



**REPORT TO CORE AREA LIQUID WASTE MANAGEMENT COMMITTEE  
MEETING OF WEDNESDAY, 25 JUNE 2008**

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**SUBJECT      CORE AREA SEWAGE TREATMENT – WEST SHORE "C" WASTEWATER  
TREATMENT PLANT**

**PURPOSE**

The purpose of this report is to obtain approval for a consultant review of the suitability of a potential treatment plant site in the City of Langford, which could be used as a demonstration project for an integrated resource management approach to wastewater treatment.

**BACKGROUND**

*The Path Forward* report, dated June 2007, concluded that decentralized wastewater treatment plants could provide opportunities for water reuse and heat recovery. The report identified a number of potentially suitable locations for such plants, including one labelled West Shore "C".

Earlier this year, the Capital Regional District (CRD) was approached by Westhills Land Corporation (Westhills) to consider the use of land located within the proposed Westhills development for a CRD regional wastewater treatment plant. A particular feature of this location is the potential for energy extracted from treated effluent to be used as a heat energy source for the new Westhills development by means of a district energy system. There may also be opportunities for the use of treated effluent in the development for toilet flushing or irrigation. The proposed plant location is in close proximity to the previously proposed Site "C". Westhills was anxious to know at an early date if the CRD was interested in pursuing the concept of using this site, which is about 1.1 hectares in size.

To determine the potential merits of the Westhills site for a sewage treatment plant to serve existing and new development in Langford, including the Westhills development, a consultant, Kerr Wood Leidal Associates Ltd. (KWL), was engaged to carry out a preliminary feasibility investigation.

The KWL report, dated May 2008, reached a number of conclusions, including the following:

- The 1.1 hectare site is adequately sized for a membrane type treatment plant capable of treating sewage from a population of 30,000 and could provide 50% of the annual Westhills heating energy requirement at its full build-out condition. The plant would have the capacity to handle sewage from a much larger catchment area in Langford other than just the Westhills development.
- As the Langford population projections indicate that the community will grow to 127,000 population equivalent ultimately, either the site would have to be expanded at a future date or excess flows would need to be treated elsewhere.
- Possible effluent disposal options, such as ground or surface disposal to the nearby wetlands, would require further detailed investigations to confirm their environmental viability.

**Core Area Liquid Waste Management Committee – 25 June 2008**  
**Re: Core Area Sewage Treatment – West Shore "C" Wastewater Treatment Plant**  
**Page 2**

CRD staff requested that the Associated Engineering consultant team prepare a proposed scope change to its existing assignment to carry out a more detailed assessment of this option and prepare preliminary engineering and environmental assessment studies for a proposed West Shore wastewater treatment plant so that the City of Langford and the CRD can make an early decision on the viability of a plant at this location. The proposed scope change is attached. The total fee of \$139,212 includes some budget for environmental work to be carried out by Westland Resource Group, including the following:

- an environmental overview of the proposed Westhills/Langford facility site
- discussion of the environmental implications and biological effects of returning treated effluent directly to nearby surface water bodies
- environmental implications of engineered wetlands and return of treated effluent to the nearby surface water bodies following polishing in the wetland
- an overview of the feasibility of a rapid infiltration land application system and the return of treated effluent to groundwater

The environmental work described above is required for both the Westhills-owned and the Langford-owned sites.

#### **ALTERNATIVES**

1. That the committee recommend to the Board that a scope change, in the amount of \$139,212, be approved to Associated Engineering (BC) Ltd.'s contract to carry out preliminary engineering and environmental assessment studies for a resource recovery wastewater treatment plant in the City of Langford.
2. That the scope change described in 1. above not be carried out at this time.

#### **FINANCIAL IMPLICATIONS**

The \$139,212 cost of the work described above will be funded from the \$10 million borrowing bylaw recently approved by the Board.

#### **SUMMARY**

Earlier this year, the CRD was approached by Westhills regarding using a site owned by Westhills for a regional sewage treatment plant. The CRD engaged a consultant to review the merits of this site. The consultant concluded that the site had merit because of its proximity to the Westhills development but that it was too small to enable all Langford flows to be treated at this location.

It is proposed to increase the scope of Associated Engineering (BC) Ltd.'s contract by \$139,212 to carry out preliminary engineering and environmental studies to facilitate an early decision on the usefulness of these sites for wastewater treatment to serve the City of Langford.

**RECOMMENDATIONS**

That the Core Area Liquid Waste Management committee recommend to the Board that:

1. a scope change, in the amount of \$139,212, be approved for Associated Engineering (BC) Ltd.'s contract to carry out preliminary engineering and environmental assessment studies for a resource recovery wastewater treatment plant in the City of Langford; and
2. the \$139,212 cost of this work be charged to Bylaw No. 3461, "Liquid Waste Management Core Area and West Shore Service Loan Authorization Bylaw No. 1, 2007".

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S.B. McDonnell, PEng  
Senior Manager, Engineering Services

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Dwayne Kalynchuk, PEng  
General Manager, Environmental Services  
Concurrence

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Kelly Daniels  
CAO Concurrence

**COMMENTS**

SBM:cl  
Attachment: 1



Associated  
Engineering

GLOBAL PERSPECTIVE.  
LOCAL FOCUS.

**Date:** June 10, 2008      **File:** 062935.04.P.01.00  
**To:** Seamus McDonnell  
**From:** Rick Corbett  
**Project:** CRD Wastewater Program  
**Subject:** West Shore C WWTP – Proposed Scope Change

## MEMO

The distributed wastewater management / resource recovery strategy (Activity 036) has identified that the development of a decentralized facility, located in the City of Langford, fits well with the overall distributed wastewater approach. At a meeting on May 2, 2008 between the CRD and the City of Langford, it was concluded that the wastewater treatment plant, if constructed, would be owned by the CRD and operated as part of the regional wastewater management scheme.

While the final strategy will not be determined until early 2009, the City of Langford and a local developer, the Westhills Land Corporation, have identified a potential site and are eager to move the investigative process ahead, as quickly as possible, so that a decision can be made at the earliest possible date. The preliminary engineering and environmental assessment studies on specific facilities are not scheduled to commence until mid-2009, once the CRD has adopted an overall strategy. CRD staff has requested that the Associated Engineering consultant team prepare a proposed scope change to the existing assignment to advance preliminary engineering and environmental assessment studies for a proposed West Shore C wastewater treatment plant to mid-2008, so that the City of Langford and the CRD can make an early decision on implementation of this facility.

The proposed scope change for this work is attached.

A handwritten signature in black ink, appearing to read 'JRCorbett'.

J. Richard E. Corbett, M.A.Sc., P.Eng.  
Project Manager

JREC/kk

Enclosure

Capital Regional District  
Core Area Wastewater Management Program  
Program Development Phase  
Implementation

Subproject 056: West Shore C WWTP

**Approach:** The distributed wastewater management / resource recovery strategy (Activity 036) has identified that the development of a decentralized facility, located in the City of Langford, fits well with the overall distributed wastewater approach. While the final strategy will not be determined until late 2009, the City of Langford and a local developer, the Westhills Land Corporation, have identified a potential site and are eager to move the investigative process ahead, as quickly as possible, so that a decision can be made at the earliest possible date. At a recent meeting between the CRD and the City of Langford, it was concluded that the wastewater treatment plant, if constructed, would be owned by the CRD and operated as part of the regional wastewater management scheme.

The preliminary engineering and environmental assessment studies on specific facilities are scheduled to commence in 2009, once the CRD has adopted an overall strategy. The objective of this activity is to advance the start of this work to mid-2008, so that the City of Langford and the CRD can make an early decision on implementation of this facility.

Specific tasks include:

- Confirm the near-term and ultimate contributory population and wastewater flows to the facility, based on the sewerage area planning and potential for resource recovery opportunities.
- Develop the details for resource recovery (water reuse, heat energy recovery, nutrient value, energy from organics, etc.) both at a local level and in the regional context.
- Evaluate the opportunities and technical / environmental issues to return surplus effluent to the environment (discharge to groundwater; discharge to a local water course; discharge to the marine environment via a shared outfall with a potential second West Shore plant).
- Determine the expected wastewater treatment technologies, given the reuse and effluent return conclusions. Consider a potential hybrid approach using advanced mechanical (such as MBR and UV) and natural (wetlands) strategies.
- Develop a potential layout for the identified site, based on the potential to integrate the wastewater treatment plant with the overall residential development, including stormwater management and

**Activity Leader:**

Rick Corbett

**Other Key Staff:**

Dean Shiskowski

John Spencer

Chris Johnson

David Harper

**Deliverables:**

- Discussion papers
- Summary Report

<p>integration of green space.</p> <ul style="list-style-type: none"><li>• Develop capital cost and annual operating and maintenance cost projections, based on a phased approach.</li><li>• Prepare a summary report, encompassing the above analysis.</li></ul>	
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