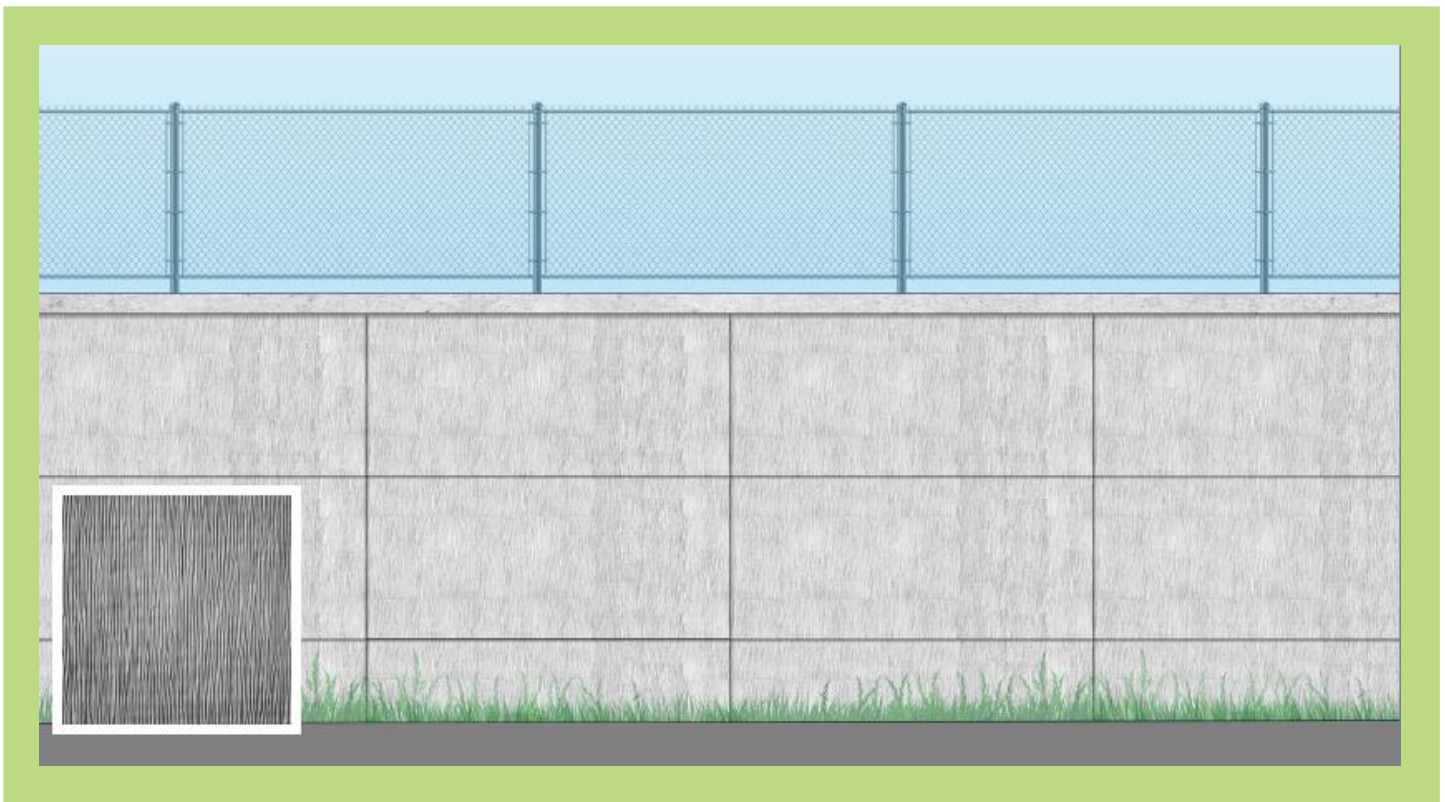


Retaining Walls: Lakeshore East Expansion



Rendering of retaining wall. All renderings subject to change. (Metrolinx Image).

PROJECT OVERVIEW

We're making improvements today to bring you even more service in the future. Preparatory early works are getting underway on the Lakeshore East Rail Corridor expansion project in Toronto. This project covers the area between Pape Avenue and Kennedy Road. Completing this work will enable the future addition of a fourth track on the Lakeshore East corridor. The new fourth track will contribute to faster travel times for all transit trips on the Lakeshore East Corridor, improve service reliability, and allow more frequent service, within the City of Toronto.

WHAT IS A RETAINING WALL?

These walls are designed to hold up soil and earth to stabilize uneven ground on the north side of the rail corridor that will be graded for the future fourth track. A T-Wall structure will be used in some sections of the Lakeshore East corridor between Pape Avenue and Kennedy Road. These walls are made of precast concrete. A chain link fence will then be located at the top of the wall for safety and security. Retaining walls will only be installed where needed to reduce the footprint of the slope, and will not be continuous along the whole corridor.

WHY ARE THEY NEEDED?

In order to add more frequent, electrified service, this segment of railway corridor needs to expand from three to four tracks, and specialized electrification infrastructure, like the portal structures that hold up the overhead catenary system (OCS), will

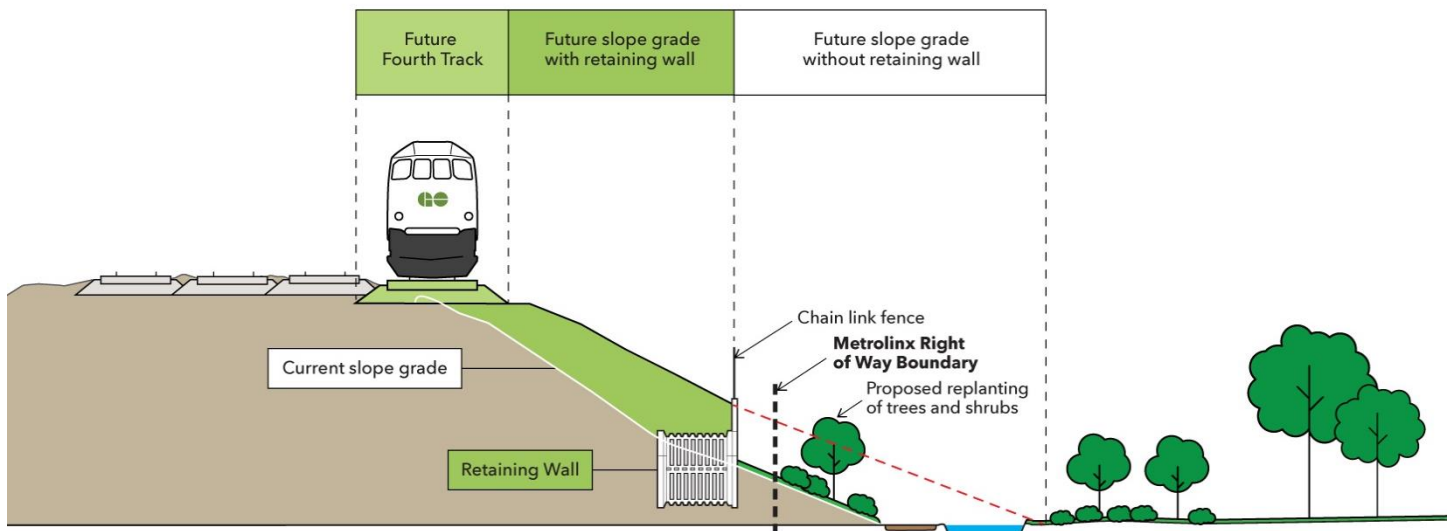
be installed alongside them. All of this new infrastructure will fit within the Metrolinx property line, however, the flat portion on the top of the current embankment is not wide enough to support the future fourth track. To address this, the corridor needs to be widened to the north side and grading work is required. This was identified and assessed in the [project's transit project assessment process \(TPAP\)](#) - a TPAP is a focused environmental impact assessment process specifically for transit projects. Along much of the corridor the preparatory work can be completed through grading, moving and adjusting the soil to create a bed for the future fourth track. In some locations, like Small's Creek, the current slope is particularly steep. In these limited locations a new slope grade and retaining wall will be built to support the new track and the weight of passing trains. The retaining walls will be located at Egan Ave, east of Jones Ave, Small's Creek to Bastedo Ave, Kimridge Ave, and Kennedy Rd to Milne Ave. A retaining wall allows the footprint of the work to be minimized, reducing impact on the ravine floor. The future slope grade will be limited within the area between the new retaining wall and the future fourth track, which is within Metrolinx property.

WHAT ARE THE ALTERNATIVES TO A RETAINING WALL IN SMALL'S CREEK?

There are three possible options to widen the rail corridor in order to support the future fourth track: a retaining wall, a geo-engineered slope, or a secant pile wall. A geo-engineered slope is reinforced by geogrids, shrubs, or grass, and would result in a slope extending deep into the valley, across the Metrolinx property line into City owned lands. Such an approach would require the creek to be realigned to avoid it being buried and resulting in significantly more tree removals.

A different type of wall, called a secant pile wall, is a method that does not meet North American railway safety standards. Secant pile walls require tie backs - a mechanical element that anchors the retaining wall in the soil of the embankment itself. Railway infrastructure with regular use by heavy trains are not compatible with such mechanical solutions as maintenance and monitoring is difficult and failure of the wall would be catastrophic. A secant pile wall is also far more disruptive as the wall would need to be built midway down the slope, and require an area to be leveled for the use of an augur, concrete trucks and other heavy equipment. Therefore the footprint of the work area would be larger and include additional lands at the base of the ravine.

The engineering solution chosen out of the options mentioned is a retaining wall, which will limit tree and vegetation removal, and keep the slope completely within Metrolinx lands. This alternative will also fully preserve the wooden walkways and stairs within the Small's Creek ravine. While the work will impact a number of existing trees alongside the rail corridor, Metrolinx is working with the City of Toronto and conservation authorities on a restoration plan for the areas affected.



Concept graphic for illustrative purposes only: Retaining wall within Small's Creek supports the future fourth track and minimizes tree removals (green slope). Illustration of a future slope grade without retaining wall requires grading further out into the valley (red dashed line). (Metrolinx image).

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