

LLOYDMINSTER DRAINAGE CHANNEL, ALBERTA

Improving the grading and capacity of an existing channel



Industry: Water
Sub-industry: Rivers, streams, and estuaries
Location: Canada
Product: PROPEX® Pyramat®

To address this, Resource Management International Inc. expanded the channel's width to 5 m (16.4 ft), enhancing its capacity for higher water flows. The redesign also included long-term erosion protection capable of withstanding a 100-year flood event.

Overview

The Northwest Drainage Channel in Lloydminster, Alberta, required significant enhancements to the grading and capacity of the existing channel. Originally, the natural channel was 1.5 m (4.9 ft) wide, shallow, and lacked the capacity to manage the water flow from a storm event that occurs once in ten years. This insufficiency led to water spilling over onto an adjacent road and causing flooding in nearby businesses.

The channel's redesign effectively established positive drainage, significantly improving its capability to transport large volumes of water during heavy rainfall.

CASE STUDY

Improving the grading and capacity of an existing channel

Solution

A combination of **PROPEX Pyramat 75** High Performance Turf Reinforcement Mat (HPTRM) and **PROPEX Pyramat 25** Turf Reinforcement Mat (TRM) was selected to offer resistance against hydraulic flows and to prevent erosion. This solution resulted in cost savings compared to using riprap and provided environmental and aesthetic advantages. Both the **PROPEX Pyramat 75** and **25** mats are highly resistant to UV degradation, ensuring durability under prolonged sun exposure. They are designed to promote quick root development and support the growth of native vegetation. Following the successful outcomes from this project, a second phase was initiated, installing an additional 27.4 km² (30,000 yd²) of **PROPEX Pyramat** during the winter of 2023.

Performance

Despite challenging conditions due to heavy snow, the installation was completed efficiently. The channel's redesign effectively established positive drainage, significantly improving its capability to transport large volumes of water during heavy rainfall. In October of 2023, water quality testing



was conducted upstream, within, and downstream of the **PROPEX Pyramat**-lined drainage channel, which was initially installed in 2021. Two years after the installation, the tests revealed that the water downstream of the **PROPEX Pyramat** showed a considerable reduction in heavy metals and total suspended solids (TSS) levels compared to the water in the upstream, unreinforced section.



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