



Ethan Residence

Lake Winnipeg, Manitoba

Shoreline Stabilization Projects

Manitoba, Canada; 2006 – 2007

Project Background

Agrecol, in cooperation with Earth & Road of Wisconsin and Mid-Canada Hydroseeding, Manitoba, Canada, partnered with the Municipality of Dunnottar and two local residential property owners to stabilize their eroding Lake Winnipeg lakeshore.

Agrecol and its partners worked with the Lake Winnipeg Municipal Planning District to review all technical aspects of the projects to request approval to proceed.

Locations

The Village of Dunnottar is a small community located on the southwest shore of Manitoba's largest lake, Lake Winnipeg. Dunnottar is approximately forty minutes north of the city of Winnipeg.

Lake Winnipeg is Manitoba's largest lake. It measures 350 miles from north to south. The southern section of the lake varies from about 20 to 40 miles wide.



Village of Dunnottar Municipal Park
50 foot sections of shoreline

Morris Residence
200 feet of shoreline

Ethan Residence
170 feet of shoreline

Problem

Lake Winnipeg storm events displaced existing rip-rap and left the shoreline unprotected from the heavy wave action. Serious erosion resulted, threatening private property-owners' homes and land.

Rip rap was installed for many years, and decades of storm activity displaced and rendered the rip-rap ineffective. The government constructed a dike, but it is also vulnerable to wave action.



Typical storm waves on Lake Winnipeg



Shoreline erosion



Shoreline erosion



Failed barrier fence and rip-rap

Solution

Envirolok Vegetated Retaining Walls were installed at all three sites, based on a storm plain plan. This includes: Envirolok bags, bag stabilizer, broadcast seeding of native seed into a 4-6 inch layer of topsoil and planting of native plant plugs into the bags.

The slope was first decreased (flattened), and a toe (foundation) was placed at water's edge.

The toe (foundation) was installed at the water's edge (elevation 715 ft.) and to grade the shoreline to a 4:1 slope.



Excavating the toe



Filling the toe

Environmental Review and Follow-up

All parties involved in the project are very pleased with the results to date. Erosion is controlled, the property-owner's structure's are no longer threatened and vegetation is strong and healthy. The system will become stronger with time.

Village of Dunnottar - Municipal Park



Shoreline Envirolok mattress wall



Before

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Ethan Residence



New vegetation; sixty days from planting

Morris Residence



New vegetation; sixty days from planting



Before



Hydroseeded



New vegetation

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Permits - Engineering

Permitting required:

- Shoreline development permit application
- Survey of property including property boundaries and average high water level
- Conceptual engineering drawings
- Site photos with overlay of key trench area
- Written description of project, material to be used, type of equipment to be used
- Date of construction and relevant details
- A general letter indicating request for protection – type of protection requested, information regarding existing protection

SETC Checklist:

A complete shoreline erosion technical committee checklist (SETC) was completed and submitted to the Municipal Planning District, to the Shoreline Erosion Technical Committee and to the Department of Fisheries and Oceans for their review and approval.

Hydraulic Aspects

Elevation of property, lake level operating limits, exposure to NW winds historic erosion rates, beach character, shoreline slope, existing protection

Geotechnical Aspects

Shoreline material, stability condition, subsurface drainage, groundwater release, surface drainage

Proposed Works

Protection type, filter type, slope, back drainage, toe protection

Site Construction Supervision



Earth & Road

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Mid-Canada Hydroseeding

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NOTE: Do not burn native vegetation growing on the Envirolok system. The bag fabric is flammable. When fully vegetated, bags retain their integrity up to 200 years, depending on conditions.

NOTE: Advice from an engineer is recommended when building walls more than 4' in height, or when site conditions include unusual erosion or weak soil conditions.



www.agrecol.com

Go to agrecol.com for more information, specifications, standard detail drawings, photos and installation guides.

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