



**WHITEWOOD SANDS BIOENGINEERING  
GPC PROJECT UPDATE**

October 4th, 2022

# WHITEWOOD SANDS ON WABAMUN LAKE

- Whitewood Sands informal access point is a road ROW that provides seasonal lake access to local residents



Source: Kristen Anderson,  
Associated Environmental

# PROJECT LOCATION

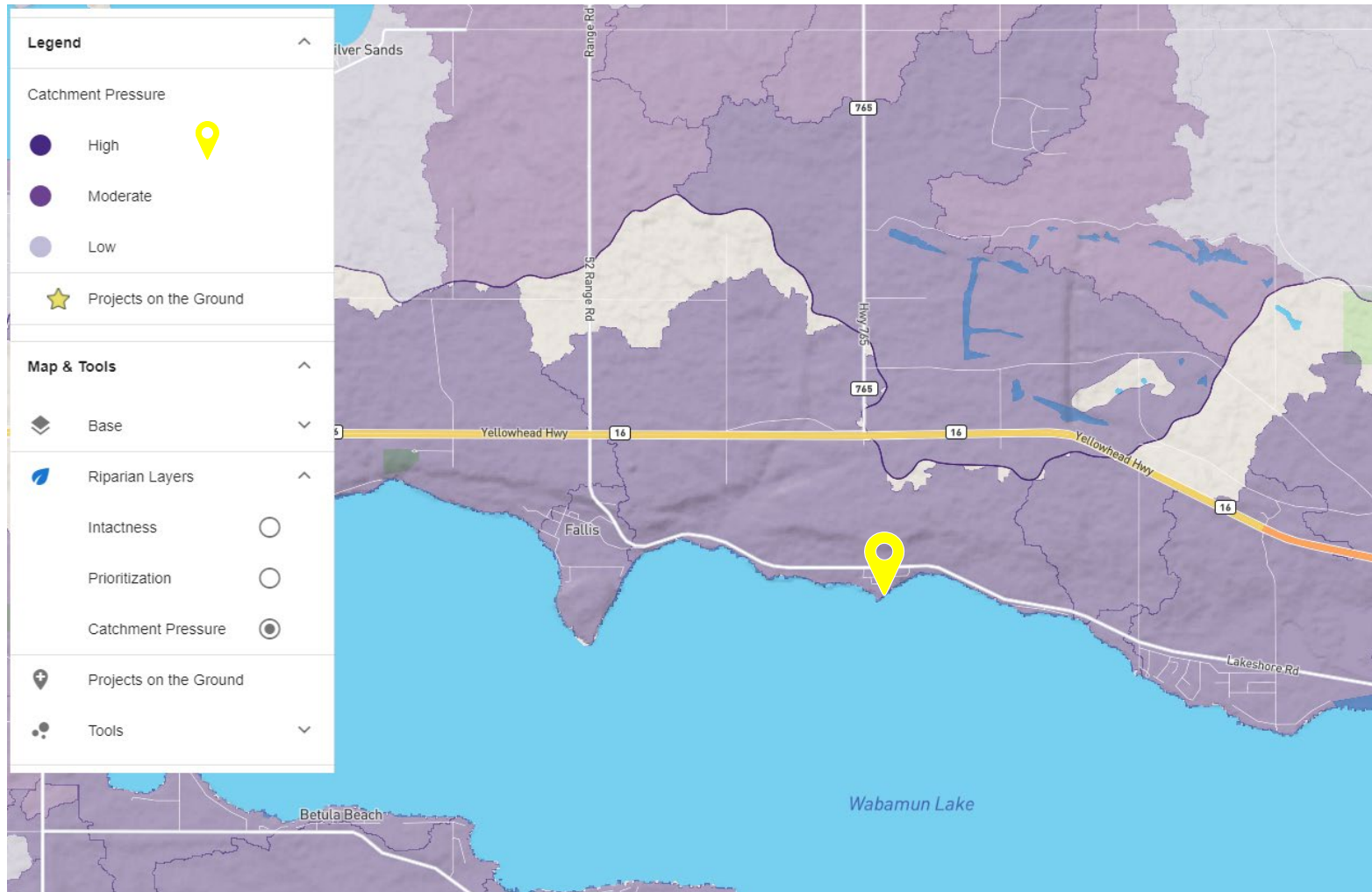


Figure 3. Whitewood Sands' local catchment area riparian pressure scores. Note the project site is indicated by the yellow marker. (NSWA, 2020)

# PROJECT BACKGROUND

- 2018 Ice Heave caused extensive damage to Wabamun shoreline



# PROJECT BACKGROUND

- The previously-grassed access point was damaged by ice and human use with heavy equipment

2016



May 2018

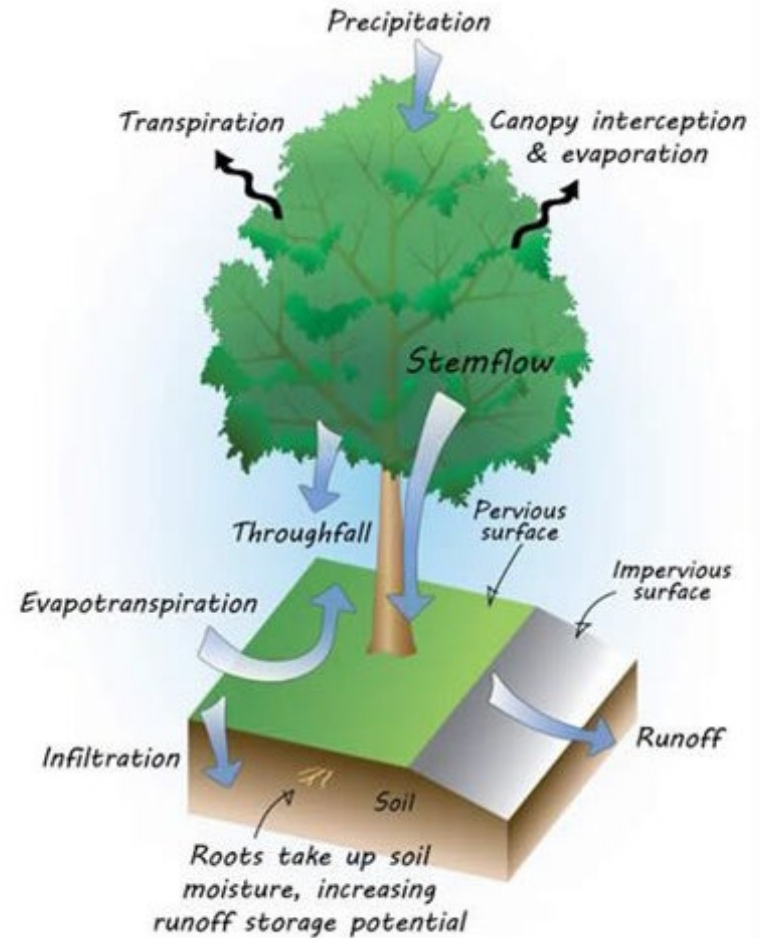
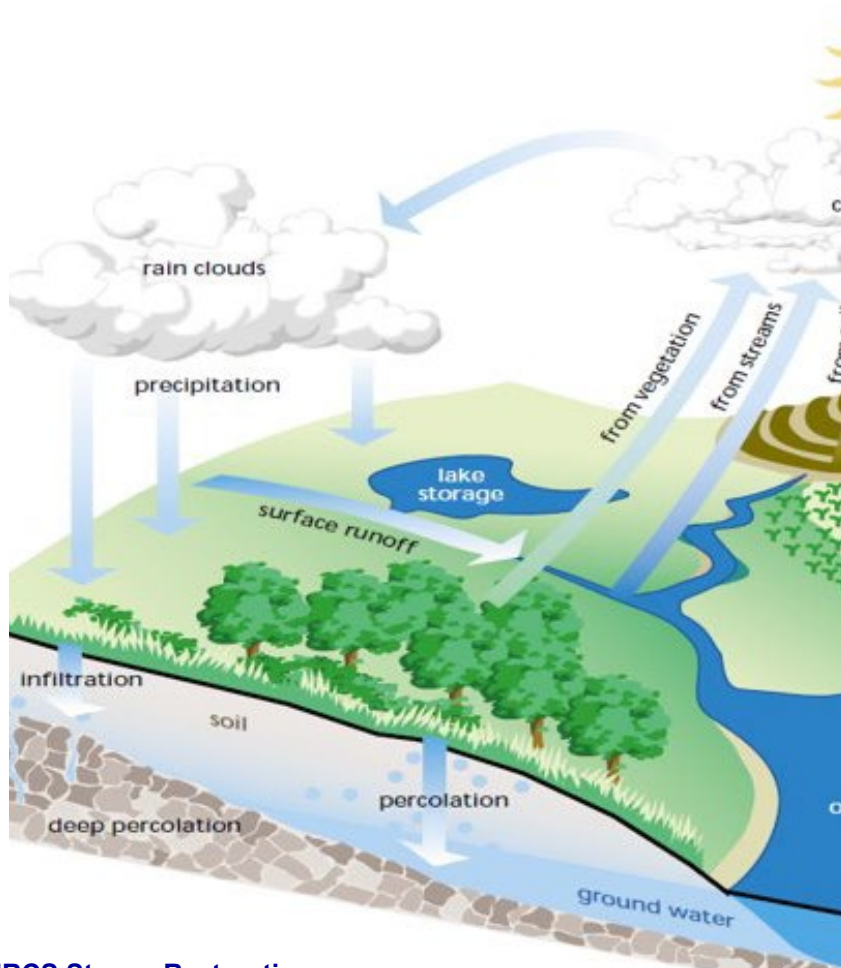


# EROSION ISSUES

- This resulted in an extensive amount of slumping, erosion and deposition of unnatural materials into the lake
- The Water Act required we eliminate the sedimentation issues



# WATERSHED HEALTH AND STORMWATER



NRCS Stream Restoration:  
[https://www.nrcs.usda.gov/Internet/FSE\\_DOCUMENTS/stelprdb1044574.pdf](https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1044574.pdf)

<https://www.epa.gov/soakuptherain/soak-rain-trees-help-reduce-runoff>

# RIPARIAN ECOSYSTEM FUNCTION

Riparian lands are *“transitional areas between upland and aquatic ecosystems”*, and they are important for maintaining watershed health and provide additional benefits such as:

- Improving water quality by trapping, filtering sediment, nutrients and pollutants;
- Mitigating floods /droughts and reducing erosion by storing /slowly releasing water;
- Improving biodiversity by providing habitat, travel corridors, cooling waters;
- Providing aesthetically pleasing areas for recreation, cultural activities; and
- Adding economic value (real estate values, forage/woodlot production).



# ACCESS POINT RECONSTRUCTION



# SOIL BIOENGINEERING AND SHORELINE RESTORATION

- Use of plants to perform an engineering function
- Live cuttings of willows, poplars and dogwood
- Root systems provide root strength and root zone diversity
- Woody vegetation removes excess soil moisture
- Self healing and self sustaining
- Other benefits include biodiversity, carbon sequestration, habitat and aesthetics

# PROJECT GOALS

1. Use bioengineering to increase the ability of the area to manage water flow in times of high precipitation and reduce the negative impacts of flooding on private and public infrastructure,
2. Increase the resiliency of the shoreline with changing water levels in the floodplain area,
3. Improve biodiversity through increased native vegetation and natural habitats,
4. Improve water quality of Lake Wabamun through reduced erosion and sedimentation,
5. Maintain a small temporary access point for local residents, and
6. Provide a beautiful space for resident enjoyment and future educational opportunities.

# IMPLEMENTING COUNCIL'S STRATEGIC PLAN



PILLAR C

## Respected Environment and Agriculture

We respect the natural environment, recognizing Parkland County's biodiversity and unique natural beauty, the land's value for agricultural purposes, and ensuring our commitment to sustainable agricultural and environmental practices.



GOALS

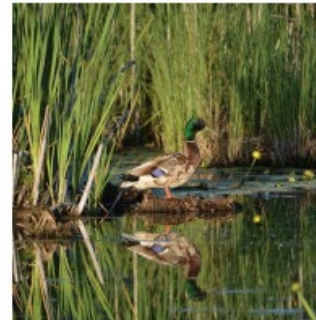
**1** To develop a policy framework that ensures the protection of environmentally significant areas



**2** To ensure residential development plans incorporate relevant public amenities

**3** To recognize the importance of preserving prime agricultural land available for production

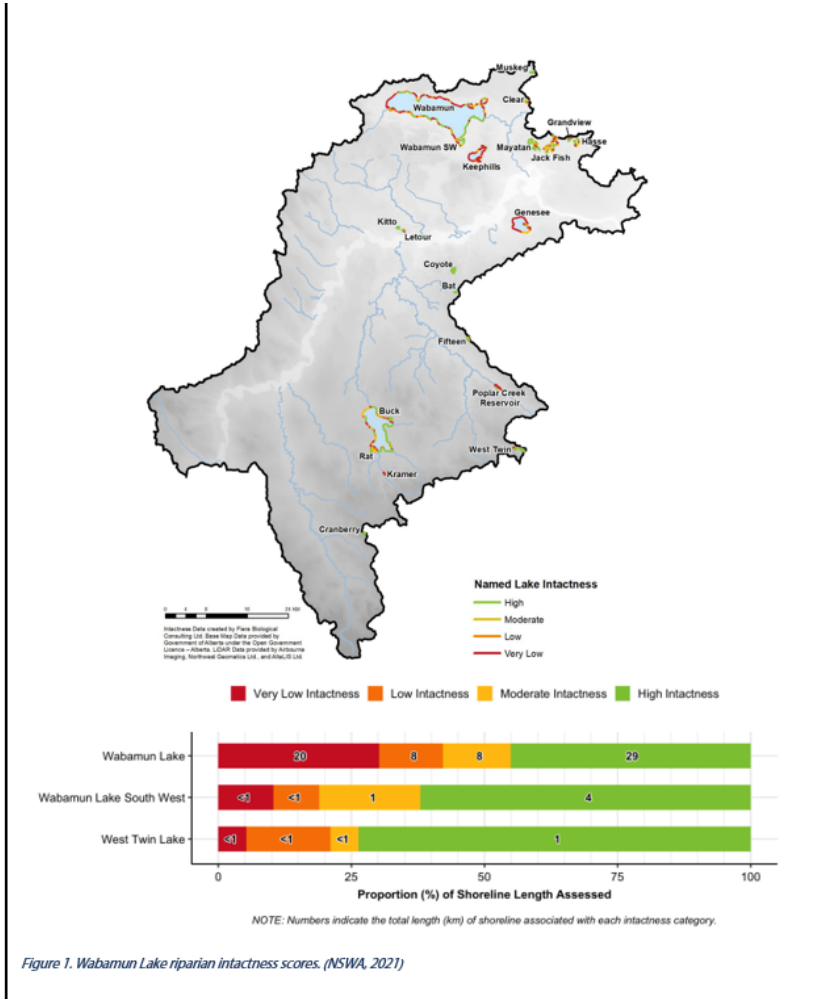
**4** To support our agricultural community



# LONG-TERM SUSTAINABILITY OBJECTIVES

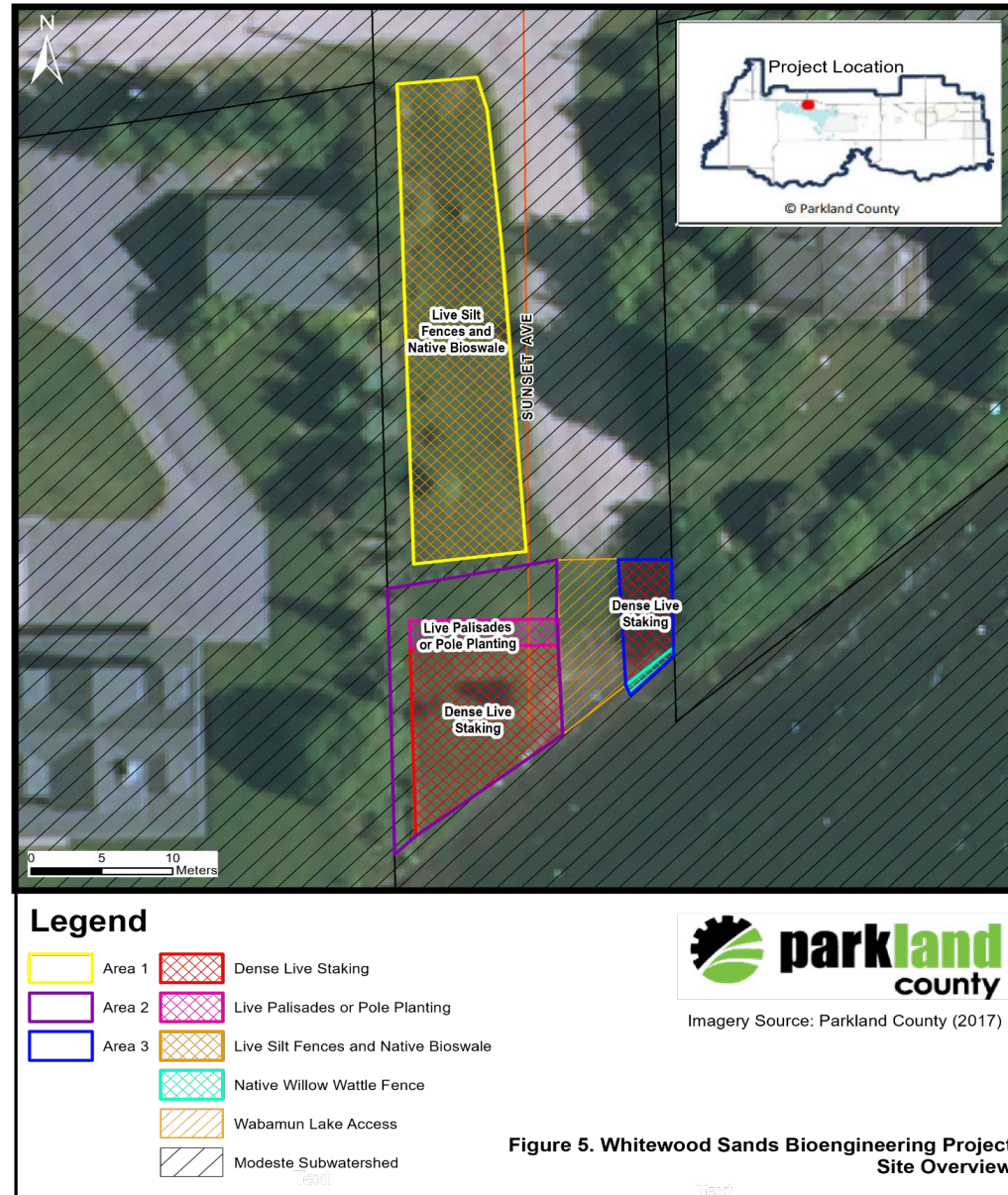


# A HIGH PRIORITY FOR RESTORATION

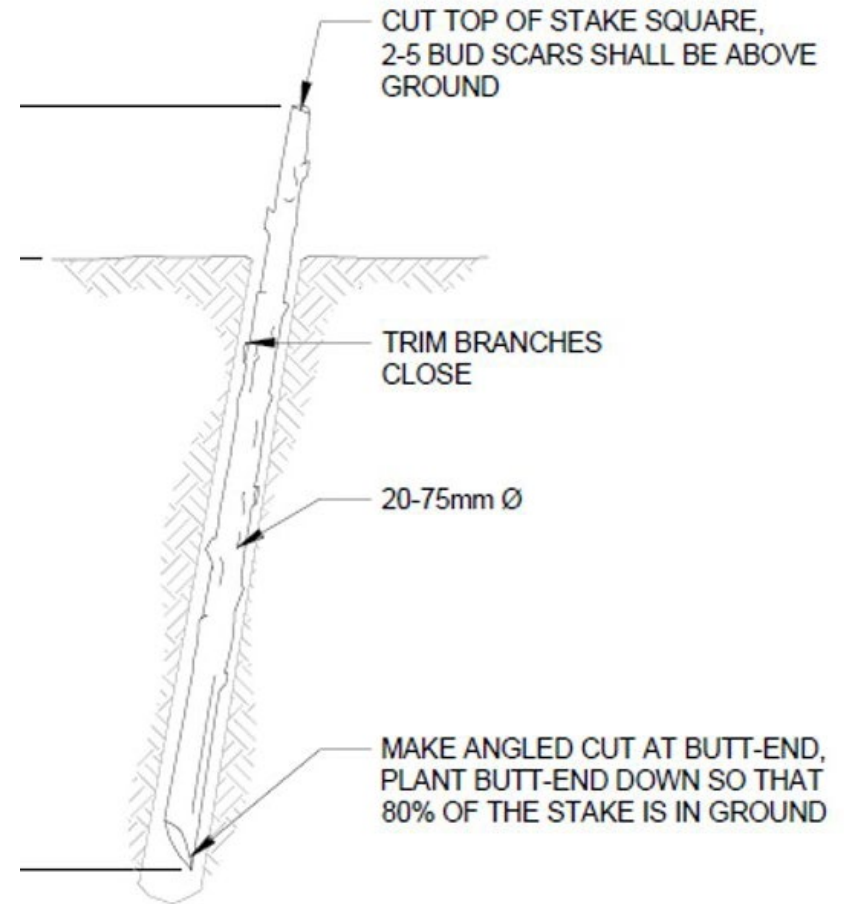


# PROJECT DESIGN

- Dense live staking
- Live palisades
- Wattle fence
- Live silt fence

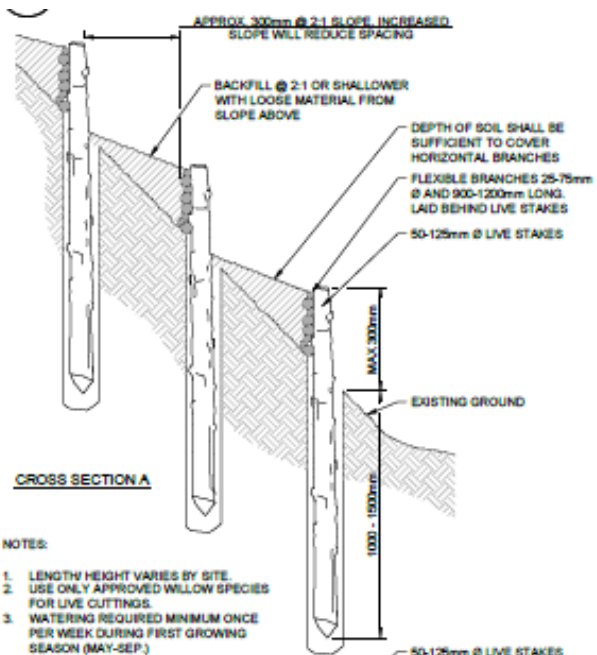
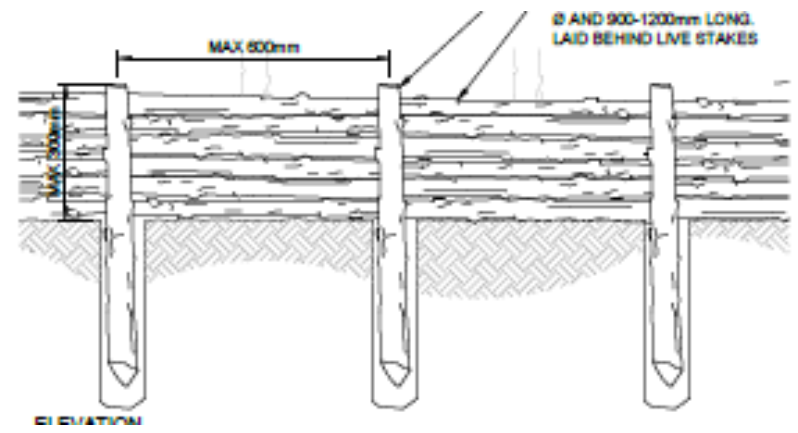


# DENSE LIVE STAKING





# WATTLE FENCES

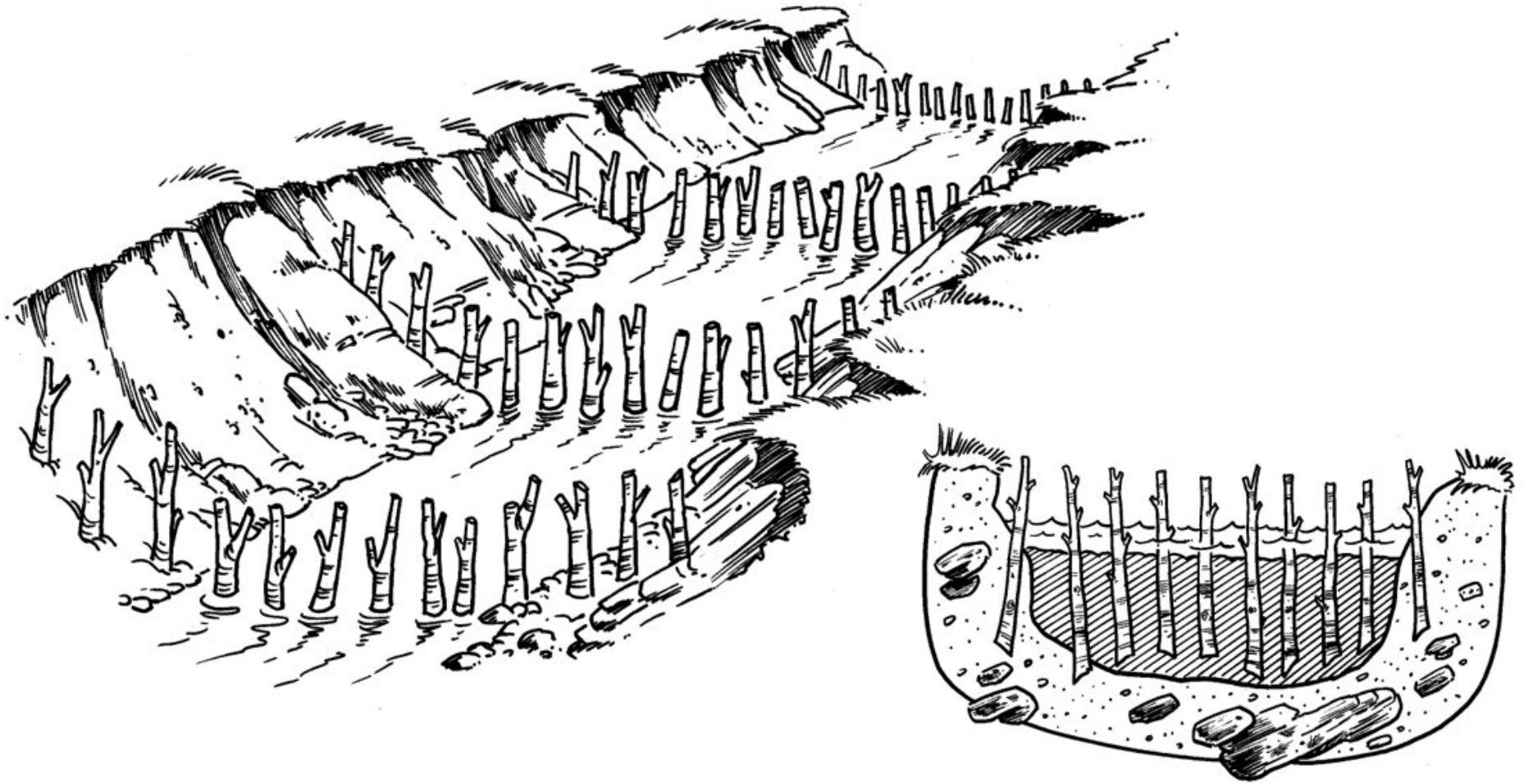


Source: Kristen Anderson, Associated Environmental

# WATTLE FENCES



# LIVE SILT FENCE



Graphic by Dave Polster (Polster Environmental)

# LIVE SILT FENCE- 1 YEAR OF GROWTH



Source: Kristen Anderson,  
Associated Environmental

# DESIGN CONSIDERATIONS

- Uses locally collected material
- Typically installed by hand
- Installed during dormant period (spring/fall)
- Low cost compared to hard engineering
- Absorbs energy instead of transferring it
- Provides valuable habitat, carbon sequestration and water quality improvement



# PUBLIC ENGAGEMENT AND COLLABORATION

- 2018-2021:

- Multiple mail-outs and phone conversations with residents

- 2022:

- 3 mail-outs- 56 local residents
- 1 info session (live and virtual options)-24 attendees
- 1 month long online survey- 18 responses
- Multiple social media ads
- 1 live workshop - ~20 attendees

## Goals:

- Build an understanding of and appreciation for riparian and shoreline areas
- Increase residents' knowledge of riparian and shoreline functions, especially in the context of flood mitigation
- Build an understanding of natural infrastructure and bioengineering techniques as well as its direct and co benefits compared to hard infrastructure
- Demonstrate how residents can find information about their properties and projects in the area through the Riparian Web Portal
- Gain resident buy-in and support for the project
- Finalize the design for the Whitewood Sands area

# LEARNING HANDS ON SKILLS!



# INCORPORATING PUBLIC INPUT

- Community expressed concerns with having enough space for recreation
- There were also concerns about further damage from ice, animals, and humans
- Concerns about impact from historical CN derailment





# MONITORING AND MAINTENANCE

- Herbivory
- Weed control
- Watering



# PARTNERSHIPS & FUNDING

Expense	Budget Estimate	Funding Source	
		WRRP	In-Kind
Speakers Fees	\$500	-	\$500
Public Workshops	\$6,950	\$500	\$6,450
Signage & Advertising	\$4,000	\$3,000	\$1,000
Contractor Fees	\$35,000*	\$35,000	-
Consultant Services	\$8,900	\$8,400	\$500
Monitoring & Maintenance	\$17,000	-	\$17,000
Totals	\$72,350	\$46,900	\$25,450**



# EDUCATIONAL OPPORTUNITIES

## Naturalization Project

Parkland County is committed to naturalization that increases ecosystem services for surrounding communities. We have planted native species to provide:

### Habitat

Trees and shrubs create habitat for wildlife, allowing them to move safely between and around development and agriculture.

### Water Quality

Deep rooted plants hold soil in place, capturing pollutants before they enter nearby water bodies. This service helps maintain high-quality drinking water, fish habitat and lake recreation.

### Biodiversity

Native plants benefit and attract insects, birds and animals more than introduced species. A diverse, established community is stable and resilient to drought and weed invasion.

**NATURALIZED BUFFER AREA**  
VS  
**MOWED BUFFER AREA**



- Training for internal staff
- Hands on experience for community members
- Demonstration site for future tours and knowledge sharing
- Interpretive signage for site users

# DISCUSSION/ Q&A

