

# Memo



**To:** Chris Dane/Joe Van Humbeck, CP  
**From:** Nathan Gregory  
**cc:** Lucas Warner  
**Date:** September 10, 2019  
**Subject:** Proposed Relocation of Intertidal Grass on Cascade 118 Project Foreshore  
**Our File:** File #18-7764

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Chris/Joe.

As you are aware, the proposed track expansion at Cascade Mile 118 will require the extension of the rail embankment onto the foreshore of Burrard Inlet. This will result in the displacement of a micro-site of intertidal grass (approximately 375 m<sup>2</sup>) currently established at the toe of the rail embankment. It is understood that this micro-site is considered important habitat in this area. This memo provides direction to Contractors regarding CP's best effort to salvage and relocate the grass.

The existing patch of grass is located at approximate design chainage 0+130 to the east of the overhead trestle accessing the Suncor site. The patch is located at the existing toe of the embankment, elevated immediately above the sand/silt substrates characterizing the foreshore. It is possible that these intertidal grasses have established at this location as a result of freshwater seepage through the existing rail embankment and exposure to sunlight (*i.e.*, minimal shade). It is sheltered from significant wave action by Reed Point Marina.

To recreate conditions that would promote the greatest chance for survival of transplanted grass, the new location should attempt to mimic the conditions at the current site as much as possible. In addition to the current site, two other locations have been identified that meet these criteria (*i.e.*, exposed to sunlight, protected from wave action, and with a source of seepage water from the embankment). These are located at design chainage 0+004 at the eastern terminus of the project footprint and at chainage 0+035.

The preferred approach would be to immediately transplant the vegetation from its current location (*i.e.*, the donor site) and install it on a new bench (*i.e.*, the recipient site) constructed to mimic the donor site's conditions to the greatest extent possible. This would minimize the time the grass sod is left stored offsite and the potential for desiccation. Ideally, this would mean starting construction at the eastern end of the site and constructing the new bench at either 0+004 or 0+035 once the new toe of embankment is established. This would allow the bench to be built at the new toe at the same time as embankment expansion continues toward the donor site. The intention would be to finish construction of the recipient site before bank expansion reaches the donor site. At a minimum, this would mean less time storing the grass sod in crates before transplanting can be conducted.

CP recognizes that the preferred methodology of staging may not be able to be accommodated with this option. However, the following steps should be applied if it can be accommodated:

- Determine the bench elevation and substrate at the donor site.
- Construct a bench at the new toe of slope at the recipient site. Construct the recipient site as quickly as possible before the donor site is impacted. The new bench will be set at the same elevation with as similar substrate to the donor site as possible. Leave an approximate vertical depth of 150-200 mm from the upper surface of the newly installed substrate to the final elevation of the bench. Construct the new bench to the same area or slightly larger than the donor site. If possible, "feather" the bench down to existing substrate to allow the vegetation a chance to migrate to lower elevations if conditions permit.
- Carefully remove grass sod from donor site with approximately 150-200 mm of sod depth retained.
- Relocate sod to the recipient site, placing sod carefully. Attempt to avoid compacting the grass as much as possible.
- Immediately wet the grass after transplant.

If the preferred approach cannot be accommodated, the grass sod will need to be stored prior to transplanting. The new bench should then be constructed at chainage 0+180 (*i.e.*, the same as the donor site).

- Determine the elevation and substrate at the donor site.
- Carefully remove grass sod from donor site with approximately 150-200 mm of sod depth retained.
- Place the sod in boxes or crates. Wrap sod in wetted burlap. Remove crates from the immediate location of construction. Keep them in a shaded area to limit desiccation. Keep the burlap wetted.
- Construct a bench at the new toe of slope. The bench will be set at the same elevation with as similar substrate to the donor site as possible. Leave an approximate vertical depth of 150-200 mm from the upper surface of the newly installed substrate to the final elevation of the bench. Construct to the new bench to the same area or slightly larger than the donor site. If possible, "feather" the bench down to existing substrate to allow the vegetation a chance to migrate to lower elevations if possible. Construct as quickly as possible to minimize desiccation of the grass sod.
- Relocate sod to the recipient site, placing sod carefully. Attempt to avoid compacting the grass as much as possible.
- Immediately wet the grass after transplant.

Please note that the placement of fill and riprap on the new embankment may alter the hydrology such that the volume of groundwater seepage is affected. This may render the seepage less suitable to support the grass sod.