



**REPORT TO CORE AREA LIQUID WASTE MANAGEMENT COMMITTEE
MEETING OF WEDNESDAY 13 OCTOBER 2010**

SUBJECT **UPDATE ON REFINEMENT ACTIVITIES TO WASTEWATER TREATMENT STRATEGY – CORE AREA WASTEWATER TREATMENT PROGRAM**

PURPOSE

To update the Core Area Liquid Waste Management Committee (CALWMC) on activities related to the ongoing work to refine the cost information to run a sewage line across Esquimalt Harbour for treatment plant siting options in Colwood.

BACKGROUND

Over the last four years the system configuration for the Core Area Wastewater Treatment Program has evolved with numerous sites and options considered and evaluated. Key events in this evolution include:

1. Discussion Paper No. 1, which was circulated in January 2007, identified the design criteria for all treatment facilities including stringent criteria for odour control, noise standards and land requirements. This discussion information paper ensured that all considerations for treatment facilities through the planning phase would be “good neighbours” and meet the highest standards for odour control (e.g., enclosed tanks and state of the art scrubbing technologies), noise abatement and siting sensitivity in an urban area.
2. Consideration of decentralized system configuration options of four, seven and 11 plants.
3. *Path Forward* document was approved which recommended a decentralized system with plants at McLoughlin Point, Clover Point, Saanich East/North Oak Bay, West Shore and the energy centre.
4. Peer Review Panel recommended that the Capital Regional District (CRD) investigate a single site in South Colwood.
5. West Shore communities actively pursued consideration of constructing and governing separate treatment facilities on the west shore.
6. Re-evaluation of growth projections and agreements with the Province for alternate approaches to handling overflows at Clover Point and water reuse expectations resulted in no necessity for plants at Clover Point and Saanich East/North Oak Bay.
7. West Shore communities made a decision to have their current sewage treatment needs up to 2030 met in a centralized facility with post-2030 requirements addressed through the consideration of more decentralized plants.
8. Consideration of additional site options in Colwood and the Upper Harbour area in Victoria for one centralized site to accommodate both liquid treatment and bio-solids processing and liquids-only treatment at McLoughlin and biosolids at Hartland landfill.

9. Evaluation of Colwood options resulted in costs of \$85 million to \$100 million over current configurations primarily due to estimates for Conveying the sewage from Clover and Macaulay points across Esquimalt Harbour.
10. CALWMC requested staff continue to refine the system to ensure the most cost effective and environmentally responsible approaches were explored. This work includes consideration for further site options for the Energy Centre and refining the estimates for the Esquimalt Harbour crossing.

Over this time 114 sites were investigated in significant detail with a number of them being site considerations in Colwood and Langford. For a number of reasons many of the sites were not pursued including lack of political support, sites not being large enough, elevation and site configuration difficulties and, as mentioned, significant cost issues related to the crossing of Esquimalt Harbour.

With the direction to continue to look for ways to refine the system staff have been focusing their efforts on evaluating other site options for the energy centre and doing more detailed work on the characteristics of the seafloor bed at the mouth of Esquimalt Harbour.

PROJECT STATUS

The services of Frontier Geosciences have been retained to carry out a preliminary overwater geophysical investigation for a pipeline between Macaulay Point and the West Shore. The field work, which was completed on September 25, 2010, included the following three components:

- Underwater acoustic profiling of the bedrock and of the various sediment layers between the top of the bedrock and the seabed;
- Bathymetry survey to provide a detailed profile of the sea floor; and
- High frequency survey to identify soft areas in the sediments.

Preliminary results of the bedrock profile indicate there is up to 100 metres of sediments on top of the bedrock in the Royal Roads area. The geology of the sediments appears to be extremely complex with layers of till, marine clay and sand. There are also rock outcrops projecting through the sediments.

The complex geology of the sediments has generated an enormous amount of data that must be processed in order to establish the thickness of the various strata throughout the study area. Following processing, the next step is the interpretation and analysis of the data followed by the preparation of detailed maps showing the seafloor, the bedrock and the various sediment layers. The early results will be presented to staff at a progress meeting on October 18. A draft report will be submitted by Frontier Geosciences within a few weeks following the progress meeting.

The mapping information provided by Frontier will then be reviewed by Stantec and used in the preparation of conceptual designs and alignments for a marine pipeline crossing between the Macaulay Point area and the West Shore. The treatment plant on the West Shore will require a 1.8 m diameter pipeline to convey the wastewater from Clover Point and the Macaulay Point outfalls. If the biosolids facility is located on the West Shore a much smaller, 200 or 250 mm, pipeline will be needed to convey the sludge from the treatment plant at McLoughlin Point to the biosolids facility.

Two options will be examined for the marine pipeline from Macaulay Point to the West Shore:

- Drilling a tunnel and inserting the 1.8 m forcemain into the tunnel
- Installation of a pipeline buried into the seabed deep enough (four metres of cover) to prevent damage to ship anchors

Core Area Liquid Waste Management Committee – 13 October 2010
Re: Refinement to Wastewater Treatment Strategy – CAWTP
Page 3

During the preparation of the preliminary cost estimates, tunnelling and marine contractors will be consulted since this work is very specialized and costs are very sensitive to geology. The option of excavating the seabed to install a pipeline may also have environmental impacts which will have to be investigated separately.

In summary, the geology of the seabed in the Royal Roads area is very complex and the results of the underwater geotechnical investigations will require careful analysis by Frontier Geosciences and Stantec before the feasibility and a preliminary cost estimate of a pipeline crossing can be established.

SUMMARY

The work to refine cost information for a marine crossing from Macaulay Point to Colwood is currently nearing completion with final information being expected at the 10 November 2010 CALWMC meeting.

RECOMMENDATION

That the Core Area Liquid Waste Management Committee receive for information this update report on refinement activities related to the wastewater treatment strategy for the core area wastewater treatment program.



J.A. (Jack) Hull, MBA, PEng
General Manager, Integrated Water Services

Kelly Daniels
CAO

KD:dv