



Streambank and Shoreline Bioengineered Stabilization

“Lessons Learned”

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V3 Companies



Typical Examples of Erosion

Loss of Property and/or
Impacts to Utilities



Health & Safety
Concerns



Typical Examples of Erosion

Limited Habitat



Water Quality
Degradation



Typical Examples of Erosion

Undesirable
Aesthetics



Decreased
Functionality



General Project Approach

Determine the Contributing Factors

- Erosive Velocities
 - ❖ Function of Flow and/or Geometry
- Wave Action / Wind Fetch
- Lack of Vegetation and/or Hard Armoring
- Soil Conditions
- Natural or Manmade Obstructions / Diversions
- Wildlife and Human Impact



General Project Approach

Initial Design Considerations

- Project Budget
- Timeframe
- Permitting Considerations
- Existing Hydrologic & Hydraulic Conditions
- Sustainability
- Aesthetics
- Constructability
- Easements
- Utilities
- Maintenance Considerations
- Balance of Risk versus Benefits
 - ❖ Hard Armoring vs. Bioengineering



Lot 16 Bank Stabilization

VISION
VERTERE
VIRTUTE





Existing Conditions



W
E
B
S
I
T
E



Rock Vein & Riffle Construction



DESIGN
CONSTRUCTION
MAINTENANCE



Soil Lift and Fiber Roll Installation



Soil Lift Installation

Fiber Roll Installation





Plant and Seed Installation



Plant Plug Installation

Seed, Live Stakes &
Shrub Installation





Shortly After Planting



VISION
VALUES
VERTE



1-Year After Stabilization



ENVIRONMENTAL
SOLUTIONS



2-Years After Stabilization





3-Years After Stabilization



VISION VERRE VIRTUE



4-Years After Stabilization



VISION

VERTE

VERTE



Lessons Learned

➤ Potential Improvements

- ❖ ACOE / SWCD Permitting
- ❖ Hard Armoring of Toe
- ❖ Live Stake Installation Timing
- ❖ Increase Height of Rock Vane
- ❖ Better Use of Wetland Plugs

➤ What Worked Well

- ❖ IDNR-OWR Permitting
- ❖ Modified Soil Lifts
- ❖ Riffle & Rock Vane (for most part)
- ❖ Prairie Vegetation
- ❖ Educational / Volunteer Opportunities
- ❖ Met Grant Funding Requirements



Veterans Island – Fox River



Aesthetic & Recreational
Improvements

Shoreline Protection





Veterans Island – Fox River



Sandbag Cofferdam



Dewatering
Challenges



Veterans Island – Fox River

Hard Armoring



Plantings



Lessons Learned

➤ Challenges

- ❖ Dramatically Fluctuating Water Levels
- ❖ Unexpected Subgrade Conditions
- ❖ Staging in Floodplain

➤ Solutions

- ❖ Adjust Project Schedule
- ❖ Utilize Trench Boxes
- ❖ Manage Deliveries for Same Day Install



Joint Plantings & Lunker Structures



VERTICAL

VERTICAL

VISION



Root Wads





Block Mattress & Vegetated Gabions



VISION VERRE VITRUM



A-Jacks & Native Vegetation

VISION OVERVIEW





Wetland Shrubs & Live Willow Stakes



WETLANDS



Questions



VISION
VERTER
VIRTELL