CAPITAL REGIONAL DISTRICT

CORE AREA LIQUID WASTE MANAGEMENT PLAN

AMENDMENT NO. 9

As Approved by the Ministry of Environment on July 3, 2014

SUBJECT: CORE AREA WASTEWATER TREATMENT PROGRAM

TYPE OF AMENDMENT: CRD INITIATED - MINOR

PURPOSE

The BC Ministry of Environment approved Amendment No. 8 of the Core Area Wastewater Treatment Plan (CALWMP) on August 25, 2010. Since that time, the CRD has further refined and developed the Core Area Wastewater Treatment Program (Seaterra Program), which is the major component of the plan. As a result, the CRD seeks regulatory approval from the Ministry with the submission of Amendment No. 9 to the CALWMP. The purpose of Amendment No. 9 is to incorporate these changes into the CALWMP by modifying the applicable clauses in Amendment No. 8, without impacting any other commitments already included in the CALWMP.

BACKGROUND

The changes to the CALWMP, as proposed in Amendment No. 9, are as follows:

1. The scheduled project completion date moves from the end of 2016 to the end of 2018. The additional time is required to make up for time lost when the project was put on hold for an extended period until all senior government funding was secured. The Federal and Provincial funding agreements are for work to be completed by the end of 2018.

   Amendment to Program Schedule:
   Amend page 1.2 of Section 1, and Commitments 1 and 2 on page 6.1 of Section 6, by deleting the phrase “by the end of 2016” and replacing it with “by the end of 2018”, and also, in Section 13, by deleting the Preliminary Program Schedule, dated 09 June 2010 and replacing it with the Program Schedule, dated 30 September 2013, which is attached as Appendix 1.

2. The initial storage volume of the proposed Arbutus Road attenuation tank is reduced from 12,000 cubic metres to 5,000 cubic metres.

   This attenuation tank is required to enable the transmission of all Saanich East flows to the proposed McLoughlin Point treatment plant. The original 12,000 cubic metre capacity tank was based on a 2004 consultant’s study and was the ultimate size that would be required if inflow and infiltration (I&I) continued to increase beyond 2025. The consultant, Kerr Wood Leidal, has now updated the original study using flow data that has been collected since 2004. The consultant now recommends that a 5,000 cubic metre facility be constructed initially, and that space should be reserved to double the size of the facility at some time in the future beyond 2030 should I&I increase beyond current levels. The consultant’s report is attached to this Amendment as Appendix 2.

Amendment to the Proposed Capacity of Arbutus Road Attenuation Tank:
Amend page 1.2 of Section 1 by deleting "As indicated in figure 6.1A, a 12,000 m^3 wet weather flow attenuation tank will be constructed at Arbutus Road in Saanich." and replacing it with "As indicated in figure 6.1A, a 5,000 m^3 wet weather flow attenuation tank will be constructed at Arbutus Road in Saanich." The revised figure 6.1A is attached as Appendix 3.

3. New sewage screening facilities are proposed for both Clover Point and Macaulay Point pump stations.

   The commitment in Amendment No. 8 was to provide new grit removal facilities at both pump stations, but to retain the existing raw sewage screens. On further consideration, it has been concluded that the existing screening facilities at both pump stations should be replaced when the grit removal facilities are replaced.

   Amendment to Add New Screening Facilities to Clover Point and Macaulay Point Pump Stations:
   Amend Commitment 2.f) on page 6.1 of Section 6 by deleting "New grit removal facilities at the existing Clover Point and Macaulay Point pump stations. The raw sewage screening facilities at both locations will be retained." and replacing it with "New grit and screening facilities at the Clover Point and Macaulay Point pump stations."

4. Biosolids processing to produce only dry fuel for cement kilns, pulp mills or waste-to-energy facilities is revised to include other beneficial uses that comply with CRD Board Policy (Appendix 4).

   The commitment in Amendment No. 8 was to dewater and dry the digested biosolids to be used as a fuel for cement kilns, pulp mills or waste-to-energy facilities. On further consideration, it has been concluded that this restricts the ability of proponents for the Biosolids Energy Centre to recommend other innovative alternative technologies that may result in significantly improved system performance and cost savings while providing products for beneficial use that are in strict compliance with CRD Board Policy.

   Amendment to Biosolids Processing:
   Amend Commitment 3.a) on page 6.2 of Section 6 by deleting "Using thermophilic anaerobic digestion to stabilize and reduce solids, kill pathogens and generate methane gas (biogas) for use onsite or offsite in the natural gas distribution system." and replacing it with "Using a solids stabilization process to stabilize and reduce solids, kill pathogens and generate biogas for use onsite or offsite."

   Amend Commitment 3.b) on page 6.2 of Section 6 by deleting "Dewatering and drying some or all of the digested biosolids and selling it as a fuel for cement kilns, paper mills or other energy facilities." and replacing it with "Preparing the biosolids for beneficial use."

5. In addition to the above, there are a number of proposed wording changes in Amendment No. 9 intended to clarify ambiguities or to enable proponents to recommend innovative alternative technologies that may result in improved system performance or cost savings. These changes include the replacement of the words "thermophilic anaerobic digestion" with the words "solids stabilization" to enable the biosolids processing system to be designed and operated to economically produce a product that is suitable for its proposed use or disposal method.

Amendments Regarding the Recovery of Energy from Biosolids:
Amend Commitment 2.a) on page 7.1 of Section 7 by deleting "Provide thermophilic anaerobic digesters to produce biogas from wet sludge, reduce solids mass and provide pathogen destruction." and replacing it with "Provide solids stabilization to produce biogas from wet sludge, reduce solids mass and provide pathogen destruction."

Amend Commitment 2.b) on page 7.1 of Section 7 by deleting "Provide some additional capacity in the digesters to accept source separated food waste and/or fats, oils and greases (FOG) to enhance the production of biomethane." and replacing it with "Provide additional capacity in the stabilization process to accept source separated food waste and/or fats, oils or greases (FOG) to enhance the production of biogas."

Amend Commitment 2.c) on page 7.1 of Section 7 by deleting "Upgrade biogas to high quality biomethane and inject it into the natural gas pipeline system and/or use it in vehicles or at the biosolids processing facility." and replacing it with "Use the biogas generated by the solids stabilization process onsite or offsite."

Amend Commitment 2.d) on page 7.1 of Section 7 by deleting "Recover waste heat from the digesters to warm the raw sludge being fed to them, thereby reducing digester heating costs." and replacing it with "Recover waste heat, where practical, from the solids stabilization process to reduce energy consumption."

Amend Commitment 2.e) on page 7.1 of Section 7 by deleting "Dewater and thermally dry the digested biosolids to be used as a fuel for cement kilns, paper mills or waste to energy facilities." and replacing it with "Prepare the biosolids for beneficial use."

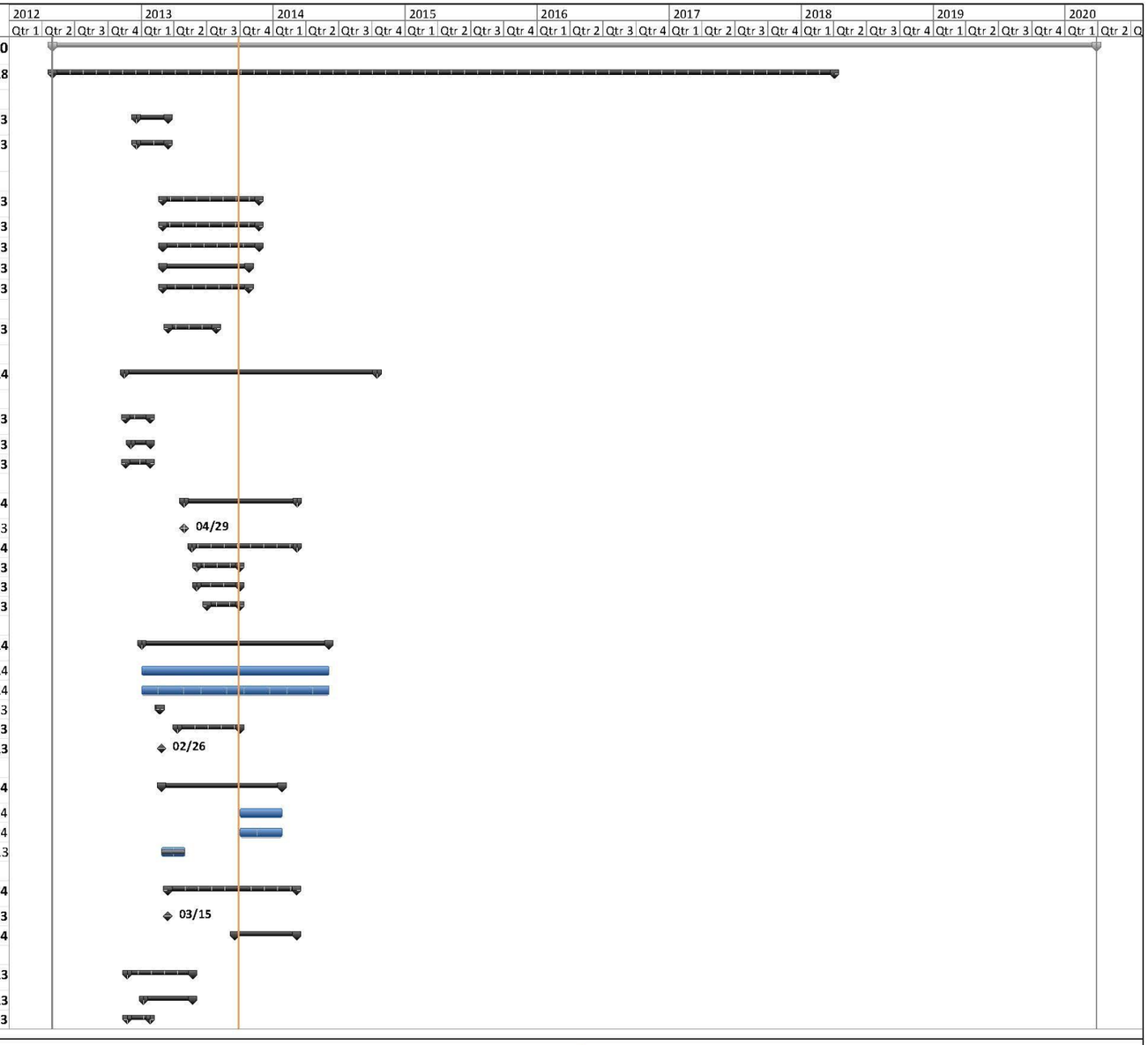
Amendment Regarding Phosphorous Recovery:
Amend Commitment 4 on page 7.2 of Section 7 by deleting "The Capital Regional District and the participating municipalities will recover phosphorous fertilizer (via struvite crystallization) from anaerobic digester return streams for sale as a fertilizer." and replacing it with "The Capital Regional District and the participating municipalities will recover phosphorous fertilizer from the solids stabilization process."

AMENDMENT APPROVALS

Capital Regional District Board Approval	**January 8, 2014**
Ministry of Environment Approval	**July 3, 2014**

Attachments: 4

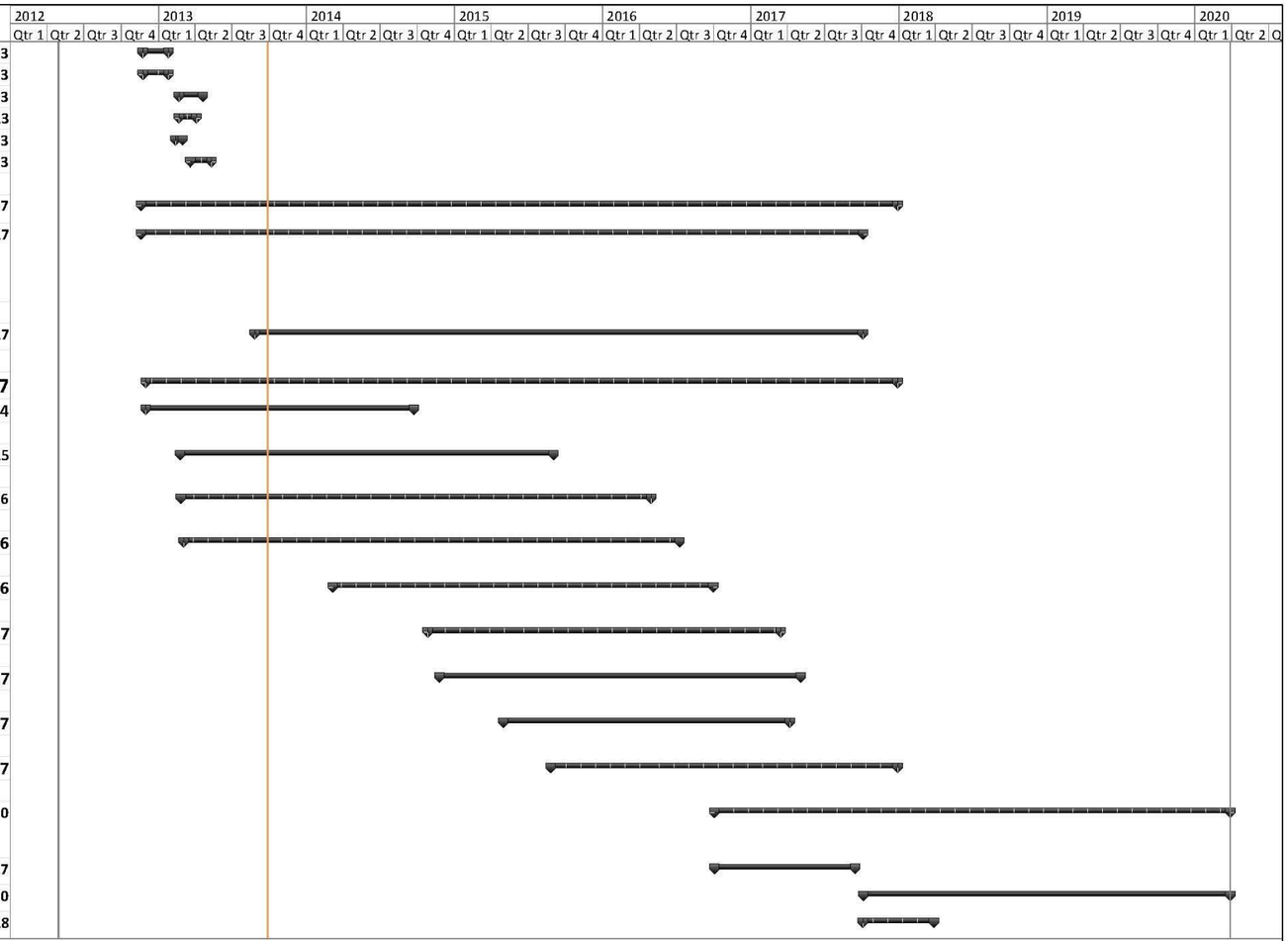
ID	Task Name	Duration	Start	Finish
0	**CAWTP**	**100.3 mons**	**Mon 04/30/12**	**Fri 03/27/20**
1	**KEY MILESTONES**	**74.65 mons**	**Mon 04/30/12**	**Tue 04/03/18**
14				
15	**ENVIRONMENTAL**	**3.15 mons**	**Tue 12/18/12**	**Fri 03/15/13**
16	**ENVIRONMENTAL REVIEW AND APPROVAL (McLoughlin, Clover, Macaulay & Conveyance)**	**3.15 mons**	**Tue 12/18/12**	**Fri 03/15/13**
21				
22	**PROGRAM PLANS**	**9.2 mons**	**Fri 03/01/13**	**Fri 11/22/13**
23	**Project Implementation Plan**	**9.2 mons**	**Fri 03/01/13**	**Fri 11/22/13**
31	**Project Management Plan**	**9.2 mons**	**Fri 03/01/13**	**Fri 11/22/13**
39	**Program Budget**	**8.25 mons**	**Fri 03/01/13**	**Fri 10/25/13**
50	**Program Schedule**	**8.25 mons**	**Fri 03/01/13**	**Fri 10/25/13**
57				
58	**COMMISSION BRIEFING MATERIAL**	**4.6 mons**	**Fri 03/15/13**	**Fri 07/26/13**
64				
65	**ENVIRONMENTAL REMEDIATION**	**24.15 mons**	**Thu 11/15/12**	**Tue 10/14/14**
70				
71	**DESIGN**	**2.4 mons**	**Mon 11/19/12**	**Fri 01/25/13**
72	**CADD and Design Standard**	**1.9 mons**	**Mon 12/03/12**	**Fri 01/25/13**
75	**Design Criteria**	**2.38 mons**	**Mon 11/19/12**	**Fri 01/25/13**
78				
79	**LAND ISSUES**	**10.85 mons**	**Mon 04/29/13**	**Fri 03/07/14**
80	McLoughlin Point Site Purchase	0 days	Mon 04/29/13	Mon 04/29/13
81	**Biosolids Site**	**10.1 mons**	**Tue 05/21/13**	**Fri 03/07/14**
86	**DND**	**4.15 mons**	**Mon 06/03/13**	**Mon 09/30/13**
89	**Transport Canada**	**4.15 mons**	**Mon 06/03/13**	**Mon 09/30/13**
92	**Victoria Harbour Authority**	**3.15 mons**	**Tue 07/02/13**	**Mon 09/30/13**
95				
96	**REZONING / STAKEHOLDER MANAGEMENT**	**18 mons**	**Wed 01/02/13**	**Tue 06/03/14**
97	Program Wide Open Houses	18 mons	Wed 01/02/13	Tue 06/03/14
98	Program Wide Public Meetings	18 mons	Wed 01/02/13	Tue 06/03/14
99	**Haro Woods**	0.15 mons	Wed 02/20/13	Sat 02/23/13
102	**McLoughlin**	**5.95 mons**	**Thu 04/11/13**	**Mon 09/30/13**
110	**Craigflower Pump Station**	**0 mons**	**Tue 02/26/13**	**Tue 02/26/13**
112				
113	**DEVELOPMENT PERMIT APPLICATION PROCESS**	**11.5 mons**	**Tue 02/26/13**	**Fri 01/24/14**
114	McLoughlin Wastewater Treatment Plant	4 mons	Tue 10/01/13	Fri 01/24/14
115	Biosolids / Energy Recovery Facility (Rezoning & DP)	4 mons	Tue 10/01/13	Fri 01/24/14
116	Craigflower Pump Station	45 days	Tue 02/26/13	Tue 04/30/13
117				
118	**INFRASTRUCTURE WORK**	**12.3 mons**	**Fri 03/15/13**	**Thu 03/06/14**
119	**McLoughlin Wastewater Treatment Plant**	**0 mons**	**Fri 03/15/13**	**Fri 03/15/13**
121	**Biosolids / Energy Recovery Facility**	**6 mons**	**Mon 09/16/13**	**Thu 03/06/14**
123				
124	**PROGRAM WIDE PROCUREMENT**	**6.3 mons**	**Fri 11/23/12**	**Wed 05/22/13**
125	**SCADA**	**4.85 mons**	**Mon 01/07/13**	**Wed 05/22/13**
134	**Legal Services Advisor**	**2.15 mons**	**Fri 11/23/12**	**Thu 01/24/13**



Project: CAWTP
Date: Mon 09/30/13

Task	Project Summary	Inactive Milestone	Manual Summary Rollup	Deadline
Split	External Tasks	Inactive Summary	Manual Summary	Critical
Milestone	External Milestone	Manual Task	Start-only	Critical Split
Summary	Inactive Task	Duration-only	Finish-only	Progress

ID	Task Name	Duration	Start	Finish
139	Fairness Advisor	2.15 mons	Fri 11/23/12	Thu 01/24/13
144	Business / Financial Advisor	2.15 mons	Fri 11/23/12	Thu 01/24/13
149	Risk / Insurance Advisor	2.15 mons	Wed 02/20/13	Fri 04/19/13
154	Insurance Broker Services	1.55 mons	Wed 02/20/13	Wed 04/03/13
159	Conflict of Interest Adjudicator	0.7 mons	Tue 02/12/13	Thu 02/28/13
162	Communications Consultant	1.85 mons	Wed 03/20/13	Fri 05/10/13
167				
168	**DESIGN, PROCUREMENT & CONSTRUCTION**	64.45 mons	Mon 11/19/12	Thu 12/28/17
169	**MCLOUGHLIN POINT WASTEWATER TREATMENT PLANT (PLANT, HARBOUR CROSSING, OUTFALL) (DBF)**	61.55 mons	Mon 11/19/12	Wed 10/04/17
288				
289	**BIOSOLIDS / ENERGY CENTRE (DBFO)**	51.75 mons	Mon 08/26/13	Tue 10/03/17
314				
315	**CONVEYANCE PROJECTS**	64 mons	Fri 11/30/12	hu 12/28/17
316	CRAIGFLOWER PUMP STATION (DBB)	22.85 mons	Fri 11/30/12	Mon 09/22/14
348				
349	ARBUTUS ROAD ATTENUATION TANK (DBB)	31.8 mons	Sat 02/23/13	Tue 09/01/15
405				
406	CLOVER PUMP STATION (DB)	40.1 mons	Mon 02/25/13	Fri 04/29/16
459				
460	CLOVER FORCEMAIN (DBB)	42.25 mons	Mon 03/04/13	Fri 07/08/16
518				
519	ECI / TRENT TWINNING (DBB)	32.35 mons	Fri 03/07/14	Thu 09/29/16
570				
571	MACAULAY PUMP STATION (DB)	30.05 mons	Mon 10/27/14	Tue 03/14/17
617				
618	MACAULAY FORCEMAIN (DBB)	30.8 mons	Tue 11/25/14	Wed 05/03/17
675				
676	CURRIE PUMP STATION (DBB)	24.4 mons	Fri 05/01/15	Thu 04/06/17
720				
721	CURRIE FORCEMAIN (DBB)	29.5 mons	Wed 08/26/15	Thu 12/28/17
771				
772	**PROGRAM COMMISSIONING, HANDOVER & START-UP**	44.5 mons	Mon 10/03/16	Fri 03/27/20
773	Commissioning Plan	12 mons	Mon 10/03/16	Thu 09/14/17
778	McLoughlin Wastewater Treatment Plant	31.8 mons	Thu 10/05/17	Fri 03/27/20
784	Biosolids / Energy Recovery Facility	6.05 mons	Wed 10/04/17	Tue 03/27/18



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Technical Memorandum

DATE: September 4th, 2013

TO: Malcolm Cowley, P.Eng., Capital Regional District

FROM: Chris Johnston, P.Eng.

RE: **CORE AREA WASTEWATER MANAGEMENT PROGRAM**
Updated Memorandum Summarizing the Determination of Storage Volumes Along the East Coast Interceptor
Our File 283.365-300

Introduction

Kerr Wood Leidal Associates Ltd. (KWL), as part of the *Northeast Trunk Sewer and East Coast Interceptor Sewer Upgrade Options Study, CRD, September 2004* previously assessed flows in the Capital Regional District's (CRD's) East Coast Interceptor (ECI) and developed a number of options to eliminate overflows from storms up to the 5-year return period. The preferred option included a peak flow attenuation tank in the Arbutus area, an upgrade to the existing Currie Road Pumping Station, a new peak flow pumping station at Trent Street, and conveyance system improvements between Currie Road and Clover Point pumping stations. The study developed preliminary sizing for the Arbutus tank and determined that a 6,000 cubic metre tank would be needed immediately and expanded to a 12,000 cubic metre facility in 2025 based on an estimated growth in inflow and infiltration.

Since 2004, considerable data has been collected on the performance of the ECI/NET system, and the impact of water efficiency programs such as low-flow fixtures. As well, the Core Area Wastewater Treatment Program (CAWTP) was initiated leading to the creation of a new design criteria and the sizing of new treatment facilities. A memorandum was prepared in October 21, 2010 that utilizes this new data set and criteria change to refine the previous 2004 analysis and confirm the sizing of the proposed storage facility. The purpose of this memorandum is to summarize the updated 2010 analysis.

Regulatory Requirements

The current Core Area Liquid Waste Management Plan (CALWMP) submitted to the Province by the CRD commits the CRD to intercept and convey all flows up to the 5-year storm through to the Clover Point Pumping Facility for marine locations along the East Coast of Greater Victoria. A commitment for Oak Bay to separate the combined sewer areas of the Uplands is additionally mandated by the Ministry of Environment. All flows in excess of the 5-year storm will be permitted to discharge through approved overflow facilities at Finnerty Cove and McMicking Point.

Approach to Analysis

The approach adopted for this updated analysis is the following:

- Use nearly 400,000 flow monitoring data records in the simulation of historical flow. Calibration of the model was achieved by directly comparing measured level of flow over the overflow weir at Arbutus to the model output. The level at the weir was identified as a critical calibration parameter, and sensitivity analyses were performed to identify the level of confidence in this reading (discussed below).
- The NET/ECI system is controlled through a set of logic controls administered through the operations centre at Macaulay Point. For example, during rain events, downstream level measurements can implement controls upstream to throttle pump station flows to protect downstream residents from sewer backups. This same functionality has been modeled to identify the impact of controls on overflow frequency and volume.
- Validation of the model was confirmed by comparing modeled overflows with recorded overflow events (discussed below).
- Create several data sets of information based on the 11 years of continuous data, namely: a base case scenario using the raw data, a 2030 data set based on the latest population projections and water fixture replacement programs, and an additional 2030 data set using predicted inflow and infiltration escalation rates based on previous CRD research.
- Run the data sets through the upgraded hydraulic model to determine the size of storage facility required to prevent overflows from occurring in storms less than the 5-year return period.
- Develop design scenarios to investigate the sensitivities of various design parameters, proposed operational controls, and measuring sensor accuracies.
- Select the preferred tank size.

Of interest, the 2004 study was limited to a flow monitoring period of three winter seasons (1999 to 2002).

Existing Overflows Along the NET/ECI and Model Calibration

Table 1 shows a summary of the current number of overflows along the NET/ECI for the period of 2000 to 2007 upstream of the Clover pump station (reference: *Sanitary Sewer Overflow Management Plan*, CRD, June 2008).

Table 1: Recorded Overflows Upstream of Clover Point: 2000 - 2007

Overflow Name	2000	2001	2002	2003	2004	2005	2006	2007	Total
Finnerty Cove	1	3	3	6	2	3	4	7	**29**
Currie PS/McMicking Point	1	6	2	7	3	7	8	9	**43**
Humber PS	4	3	1	5	3	6	8	5	**34**
Rutland PS	4	6	2	8	8	10	8	7	**53**

Under the existing condition, baseline data set (existing operational control conditions with the current facilities in place), the model predicted a similar number of overflow events as shown in Table 1.

Decreasing Unit Wastewater Rates

Design flows were calculated as part of the *Wastewater Flow Management Strategy Discussion Paper*[1]. This document summarizes that for the "Fixture Reduction Rates Scenario", the sanitary flow will be equal to 196 L/cap/day for the year 2030. A review of the 2010 data indicates that the sanitary flow is approximately 195 L/cap/day. Of interest, the adjusted unit rate measured in 2001 was 223 L/c/d indicating that there has been a decline in unit rates over the past decade. This is similar to trends throughout the CRD and North America both in terms of water consumption and sewage generation. This unit rate is below the 225 L/cap/d value used in the 2004 analysis indicating that this component of the previous storage tank sizing was conservative. Further, since the existing rate of 195 L/c/d already matches the projected rate in the "Fixture Reduction Rates Scenario", it can be concluded that toilet and appliance replacements are happening faster in the Arbutus/Finnerty area.

Continuous Model Simulation of Future Improvements

Under the future condition with the proposed upgrades in the CAWTP, several storm events came close to triggering an overflow event, but only the December 15, 1999 event produced a 2,000 cu.m. overflow upstream of the Clover Point Pump Station (excluding the combined sewer areas tributary to the Humber and Rutland pump stations). However, it should be noted that the major storm event on October 20, 2003 would have likely produced an overflow, had it not been preceded by an extended dry period (the soil was able to absorb a significant portion of the event).

The return period of the December 15, 1999 event is estimated to be close to five years at the critical 12 to 24 hour duration based on a comparison of rainfall recorded at the Penryhn rain Gauge to the historical Intensity-Duration-Frequency curves for the area. Therefore, the storage facility should be sized large enough to capture this event.

Selection of Preferred Storage Volume

The results of this analysis were then run for twelve sensitivity scenarios based on varying the domestic flow, I&I and Oak Bay combined sewer separation rate. Although significant care has been taken in confirming the accuracy of the flow data used in this analysis, it is important to note that there are some significant data resolution factors associated with predicting future overflow volumes from storm events using the 4 metre long sharp crested weir at the Arbutus flow monitoring station. For this reason, a sensitivity analysis was performed to derive appropriate factors of safety to add to any particular scenario. The sensitivity analysis includes analyzing the historical storm events using a 1 to 2 cm drift in the measurement equipment over an average storm duration. The appropriate factor of safety is calculated to be 2,000 cu.m.

The preferred tank size based on the sensitivity analysis is 5,000 cubic metres as summarized in Table 2.

Table 2: Preferred Tank Sizing

Option	Description	Storage Volume (cu.m)
Base Case	2,000 cu.m raw storage volume, plus 2,000 cu.m. factor of safety based on above, and 25% provision for operational control.	5,000

[1] CH2M Hill, Associated Engineering and Kerr Wood Leidal Associates, Capital Regional District Core Area Wastewater management Program, Wastewater Flow management Strategy Discussion Paper – Design Flow Tables, 033-Dp-2, January 2009.

The provision for operational control is based on the fact that storage facilities will not operate exactly as the theoretical model used in this study. This is due to the fact that the SCADA system will have inherent issues such as time lags, hydraulic constraints, sensor resolution, or other equipment limitations. Depending where the tank is actually situated, the operational control could be up to 25% of the total storage volume.

This sizing is confirmed by the 'I&I increase' sensitivity analysis, which identifies an ultimate tank size of 10,000 cu.m., of which 5,000 cu.m. is recommended for a future expansion beyond 2030.

The analyses assume that Uplands combined sewers will be separated by Oak Bay as stipulated by the Ministry of Environment when they approved the Core Area LWMP. Never-the-less, Oak Bay and the Core Area Liquid Waste Management Committee inquired whether a larger tank could help solve Oak Bay's combined sewer overflows in addition to meeting MOE's requirements. Therefore, options for reducing overflows to a 5-year event without Uplands sewer separation were identified in KWL's October 20, 2010 memo "ECI Storage and Flows – Uplands Sewers Not Separated". Using findings from this analysis, CRD report #EWW 10-96 identified that a larger tank plus significant downstream conveyance upgrades would be required, at an estimated additional cost of $25M would be required to address overflows resulting from Uplands combined sewers if Oak Bay does not separate.

Summary

Based on the Table 2 analysis, the recommendation is to construct a 5,000 cubic metre storage facility along the Penryhn siphon preferably at the top end of the siphon next to the existing Arbutus Flume and Finnerty Cove Overflow facility. It is also recommended that based on the sensitivity analysis, space should be reserved to double the size of the facility at some time in the future beyond 2030 should I&I increase above current levels.

The revision in sizing from the previous 6,000 cu.m in the 2004 study to the current 5,000 cu.m. sizing is predominately due to a measured reduction in sewage generation rates (i.e. from 223 in 2001 to 195 L/c/day in 2010) as well as an analysis method using a significantly longer data set. The provision to increase the tank volume from 5,000 cu.m. to 10,000 cu.m (12,000 cu.m in the 2004 study), is still valid based on predicted I&I research. However, the estimated year in which this increase in storage is required has moved from 2025 to outside the CAWTP 2030 time frame, and is therefore not included in the proposed capital plan expenditures.

KERR WOOD LEIDAL ASSOCIATES LTD.

Prepared by:

Chris Johnston, P.Eng.
Project Manager

CJ/am
Encl.

Statement of Limitations

This document has been prepared by Kerr Wood Leidal Associates Ltd. (KWL) for the exclusive use and benefit of the intended recipient. No other party is entitled to rely on any of the conclusions, data, opinions, or any other information contained in this document.

This document represents KWL's best professional judgement based on the information available at the time of its completion and as appropriate for the project scope of work. Services performed in developing the content of this document have been conducted in a manner consistent with that level and skill ordinarily exercised by members of the engineering profession currently practising under similar conditions. No warranty, express or implied, is made.

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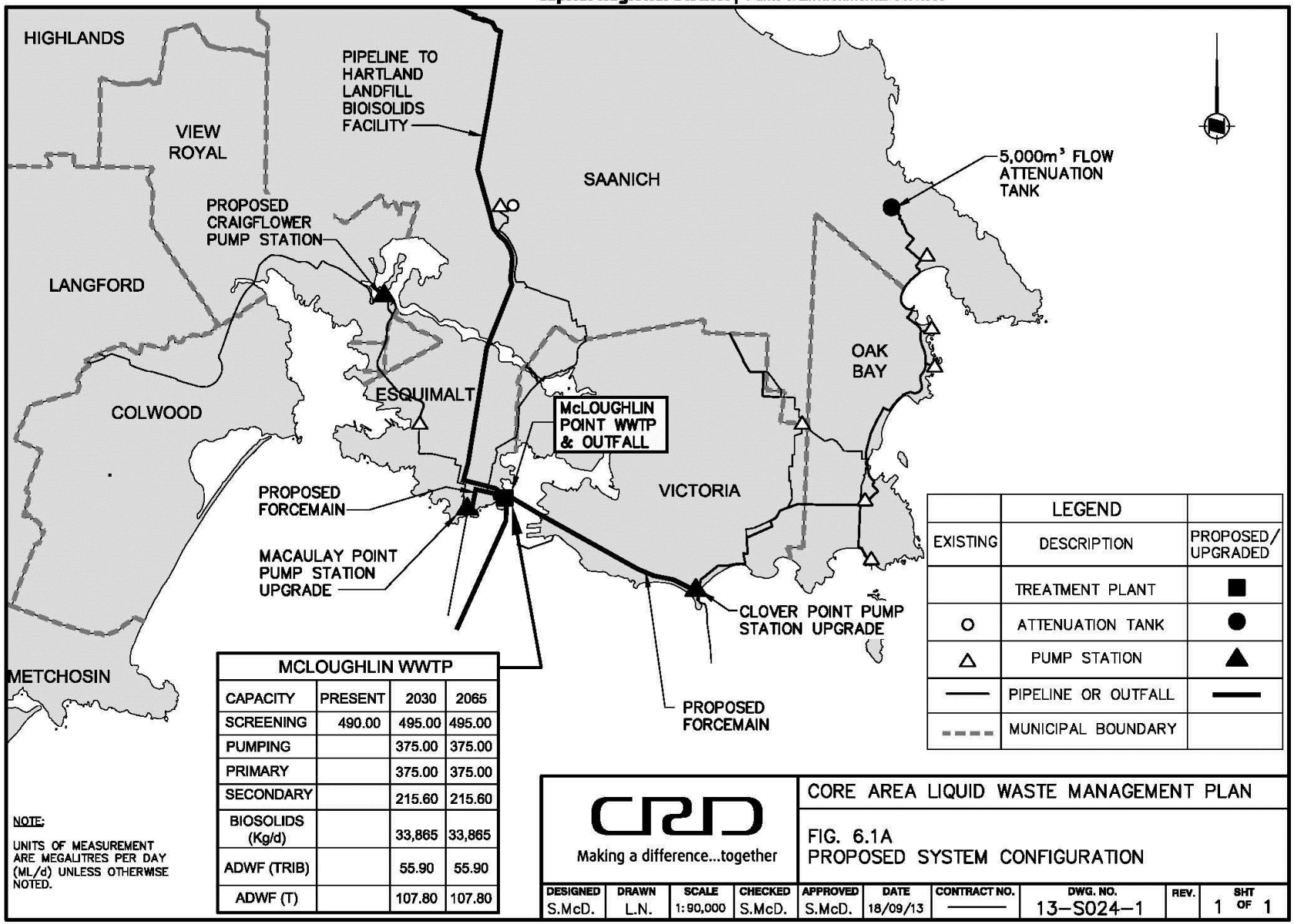
Revision History

Revision #	Date	Status	Revision	Author
0	Sept. 4, 2013	For Review		CJ

Capital Regional District | Parks & Environmental Services



LEGEND		
EXISTING	DESCRIPTION	PROPOSED/ UPGRADED
	TREATMENT PLANT	■
O	ATTENUATION TANK	●
△	PUMP STATION	▲
——	PIPELINE OR OUTFALL	——
- - - -	MUNICIPAL BOUNDARY	

MCLOUGHLIN WWTP			
CAPACITY	PRESENT	2030	2065
SCREENING	490.00	495.00	495.00
PUMPING		375.00	375.00
PRIMARY		375.00	375.00
SECONDARY		215.60	215.60
BIOSOLIDS (Kg/d)		33,865	33,865
ADWF (TRIB)		55.90	55.90
ADWF (T)		107.80	107.80

NOTE:
UNITS OF MEASUREMENT ARE MEGALITRES PER DAY (ML/d) UNLESS OTHERWISE NOTED.

CRD
Making a difference...together

CORE AREA LIQUID WASTE MANAGEMENT PLAN

FIG. 6.1A
PROPOSED SYSTEM CONFIGURATION

DESIGNED	DRAWN	SCALE	CHECKED	APPROVED	DATE	CONTRACT NO.	DWG. NO.	REV.	SHT
S.McD.	L.N.	1:90,000	S.McD.	S.McD.	18/09/13	——	13–S024–1		1 OF 1

Appendix 4

Capital Regional District Board

Regional Biosolids Management Policy

The following motions were passed by the CRD Board on July 13, 2011 and reconfirmed on January 8, 2014:

a. *That the CRD will harmonize current and long-term practices at all CRD owned regional facilities and parks with the approved policies of the regional treatment strategy, including ending the production, storage and distribution of biosolids for land application at all facilities and parks.*

b. *That the CRD does not support the application of biosolids on farmland in the CRD under any circumstances and let this policy be reflected in the upcoming Regional Sustainability Strategy.*