

# Eco-Systems, Inc. Lake and Watershed Management, Erosion Control, Ecological Restoration, Marine Construction

The Natural Resource for Cost Effective Land and Water Stewardship

September 20, 2017

To: Winslow Farms Community Association, Inc. Attention: Ted Boardman 323 East Winslow Road Suite 100 Bloomington, IN 47401 (812)
Email:



Re:

Pond System Management Feasibility Study

### Dear WFCA:

Eco-Systems, Inc is pleased to submit this contract to provide lake management analysis services to the Winslow Farms CA. We have specialized in providing cost effective solutions for comprehensive lake and pond management since 1989. Steve Chafin, the senior environmental scientist/engineer leads all of our science and engineering studies, as well as our restoration and enhancement projects. Our services include:

- Aquatic plant selection and control of nuisance non native, invasive weeds;
- Watershed analysis/storm water improvement;
- Identification/control of sources of pollutants;
- Water quality improvement, aeration system selection, installation, maintenance;
- Erosion and sediment control, terrestrial vegetation selection, and embankment stability;
- Fisheries and habitat enhancement/management;
- Algae control, specializing in and pioneering biological treatments;
- · Sediment surveys and removal;
- Water loss/leakage control;
- Excavation, grading, construction services.
- Nuisance muskrat and goose control.

Our objective is to look at the entire lake and watershed system to perform surveys and

analyses to provide guidance/planning/budgeting for cost effective pond restoration and enhancement activities and to prioritize those activities for future budgeting and scheduling of restoration efforts. These tasks will help to identify and/or quantify the threats to lake volume, water quality, leakage control, vegetation/algae management, and property values. In addition, optimize the cost effectiveness of annual maintenance practices, as well as proposed capital improvements, to optimize the aesthetic value of the lake, and property values for the WFCA.

## I. <u>Special Studies for the WFCA - Assessment of Existing Hydraulic</u> <u>Structures and Appertunances, Sediment Control</u>

- 1. Storm Drain System
- 2. Pond Basins and Liners
- 3. Pond Embankment Stability, and Shoreline Erosion Control
- 4. Outlet Structures
- 5. Sediment depths and volumes to be removed
- 6. Sediment Control identify feasible locations to construct traps to control new sediment entering the lake.

## II. Nuisance Weed, Algae Control, Sediment Removal

- Aquatic Vegetation Management Tasks
  - A. Aquatic Vegetation Surveys to identify species and develop a strategy to treat each nuisance species.
    - Develop a vegetation treatment plan for subsequent years designed to control aggressive exotic invasives and to manage beneficial native plants.
    - Calculate the pond volumes, for dosing and treatment purposes.
- 2. Sediment Removal/Feasible Dredging Techniques for each pond
  - Planning Level Dredging Cost Estimates per pond (Note: finding a sediment disposal site is a separate study item outside the scope of this project).
  - Permitting Cost Estimates for Dredging Project(s)
  - Treatment strategy/costs to reduce organic muck biologically
- 3. Algae Control
  - a. Dosing rates and costs for biological algae treatments.
- 4. Fish habitat enhancement recommendations

# III. Costs

There will be no outsourcing for any of this planning level work, or anticipated for any physical improvements or maintenance tasks.

Field work, analyses, and data collection 34 hours @ \$100/hour = \$3400 Report writing 16 hours @\$100/hour = \$1600 \$5000

# IV. Contract Terms

This is a Time and Materials contract, with a Not To Exceed cost in 2017 of \$5,000.

We only bill the WFCA for the actual time, materials, and expenses incurred in the course of work performance. Billing comes from the project manager's project/work journal. Our crew is very experienced and efficient. Invoices are submitted via mail (or email if the Owner prefers) at the end of each week. Submitted invoices are due within 30 days of the date on the invoice. Outstanding overdue invoices (past 30 days), are cause for work may be stopped and interest charges to accrue at the rate of 1.5%/month plus collection costs.

### Per Diem Rates

Our staff of professional scientists, and technicians deploy with specialized equipment to perform analytical, field measurement, and treatment tasks. The following per diem rates are for our professional staff and their equipment.

	Weed Treatment and Field Survey Crew w/ Boat		\$125/hour
B.	Project Manager, Senior Environmental Scientist/Engir	neer	\$100/hour
	Aquatic Science Technician		\$75/hour
D.	Copies, reproduction, photography		cost + 10%
E.	Mobilization/Demobilization of Light Equipment (boats)	1	\$100/trip
F.	Mobilization of Heavy Equipment		\$150/hour
G.	Materials	Cost ·	+ Shipping

If you have any questions regarding any portion of this contract or project, please feel free to call Steve Chafin at (812) 339-6664

Signed for WFCA, Inc.: Date:

President of the Board of Directors

Signed for Eco-Systems, Inc.: Date: 09/20/17

Steve W. Chafin, Senior Aquatic Scientist/Project Manager, Eco-Systems, Inc.