

From: MacDonald, Amber FLNR:EX
To: "Donna"
Cc: Chad Petersmeyer; Robinson, David FLNR:EX
Subject: RE: Malahat Properties Ltd Application for New Groundwater Application - 100247443 Confirmation
Date: Thursday, May 10, 2018 1:59:31 PM
Attachments: [2018-05-01 Site Plan.pdf](#)
[2018-05-01 Area Water Use Plan.pdf](#)
[2018-05-01 Agent Ltr.pdf](#)
[2018-05-01 Cert of Title.pdf](#)
[2018-05-01 Appl.pdf](#)
[2018-05-01 Location Plan.pdf](#)

Hi Donna,

Thank you for following up. This application has now been assigned to me for review, and I will be assessing it for completeness before sending it to Water Authorizations for consideration and a decision.

I note that Mill Bay Waterworks is named as a Co-Applicant, and I have received your Co-Applicant consent letter.

As I explained previously, only the Applicant (with the BCeID login that was used to create the application) can log in to an existing application to make changes or view the application's status. The online application instructs Applicants to provide a copy of the application form and all attached documents to any and all Co-Applicants at the time of requesting consent to proceed, although I am gathering that did not happen. I have attached copies of everything for your convenience. Please note that no hydrogeological report was attached, only maps and plans that I assume came from that larger document.

While technically you have already approved the application form contents and all attached documentation by providing your consent, if you have additional information or comments on the application materials you can send them by email either to myself or to our West Coast FrontCounter BC address (WestCoast.LandReferrals@gov.bc.ca). Please do so at your earliest convenience. I will likely not begin my review of this application until the week of May 21st, and I anticipate needing to send the application back to the applicant for more information and clarification.

If you have any questions or concerns going forward, please feel free to contact me.

Sincerely,



Amber MacDonald csp | Natural Resource Specialist

FrontCounter BC | Ministry of Forests, Lands, Natural Resource Operations and Rural Development
142 – 2080 Labieux Rd | Nanaimo BC V9P 9B4
Tel: 250-751-3106 | Fax: 250-751-7234
Toll Free Phone: 1-877-855-3222 [Freedom of Information Disclaimer](#)

Tell us about your experience with FrontCounter BC: [Complete an Online Comment Card](#).

From: Donna [<mailto:Donna.michiel@millbaywater.ca>]
Sent: Wednesday, May 2, 2018 12:11 PM
To: Slater, Darryl FLNR:EX; Robinson, David FLNR:EX; MacDonald, Amber FLNR:EX
Cc: Chad Petersmeyer
Subject: FW: Malahat Properties Ltd Application for New Groundwater Application - 100247443 Confirmation

Darryl, David and Amber,

I have previously discussed this application being made by a developer in our area with all three of you. Not sure who I should direct this to, so will include all three of you at this time. I have been notified by the Developers agent

that the attached application has been made naming Mill Bay Waterworks as co-applicant. (We have not yet received notification from FLNRO). It is my understanding from previous discussions with Darryl that when being named as co-applicant we will have the opportunity to log into the application, and comment on it and any attachments provided. I am now aware that the hydrogeological report submitted as part of this application has not been reviewed by our hydrogeologist and will need to be. A draft document was reviewed by our hydrogeologist, and comments provided. Once we have access to the application I will upload his comments, and ask him to review the current final document also. Can this application somehow be flagged to be reviewed by the District who will ultimately assume ownership before the final approval is given? To ensure that the District is in agreement with the documents provided for the application?

Thank you for your time,

Donna Michiel
Administrator
Mill Bay Waterworks District
250-743-9023

From: Mike Achtem [mailto:machtem@islanderengineering.com]
Sent: May 1, 2018 2:14 PM
To: Donna
Subject: Fwd: Malahat Properties Ltd Application for New Groundwater Application - 100247443 Confirmation

Did you receive notification that you are a co-applicant?

The application was officially accepted earlier today

Mike Achtem, P.Eng. PMP. CCA

Principal, Senior Engineer

ISLANDER ENGINEERING LTD.

Mobile: 250-893-9977

www.islanderengineering.com



*** Islander Engineering Ltd. NOTICE *** "This email is confidential. If you are not the intended recipient, you must not disclose or use the information contained in it. If you have received this email in error, please notify us immediately by return email and delete the email and any attachments. Any personal views or opinions expressed by the writer may not necessarily reflect the views or opinions of Islander Engineering Ltd."

----- Forwarded message -----

From: <vFCBC@frontcounterbc.ca>
Date: Tue, May 1, 2018 at 10:41 AM
Subject: Malahat Properties Ltd Application for New Groundwater Application - 100247443 Confirmation

To: machtem@islanderengineering.com



ISLANDER ENGINEERING LTD.,

We have received your application for New Groundwater Application. Please find attached a copy of your application in PDF format. Your application was assigned the following tracking number:

100247443

Please quote this number in all your inquiries.

If you paid by credit-card, thank you for your payment.

If you opted to pay in-person or by mail:

Please note that your application will not be processed until we received and processed your payment.

Your options for in-person payments are: cheque, money order, cash, debit or credit card. Your options for mail-in payments are cheque or money order.

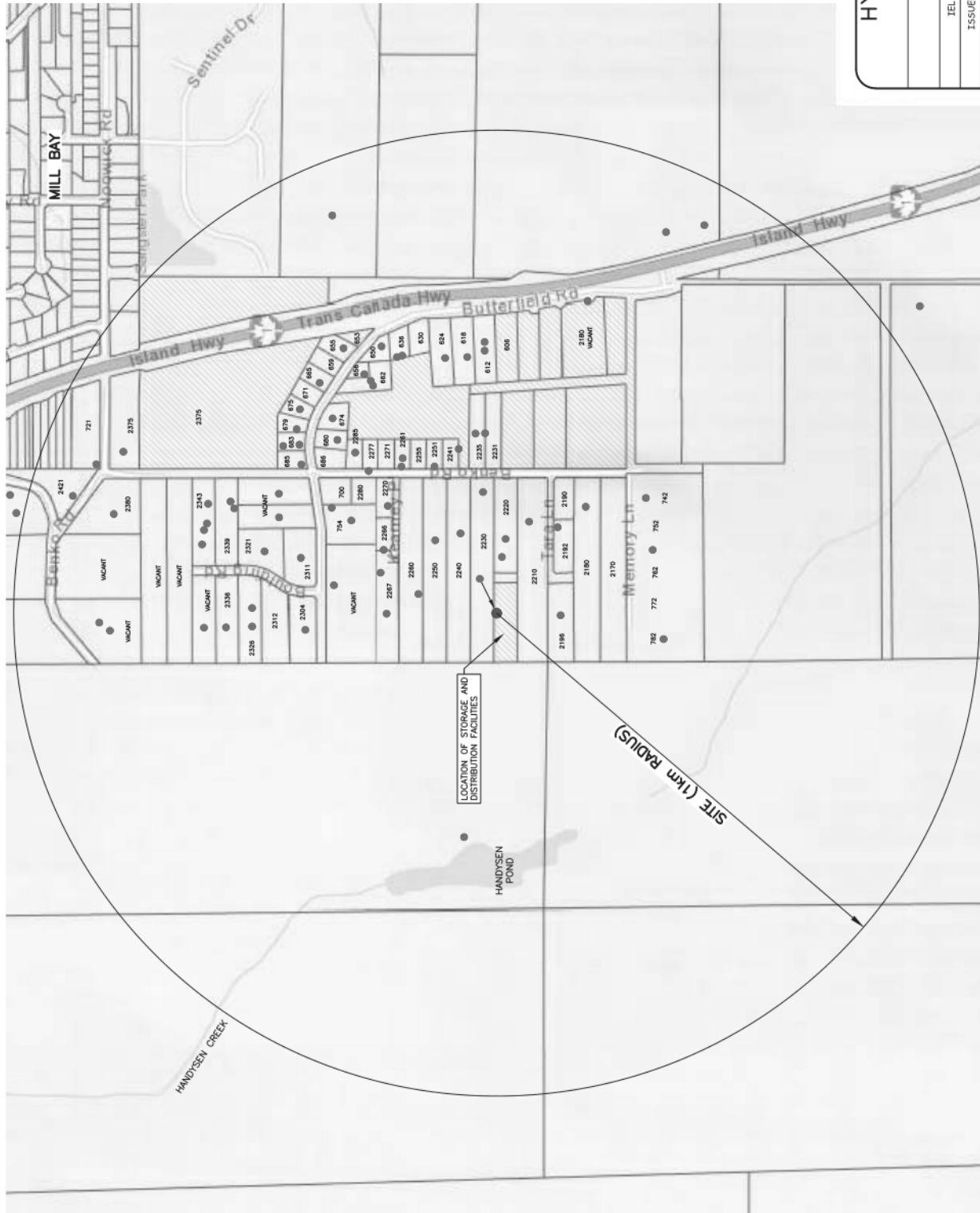
Please submit your payment along with a printed copy of the remittance form to one of the FrontCounter BC offices. You can find the locations at <http://www.frontcounterbc.ca/locations/>.

If you need to mail in outstanding consent form:

Please note that your application will not be processed until we received and processed all of your outstanding consent forms. Please mail the filled out and signed forms to one of the FrontCounter BC offices. You can find the addresses at <http://www.frontcounterbc.ca/locations/>.

If you do have any questions or concerns please contact us by email at FrontCounterBC@gov.bc.ca or by phone at 1-877-855-3222 or check our website at www.frontcounterbc.ca.

Thank you,
FrontCounter BC



LEGEND

- MALAHAT WELL
- LOCATION DETERMINED BY GPS
- WELL LOCATIONS FROM BC WATER RESOURCES ATLAS
- ▨ MALAHAT PROPERTIES SUBDIVISION

HYDROGEOLOGICAL REPORT
MALAHAT WELL #16524
FIGURE 2 – SITE PLAN

IEL PROJECT - 583	
ISSUED: OCTOBER 2017	
DRAWN BY: HS/PH	CHECKED BY: BL

ISLANDER ENGINEERING
www.islandengineering.ca



LEGEND

- MALAHAT WELL LOCATION DETERMINED BY GPS
- WELL LOCATIONS FROM BC WATER RESOURCES ATLAS
- WATER LICENSE PROPERTY
- AQUIFER 206
- AQUIFER 207



HYDROGEOLOGICAL REPORT
MALAHAT WELL #16524

FIGURE 5 – AREA WATER USE PLAN

TEL PROJECT - 583
 ISSUED: OCTOBER 2017
 DRAWN BY: HS/PH
 CHECKED BY: BL

ISLANDER ENGINEERING
 www.islandengineering.ca



MALAHAT PROPERTIES LTD.

Business Address: 6702 Rajpur Place, Saanichton, BC
Mailing Address: P.O. Box 1324, Victoria, BC V8W 2W3

Telephone: (250) 652-9211
Fax: (250) 652-9210
e-mail: mail@islandpaving.com

I hereby authorize Mike Anken of Islander Engineering to act on behalf of Malahat Properties Ltd. in securing water licenses for Malahat lands.

Cary Sangha

**RESOLUTION OF DIRECTORS
OF
MALAHAT PROPERTIES LTD.**

(HEREIN CALLED "the Company") PURSUANT TO SECTION 149 OF THE COMPANY ACT, THE UNDERSIGNED, BEING ALL THE DIRECTORS OF THE COMPANY, DO HEREBY CONSENT TO, APPROVE AND PASS THE FOLLOWING RESOLUTIONS BY THE DIRECTORS OF THE COMPANY AS OF THE 10th DAY OF JANUARY, 2014.

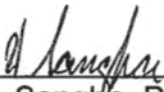
RESOLVED THAT:

1. Any one of the following:
Cary Sangha
Mela Sangha

(the "Signatory") is hereby authorized to execute tenders and bids for and on behalf of and under the corporate seal of the Company with such amendments or variations as they may deem expedient.

2. Any one signatory is hereby authorized on behalf of and in the name of the company to execute and deliver under the seal of the Company or otherwise all such deeds, documents, instruments and writings, and perform and do all such acts and things as they in their discretion may consider to be necessary, desirable or useful for the purpose of giving effect to this Resolution.

NOTICE of meeting waived and Resolution consented to:



Harbans S. Sangha, President



Cory Sangha, Secretary



Estate of Ranjit Sangha, Director



Mahindar Kaur Sangha, Director



Mahindar Singh Sangha, Director

DATED in the City of Victoria, in the Province of British Columbia, this 10th day of January, 2014.

Page 008 of 182 to/à Page 009 of 182

Withheld pursuant to/removed as

s.3



New Groundwater Application

Tracking Number: 100247443

Applicant Information

If approved, will the authorization be issued to
an Individual or Company/Organization? Company/Organization

What is your relationship to the
company/organization? Consultant

APPLICANT COMPANY/ORGANIZATION CONTACT INFORMATION

Applicant is an Individual or an Organization to whom this authorization will be issued, if approved

Name: Malahat Properties Ltd

Doing Business As:

Phone: 250-883-0416

Fax:

Email: carysangha@gmail.com

BC Incorporation Number:

Extra Provincial Inc. No:

Society Number:

GST Registration Number:

Contact Name: Cary Sangha

Mailing Address: 6702 Rajpur
Central Saanich BC V8M 1Z5

CONSULTANT INFORMATION

Please enter the contact information of the Individual/Organization who is acting on behalf of the applicant.

Name: ISLANDER ENGINEERING LTD.

Doing Business As:

Phone: 250-893-9977

Fax:

Email: machtem@islanderengineering.com

BC Incorporation Number: BC1085632

Extra Provincial Inc. No:

Society Number:

GST Registration Number:

Contact Name: Michael J Achtem

Mailing Address: C-485 Garbally Road
Victoria BC V8T 2J9

Letter(s) Attached: Yes (letter of consent for Islander.pdf)

CORRESPONDENCE E-MAIL ADDRESS

It is recommended to provide your correspondence email in this section.

Email: machtem@islanderengineering.com

Contact Name: Mike Achtem

CO-APPLICANTS

A co-applicant is an Individual or Company/Organization listed on the title of the land, mine or undertaking who was not previously identified as the principal applicant.

Are there co-applicants for this application? Yes

Co-applicants who are Organizations must consent to
providing their name, address and phone number
and Individuals must consent to providing their
name and email address. Do you have permission
from the co-applicants to enter their personal
information? Yes

You have indicated earlier in the application that there is one or more co-applicant. Please add each co-applicant by clicking on the 'Add Individual' or 'Add Organization' button below depending if the co-applicant is an individual or an organization. Due to Freedom of Information and Protection of Privacy Act regulations you are only able to enter the name and email address for an individual.

Name: Mill Bay Waterworks District
Doing Business As: MBWD
Phone: 250-743-9023
Fax:
Email: donna.michiel@millbaywater.ca
BC Incorporation Number:
Extra Provincial Inc. No:
Society Number:
GST Registration Number:
Mailing Address: 875 Deloume Road
CVRD BC V0R 2P4

ELIGIBILITY

If you answer yes to any ONE of the following questions, you are eligible to apply for a water licence.

Question	Answer	Warning
- Are you the owner of land or a mine in British Columbia where the water will be used?	Yes	
- Are you entitled to possession of land or a mine in British Columbia where the water will be used?		
- Do you have a substantial interest in the land, mine, or an undertaking in British Columbia where the water will be used?		
- Are you a holder of a certificate of public convenience and necessity issued under the Public Utilities Act, the Utilities Commission Act or the Water Utility Act?		
- Are you a municipality, regional district, improvement district, development district or water users' community?		
- Are you representing the government of British Columbia or Canada?		
- Are you representing a commission, board or person having charge of the administration of Crown land or a mine or an undertaking on Crown land, administered by British Columbia or Canada or controlled by a ministry, department, branch or other subdivision of the government of British Columbia or Canada?		
- Are you representing the Greater Vancouver Water District or any other water district incorporated by an Act?		
- Are you representing the British Columbia Hydro and Power Authority?		
- Are you applying as an agent on behalf of an eligible applicant as described above?		

TECHNICAL INFORMATION

ENVIRONMENTAL ASSESSMENT

The Environmental Assessment Act requires that certain large groundwater extraction projects undergo an environmental assessment, and obtain an environmental assessment certificate, or obtain a formal determination that an environmental assessment certificate is not required.

Criteria for determining whether a groundwater extraction projects may require an Environmental Assessment certificate:

1. Constructed on or after the year 1995 where one or more works, operated intermittently or continually for 1 year, divert 75 Litres per second (1189 US GPM) or greater.
2. Modifications to projects constructed prior to 1995 that result in diversion reaching or exceeding 75 Litres per second (1189 US GPM).

3. Projects built prior to 1995 that divert 75 Litres per second (1189 US GPM) or greater that have been modified on or after 1995 such that there is an increase of 35% or more over the previous rate of diversion.

Projects that meet the criteria above may require either an Environmental Assessment Certificate or a letter of exemption from the Environmental Assessment Office (EAO). Visit the EAO website or see the Environmental Assessment Certificate Requirements for Groundwater Users Guidelines for more information.

According to the requirements above, does your application require an Environmental Assessment certificate, or do you have a letter of exemption? No

PURPOSES

Please select the purpose for which the diverted groundwater will be used. Please note that the purpose you indicate may be changed during the application review process to better reflect the use of the water, in which case you will be notified of the change. For definitions of Water Use Purpose, click here

NOTE: A water licence is not required for groundwater that is used for a domestic purpose. Domestic groundwater users have deemed rights for domestic use of up to 2000 litres per day under the Water Sustainability Act and it is therefore not possible to submit an application for a licence.

Purpose	Quantity	Use of Water	Comments	Fee
Waterworks Local Provider	162,477 m3/year	Year Round	Malahat Properties Ltd. and the Mill Bay Waterworks Department are co-applicants on this license application. The purpose is to expand and improve the existing MBWD water system including this new production well, water treatment plant, reservoir and distribution system	\$5,000.00

Total: \$5,000.00

WORKS

Works are the physical equipment used to move the water from its source to where it will be used. For example, works can include a screened intake, pump, pipeline, irrigation system, dugout, storage structure etc. Please ensure that you add all the major components of your works – typically there will be multiple items listed in this section. Scroll down the list provided to see all the options available for selection. For a formal definition of “works”, refer to Section 1(1) of the Water Sustainability Act.

If your works are not fully constructed, (e.g. under repair), please provide details in the "Comments" field below.

Works	Status	Comments
Distribution system	Not Constructed	The facility is at preliminary design and the Works include a new water production well, 1050 cum water reservoir, water treatment plant and distribution system. All works will be paid for by the developer and then transferred to the Mill Bay Waterworks Department

WELL WORKS

Is the water you are applying for coming from a well? Yes

If your works are not fully constructed, (e.g. under repair), please provide details in the "Comments" field below.

Works	Common Well Name	Status	Comments
Well		Not Constructed	A comprehensive Hydrogeological Report dated March 1, 2018 has been completed by Islander Engineering and submitted to the Mill Bay Waterworks Department. MBWD has had their consultant hydrogeologist review this report and agree with the results and findings
Proposed Geographic coordinates of well:		Latitude value must be entered as a positive value between 47 to 60 up to 7 decimals. Longitude value must be entered as a negative value between -140 to -113 up to 7 decimals. Latitude: 48.37491 Longitude: -123.33279 Decimal Degrees	

JOINT WORKS

Are your works connected to the works of another person or group of persons?

If you share or are connected to another person's works, it is recommended that a Joint Works Agreement-outlining each party's role and responsibilities-be completed and uploaded

Are any of your works joint with another person's or group's works? No

PROXIMITY TO SURFACE WATER

Works are the physical equipment used to move the water from its source to where it will be used. For example, works can include a screened intake, pump, pipeline, irrigation system, dugout, storage structure etc. Please ensure that you add all the major components of your works – typically there will be multiple items listed in this section. Scroll down the list provided to see all the options available for selection. For a formal definition of “works”, refer to Section 1(1) of the Water Sustainability Act.

Does your well report show that your well is hydraulically connected to surface water? No

OTHER LANDS PHYSICALLY AFFECTED

Are there other lands that are physically affected by your works? No

WATER USER'S COMMUNITY

Will the water be supplied by a Water Users' Community? No

PERMIT OVER CROWN LAND

For any works that cross or otherwise affect (e.g. flood) Crown land, you will require permission. A Permit Over Crown Land (PCL) means an authority issued under the Water Sustainability Act which allows you to construct, maintain, or operate works on Crown land or to flood Crown land.

Please answer the following questions to determine whether an authorization to occupy Crown Land will be required with your Groundwater application. If a Permit Over Crown land is required, the applicable fee, if any, will be automatically calculated and added to your application.

You should indicate 'Yes' to the following question if any of the following circumstances apply to your application:

- any of your new works to the licence are located on or crossing Crown land
- OR
- your well is located on Crown Land
- OR
- you are proposing to flood Crown Land

Do any of the above apply to your application? No

Based on your answer you do not appear to be affecting or flooding Crown land and neither a Permit over Crown land nor a Crown land tenure appears to be required.

ADDITIONAL QUESTIONS

In many cases you might require other authorizations or permits in order to complete your project. In order to make that determination and point you in the right direction, please answer the questions below. More information can also be found on the Government Water website. In addition, your application may be referred to other agencies for comments.

Are you planning to cut timber on Crown Land? No

Are you planning to use an open fire to burn timber or other materials? No

Are you supplying potable water to consumers? Yes

The Drinking Water Protection Act and the Drinking Water Protection Regulation describe the responsibilities of the water supplier, which include supplying potable water to consumers, disinfecting surface water and preparing an emergency response plan. The Local Health Authorities are responsible. <http://www.health.gov.bc.ca/protect/dwact.html>

Will fish or wildlife habitat be affected? No

Are you planning to undertake mineral exploration? No

Do you need to construct a road to the dam (if there are no existing roads)? No

Do you want to construct works within an existing forest road right-of-way on Crown land? No

Do you want to transport heavy equipment or materials on an existing forest road? No

Do you want to use the water for livestock watering on Crown land? No

Does any work occur within the public road allowance or has to cross a public road? No

LOCATION INFORMATION

LAND DETAILS

Select the Add Land Information button to add each parcel of land where the water will be used.

Description

Private Land

Parcel ID: 000-1---625

Legal Description: Lot A, District Lot 101, Malahat District, Plan 40279

A Drawing to Scale is required that meets the Application Drawing Standards. Choose one of the options below to submit the required map/drawing.

Additionally, it is recommended that you provide a topographical map showing the general location of the property where the water is proposed to be used and the works constructed in relation to nearby communities, highways, railways and other water sources.

(this additional map will not be necessary if your Drawing to Scale is provided using the Geomark Service or a spatial file such as .KML or .KMZ)

☒ I have map(s) saved to my computer and wish to provide these with my application

MAP FILES

Do you have a PDF or image file of a drawn map? You can upload it here.

Description**Filename**

Area Water Use Plan

Figure 5.pdf

Location plan

Figure 1.pdf

Site Plan

Figure 2.pdf

ATTACHED DOCUMENTS**Document Type****Description****Filename**

Drawing to Scale

Area Water Use Plan

Figure 5.pdf

Drawing to Scale

Location plan

Figure 1.pdf

Drawing to Scale

Site Plan

Figure 2.pdf

PRIVACY DECLARATION

PRIVACY NOTE FOR THE COLLECTION, USE AND DISCLOSURE OF PERSONAL INFORMATION Personal information is collected by FrontCounter BC under the legal authority of section 26 (c) and 27 (1)(a)(i) of the Freedom of Information and Protection of Privacy Act (the Act). The collection, use, and disclosure of personal information is subject to the provisions of the Act. The personal information collected by FrontCounter BC will be used to process your inquiry or application(s). It may also be shared when strictly necessary with partner agencies that are also subject to the provisions of the Act. The personal information supplied in the application package may be used for referrals or notifications as required. Personal information may be used by FrontCounter BC for survey purposes. For more information regarding the collection, use, and/or disclosure of your personal information by FrontCounter BC, please contact FrontCounter BC at 1-877-855-3222 or at: FrontCounter BC Program Director FrontCounter BC, Provincial Operation 441 Columbia Street Kamloops, BC V2C 2T3

☒ Check here to indicate that you have read and agree to the privacy declaration stated above.

REFERRAL INFORMATION

Some applications may also be passed on to other agencies, ministries or other affected parties for referral or consultation purposes. A referral or notification is necessary when the approval of your application might affect someone else's rights or resources or those of the citizens of BC. An example of someone who could receive your application for referral purposes is a habitat officer who looks after the fish and wildlife in the area of your application. This does not apply to all applications and is done only when required.

Please enter contact information below for the person who would best answer questions about your application that may arise from anyone who received a referral or notification.

Company / Organization: ISLANDER ENGINEERING LTD.
Contact Name: Michael J Achtem
Contact Address: 485-C Garbally Road
 Victoria BC V8T 2J9
Contact Phone: 250-893-9977
Contact Email: machtem@islanderengineering.com

☒ I hereby consent to the disclosure of the information contained in this application to other agencies, government ministries or other affected parties for referral or First Nation consultation purposes.

SIGNATURES

CO-APPLICANTS

You will have to obtain approval from all co-applicants before you can proceed with your application. Please select one option for each.

Name	Status of Signature Request
Mill Bay Waterworks District	Declaration Form uploaded

IMPORTANT NOTICES

Please review the "Important Notices" below and then check the declaration at the bottom confirming that everything in this application is complete and accurate.

- I understand that the submission of this water licence application does not provide authority under the Water Sustainability Act to divert, use or store groundwater other than to test the quality or quantity of water or to conduct a flow test in accordance with Section 6(2)(b) of the Water Sustainability Act. I understand that the submission of this water licence does not provide authority under the Water Sustainability Act to divert, use or store water from a well or other ground water sources to construct works. I also understand that my application must first be investigated and a decision made on the application as to whether a water licence may be granted and, as part of that review, additional information may be requested of me.
- The application may be subject to further requirements under the federal Fisheries Act. Please refer to Fisheries and Oceans Canada's "Projects Near Water" webpage (<http://www.dfo-mpo.gc.ca/pnw-ppe/index-eng.html>) for information on how to ensure your project complies with the Fisheries Act.
- Once you click 'Next' the application will be locked down and you will NOT be able to edit it any more.

DECLARATION

☒ By submitting this application form, I, declare that the information contained on this form is complete and accurate.

APPLICATION AND ASSOCIATED FEES

Item	Amount	Taxes	Total	Outstanding Balance
00A-APP 162477 m3/y - Waterworks: Local Provider	\$5,000.00		\$5,000.00	\$0.00

OFFICE

Office to submit application to: Nanaimo

PROJECT INFORMATION

Is this application for an activity or project which requires more than one natural resource authorization from the Province of BC? No

APPLICANT SIGNATURE

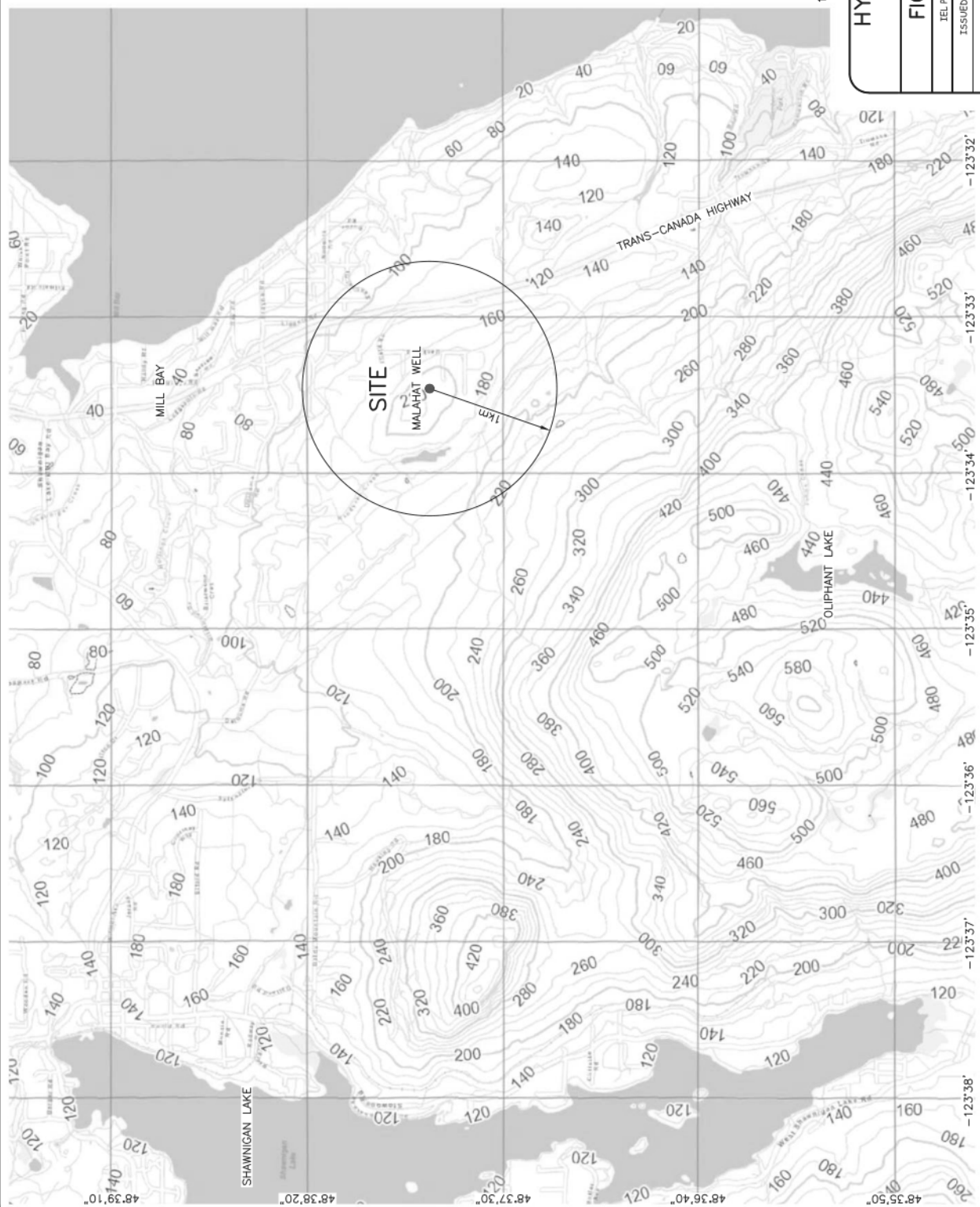
Applicant Signature

Date

OFFICE USE ONLY		
Office Nanaimo	File Number	Project Number
	Disposition ID	Client Number



KEY MAP OF VANCOUVER ISLAND
SHOWING SITE LOCATION



HYDROGEOLOGICAL REPORT MALAHAT WELL #16524

FIGURE 1 – LOCATION PLAN

TEL PROJECT - 583

ISSUED: OCTOBER 2017

DRAWN BY: HS/PH CHECKED BY: BL



ISLANDER
ENGINEERING
www.islanderengineering.com

From: MacDonald, Amber FLNR:EX
To: "Donna"
Subject: RE: Malahat Properties Ltd Application for New Groundwater Application - 100247443 Confirmation
Date: Tuesday, May 22, 2018 1:34:21 PM

Hi Donna,

Sorry for any confusion around co-applicant access. The system wasn't really designed for this type of situation. As far as I know (not that I've ever had it happen), either the applicant or co-applicant can withdraw an application because they both have the financial responsibility that comes with any eventual licence.

If you wish to withdraw, you can simply send an email quoting either the tracking or water file number and a formal request to withdraw the application.

s.22 it's simple to push my review of your file until next week at the earliest.
Please let me know if you would like more time to provide your comments.

Sincerely,



Amber MacDonald CSP | Natural Resource Specialist

FrontCounter BC | Ministry of Forests, Lands, Natural Resource Operations and Rural Development
142 – 2080 Labieux Rd | Nanaimo BC V9P 9B4
Tel: 250-751-3106 | Fax: 250-751-7234
Toll Free Phone: 1-877-855-3222 [Freedom of Information Disclaimer](#)

Tell us about your experience with FrontCounter BC: [Complete an Online Comment Card](#).

From: Donna [mailto:Donna.michiel@millbaywater.ca]
Sent: Tuesday, May 22, 2018 12:01 PM
To: MacDonald, Amber FLNR:EX
Subject: RE: Malahat Properties Ltd Application for New Groundwater Application - 100247443 Confirmation

Amber,

s.22 . After speaking with both yourself and Darryl, I was under the impression we would have the ability to log into and review the documents that were attached, and that we would have the ability to withdraw the application at any time before it is reviewed and ultimately approved. So I very much appreciate your email adding clarity here. If you could provide me with a little more time to work with our hydrogeologist and Board of Trustees I would very much appreciate it. This is a new process and procedure for us, and I am hoping to get a better handle on it. I am just working my way through the emails I received during my absence now, and need to get caught up.

Donna Michiel
Administrator
Mill Bay Waterworks District
250-743-9023

From: MacDonald, Amber FLNR:EX [mailto:Amber.1.MacDonald@gov.bc.ca]
Sent: May 10, 2018 1:59 PM

To: Donna

Cc: Chad Petersmeyer; Robinson, David FLNR:EX

Subject: RE: Malahat Properties Ltd Application for New Groundwater Application - 100247443 Confirmation

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Sincerely,



Amber MacDonald CSP | Natural Resource Specialist

FrontCounter BC | Ministry of Forests, Lands, Natural Resource Operations and Rural Development

142 – 2080 Labieux Rd | Nanaimo BC V9P 9B4

Tel: 250-751-3106 | Fax: 250-751-7234

Toll Free Phone: 1-877-855-3222 [Freedom of Information Disclaimer](#)

Tell us about your experience with FrontCounter BC: [Complete an Online Comment Card](#).

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Subject: FW: Malahat Properties Ltd Application for New Groundwater Application - 100247443 Confirmation

Darryl, David and Amber,

I have previously discussed this application being made by a developer in our area with all three of you. Not sure who I should direct this to, so will include all three of you at this time. I have been notified by the Developers agent that the attached application has been made naming Mill Bay Waterworks as co-applicant. (We have not yet received notification from FLNRO). It is my understanding from previous discussions with Darryl that when being named as co-applicant we will have the opportunity to log into the application, and comment on it and any attachments provided. I am now aware that the hydrogeological report submitted as part of this application has not been reviewed by our hydrogeologist and will need to be. A draft document was reviewed by our hydrogeologist,

and comments provided. Once we have access to the application I will upload his comments, and ask him to review the current final document also. Can this application somehow be flagged to be reviewed by the District who will ultimately assume ownership before the final approval is given? To ensure that the District is in agreement with the documents provided for the application?

Thank you for your time,

Donna Michiel
Administrator
Mill Bay Waterworks District
250-743-9023

From: Mike Achtem [<mailto:machtem@islanderengineering.com>]
Sent: May 1, 2018 2:14 PM
To: Donna
Subject: Fwd: Malahat Properties Ltd Application for New Groundwater Application - 100247443 Confirmation

Did you receive notification that you are a co-applicant?

The application was officially accepted earlier today

Mike Achtem, P.Eng. PMP. CCA

Principal, Senior Engineer

ISLANDER ENGINEERING LTD.

Mobile: 250-893-9977

www.islanderengineering.com



*** Islander Engineering Ltd. NOTICE *** "This email is confidential. If you are not the intended recipient, you must not disclose or use the information contained in it. If you have received this email in error, please notify us immediately by return email and delete the email and any attachments. Any personal views or opinions expressed by the writer may not necessarily reflect the views or opinions of Islander Engineering Ltd."

----- Forwarded message -----

From: <yFCBC@frontcounterbc.ca>
Date: Tue, May 1, 2018 at 10:41 AM
Subject: Malahat Properties Ltd Application for New Groundwater Application - 100247443 Confirmation
To: machtem@islanderengineering.com



ISLANDER ENGINEERING LTD.,

We have received your application for New Groundwater Application. Please find attached a copy of your application in PDF format. Your application was assigned the following tracking number:

100247443

Please quote this number in all your inquiries.

If you paid by credit-card, thank you for your payment.

If you opted to pay in-person or by mail:

Please note that your application will not be processed until we received and processed your payment.

Your options for in-person payments are: cheque, money order, cash, debit or credit card. Your options for mail-in payments are cheque or money order.

Please submit your payment along with a printed copy of the remittance form to one of the FrontCounter BC offices. You can find the locations at <http://www.frontcounterbc.ca/locations/>.

If you need to mail in outstanding consent form:

Please note that your application will not be processed until we received and processed all of your outstanding consent forms. Please mail the filled out and signed forms to one of the FrontCounter BC offices. You can find the addresses at <http://www.frontcounterbc.ca/locations/>.

If you do have any questions or concerns please contact us by email at FrontCounterBC@gov.bc.ca or by phone at 1-877-855-3222 or check our website at www.frontcounterbc.ca.

Thank you,
FrontCounter BC

From: [MacDonald, Amber FLNR:EX](#)
To: "Donna"
Subject: RE: Malahat Properties Well Application
Date: Monday, May 28, 2018 7:58:19 AM

Hi Donna,

Thanks for this. I'm sorry to hear there are ongoing issues with this arrangement. I've put the application on hold, pending notification from you that Mill Bay is ok with the report as submitted.

Hopefully our new procedure will curb these sorts of issues with future applications.

If you need anything else, please let me know.

Sincerely,



Amber MacDonald csp | Natural Resource Specialist

FrontCounter BC | Ministry of Forests, Lands, Natural Resource Operations and Rural Development
142 – 2080 Labieux Rd | Nanaimo BC V9P 9B4
Tel: 250-751-3106 | Fax: 250-751-7234
Toll Free Phone: 1-877-855-3222 [Freedom of Information Disclaimer](#)

Tell us about your experience with FrontCounter BC: [Complete an Online Comment Card](#).

From: Donna [mailto:Donna.michiel@millbaywater.ca]
Sent: Friday, May 25, 2018 12:35 PM
To: Mike Achtem; carysangha@gmail.com
Cc: kim sharyk
Subject: Malahat Properties Well Application

Mike and Cary,

As you are aware the Hydrogeological report dated March 2018 is different than the draft report dated November 2017 that was reviewed by Chad Petersmeyer. You provided a copy of that full March 2018 report to Chad on May 23rd. Chad has provided an estimate in the amount of approximately \$1000.00 (plus tax) to review this report.

Chad has spoken with Brad Loffler and understands that the estimated yield of the well has changed in this report, and following a cursory review of the final report, it appears that wording in the text throughout the document has also changed. The cost estimate assumes that the changes in the text wording do not constitute a significant variation to the findings or conclusions in the draft report. Chad's scope of works for the review includes reviewing the text of the document, review of the updated long term yield estimate, and providing a brief summary of the review via email or letter.

The Board will require Chad to carry out this work before approving the licencing application to proceed. Therefore a deposit in the amount of \$1000 (plus tax) is required to be made with the District Office. The District is currently holding funds intended for Oleh Dubek's review time expected for the design stages which we can use for now to cover the costs of Chad's time, and not hold up the review process. This will however suggest that there will be a shortfall of funds for Oleh's time when his reviews are to be carried out and expected to be replaced at the earliest convenience.

Please respond to this email with the approval to have Chad proceed with the necessary review so that I may advise

him to proceed, and we can avoid the well licensing application being held up for any reason. I have spoken with Amber MacDonald and she is aware of the necessary steps from the District side.

Thank you,

Donna Michiel
Administrator
Mill Bay Waterworks District
250-743-9023

From: Donna
To: MacDonald, Amber FLNR:EX
Cc: Chad Petersmeyer
Subject: RE: Malahat Properties Well Application
Date: Monday, June 25, 2018 9:03:01 AM
Attachments: [WWAL 16-087-01 Review of Well 16524 Assessment.pdf](#)
[WWAL 16-087-01 Review of Isl Eng Well 16524 Assessment.pdf](#)
[WWAL 16-087-01 Review of Isl Eng Well 16524 Final Assmnt \(3\).pdf](#)

Amber,

Our Hydrogeologist Chad Petersmeyer has had a chance to review and report on the last copy of the well 16524 hydrology report submitted to you by Mike Achtem on behalf of Malahat Properties (and Mill Bay Waterworks). I am providing you a copy of his most recent review, in addition to the review done on the draft report we previously received and a third review that was done in 2017 on Lowen Hydrogeology Consulting's report in 2007. If you have any questions, please let me know. I have cc'd Chad on this email also. If you need anything further from me at this time, please let me know.

Donna Michiel
Administrator
Mill Bay Waterworks District
250-743-9023

From: MacDonald, Amber FLNR:EX [mailto:Amber.1.MacDonald@gov.bc.ca]
Sent: May 28, 2018 7:58 AM
To: Donna
Subject: RE: Malahat Properties Well Application

Hi Donna,

Thanks for this. I'm sorry to hear there are ongoing issues with this arrangement. I've put the application on hold, pending notification from you that Mill Bay is ok with the report as submitted.

Hopefully our new procedure will curb these sorts of issues with future applications.

If you need anything else, please let me know.

Sincerely,



Amber MacDonald CSP | Natural Resource Specialist

FrontCounter BC | Ministry of Forests, Lands, Natural Resource Operations and Rural Development
142 – 2080 Labieux Rd | Nanaimo BC V9P 9B4
Tel: 250-751-3106 | Fax: 250-751-7234
Toll Free Phone: 1-877-855-3222 [Freedom of Information Disclaimer](#)

Tell us about your experience with FrontCounter BC: [Complete an Online Comment Card](#).

From: Donna [mailto:Donna.michiel@millbaywater.ca]
Sent: Friday, May 25, 2018 12:35 PM

To: Mike Achtem; carysangha@gmail.com
Cc: kim sharyk
Subject: Malahat Properties Well Application

Mike and Cary,

As you are aware the Hydrogeological report dated March 2018 is different than the draft report dated November 2017 that was reviewed by Chad Petersmeyer. You provided a copy of that full March 2018 report to Chad on May 23rd. Chad has provided an estimate in the amount of approximately \$1000.00 (plus tax) to review this report.

Chad has spoken with Brad Loffler and understands that the estimated yield of the well has changed in this report, and following a cursory review of the final report, it appears that wording in the text throughout the document has also changed. The cost estimate assumes that the changes in the text wording do not constitute a significant variation to the findings or conclusions in the draft report. Chad's scope of works for the review includes reviewing the text of the document, review of the updated long term yield estimate, and providing a brief summary of the review via email or letter.

The Board will require Chad to carry out this work before approving the licencing application to proceed. Therefore a deposit in the amount of \$1000 (plus tax) is required to be made with the District Office. The District is currently holding funds intended for Oleh Dubek's review time expected for the design stages which we can use for now to cover the costs of Chad's time, and not hold up the review process. This will however suggest that there will be a shortfall of funds for Oleh's time when his reviews are to be carried out and expected to be replaced at the earliest convenience.

Please respond to this email with the approval to have Chad proceed with the necessary review so that I may advise him to proceed, and we can avoid the well licensing application being held up for any reason. I have spoken with Amber MacDonald and she is aware of the necessary steps from the District side.

Thank you,

Donna Michiel
Administrator
Mill Bay Waterworks District
250-743-9023

January 15, 2018

FILE: 16-087-01

Mill Bay Waterworks District
P.O. Box 58, 875 Deloume Road
Mill Bay, BC V0R 2P0
Attention: Donna Michiel

Re: Review of Malahat Properties Well 16524 2017 Assessment Report and 2008 Source Approval Follow Up Report

Dear Donna:

As requested, Western Water Associates Ltd. (WWAL) is providing this letter summarizing our recent review of the assessment of an existing well being proposed for water supply by Malahat Properties Ltd.

1. BACKGROUND

We understand that Malahat Properties Ltd. is proposing a residential development in the area of Benko Road and Butterfield Road in Mill Bay, BC. The developer intends to provide an existing well to MBWD for water supply to the development. The well is identified by BC Well Identification Plate Number (WIP) 16524.

Well 16524 was drilled and test pumped in 2007 under the direction of Lowen Hydrogeology Consulting Ltd. (LHC, 2007). The 245 m (803') deep well is cased with 200 mm (8")-diameter steel casing to a depth of 6.1 m (20') and is 200 mm open hole in the bedrock for the remaining depth. According to the LHC report, a 50 mm thick, bentonite surface seal was placed around the upper 5.9 m of casing. As noted by LHC, major water-bearing fracture zones in the well are at depths of 169 m and 236 m.

In October 2007, LHC submitted a report to Malahat Properties Ltd. entitled 'Well (16524) Report for Water Source Approval'. The 2007 assessment was reviewed by WWAL on March 17, 2017. The results of our review were summarized in a letter dated March 17, 2017 (WWAL, 2017).

LHC also completed an additional report in response to enquiry from the Vancouver Island Health Authority (now Island Health (IH)) (LHC, 2008). This report was recently provided to us by Malahat Properties' design engineer, Islander Engineering Ltd. (IEL). Source Approval of the well was granted by Vancouver Island Health Authority in a letter dated May 7, 2012.

The well was re-test pumped in September 2017 under the direction of IEL who also completed a current assessment of the well. A draft report was provided to MBWD in November 2017 (IEL, 2017).

This letter provides our review of the LHC Source Approval follow up report, and the recent IEL assessment report, for Well 16524.

2. WELL INSPECTION

According to IEL, Drillwell Enterprises Ltd. conducted a camera inspection of Well 16524 on March 22, 2017. IEL noted that the borehole walls appeared solid and competent and that the upper fracture zone was not distinguishable and appeared solid. The lower fracture zone was noted to appear 'cavernous'.

A copy of the inspection video was provided to WWAL. The visibility of the video was poor due to suspended sediment in the water, particularly in the upper water column. The borehole walls of the upper fracture zone could not be seen. Near the inferred depth of the lower productive fracture zone identified during drilling (~235 m), significant voids can be observed. According to the measurement obtained during video inspection, the well is open to a total depth of 242 m. The bottom of the well appeared to be filled with small rock fragments and fine sediment suggesting a small amount of sloughing of borehole walls has occurred inside the well.

As noted in our March 17, 2017 letter, the minimum well diameter must be 200 mm (8") according to MBWD Engineering Specifications and Standard Drawings (September 2014). Therefore if a liner is required in the well due to stability issues, the existing diameter of Well 16524 (200 mm) is not sufficient to support installation.

3. WELL YIELD

The long-term yield of Well 16524 was assessed by IEL by conducting a 72-hour duration test pumping program from September 12 to 15, 2017. The well was test pumped at a near-constant rate of 6.8 L/s (108 USgpm) during the test.

A semi-log plot of drawdown during test pumping is provided in Figure 11 of the IEL report. The drawdown curve shows roughly three separate changes in slope. From the start of the test until roughly 20 minutes into the test, the slope of the drawdown curve with log time is quite steep, it then flattens between 20 and 1000 minutes and then steepens again for the remainder of the test (4320 minutes). The inflection in the drawdown curve at later times was interpreted by IEL to result from drainage of the upper contributing fractures zones. We do not agree with this interpretation as, based on the depth of the upper fracture zone of 169 m provided by LHC (2007), drawdown had not yet reached the upper fracture zone at this point in the test. It is our interpretation that the steepening of the drawdown curve after approximately 1000 minutes was likely the influence of an aquifer boundary condition being intersected. In our experience, this type of linear flow behaviour is common in fractured bedrock of this type. The three slopes are likely explained as follows: the initial slope represents removal of water stored in the well casing, the drawdown at intermediate times results from induced flow in the fracture zones near the well, and drawdown at later times is influenced by potentially less permeable fracture zones further away from the well. If the originally-reported fracture depths were accurate, neither of the significant water-bearing zones were dewatered during the 72-hour test.

IEL used extrapolated drawdown methodology to rate the long-term yield of Well 16524. The drawdown curve during late times was extrapolated to 1,000,000 minutes (~700 days, or about 2 years), multiplied by the available drawdown in the well and incorporating a safety factor of 30%. From this IEL estimated the long-term yield to be 4.4 L/s (70 USgpm). This procedure is similar to the one that is typically used for estimation of long-term yield in B.C. based on the Province's guidelines for obtaining a Certificate of Public Convenience and Necessity (CPCN) (MOE, 1999) in which the data are extrapolated to 100 days (144,000 minutes). Thus the long-term yield obtained by IEL is slightly more conservative than the CPCN method.

Following the recent test pumping work, the well recovered 90% of the static water level in 2 days and 98% in 10 days. IEL described the recovery as 'very efficient'. We note in the short term the well recovered 70% in 10 minutes and 80% in 5 hours. Similar recovery behaviour was observed when the well was tested in 2007. The reason for the rapid recovery at early times was not explained by LHC or IEL. We believe it may result from drainage of water in the pump column due to the absence of, or an unseated, check valve. Assuming that this early recovery is supplied by the water in the drop pipe, the recovery rate from 10 minutes onward is considered moderate to poor.

4. INTERFERENCE WITH EXISTING WATER SUPPLIES

IEL identified a total of 78 privately-owned wells and two licensed springs within a 1 km radius of Well 16524. Handyson Pond, which was described by IEL to drain into Handyson Creek, was also noted as being approximately 450 m west of Well 16524. Water level monitoring was conducted by IEL in eighteen wells, one spring and Handyson Pond before, during and after test pumping. Of the wells monitored, 8 were located inside, and 10 outside, the proposed MBWD extension area based on the figure provided by IEL. Of the 10 wells located outside the MBWD extension area, 2 of them were identified as high risk of impact (out of 15 total private water supplies) due to operation of Well 16524 (Thurber, 2011).

Interference drawdown due to pumping of Well 16524 was noted by IEL to have occurred in 3 of the monitored private wells at 2240 Benko Road, 2304 Boulding Road, and 700 Butterfield Road. The interference drawdown ranged from 12.4 to 16.5 m in wells ranging in distance from 190 to 420 m from the proposed production well. All of the wells in which an impact was measured are located outside the proposed MBWD service extension area. IEL also noted that there is potential that other unknown or unmonitored wells may have been impacted during test pumping.

Slow and incomplete recovery was observed in the 3 private wells that were impacted due to pumping. IEL attributed this to their shallow elevations in the aquifer. In our opinion, this may also result from the wells being located in a less permeable portion of the aquifer and/or due to partial, enduring dewatering of a shallower fracture zone in the aquifer. Recall our earlier comments about the potential cause of the steepening of the drawdown curve during the test.

The strategies proposed by IEL for mitigating water supply loss to the impacted neighbouring properties identified included well deepening, or connection to the proposed MBWD distribution system extension. The Ministry of Forests, Lands, Natural Resource Operations & Rural Development could make such adaptive management strategies a condition on a new licence issued for WIP 16524, with attendant financial responsibilities placed upon the licence holder.

5. WATER QUALITY

A water sample was collected from Well 16524 by IEH on September 14, 2017, approximately 2 days into the 3-day pumping test. Laboratory water testing was completed by MB Labs Ltd. for the suite of potability parameters required by Island Health for new drinking water sources. To our knowledge, MB Labs is not accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA) for these analyses.

Water quality from the well was assessed by IEH by comparing the results to the Guidelines for Canadian Drinking Water Quality (Guidelines). IEH noted that all analyzed parameters in the recent water sample were below the respective aesthetic objectives (AO) and maximum acceptable concentrations (MAC) of the Guidelines at the time tested.

During testing undertaken by LHC in 2007, total coliform and iron-related bacteria (IRB) were detected in the sample obtained from Well 16524. The total coliform measured at the time was 1 colony/100 mL and IRB were detected at 9000 colony forming units (CFU)/mL. The Guideline value for total coliforms is 'none detectable', however, this is a point-of-consumption criterion and we understand that this water source will likely be disinfected prior to use. There is no standard for IRB in the Guidelines and it is not considered a health-related issue, however, IRB can contribute to a decrease in well performance over time, due to biofouling or encrustation on the well screen. The result of 9000 CFU/mL is considered 'aggressive' according to Droycon Bioconcepts Inc. (DBI), the developer of the BART testing system (DBI, 2004).

A formal groundwater at risk of containing pathogens (GARP) assessment was not conducted by IEH, as they believed it was low potential to be GARP. We agree that the well, as currently constructed is likely at low risk due to a GARP situation. Further to our discussion regarding source protection in the following section, potential impacts to the well need to be adequately considered, including (but not limited to) setbacks to potential contaminant sources and well head protection.

6. SOURCE PROTECTION

A proposed 'Wellhead Protection Plan' for WIP 16524 was provided by LHC (2008). We note that guidance for completing groundwater protection plans has evolved since 2008 and so the LHC document could be in need of updating. Consultation with the applicable Drinking Water Officer is therefore warranted to determine the need and priority for updating the plan. Based on our review of the LHC document, we have the following comments.

LHC appeared to interchange the terms 'well protection' and 'well head protection'. A Well Protection Plan is used for development planning, community engagement, emergency response awareness, etc. in the general area that has the potential to impact the well water quality. Well head protection describes measures for reducing the potential for contamination and limiting activities in the area immediately around the well itself.

LHC defined the 'well protection area' as being the same as the well capture zone. In our opinion, the well protection area may, or may not, be defined by the capture zone. The LHC letter did not explicitly define a 'well head protection area', however, we note that some of the elements of such a plan are contained in the document. These include: a 15 m setback from the well head in which there should be no storage of hazardous goods, and limiting access around the well.

LHC used a fixed radius method to determine the capture zone for Well 16524 using the regional flow velocity (estimated by LHC for another part of the aquifer), and a 1-year travel time that didn't consider pumping. This methodology has no physical basis (assumes inward radial flow to the well under non-pumping conditions). In addition, a fixed radius method for estimating the capture zone is considered of limited value for fractured bedrock of this type (e.g. major linear fracture zones). Although we agree with LHC that accurate determination of the capture zone in this type of rock is problematic, we believe a more accurate depiction of the Well 16524

capture zone would be obtained through an analytical method using the transmissivity determined by IEL and best estimates for flow gradient.

We note that LHC recommends development of covenants, easements, and right-of-ways to restrict activities around the well head. These legal instruments are not within the jurisdiction of a water district and therefore cannot be implemented by MBWD without involvement of the applicable local and regional governments.

In their 2017 draft report, IEL noted that the subdivision will be serviced by a sewage treatment plant, however, the methodology and location for treatment is not specified. Setbacks between existing or new ground disposal areas must meet the minimum requirements established by the applicable legislation (e.g. Health Hazards Regulation, Sewerage System Regulation, Municipal Wastewater Regulation). A more comprehensive evaluation of nearby potential contamination sources should be addressed in the well protection plan.

LHC recommends establishment of a 'Well Protection Team' to manage protection of the source area for Well 16524. We understand that it may not be practical for MBWD to establish a Well Protection Team and that many of the responsibilities outlined by LHC for this governing body are currently carried out by the MBWD Board, Administrator and Operator. In addition, most of the activities that LHC outlined as falling under the responsibility of the Well Protection Team are currently common practice for the existing MBWD wells (water level and flow monitoring, water quality monitoring, well head maintenance, public advisory, etc.).

Recommendations for emergency response planning are provided by LHC. We understand that MBWD currently has an Emergency Response Plan (ERP) in place that provides a course of action should contamination of a water supply source occur. Should the proposed well become part of the system, the ERP could be updated to reflect the addition of a new source and service area, if applicable.

7. CONCLUSIONS AND RECOMMENDATIONS

Based on our review of the assessment reports, we provide the conclusions and recommendations below. The recommendations included here are in addition to the ones previously provided (WWAL, 2017).

- The long-term yield of Well 16524 was estimated by IEL to be 4.4 L/s (70 USgpm). We agree with the methodology used to obtain this estimate.
- In our opinion, Well 16524 exhibited moderate to poor recovery characteristics. Although we believe that sufficient conservatism was exercised by IEL in estimating the long-term yield, the marginal recovery should be considered when designing storage and using the well.
- Only 2 of the 15 high risk water supplies identified by Thurber (2011) were monitored during the recent test pumping. WWAL (2017) recommended that at least 5 be monitored. Given the total wells that were monitoring during testing (18), however, we believe that IEL reasonably investigated the potential impacts to existing water users to mitigate risk. We agree, however, with IEL's interpretation that there may be some unknown water users that are impacted by operation of Well 16524. For this reason, we recommend that appropriate agreements and funding remain in place to remedy any impacts due to operation of Well 16524 as recommended in our March 17, 2017 letter. As noted, mitigation of impacts


to neighbouring water users could become a condition of the water licence authorizing use of the proposed well.

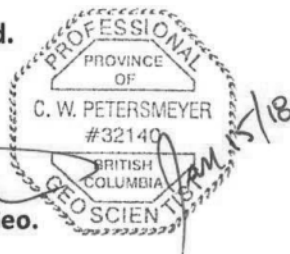
- Proposed mitigation to impacted neighbouring water users included connection to the proposed MBWD distribution system. We note, however, that all 3 of the impacted wells identified are located outside of the extension area. Given this, some other form of adaptive management may need to be planned for.
- The 2008 well protection plan should be updated with guidance from the Ministry of Environment's Well Protection Toolkit. Some aspects of this methodology, however, are not practical for a water district to administer, for example establishment of a 'Well Protection Team' as described by LHC (2008) which would require coordination amongst property owners, health authority staff, and local/regional government planning and engineering staff.
- A water licence will be required prior to diversion and use of water from Well 16524. We understand that the developer will be responsible for applying for a water licence for the well. Subject to MBWD acceptance of the well, the licence will then be transferred to the MBWD who would also own the land on which the well is located (as licenses are tied to land ownership). Note that the well cannot be used until a licence has been issued and the conditions on that licence (if any) are met.

8. CLOSURE

We trust this letter provides the information you require. If you have any questions, please contact us.

Western Water Associates Ltd.


Chad Petersmeyer, M.Sc., P.Geo.
Senior Hydrogeologist



9. REFERENCES

DBI, Biological Activity Reaction Test BART™ User Manual, Droycon Bioconcepts Inc., 2004.

Lowen Hydrogeology Consulting Ltd., Source Approval Submission – Well 16524: Questions in John Spencer's e-mail dated Nov. 28, 2008, December 12, 2008.

Lowen Hydrogeology Consulting Ltd., Well (16524) Report for Water Source Approval, report submitted to Malahat Properties Ltd., October, 2007.

Islander Engineering Ltd., Draft Hydrogeological Report Malahat Well #16524 2220 Benko Road Mill Bay, BC, November, 2017.

BC Ministry of Environment (MOE), Evaluating long-term well capacity for a Certificate of Public Convenience and Necessity, B.C. Ministry of Environment, Land and Parks, Water Management Branch, Victoria, 1999.

Thurber Engineering Ltd., Malahat Properties Community Water Supply Residential Well Inventory, report submitted to Cowichan Valley Regional District, June 27, 2011.

Western Water Associates Ltd., Review of Malahat Properties Well 16524 Assessment, letter submitted to Mill Bay Waterworks District, March 17, 2017.

Western Water Associates Ltd. Standard Report Limitations

1. This Document has been prepared for the particular purpose outlined in the work scope that has been mutually agreed to with the Client.
2. The scope and the period of service provided by Western Water Associates Ltd are subject to restrictions and limitations outlined in subsequent numbered limitations.
3. A complete assessment of all possible conditions or circumstances that may exist at the Site or within the Study Area referenced, has not been undertaken. Therefore, if a service is not expressly indicated, it has not been provided and if a matter is not addressed, no determination has been made by Western Water Associates Ltd. in regards to it.
4. Conditions may exist which were undetectable given the limited nature of the enquiry that Western Water Associates Ltd. was retained to undertake with respect to the assignment. Variations in conditions may occur between investigatory locations, and there may be special conditions pertaining to the Site, or Study Area, which have not been revealed by the investigation and which have not therefore been taken into account in the Document. Accordingly, additional studies and actions may be required.
5. In addition, it is recognised that the passage of time affects the information and assessment provided in this Document. Western Water Associates Ltd's opinions are based upon information that existed at the time of the production of the Document. It is understood that the Services provided allowed Western Water Associates Ltd to form no more than an opinion of the actual conditions of the Site, or Study Area, at the time the site was visited and cannot be used to assess the effect of any subsequent changes in the quality of the Site, or Study Area, nor the surroundings, or any laws or regulations.
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7. Where data supplied by the Client or other external sources, including previous site investigation data, have been used, it has been assumed that the information is correct unless otherwise stated.
8. No responsibility is accepted by Western Water Associates Ltd for incomplete or inaccurate data supplied by others.
9. The Client acknowledges that Western Water Associates Ltd may have retained sub-consultants affiliated to provide Services. Western Water Associates Ltd will be fully responsible to the Client for the Services and work done by all of its sub-consultants and subcontractors. The Client agrees that it will only assert claims against and seek to recover losses, damages or other liabilities from Western Water Associates Ltd.
10. This Document is provided for sole use by the Client and is confidential to it and its professional advisers. No responsibility whatsoever for the contents of this Document will be accepted to any person other than the Client. Any use which a third party makes of this Document, or any reliance on or decisions to be made based on it, is the responsibility of such third parties. Western Water Associates Ltd. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this Document.

May 31, 2018

FILE: 16-087-01

Mill Bay Waterworks District
P.O. Box 58, 875 Deloume Road
Mill Bay, BC V0R 2P0
Attention: Donna Michiel

Re: Review of Malahat Properties Well 16524 2018 Final Assessment Report

Dear Donna:

As requested, Western Water Associates Ltd. (WWAL) is providing this letter summarizing our recent review of the final hydrogeological assessment report for an existing well being proposed for water supply by Malahat Properties Ltd.

Malahat Properties Ltd. is proposing a residential development in the area of Benko Road and Butterfield Road in Mill Bay, BC. The developer intends to provide an existing well to MBWD for water supply to the development. The well is identified by BC Well Identification Plate Number (WIP) 16524.

BACKGROUND

Well 16524 was drilled and test pumped in 2007 under the direction of Lowen Hydrogeology Consulting Ltd. (LHC, 2007). The 245 m (803') deep well is cased with 200 mm (8")-diameter steel casing to a depth of 6.1 m (20') and is 200 mm open hole in the bedrock for the remaining depth. As noted by LHC, major water-bearing fracture zones in the well are at depths of 169 m and 236 m. LHC also completed an additional report (LHC, 2008) in response to enquiry from the Vancouver Island Health Authority (VIHA, now Island Health (IH)). Source Approval of the well was granted by VIHA in a letter dated May 7, 2012. The well was test pumped again in September 2017 under the direction of Islander Engineering Ltd. (IEL). A draft report prepared by IEL entitled 'Draft Hydrogeological Report Malahat Well #16524 2220 Benko Road Mill Bay, BC' was provided to MBWD in November 2017 (IEL, 2017). A final version of this report was issued on March 1, 2018 (IEL, 2018) and provided to WWAL for review on May 23, 2018.

WWAL previously reviewed the 2007 LHC initial assessment report (WWAL, 2017), the 2008 LHC Source Approval follow up report, and the November 2017 IEL draft report (WWAL, 2018) for Well 16524. As requested, we have completed our review of the final IEL assessment report for the well. The results of this review are summarized in this letter.

SUMMARY OF MARCH 2018 IEL REPORT REVIEW

Based on our review of the final IEL report, the primary difference from the draft version is that the estimated, long-term yield of Well 16524 changed from the draft (4.4 L/s or 70 USgpm) to the final (5.2 L/s or 82 USgpm). This nearly 20% change results from a different methodology used by IEL to estimate yield in the final report. In both the draft and final reports, IEL used extrapolated drawdown from the pumping well, multiplied by the

available drawdown and incorporating a safety factor of 30% to estimate long-term yield. In the draft report, the drawdown curve during late times was extrapolated to 1,000,000 minutes (~700 days, or about 2 years) and in the final report the drawdown is extrapolated to only 144,000 minutes (100 days).

The latter procedure is the one that is typically used for estimation of long-term yield in B.C. based on the Province's guidelines for obtaining a Certificate of Public Convenience and Necessity (CPCN) (MOE, 1999). As such, we do not feel that this change in methodology significantly alters the conclusions drawn in our review of the draft report as summarized in our January 15, 2018 letter. We understand that MBWD's civil engineer (Associated Engineering) will also be reviewing the final IEL report to see that it adequately addresses water demand requirements.

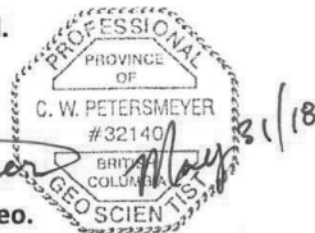
We wanted to revisit a point about well interference made in our January 2018 review of the draft IEL report. Testing of the well showed that operating at the proposed extraction rates would cause significant drawdown interference in three existing domestic wells located outside the MWBD service area. In our opinion, this could influence whether or not the proposed well could be licenced under the *Water Sustainability Act* and, if licenced, what conditions would be included to mitigate for the interference. It is difficult to anticipate the outcome of a new groundwater licence application for this source. One possible condition the Province could place on a licence would be to restrict the withdrawal rate of the proposed supply well. Other possible outcomes are refusal of the licence or mitigation in the form of deepening or water service area extension. Until the well is licenced for use, MBWD should not make any commitment regarding use of the well in its system.

CLOSURE

We trust this letter provides the information you require. If you have any questions, please contact us.

Western Water Associates Ltd.


Chad Petersmeyer, M.Sc., P.Geo.
Senior Hydrogeologist



REFERENCES

Lowen Hydrogeology Consulting Ltd., Source Approval Submission – Well 16524: Questions in John Spencer’s e-mail dated Nov. 28, 2008, December 12, 2008.

Lowen Hydrogeology Consulting Ltd., Well (16524) Report for Water Source Approval, report submitted to Malahat Properties Ltd., October, 2007.

Islander Engineering Ltd., Draft Hydrogeological Report Malahat Well #16524 2220 Benko Road Mill Bay, BC, November, 2017.

Islander Engineering Ltd., Hydrogeological Report Malahat Well #16524 2220 Benko Road Mill Bay, BC, March 1, 2018.

BC Ministry of Environment (MOE), Evaluating long-term well capacity for a Certificate of Public Convenience and Necessity, B.C. Ministry of Environment, Land and Parks, Water Management Branch, Victoria, 1999.

Western Water Associates Ltd., Review of Malahat Properties Well 16524 2017 Assessment Report and 2008 Source Approval Follow Up Report, letter submitted to Mill Bay Waterworks District, January 15, 2018.

Western Water Associates Ltd., Review of Malahat Properties Well 16524 Assessment, letter submitted to Mill Bay Waterworks District, March 17, 2017.

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March 17, 2017

FILE: 16-087-01

Mill Bay Waterworks District
P.O. Box 58, 875 Deloume Road
Mill Bay, BC V0R 2P0
Attention: Donna Michiel

Re: Review of Malahat Properties Well 16524 Assessment

Dear Donna:

As requested, Western Water Associates Ltd. (WWAL) is providing this letter to Mill Bay Waterworks District (MBWD) summarizing our review of a well assessment completed for Malahat Properties Ltd.

BACKGROUND

We understand that Malahat Properties Ltd. is proposing a residential development in the area of Benko Road and Butterfield Road in Mill Bay, BC. The developer intends to provide an existing well to MBWD for water supply to the development. The well is identified by BC Well Identification Plate Number (WIP) 16524.

Well 16524 was drilled and test pumped in 2007 under the direction of Lowen Hydrogeology Consulting Ltd. (LHC). The 245 m (803') deep well is cased with 200 mm (8")-diameter steel casing to a depth of 6.1 m (20') and is 200 mm open hole in the bedrock for the remaining depth. In October 2007, LHC submitted a report to Malahat Properties Ltd. entitled 'Well (16524) Report for Water Source Approval'.

The location of the well and surrounding properties is provided in attached Figure 1, which was taken from a 2011 report conducted by Thurber Engineering Ltd. for the Cowichan Valley Regional District (CVRD) (Thurber, 2011).

This letter provides our review of LHC assessment of Well 16524.

WELL YIELD

Under the direction of LHC, Well 16524 was test pumped for a duration of 72 hours from September 5 to 8, 2007. During testing, the pumping rate was decreased after 11 hours from an initial rate of 7.6 L/s to a rate of 6.8 L/s for the remaining 61 hours. LHC rated the long-term yield of the well at 6.2 L/s (98 USgpm). Based on extrapolated drawdown methodology, we obtain a similar long-term yield estimate. We note, however, that this methodology assumes a near-constant flow rate. In our opinion, the flow rate adjustment results in a less reliable estimation of long-term capacity.

Recovery data are not provided in the LHC report, however, a chart showing recovery with time (as ratio of time since pumping started divided by the time since pumping stopped, or t/t') is provided. LHC indicates that the well recovered 86.5% of its static water level after 1 day following pumping. It is suggested by LHC that 100% recovery

may not be achieved and that this is 'normal' the first time a well is pumped. In our opinion, less than 100% recovery is not necessarily typical and the cause of incomplete recovery should be further examined.

LHC stated that Well 16524 is completed in bedrock aquifer #207 in which Mill Springs wells 80-3 (now MOE Obs well 380), 06-1 (MBWD Well 15603), and 07-01 (MBWD Well 21614) are located. It is identified in our October 24, 2016 report to MBWD (WWAL, 2016) that wells 15603 and 21614 do not appear to be capable of sustaining their original long-term yields estimated by LHC. The current long-term yield estimate for 15603 is 10% of the original yield of 3 L/s and the estimate for well 21614 is 31% of its original yield of 6.8 L/s.

The primary cause of the reduced yields in the existing MBWD supply wells is believed to be lower local and/or regional groundwater levels in the bedrock aquifer. Additional potential causes may be a reduction in well efficiencies, overestimation of original well yields, and slow or marginal well water level recoveries. The reduced yield of well 15603 is likely also partially attributable to liner installation in 2008, as the liner sealed off shallow water bearing materials that contributed flow to the well.

LHC estimated in the conclusions that 'less than 5% of available recharge [to the aquifer] is presently being utilized within the Mill Bay area'. There is no evidence for this statement provided in the report.

WELL WATER QUALITY

Well 16524 was sampled during test pumping under the direction of LHC. Based on LHC's comparison to the respective Guidelines for Canadian Drinking Water Quality, the water meets the requirements for Island Health's 'Guidelines for the Approval of Water Supply Systems'¹, with the exception of total coliform which was 1 colony/100 mL, compared to a Guideline maximum acceptable concentration of 'none detectable'. The Guideline value for total coliforms, however, is a point-of-consumption criterion and we understand that this water source will likely be disinfected prior to use.

We note that iron bacteria were detected at 9000 colonies/1 mL in the well water. There is no Guideline criterion for iron bacteria, however in some circumstances they can negatively impact a well and water system by causing biofouling and encrustation.

IMPACT ON OTHER GROUNDWATER USERS

The potential for interference with other nearby supply wells was not evaluated during the pumping test for Well 16524. Impact to private supply wells during test pumping of Well 16524 was noted by nearby residents at 2240 Benko Road (which is inside the proposed MBWD expanded service area) and at 754 Butterfield Road (located outside the expanded service area). The supply well at 754 Butterfield Road was formerly completed to a depth of 13 m near the bedrock-overburden contact and has since been deepened. Due to the shallow depth, LHC did not believe the yield decline in the residential well was related to testing of Well 16524. We also believe that there was a low likelihood of direct hydraulic connection between Well 16524 and the former shallow well at 754 Butterfield Road.

¹ <http://www.viha.ca/NR/rdonlyres/BA469B79-2A46-4215-8E8F-515619A16DAC/0/GUIDELINESFORTHEAPPROVALOFWATERWORKS.pdf>

LHC suggested potential mitigation measures for the well at 2240 Benko Road due to pumping interference, including: connecting the well owner to the MBWD system, deepening the well, or installing a grouted liner in Well 16524. We note that according to MBWD Engineering Specifications and Standard Drawings (September 2014) the minimum well casing (or PVC liner if required in bedrock wells) must be 200 mm (8") diameter. Thus the existing diameter of Well 16524 (200 mm) is not sufficient to support installation of a well liner.

We understand that the CVRD has required the developer through a covenant to provide a contingency should operation of Well 16524 negatively impact specified nearby wells outside the MBWD service boundary. Furthermore, the MBWD has a Memorandum of Understanding (MOU) with the developer that any impacts to neighbouring water supplies within the MBWD service boundary will be remedied at the expense of the developer. The water system boundaries are shown in Figure 1.

SOURCE PROTECTION

LHC does not address well and aquifer protection in their report. This would include (but is not necessarily limited to): identification of setbacks and potential sources of contamination, GARP and aquifer vulnerability assessment, capture zone mapping, and aquifer/wellhead protection measures.

LHC recommends a wellhead protection plan be developed by MBWD. As it is a requirement of Island Health's 'Guidelines for the Approval of Water Supply Systems', we believe this is typically done at the Source Approval stage and therefore should be the responsibility of the developer.

WELL LICENSING

Well 16524 will need to be licensed in accordance with the *Water Sustainability Act* which requires non-domestic water users to apply for a water licence and pay an application fee and annual water rental fees. Use of Well 16524 would be considered 'new' and an application would need to be made prior to using the well for supply.

As part of the licensing process, we anticipate the Province will require a 'technical assessment' in accordance with the 'Guidance for Technical Assessment Requirements in Support of an Application for Groundwater Use in British Columbia' (Todd et al., 2016). The assessment typically has both office and field-based components for a project of this scope.

In our opinion the LHC report contains some, but not all, aspects of a technical assessment. We also note that nearly 10 years have passed since the testing was completed and additional testing may be warranted due to the passage of time as well as the likely need for supplemental technical information to support licence approval. Additional components of a technical assessment report that are identified in the Guidance document, include (but may not be limited to):

- Providing updated climate data for the available period of record (e.g. summarize Climate Normals).
- Presenting hydrogeological maps and cross-sections that illustrate groundwater occurrence and flow.
- Monitoring drawdown in observation well(s) during test pumping.

- Assessing potential impacts on nearby groundwater users; as well as potential connectivity between adjacent aquifers.
- Estimating hydraulic properties of the aquifer (e.g., hydraulic conductivity, transmissivity, and storativity) from both drawdown and recovery data, including the identification of likely boundary conditions.

Please refer to “Appendix B” of the Technical Assessment Guideline for a checklist of the items that are typically included in a hydrogeological assessment to support a new groundwater licence.

SUMMARY AND RECOMMENDATIONS

We have completed our review of the LHC assessment report for Well 16524. Based on our review, we recommend the following be undertaken prior to MBWD considering the well for incorporation into its supply system:

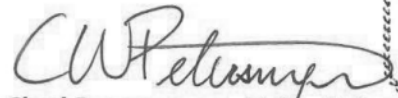
- Establish a written agreement whereby any future depleted long-term yield of Well 16524 (as determined by MBWD) will be remedied by the developer, for example through redevelopment of the supply well and/or provision of supplementary water supply.
- As conditions may have changed since the CVRD covenant and MOU with the developer were written, review and amend these documents as necessary to ensure that all the developed neighbouring lots in the area (outside and inside the MBWD service area) are included and that sufficient funds are held for the intended purpose of remedying any impacts due to operation of Well 16524.
- Update information on neighbouring water supplies and notify the owners of all water supplies in the area (inside and outside the MBWD boundary) of any future pumping operations of Well 16524.
- Conduct a minimum 72-hour pumping test on well 16524 at a time of year when groundwater levels are expected to be near their minimum and precipitation events are not expected to significantly affect the test. The pumping rate must not vary by more than $\pm 5\%$ during the test. Measure water level recovery in the well for a sufficiently long period to assess extent of recovery.
- During test pumping, monitor well interference in nearby wells including at least 5 of the 15 high risk private water supplies and at least 5 nearby lots within the MBWD boundary (subject to well accessibility and owner approval). Monitoring of the closest private wells should be given priority over distant wells. MBWD bedrock supply wells 15603 and 21614 are located greater than 1.5 km away from Well 16524, and therefore we believe the likelihood of impact to these wells is low. If practical, however, MBWD should consider taking these wells out of operation and monitoring water levels in them during test pumping of Well 16524 to confirm that they are not impacted.
- Conduct the well testing and update the well assessment report in accordance with the Province’s requirements of a technical assessment and Island Health’s Source Approval (including establishing a

source protection plan). As specified in the technical assessment document, all work must be done under the direction of a professional with competency in hydrogeology.

CLOSURE

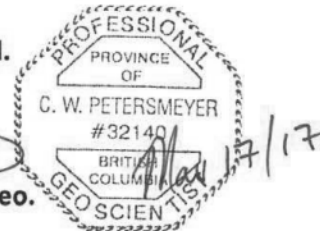
We trust this letter provides the information you require. If you have any questions, please contact us.

Western Water Associates Ltd.



Chad Petersmeyer, M.Sc., P.Geo.

Senior Hydrogeologist



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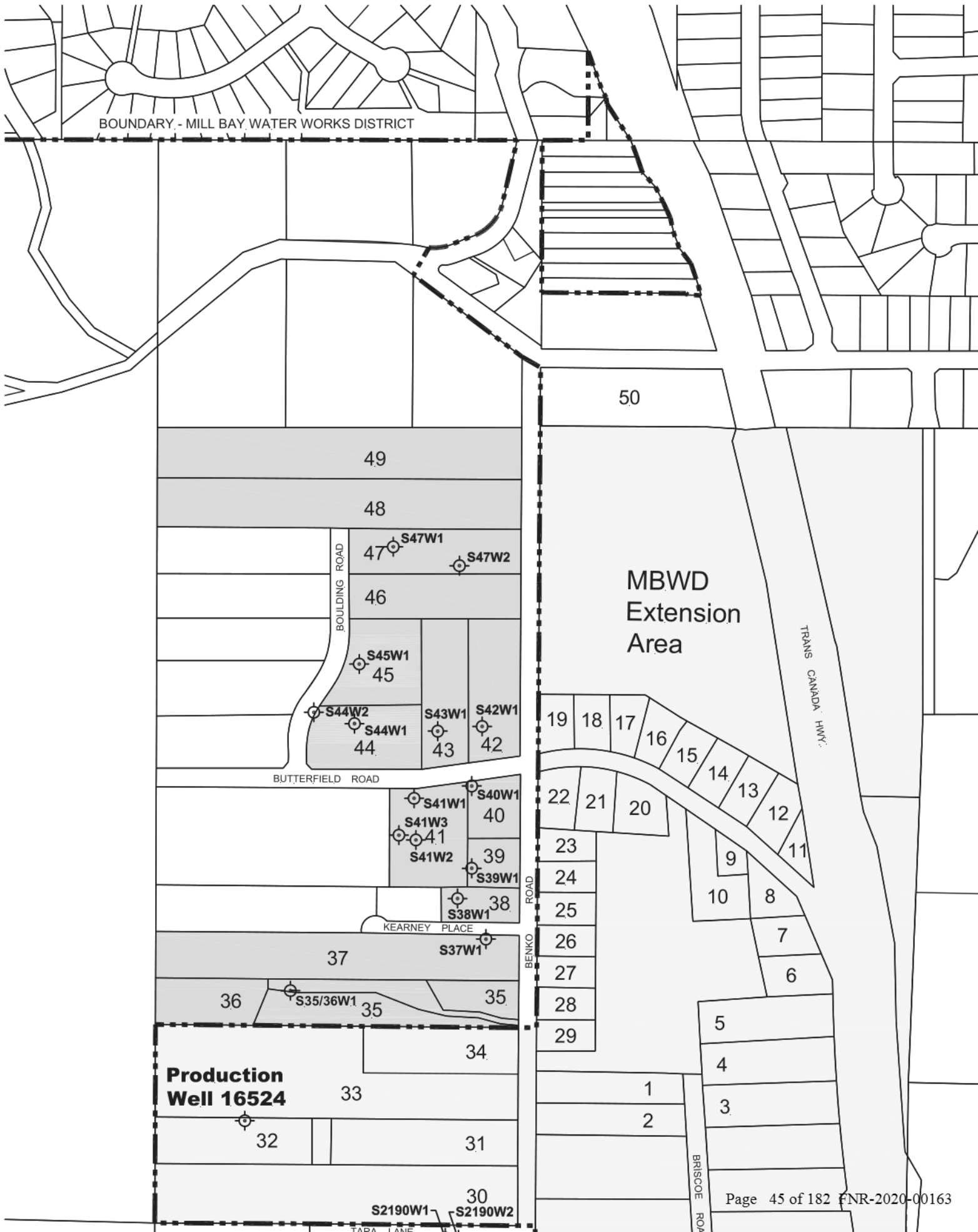
REFERENCES

Lowen Hydrogeology Consulting Ltd., Well (16524) Report for Water Source Approval, report submitted to Malahat Properties Ltd., October, 2007.

Thurber Engineering Ltd., Malahat Properties Community Water Supply Residential Well Inventory, report submitted to Cowichan Valley Regional District, June 27, 2011.

Todd, J., M. Wei, M. Lepitre, Guidance for Technical Assessment Requirements in Support of an Application for Groundwater Use in British Columbia. Prov. B.C., Victoria B.C. Water Science Series 2016-08, <http://www2.gov.bc.ca/gov/content/environment/air-land-water/water/water-science-data/water-science-series>, 2016.

Western Water Associates Ltd., MBWD 2016 Supply Well Test Pumping Program Results, letter submitted to Mill Bay Waterworks District, October 24, 2016.



Western Water Associates Ltd.

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From: Donna Michiel
To: MacDonald, Amber FLNR:EX
Subject: RE: Malahat Properties Well Application
Date: Wednesday, June 27, 2018 2:08:48 PM

Thank you Amber, per our discussion this morning please proceed with the application for well 16524 as submitted.

If you need any further information from me, please do not hesitate to contact me.

Donna Michiel
Administrator
Mill Bay Waterworks

From: MacDonald, Amber FLNR:EX [mailto:Amber.1.MacDonald@gov.bc.ca]
Sent: June 25, 2018 9:04 AM
To: 'Donna'
Subject: RE: Malahat Properties Well Application

Thanks Donna,

I likely won't get to this for a couple of days, but I should be able to send it on to Water Authorizations by the end of the week.

Cheers,



Amber MacDonald CSP | Natural Resource Specialist

FrontCounter BC | Ministry of Forests, Lands, Natural Resource Operations and Rural Development
142 – 2080 Labieux Rd | Nanaimo BC V9P 9B4
Tel: 250-751-3106 | Fax: 250-751-7234
Toll Free Phone: 1-877-855-3222 [Freedom of Information Disclaimer](#)

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From: Donna [mailto:Donna.michiel@millbaywater.ca]
Sent: Monday, June 25, 2018 9:03 AM
To: MacDonald, Amber FLNR:EX
Cc: Chad Petersmeyer
Subject: RE: Malahat Properties Well Application

Amber,

Our Hydrogeologist Chad Petersmeyer has had a chance to review and report on the last copy of the well 16524 hydrology report submitted to you by Mike Achtem on behalf of Malahat Properties (and Mill Bay Waterworks). I am providing you a copy of his most recent review, in addition to the review done on the draft report we previously received and a third review that was done in 2017 on Lowen Hydrogeology Consulting's report in 2007. If you have any questions, please let me know. I have cc'd Chad on this email also. If you need anything further from me at this time, please let me know.

Donna Michiel
Administrator
Mill Bay Waterworks District
250-743-9023

From: MacDonald, Amber FLNR:EX [<mailto:Amber.1.MacDonald@gov.bc.ca>]

Sent: May 28, 2018 7:58 AM

To: Donna

Subject: RE: Malahat Properties Well Application

Hi Donna,

Thanks for this. I'm sorry to hear there are ongoing issues with this arrangement. I've put the application on hold, pending notification from you that Mill Bay is ok with the report as submitted.

Hopefully our new procedure will curb these sorts of issues with future applications.

If you need anything else, please let me know.

Sincerely,



Amber MacDonald CSP | Natural Resource Specialist

FrontCounter BC | Ministry of Forests, Lands, Natural Resource Operations and Rural Development

142 – 2080 Labieux Rd | Nanaimo BC V9P 9B4

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From: Donna [<mailto:Donna.michiel@millbaywater.ca>]

Sent: Friday, May 25, 2018 12:35 PM

To: Mike Achtem; carysangha@gmail.com

Cc: kim sharyk

Subject: Malahat Properties Well Application

Mike and Cary,

As you are aware the Hydrogeological report dated March 2018 is different than the draft report dated November 2017 that was reviewed by Chad Petersmeyer. You provided a copy of that full March 2018 report to Chad on May 23rd. Chad has provided an estimate in the amount of approximately \$1000.00 (plus tax) to review this report.

Chad has spoken with Brad Loffler and understands that the estimated yield of the well has changed in this report, and following a cursory review of the final report, it appears that wording in the text throughout the document has also changed. The cost estimate assumes that the changes in the text wording do not constitute a significant variation to the findings or conclusions in the draft report. Chad's scope of works for the review includes reviewing the text of the document, review of the updated long term yield estimate, and providing a brief summary of the review via email or letter.

The Board will require Chad to carry out this work before approving the licencing application to proceed. Therefore a deposit in the amount of \$1000 (plus tax) is required to be made with the District Office. The District is currently holding funds intended for Oleh Dubek's review time expected for the design stages which we can use for now to

cover the costs of Chad's time, and not hold up the review process. This will however suggest that there will be a shortfall of funds for Oleh's time when his reviews are to be carried out and expected to be replaced at the earliest convenience.

Please respond to this email with the approval to have Chad proceed with the necessary review so that I may advise him to proceed, and we can avoid the well licensing application being held up for any reason. I have spoken with Amber MacDonald and she is aware of the necessary steps from the District side.

Thank you,

Donna Michiel
Administrator
Mill Bay Waterworks District
250-743-9023

From: Donna
To: MacDonald, Amber FLNR:EX
Subject: FW: MOU
Date: Tuesday, July 3, 2018 2:23:39 PM
Attachments: [23019-ST2 TENT BLS Dec1916.pdf](#)
[23019-ST2 TENT 10 LOTS Nov2416.pdf](#)
[23019-ST2 OVERALL future subdivision.pdf](#)

Amber, as discussed, hope this is helpful.

Donna Michiel
Administrator
Mill Bay Waterworks District
250-743-9023

From: Peter Wittstock [mailto:pwittstock@jeanderson.com]
Sent: June 28, 2018 9:33 AM
To: Donna
Cc: cary sangha
Subject: RE: MOU

Hi Donna,
With regards to your request to Cary for legal descriptions of properties and total possible lots developed:.

Stage 1

- Part of Lot 3, District Lot 82, Malahat District, Plan 26541
- Part of Lot 4, District Lot 82, Malahat District, Plan 26541
- Part of Lot 5, District Lot 82, Malahat District, Plan 26541

Yield **10** Fee Simple Lots

- Lot A, District Lot 82, Malahat District, Plan 50582

Yield: **7** Fee Simple Lots, **28** Bare Land Strata Lots, and **1** Lot Deeded to CVRD

Yield **Stage 1:** 45 lots plus 1 to CVRD

-

Stage 2

- (The Remainder of) Lot 3, District Lot 82, Malahat District, Plan 26541
- (The Remainder of) Lot 4, District Lot 82, Malahat District, Plan 26541
- (The Remainder of) Lot 5, District Lot 82, Malahat District, Plan 26541
- Lot 6, District Lot 82, Malahat District, Plan 26541, Except Part in Plan VIP53438
- Lot 7, District Lot 82, Malahat District, Plan 26541, Except Part in Plan 50127
- Lot A, District Lot 82, Malahat District, Plan 25114

- Lot B, District Lot 82, Malahat District, Plan 25114
- Lot C, District Lot 82, Malahat District, Plan 25114, Except Part in Plan 51165
- Lot 10, District Lot 10, Malahat District, Plan 2942, Except those parts in Plan 518RW, 11803 and 50127 (Requires zoning boundary bylaw amendment)

Yield **Stage 2:** 52 lots

Stage 3

- Lot A, District Lot 101, Malahat District, Plan 40279

Yield 4 lots (requires new road to be dedicated)

Yield **Stage 3:** Maybe 4 lots

Total Potential Yield from all 3 stages west of the TCH: 101 lots (Plus 1 lot transferred to CVRD)

Please let me know if you have any questions.

Thanks,

Pete

Peter Wittstock, BCLS

JE Anderson & Associates

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From: cary sangha [<mailto:carysangha@gmail.com>]

Sent: Wednesday, June 27, 2018 6:04 PM

To: Peter Wittstock

Subject: Fwd: MOU

Pete can you reply to Donna regarding number of lots and legal. I believe there will be our next phase of lots then one more including lot 10 and the water tower site possibly.

Sent from my iPhone

Begin forwarded message:

From: Donna <Donna.michiel@millbaywater.ca>
Date: June 27, 2018 at 5:08:19 PM PDT
To: Cary Sanga <carysangha@gmail.com>
Cc: Mike Achtem <machtem@islanderengineering.com>
Subject: MOU

Cary,

As we are working on updating the MOU, would you please provide me with an up to date list of the legal descriptions of the property included in the subdivision on the west side (only) of the highway, in addition to the number of phases planned, and number of units planned in each phase, again on the west side of the highway only. The Sangster road portion of the development is done and was completed under its own MOU and MOA. The MOU we are revising will be addressing the West Side of the highway only.

Thank you,

Donna Michiel
Administrator
Mill Bay Waterworks District
250-743-9023



NOOWICK ROAD



Met. File: 2018-02626
CVRD File: 06-A-165A

TENTATIVE PLAN OF
BARE LAND STRATA
SUBDIVISION

MALAHAT PROPERTIES LTD
Lot B, DL 82,
Malahat District, Plan EPP

SURVEYOR: PJW SCALE: 1:750
DRAWN: PJW DATE: Dec 19/16
OUR FILE: 23019 REV:

JEA J.E. ANDERSON
& ASSOCIATES
SURVEYORS - ENGINEERS
4117 GLANFORD AVENUE
VICTORIA, BC V8T 4B7
TEL: 250-727-2244 FAX: 250-727-3395
WEB: www.jeanderson.com
VICTORIA - NANAIMO - PARKSVILLE

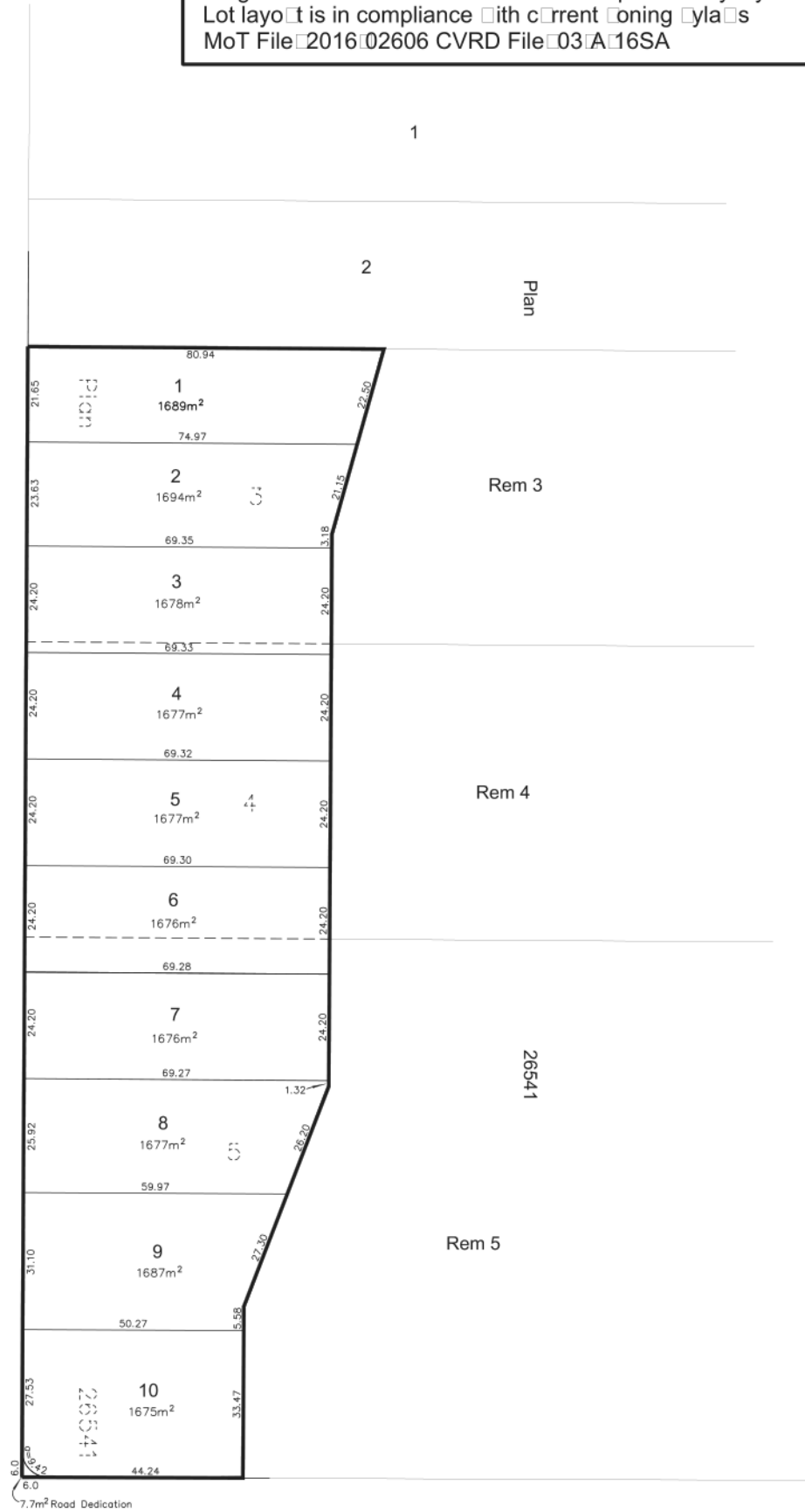
Strata Averaging		
Site Area Lot B, Plan EPP	52,774m ²	
CP Access	5,642m ²	
Developable Area	47,132m ²	
47,132	1,675	28 lots

Scale 1:750
0 7.5 15 30 45 60 75
The intended plot size of this plan is 560mm in width by 864mm in height (D size) when plotted at a scale of 1:750

This Tentative Subdivision Plan is being submitted as part of Stage Two of CVRD DVP 2/A/08 DP for preliminary layout approval. Lot layout is in compliance with current zoning bylaws. MoT File 2016-02606 CVRD File 03/A/16SA



BENKO ROAD



SUNBURST ROAD

TENTATIVE PLAN OF SUBDIVISION

MALAHAT PROPERTIES LTD

Part of Lots 3, 4 and 5,
DL 82, Malahat District,
Plan 26541

PID's: 002-790-631
000-073-393
002-790-891

SURVEYOR : PJW	SCALE : 1:750
DRAWN : PJW	DATE : May 10/16
OUR FILE : 23019	REV: Nov 24/16

JEA J.E. ANDERSON & ASSOCIATES
SURVEYORS - ENGINEERS

4212 GLANFORD AVENUE,
VICTORIA, BC, V8Z 4B7
TEL: 250-727-2214 FAX: 250-727-3395
WEB: www.jeanderson.com
VICTORIA - NANAIMO - PARKSVILLE



FUTURE LOT LAYOUT Concept Plan

Client:
MAHAHAT PROPERTIES

Part of Lots A, B, and Rem C,
Plan 25114, Rem Lot 10, Plan 2942,
Part of Lots 3, 4, 5, 6 and 7,
Plan 26541 and
Lot A, Plan 19329
Except Part in Plan 50562, all in
District Lot 82, Malahat District

ADDRESS: Benko Road, V81 8V1
SURVEYOR: PJM SCALE: 1:1500
DRAWN: PJM DATE: June 28/18
OUR FILE: 23019 REV:

JEA
J.E. ANDERSON & ASSOCIATES
SURVEYORS - ENGINEERS
4212 GRANFORD AVENUE,
VICTORIA, BC, V8S 4B7
TEL: 250-727-2214 FAX: 250-727-3395
WEB: www.jea-associates.com
VICTORIA - NANAIMO -
PARKSVILLE - CAMPELL RIVER

v:_Surveying\23019_23019.dwg (Concept Future Layout)

Scale: 1:1500

0 15 30 60 90 120 150

The intended plot size of this plan is 560mm in width by 864mm in height (D Size) when plotted at a scale of 1:1500

LEGEND

All distances shown are in metres

CL ---- Denotes Concept Lot

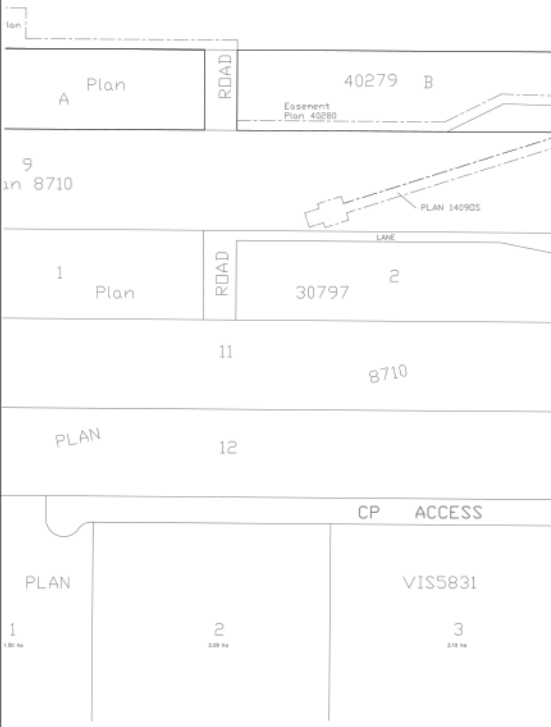
Legal boundaries, lot shapes and sizes are subject to final legal survey

Sum of Lots

Phase 1 Registered SFD Lots:
11
Under Current Application:
7 Lot Fee Simple
10 Lot Fee Simple
26 Lot Bare Land Strata
Future Conceptual Lots:
52
(Long Term Concept, Lots A (Supply Well Lot), Plan 40279
(Maybe 4 lots if land locked road ever connects to road network)
108 (Possible longer term 112) Lots Total

7 (DD D20355)
Plan 8710

Am. 6
(DD D20356)



From: Donna
To: MacDonald, Amber FLNR:EX
Subject: FW: MOU
Date: Tuesday, July 3, 2018 2:24:18 PM
Attachments: 23019-ST2 TENT 7 Lots Dec1916.pdf

One more..

Donna Michiel
Administrator
Mill Bay Waterworks District
250-743-9023

From: Peter Wittstock [mailto:pwittstock@jeanderson.com]
Sent: June 28, 2018 9:36 AM
To: Donna
Subject: RE: MOU

Hi Donna,
Sorry, one additional tentative plan attached of proposed 7 fee simple lots.
Thanks,
Pete

From: Peter Wittstock
Sent: Thursday, June 28, 2018 9:33 AM
To: 'Donna.michiel@millbaywater.ca'
Cc: 'cary sangha'
Subject: RE: MOU

Hi Donna,
With regards to your request to Cary for legal descriptions of properties and total possible lots developed:.

Stage 1

- Part of Lot 3, District Lot 82, Malahat District, Plan 26541
- Part of Lot 4, District Lot 82, Malahat District, Plan 26541
- Part of Lot 5, District Lot 82, Malahat District, Plan 26541

Yield **10** Fee Simple Lots

- Lot A, District Lot 82, Malahat District, Plan 50582

Yield: **7** Fee Simple Lots, **28** Bare Land Strata Lots, and **1** Lot Deeded to CVRD

Yield **Stage 1:** 45 lots plus 1 to CVRD

-

Stage 2

- (The Remainder of) Lot 3, District Lot 82, Malahat District, Plan 26541
- (The Remainder of) Lot 4, District Lot 82, Malahat District, Plan 26541
- (The Remainder of) Lot 5, District Lot 82, Malahat District, Plan 26541
- Lot 6, District Lot 82, Malahat District, Plan 26541, Except Part in Plan VIP53438
- Lot 7, District Lot 82, Malahat District, Plan 26541, Except Part in Plan 50127
- Lot A, District Lot 82, Malahat District, Plan 25114
- Lot B, District Lot 82, Malahat District, Plan 25114
- Lot C, District Lot 82, Malahat District, Plan 25114, Except Part in Plan 51165
- Lot 10, District Lot 10, Malahat District, Plan 2942, Except those parts in Plan 518RW, 11803 and 50127 (Requires zoning boundary bylaw amendment)

Yield **Stage 2:** 52 lots

Stage 3

- Lot A, District Lot 101, Malahat District, Plan 40279

Yield 4 lots (requires new road to be dedicated)

Yield **Stage 3:** Maybe 4 lots

Total Potential Yield from all 3 stages west of the TCH: 101 lots (Plus 1 lot transferred to CVRD)

Please let me know if you have any questions.

Thanks,

Pete

Peter Wittstock, BCLS

JE Anderson & Associates

4212 Glanford Avenue

Victoria, BC

V8Z 4B7

250-727-2214 (office)

250-727-3395 (fax)

pwittstock@jeanderson.com

www.jeanderson.com



DISCLAIMER: This e-mail message is intended only for the named recipient(s) above and may contain information that is privileged, confidential and/or exempt from disclosure under applicable law. If you have received this message in error, or are not the named recipient(s), please immediately notify the sender and delete this e-mail message.

From: cary sangha [<mailto:carysangha@gmail.com>]

Sent: Wednesday, June 27, 2018 6:04 PM

To: Peter Wittstock

Subject: Fwd: MOU

Pete can you reply to Donna regarding number of lots and legal. I believe there will be our next phase of lots then one more including lot 10 and the water tower site possibly.

Sent from my iPhone

Begin forwarded message:

From: Donna <Donna.michiel@millbaywater.ca>

Date: June 27, 2018 at 5:08:19 PM PDT

To: Cary Sanga <carysangha@gmail.com>

Cc: Mike Achtem <machtem@islanderengineering.com>

Subject: MOU

Cary,

As we are working on updating the MOU, would you please provide me with an up to date list of the legal descriptions of the property included in the subdivision on the west side (only) of the highway, in addition to the number of phases planned, and number of units planned in each phase, again on the west side of the highway only. The Sangster road portion of the development is done and was completed under its own MOU and MOA. The MOU we are revising will be addressing the West Side of the highway only.

Thank you,

Donna Michiel
Administrator
Mill Bay Waterworks District
250-743-9023

Scale 1:750



The intended plot size of this plan is 280mm in width by 432mm in height (C size) when plotted at a scale of 1:750



TENTATIVE PLAN OF SUBDIVISION

MALAHAT PROPERTIES LTD

Lot A,
DL 82, Malahat District,
Plan EPP _____

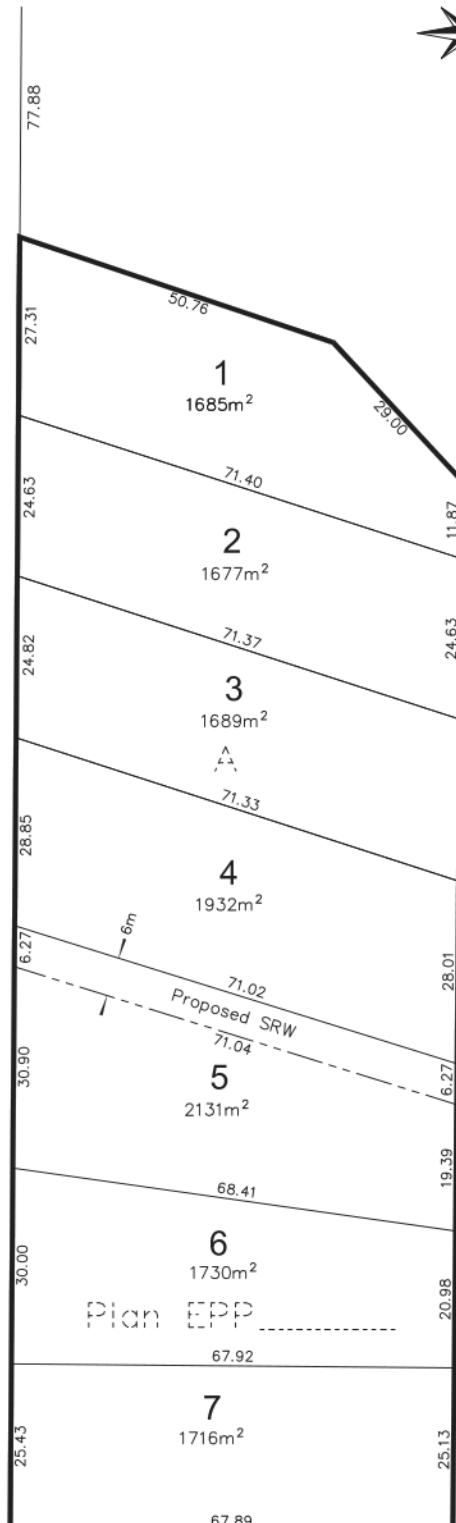
SURVEYOR : PJW	SCALE : 1:750
DRAWN : PJW	DATE : Dec 19/16
OUR FILE : 23019	REV:



**J.E. ANDERSON
& ASSOCIATES**
SURVEYORS - ENGINEERS

4212 GLANFORD AVENUE,
VICTORIA, BC, V8Z 4B7
TEL: 250-727-2214 FAX: 250-727-3395
WEB: www.jeanderson.com
VICTORIA - NANAIMO - PARKSVILLE

BENKO ROAD



B
Plan EPP _____

1
Plan

2

3
14177

From: MacDonald, Amber FLNR:EX
To: "carysangha@gmail.com"; "Donna"
Cc: "Mike Achtem"
Subject: vFCBC Tracking No. 100247443 / Water File No. 20007388
Date: Tuesday, July 3, 2018 4:30:21 PM
Attachments: 2018-07-03 App - Edits highlighted.pdf
2018-07-03 Arch Ltr.pdf

Dear Mr. Sangha & Ms. Michiel:

Your application for a water licence on Aquifer 207 in Mill Bay has been received and we have completed our preliminary review. Your application has been assigned Water File No. 20007388 and will now undergo adjudication by Water Authorizations Staff.

Please note applications are generally processed in the order they are received. The overall processing time will vary based on the completeness, accuracy and complexity of the application, the degree of consultation required with First Nations as well as application volume. You can expect to be contacted by Water Authorizations Staff within the next two months. If additional information is required to adequately assess your application you may be requested to provide additional information and/or assessments.

This email does not imply that a water licence will be issued, nor does it grant an authorization to divert and use water or to make changes in and about a stream.

Please find the attached Archaeology Branch Notification Letter. If you have any questions, please contact the Archaeology Branch (contact information can be found in the letter).

**** Please also note that an amended application form is attached for your records. I have highlighted the changes that were necessary to make this application fit within our system requirements. All of the changes are administrative in nature and do not alter the main points of the application as already agreed upon.**

If you have any questions, please feel free to follow up with me using the contact information in my signature block below. Please quote your Water File No. 20007388 when contacting this office.

Sincerely,



Amber MacDonald CSP | Natural Resource Specialist

FrontCounter BC | Ministry of Forests, Lands, Natural Resource Operations and Rural Development

142 – 2080 Labieux Rd | Nanaimo BC V9P 9B4

Tel: 250-751-3106 | Fax: 250-751-7234

Toll Free Phone: 1-877-855-3222 [Freedom of Information Disclaimer](#)

Tell us about your experience with FrontCounter BC: [Complete an Online Comment Card](#).



New Groundwater Application

Tracking Number: 100247443

Applicant Information

If approved, will the authorization be issued to an Individual or Company/Organization? Company/Organization
What is your relationship to the company/organization? Consultant

APPLICANT COMPANY/ORGANIZATION CONTACT INFORMATION

Applicant is an Individual or an Organization to whom this authorization will be issued, if approved

Name: Malahat Properties Ltd
Doing Business As:
Phone: 250-883-0416
Fax:
Email: carysangha@gmail.com
BC Incorporation Number:
Extra Provincial Inc. No:
Society Number:
GST Registration Number:
Contact Name: Cary Sangha
Mailing Address: 6702 Rajpur
Central Saanich BC V8M 1Z5

CONSULTANT INFORMATION

Please enter the contact information of the Individual/Organization who is acting on behalf of the applicant.

Name: ISLANDER ENGINEERING LTD.
Doing Business As:
Phone: 250-893-9977
Fax:
Email: machtem@islanderengineering.com
BC Incorporation Number: BC1085632
Extra Provincial Inc. No:
Society Number:
GST Registration Number:
Contact Name: Michael J Achtem
Mailing Address: C-485 Garbally Road
Victoria BC V8T 2J9
Letter(s) Attached: Yes (letter of consent for Islander.pdf)

CORRESPONDENCE E-MAIL ADDRESS

It is recommended to provide your correspondence email in this section.

Email: machtem@islanderengineering.com
Contact Name: Mike Achtem

CO-APPLICANTS

A co-applicant is an Individual or Company/Organization listed on the title of the land, mine or undertaking who was not previously identified as the principal applicant.

Are there co-applicants for this application? Yes

Co-applicants who are Organizations must consent to providing their name, address and phone number and Individuals must consent to providing their name and email address. Do you have permission from the co-applicants to enter their personal information? Yes

You have indicated earlier in the application that there is one or more co-applicant. Please add each co-applicant by clicking on the 'Add Individual' or 'Add Organization' button below depending if the co-applicant is an individual or an organization. Due to Freedom of Information and Protection of Privacy Act regulations you are only able to enter the name and email address for an individual.

Name: Mill Bay Waterworks District
Doing Business As: MBWD
Phone: 250-743-9023
Fax:
Email: donna.michiel@millbaywater.ca
BC Incorporation Number:
Extra Provincial Inc. No:
Society Number:
GST Registration Number:
Mailing Address: 875 Deloume Road
CVRD BC V0R 2P4

ELIGIBILITY

If you answer yes to any ONE of the following questions, you are eligible to apply for a water licence.

Question	Answer	Warning
- Are you the owner of land or a mine in British Columbia where the water will be used?	Yes	
- Are you entitled to possession of land or a mine in British Columbia where the water will be used?		
- Do you have a substantial interest in the land, mine, or an undertaking in British Columbia where the water will be used?		
- Are you a holder of a certificate of public convenience and necessity issued under the Public Utilities Act, the Utilities Commission Act or the Water Utility Act?		
- Are you a municipality, regional district, improvement district, development district or water users' community?		
- Are you representing the government of British Columbia or Canada?		
- Are you representing a commission, board or person having charge of the administration of Crown land or a mine or an undertaking on Crown land, administered by British Columbia or Canada or controlled by a ministry, department, branch or other subdivision of the government of British Columbia or Canada?		
- Are you representing the Greater Vancouver Water District or any other water district incorporated by an Act?		
- Are you representing the British Columbia Hydro and Power Authority?		
- Are you applying as an agent on behalf of an eligible applicant as described above?		

TECHNICAL INFORMATION

ENVIRONMENTAL ASSESSMENT

The Environmental Assessment Act requires that certain large groundwater extraction projects undergo an environmental assessment, and obtain an environmental assessment certificate, or obtain a formal determination that an environmental assessment certificate is not required.

Criteria for determining whether a groundwater extraction projects may require an Environmental Assessment certificate:

1. Constructed on or after the year 1995 where one or more works, operated intermittently or continually for 1 year, divert 75 Litres per second (1189 US GPM) or greater.
2. Modifications to projects constructed prior to 1995 that result in diversion reaching or exceeding 75 Litres per second (1189 US GPM).

3. Projects built prior to 1995 that divert 75 Litres per second (1189 US GPM) or greater that have been modified on or after 1995 such that there is an increase of 35% or more over the previous rate of diversion.

Projects that meet the criteria above may require either an Environmental Assessment Certificate or a letter of exemption from the Environmental Assessment Office (EAO). Visit the EAO website or see the Environmental Assessment Certificate Requirements for Groundwater Users Guidelines for more information.

According to the requirements above, does your application require an Environmental Assessment certificate, or do you have a letter of exemption? No

PURPOSES

Please select the purpose for which the diverted groundwater will be used. Please note that the purpose you indicate may be changed during the application review process to better reflect the use of the water, in which case you will be notified of the change. For definitions of Water Use Purpose, click here

NOTE: A water licence is not required for groundwater that is used for a domestic purpose. Domestic groundwater users have deemed rights for domestic use of up to 2000 litres per day under the Water Sustainability Act and it is therefore not possible to submit an application for a licence.

Purpose	Quantity	Use of Water	Comments	Fee
Waterworks Local Provider	162,477 m3/year	Year Round	Malahat Properties Ltd. and the Mill Bay Waterworks Department are co-applicants on this license application. The purpose is to expand and improve the existing MBWD water system including this new production well, water treatment plant, reservoir and distribution system	\$5,000.00

Total: \$5,000.00

WORKS

Works are the physical equipment used to move the water from its source to where it will be used. For example, works can include a screened intake, pump, pipeline, irrigation system, dugout, storage structure etc. Please ensure that you add all the major components of your works – typically there will be multiple items listed in this section. Scroll down the list provided to see all the options available for selection. For a formal definition of “works”, refer to Section 1(1) of the Water Sustainability Act.

If your works are not fully constructed, (e.g. under repair), please provide details in the "Comments" field below.

Works	Status	Comments
Distribution system	Not Constructed	The facility is at preliminary design and the Works include a new water production well, 1050 cum water reservoir, water treatment plant and distribution system. All works will be paid for by the developer and then transferred to the Mill Bay Waterworks Department
Pipe	Not Constructed	Added to better reflect the likely parts of a future water system.
Pump	Not Constructed	
Treatment facility/system	Not Constructed	

WELL WORKS

Is the water you are applying for coming from a well? Yes

If your works are not fully constructed, (e.g. under repair), please provide details in the "Comments" field below.

Works	Common Well Name	Status	Comments
Well	Malahat	Fully Constructed	A comprehensive Hydrogeological Report dated March 1, 2018 has been completed by Islander Engineering and submitted to the Mill Bay Waterworks Department. MBWD has had their consultant hydrogeologist review this report and agree with the results and findings
Well Tag Number:	88152	Well ID Plate Number:	16524
Depth of Well:	803 feet		
	Latitude value must be entered as a positive value between 47 to 60 up to 7 decimals.		
	Longitude value must be entered as a negative value between -140 to -113 up to 7 decimals.		
Location of well:	Latitude: 48.37491 Longitude: -123.33279 Decimal Degrees		
Method of location measurement:	GPS Device		
Is the well a flowing artesian well at any time of the year?	No	Added from Wells Database information	
Is the well head in a pit or a sump?	No		
Are there other wells on the property that are not in use?	No		
Do you have a well construction report?			
Aquifer Source:			
Diameter of Well:			
Date of Construction:			
Estimated Yield:			
Well is on:			

JOINT WORKS

Are your works connected to the works of another person or group of persons?

If you share or are connected to another person's works, it is recommended that a Joint Works Agreement-outlining each party's role and responsibilities-be completed and uploaded

Are any of your works joint with another person's or group's works? No

PROXIMITY TO SURFACE WATER

Works are the physical equipment used to move the water from its source to where it will be used. For example, works can include a screened intake, pump, pipeline, irrigation system, dugout, storage structure etc. Please ensure that you add all the major components of your works – typically there will be multiple items listed in this section. Scroll down the list provided to see all the options available for selection. For a formal definition of “works”, refer to Section 1(1) of the Water Sustainability Act.

Does your well report show that your well is hydraulically connected to surface water? No

OTHER LANDS PHYSICALLY AFFECTED

Are there other lands that are physically affected by your works? No

WATER USER'S COMMUNITY

Will the water be supplied by a Water Users' Community? No

PERMIT OVER CROWN LAND

For any works that cross or otherwise affect (e.g. flood) Crown land, you will require permission. A Permit Over Crown Land (PCL) means an authority issued under the Water Sustainability Act which allows you to construct, maintain, or operate works on Crown land or to flood Crown land.

Please answer the following questions to determine whether an authorization to occupy Crown Land will be required with your Groundwater application. If a Permit Over Crown land is required, the applicable fee, if any, will be automatically calculated and added to your application.

You should indicate 'Yes' to the following question if any of the following circumstances apply to your application:

- any of your new works to the licence are located on or crossing Crown land
- OR
- your well is located on Crown Land
- OR
- you are proposing to flood Crown Land

Do any of the above apply to your application? No

Based on your answer you do not appear to be affecting or flooding Crown land and neither a Permit over Crown land nor a Crown land tenure appears to be required.

ADDITIONAL QUESTIONS

In many cases you might require other authorizations or permits in order to complete your project. In order to make that determination and point you in the right direction, please answer the questions below. More information can also be found on the Government Water website. In addition, your application may be referred to other agencies for comments.

Are you planning to cut timber on Crown Land? No

Are you planning to use an open fire to burn timber or other materials? No

Are you supplying potable water to consumers? Yes

The Drinking Water Protection Act and the Drinking Water Protection Regulation describe the responsibilities of the water supplier, which include supplying potable water to consumers, disinfecting surface water and preparing an emergency response plan. The Local Health Authorities are responsible. <http://www.health.gov.bc.ca/protect/dwact.html>

Will fish or wildlife habitat be affected? No

Are you planning to undertake mineral exploration? No

Do you need to construct a road to the dam (if there are no existing roads)? No

Do you want to construct works within an existing forest road right-of-way on Crown land? No

Do you want to transport heavy equipment or materials on an existing forest road? No

Do you want to use the water for livestock watering on Crown No

land?

Does any work occur within the public road allowance or has to cross a public road? **Yes**

Works will cross Benko Rd and/or Trans Canada Hwy

It may be necessary to file an application for permission to construct works with the Ministry of Transportation.
<http://www.th.gov.bc.ca/permits/Apply.asp>

LOCATION INFORMATION

LAND DETAILS

Select the Add Land Information button to add each parcel of land where the water will be used.

This section changed to reflect eventual appurtenancy (where water will be used), not where the well is located.

Description

Other

Legal Description: All those lands serviced by the Mill Bay Waterworks Improvement District.

A Drawing to Scale is required that meets the Application Drawing Standards. Choose one of the options below to submit the required map/drawing.

Additionally, it is recommended that you provide a topographical map showing the general location of the property where the water is proposed to be used and the works constructed in relation to nearby communities, highways, railways and other water sources.

(this additional map will not be necessary if your Drawing to Scale is provided using the Geomark Service or a spatial file such as .KML or .KMZ)

☒ I have map(s) saved to my computer and wish to provide these with my application

MAP FILES

Do you have a PDF or image file of a drawn map? You can upload it here.

Description

Filename

Area Water Use Plan

Figure 5.pdf

ATTACHED DOCUMENTS

Document Type

Description

Filename

Drawing to Scale

Area Water Use Plan

Figure 5.pdf

Drawing to Scale

Location plan

Figure 1.pdf

Drawing to Scale

Site Plan

Figure 2.pdf

PRIVACY DECLARATION

PRIVACY NOTE FOR THE COLLECTION, USE AND DISCLOSURE OF PERSONAL INFORMATION Personal information is collected by FrontCounter BC under the legal authority of section 26 (c) and 27 (1)(a)(i) of the Freedom of Information and Protection of Privacy Act (the Act). The collection, use, and disclosure of personal information is subject to the provisions of the Act. The personal information collected by FrontCounter BC will be used to process your inquiry or application(s). It may also be shared when strictly necessary with partner agencies that are also subject to the provisions of the Act. The personal information supplied in the application package may be used for referrals or notifications as required. Personal information may be used by FrontCounter BC for survey purposes. For more information regarding the collection, use, and/or disclosure of your personal information by FrontCounter BC, please contact FrontCounter BC at 1-877-855-3222 or at: FrontCounter BC Program Director FrontCounter BC, Provincial Operation 441 Columbia Street Kamloops, BC V2C 2T3

☒ Check here to indicate that you have read and agree to the privacy declaration stated above.

REFERRAL INFORMATION

Some applications may also be passed on to other agencies, ministries or other affected parties for referral or consultation purposes. A referral or notification is necessary when the approval of your application might affect someone else's rights or resources or those of the citizens of BC. An example of someone who could receive your application for referral purposes is a habitat officer who looks after the fish and wildlife in the area of your application. This does not apply to all applications and is done only when required.

Please enter contact information below for the person who would best answer questions about your application that may arise from anyone who received a referral or notification.

Company / Organization: ISLANDER ENGINEERING LTD.
Contact Name: Michael J Achtem
Contact Address: 485-C Garbally Road
 Victoria BC V8T 2J9
Contact Phone: 250-893-9977
Contact Email: machtem@islanderengineering.com

☒ I hereby consent to the disclosure of the information contained in this application to other agencies, government ministries or other affected parties for referral or First Nation consultation purposes.

SIGNATURES

CO-APPLICANTS

You will have to obtain approval from all co-applicants before you can proceed with your application. Please select one option for each.

Name	Status of Signature Request
Mill Bay Waterworks District	Declaration Form uploaded

IMPORTANT NOTICES

Please review the "Important Notices" below and then check the declaration at the bottom confirming that everything in this application is complete and accurate.

- I understand that the submission of this water licence application does not provide authority under the Water Sustainability Act to divert, use or store groundwater other than to test the quality or quantity of water or to conduct a flow test in accordance with Section 6(2)(b) of the Water Sustainability Act. I understand that the submission of this water licence does not provide authority under the Water Sustainability Act to divert, use or store water from a well or other ground water sources to construct works. I also understand that my application must first be investigated and a decision made on the application as to whether a water licence may be granted and, as part of that review, additional information may be requested of me.
- The application may be subject to further requirements under the federal Fisheries Act. Please refer to Fisheries and Oceans Canada's "Projects Near Water" webpage (<http://www.dfo-mpo.gc.ca/pnw-ppe/index-eng.html>) for information on how to ensure your project complies with the Fisheries Act.
- Once you click 'Next' the application will be locked down and you will NOT be able to edit it any more.

DECLARATION

☒ By submitting this application form, I, declare that the information contained on this form is complete and accurate.

APPLICATION AND ASSOCIATED FEES

Item	Amount	Taxes	Total	Outstanding Balance
00A-APP 162477 m3/y - Waterworks: Local Provider	\$5,000.00		\$5,000.00	\$0.00

OFFICE

Office to submit application to: Nanaimo

PROJECT INFORMATION

Is this application for an activity or project which requires more than one natural resource authorization from the Province of BC? No

APPLICANT SIGNATURE	
Applicant Signature	Date

OFFICE USE ONLY		
Office Nanaimo	File Number	Project Number
	Disposition ID	Client Number

Archaeological sites are the physical remains of past human activity. There are over 45,000 known archaeological sites in British Columbia representing the past 13,000 years of human history. The **Heritage Conservation Act (HCA)** recognizes the historical, cultural, scientific, and educational value of archaeological sites to the general public, local communities, and First Nations. Archaeological sites on both public and private land are protected under the HCA and must not be altered or damaged without a permit issued by the Province of British Columbia's Archaeology Branch.

Receipt of this form indicates that **FrontCounterBC** has reviewed the records of the Archaeology Branch to determine whether your proposed activities are likely to impact a protected archaeological site. By identifying overlaps with archaeological sites early in the planning and development process, appropriate and timely steps can be taken that support an efficient development process. You should be aware that there are limitations concerning this review; please read the Provincial disclaimer¹ below. Your property or project area falls into the selected category:

☐ **Direct overlap with protected archaeological site(s):** _____

Provincial records indicate that an archaeological site protected under the HCA is recorded within your property or project area.

- Your proposed activities may impact the protected archaeological site.
- You must obtain a site alteration permit issued by the Archaeology Branch before impacting the site.
- Completing an application for alteration permit usually requires archaeological expertise. It is also possible that further archaeological study will be required before the Archaeology Branch will issue an alteration permit. You should therefore engage an eligible consulting archaeologist (see page 2) to confirm the results of this review and assist you in establishing permit requirements with the Archaeology Branch.
- Disturbance of a protected archaeological site without an alteration permit is a contravention of the HCA and may result in substantial fines and development delays.
- The archaeological site impact management and permit process is summarized on page 2. If you have questions about the process, contact the Archaeology Branch.

☐ **Direct overlap with an area of high archaeological potential**

Provincial records indicate your property or project area has high potential to contain an archaeological site protected under the HCA, either because the area has been previously assessed for potential or there is a known archaeological site within 50 m that may extend beyond its recorded boundaries.

- Your proposed activities may impact an unrecorded archaeological site. Archaeological sites are protected under the HCA, even if they have not yet been identified and recorded.
- Disturbance of a protected archaeological site without a permit is a contravention of the HCA. Accidental discovery of an unknown archaeological site during development requires activities to be halted and the Archaeology Branch contacted for direction; significant development delays may result while permit requirements are established.
- To avoid the possibility of unauthorized archaeological site disturbance and development delays, you should engage an eligible consulting archaeologist (see page 2) to determine in advance whether your activities are likely to impact an unrecorded protected archaeological site.
- The archaeological site impact management and permit process that you will need to follow if an archaeological site is encountered before or during development activities is summarized on page 2. If you have questions about the process, contact the Archaeology Branch.

☒ **No identified overlap or potential for archaeological sites**

Provincial records do not indicate known archaeological sites or areas of archaeological potential within your property or project area.

- Provincial records may be incomplete with regard to archaeological potential in your area.
- There is always a possibility for unrecorded archaeological sites to exist. Archaeological sites are protected under the HCA, even if they have not yet been identified and recorded.
- If an archaeological site is encountered, development activities must be halted and the Archaeology Branch contacted for direction (250-953-3334).

¹ **Provincial Disclaimer:** The Archaeology Branch of the Province of BC is responsible for the administration of the *Heritage Conservation Act*. It is not administered by FrontCounterBC. In completing this form, FrontCounterBC staff rely on information provided by the Archaeology Branch. Any questions regarding this document should be directed to the Archaeology Branch or to an eligible consulting archaeologist. The information in this document is based on a search of Provincial records. There are archaeological sites in BC which are unknown and not recorded in these records. The Province makes no representations or warranties with respect to the accuracy or completeness of this information. Persons relying upon it do so at their own risk.

Archaeological Site Impact Management and Permit Process

Archaeological sites are protected under the *Heritage Conservation Act* (HCA) and must not be altered or damaged without a permit issued by the Province of British Columbia's Archaeology Branch. The archaeological site impact management and permit process is summarized below. This summary applies to the majority of situations where small-scale development plans are in conflict with protected archaeological sites. There are always exceptions that can be explained by an archaeologist or the Archaeology Branch as you proceed through the steps. Major development projects may be subject to additional requirements that are beyond the scope of the basic process described below.

If your property or project area contains a protected archaeological site:

You must obtain a site alteration permit issued by the Archaeology Branch before conducting activities that will impact a protected archaeological site. Permit applications are available on the Archaeology Branch website. However, completing a permit application usually requires archaeological expertise. Most applicants will therefore engage a professional archaeologist to review development plans, verify archaeological records, confirm that an alteration permit is required, complete the permit application, and work with the Archaeology Branch on the applicant's behalf to ensure all HCA permit requirements are met.

The archaeologist may conclude, after a desktop review or a preliminary walk-over, that your activities will not impact the archaeological site. The archaeologist should send a letter stating their professional opinion to the Archaeology Branch. You may no longer require an alteration permit to proceed with your activities.

In other cases, the archaeologist in consultation with the Archaeology Branch may conclude that an alteration permit cannot be issued because archaeological records contain insufficient information on the nature, extent, integrity, and significance of the archaeological site. It is important that this information be on record before your activities irreparably alter the site. You may therefore be required to furnish additional archaeological site information. It might be possible to obtain the required information via a more in-depth review of the existing archaeological records. Alternatively, you may need to arrange for an archaeological impact assessment (AIA) to collect the necessary data.

If an Archaeological Impact Assessment is recommended:

An AIA is conducted by an archaeologist under an inspection permit. The permit allows the archaeologist to conduct subsurface tests to collect information about the archaeological site. The AIA results in recommendations for managing impacts to the archaeological site. The archaeologist's recommendations and their feasibility should be discussed with you before they are submitted to the Archaeology Branch. Common recommendations include:

- Changing building plans or construction techniques to reduce or avoid archaeological site impacts.
- Proceeding with an alteration permit with or without concurrent archaeological studies, depending on the expected degree of impact to the site.
- No further archaeological study or permits required.

The Archaeology Branch will review the AIA recommendations and determine next steps. **Note that the application process for all Archaeology Branch permits takes 8-12 weeks from the date the application is submitted.** Contact an eligible consulting archaeologist for time and cost estimates. The Archaeology Branch does not charge a fee for processing and issuing permits.

Contact an eligible consulting archaeologist

An eligible consulting archaeologist is able to hold a Provincial heritage permit that authorizes archaeological studies. Ask an archaeologist if he or she can hold a permit. Contact the Archaeology Branch (250-953-3334) to verify an archaeologist's eligibility. Find an archaeologist through the BC Association of Professional Archaeologists (www.bcapa.ca) or through business directories.

Contact the BC Archaeology Branch

BC Archaeology Branch
Ministry of Forests, Lands, Natural Resource Operations and Rural Development
Phone: 250-953-3334
Web: www.for.gov.bc.ca/archaeology/property_owners_and_developers

Submit a Data Request Form (to inquire about archaeological sites within your property or project area):

www.archdatarequest.nrs.gov.bc.ca

From: MacDonald, Amber FLNR:EX
To: "Donna"
Subject: RE: Mill Bay Waterworks/ Malahat Properties
Date: Monday, July 23, 2018 8:40:51 AM

Hi Donna,

Water licence holders can apply to abandon their licence at any time. There is no cost to the application, other than making sure your account is completely up to date. You would need the signature of all licence holders to move forward, and a general explanation of why the water is no longer needed (i.e. another source, development not proceeding, etc.)

A name change or transfer of a water licence also has no cost associated. Generally speaking, a new Certificate of Title is required as documentation. However, in this case, no "property" is changing hands in the traditional sense. I would expect that a signed agreement between the parties would be required to back up the requested change to the licence.

Please let me know if you need anything further.

Sincerely,



Amber MacDonald CSP | Natural Resource Specialist

FrontCounter BC | Ministry of Forests, Lands, Natural Resource Operations and Rural Development
142 – 2080 Labieux Rd | Nanaimo BC V9P 9B4
Tel: 250-751-3106 | Fax: 250-751-7234
Toll Free Phone: 1-877-855-3222 [Freedom of Information Disclaimer](#)

Tell us about your experience with FrontCounter BC: [Complete an Online Comment Card](#).

From: Donna [mailto:Donna.michiel@millbaywater.ca]
Sent: Friday, July 20, 2018 3:05 PM
To: MacDonald, Amber FLNR:EX
Subject: Mill Bay Waterworks/ Malahat Properties

Hello Amber,

I left you a voice mail to call, but then thought perhaps I should send an email so I don't forget what it is I am after.

Can you confirm for me that in the event the license is granted to Malahat Properties and Mill Bay Waterworks (Joint application), and the development for some reason does not move forward, should the District for this reason or any other apply to abandon the license that there would be a fee for this request?

Also, assuming the development moves forward, at the time the property ownership where the well is located is turned over to the District, Malahat Properties would then need to be removed from the license as owners... I assume there is a fee for that name change?

We are in the process of amending our agreement with the developer and trying to ensure the Developer is responsible for all possible costs associated with acceptance of the well licence application.

Thank you,

Donna Michiel

Administrator
Mill Bay Waterworks District
250-743-9023

From: [Donna](#)
To: [Melnechenko, Cali FLNR:EX](#)
Subject: RE: Malahat Properties Well 16524 Licence Application
Date: Thursday, October 18, 2018 5:08:56 PM

Cali,

I have forwarded your query to our engineers, and should get back to you early next week.

Donna Michiel

Administrator

Mill Bay Waterworks District

250-743-9023

From: Melnechenko, Cali FLNR:EX [<mailto:Cali.Melnechenko@gov.bc.ca>]

Sent: October 16, 2018 9:01 AM

To: Donna

Subject: RE: Malahat Properties Well 16524 Licence Application

Hi Donna,

The volume in the application is 162,477 m³/year. From the Islander Engineering Hydrogeological Report I understand that this water is meant to service 128 new lots with single-family homes on them. The report also states the average day demand is estimated to be 203 m³/day and the max day demand is estimated to be 445 m³/day. I'm looking for a rational for these volumes.

I see in the report that the continuous long-term safe yield of the well is calculated to be 164,425 m³/year. This is equivalent to 445m³/day (estimated MDD) year round. For waterworks supplying domestic water we generally do not calculate the annual volume to be licenced based the max day demand.

Here are some examples and methodologies for estimating annual and max daily demand:

A high estimate for water use in a single family dwelling is 283 litres/person/day and 103 m³/year/person (USFS, 1994). When licensing water for domestic purpose for one single family dwelling it is common practice under the *Water Sustainability Act* to allocate a maximum of 2 m³/day. Our regional policy states that the water use of similar water supplies may be used to project demands for new or future developments. The quantity of water authorized to a community shall be in accordance with the per capita water use of any similar, nearby communities which implement conservation measures. In the absence of data, the annual water demand is estimated at one-half the maximum daily amount multiplied by 365.

Do you have water consumption data for other developments within the Mill Bay water service area that you could provide to corroborate the volume being applied for?

Thank you,

Cali

Cali Melnechenko, A.Ag.

Authorizations Specialist - Water

Ministry of Forests, Lands, Natural Resource Operations and Rural Development

West Coast Region

2100 Labieux Rd Nanaimo BC V9T 6J9

P: 250.751.7014

From: Donna [<mailto:Donna.michiel@millbaywater.ca>]

Sent: Friday, October 12, 2018 12:47 PM

To: Melnechenko, Cali FLNR:EX

Subject: RE: Malahat Properties Well 16524 Licence Application

Cali,

I am not in the office today, but will be back in on Monday October 15th, we can chat then, and I will try to provide you with the necessary information. If you could perhaps send me your query in advance, I can hopefully consult with our engineers in the meantime if necessary have an answer for you then.

Donna Michiel

Administrator

Mill Bay Waterworks District

250-743-9023

From: Melnechenko, Cali FLNR:EX [<mailto:Cali.Melnechenko@gov.bc.ca>]

Sent: October 11, 2018 11:57 AM

To: Donna

Subject: RE: Malahat Properties Well 16524 Licence Application

Hi Donna,

I have done an initial review of the application and have sent the hydrogeologist's report to our internal hydrogeologist for review. I have some questions for you about the volume in the application. Can you let me know when you are available for a call?

Thanks,

Cali

From: Slater, Darryl FLNR:EX

Sent: Wednesday, September 26, 2018 10:46 AM

To: 'Donna'

Cc: Melnechenko, Cali FLNR:EX

Subject: RE: Malahat Properties Well 16524 Licence Application

Hi Donna. I should also add that the application is now with my group. As mentioned before, Cali Melnechenko is assigned to this file and I would imagine that she will start her review shortly. Please feel free to contact her if you have any questions.

(250) 751-7014

Cali.Melnechenko@gov.bc.ca

Darryl Slater

Water Authorizations Section Head

West Coast Region

Ministry of Forests, Lands, Natural Resource Operations and Rural Development

P: 250.751.3239

F: 250.751.3103

From: Slater, Darryl FLNR:EX

Sent: Wednesday, September 26, 2018 10:16 AM

To: 'Donna'

Subject: RE: Malahat Properties Well 16524 Licence Application

I'm glad to help and find that in-person meetings are very productive. It was great to have everyone in the room to discuss the various aspects and challenges.

Darryl Slater

Water Authorizations Section Head

West Coast Region

Ministry of Forests, Lands, Natural Resource Operations and Rural Development

P: 250.751.3239

F: 250.751.3103

From: Donna [<mailto:Donna.michiel@millbaywater.ca>]

Sent: Wednesday, September 26, 2018 10:15 AM

To: Slater, Darryl FLNR:EX

Subject: RE: Malahat Properties Well 16524 Licence Application

Darryl,

I just wanted to thank you for taking the time to meet with us the other day at the CVRD offices. Your help in better understanding how the Water Sustainability Act works and how it may affect us given our situation is very much appreciated.

Donna Michiel

Administrator

Mill Bay Waterworks District

250-743-9023

From: Slater, Darryl FLNR:EX [<mailto:Darryl.Slater@gov.bc.ca>]

Sent: September 20, 2018 10:07 AM

To: Donna

Subject: RE: Malahat Properties Well 16524 Licence Application

Hi Donna. I just accepted as I was out of the office. I will see you there.

Darryl Slater

Water Authorizations Section Head

West Coast Region

Ministry of Forests, Lands, Natural Resource Operations and Rural Development

P: 250.751.3239

F: 250.751.3103

From: Donna [<mailto:Donna.michiel@millbaywater.ca>]

Sent: Thursday, September 20, 2018 10:02 AM

To: Slater, Darryl FLNR:EX

Subject: RE: Malahat Properties Well 16524 Licence Application

Darryl,

I have sent you an invitation through the outlook calendar to attend a meeting on Monday September 24th at CVRD offices in Duncan at 10:00 a.m. Haven't seen a reply yet and so wanted to make sure you received it.

Donna Michiel

Administrator

Mill Bay Waterworks District

250-743-9023

From: Slater, Darryl FLNR:EX [<mailto:Darryl.Slater@gov.bc.ca>]

Sent: September 17, 2018 10:19 AM

To: Donna

Subject: RE: Malahat Properties Well 16524 Licence Application

Hi Donna. I would be glad to assist and am available:

- All day Sept 24
- Morning of Sept 27
- All day Sept 28

- All day Oct 1
- Afternoon Oct 3

Duncan would work for me.

Darryl Slater

Water Authorizations Section Head

West Coast Region

Ministry of Forests, Lands, Natural Resource Operations and Rural Development

P: 250.751.3239

F: 250.751.3103

From: Donna [<mailto:Donna.michiel@millbaywater.ca>]

Sent: Tuesday, September 11, 2018 10:19 AM

To: Slater, Darryl FLNR:EX

Subject: RE: Malahat Properties Well 16524 Licence Application

Just touching base, to keep us in your radar. We are really struggling to draft agreements with developers here, with regards to limiting the Districts financial exposure to potential costs of remediation on wells that may be affected by a new well under the new WSA. We would really appreciate a meeting with you at your earliest convenience. We have had our legal counsel review the situation and they are not prepared to draft the agreement until they also have a better understanding. As you can imagine the developer is chomping to get things moving along. Again I believe we could possibly arrange to meet at the CVRD offices in Duncan if that works for you, as I understand they would also be interested in participating in the meeting. Alternatively, we can also arrange to come to you if need be.

My apologies for bothering you again, but we do have at least three developments in process that all require agreements and a better understanding of how to limit the liability of the existing rate payers before we are able to move forward.

Thank you,

Donna Michiel

Administrator

Mill Bay Waterworks District

250-743-9023

From: Slater, Darryl FLNR:EX [<mailto:Darryl.Slater@gov.bc.ca>]

Sent: August 28, 2018 2:01 PM

To: Donna

Subject: RE: Malahat Properties Well 16524 Licence Application

Hi Donna. I would be glad to meet with you. I am currently devoting most of my time to drought response and so my availability will significantly improve once we get a good amount of rain.

Darryl Slater

Water Authorizations Section Head

West Coast Region

Ministry of Forests, Lands, Natural Resource Operations and Rural Development

P: 250.751.3239

F: 250.751.3103

From: Donna [<mailto:Donna.michiel@millbaywater.ca>]

Sent: Tuesday, August 28, 2018 1:59 PM

To: Slater, Darryl FLNR:EX

Subject: RE: Malahat Properties Well 16524 Licence Application

Hello Darryl,

Thought I would touch base with you to let you know we are still working with the Developer of the Malahat Properties and their development. As I am sure you are aware their Engineer made their well application, with Mill Bay Waterworks noted as co applicant some time ago.

We are now working on the MOU and subsequent MOA we require with the developer, and are having difficulty in understanding how the Trustees can make the agreement such that it will protect the existing rate payers of the District from any potential impact due to any influence on neighbouring wells located in the area. I am wondering if you or maybe David Robinson would be willing to meet with us to discuss this topic. I believe we will have more developments coming on line with new wells and MBWD as co applicants with the expectation of taking over the well once the development is completed. I also believe that the CVRD are in the same boat as us and may also benefit from a meeting if we can arrange it.

Please let me know your thoughts, I was thinking that if the CVRD are also interested, perhaps we can arrange to meet at their office in Duncan? Or would you want us to come to Nanaimo (assuming one of you are able to meet).

Once I hear back from you I can then contact the CVRD to determine their interest also.

Thank you,

Donna Michiel

Administrator

Mill Bay Waterworks District

250-743-9023

From: Slater, Darryl FLNR:EX [<mailto:Darryl.Slater@gov.bc.ca>]

Sent: March 15, 2018 10:39 AM

To: Donna; Robinson, David FLNR:EX

Cc: kim sharyk; Paul Laraman

Subject: RE: Malahat Properties Well 16524 Licence Application

Hi Donna.

As co-applicants, both parties would need to be named in the application and it is easiest to do this from the outset (before pressing the submit button). This would provide both parties with the rights etc. that come with being applicants. In the case where the developer acts as the agent, we would require that the applicant sign a form designating them as such, which would allow them to work on your behalf.

Elements of the application can be changed post-submission, with the exception of the application type. It is ultimately up to the applicants to decide what they want to apply for and how you want to collaborate on details.

I hope this helps.

Darryl Slater

Water Authorizations Section Head

West Coast Region

Ministry of Forests, Lands, Natural Resource Operations and Rural Development

P: 250.751.3239

F: 250.751.3103

From: Donna [<mailto:Donna.michiel@millbaywater.ca>]

Sent: Thursday, March 15, 2018 9:32 AM

To: Slater, Darryl FLNR:EX; Robinson, David FLNR:EX

Cc: kim sharyk; Paul Laraman

Subject: RE: Malahat Properties Well 16524 Licence Application

Darryl,

Could you possibly explain the difference between 1) Mill Bay Water going the co-applicant route and 2). having Malahat Properties act as the District's agent with Mill Bay Water as the sole applicant?

In either case should we not then be reviewing the application before it is submitted (as we have now been advised that it is ready, but not submitted yet) since in either case we are named as applicants?

Thank you,

Donna Michiel

Administrator

Mill Bay Waterworks District

250-743-9023

From: Slater, Darryl FLNR:EX [<mailto:Darryl.Slater@gov.bc.ca>]

Sent: March 13, 2018 1:33 PM

To: Donna; Chad Petersmeyer; Oleh Dubek (dubeko@ae.ca); 'Cary Sangha'

Cc: Robinson, David FLNR:EX; kim sharyk; Mike Achtem; Brad Loffler; Paul Laraman

Subject: RE: Malahat Properties Well 16524 Licence Application

Hello everyone.

My understanding of the situation is that Cary Sangha has agreed to seek a water licence as a condition of their development. I also understand that the intention is for Mill Bay Waterworks to take over whatever water rights are issued and to operate the system. With this in mind, I am suggesting that the best course of action would be for the Cary Sangha (the developer) and Mill Bay WD to apply for a water licence as co-applicants. The alternative approach of the developer seeking and attaining water rights and then transferring to Mill Bay brings with it a number of issues regarding uncertainty and the prospect of beneficial use – I can explain further for anyone interested so please let me know.

I understand that Cary Sangha has recently submitted an application for a water licence. I have checked with Front Counter BC and can pass along that should you wish to add Mill Bay WD as a co-applicant, you can open your electronic application and include a comment in that regard. The system does not allow you to change the applicants after submitting but we can do this manually. Please let me know if you have any questions.

Thank you,

Darryl Slater

Water Authorizations Section Head

West Coast Region

Ministry of Forests, Lands, Natural Resource Operations and Rural Development

P: 250.751.3239

F: 250.751.3103

From: Donna [<mailto:Donna.michiel@millbaywater.ca>]

Sent: Tuesday, March 13, 2018 12:29 PM

To: Slater, Darryl FLNR:EX; Chad Petersmeyer; Oleh Dubek (dubeko@ae.ca)

Cc: Robinson, David FLNR:EX; kim sharyk; Mike Achtem; 'Cary Sangha'; Brad Loffler; Paul Laraman

Subject: Malahat Properties Well 16524 Licence Application

Cary,

As discussed yesterday I have had some recent conversations with Darryl Slater (Water Authorizations Section Head/ West Coast Region of Forest Lands Natural Resource Operations), with regards to the new well licencing applications. Darryl is going to send some information with regards to your recent application for well 16524, and suggestions as to how we best move forward. I have CC'd everyone on this email that I expect needs to be in this loop pertaining to this well and the process so Darryl will have all the necessary contact information and can reply to all.

(Darryl, Cary Sangha is the owner/developer, Mike Achtem is his Engineer, and Brad Loffler is his hydrogeologist).

Donna Michiel

Administrator

Mill Bay Waterworks District

250-743-9023

From: Oleh Dubek
To: Melnechenko, Cali FLNR:EX
Cc: James Rees; Donna Michiel
Subject: Malahat Properties Well 16524 GWL- Support Memo
Date: Friday, November 16, 2018 4:04:24 PM
Attachments: mem_Rev_GWL_well_Support_malahat_Usage_Backup_20181116_JR_OD.pdf

Hi Cali,

Thanks for chatting with me Tuesday and as discussed, we have prepared the attached memo for support/corroborate of Well usage values for your review and comment at this time.

Please let me know if this will be acceptable for the licence application and your email of October 16.

Regards,

Oleh Dubek, M.A.Sc., P.Eng.

Senior Engineer

Associated Engineering (B.C.) Ltd.

Suite 206 - 1016 McCallum Road, Victoria, BC V9B 4C6

Tel: 250.478.8383 | Cel: 250.361.7698 |



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Date: November 13, 2018 **File:** 2012.2149.05.E.05.00
To: Donna Michiel - District Administrator
From: James Rees, EIT and Oleh Dubek, P.Eng.
Project: Mill Bay Waterworks District - Ground Water Licence
Subject: Malahat Properties Well 16524 Licence Application

MEMO

As requested, Associated Engineering is providing this memo to give clarification for the water volume claimed in the Well 16524 Licence Application.

ANNUAL VOLUME

In the May 31, 2018 document titled "Review of Malahat Properties Well 16524 2018 Final Assessment Report" by Western Water Associates Ltd., the estimated long-term yield of Well 16524 is stated to be 5.15 l/s. By applying Mill Bay Waterworks District's (MBWD) Land Use Occupation and Design Demand Rates (see Table 1.1), it was calculated that Well 16524 could supply 155 single family units (SFU) at maximum day demand (MDD) conditions (SFU=2.6 persons per unit; MDD=1100 l/capita/day). The industry standard, and that of MBWD, is that the assessed yield of ground water sources meets Maximum Day Demand (MDD) for the population served.

The average day demand (500 l/capita/day) was then applied to 155 SFU's to calculate the annual usage volume for Well 16524. The resulting annual volume is **73,548 m³/year**.

OCCUPATION RATE/DESIGN DEMAND RATES

The Land Use Occupation and Design Demand Rates used for the above calculations are from the most recent MBWD Engineering Specification and Standard Drawings document dated September 2018. These rates were recently reviewed by Associated Engineering by utilizing 2016 census data and historical MBWD water use data. The analysis was included in the 2018 version of the MBWD Water System Master Plan and Works Program report dated September 2018. The current occupancy rates for the various land use categories is listed in the following table.

Table 1-1
Land Use Occupation Rate Categories

Land Use	Average Occupancy Rate
Single Family	2.6 persons per unit
Townhouse	2.0 persons per unit
Condominium	1.4 persons per unit
Commercial/Retail	60 persons per 10,000 m ²
Institutional	0.13 Equivalent persons per student (Francis-Kelsey)
	0.74 Equivalent persons per boarded student (Brentwood College)



Memo To: Donna Michiel - District Administrator

November 13, 2018

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The design criteria for demand rate is as follows:

Average Day Demand (ADD)	500	L/capita/day
Maximum Day Demand (MDD)	1,100	L/capita/day (MDD = 2.2 times ADD)
Peak Hour Demand (PHD)	2,000	L/capita/day (PHD = 4.0 times ADD)

WELL YIELD USAGE

As stated previously, Well 16524 would be able to supply 155 lots based on the proposed well yield and MBWD design criteria.

The Developer is proposing to create 118 new lots and this could increase to 126 lots if a portion of the development site was able to free up a land locked road and connect to existing road network. Of the proposed lots, 11 are already registered and on the MBWD system. The first phase of the new development intends to create 45 lots over a 2 to 5-year period. The remaining lots would be created over the next 10 to 20 years.

As well, there are 35 existing lots within the MBWD service area that are currently on their own wells and they may wish to connect to the MBWD system with the availability of new watermain installed by the developer. Some of these existing lots could subdivide with a potential of another 10 lots. There are 15 lots along the east side of Benko Road that border the MBWD service area and these lots may need to be connected subject to the impact (if any) of the Well #16524. The attached map shows the potential lots that could connect and are outlined in red. Those within the MBWD service area are hatched in blue.

In summary, there could be 163 lots in the MBWD service area that could be supplied by Well #16524 and could increase to 171 lots. If nearby lots are impacted by the new well, then there could be a total of 178 to 186 lots coming on line in the future.

In the meantime, MBWD is experiencing a shortfall in ground water supply since 2016 and would use this well to supplement their system until the development area is built out.

The MBWD currently operates eleven wells from Aquifers 206 and 207 that have been developed over time as required. The assessed yields of the wells were more than sufficient to meet the required supply rates based on MBWD design criteria. The required Maximum Day Demand rate is 42.5 L/s and the Assessed Well Yields were 56.4 L/s. Over the past few years, it has been observed that the original assessed well yields are lower than that expected and have deteriorated significantly for the MBWD wells. This was identified since February 2016 and a moratorium on any new infill development has been enacted.

MBWD is actively pursuing additional sources to meet demand requirements. This includes development of a Well 13286 at the Deer Park Reservoir Site and is being considered as a replacement well which will require an update to the Existing



Memo To: Donna Michiel - District Administrator

November 13, 2018

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Use Application currently in the ground water licensing process. The anticipated yield from this well is 4.1 L/s and Source Approval from Island Health has been received (June 2017). Table 1-1 shows the increase to available yield once this well is put on line.

Table 0-1
Demand Versus Yield with Well 13286

Supply Area	Required Rate		Available Yield (L/s)
	Total ADD (L/s)	Total MDD (L/s)	
Source Area 1	15.2	29.2	20.4
Source Area 2 (Mill Springs)	6.1	13.3	7.1
Well 13286 (Source Area 1)			4.1
TOTALS	21.3	42.5	31.6

There is still a shortfall of 10.9 L/s to meet Maximum Day Demand for the existing customers in the District and having access to Well 16524 will benefit the district while looking for additional water sources.

From: Oleh Dubek
To: Melnechenko, Cali FLNR:EX
Cc: James Rees; Donna Michiel; Mike Achtem
Subject: RE: Malahat Properties Well 16524 GWL- Support Memo
Date: Tuesday, November 20, 2018 11:07:15 AM
Attachments: mem_Rev_GWL_well_Support_malahat_Usage_Backup_20181116_JR_OD.pdf

Hi Cali,

This email is our confirmation that the annual average volume that is being applied for is 73,548 m³/year. I have attached the memo so that the co-applicant has a copy of submission to you questions of October 16.

Regards,
Oleh

From: Melnechenko, Cali FLNR:EX <Cali.Melnechenko@gov.bc.ca>
Sent: November-19-18 8:25 AM
To: Oleh Dubek <dubeko@ae.ca>
Cc: James Rees <reesj@ae.ca>; Donna Michiel <Donna.michiel@millbaywater.ca>
Subject: RE: Malahat Properties Well 16524 GWL- Support Memo

Hi Oleh,
Thank you for the memo. Yes, this answers my questions and is acceptable as supporting information for the licence application. Just so there is no confusion, I understand from the memo that the volume being applied for is 73,548 m³/year. Can you please confirm this in an email?

Thank you,
Cali

From: Oleh Dubek [<mailto:dubeko@ae.ca>]
Sent: Friday, November 16, 2018 4:04 PM
To: Melnechenko, Cali FLNR:EX
Cc: James Rees; Donna Michiel
Subject: Malahat Properties Well 16524 GWL- Support Memo

Hi Cali,

Thanks for chatting with me Tuesday and as discussed, we have prepared the attached memo for support/corroborations of Well usage values for your review and comment at this time.

Please let me know if this will be acceptable for the licence application and your email of October 16.

Regards,

Oleh Dubek, M.A.Sc., P.Eng.

Senior Engineer

Associated Engineering (B.C.) Ltd.

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Date: November 13, 2018 **File:** 2012.2149.05.E.05.00
To: Donna Michiel - District Administrator
From: James Rees, EIT and Oleh Dubek, P.Eng.
Project: Mill Bay Waterworks District - Ground Water Licence
Subject: Malahat Properties Well 16524 Licence Application

MEMO

As requested, Associated Engineering is providing this memo to give clarification for the water volume claimed in the Well 16524 Licence Application.

ANNUAL VOLUME

In the May 31, 2018 document titled "Review of Malahat Properties Well 16524 2018 Final Assessment Report" by Western Water Associates Ltd., the estimated long-term yield of Well 16524 is stated to be 5.15 l/s. By applying Mill Bay Waterworks District's (MBWD) Land Use Occupation and Design Demand Rates (see Table 1.1), it was calculated that Well 16524 could supply 155 single family units (SFU) at maximum day demand (MDD) conditions (SFU=2.6 persons per unit; MDD=1100 l/capita/day). The industry standard, and that of MBWD, is that the assessed yield of ground water sources meets Maximum Day Demand (MDD) for the population served.

The average day demand (500 l/capita/day) was then applied to 155 SFU's to calculate the annual usage volume for Well 16524. The resulting annual volume is **73,548 m³/year**.

OCCUPATION RATE/DESIGN DEMAND RATES

The Land Use Occupation and Design Demand Rates used for the above calculations are from the most recent MBWD Engineering Specification and Standard Drawings document dated September 2018. These rates were recently reviewed by Associated Engineering by utilizing 2016 census data and historical MBWD water use data. The analysis was included in the 2018 version of the MBWD Water System Master Plan and Works Program report dated September 2018. The current occupancy rates for the various land use categories is listed in the following table.

Table 1-1
Land Use Occupation Rate Categories

Land Use	Average Occupancy Rate
Single Family	2.6 persons per unit
Townhouse	2.0 persons per unit
Condominium	1.4 persons per unit
Commercial/Retail	60 persons per 10,000 m ²
Institutional	0.13 Equivalent persons per student (Francis-Kelsey)
	0.74 Equivalent persons per boarded student (Brentwood College)



Memo To: Donna Michiel - District Administrator

November 13, 2018

- 2 -

The design criteria for demand rate is as follows:

Average Day Demand (ADD)	500	L/capita/day
Maximum Day Demand (MDD)	1,100	L/capita/day (MDD = 2.2 times ADD)
Peak Hour Demand (PHD)	2,000	L/capita/day (PHD = 4.0 times ADD)

WELL YIELD USAGE

As stated previously, Well 16524 would be able to supply 155 lots based on the proposed well yield and MBWD design criteria.

The Developer is proposing to create 118 new lots and this could increase to 126 lots if a portion of the development site was able to free up a land locked road and connect to existing road network. Of the proposed lots, 11 are already registered and on the MBWD system. The first phase of the new development intends to create 45 lots over a 2 to 5-year period. The remaining lots would be created over the next 10 to 20 years.

As well, there are 35 existing lots within the MBWD service area that are currently on their own wells and they may wish to connect to the MBWD system with the availability of new watermain installed by the developer. Some of these existing lots could subdivide with a potential of another 10 lots. There are 15 lots along the east side of Benko Road that border the MBWD service area and these lots may need to be connected subject to the impact (if any) of the Well #16524. The attached map shows the potential lots that could connect and are outlined in red. Those within the MBWD service area are hatched in blue.

In summary, there could be 163 lots in the MBWD service area that could be supplied by Well #16524 and could increase to 171 lots. If nearby lots are impacted by the new well, then there could be a total of 178 to 186 lots coming on line in the future.

In the meantime, MBWD is experiencing a shortfall in ground water supply since 2016 and would use this well to supplement their system until the development area is built out.

The MBWD currently operates eleven wells from Aquifers 206 and 207 that have been developed over time as required. The assessed yields of the wells were more than sufficient to meet the required supply rates based on MBWD design criteria. The required Maximum Day Demand rate is 42.5 L/s and the Assessed Well Yields were 56.4 L/s. Over the past few years, it has been observed that the original assessed well yields are lower than that expected and have deteriorated significantly for the MBWD wells. This was identified since February 2016 and a moratorium on any new infill development has been enacted.

MBWD is actively pursuing additional sources to meet demand requirements. This includes development of a Well 13286 at the Deer Park Reservoir Site and is being considered as a replacement well which will require an update to the Existing



Memo To: Donna Michiel - District Administrator

November 13, 2018

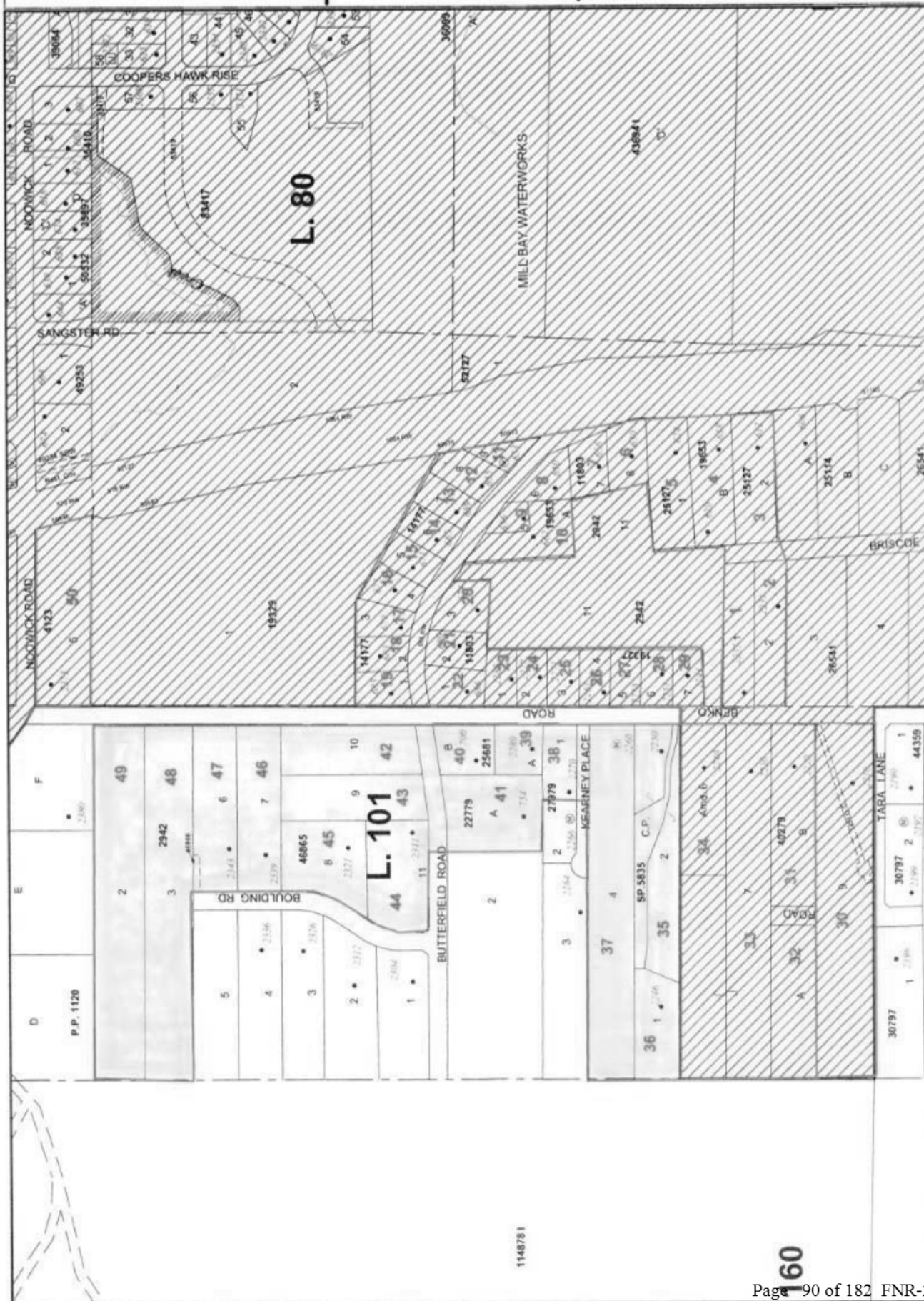
- 3 -

Use Application currently in the ground water licensing process. The anticipated yield from this well is 4.1 L/s and Source Approval from Island Health has been received (June 2017). Table 1-1 shows the increase to available yield once this well is put on line.

Table 0-1
Demand Versus Yield with Well 13286

Supply Area	Required Rate		Available Yield (L/s)
	Total ADD (L/s)	Total MDD (L/s)	
Source Area 1	15.2	29.2	20.4
Source Area 2 (Mill Springs)	6.1	13.3	7.1
Well 13286 (Source Area 1)			4.1
TOTALS	21.3	42.5	31.6

There is still a shortfall of 10.9 L/s to meet Maximum Day Demand for the existing customers in the District and having access to Well 16524 will benefit the district while looking for additional water sources.



From: Oleh Dubek
To: Melnechenko, Cali FLNR:EX
Cc: Donna Michiel
Subject: RE: Malahat Properties Groundwater Licence Application
Date: Thursday, December 20, 2018 11:09:04 AM
Attachments: 2012 Oct09 RC Provincial Boundary Plan mill_bay_ww6f.pdf

Hi Cali,

It seems it's a day of remembering stuff I had not done and this was one of them.

Please find attached a PDF of the MBWD overall boundary as produced by GeoBC, Spatial Analysis Branch. We do not have it in a shape file format and do have it in DWG format (CAD) based on the provincial drawing attached.

I thought it might be easier for you to get the shape file from GeoBC. If not and you would like the DWG file please let me know and I'll try not to forget this time.

Regards,
Oleh

From: Melnechenko, Cali FLNR:EX <Cali.Melnechenko@gov.bc.ca>
Sent: November-30-18 10:36 AM
To: Donna Michiel <Donna.michiel@millbaywater.ca>; Oleh Dubek <dubeko@ae.ca>
Subject: Malahat Properties Groundwater Licence Application

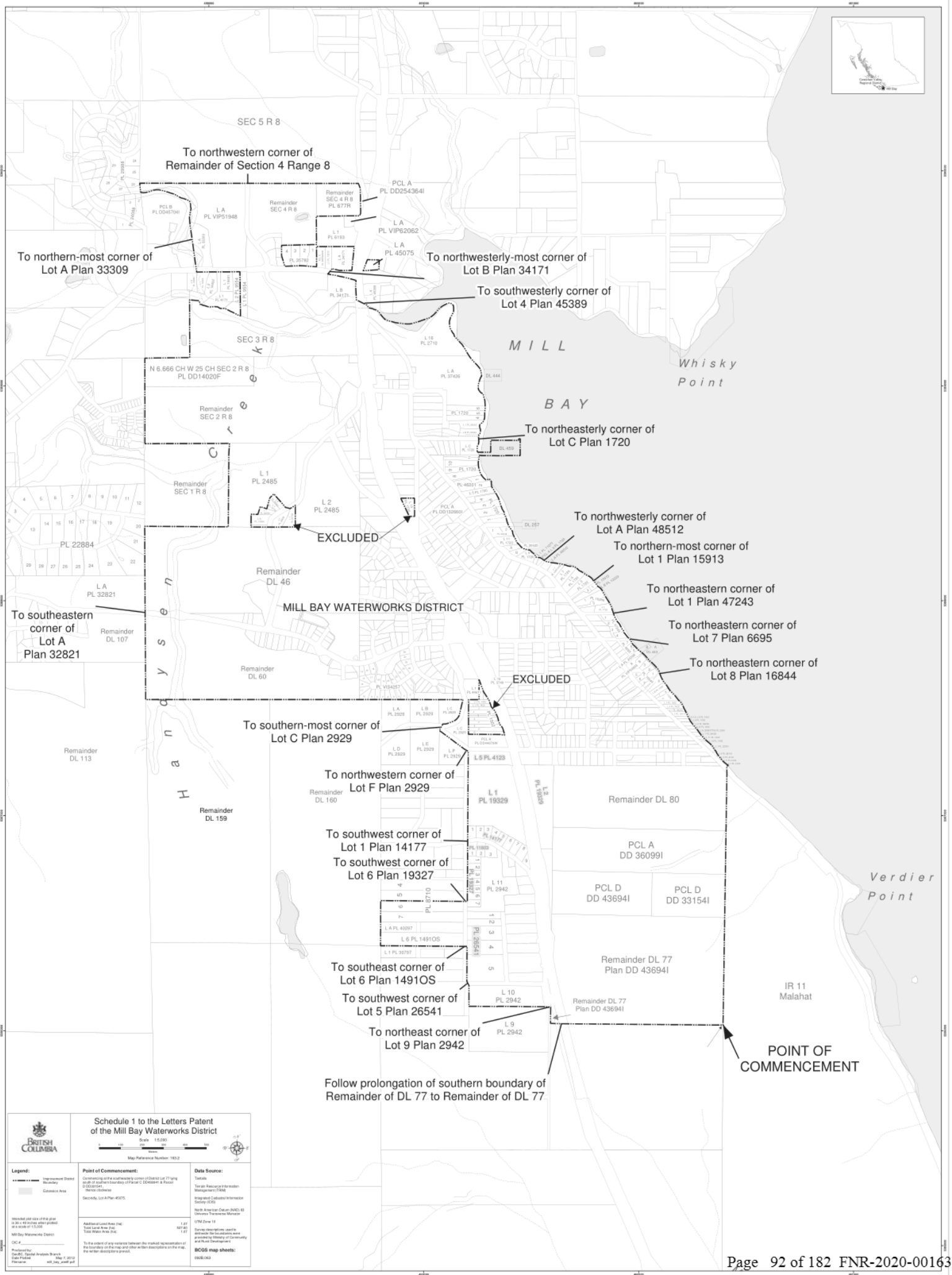
Hi Donna and Oleh,

I'm not sure who the best person is to ask for this information, so please direct accordingly. Can you please send me a drawing or shape file of the proposed works for the Malahat Properties well including the pipe and distribution system, the lots that are proposed for development by Malahat Properties and the boundary of the Mill Bay Waterworks District?

Thank you,
Cali

Cali Melnechenko, A.Ag.
Authorizations Specialist - Water
Ministry of Forests, Lands, Natural Resource Operations and Rural Development
West Coast Region
2100 Labieux Rd Nanaimo BC V9T 6J9
P: 250.751.7014

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Schedule 1 to the Letters Patent of the Mill Bay Waterworks District

Scale: 1:5,000
Map Reference Number: 1852

Legend:

- Improvement District Boundary
- Contour Area

Intended (and not to be used) as a basis for any other plan or map. It is not to be used for any other purpose.

Map Data: British Columbia (2010)

Produced by: Pacific Survey Systems Inc. May 1, 2012

Point of Commencement:

Commencement at the southwest corner of Lot 77 lying south of the boundary of the Mill Bay Waterworks District.

Secondly, Lot A Plan 4525.

Data Source:

Terraviva

Survey data provided by the Surveyors Association of British Columbia (SABC)

Integrated Cadastral Information System (ICIS)

North American Datum (NAD83)

UTM Zone 18

Survey descriptions used to establish the boundaries are provided by the Surveyors Association of British Columbia and the Surveyors Association of British Columbia.

BCGIS map sheets:

00000003

From: [Mike Achtem](#)
To: [Melnechenko, Cali FLNR:EX](#)
Cc: [Rob Johnston](#); [Sangha, %Cary %](#); [kim sharyk](#); [Macdonald, Matthew S FLNR:EX](#); [Robinson, David FLNR:EX](#); [Doyle, Jessica FLNR:EX](#)
Subject: Re: Malahat Properties Pumping Test Data
Date: Thursday, March 14, 2019 3:27:23 PM

Thanks for the note Cali,

Anytime when you are back works for me.

We did mail-outs and door knocked all residents, so apart from sending registered mail, there is nothing more we can do

Thanks!

Mike Achtem, P.Eng. PMP. CCA

Principal, Senior Engineer

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Also, under Section 13 of the *Water Sustainability Act* (WSA) the decision maker (the Water Manager) must direct an applicant to give notice of the application in accordance with Section 117 of the Act to any authorization holder, applicant or land owner whose land is likely to be physically

affected if the application is granted. Further the decision maker may direct an applicant to serve notice to any person whose input into the decision the decision maker considers advisable. While domestic well users are not authorization holders they do have deemed rights under the WSA and the decision maker must consider their use and any impacts to their use in the decision. While I acknowledge the considerable effort that went into identifying wells in the area around the Malahat Properties well and letting people know about the project, notice will still have to be served in accordance with the WSA. This email does not constitute direction to serve notice. That will come following the proposed meeting.

Unfortunately I will be away from the office from today until April 4. Please let me know if you are available to meet the week of April 8, and if you have a preferred date and/or time.

Thank you,

Cali

From: Mike Achtem [mailto:machtem@islanderengineering.com]
Sent: Monday, March 11, 2019 10:02 AM
To: Melnechenko, Cali FLNR:EX
Cc: Rob Johnston; Donna Michiel; Sangha, %Cary %
Subject: Re: Malahat Properties Pumping Test Data

Good Morning Cali,

As part of our 1.5 year long investigation on-site, we met with most all neighboring properties and we monitored most all adjacent wells (all that we were permitted access to). Only 3 showed signs of possible interference, and only one had any real issues. All 3 properties (plus 50 others that were not affected) will be protected via covenants to have their wells either remedied, or a new piped city water service provided assuming that their existing well systems are compromised. The notification and mitigation stages have been dealt with and we are hoping that we can finally move forward with this new community water system for Mill Bay.

As you know, the long term plan is to develop a new community water system (twin reservoirs) that will ultimately provide domestic supply for over 200 homes, and more importantly fire protection for the community at large. If one home is affected, the covenant ensures that any problem will be rectified by the developer.

Donna/Oleh/James, please feel free to add anything to help everyone get up to speed on the last 2-3 years

Thank you

Mike Achtem, P.Eng. PMP. CCA

Principal, Senior Engineer

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On Fri, Mar 8, 2019 at 12:20 PM Melnechenko, Cali FLNR:EX
<Cali.Melnechenko@gov.bc.ca> wrote:

Hi Mike,

Our internal regional hydrogeologist has been reviewing the pumping test report and we have been doing some additional analysis. There are concerns about the impacts to surrounding wells as identified in the pumping test. We cannot grant a licence for a well that would be operated in a way that would have detrimental impacts on another well user or users. Darryl Slater met with Donna Michiel and others to discuss this in the fall. Our next step is to direct the applicant to serve notice to all well owners who may be detrimentally impacted by the well operation as applied for. Some additional analysis of anticipated impacts may be required before this can happen. I will keep you posted on that. The serving of notice would identify those who will or may be impacted. It would then be up to the applicant to determine how they can mitigate those impacts. I believe Darryl discussed various mitigation options to consider when he met with Donna and others.

I'm happy to chat more about this, but probably won't have any availability until March 14 and then am away until April 4.

Thank you,

Cali

From: Mike Achtem [<mailto:machtem@islanderengineering.com>]
Sent: Friday, March 8, 2019 10:38 AM
To: Melnechenko, Cali FLNR:EX
Cc: Rob Johnston; Donna Michiel; Sangha, %Cory %
Subject: Re: Malahat Properties Pumping Test Data

Hi Cali,

Our design team is meeting this Monday to update all stakeholders. Would you be able to provide an update on the well approval process from your end?

Many thanks in advance

Mike Achtem, P.Eng. PMP. CCA

Principal, Senior Engineer

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On Tue, Jan 22, 2019 at 3:04 PM Mike Achtem <machtem@islanderengineering.com> wrote:

Hi Cali,

I have enclosed the excel files for your in-house review and use. My understanding is that this is not standard practice, and I have not been able to contact Brad to confirm his acceptance of same (he officially retired a few months ago). However, we are very eager to move this application forward, and we will continue to provide your Ministry with any information you require

Thanks

Thanks

Mike Achtem, P.Eng. PMP. CCA

Principal, Senior Engineer

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On Tue, Jan 22, 2019 at 1:17 PM Melnechenko, Cali FLNR:EX
<Cali.Melnechenko@gov.bc.ca> wrote:

Hi Mike,

I'm just wondering if you've had any luck finding the data in excel format?

Thank you,

Cali

From: Mike Achtem [mailto:machtem@islanderengineering.com]
Sent: Thursday, December 20, 2018 11:45 AM
To: Melnechenko, Cali FLNR:EX
Cc: Rob Johnston; dubeko@ae.ca; reesj@ae.ca; Donna Michiel
Subject: Re: Malahat Properties Pumping Test Data

The graphs and data should be in the report...I will look into the excel file

Mike Achtem , P.Eng.

Principal, Civil Engineer

ISLANDER ENGINEERING LTD.

Mobile: [250-893-9977](tel:250-893-9977)

www.islanderengineering.com

On Dec 20, 2018, at 8:30 AM, Melnechenko, Cali FLNR:EX
<Cali.Melnechenko@gov.bc.ca> wrote:

Hi Mike,

Is it possible to get the pump test data (both the test data and recovery data) in excel format? Also, if available can you please provide any graphs and calculations used for estimating the transmissivity and storativity values?

Thank you,

Cali

From: Mike Achtem [mailto:machtem@islanderengineering.com]
Sent: Wednesday, December 19, 2018 9:24 PM
To: Melnechenko, Cali FLNR:EX
Cc: Rob Johnston; dubeko@ae.ca; reesj@ae.ca; Donna Michiel
Subject: Re: Malahat Properties Pumping Test Data

Rob has both those plans and will forward to you tomorrow. The pump test data is included in the well report that was uploaded with the application

Thanks for the speedy reply!

Regards

Mike

Mike Achtem , P.Eng.

Principal, Civil Engineer

ISLANDER ENGINEERING LTD.

Mobile: 250-893-9977

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On Dec 19, 2018, at 4:19 PM, Melnechenko, Cali FLNR:EX
<Cali.Melnechenko@gov.bc.ca> wrote:

Hi Mike,

Yes, I'm waiting on pumping test data and a drawing that shows an overview of all the works and lots proposed for development on one page.

Thank you,

Cali

From: Mike Achtem [<mailto:machtem@islanderengineering.com>]

Sent: Wednesday, December 19, 2018 4:16 PM

To: Melnechenko, Cali FLNR:EX

Cc: Rob Johnston; dubeko@ae.ca; reesj@ae.ca; Donna Michiel

Subject: Re: Malahat Properties Pumping Test Data

Cali,

Are you still waiting on information from Islander?

Mike Achtem, P.Eng. PMP. CCA

Principal, Senior Engineer

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Mobile: 250-893-9977

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On Tue, Dec 4, 2018 at 3:38 PM Melnechenko, Cali
FLNR:EX <Cali.Melnechenko@gov.bc.ca> wrote:

Thanks for the drawings Rob. The overall water system drawing is what I was really looking for. Would it be possible to outline the properties to be developed on this drawing and add the location of the well? If it makes it easier to visualize you could remove the pressure zone boundary. This overview drawing is helpful for me to see the whole picture, but also very useful for consultation with First Nations and other agencies.

Also, I'm not sure if you noticed, but the second request from Oleh was for pumping test data.

Thank you,

Cali

From: Rob Johnston
[mailto:rjohnston@islanderengineering.com]
Sent: Tuesday, December 4, 2018 2:22 PM
To: Mike Achtem
Cc: dubeko@ae.ca; reesj@ae.ca; Melnechenko, Cali FLNR:EX
Subject: Re: Malahat Properties Pumping Test Data

Hi Cali

Attached please find the Malahat reservoir drawings, distribution piping drawings and proposed subdivision plan. Well drawings to follow in separate email. Please note that these drawings are not approved by MBWD and are considered preliminary for discussion only. If you require anything further please let me know.

Rob

On Tue, Dec 4, 2018 at 11:52 AM Mike Achtem
<machtem@islanderengineering.com> wrote:

Yes, we are putting the documentation together. I think

Rob was waiting on the JEA current plan.

Thanks

Mike Achtem , P.Eng.

Principal, Civil Engineer

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Mobile: 250-893-9977

www.islanderengineering.com

On Dec 4, 2018, at 11:25 AM, Oleh Dubek
<dubeko@ae.ca> wrote:

Hi Mike,

Would you please provide Cali with the
requested information below.

Thanks,

Oleh

From: Melnechenko, Cali FLNR:EX

<Cali.Melnechenko@gov.bc.ca>

Sent: December-04-18 8:25 AM

To: Oleh Dubek <dubeko@ae.ca>

Subject: Malahat Properties Pumping Test
Data

Hi Oleh,

I don't expect you have the data I am
looking for, but I'm not sure if you'd prefer
I go directly to the consultant or go through
you. Please let me know which you'd
prefer.

Can you please have Islander Engineering
provide the following to assist in our
review of the hydrogeologist's report on
the pumping test of the Malahat Properties
well:

- Drawdown and recovery data in
Excel format, and
- Aquifer analysis plots and/or

calculations (i.e. Aqtesolv or Aquifer
Test plots/results, or graphs showing
manual analysis).

Thank you,

Cali

Cali Melnechenko, A.Ag.

Authorizations Specialist - Water

*Ministry of Forests, Lands, Natural Resource
Operations and Rural Development*

West Coast Region

2100 Labieux Rd Nanaimo BC V9T 6J9

P: 250.751.7014

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--

Rob Johnston, CTECH.

Senior Project Manager

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Mobile: 250-886-9474

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From: [Mike Achtem](#)
To: [Macdonald, Matthew S FLNR:EX](#)
Cc: [Melnechenko, Cali FLNR:EX](#); [Rob Johnston](#); [Sangha, %Cary %](#); [kim sharyk](#); [Robinson, David FLNR:EX](#); [Doyle, Jessica FLNR:EX](#)
Subject: Re: Malahat Properties Pumping Test Data
Date: Thursday, March 14, 2019 4:55:33 PM

Yes, that works for me

Mike Achtem, P.Eng. PMP. CCA

Principal, Senior Engineer

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On Thu, Mar 14, 2019 at 4:48 PM Macdonald, Matthew S FLNR:EX
<Matthew.S.Macdonald@gov.bc.ca> wrote:

Hi Mike,

Cali has asked me to set-up a meeting for April. I am processing the Mill Bay Waterworks application for existing groundwater use, so will also be joining in. I've spoken with Kim Sharyk about a meeting also. Does 1 PM on Tuesday April 9th work for you both?

Thank you,

Matt MacDonald, RPF

Licensed Authorizations Officer - Water

West Coast Region

Ministry of Forests, Lands, Natural Resource Operations & Rural Development

103-2100 Labieux Rd, Nanaimo, BC, V9T 6E9

T: (250) 751-7049

F: (250) 751-7192

From: Mike Achtem [mailto:machtem@islanderengineering.com]

Sent: Thursday, March 14, 2019 3:27 PM

To: Melnechenko, Cali FLNR:EX

Cc: Rob Johnston; Sangha, %Cary %; kim sharyk; Macdonald, Matthew S FLNR:EX; Robinson, David FLNR:EX; Doyle, Jessica FLNR:EX

Subject: Re: Malahat Properties Pumping Test Data

Thanks for the note Cali,

Anytime when you are back works for me.

We did mail-outs and door knocked all residents, so apart from sending registered mail, there is nothing more we can do

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Mike Achtem, P.Eng. PMP. CCA

Principal, Senior Engineer

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Sent: Monday, March 11, 2019 10:02 AM

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Cc: Rob Johnston; Donna Michiel; Sangha, %Cary %

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From: Mike Achtem [<mailto:machtem@islanderengineering.com>]
Sent: Friday, March 8, 2019 10:38 AM
To: Melnechenko, Cali FLNR:EX
Cc: Rob Johnston; Donna Michiel; Sangha, %Cory %

Subject: Re: Malahat Properties Pumping Test Data

Hi Cali,

Our design team is meeting this Monday to update all stakeholders. Would you be able to provide an update on the well approval process from your end?

Many thanks in advance

Mike Achtem, P.Eng. PMP. CCA

Principal, Senior Engineer

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Mobile: 250-893-9977

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I have enclosed the excel files for your in-house review and use. My understanding is that this is not standard practice, and I have not been able to contact Brad to confirm his acceptance of same (he officially retired a few months ago). However, we are very eager to move this application forward, and we will continue to provide your

Ministry with any information you require

Thanks

Thanks

Mike Achtem, P.Eng. PMP. CCA

Principal, Senior Engineer

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Thank you,

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Sent: Thursday, December 20, 2018 11:45 AM
To: Melnechenko, Cali FLNR:EX
Cc: Rob Johnston; dubeko@ae.ca; reesj@ae.ca; Donna Michiel
Subject: Re: Malahat Properties Pumping Test Data

The graphs and data should be in the report...I will look into the excel file

Mike Achtem , P.Eng.

Principal, Civil Engineer

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Thanks for the speedy reply!

Regards

Mike

Mike Achtem , P.Eng.

Principal, Civil Engineer

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Subject: Re: Malahat Properties Pumping Test Data

Cali,

Are you still waiting on information from Islander?

Mike Achtem, P.Eng. PMP. CCA

Principal, Senior Engineer

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Also, I'm not sure if you noticed, but the second request from Oleh was for pumping test data.

Thank you,

Cali

From: Rob Johnston
[mailto:rjohnston@islanderengineering.com]
Sent: Tuesday, December 4, 2018 2:22 PM
To: Mike Achtem
Cc: dubeko@ae.ca; reesj@ae.ca; Melnechenko, Cali FLNR:EX
Subject: Re: Malahat Properties Pumping Test Data

Hi Cali

Attached please find the Malahat reservoir drawings, distribution piping drawings and proposed subdivision plan. Well drawings to follow in separate email. Please note that these drawings are not approved by MBWD and are considered preliminary for discussion only. If you require anything further please let me know.

Rob

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Yes, we are putting the documentation together. I think Rob was waiting on the JEA current plan.

Thanks

Mike Achtem , P.Eng.

Principal, Civil Engineer

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www.islanderengineering.com

On Dec 4, 2018, at 11:25 AM, Oleh Dubek
<dubeko@ae.ca> wrote:

Hi Mike,

Would you please provide Cali with the
requested information below.

Thanks,

Oleh

From: Melnechenko, Cali FLNR:EX
<Cali.Melnechenko@gov.bc.ca>
Sent: December-04-18 8:25 AM
To: Oleh Dubek <dubeko@ae.ca>
Subject: Malahat Properties Pumping
Test Data

Hi Oleh,

I don't expect you have the data I am looking for, but I'm not sure if you'd prefer I go directly to the consultant or go through you. Please let me know which you'd prefer.

Can you please have Islander Engineering provide the following to assist in our review of the hydrogeologist's report on the pumping test of the Malahat Properties well:

- Drawdown and recovery data in Excel format, and
- Aquifer analysis plots and/or calculations (i.e. Aqtesolv or Aquifer Test plots/results, or graphs showing manual analysis).

Thank you,

Cali

Cali Melnechenko, A.Ag.

Authorizations Specialist - Water

*Ministry of Forests, Lands, Natural Resource
Operations and Rural Development*

West Coast Region

2100 Labieux Rd Nanaimo BC V9T
6J9

P: 250.751.7014

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--

Rob Johnston, CTECH.

Senior Project Manager

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Mobile: 250-886-9474

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From: [Macdonald, Matthew S FLNR:EX](#)
To: ["Accounting"; Mike Achtem](#)
Cc: [Melnechenko, Cali FLNR:EX](#); [Rob Johnston](#); [Sangha, %Cary %](#); [kim sharyk](#); [Robinson, David FLNR:EX](#); [Doyle, Jessica FLNR:EX](#); [Paul Laraman](#)
Subject: RE: Malahat Properties Pumping Test Data
Date: Monday, March 18, 2019 9:44:23 AM

Thanks for your input, Kim. It looks like we can make the morning of the 9th work so long as it works for Mike and company. I will follow-up with an Outlook meeting invite.

Matt MacDonald, RPF

Licensed Authorizations Officer - Water
West Coast Region
Ministry of Forests, Lands, Natural Resource Operations & Rural Development
103-2100 Labieux Rd, Nanaimo, BC, V9T 6E9
T: (250) 751-7049
F: (250) 751-7192

From: Accounting [<mailto:accounting@millbaywater.ca>]
Sent: Friday, March 15, 2019 1:08 PM
To: Mike Achtem; Macdonald, Matthew S FLNR:EX
Cc: Melnechenko, Cali FLNR:EX; Rob Johnston; Sangha, %Cary %; kim sharyk; Robinson, David FLNR:EX; Doyle, Jessica FLNR:EX; Paul Laraman
Subject: RE: Malahat Properties Pumping Test Data

Good Afternoon,

MBWD would be able to meet with everyone on April 9th, however the 1:00p time frame will not work. Would 9:00a or 10:00a at our office work with everyone? MBWD and the Board have a previously schedule meeting in the afternoon this day.

If April 9th, in the morning does not work, then we would not be able to meet until after May 3rd.

Thank you for your understanding.

Kim Sharyk
Administrator / Accounting
Mill Bay Waterworks District
250.743.9023

From: Mike Achtem <machtem@islanderengineering.com>
Sent: March-14-19 4:55 PM
To: Macdonald, Matthew S FLNR:EX <Matthew.S.Macdonald@gov.bc.ca>
Cc: Melnechenko, Cali FLNR:EX <Cali.Melnechenko@gov.bc.ca>; Rob Johnston <rjohnston@islanderengineering.com>; Sangha, %Cary % <carysangha@gmail.com>; kim sharyk

<kim.sharyk@millbaywater.ca>; Robinson, David FLNR:EX <David.Robinson@gov.bc.ca>; Doyle, Jessica FLNR:EX <Jessica.Doyle@gov.bc.ca>

Subject: Re: Malahat Properties Pumping Test Data

Yes, that works for me

Mike Achtem, P.Eng. PMP. CCA

Principal, Senior Engineer

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On Thu, Mar 14, 2019 at 4:48 PM Macdonald, Matthew S FLNR:EX
<Matthew.S.Macdonald@gov.bc.ca> wrote:

Hi Mike,

Cali has asked me to set-up a meeting for April. I am processing the Mill Bay Waterworks application for existing groundwater use, so will also be joining in. I've spoken with Kim Sharyk about a meeting also. Does 1 PM on Tuesday April 9th work for you both?

Thank you,

Matt MacDonald, RPF

Licensed Authorizations Officer - Water
West Coast Region
Ministry of Forests, Lands, Natural Resource Operations & Rural Development
103-2100 Labieux Rd, Nanaimo, BC, V9T 6E9
T: (250) 751-7049
F: (250) 751-7192

From: Mike Achtem [mailto:machtem@islanderengineering.com]
Sent: Thursday, March 14, 2019 3:27 PM
To: Melnechenko, Cali FLNR:EX
Cc: Rob Johnston; Sangha, %Cary %; kim sharyk; Macdonald, Matthew S FLNR:EX; Robinson, David FLNR:EX; Doyle, Jessica FLNR:EX
Subject: Re: Malahat Properties Pumping Test Data

Thanks for the note Cali,

Anytime when you are back works for me.

We did mail-outs and door knocked all residents, so apart from sending registered mail, there is nothing more we can do

Thanks!

Mike Achtem, P.Eng. PMP. CCA

Principal, Senior Engineer

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On Thu, Mar 14, 2019 at 3:07 PM Melnechenko, Cali FLNR:EX <Cali.Melnechenko@gov.bc.ca> wrote:

Hi Mike,

I appreciate the effort that went into the investigation and reporting for the Malahat Properties well. I'm also happy to hear that the properties will be protected by covenants to have their wells either remedied or have piped city water service. I'd like to meet with you and others to learn more about the covenants and how they would work. I would also like to review the additional analysis completed by our regional hydrogeologist, that shows potential impacts to

well users beyond the 1 km radius monitored during the pumping test.

Also, under Section 13 of the *Water Sustainability Act* (WSA) the decision maker (the Water Manager) must direct an applicant to give notice of the application in accordance with Section 117 of the Act to any authorization holder, applicant or land owner whose land is likely to be physically affected if the application is granted. Further the decision maker may direct an applicant to serve notice to any person whose input into the decision the decision maker considers advisable. While domestic well users are not authorization holders they do have deemed rights under the WSA and the decision maker must consider their use and any impacts to their use in the decision. While I acknowledge the considerable effort that went into identifying wells in the area around the Malahat Properties well and letting people know about the project, notice will still have to be served in accordance with the WSA. This email does not constitute direction to serve notice. That will come following the proposed meeting.

Unfortunately I will be away from the office from today until April 4. Please let me know if you are available to meet the week of April 8, and if you have a preferred date and/or time.

Thank you,
Cali

From: Mike Achtem [mailto:machtem@islanderengineering.com]

Sent: Monday, March 11, 2019 10:02 AM

To: Melnechenko, Cali FLNR:EX

Cc: Rob Johnston; Donna Michiel; Sangha, %Cary %

Subject: Re: Malahat Properties Pumping Test Data

Good Morning Cali,

As part of our 1.5 year long investigation on-site, we met with most all neighboring properties and we monitored most all adjacent wells (all that we were permitted access to). Only 3 showed signs of possible interference, and only one had any real issues. All 3 properties (plus 50 others that were not affected) will be protected via covenants to have their wells either remedied, or a new piped city water service provided assuming that their existing well systems are compromised. The notification and mitigation stages have been dealt with and we are hoping that we can finally move forward with this new community water system for Mill Bay.

As you know, the long term plan is to develop a new community water system (twin reservoirs) that will ultimately provide domestic supply for over 200 homes, and more importantly fire protection for the community at large. If one home is affected, the covenant ensures that any problem will be rectified by the developer.

Donna/Oleh/James, please feel free to add anything to help everyone get up to speed on the last 2-3 years

Thank you

Mike Achtem, P.Eng. PMP. CCA

Principal, Senior Engineer

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On Fri, Mar 8, 2019 at 12:20 PM Melnechenko, Cali FLNR:EX <Cali.Melnechenko@gov.bc.ca> wrote:

Hi Mike,

Our internal regional hydrogeologist has been reviewing the pumping test report and we have been doing some additional analysis. There are concerns about the impacts to surrounding wells as identified in the pumping test. We cannot grant a licence for a well that would be operated in a way that would have detrimental impacts on another well user or users. Darryl Slater met with Donna Michiel and others to discuss this in the fall. Our next step is to direct the applicant to serve notice to all well owners who may be detrimentally impacted by the well operation as applied for. Some additional analysis of anticipated impacts may be required before this can happen. I will keep you posted on that. The serving of notice would identify those who will or may be impacted. It would then be up to the applicant to determine how they can mitigate those impacts. I believe Darryl discussed various mitigation options to consider when he met with Donna and others.

I'm happy to chat more about this, but probably won't have any availability until March 14 and then am away until April 4.

Thank you,
Cali

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Sent: Friday, March 8, 2019 10:38 AM

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Cc: Rob Johnston; Donna Michiel; Sangha, %Cory %
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The graphs and data should be in the report...I will look into the excel file

Mike Achtem , P.Eng.

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Regards
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Principal, Civil Engineer

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Subject: Re: Malahat Properties Pumping Test Data

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Thanks

Mike Achtem , P.Eng.
Principal, Civil Engineer

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Oleh

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<Cali.Melnechenko@gov.bc.ca>
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To: Oleh Dubek <dubeko@ae.ca>
Subject: Malahat Properties Pumping Test
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- Drawdown and recovery data in Excel format, and
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Thank you,
Cali

Cali Melnechenko, A.Ag.

Authorizations Specialist - Water
*Ministry of Forests, Lands, Natural Resource
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2100 Labieux Rd Nanaimo BC V9T 6J9
P: 250.751.7014

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Rob Johnston, CTECH.

Senior Project Manager

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From: [Mike Achtem](#)
To: [Melnechenko, Cali FLNR:EX](#)
Cc: [Kim Vanderkooy](#); [Robinson, David FLNR:EX](#); [Cory Sangha](#)
Subject: Re: Covenant on potentially impacted lots
Date: Thursday, May 2, 2019 2:05:43 PM

Mike Achtem , P.Eng.

Principal, Civil Engineer

ISLANDER ENGINEERING LTD.

Mobile: [250-893-9977](tel:250-893-9977)

www.islanderengineering.com

On May 2, 2019, at 1:25 PM, Melnechenko, Cali FLNR:EX <Cali.Melnechenko@gov.bc.ca> wrote:

Hi Kim and Mike,

During our meeting at the MBWWD office we discussed the covenant that may be used to mitigate impacts to well owners caused by the operation of the Malahat Properties well. Would it be possible to get a copy of the covenant?

Thank you,
Cali

Cali Melnechenko, A.Ag.

Authorizations Specialist - Water

Ministry of Forests, Lands, Natural Resource Operations and Rural Development

West Coast Region

2100 Labieux Rd Nanaimo BC V9T 6J9

P: 250.751.7117

From: [Doyle, Jessica FLNR:EX](#)
To: [Brad Loffler](#)
Cc: [Melnechenko, Cali FLNR:EX](#)
Subject: RE: Malahat Properties Technical Assessment Review and Analysis
Date: Tuesday, May 21, 2019 3:11:27 PM

Hi Brad,

Thank you very much for your comments. I acknowledge your concern about using the T and S values obtained using the 700 Butterfield well. The T value obtained using this data ($3.5 \text{ m}^2/\text{day}$) is very close to the late time T value evaluated from the Malahat Pumping well data ($3.6 \text{ m}^2/\text{day}$ using Cooper-Jacob and $3.4 \text{ m}^2/\text{day}$ using Theis). Similarly, the S value obtained from the 700 Butterfield well data (4×10^{-5}) is within the range of S values obtained using the 2240 Benko well data (2×10^{-4}) and the 2304 Boulding well data (5×10^{-5}). I appreciate the uncertainty and complexity of fractured rock aquifers and recognize the limitations of predicting impacts. Given such uncertainties, we often like to stay conservative to allow room for error. Based on the assessment we have done, we will likely ask the applicant to serve notice to all well owners within a 1 km radius, and to a select few between 1 km and 2 km. Under Section 13 of the *Water Sustainability Act*, the decision maker must direct the applicant to give notice in accordance with Section 117. Cali can speak to these requirements as she is the Water Officer on the file.

I want to reiterate that we are very pleased with the level of effort and detail that went into your field program and report. As mentioned, we are just taking a conservative but reasonable approach to serving notice to existing groundwater user who may be impacted by the proposed diversion.

I believe Cali will be in contact with the applicant shortly in regards to serving notice.

Feel free to give me or Cali a call if you would like to discuss in more detail.

Sincerely,

Jessica Doyle M.Sc. P.Geo.

Regional Hydrogeologist, West Coast
Ministry of Forests, Lands, Natural Resource Operations & Rural Development
Phone: 778-693-3035
Cell: 778-349-9568
2080A Labieux Rd, Nanaimo V9T 6J9
Jessica.Doyle@gov.bc.ca

From: Brad Loffler s.22
Sent: May 17, 2019 11:25 AM
To: Doyle, Jessica FLNR:EX <Jessica.Doyle@gov.bc.ca>
Cc: Melnechenko, Cali FLNR:EX <Cali.Melnechenko@gov.bc.ca>

Subject: Re: Malahat Properties Technical Assessment Review and Analysis

Dear Jessica,

Thank you for sending a draft copy of your review of my work on this project. I think it was well done, and you are competent with your technical ability with computer analysis. I do, however, disagree with the calculated 3000m Zone of Influence by using the T and S values derived from the water levels measured in the 700 Butterfield MW. The drawdown measured in this MW is not only the result of the pumping test drawdown, but would be increased by other factors.

The water level in the 700 Butterfield MW was not only affected by the pumping of the Malahat Well. It is a pumping well in use, thus creating its own discharge and drawdown. It would also be under the influence of interference from other pumping wells in the area like the 754 Butterfield Well (which I believe to be connected) and probably more. Add the effects of seasonal water level decline due to continuing discharge with no recharge, and the fact that the nearby well owners own huge manicured lots, some with backyard pools and two wells, and would be pumping extraordinary amounts of water due to the dry summer.

I have estimated, and have stated in my report (Section 5.2, pg 15), that I expect the Zone of Influence to range between 800 to 1200m while producing the Malahat Well at the stated requirements of the subdivision. This is based on the drawdowns measured in the Malahat Well and the 2240 Benko MW, which I believe to be more accurate for calculating S & T values and estimating the Zone of Influence than either of the two more distant MWs. The 2240 Benko Well was taken out of use before and throughout the test .

Also, aquifers with low T values have large drawdowns and smaller Zones of Influence, and generally the interference drawdown declines as the distance from the pumping well increases. The Malahat Well is sourced from two noted fractures, adding to the complexity of the data, and may be the reason for the higher S value calculated from the Well data.

A large Zone of Influence opens up a vastly larger area of wells and owners. In fact, I do not think it worthwhile to even try again to proactively contact individual well owners within the estimated Zone of Influence. Only one well was rendered unusable during the test. I think it would be better to set up a town hall meeting to present the subdivision issues and to set up contact with interested parties.

Feel free to call me to discuss.

Regards,

Brad Loffler, P.Eng., P.Geo.

From: Doyle, Jessica FLNR:EX <Jessica.Doyle@gov.bc.ca>
Sent: 08 May 2019 13:51
To: s.22
Cc: Melnechenko, Cali FLNR:EX
Subject: Malahat Properties Technical Assessment Review and Analysis

Hi Brad,

I am the Regional Hydrogeologist who reviewed your technical assessment report in support of Malahat Properties new groundwater licence application.

In advance of our meeting tomorrow, I wanted to send you a copy (in DRAFT) of my review and analysis of the report and pumping test data that was provided.

Overall we were very pleased with the level of detail and thoroughness of your report. As indicated in my review, I reanalysed the pumping test data to verify the T and S values presented in the report. My values, which are comparable to other T and S values estimated in the aquifer, were slightly different (slightly larger T; 3.5 m³/day, and lower S; 10⁻⁵ order of magnitude), which affected the zone of influence which effects the area of potential impacts to existing nearby groundwater users and the area to evaluate groundwater availability.

I look forward to meeting you and discussing both of our reports and analyses tomorrow.

Regards,

Jessica Doyle M.Sc. P.Geo.
Regional Hydrogeologist, West Coast

Ministry of Forests, Lands, Natural Resource Operations & Rural Development
Phone: 778-693-3035
Cell: 778-349-9568
2080A Labieux Rd, Nanaimo V9T 6J9
Jessica.Doyle@gov.bc.ca

From: [cary_sangha](#)
To: [Melnechenko, Cali FLNR:EX](#)
Subject: Re: Notice of application documents
Date: Tuesday, July 9, 2019 12:46:50 AM

Great your months late from the time line I was suggested in the meeting. What happened.
This all costs money and it to be more mine?

Sent from my iPhone

On Jul 8, 2019, at 12:30 PM, Melnechenko, Cali FLNR:EX <Cali.Melnechenko@gov.bc.ca> wrote:

Hello,

At our last meeting I advised that I would at some point be directing the applicant(s) to serve notice of their application for a groundwater licence on Aquifer 207 (Malahat Properties well WTN 88152). Since then it has been determined that the Water Manager will serve notice of the application as per Section 13(14) of the *Water Sustainability Act*. The notice will be sent to well owners and expected groundwater users within 2km of WTN 88152. Any responses received from the notice will be directed to the Water Manager. Following the 30 day notice period we will contact you to go over the responses. I have attached the notice letters (4 versions depending on the situation) for your information. I intend to send these out by the end of the week. Please let me know if you have any concerns with the content of the letters.

Kind Regards,
Cali

Cali Melnechenko, A.Ag.

Authorizations Specialist - Water

Ministry of Forests, Lands, Natural Resource Operations and Rural Development

West Coast Region

2100 Labieux Rd Nanaimo BC V9T 6J9

P: 250.751.7117

<2019-06-27 Notice of Application-Assumed GW Users - no well Draft
200073....docx>

<2019-06-27 Notice of Application-well owners not monitored Draft
2000738....docx>

<2019-06-27 Notice of Application-well owners Impacted Draft 20007388.docx>

<2019-06-27 Notice of Application-well owners Monitored Draft
20007388.docx>

From: [Melnechenko, Cali FLNR:EX](#)
To: [Dunlop, Tanya FLNR:EX](#)
Subject: FW: Malahat Properties Pumping Test Data
Date: Tuesday, September 17, 2019 11:43:51 AM
Attachments: [583 - Mill Bay Design - Nov 10 2017-C05 - Details.pdf](#)
[583 - Mill Bay Design - Nov 10 2017-C04 - Site Plan.pdf](#)
[583 - Mill Bay Design - Nov 10 2017-C03 - Sections.pdf](#)
[583 - Mill Bay Design - Nov 10 2017-C01 - Access.pdf](#)
[583 - Mill Bay Design - Nov 10 2017-C02 - Access.pdf](#)
[20180608_583 - Mill Bay Design - JF Over.pdf](#)
[PRV drawing Nov 6 2018-C01 - Site Plan.pdf](#)
[DRAFT - Benko Road Site Servicing.pdf](#)
[583 - Mill Bay Design - Nov 10 2017-G01 - Cover.pdf](#)
[PRV drawing Nov 6 2018-C01 - PRV & Booster \(2\).pdf](#)
[23019-ST2 OVERALL future subdivision.pdf](#)

I'm not sure if I saved this to the file or not...

From: Rob Johnston [mailto:rjohnston@islanderengineering.com]
Sent: Tuesday, December 4, 2018 2:22 PM
To: Mike Achtem
Cc: dubeko@ae.ca; reesj@ae.ca; Melnechenko, Cali FLNR:EX
Subject: Re: Malahat Properties Pumping Test Data

Hi Cali

Attached please find the Malahat reservoir drawings, distribution piping drawings and proposed subdivision plan. Well drawings to follow in separate email. Please note that these drawings are not approved by MBWD and are considered preliminary for discussion only. If you require anything further please let me know.

Rob

On Tue, Dec 4, 2018 at 11:52 AM Mike Achtem <machtem@islanderengineering.com> wrote:

Yes, we are putting the documentation together. I think Rob was waiting on the JEA current plan.

Thanks

Mike Achtem , P.Eng.

Principal, Civil Engineer

ISLANDER ENGINEERING LTD.

Mobile: [250-893-9977](tel:250-893-9977)

www.islanderengineering.com

On Dec 4, 2018, at 11:25 AM, Oleh Dubek <dubeko@ae.ca> wrote:

Hi Mike,

Would you please provide Cali with the requested information below.

Thanks,
Oleh

From: Melnechenko, Cali FLNR:EX <Cali.Melnechenko@gov.bc.ca>
Sent: December-04-18 8:25 AM
To: Oleh Dubek <dubeko@ae.ca>
Subject: Malahat Properties Pumping Test Data

Hi Oleh,

I don't expect you have the data I am looking for, but I'm not sure if you'd prefer I go directly to the consultant or go through you. Please let me know which you'd prefer.

Can you please have Islander Engineering provide the following to assist in our review of the hydrogeologist's report on the pumping test of the Malahat Properties well:

- Drawdown and recovery data in Excel format, and
- Aquifer analysis plots and/or calculations (i.e. Aqtesolv or Aquifer Test plots/results, or graphs showing manual analysis).

Thank you,
Cali

Cali Melnechenko, A.Ag.
Authorizations Specialist - Water
Ministry of Forests, Lands, Natural Resource Operations and Rural Development
West Coast Region
2100 Labieux Rd Nanaimo BC V9T 6J9
P: 250.751.7014

You may [unsubscribe from Associated's electronic communications](#) at any time.

--

Rob Johnston, CTECH.

Senior Project Manager

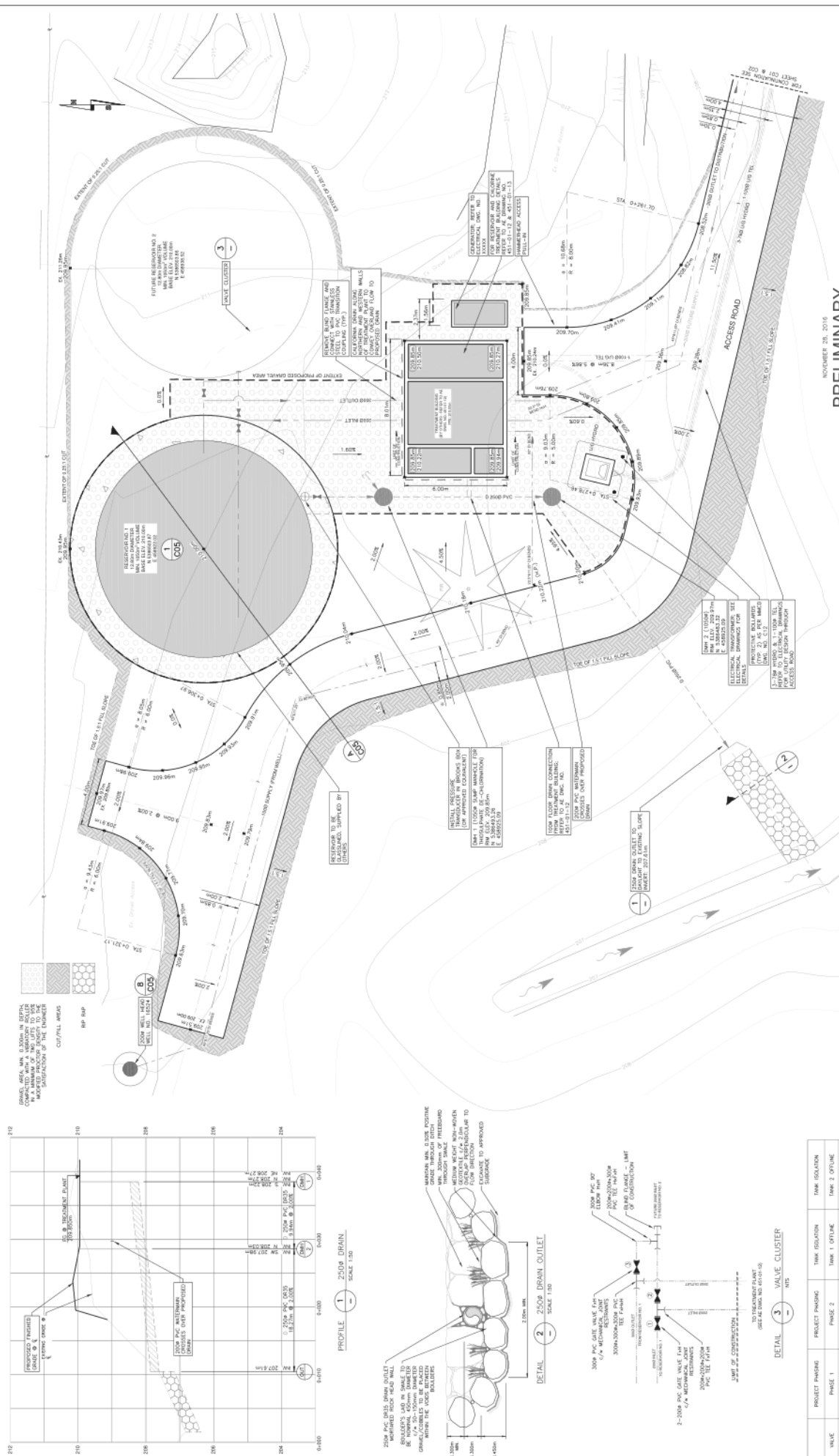
ISLANDER ENGINEERING LTD.

Mobile: 250-886-9474

www.islanderengineering.com



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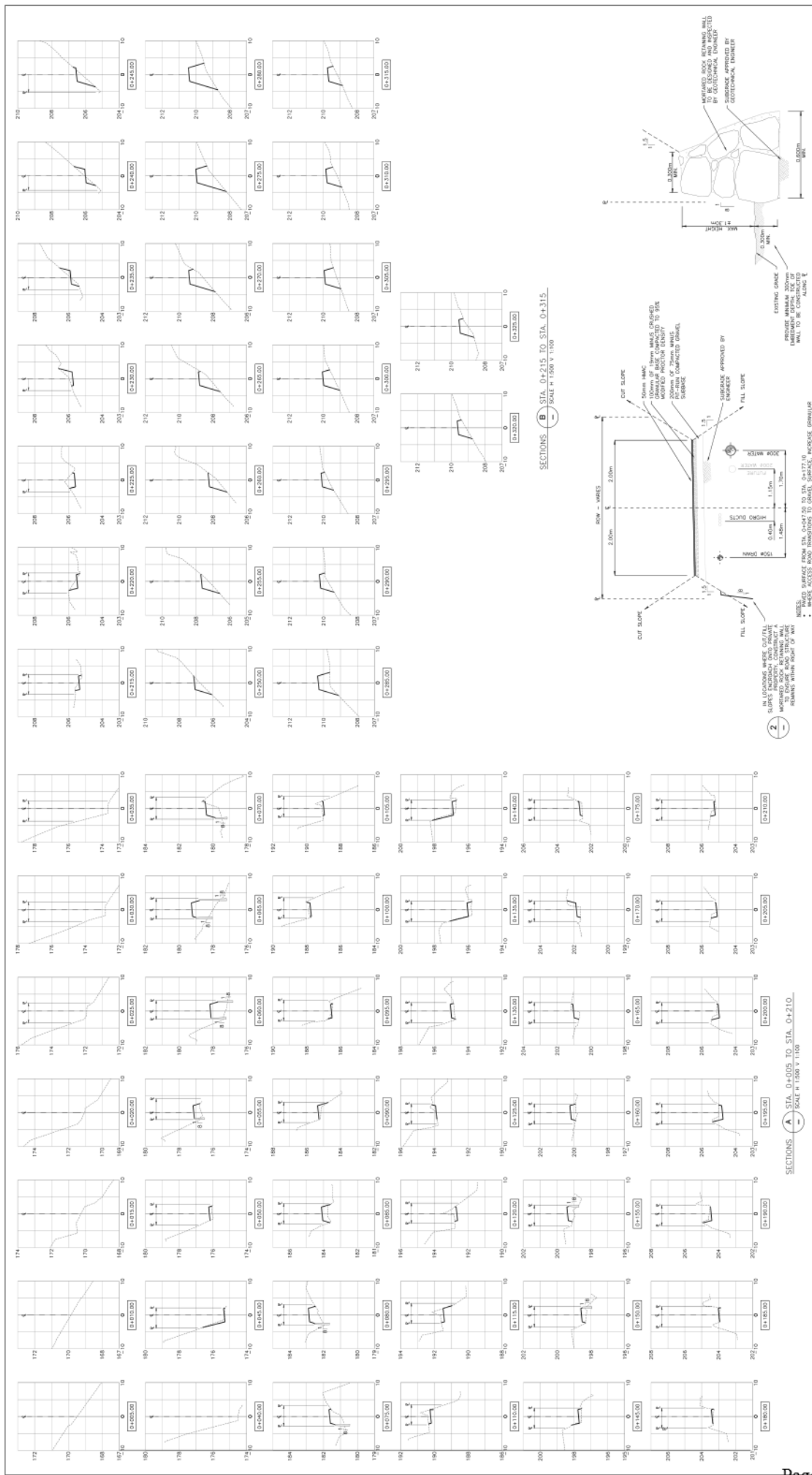
SITE PLAN - RESERVOIR
N 1250 V 150

NOVEMBER 28, 2016

PRELIMINARY

FOR DISCUSSION
PURPOSES ONLY

[illegible]



NOVEMBER 28, 2016

FOR DISCUSSION
PURPOSES ONLY

SECTION A STA. 0+005 TO STA. 0+210
SCALE H 1:500 V 1:100

SECTION B STA. 0+215 TO STA. 0+315
SCALE H 1:500 V 1:100

DETAIL 1 TYPICAL PAVED ACCESS ROAD SECTION
N.E.S.

DETAIL 2 MORTARED ROCK RETAINING WALL
N.E.S.

REVISIONS

NO.	DATE	DESCRIPTION

LEGEND

SYMBOL	DESCRIPTION
—	EXISTING GRADE
—	PROPOSED GRADE
—	PROPOSED 1/2" UTILITY
—	PROPOSED 1/2" UTILITY
—	PROPOSED 1/2" UTILITY
—	PROPOSED 1/2" UTILITY
—	PROPOSED 1/2" UTILITY
—	PROPOSED 1/2" UTILITY
—	PROPOSED 1/2" UTILITY
—	PROPOSED 1/2" UTILITY
—	PROPOSED 1/2" UTILITY

REPORTED BY: JPS

CHECKED BY: JPS

DATE: 2016.11.28

SCALE: H 1:500 V 1:100

W.H. 1:100

PROJECT: MILL BAY RESERVOIR
RESERVOIR ACCESS ROAD
CROSS SECTIONS

ISLANDER ENGINEERING

PROJECT NO. 583-C03

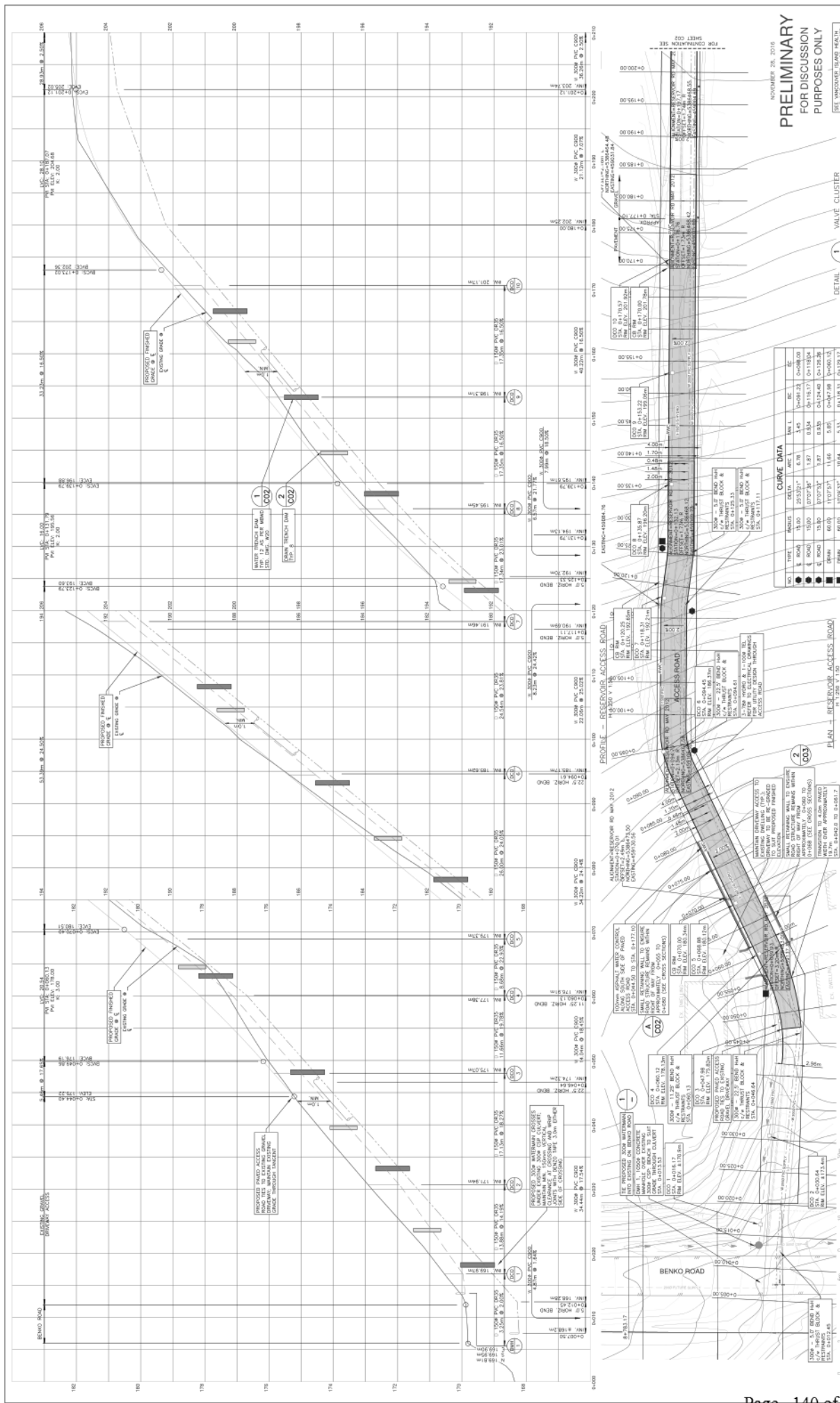
SHEET NO. 6

REVISION NO. 6

DATE: 2016.11.28

SCALE: H 1:500 V 1:100

W.H. 1:100



NOVEMBER 28, 2016
PRELIMINARY
 FOR DISCUSSION
 PURPOSES ONLY

REVISIONS
 1. 0+000 TO 0+200
 2. 0+200 TO 0+205

NO.	DATE	DESCRIPTION
1	2016.11.28	ISSUED FOR DISCUSSION
2	2016.11.28	ISSUED FOR DISCUSSION

PROJECT
MILL BAY RESERVOIR
 RESERVOIR ACCESS ROAD
 (STA. 0+000 TO 0+205)

ISLANDER
 ENGINEERING
 www.islandengineering.com

REPORT	CHECKED	DATE	SCALE	UNIT
DESIGNED	2016.11.28	DATE	SCALE	UNIT
CHECKED	2016.11.28	DATE	SCALE	UNIT

NO.	DATE	DESCRIPTION
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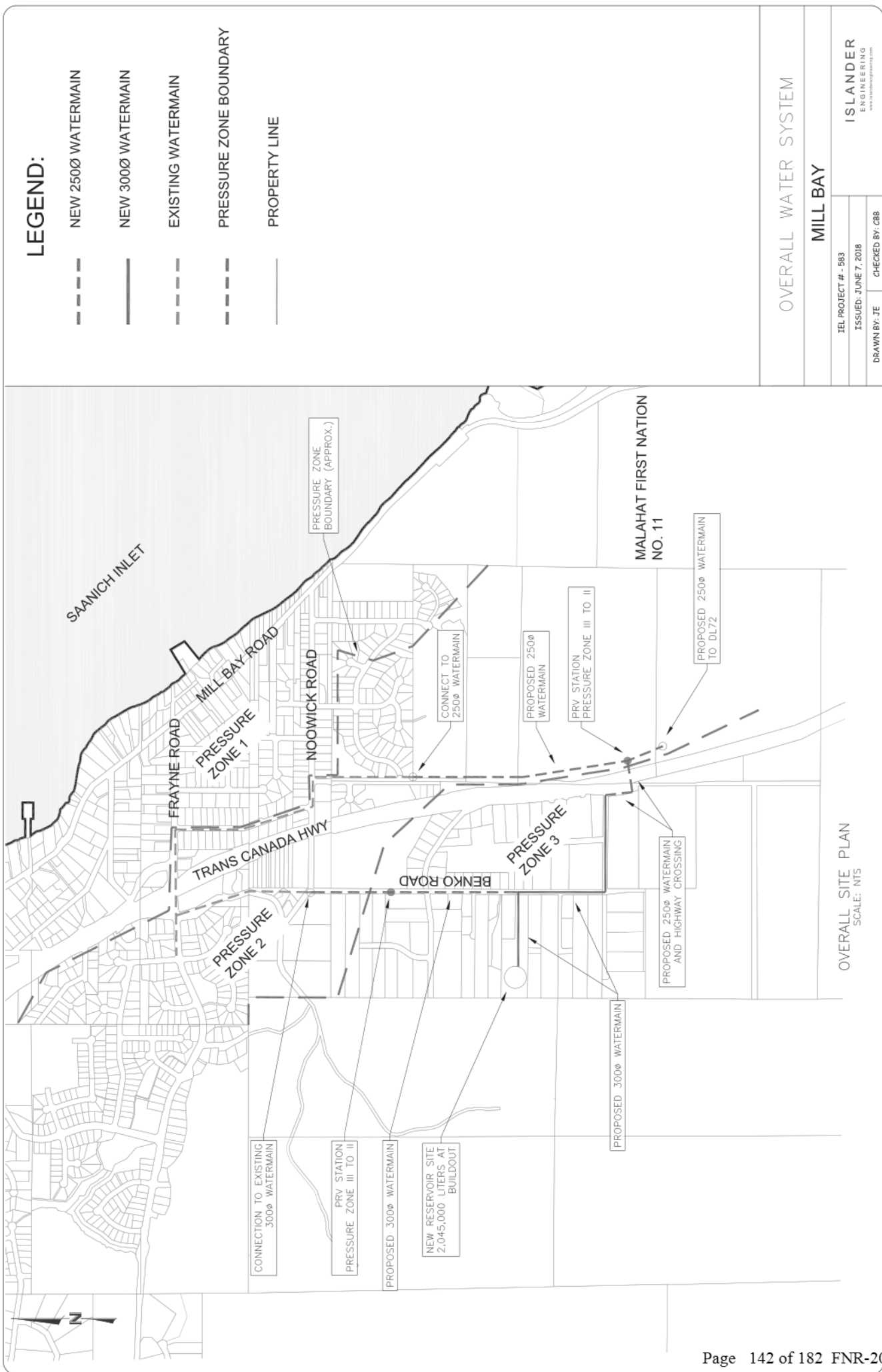
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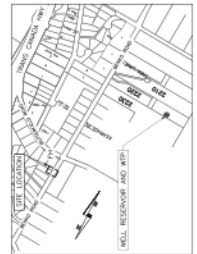
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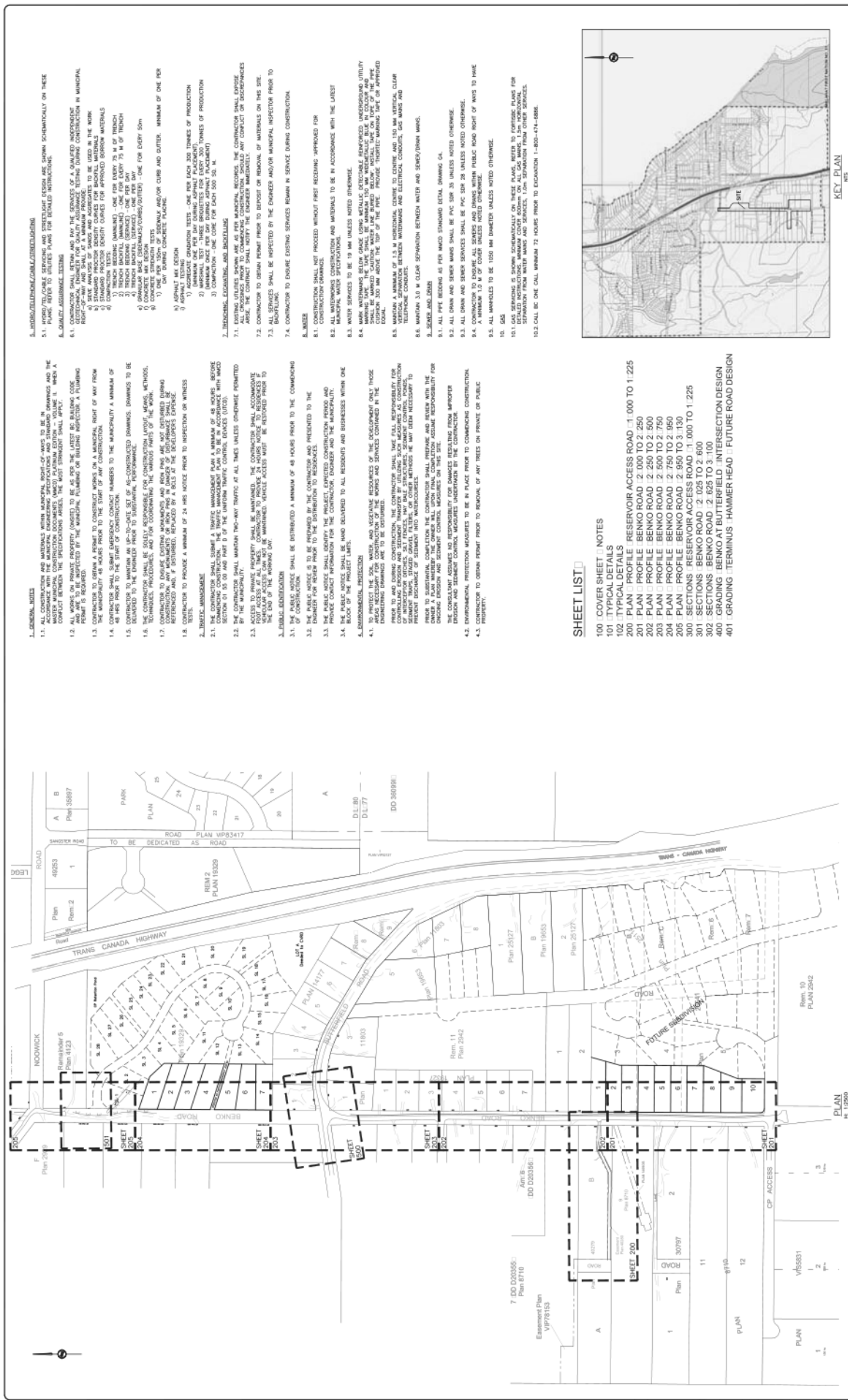
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2	2016.11.28	ISSUED FOR DISCUSSION

NO.	DATE	DESCRIPTION
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2	2016.11.28	ISSUED FOR DISCUSSION

NO.	DATE	DESCRIPTION
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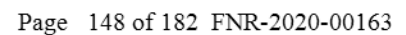


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ISSUED		REVISION		LEGEND		JEA		E ANDERSON ASSOCIATES		SURVEYORS - ENGINEERS		PACIOVILLE		NANAIMO		VICTORIA		PHONE 250.727.2314		FAX 250.727.2306		MATERIAL FILE		DRAWN DATE 11/26/16		SHEET 1 OF 12			
NO.		DESCRIPTION		DATE		CHECK		APPR.		NO.		DESCRIPTION		DATE		CHECK		APPR.		NO.		DESCRIPTION		DATE		CHECK		APPR.	
01		ISSUED FOR REVIEW		JULY 15 2016																									
UN		DESCRIPTION																											

Page 147 of 182 FNR-2020-00163



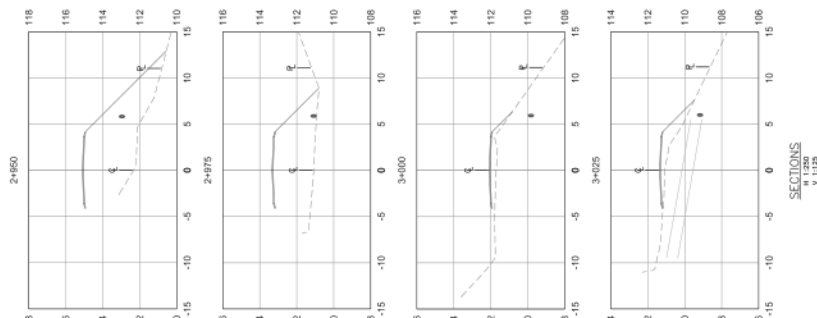
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10 20 30 40 50 60 70

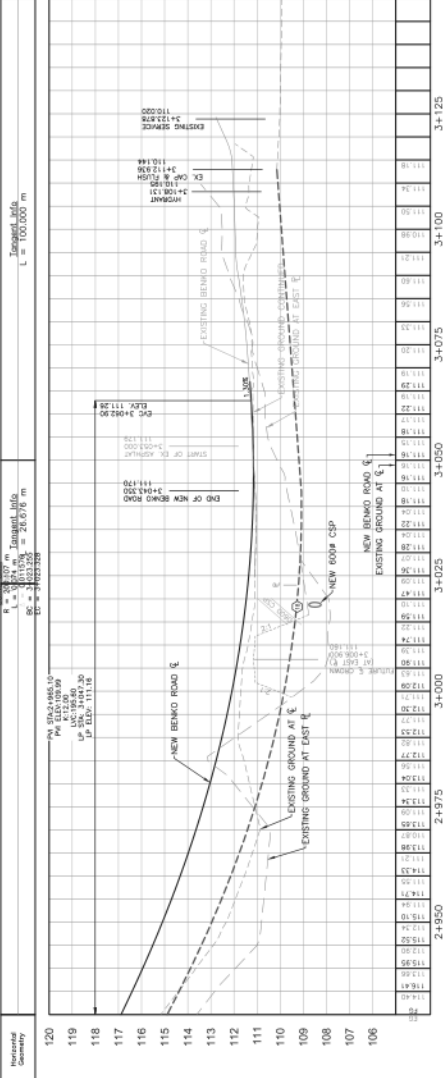
[illegible]

DETAILED CONSTRUCTION NOTES:

1. NEW 300mm PRESSURE REDUCER VALVE AND CONNECTION TO EXISTING 300mm WATERMAIN.
2. NEW 200/300 PRESSURE REDUCER VALVE AND CONNECTION TO EXISTING 300mm WATERMAIN.
3. NEW 200/300 PRESSURE REDUCER VALVE AND CONNECTION TO EXISTING 300mm WATERMAIN.
4. NEW 200/300 PRESSURE REDUCER VALVE AND CONNECTION TO EXISTING 300mm WATERMAIN.
5. NEW 200/300 PRESSURE REDUCER VALVE AND CONNECTION TO EXISTING 300mm WATERMAIN.
6. NEW 200/300 PRESSURE REDUCER VALVE AND CONNECTION TO EXISTING 300mm WATERMAIN.
7. NEW 200/300 PRESSURE REDUCER VALVE AND CONNECTION TO EXISTING 300mm WATERMAIN.
8. NEW 200/300 PRESSURE REDUCER VALVE AND CONNECTION TO EXISTING 300mm WATERMAIN.
9. NEW 200/300 PRESSURE REDUCER VALVE AND CONNECTION TO EXISTING 300mm WATERMAIN.
10. NEW 200/300 PRESSURE REDUCER VALVE AND CONNECTION TO EXISTING 300mm WATERMAIN.
11. NEW 200/300 PRESSURE REDUCER VALVE AND CONNECTION TO EXISTING 300mm WATERMAIN.
12. NEW 200/300 PRESSURE REDUCER VALVE AND CONNECTION TO EXISTING 300mm WATERMAIN.
13. NEW 200/300 PRESSURE REDUCER VALVE AND CONNECTION TO EXISTING 300mm WATERMAIN.
14. NEW 200/300 PRESSURE REDUCER VALVE AND CONNECTION TO EXISTING 300mm WATERMAIN.
15. NEW 200/300 PRESSURE REDUCER VALVE AND CONNECTION TO EXISTING 300mm WATERMAIN.
16. NEW 200/300 PRESSURE REDUCER VALVE AND CONNECTION TO EXISTING 300mm WATERMAIN.
17. NEW 200/300 PRESSURE REDUCER VALVE AND CONNECTION TO EXISTING 300mm WATERMAIN.
18. NEW 200/300 PRESSURE REDUCER VALVE AND CONNECTION TO EXISTING 300mm WATERMAIN.
19. NEW 200/300 PRESSURE REDUCER VALVE AND CONNECTION TO EXISTING 300mm WATERMAIN.
20. NEW 200/300 PRESSURE REDUCER VALVE AND CONNECTION TO EXISTING 300mm WATERMAIN.

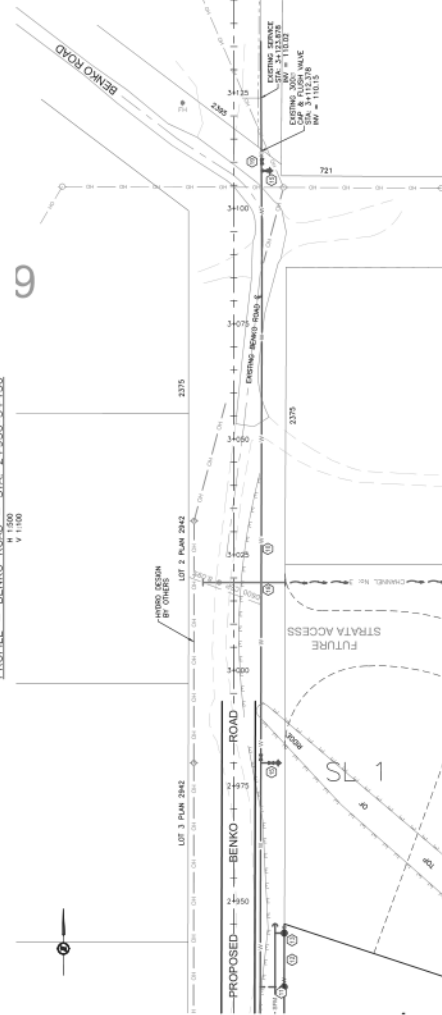


SECTIONS
H 1:250
V 1:100



PROFILE — BENKO ROAD — STA: 2+950-3+150
H 1:500
V 1:100

M. C
n 2929



PLAN — BENKO ROAD — STA: 2+950-3+150
H 1:500

ISSUED
H 1:250
V 1:100

LEGEND

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[Symbol]	EXISTING DRAINAGE
[Symbol]	PROPOSED DRAINAGE
[Symbol]	EXISTING VALVE
[Symbol]	PROPOSED VALVE
[Symbol]	EXISTING MANHOLE
[Symbol]	PROPOSED MANHOLE
[Symbol]	EXISTING CULVERT
[Symbol]	PROPOSED CULVERT
[Symbol]	EXISTING EROSION CONTROL
[Symbol]	PROPOSED EROSION CONTROL

REVISION

NO.	DATE	DESCRIPTION
01	JULY 15, 2016	ISSUED FOR REVIEW

PROJECT

PROJECT	BENKO ROAD
SCALE	H 1:250
DESIGN	BT
DRAWN	RAG

CLIENT

CLIENT	MALAHAT PROPERTIES
--------	--------------------

DESIGNER

DESIGNER	E ANDERSON ASSOCIATES
DESIGNER	SURVEYORS ENGINEERS
DESIGNER	REGISTERED
DESIGNER	PHONE 250.727.2314
DESIGNER	FAX 250.727.3306

DATE

DATE	JULY 15, 2016
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CHECK

CHECK	APPROVED
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NO.

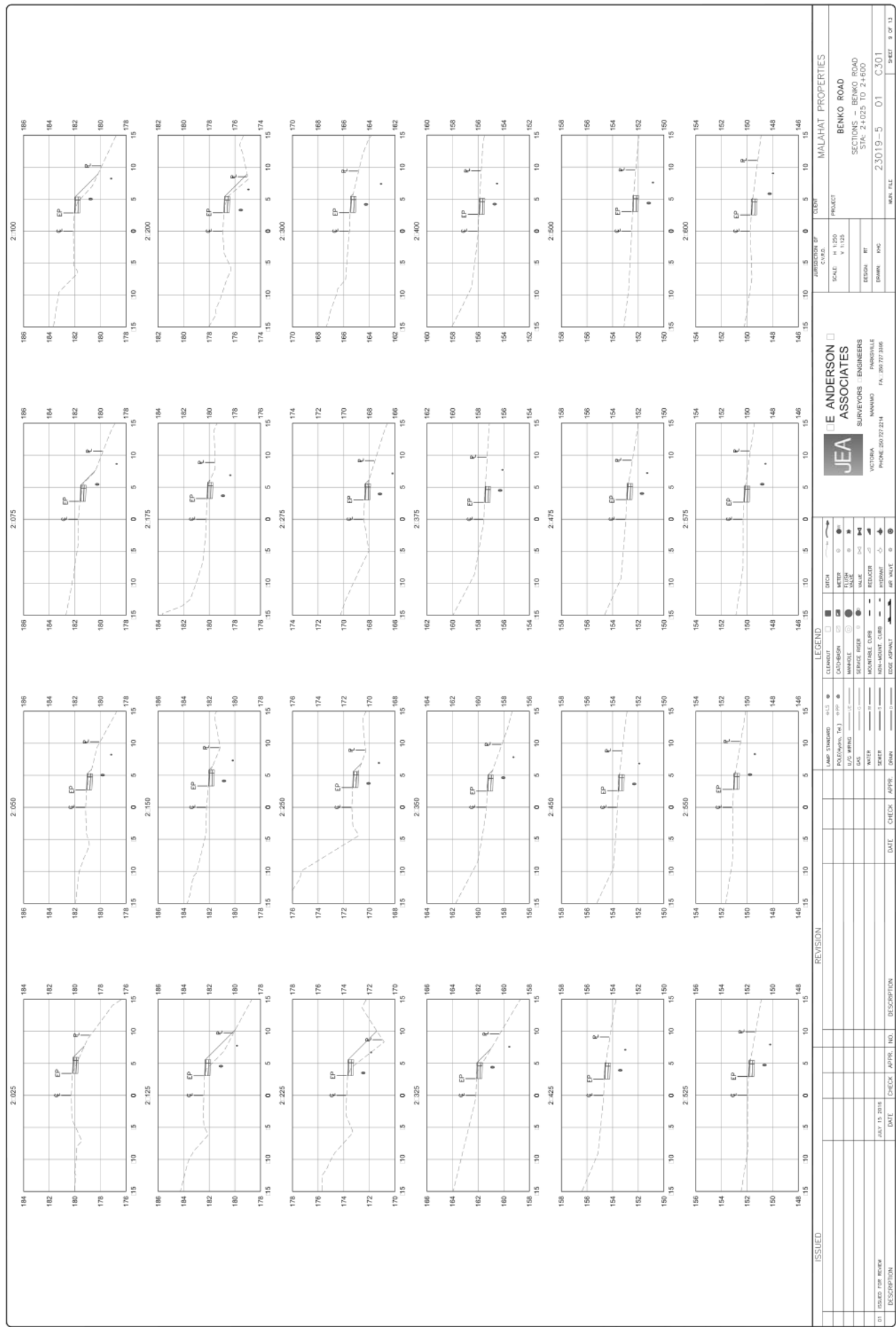
NO.	23019-5 01
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PROJECT

PROJECT	BENKO ROAD
SCALE	H 1:250
DESIGN	BT
DRAWN	RAG

CLIENT

CLIENT	MALAHAT PROPERTIES
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ISSUED		REVISION		LEGEND		PROJECT	
DATE	CHECK	DATE	CHECK	DATE	CHECK	SCALE	PROJECT
APPROVED FOR REVIEW	APPROVED	APPROVED	APPROVED	APPROVED	APPROVED	H 1:250 V 1:125	BENKO ROAD
DESCRIPTION	DESCRIPTION	DESCRIPTION	DESCRIPTION	DESCRIPTION	DESCRIPTION	DESIGN	SECTIONS - BENKO ROAD
						DRAWN	STA 2+025 TO 2+600
							MARK FILE
							23019-5 01 C301
							SHEET 9 OF 13

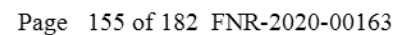


JE A

□ E ANDERSON
ASSOCIATES

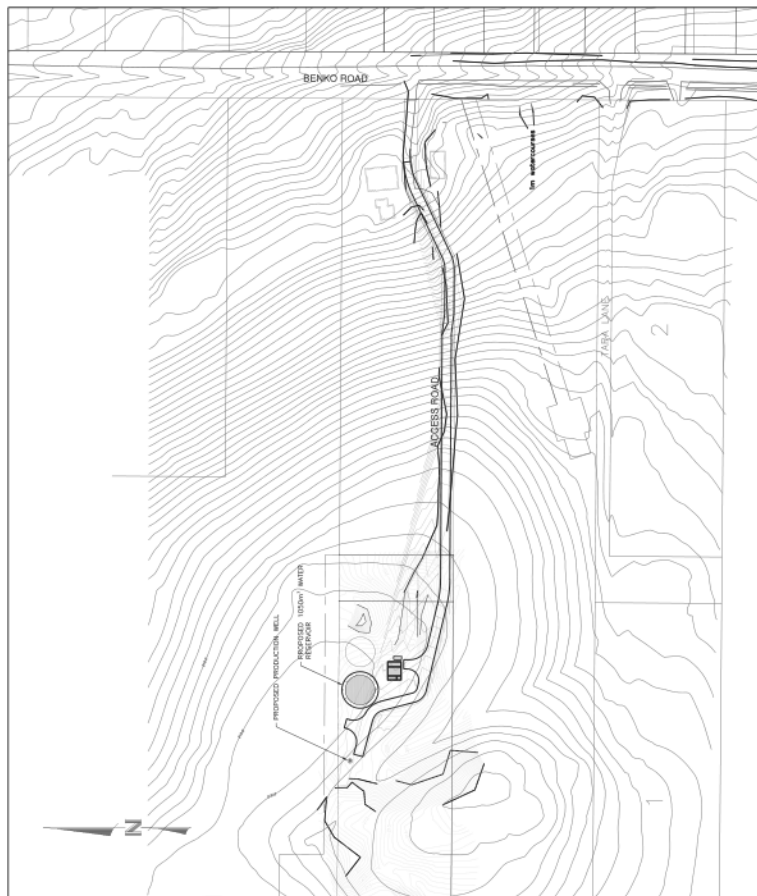
SURVEYORS □ ENGINEERS

VICTORIA NANAIMO PARRISVILLE
PHONE: 250 727 2314 FAX: 250 727 2356



583 - MALAHAT PROPERTIES

RESERVOIR DESIGN



OVERALL SITE PLAN
SCALE: 1:1000

[illegible]

THE LOCATION AND ELEVATION OF EXISTING UNDERGROUND SERVICES ON THESE DRAWINGS MAY NOT BE ACCURATE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COMPLETE THE ACTUAL, HORIZONTAL AND VERTICAL LOCATIONS MUST BE UNOBTAINED BY UTILITY COMPANIES AND THE CONTRACTOR PRIOR TO THE START OF ANY EXCAVATIONS.

REVISIONS	
No.	DESCRIPTION

LEGEND

MANHOLE
CLEANOUT
CATCHBASIN
SILT TRAP
WALL, BOX

WATER	W	GAS	C	EXISTING W/C UTIL	N
SEWER	S	CURB	C	PROPOSED W/C UTIL	
DRAIN	D	SEWERLK	SEW	LOST STANDARD	8
DITCH		EDGE FINE		POWER POLE	0
CUVERT	C	BUSHLINE		ANCHOR	→
ADRIALL	C	TRCE	00		

GENERAL NOTES

- [illegible]

TRENCHING, EXCAVATING AND BACKFILLING

- [illegible]

ENVIRONMENTAL

1. THE PROJECT ASSIGNEE TO BE RESPONSIBLE FOR SUPERVISING THE INSTALLATION OF BARRIER FITTING AT APPROPRIATE LOCATIONS. REMOVE STAMPS AND BACKFILL Voids WITH BITUM.

LIST OF DRAWINGS

- | SHEET 001 | LOCATION PLAN AND DRAWING LIST |
|-----------|--|
| SHEET 002 | RESERVOIR ACCESS ROAD (0+000 TO 0+205) |
| SHEET 003 | RESERVOIR ACCESS ROAD (0+205 TO 0+325) |
| SHEET 004 | RESERVOIR ACCESS ROAD CROSS SECTIONS |
| SHEET 005 | RESERVOIR SITE PLAN |
| SHEET 006 | RESERVOIR DETAILS & WELL HEAD DESIGN |



Civic Address:
2220 HWY 60 ROAD
LEGAL DESCRIPTION:
LOT 1, SECTION 8, RANGE 3 EAST, SOUTH SANGHVI DISTRICT, PLAN 3004
KEY PLAN
12505

FOR DISCUSSION
PURPOSES ONLY
NOVEMBER 20, 2010

2006 66 2301-2310

[illegible]

ROADWORKS

- [illegible]

1980A TELEPHONE STREET ICING AND CLOSURE

- [illegible]

WATER

- [illegible]

SANITARY SEWER

- [illegible]

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From: [Dunlop, Tanya FLNR:EX](#)
To: machtem@islanderengineering.com
Cc: carysangha@gmail.com; [Robinson, David FLNR:EX](#)
Subject: Follow up to Notice of Application
Date: Wednesday, September 18, 2019 11:18:00 AM
Attachments: [Summary of responses from Notice 20007388.docx](#)

Hello,

I am the Water Officer that has taken over this application from Cali Melnechenko. As you are aware, we served notice of this application as per Section 13(14) of the *Water Sustainability Act* on July 10, 2019. A summary of the responses that we received is attached.

I would like to arrange a meeting with you, our Regional Hydrogeologist, and a Decision Maker to discuss these responses in more detail and the next steps for this application. In particular, I would like to discuss what mitigation might look like for domestic users that have an impacted well. The Covenant documents that we have on file refer to a “Baseline Study” conducted by Thurber Engineering Ltd. Is this document available? It may be helpful to more fully understand what has already been done.

We are available to meet at our Nanaimo office either the morning or afternoon of September 23, September 26, or October 7 to 11. Is there a day that works best for you? I am looking forward to meeting you.

Sincerely,

Tanya Dunlop

Authorizations Specialist – Water
West Coast Region
Ministry of Forests, Lands, Natural Resource Operations and Rural Development
103-2100 Labieux Rd., Nanaimo, BC V9T 6E9 | Tel: 250 751-7015
tanya.dunlop@gov.bc.ca, please consider the environment before printing this email

Notice of the application (20007388 – Aquifer 207) was served by the Water Manager as per Section 13(14) of the *Water Sustainability Act* on July 10, 2019. The responses received are summarised below:

- Responses were generally opposed to either the development or water use;
- Many questions about the development and use of water;
- Concern about water supply and effects on their well – both quantity and quality;
 - What steps can be taken to protect well/water source;
 - What would mitigation look like if well was impacted;
 - Some suggested/preferred mitigation measures if well was impacted;
 - How would it be determined if a well was impacted;
 - Request to have well tested/baseline data collected and provided documentation of the results;
 - Some reports of wells already experiencing shortages;
- Concern about connectivity and effects on Aquifer 206 and surface water sources/springs;
- Concerns about existing water deficit in MBWD and stalled development;
- Questions regarding WSA and domestic purpose definition;
- Questions about pumping tests in general;
- Request for hydrogeological report or results specific to their well monitoring;
- Concerns that the Notification letter stated their well was tested when it wasn't;
- Concerns about the timing of when the Notification Letter was sent out;
- Request for meeting;
- Suggestions for land development, including the requirement of rain water collection;
- Suggestions for water management within the watershed, including reservoirs and other sources of water; and
- It is noted that the community held their own meeting on July 29, 2019 to discuss the application and share information. We received questions/comments regarding this meeting.

Category of Letter Sent	Number of wells/parcels sent Notice	Number of Responses
Well impacted during test	3	3
Well monitored	20	12
Well in 207 within 2 km (not in MBWD)	63	27
Parcel within 2 km (not in MBWD), but no registered well	12	4
GW application with 2 km	1	1
No letter sent		4
Total	99	51

From: [Kim Vanderkooy](#)
To: [Dunlop, Tanya FLNR:EX](#)
Subject: RE: Meeting follow up to Notice Water Licence Application 20007388 - Aquifer 207
Date: Monday, October 7, 2019 12:05:58 PM

Thank you, Tanya.

I will forward your information to anyone who contacts us, and I will ensure someone from MBWD is at this meeting.

Have a great day.

Kim Vanderkooy
Mill Bay Waterworks District | Administrator | Accounting
Box 58, 875 Deloume Road, Mill Bay BC V0R 2P0 | 250.743.9023 | kim.vanderkooy@millbaywater.ca

From: Dunlop, Tanya FLNR:EX <Tanya.Dunlop@gov.bc.ca>
Sent: October-07-19 11:43 AM
To: Kim Vanderkooy <Kim.vanderkooy@millbaywater.ca>
Subject: Meeting follow up to Notice Water Licence Application 20007388 - Aquifer 207

Hi Kim,

As discussed, FLRNORD and the applicant will be having a meeting with those people that responded to the Notice letter that we sent out regarding Water Licence Application 20007388. The meeting will held in the [Denis McLean Room](#) at Kerry Park Recreation Centre from 7 PM to 9 PM on November 5th, 2019. It would be helpful if you or a representative from Mill Bay Waterworks District could be there to answer any questions that are specific to MBWD. We will be sending out invitations shortly, so if you get calls regarding the meeting you can pass on my contact info (below) or Dave Robinson's (250 751-7028). Thanks!

Sincerely,

Tanya Dunlop

Authorizations Specialist – Water
West Coast Region
Ministry of Forests, Lands, Natural Resource Operations and Rural Development
103-2100 Labieux Rd., Nanaimo, BC V9T 6E9 | Tel: 250 751-7015
tanya.dunlop@gov.bc.ca, please consider the environment before printing this email



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From: [Dunlop, Tanya FLNR:EX](#)
To: [Mike Achtem](#)
Subject: RE: Prep for Nov 5 meeting 20007388
Date: Monday, October 28, 2019 1:10:00 PM

Hmmm. I didn't receive it. Could you please try again? Was it in a zip file? If so, try to rename the file from .zip to .zap. Thanks Mike!

From: Mike Achtem <machtem@islanderengineering.com>
Sent: October 28, 2019 12:26 PM
To: Dunlop, Tanya FLNR:EX <Tanya.Dunlop@gov.bc.ca>
Subject: Re: Prep for Nov 5 meeting 20007388

I thought I sent them out to you last week?

Mike Achtem , P.Eng.

Principal, Civil Engineer

ISLANDER ENGINEERING LTD.

Mobile: [250-893-9977](tel:250-893-9977)

www.islanderengineering.com

On Oct 28, 2019, at 11:47 AM, Dunlop, Tanya FLNR:EX <Tanya.Dunlop@gov.bc.ca> wrote:

Hi Mike,

I just wanted to check in and see how you are making out with your slides for the meeting next week. Are you able to forward me your slides?

Thanks,

Tanya Dunlop

Authorizations Specialist – Water

West Coast Region

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tanya.dunlop@gov.bc.ca, please consider the environment before printing this email

From: [Mike Achtem](#)
To: [Dunlop, Tanya FLNR:EX](#)
Subject: Fwd: Malahat Well Show
Date: Monday, October 28, 2019 1:49:05 PM
Attachments: [image001.png](#)
[Malahat Well.pptx](#)

Mike Achtem, P.Eng. PMP. CCA

Principal, Senior Engineer

ISLANDER ENGINEERING LTD.

Mobile: 250-893-9977

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----- Forwarded message -----

From: **Sean Babulic** <sbabulic@islanderengineering.com>
Date: Mon, Oct 28, 2019 at 9:30 AM
Subject: Re: Malahat Well Show
To: Mike Achtem <machtem@islanderengineering.com>

Mike,

No problem - see attached.

Sean Babulic, EIT.

Civil & Environmental Engineer

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islanderlogo



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On Wed, Oct 23, 2019 at 11:00 PM Mike Achtem <machtem@islanderengineering.com> wrote:

Looks good sean.

Do u think there is a way that we can get the Islander logo on each slide?

Mike Achtem , P.Eng.

Principal, Civil Engineer

ISLANDER ENGINEERING LTD.

Mobile: [250-893-9977](tel:250-893-9977)

www.islanderengineering.com

On Oct 22, 2019, at 2:49 PM, Sean Babulic
<sbabulic@islanderengineering.com> wrote:

Mike,

See attached draft of the presentation. Let me know what you think.

Sean

Sean Babulic, EIT.

Civil & Environmental Engineer

ISLANDER ENGINEERING LTD.

Mobile: 250-507-8538

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<Malahat Well.pptx>



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WATER QUALITY ASSESSMENT MALAHAT WELL # 16524



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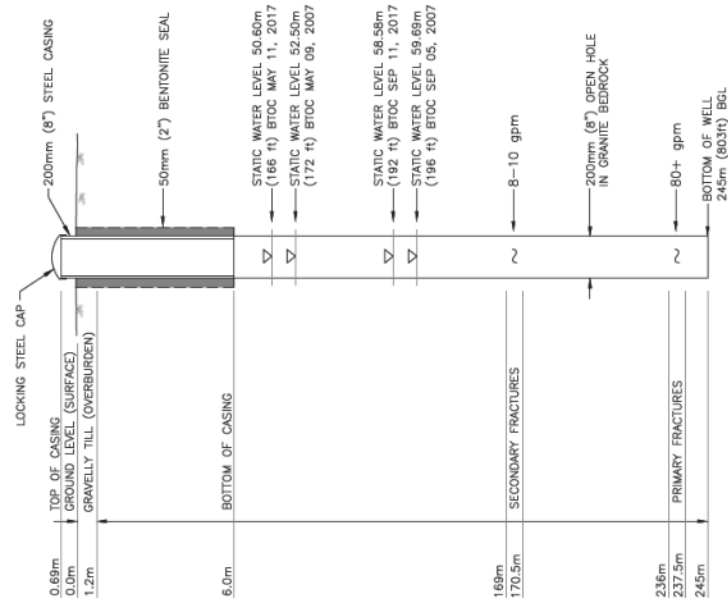
CONTEXT

Copyright

- 2220 Benko Road, Mill Bay BC
- Aquifer #207
 - Bedrock aquifer
 - Moderate vulnerability
 - Moderate level of development
 - Moderate demand

HISTORY

- Originally installed and pump tested in 2007
 - 8" diameter casing
 - 803' depth
 - Rating of 533m³ per day
- Water supply approved for subdivision by VIHA May 2012
 - Project suspended and well capped
- Evaluation of well resumed March 2017 by Islander Engineering



PURPOSE

- Estimate the long term production and pumping capabilities
- Identify effects of surrounding area
- Obtain licensing for well use
 - Emergency water supply for Mill Bay Water District (MBWD)
 - Domestic Use



OUR APPROACH

- Gather relevant background information
- Engage nearby well owners
 - Notice of testing
 - Inventory & water level measurements
 - Observation wells
- Downhole camera
- 72 hour pump test
- Water quality sampling
- Reporting

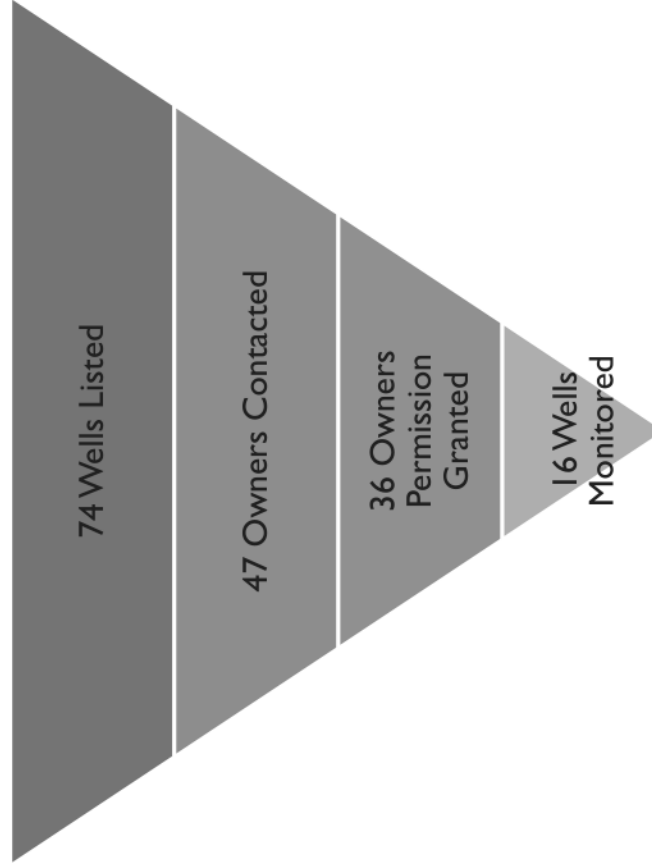


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COMMUNITY ENGAGEMENT

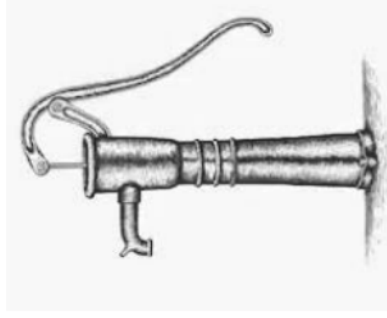
- Mail-out
 - Notice of pump testing
 - Confirmation of well ownership / location
 - Permission to monitor well water levels
- Door to door interviews
 - 74 wells listed
 - 47 owners contacted
 - 36 owners gave permission to measure wells
- Wet / dry season water level monitoring



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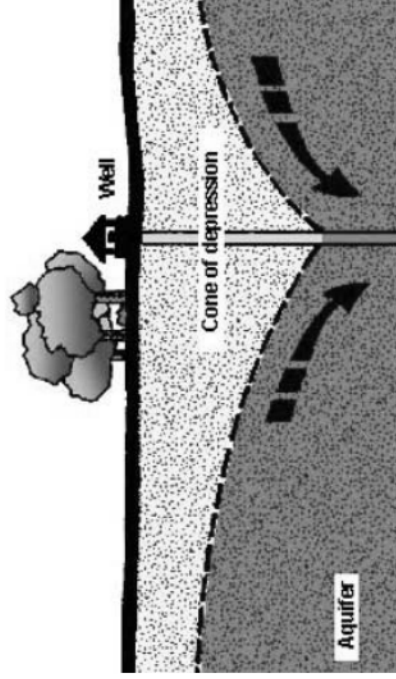
72 HOUR PUMP TEST

- 90 GPM for 72 hours
- September 2017 (End of dry season – driest summer on record!)
- 16 observation wells
- Observation of 3 nearby streams, 1 pond and 1 spring well
- Water level monitoring
- Water quality sampling



72 HOUR PUMP TEST RESULTS

- Total drawdown = 112.0m
- Only 3 observation wells reacted to pumping test
 - 170m NE – drawdown = 12.4m
 - 377m N - drawdown = 13.0m
 - 400m NE – drawdown = 16.5m
- No change in water levels at other wells or surface observation points (streams, ponds, etc..)
- No complaints from well owners regarding adverse effects during pumping test



WATER QUALITY (CHEMISTRY)

- Excellent quality
- Meeting all Canadian Drinking Water parameters
 - No coliforms
 - No Iron Bacteria
- Negligible risk of pathogens
- Low risk of salt water intrusion
- History of non-chlorination in the area



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MITIGATION

- \$100K bond to be put forward to cover any mitigative costs for effected well owners
 - Hookup to Mill Bay Water District
 - Improve existing wells (deepening)
 - Etc...

CONCLUSIONS

- Estimated yield without depleting aquifer = 380m³ per day
- Subdivision requirement = 250m³ per day
- Excellent water quality
- Increase fire fighting capacity for Mill Bay area
- Mitigation plan in place to cover any impacts

THANK YOU



From: [Dunlop, Tanya FLNR:EX](#)
To: [Kim Vanderkooy](#)
Subject: RE: Meeting follow up to Notice Water Licence Application 20007388 - Aquifer 207
Date: Wednesday, October 30, 2019 9:50:00 AM

Hi Kim,

Thank you for the email. As we discussed on the phone, we won't need you or Paul to give a presentation. However, it would be helpful if you were there to answer any questions at the end that may be best answered by a representative of MBWD. The format for the meeting will be:

- Water Authorization's presentation outlining our general process with respect water licence application under the *Water Sustainability Act*;
- Islander Engineering's presentation outlining the hydrogeological study that they did;
- Our Regional Hydrogeologist's presentation outlining details that we have reviewed so far;
- Question and answer period.

I'm looking forward to meeting you on the 5th.

Sincerely,
Tanya Dunlop

From: Kim Vanderkooy <Kim.vanderkooy@millbaywater.ca>
Sent: October 29, 2019 5:03 PM
To: Dunlop, Tanya FLNR:EX <Tanya.Dunlop@gov.bc.ca>
Subject: RE: Meeting follow up to Notice Water Licence Application 20007388 - Aquifer 207

Hello Tanya,

For the meeting on November 5th, both Paul Laraman (MBWD Chair) and myself will be in attendance. We were wondering what the format will be for this meeting?

If you would like MBWD to support in any way, we would be open to that. Paul had mentioned possible have some slide available if there was a projector available. We have had some interactions with a resident that could be quite vocal at the meeting and unfortunately might not understand all the information out there.

Let me know.

Kim Vanderkooy
Mill Bay Waterworks District | Administrator | Accounting
Box 58, 875 Deloume Road, Mill Bay BC V0R 2P0 | 250.743.9023 | kim.vanderkooy@millbaywater.ca

From: Dunlop, Tanya FLNR:EX <Tanya.Dunlop@gov.bc.ca>
Sent: October-07-19 11:43 AM
To: Kim Vanderkooy <Kim.vanderkooy@millbaywater.ca>
Subject: Meeting follow up to Notice Water Licence Application 20007388 - Aquifer 207

Hi Kim,

As discussed, FLRNORD and the applicant will be having a meeting with those people that responded to the Notice letter that we sent out regarding Water Licence Application 20007388. The meeting will be held in the Denis McLean Room at Kerry Park Recreation Centre from 7 PM to 9 PM on November 5th, 2019. It would be helpful if you or a representative from Mill Bay Waterworks District could be there to answer any questions that are specific to MBWD. We will be sending out invitations shortly, so if you get calls regarding the meeting you can pass on my contact info (below) or Dave Robinson's (250 751-7028). Thanks!

Sincerely,

Tanya Dunlop

Authorizations Specialist – Water

West Coast Region

Ministry of Forests, Lands, Natural Resource Operations and Rural Development

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From: [Robinson, David FLNR:EX](#)
To: [Kim Vanderkooy](#)
Subject: RE: MBWD Community Engagement - Malahat Properties
Date: Friday, November 8, 2019 11:30:00 AM

Thanks for this, Kim. I have forwarded to Jessica.

Was a good challenge and no surprise that folks were fired up about an important issue!

Have a great weekend,

David Robinson
Senior Authorizations Specialist
West Coast Region
Ministry of Forests, Lands, Natural Resource Operations and Rural Development
Phone: 250-751-7028

From: Kim Vanderkooy <Kim.vanderkooy@millbaywater.ca>
Sent: November 6, 2019 9:05 AM
To: Dunlop, Tanya FLNR:EX <Tanya.Dunlop@gov.bc.ca>; Robinson, David FLNR:EX <David.Robinson@gov.bc.ca>; Mike Achtem <machtem@islanderengineering.com>; cary sangha <carysangha@gmail.com>
Cc: Paul Laraman <Paul.Laraman@millbaywater.ca>; brook adams <brook.adams@millbaywater.ca>
Subject: MBWD Community Engagement - Malahat Properties

Good Morning Everyone,

I trust everyone was able to get out of last night's meeting in one piece.

I wanted to thank you all for arranging last night's community engagement. Considering the immature, mob mentality of most of who attended, all of you presented yourselves with professionalism and stature. It was a difficult environment to present the technical information on this matter and to maintain control of the room. You all did a great job.

I could not find Jessica's email address. Please forward my appreciation to her as well.

I wish everyone a more low-key day today.

Kim Vanderkooy
Mill Bay Waterworks District | Administrator | Accounting
Box 58, 875 Deloume Road, Mill Bay BC V0R 2P0 | 250.743.9023 | kim.vanderkooy@millbaywater.ca



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