

Regional District of Okanagan-Similkameen

Liquid Waste Management Plan – Electoral Area 'F' Amendment Stage II - Report

Prepared for:

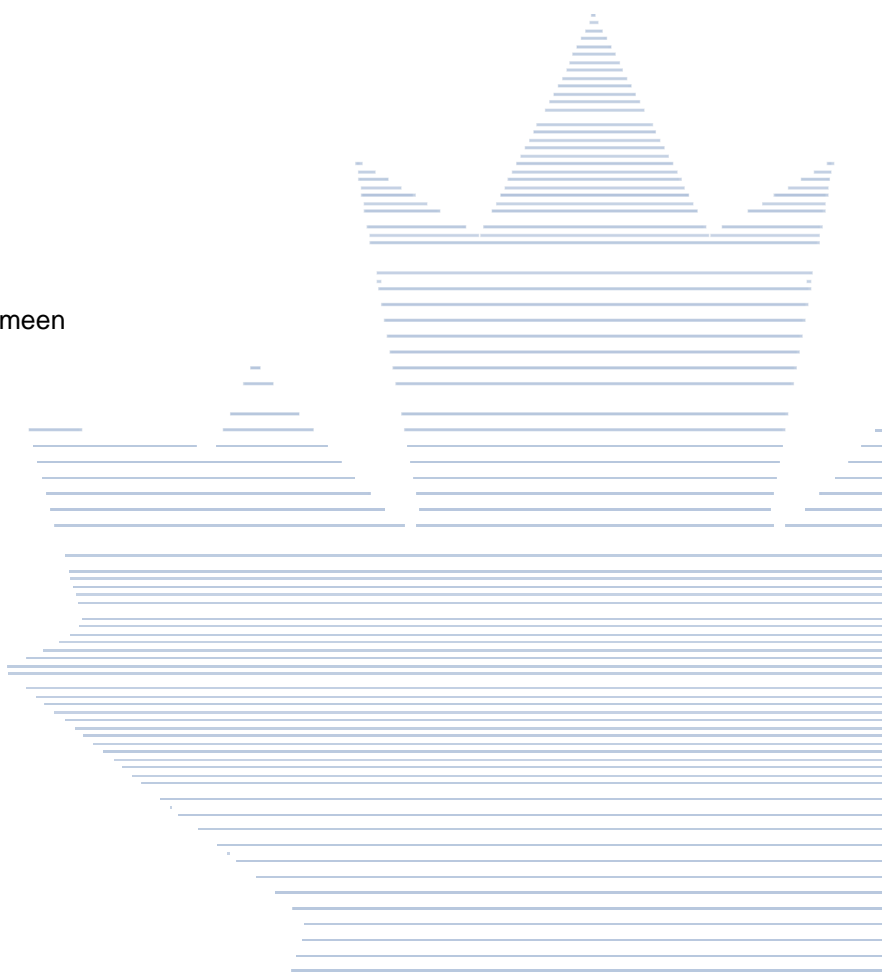
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March 24, 2009

Project No. 94427



Regional District of Okanagan-Similkameen
Liquid Waste Management Plan – Area ‘F’ Amendment
Stage II Report

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Project Number:

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Andrew Reeder, P.Eng.
Engineering Services Manager
Regional District of Okanagan-Similkameen
101 Martin Street
Penticton BC, V2A 5J9

Dear Andrew:

Re: RDOS Liquid Waste Management Plan – Area 'F' Amendment

Please find attached the LWMP amendment Stage II Final Report. The draft report issued in June 2008 has been revised to reflect comments from the Advisory Committee.

Sincerely,

AECOM Canada Ltd.



Jan Robert Bath, A.Sc.T.
jan.bath@aecom.com

JRB:jrb

Encl.

cc: (see report distribution list)

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1	Stewart Phillip, Penticton Indian Band	X	
1	Carl Withler, Ministry of Agriculture and Lands	X	
1	Fisheries and Oceans Canada	X	
1	Renata Bublick, Greata Ranch	X	

Revision Log

Revision #	Revised By	Date	Issue / Revision Description
1	Joe Mocilac	February 5, 2008	Stage I – Draft Report
2	Jan Bath	June 16, 2008	Stage II – Draft Report
3	Jan Bath	March 24, 2009	Stage II – Final Report

Signature Page

Report Prepared By:



Jan Robert Bath, A.Sc.T.

Report Reviewed By:

2009-03-24

Tim Forty, P.Eng.

Executive Summary

The Liquid Waste Management Plan (LWMP) developed for the Regional District of Okanagan-Similkameen (RDOS) Electoral Area “F” is being amended. This amendment covers only the Greata Ranch development area and does not involve any other portion of Area “F” except where there may be an impact to properties as a result of the implementation of one of the Greata Ranch wastewater management options.

The current LWMP identifies the potential options for the management of wastewater for the entire Area ‘F’, this amendment will focus on solutions for Greata Ranch and identifying any areas that might be impacted by each of the options in an effort to provide the best solution for the area. This report provides details regarding the options that were identified during the LWMP process; these options are tabulated in Appendix A.

A Wastewater Advisory Committee, (AC) was formed to provide input and advice from a local perspective and to assist in ensuring that the information developed was relevant to the residents of the plan area. The comprehensive public information program included a newsletter, advertising, media releases, poster distribution and regular updates on the RDOS website. The initial public consultation program culminated in a Public Information Meeting that was held at Greata Ranch to advise the public about the options that had been identified for the management of wastewater in the plan area. The public were asked to provide comments on the various options being presented and to provide any additional options for consideration. This information was compiled in an exit survey and is included in the detailed Public Consultation report in Appendix-B.

Four practical options were identified through this process. These options were developed from input provided by the Advisory Committee, comments received from government agencies, comments made by the public and from past experience by the consultant with similar projects elsewhere. Additional options or variations of each option were also considered and discussed.

‘Four practical options were identified through this process...’

Each option was further developed, costed, and carefully reviewed by the Advisory Committee which identified their preferred solution from amongst all the options which they believe provided the best all round solution for the management of wastewater from the Greata Ranch development area. The preferred solution also provided a solution to the management of wastewater from BC Parks and other developments between Greata Ranch and Summerland. The preferred solution was presented to the public at an open house for consideration.

The four wastewater management options that were identified through this process are summarized below:

Option 1

Wastewater would be pumped from the Greata Ranch area via Peachland's sewer system to the (RDCO operated) Westside Regional Wastewater Treatment Facility.

Option 2

Wastewater would be pumped from the Greata Ranch area to the District of Summerland's Wastewater Treatment Plant.

Option 3

A wastewater treatment facility would be constructed near Greata Ranch, which would be turned over to the RDOS to own and operate. Effluent would be discharged to Okanagan Lake via a deep lake outfall.

Option 4

A wastewater treatment facility would be constructed near Greata Ranch; which the Greata development would own and operate. Treated wastewater would be utilized for irrigation with the surplus effluent disposed of to the ground using a tile field.

The Advisory Committee selected Option 2 as the preferred solution and it was presented to area residents along with all the other options identified, these options were all forward to Government Agencies for their review and comment. Feedback from the public and from the Advisory Committee will be presented to the RDOS Board which will then confirm the selection of Option 2 as the preferred solution for the management of wastewater from Area ‘F’. This preferred solution will then be presented to the Minister of Environment with the Stage 3 Report, along with the supporting documentation of the combined Stage 1-2 report and the Stage 3 report for Ministerial Approval of the LWMP.

**‘The Advisory Committee
selected Option 2’
...Pump wastewater to the
District of Summerland’s WWTP.**

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1. Introduction

The Liquid Waste Management Plan (LWMP) originally developed for the Regional District of Okanagan-Similkameen (RDOS) Electoral Area “F” is being amended to include the management of wastewater from the proposed development at Greata Ranch. The LWMP will identify potential options for the management of liquid wastes from the Greata Ranch project and will determine the possible benefits and issues that may occur as a result of each option. This LWMP will provide an update with respect to wastewater and its impact upon the environment since the completion of the previous LWMP and will summarize existing conditions. The amendment will primarily involve identifying and developing suitable options for the management of domestic wastewater in the Greata Ranch area and other areas that may be impacted by or benefit from the selected option..

This amendment to the LWMP is intended to complement and become part of the current LWMP upon completion.

During the development stages, the Advisory Committee, general public, RDOS and RDCO staff and the consultant identified a number of options for the management of liquid waste issues for the Greata Ranch development site. The brainstorming of ideas was encouraged to develop the options. The options were in concept form with limited information available so they were all expanded to permit the Advisory Committee and the general public to understand the environmental, health, social and cost aspects for each option and these details are included in this report. The preferred solution selected by the Advisory Committee was presented to the public and feedback and comments solicited.

LWMPs are encouraged by the Ministries of Environment and Health, especially for rural areas dependent upon on-site treatment and disposal systems, to investigate existing circumstances, research viable alternatives and improvements and finally (with public input) to recommend the most financially, socially, and environmentally acceptable solution.

‘...to recommend the most financially, socially, and environmentally acceptable solution.’

The liquid waste management planning process usually involves three stages. The Ministry has determined that the LWMP amendment could combine Stage 1 and Stage 2. Therefore the need for a formal Stage 1 report was waived, a combined Stage 1-2 report has been prepared, and a single Public Information meeting was held during the development of the Stage 2 portion of the LWMP.

2. LWMP Amendment Area

The LWMP area is within RDOS Electoral Area ‘F’ which includes the communities of Summerland, Faulder and the surrounding area. Figure 1 (below) shows the portion of Area ‘F’ being considered in this amendment. This amendment incorporates is for the Greata Ranch area and possible areas along the shoreline of Okanagan Lake that may benefit from the preferred option identified by the Advisory Committee, including BC Parks (Okanagan Campground), Tranquil Bay, and Brent Road.

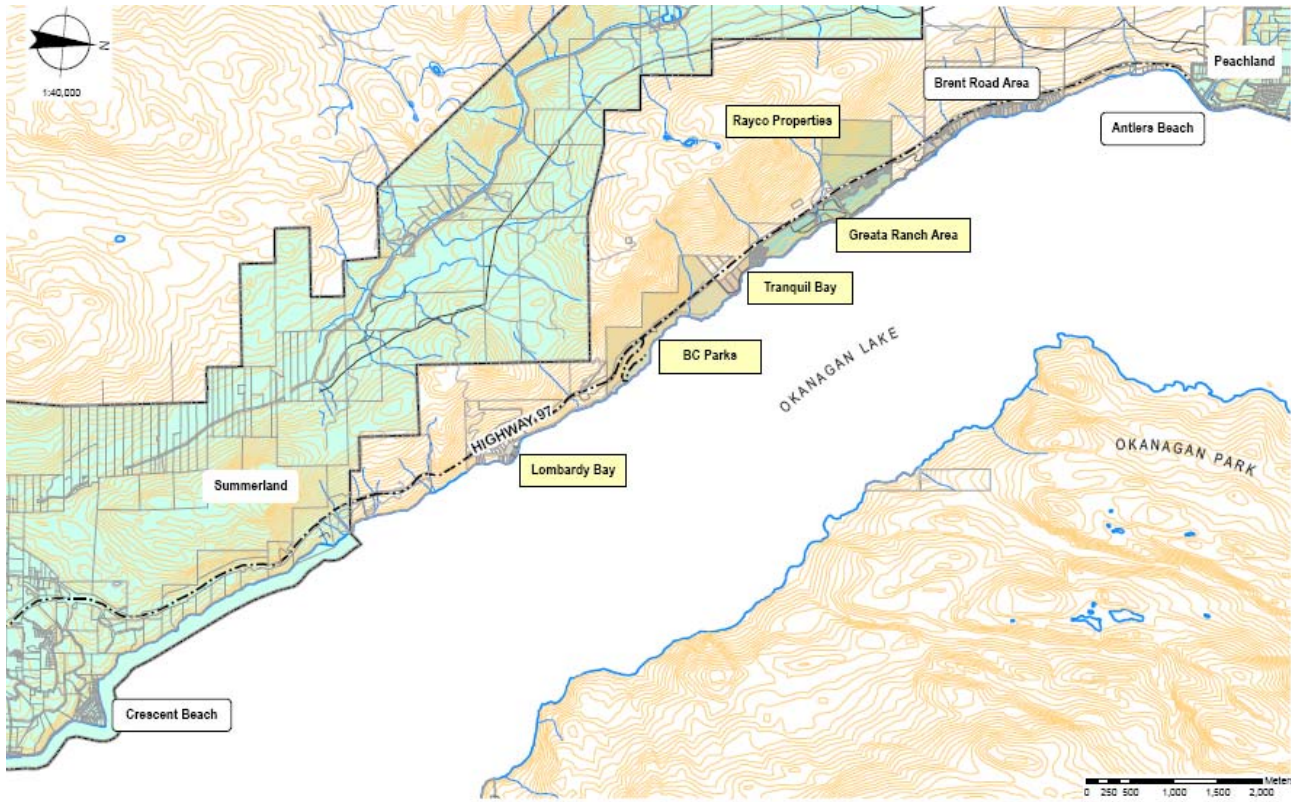


Figure 1 - Amendment Area Overview

3. Current Scenario

3.1 Current Wastewater Management Practices

The nearest waste water treatment facility within electoral Area ‘F’ is in The District of Summerland which operates an advanced Biological Nutrient Removal (BNR) Wastewater Treatment Plant. This facility provides sewer service to the majority of residents within the District of Summerland. The wastewater is treated to a very high level. The effluent is then subjected to ultraviolet (UV) disinfection prior to being discharged to Okanagan Lake via a long deep outfall. This treatment facility is located in Trout Creek, just south of Summerland.

No other wastewater collection and treatment systems are known to exist within the LWMP plan area. Wastewater disposal throughout the rest of the plan area is by individual on-site septic tank treatment and tile field disposal systems.

3.2 Stormwater Management

There are no overall stormwater management plans nor has any assessment of current stormwater conditions been done for any part of the subject area (with the exception of specific subdivision plans). This LWMP amendment is focused on the Greata Ranch area and those areas that may be affected by the selected option and therefore the management of stormwater will not be considered outside the confines of Greata Ranch.

3.3 Agricultural Wastewater Management

There are no reports of agricultural wastewater issues in the plan area.

3.4 Other Wastewater Management

There are no known issues with other wastewaters in the plan area and there are no known industrial wastewater producers.

4. Government & Agency Comments

Local government and Provincial government agency comments are based upon each organizations legislated mandate. The comments are quoted verbatim in the following sub-sections.

4.1 Ministry of Transportation

“...thanks for the opportunity to comment. I (W.G. Sparkes) had a quick look at the draft report you provided. It does not appear any option has any, or at lease very little, impact on the Ministry of Transportation.

Any proposal for on-site sewage disposal, namely option 4, should properly investigate any potential geotechnical issues and concerns, given the soil types and some steep slopes in the area.”

4.2 Interior Health

Comments have not yet been provided.

4.3 Ministry of Environment

“Ministry of Environment regional staff have reviewed the draft Area “F” Liquid Waste Management Plan (LWMP) Stage 1 & 2 Draft Report. This letter of response will provide our comments on the draft Liquid Waste Management Planning document and the Ministry’s recommendations at this stage of the planning process.

The plan presently covers off the 4 primary options which include:

- 1) Greata Ranch and adjoining areas to the north connect to the Peachland/Westbank wastewater collection system with tertiary level treatment to occur at the Central Okanagan Regional District’s Westbank biological nutrient removal wastewater treatment plant.
- 2) Greata Ranch and adjoining areas to the south connect to the Summerland wastewater collection system with tertiary level treatment to occur at the Summerland biological nutrient removal wastewater treatment plant.
- 3) Greata Ranch constructs a plant which it turns over to the Regional District of Okanagan Similkameen to own and operate; this system, however, would discharge via a surface water outfall to Okanagan Lake and would have to meet the same stringent standards as the Summerland and Westbank plants.
- 4) Greata Ranch constructs a treatment plant and pursues discharge to ground.

The preferred options from the Environmental Protection’s standpoint would be either Option 1 or 2. Both these options leverage the additional capital the developers at Greata Ranch are willing to contribute, to generate the greatest level of environmental benefit by capturing wastewater from adjacent properties. Support by local governments to allow connections to treatment plants, that already have and continue to pursue provincial and federal grants, would also maximize the economic and public benefits derived from past and present grants. In addition, these options show local governments understand their role in protecting Okanagan Lake and are willing to cooperate to achieve it.

Option 3 does not represent the same level of benefit economically or environmentally, as the estimated capital costs are the most expensive of the scenarios contained in Appendix A. As well, it does not consider capturing additional areas and doing so would only raise the cost even further relative to the other options. It would also result in an additional outfall into Okanagan Lake which is something Environmental Protection has worked hard to avoid by prohibiting private developments from discharging to the Lake.

While no specific technical information has been provided with respect to Option 4, we generally concur that ground disposal is likely too constrained for it to address the Greata Development and adjoining areas as presently proposed. Consequently it does not merit a lot of consideration under this planning process. It could however be the fallback option should all the other options fall through and a scaled back development is economically viable.”

‘The preferred options ... would be either Option 1 or 2. Both these options leverage the additional capital the developers... are willing to contribute, to generate the greatest level of environmental benefit by capturing wastewater from adjacent properties.’

4.4 Ministry of Agriculture and Lands

“The Ministry of Agriculture and Lands has no further interest in the process of determining a LWMP for Greata Ranch now that option 4 (effluent irrigation) is no longer on the table for discussion. We thank you for the opportunity to participate and ask only that once the decision is made, we are informed of the preferred option.”

4.5 Environment Canada

“In Canada, the management of water and wastewater treatment is primarily the responsibility of municipal and provincial governments. Environment Canada’s role is to ensure that, under the Canadian Environmental Protection Act, 1999 (CEPA 1999) and subsection 36(3) of the Fisheries Act, there are no adverse impacts on the receiving waters from toxic or deleterious substances that could affect human health, fish or fish habitat. As such, at this stage, our concerns are primarily with wastewater systems that include a surface water discharge component to fish-bearing waters.

As a general comment, all effluents from wastewater systems in Canada must comply with all applicable federal legislation including the Canadian Environmental Protection Act, 1999 and the Fisheries Act. The

Fisheries Act allows for the establishment of federal regulations under subsection 36(5) of the Act, or under another federal Act, that would permit the discharge of deleterious substances to levels set out in the regulations. At this time, there are no federal regulations that apply to wastewater effluents. It should be noted that no other legislation provides an exemption to the Fisheries Act.

The deposit of a deleterious substance to water frequented by fish may constitute a violation of the Fisheries Act, whether or not the water itself is made deleterious by the deposit. Subsection 36(3) of the Fisheries Act prohibits anyone from depositing or permitting the deposit of a deleterious substance of any type in water frequented by fish, or in any place under any conditions where the deleterious substance, or any other deleterious substance that results from the deposit of the deleterious substance, may enter any such water. The notion of a deleterious substance applies both to fish and to fish habitat. Case law accepts that a discharge or effluent that is acutely lethal to fish is deleterious. Compliance with the general prohibition of the Fisheries Act would therefore apply to any lake discharges.

A common biological test to determine whether or not an effluent is deleterious is the Reference Method for Determining Acute Lethality to Rainbow Trout, Department of the Environment Report, EPS 1/RM/13, Second Edition – December 2000. The acute lethality bioassay test is not, however, the sole indicator of a deleterious discharge or effluent.

Furthermore, any substance with a potentially harmful chemical, physical or biological effect on fish or fish habitat is also deleterious. For example, substances which smother rearing areas or spawning grounds, or interfere with reproduction, feeding or respiration of fish, at any point in their life cycle are also considered deleterious.

In order to better manage wastewater discharges nationally, the Canadian Council of Ministers of the Environment (CCME), of which Environment Canada is a member, is developing a Canada-Wide Strategy for municipal wastewater effluents. More information on the CCME process is available from the CCME's website at:

http://www.ccme.ca/initiatives/water.html?category_id=81

Furthermore, Environment Canada intends to develop a regulation under the Fisheries Act as the federal government's principal implementation tool for the CCME Strategy. The federal regulation would include wastewater effluent standards equivalent in performance to conventional secondary treatment, with additional treatment where required. Our comprehensive long-term federal approach for the management of municipal wastewater effluent will also address a number of substances found in municipal wastewater effluent that have been assessed as toxic under CEPA 1999."

4.6 District of Peachland

From letter dated June 19, 2007...

“...Council’s consideration of approving a sewer connection to the District of Peachland’s sewage collection system.

Council considered this request at an in-camera meeting on June 12, 2007, and unanimously passed the following resolution:

‘THAT a policy be implemented that should a property outside District boundaries want future municipal services, the property join the municipality.’

We would like to invite you to meet with us, to discuss the potential benefits of Greata Ranch joining in the boundaries of the District of Peachland. Besides having access to our sewage collection system, we believe Peachland could provide your development and your future residents with a complete range of municipal services that you may find very attractive. Incorporated municipalities generally have more financial flexibility and a wider range of tools to meet local economic, social and environmental needs than regional districts.”...

And from letter dated May 22, 2008...

“Thank you for your letter of May 6, 2008, and the opportunity to comment on the options identified for the Liquid Waste Management Plan.

The District of Peachland believes that Option 1 is still a viable option, and we are prepared to continue discussions with the principles of Greata Ranch in this regard.

Peachland is concerned about giving up capacity in the existing sewer line, without taxation revenue or other ongoing compensation to mitigate those concerns. Giving up capacity in our sewer line without appropriate, off-setting revenues would compromise future tax generating developments within the District of Peachland, and would be a disservice to our residents.”

4.7 District of Summerland

The District of Summerland was presented the Advisory Committees preferred option July 7, 2008 and requested agreement in principle with the recommendation. The ultimate response from the District of Summerland’s council is as follows.

“THAT Council reconfirm their support in principle for an amendment to the RDOS Area “F” LWMP that would allow development within that area to connect to the Summerland Wastewater Treatment Plant subject to satisfaction of all conditions and requirements associated with the connection of new developments outside the boundaries of Summerland municipal utilities.”

‘...reconfirm their support in principle for...development within that area to connect to the Summerland WWTP...’

Additionally, District Staff identified several items which would require resolution prior to any connection to the District of Summerland’s sanitary sewer collection system.

“Buy in Fee...Annual Operating Cost Agreement...User Fees...Ownership-RDOS owns the new works with the District of Summerland option to buy the system for one dollar...Maintenance...Service Agreement must be with the RDOS”

5. Wastewater Management Options

Four options have been identified in this report. These options were developed from input provided by the Advisory Committee, comments received from government agencies, comments made by the public and by the consultant, based on past experience with similar projects elsewhere. The combined Stage 1 and 2 processes allowed for the simultaneous development, costing and the identification of a preferred option.

5.1 “Option 1” – Pump wastewater to the Westside Wastewater Treatment Facility

The wastewater generated by the Greata Ranch development would be directed to an onsite lift station which would pump the collected wastewater to the Peachland wastewater collection system at Antler’s Beach. The wastewater would then flow through the system to the RDCO operated Westside wastewater treatment plant. This would require an additional collection system to span the 5 kilometres from Greata Ranch to Antler’s Beach.

This option has the added benefit that it would readily permit the collection of wastewater from development along the lakeshore between Greata Ranch and Peachland. Specifically it would permit the collection of wastewater from the Brent Road area which has reportedly had a number of waste water issues and concerns about future disposal. The proximity of the Brent Road homes to Okanagan Lake would suggest the possibility of pathogen and nutrient transmission from current systems may be passing through the soil into the lake. These nutrients and pathogens may adversely affect the lake water quality.

This option requires the approval of the Peachland Council and the RDOS and RDCO Regional Boards plus the assent of the Brent Road residents if they should wish to be connected to the forcemain. If this option should be selected, a portion of the pipeline costs would likely be eligible for funding assistance from both the Province and the OBWB, and this would lower the cost of the project to Greata Ranch.

An alternate to this option would be to convey the wastewater from Greata Ranch directly to the RDCO WWTP by submarine pipeline, this consideration has numerous challenges as the long pipeline would allow the sewage to go septic and may require additional in-stream treatment.

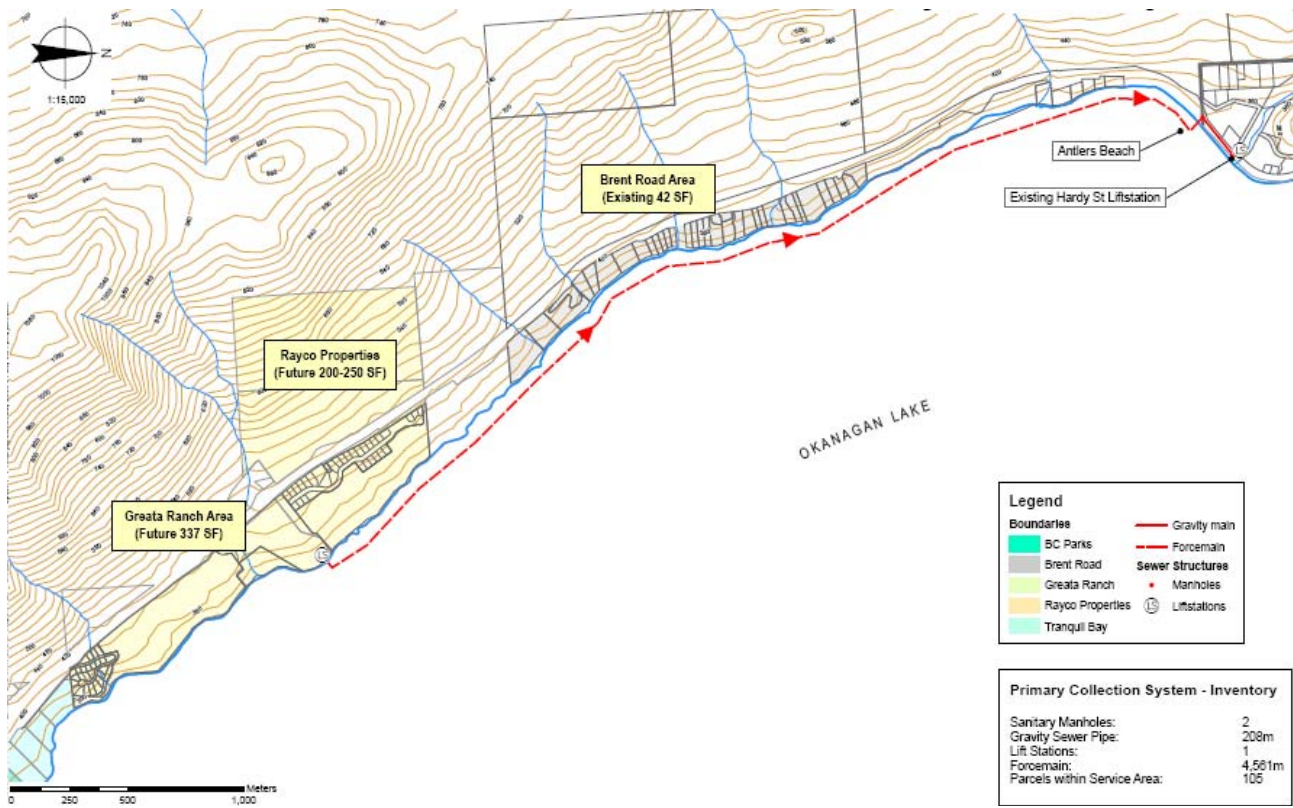


Figure 2 - Option 1: Lake Forcemain to Westside WWTP via Peachland

5.2 “Option 2” – Pump Greata Ranch wastewater to the District of Summerland Wastewater Treatment Plant.

The wastewater generated by the Greata Ranch development would be directed to a lift station which would pump the collected wastes to the District of Summerland’s wastewater collection system. The Greata Ranch pipeline would connect to Summerland’s collection system at either Trout Creek or earlier depending on sewer line capacity. The wastewater would flow through the system to the Summerland Wastewater Treatment Facility. The length of the forcemain between Greata Ranch and Summerland would be approximately 11 kilometres depending on the final connection location.

This option has the added benefit of permitting the connection of development along the lakeshore between Greata Ranch and Summerland. Specifically it could collect wastewater from the two Provincial Parks campgrounds which have reportedly had a number of wastewater issues and concerns in the past. The proximity of the campgrounds to Okanagan Lake would suggest that a degree of nutrient transmission through the soil to the lake is likely and that could be eliminated if a connection to the pipeline were to be established. There are a number of homes and proposed developments that may also be serviced by this route.

This option would not directly resolve the reported issues with wastewater in the Brent Road area although if the residents so wished, a pipeline to connect to the Greata Ranch system would be possible. This option

requires the approval of the Summerland Council and the RDOS Board approval. Area residents and developers along the route would require approval if they should wish to have their wastewater enter the forcemain. If this option should be selected, a portion of the pipeline costs would likely be eligible for funding assistance from both the Province and the OBWB to service the existing homes along the pipeline route and future development would be subject to late comer fees and these would all lower the cost of the project to Greata Ranch.

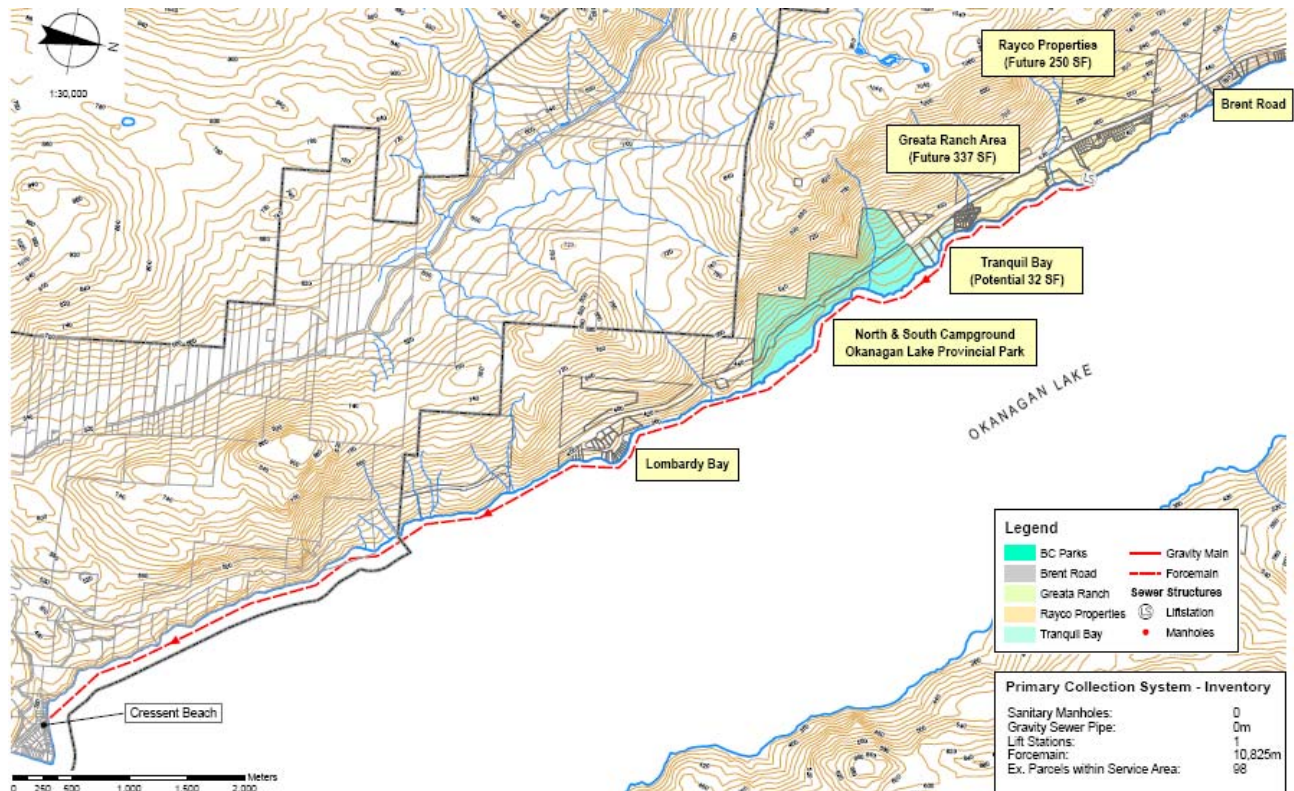


Figure 3 - Option 2: Pump wastewater to the Summerland Wastewater Treatment Plant

5.3 “Option 3” – Greata Ranch to construct a wastewater treatment facility with a lake outfall.

This option would result in Greata Ranch constructing an advanced nutrient removal treatment facility in accord with the requirements of the Municipal Sewage Regulation with a deep outfall into Okanagan Lake. The treatment plant and outfall system would be turned over to the RDOS to own and operate. This option would require certified operators to monitor and maintain the effluent quality. Land availability for the actual treatment facility also needs to be considered.

This option would not likely initially have the capability to handle extensive amounts of sewage wastes from outside the Greata Ranch development site upon construction, although that would be possible if so mandated by the RDOS and this LWMP. If chosen this option does have the ability to become a Regional

facility. The proximity to existing collection and WWTP systems has made this option less viable due to its limited benefits in providing service to external areas.

The Municipal Sewerage Regulation (MSR) includes a condition that prohibits private discharges to the Okanagan Basin and requires the effluent to be treated to remove most of the nutrients as shown in the extract below:

Geographical Area	Total Phosphorus (annual average in mg L)	Total Nitrogen (mg/L)	Min. Outfall Depth (m)
Okanagan Basin (*)	< 0.25	< 6.0	> 40

Table 1 - MSR Lake discharge criteria and prohibition

*discharges from treatment facilities not owned by a municipality are prohibited

There would be no possibility of grant finding assistance for this option unless it was expanded to handle wastes from outside the Greata Ranch project. The cost to upsize the system to accommodate wastes from existing homes outside Greata Ranch would likely be eligible for funding assistance.

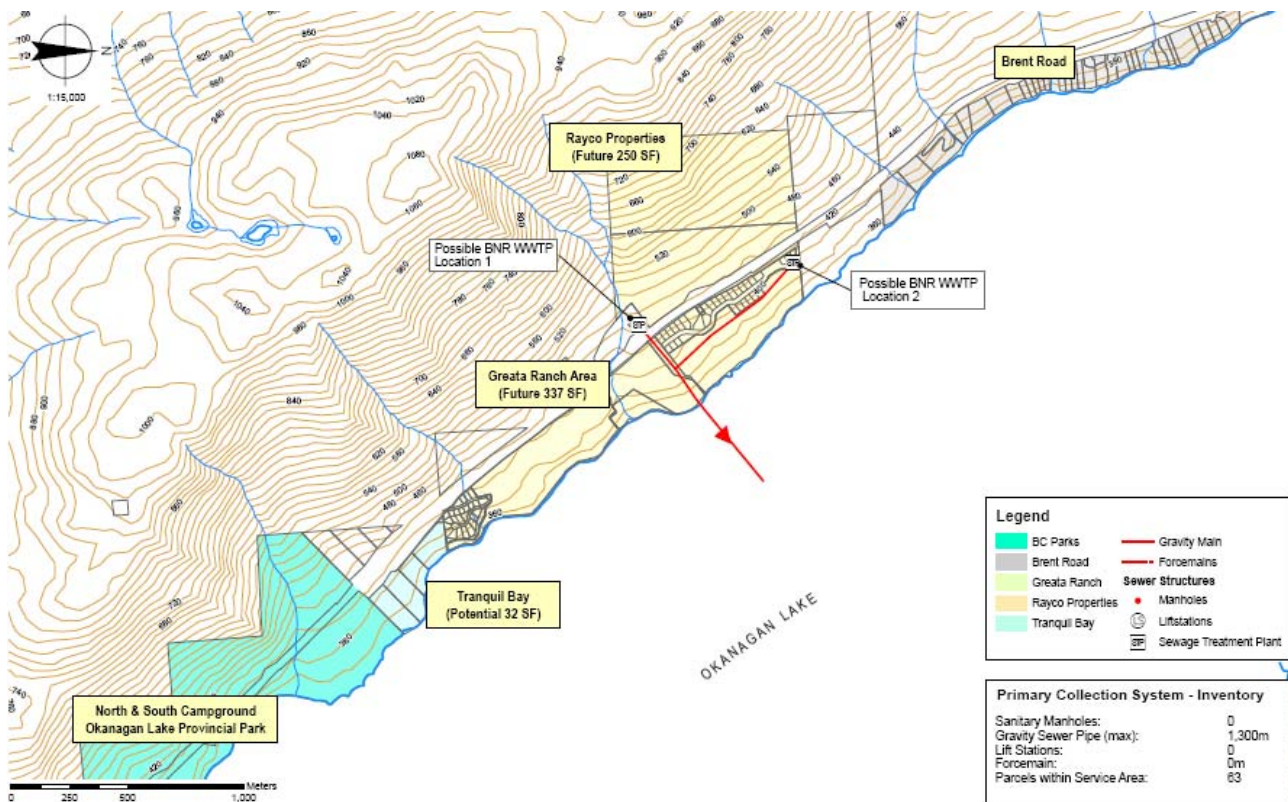


Figure 4 - Option 3: Construct BNR WWTP with a lake outfall for RDOS

5.4 “Option 4” – Greata Ranch to construct a Wastewater Treatment Facility which they would own and operate with reclaimed water and tile field effluent options.

This option would result in Greata Ranch constructing a secondary treatment facility in accordance with the requirements of the Municipal Sewage Regulation suitable for their needs only. This would include reclaimed water storage and agricultural irrigation and a backup tile field with summer agricultural irrigation. The treatment plant, reclaimed water irrigation and backup tile field system would be constructed and operated to comply with the MSR and the relevant companion document, the Code of Practice for the Use of Reclaimed Water. Using reclaimed water for agricultural irrigation immensely reduces the amount of treated (potable) water being utilized on land applications. This option requires a larger footprint of land to accommodate the winter storage requirements. Also, as with the previous option, constant operation of the treatment plant would be necessary to remain within stringent effluent quality requirements.

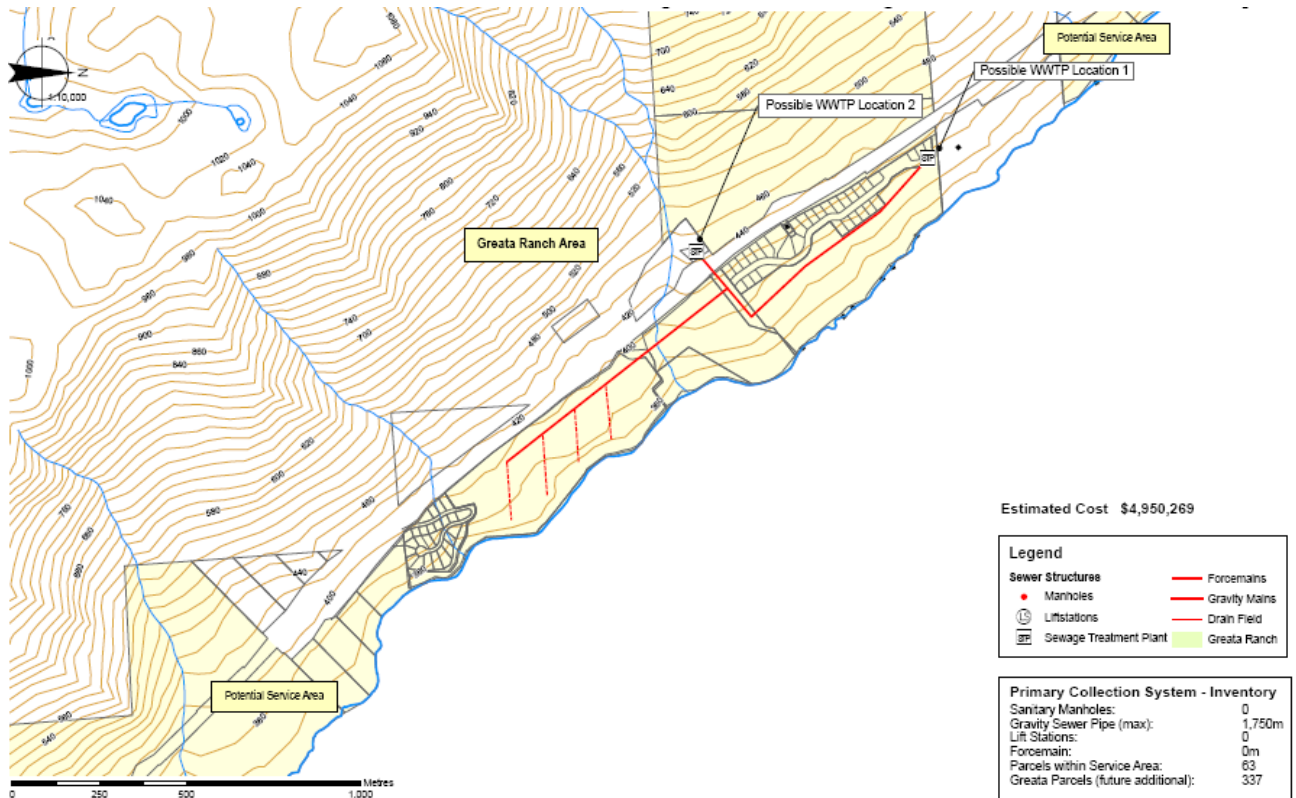


Figure 5 - Option 4: Construct a Wastewater Treatment Facility

There would be no possibility of grant funding assistance for this option as it is unlikely that there would be the capability to handle wastes from outside the Greata Ranch development site. This option would only handle the Greata Ranch wastewater and would not resolve any other wastewater issues outside the boundaries of Greata Ranch.

6. Selection of Preferred Solution

The various wastewater management options considered all had merit. The preferred solution was selected due its potential to provide the greatest benefit to the area as a whole and the greatest likelihood of implementation. A summary of all the options is provided to show the challenges, opportunities and costs associated to implement each one.

Based on a consideration of the various criteria, the following liquid waste management solution was recommended by the Advisory Committee for implementation.

Preferred Solution – Option # 2 Pump Wastewater to Summerland WWTP

Additional implementation - Public Education, Monitoring and Bylaws

The option pumping to the Summerland WWTP facility is supported with the following conditions:

Condition 1 – Assessment needs to be conducted of both the conveyance system and WWTP.

Condition 2 – Jurisdictional Approvals, Maintenance agreements, and Service Agreement need to be established.

Condition 3 – Consideration and development of buy in fees, user fees, and annual operating costs

Condition 4 – System shall meet Ministry of Environment and Ministry of Health requirements.

Condition 5 – Ownership (i.e. RDOS owns the new works and the District would retain the option to buy the system for one dollar)

7. Stormwater Management

The cost of including a Stormwater Management component to this LWMP would be prohibitive within the current budget and funding strategy. This LWMP amendment is only for the Greata Ranch development project and those areas that may be affected by the selected option for wastewater management and therefore the management of stormwater will not be considered outside the confines of the Greata Ranch.

However, it would not be unreasonable to consider a recommendation regarding the option of conducting a Stormwater study for the entire LWMP area - perhaps as a single study or as a series of studies for each of the sub-areas of Area 'F'. This approach has the advantage that funding for these studies would be eligible for Provincial funding assistance. The information from these studies would be available for incorporation into the LWMP process when this LWMP is next amended. If critical issues were identified they could be addressed much sooner or the information could be the trigger to begin the LWMP update process.

Perhaps a stormwater policy for new subdivisions would be a reasonable approach with mitigation measures funded by the developer and constructed when the basic services are installed prior to the construction of any homes.

The RDOS could adopt some stormwater best management principles, or the related guidance document entitled "Stormwater Planning: A Guidebook for British Columbia". This document may be downloaded in pdf (Adobe Acrobat) format from

<http://www.env.gov.bc.ca/epd/epdpa/mpp/stormwater/stormwater.html>

Stormwater issue resolution would be short term for the development of policies for new subdivisions to long term for the studies.

8. Agricultural Wastewater Management

The Ministry of Agriculture regulations cover the management of liquid wastes on agricultural lands. The Ministry has an established issue resolutions system in place should any concerns arise.

The FIRB (Farm Industry Review Board) are an independent tribunal and accept "complaints" from individuals with "an interest" directly and adjudicate them on their own merits, or lack thereof." According to their website, <http://www.firb.gov.bc.ca> under the FPPA or Farm Practices Protection (Right to Farm) Act. "FIRB is responsible for hearing complaints from persons aggrieved by odour, noise, dust or other disturbances arising from agriculture or aquaculture operations, and may also study and report generally on farm practices."

Thus, agricultural wastewater issues or complaints should first be brought to the attention of the Ministry of Agriculture and if a satisfactory resolution is not identified the matter can be referred to the FIRB by the original complainant.

If the issue remains unresolved and pollution can be shown to be occurring as a result of the operation then the Ministry of Environment may take action to stop the pollution.

Agricultural wastewater issue management is ongoing and current.

9. Other Wastewater Management

No other wastewater issues have been identified to date in the plan area.

Appendix A

Options Costing Tables

Appendix A – Options Cost Tables

	Number of Parcels	Capital Cost	Peachland DCC	Westbank DCC	Total Capital Cost	Capital Cost per Parcel
Option 1 - Wastewater Collected and Pumped to Westbank WWTP						
Greata Primary Forcemain System to Westbank WWTP via Peachland Trunk	400	\$ 2,117,921	\$ 277,200	\$ 1,404,800	\$ 3,799,921	\$ 9,500
Brent Road Collection System and Connection to Greata Forcemain ONLY	42	\$ 1,498,392	\$ 29,106	\$ 147,504	\$ 1,675,002	\$ 39,881

OPTION 1 - COSTS IF BRENT ROAD HOOKED-UP AND SHARED COST OF TRUNK FORCEMAIN						
	Number of Parcels	Capital Cost	Peachland DCC	Westbank DCC	Total Capital Cost	Capital Cost per Parcel
Greata Primary Forcemain System to Westbank WWTP via Peachland Trunk	400	\$ 1,916,670	\$ 277,200	\$ 1,404,800	\$ 3,598,670	\$ 8,997
Brent Road Collection System with Connection to Greata Forcemain and portion of Trunk Forcemain	42	\$ 1,699,642	\$ 29,106	\$ 147,504	\$ 1,876,252	\$ 44,673

	Number of Parcels	Capital Cost for Collection System	Summerland DCC	Total Capital Cost	Capital Cost per Parcel
Option 2 - Wastewater Collected and Pumped to Summerland WWTP					
Greata Primary Forcemain System to Summerland WWTP	400	\$ 4,296,713	\$ 1,920,000	\$ 6,216,713	\$ 15,542
Collection System for North Beach Rd/Heights Area and Connection to Greata Forcemain	35	\$ 767,840	\$ 168,000	\$ 935,840	\$ 26,738
Okanagan Lake Parks (Campgrounds)	80	\$ 358,290	\$ 384,000	\$ 742,290	\$ 9,279
Parcels North of Summerland	20	\$ 354,645	\$ 96,000	\$ 450,645	\$ 22,532

OPTION 2 - COSTS IF ADDITIONAL AREAS HOOKED-UP AND SHARED COST OF TRUNK FORCEMAIN					
	Number of Parcels	Capital Cost for Collection System	Summerland DCC	Total Capital Cost	Capital Cost per Parcel
Assume all three areas joined the Trunk Forcemain					
Greata Primary Forcemain System to Summerland WWTP	400	\$ 3,317,925	\$ 1,920,000	\$ 5,237,925	\$ 13,095
Collection System for North Beach Rd/Heights Area and Connection to Greata Forcemain	35	\$ 1,058,158	\$ 168,000	\$ 1,226,158	\$ 35,033
Okanagan Lake Parks (Campgrounds)	80	\$ 1,021,875	\$ 384,000	\$ 1,405,875	\$ 17,573
Parcels North of Summerland*	20	\$ 379,529	\$ 96,000	\$ 475,529	\$ 23,776

	Number of Parcels	Capital Cost for Collection System	Treatment Plant Cost	Total Cost Estimate	Capital Cost per Parcel
Option 3 - Wastewater Collection and Treatment at Greata Ranch by BNR					
STP and Primary Collection System for BNR at Greata Ranch	400	\$ 605,475	\$ 6,736,984	\$ 7,342,459	\$ 18,356
Option 4 - Secondary STP at Greata Ranch with Irrigation/Infiltration					
STP and Primary Collection System for Secondary RBC with Irrigation/Infiltration	400	\$ 815,063	\$ 4,135,206	\$ 4,950,269	\$ 12,376

Appendix B

Public Consultation Report

Appendix B – Public Consultation Report



1.1.1.1 Open House

Exit Survey Responses

May 14, 2008

9.1 Overview

The following information summarizes the responses received at the open house held Wednesday, May 14th at the Greata Ranch Wine Shop as part of the public information process for developing Area F's LWMP.

Key objectives of the open houses were to:

- Educate residents about wastewater treatment and options
- Solicit feedback from respondents on options presented
- Provide opportunity for the presentation of new ideas or areas of concern for consideration
- Gain understanding of the importance of key areas of the LWMP
- Solicit feedback on criteria preferences
- Solicit feedback on the open house and associated communications (presentations, newsletter, display panels, etc).

The open house was held from 3PM to 8PM on May 14th. The presentation consisted of a series of staffed displays and information stations with presentations given at two set times, 4 PM and 6PM. Attendees were given the survey to complete prior to departure.

Attendance was less than expected, with a total of 11 people over the evening (not including committee members).

Of those who attended, 7 completed exit surveys.

Location	Total Attendance
Brent Road	5
Peachland	1
Other	1
TOTALS	7

Table B- 1

Overall, respondents were satisfied with the open house, with all surveys indicating they were either ‘very satisfied,’ or ‘somewhat satisfied.’

Overall, respondents were ‘very satisfied’ or ‘somewhat satisfied’ with the following open houses components.

	<i>Very Satisfied</i>	<i>Somewhat Satisfied</i>	<i>Neutral</i>	<i>Somewhat Dissatisfied</i>	<i>Very Dissatisfied</i>	<i>No Answer</i>
Display panels	71% (5)	29% (2)	0	0	0	0
Presentations	71% (5)	29% (2)	0	0	0	0
Information stations	71% (5)	29% (2)	0	0	0	0
Information about wastewater treatment and disposal/reuse option for their area	71% (5)	29% (2)	0	0	0	0
Availability of advisory committee members, RDOS staff, and consultants	43% (3)	43% (3)	0	14% (1)	0	0
Promotion of open house via newsletter, newspaper ads and articles, website, etc.	57% (4)	14% (1)	0	0	0	29% (2)

Table B- 2

The newspaper advertisement was the most frequently mentioned source of information about the open houses, followed by notification from a friend or neighbour. Some respondents noted more than one source of notification.

Method	Total # of Responses
Newspaper ad	4
Previous meetings	1
Friend/neighbour	3
RDOS staff	1
Consultant	1
TOTAL	10

Table B- 3

Respondents generally felt strongly about the following areas of concern:

	<i>Very Important</i>	<i>Somewhat Important</i>	<i>Neutral</i>	<i>Somewhat Unimportant</i>	<i>Very Unimportant</i>	<i>No Answer</i>
Protection of Okanagan Lake water quality	100% (7)	0	0	0	0	0
Protection of groundwater quality	86% (6)	14% (1)	0	0	0	0
Mandated septic system maintenance	71% (5)	14% (1)	0	0	0	14% (1)
Ongoing public education regarding wastewater management issues	86% (6)	14% (1)	0	0	0	0

Table B- 4

Appendix C

Advisory Committee Members

Advisory Committee Members

Organization	Name	Contact email	Bus. Phone
AECOM	Mr. Jan Bath	jan.bath@aecom.com	250-762-3727
AECOM	Mr. Tim Forty	tforty@shaw.ca	250-496-5934
Alliance Communications	Ms. Joanne de Vries	jdevries@silk.net	250-766-1777
RDCO	Mr. Dan Plamondon	dan.plamondon@cord.bc.ca	250-868-5221
RDOS	Mr. Alf Hartviksen	ahartviksen@rdos.bc.ca	250-492-0237
RDOS	Mr. Dan Ashton		
Ministry of Environment, Environmental Protection	Mr. Mike Reiner	mike.reiner@gov.bc.ca	250-490-8208
Ministry of Environment BC Parks	Mr. Dave Richmond	dave.richmond@gov.bc.ca	250-490-8259
Interior Health	Mr. John Beaupre	john.beaupre@interiorhealth.ca	250-770-3530
Ministry of Community Services	Mr. Glen Brown	glen.brown@gems1.gov.bc.ca	250-356-9012
Ministry of Transportation	Mr. Bill Sparkes	Bill.Sparkes@gov.bc.ca	250-490-2229
Agricultural Land Commission	Mr. Martin Collins	Martin.Collins@gov.bc.ca	604-660-7021
Environment Canada	Mr. Snehal Lakhani	snehal.lakhani@ec.gc.ca	604-664-9100
Concord Pacific	Mr. Calvin Chan	calvin.cahn@concordpacific.com	
Greata Ranch (rep)	Mr. Gordon Fitzpatrick	gfitzpatrick@cedarcreek.bc.ca	250-767-2768
District of Summerland	Mr. Don Darling	ddarling@summerland.ca	
Okanagan Basin Water Board	Ms. Anna Warwick Sears	Anna.Warwick.Sears@obwb.ca	250-550-3779
District of Peachland	Mr. Doug Allin	dallin@peachland.ca	
Westbank First Nations	Chief Robert Louie	cclough@wfn.ca	250-769-4999
Brett Rd Resident	Ms. Maggie Lovelock	maglovelock@shaw.ca	
Brett Rd Resident	Mr. Dave Cala	dave@ok1st.com	250-767-2153
Brett Rd Resident	Ms. Cassie Wierzbicki	cwierzbicki@shaw.ca	
Penticton Indian Band	Chief Stewart Phillip	sphillip@pib.ca	250-493-0048
Ministry of Agriculture and Lands	Mr. Carl Withler	Carl.Withler@gov.bc.ca	250-861-7229
Fisheries and Oceans Canada			250-851-4950

Appendix D

How do you develop a LWMP?

How do you develop a LWMP?

LWMP DEVELOPMENT

Liquid Waste Management Plans were introduced to British Columbia in the mid-1980s as a way of directly involving the people of a community in the process of selecting their preferred long term solution to the problem of managing liquid wastes in their community. The process involves ensuring all reasonable options are considered, and it culminates in the selection of a preferred option or mix of options. The preferred option is detailed in the LWMP documents, as well as details of the public consultation program.

After the Minister of Environment provides formal approval the community may request grant monies for the implementation of the LWMP. Communities with an approved LWMP for the handling of their liquid wastes normally have a greater chance of success with their grant applications than those who do not. Whilst the Greata Ranch development would not be eligible for funding assistance it is quite likely that those residents living along the route of one of the wastewater pipelines would be eligible for funding assistance.

Once the LWMP is approved and finalized, Ministry staff may issue an Operational Certificate (OC). The OC stipulates the technical quality and environmental requirements for the discharge of liquid wastes if the option of a separate treatment facility were to be the selected. Operational Certificates already exist for both the Summerland and Westside treatment facilities, so only a minor amendment to one OC would be necessary if either of those facilities were chosen as the preferred option.

Details of the LWMP process are included below.

WHAT IS A LWMP?

A LWMP is a plan for a municipality or specific area that charts the future course of action with respect to wastewater, stormwater and other wastewaters, including the management, collection, treatment, and disposition of the effluent. A LWMP covers more than solutions for managing liquid wastes. It can also deal with lot sizes, zoning issues in unsewered areas, water conservation programs, and public education programs aimed at making septic systems more environmentally friendly. NOTE: A LWMP can specify minimum lot sizes for new lots being created to ensure that septic disposal issues are adequately addressed. This requirement is often used to reinforce the 1 hectare minimum lot size specified by the Ministry of Community Services (MCS) for new lots being created where septic tank tile field disposal is intended for handling wastewater.

A LWMP is a tool used to develop cost-effective solutions to address local liquid waste issues, it allows a community to protect human health and the environment, develop strategies to minimize wastewater generation, meet water conservation goals, maximize use of reclaimed water, and address stormwater issues.

Public participation is mandatory for the development of an effective LWMP to ensure the Plan reflects the needs of the community, now and for the future. This is especially important as the implementation of any recommendations will be funded by those in the Plan area.

WHY DEVELOP A LWMP?

Advance planning can ensure that current and future needs for the management of liquid wastes for the community are met. It saves both the environment and the taxpayer by creating proactive solutions rather than the more costly option of reacting to problems as they arise.

A LWMP provides an opportunity for ratepayers to assist in the process of identifying and selecting the best options for the management of liquid wastes for their community and can increase support for implementation of the recommendations to address their current and future needs.

Further, there is a higher likelihood of obtaining grant monies for implementing a LWMP as the community issues that require remedial action, the environmental and health benefits of the LWMP implementation are all clearly identified in the LWMP.

WHAT IS THE PROCESS?

LWMP Ground Rules

Identify and solicit input from appropriate government agencies, Non Government Organizations (NGOs), special interest groups (if any) and the general public in the plan area

Answer all questions completely and openly

Consider all ideas suggested

Discard suggested options only for sound technically defensible reasons with a clear explanation of the reasoning behind the decision

Elected officials make the final decision on the selected LWMP option or mix of options for the management and future management of wastewaters for the LWMP plan area ONLY after carefully considering all presented information including feedback from an informed public.

LWMP Process

The Regional District must first recognize the need for a LWMP. It must then retain consultant(s), notify the Ministry of Environment of its intent to develop a LWMP and form committees to assist in the process.

In this LWMP a decision has been made to combine the Technical Advisory Committee and the Public Advisory Committee to form a single Wastewater Advisory Committee known as the Advisory Committee or AC. This committee will take into account all the technical details and provide an insight into local issues, review information, and ensure the LWMP is meaningful and relevant to the citizens of the plan area.

There is also a Steering Committee consisting of Greata Ranch staff, Ministry staff, the Consultant and RDOS staff. The RDOS staff will convey the LWMP recommendations to the Regional Board.

Normally a LWMP will be developed in three stages:

Stage 1: Data Collection and Option Identification

Identify existing situation including known environmental and health issues with respect to wastewater(s)

Identify possible future issues with respect to wastewater(s)

Identify potential options for the management of wastewater(s) to resolve the issues

Stage 2: Option Development, Cost Analysis and Option Selection

Develop identified options in sufficient detail to permit comparison between different options. This includes options that may be identified even after the completion of Stage 1

Provide clear and reasoned explanation for those options that are technically impractical

Develop the Cost Analysis to a sufficient level to permit Order of Magnitude cost comparisons between options - including costs on a per household basis

Present the preferred option (or mix of options) to the Regional Board for consideration based upon the information developed throughout the LWMP process and – most importantly – feedback from an informed public

Stage 3: Finalization

An Executive Summary is to be included in the Stage 3 report, based on the Stage 1 and Stage 2 reports, which would include:

Details of the selected option, the process followed, and rationale for options not selected and why

An outline of what is to be done; level of treatment and effluent disposition (disposal or reuse) required

A schedule of stages and phases for wastewater treatment plant and collection system installation and upgrades if appropriate, including costs and timing of each stage and phase of upgrade (Extracted and condensed from Stage 2)

The following additional information is also included in the Stage 3 report:

Any required Bylaws and who is to prepare them

A summary of public involvement, including the public information meetings, presentations, media advertisements, handouts, mail-outs or other information made available to the public. (Copies of the original documents are included for reference in the appendices of the Stage 1 and Stage 2 reports)

Two copies of the documents for each of the three stages of the LWMP are forwarded to the Ministry of Environment office. Ministry staff provide comments on the plan and the adequacy of the public consultation for the Minister during the review and approval phase.

Ministry staff and RDOS, CORD or District of Summerland staff would work co-operatively to develop or update an existing Operational Certificate (OC) that may be necessary if treatment facilities are required as part of the LWMP.

Appendix E

Statement of Qualifications and Limitations

Statement of Qualifications and Limitations

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