

## Tilleda Falls Shoreline Restoration Final Report

Dear DNR Surface Water Grant Team:

Tilleda Falls Campground was issued a Surface Water Restoration Grant in 2023-2024 for the West shoreline of Tilleda Pond in the Township of Seneca, Shawano County WI. Shoreline erosion had caused severe undercutting and recession. Proposed solution was to use Envirolok biobags to protect the shoreline and prevent future erosion, a design was completed using NRCS standard 580: Shoreline Restoration. Original plan had installation in the spring of 2024, miscommunication delayed the project until October of 2024. Construction began on October 14<sup>th</sup> 2024 with Envirolok bags being filled with a topsoil sand mixture. Installation started on October 15<sup>th</sup>, 400 bags were installed the first day, native plant plugs were placed according to design. On October 16<sup>th</sup> 28 more bags were installed. Soil was backfilled behind bags to provide support and planted with native plant plugs. In total 428 bags were installed and roughly 1100 plants.

Enclosed is the approved as-built construction plan pages 1-5, pictures showing before, during and after, PLET modeling, and my construction notes.



CONSTRUCTION PLAN

PRACTICE(S) Shoreline Protection : 580  
Critical Area Planting : 342  
 LANDOWNER Tilleda Falls Campground  
 ADDRESS PO box 76 Tilleda, WI 54978  
 LANDOWNER PHONE NO. (920) 471-5165 COUNTY SHAWANO  
 TOWNSHIP Seneca T 27 N, R 13 E, Sec. 15  
 FIELD OFFICE Shawano County LCD TELEPHONE NO. (715) 526-4820

As Built  
JLB 10/17/24

DIGGERS HOTLINE

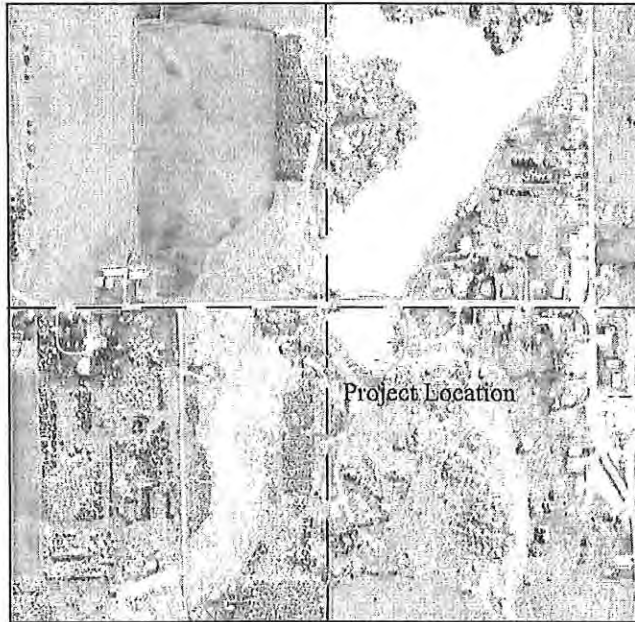
Call 3 Work Days  
Before You Dig!

Nationwide  
811

Toll Free  
1-800-242-8511

TDD  
1-800-542-2289

Website  
www.diggershotline.com



Not to  
Scale

LOCATION MAP

NOTICE TO LANDOWNERS AND EXCAVATORS

Any representation made by the USDA, Natural Resources Conservation Service, or the SHAWANO County LCD, as to the approximate location or nonexistence of above or under ground hazards does not relieve the owner of the property or the excavator that is hired to complete construction, from notifying Diggers Hotline of the pending construction. You will be liable for damages resulting from construction activities.  
 Call Diggers Hotline! Ticket Number \_\_\_\_\_

CONSTRUCTION DRAWINGS AND SPECIFICATIONS ACCEPTANCE

I have reviewed and understand the construction plans and specifications and agree to complete the work accordingly. Failure to meet these plans and specifications may jeopardize any continued NRCS/Shawano County LCD technical assistance or program cost sharing applied for. I understand that it is my responsibility to secure all necessary permits and licenses, and to complete the work in accordance with all local, state, and federal laws. Modification of these construction plans or specifications must be approved by the NRCS before installation. I assume all responsibility for negotiations and contract agreements with the construction contractors.

Landowner Signature: [Signature] Date: 10-27-2023  
 Designed by: JLB Date: 10/23  
 Checked by: \_\_\_\_\_ Date: \_\_\_\_\_  
 Approved by: Drew Zelle Date: 10/27/23

The installed practices comply with applicable NRCS technical standards and specifications. The "redlined" construction plans (as-built drawings) reflect changes made during construction.

Construction Approved by: [Signature] Date: 10/2024

Job Approval Class II Sheet 1 of 19

CONSTRUCTION NOTES

1. THIS PLAN IS FOR THE WEST SHORELINE OF TILLEDA FALLS CAMPGROUND ONLY. NO WORK IS TO BE DONE ON THE EASTERN SHRORELINE UNDER THIS PLAN.
2. IT IS THE LANDOWNER'S AND CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE OWNERS OF ANY UTILITY, SUCH AS BURIED CABLE OR PIPELINES, THAT MAY BE PRESENT IN THE CONSTRUCTION AREA, BEFORE THE START OF CONSTRUCTION SO THAT THEY MAY LOCATE AND STAKE SUCH UTILITIES. CONTACT DIGGERS HOTLINE 3 WORKING DAYS BEFORE DIGGING.
3. A PRE-CONSTRUCTION MEETING WITH SHAWANO COUNTY, CONTRACTOR, AND LANDOWNER MUST OCCUR BEFORE CONSTRUCTION BEGINS. THE CONTRACTOR MUST NOTIFY SHAWANO COUNTY AT LEAST THREE (3) WORKING DAYS IN ADVANCE OF STARTING THE PROJECT. NO WORK WILL BE PERFORMED PRIOR TO THE CONTRACT AND THE OPERATION AND MAINTENANCE AGREEMENT BEING SIGNED.
4. FOLLOW WISCONSIN CONSTRUCTION SPECIFICATIONS 2 (EXCAVATION), 3 (EARTHFILL), 5 (SITE POLLUTION CONTROL), 7 (MOBILIZATION AND DEMOBILIZATION), AND 710 (SEEDING ESTABLISHMENT) ATTACHED FOR RELATED ASPECTS OF THE PROJECT.
5. ACCESS TO THE SHORELINE SHALL BE DONE IN THE LEAST DAMAGING WAY POSSIBLE. ANY BARE GROUND CAUSED DURING CONSTRUCTION SHALL BE SEEDED AND PROTECTED WITH 100% BIODEGRADABLE EROSION CONTROL BLANKET. BLANKET SHALL BE STAKED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
6. VEGETATED PLANTING SHALL BE INSTALLED AS SHOWN ON PLAN VIEW (SHEET 6 OF 20 ).
7. ALL HEAVY EQUIPMENT USED WITHIN THE CONSTRUCTION SITE SHALL BE CLEAN TO PREVENT THE SPREAD OF INVASIVE SPECIES AND WELL MAINTAINED. ALL EQUIPMENT LINES AND FITTINGS SHALL BE CHECKED ON A DAILY BASIS TO ENSURE THEY ARE IN GOOD WORKING ORDER. THE CONTRACTOR IS RESPONSIBLE FOR ALL ASPECTS OF CLEANUP FROM ACCIDENTAL SPILLS. REFER TO WI CONSTRUCTION SPECIFICATIONS 5 (ATTACHED) FOR DETAILS ON CONSTRUCTION SITE POLLUTION CONTROL.
8. EXISTING CINDER BLOCKS/BRICKS MUST BE REMOVED FROM THE SHORELINE BEFORE ENVIROLOK BAGS CAN BE PLACED.
9. EXISTING TREES AND SHRUBS MUST BE KEPT. REMOVAL CAN BE DONE WITH TECHNICIAN APPROVAL.

PLANTING NOTES

1. CHOOSE PLANTS FROM THE NATIVE PLANTS LIST PROVIDED IN THIS PLAN ON PAGE 16-18. USE SCIENTIFIC NAMES WHEN PURCHASING PLANTS, ANY SUBSTITUTIONS MUST BE APPROVED BY THE TECHNICIAN.
2. LOCATION OF PLANTS WILL BE IN BETWEEN THE BAGS AND BEHIND THEM AS SHOWN IN THE PLAN VIEW. PLANTS SHALL BE EVENLY DISTRIBUTED IN THE DESIGNATED PLANTING AREA AND THE CORRECT PLANTS PLACED IN THE CORRECT HABITAT (SUN, MOISTURE, ETC.).
3. LANDOWNERS ARE RESPONSIBLE FOR MAINTAINING RESTORATION PLANTINGS AND ENSURING THEIR SURVIVAL IF PLANTINGS DIE DUE TO WILDLIFE, WEATHER, NEGLECT, ETC., ADDITIONAL PLANTINGS MAY BE REQUIRED.
4. IF A HIGH DEER POPULATION EXISTS, DEER FENDING AND/OR DETERRENT IS RECOMMENDED TO BE USED.

AS Built  
JLB 10/17/14



**CONSTRUCTION NOTES**

CLIENT: Tilleda Falls Campground  
 COUNTY: SHAWANO

Designed	JLB	Date	10/23
Drawn	JLB	Date	10/23
Checked			
Approved			

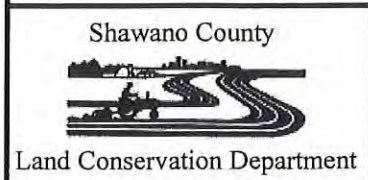
Drawing Name	CONST NOTES
Date	02/2020
Sheet	2 of 19

### ESTIMATED QUANTITIES

ITEM	UNIT	QUANTITY	SHEET NUMBER	WI. CONSTRUCTION SPEC. OR JOB SHEET NUMBER
MOBILIZATION & DEMOBILIZATION	JOB ✓	1 ✓	2	007 - MOBILIZATION
POLLUTION CONTROL	JOB ✓	1 ✓	2	005 - POLLUTION CONTROL
SEEDING DISTURBED AREAS	JOB ✓	1 ✓	2	WI-710 SEEDING ESTABLISHMENT
EXCAVATION	JOB ✓	1 ✓	2,5-14	<del>002 - EXCAVATION</del>
EARTH FILL (BAGS)	CU. FT. ✓	<del>650</del> 575	2,5-14	003 - EARTH FILL
EARTH FILL (BACKFILLING)	CU. FT. ✓	15 ✓	2,4-14	003 - EARTH FILL
GEOTEXTILE BAG CONNECTOR SPIKES/PINS	NO. ✓	<del>1100</del> 860	7-14	MANUFACTURER'S RECS. (2/BAG)
GEOTEXTILE BAGS	NO. ✓	<del>550</del> 478	2,5-14	MANUFACTURER'S RECS.
NATIVE PLANTS (PLUGS)	NO. ✓	<del>1310</del> 1100	2,5,15-17	WI-710 SEEDING ESTAB.
500 cu yds Sand				
1000 cu yds topsoil				

AS BUILT  
 JLB 10/17/2024

Quantities are estimated to the neat lines and grades of in-place materials shown on the construction plan unless otherwise stated. Truck yardage, loose fill, shrinkage, etc., must be calculated and compensated for by the contractor preparing a bid or constructing the project.



ESTIMATED QUANTITIES

CLIENT: Tilleda Falls Campground

COUNTY: SHAWANO

Designed <u>JLB</u>	Date <u>10/23</u>
Drawn <u>JLB</u>	Date <u>10/23</u>
Checked _____	
Approved _____	

Drawing Name Quantities
Date 02/2020
Sheet 3 of 19

AS built JLB 10/17/24

### Western Shore of Tilleda Falls Shoreline Restoration

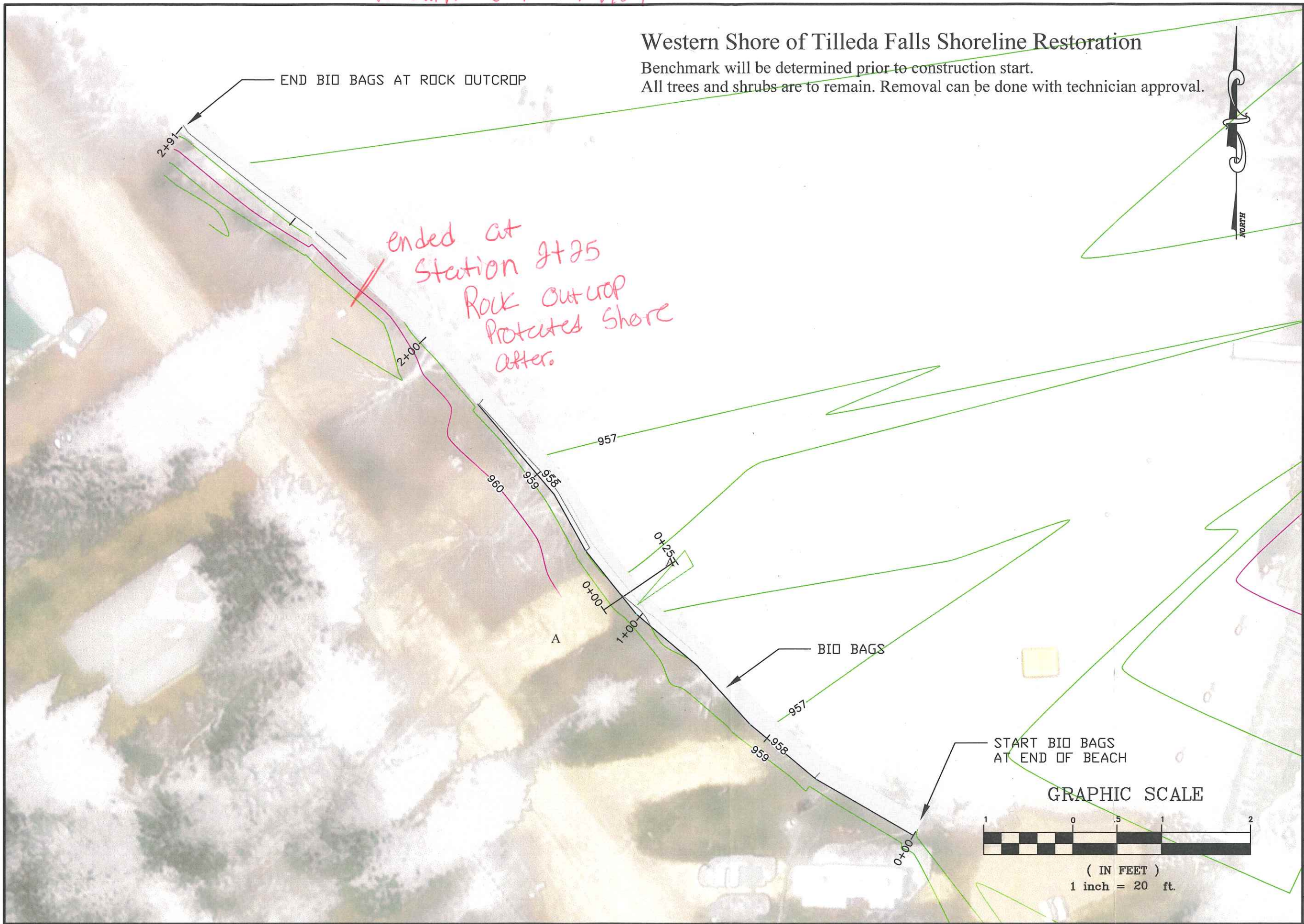
Benchmark will be determined prior to construction start.  
All trees and shrubs are to remain. Removal can be done with technician approval.

Designed	JLB	Date	10/23
Drawn	JLB		10/23
Checked			
Approved			



END BIO BAGS AT ROCK OUTCROP

ended at  
Station 2+25  
Rock outcrop  
Protected shore  
after.



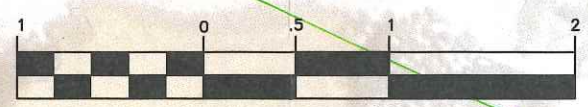
#### MAP VIEW

OWNER: TILLEDA FALLS CAMPGROUND  
COUNTY: SHAWANO



START BIO BAGS  
AT END OF BEACH

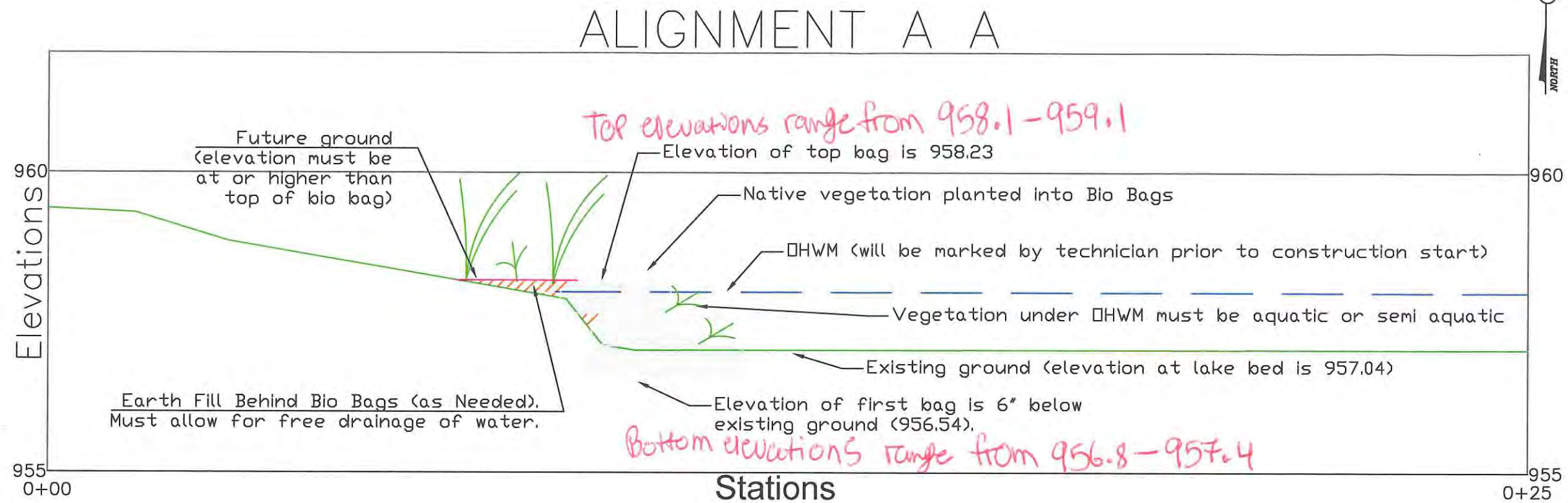
#### GRAPHIC SCALE



( IN FEET )  
1 inch = 20 ft.

Drawing Name	11x17 Landscape
Date	02/2020
Sheet	4 of 19

AS built JLB 10/17/24



Designed	JLB	Date	10/23
Drawn	JLB	Checked	
Approved			

**PLAN VIEW**

OWNER: TILLEDA FALLS CAMPGROUND  
COUNTY: SHAWANO



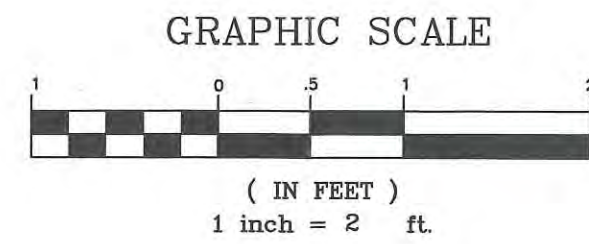
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11x17 Landscape

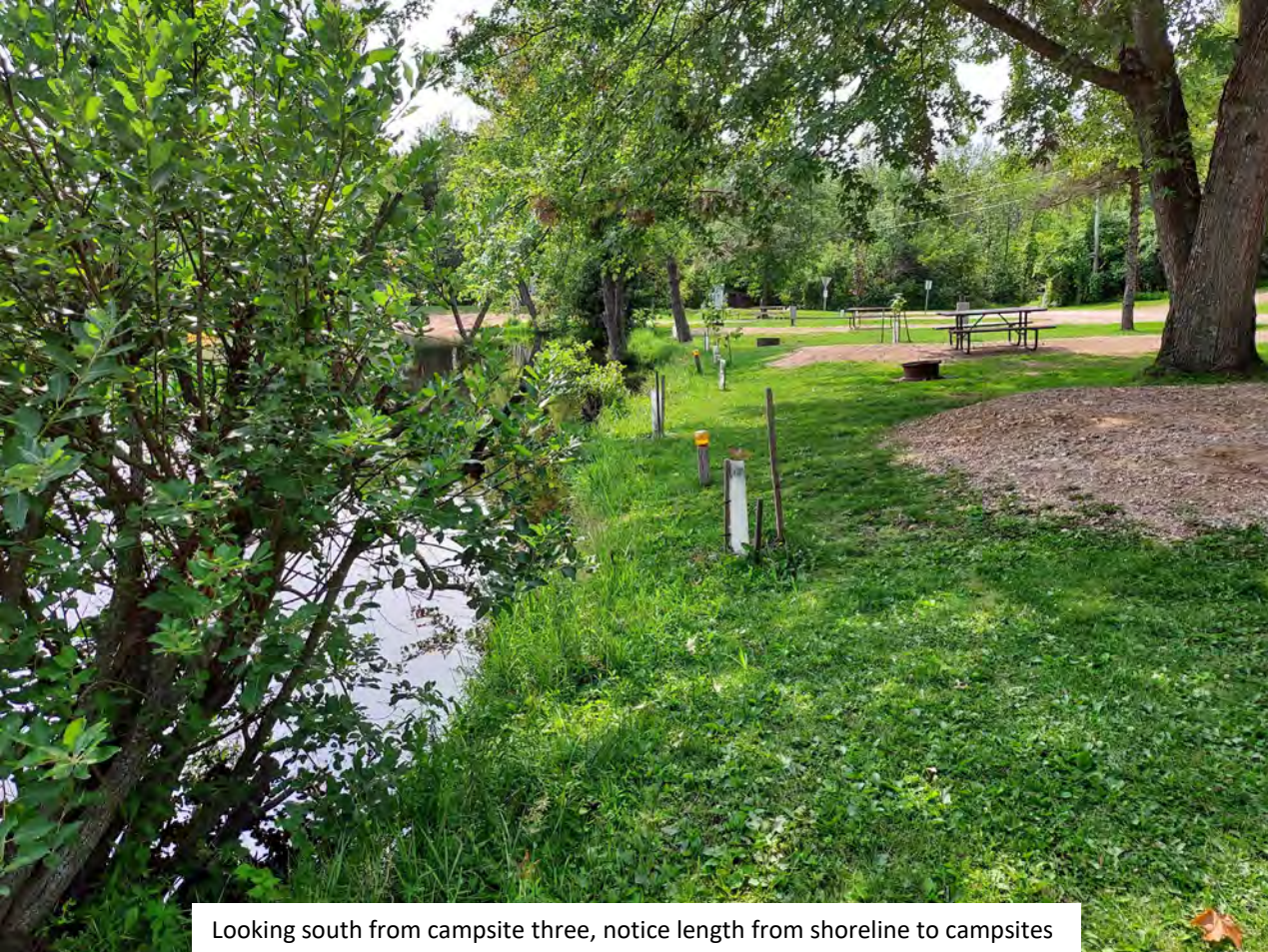
Date  
02/2020

Sheet 5 of 19

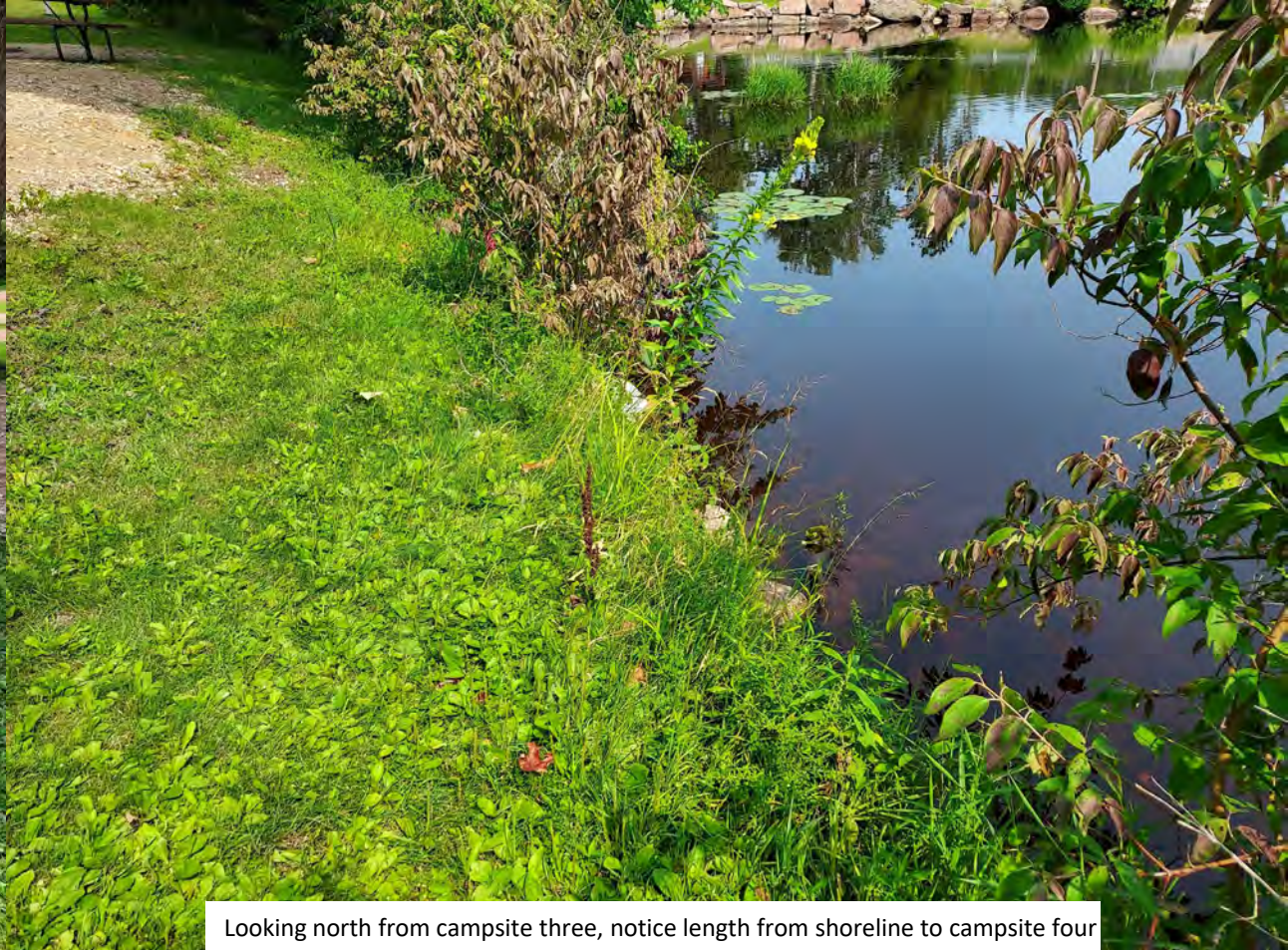
**Construction Notes**

- Plan is for western shoreline only.
- Earthfill behind bio bags must allow for free drainage of water.
- All trees must be kept, removal may be done with technician approval.
- Bags must be placed following Enviro lok specs provided on pgs 8-15.
- First course of bags is to be placed a minimum of 3", recommended to go 6" below existing ground to provide structural support during low water, reference Enviro lok specs.
- Bags are to be filled and compacted to a height of 6" each. Partial bags can be used if bags are compacted less than 6".
- Final elevation will vary along shoreline, anticipated elevation is 958.23.
- Benchmark will be determined prior to construction beginning.
- Water levels fluctuate drastically from spring to fall with the removal of the top portion of Tilleda dam.
- OHWM is placed at top of bank where ordinary spring water levels reach. Technician will mark this prior to construction.





Looking south from campsite three, notice length from shoreline to campsites



Looking north from campsite three, notice length from shoreline to campsite four



Undercutting beneath tree roots



Undercutting under living tree, tape measure is approximately one foot under tree





Undercutting beneath grass, approximately one foot



Undercutting of two feet where tree root and grass meet



Undercutting of a foot and a half



Undercutting of half a foot



Photo 1: Showing bags being filled. Note no erosion control was used as the soil was placed in a depression and could not leave site.

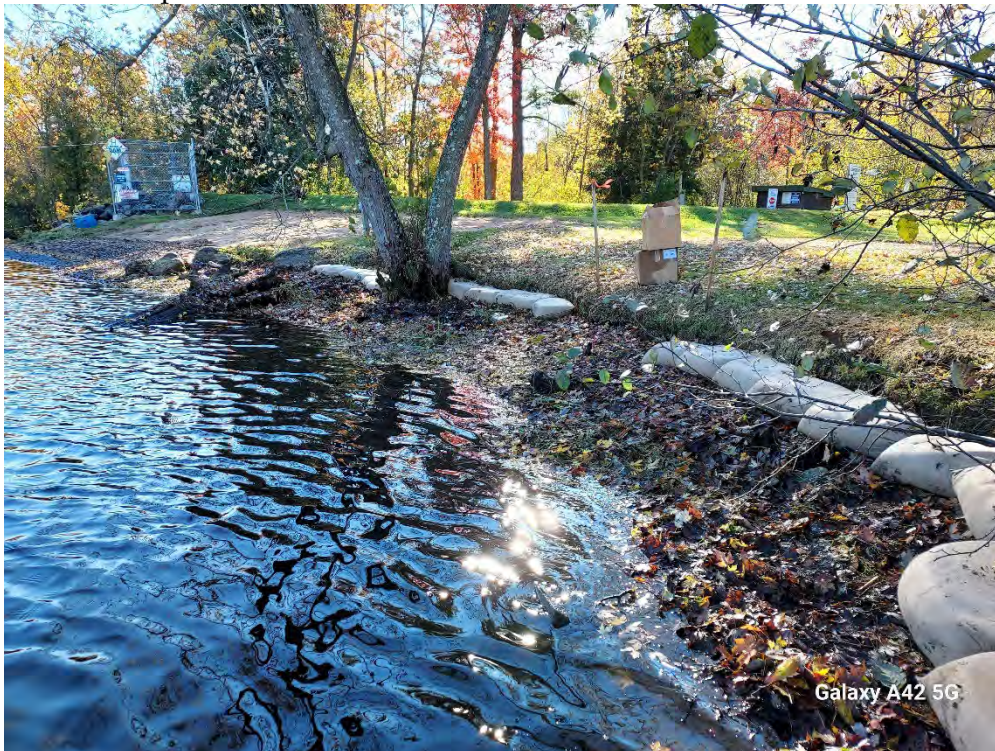


Photo 2: First course of bags being placed. Did not dig into lake bed as we determined it was not structurally needed.



Photo 3: First course of bags being placed



Photo 4: Second course of bags being placed, connector stakes placed (2 per bag) and roughly 3 plants per bag used.



Photo 5: Second course installed. Did not put bags in front of woody vegetation unless needed. Majority of woody vegetation had good root structures holding soil in place.



Photo 6: Third course installed, 2 connectors per bag and roughly 3 plants per bag. Different species of plants used in third row to accommodate less water.



Photo 7: Backfilling behind bags, allows for free drainage of water



Photo 8: Plants planted in backfill. Roughly 3 per bag, planted close since excess plants were on site.

Gullies and Streambanks Form

Use this form to add a new gully or streambank entry

Select One:  Gully  Streambank

Close

Submit

▼ Gully and Streambank Pollutant Load Reduction

This sheet contains two input tables: the first table is for inputting the gully dimensions, and the second is for inputting the eroding streambank dimensions.

**GULLY:**

**Step 1:** Specify the gully dimensions and assign each gully to a watershed.

**Step 2:** Specify the time (number of years) that the gully has taken to form the current size.

**Step 3:** Specify the gully stabilization (BMP) efficiency (0-1) and the gully soil textural class.

**STREAMBANK:**

**Step 1:** Specify the streambank dimensions and assign each bank to a watershed.

**Step 2:** Specify the lateral recession rate (ft/yr) of the eroding streambank.

**Step 3:** Specify the streambank stabilization (BMP) efficiency (0-1) and the streambank soil textural class.

▶ More Info

Gullies Report

	Watershed Name	Gully Name	Top Width	Bottom Width	Depth	Length	Years To Form	BMP Efficiency	Soil Class	Soil Weight	Nutrient Correction Factor	Annual Load	Load Reduction
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No data found

Streambanks Report

	Watershed Name	Streambank Name	Length	Height	Lateral Recession	Rate Range	Rate	BMP Efficiency	Soil Class	Soil Weight	Nutrient Correction Factor	Annual Load	Load Reduction
	040302021202 - Pony Cree...	Tilleda Pond west si...	290	2	Severe	0.3 - 0.5	0.4	0	Sandy loam	0.0525	0.85	12.18	0
	040302021202 - Pony Cree...	Tilleda Pond west si...	290	2	Severe	0.3 - 0.5	0.4	0.95	Sandy loam	0.0525	0.85	12.18	11.571

6 Tilleda Falls Shoreline Restoration

① 10/14/2024

Met with Nick Homan from Lakescape Solutions to start project. No true pre-construction meeting was held, Nick and I have been coordinating this project together. Soil was delivered. Erosion control was to put soil in a depression where soil can not leave site. Erosion control tubes were available if needed. Filled bags to required specs with some variation due to soil mixing. Limited shoreline disturbance to only necessary paths.

10/14/2024 Jacob Buell

② 10/15/2024

Started installing bio bags. First course was not tied into lake bed, determined it was not required for stability of project. A few plant species were substituted. All are natives and will be good fits for project location. 428 bags total installed.

10/15/2024 Jacob Buell



③ 10/16/2024

Completed bio bag install. Back filled topsoil behind bags to ensure proper drainage. Planted remaining plants behind bags in backfilled area. finished construction.

10/16/2024

Jacob Buell