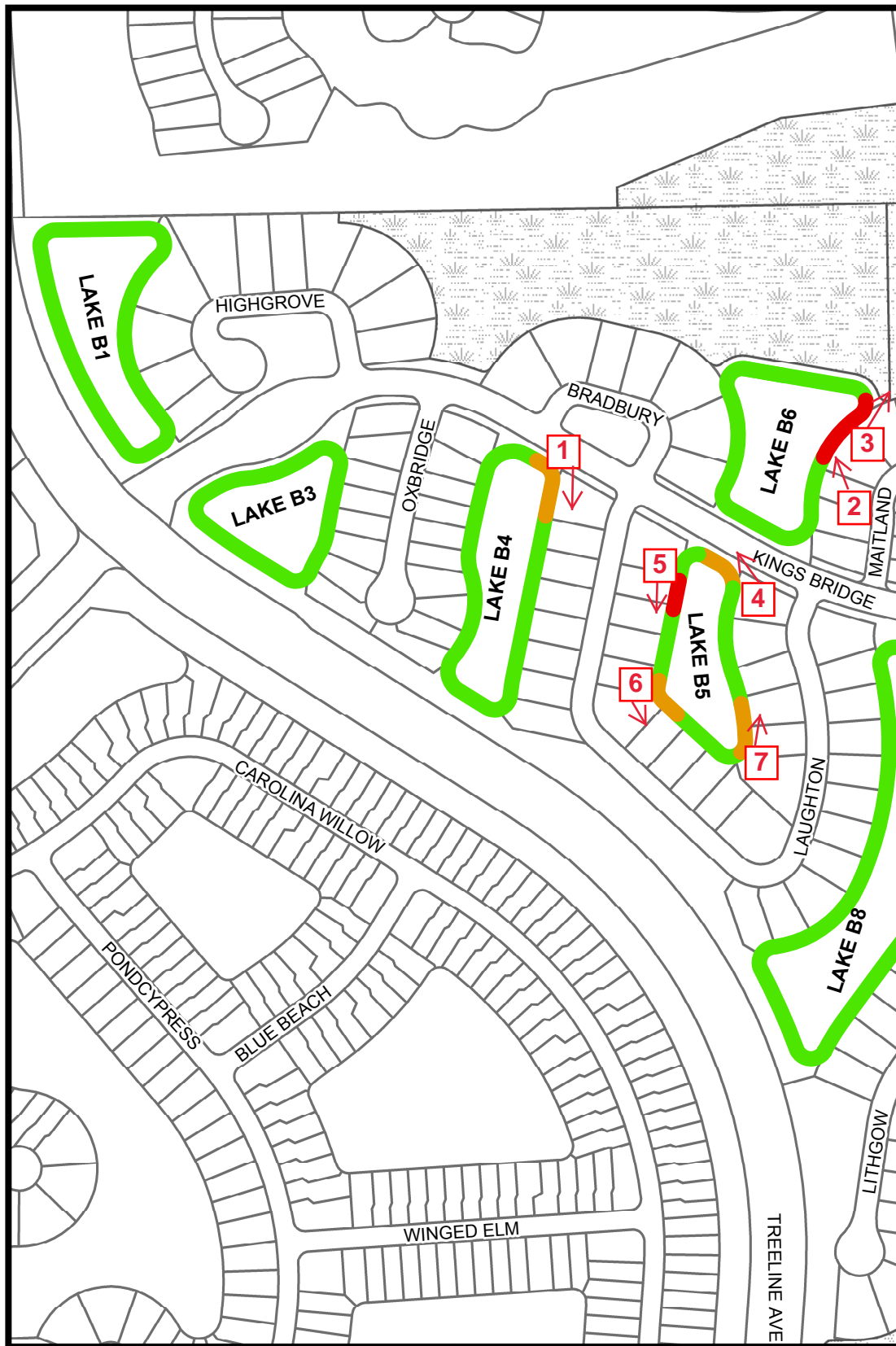
9351 CORKSCREW ROAD, SUITE 102  
ESTERO, FLORIDA 33928  
PHONE: (239) 405-9148  
FAX: (239) 288-2537  
www.JREVAENGINEERING.COM  
FL. COA #29226

FILE DATE: 3/15/2018

EXHIBIT B  
LAKE SUMMARY AND  
IDENTIFICATION EXHIBIT

KEY MAP





N



0 175 350'

SCALE: 1" = 350'

### Legend

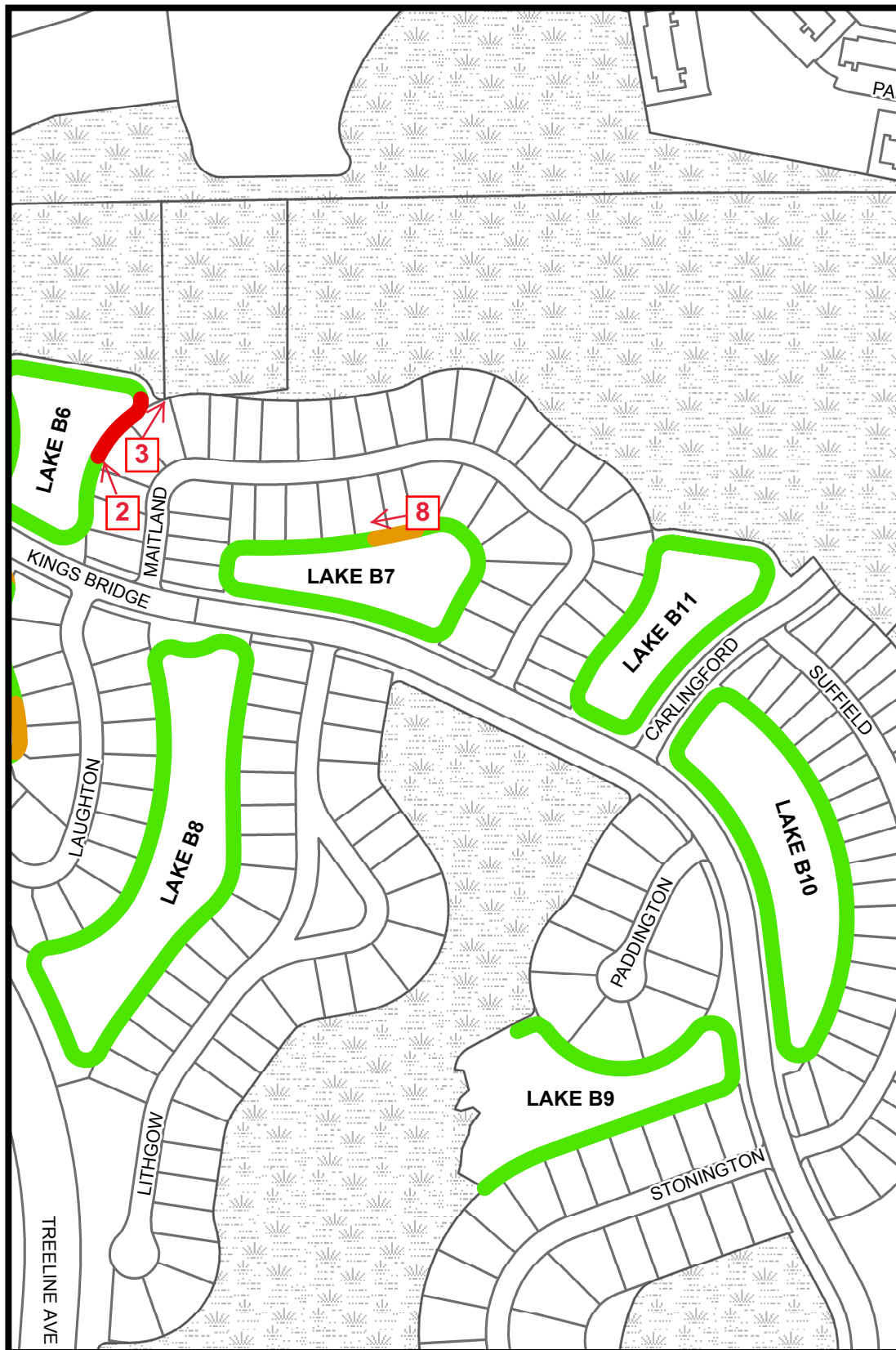
#### Lake's Condition

- EXTENSIVE EROSION
- MINOR EROSION
- SATISFACTORY

FILE DATE: 3/15/2018

ARBORWOOD CDD  
2017 LAKE BANK INSPECTION

RESTORATION PLAN 1



0 175 350'

SCALE: 1" = 350'

### Legend

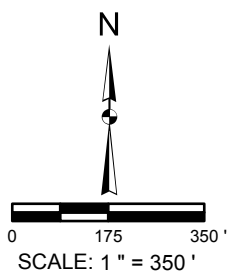
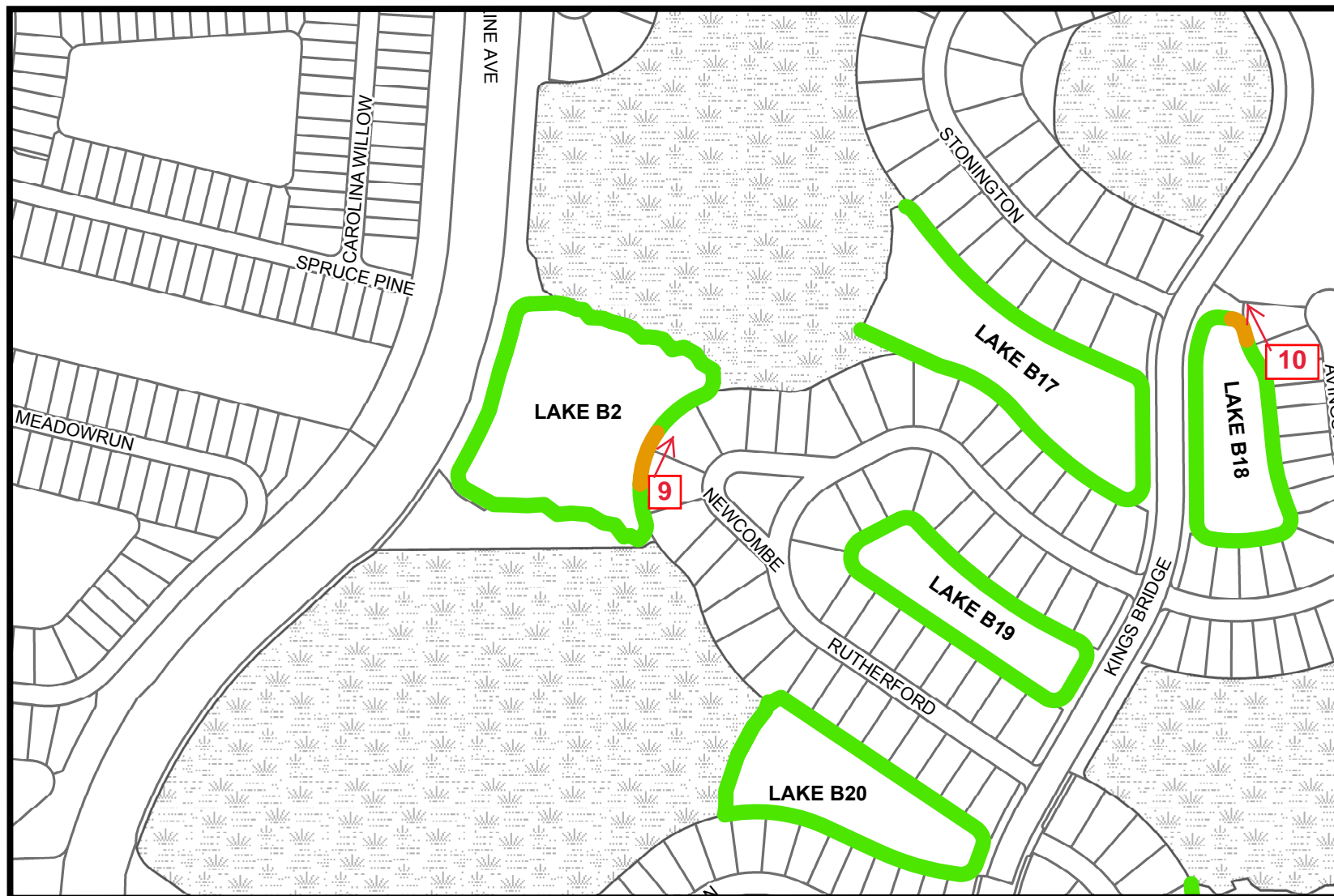
#### Lake's Condition

- █ EXTENSIVE EROSION
- █ MINOR EROSION
- █ SATISFACTORY

FILE DATE: 3/15/2018

ARBORWOOD CDD  
2017 LAKE BANK INSPECTION

RESTORATION PLAN 2



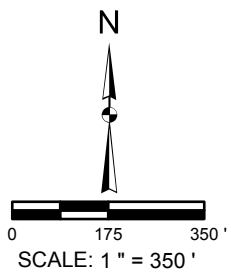
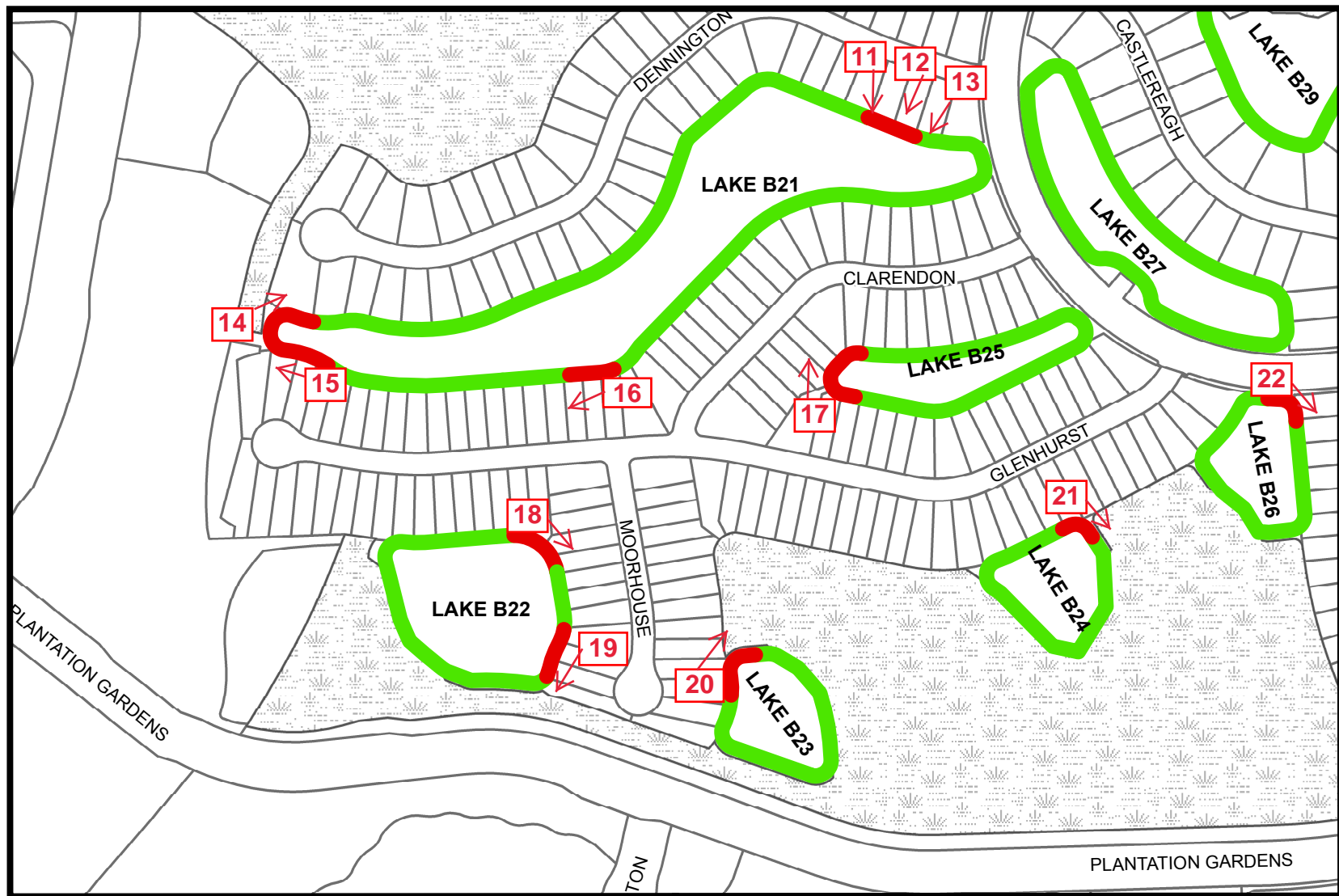
### Legend

- Lake's Condition**
- █ EXTENSIVE EROSION
  - █ MINOR EROSION
  - █ SATISFACTORY

FILE DATE: 5/11/2018

ARBORWOOD CDD  
2017 LAKE BANK INSPECTION

RESTORATION PLAN 3



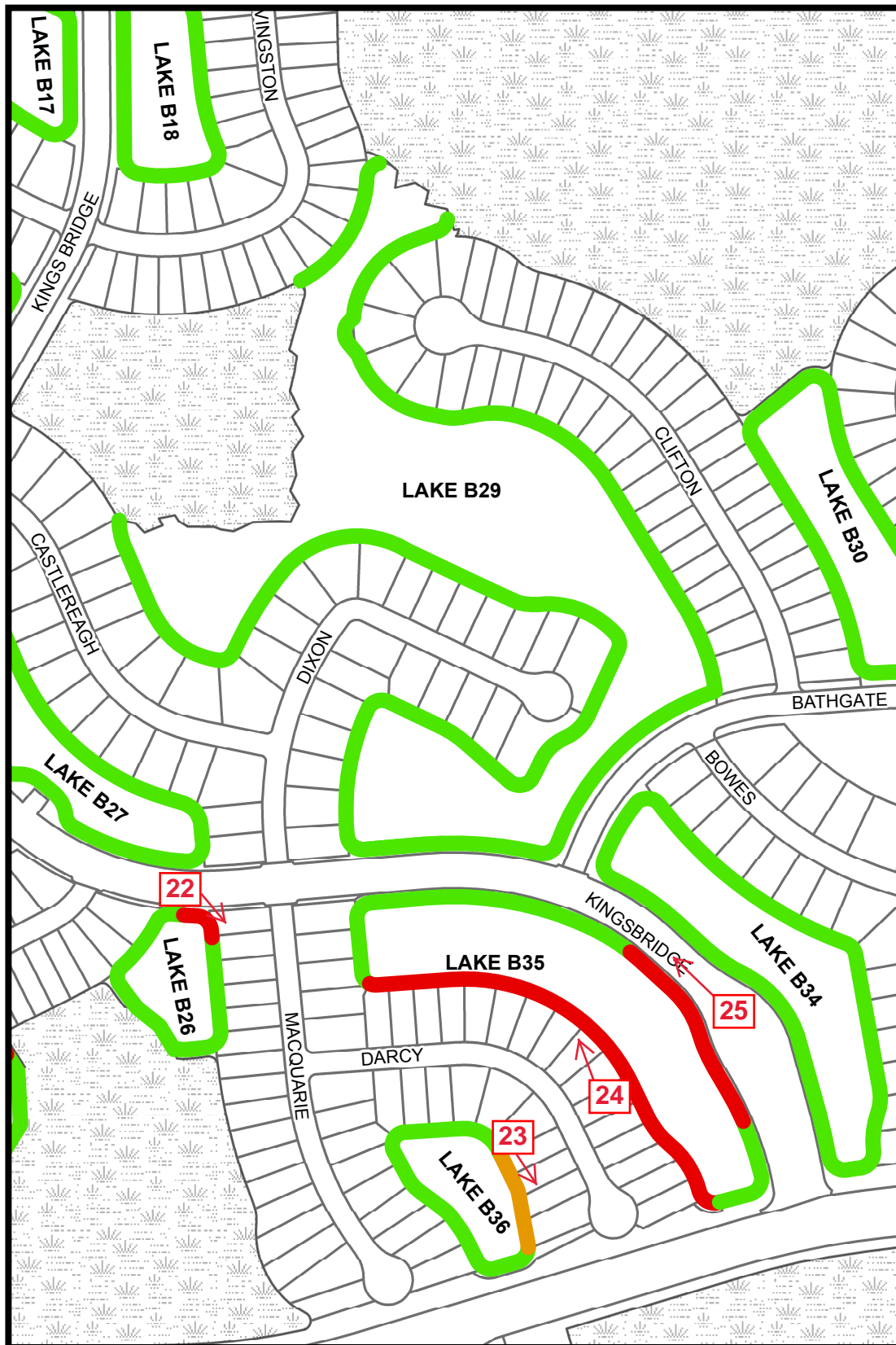
### Legend

- Lake's Condition**
- █ EXTENSIVE EROSION
  - █ MINOR EROSION
  - █ SATISFACTORY

FILE DATE: 5/11/2018

ARBORWOOD CDD  
2017 LAKE BANK INSPECTION

RESTORATION PLAN 4



N



0 175 350'

SCALE: 1" = 350'

### Legend

#### Lake's Condition

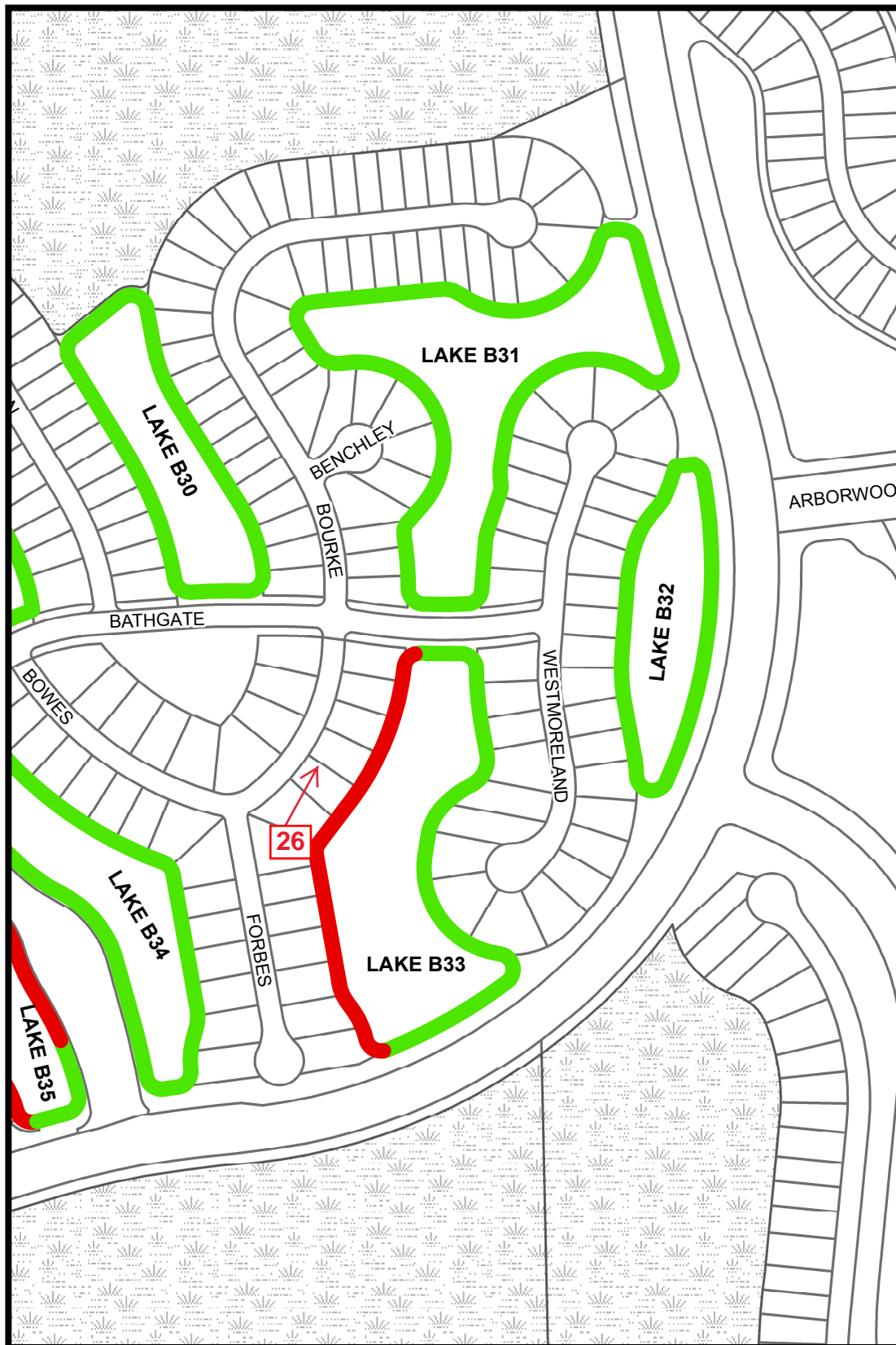
- █ EXTENSIVE EROSION
- █ MINOR EROSION
- █ SATISFACTORY

FILE DATE: 3/15/2018

ARBORWOOD CDD  
2017 LAKE BANK INSPECTION

RESTORATION PLAN 5





0 175 350'

SCALE: 1" = 350'

### Legend

#### Lake's Condition

- EXTENSIVE EROSION
- MINOR EROSION
- SATISFACTORY

FILE DATE: 3/15/2018

ARBORWOOD CDD  
2017 LAKE BANK INSPECTION

RESTORATION PLAN 6

## **EXHIBIT B**

### **LAKE PHOTOS**





***Photo – #1***

Minor sod loss occurring at the top of the lake slope



***Photo – #2***

Extensive sod loss leading to erosion on the lake slope



***Photo – #3***

Extensive sod loss has lead to erosion on the lake slope



***Photo – #4***

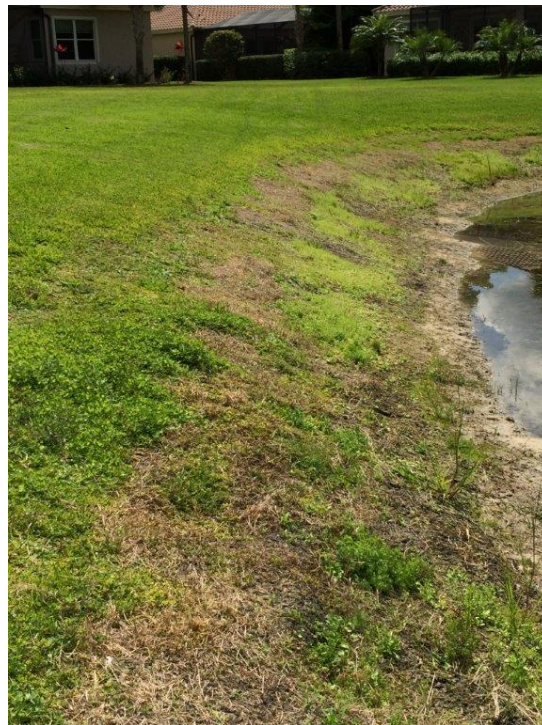
Minor sod loss gradually occurring at the bottom of the lake slope





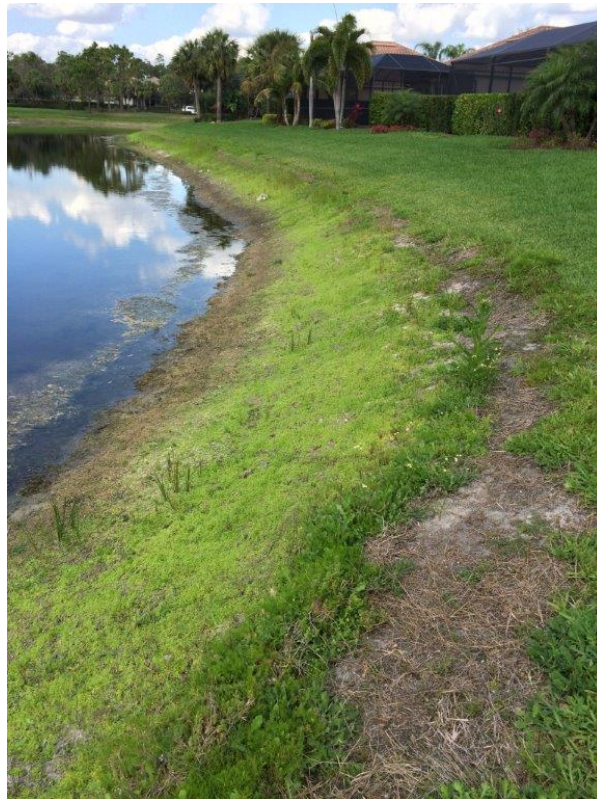
***Photo – #5***

Extensive sod loss has eroded the lake slope and has caused a safety concern for residence



***Photo – #6***

Minor sod loss gradually occurring at the bottom of the lake slope is gradually progressing up to the top of the lake slope



**Photo - #7**

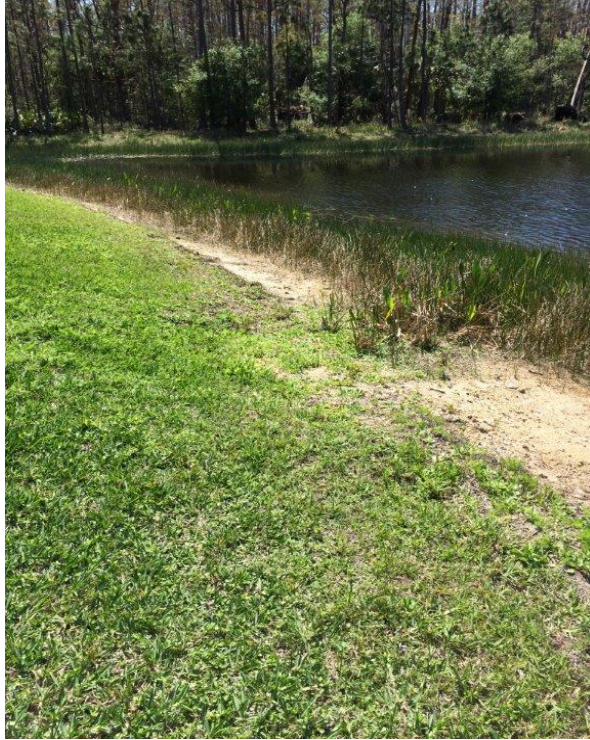
Minor sod loss gradually occurring at the top of the lake slope



**Photo - #8**

Minor sod loss gradually occurring at the bottom of the lake slope is gradually progressing up to the top of the lake slope





***Photo – #9***

Minor sod loss gradually occurring at the bottom of the lake slope is gradually progressing up to the top of the lake slope



***Photo – #10***

Minor sod loss gradually occurring



**Photo – #11**

Minor sod loss gradually occurring is causing the soils at the bottom of the lake slope to erode into the lake



**Photo – #12**

Minor sod loss gradually occurring





***Photo - #13***

Extensive erosion has occurred near the bottom of the lake slope and is gradually progressing up to the top of the lake slope



***Photo – #14***

Extensive erosion has occurred near the bottom of the lake slope and is gradually progressing up to the top of the lake slope





***Photo – #15***

Extensive erosion has occurred near the bottom of the lake slope and is gradually progressing up to the top of the lake slope



***Photo - #16***

Extensive erosion has occurred near the bottom of the lake slope and has progressed up to the top of the lake slope



***Photo – #17***

Sod loss has occurred near the bottom of the lake slope and is progressing up to the top of the lake slope



***Photo – #18***

Extensive sod loss has occurred near the bottom of the lake slope and is gradually progressing up to the top of the lake slope





***Photo – #19***

Extensive sod loss has occurred near the bottom of the lake slope and has progressed up to the top of the lake slope



***Photo – #20***

Extensive erosion has occurred near the top of the lake slope



***Photo - #21***

Extensive erosion has occurred near the bottom of the lake slope and has progressed up to the top of the lake slope



***Photo - #22***

Extensive erosion has occurred near the bottom of the lake slope and is progressing up to the top of the lake slope





***Photo – #23***

Extensive sod loss has occurred near the bottom of the lake slope and has progressed up to the top of the lake slope



***Photo- #24***

Extensive sod loss and erosion has occurred near the bottom of the lake slope and is progressing to the top of the lake slope



***Photo- #25***

Extensive erosion has created an uneven slope on the top of the lake slope



***Photo- #26***

Extensive sod loss and erosion has occurred near the bottom of the lake slope and has progressed to the top of the lake slope