

Regional District of Okanagan-Similkameen

**Okanagan Falls Area
Liquid Waste Management Plan -
Amendment
Combined Stage 1 & Stage 2 Report**

Prepared by:

AECOM

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Project Number:

111102-03

Date:

June 3, 2010

Appendix A

Okanagan Falls Area Liquid Waste Management Plan – Amendment Combined Stage 1 & 2 Report

- **Public Advisory Committee Members
List**

Table A-1 Active Advisory Committee Members

ORGANIZATION	TITLE	FIRST_NAME	LAST_NAME	Contact email	Bus. Phone
RDOS	Mr.	Alf	Hartviksen	ahartviksen@rdos.bc.ca	250-490-4210
RDOS	Ms.	Liisa	Bloomfield	lbloomfield@rdos.bc.ca	250-490-4229
AECOM	Mr.	Piero	Galvagno	piero.galvagno@aecom.com	250-762-3727
AECOM	Mr.	Tim	Forty	tforty@shaw.ca	
Ministry of Environment, Environmental Management	Mr.	Michael	Reiner	Mike.Reiner@gov.bc.ca	250-490-8206
Ministry of Environment, Environmental Management	Ms.	Geri	Huggins	Geri.Huggins@GOV.BC.CA	250-490-8200
Ministry of Agriculture and Lands	Mr.	Carl	Withler	Carl.Withler@gov.bc.ca	250-861-7229
Interior Health	Mr.	John	Beaupre	john.beaupre@interiorhealth.ca	250-770-3530
Environment Canada	Ms.	Julia	Brydon	julia.brydon@ec.gc.ca	604-666-2399
Penticton Indian Band	Mr.	Greg	Gabriel	ggabriel@pib.ca	250-493-0048
Local Citizen	Ms.	Eleanor	Walker	ronaele520@shaw.ca	250-497-5445
Local Citizen	Mr.	Ted	Lynch	tlynch@telus.net	250-497-8263
Local Citizen	Mr.	Souren	Mukherjee	pat_mukherjee@hotmail.com	250-497-6760
Local Citizen	Mr.	Sam	Hancheroff	shancher@sd53.bc.ca	250-497-5878
Local Citizen	Mr.	Ken	Hayter	hayterk@shaw.ca	250-497-5347
Local Citizen	Mr.	Ed	Melenka	emelenka@shaw.ca	250-497-8869
Local Citizen	Mr.	Dan	Larter	dan1_2002@hotmail.com	250-497-7993

Table A-2 Advisory Committee Members – Updated by email

Okanagan Basin Water Board	Ms.	Anna	Warwick Sears	Anna.Warwick.Sears@obwb.ca	250-469-6251
Agricultural Land Commission	Mr.	Martin	Collins	Martin.Collins@gov.bc.ca	604-660-7021
Ducks Unlimited	Mr.	Brad	Amer	b_arnet@ducks.ca	(250) 374-8307
Local Citizen	Mr.	Gerry	Hughes	grhugh@shaw.ca	250-497-1175
Ministry of Community Development	Ms.	Catriona	Weidman	Catriona.Weidman@gov.bc.ca	250-952-6517

Appendix B

Okanagan Falls Area Liquid Waste Management Plan – Amendment Combined Stage 1 & 2 Report

- **Public Consultation Support Documentation**

Support documentation for the Public Information process for this LWMP is contained in this section. The details of the very extensive public consultation program utilized for the *2005 Strategic Review* are not included herein as they are included in the *2005 Strategic Review* report, which is available under separate cover.

The items of interest in this Appendix are:

B-1 The newsletter mailout that was sent out prior to the November 18, 2009 Public Information Meeting.

B-2 Sample exit survey with typical responses shown

B-3 Compilation of the Exit Survey information

B-4 LWMP Committee Meeting Notes

B-5 OK Falls Newsletter of April 2010

B-1 Newsletter mailout before PIM



Senior government funding supports wastewater treatment plant upgrade project

The Regional District of Okanagan Similkameen (RDOS) is getting \$6.25 million from the federal and provincial governments to build a new wastewater treatment plant south of the existing site, and to provide capacity for the eventual sewer servicing of the Skaha Estates and Kaleden lakeshore areas. The \$10.1-million project will begin with detailed design work this year; construction will likely commence in 2010.

Looking Back...

Five years in the making, the project will address various wastewater issues identified during the 2005 Okanagan Falls Sewage Treatment Plant Strategic Review Study — namely that the existing plant is too close to residential development and too small to adequately treat the larger flows expected from growth in Okanagan Falls and the extension of sewer service to nearby areas.

The review was completed with input from the Okanagan Falls Wastewater Advisory Committee (WAC). After studying existing conditions and potential solutions, WAC members short-listed ten options for more detailed consideration. The option ultimately recommended by the WAC included construction of a new BNR (biological nutrient removal) plant south of the existing site. Advantages of this approach include increased capacity and the elimination of noise and/or odour impacts on residential or commercial areas. Treated effluent from the new plant can also be recy-

clered for agricultural irrigation and/or the development of wetland habitat.

A subsequent survey showed that 80 percent of area residents agreed the Okanagan Falls wastewater treatment plant had reached capacity and, therefore, should be upgraded or replaced. Almost 90 percent of respondents agreed that, upon confirmation of two-thirds federal/ provincial funding, the RDOS should proceed with development of a new plant downstream of the existing site. Thirty-five percent thought the RDOS should move forward even without senior government funding.

In 2007, sewer-servicing options were assessed for the communities of Kaleden and Skaha Estates. A November 2007 survey of Skaha Estates and Kaleden residents shows that 98 percent believe Skaha Lake is an important natural resource that should be protected,

continues on page 2

You're Invited!
The Regional District of Okanagan Similkameen and the Okanagan Falls LWMP Advisory Committee invite you to share your thoughts about the future of wastewater facilities and services in Okanagan Falls and surrounding areas.

OPEN HOUSE
Wednesday, November 18th
OK Falls Elementary School
1141 Cedar Street
4 PM to 8 PM

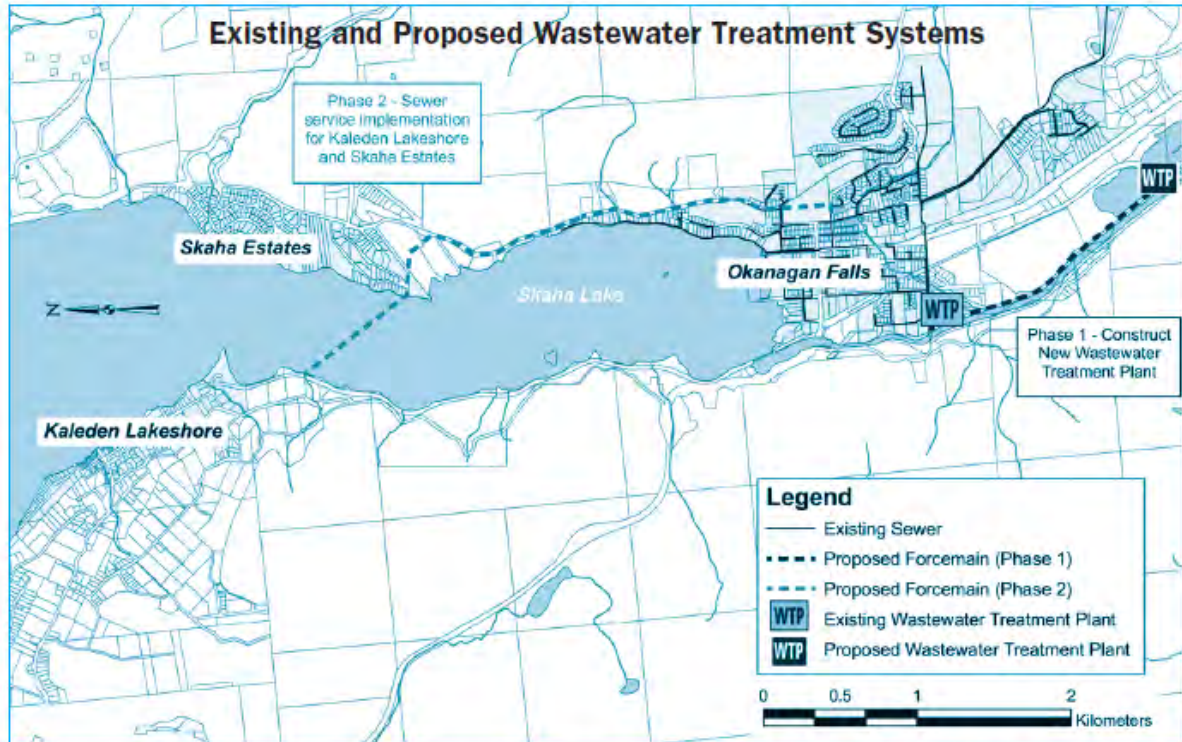
Presentations will be given at 5 PM, 6 PM, and 7 PM
Committee members, Regional District staff, and engineering consultants will be available to answer your questions.

For more information call Darcy Kirkpatrick at the Regional District 250-490-4112

Annual Sewer Fees for an Average Single-Family Home (with Grant Funding)

Residents of	Existing Annual Sewer Fees	Annual Fees after Stage 1 Construction of New Plant to Service Existing Okanagan Falls Area
Okanagan Falls Area	\$435	\$639

The calculations assume that capital costs will be financed over 20 years at a Municipal Finance Authority rate of 5.3 percent. At the end of the 20-year term, the sewer fee would decrease and consist of only the operational costs. The operational cost is estimated to be \$395 per household per year for the Okanagan Falls Area.



Sewer update

continued from page 1

while 83 percent agree the installation of community sewers will protect the lake from pollution caused by aging septic tanks. The public also endorsed a recommendation to service the most environmentally and health-sensitive areas along the lakeshore. The lowest cost option involved pumping wastewater from these areas to an expanded Okanagan Falls treatment plant. The survey indicated that 80 percent of Kaleden and Skaha Estates respondents agreed with this approach, provided grant funding was made available to offset the costs.

Strong public support from the Okanagan Falls, Kaleden and Skaha Estates areas prompted the RDOS to apply for senior government funding, research potential sites, and update its Liquid Waste Management Plan (LWMP). In 2008, the RDOS bought a 0.9 hectare (2.2 acre) property south of the existing plant where the KVR right-of-way crosses the Okanagan River Channel. In 2009, the regional district embarked on the process of

updating its LWMP. Given that the 2005 strategic review was conducted with extensive public input, the Ministry of Environment considered it a precursor to the LWMP update process, and authorized the RDOS to develop a streamlined, combined Stage1/Stage 2 LWMP Report rather than the three-stage process normally required for an update of this complexity.

With Provincial/Federal funding for the new treatment plant now in place, and its LWMP in the final stages of approval, the RDOS has applied to the Okanagan Basin Water Board (OBWB) for additional grants to help offset costs to the Okanagan Falls Area residents. The value of this grant has not yet been determined.

Next Steps...

Engineering consultants will be hired to undertake detailed technical analysis and design, and detailed costing. The objective will be to construct a modern treatment facility that blends into the natural surroundings and with high standards for odour control. Construction is anticipated to begin in late 2010.

The Bottom Line

Implementation of the treatment plant and expansion of the sewer system will occur in phases.

The first phase will consist of building a treatment plant with sufficient capacity to service the Okanagan Falls, Kaleden lakeshore, and Skaha Estates areas. The total projected cost of the treatment plant is \$10.1 million with \$6.25 million covered by senior government funding.

In the second phase, the sewer system will be extended to include the Kaleden lakeshore area and Skaha Estates. The timing of the second phase will depend on the availability of grant funds to assist in paying for installation of the sewer services.

The previous table on page 1 provides an estimate of the annual sewer fees for the Okanagan Falls Area. The annual sewer fees include capital costs and operational costs for the new treatment plant and sewer system. Once the Kaleden and Skaha Estates areas tie-in to the system, sewer fees for Okanagan Falls residents will decrease to account for sharing of the operational and capital costs of the treatment plant.

Treatment plant under pressure

Built in the '70s to process about 750 cubic metres of wastewater daily, the Okanagan Falls sewage treatment plant is located near the confluence of Shuttleworth Creek and Okanagan River. Its simple treatment process — including an oxidation ditch, clarifier, sludge drying beds, and infiltration basins — has served residents well for two decades.

In the early '90s, a multi-family housing complex was built next to the treatment plant. As the original sludge management system was not designed for odour or noise control, the Regional District of Okanagan-Similkameen (RDOS) began receiving complaints from nearby residents.

Then came capacity concerns. By the late '90s, wastewater flows had increased by about 25 percent, producing peak summer flows as high as 920 cubic metres per day. Development potential within the Okanagan Falls Sewerage Service Area aggravates concerns about current and future capacity.

For the plant to continue operating within the limits of its current operating permit, and in accordance with the Liquid

Waste Management Plan approved by the province in 1989, a series of immediate upgrades and long-term measures were required. In 2004, the RDOS established a Wastewater Advisory Committee (WAC) to review options, hired a project coordinator, and contracted with consulting engineers to develop interim and long-term plans for wastewater treatment in Okanagan Falls and surrounding areas. The resulting recommendations by AECOM — which were supported by the WAC and included in the subsequent Liquid Waste Management Plan Amendment — include construction of a new BNR (biological nutrient removal) plant at an appropriate location downstream from the existing site.

Based on the level of public support shown for a new plant during the 2005 Strategic Review, the Regional District of Okanagan Similkameen has since purchased a 2.2-acre site south of the existing plant where the KVR right-of-way crosses the Okanagan River Channel. Senior government funding has now been secured, therefore plant design will proceed later this year. ■



Architectural renderings showing possible views of the new treatment plant from the east and west.

Why BNR (biological nutrient removal)?

Historically, wastewater treatment plants used 'primary treatment' to remove only organic solids from wastewater before the resulting effluent was released into receiving waters such as lakes and rivers. Because wastewater effluent contains nitrogen and phosphorus at levels sometimes toxic to human and aquatic health, 'tertiary' or 'secondary treatment' is now recommended and often required as a condition of discharge to receiving waters.

The preferred option includes a proven tertiary BNR (biological nutrient removal) process that is reliable, robust, operator-friendly, and extremely adaptable to changing flow and load conditions. The proposed treatment process is based on the "three-stage Bardenpho" BNR process which removes carbonaceous



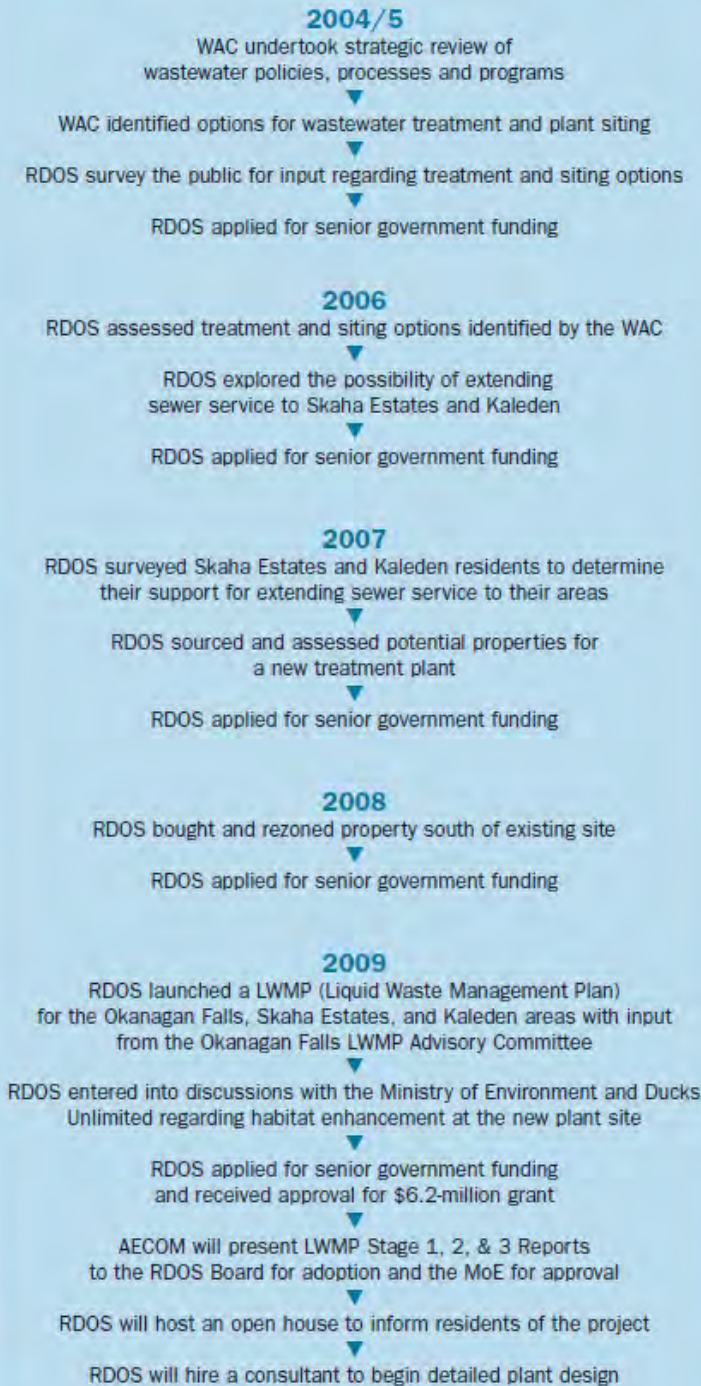
material (BOD), phosphorus and nitrogen. With filtration and disinfection, effluent from the BNR process is of a drinking water standard. The high

Nitrogen and phosphorus act as fertilizers, which promote the growth of algae and other aquatic plants such as Eurasian Milfoil. These unwanted side effects pose serious recreational and environmental problems (e.g. reduced oxygen levels for fish). BNR treatment, such as that used in the Summerland plant, removes nitrogen and phosphorus before the wastewater effluent is discharged to receiving waters.

quality effluent provides for a range of uses and disposal methods. The effluent can be reused as irrigation water.

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OK Falls Wastewater Management Process



Why BNR? continued from page 3

discharged to a river or used to enhance habitat in wetland environments.

BNR technology was implemented in Canada in the late 1970s when the first BNR plant was constructed in Kelowna to address nutrient impacts to Okanagan Lake. BNR plants in other Okanagan communities have proven successful, such as those in Summerland (on the previous page) and Lake Country. ■

THANK-YOU!

The Regional District of Okanagan Similkameen (RDOS) thanks the Okanagan Falls Wastewater Advisory Committee and LWMP Committee members for their input during the strategic review of regional wastewater policies, programs, and services, and the development of the subsequent Liquid Waste Management Plan for Okanagan Falls, Kaleden, and Skaha Estates.

LWMP Committee members included representatives from the public; the RDOS; the BC Ministries of Environment, Agriculture & Lands, and Community & Rural Development; Interior Health; Ducks Unlimited; the Okanagan Basin Water Board; and the Penticton Indian Band.

Public Representatives

Bill Schwarz, RDOS Director Area D
Sam Hancheroff
Ken Hayter
Gerry Hughes
Dan Larter
Ted Lynch
Ed Melenka
Souren Mukherjee
Eleanor Walker

Thank-you to the following elected officials for their support: Okanagan-Coquihalla MP Stockwell Day, Penticton MLA Bill Barisoff, and Boundary-Similkameen MLA John Slater.

Published by:



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B-2 Sample Exit Survey with typical responses shown



OKANAGAN FALLS AREA LIQUID WASTE MANAGEMENT PLAN OPEN HOUSE EXIT SURVEY AND FEEDBACK

#1.) Was the information presented in the newsletter and public information meeting helpful in describing the preferred options?

- A – Very helpful
- B – Helpful
- C – Somewhat helpful
- D – Not helpful

Comments: _____

#2.) What is your preference for future updates to the design and construction phases of the treatment plant upgrade?

- A – Newsletter only
- B – Newsletter and public information meeting
- C – No updates

Comments: _____

#3.) What do you consider to be the most important feature of the new treatment plant?

- A – Low public impacts (ie, no odour or unsightly structure)
- B – Minimize costs
- C – Minimize impacts on natural environment
- D – Other _____

Comments: _____

#4.) Do you think extension of the sewer system to include the Kaleden Lakeshore and Skaha Estates areas should proceed faster?

- Yes
- No

Comments: _____

#5.) Please provide any additional comments:

B-3 Exit Survey results compiled by Erica Kroeker, RDOS Engineering Services

1

OKANAGAN FALLS AREA LIQUID WASTE MANAGEMENT PLAN OPEN HOUSE EXIT SURVEY AND FEEDBACK RESULTS

1. Was the information presented in the newsletter and public information meeting helpful in describing the preferred options?

- A – Very Helpful
- B – Helpful
- C – Somewhat Helpful
- D – Not Helpful

Q1	Regular Vote	Split Vote
A	26	0
B	8	0
C	1	0
D	1	0
No Vote		

Comments and associated vote:

Yes shocking 639/year	D
Very knowledgeable and clear	A
Talked to presenter and he was helpful	No vote
Very nice presentation	A
Clearly presented	A
Skaha Estates!	A
Presented in understandable language	A
Buffer Zone very important	A
A mail out, for information to absent or away homeowners or land owners for future meetings would help.	A
Time lines were not specific enough.	C
Info to date has been good.	A
Keep us updated. Could use more comparison costs for other sewer user communities eg: Penticton.	A
This is a vital forum to get the message out to the public and get their input. (IHA)	A
A rep from IH should have been present to address the concerns of people who have, or may have to install up-to-date septic systems. When do they have to connect?	A

2. What is your preference for future updates to the design and construction phases of the treatment plant upgrade?

- A – Newsletter Only
- B – Newsletter and public information meeting
- C – No updates

Q2	Regular Vote	Split Vote
A	10	2
B	22	2
C	0	0
No Vote	3	

Comments and associated vote:

Keep design committees for buildings to min. Otherwise this could take 3 years.	B
Meeting was perfect for questions.	B
Don't need any updates – just want to have it completed and over with.	No vote
Radio	No vote
Skaha Estates!	A
Skaha Estates!	A
Question and answer period avoids confusion – Residents need to be informed to keep this on track.	B
Put Greenlake Rd on sewer.	No vote
Meeting critical for public involvement.	B
Email	B
Meeting only if there are major changes.	A, B
Should also have info available on the RDOS website	B
I would love to be included on any email correspondence between consultants and ministries if possible. (IHA)	B
In addition to the OK Falls project, the residents of Skaha Estates and Kaleden should be kept "well" informed of progress towards including their communities.	A, B

3. What do you consider to be the most important feature of the new treatment plant?

- A – Low public impacts (ie, no odour or unsightly structure)
- B – Minimize costs
- C – Minimize impacts on natural environment
- D – Other

Q3	Regular Vote	Split Vote
A	1	7
B	6	7
C	11	11
D	7	1
No Vote	2	

Comments and associated vote:

I would love to see Vaseux in better shape.	C
To be built in a cost-effective, timely manner.	No vote
Speed of adding capacity	D
Capacity; To make sewer available to others to keep Skaha Lake clean and safe.	D
Costs will be minimized by community growth – which we need and which will allow A and C to become reality.	B
Lower the cost with more users.	B
To enhance wetlands.	D
Uses for effluent; Relocation	D
Skaha Estates!	B,C
Water in Skaha Estates!	B,C
Stewardship of our environment - responsibility	C
All of above	No vote
Capacity for future (10 years min.); Low impact is good but capacity and high-tech. Are important.	D
No housing to be built near the new plant.	A,C
Costs are important but so are aesthetics.	A,B
All are equally important.	A,B,C
But A and B are also important.	C
Environment; Helping to keep our environment clean.	D
Minimize public health implications related to failing septic systems. (IHA)	C,D

4. Do you think extension of the sewer system to include the Kaleden Lakeshore and Skaha Estates areas should proceed faster?

- Yes
- No

Q4	Regular Vote	Split Vote
Y	33	0
N	4	0
No Vote	1	

Comments and associated vote:

Our rates will go out of sight.	No
The longer we wait, the higher the cost.	Yes
Our whole neighbourhood in Skaha Estates wants to be included now. ASAP.	Yes
Absolutely – Has taken too long so far and needs to proceed faster than what I have just heard from presenter.	Yes
Do wish to see other areas on line as well.	Yes
Please Consider Heritage Blvd (Heritage Hills).	Yes
If funding allows	Yes
Apply for Skaha Estates grants ASAP. Like yesterday!	Yes
We should act for grants ASAP because we are needing this to tackle low impacts on the environment. Skaha Estates.	Yes
I have a septic tank and well.	Yes
Consider extension to Lakeshore Highlands. Lakeshore properties adjacent to Matheson Creek and creek discharging at Arthur Place should be included within the options of this project ASAP.	Yes
You are way behind.	Yes
This should be in the design and cost stage now.	Yes
Do the east or west sides first for costs and capacity.	Yes
Current process unclear for new construction.	Yes
The current proposed speed seems fine.	No
ASAP!	Yes
ASAP or earlier.	Yes
Just make sure of what you are doing. Have the right people with the right answers.	No vote
Definitely, grant applications need to be put in ASAP for these extensions. (IHA)	Yes
It will avoid degradation of Skaha Lake water quality. In addition it will possibly avoid residents installing expensive new septic systems at very high costs which end up being wasted.	Yes

5. Please provide any additional comments:

I would like to see a map of new sewer line placement to Skaha Estates and location of lift stations.
Rates are highest in the valley. Ridiculous. You better go back to the drawing board with a sharper pencil. I left Vancouver to a cheaper area to live. This is ****.
Skaha Estates will probably need some lift pumps. Or will they go along the lake at Skaha Estates?
We need to proceed with the expansion ASAP. These grants will not be around for the long term, apply now. We have nothing to lose. Also, we need a reasonable buffer around the new plant. We do not want to repeat the problems the original plant had!
This is an issue that is the responsibility of the Regional District (OK Falls) to have this completed in a timely (manner) basis and the people looking after this should be accountable if they do not succeed in doing so. It has taken much too long now and as an owner of three properties in the area, I am completely in agreement in getting Phase Two done concurrently with the new treatment plant.
Although the process seems to be slow and cumbersome, it appears to be affecting a positive result. Kudos to the team.
Have areas with as large a housing development as Skaha Estates ie: Heritage Hills put on the system as well.
We live at ****Heritage Blvd. Our property is the Fortis "Right-of-way". This would be an easy route for a sewer line to service as many homes as possible. Please call us if you'd like to use the back of our property. Thank you. We want to be connected!
I appreciated the suggestion of dealing with liquid waste with reducing use of water. Good work!
Using local companies for building is very important. Hurry Please!
Should apply for grant for Skaha Estates and Kaleden as soon as possible.
We need sewer and water ASAP! Apply for grants for Skaha Estates ASAP!!
Septic system failures within short time frame BEFORE availability of a sewer hook-up...plan contingency/grace period. Skaha Lake water quality very important.
If connection to Skaha Estates can't be made until most fields have failed, which seems quite possible, it will be difficult to support.
Apply to infrastructure funding for sewer to Skaha Estates and Kaleden now; Fast track the process as the lake will suffer the more time is wasted.
Do not underbuild capacity. Build for future.
Septic fields in Skaha Estates are mostly more than 30 years old. Some have already failed, and sewer is needed before all property owners have already had to pay for a replacement septic system.
The pumping station near Cedar Village Pumps should be muffled so they are not noisy for nearby residents.
We really believe grants should be applied for ASAP.
With the age of these communities (septic systems) and the ridiculous cost of putting in a new septic system, a sewer system is essential in these areas. The lake and environment are threatened.
New house-Skaha Estates? \$30,000 field or wait for hook-up? How long a wait?
Can grey water systems be incorporated into conservation programs?
Let the communities involved know what they can do to help move this process forward as quickly as possible. Thanks for keeping us informed!
Septics fail and water quality degrades.
A suitable buffer zone around the plant needs to be implemented; Skaha Estates need to be integrated into the system (as well as Kaleden Lakeshore area). (IHA)
Ensure noise abatement of the pump station at the old plant site;

To date, little or no info exchange with the OK Falls Irrigation District to work towards liquid waste reduction;

RDOS should create bylaw prohibiting garburators;

RDOS should initiate "plumbing" inspections with Building Permits to enforce bylaws, Re: low flush toilets, garburators, etc.;

Reclaimed water to irrigate adjacent farmland in addition to Keogen Park;

The LWMP should obtain or be have included in the OCP the requirement for a buffer zone even though the adjacent land is currently in the ALR;

Application for grant money for Kaleden and Skaha Estates should be made ASAP while the superior governments are trying to stimulate projects.

If studies show the water in Skaha Lake is being polluted by our septic fields along the lake, then this should be publicized. I feel if this was done, then more people would react by advising government officials that this is a priority to clean-up Skaha Lake now.

Erica Kroeker
Engineering Services

B-4 LWMP Committee Meeting Notes**AECOM**

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

Meeting Notes

Date of Meeting: March 12, 2009 Start Time: 6:10 pm Project #: 111102-10

Project Name: Okanagan Falls LWMP Amendment

Attendees: Tim Forty (AECOM) Ken Hayter (Advisory Committee Member)
 Liisa Bloomfield (RDOS) Sam Hancheroff (Advisory Committee Member)
 Piero Galvagno (AECOM) Ted Lynch (Advisory Committee Member)
 Alf Hartviksen (RDOS) Souren Mukherjee (Advisory Committee Member)
 John Beaupré (IHA) Eleanor Walker (Advisory Committee Member)
 Bill Schwarz (Area Representative)

Absent: Mike Reiner (MOE) Dan Larter (Advisory Committee Member)
 Carl Withler (MOAg) Ed Melenka (Advisory Committee Member)

Location: Kenyon House, Okanagan Falls

Regarding: First meeting of Okanagan Falls LWMP Advisory Committee

Discussion Items

1. INTRODUCTIONS
2. PRESENTATION BY TIM FORTY – Background Information on what is a LWMP.
 - Does effluent from Penticton cause algae blooms? Most treatment plants in the Okanagan utilize processes that remove nutrients and algae blooms no longer occur.
 - How is the public support gauged since there may be majority of people who are in agreement but are stymied by a vocal minority? Surveys are a key way to gauge public support.
 - It's important to get the process moving since it will be difficult to get support if people spend \$20,000 or more to install new septic systems.
 - Part of this LWMP process will include assessing and defining sewage areas.
 - The LWMP amendment will build on the fact that significant work has already been done and the area has an existing LWMP.

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Meeting Notes
March 12, 2009

- This process is intended to consider new issues not addressed in the Strategic Plan.
- Part of the process is to determine whether areas like Kaleden and Skaha Estates will be included.
- Existing septic systems do not remove nutrients from the waste stream.
- An open house would be conducted to present the findings.

3. PRESENTATION BY PIERO GALVAGNO – Okanagan Falls Sewage Treatment Plant

Background Information

- Organic farms can't use the sludge from the plant due to metals? Most of the metal issues with the sludges are being addressed through source control.
- What about the disadvantage of the new site only having one access road leading to it too [like the existing plant]? Access for the new plant will be put out to the highway as well. During the Strategic Plan, the site location was not known so access wasn't detailed, but it was always the intention to connect with the highway.
- Cost to upgrade and manage septic system is very similar to that of installing sewers for each lot. It is expensive at about \$20,000-40,000.
- All septic systems have a lifespan and can be maximized by regular maintenance. The industry is regulating septic design and costs.
- We want to go ahead if we can get grant funding; the cost of not doing it will be greater than doing it.
- Everyone keeps indicating that we are going to have a lack of water so it's good to keep our options open in terms of reclaimed water use
 1. Pilot irrigation projects for vineyards – warm reclaimed water is less shocking to the plants than very cold water straight out of the ground.
 2. Irrigation areas are plentiful near the WWTP such as the parks and school yard. Need to speak with Bob Daly regarding this.
 3. The Weyerhaeuser site is being promoted for industrial development and the possibility exists that effluent could be used in various industrial processes, such as heat recovery.
 4. Additional irrigation areas are located along the current effluent forcemain that travels from the existing plant to the infiltration basins. This forcemain could be utilized to direct reclaimed water out to the adjacent agricultural lands.
 5. Reclaimed water can also be pumped into the wetland areas located across the river from the new plant location.
- Need to determine our plans for the sludge.
 1. An option is to haul it to Campbell Mountain or another site for composting; or
 2. install a sludge digester to make slow release fertilizer – struvite farming. However the quantity of sludge produced may not support a digester at the new plant.

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AECOM

Page 3 of 3
Meeting Notes
March 12, 2009

- Service area boundary needs to be discussed as the potential population will be important for sizing and staging of the new WWTP as well as determining the cost sharing for the infrastructure.
- Timeline in years is required
 1. Identification of all service areas
 2. Indicate when expansion will occur in each area
 3. Identify a planned expansion plan, unless emergency situation develops
- Aesthetic design of plant and potential layouts will be discussed during these technical meetings.

Anticipated next meeting – Around May 7th, 2009 – Exact date to be determined

Meeting ended: 8:30 pm

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AECOM

B-5 Okanagan Falls Newsletter of April 2010**AECOM**

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

Meeting Notes

Date of Meeting: September 17, 2009 Start 6:00 pm Project #: 111102-10
Time:

Project Name: Okanagan Falls LWMP Amendment

Attendees:

Tim Forty (AECOM)	Roger Cavadini (MOE)
Liisa Bloomfield (RDOS)	Sam Hancheroff (Advisory Committee Member)
Piero Galvagno (AECOM)	Ted Lynch (Advisory Committee Member)
Alf Hartviksen (RDOS)	Souren Mukherjee (Advisory Committee Member)
John Beaupré (IHA)	Bill Schwarz (Area Representative)
Mike Reiner (MOE)	

Absent:

Carl Withler (MOAg)	Dan Larter (Advisory Committee Member)
	Ed Melenka (Advisory Committee Member)
	Eleanor Walker (Advisory Committee Member)
	Ken Hayter (Advisory Committee Member)

Location: Kenyon House, Okanagan Falls

Regarding: Second meeting of Okanagan Falls LWMP Advisory Committee

Discussion Items

1. INTRODUCTIONS
2. PRESENTATION BY TIM FORTY – Summary of Stage 1/2 Report
 - Official Community Plan (OCP) is central to the LWMP in order to manage growth and the potential associated impact.
 - Cost of implementing on-site septic system has increased substantially with new Ministry of Health *Sewage Regulation*.
 - Government grants are intended to pay for solving an existing problem.
3. DISCUSSION & REPORT FEEDBACK
 - Change figure for Kaleden to more clearly articulate the proposed sewer area.

(meeting_minutes_-_september_17_2009.doc)

Page 2 of 2
Meeting Notes
September 17, 2008

- The rapid infiltration basins are in proximity to the Okanagan Falls irrigation aquifer. A source impact study should be conducted if the basins are to continue to be used (J B).
- MOE's preference is to have the effluent discharged to ground if the impact to drinking water is less. However, the two options need to be compared (MR)
- Consideration should be made to irrigating the elementary school playing fields (SS).
- RDOS does not inspect plumbing to ensure new construction meets BC Building Code. The LWMP should recommend implementing plumbing code inspection (All).
- In any public information meeting, it should be explained to Kaleden and Skaha Estates residents what their role is in the LWMP.
- The RDOS has a 1 acre minimum for subdivision without sewer. As a result, there may be some additional demand for sewer if a community system is installed (BS).
- Costing should include operation and maintenance costs and replacement costs.

4. NEXT STEPS

- Mid to late October will be targeted for a public information meeting.

Meeting ended: 8:30 pm

(meeting_notes_-_september_12_2008.doc)

AECOM

Okanagan Falls, Kaleden & Skaha Estates Liquid Waste Management Plan Amendment - UPDATE



Also included... Update on the New Treatment Plant April 2010

Grant Application Update

The Regional District has filed an application with the Okanagan Basin Water Board for additional grant assistance. If successful, this grant would reduce rates further from that indicated in the last newsletter.

Liquid Waste Management Plan (LWMP) Effluent Reuse & Disposal Options

The Liquid Waste Management Plan (LWMP) for the Okanagan Falls, Kaleden & Skaha Estates is nearing completion. (see reverse for Figure 3) The Regional District plans on submitting the LWMP to the Ministry of Environment for approval in the next couple of weeks. Ministry approval of the LWMP is needed to implement the plan so funds can be accessed to continue with the new treatment plant design.

Part of the LWMP deals with the final disposal options of the treated effluent from the new treatment plant. One of the options for discharging effluent to the environment is the use of a river diffuser in Okanagan River adjacent to the new treatment plant. Potentially up to 100% of the total effluent could be discharged to the river. The Regional District is not expecting this scenario.

The Regional District intends to reuse as much of the treated effluent as fea-

sible for wetland enhancement and/or for parks and agricultural irrigation, thereby potentially reducing the discharge to the river channel. If the wetland and irrigation options prove to be too costly or too difficult to implement, then up to 100% of the treated effluent could be discharged to the river channel.

After the pre-design is completed, a Public Meeting will be hosted to present all the effluent reuse and discharge options and receive public comments on selection(s) for the final design. Other aspects that will be presented are aesthetics of the site, odour control, pharmaceutical treatment, and general design of the new wastewater treatment plant.

The LWMP amendment suggests an extension of the sewer service area to include Skaha Estates (183 lots likely to be serviced) and Kaleden Lakeshore areas (142 lots likely to be serviced) at a future date. Details of the proposed

Questions?

Contact Information:

Regional District of Okanagan-Similkameen

101 Martin Street
Penticton, B.C. V2A 5J9
Phone: 250-492-0237
Toll-free: 1-877-610-3737
info@rdos.bc.ca

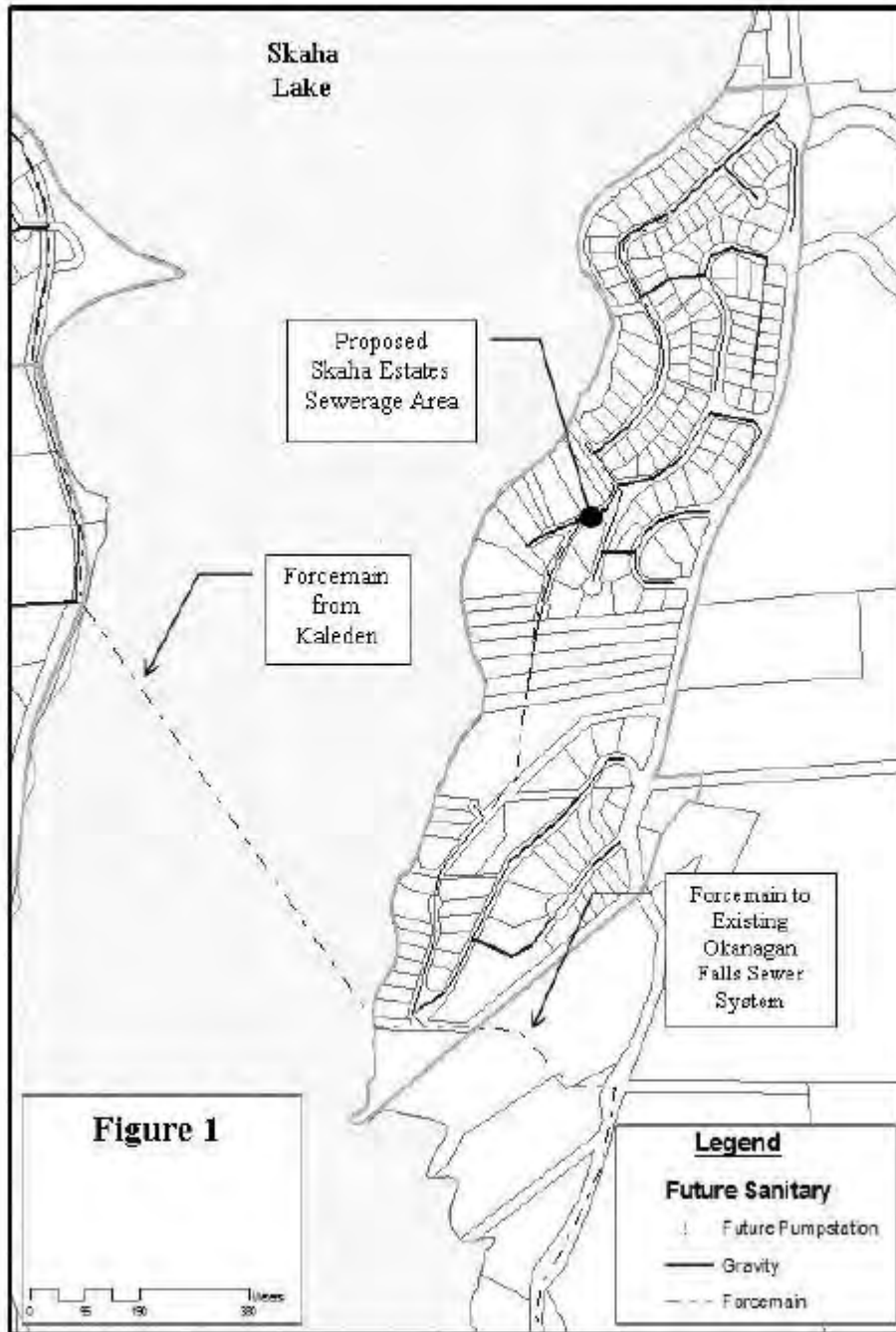
Ministry of Environment

102 Industrial Place
Penticton, BC V2A 7C8
Phone: 250-490-8200
Fax: 250-490-2231
Roger.cavadini@gov.bc.ca

future sewerage systems for Skaha Estates and Kaleden are presented in Figures 1 and 2 on the next pages.

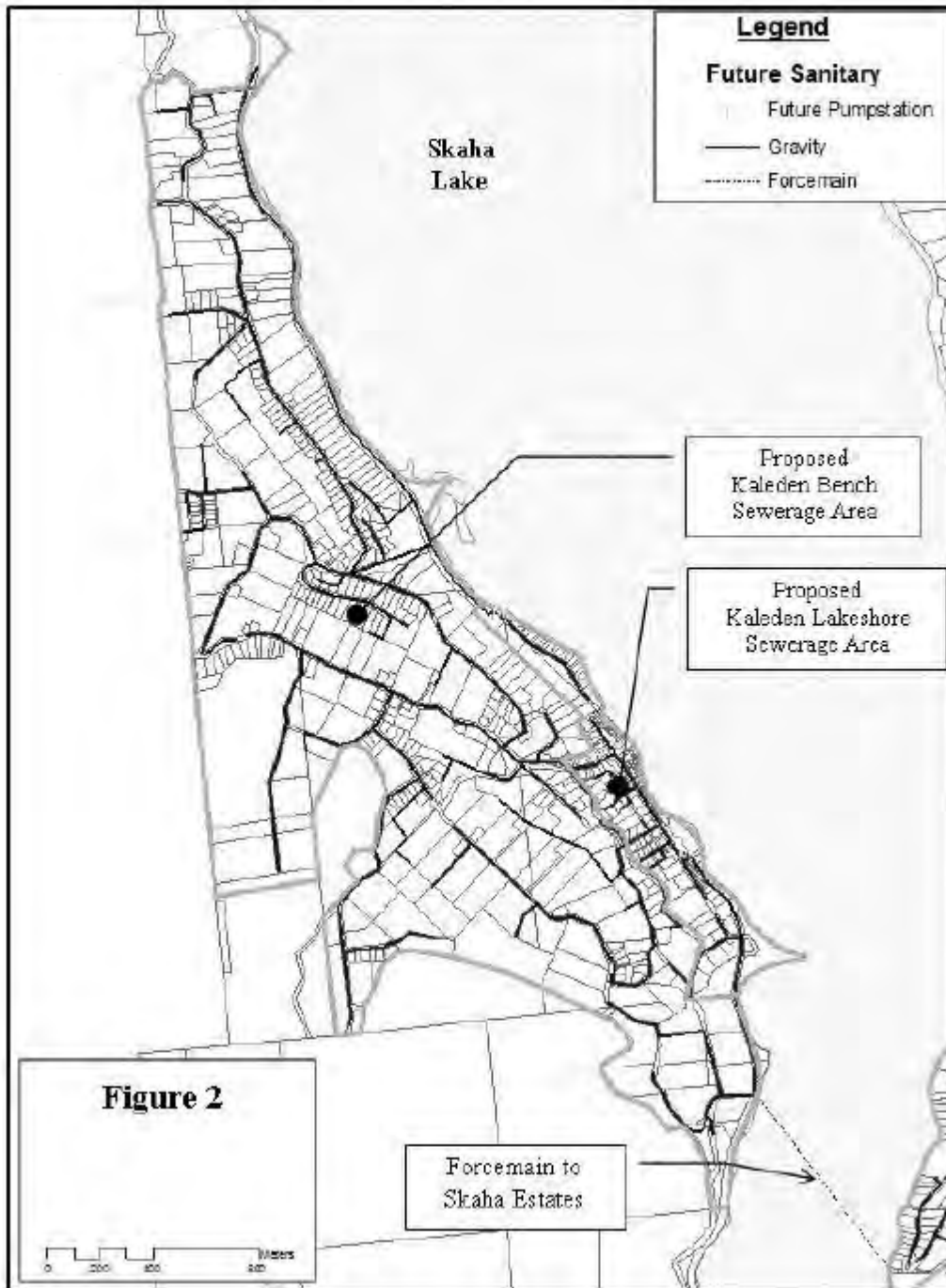
As part of the public consultation process, you are invited to provide comments and feedback on the LWMP Amendment and various disposal options to the Regional District and the Ministry of Environment by May 31, 2010.

Conceptual Future Layout of Skaha Lake Sewer System as included within the LWMP Amendment (Final layout to be determined when the sewerage project proceeds).



REGIONAL DISTRICT of OKANAGAN-SIMILKAMEEN

Conceptual Future Layout of Kaleden Lakeshore and Kaleden Bench Sewer System as included within the LWMP Amendment. (Final layout to be determined when the sewerage project proceeds).



REGIONAL DISTRICT of OKANAGAN-SIMILKAMEEN

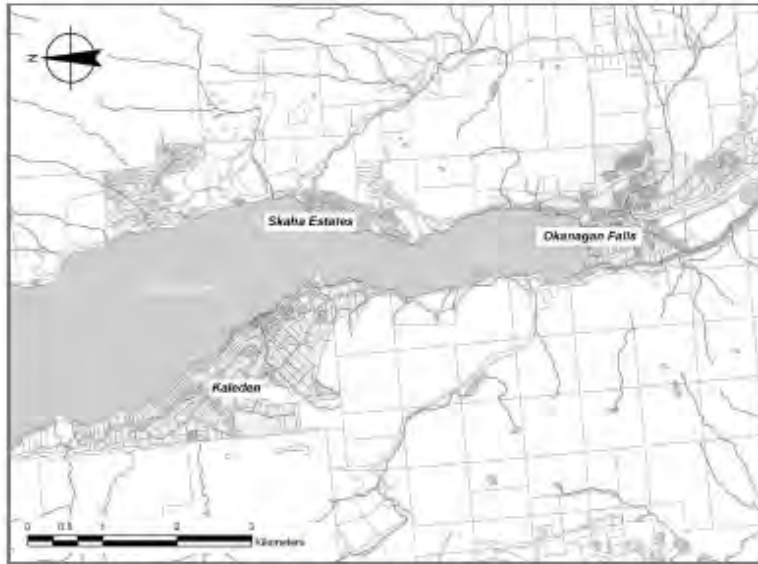


Figure 3: LWMP Amendment Areas

Wastewater Treatment

Historically, wastewater treatment involved primary treatment and secondary treatment to remove most of the solid and organic materials before being discharged to the receiving environment. An example is the current plant in Okanagan Falls that carries out primary and second-

dary treatment before pumping to the existing infiltration basins. Lessons gained through experience have taught the importance of also removing nutrients, such as nitrogen and phosphorous, from the waste-water. This is accomplished through tertiary treatment processes that remove almost all the nutrients before discharging to the receiving waters,

such as lakes or rivers.

The new wastewater treatment plant will have tertiary treatment using Biological Nutrient Removal (BNR) technology. The proven process is reliable, robust, operator friendly and extremely adaptable to changing flow and load conditions. The BNR treatment process removes organic material, phosphorous and nitrogen and with filtrations and disinfection, will produce effluent at near drinking water standards. The high quality effluent provides for a range of uses and disposal methods. The effluent can be reused as irrigation water, discharged to a river or lake or used to enhance habitat in wetland environments. BNR technology was implemented in Canada in the late 1970s when the first BNR plant was constructed in Kelowna to address nutrient impacts to Okanagan Lake, such as algae blooms and excess weed growth. BNR plants in other Okanagan communities have also proven to be successful, such as those in Penticton, Summerland and Lake Country.

Did You Know?

- AECOM Canada Ltd. was awarded an engineering contract of \$900,000 by the Regional District Board on February 18, 2010 to design and administer the construction of the new wastewater treatment plant. This is almost \$200,000 less than what was budgeted. Design has commenced and a realistic schedule has been determined.
- Construction Schedule:
 1. March 2011: design completion
 2. March and April 2011: tender for construction
 3. May 2011: construction commences
 4. April 2012: plant will be operational
- Area D Director, Bill Schwarz, has formed an Advisory Design Committee to consider public issues and concerns such as aesthetics, noise, odour, traffic, landscaping and fencing. If you wish to participate, please contact Director Bill Schwarz.
- At this point, Skaha Estates and Kaledon are not included in the service area for sewer. However, the plant will be designed to manage high volumes and Skaha Estates and Kaledon are planned to be added in the future.

Appendix C

Okanagan Falls Area Liquid Waste Management Plan – Amendment Combined Stage 1 & 2 Report

- Cost Breakdown

Table C-1: Cost Estimate for the New Treatment Plant

Okanagan Falls Sewage Treatment Plant - Staged Construction Cost Estimates (Class D)					
	Item	Unit	Quantity	Cost/Unit	Cost Estimate (\$)
1.0	Environmental Assessment				50,000
2.0	General (Mob/DeMob, overhead, insurance)	LS	1	250,000	250,000
3.0	Civil and Site Servicing (Road, Water, Fencing)	LS	1	170,000	170,000
4.0	Conveyance trunk/forcemain from old to new plant	m	1,600	400	640,000
5.0	Preliminary Treatment (Screening and Grit Removal)	LS	1	325,000	325,000
6.0	Primary Treatment & Fermenter	LS	1	350,000	350,000
7.0	Secondary Treatment (Bioreactor and Clarifiers)	LS	1	2,500,000	2,500,000
8.0	Tertiary Filtration	LS	1	350,000	350,000
9.0	Effluent UV Disinfection, Pumping Facility and Outfall	LS	1	450,000	450,000
10.0	Waste Solids Management (Thickening and Dewatering)	LS	1	750,000	750,000
11.0	Building to house DAF, centrifuge, pumps, mechanical and staff	m ²	250	1,200	300,000
12.0	Foul Air Control and Treatment	LS	1	175,000	175,000
13.0	Electrical and Instrumentation	LS	1	500,000	500,000
14.0	Building mechanical (HVAC)	LS	1	150,000	150,000
15.0	Miscellaneous Piping & Metal Fabrication	LS	1	200,000	200,000
				Sub-Total	7,160,000
				Engineering (15%)	1,074,000
				Contingency (20%)	1,432,000
				GST (5%)	483,300
Okanagan Falls Wastewater Treatment Plant Construction					\$10,149,300
Okanagan Falls Wastewater Treatment Plant Construction (Rounded)					\$10,150,000

Table C-2: Cost Estimate for Sewering the Kaleden Lakeshore Area

Kaleden Lakeshore				
Item	Unit	Quantity	Cost/Unit	Cost Estimate (\$)
1.) Gravity sewer (incl. manholes, services, road/ROW restoration, dewatering)	m	3,170	560	1,775,200
2.) Alder Ave. Pump Station	LS	1	245,000	245,000
3.) Alder Ave. Forcemain	m	585	450	263,250
4.) Pioneer Park Pump Station	LS	1	245,000	245,000
5.) Skaha Lake Forcemain (common trench)	m	980	220	215,600
6.) Skaha Lake Forcemain (submerged)	m	960	550	528,000
			Sub-Total	3,272,050
			Engineering & Contingency (35%)	1,145,218
			GST (5%)	220,863
TOTAL, INCLUDING TAXES (Rounded)				4,640,000

Table C-3: Cost Estimate for Sewering the Skaha Estates Area

Skaha Estates				
Item	Unit	Quantity	Cost/Unit	Cost Estimate (\$)
1.) Gravity sewer (incl. manholes, services, road/ROW restoration, dewatering)	m	4,390	560	2,458,400
2.) Devon Drive Pump Station	LS	1	245,000	245,000
3.) Devon Drive Forcemain (common trench)	m	250	220	55,000
4.) Laguna Lane Pump Station	LS	1	245,000	245,000
5.) Camberly Cove Forcemain (common trench)	m	695	220	152,900
			Sub-Total	3,156,300
			Engineering & Contingency (35%)	1,104,705
			GST (5%)	213,050
TOTAL, INCLUDING TAXES (Rounded)				4,470,000

Table C-4: Cost Estimate for Common Conveyance Upgrade

Common Conveyance Upgrades				
Item	Unit	Quantity	Cost/Unit	Cost Estimate (\$)
1.) Gravity by-pass sewer (incl. manholes, services, road/ROW restoration, dewatering)	m	624	560	349,440
2.) Echo Bay Road Pump Station	LS	1	245,000	245,000
3.) Eastside Road Forcemain (road restoration)	m	2,615	450	1,176,750
			<i>Sub-Total</i>	<i>1,771,190</i>
			Engineering & Contingency (35%)	619,917
			GST (5%)	119,555
TOTAL, INCLUDING TAXES (Rounded)				2,510,000

Table C-5: Treatment Plant Annual Operating Costs

Sewer Service Operating & Maintenance costs			
	Unit Cost per Year	Number Required	Cost per Year
Operators (incl. Overhead)	\$ 90,000	2	\$ 180,000
Insurance & Administration	\$ 120,000		\$ 120,000
Sludge/Screenings Transport & Disposal	\$ 30,000		\$ 30,000
Power Cost	\$ 40,000		\$ 40,000
Chemical Cost	\$ 50,000		\$ 50,000
Tools and Parts	\$ 20,000		\$ 20,000
Capital Reserve (Based on Replacement Cost over 75 Years)	\$ 50,000		\$ 50,000
Total O&M Cost per year			\$ 490,000

Appendix D

Okanagan Falls Area Liquid Waste Management Plan – Amendment Combined Stage 1 & 2 Report

- **Conceptual Architectural Treatment**

Figure D-1 Proposed Architectural Treatment for the proposed STP by Bevanda Architecture Inc.

DRAWING LIST

A00	COVER SHEET
A01	PERSPECTIVE
A02	PERSPECTIVE
A03	PERSPECTIVE
A04	PERSPECTIVE
A05	PERSPECTIVE
A06	PERSPECTIVE
A07	PERSPECTIVE
A08	PERSPECTIVE
A09	PERSPECTIVE
A10	PERSPECTIVE
A11	PERSPECTIVE
A12	PERSPECTIVE
A13	PERSPECTIVE
A14	PERSPECTIVE
A15	PERSPECTIVE
A16	PERSPECTIVE
A17	PERSPECTIVE
A18	PERSPECTIVE
A19	PERSPECTIVE
A20	PERSPECTIVE



**REGIONAL DISTRICT OKANAGAN-SIMILKAMEEN
WASTEWATER TREATMENT PLANT**



BEVANDARCHITECTURE

Bevanda Architecture Inc.
230 - 10th Street
Okanagan Falls, BC
V1K 2R5
Tel: (250) 861-1111
Fax: (250) 861-1112
www.bevanda.com

REGIONAL DISTRICT
OKANAGAN-SIMILKAMEEN
WASTEWATER
TREATMENT PLANT

COVER SHEET

A000

CF 13	
NO.	DATE
1	2018-08-01
2	2018-08-01
3	2018-08-01
4	2018-08-01
5	2018-08-01
6	2018-08-01
7	2018-08-01
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9	2018-08-01
10	2018-08-01
11	2018-08-01
12	2018-08-01
13	2018-08-01
14	2018-08-01
15	2018-08-01
16	2018-08-01
17	2018-08-01
18	2018-08-01
19	2018-08-01
20	2018-08-01

BEVANDARCHITECTURE

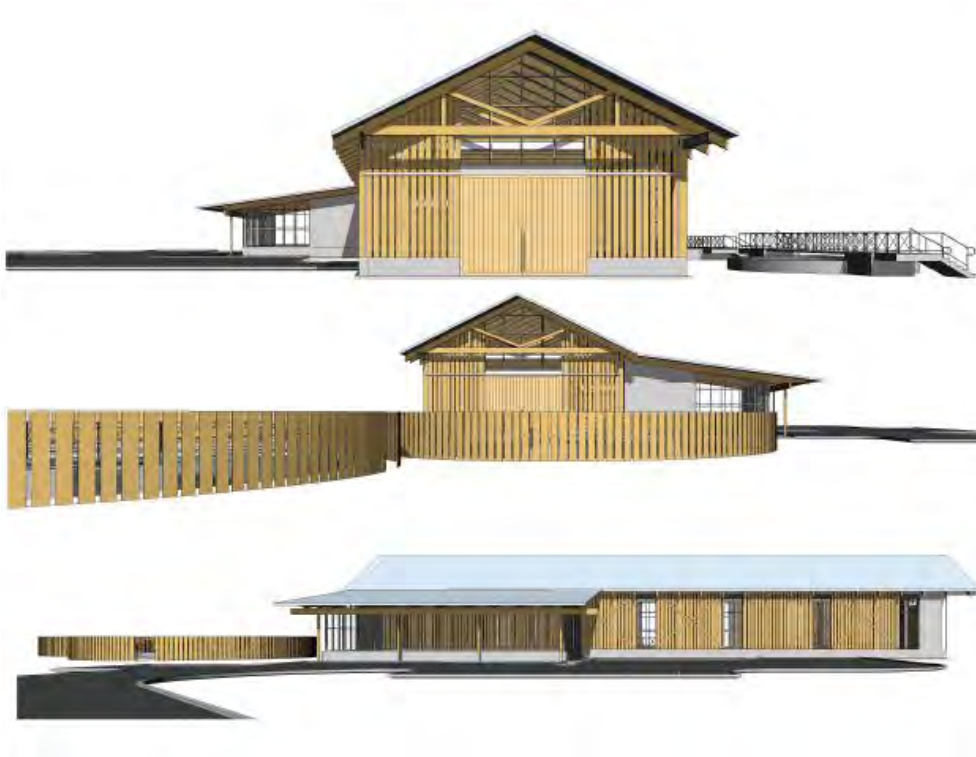
Bevanda Architecture Inc.
230 - 10th Street
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V1K 2R5
Tel: (250) 861-1111
Fax: (250) 861-1112
www.bevanda.com

REGIONAL DISTRICT
OKANAGAN-SIMILKAMEEN
WASTEWATER
TREATMENT PLANT

PERSPECTIVE

A001

CF 13	
NO.	DATE
1	2018-08-01
2	2018-08-01
3	2018-08-01
4	2018-08-01
5	2018-08-01
6	2018-08-01
7	2018-08-01
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14	2018-08-01
15	2018-08-01
16	2018-08-01
17	2018-08-01
18	2018-08-01
19	2018-08-01
20	2018-08-01



BEVANDARCHITECTURE

BevandArchitecture
255 - 8th Ave. East
Okanagan Falls, BC
V2J 2P2 (250) 833-1111
Fax: (250) 833-1111
BevandArchitecture.com

Project: REGIONAL DISTRICT
OKANAGAN-SIMILKAMEEN
WASTEWATER
TREATMENT PLANT

View: PERSPECTIVES

A002

CF 13

NO.	DATE	DESCRIPTION



BEVANDARCHITECTURE

BevandArchitecture
255 - 8th Ave. East
Okanagan Falls, BC
V2J 2P2 (250) 833-1111
Fax: (250) 833-1111
BevandArchitecture.com

Project: REGIONAL DISTRICT
OKANAGAN-SIMILKAMEEN
WASTEWATER
TREATMENT PLANT

View: FENCING

A003

CF 13

NO.	DATE	DESCRIPTION



BEVANDARCHITECTURE

BevandArchitecture
200 - 1000-1000
Okanagan Falls BC
V1K 2Y1
Tel: 250-861-1111
Fax: 250-861-1111

Project:
REGIONAL DISTRICT
OKANAGAN-SIMILKAMEEN
WASTEWATER
TREATMENT PLANT

Project:
RENDERING

A004

CF 13

Appendix E

Okanagan Falls Area Liquid Waste Management Plan – Amendment Combined Stage 1 & 2 Report

- Letters regarding use of reclaimed water for wetlands enhancement

Letters regarding use of reclaimed water for wetlands enhancement

E-1 Letter from RDOS to Ducks Unlimited

101 Martin Street, Penticton, British Columbia V2A 5J9
Tel: 250.492.0237 Fax: 250.492.0063
Toll Free: 877.610.3737
Email: info@rdos.bc.ca



September 11, 2007

RDOS File: D533020

Ducks Unlimited Canada
954 A Laval Crescent
Kamloops, BC V2A 5P5

Attention: ~~Tom Slater~~

*left: replaced by
Brad Arner*

**Re: Discharge of Sanitary Sewage Effluent to
Ducks Unlimited Bird / Wetland Sanctuary**

The Regional District Okanagan-Similkameen (RDOS) is contemplating the construction of a new tertiary (biological nutrient removal) sanitary sewage treatment plant as an upgrade and a replacement of the existing primary sanitary sewage treatment plant in Okanagan Falls, BC. The attached map depicts the locations of both the existing and proposed treatment plants.

The current sewage treatment plant discharges liquid effluent to rapid infiltration (RI) basins located approximately 2.1 kilometres to the southeast of the existing plant (location indicated on attached map). These liquid basins have resulted in the formation of an adjacent pond; locally known as Johnson Lake, which has become a habitat for indigenous aquatic and bird species.

The proposed tertiary sewage plant is contemplated to continue the discharge of the highly treated liquid effluent either to these basins or perhaps to be discharged and utilized in some other beneficial way; such as for irrigation of nearby fields or for the growth of animal fodder.

In that regard and given the adjacent proximity to a Ducks Unlimited Canada (DUC) bird / wetland sanctuary, the RDOS would like to enquire of DUC as to whether or not there might be some favorable approach in utilizing this highly treated effluent discharge on the sanctuary lands to meet and / or enhance the DUC's 'conservation focus' as noted on the 'British Columbia Intermountain' DUC website. The RDOS would be prepared to assist in appropriate research and investigations in developing a 'best practice' method of implementing such an approach.

If you wish to meet or have any other questions, please contact me at 250-490-4210 or email me at 'ahartviksen@rdos.bc.ca'.

Yours truly,

Alfred E. Hartviksen, P.Eng.
Engineer

*Brad - suggest talking to
Enviro. Couns or ??
- David Smith
in Delta, BC*

cc: Bill Schwarz, RDOS – Director Electoral Area 'D', Kaleden / Okanagan Falls
Andrew Reeder, P.Eng., RDOS – Engineering Services Manager
Marty Willifong, P.Eng., RDOS – Director of Development Services

www.rdos.bc.ca

E-2 Response from Ducks Unlimited



Ducks Unlimited Canada
CANADA'S CONSERVATION COMPANY

954A Laval Crescent, Kamloops, BC, V2C 5P5, Telephone (250) 374-8307 Fax (250) 374-6287

28-09-07A09:37 RCVD

orig → file
cc: AR

September 25, 2007

Alfred E. Hartviksen
Engineer
Regional District Okanagan Similkameen
101 Martin Street
Penticton, BC V2A 5J9

COPY

Re: Discharge of Sanitary Sewage Effluent to Ducks Unlimited Bird/Wetland Sanctuary

Dear Alf:

Thanks for your letter of September 11, 2007 regarding the proposed improvements to Okanagan Falls sewage treatment plant and the potential discharge of treated effluent into nearby wetlands.

As we discussed briefly over the phone, Ducks Unlimited Canada (DUC) has had previous experience with treated sewage effluent being used to supplement the water supply in natural and managed wetlands. The wetlands at Vaseux NWA and adjacent areas may be good candidates for receiving treated effluent. This would have to be approved by Environment Canada and looked at in detail, but in my mind worthy of consideration. I would recommend you contact Dave Smith with the Canadian Wildlife Service, Environment Canada Pacific Wildlife Research Centre RRI, 5421 Robertson Road Delta, BC V4K 3N2 (604) 940-4700 (604) 946-7022 (Fax). Dave manages the National Wildlife Area lands for Environment Canada. His involvement and approval will be necessary for anything that may affect the Vaseux/Bighorn National Wildlife Area.

Please keep me informed as your proposal progresses. Thanks for contacting Ducks Unlimited.

Sincerely,

Brad Arner
Manager of Conservation Programs - BC

E-3 Letter to Canadian Wildlife Service of Environment Canada from RDOS, Page 1 of 2

101 Martin Street, Penticton, British Columbia V2A 5J9
Tel: 250.492.0237 Fax: 250.492.0063
Toll Free: 877.610.3737
Email: info@rdos.bc.ca



October 4, 2007

RDOS File: D533020

Canadian Wildlife Service
Environment Canada
Pacific Wildlife Research Centre
RR1, 5421 Robertson Road
Delta, BC, V4K 3N2

Attention: Dave Smith

Re: Discharge of Sanitary Sewage Effluent to Wetlands Sanctuary

The Regional District Okanagan-Similkameen (RDOS) is contemplating the construction of a new tertiary (biological nutrient removal) sanitary sewage treatment plant as an upgrade and a replacement of the existing primary sanitary sewage treatment plant in Okanagan Falls, BC. The attached map depicts the locations of both the existing and proposed treatment plants.

The current sewage treatment plant discharges liquid effluent to rapid infiltration (RI) basins located approximately 2.1 kilometres to the southeast of the existing plant (location indicated on attached map). These liquid basins have resulted in the formation of an adjacent pond; locally known as Johnson Lake, which has become a habitat for indigenous aquatic and bird species.

The proposed tertiary sewage plant is contemplated to continue the discharge of the highly treated liquid effluent either to these basins or perhaps to be discharged and utilized in some other beneficial way; such as for irrigation of nearby fields or for the growth of animal fodder.

In that regard and given the adjacent proximity to a wetland sanctuary, the RDOS would like to enquire as to whether or not there might be some favorable approach in utilizing this highly treated effluent discharge on the sanctuary lands to meet and / or enhance their conservation. The RDOS would be prepared to assist in appropriate research and investigations in developing a 'best practice' method of implementing such an approach.

We have discussed this matter with Ducks Unlimited Canada; a copy of their letter is attached, who suggested that we contact you. The RDOS believes that it may be a year or so before design of the treatment plant commences. At this stage we are simply investigating various design options for consideration and would appreciate receiving any comment or information that you may have.

If you wish to meet or have any other questions, please contact me at 250-490-4210 or email me at 'ahartviksen@rdos.bc.ca'.

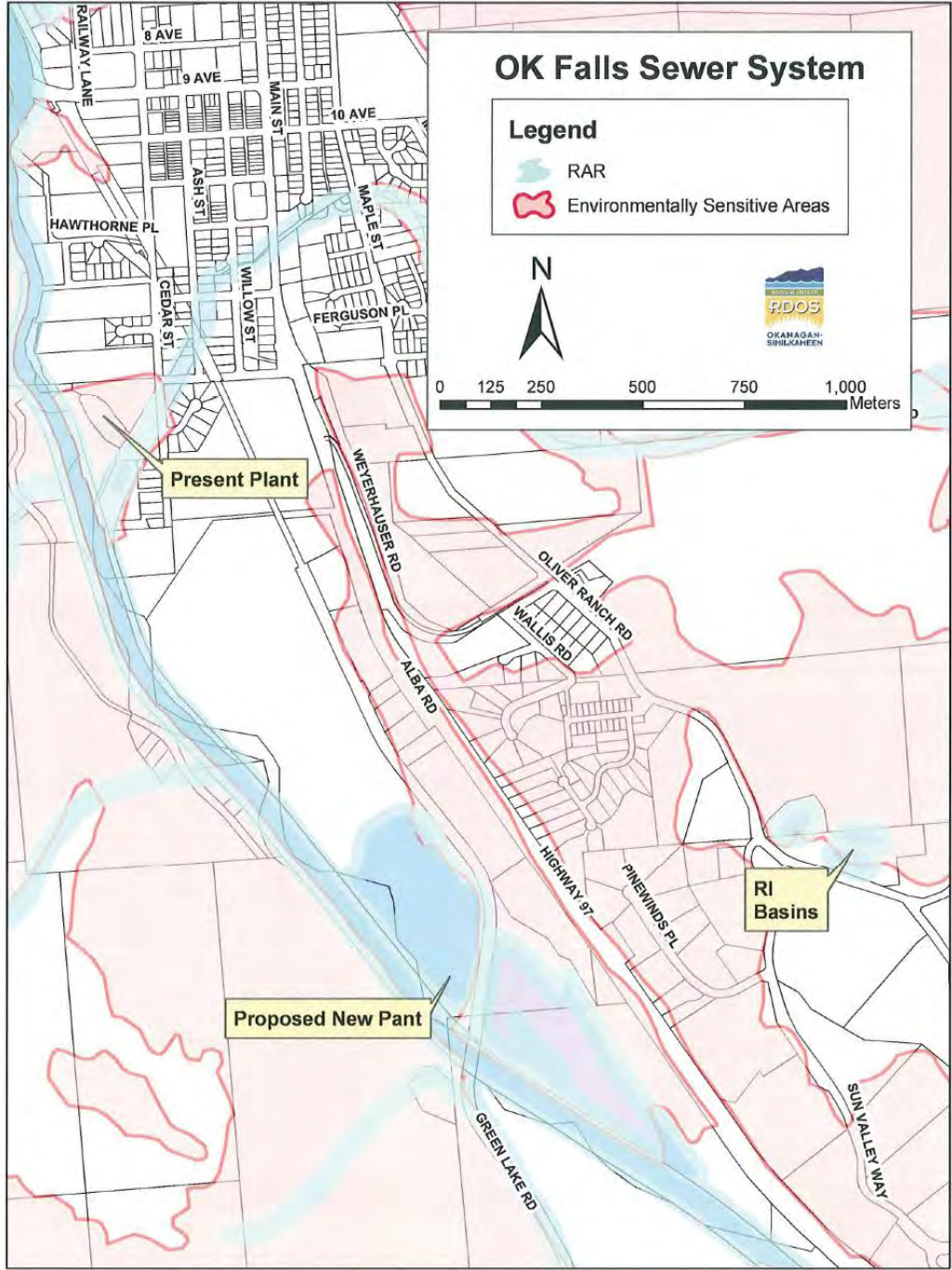
Yours truly,

Alfred E. Hartviksen, P.Eng.
Engineer

cc: Bill Schwarz, RDOS – Director Electoral Area 'D', Kaleden / Okanagan Falls
Andrew Reeder, P.Eng., RDOS – Engineering Services Manager
Marty Willfong, P.Eng., RDOS – Director of Development Services

www.rdos.bc.ca

Letter to Canadian Wildlife Service of Environment Canada from RDOS, Page 2 of 2



E-4 Response from Canadian Wildlife Service of Environment Canada

Environment Canada
Canadian Wildlife Service
Pacific Wildlife Research Centre
5421 Robertson Road, RR #1
Delta, BC
Canada
V4K 3N2

RDOS file: D533020

October 14, 2009

Andrew Reeder
RDOS
101 Martin Street
Penticton, BC
Canada
V2A 5J9

Subject: Discharge of Sanitary Sewage Effluent to Wetlands Sanctuary

I have reviewed your original letter from Oct 04, 2007 describing the proposed tertiary sewage treatment plant contemplated near Vaseux Lake Migratory Bird Sanctuary and the Vaseux-Bighorn National Wildlife Area.

I am not too familiar with sewage treatment systems or what constitutes "highly treated water" but I would be glad to discuss how we could work together if this project could benefit the conservation efforts within the protected areas named above.

I would suggest that a thorough environmental assessment needs to be completed describing these potential benefits and possible detriments based on various construction options for this sewage treatment plant. Useful information should include but not be limited to: construction details; water quality, temperature, & volume information; options to outflow locations; impacts to local habitats (algae blooms, accelerated eutrophication, fish die-off, impact to migratory birds, etc.).

Please keep this office informed on this project as it progresses.

Regards,

Dave W. Smith
A/Senior Marine Habitat Planner
Canadian Wildlife Service
Ph. 604-940-4656
Fax 604-946-7022
e-mail dave.smith@ec.gc.ca

cc. Courtney Albert
Snehal Lakhani

Canada

E-5 Response from Ministry of Environment

November 20, 2009

File: 58000-20/91135

Regional District of Okanagan Similkameen
101 Martin Street
Penticton BC V2A 5J9

Attention: Lisa Bloomfield, E.I.T.

Re: Okanagan Falls - Sewage Treatment Plant – Sewage Outfall to
Wetlands Sanctuary

The Ecosystems Section of the Ministry of Environment has the following comments regarding the above noted referral.

It is understood that the proposed discharge option will require works in and about a stream and as such will require application under the provincial *Water Act*. There may also be disturbance of riparian habitats, which may be contributing to fish habitat as regulated by the *Federal Fisheries Act*. There will also be requirements from Environment Canada.

ES recommends an environmental professional be consulted to identify a site-specific environmental concerns and to provide appropriate recommendations or mitigation options following provincial and federal best management practices. Species of concern in this general location include Rocky Mountain Ridged Mussel, Great Basin Spadefoot, Yellow-breasted Chat, Painted Turtle, and Western Rattlesnake.

If you require further information please do not hesitate to contact Kristina Robbins, Ecosystems Biologist, at 250-490-2285.

Yours truly,

A handwritten signature in black ink, appearing to read "Kristina Robbins".

Kristina Robbins
Ecosystems Biologist
For the Referral Committee

KR/cl

Ministry of Environment

Environmental Stewardship Division
Okanagan Region
102 Industrial Place
Penticton BC V2A 7C8

Telephone: (250) 490-8200
Facsimile: (250) 490-2231

Appendix F

Okanagan Falls Area Liquid Waste Management Plan – Amendment Combined Stage 1 & 2 Report

- Summary of Public Support
Comments and Letters of Support for
WWTP Upgrade

F-1 Summary of Survey Results

There were also over 20 letters of support received from members of the public, which are not included in this appendix but that form part of the public record.

BCF-CC No. 22318 Okanagan Falls STP and Sanitary Sewer System

RDOS

SURVEY SENT TO RESIDENTS OF OKANAGAN FALLS: JUNE 2005

Public in Support

<p>#1 Capacity: The Okanagan Falls wastewater treatment plant has reached its intended capacity and, therefore, should be upgraded or replaced.</p>	<p>80%</p>
<p>#2 Option #7 with senior government funding Upon confirmation of two-thirds senior government funding, the RDOS should proceed with Option #7 as outlined in the report prepared by Earth Tech Canada. Option #7 involves construction of a BNR (biological nutrient removal) plant downstream of the existing site. The capital cost would be \$5.2 million; annual operating and maintenance costs would be about \$300,000. Annual user fees would increase from \$285 to \$367.</p>	<p>89%</p>
<p>#3 Option #7 without senior government funding Even without senior government funding, the RDOS should proceed with Option #7. Annual user fees would increase from \$285 to \$630.</p>	<p>35%</p>
<p>#4 Option #6 without senior government funding In the absence of senior government funding, the RDOS should proceed with Option #6 which involves construction of BNR (biological nutrient removal) plant at the existing sewage treatment site. The capital cost would be \$4.6 million; annual operating and maintenance costs would be about \$300,000. Annual user fees would increase from \$285 to \$597.</p>	<p>14%</p>

SURVEY SENT TO RESIDENTS OF SKAHA ESTATES AND KALEDEN: NOVEMBER 2007

Public in Support

<p>#1 Skaha Lake is an important natural resource that should be protected</p>	<p>98%</p>
<p>#2 The installation of community sewers will protect Skaha Lake from the pollution produced by aging septic tanks</p>	<p>83%</p>
<p>#3 Upon confirmation of two-thirds senior government funding and 18 percent Okanagan Basin Water Board funding, the RDOS should construct sewer systems for the Kaleden lakeshore and Skaha Estates areas that would tie into the new OK Falls treatment plant.</p>	<p>79%</p>
<p>#4 Even without senior government funding, the RDOS should construct sewer systems for the Kaleden lakeshore and Skaha Estates areas that would tie into the new OK Falls treatment plant.</p>	<p>36%</p>

F-2 First Letter of Support from Interior Health

January 15, 2007

19-01-07P02:33 RCVD

Marty Wilfong, Engineering Services
RDOS
101 Martin Street
Penticton, B.C. V2A 5J9

Dear Mr. Wilfong:

Re: Proposed upgrade of Okanagan Falls Community Sewer System

At the request of Mr. Bill Schwartz, Area 'D' Director, please accept this letter in support of the RDOS proposal to upgrade the community sewer system in Okanagan Falls.

It is my understanding that the current proposal will both increase and upgrade the treatment capacity of this sewer system; this may allow the expansion of the service area to include developments north around Skaha Lake and south along the Okanagan River. In addition, it is my understanding that the current proposal will also relocate the sewage treatment facility farther south to a more remote location with access directly from Highway 97. Both the improvement to the treatment capacity and the relocation of the treatment facility will help improve the overall sanitation of the area.

If you require anything further, please contact me at (250) 770-3520.

Yours truly,

A handwritten signature in black ink, appearing to read "Carl Wong", written over a light blue horizontal line.

Carl Wong, C.P.H.I.(C)
Public Health Inspector
Okanagan Similkammen Health Service Area
Interior Health Authority

CW/sd

cc: Bill Schwartz, RDOS – Area D (Okanagan Falls) Director
Stephen Pope, Interior Health, Senior Public Health Inspector

INTERIOR HEALTH AUTHORITY
Public Health Inspection
Bus: (250) 770-3530 Fax: (250) 770-3470 Web: interior.health.ca

Penticton Health Centre
740 Carmi Avenue, 2nd Fl.
Penticton, BC, V2A 8P9

F-3 Second Letter of Support from Interior Health

02-02-07A11:37 RCVD

February 1, 2007

Alfred E. Hartviksen, P. Eng.
Regional District of Okanagan-Similkameen
101 Martin Street
Penticton, BC V2A 5J9

Dear Alfred Hartviksen:

**Re: Okanagan Falls Sewage Treatment Plant
Infrastructure Fund Application Letter of Support**

Interior Health supports your proposal to construct a new biological nutrient removal (BNR) plant. This project would provide additional capacity for sewerage effluent treatment thereby permitting homes presently using onsite sewerage disposal systems connection to the community collection and treatment system.

Should you have any questions, feel free to contact me weekdays at 770-3497.

Sincerely,

A handwritten signature in black ink, appearing to read "Stephen Pope".

Stephen Pope, C.P.H.I.(C)
Senior Public Health Inspector
Interior Health Authority

SP/sd

Bus: (250) 770-3530
Fax: (250) 770-3470
Web: interiorhealth.ca

PUBLIC HEALTH INSPECTIONS
740 Carmi Ave., 2ND Floor
Penticton, BC, V2A 8P9

F-4 Third Letter of Support from Interior Health

August 27, 2008

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

Dear Andrew Reeder:

Re: Okanagan Falls Sewage Treatment Plant

It is our understanding the Regional District of Okanagan Similkameen (RDOS) has made application under the Canada – British Columbia Municipal Rural Infrastructure Fund to construct a new biological nutrient removal sewage treatment plant downstream of the existing treatment plant site in Okanagan Falls. The new plant is needed as the current one is operating at near capacity using infiltration basins as a method of effluent dispersal. This has the potential for contaminating groundwater used as a source of drinking water as well as polluting and deteriorating the quality of surface water in the area. The new sewage treatment plant would alleviate risks to public health and the environment.

In addition to Okanagan Falls residents the project would also provide sanitary sewer connections to properties along the lakeshore of Skaha Lake in the communities of Kaleden and Skaha Estates which currently use individual on-site sewage disposal systems. As Skaha Lake is the water source for community water systems serving Kaleden and Skaha Estates the provision of community sanitary sewer service and decommissioning of on-site sewage disposal systems would serve to further protect the lake as a drinking water source and reduce the risk of water borne disease to the public.

Interior Health supports the RDOS in their efforts to promote safe, healthy, sustainable, communities through projects such as the Okanagan Falls Sewage Treatment Plant Project which are in the best interests of public health.

If you have any questions regarding this letter please contact me weekdays at (250) 770-3530 in the Penticton Health Centre.

Sincerely,

A handwritten signature in black ink that reads "John C. Beaupre".

John Beaupre, C.P.H.I.(C)
Public Health Inspector

JB/sd

Bus: (250) 770-3530
Fax: (250) 770-3470
Web: interiorhealth.ca

PUBLIC HEALTH INSPECTIONS
740 Carmi Ave., 2nd Floor
Penticton, BC, V2A 8P9

F-5 Emailed comments regarding specific issues

From: Yehia, Jade [<mailto:Jade.Yehia@interiorhealth.ca>]

Sent: Thursday, January 14, 2010 5:02 PM

To: 'Tim Forty'

Cc: Galvagno, Piero; Wong, Carl; Beaupre, John

Subject: RE: Letter of support for Okanagan Falls LWMP

Hello Tim,

In response to your request and to assist in providing support for the Okanagan Falls liquid waste treatment facility service catchment area I want to offer the following comments. At present, I am well aware that funding has been allocated for the development of the waste treatment plant to be developed, designed, and constructed to service the town of Okanagan Falls. However, as I understand there are presently not enough funds to allow for the Kaleden and Skaha Estates areas to be tied into the system, and there is no current prospect of connecting the Lakeshore Highlands/Heritage Hills development. This is unfortunate to hear as this area could benefit from being tied into the new Okanagan Falls Wastewater Treatment Plant.

In November of 2008, district Environmental Health Officer, Carl Wong, wrote an email to Piero Galvagno, P.Eng. at AECOM and his email summarizes the unique constraints and characteristics of each of the proposed (and hope to be included) serviced communities, I thought I would forward this to you as a starting point as it details the specifics well....

Historically, onsite septic systems were designed primarily for disposal of sewage, not treatment. Today, treatment of the effluent is just as important to septic/sewerage system design as disposal/dispersal, and the current regulation supports this by allowing more complicated technology to be incorporated into system design. For existing lots, this means that onsite systems are sustainable, but the costs are commensurate with the constraints of the lots and therefore can be extreme. As we have discussed, there are areas around Skaha Lake area that would have significant constraints for onsite septic systems. All properties that front onto surface water (lake or creek/river) will likely have the constraints of vertical separation to high water table, horizontal setback from surface water, and excessive permeability of the receiving soil. These lots will likely require the services of a qualified engineer to construct a septic system. In addition to this, the trends of the four areas are as follows:

Kaleden

The Kaleden area has generally sandy soils which accept effluent readily, and except for the high elevation areas (generally along Hwy 97) and the area along Skaha Lake, there is also good depth of soil. The three main problems in the Kaleden area are topography (excessive slope), some small sized lots, and small areas where the soil has restrictive layers (silt/clay lenses) in their soil profile. The waterfront properties (generally east of Ponderosa Avenue) will have the constraints as described above. Moving west from the lake and towards Hwy 97, slope and lots size are the significant constraints, with some lots not having much low slope (<20%) area and/or access for equipment to regrade due to existing landscape/structures. Moving farther west to along Hwy 97, topography is less an issue, but the soil becomes less permeable with lenses of silt/clay. Installing sewer lines may be an issue due to the narrow and non-standard road ways in some areas.

Lakeshore Highlands/Heritage Hills

This area is south of Penticton on the east side of Skaha Lake. The soil characteristics as well as the depth of soil in this area are variable from >1m sand to 0.5m silt loam to bedrock, but there are only two lots on Skaha Lake and both have areas for septic on the other side of Eastside Road. Like Kaleden, moving east from the lake, slope and

lot size (relative to soil permeability) are the significant lot constraints. Moving farther east and upslope, soil availability becomes the main constraint. Some of the lots on the north end were created based on Type 2 (package treatment plant) effluent, and some of the lots on the south are on a common sewer system with the dispersal field off-site. The road ways in the newer area appear to be generally good for installing sewer lines, but the older parts are similar to Kaleden.

Skaha Estates

Skaha Estates is very similar to Kaleden except the soil is typically less permeable (silt loam) and less available moving east and upslope; the development also extends across Eastside Road. Also the lots tend to be small and/or overbuilt. Road ways are also similar to Kaleden.

Okanagan Falls

Most of Okanagan Falls is sewered but not all. In particular, the area south of the current treatment plant (Thomas Place) and the industrial area (south of Commercial Way) would benefit from community sewer.

I thought it would be valuable for you to have all of the above information. But there are also some general points that I wish to make, as well as some site specific ones to the Lakeshore Highlands area. Presently, under the *Sewerage System Regulation (SSR)* a system must be repaired or installed by a Registered Onsite Wastewater Practitioner. As Carl stated, this shift in regulation has enabled new technologies to be utilized however consequently costs have gone up for installing a new system or carrying out a repair. Due to some of the site constraints that these communities are contending with most of these systems, such as what is seen in the Lakeshore Highlands area, have had to install package treatment plants due to their proximity to the Lake, poor soil availability, shallow bedrock conditions, steep slope and small lot sizes. These systems are effective in producing a high quality effluent but they are costly in their initial install and the homeowner/renter must be diligent in the care of their system to ensure they function properly for their life. Another point to mention is if an owner has to carry out any maintenance on their package treatment plant, due to the complexity of these systems and the requirements outlined in the SSR, a ROWP must carry out the work which can also be costly to the homeowner. Where as in some areas septic systems can be sustainable, for these particular communities there are site specific variables that impact the sustainability of these systems as well as their affordability. As stated by Piero Galvagno the *"shallow bedrock conditions limit the effluent disposal capacity of the Lakeshore Highlands/Heritage Hills area. At the local level, effluent is being disposed of according to Provincial standards in what little soil is available but the cumulative impact is not known."*

In addition, there are a number of community drinking water systems, Skaha Estates, Kaleden, and Lakeshore Highlands, served by intakes in Skaha Lake, not to mention any private lake intakes. As the cumulative impacts are uncertain potentially malfunctioning or aging septic systems could be negatively impacting the main drinking water source for the residents that live there. To assist in drinking water source protection a regionally maintained and monitored sewage treatment plant, that is focused on producing a high quality of effluent prior to discharging it, is one way to protect this valuable resource; although essential to that is connecting these surrounding communities to a wastewater treatment facility.

I hope this email helps to provide Interior Health's support to the LWMP for the town of Okanagan Falls and the surrounding communities. It is great news that the town of Okanagan Falls will be getting a new treatment facility in the years to come however, for this to be a truly benefitting project to the homeowners and tenants who live on Skaha Lake it is in the publics best interest that the communities of Skaha Estates, Kaleden, and Lakeshore Highlands be included in this Plan and connected to this system.

Please do not hesitate to contact me if you have any further questions or clarification on this matter.

Jade Yehia, CPHI(C)
Environmental Health Officer
Interior Health, Penticton Health Center
740 Carmi Ave. Penticton BC V2A 8P9
 250-770-3586  250-770-3470
 jade.yehia@interiorhealth.ca
 www.interiorhealth.ca

F-6 First Letter of Support from MOE



04-04-05A10:53 R

March 30, 2005

File: 76780-35/Okanagan Falls & Osoyoos

cc: J. Johnson
S. Juch
D. Gold
J. Bunker
Apr. 5/05
SE

Regional District of Okanagan-Similkameen
101 Martin Street
Penticton, BC V2A 5J9

COPY

Attention: Andrew H.J. Reeder, P.Eng., Engineering Services Manager

Re: Support for the Okanagan Falls Expansion of Sanitary Sewage System & Osoyoos NW Sector Sanitary Sewer Extensions – Phase 1

In response to your letter of March 3, 2005 regarding the expansion of the Okanagan Falls sewage expansion, as well as, the Osoyoos NW sector sewage extension, this is to support both grant applications.

The projects are consistent with the objectives of the Liquid Waste Management Plans.

With respect to the Okanagan Falls sewage treatment facility little service expansion can proceed without substantial upgrading or replacement of the sewage treatment facility. In regards to the Osoyoos sewer extension the NW sector has been identified as required servicing to reduce nutrient loading on Osoyoos Lake.

I trust this meets the support requirement requested.

If I can be of further assistance, please contact me at (250) 490 8251.

Yours truly,

E.A. Nield
Environmental Protection Officer

EAN/cl

cc: Mr. Peter Bailey, P. Eng., Ministry of Community
Aboriginal and Women's Services
Ric Baker, P. Eng., Env. Mgmt. Section Head, Kootenay and Okanagan Region

Ministry of Water,
Land and Air
Protection

Environmental Protection Division
Kootenay & Okanagan Regions
102 Industrial Place
Penticton BC V2A 7C8

Telephone: (250) 490-8200
Facsimile: (250) 490-2231

F-7 Second Letter of Support from MOE

January 26, 2007

File: 76780-35/Okanagan Falls, Osoyoos & Gallagher Lake

30-01-07A11:41 RCVD

Regional District of Okanagan-Similkameen
101 Martin Street
Penticton, BC V2A 5J9

Attention: Alfred E. Hartviksen P.Eng.,

Re: Support for the Okanagan Falls Sewage Treatment Plant Replacement and
Sanitary Sewage Systems for Northwest Osoyoos & Gallagher Lake

In response to your letter of January 17, 2007 regarding the above projects, this letter is to express support for each of the above projects which are in keeping with the relevant Liquid Waste Management Plans.

With respect to the Okanagan Falls sewage treatment facility, it is readily apparent the existing plant is at capacity and is located on a site which limits its long term viability.

In regards to the Osoyoos sewer extension, the NW sector has been identified as requiring servicing to reduce nutrient loading on Osoyoos Lake.

Sewering the Gallagher's lake area would also minimize the threat of potential failing septic systems adversely impacting the ground and surface waters in that area.

All three proposals have our support as an agency regulating these concerns.

If I can be of further assistance to yourself or those responsible for administering the grant applications, please contact me at (250) 490 8206.

Yours truly,

Mike Reiner
Assistant Regional Manager

Ministry of Environment

Environmental Protection Division
Kootenay & Okanagan Regions
102 Industrial Place
Penticton BC V2A 7C8

Telephone: (250) 490-8200
Facsimile: (250) 490-2231

F-8 Third Letter of Support from MOE, Page 1 of 2

August 19, 2008

File: 76750-40/ME-15578

Regional District of Okanagan Similkameen
101 Martin Street
Penticton BC V2C 5J9

Attention: Andrew Reeder, P. Eng., Engineering Services Manager

Re: Okanagan Falls Sewage Treatment Plant (STP) - Building Canada Fund – Community Component Grants

The Ministry of Environment's Environmental Protection Division strongly supports the Regional District of Okanagan Similkameen's wastewater treatment application for funding assistance through the Building Canada Fund – Community Component Grants.

The current treatment plant at Okanagan Falls was constructed in the late 1970's, and consists of a bar screen, oxidation ditch, clarifier and sludge drying beds. Following treatment, effluent is pumped to rapid infiltration basins located 2.7 km from the treatment plant. The treatment works are already working beyond their design capacity due to the installation of an additional filtration works, nor is there any room on site for any major expansion to the system. In addition, the current site of the treatment works is within 20 meters of a senior's townhouse complex and will likely continue to generate complaints regardless of how well managed and high tech the operation should become. Recent monitoring reports also conclude that the maximum infiltration rate is limited to 800 m³/day because of clogging or mounding in one of the basins. Since the basins are used sequentially, the reduced capacity of one basin results in a "bottleneck" in the effluent disposal operation. As a further complexity, the discharge of effluent has resulted in the formation of a small pond in a kettle located down-gradient of the basins.

The Regional District and relevant stakeholders has commenced a Liquid Waste Management Plan under the *Environmental Management Act* with our involvement to address the above concerns, along with future growth and development concerns in Okanagan Falls itself. The scope of the plan is also evaluating how to address aging septic systems in nearby residential areas such as Kaleden and Skaha Estates which like Okanagan Falls surround Skaha Lake.

.../2

Ministry of Environment

Environmental Protection
Kootenay and Okanagan RegionsMailing/Location Address:
#401 333 Victoria Street
Nelson BC V1L 4K3Telephone: (250) 354-6355
Facsimile: (250) 354-6332
Website: www.gov.bc.ca/env

Third Letter of Support from MOE, Page 2 of 2

2

The preferred option of the plan at this time, is to construct a new biological nutrient removal (BNR) plant in Okanagan Falls that would treat the effluent to a much more stringent standard on a more suitable site downstream of the existing treatment plant site. That site and the new treatment plant would address the present odour concerns, be sized to address the present and predicted future flows for the community of Okanagan Falls. In addition, if deemed an appropriate course of action under the Liquid Waste Management Plan, the plant and associated collection system could be expanded to service both Kaledon and Skaha Estates.

If the Building Canada Fund – Community Component Grants application review committee should have any questions, please feel free to contact Geri Huggins, Environmental Protection Officer, at 250-490-2239.

Yours truly,



Robyn Roome
Regional Environmental Protection Manager

GH:lkM

Appendix G

Okanagan Falls Area Liquid Waste Management Plan – Amendment Combined Stage 1 & 2 Report

- First Nations Contact Attempts

First Nations Contact Attempts

Penticton Indian Band		
Initial Contact: Greg Gabriel	Wednesday, January 21, 2009	Initial letter sent asking if would like to participate in the Advisory Committee
RR#2, Site 80, Comp.19	Thursday, January 29, 2009	Call made as response was not yet received
Penticton BC V2A 6J7	Monday, February 02, 2009	Call made as response was not yet received
ggabriel@pib.ca	Monday, February 09, 2009	Initial letter resent as response was not yet received
250-493-0048	Monday, February 16, 2009	Confirmation that a member of the PIB will be attending - no name given
	Tuesday, February 24, 2009	Group email to all committee members sent to inform of first meeting
	Wednesday, March 04, 2009	Second group email sent to all committee members to remind about meeting
	Thursday, March 12, 2009	First LWMP Committee meeting - representative did not attend
	Late March 09	Follow-up call made but no response ever received
Okanagan Nation Alliance		
Initial Contact: Gwen Bridge	Wednesday, January 21, 2009	Initial letter sent asking if would like to participate in the Advisory Committee
3255 C. Shannon Lake Road	Thursday, January 29, 2009	Call made as response was not yet received - message left
Westbank BC V4T 1V4	Monday, February 02, 2009	Call made as response was not yet received - second message left
gbridge@sylix.org	Monday, February 09, 2009	Initial letter resent as response was not yet received
250-707-0095	Tuesday, February 24, 2009	No email address available at the time - phone call and left message
	Wednesday, March 04, 2009	Second group email sent to all committee members to remind about meeting
	Thursday, March 12, 2009	Not in attendance and no response received
	Late March 09	Follow-up call made but no response ever received

Appendix H

Okanagan Falls Area Liquid Waste Management Plan – Amendment Combined Stage 1 & 2 Report

- **Public Meeting Information Presentation**



Regional District of Okanagan-Similkameen

AECOM Canada

Piero Galvagno, P.Eng.
Tim Forty, P.Eng.



Liquid Waste Management Plan Amendment, *for the* OK Falls, Skaha Estates and Kaleden Areas

Public Information Meeting

November 18, 2009





Public Information Meeting – November 18, 2009

Agenda & Meeting Objectives

- Welcome & Introductions
 - Advisory Committee (AC)
- What is a LWMP & why are we developing one?
- What are the **Preferred Solutions** selected by the AC



Advisory Committee Members

ORGANIZATION	TITLE	FIRST_NAME	LAST_NAME	Contact email	Bus. Phone
RDOS	Mr.	Alf	Hartviksen	ahartviksen@rdos.bc.ca	250-490-4210
RDOS	Ms.	Liisa	Bloomfield	lbloomfield@rdos.bc.ca	250-490-4229
AECOM	Mr.	Piero	Galvagno	piero.galvagno@aecom.com	250-762-3727
AECOM	Mr.	Tim	Forty	tforty@shaw.ca	
Ministry of Environment, Environmental Management	Mr.	Michael	Roinor	Miko.Roinor@gov.bc.ca	250-490-8206
Ministry of Environment, Environmental Management	Ms.	Geri	Huggins	Geri.Huggins@GOV.BC.CA	250-490-8200
Ministry of Agriculture and Lands	Mr.	Carl	Withler	Carl.Withler@gov.bc.ca	250-861-7229
Ministry of Community Development	Mr.	Catriona	Weidman	Catriona.Weidman@gov.bc.ca	250-952-6517
Interior Health	Mr.	Jean	Beaupre	john.beaupre@interiorhealth.ca	250-868-7818
Environment Canada	Ms.	Julia	Brydon	julia.brydon@ec.gc.ca	604-666-2399
Penticton Indian Band	Mr.	Greg	Gabriel	ggabriel@pib.ca	250-493-0048
Local Citizen	Ms.	Eleanor	Walker		250-497-5445
Local Citizen	Mr.	Ted	Lynch	tlynch@telus.net	250-497-8263
Local Citizen	Mr.	Souren	Mukherjee		250-497-6760
Local Citizen	Mr.	Sam	Hancheroff	shancher@sd53.ec.ca	250-497-5878
Local Citizen	Mr.	Ken	Hayter	hayterk@shaw.ca	250-497-5347
Local Citizen	Mr.	Ed	Melenka	emelenka@shaw.ca	250-497-8869
Local Citizen	Mr.	Dan	Larter	dan1_2002@hotmail.com	250-497-7993

Any questions before we move on?

What Is A Liquid Waste Management Plan?



What is a Liquid Waste Management Plan (LWMP)?

- A LWMP is a plan for a local government that charts the future course of action with respect to...



- Sewage
- Stormwater, and
- other wastewaters

- The plan generally addresses...
 - Management and Collection
 - Treatment and Effluent Disposition

What is a LWMP? ...continued

- A LWMP can also deal with...
 - Lot sizes and zoning in unsewered areas
 - Water conservation programs, and
 - Public education programs for improving septic systems performance



What is a LWMP? ...continued

- A LWMP is a tool used to develop **cost-effective** solutions to address local liquid waste issues which allows a community to...
 - Protect public health and the environment
 - Develop strategies to minimize wastewater generation
 - Meet water conservation goals
 - Maximize use of reclaimed water, and
 - Address storm water issues



What is a LWMP? ...continued

- 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



Any questions before we move on?

Why Develop A LWMP?



Why Develop a LWMP?

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

Why Develop a LWMP?

- A LWMP provides an opportunity for ratepayers to assist in the process of selecting the best option for managing liquid wastes in their community and that can increase local support for current and future implementations
- There is a higher likelihood of obtaining grant monies for implementation of a LWMP which not only shows the community's needs, but also identifies the environmental and health benefits (We do have grant monies for the treatment plant but we have not yet procured funding for sewer service to Kaleden Lakeshore or Skaha Estates.)



Any questions before we move on?

Why do we need to Amend the LWMP?



RDOS OK Falls already HAS an approved LWMP... Why do we need to amend it?

- Existing STP is nearing capacity
- STP operation provides issues for nearby residents
- Existing effluent infiltration site nearing maximum capacity
- The Regional District and MOE have jointly made the decision that it is in the public interest that the options available be publicly reviewed using the LWMP process in a combined Stage 1 / 2 process

Any questions before we move on?

How do we Amend this LWMP?



How are we Amending *this* LWMP?

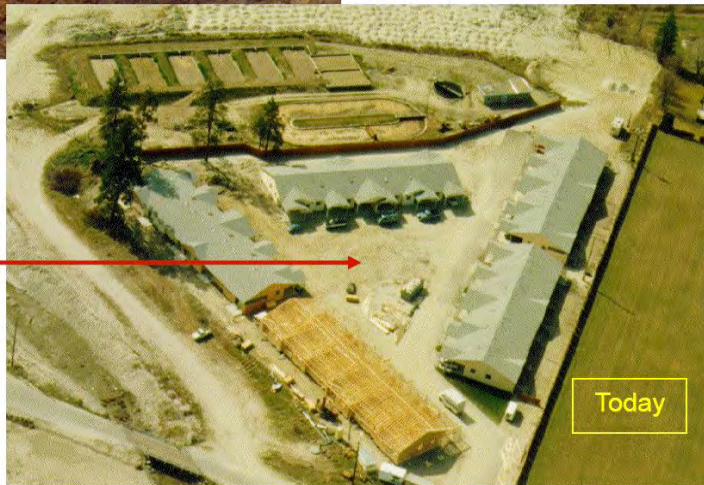
- Identify all options
 - List identified options (2005 Strategic Study)
 - Review with AC – Any other options?
- Select the “Preferred Solution”
 - Develop options
 - AC picks “Preferred Solution(s)”
 - Public Information meeting – Confirm “Preferred Solution(s)”
(We are here!)
 - Finalize combined Stage 1 / 2 report
- Develop and finalize Stage 3 report
 - RDOS Board approval
 - Ministerial Approval

Any questions before we move on?

OK Falls sewage treatment today



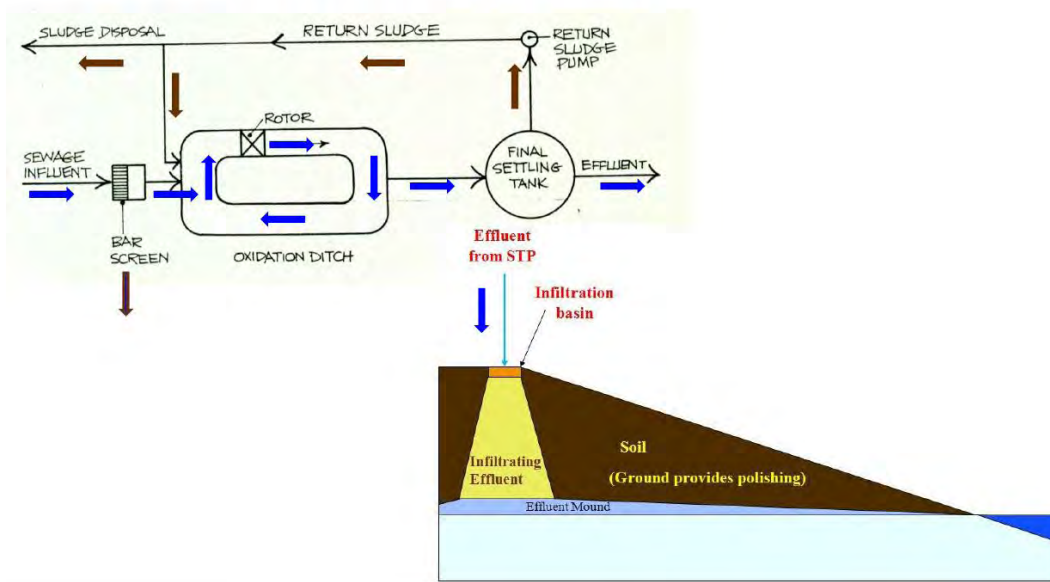
Seniors residential complex



OK Falls Sewage Treatment Today

- Secondary sewage treatment plant
 - Plant removes solids and BOD (but not nutrients)
- Effluent disposal to Rapid Infiltration (RI) basins
 - Ground polishes effluent and removes nutrients

OK Falls Sewage Treatment Today



AECOM

Any questions before we move on?

The AC's *Preferred Solutions*



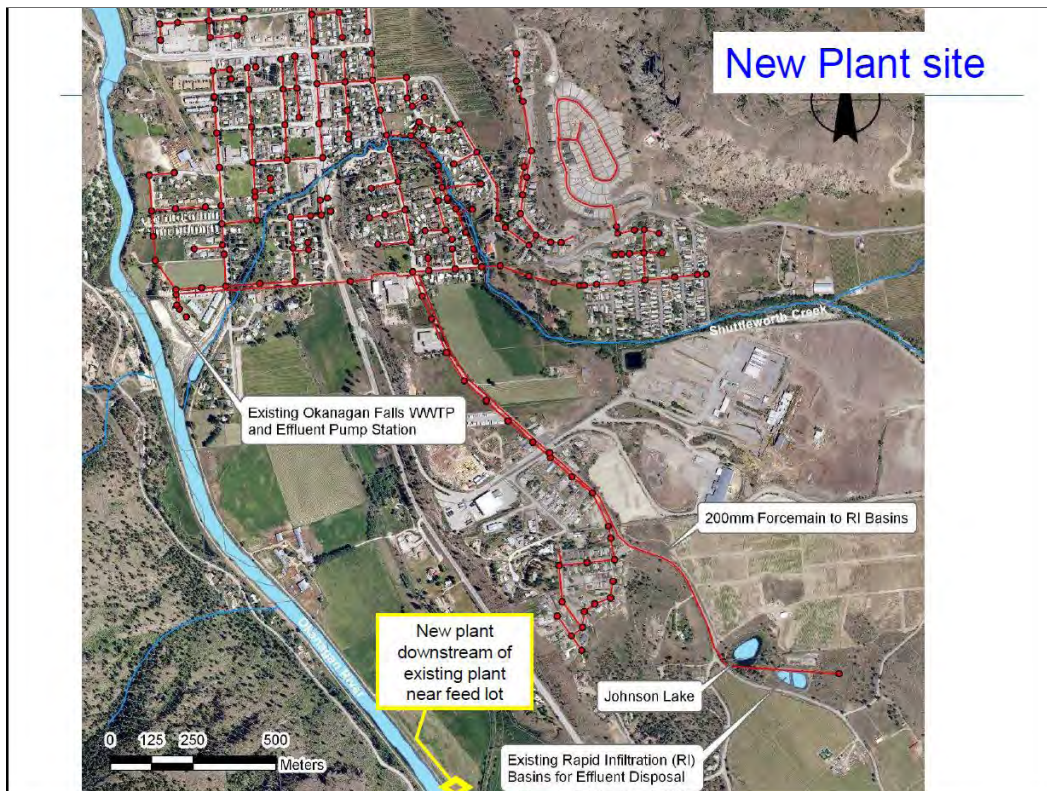
AECOM

The *Preferred Solutions*

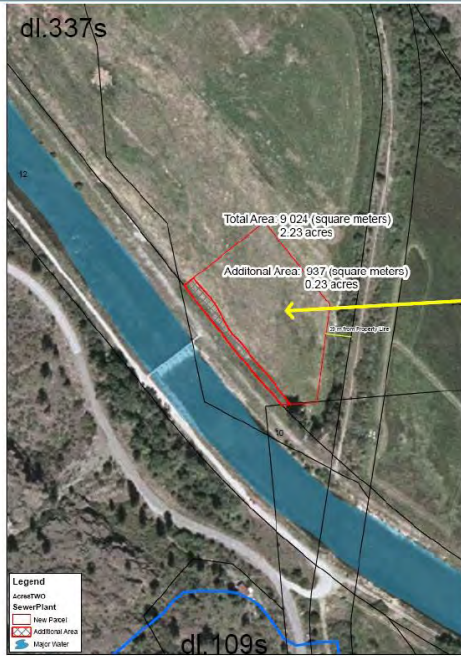
- The 2005 Strategic Review recommendations, as supported by the majority of the residents of OK Falls, Kaleden and Skaha Estates were accepted by the AC as part of their ***Preferred Solution*** for the management of wastewater (STP Process and plant relocation)
- The non-Strategic Review ***Preferred Solutions*** were selected by the AC from the identified options
- Public confirmation is now needed to ensure that the AC's ***Preferred Solutions*** are supported by the general public

The Preferred Solutions

- AC reaffirmed the Strategic Review recommendations as part of their **Preferred Solution**
 - Treatment plant process to be advanced Biological Nutrient Removal process, and
 - Plant to be relocated south of town
 - Land purchased, rezoned and removed from ALR by the RDOS on the strength of public support for the *2005 Strategic Review*
 - The new plant will be sized to handle sewage from OK Falls, Kaleden Lakeshore area and Skaha Estates



AECOM



New STP location

Sewer Plant Location 1:1,250

AECOM



Note: Architectural consideration will be given to aesthetically pleasing building design that will be in harmony with the farming characteristics of the neighbourhood.

AECOM



AECOM





What will it cost?

Sewage Treatment Plant Cost Breakdown						
OK Falls (Cost per connection)	Sewage Treatment	Total Cost per Connection	Annual Cost per Connection with no grants*	Annual Cost per Connection with \$6.25M Grant	Annual O&M Cost + Capital Reserve per Connection	Total Annual Cost per Connection
Capital Cost, OK Falls Alone	\$ 10,149,300	\$ 8,185	\$ 680	\$ 243	\$ 395	\$ 639

* Annual cost is calculated as being amortized over 20 years at 5.3% interest.

Note: The annual cost to those connected to the system **INCLUDES** the O&M cost. The capital cost portion amount will drop when Kaleden Lakeshore and Skaha Estates are serviced as more people will be paying for the plant cost.



The Preferred Solution (Continued)

- AC reaffirmed support for Kaleden & Skaha Estates citizens desire for sewer service
 - Sewer service to be provided to Kaleden Lakeshore, and
 - Sewer service to be provided to Skaha Estates

With the proviso that:

- 2/3 Infrastructure grant funding is available, and
- 18% OBWB capital works grant funding is available

Note: The Kaleden Lakeshore area and Skaha Estates are NOT included at this time in the project. Costs will need to be updated and another grant application submitted when this portion of the project is ready to proceed.

The Preferred Solution (Continued)

Education Programs and Bylaws:

- Develop and implement a water conservation strategy,
 - Public Education Program
 - Water Conservation Bylaws
- Develop and implement a sewer use strategy, and
 - sewer use educational program
 - *Sewer Use Bylaw* (Prohibited substances)
- Septic Tank strategy
 - Public Education Program

The Preferred Solution (Continued)

Effluent returned to the environment by:

- Enhanced wetlands beside Okanagan River,
 - Awaiting comment from Federal Environment Canada
- Reclaimed water irrigation of Keogan Park,
 - Minimal cost as is adjacent to pipeline to RI Basins
- Outfall to Okanagan River Channel, and
 - For surplus effluent
- Existing Rapid Infiltration Basins
 - Emergency use and to provide water for Johnson Lake

Any questions before we move on?

LWMP Overview summary



LWMP Overview Summary

- A LWMP is a tool which allows the citizens of a community to understand the issues in their community, with respect to wastewater, and assists them in selecting the best option for the resolution of those issues
- A LWMP belongs to the community which developed it
- The job of the consultant and Regional District staff is to ASSIST in developing the LWMP, by providing clear, understandable, technical and cost information

What Can I Do?

The Advisory Committee has been working closely with RDOS and AECOM Staff to understand all the liquid waste issues and develop affordable solutions that will protect both public health and the environment and that also reflect the desires of the people that live here.

We need your input!

Please complete the questionnaire!