



**REPORT TO CORE AREA LIQUID WASTE MANAGEMENT COMMITTEE  
MEETING OF WEDNESDAY, 23 JANUARY 2008**

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**SUBJECT**      **LETTER FROM MINISTER OF ENVIRONMENT, DATED 14 DECEMBER 2007,  
RESPONDING TO THE PROPOSED AMENDMENT NO. 6 TO THE CORE AREA  
LIQUID WASTE MANAGEMENT PLAN**

**PURPOSE**

To outline the work required in 2008 to respond to the minister's letter dated 14 December 2007, a copy of which is provided in Attachment 1.

**BACKGROUND**

The Capital Regional District submitted Amendment No. 6 to the Core Area Liquid Waste Management Plan (LWMP) to the minister of environment in June 2007. This submission and the strategy presented in the supplementary document entitled *The Path Forward* was the result of a year's work by consultants, elected officials and staff. The amendment included a schedule indicating that all the required works to provide sewage treatment would be in operation by the end of 2016. The minister approved this schedule, subject to some requirements set out in his letter.

**Minister's Requirements:**

The regulatory requirements in the minister's letter are twofold:

- (A)      Submit a business plan by 30 June 2008 demonstrating how to achieve the following six objectives:
1.      Meet the regulatory standard for liquid waste.
  2.      Minimize total project cost to the taxpayer by maximizing economic and financial benefits, including beneficial reuse of resources and generation of offsetting revenue.
  3.      Optimize the distribution of infrastructure based on number 2 above.
  4.      Aggressively pursue opportunities to minimize and reduce greenhouse gas (GHG) emissions (e.g., reduced requirement of energy for pumping purposes and beneficial re-use of energy).
  5.      Optimize 'smart growth' results (e.g., district services, density, 'Dockside Green' like innovation).
  6.      Examine the opportunity to save money, transfer risk and add value through a public private partnership.

Of the items listed under (A) above, item 1 is a basic requirement, common to all options considered. Items 2, 3, 4 and 5 will be addressed as part of a comprehensive and detailed review, which will identify and evaluate all opportunities for maximizing the recovery and beneficial use of resources, while minimizing the use of energy and the generation of GHG emissions. This review will include an examination of the feasibility of using the proposed Westhills or West Shore Site C treatment plant to demonstrate the application of the review findings. Item 6 is currently being addressed by Ernst & Young Orenda Corporate Finance Inc.

**Core Area Liquid Waste Management Committee – 23 January 2008**  
**Re: Letter of 14 December 2007 from Minister of Environment**  
**Page 2**

- (B) Submit a LWMP Amendment by 31 December 2008 incorporating at least the following seven items:
1. Decisions on the selected physical infrastructure model, selected resource recovery options and P3 approach (including supporting rationale) to demonstrate the above principles;
  2. Identifying the site locations for sewage treatment facilities;
  3. The results of environmental impact studies for each sewage facility (site assessment);
  4. The results of environmental impact studies for each new discharge location;
  5. Draft operational certificates for each sewage treatment facility/discharge location;
  6. Class B detailed capital and operating costs to implement the plan, and costs per user, both with and without government funding; and
  7. Consultation summary reports (public and First Nations).

Of the items listed under (B) above, item 1 will be addressed as part of the activities described under (A) above. Items 2 and 3 are currently being addressed by Westland Resource Group Inc. Item 4 will be initiated as soon as the proposed treatment plant locations have been identified. The environmental impact studies required in item 4 will be completed following the Ministry of Environment's Environmental Impact Study Guideline – Section 5.21, Stage 1 – Assessment of Available Data. Stage 2, using site-specific data, will be completed in 2009. The draft operational certificates required under item 5 will be based on the regulatory requirements and on the proposed treatment plant configurations. To complete item 6, it will be necessary to prepare conceptual designs of the proposed facilities at the selected locations. Item 7 will be an integral part of items 2, 3 and 4 but will be documented separately.

In addition to the consultants referred to above (Westland and Ernst & Young), an engineering consultant will be required to carry out a variety of activities to meet the minister's requirements. These are summarized in Attachment 2. It is estimated that this work will have to be completed in about nine months to allow for reviews and final approvals to meet the 31 December delivery deadline.

The consultant selection and contract award process for this type of project would usually take about four months to complete. The process would include preparing credential call documents, a two-to three-week credential call, evaluating credentials, preparing proposal call documents, a three-to four-week proposal call, evaluating proposals, recommending the preferred proponent to the committee and award of the contract by the Board. A consultant would normally begin work within a week or two of contract award, which in this case, would be in late May. This would leave no time to complete the work due to be submitted to the minister by the end of June. The LWMP amendment due to be submitted to the minister by 31 December 2008 would need to go to the Board in December and to the committee in November, at the latest. The consultant's work will, therefore, need to be complete by the end of October, leaving just five months to complete the extensive engineering work required.

It has, therefore, been concluded that the only way to complete the required consulting work to meet the deadlines set by the minister of environment is to extend the contract of the consultant that completed *The Path Forward* report. This consultant, Associated Engineering (BC) Ltd., with CH2MHill and Kerr Wood Leidal (KWL), has estimated the required work to cost \$1,300,000 to \$1,500,000 or up to 0.125% of the estimated total project cost. The hourly rates applied to this work will be the same as those used for the original consulting contract after adjustment for inflation.

The proposed schedule for completing this work is provided in Attachment 3. Additional committee meetings or workshops are likely to be required to facilitate the timely decisions required to meet the schedule.

**ALTERNATIVES**

1. That the work be carried out in accordance with the timelines set by the minister of environment as indicated in Attachment 3 and that Associated Engineering (BC) Ltd., with CH2MHill and KWL, be awarded a contract extension of up to \$1,500,000 to carry out planning and engineering work as described in Attachment 2.
2. That the minister be requested for additional time to complete the required work and that competitive proposals be sought from qualified consultants to carry out this work.

**FINANCIAL IMPLICATIONS**

As it is intended to fund most of the work required by the minister from capital borrowing, it will be necessary to adopt the \$10 million borrowing bylaw, which is the subject of another staff report on this agenda, as soon as possible.

**SUMMARY/CONCLUSIONS**

The letter from the minister of environment, dated 14 December 2007, requires the completion of a variety of sewage treatment project planning activities that are to be submitted to the minister by either the middle or the end of 2008.

**RECOMMENDATION**

That the Core Area Liquid Waste Management committee recommend to the Board that the work be carried out in accordance with the timelines set by the minister of environment, as indicated in Attachment 3, and that Associated Engineering BC Ltd., with CH2MHill and Kerr Wood Leidal, be awarded a contract extension of up to \$1,500,000 to carry out planning and engineering work as described in Attachment 2.

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Seamus 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:jt  
Attachments: 3



Reference: 95462

**DEC 14 2007**

Denise Blackwell, Chair, and Directors  
Capital Regional District  
PO Box 1000  
Victoria BC V8W 2S6

Dear Chair Blackwell and Directors:

*Denise & Co.*

This is further to my acknowledgement letter of June 29, 2007 in regards to Amendment #6 to the Capital Regional District (CRD) Core Area Liquid Waste Management Plan.

I appreciate the work and thought that you have put into preparing the submission, and how much is yet to be done. I note and appreciate your efforts in assessing new technologies as part of the treatment selection process.

The strategies you are proposing to optimize the beneficial use of reclaimed water, biosolids and other resources are commendable. I agree that these opportunities offer significant potential, and encourage you to study if reuse of resource recovery can be optimized through a more distributed infrastructure model. I also encourage you to explore additional benefits that may be realized by integrating solid and liquid waste resource recovery opportunities, and to seek out interested partners within the CRD to test these opportunities. The BC Government will work with you to identify and optimize these benefits.

I also appreciate your work to date with Partnerships BC to assess P3 opportunities, as requested by the Province at the October 2006 Union of Municipalities of British Columbia convention. I look forward to your continued work with them, and the Ministry of Community Services, in review of your business case, procurement options, and proposed governance structure.

I believe that there is substantial agreement on the following objectives for moving forward:

1. Meet the regulatory standard for liquid waste.
2. Minimize total project cost to the taxpayer by maximizing economic and financial benefits, including beneficial reuse of resources and generation of offsetting revenue.

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3. Optimize the distribution of infrastructure based on number 2 above.
4. Aggressively pursue opportunities to minimize and reduce greenhouse gas emissions (eg. reduced requirement of energy for pumping purposes, and beneficial re-use of energy).
5. Optimize 'smart growth' results (e.g. district services, density, 'Dockside Green' like innovation).
6. Examine the opportunity to save money, transfer risk and add value through a public private partnership.

The treatment schedule established in Amendment #6 is hereby approved, subject to the requirements set out below.

In accordance with Section 24 (3) (b) of the *Environmental Management Act*, a business plan, demonstrating how to achieve the above objectives, shall be submitted to me no later than June 30, 2008.

CRD shall submit a Liquid Waste Management Plan amendment on or before December 31, 2008, which shall include, but not be limited to, the following:

- decisions on the selected physical infrastructure model, selected resource recovery options, and P3 approach (including supporting rationale) to demonstrate the above principles;
- identifying the site locations for sewage treatment facilities;
- the results of environmental impact studies for each sewage facility (site assessment);
- the results of environmental impact studies for each new discharge location;
- draft operational certificates for each sewage treatment facility/discharge location;
- Class B detailed capital and operating costs to implement the plan, and costs per user, both with and without government funding, and
- consultation summary reports (public and First Nations).

With regard to your request to waive the requirement for the sediment transport study, I will hold this requirement in abeyance to allow ministry and CRD staff to review the need for this study in consultation with other regulatory agencies and stakeholders. Condition 1, paragraph 3 in the March 26, 2003 approval of the Core Area Liquid Waste Management is hereby amended as follows:

“The CRD may be required to carry out a field program to assess sediment transport mechanisms at the Macaulay Point and Clover Point outfalls to determine the fate of sediments being discharged to the environment. The need, or lack of need, for the assessments will be established by the Minister after submission of the December 31, 2008 amendment to the plan.”

On a related matter, Ministry of Environment staff and a consultant are undertaking a review of the receiving environment monitoring programs for the Macaulay Point and Clover Point outfalls



- 3 -

in anticipation of changes in the treatment strategy. Please arrange for the necessary CRD staff to work with ministry staff on this initiative.

Thank you for the progress you have made so far. Please continue to work with the Ministry of Environment, Regional Environmental Protection staff through this next stage of the amendment process.

I look forward to continuing to work with you on this important environmental endeavour.

Sincerely,

Barry Penner  
Minister

pc: Honourable Ida Chong, MLA (Oak Bay-Gordon Head)  
Honourable Murray Coell, MLA (Saanich North and Islands)  
Kelly Daniels, Chief Administrative Officer, Capital Regional District  
Dwayne Kalynchuk, General Manager, Environmental Services, Capital Regional District  
Randy Alexander, Regional Manager, Environmental Protection Division, Nanaimo

January 16, 2008

**CAPITAL REGIONAL DISTRICT  
CORE AREA WASTEWATER MANAGEMENT PROGRAM**

**PROGRAM DEVELOPMENT PHASE  
CONCEPTUAL PLANNING  
GENERAL SCOPE**

The CRD is planning to carry out conceptual level engineering planning to further refine the strategy adopted by the Board in June 2007. The objectives of this work are two fold:

- To develop more detailed concepts for regional wastewater management and resource recovery. This will allow the CRD to undertake more detailed financial planning and will allow decisions to be made on the implementation of Program elements.
- To develop the responses required by the Minister of Environment, in his letter dated December 14, 2007. The letter requested that the CRD to provide an update on specific items by June 30, 2008 with a more definitive response on Program elements and delivery by December 31, 2008.

This conceptual level engineering planning will be undertaken through eight activities, each focused on a particular Program strategy or element. These activities are described below. As these elements are linked, some of the activities may proceed in parallel. This Conceptual Planning is expected to commence in mid-February 2008 and be completed by December 31, 2008.

**1 Integrated Resource Management Strategy**

The goal of this activity is to determine the strategy and the goals in both the near term and long term for integrating wastewater management into sustainable water, stormwater, solid waste and energy planning for the community. This activity will also examine how an integrated resource management strategy can best mesh with the concept of “smart” urban growth. Specific tasks include:

- Determine how wastewater flows can best be managed to reduce the consumption of energy. Evaluate potential opportunities to recover hydro power energy.
- Determine the role of heat recovery from the wastewater, both in the first phase facilities and in the future decentralized facilities.
- Evaluate the opportunities for water reuse both in the first phase and in the future facilities. This includes consideration of non-potable water supply, groundwater aquifer recharge and stream flow augmentation.
- Evaluate the energy and resource potential from organic residuals. Consider both a centralized and a decentralized approach. This will include technologies or strategies such as biogas generation, cogeneration of electrical power, and beneficial reuse of the residuals through land application or integration into industrial processes. Determine if augmentation with other organic waste sources, including municipal solid waste, is attractive.

**2 Greenhouse Gas Management Strategy**

The CRD Board has committed to developing a strategy incorporating the principle of carbon neutrality into the Core Area Wastewater Management Program. This activity will examine ways of accomplishing this commitment. Specific tasks are:

- In conjunction with the Provincial Climate Action Team refine the greenhouse gas management targets and agree on methodologies to assess management performance.
- Based on the agreed methodology and the integrated resource management strategy, develop greenhouse gas emission models that consider both the construction activities and the operations of the Program elements over a defined time frame.
- Refine the integrated resource management strategy as required to best achieve the goal of carbon neutrality.

### **3 Wastewater Flow Management Strategy**

This activity would encompass the detailed planning of the future wastewater flows, based on the expected community development, expected changes due to water conservation and inflow / infiltration management and decisions on distributed treatment. Specific tasks are:

- Determine the flows that will be received at each wastewater treatment facility both at start-up and over the planning horizon. Evaluate if the long term flows to the central facility can be capped or reduced by an aggressive decentralized strategy.
- Determine the flows contributed from each political jurisdiction in order to provide a basis for the development of user rate strategies.
- Assess the frequency, duration and volumes of SSOs at locations other than the treatment facilities, both in the near-term and long-term, based on the proposed strategy.
- Determine what treatment improvements are required in the near term at the SSO points.
- Develop a wet weather flow management strategy to reduce and ultimately eliminate CSOs and SSOs over time.

### **4 Macaulay Point Wastewater Treatment Plant**

The Macaulay Point Wastewater Treatment Plant will be the major centralized facility. Specific tasks are:

- Finalize the site boundary and identify any constraints or commitments to buffer areas or site development / uses.
- Determine environmental or facility development factors including foundation, archeological or environmental issues.
- Determine flow routing through the facility including influent and effluent pumping and handling of emergency bypasses.
- Evaluate process strategies for meeting the definition of two times ADWF through secondary treatment. Consider the feasibility of a blended treatment strategy (biological processes combined with high-rate clarification processes). Determine how the process strategy can be phased over time given the future flows and changes in technologies.
- Determine how flows over two times ADWFs can be handled. Show how this fits the MoE ultimate goal of all flows through secondary treatment.
- Evaluate options for wastewater residuals processing and dewatering. Consider both on-site and pumping / truck haul off-site approaches. This includes consideration of additional properties in the vicinity of proposed site that may provide advantages in term of resource recovery or residuals transportation.
- Determine how the facility can best be developed (layout, architectural design, odour control, other site use, etc.) to incorporate the goals of the CRD, the Township of Esquimalt and other stakeholders.
- Determine if outfall modifications are required, given the flow management strategy. If the current site is not available, determine what are the other site choices are potentially available to maintain the adopted distributed wastewater management strategy.



- If the current site is not available, determine what are the other site choices are potentially available to maintain the adopted distributed wastewater management strategy.

## **5 Clover Point Wet Weather Flow Management Plant**

The function of the Clover Point facility will be to direct a portion of the flows to the Macaulay Point plant and to treat the remainder of the wet weather flows, prior to discharge out the existing Clover Point outfall. Specific tasks include:

- Determine how this facility can best be implemented to achieve the dry weather flow transmission requirements, the wet weather flow management goals and the site use goals of the CRD and the City of Victoria.
- Evaluate the construction impacts on the neighborhood and determine required mitigation strategies.
- Evaluate environmental or facility development factors including foundation, archeological or environmental issues.
- Develop a design strategy to incorporate technology changes over time, without a major reconstruction program.

## **6 Decentralized Water Reclamation / Resource Recovery Plants**

The distributed wastewater treatment strategy will see decentralized water reclamation / resource recovery plants handle a portion of the existing wastewater flow and the majority of future flow increases. They will also provide one of the major opportunities for water reuse and resource recovery. Specific tasks are:

- Evaluate and determine the number of plants and the optimum locations in the initial phase. Develop a strategy for the construction of additional plants in the future.
- Determine how the capacity of these plants will change over time, including phasing or “just-in-time” expansion concepts.
- Assess how each plant can be incorporated into the surrounding neighborhood.
- Show how each plant will meet the integrated resource recovery goals of the CRD.
- Determine if liquid stream treatment only, with residuals processing at the central plant, is the best strategy for all the plants.
- Evaluate environmental or facility development factors including foundation, archeological or environmental issues.
- Evaluate whether all the plants should be part of the CRD system or whether selected plants could be owned and/or operated by another entity.

## **7 Biosolids / Resource Management Facility**

The strategy, adopted by the Board, assumes a remote biosolids / resource management facility located near the Hartland Road landfill. This is not necessarily a final decision. The conceptual level planning needs to evaluate the options in greater detail. Specific tasks to be addressed are:

- Determine whether the biosolids should ultimately be processed at a remote location, at the central wastewater treatment plant or at a site near the central wastewater treatment plant. Consider the potential for energy use partners near the central wastewater treatment plant, at the Hartland site or at other locations.
- If at a remote facility, determine the optimum location of the facility. Assess residuals dewatering at a central plant followed by truck haul or pumping to the biosolids / resource recovery facility.

- Determine the strategies or technologies that can be considered to meet the CRD resource recovery goals. These include anaerobic digestion with the production of biogas, electrical power cogeneration, composting and thermal reduction technologies. As noted above, assess whether additional waste streams, such as municipal solid waste or agricultural / industrial organic wastes, should be incorporated into this strategy.
- Review the environmental implications (GHG, air emissions, residual product reuse or management) of the strategy.
- Evaluate environmental or facility development factors including foundation, archeological or environmental issues.

## **8 Financial Planning**

Implementing the Program in an affordable manner is a primary goal of the CRD. This information is also required to assist the business case consultant team in carrying out their assessment on Program element delivery options. This activity needs to undertake the following tasks.

- Develop the capital costs and cash flow. This needs to meet the costing level of detail required by the funding agencies.
- Determine the expected changes in current annual administration, operations and management costs.

	2008											
	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
<b>RESOURCE MANAGEMENT</b>												
PROVINCIAL INTEGRATED RESOURCE MANAGEMENT STUDY												
RESOURCE RECOVERY & USE OPTIONS STUDY												
GREEN HOUSE GASES & ENERGY MANAGEMENT STUDY												
<b>SITE IDENTIFICATION &amp; ENVIRONMENTAL &amp; SOCIAL REVIEW (ESR)</b>												
PHASE 1 - SITE SCREENING												
PHASE 2 - DETAILED ESRs												
PHASE 3 - PUBLIC & FIRST NATIONS CONSULTATION												
<b>ENVIRONMENTAL IMPACT STUDIES OF OUTFALLS</b>												
STAGE 1 (REVIEW OF AVAILABLE DATA)												
STAGE 2 (OCEANOGRAPHIC/BIOLOGICAL STUDY TO GATHER SITE SPECIFIC DATA)												
<b>CONCEPTUAL DESIGN</b>												
CONVEYANCE SYSTEM CONFIGURATION												
SLUDGE MANAGEMENT												
PLANT PROCESSES & LAYOUTS												
COST ESTIMATES (CLASS B)												
<b>BUSINESS CASE DEVELOPMENT</b>												
PRELIMINARY FINANCIAL & RISK ANALYSIS												
MARKET SOUNDING / PROCUREMENT OPTIONS												
MULTI-CRITERIA ANALYSIS, LIFE CYCLE ANALYSIS												
FINAL CASE STUDY												
<b>APPROVAL PROCESS</b>												
COMMITTEE & BOARD APPROVALS												
PROVINCIAL SUBMISSIONS												



2008 CORE AREA AND WEST SHORE SEWAGE TREATMENT PROJECT SCHEDULE (PLANNING)  
 - WORKS REQUIRED FOR COMPLETION BY THE MINISTRY OF ENVIRONMENT IN LETTER DATED 14 DEC. 2007  
 Attachment 3

JUNE 30, 2008  
 DEC 31, 2008