



To: Core Area Wastewater Treatment From: David Lycon
Project Board Stantec Surrey
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Reference: CRD Core Area Wastewater Treatment – Outfall Permitting

The purpose of this technical memorandum is to provide a summary of the permitting requirements for a new or an existing modified outfall that would make up an integral part of any proposed liquid treatment facility. Discussion will mainly revolve around the requirements necessary for a new outfall, but some consideration will be given to the scenario where one of the CRD's existing outfalls at Clover or Macaulay would be twinned to support higher effluent flows from a single liquid treatment facility.

The marine environment surrounding the CRD is expected to have a high assimilative capacity due to ocean volume and tidal action for mixing and dispersion, and presence of marine microorganisms and physicochemical processes for nutrient breakdown. However, the placement of a new or modified outfall still requires a lengthy process to be undertaken.

PERMITS AND CONSULTATION

A number of permits and approvals relevant to a marine outfall are necessary, and will include those which fall under the following regulatory frameworks:

- Navigation Protection Act;
- Fisheries Act;
- Federal and Provincial Environmental Assessments
- Victoria Harbour Master review
- First Nations consultation
- Crown land tenure; and
- Liquid Waste Management Plan Amendment.

RECOMMENDED INVESTIGATIONS

Prior to developing the design of a marine outfall, there will be a requirement for the collection of site specific environmental data. For a new outfall in particular, it is assumed that there is insufficient information related to the oceanographic, geotechnical, and archeological conditions along the proposed marine outfall route and diffuser location.

Reference: CRD Core Area Wastewater Treatment – Flows and Loads

Oceanographic studies will be required as part of the design phase for the marine outfall. Currents and water column properties in the vicinity of the discharge will need to be confirmed. Based on these and other factors, the following are the recommended studies that will be required:

- Baseline water quality sampling (fecal coliforms & enterococci).
- Collection of water column profiles.
- Current measurements (drogue study or current profiler).
- Hydraulic modeling to confirm mixing, dilution and plume dispersion. ;
- Detailed bathymetric and backshore survey to delineate the topography of the backshore and foreshore seabed.
- Geotechnical investigations are also recommended and would include a combination of the following:
 - Diver and Remotely Operated Vehicle (ROV) surveys to visually assess seabed/substrate characteristics and potential pipeline hazard areas such as sunken logs; and
 - Intertidal investigations to characterize sediment depth and composition.
- If required, an inventory of sensitive habitats (e.g. eelgrass) along the preferred route and proximity to shellfish beds will also be needed.
- An archeological review along the proposed route is recommended to investigate the potential for archaeologically significant materials.

Communication with stakeholders will also be conducted in advance of completing the outfall design.

RISKS AND RISK MITIGATION

The site selection of a new outfall comes with potential risks. These are primarily associated with permitting and stakeholder engagement.

One or more of the required permits may require consultation with First Nations communities. Early engagement with First Nations is recommended prior to design to verify the outfall is appropriately sited.

Regulatory agencies will also require confirmation the outfall will not significantly affect other stakeholder groups such as commercial operators or public use. Education for the general public about the project and level of treatment will be important to provide confidence that public health and the environment will be adequately protected.

Reference: CRD Core Area Wastewater Treatment – Flows and Loads

A Stage I Environmental Impact Study (EIS) will be required, which is based on desktop information and is intended to inform the design process for siting a new marine outfall. In relation to the Municipal Wastewater Regulation (MWR), it investigates effluent disposal to the marine environment from the proposed liquid treatment facility, and the potential environmental impacts of the discharge.

A Stage II Environmental Impact Study (EIS) for the outfall will be needed which involves field sampling of the receiving environment and analysis of the collected site data. The Stage II EIS will ultimately have to demonstrate the selected outfall site is appropriate and complies with regulatory requirements including all technical performance requirements for the specific site

SCHEDULE

In consultation with professionals who regularly engage in the permitting and design of marine outfalls on Vancouver Island and elsewhere in British Columbia, the following approximate permitting timelines have been established:

- New outfall – 24 months minimum (Mc Loughlin was 30 months)
- Twinning of existing outfall – 14months minimum assuming fast track approval

Each outfall application is reviewed in detail by the regulators. Provincial approvals can sometimes be fast tracked but Federal approvals usually control the overall schedule.

The main difference for the two options relates to the EIS process. It is assumed that the gathering of extensive receiving water quality background data will not be required for the twinned outfall option. This is assumed based on the existing data that should be available from when the first outfall was initially designed as well as ongoing water quality monitoring of the operational outfall