

Regional Distict of Okanagan-Similkameen

Liquid Waste Management Plan Area 'F' Amendment - Stage III Report

Prepared by:

AECOM Canada Ltd. 201 – 3275 Lakeshore Road, Kelowna, BC, Canada V1W 3S9 T 250.762.3727 F 250.762.7789 www.aecom.com

Project Number: 60144498 (née 94427)

Date: January, 2010

Statement of Qualifications and Limitations

The attached Report (the "Report") has been prepared by AECOM Canada Ltd. ("Consultant") for the benefit of the client ("Client") in accordance with the agreement between Consultant and Client, including the scope of work detailed therein (the "Agreement").

The information, data, recommendations and conclusions contained in the Report:

- are subject to the scope, schedule, and other constraints and limitations in the Agreement and the qualifications contained in the Report (the "Limitations")
- represent Consultant's professional judgement in light of the Limitations and industry standards for the preparation of similar reports
- may be based on information provided to Consultant which has not been independently verified
- have not been updated since the date of issuance of the Report and their accuracy is limited to the time period and circumstances in which they were collected, processed, made or issued
- must be read as a whole and sections thereof should not be read out of such context
- were prepared for the specific purposes described in the Report and the Agreement
- in the case of subsurface, environmental or geotechnical conditions, may be based on limited testing and on the assumption that such conditions are uniform and not variable either geographically or over time

Unless expressly stated to the contrary in the Report or the Agreement, Consultant:

- shall not be responsible for any events or circumstances that may have occurred since the date on which the Report was prepared or for any inaccuracies contained in information that was provided to Consultant
- agrees that the Report represents its professional judgement as described above for the specific purpose described in the Report and the Agreement, but Consultant makes no other representations with respect to the Report or any part thereof
- in the case of subsurface, environmental or geotechnical conditions, is not responsible for variability in such conditions geographically or over time

The Report is to be treated as confidential and may not be used or relied upon by third parties, except:

- as agreed by Consultant and Client
- as required by law
- for use by governmental reviewing agencies

Any use of this Report is subject to this Statement of Qualifications and Limitations. Any damages arising from improper use of the Report or parts thereof shall be borne by the party making such use.

This Statement of Qualifications and Limitations is attached to and forms part of the Report.



201 – 3275 Lakeshore Rd, Kelowna, BC V1W 3S9 T 250.762.3727 F 250.762.7789 www.aecom.com

January 19, 2010

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

Dear Andrew:

Project No: 60144498 (née 94427)

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

Please find attached the Stage III RDOS LWMP Area 'F' Amendment report (Revision 2.0), which includes the changes recommended by the MoE Regional Protection Officer. The Stage III report is the culmination of the Advisory Committee's efforts and the RDOS Board's approval of their recommendations. The report and all supporting documentation will be sent to the local Ministry of Environment office for review, comment, and submission to the Minister's office.

Sincerely, **AECOM Canada Ltd.**

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

JRB:jrb Encl. cc: (see report distribution list)

Distribution List

# of Hard Copies	PDF Required	Association / Company Name
1	Yes	AECOM
	Yes	Regional District of Central Okanagan
3	Yes	Regional District of Okanagan-Similkameen
3	Yes	Ministry of Environment, Environmental Protection
	Yes	Ministry of Environment, BC Parks
	Yes	Interior Health
	Yes	Ministry of Community Services
	Yes	Ministry of Transportation
	Yes	Agricultural Land Commission
	Yes	Environment Canada
1	Yes	Concord Pacific
	Yes	District of Summerland
	Yes	Okanagan Basin Water Board
	Yes	District of Peachland
1	Yes	Westbank First Nations
	Yes	Brett Rd Resident
	Yes	Brett Rd Resident
	Yes	Brett Rd Resident
1	Yes	Penticton Indian Band
	Yes	Ministry of Agriculture and Lands
	Yes	Fisheries and Oceans Canada
	Yes	Greata Ranch Developments

Revision Log

Revision #	Revised By	Date	Issue / Revision Description
0	Tim Forty	2009-05-20	Draft
1.0	Jan Bath	2009-06-05	Final (for internal review)
1.1	Jan Bath	2009-06-15	Final (for Advisory Committee review)
1.2	Jan Bath	2009-07-03	Final
2.0	Jan Bath	2009-11-26	Final (revised per Regional Protection Officer recommendations)

AECOM Signatures

Report Prepared By:

Jan R. James Bath, A.Sc.T. Senior Technologist

Report Reviewed By:

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 a benefit to properties as a result of the implementation of the preferred solution for the management of wastewater from the proposed Greata Ranch development.*

The current LWMP (circa 1994) identifies the potential options for the management of wastewater for the entire Area 'F'. The purpose of this LWMP amendment was to identify possible options for the management of wastewater from the proposed Greata Ranch development and select the best option, known as the preferred solution, from amongst all the available options. This Stage 3 report provides an overview of each of the options and provides the reasons why the preferred solution was selected and why the other options were not. The preferred solution was selected by both the Advisory Committee and the general public. The options and costs are tabulated in Appendix A. Detailed information regarding each option may be found in the Stage 2 report.

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 that may be found in the Stage 2 report in Appendix-B.

"Four practical options were identified through this process."

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.

Each option was further developed, costed, and carefully reviewed by the Advisory Committee which identified their preferred solution. They believe their preferred option provided the best solution for the management of wastewater from the Greata Ranch development and surrounding area.

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, the "Preferred Solution"

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." The Advisory Committee selected Option 2 as the preferred solution and it was presented to area residents along with the other options identified. The options were also forwarded to Government Agencies for their review and comment. Feedback from the public and from the Advisory Committee was presented to the RDOS Board which confirmed the selection of Option 2 as the preferred solution for the management of wastewater from the Greata

Ranch Area of Area 'F'. This preferred solution will be presented to the Minister of Environment with the supporting documentation of the combined Stage 1-2 report and the Stage 3 report for formal Ministerial Approval of the LWMP.

Table of Contents

Statement of Qualifications and Limitations
Letter of Transmittal
Distribution List
Executive Summary

page

1.	Introd	uction	1
	1.1	Study Area	1
	1.2	Area 'F' LWMP Background	
	1.3	Current LWMP Amendment	
	1.4	Population & Demand Analysis	3
2.	Waste	water Management Options	4
	2.1	Option 1 – Pump wastewater to the Westside Wastewater Treatment Plant	4
	2.2	Option 2 (Preferred Solution) - Pump Greata Ranch wastewater to the District of Summerland Wastewater Treatment Plant.	
	2.3	Option 3 – Greata Ranch to construct a WWTP with a lake outfall	7
	2.4	Option 4 – Greata Ranch to construct a WWTP which they would own and operate with reclaimed water and tile field effluent options.	8
3.	Local	Considerations (Public Consultation)	9
4.	Prefer	red Solutions & Recommendations	9
Apper	ndix A:	Options Costing Tables	1
Apper	ndix B:	Public Consultation Report	1

List of Figures

Figure 1 - Area 'F' Overview	1
Figure 2 - Population & Demand	3
Figure 3 - Option 1: Lake Forcemain to Westside WWTP via Peachland	4
Figure 4 - Option 2: Pump wastewater to the Summerland Wastewater Treatment Plant	6
Figure 5 - Option 3: Construct BNR WWTP with a lake outfall for RDOS	7
Figure 6 - Option 4: Construct a Wastewater Treatment Facility	8

1. Introduction

The Regional District of Okanagan-Similkameen (RDOS) Area 'F' LWMP¹, originally completed in 1994, is being amended to address the management of wastewater from the proposed development at Greata Ranch.

Liquid Waste Management Plans (LWMP) 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.

1.1 Study Area

The RDOS Area 'F' covers nearly 70,000ha and includes parts of the District of Summerland, Faulder and the surrounding area. This LWMP amendment provides an update with respect to wastewater management in the Greata Ranch area, specifically *for the Greata Ranch development;* it only highlights other possible areas along the shoreline of Okanagan Lake that *may* benefit from the implementation of the preferred solution identified by the Advisory Committee. Some of these potentially benefiting areas include BC Parks (Okanagan Lake Provincial Park), Tranquil Bay, North Beach (Lombardy Bay), Brent Road, and select foreshore parcels in the north of Summerland. Figure 1 shows the portions of Area 'F' discussed in this LWMP amendment.



Figure 1 - Area 'F' Overview

¹ Stanley Associates Engineering Ltd. (April 1994). Wastewater Management Plan for Electorial Areas E and F - Stage III Report. Regional District of Okanagan-Similkameen.

ARMSTRONG

1.2 Area 'F' LWMP Background

The current Area 'F' LWMP (1994) cited the Ministry of Environment's mapping for soil suitability and phosphorous transmission², which identified the areas 'North of Summerland' (including OK Lake Provincial Park and Greata) as having a high soil rating for phosphorous transmission. In addition the report characterized the area as a concern due to overall phosphorous loading to

area as a concern due to overall phosphorous loading to the Okanagan Lake via effluent transmission through tile fields. Although a subsequent Ministry report³ clearly shows a decline in overall phosphorous loading to Okanagan Lake the conclusions presented in these earlier reports are still considered relevant since no significant remedial action has been taken to improve the phosphorous loading from this area.

The default option for management of liquid waste identified for this area in the 1994 LWMP was stated as follows; "Due to the remoteness and density of the outlaying areas, the only viable wastewater management alternative was to continue with the onsite disposal systems. Reduction of phosphorous entering Okanagan Lake could be achieved through public education, government legislation and changes to zoning restrictions for future development." The subsequent recommendations were to "Permit the use of on-site treatment systems provided that the zoning restrictions noted in this report are implemented. Restrict future growth adjacent surface water." and "Undertake public education programs as previously noted."

Recent investigations by MoE and RDOS have revealed that the current Area 'F' LWMP (1994) was never submitted for Ministerial approval.

1.3 Current LWMP Amendment



The liquid waste management planning process usually involves three stages. The Ministry has determined that this I WMP amendr

involves three stages. The Ministry has determined that this 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 was prepared, and a single Public Information meeting was held during the development of the Stage 2 portion of the LWMP.

During the development stages, the Advisory Committee, general public, RDOS and the Regional District of Central Okanagan (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

² Ministry of Environment. (1984). Phosphorous in the Okanagan Valley Lakes Sources, Water Quality Objectives, and Control Possibilites. Retrieved 12 21, 2009, from Environmental Protenction Division: http://www.env.gov.bc.ca/wat/wg/objectives/okphosphorus/okphosphorus.html

³ E.V.Jensen, P.Epp (2001). Water Quality Trends in Okanagan, Skaha and Osoyoos Lakes in Response to Nutrient Reductions and Hydrologic Variation. *Ministry of Environment: Ministry of Water Land and Air Protection*

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.

Four potential options for the management of domestic wastewater from the proposed Greata Ranch project have been identified. The potential benefits and issues that may occur as a result of the implementation of each of the options were determined. Option 2 was selected by the Advisory Committee and the public as the preferred solution for the management of the wastewater from the Greata Ranch project as it was capable of remediating existing environmental issues and produced little or no negative environmental impact.

"RDOS Board...ratified the selection of the Advisory Committee and the Public..."

The preferred solution was presented to the RDOS Board, which ratified the selection of the Advisory Committee and the public and directed the consultant to proceed with the development of the Stage 3 report.

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

1.4 Population & Demand Analysis

The study area is currently sparsely populated with a few clusters of single family development bisected by Okanagan Lake Provincial Park. There is limited development potential within the area due to the constraints of terrain, Okanagan Lake, and lack of municipal services.

Potential service demand from the region is limited to the existing development nodes (including the Provincial Park), the area in and around Greata Ranch, and perhaps the northern foreshore area within the District of Summerland.

Figure 2 shows the current and potential single family equivalents (SFE) for the study area, excluding properties within the District of Summerland.



Figure 2 - Population & Demand

2. Wastewater Management Options

Four options for the management of wastewater for the proposed Greata Ranch project were identified in this process. 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.

2.1 Option 1 – Pump wastewater to the Westside Wastewater Treatment Plant

In this option the wastewater generated by the Greata Ranch development would have been directed to an onsite lift station, which would have pumped the wastewater to the Peachland wastewater collection system near Antler's Beach. The wastewater would then flow through the system to the RDCO operated Westside wastewater treatment plant. In addition, this would have required a 5 kilometre forcemain from Greata Ranch to Antler's Beach.



Figure 3 - Option 1: Lake Forcemain to Westside WWTP via Peachland

This option was not selected as the District of Peachland required Greata Ranch to petition for a boundary expansion and become part of the District of Peachland. The Advisory Committee, Greata Ranch, and Concord Pacific were not opposed in principle to becoming part of Peachland; they were concerned that the process would have taken several years due to the multiple jurisdictions involved. In addition, they believed that this option would have resulted in an unacceptable delay in the implementation of the Greata Ranch project and this option was therefore not supported.

2.2 Option 2 (Preferred Solution) - 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 several nodes along the lakeshore between Greata Ranch and Summerland. Specifically it *could* collect wastewater from the Okanagan Lake Provincial Park Northpark and Southpark Campgrounds and North Beach. The use of septic tanks and disposal fields on the flats immediately adjacent to the lake implies these sewage disposal systems face the same environmental issues experience by all the un-serviced lakeshore residents residing between Peachland and Summerland. These systems only provide low levels of treatment, limited nutrient removal, and/or attenuation by the environment due to high groundwater tables. The Okanagan Water Quality Control project identified that such systems could have a significant impact on the lake. Consequently, state of the art treatment plants and expansion of collection systems was funded throughout the valley to mitigate the impacts of septic systems were designed and installed prior to 2000, accordingly they do not comply with the increased disposal field size (approximately 2x the previous area) required by the enactment of the Municipal Sewage Regulation and amendments to equivalent Interior Health Regulations. The current regulations also impose stringent setbacks to ensure further protection of adjacent surface waters, which would require BC Parks, lakeshore homeowners, and new developments to locate new disposal fields away from the lakeshore on steep slopes. This would:

- involve extensive ongoing pumping costs
- geotechnical work to ensure construction equipment can safely access
- install the system on steep slopes
- provide no guarantee that the effluent won't simply breakout further downslope
- add water to steep slopes, which raises slope stability concerns

While some stakeholders may have area that could be accessed if they ever needed to replace their systems, it would involve further disturbance of habitat and doesn't address the issued raised during the Okanagan Water Quality Control Project. The Advisory Committee believes many of these issues could be eliminated if a connection to the pipeline were to be established. In addition, while some stakeholders have reported there septic systems are currently in good working order (e.g. BC Parks, Okanagan Lake Provincial Park); there are a number of homes and other proposed developments who may also be serviced by this route that have wastewater issues (e.g. North Beach and Brent Road areas). 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.

Area residents and developers along the route would require approval if they should wish to have their wastewater enter the forcemain. 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 latecomer fees and these would all lower the cost of the project to Greata Ranch.

This option is the preferred solution for the management of wastewater from the proposed Greata Ranch development and for areas along the pipeline route to Summerland. The application of grant monies for those

who will be able to resolve their own environmental and health issues by connecting to the system will no doubt result in a downwards revision of the costs to Greata Ranch for this project, however timing is of the essence to ensure that grant applications are made during the early stages of the project as latecomer charges are not eligible for grants.



Figure 4 - Option 2: Pump wastewater to the Summerland Wastewater Treatment Plant

This option required the approval of the Summerland Council and the RDOS Board. In February 2009 Summerland Council resolved to support this option in principle subject to normal development conditions and requirements for the connection to and use of the District of Summerland's infrastructure and utilities. The RDOS Board passed a resolution that they approve the preferred option and Stage 2 report on April 2, 2009.

2.3 Option 3 – Greata Ranch to construct a WWTP with a lake outfall

This option would have resulted 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 have been turned over to the RDOS to own and operate. This option would have required certified operators to run the treatment plant and to monitor and maintain the effluent quality. Land availability for the actual treatment facility also needed to be considered.

This option was not selected for implementation for a number of reasons. The costs would have been quite high with little opportunity for accepting wastewater from other existing and proposed developments. The economies of scale that make treatment economically attractive at the Summerland and RDCO Westside facilities would not apply. Small plants are more difficult to operate than larger facilities and are far more prone to upset. The benefits of building a small plant to be owned and operated by the RDOS were far outweighed by connecting to an existing larger plant with an existing pool of trained operators. This option was eliminated as it would have a higher potential for environmental impact and would not resolve existing environmental issues as effectively as the preferred solution.



Figure 5 - Option 3: Construct BNR WWTP with a lake outfall for RDOS

2.4 Option 4 – Greata Ranch to construct a WWTP which they would own and operate with reclaimed water and tile field effluent options.

This option would have seen 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 required 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 6 - Option 4: Construct a Wastewater Treatment Facility

This option was eliminated in part for many of the same reasons describe in option 3 and concern that the soil may not be able to accept the quantity of effluent that would be generated. In addition there was concern about negative consumer perception issues associated with the irrigation of grapes with effluent.

3. Local Considerations (Public Consultation)

The Public Consultation report included in the LWMP Stage 2 report as Appendix B appears again as Appendix B in this Stage 3 report. Reasonable effort was expended to make the LWMP amendment information available to the public. However, the region is sparsely populated and the issues were not controversial. Generally there was not significant public interest in this LWMP amendment to encourage many members of the public to attend the Information Meeting or to provide written feedback on the options.

4. Preferred Solutions & Recommendations

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 comparative costs is provided in Appendix A.

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

- Assessment needs to be conducted of both the conveyance system and WWTP.
- Jurisdictional Approvals, Maintenance agreements, and Service Agreement need to be established.
- Consideration and development of buy in fees, user fees, and annual operating costs.
- System shall meet Ministry of Environment and Ministry of Health requirements.
- Ownership (i.e. RDOS owns the new works and the District of Summerland would retain the option to buy the system for one dollar).

After the LWMP amendment is approved, several bylaws will need to be developed for the implementation of the preferred solution. The following is a list of bylaws that would likely be required:

- Sewer Service Area Bylaws: Bylaws will be required to establish the extent of each of the sewer service
 areas that wish to take advantage of the implementation of the preferred solution. The majority of the area
 lies within the RDOS boundaries; RDOS staff would be required to prepare the bylaws for the affected
 portion of electoral Area 'F'. The area within the District of Summerland boundaries that is currently
 outside their sewer service area would need to be brought into their service area and District Summerland
 staff would need to prepare that bylaw.
- **Borrowing Bylaws**: In order to take advantage of available grant monies (available for part of the cost of a project) a borrowing bylaw may need to be prepared for each of the sewer service areas unless the jurisdiction involved is prepared to force the implementation as it is allowed to do under the authorization of the approved LWMP. This decision will need to be made by each of the governing bodies as they see fit. An LWMP can be implemented by decree rather than by public assent and the choice is up to the jurisdiction involved.
- **Regulatory Bylaws**: Bylaws (e.g. a Sewer Use Bylaw) will be required to manage fees, rules for operations and maintenance, and rate structures. These bylaws would need to be prepared in consultation with the District of Summerland.

Appendix A: Options Costing 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	с	apital Cost		Peachland DCC	١	Westbank DCC	Т	otal 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	for	apital Cost 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											
Assume all three areas joined the Trunk Forcemain	Number of Parcels	Capital Cost for Collection System		Summerland DCC		Total Capital Cost			ipital Cost er Parcel		
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	Cost Total Cos 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	\$ 605,47	; \$	6,736,984	\$ 7,34	42,459	\$ 18,356				
Option 4 - Secondary STP at Greata Ranch with I	rrigation/Infiltra	tion				· · ·					
STP and Primary Collection System for Secondary RBC with Irrigation/Infiltration	400	\$ 815,06	\$	4,135,206	\$ 4,95	50,269	\$ 12,376				

Appendix B: Public Consultation Report



Open House Exit Survey Responses

May 14, 2008

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.

	Very Satisfied	Somewhat Satisfied	Neutral	Somewhat Dissatisfied	Very Dissatisfied	No Answer
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:

	Very	Somewhat	Neutral	Somewhat	Very	No
	Important	Important		Unimportant	Unimportant	Answer
Protection of	100% (7)	0	0	0	0	0
Okanagan Lake water quality						
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