

FAQs

TWIN LAKES BEACH SHORELINE PROTECTION

16 JULY 2014

Will the proposed protection system elevation of 249.9m [820'] fully protect the properties when the lake level is high, like it currently is?

The protection system was designed based on the Province's definition of a flood condition for Lake Manitoba - a water elevation with a 100-year combined (static lake level + wind event lake setup and wave runup) probability elevation.

The system is not designed to prevent all flooding, as water sources include not only Lake Manitoba, but also Lake Francis, and groundwater. The magnitude and complexity of addressing "flood protection" is beyond the scope of a mitigation system.

The intent of the system is rather to re-establish the beach ridge that naturally provided protection against erosive forces. Using an engineered geo-tube structure enables the ridge to be re-established immediately rather than waiting for the sand to naturally accumulate - which would only happen when the lake level drops. In addition, an engineered geotube system is able to resist the erosive forces of wind and water, particularly the undercutting that erodes property shorelines after major storm events, ensuring that the core of the beach ridge is maintained. If necessary, sandbags can be added on top of the geotubes.

What are the implications of increasing the elevation of the system?

The implications for the overall design of the proposed geotube system and the corresponding cost increases are currently unknown.

How does the system address ice damage?

In consultation with the product manufacturer, 2 approaches were used to mitigate potential ice damage. First, the lakeside slope is designed at a slope that directs the movement of the ice up and over the ridge rather than colliding directly with it. Second, a hard armour coating has been designed that would be applied to the filled geotubes, coating the system in a hard shell that protects the geotextile material from not only ice damage, but also solar radiation and vandalism.

Where would the geotube system be placed?

For preliminary design purposes, the location of the system is estimated to be close to the existing geotube installation. The system is designed to work with the natural topography, seeking the lowest possible profile and the greatest integration with the existing shoreline conditions; this approach minimizes cost, and facilitates access to the water for the property owners. While the location of the system is largely determined by the natural topography, the precise alignment and exact locations would need to be determined in consultation with individual property owners.

What about individual properties who have invested in protection systems? Will individual property owners be allowed to opt out?

Individual property owners would be consulted for the detailed design development. Individual measures may be integrated with the system, or may need to be dismantled to accommodate a contiguous system. Continuity is critical to the system as gaps in protection would be more susceptible to erosive forces and over time may compromise the entire system.

In addition, in order to maintain protection, the ends of the geotube system need to "wrap" the end properties. This detail extends the total length of the system, which adds to the overall cost and requires more land area. There are therefore financial and spatial implications to each additional interruption in the system.

With regards to existing debris from failed protection measures, it is likely that it would be removed if the debris poses a hazard to the integrity and durability of the geotube system.

Would we still have access to the beach and water for boats, etc?

Maintaining access to the shoreline and the lake is essential and it is anticipated that access to the lake will be similar to the pre-2011 condition. The detailed design may include beach ridge "crossings" in order to protect the geotube system, however, the necessity and specifics would need to be explored during detailed design.

Is the vegetative cover permanent?

The geotubes will be covered with sand and planted with native plants similar to the natural beach ridge. This cover protects the geotube from damage, including solar radiation. In very extreme events this cover may be eroded or washed away. If this occurs the geotube foundation will still perform its intended function and protect the integrity of the beach ridge.