



**November 25, 2012**

Fraser Surrey Docks  
 11060 Elevator Road  
 Surrey, BC, V3V 2R7

**Attn: Jurgen Franke P Eng, Director Engineering and Maintenance**

**Re: Supplemental information to EMP for a proposed coal direct to barge facility at Fraser Surrey Docks in Surrey, BC**

This letter provides supplemental information to the previously submitted EMP for a proposed coal direct to barge facility at Fraser Surrey Docks in Surrey, BC. As part of the program, the existing rail on the eastern boundary of the Elevator Road access into the terminal would be deactivated and relocated to the west side of the road (reference Figure 1 and attached survey drawing). This newly relocated track would run along the Shadow Brook.

Based on current designs up to 87 m<sup>2</sup> of riparian habitat may be lost at Shadow Brook as a result of the track relocation. The habitat in the proposed track location includes some isolated alder (*Alnus rubra*) cover primarily occurring with Himalayan blackberry (*Rubus armeniacus*) and reed canary grass (*Phalaris arundinacea*). No wetted habitat losses are expected as a result of the track relocation.

Roughly 130 m<sup>2</sup> of riparian restoration planting would be completed on Shadow Brook downstream of the relocated track as part of the project. We have selected red osier dogwood (*Cornus stolonifera*) and hardhack (*Spiraea douglasii*) for this area, as these species can be cut back without killing the plants in the event vegetation maintenance is required. A summary of potential habitat losses and gains based on current designs is provided in Table 1.

**Table 1. Habitat balance for Shadow Brook**

Location	Wetted habitat loss (m <sup>2</sup> )	Riparian habitat loss (m <sup>2</sup> )	Riparian habitat restoration (m <sup>2</sup> )
Shadow Brook	0	87	130
Common name	Latin name	Pot size	Number specimens
red osier dogwood	<i>Cornus stolonifera</i>	#1/ #2	60
hardhack	<i>Spiraea douglasii</i>	#1/ #2	60



Figure 1. Overview of Shadow Brook channel and access into FSD

We anticipate the development proposal will also include a crossing of the green coded (non fish-bearing, insignificant nutrients and flow) drainage running along the east side of the railway tracks (Figure 2). This crossing would accommodate a new driveway access into the Baekaert's site, the bulk of which will be constructed in the existing track alignment (reference attached Coal Unloading Tracks - half Nov 09, 2012 PDF file).

Restoration / compensation works to address potential changes to riparian or wetted habitat associated with the green coded ditch are recommended at Shadow Brook adjacent to the planting proposed above in Table 1. Shadow Brook is classified as fish-bearing at this location and any restoration work would be of benefit given the level of disturbance from past land use.

We anticipate a new crossing on the green coded ditch would entail a riparian loss (of mostly introduced species dominated by Himalayan blackberry) of up to 270.25 m<sup>2</sup> (assuming a length of 48 m and an approximate width of 5.63 m). Installing a culvert on this drainage would have limited wetted habitat impacts given the marginal habitat values present.

However, enclosure would result in the loss of up to 113 m<sup>2</sup> of native substrates (largely consisting of fines and organics). There are multiple options to offset this change, and examples include importing large cobble / boulder substrate for installation in the remaining open sections of the green coded watercourse, or further riparian planting on the Shadow Brook mainstem<sup>1</sup>. More benefit to fish and wildlife habitat would result from additional riparian planting on Shadow Brook than importing large cobble into the green coded ditch, the latter being non fish-bearing and having marginal wildlife habitat potential compared with Shadow Brook. Table 2 provides a breakdown of potential habitat losses and gains associated with the green coded watercourse.

**Table 2. Green coded drainage feature**

Location	Wetted habitat / native substrate loss (m <sup>2</sup> )	Riparian habitat loss (m <sup>2</sup> )	Riparian habitat restoration (m <sup>2</sup> )
Green coded	113	270.25	383.25
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Common name	Latin name	Pot size	Number specimens
red osier dogwood	<i>Cornus stolonifera</i>	#1 / #2	70
hardhack	<i>Spiraea douglasii</i>	#2	70
thimbleberry	<i>Rubus parviflorus</i>	#2	70
Pacific ninebark	<i>Physocarpus capitatus</i>	#1 / #2	70
snowberry	<i>Symphoricarpos albus</i>	#1	70
Pacific willow	<i>Salix lasiandra</i>	#1 / #2	70
Lodgepole pine	<i>Pinus contorta</i>	#2	10
Sitka spruce	<i>Picea sitchensis</i>	#2	10
<b>Total plants</b>			<b>440</b>

*Note: Pacific willow and red osier proposed for channel margins to enhance shading*

<sup>1</sup> Note that constructing a pond in the Shadow Brook drainage was not considered, given the industrial traffic onsite and potential for accidents

If you have any questions, comments or concerns, please feel free to contact the undersigned at 604-790-6915 (mobile), 604-279-2093 (office) or [kgraf@triton-env.com](mailto:kgraf@triton-env.com)

Sincerely,

Karla Graf  
Project Manager  
Bach Env. Eng., Dip T RRM  
Cert Tech, Comm

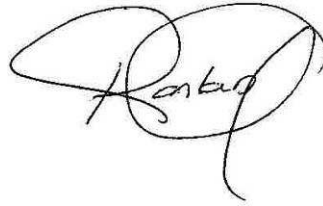
A handwritten signature in black ink, appearing to read 'K. Graf', enclosed within a large, loopy, circular scribble.



Figure 2. Overview of the green coded ditch