

# ***Shoreline Restoration Final Design and Construction***

by

*Cazenovia Community Resource Center*

at

*Sail Buffalo Community Boating Center*

A proposal to the

*Greenway Ecological Standing Committee*



March 12, 2015



# *Sail Buffalo Background*

- Sail Buffalo is part of the not-for-profit Cazenovia Community Resource Center.
- We operate a community boating center based out of Buffalo's Outer Harbor.



# *Sail Buffalo Background*

- Our primary mission is **education**. We train children and adults to be safe, confident sailors.
- We also provide
  - Healthy Recreation, a Safe Community, On-Water Access, and Environmental Stewardship



# *Project Background*

- The shoreline of our inlet, near the dock, has been eroding for several years.



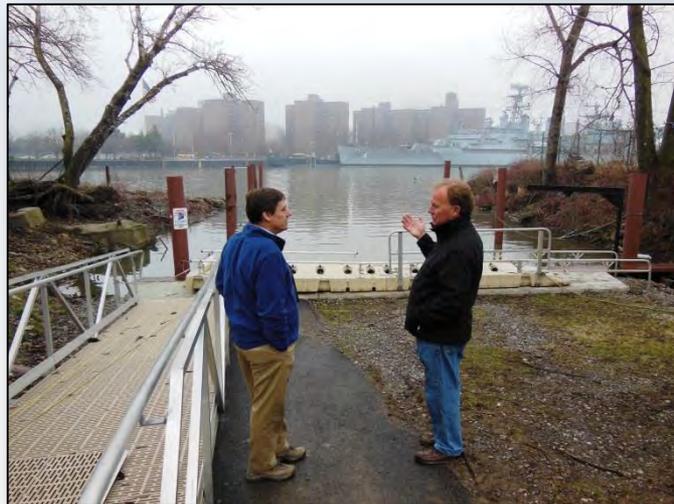
# *Project Background*

- The Buffalo River location is a high energy environment. Erosion is caused by wind, waves, ice, and boat wakes.



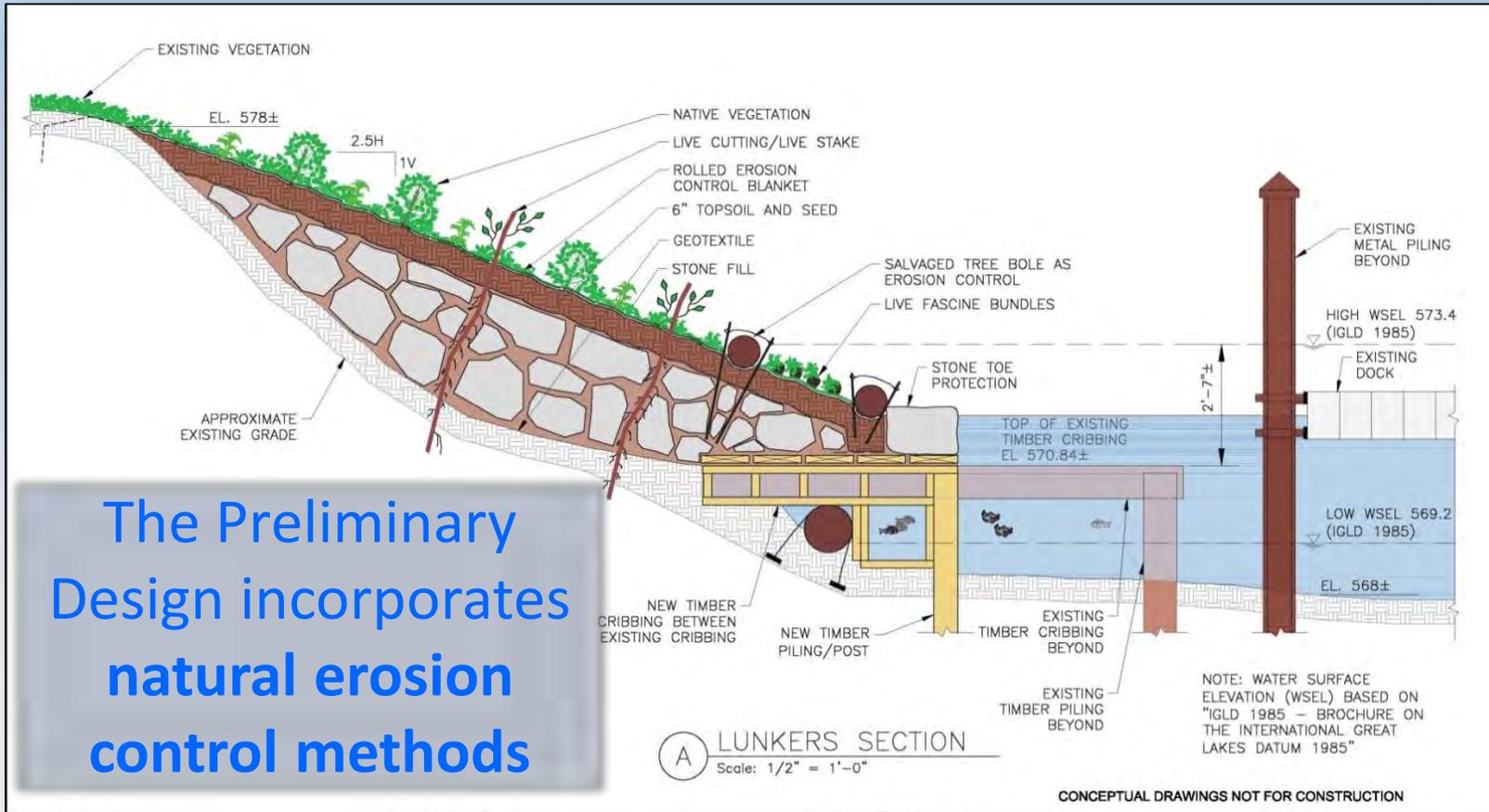
# Project Background

- In 2014, we obtained GESC funding for our Invasive Species Control and Native Planting and Park Beautification Project.
- This funding included \$6000 for an engineering consultant to develop a preliminary, ecologically-based design to stabilize the shoreline.



Following a bid process, we hired Gomez and Sullivan Engineers

# Preliminary Design



| NO. | DATE    | DESCRIPTION         | BY  | APP |
|-----|---------|---------------------|-----|-----|
| 0   | 11/7/14 | CONCEPTUAL DRAWINGS | CRS | MMM |

FOR:  **Sail Buffalo**  
Sailing School

BY:  **GOMEZ AND SULLIVAN**  
ENGINEERS  
Williamsville, NY • Utica, NY • Albany, NY • Herculano, NH  
www.gomezandsullivan.com

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| DESIGNED BY: | MMM       |
| DRAWN BY:    | CRS       |
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| APPROVED BY: | -         |
| PROJECT NO.: | 3027      |
| DATE:        | 11/7/2014 |

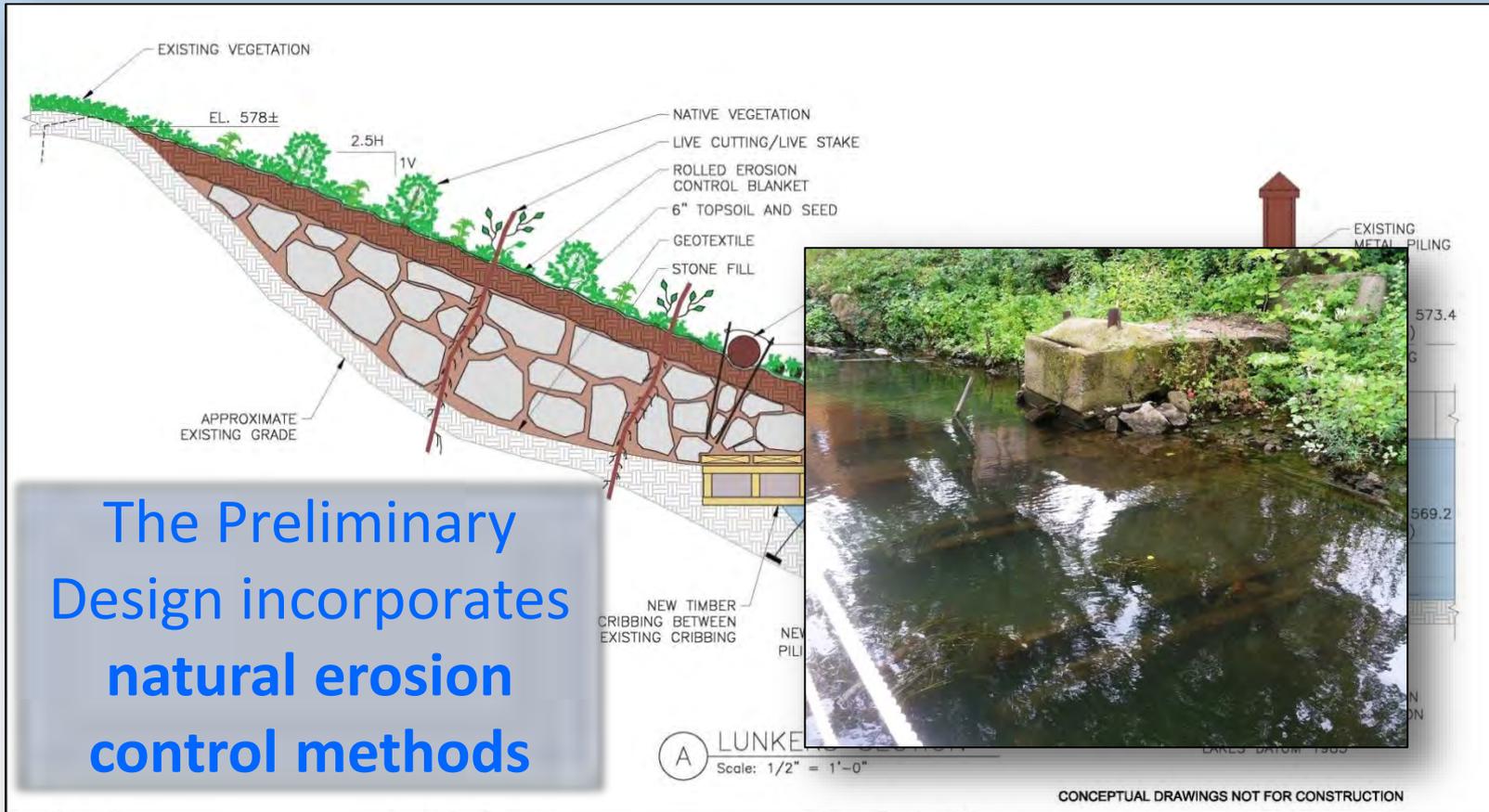
**SAIL BUFFALO SAILING SCHOOL**  
**SHORELINE RESTORATION**

**CONCEPTUAL LUNKERS STRUCTURE**

SCALE: 1/2" = 1'-0"      DRAWING NO.: 3



# Preliminary Design



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FOR: **Sail Buffalo**  
Sailing School

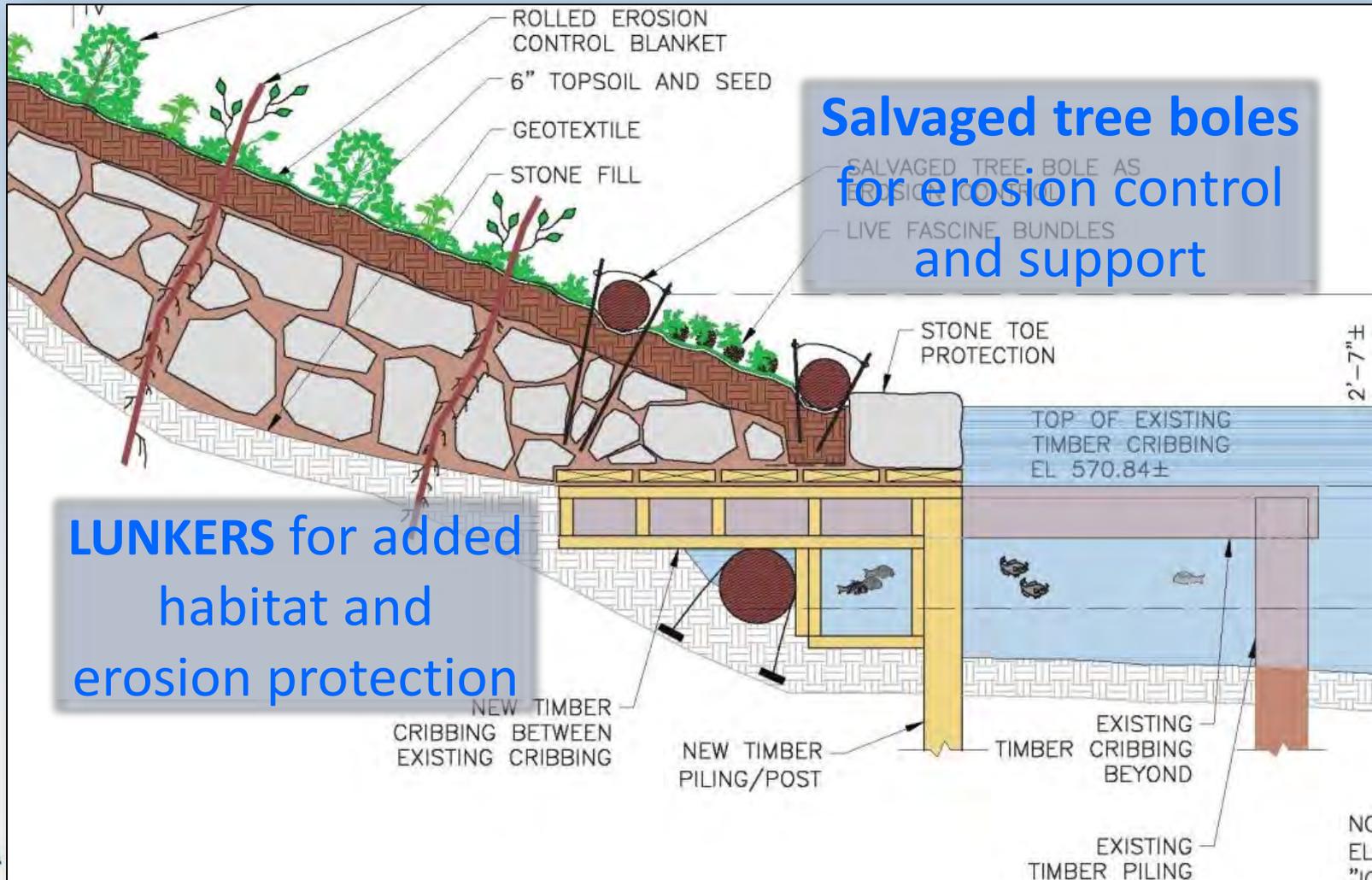
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|   |              |
|---|--------------|
| <b>SAIL BUFFALO SAILING SCHOOL</b><br>SHORELINE RESTORATION |              |
| <b>CONCEPTUAL LUNKERS STRUCTURE</b>                         |              |
| SCALE:  | 1/2" = 1'-0" |
| DRAWING NO.:  | 3            |



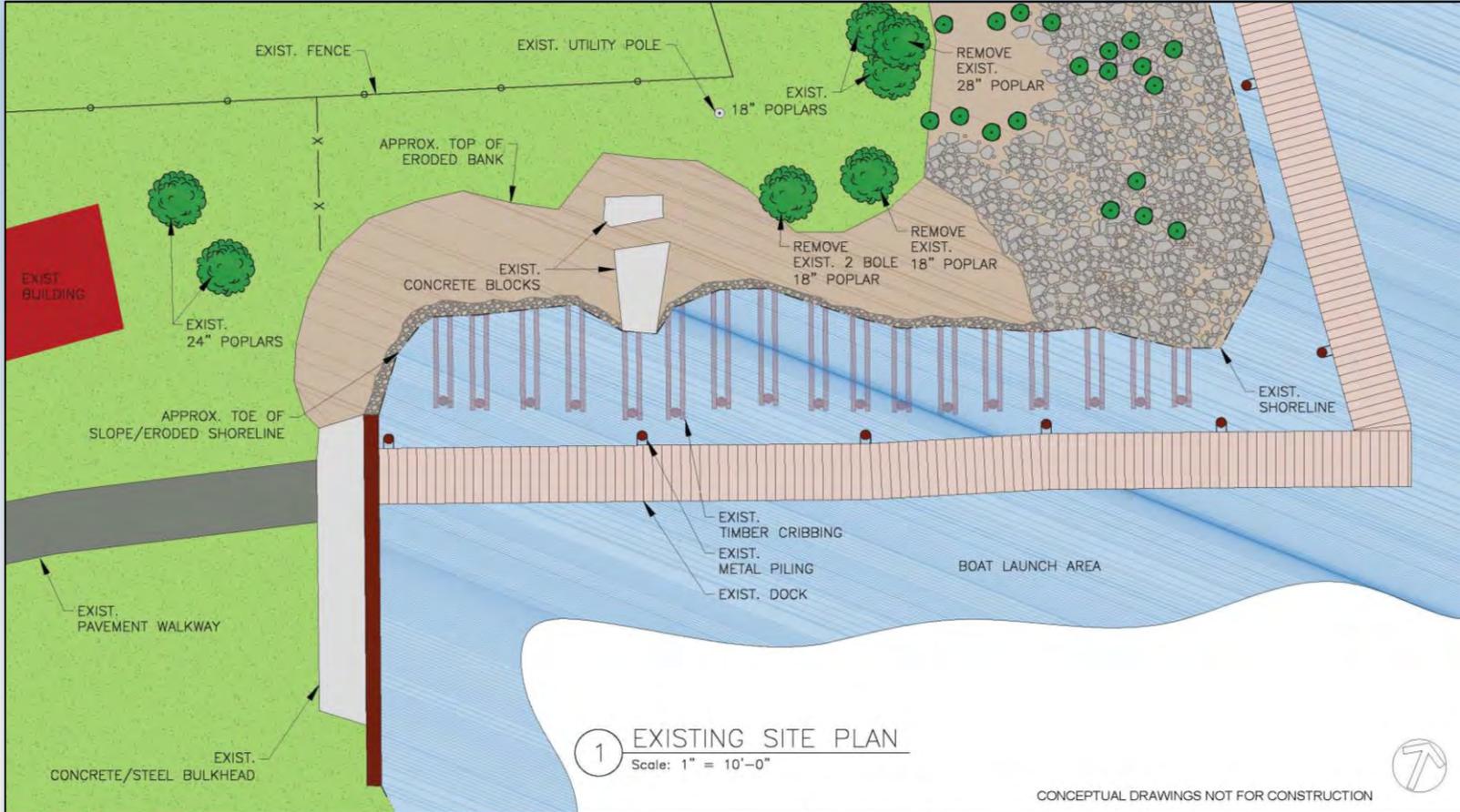
# Preliminary Design



Salvaged tree boles  
for erosion control  
and support

LUNKERS for added  
habitat and  
erosion protection

# Preliminary Design



1 EXISTING SITE PLAN  
Scale: 1" = 10'-0"

CONCEPTUAL DRAWINGS NOT FOR CONSTRUCTION



| 0   | 11/7/14 | CONCEPTUAL DRAWINGS | CRS | MMM |
|-----|---------|---------------------|-----|-----|
| NO. | DATE    | DESCRIPTION         | BY  | APP |

|      |   |              |           |
|------|---|--------------|-----------|
| FOR: | Sail Buffalo Sailing School   | DESIGNED BY: | MMM       |
| BY:  | GOMEZ AND SULLIVAN ENGINEERS<br>Williamsville, NY • Utica, NY • Albany, NY • Henniker, NH<br>www.gomezandsullivan.com | DRAWN BY:    | CRS       |
|      |   | CHECKED BY:  | MMM       |
|      |   | APPROVED BY: | -         |
|      |   | PROJECT NO.: | 3027      |
|      |   | DATE:        | 11/7/2014 |

|  |                |
|--|----------------|
| SAIL BUFFALO SAILING SCHOOL<br>SHORELINE RESTORATION |                |
| SITE PLAN - EXISTING CONDITIONS                      |                |
| SCALE: 1" = 10'-0"                                   | DRAWING NO.: 1 |



# Preliminary Design



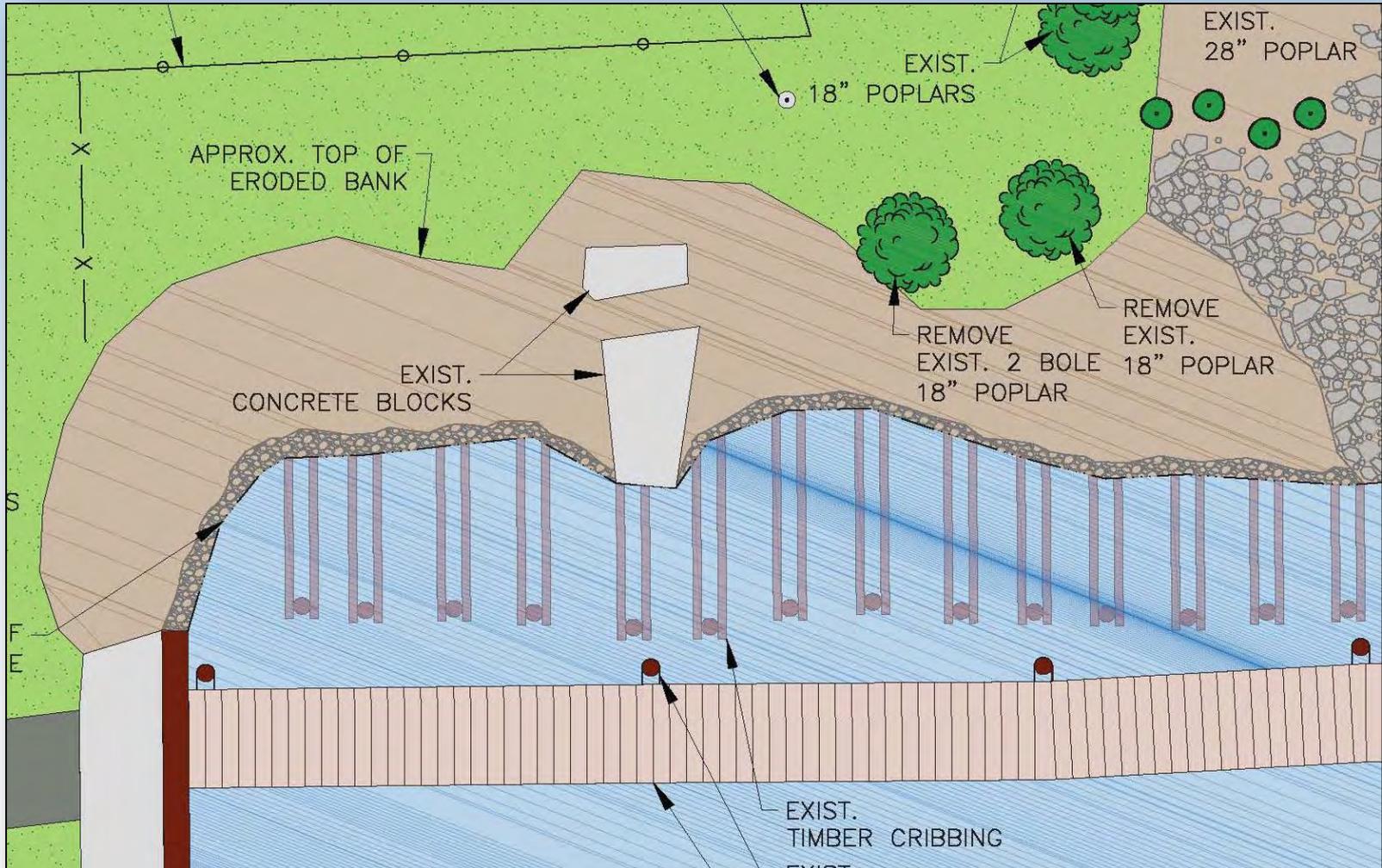
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| FOR:         |           |
| BY:          |           |
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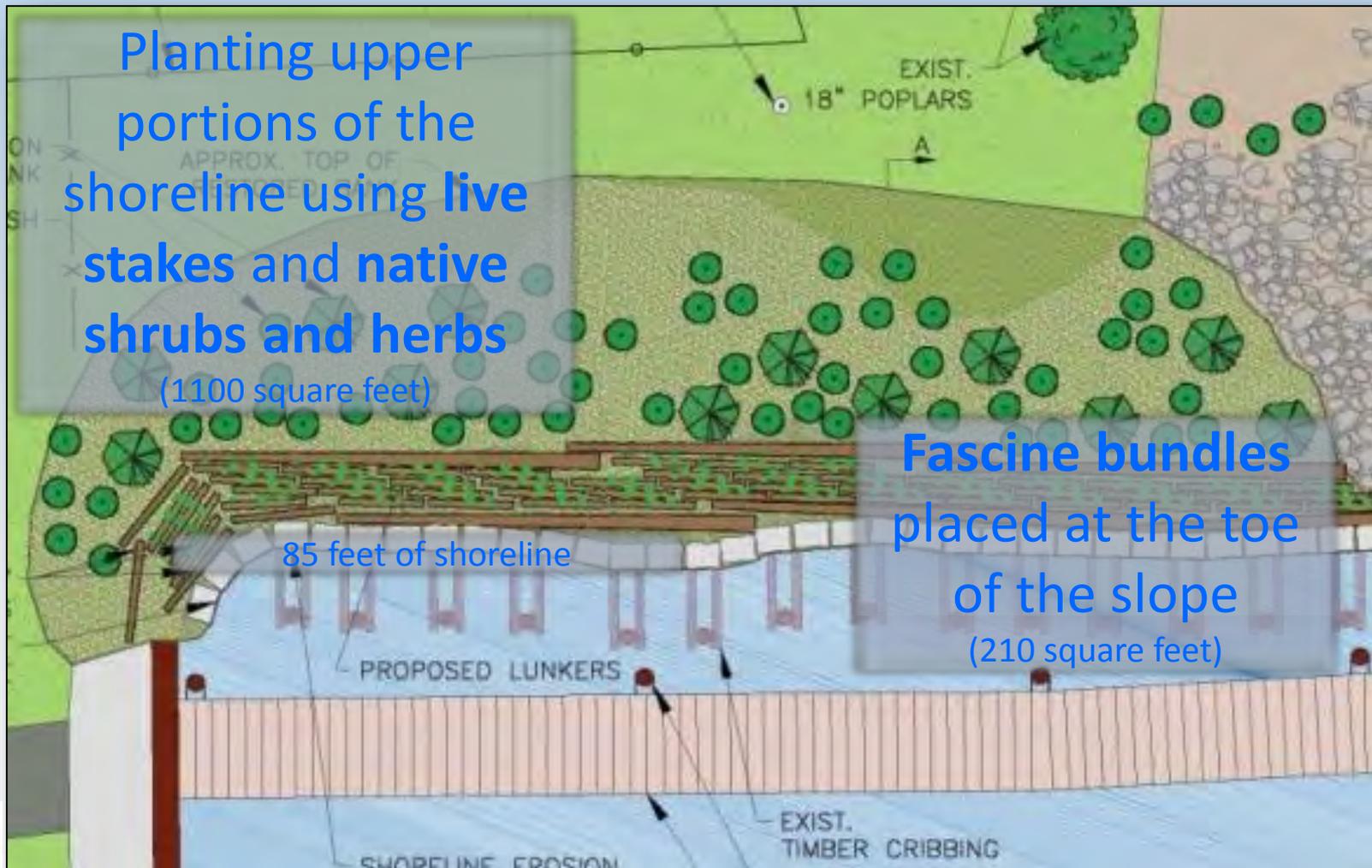
|  |                |
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| SAIL BUFFALO SAILING SCHOOL<br>SHORELINE RESTORATION |                |
| <b>SITE PLAN - PROPOSED MODIFICATIONS</b>            |                |
| SCALE: 1" = 10'-0"                                   | DRAWING NO.: 2 |



# Preliminary Design



# Preliminary Design



# *GESC Funding Criteria*

- We are now seeking funding for final design and construction, scheduled to take place in 2015.
- Our project meets the GESC Funding criteria:
  - Uses **native plant species** that **provide food and shelter for native fish, reptiles and amphibians, birds, and mammals;**
  - Is based on **sound scientific and engineering principals;**
  - Includes **shoreline stabilization with a natural transition from the aquatic to terrestrial environment, upland restoration, creation of aquatic habitat, and erosion control.**



# *GESC Funding Criteria*

- Our project meets the GESC Funding criteria:
  - Is consistent with the **City of Buffalo Local Waterfront Revitalization Program** and the **Buffalo River Ecological Master Plan**;
  - Allows for continued use of the Francis Folsom Cleveland Fair Weather Inlet, an important site throughout Buffalo's history;
  - Has the **support of the Coast Guard**
    - The Community Boating Center also has the support of Mayor Byron Brown, the City of Buffalo Common Council's Waterfront Committee, Assemblyman Michael Kearns, and Department of State Supervisor Jeffrey Zappieri .



# *Final Design*

- New York State Licensed Engineer will provide:
  - **Final signed design drawings with detailed plans;**
  - Notes and draft **technical specifications;**
  - Permitting assistance.



# Final Design

- Project ecologist will provide:
  - A list of **native species** to be planted, including numbers of plants per species and container sizes.
  - Potential species include:
    - red osier dogwood, black chokeberry, spicebush, winterberry, arrowwood.
    - Virginia creeper, black-eyed Susan, wild bergamot, common milkweed, big bluestem, and Indian grass.



- These shrub species are also being planted by Dave Spiering in Riparian Area 1 and 2 adjacent to the shoreline restoration site.
- Species have been chosen for the **food and habitat** that they provide for native wildlife.

# *Final Signed Design Cost Estimates*

|  |                  |
|--|------------------|
| Contract/bidding documents                   | \$ 1,790         |
| Drawings (Cover/Notes, Plan, Specifications) | \$ 8,410         |
| Technical Specifications                     | \$ 1,678         |
| Design Report                                | \$ 4,668         |
| Permitting                                   | \$ 497           |
| <b>TOTAL</b>                                 | <b>\$ 17,043</b> |



# Construction Cost Estimate

|   |                  |
|---|------------------|
| Install steel pilings   | \$ 28,900        |
| Supply all labor and material for new cribbing and salvaged tree bole on under side of cribbing | \$ 8,700         |
| Install Angle on top of new pilings for stone toe support                                       | \$ 25,000        |
| Supply and install new stone toe with doles at joints with clips                                | \$ 8,000         |
| Supply all material and labor for landscaping   | \$ 20,000        |
| Contingency – around 10% of current estimate  | \$ 9,060         |
| <b>TOTAL</b>  | <b>\$ 99,660</b> |

# Administration and In Kind Services

- We have a small, dedicated staff and numerous volunteers

|   |          |
|---|----------|
| Sail Buffalo Administrative Time                    | \$ 5,835 |
| Volunteer hours from Sail Buffalo Staff and Members | >20      |



# Total Cost Estimate

|                              |                   |
|------------------------------|-------------------|
| Final Signed Design Drawings | \$ 17,043         |
| Construction                 | \$ 99,660         |
| Sail Buffalo Staff Time      | \$ 5,835          |
| <b>TOTAL</b>                 | <b>\$ 122,538</b> |



- Sail Buffalo is community destination, a learning center, and natural area, and much more.
- This project will contribute to our ongoing stewardship of the Sail Buffalo location.



*Thank you!*

