

SPECIAL PROVISIONS

1. Purpose

This Permit is issued to the Permittee **for the purpose of maintaining water impoundment infrastructure at Chapman and Edwards Lake and helicopter pad at Chapman Lake in Tetrahedron Park.**

2. Permittee Designated Representative

The Permittee appoints the following representative to be responsible for liaison between BC Parks and the Permittee:

Name: Bryan Shoji
 Telephone: 604 885 6800
 Fax: 604 885 7909
 Email: Bryan.shoji@scrd.ca

3. BC Parks Representative(s):

Park, Protected Area or Conservancy Name	Area Supervisor	Phone	Email
Tetrahedron Park	Rod Dalziel	604-885-6755	Rod.Dalziel@gov.bc.ca

4. Conditions of Term

This permit shall be deemed valid until such time that it has expired under Article 2.01 and that the associated water licences are valid and in good standing and that activities carried out are permitted under:

- (a) the conditional water licences and;
- (b) this permit.

5. Water Regulations

All activities relating to maintaining water impoundment structures and regulating water levels must be in accordance with the *Water Act*.

6. Flight Access

- (a) The use of a helicopter for access to the structures is acceptable. The Permittee shall notify BC Parks as early as feasibly possible prior to any flights into Tetrahedron Park so that BC Parks may utilize available space or service of the helicopter for park operation purposes.
- (b) Recognizing that wildlife are sensitive to disturbance from helicopters, maintain an appropriate separation distance from animals (500 m line-of-sight is a recommended default) and take immediate action to increase separation distances if animals react to the helicopter.
- (c) If the Permittee chooses to use a helicopter company to access the structure the Permittee will cause any Person/Sub-licensee providing aviation services related to the Permittee's performance of this Permit to carry, and to provide evidence to the Province of their compliance with this requirement, Aviation Liability insurance on all aircraft operated or used in the performance of this Permit insuring against bodily injury, property damage, and passenger liability, in an amount not less than the limits of liability imposed by any *Canadian Aviation Regulation* and in any event not less than a per occurrence combined single limit of:

- (i) \$3,000,000 for aircraft up to 5 passenger seats, or
- (ii) \$3,000,000 plus \$1,000,000 for each additional passenger seat for aircraft up to 10 passenger seats, or
- (iii) \$10,000,000 for aircraft over 10 passenger seats;

and this insurance must:

- (i) include the Province and the Permittee as additional insureds;
- (ii) be endorsed to provide the Province and the Permittee with 30 days advance written notice of cancellation or material change; and
- (iii) include a cross liability clause;

7. Report Requirements

The Permittee shall provide the Province with a report, due upon the anniversary date of the Permit, describing all activities undertaken as a result of this Permit for the previous year. Please submit this report to the following address:

Ministry of Forests, Lands
and Natural Resource Operations
FrontCounter BC – Surrey
200 – 10428 153rd Street
Surrey BC V3R 1E1

Toll Free: 1-877-855-3222

Website: <http://www.frontcounterbc.gov.bc.ca/locations/index.html>

8. Safety Regulations

The Permittee shall be responsible for all WorkSafe BC regulations and staff safety program and plans for all its staff and sub-contractors utilizing the Park to conduct activities authorized by this permit.

9. Renewal

It is understood by BC Parks and the Sunshine Coast Regional District that this permit shall be renewed pending a review of the terms of this Management Plan Schedule and providing the Sunshine Coast Regional District continues to require water management and structures outlined in this permit and the conditional water licences.

10. Temporary Permit Amendment Conditions

(a) Term

- (i) The conditions of the temporary permit amendment will be valid during the period from permit approval until 2 weeks (14 days) following the expiry of the of the **"Section 8 application - 100140509 – Short Term Water Use on Chapman Lake - Approval 2003865"** on 23 August 2016. Therefore the temporary permit amendment will expire on **06 September 2016**.

- (b) All works and monitoring shall be conducted as described in BC Standards and Best Practices for Instream Works (<http://www.env.gov.bc.ca/wld/documents/bmp/iswstdsbpsmarch2004.pdf>) (Appendix A) and should be informed by the 1999 Impact Assessment for the proposed floating pump station at Chapman Lake (Whitehead 1999) (Appendix B) and shall comply with "Section 8 Development Plan – Short Term Water Use" prepared by Sunshine Coast Regional District, dated 19 August 2015 (Appendix C) and "Emergency Water Supply at Chapman Lake" prepared by Opus DaytonKnight Consultants, dated 13 August 2015 (Appendix D) and "Environmental Monitoring Plan – Siphon System at Chapman Lake" prepared by Sunshine Coast Regional District (Appendix E).

(c) **Temporary additional infrastructure**

- (i) This will include equipment and materials required to access the additional water drawdown of Chapman Lake as permitted under the "Section 8 application - 100140509 – Short Term Water Use on Chapman Lake - Approval 2003865" which will include pipes, intakes, valves, screens, lock blocks, pumps, small dock, rowboat, ladders, containment unit (fuel, pumps and equipment) as described in the **Section 8 Development Plan (August 14, 2015)**.
- (ii) Any amendments to this plan must be approved by the Area Supervisor.

(d) **Temporary accommodation area**

- (i) The temporary accommodation will be constructed for use by the installation crew and the 24/7 onsite 2 person operator crew.
- (ii) The temporary accommodation area will include a tent, eating area, food and garbage storage and a portable toilet.
- (iii) The location of temporary accommodation area must be approved by the Area Supervisor.
- (iv) Food and garbage associated with accommodation area must be stored in bear-proof containers or otherwise protected from access by wildlife to prevent wildlife attraction. Garbage must be disposed of off-site and removed regularly to prevent odours and wildlife attraction.
- (v) The Permittee will remove human waste in portable toilet as required.
- (vi) The temporary accommodation area facilities shall be removed when no longer required for the season to the satisfaction of the Area Supervisor.

(e) **Environmental Monitor**

- (i) The Permittee shall retain a qualified Environmental Monitor to monitor Chapman Lake and Chapman Creek.
- (ii) The Environmental Monitor shall be onsite during construction phase and weekly thereafter until lake water levels have returned to levels where the siphon is no longer required and in use.
- (iii) The Environmental Monitor must have the authority to order suspension of work if necessary to prevent significant negative environmental effects from occurring.
 - i. The Environmental Monitor will contact the Area Supervisor should there be any deviation from the prescribed works, negative or substantial changes to the environment and/or park resources.

- (f) Equipment that could cause negative environmental impacts during operations, such as siphon intakes, pumps and generators, should be regularly inspected.
- (g) Ensure equipment and machinery are in good operating condition (power washed), free of leaks, excess oil, and grease.
- (h) All pumps and fuel will be contained in spill proof containment unit.
- (i) Equipment refuelling or servicing must be undertaken within the spill proof containment unit.
- (j) Ensure all hydraulic machinery uses environmentally sensitive hydraulic fluids that are non-toxic to aquatic life and that are readily or inherently biodegradable.
- (k) Keep a spill containment kit readily accessible onsite in the event of a release of a deleterious substance to the environment. Train onsite staff in its safe and proper use. Immediately report any spill of a substance that is toxic, polluting, or deleterious to aquatic life of reportable quantities to the Provincial Emergency Program 24-hour phone line at 1-800-663-3456.
- (l) The footprints associated with the areas for staging, installation and accommodation areas should all be minimized.

- (m) Foot and equipment traffic should be confined to designated lowest impact corridors or trails to minimize trampling impacts.
- (n) **Monitoring**
 - (i) As identified in the Whitehead 1999 Impact Assessment monitoring of the impacts of additional drawdown on the following values will be conducted - water quality, fish and amphibians (as indicators of lake ecology), and riparian vegetation in and around Chapman Lake. The monitoring plan will be developed to the satisfaction of BC Parks.
- (o) **Reporting**
 - (i) The Permittee will provide to BC Parks environmental monitoring reports resulting from visits by the Environmental Monitor (as identified in "Environmental Monitoring Plan – Siphon System at Chapman Lake" prepared by Sunshine Coast Regional District) on a weekly basis.
 - (ii) Additional reporting as required under condition (r) of the "Section 8 application - 100140509 – Short Term Water Use on Chapman Lake - Approval 2003865" issued on 23 August 2016 will also be provided to BC Parks on a weekly basis.
 - (iii) The Permittee will provide to BC Parks a copy of the Preliminary Field Reconnaissance for archaeology report.
- (p) **Removal and restoration**
 - (i) Permit area clean-up and equipment removal following the 2015 temporary operations shall be completed to the satisfaction of the Area Supervisor.
 - (ii) Removal of temporary additional infrastructure must be completed by **06 September 2016** to the satisfaction of the Area Supervisor.
 - (iii) Restoration of the temporary permit area must be completed to the satisfaction of the Area Supervisor.

APPENDIX A – Standards and Practices for Instream Works (attached)

APPENDIX B – Impact Assessment Report (attached)

APPENDIX C – Development Plan (attached)

APPENDIX D – Emergency Water Supply at Chapman Lake Report (attached)

APPENDIX E – Environmental Monitoring Plan (attached)

Authorization Signed

Thursday, October 12, 2017
10:39 AM

Subject	Authorization Signed
From	noreply@gov.bc.ca
To	Dalziel, Rod ENV:EX
Sent	Friday, April 29, 2016 11:41 AM

Please note that the following authorization has been activated:

Authorization Number: 102714
Authorization Type: Land Use Occupancy
Client Name: Sunshine Coast Regional District
Commencement Date: February 1, 2014
Expiry Date: January 31, 2024
PASB Permit Officer: Coupar, Meghan

If you have any questions, do not hesitate to contact your PASB Permit Officer.

Click the following link to see the details of this authorization:

https://j200.gov.bc.ca/int/ams/Default.aspx?PossePresentation=AMSInternal&PosseObjectId=6645727&PosseMenuName=PU_Parks

Earthwon "Conduct Technical Review and Draft Permit (PA)" task

Thursday, October 12, 2017
12:57 PM

Subject	Earthwon "Conduct Technical Review and Draft Permit (PA)" task
From	noreply@gov.bc.ca
To	Dalziel, Rod ENV:EX
Sent	Friday, April 29, 2016 12:20 PM

An Earthwon "Conduct Technical Review and Draft Permit (PA)" task has been assigned to you.

Tracking Number: 349679

Authorization Number: 102714

Please use the following link to access your To Do List.

<https://j200.gov.bc.ca/int/ams/default.aspx?PossePresentation=AMSInternal&PosseObjectId=6392234&PossePane=ToDoListDetails>

Overall comments:

AECOM assessment is flawed:

- Type-os
- Needs clearer rationale for why this project is needed (including assessment of alternatives [other water sources, other demand side management options, etc.])
- Needs clearer assessment of how often drawdown below 3 m would occur (once every 15 years according to Opus Dayton Knight?)
 - What about water metering? It will reduce drawdown by 25%? How will that effect things?
 - "Withdrawing water from -3.0 m and lower will not occur unless drought conditions have required Stage 3 restrictions." How often does this happen?
 - The frequency of accessing water below the -3.0 m level is currently hard to predict. P. 12 Section 3.1.1). Climate change has resulted in earlier snow melt and drier summers which could increase the frequency of drought conditions (Staats 2014 summarized in Section 3.1.1). However, the SCRD's water conservation measures, in particular the implementation of universal water metering is expected to be fully operation in 2019, is expected to significantly reduce water use (Opus DaytonKnight Consultants 2013).... Given the results presented in Staats (2014) it can be assumed that what is now predicted to be a return period of 1 in 15 years, has the potential to increase in frequency and increases the uncertainty around the frequency that the SCRD will have to draw Chapman Lake below -3.0 m.
- Species at risk list generated but no assessment of how likely these species are to be there and to be affected by project. This needs to be done.
- Potential for acid rock drainage not mentioned: I think they said that they would test a rock?

Whitehead 1999 IA: appropriateness of relying on this assessment:

- Chapman Lake is already a reservoir and affected by existing drawdown, and seems to be doing okay, which gives some indications that further drawdown is unlikely to have significant adverse effects.
- HOWEVER, Whitehead acknowledged uncertainty around this and the possibility of negative impacts. Rationalized the project's potential negative impacts by recommending monitoring and adaptive management if unacceptable negative impacts occurring, and exploring other options to reduce the need to drawdown Chapman Lake fully. Other key piece of Whitehead's conclusion and recommendations was that negative impacts upstream would be offset by positive impacts on downstream flows for fish. This was a clear stated objective of the project in 1999.
 - Benefits for fish are no longer clear.
- Assessment of impacts often based on the "existing drawdown regime" and that no negative effects have been observed under "existing drawdown regime" eg water quality impacts, benthic invert and fish impacts, riparian veg. Is "existing drawdown regime" same as in 1999? Is "predicted drawdown regime" post project same as in 1999? Duration, timing, depth, frequency, etc.? Have drawdowns to -3 m occurred more frequently, and if so, has this now shown some negative impacts on the reservoir
- If it does now look like there will be greater negative impacts than predicted, do you think we will actually be able to say "no" to this project?
- Additional work recommended in Section 6:
 - permanent hydrometric station installed at Chapman Creek
 - bathymetry?
 - installation of a water level recording device for continuous water level monitoring
 - ecological monitoring to detect significant enviro impacts and to allow for adaptive mgment:
 - full baseline water quality and limnological survey;

- fish and salamanders (pre project baseline and post during operations) (see Table 15)
 - point 6 in the conclusion section also recommends "a complete baseline characterization of the chapman lake reservoir and its riparian vegetation, followed by a long-term monitoring program....
 - This approach, in conjunction with growth management planning and an aggressive water conservation campaign within the water service area, will ensure that adaptive management is possible in the future"
- table 1 references a MAMU nesting survey... Although not referenced elsewhere in the proposal

FLNRO:

Iain: sampling effort, water quality monitoring needs, downstream fish impacts and fish flows? (Kenji: steelhead)

Terrestrial stuff: Josh Malt and MAMU nesting?

AECOM assessment:

Committed Plans still to be developed:

Emergency spill response plans

Site remediation plan

Reclamation plan for overburden and/or rock disposal area Spill prevention plan Water management plan (will include water quality monitoring)?

Potential for acid rock drainage not mentioned: I think they said that they would test a rock?

Field surveys committed to:

Rare plants in construction area

Water quality sampling program (vague; not clear if pre monitoring is intended)

Nesting bird surveys p.27

How often has it dropped to -3 m since 1999? How frequently did that happen before 1999? If frequency has changed good chance enviro conditions have changed....

What has the max drawdown been over past 20 years and how does it compare to pre 1999?

Who? QEPs? Enviro monitoring?

Confirm that the conditions whitehead based conclusions on are the same now as in 1990s?

FLNRO review needs:

Bates assessment

What level of effort is required to characterize the fish values in the lake?

Annual max drawdown? How often to -3 m?

Rationale for

Checked CDC and critical habitat mapping: no MAMU critical habitat identified near Chapman Lake, no other SAR records

How often in the last 17 years

Justification for this project is somewhat lacking

The 1999 assessment was supported by a hydrological analysis by Dayton Knight 1997 from p. 57 of Whitehead 1999, regarding assessment of impacts during operations: "the analysis is based largely on hydrological projections provided by Dayton and knight LTd."

Removal of veg required for helipad??

Construction impacts mitigate through detailed measures in EMP

Whitehead 1999 assessment:

Three days of field work Sept 1998

Part of project purpose is to increase flows for fish to at least 0.4 cubic metres per second

Assessment of impacts often based on the "existing drawdown regime" and that no negative effects have been observed under "existing drawdown regime" eg water quality impacts, benthic invert and fish impacts, riparian veg

Is "existing drawdown regime" same as in 1999? Is "predicted drawdown regime" post project same as in 1999? Duration, timing, depth, frequency, etc.

Additional work recommended in Section 6:

- permanent hydrometric station installed at Chapman Creek -bathymetry?

- installation of a water level recording device for continuous water level monitoring -ecological monitoring to detect significant enviro impacts and to allow for adaptive mgment: full baseline water quality and limnological survey; fish and salamanders (pre project baseline and post during operations) (see Table 15) -point 6 in the conclusion section also recommends "a complete baseline characterization of the chapman lake reservoir and its riparian vegetation, followed by a long-term monitoring program.... This approach, in conjunction with growth management planning and an aggressive water conservation campaign within the water service area, will ensure that adaptive management is possible in the future"

- table 1 references a MAMU nesting survey... Although not referenced elsewhere in the proposal

Riparian vegetation impacts and monitoring deserve attention because the ecosystems represented in the park are underrepresented in the park system

The need to undertake this project and Assessment of other options not well presented...

-

Management plan:

p. 14: need to figure out how to authorize enhancements or changes to water infrastructure in park

Comments on SCRD permit amendment application impact assessment

Thursday, October 12, 2017
9:57 AM

Subject	Comments on SCRD permit amendment application impact assessment
From	Hirner, Joanna ENV:EX
To	Aikman, Jennie S ENV:EX; Platz, Chris ENV:EX; Dalziel, Rod ENV:EX
Sent	Wednesday, May 11, 2016 5:52 PM

Hi guys,

You can find some draft comments to share with the SCRD here: [Z:\1_PPA Files\S Coast Region\PPA Ops\Areas\Sunshine Coast Area\Park Use Permits \(PUPs\)\Sunshine Coast Regional District\PUP 102714 Chapman Lake water infrastructure\Joanna Comments and Emails\April PUP Amendment Comments DRAFT.docx](#). Let me know what you think.

Joanna

Joanna Hirner (MRM, RPBio)
Conservation Specialist
South Coast Region, BC Parks
604-924-2228

FW: Chapman Lake PUP ammendment application - BC Parks Meeting

Thursday, October 12, 2017
12:26 PM

Subject	FW: Chapman Lake PUP ammendment application - BC Parks Meeting
From	Dalziel, Rod ENV:EX
To	Welstead, Kym FLNR:EX
Sent	Monday, May 16, 2016 12:04 PM
Attachments	 2016-04-06- Chapman-...  1999-APR-0 8 Chapma...

Hello Kim,

Mike Willcox mentioned you as a potential contact for aquatic wildlife concerns with this proposal. We are hoping to reschedule an internal government face to face meeting in N. Van this week and was hoping you may be available to attend and provide your perspective.

Cheers,

Rod Dalziel

Sunshine Coast Area Supervisor
BC Parks - South Coast Region - Ministry of Environment
 PO Box 950, 6451 Sechelt Inlet Road, Sechelt, BC V0N 3A0
 Desk (604) 885-6755 Mobile (604) 741-1967 Fax (604) 885-2445
 Rod.Dalziel@gov.bc.ca
Visit the BC Parks website @ bcparks.ca



From: Dalziel, Rod ENV:EX
Sent: Tuesday, May 10, 2016 1:51 PM
To: Rosenboom, Remko FLNR:EX; Davies, James W FLNR:EX; Lunn, Iain C FLNR:EX; Miyazaki, Kenji FLNR:EX; Blackburn, Ian FLNR:EX; Robbins, Kristina FLNR:EX; Malt, Joshua FLNR:EX
Cc: Aikman, Jennie S ENV:EX; Platz, Chris ENV:EX; Hirner, Joanna ENV:EX
Subject: Chapman Lake PUP ammendment application - BC Parks Meeting

Hello All,

Some of you are aware that the Sunshine Coast Regional District (SCRD) has hired a consulting company, AECOM, to oversee a project proposal to increase drawdown of Chapman Lake, located in the Class A Tetrahedron Provincial Park, to supply domestic water for residents of the Sunshine Coast. This is likely a grandfathered allowable use within the park (awaiting legal opinion). They have submitted a Park Use Permit amendment application on 29 April 16 to authorize this (see attached). They are relying on a EIA completed in 1999 as their requirement for an Impact Assessment (see attached). BC Parks is in the process of adjudicating the proposal.

Our Regional Director, Jennie Aikman, has suggested we need to bring in other government agencies to review and provide comment on this proposal. We are hoping you or appropriate staff are available on Monday May 16th to attend a meeting in North Vancouver at the Mount Seymour Park offices for a face to face discussion around this proposal. Please let me know if this date can work and propose times you are available.

Please let me know if you have any questions or further information I can provide.

Regards,

Rod Dalziel

Sunshine Coast Area Supervisor

BC Parks - South Coast Region - Ministry of Environment

✉: PO Box 950, 6451 Sechelt Inlet Road, Sechelt, BC V0N 3A0

☎: Desk (604) 885-6755 Mobile (604) 741-1967 Fax (604) 885-2445

✉: Rod.Dalziel@gov.bc.ca

Visit the BC Parks website @ bcparks.ca



BC Parks

FW: Chapman Lake PUP ammendment application - BC Parks Meeting

Thursday, October 12, 2017
12:11 PM

Subject	FW: Chapman Lake PUP ammendment application - BC Parks Meeting
From	Welstead, Kym FLNR:EX
To	Dalziel, Rod ENV:EX
Cc	Hirner, Joanna ENV:EX
Sent	Monday, May 16, 2016 12:19 PM
Attachments	 2016-04-06- Chapman-...  1999-APR-0 8 Chapma...

Hi,
I am sure Joanna has seen this ..but just in case.

Kym

From: Dalziel, Rod ENV:EX
Sent: Monday, May 16, 2016 12:05 PM
To: Welstead, Kym FLNR:EX
Subject: FW: Chapman Lake PUP ammendment application - BC Parks Meeting

Hello Kim,

Mike Willcox mentioned you as a potential contact for aquatic wildlife concerns with this proposal. We are hoping to reschedule an internal government face to face meeting in N. Van this week and was hoping you may be available to attend and provide your perspective.

Cheers,

Rod Dalziel

Sunshine Coast Area Supervisor
BC Parks - South Coast Region - Ministry of Environment
📍: PO Box 950, 6451 Sechelt Inlet Road, Sechelt, BC V0N 3A0
☎: Desk (604) 885-6755 Mobile (604) 741-1967 Fax (604) 885-2445
✉: Rod.Dalziel@gov.bc.ca
Visit the **BC Parks website** @ bcparks.ca



From: Dalziel, Rod ENV:EX
Sent: Tuesday, May 10, 2016 1:51 PM
To: Rosenboom, Remko FLNR:EX; Davies, James W FLNR:EX; Lunn, Iain C FLNR:EX; Miyazaki, Kenji FLNR:EX; Blackburn, Ian FLNR:EX; Robbins, Kristina FLNR:EX; Malt, Joshua FLNR:EX
Cc: Aikman, Jennie S ENV:EX; Platz, Chris ENV:EX; Hirner, Joanna ENV:EX
Subject: Chapman Lake PUP ammendment application - BC Parks Meeting

Hello All,

Some of you are aware that the Sunshine Coast Regional District (SCRD) has hired a consulting company, AECOM, to oversee a project proposal to increase drawdown of Chapman Lake, located in the Class A Tetrahedron Provincial Park, to supply domestic water for residents of the Sunshine Coast. This is likely a grandfathered allowable use within the park (awaiting legal opinion). They have submitted a Park Use Permit amendment application on 29 April 16 to

authorize this (see attached). They are relying on a EIA completed in 1999 as their requirement for an Impact Assessment (see attached). BC Parks is in the process of adjudicating the proposal.

Our Regional Director, Jennie Aikman, has suggested we need to bring in other government agencies to review and provide comment on this proposal. We are hoping you or appropriate staff are available on Monday May 16th to attend a meeting in North Vancouver at the Mount Seymour Park offices for a face to face discussion around this proposal. Please let me know if this date can work and propose times you are available.

Please let me know if you have any questions or further information I can provide.

Regards,

Rod Dalziel

Sunshine Coast Area Supervisor

BC Parks - South Coast Region - Ministry of Environment

☐: PO Box 950, 6451 Sechelt Inlet Road, Sechelt, BC V0N 3A0

☎: Desk (604) 885-6755 Mobile (604) 741-1967 Fax (604) 885-2445

✉: Rod.Dalziel@gov.bc.ca

Visit the BC Parks website @ bcparks.ca



BC Parks

From: Hirner, Joanna ENV:EX
 Sent: Tuesday, May 10, 2016 2:31 PM
 To: Dalziel, Rod ENV:EX
 Cc: Platz, Chris ENV:EX; Aikman, Jennie S ENV:EX
 Subject: RE: Chapman lake

Thanks Rod! Iain's comments are quite interesting... the potential impact of char to not be able to access their spawning habitat during drawdown is not addressed at all in the 1999 Whitehead assessment. I was going to check on spawning timing of Dolly Varden but had assumed it was outside the drawdown period given the lack of mention in the 1999 assessment.

Thanks also for setting up the meeting and sorry for not getting you the names of Kristina and Josh (looks like you figured it out). Sorry I missed your Lync message... my email and Lync have not been working very well this afternoon.

In case it is helpful, here are some topics for discussion with FLNRO fisheries staff that I noted during my review of the AECOM and Whitehead (1999) impact assessments. It probably makes sense to share these with attendees in advance of the meeting:

- * What are the appropriate sampling effort and sampling methods required to characterize the fish values in Chapman Lake and potential impacts of this project, including information needed to characterize the potential impacts on spawning that Iain expresses concern about below?
- * What parameters should be measured pre and post to monitor impacts on fish during operations if this project is approved? Is the monitoring regime recommended by Whitehead (1999) appropriate?
- * What kind of water quality sampling would they recommend be conducted to understand potential impacts on fish, and to monitor impacts on fish during operations if the project goes ahead? What do they think of Whitehead's (1999) assessment of impacts on water quality as they relate to fish (this can be found on p. 67 of Whitehead 1999)?
- * Is there value in additional monitoring of invertebrates, zooplankton and/or phytoplankton as part of the impact assessment and/or pre and post monitoring if this project goes ahead?
- * What do they think about the assessment and conclusions of the assessment of flow requirements and low flow impacts done by Dave Bates (i.e. Appendix 2 of the AECOM permit application)? Generally and specifically as it relates to steelhead?

If they had time to review material in advance of the meeting, I think the Dave Bates assessment (Appendix 2 of the AECOM assessment) and Sections 3.6 and 4.2.2.2 of the Whitehead (1999) assessment would be the ones to direct them to.

Regarding non-fish and terrestrial values that others in the Resource Stewardship (formerly Ecosystems/Fish and Wildlife) group might be concerned about, I think the greatest potential concern is likely aquatic and riparian vegetation/ecological communities, and in particular how more frequent and lower drawdown of the lake, coupled with drier conditions associated with climate change, could affect the vegetation communities. In particular the wetland communities around the lake. The other obvious value that could be negatively affected are amphibians, although I am not sure if there is much good breeding habitat in and around the lake, and the timing of drawdown later in the summer may be less of an issue for amphibian breeding. I also wonder about bats....

The AECOM assessment doesn't really provide any new information on impacts to non-fish flora and fauna and relies pretty fully on the 1999 assessment. The relevant sections in the 1999 assessment that discuss these values and potential impacts are Sections 3.5, 3.8, 4.2.2.2, and 4.2.2.4.

I'm not sure if it would be helpful to send the above information now to help them decide whether or which staff would be appropriate to attend the meeting? Or wait and just send to those who respond

that they would like to attend, to avoid information overload? If you think it would be helpful to share with all now or if anyone has any questions, please feel free to share the above.

Thanks Rod,
Joanna

Joanna Hirner (MRM, RPBio)
Conservation Specialist
South Coast Region, BC Parks
604-924-2228

From: Dalziel, Rod ENV:EX
Sent: Tuesday, May 10, 2016 10:23 AM
To: Aikman, Jennie S ENV:EX; Platz, Chris ENV:EX; Hirner, Joanna ENV:EX
Subject: FW: Chapman lake

FYI...

Rod Dalziel
Sunshine Coast Area Supervisor
BC Parks - South Coast Region - Ministry of Environment
?: PO Box 950, 6451 Sechelt Inlet Road, Sechelt, BC V0N 3A0
?: Desk (604) 885-6755 Mobile (604) 741-1967 Fax (604) 885-2445
?: Rod.Dalziel@gov.bc.ca
Visit the BC Parks website @ bcparks.ca

From: Lunn, Iain C FLNR:EX
Sent: Monday, May 9, 2016 3:36 PM
To: Dalziel, Rod ENV:EX
Cc: Miyazaki, Kenji FLNR:EX; Jesson, Duane A FLNR:EX
Subject: Chapman lake

Hi Rod:

This note is in response to discussions with Dr. Michael Jackson and Dave Bates and a limited literature review. Note, I have not been at the lake nor have I seen it firsthand. It my understanding the lake supports a population of Dolly Varden Char, further there is some question as to whether or not rainbow trout is also present. Access to inlet streams for spawning Dolly Varden char should be considered in the proposal to lower the Chapman Lake water level. Ad fluvial Char within the South Coast Region have been documented migrating to spawning inlet streams in mid to late July retuning to the lake to overwinter as late as mid-November. It is during this critical time that the fish need access to inlet streams. Chapman lake fish surveys would need to be undertaken if one were to narrow down the timing and location of the spawning char. Note, South Coast region char have been known to pass 20% gradients. Further, it is my understanding that there is little, if any recreational angling at the lake thus, there are no concerns from an angling perspective with lowering the lake level. Note, I have left it to others to address any potential fisheries issues that may arise in Chapman Creek from the proposal to Lower Chapman Lake.

Give me a call if you would like to discuss any of the above.

Iain Lunn
Fish Biologist
Fish and Aquatic Wildlife Resources
Ministry of Forests, Lands and Natural Resource Operations
South Coast Region

Balsom, Tami CSNR:EX

From: Robinson, Bryan FLNR:EX
Sent: Wednesday, May 18, 2016 1:08 PM
To: Dalziel, Rod ENV:EX
Subject: Accepted: FW: SCRD PUP ammendment application Chapman Lake

Re: Meeting Forward Notification: SCRD PUP ammendment application Chapman Lake

Monday, October 16, 2017
3:52 PM

Subject	Re: Meeting Forward Notification: SCRD PUP ammendment application Chapman Lake
From	Dalziel, Rod ENV:EX
To	Jensen, Sandra L.S. FLNR:EX
Sent	Wednesday, May 18, 2016 2:40 PM

Sandra were you going to call in?

Rod Dalziel
Sunshine Coast Area Supervisor
BC Parks

> On May 18, 2016, at 12:04 PM, Jensen, Sandra L.S. FLNR:EX <Sandra.Jensen@gov.bc.ca> wrote:
>
> Your meeting was forwarded
>
> Jensen, Sandra L.S. FLNR:EX<mailto:Sandra.Jensen@gov.bc.ca> has forwarded your meeting request to additional recipients.
>
> Meeting
> SCRD PUP ammendment application Chapman Lake
>
> Meeting Time
> Wednesday, May 18, 2016 2:30 PM-4:00 PM.
>
> Recipients
> Robinson, Bryan FLNR:EX<mailto:Bryan.Robinson@gov.bc.ca>
>
> All times listed are in the following time zone: Customized Time Zone
> _____ Sent by Microsoft Exchange Server
> 2013 <meeting.ics>

RE: SCRD PUP ammendment application Chapman Lake

Friday, October 13, 2017

2:33 PM

Subject	RE: SCRD PUP ammendment application Chapman Lake
From	Jensen, Sandra L.S. FLNR:EX
To	Dalziel, Rod ENV:EX; Aikman, Jennie S ENV:EX; Hirner, Joanna ENV:EX; Malt, Joshua FLNR:EX; 'McBain, Grant'; Platz, Chris ENV:EX; Robbins, Kristina FLNR:EX; Welstead, Kym FLNR:EX; Willcox, Michael FLNR:EX; Robinson, Bryan FLNR:EX
Sent	Wednesday, May 18, 2016 2:41 PM

Is anybody on the call? Sandra and Bryan are.

-----Original Appointment-----

From: Dalziel, Rod ENV:EX

Sent: Monday, May 16, 2016 1:39 PM

To: Dalziel, Rod ENV:EX; Aikman, Jennie S ENV:EX; Hirner, Joanna ENV:EX; Jensen, Sandra L.S. FLNR:EX; Malt, Joshua FLNR:EX; 'McBain, Grant'; Platz, Chris ENV:EX; Robbins, Kristina FLNR:EX; Welstead, Kym FLNR:EX; Willcox, Michael FLNR:EX; Robinson, Bryan FLNR:EX

Subject: SCRD PUP ammendment application Chapman Lake

When: Wednesday, May 18, 2016 2:30 PM-4:00 PM America/Los_Angeles.

Where: Mount Seymour BC Parks office, 1610 Mount Seymour Road, N. Van

For those that will be calling in please use

1-877-353-9184

Participant **s.17**

Taking another crack at scheduling a meeting where more can attend. Tough to find a time with minimal conflicts so I hope this works.

If you are unable to attend in person we can arrange to have you attend by conference call (I will provide call in details if required).

Some of you are aware that the Sunshine Coast Regional District (SCRD) has hired a consulting company, AECOM, to oversee a project proposal to increase drawdown of Chapman Lake, located in the Class A Tetrahedron Provincial Park, to supply domestic water for residents of the Sunshine Coast. This is likely a grandfathered allowable use within the park (awaiting legal opinion). They have submitted a Park Use Permit amendment application on 29 April 16 to authorize this. They are relying on a EIA completed in 1999 as their requirement for an Impact Assessment. BC Parks is in the process of adjudicating the proposal. You are invited to provide comment and raise potential concerns with the proposal.

If you require further documents or information please let Rod Dalziel know.

Balsom, Tami CSNR:EX

From: Aikman, Jennie S ENV:EX
Sent: Wednesday, May 18, 2016 2:42 PM
To: Dalziel, Rod ENV:EX
Subject: Accepted: SCRD PUP ammendment application Chapman Lake

Re: SCRD PUP ammendment application Chapman Lake

Friday, October 13, 2017

2:33 PM

Subject	Re: SCRD PUP ammendment application Chapman Lake
From	Dalziel, Rod ENV:EX
To	Jensen, Sandra L.S. FLNR:EX
Cc	Aikman, Jennie S ENV:EX; Hirner, Joanna ENV:EX; Malt, Joshua FLNR:EX; McBain, Grant; Platz, Chris ENV:EX; Lensky, Kristina FLNR:EX; Welstead, Kym FLNR:EX; Willcox, Michael FLNR:EX; Robinson, Bryan FLNR:EX
Sent	Wednesday, May 18, 2016 2:42 PM

Please call again 18773539184

s.17

Rod Dalziel

Sunshine Coast Area Supervisor

BC Parks

On May 18, 2016, at 2:41 PM, Jensen, Sandra L.S. FLNR:EX <Sandra.Jensen@gov.bc.ca> wrote:

Is anybody on the call? Sandra and Bryan are.

-----Original Appointment-----

From: Dalziel, Rod ENV:EX

Sent: Monday, May 16, 2016 1:39 PM

To: Dalziel, Rod ENV:EX; Aikman, Jennie S ENV:EX; Hirner, Joanna ENV:EX; Jensen, Sandra L.S. FLNR:EX; Malt, Joshua FLNR:EX; 'McBain, Grant'; Platz, Chris ENV:EX; Robbins, Kristina FLNR:EX; Welstead, Kym FLNR:EX; Willcox, Michael FLNR:EX; Robinson, Bryan FLNR:EX

Subject: SCRD PUP ammendment application Chapman Lake

When: Wednesday, May 18, 2016 2:30 PM-4:00 PM America/Los_Angeles.

Where: Mount Seymour BC Parks office, 1610 Mount Seymour Road, N. Van

For those that will be calling in please use

1-877-353-9184

Participant s.17

Taking another crack at scheduling a meeting where more can attend. Tough to find a time with minimal conflicts so I hope this works.

If you are unable to attend in person we can arrange to have you attend by conference call (I will provide call in details if required).

Some of you are aware that the Sunshine Coast Regional District (SCRD) has hired a consulting company, AECOM, to oversee a project proposal to increase drawdown of Chapman Lake, located in the

Class A Tetrahedron Provincial Park, to supply domestic water for residents of the Sunshine Coast. This is likely a grandfathered allowable use within the park (awaiting legal opinion). They have submitted a Park Use Permit amendment application on 29 April 16 to authorize this. They are relying on a EIA completed in 1999 as their requirement for an Impact Assessment. BC Parks is in the process of adjudicating the proposal. You are invited to provide comment and raise potential concerns with the proposal.

If you require further documents or information please let Rod Dalziel know.

From: [Aikman, Jennie S ENV:EX](#) on behalf of [Standen, Jim ENV:EX](#)
To: [Dalziel, Rod ENV:EX](#); "[janette.loveys@scrd.ca](#)"; "[garry.nohr@scrd.ca](#)"; "[susan.hunt@scrd.ca](#)"; [Aikman, Jennie S ENV:EX](#)
Subject: FW: 3:30 Chapman Lake Supply Expansion Project (BC Parks/Sunshine Coast RD)

Hi Rod,

Here is the information for the call today. I expect the call will proceed – I left a message for Brian Shoji yesterday but have not heard back.

Can you please advance the info note forward to Bob Austad? I am heading off to a science symposium for much of the day today but reachable on my cell.

Jennie

-----Original Appointment-----

From: Standen, Jim ENV:EX
 Sent: Wednesday, April 27, 2016 2:06 PM
 To: Standen, Jim ENV:EX; '[janette.loveys@scrd.ca](#)'; '[garry.nohr@scrd.ca](#)'; '[susan.hunt@scrd.ca](#)'; Aikman, Jennie S ENV:EX
 Subject: 3:30 Chapman Lake Supply Expansion Project (BC Parks/Sunshine Coast RD)
 When: Thursday, May 19, 2016 3:30 PM-4:00 PM (UTC-08:00) Pacific Time (US & Canada).
 Where: Teleconference: 1-877-353-9184; Participant ID#: **S.17** Jim-moderator

Balsom, Tami CSNR:EX

Subject: Canceled: 3:30 Chapman Lake Supply Expansion Project (BC Parks/Sunshine Coast RD)
Location: Teleconference: 1-877-353-9184; Participant ID#**s.17** (Jim-moderator)

Start: Thu 2016-05-19 3:30 PM
End: Thu 2016-05-19 4:00 PM
Show Time As: Free

Recurrence: (none)

Meeting Status: Not yet responded

Organizer: Standen, Jim ENV:EX
Required Attendees: 'janette.loveys@scrd.ca'; 'garry.nohr@scrd.ca'; 'susan.hunt@scrd.ca'; Aikman, Jennie S ENV:EX
Optional Attendees: Dalziel, Rod ENV:EX

Importance: High

RE: Chapman Lake Site Visit

Monday, October 16, 2016

1:19 PM

Subject	RE: Chapman Lake Site Visit
From	dewynter, Brett
To	Aikman, Jennie S ENV:EX; Hirner, Joanna ENV:EX; Dalziel, I
Cc	'Bryan Shoji'; Dave Crosby (Dave.Crosby@scrd.ca)
Sent	Thursday, May 19, 2016 10:45 AM

Jennie/Joanna/Rod:

We are trying to finalize the site visit details for the Chapman Lake project, be we l from any of you regarding the below meeting request. We intended to accommod of BC Parks while including others, hence the delayed start time (Rod said he was r morning of Thursday).

We feel it is important that all of you are able to participate in the site visit. Can y a soon as possible if the meeting time fits your schedule or if we need to find a dif Thanks.

Brett deWynter, P.Eng.

s.22

-----Original Appointment-----

From: dewynter, Brett

Sent: Monday, April 25, 2016 11:17 AM

To: dewynter, Brett; Jennie.Aikman@gov.bc.ca; Hirner, Joanna ENV:EX (Joanna.H Rod.Dalziel@gov.bc.ca; Shane Walkey (Shane.Walkey@scrd.ca); Ford, Bruce; 'Bry; kwillkinson@sechelnation.net; Barett Soroka; kenzie@insituconsulting.ca

Cc: Mathewson, Andrew; ashley@insituconsulting

Subject: Chapman Lake Site Visit

When: Thursday, May 26, 2016 11:00 AM-3:00 PM (UTC-08:00) Pacific Time (US

Where: Soccer Field Parking Lot

All:

Based on the feedback received and the expectation that all the snow will be gone the Chapman Lake project is scheduled for May 26th. We plan on having the first gr at 11:00 am. This will provide lots of time for people that need to travel.

Please accept this meeting request so the time is blocked out in your calendar. At provided below based on 2-trips of 5 per trip. There is a tentative split of the groc assumption that the "Trip 1" group will need a bit more time on-site to collect sai stuff, etc. If you think you are in the wrong group let me know. Thanks.

Trip 1:

1. BC Parks - Rod Dalziel
2. AECOM - Brett deWynter
3. AECOM - Bruce Ford
4. In-situ - Kenzie Jessome
5. Ministry of Environment - Local fish biologist, To be confirmed |

Trip 2:

1. BC Parks - Jennie Aikman

2. BC Parks - Joanna Hirner
3. SCR D - Bryan Shoji
4. SCR D - Shane Walkey
5. Sechelt First Nation - Director Sid Quinr

Brett

=====

All:

Based on the feedback it seem like May 18th fits the schedule. Please accept this m
the time is block-out in your calendar. Thanks.

Brett

=====

All:

Based on the feedback provided to date, please accept this meeting date as the t
visit. The site visit is weather dependent, but currently planned for Wednesday, 1
Please accept this meeting request so we can confirm numbers.

More details to follow. Thanks.

Brett

RE: Chapman Lake Site Visit

Monday, October 16, 2016
1:21 PM

Subject	RE: Chapman Lake Site Visit
From	Hirner, Joanna ENV:EX
To	dewynter, Brett; Aikman, Jennie S ENV:EX; Dalziel, Rod
Cc	'Bryan Shoji'; Dave Crosby
Sent	Thursday, May 19, 2016 10:51 AM

Hi Brett,

That date/time works for me. If there is room for me on the first flight I'd prefer to go as soon as possible, because I'd like a bit more time on the ground to look around. But if not, Thanks,
Joanna

Sent from my iPhone using Mail+ for Outlook

From: dewynter, Brett
Sent: 2016-05-19, 10:45 AM
To: Aikman, Jennie S ENV:EX, Hirner, Joanna ENV:EX, Dalziel, Rod
Cc: 'Bryan Shoji', Dave Crosby
Subject: RE: Chapman Lake Site Visit
Jennie/Joanna/Rod:

We are trying to finalize the site visit details for the Chapman Lake project, but we need input from any of you regarding the below meeting request. We intended to accommodate Rod and Dave of BC Parks while including others, hence the delayed start time (Rod said he was in the morning of Thursday).

We feel it is important that all of you are able to participate in the site visit. Can you let us know as soon as possible if the meeting time fits your schedule or if we need to find a different time. Thanks.

Brett deWynter, P.Eng.
s.22

-----Original Appointment-----

From: dewynter, Brett
Sent: Monday, April 25, 2016 11:17 AM
To: dewynter, Brett; kenzie@insituconsulting.
Cc: Mathewson, Andrew; ashley@insituconsulting
Subject: Chapman Lake Site Visit
When: Thursday, May 26, 2016 11:00 AM-3:00 PM (UTC-08:00) Pacific Time (US & Canada)
Where: Soccer Field Parking Lot

All:

Based on the feedback received and the expectation that all the snow will be gone by then, the Chapman Lake project is scheduled for May 26th. We plan on having the first group arrive at 11:00 am. This will provide lots of time for people that need to travel.

Please accept this meeting request so the time is blocked out in your calendar. At the bottom of the request is provided below based on 2-trips of 5 per trip. There is a tentative split of the group.

assumption that the "Trip 1" group will need a bit more time on-site to collect soil stuff, etc. If you think you are in the wrong group let me know. Thanks.

Trip 1:

1. BC Parks - Rod Dalziel
2. AECOM - Brett deWynter
3. AECOM - Bruce Ford
4. In-situ - Kenzie Jessome
5. Ministry of Environment - Local fish biologist, To be confirmed |

Trip 2:

1. BC Parks - Jennie Aikman
2. BC Parks - Joanna Hirner
3. SCRD - Bryan Shoji
4. SCRD - Shane Walkey
5. Sechelt First Nation - Director Sid Quinr

Brett

=====

All:

Based on the feedback it seem like May 18th fits the schedule. Please accept this m the time is block-out in your calendar. Thanks.

Brett

=====

All:

Based on the feedback provided to date, please accept this meeting date as the t visit. The site visit is weather dependent, but currently planned for Wednesday, 8 Please accept this meeting request so we can confirm numbers.

More details to follow. Thanks.

Brett

RE: Chapman Lake Site Visit

Monday, October 16, 2016

1:21 PM

Subject	RE: Chapman Lake Site Visit
From	Dalziel, Rod ENV:EX
To	Hirner, Joanna ENV:EX; dewynter, Brett; Aikman, Jenni
Cc	'Bryan Shoji'; Dave Crosby
Sent	Thursday, May 19, 2016 11:13 AM

Hello Brett,

The time and date works for me. A fish biologist will not be available that day so Joanna could take a seat on the first flight.

Cheers,

Rod Dalziel

Sunshine Coast Area Supervisor

BC Parks - South Coast Region - Ministry of Environment

✉ PO Box 950, 6451 Sechelt Inlet Road, Sechelt, BC V0N 3

☎ Desk (604) 885-6755 Mobile (604) 741-1967 Fax (604) 885-

📧 Rod.Dalziel@gov.bc.ca

Visit the BC Parks website @ bcparks.ca



BC Parks

From: Hirner, Joanna ENV:EX

Sent: Thursday, May 19, 2016 10:52 AM

To: dewynter, Brett; Aikman, Jennie S ENV:EX; Dalziel, Rod E

Cc: 'Bryan Shoji'; Dave Crosby

Subject: RE: Chapman Lake Site Visit

Hi Brett,

That date/time works for me. If there is room for me on the first flight I'd prefer one if possible, because I'd like a bit more time on the ground to look around worries.

Thanks,

Joanna

Sent from my iPhone using Mail+ for Outlook

From: dewynter, Brett

Sent: 2016-05-19, 10:45 AM

To: Aikman, Jennie S ENV:EX; Hirner, Joanna ENV:EX; Dalziel, Rod

Cc: 'Bryan Shoji', Dave Crosby

Subject: RE: Chapman Lake Site Visit

Jennie/Joanna/Rod:

We are trying to finalize the site visit details for the Chapman Lake project, be we l from any of you regarding the below meeting request. We intended to accommod of BC Parks while including others, hence the delayed start time (Rod said he was r morning of Thursday).

We feel it is important that all of you are able to participate in the site visit. Can y

a soon as possible if the meeting time fits your schedule or if we need to find a dif
Thanks.

Brett deWynter, P.Eng.

s.22

-----Original Appointment-----

From: dewynter, Brett

Sent: Monday, April 25, 2016 11:17 AM

To: dewynter, Brett; kenzie@insituconsulting.

Cc: Mathewson, Andrew; ashley@insituconsulting

Subject: Chapman Lake Site Visit

When: Thursday, May 26, 2016 11:00 AM-3:00 PM (UTC-08:00) Pacific Time (US

Where: Soccer Field Parking Lot

All:

Based on the feedback received and the expectation that all the snow will be gone the Chapman Lake project is scheduled for May 26th. We plan on having the first gr at 11:00 am. This will provide lots of time for people that need to travel.

Please accept this meeting request so the time is blocked out in your calendar. At provided below based on 2-trips of 5 per trip. There is a tentative split of the gro assumption that the "Trip 1" group will need a bit more time on-site to collect sai stuff, etc. If you think you are in the wrong group let me know. Thanks.

Trip 1:

1. BC Parks - Rod Dalziel
2. AECOM - Brett deWynter
3. AECOM - Bruce Ford
4. In-situ - Kenzie Jessome
5. Ministry of Environment - Local fish biologist, To be confirmed ||

Trip 2:

1. BC Parks - Jennie Aikman
2. BC Parks - Joanna Hirner
3. SCRD - Bryan Shoji
4. SCRD - Shane Walkey
5. Sechelt First Nation - Director Sid Quinr

Brett

=====

All:

Based on the feedback it seem like May 18th fits the schedule. Please accept this m the time is block-out in your calendar. Thanks.

Brett

=====

All:

Based on the feedback provided to date, please accept this meeting date as the t visit. The site visit is weather dependent, but currently planned for Wednesday, A

Please accept this meeting request so we can confirm numbers.

More details to follow. Thanks.

Brett

Re: Chapman Lake Site Visit

Monday, October 16, 2016

1:22 PM

Subject	Re: Chapman Lake Site Visit
From	Aikman, Jennie S ENV:EX
To	Dalziel, Rod ENV:EX
Cc	Hirner, Joanna ENV:EX; dewynter, Brett; Bryan Shoji; Dalziel, Rod ENV:EX
Sent	Thursday, May 19, 2016 12:26 PM

I am not available on the 26th but do proceed without

Sent from my iPhone

On May 19, 2016, at 11:13 AM, Dalziel, Rod ENV:EX <Rod.Dalziel@gov.bc.ca>

Hello Brett,

The time and date works for me. A fish biologist will not be available that day
Joanna could take a seat on the first flight.

Cheers,

Rod Dalziel

Sunshine Coast Area Supervisor

BC Parks - South Coast Region - Ministry of Environment

✉ PO Box 950, 6451 Sechelt Inlet Road, Sechelt, BC V0N 2

☎ Desk (604) 885-6755 Mobile (604) 741-1967 Fax (604) 885-

📧 Rod.Dalziel@gov.bc.ca

Visit the BC Parks website @ bcparks.ca

<image001.png>

From: Hirner, Joanna ENV:EX

Sent: Thursday, May 19, 2016 10:52 AM

To: dewynter, Brett; Aikman, Jennie S ENV:EX; Dalziel, Rod E

Cc: 'Bryan Shoji'; Dave Crosby

Subject: RE: Chapman Lake Site Visit

Hi Brett,

That date/time works for me. If there is room for me on the first flight
on that one if possible, because I'd like a bit more time on the ground to
But if not, no worries.

Thanks,

Joanna

Sent from my iPhone using Mail+ for Outlook

From: dewynter, Brett

Sent: 2016-05-19, 10:45 AM

To: Aikman, Jennie S ENV:EX; Hirner, Joanna ENV:EX; Dalziel, Rod

Cc: 'Bryan Shoji', Dave Crosby

Subject: RE: Chapman Lake Site Visit

Jennie/Joanna/Rod:

We are trying to finalize the site visit details for the Chapman Lake project, I
heard from any of you regarding the below meeting request. We intended to
the schedules of BC Parks while including others, hence the delayed start time
was not available in the morning of Thursday).

We feel it is important that all of you are able to participate in the site visit. confirm a soon as possible if the meeting time fits your schedule or if we need a different date. Thanks.

Brett deWynter, P.Eng.

s.22

-----Original Appointment-----

From: dewynter, Brett

Sent: Monday, April 25, 2016 11:17 AM

To: dewynter, Brett; kenzie@insituconsulting.

Cc: Mathewson, Andrew; ashley@insituconsulting

Subject: Chapman Lake Site Visit

When: Thursday, May 26, 2016 11:00 AM-3:00 PM (UTC-08:00) Pacific Time

Where: Soccer Field Parking Lot

All:

Based on the feedback received and the expectation that all the snow will be melted by the time the Chapman Lake project is scheduled for May 26th. We plan on having the site visit leave Airspan at 11:00 am. This will provide lots of time for people that need to be there.

Please accept this meeting request so the time is blocked out in your calendar. The schedule is provided below based on 2-trips of 5 per trip. There is a tentative split of the schedule on the assumption that the "Trip 1" group will need a bit more time on-site to measure stuff, etc. If you think you are in the wrong group let me know. Thanks.

Trip 1:

1. BC Parks - Rod Dalziel
2. AECOM - Brett deWynter
3. AECOM - Bruce Ford
4. In-situ - Kenzie Jessome
5. Ministry of Environment - Local fish biologist, To be confirmed

Trip 2:

1. BC Parks - Jennie Aikman
2. BC Parks - Joanna Hirner
3. SCR D - Bryan Shoji
4. SCR D - Shane Walkey
5. Sechelt First Nation - Director Sid Quinr

Brett

=====

All:

Based on the feedback it seems like May 18th fits the schedule. Please accept this meeting request so the time is block-out in your calendar. Thanks.

Brett

=====

All:

Based on the feedback provided to date, please accept this meeting date as a site visit. The site visit is weather dependent, but currently planned for Wednesday, 10/13/2016. Please accept this meeting request so we can confirm numbers.

More details to follow. Thanks.

Brett

RE: Chapman Lake Site Visit

Monday, October 16, 2016
1:22 PM

Subject	RE: Chapman Lake Site Visit
From	dewynter, Brett
To	Aikman, Jennie S ENV:EX; Dalziel, Rod E
Cc	Hirner, Joanna ENV:EX; Bryan Shoji; Dave
Sent	Thursday, May 19, 2016 2:39 PM

Jennie/Rod:

We want to work toward approval with consensus of the stakeholders and regular site visit as an opportunity for the key people to see the site and voice comments there another day when all of you from BC Parks are available and the provincial f can consider another day since we think there will be value in everyone attending

Let us know your thoughts as soon as you can. Thar

Brett deWynter, P.Eng.

s.22

-----Original Message-----

From: Aikman, Jennie S ENV:EX [mailto:Jennie.Aikman@gov.bc.ca]
Sent: Thursday, May 19, 2016 12:26 PM
To: Dalziel, Rod ENV:EX
Cc: Hirner, Joanna ENV:EX; dewynter, Brett; Bryan Shoji; Dave
Subject: Re: Chapman Lake Site Visit

I am not available on the 26th but do proceed without

Sent from my iPhone

On May 19, 2016, at 11:13 AM, Dalziel, Rod ENV:EX
<Rod.Dalziel@gov.bc.ca<<mailto:Rod.Dalziel@gov.bc.ca>>> wrote:

Hello Brett,

The time and date works for me. A fish biologist will not be available that day so i Joanna could take a seat on the first flight.

Cheers,

Rod Dalziel
Sunshine Coast Area Supervisor
BC Parks - South Coast Region - Ministry of Environment
*: PO Box 950, 6451 Sechelt Inlet Road, Sechelt, BC V0N
*: Desk (604) 885-6755 Mobile (604) 741-1967 Fax (604) 885
*: Rod.Dalziel@gov.bc.ca<<mailto:Rod.Dalziel@gov.bc.ca>>
Visit the BC Parks website @ bcparks.ca<<http://bcparks.ca>> <image01>

From: Hirner, Joanna ENV:EX
Sent: Thursday, May 19, 2016 10:52 AM

To: dewynter, Brett; Aikman, Jennie S ENV:EX; Dalziel, Rod E
 Cc: 'Bryan Shoji'; Dave Crosby
 Subject: RE: Chapman Lake Site Visit

Hi Brett,

That date/time works for me. If there is room for me on the first flight I'd prefer to possible, because I'd like a bit more time on the ground to look around. But if not,

Thanks,

Joanna

Sent from my iPhone using Mail+ for Outlook<<http://taps.io/mail>

From: dewynter, Brett

Sent: 2016-05-19, 10:45 AM

To: Aikman, Jennie S ENV:EX; Hirner, Joanna ENV:EX; Dalziel, Rod

Cc: 'Bryan Shoji', Dave Crosby

Subject: RE: Chapman Lake Site Visit

Jennie/Joanna/Rod:

We are trying to finalize the site visit details for the Chapman Lake project, be we l from any of you regarding the below meeting request. We intended to accommod of BC Parks while including others, hence the delayed start time (Rod said he was r morning of Thursday).

We feel it is important that all of you are able to participate in the site visit. Can y a soon as possible if the meeting time fits your schedule or if we need to find a dif Thanks.

Brett deWynter, P.Eng.

s.22

-----Original Appointment-----

From: dewynter, Brett

Sent: Monday, April 25, 2016 11:17 AM

To: dewynter, Brett; kenzie@insituconsulting.ca<<mailto:kenzie@insituconsulting.ca>

Cc: Mathewson, Andrew; ashley@insituconsulting.ca<<mailto:ashley@insituconsulting.ca>

Subject: Chapman Lake Site Visit

When: Thursday, May 26, 2016 11:00 AM-3:00 PM (UTC-08:00) Pacific Time (US

Where: Soccer Field Parking Lot

All:

Based on the feedback received and the expectation that all the snow will be gone the Chapman Lake project is scheduled for May 26th. We plan on having the first, Airspan at 11:00 am. This will provide lots of time for people that need to travel.

Please accept this meeting request so the time is blocked out in your calendar. At provided below based on 2-trips of 5 per trip. There is a tentative split of the groc assumption that the "Trip 1" group will need a bit more time on-site to collect sai stuff, etc. If you think you are in the wrong group let me know. Thanks.

Trip 1:

1. BC Parks - Rod Dalziel
2. AECOM - Brett deWynter
3. AECOM - Bruce Ford
4. In-situ - Kenzie Je?ssome
5. Ministry of Environment - Local fish biologist, To be confirmed

Trip 2:

1. BC Parks - Jennie Aikman
2. BC Parks - Joanna Hirner
3. SCR D - Bryan Shoji
4. SCR D - Shane Walkey
5. Sechelt First Nation - Director Sid Quinn

Brett

=====

All:

Based on the feedback it seem like May 18th fits the schedule. Please accept this r
the time is block-out in your calendar. Thanks.

Brett

=====

All:

Based on the feedback provided to date, please accept this meeting date as the t
visit. The site visit is weather dependent, but currently planned for Wednesday, 1
Please accept this meeting request so we can confirm numbers.

More details to follow. Thanks.

Brett

RE: Chapman Lake Site Visit

Monday, October 16, 2016

1:49 PM

Subject	RE: Chapman Lake Site Visit
From	Dalziel, Rod ENV:EX
To	'dewynter, Brett'; Aikman, Jennie S ENV
Cc	Hirner, Joanna ENV:EX; Bryan Shoji; Dave
Sent	Thursday, May 19, 2016 2:53 PM

Hello Brett,

Agreed we also feel it is essential to have those involved attend a site visit as needed. We feel the planned site visit should go ahead and as more site visits are likely required, those unable to attend at this time can attend at a later visit.

Regards,

Rod Dalziel
 Sunshine Coast Area Supervisor
 BC Parks - South Coast Region - Ministry of Environment
 : PO Box 950, 6451 Sechelt Inlet Road, Sechelt, BC V0N
 0: Desk (604) 885-6755 Mobile (604) 741-1967 Fax (604) 885
 5: Rod.Dalziel@gov.bc.ca
 Visit the BC Parks website @ bcparks.ca

-----Original Message-----

From: dewynter, Brett [<mailto:Brett.dewynter@aecom.ca>]
 Sent: Thursday, May 19, 2016 2:40 PM
 To: Aikman, Jennie S ENV:EX; Dalziel, Rod ENV:
 Cc: Hirner, Joanna ENV:EX; Bryan Shoji; Dave Cro
 Subject: RE: Chapman Lake Site Visit

Jennie/Rod:

We want to work toward approval with consensus of the stakeholders and regular site visit as an opportunity for the key people to see the site and voice comments there another day when all of you from BC Parks are available and the provincial f can consider another day since we think there will be value in everyone attending

Let us know your thoughts as soon as you can. Thank you.

Brett deWynter, P.Eng.

s.22

-----Original Message-----

From: Aikman, Jennie S ENV:EX [<mailto:Jennie.Aikman@gov.bc.ca>]
 Sent: Thursday, May 19, 2016 12:26 PM
 To: Dalziel, Rod ENV:EX
 Cc: Hirner, Joanna ENV:EX; dewynter, Brett; Bryan Shoji; Dave Cro
 Subject: Re: Chapman Lake Site Visit

I am not available on the 26th but do proceed without

Sent from my iPhone

On May 19, 2016, at 11:13 AM, Dalziel, Rod ENV:EX
<Rod.Dalziel@gov.bc.camailto:Rod.Dalziel@gov.bc.ca>> wrote:

Hello Brett,

The time and date works for me. A fish biologist will not be available that day so i
Joanna could take a seat on the first flight.

Cheers,

Rod Dalziel
Sunshine Coast Area Supervisor
BC Parks - South Coast Region - Ministry of Environm
*: PO Box 950, 6451 Sechelt Inlet Road, Sechelt, BC V0N
*: Desk (604) 885-6755 Mobile (604) 741-1967 Fax (604) 885
*: Rod.Dalziel@gov.bc.camailto:Rod.Dalziel@gov.bc.
Visit the BC Parks website @ bcparks.ca<http://bcparks.ca/> <image0

From: Hirner, Joanna ENV:EX
Sent: Thursday, May 19, 2016 10:52 AM
To: dewynter, Brett; Aikman, Jennie S ENV:EX; Dalziel, Rod E
Cc: 'Bryan Shoji'; Dave Crosby
Subject: RE: Chapman Lake Site Visit

Hi Brett,
That date/time works for me. If there is room for me on the first flight I'd prefer to
possible, because I'd like a bit more time on the ground to look around. But if not,
Thanks,
Joanna

Sent from my iPhone using Mail+ for Outlook<http://taps.io/ma
From: dewynter, Brett
Sent: 2016-05-19, 10:45 AM
To: Aikman, Jennie S ENV:EX; Hirner, Joanna ENV:EX; Dalziel, Rod
Cc: 'Bryan Shoji', Dave Crosby
Subject: RE: Chapman Lake Site Visit
Jennie/Joanna/Rod:

We are trying to finalize the site visit details for the Chapman Lake project, be we l
from any of you regarding the below meeting request. We intended to accommod
of BC Parks while including others, hence the delayed start time (Rod said he was r
morning of Thursday).

We feel it is important that all of you are able to participate in the site visit. Can y
a soon as possible if the meeting time fits your schedule or if we need to find a dif
Thanks.

Brett deWynter, P.Eng.

s.22

-----Original Appointment-----

From: dewynter, Brett
Sent: Monday, April 25, 2016 11:17 AM

To: dewynter, Brett; kenzie@insituconsulting.ca<mailto:kenzie@insitucons
 Cc: Mathewson, Andrew; ashley@insituconsulting.ca<mailto:ashley@insitucons
 Subject: Chapman Lake Site Visit
 When: Thursday, May 26, 2016 11:00 AM-3:00 PM (UTC-08:00) Pacific Time (US
 Where: Soccer Field Parking Lot

All:

Based on the feedback received and the expectation that all the snow will be gone the Chapman Lake project is scheduled for May 26th. We plan on having the first Airspan at 11:00 am. This will provide lots of time for people that need to travel.

Please accept this meeting request so the time is blocked out in your calendar. At provided below based on 2-trips of 5 per trip. There is a tentative split of the group assumption that the "Trip 1" group will need a bit more time on-site to collect soil stuff, etc. If you think you are in the wrong group let me know. Thanks.

Trip 1:

1. BC Parks - Rod Dalziel
2. AECOM - Brett deWynter
3. AECOM - Bruce Ford
4. In-situ - Kenzie Je?ssome
5. Ministry of Environment - Local fish biologist, To be confirmed

Trip 2:

1. BC Parks - Jennie Aikman
2. BC Parks - Joanna Hirner
3. SCR D - Bryan Shoji
4. SCR D - Shane Walkey
5. Sechelt First Nation - Director Sid Quini

Brett

=====

All:

Based on the feedback it seem like May 18th fits the schedule. Please accept this r the time is block-out in your calendar. Thanks.

Brett

=====

All:

Based on the feedback provided to date, please accept this meeting date as the t visit. The site visit is weather dependent, but currently planned for Wednesday, N Please accept this meeting request so we can confirm numbers.

More details to follow. Thanks.

Brett

RE: Chapman Lake Site Visit

Monday, October 16, 2016
1:50 PM

Subject	RE: Chapman Lake Site Visit
From	dewynter, Brett
To	Dalziel, Rod ENV:EX; Aikman, Jennie S ENV:EX
Cc	Hirner, Joanna ENV:EX; Bryan Shoji; Dave Crosby; Mathewson, Andre
Sent	Thursday, May 19, 2016 3:00 PM

Rod....Okay. Sounds like a plan. The site visit is a "Go" for Thursday, May 26th, 20 attendees list is provided below.

Trip 1:

1. BC Parks - Rod Dalziel
2. AECOM - Brett deWynter
3. AECOM - Bruce Ford
4. In-situ - Kenzie Jessome
5. BC Parks - Joanna Hirner

Trip 2:

1. SCRD - Bryan Shoji
2. SCRD - Shane Walkey
3. Sechelt First Nation - Director Sid Quinn

Brett deWynter, P.Eng.

s.22

-----Original Message-----

From: Dalziel, Rod ENV:EX [mailto:Rod.Dalziel@gov.bc.ca]
Sent: Thursday, May 19, 2016 2:54 PM
To: dewynter, Brett; Aikman, Jennie S ENV:EX
Cc: Hirner, Joanna ENV:EX; Bryan Shoji; Dave Crosby
Subject: RE: Chapman Lake Site Visit

Hello Brett,

Agreed we also feel it is essential to have those involved attend a site visit as needed. We feel the planned site visit should go ahead and as more site visits are likely required, those unable to attend at this time can attend at a later visit.

Regards,

Rod Dalziel
Sunshine Coast Area Supervisor
BC Parks - South Coast Region - Ministry of Environment
: PO Box 950, 6451 Sechelt Inlet Road, Sechelt, BC V0N 1A0
O: Desk (604) 885-6755 Mobile (604) 741-1967 Fax (604) 885-6755
E: Rod.Dalziel@gov.bc.ca
Visit the BC Parks website @ bcparks.ca

-----Original Message-----

From: dewynter, Brett [<mailto:Brett.dewynter@aecom.ca>]
 Sent: Thursday, May 19, 2016 2:40 PM
 To: Aikman, Jennie S ENV:EX; Dalziel, Rod ENV:
 Cc: Hirner, Joanna ENV:EX; Bryan Shoji; Dave Cro:
 Subject: RE: Chapman Lake Site Visit

Jennie/Rod:

We want to work toward approval with consensus of the stakeholders and regular site visit as an opportunity for the key people to see the site and voice comments there another day when all of you from BC Parks are available and the provincial f can consider another day since we think there will be value in everyone attending

Let us know your thoughts as soon as you can. Thar

Brett deWynter, P.Eng.

s.22

-----Original Message-----

From: Aikman, Jennie S ENV:EX [<mailto:Jennie.Aikman@gov.bc.ca>]
 Sent: Thursday, May 19, 2016 12:26 PM
 To: Dalziel, Rod ENV:EX
 Cc: Hirner, Joanna ENV:EX; dewynter, Brett; Bryan Shoji; Dave I
 Subject: Re: Chapman Lake Site Visit

I am not available on the 26th but do proceed without

Sent from my iPhone

On May 19, 2016, at 11:13 AM, Dalziel, Rod ENV:EX
 <Rod.Dalziel@gov.bc.ca<<mailto:Rod.Dalziel@gov.bc.ca>>> wrote:

Hello Brett,

The time and date works for me. A fish biologist will not be available that day so I Joanna could take a seat on the first flight.

Cheers,

Rod Dalziel
 Sunshine Coast Area Supervisor
 BC Parks - South Coast Region - Ministry of Environm
 *: PO Box 950, 6451 Sechelt Inlet Road, Sechelt, BC V0N
 *: Desk (604) 885-6755 Mobile (604) 741-1967 Fax (604) 885
 *: Rod.Dalziel@gov.bc.ca<<mailto:Rod.Dalziel@gov.bc.ca>>
 Visit the BC Parks website @ bcparks.ca<<http://bcparks.ca/>> <image0

From: Hirner, Joanna ENV:EX
 Sent: Thursday, May 19, 2016 10:52 AM
 To: dewynter, Brett; Aikman, Jennie S ENV:EX; Dalziel, Rod E
 Cc: 'Bryan Shoji'; Dave Crosby
 Subject: RE: Chapman Lake Site Visit

Hi Brett,

That date/time works for me. If there is room for me on the first flight I'd prefer to

possible, because I'd like a bit more time on the ground to look around. But if not,

Thanks,

Joanna

Sent from my iPhone using Mail+ for Outlook<<http://taps.io/mail>

From: dewynter, Brett

Sent: 2016-05-19, 10:45 AM

To: Aikman, Jennie S ENV:EX, Hirner, Joanna ENV:EX, Dalziel, Rod

Cc: 'Bryan Shoji', Dave Crosby

Subject: RE: Chapman Lake Site Visit

Jennie/Joanna/Rod:

We are trying to finalize the site visit details for the Chapman Lake project, be we l from any of you regarding the below meeting request. We intended to accommod of BC Parks while including others, hence the delayed start time (Rod said he was r morning of Thursday).

We feel it is important that all of you are able to participate in the site visit. Can y a soon as possible if the meeting time fits your schedule or if we need to find a dif Thanks.

Brett deWynter, P.Eng.

s.22

-----Original Appointment-----

From: dewynter, Brett

Sent: Monday, April 25, 2016 11:17 AM

To: dewynter, Brett; kenzie@insituconsulting.ca<<mailto:kenzie@insituconsulting.ca>

Cc: Mathewson, Andrew; ashley@insituconsulting.ca<<mailto:ashley@insituconsulting.ca>

Subject: Chapman Lake Site Visit

When: Thursday, May 26, 2016 11:00 AM-3:00 PM (UTC-08:00) Pacific Time (US

Where: Soccer Field Parking Lot

All:

Based on the feedback received and the expectation that all the snow will be gone the Chapman Lake project is scheduled for May 26th. We plan on having the first Airspan at 11:00 am. This will provide lots of time for people that need to travel.

Please accept this meeting request so the time is blocked out in your calendar. At provided below based on 2-trips of 5 per trip. There is a tentative split of the group assumption that the "Trip 1" group will need a bit more time on-site to collect soil stuff, etc. If you think you are in the wrong group let me know. Thanks.

Trip 1:

1. BC Parks - Rod Dalziel
2. AECOM - Brett deWynter
3. AECOM - Bruce Ford
4. In-situ - Kenzie Je?ssome
5. Ministry of Environment - Local fish biologist, To be confirmed

Trip 2:

1. BC Parks - Jennie Aikman
2. BC Parks - Joanna Hirner
3. SCRD - Bryan Shoji
4. SCRD - Shane Walkey
5. Sechelt First Nation - Director Sid Quinn

Brett

=====

All:

Based on the feedback it seem like May 18th fits the schedule. Please accept this r
the time is block-out in your calendar. Thanks.

Brett

=====

All:

Based on the feedback provided to date, please accept this meeting date as the t
visit. The site visit is weather dependent, but currently planned for Wednesday, 1
Please accept this meeting request so we can confirm numbers.

More details to follow. Thanks.

Brett

FW: APPROVED: 298046 IN Sunshine Coast RD/Chapman Lake Supply Expansion Project

Thursday, October 12, 2017
12:09 PM

Subject	FW: APPROVED: 298046 IN Sunshine Coast RD/Chapman Lake Supply Expansion Project
From	Aikman, Jennie S ENV:EX
To	Dalziel, Rod ENV:EX; Platz, Chris ENV:EX
Sent	Friday, May 20, 2016 10:16 AM
Attachments	 298046 IN SCRD Mee...

FYI – approved copy attached.

From: Gilmour, Lori ENV:EX
Sent: Friday, May 20, 2016 9:31 AM
To: Aikman, Jennie S ENV:EX
Cc: Austad, Bob ENV:EX
Subject: APPROVED: 298046 IN Sunshine Coast RD/Chapman Lake Supply Expansion Project

Approved copy attached. New meeting date to be scheduled.
Thanx, Lori

**MINISTRY OF ENVIRONMENT
MEETING INFORMATION NOTE**

May 18, 2016
File: 280-20
Previous CLIFF#: 289031
CLIFF/tracking #: 298046

PREPARED FOR: Jim Standen, Assistant Deputy Minister, BC Parks and Conservation Officer Service

DATE AND TIME OF MEETING: tbd

ATTENDEES:

Garry Nohr, Board Chair, Sunshine Coast Regional District
Janette Loveys, Chief Administration Officer, Sunshine Coast Regional District
Jennie Aikman, Regional Director, South Coast Region, BC Parks
Rod Dalziel, Area Supervisor, Sunshine Coast Area, BC Parks

ISSUE(S): Sunshine Coast Regional District's request for a meeting to discuss their park use permit application for the Chapman Lake Supply Expansion Project in Tetrahedron Park.

BACKGROUND:

Gray and Chapman Creeks, both of which have headwaters in Tetrahedron Park, are the principle sources of domestic drinking water to coastal communities within the Sunshine Coast Regional District (SCRD), including Sechelt and Gibsons. Water is drawn from a system of subalpine lakes that are within the park, including Chapman and Edwards Lakes.

Tetrahedron Park was established in part to preserve the watershed and community water supply. The park management plan supported the continued use of the park's subalpine lakes for this purpose. Consistent with the park management plan, the SCRD maintains infrastructure on Chapman and Edwards Lakes in Tetrahedron Park under a Park Use Permit (PUP). They also have a water license under the *Water Act* which authorizes the volume of their water removal and associated infrastructure.

In August 2015, the SCRD advanced to Level 4 water restrictions due to the extreme drought conditions and water shortages on the Sunshine Coast. The SCRD approached the Water Stewardship Branch (FLNRO) and BC Parks for emergency amendments to their water license and park use permit, to expand their infrastructure in the park and utilize additional water from Chapman Lake. Specifically, SCRD proposed to install and employ a siphon system, to be installed in Chapman Lake, to draw additional water from the lake system. They also applied for a temporary amendment to their water license to remove an additional 1,000,000 m³, through a *Water Act*, Section 8 Approval for short term use of water.

In August 2015, BC Parks issued a PUP amendment to the SCRD for a temporary (one year) authorization to install the emergency siphon system. The PUP amendment term mirrored the Short Term Use Approval issued to the SCRD under the *Water Act*, with an additional two weeks to allow time to remove the siphon infrastructure from the park. Following the issuance of the PUP amendment, BC Parks sent a letter to the SCRD emphasizing that the amendment was a temporary emergency measure and encouraged the SCRD to develop a long-term solution to the water supply issue on the Sunshine Coast to avoid emergency measures being required in the future. A few days after the PUP amendment was issued, rains recharged the lake to full pool so the SCRD never proceeded with the install of the siphon system.

DISCUSSION:

In February 2016, BC Parks learned that the SCRD Board had approved moving forward with a new proposal to construct a trench to install permanent piping in Chapman Lake to allow for the drawdown of the lake from the current 3m to 8 metres. BC Parks staff requested a meeting with the SCRD to get a better understanding of their proposal and timings. We arranged an initial meeting with SCRD staff and their consulting firm, AECOM, in early March during which they outlined their proposal and timelines. Their timeline is for a permit to be in place to allow for construction to start in the beginning of July 2016. At that meeting and again at a subsequent meeting in early April, we indicated their timeline would be very difficult to meet, particularly if field study was required. Region received the PUP amendment for the proposed trench system on 29 April 16. The Tetrahedron Park Management Plan states “Where regional water supply improvements are proposed within the park, an impact assessment and comprehensive public consultation process will be developed.”

The SCRD has commenced consultation on their application with First Nations (shíshálh Nation and Squamish Nation) and stakeholder groups. Regional staff have recently received letters and calls from local stakeholders with whom the SCRD is consulting (Tetrahedron Advisory Committee, Sunshine Coast Conservation Association) and these groups are very concerned about the SCRD’s proposal and the timeline. They are particularly concerned that the SCRD is relying on an impact assessment from 1999 (which was for the siphon proposal) and that the SCRD is not planning any additional assessments related to this new proposal. Also of great concern identified by stakeholders groups is that it is felt the SCRD has not sufficiently explored alternative options for source water outside of the Chapman Creek watershed.

BC Parks staff have conducted a preliminary review of the SCRD’s most recent application and the 1999 impact assessment to determine if there are gaps in the information that will require further study. This preliminary assessment reveals that there are limitations and gaps to the impact assessment that will require further assessment. The SCRD will need this year to complete the assessment work and so will not likely have a permit in place for construction in 2016.

If the SCRD encounters drought conditions this summer they have a permit amendment in place which allows them to employ the siphon system. Region may extend the term of the siphon permit amendment to give the SCRD full comfort they can use the siphon if needed while they undertake a full study and complete consultation on the trench option.

SUGGESTED RESPONSE:

BC Parks staff have conducted a preliminary assessment of the SCRD's application and has determined that additional study is required. As well, the SCRD will need to complete consultation with First Nations and stakeholders. Given the construction window and schedule, it is unlikely they will have a permit in place to complete installation of the pipe system in 2016. Region is willing to extend the terms of their current permit amendment to allow use of the siphon system in the interim until a decision on the piping proposal can be made.

Attachments:**Contact:**

*Bob Austad, Executive
Director
BC Parks, Regional
Operations Branch
(250) 356-9241*

Alternate Contact:

*Jennie Aikman, Regional
Director
South Coast Region
(604) 924-2227*

Prepared by:

Reviewed by	Initials	Date
ADM	JS	May 20, 2016
Ex. Dir.	RCA	May 19, 2016

From: [Dalziel, Rod ENV:EX](#)
To: [Aikman, Jennie S ENV:EX](#); [Welstead, Kym FLNR:EX](#); [Platz, Chris ENV:EX](#); [Jensen, Sandra L.S. FLNR:EX](#); [Willcox, Michael FLNR:EX](#); ["McBain, Grant"](#); [Malt, Joshua FLNR:EX](#); [Hirner, Joanna ENV:EX](#); [Robbins, Kristina FLNR:EX](#)
Cc: [Robinson, Bryan FLNR:EX](#)
Subject: SCRD PUP ammendment application Chapman Lake

Thanks for the meeting on Wednesday everyone. The next scheduled meeting will be June 15th to provide updates and further discussion.

Call 1-877-353-9184

Participan **s.17**

Taking another crack at scheduling a meeting where more can attend. Tough to find a time with minimal conflicts so I hope this works.

If you are unable to attend in person we can arrange to have you attend by conference call (I will provide call in details if required).

Some of you are aware that the Sunshine Coast Regional District (SCRD) has hired a consulting company, AECOM, to oversee a project proposal to increase drawdown of Chapman Lake, located in the Class A Tetrahedron Provincial Park, to supply domestic water for residents of the Sunshine Coast. This is likely a grandfathered allowable use within the park (awaiting legal opinion). They have submitted a Park Use Permit amendment application on 29 April 16 to authorize this. They are relying on a EIA completed in 1999 as their requirement for an Impact Assessment. BC Parks is in the process of adjudicating the proposal. You are invited to provide comment and raise potential concerns with the proposal.

If you require further documents or information please let Rod Dalziel know.

RE: Chapman Lake Site Visit

Monday, October 16, 2016
1:50 PM

Subject	RE: Chapman Lake Site Visit
From	dewynter, Brett
To	Aikman, Jennie S ENV:EX; Hirner, Joanna ENV:EX; Dalziel, Rod ENV:EX; Shane Walkey (Shane.Walkey@'Bryan Shoji'; 'kwilkinson@secheltnation.net'; 'Barett Soroka'; kenzie@insituconsulting.ca; squinn@sec Mathewson, Andrew
Cc	ashley@insituconsulting.ca
Sent	Tuesday, May 24, 2016 8:01 AM
Attachments	 Scan

All:

Provided below is the list of people confirmed to participate in the Chapman Lake site visit scheduled May 26th, 2016. Attached is a map with the directions to Airspan – 4480 Hiltop Road. Please be there no less than 30 minutes prior to your departure for a safety briefing.

Please bring everything you need to be self-sufficient....warm clothes, boots, snack, etc. If the weather is bad we will have a satellite phone otherwise the plan is to leave at the times noted below and return.

Let me know if you have any questions, otherwise we look forward to seeing everyone on Thursday.

Trip 1 (11:00 am departure):

1. BC Parks - Rod Dalziel
2. AECOM - Brett deWynter
3. AECOM - Bruce Ford
4. In-situ - Kenzie Jessome
5. BC Parks - Joanna Hirner

Trip 2 (11:25 am departure):

1. AECOM – Andrew Mahewson
2. Sechelt First Nation – Kim Wilkinson
3. SCRD - Bryan Shoji
4. SCRD - Shane Walkey
5. Sechelt First Nation – Director Sid Quinn

Brett deWynter, P.Eng.

s.22

-----Original Appointment-----

From: dewynter, Brett

Sent: Monday, April 25, 2016 11:17 AM

To: dewynter, Brett; Jennie.Aikman@gov.bc.ca; Hirner, Joanna ENV:EX (Joanna.Hirner@gov.bc.ca); Rod.Dalziel@gov.bc.ca; Shane Walkey (Shane.Walkey@scrd.ca); Ford, Bruce; 'Bryan Shoji'; 'kwilkinson@secheltnation.net'; 'Barett Soroka'; kenzie@insituconsulting.ca

Cc: Mathewson, Andrew; ashley@insituconsulting.ca

Subject: Chapman Lake Site Visit

When: Thursday, May 26, 2016 11:00 AM-3:00 PM (UTC-08:00) Pacific Time (US & Canada)

Where: Soccer Field Parking Lot

All:

Based on the feedback received and the expectation that all the snow will be gone, the site visit for the Chapman Lake project is scheduled for May 26th. We plan on having the first group leave Airspan at 11:00 AM and allow lots of time for people that need to travel.

Please accept this meeting request so the time is blocked out in your calendar. Attendees list is based on 2-trips of 5 per trip. There is a tentative split of the groups based on the assumption that each group will need a bit more time on-site to collect samples, measure stuff, etc. If you think you

group let me know. Thanks.

Trip 1:

1. BC Parks - Rod Dalziel
2. AECOM - Brett deWynter
3. AECOM - Bruce Ford
4. In-situ - Kenzie Jessome
5. Ministry of Environment - Local fish biologist, To be confirmed

Trip 2:

1. BC Parks - Jennie Aikman
2. BC Parks - Joanna Hirner
3. SCRD - Bryan Shoji
4. SCRD - Shane Walkey
5. Sechelt First Nation - Director Sid Quinn

Brett

=====

All:

Based on the feedback it seem like May 18th fits the schedule. Please accept this meeting request block-out in your calendar. Thanks.

Brett

=====

All:

Based on the feedback provided to date, please accept this meeting date as the time for the site weather dependent, but currently planned for Wednesday, May 11th, 2016. Please accept this if we can confirm numbers.

More details to follow. Thanks.

Brett

Copyright

Chapman Lake field work

Thursday, October 12, 2017

9:52 AM

Subject	Chapman Lake field work
From	Hirner, Joanna ENV:EX
To	'dewynter, Brett'; Ford, Bruce
Cc	'Bryan Shoji'; Aikman, Jennie S ENV:EX; Dalziel, Rod ENV:EX; Platz, Chris ENV:EX
Sent	Tuesday, May 24, 2016 5:38 PM

Hi Brett and Bruce,

I know that Jennie has spoken to Bryan about this by phone, so likely you already have heard that BC Parks would like additional field work to be done this field season to support the impact assessment for the Chapman Lake pipe installation project and the associated ability to drawdown the lake up to 8 m.

I am leading the environmental impact review process for the application on behalf of BC Parks, with input from others including non-parks biologists within the Ministry of Forests, Lands and Natural Resource Operations. I'm still working on compiling some formal comments on the application, but I thought I should try and get you at least some informal draft comments specifically around additional field work, given that the scheduled site visit will provide an opportunity to consider and discuss some of the issues we have identified around additional field work.

Here are some comments:

- 1) I will provide a more detailed rationale, but here are some key reasons BC Parks believes additional field work is warranted:
 - a. The current impact assessment relies heavily on the 1999 Whitehead impact assessment. Whitehead's conclusions about impacts were based in large part on the fact that under drawdown conditions up until 1998, the conditions of assessed environmental values in 1998 did not suggest significant impacts of drawdown. Whitehead then extrapolated that if significant impacts were not occurring under existing drawdown, additional drawdown should not significantly increase impacts. However, 18 years have passed since Whitehead did his field work in September 1998 to assess the existing conditions of environmental values. It seems likely that existing conditions have changed, both in terms of the conditions of key environmental values being assessed as well as the drawdown regime and climate conditions. Thus field work that supports the impact assessment should be updated so we can understand the existing condition of values most likely to be affected by the project.
 - b. The field work that Whitehead conducted was limited to only a few days in September 1998, and even Whitehead acknowledged that this field work was limited in scope. Whitehead also acknowledged that there was uncertainty around his conclusion of a low likelihood of significant impacts from the project. Thus Whitehead recommended additional field work to characterize the baseline conditions of values most likely to be affected by the drawdown before the proposed pump installation in the fall of 1999. This baseline would be used to monitor the conditions of values post-pump installation to allow for adaptive management and exploring ways to mitigate impacts if significant impacts were detected post-pump installation.
- 2) Here are some specific comments around the types of additional field work recommended to update the impact assessment:
 - a. If not in place already, a water level recording device for continuous water level monitoring in Chapman Lake should be installed to allow for ongoing monitoring of drawdown.
 - b. Baseline water quality monitoring: Whitehead (1999) included a preliminary list

- of water quality parameters that should be included in a monitoring program. A professional with expertise in limnology and water quality monitoring, especially as it relates to aquatic life values such as fish, should review Whitehead's (1999) recommendations and be involved in the design of a baseline water quality monitoring program.
- c. Fish sampling: There is limited information about fish in Chapman Lake, but Whitehead's (1999) sampling confirmed that there are Dolly Varden char in the lake. FLNRO fisheries biologists have raised concern that Dolly Varden char in Chapman Lake may be prevented from accessing their spawning streams during the drawdown period. Ad-fluvial char (i.e. those that spawn in tributary streams but otherwise sub-adults/adults live in lake) within the South Coast region have been documented migrating to spawning inlet streams in mid to late July and return to lake to overwinter as late as mid-November; Dolly Varden in cold water/high elevation systems such as Chapman Lake tend to migrate to spawning streams earlier in the summer than in warmer systems. To understand the implications of drawdown on spawning, additional fish surveys should be designed to narrow down the timing and location of spawning char. Whitehead (1999) also recommended several parameters to be monitored to assess impacts on fish pre- and post-project. A professional with expertise in monitoring fish populations and habitat use should review Whitehead's (1999) recommendations and be involved in the design of the baseline and char monitoring program.
 - d. Vegetation and ecological community assessment and mapping: Vegetation and ecological communities in the riparian and littoral areas of the lake are sensitive to changes in climate and drawdown regime, including changes that may have occurred since 1999, and changes that may occur in the future.
 - i. The Whitehead (1999) assessment included mapping of different riparian habitat types, surficial materials, and "ecosystem units" (now called "ecological communities") around the lake. Given that the classification of ecological communities and the distribution of habitat types may have changed since the Whitehead (1999) assessment was completed, this mapping and classification of ecological communities should be updated. The update is important in part because changes since the last assessment may reflect effects of changes in climate and drawdown regime since 1998. Changes in distribution of habitat types and ecological communities can also be used for monitoring ecological changes following implementation of the proposed project. In particular, the extent and distribution of wetland communities should be mapped and monitored because they are likely to be particularly sensitive to longer and deeper drawdown of Chapman Lake.
 - ii. Whitehead (1999) surveyed several environmental parameters, including vegetation species and distribution, along nine transects perpendicular to the lakeshore. Transect locations were chosen to represent the diversity of riparian and littoral habitat conditions in the lake. These transect locations could be resampled to detect any changes in conditions since 1999, and to allow for continued monitoring post-project implementation. Alternatively, a new monitoring protocol could be developed involving different transect locations. The transects should include enough riparian area above the high water mark to detect changes in terrestrial vegetation that could be a result of more prolonged and/or deeper drawdown of the lake following implementation of the proposed project.
 - e. Amphibians: Aquatic-breeding amphibians may be using the lake shore and adjacent wetlands for breeding. The presence of aquatic breeding amphibians and their habitat, and potential impacts of the project on these values, should be assessed.
 - f. Invertebrate monitoring: invertebrates are the main food source of fish and are indicators of lake productivity and water quality. Thus invertebrate sampling may

be valuable as part of the pre- and post-project monitoring.

Thanks and looking forward to discussing these things more in the field on Thursday.

Best regards,
Joanna

Joanna Hirner (MRM, RPBio)
Conservation Specialist
South Coast Region, BC Parks
604-924-2228

Chapman Lake Site Visit

Thursday, October 12, 2017

9:51 AM

Subject	Chapman Lake Site Visit
From	Ford, Bruce
To	dewynter, Brett; Mathewson, Andrew; ashley@insituconsulting.ca; Bryan.Shoji@scrd.ca; s.22 Aikman, Jennie S ENV:EX; Hirner, Joanna ENV:EX; kenzie@insituconsulting.ca; kwilkinson@secheltnation.net; Dalziel, Rod ENV:EX; Shane.Walkey@scrd.ca
Sent	Thursday, May 26, 2016 10:18 AM

All:

Airspan just called to cancel the site visit due to the weather. We will still meet at the SCRD office for a project update at 11:00 for the AECOM-BC Parks-SCRD team.

Sorry for the inconvenience.

Thanks.

Brett

Organizer: dewynter, Brett

When: 11:00 AM - 3:00 PM May 26, 2016

Subject: Chapman Lake Site Visit

Location: Soccer Field Parking Lot

Sent from my BlackBerry 10 smartphone on the Bell network.

Fwd: Chapman Lake Site Visit

Thursday, October 12, 2017

3:31 PM

Subject	Fwd: Chapman Lake Site Visit
From	Dalziel, Rod ENV:EX
To	Hirner, Joanna ENV:EX
Sent	Thursday, May 26, 2016 10:48 AM

Hey Joanna,
Will you be meeting at the SCRD?

Rod Dalziel
Sunshine Coast Area Supervisor
BC Parks
Begin forwarded message:

From: "Ford, Bruce" <Bruce.Ford@aecom.com>
Date: May 26, 2016 at 10:18:25 AM PDT
To: "dewynter, Brett" <Brett.dewynter@aecom.com>, "Mathewson, Andrew" <Andrew.Mathewson@aecom.com>, "ashley@insituconsulting.ca" <ashley@insituconsulting.ca>, "Bryan.Shoji@scrd.ca" <Bryan.Shoji@scrd.ca>, s.22 >, "Jennie.Aikman@gov.bc.ca" <Jennie.Aikman@gov.bc.ca>, "Joanna.Hirner@gov.bc.ca" <Joanna.Hirner@gov.bc.ca>, "kenzie@insituconsulting.ca" <kenzie@insituconsulting.ca>, "kwilkinson@secheltnation.net" <kwilkinson@secheltnation.net>, "Rod.Dalziel@gov.bc.ca" <Rod.Dalziel@gov.bc.ca>, "Shane.Walkey@scrd.ca" <Shane.Walkey@scrd.ca>
Subject: Chapman Lake Site Visit

All:
Airspar just called to cancel the site visit due to the weather. We will still meet at the SCRD office for a project update at 11:00 for the AECOM-BC Parks-SCRD team.
Sorry for the inconvenience.
Thanks.

Brett

 Organizer: dewynter, Brett
 When: 11:00 AM - 3:00 PM May 26, 2016
 Subject: Chapman Lake Site Visit
 Location: Soccer Field Parking Lot

Sent from my BlackBerry 10 smartphone on the Bell network.

FW: Chapman Lake Site Visit

Thursday, October 12, 2017

12:08 PM

Subject	FW: Chapman Lake Site Visit
From	Dalziel, Rod ENV:EX
To	Aikman, Jennie S ENV:EX; Platz, Chris ENV:EX
Cc	Hirner, Joanna ENV:EX
Sent	Thursday, May 26, 2016 1:45 PM

The site visit was cancelled due to rain. Hoping to reschedule for Tues morning. We had a quick update meeting with SCRD and AECOM.

A couple points from the meeting.

- Will BC Parks require a formal PUP application for the research and further study this summer (we will also need to provide details on what will be required as far as study)
- They asked about the extension to the current PUP amendment. I indicated they would likely need to apply for a further amendment. But if we have another process I will need to relate to them shortly.
- SCRD (Bryan Shoji) is requesting a formal letter from Jennie stating the need for more time, further study and consultation
- There was nothing to update on either FN or stakeholder consultation
- Joanna to provide summary of IA recommendations to AECOM next week
- Rod to provide summary of stakeholder comment received by next week

Joanna: anything to add for now?

Rod Dalziel

Sunshine Coast Area Supervisor

BC Parks - South Coast Region - Ministry of Environment

✉: PO Box 950, 6451 Sechelt Inlet Road, Sechelt, BC V0N 3A0

☎: Desk (604) 885-6755 Mobile (604) 741-1967 Fax (604) 885-2445

✉: Rod.Dalziel@gov.bc.ca

Visit the BC Parks website @ bcparks.ca



BC Parks

From: Ford, Bruce [<mailto:Bruce.Ford@aecom.com>]

Sent: Thursday, May 26, 2016 10:18 AM

To: dewynter, Brett; Mathewson, Andrew; ashley@insituconsulting.ca; Bryan.Shoji@scrd.ca;
 s.22 ; Aikman, Jennie S ENV:EX; Hirner, Joanna ENV:EX; kenzie@insituconsulting.ca;
 kwilkinson@sechelt-nation.net; Dalziel, Rod ENV:EX; Shane.Walkey@scrd.ca

Subject: Chapman Lake Site Visit

All:

Airspan just called to cancel the site visit due to the weather. We will still meet at the SCRD office for a project update at 11:00 for the AECOM-BC Parks-SCRD team.

Sorry for the inconvenience.

Thanks.

Brett

Organizer: dewynter, Brett

When: 11:00 AM - 3:00 PM May 26, 2016

Subject: Chapman Lake Site Visit

Location: Soccer Field Parking Lot

Sent from my BlackBerry 10 smartphone on the Bell network.

Re: Chapman Lake Site Visit

Monday, October 16, 2016

1:53 PM

Subject	Re: Chapman Lake Site Visit
From	Hirner, Joanna ENV:EX
To	Dalziel, Rod ENV:EX; Aikman, Jennie S ENV:EX; Platz, Chris ENV:EX
Sent	Thursday, May 26, 2016 1:52 PM

Thanks Rod! Only one thing to add

-Regarding the need to a research permit for their surveys this summer, the submit a work plan to us regarding their plans for further study. The work this summer would include some drilling into the rock in the outlet channel.

Joanna Hirner (RPBio)
Conservation Specialist
BC Parks, South Coast Region
604-924-2228

From: Dalziel, Rod ENV:EX
Sent: Thursday, May 26, 2016 1:45 PM
To: Aikman, Jennie S ENV:EX; Platz, Chris ENV:EX
Cc: Hirner, Joanna ENV:EX
Subject: FW: Chapman Lake Site Visit

The site visit was cancelled due to rain. Hoping to reschedule for Tues morning. update meeting with SCRD and AECOM.

A couple points from the meeting.

- Will BC Parks require a formal PUP application for the research and further study (we will also need to provide details on what will be required as far as study)
- They asked about the extension to the current PUP amendment. I indicated that we need to apply for a further amendment. But if we have another process I will need to do that shortly.
- SCRD (Bryan Shoji) is requesting a formal letter from Jennie stating the need for further study and consultation
- There was nothing to update on either FN or stakeholder consultation
- Joanna to provide summary of IA recommendations to AECOM next week
- Rod to provide summary of stakeholder comment received by next week

Joanna: anything to add for now?

Rod Dalziel

Sunshine Coast Area Supervisor
BC Parks - South Coast Region - Ministry of Environment
PO Box 950, 6451 Sechelt Inlet Road, Sechelt, BC V0N 3
Desk (604) 885-6755 Mobile (604) 741-1967 Fax (604) 885-6755
Email: Rod.Dalziel@gov.bc.ca
Visit the BC Parks website @ bcparks.ca

From: Ford, Bruce [<mailto:Bruce.Ford@aecom.cc>]

Sent: Thursday, May 26, 2016 10:18 AM

To: dewynter, Brett; Mathewson, Andrew; ashley@insituconsulting.ca; Bryan.Shoj
s.22 ; Aikman, Jennie S ENV:EX; Hirner, Joanna ENV:EX; kenzie@insi
kwilkinson@sechelnation.net; Dalziel, Rod ENV:EX; Shane.Walkey@scrd.ca

Subject: Chapman Lake Site Visit

All:

Airspan just called to cancel the site visit due to the weather. We will still m
office for a project update at 11:00 for the AECOM-BC Parks-SCRD team.

Sorry for the inconvenience.

Thanks.

Brett

Organizer: dewynter, Brett

When: 11:00 AM - 3:00 PM May 26, 201

Subject: Chapman Lake Site Visit

Location: Soccer Field Parking Lot

Sent from my BlackBerry 10 smartphone on the Bell net

RE: Chapman Lake Site Visit

Monday, October 16, 2016

1:54 PM

Subject	RE: Chapman Lake Site Visit
From	Platz, Chris ENV:EX
To	Hirner, Joanna ENV:EX; Dalziel, Rod ENV:EX; Aikman, Jenni
Sent	Thursday, May 26, 2016 2:05 PM

If the proposed or required research work includes ground or resource disturbance, I think it should be a permit, Jennie?

Chris

From: Hirner, Joanna ENV:EX

Sent: Thursday, May 26, 2016 1:53 PM

To: Dalziel, Rod ENV:EX; Aikman, Jenni S ENV:EX; Platz, Chris ENV:EX

Subject: Re: Chapman Lake Site Visit

Thanks Rod! Only one thing to add

-Regarding the need to a research permit for their surveys this summer, they will submit a work plan to us regarding their plans for further study. The work this summer would include some drilling into the rock in the outlet channel.

Joanna Hirner (RPBio)

Conservation Specialist

BC Parks, South Coast Region

604-924-2228

From: Dalziel, Rod ENV:EX

Sent: Thursday, May 26, 2016 1:45 PM

To: Aikman, Jenni S ENV:EX; Platz, Chris ENV:EX

Cc: Hirner, Joanna ENV:EX

Subject: FW: Chapman Lake Site Visit

The site visit was cancelled due to rain. Hoping to reschedule for Tues morning. update meeting with SCRD and AECOM.

A couple points from the meeting.

- Will BC Parks require a formal PUP application for the research and further study (we will also need to provide details on what will be required as far as study)
- They asked about the extension to the current PUP amendment. I indicated they need to apply for a further amendment. But if we have another process I will need to look into that shortly.
- SCRD (Bryan Shoji) is requesting a formal letter from Jennie stating the need for further study and consultation
- There was nothing to update on either FN or stakeholder consultation
- Joanna to provide summary of IA recommendations to AECOM next week
- Rod to provide summary of stakeholder comment received by next week

Joanna: anything to add for now?

Rod Dalziel

Sunshine Coast Area Supervisor
 BC Parks - South Coast Region - Ministry of Environment
 PO Box 950, 6451 Sechelt Inlet Road, Sechelt, BC V0N 3
 Desk (604) 885-6755 Mobile (604) 741-1967 Fax (604) 885-
 Rod.Dalziel@gov.bc.ca
 Visit the BC Parks website @ bcparks.ca



From: Ford, Bruce [<mailto:Bruce.Ford@aecom.cc>]
Sent: Thursday, May 26, 2016 10:18 AM
To: dewynter, Brett; Mathewson, Andrew; ashley@insituconsulting.ca; Bryan.Shoj
s.22 Aikman, Jennie S ENV:EX; Hirner, Joanna ENV:EX; kenzie@ins
kwilkinson@secheltnation.net; Dalziel, Rod ENV:EX; Shane.Walkey@scrd.ca
Subject: Chapman Lake Site Visit

All:

Airspan just called to cancel the site visit due to the weather. We will still meet in office for a project update at 11:00 for the AECOM-BC Parks-SCRD team.

Sorry for the inconvenience.

Thanks.

Brett

Organizer: dewynter, Brett

When: 11:00 AM - 3:00 PM May 26, 201

Subject: Chapman Lake Site Visit

Location: Soccer Field Parking Lot

Sent from my BlackBerry 10 smartphone on the Bell net

FW: Chapman Lake field work

Thursday, October 12, 2017

12:09 PM

Subject	FW: Chapman Lake field work
From	Hirner, Joanna ENV:EX
To	Aikman, Jennie S ENV:EX; Platz, Chris ENV:EX; Dalziel, Rod ENV:EX
Sent	Wednesday, May 25, 2016 2:32 PM
Attachments	 image001

Hi guys,

Any thoughts on the below regarding the need for the SCRD needing a PUP to conduct field work this summer?

Thanks!

Joanna

Sent from my iPhone using [Mail+ for Outlook](#)

From: Ford, Bruce

Sent: 2016-05-25, 1:18 PM

To: Hirner, Joanna ENV:EX

Cc: dewynter, Brett

Subject: RE: Chapman Lake field work

Joanna:

How long will it take to get a Park Use Permit for Research in order to get approval to carry out studies in the park this summer? I expect that much of the work could be done later in the summer but there may be components that would involve data collection at different times of the year.

Thanks

Bruce S. Ford, MRM, R.P.Bio

Senior Environmental Biologist

Phone: 604-444-6449

Cell: 604-787-3011

From: Hirner, Joanna ENV:EX [<mailto:Joanna.Hirner@gov.bc.ca>]

Sent: Tuesday, May 24, 2016 5:38 PM

To: dewynter, Brett; Ford, Bruce

Cc: 'Bryan Shoji'; Aikman, Jennie S ENV:EX; Dalziel, Rod ENV:EX; Platz, Chris ENV:EX

Subject: Chapman Lake field work

Hi Brett and Bruce,

I know that Jennie has spoken to Bryan about this by phone, so likely you already have heard that BC Parks would like additional field work to be done this field season to support the impact assessment for the Chapman Lake pipe installation project and the associated ability to drawdown the lake up to 8 m.

I am leading the environmental impact review process for the application on behalf of BC Parks, with

input from others including non-parks biologists within the Ministry of Forests, Lands and Natural Resource Operations. I'm still working on compiling some formal comments on the application, but I thought I should try and get you at least some informal draft comments specifically around additional field work, given that the scheduled site visit will provide an opportunity to consider and discuss some of the issues we have identified around additional field work.

Here are some comments:

- 1) I will provide a more detailed rationale, but here are some key reasons BC Parks believes additional field work is warranted:
 - a. The current impact assessment relies heavily on the 1999 Whitehead impact assessment. Whitehead's conclusions about impacts were based in large part on the fact that under drawdown conditions up until 1998, the conditions of assessed environmental values in 1998 did not suggest significant impacts of drawdown. Whitehead then extrapolated that if significant impacts were not occurring under existing drawdown, additional drawdown should not significantly increase impacts. However, 18 years have passed since Whitehead did his field work in September 1998 to assess the existing conditions of environmental values. It seems likely that existing conditions have changed, both in terms of the conditions of key environmental values being assessed as well as the drawdown regime and climate conditions. Thus field work that supports the impact assessment should be updated so we can understand the existing condition of values most likely to be affected by the project.
 - b. The field work that Whitehead conducted was limited to only a few days in September 1998, and even Whitehead acknowledged that this field work was limited in scope. Whitehead also acknowledged that there was uncertainty around his conclusion of a low likelihood of significant impacts from the project. Thus Whitehead recommended additional field work to characterize the baseline conditions of values most likely to be affected by the drawdown before the proposed pump installation in the fall of 1999. This baseline would be used to monitor the conditions of values post-pump installation to allow for adaptive management and exploring ways to mitigate impacts if significant impacts were detected post-pump installation.
- 2) Here are some specific comments around the types of additional field work recommended to update the impact assessment:
 - a. If not in place already, a water level recording device for continuous water level monitoring in Chapman Lake should be installed to allow for ongoing monitoring of drawdown.
 - b. Baseline water quality monitoring: Whitehead (1999) included a preliminary list of water quality parameters that should be included in a monitoring program. A professional with expertise in limnology and water quality monitoring, especially as it relates to aquatic life values such as fish, should review Whitehead's (1999) recommendations and be involved in the design of a baseline water quality monitoring program.
 - c. Fish sampling: There is limited information about fish in Chapman Lake, but Whitehead's (1999) sampling confirmed that there are Dolly Varden char in the lake. FLNRO fisheries biologists have raised concern that Dolly Varden char in Chapman Lake may be prevented from accessing their spawning streams during the drawdown period. Ad-fluvial char (i.e. those that spawn in tributary streams but otherwise sub-adults/adults live in lake) within the South Coast region have been documented migrating to spawning inlet streams in mid to late July and return to lake to overwinter as late as mid-November; Dolly Varden in cold water/high elevation systems such as Chapman Lake tend to migrate to spawning streams earlier in the summer than in warmer systems. To understand the implications of drawdown on spawning, additional fish surveys should be designed to narrow down the timing and location of spawning char. Whitehead (1999) also recommended several parameters to be monitored to assess impacts on fish pre- and post-project. A professional with expertise in monitoring fish populations and habitat use should review Whitehead's (1999) recommendations and be involved in the design of the baseline and char monitoring program.

- d. Vegetation and ecological community assessment and mapping: Vegetation and ecological communities in the riparian and littoral areas of the lake are sensitive to changes in climate and drawdown regime, including changes that may have occurred since 1999, and changes that may occur in the future.
 - i. The Whitehead (1999) assessment included mapping of different riparian habitat types, surficial materials, and “ecosystem units” (now called “ecological communities”) around the lake. Given that the classification of ecological communities and the distribution of habitat types may have changed since the Whitehead (1999) assessment was completed, this mapping and classification of ecological communities should be updated. The update is important in part because changes since the last assessment may reflect effects of changes in climate and drawdown regime since 1998. Changes in distribution of habitat types and ecological communities can also be used for monitoring ecological changes following implementation of the proposed project. In particular, the extent and distribution of wetland communities should be mapped and monitored because they are likely to be particularly sensitive to longer and deeper drawdown of Chapman Lake.
 - ii. Whitehead (1999) surveyed several environmental parameters, including vegetation species and distribution, along nine transects perpendicular to the lakeshore. Transect locations were chosen to represent the diversity of riparian and littoral habitat conditions in the lake. These transect locations could be resampled to detect any changes in conditions since 1999, and to allow for continued monitoring post-project implementation. Alternatively, a new monitoring protocol could be developed involving different transect locations. The transects should include enough riparian area above the high water mark to detect changes in terrestrial vegetation that could be a result of more prolonged and/or deeper drawdown of the lake following implementation of the proposed project.
- e. Amphibians: Aquatic-breeding amphibians may be using the lake shore and adjacent wetlands for breeding. The presence of aquatic breeding amphibians and their habitat, and potential impacts of the project on these values, should be assessed.
- f. Invertebrate monitoring: invertebrates are the main food source of fish and are indicators of lake productivity and water quality. Thus invertebrate sampling may be valuable as part of the pre- and post-project monitoring.

Thanks and looking forward to discussing these things more in the field on Thursday.

Best regards,
Joanna

Joanna Hirner (MRM, RPBio)
Conservation Specialist
South Coast Region, BC Parks
604-924-2228

RE: Chapman Lake Site Visit

Monday, October 16, 2016

1:55 PM

Subject	RE: Chapman Lake Site Visit
From	Aikman, Jennie S ENV:EX
To	Platz, Chris ENV:EX; Hirner, Joanna ENV:EX; Dalziel, Rod ENV:EX
Sent	Thursday, May 26, 2016 2:56 PM

Yes, they will require a permit if the research/investigative use involves ground disturbance or intrusive works.

Thanks for the summary from the meeting Rod

From: Platz, Chris ENV:EX

Sent: Thursday, May 26, 2016 2:05 PM

To: Hirner, Joanna ENV:EX; Dalziel, Rod ENV:EX; Aikman, Jennie S

Subject: RE: Chapman Lake Site Visit

If the proposed or required research work includes ground or resource disturbance, I think it should be a permit, Jennie?

Chris

From: Hirner, Joanna ENV:EX

Sent: Thursday, May 26, 2016 1:53 PM

To: Dalziel, Rod ENV:EX; Aikman, Jennie S ENV:EX; Platz, Chris ENV:EX

Subject: Re: Chapman Lake Site Visit

Thanks Rod! Only one thing to add

-Regarding the need to a research permit for their surveys this summer, the team will submit a work plan to us regarding their plans for further study. The work this summer would include some drilling into the rock in the outlet channel.

Joanna Hirner (RPBio)

Conservation Specialist

BC Parks, South Coast Region

604-924-2228

From: Dalziel, Rod ENV:EX

Sent: Thursday, May 26, 2016 1:45 PM

To: Aikman, Jennie S ENV:EX; Platz, Chris ENV:EX

Cc: Hirner, Joanna ENV:EX

Subject: FW: Chapman Lake Site Visit

The site visit was cancelled due to rain. Hoping to reschedule for Tues morning. update meeting with SCRD and AECOM.

A couple points from the meeting.

- Will BC Parks require a formal PUP application for the research and further study (we will also need to provide details on what will be required as far as study)
- They asked about the extension to the current PUP amendment. I indicated that we need to apply for a further amendment. But if we have another process I will need to do that shortly.
- SCRD (Bryan Shoji) is requesting a formal letter from Jennie stating the need

further study and consultation

- There was nothing to update on either FN or stakeholder consi
- Joanna to provide summary of IA recommendations to AECOM ne
- Rod to provide summary of stakeholder comment received by ne

Joanna: anything to add for now?

Rod Dalziel

Sunshine Coast Area Supervisor
 BC Parks - South Coast Region - Ministry of Environme
 PO Box 950, 6451 Sechelt Inlet Road, Sechelt, BC V0N 3
 Desk (604) 885-6755 Mobile (604) 741-1967 Fax (604) 885-
 Rod.Dalziel@gov.bc.ca
 Visit the BC Parks website @ bcparks.ca



BC Parks

From: Ford, Bruce [<mailto:Bruce.Ford@aecom.cc>]
Sent: Thursday, May 26, 2016 10:18 AM
To: dewynter, Brett; Mathewson, Andrew; ashley@insituconsulting.ca; Bryan.Shoj
s.22 ; Aikman, Jennie S ENV:EX; Hirner, Joanna ENV:EX; kenzie@ins
kwilkinson@secheltnation.net; Dalziel, Rod ENV:EX; Shane.Walkey@scrd.ca
Subject: Chapman Lake Site Visit

All:

Airspan just called to cancel the site visit due to the weather. We will still m
 office for a project update at 11:00 for the AECOM-BC Parks-SCRD team.

Sorry for the inconvenience.

Thanks.

Brett

 Organizer: dewynter, Brett

When: 11:00 AM - 3:00 PM May 26, 201

Subject: Chapman Lake Site Visit

Location: Soccer Field Parking Lot

Sent from my BlackBerry 10 smartphone on the Bell net

From: [dewynter, Brett](#)
To: [Aikman, Jennie S ENV:EX](#); [Hirner, Joanna ENV:EX](#); [Dalziel, Rod ENV:EX](#); [Shane Walkey \(Shane.Walkey@scrd.ca\)](#); [Ford, Bruce](#); ["Bryan Shoji"](#); ["kwilkinson@secheltnation.net"](#); ["Barett Soroka"](#); [info@airspanhelicopters.com](#); [kenzie@insituconsulting.ca](#)
Cc: [Mathewson, Andrew](#); [ashley@insituconsulting.ca](#)
Subject: Chapman Lake Site Visit

All:

As we know trip to the Chapman Lake site planned for this past Thursday was cancelled due to the weather. Looking forward at the weather report we have re-scheduled the site visit to Chapman Lake for 9:00 am on Tuesday, May 31, 2016. Please accept this meeting request to confirm your participation in the site visit.

Thanks.

Brett

All:

Based on the feedback received and the expectation that all the snow will be gone, the site visit for the Chapman Lake project is scheduled for May 26th. We plan on having the first group leave Airspan at 11:00 am. This will provide lots of time for people that need to travel.

Please accept this meeting request so the time is blocked out in your calendar. Attendees list is provided below based on 2-trips of 5 per trip. There is a tentative split of the groups based on the assumption that the "Trip 1" group will need a bit more time on-site to collect samples, measure stuff, etc. If you think you are in the wrong group let me know. Thanks.

Trip 1:

BC Parks - Rod Dalziel
 AECOM - Brett deWynter
 AECOM - Bruce Ford
 In-situ - Kenzie Jessome
 Ministry of Environment - Local fish biologist, To be confirmed by Rod

Trip 2:

BC Parks - Jennie Aikman
 BC Parks - Joanna Hirner
 SCR D - Bryan Shoji
 SCR D - Shane Walkey
 Sechelt First Nation - Director Sid Quinn

Brett

All:

Based on the feedback it seem like May 18th fits the schedule. Please accept this meeting request so the time is block-out in your calendar. Thanks.

Brett

All:

Based on the feedback provided to date, please accept this meeting date as the time for the site visit. The site visit is weather dependent, but currently planned for Wednesday, May 11th, 2016. Please accept this meeting request so we can confirm numbers.

More details to follow. Thanks.

Brett

RE: Chapman Lake Water Supply Improvement - BC Pa

Monday, October 16, 2016

1:56 PM

Subject	RE: Chapman Lake Water Supply Improvement - BC Parks M
From	dewynter, Brett
To	Bryan Shoji; Dave Crosby; Mathewson, Andrew; Ford, Bruce; Aikman, Jennie S ENV:EX; D Hirner, Joanna ENV:EX; Shane Walkey (Shane.Walkey@scrd.ca)
Cc	Platz, Chris ENV:EX
Sent	Monday, May 30, 2016 8:57 AM

All: Provided below are the notes and key action items from our meeting on May review and let me know if you have any comments or concerns.

Meeting Date: May 26, 2016 at the SCRD Offi

Meeting Attendees: Joanne Hirner, Rod Dalziel, Bryan Shoji, Dave Crosby, Shane W Andrew Mathewson, Brett deWynter.

Meeting Notes:

1. Meeting Overview: Due to the scheduled site visit to Chapman Lake being cancelled (due to weather conditions at the site), an impromptu meeting was held at the Regional District Office. This meeting was attended by BC Parks, the Regional District and AECOM.
2. It was verbally confirmed that a Park Use Permit to construct the permanent solution for the surface of Chapman Lake to be lowered by an additional 5 m will not be required for the 2016 construction season. Joanna confirmed that written notification of this information is required for the current Park Use application will be provided by the end of the month. This letter will include comments from Rod Dalziel regarding concerns from the previous meetings and any other functional concerns. It is envisioned that the letter prior to the 3rd, 2016 will be a complete set of comments from BC Parks regarding the current application.
3. One of the primary concerns noted by BC Parks were potential changes to the site since the Whitehead report was published. Shane from the Regional District will search the archive for pictures (preferably aerial pictures) of Chapman Lake at the time the Whitehead report was published. The historical pictures can be used to verify any changes in the Chapman Lake site during the past 15+ years.
4. Detailed bathymetric survey and level data for Chapman Lake exists for the 1990s. This data will be compiled to establish an estimate of the drawdown duration over the past and make projections about the future lake drawdown frequency and capacity.
5. BC Parks will investigate and provide written notification confirming if the current permit application needs to be re-submitted. It is preferable for the current permit to be approved to minimize the chance of water shortages again this summer, the syphon may be installed this summer. Additionally the syphon will be needed next summer for the construction of the permanent solution meaning the temporary syphon permit will be needed for the next summer.
6. It is expected that environmental field work and geotechnical investigations will be completed this summer to address the comments provided by BC Parks. It was requested by BC Parks if a research permit needs to be completed for the field work that will be conducted during the summer of 2016 at the Chapman Lake site.
7. Rod noted that some Stakeholders have suggested that they have not been well informed about the project. It was requested that Rod provide a list of Stakeholders in the area with intention to meet with all the major park Stakeholders. It was also noted that the current efforts to date have been more heavily focused on the First Nation consultation prior to completing a broader communication effort. The First Nation consultation will be completed by the end of the summer.

8. It was confirmed that the consultation in the future will be focused meetings Stakeholders. It was also noted that the SCRD held open meetings with the community at several different locations during the week of May 16th and 25th, 2016. Drinking water issues were a major discussion item during the community meetings.
9. It was requested that a separate letter be provided from BC Parks stating that the water supply solution for Chapman Lake can not be constructed during 2016. The project will be a significant concern for the Regional District Board. A separate letter stating that the project can not be constructed this summer is being requested for the communication to the Regional District Board. This letter is being requested by the community.
10. Rod noted that Ranger Training starts on the week of June 6th and continues for 4 weeks. It was also noted that BC Parks staff would like to attend the site prior to the construction. The notes regarding the planned Chapman Lake construction. This means we need to delay the site visit during the week of May 30th, 2016 to complete the site visit to ensure the project is not further delayed. After the meeting the weather forecast was reviewed and the project is being delayed.

Brett deWynter, P.Eng.

Water Group, Canada West

s.22

brett.deWynter@aecom.com

From: dewynter, Brett

Sent: Monday, April 25, 2016 10:54 AM

To: 'Bryan Shoji'; 'Dave Crosby'; Mathewson, Andrew; Ford, Bruce; Chris.Platz@gc.ca; Jennie.Aikman@gov.bc.ca; Hirner, Joanna ENV:EX (Joanna.Hirner@gov.bc.ca)

Cc: Rod.Dalziel@gov.bc.ca

Subject: FW: Chapman Lake Water Supply Improvement - BC Parks

All:

Thanks for the meeting on Friday, April 8, 2016. Further to the meeting we confirmed the following items:

1. Bryan Shoji of the Sunshine Coast Regional District confirmed that acceptance of the Park Use Permit was provided via e-mail to BC Parks on April 6, 2016.
2. The preliminary Park Use Plan that was submitted to BC Parks prior to the meeting was reviewed. The indication from BC Parks was that the plan is acceptable however, it was noted that the preliminary review of the documents had been completed. The areas where it was noted that AECOM focus prior to submitting the final documents to Front Corner BC is explain impacts of the construction activities complete with the mitigation plans.
3. It was noted that BC Parks has reached-out to other government agencies to obtain comments. One of the key comments received from DFO is to ensure minimum fish flow maintained in the Chapman Creek. The minimum fish flow rate suggested in the report is roughly double the flow rate suggested in the Dave Bates report. The issue of the Chapman Creek will only be improved with the completion of the proposed project for Chapman Lake, however, the debate about the minimum flow required in Chapman Creek is ongoing.
4. The consultation effort spent to date was summarized and provided in a document prior to the meeting. During the discussion it was indicated that the public consultation to date seemed reasonable. BC Parks would prefer that the consultant/SCRD obtain a letter of objection from the Sechelt and Squamish First Nation communities. The consultation needs to continue and be documented. Once the letters of non-objection are received from the First Nations and the consultation with the community is completed the current status of the project that this will be satisfactory for BC Parks. During the Park Use Permit review BC Parks will be providing input to the consultant.
5. BC Parks completed their own internal review of the documentation and current opinion that they have the legal ability to issue a Park Use Permit; however, this is currently under review by the internal government lawyer. If there are any changes resulting from the review, BC Parks will be providing input to the consultant.

being able to issue the construction permit this year, BC Parks will inform the SCR possible.

6. The tentatively planned schedule is:

- a. AECOM will submit the Park Use Permit application during the week 2016;
- b. AECOM will confirm the water license submission required and then application during the week of April 11th, 2016;
- c. BC Parks will continue to review the construction plans and then the a it is submitted. The internal review will be ongoing with a focus on the p environmental impacts and the associate mitigation plan. BC Parks was i out to AECOM or the SCRD during their document review if they have an we would be happy to provide responses.
- d. Depending on the rate of snow melt the plan is to complete a site visit tentatively planned for the second week of May 9th, 2016. The site visit 3 representatives from BC Parks, the SCRD, AECOM and a representative (i.e. the Sechelt Band arch. consultant). The goal is to coordinate the site everyone can be on-site together. This will allow any concerns to be revi

Let us know if you have any further comments or concerns with the above notes. the Park-Use Permit application and Water License Amendment have been submi Counter BC. Thanks.

Brett deWynter, P.Eng.

s.22

From: dewynter, Brett

Sent: Thursday, April 07, 2016 11:06 AM

To: 'Platz, Chris ENV:EX'; Bryan Shoji; Mathewson, Andrew; Ford, Bruce; Aikman, Hirner, Joanna ENV:EX; Rod.Dalziel@gov.bc.ca

Cc: Dave Crosby (Dave.Crosby@scrd.ca); Shane Walkey (Shane.Walkey@

Subject: RE: Chapman Lake Water Supply Improvement - BC Parks I

All:

Further to our meeting planned for tomorrow we offer the following comments a items:

1. It was discussed that the temporary permit issued last summer needs to be sign finalized. This will be completed and an original signed copy hand delivered tomo
2. The preferred plan is to complete the construction of the proposed works at Ch summer to support the installation of the diversion of water to a total depth of 8. the efforts shown in the preliminary design drawing provided during the March 16 DRAFT Park Use-Permit application and the supporting documentation has been p DRAFT document are attached.
3. Revision to the water license are ongoing. There is currently some debate abou complete a new water license application versus an amendment to the existing li active discussion with FLNR to clarify this item. For your information a DRAFT am application has been prepared.
4. The need for stakeholder consultation was discussed to meet the obligations o process. These efforts have been ongoing. The background documents are provid the consultation efforts completed to date with a summary of some of the key iss specific areas that we would like to discuss are:
 - a. what specific areas of interest we should explore further in order to fu First Nations and Public Participation requirements / expectations for a " public consultation process" mentioned in the Tetrahedron Park Manage
 - b. Other groups to consult / encourage participati
5. BC Parks was going to investigate their files and documents to determine if the j work at Chapman Lake could be completed with an amendment. The results of thi:

be shared with the project team.

Once the background documents are reviewed and discussed we are hoping to re regarding the plan to advance the project.

Let us know if you have any further comments, otherwise we look forward to the for tomorrow. Thanks.

Brett deWynter, P.Eng.

s.22

-----Original Appointment-----

From: Platz, Chris ENV:EX [mailto:Chris.Platz@gov.bc.

Sent: Wednesday, April 06, 2016 8:02 AM

To: Platz, Chris ENV:EX; Bryan Shoji; Mathewson, Andrew; Ford, Bruce; dewynter, Jennie S ENV:EX; Hirner, Joanna ENV:EX

Subject: Chapman Lake Water Supply Improvement - BC Parks N

When: Friday, April 08, 2016 10:30 AM-12:00 PM (UTC-08:00) Pacific Time (US ;

Where: ENV R North Van. 1610 Mount Seymour Road Main Fl RM N. Van (seats 1
Good morning,

I am canvassing for agenda topics. Please send me your items and I will formulate ;
meeting.

Chris

Hi all,

As discussed during our first meeting I am looking to book a follow-up meeting in ;
let me know if this date works and if there is anyone else you would like invited to
I will call for agenda items a few days ahead of the meeting but if you have any it;
send them along.

Chris

RE: Chapman Lake Water Supply Improvement - BC Pa

Monday, October 16, 2016
1:57 PM

Subject	RE: Chapman Lake Water Supply Improvement - BC Parks M
From	Shane Walkey
To	'dewynter, Brett'; Bryan Shoji; Dave Crosby; Mathewson, Andrew; Ford, Bruce; Aikman, Jennie S ENV:EHirner, Joanna ENV:EX
Cc	Platz, Chris ENV:EX
Sent	Monday, May 30, 2016 9:47 AM
Attachments	 Chapman Lake Level...

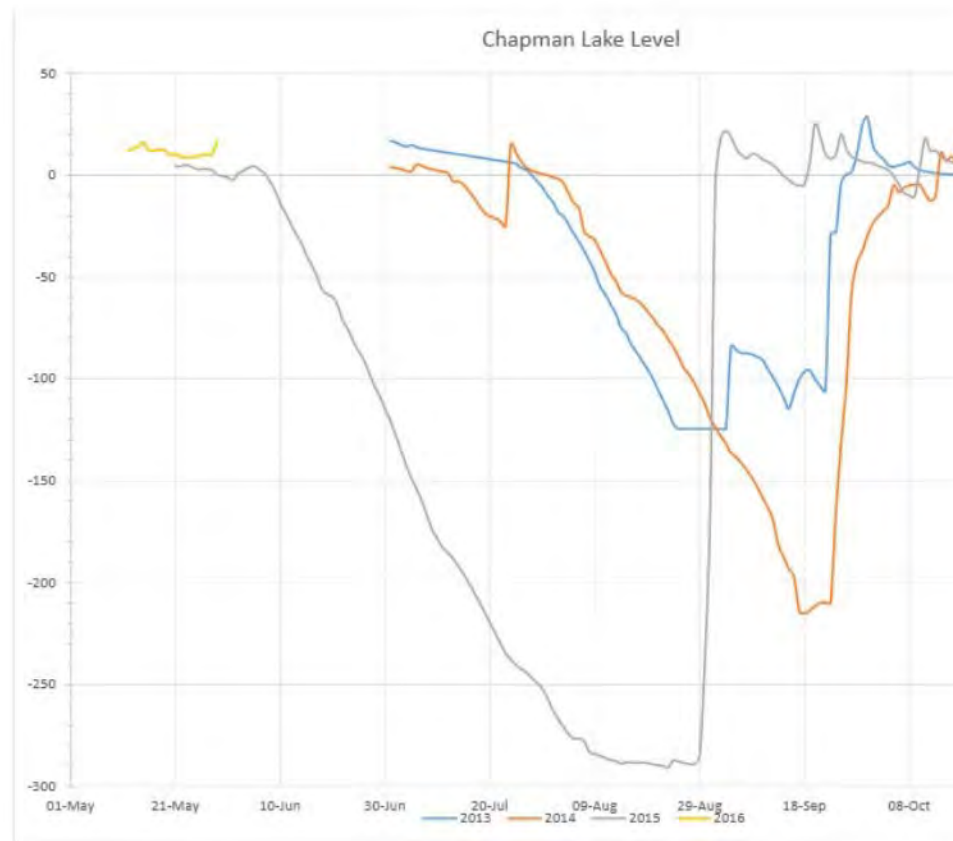
All,

As discussed at our last meeting please find attached the Chapman Lake Level graph. This graph shows Chapman Lake levels in the past three years and how the lake responded to drawdown and recovery. It rained 55 mm of rain at the lake in a 24 hour period on the weekend, thus you can see the lake level rise on the graph.

Shane Walkey
Utilities Superintendent
Sunshine Coast Regional District
604-885-6895
shane.walkey@scrd.ca

Visit us: www.scrd.ca
Follow us on Twitter at [sunshinecoastrd](#)
Like us on Facebook

Join us for a community dialogue in your neighbour



RE: Chapman Lake Water Supply Improvement - BC Pa

Monday, October 16, 2016
1:58 PM

Subject	RE: Chapman Lake Water Supply Improvement - BC Par
From	Dalziel, Rod ENV:EX
To	Hirner, Joanna ENV:EX; Aikman, Jennie S ENV:E
Cc	Platz, Chris ENV:EX
Sent	Thursday, June 2, 2016 2:12 PM
Attachments	 SCRD - Chapman ...

Below is what I plan to provide as response to Brett's email.
Not including:

- Joanna confirmed that written notification of where additional information is required for the Park Use application will be provided by June 3rd, 2016.
- It was requested that a separate letter be provided from BC Parks stating that the permanent solution for Chapman Lake can not be constructed during 2016. The delay to the project is a concern for the Regional District Board. A separate letter stating that the project can not be constructed during the summer is being requested for the communication to the Regional District Board. This letter was requested by June 3rd, 2016, since there is a presentation to the Board scheduled for June 3rd, 2016.

Hello Brett,

Thank you for providing summary of the May 26th meeting. The following is the requested information.

Please find attached summary of Tetrahedron Advisory Committee meeting.

Please expect further comment from BC Parks on the PUP amendment application.

I am confirming a PUP amendment application will need to be submitted to extend the current term siphon option" to 31 Oct 17.

I am confirming a Research PUP application will need to be submitted for the additional field visit during the summer of 2016 at the Chapman Lake site.

Stakeholders that have reached out to BC Parks and whom wish to be included in consultation are: Tetrahedron Advisory Committee, Tetrahedron Alliance, Sunshine Coast Conservation Association, Tetrahedron Ruby Lake Lagoon Society.

Regards,

Rod Dalziel

Sunshine Coast Area Supervisor

BC Parks - South Coast Region - Ministry of Environment

PO Box 950, 6451 Sechelt Inlet Road, Sechelt, BC V0N 3

Desk (604) 885-6755 Mobile (604) 741-1967 Fax (604) 885-7

Rod.Dalziel@gov.bc.ca

Visit the BC Parks website @ bcparks.ca



BC Parks

From: dewynter, Brett [mailto:Brett.dewynter@aecom.ca]

Sent: Monday, May 30, 2016 8:58 AM

To: Bryan Shoji; Dave Crosby; Mathewson, Andrew; Ford, Bruce; Aikman, Jennie S ENV:EX; D Hirner, Joanna ENV:EX; Shane Walkey (Shane.Walkey@scrd.ca)

Cc: Platz, Chris ENV:EX

Subject: RE:Chapman Lake Water Supply Improvement - BC Parks

All: Provided below are the notes and key action items from our meeting on May 26, 2016. Please let me know if you have any comments or concerns.

Meeting Date: May 26, 2016 at the SCRD Office

Meeting Attendees: Joanne Hirner, Rod Dalziel, Bryan Shoji, Dave Crosby, Shane Walkey, Bruce Mathewson, Brett deWynter.

Meeting Notes:

1. Meeting Overview: Due to the scheduled site visit to Chapman Lake being cancelled (low impromptu meeting was held at the Regional District Office. This meeting was held between Regional District and AECOM.
2. It was verbally confirmed that a Park Use Permit to construct the permanent solution to all of Chapman Lake to be lowered by an additional 5 m will not be provided for the 2016 construction season. Joanna confirmed that written notification of where additional information is required for

Use application will be provided by June 3rd, 2016. This letter will include comments from I regarding concerns from the Stakeholder meetings and any other functional concerns. It is letter provided by June 3rd, 2016 will be a complete set of comments from BC Parks regard

3. One of the primary concerns noted by BC Parks were potential changes to the Chapman I Whitehead report was published. Shane from the Regional District stated that he will see pictures (preferably aerial pictures) of Chapman at the time when the Whitehead report historical pictures can be used to visually note any changes in the Chapman Lake site during years.
4. Detailed bathymetric survey and level data for Chapman Lake exists for the past few years compiled to establish an estimate of the drawdown durations in the recent past and make the future lake drawdown frequency and durations.
5. BC Parks will investigate and provide written notification confirming if the temporary syphon needs to be re-submitted. It is preferable for the current permit to be extended. To minimize water shortages again this summer, the syphon may need to be installed this summer. A syphon will be needed next summer for the construction of the permanent solution means syphon permit needs to be extended to October 31, 2017.
6. It is expected that environmental field work and geotechnical investigations will need to be completed by summer to address the comments provided by BC Parks. It will be confirmed by BC Parks if needs to be completed for the field work that will occur during the summer of 2016 at the site.
7. Rod noted that some Stakeholders have suggested that they have not been well informed. It was requested that Rod provide a list of Stakeholders since it is the intention to meet with Stakeholders. It was also noted that the consultation efforts to date have been more heavy First Nation consultation and support prior to completing a broader communication effort. Consultation has been delayed due to the political challenges at the Sechelt Band.
8. It was confirmed that the consultation in the future will be focused meetings with the specific groups. It was also noted that the SCRDP held open meetings with the community at several different times during the week of May 16th and 25th, 2016. Drinking water supply issues were a major discussion topic at the community meetings.
9. It was requested that a separate letter be provided from BC Parks stating that the permanent solution for Chapman Lake can not be constructed during 2016. The delay to the project is a concern for the Regional District Board. A separate letter stating that the project can not be completed this summer is being requested for the communication to the Regional District Board. This letter was requested by June 3rd, 2016, since there is a presentation to the Board scheduled for June 3rd, 2016.
10. Rod noted that Ranger Training starts on the week of June 6th and continues for the next 2 weeks. Rod noted that BC Parks staff would like to attend the site prior to confirming all the notes regarding Chapman Lake construction. This means we need to find a day during the week of May 30th to the site visit to ensure the project is not further delayed. After the meeting the weather forecast was reviewed and the morning of Tuesday, May 31, 2016 was picked for the site visit.

Brett deWynter, P.Eng.
Water Group, Canada West

s??

brett.deWynter@aecom.com

From: dewynter, Brett

Sent: Monday, April 25, 2016 10:54 AM

To: 'Bryan Shoji'; 'Dave Crosby'; Mathewson, Andrew; Ford, Bruce; Chris.Platz@gov.bc.ca; Jennie.Aikman@gov.bc.ca; Hirner, Joanna ENV:EX (Joanna.Hirner@gov.bc.ca)

Cc: Rod.Dalziel@gov.bc.ca

Subject: FW: Chapman Lake Water Supply Improvement - BC Parks

All:

Thanks for the meeting on Friday, April 8, 2016. Further to the meeting we confirm the following:

1. Bryan Shoji of the Sunshine Coast Regional District confirmed that acceptance of the temporary Permit was provided via e-mail to BC Parks on April 6, 2016.

2. The preliminary Park Use Plan that was submitted to BC Parks prior to the meeting was discussed. From BC Parks was that the plan is acceptable however, it was noted that only a preliminary review documents had been completed. The areas where it was requested that AECOM focus prior to finalizing documents to Front Corner BC is explaining the potential impacts of the construction activities and mitigation plans.

3. It was noted that BC Parks has reached-out to other government agencies to obtain initial comments. A key comment received from DFO is to ensure minimum fish flows are maintained in the Chapman Lake. The minimum fish flow rate suggested in the meeting was roughly double the flow rate suggested in the report. The issue of the minimum flow in Chapman Creek will only be improved with the completion of the project.

project at Chapman Lake, however, the debate about the minimum flow required in Chapman Lake

4. The consultation effort spent to date was summarized and provided in a document to BC Parks meeting. During the discussion it was indicated that the public consultation efforts spent to date are reasonable. BC Parks would prefer that the consultant/SCRD obtains a letter of non-objection from Squamish First Nation communities. The consultation completed to date needs to continue and once the letters of non-objection are obtained from the First Nations and the consultation is completed the current indication is that this will be satisfactory for BC Parks. During the Park Use

5. BC Parks completed their own internal review of the documentation and currently hold the legal ability to issue a Park Use Permit; however, this item is currently under review by a government lawyer. If there are any changes resulting in BC Parks not being able to issue the permit this year, BC Parks will inform the SCRD as soon as possible.

6. The tentatively planned schedule is:

- a. AECOM will submit the Park Use Permit application during the week of April 11th, 2016;
- b. AECOM will confirm the water license submission required and then make the application by the week of April 11th, 2016;
- c. BC Parks will continue to review the construction plans and then the application on April 11th. The internal review will be ongoing with a focus on the potential environmental impacts and the associated mitigation plan. BC Parks was invited to reach-out to AECOM or the SCRD to discuss the document review if they have any questions and we would be happy to provide responses.
- d. Depending on the rate of snow melt the plan is to complete a site visit. This site visit is planned for the second week of May 9th, 2016. The site visit will include 2 – 3 representatives from BC Parks, the SCRD, AECOM and a representative from In-situ (i.e. the Sechelt Band). The goal is to coordinate the site visit so everyone can be on-site together. This will allow the issues to be reviewed and discussed while on-site.

Let us know if you have any further comments or concerns with the above notes. Please note that the Park Use Permit application and Water License Amendment have been submitted to Front Counter BC.

Brett deWynter, P.Eng.

s.22

From: dewynter, Brett

Sent: Thursday, April 07, 2016 11:06 AM

To: 'Platz, Chris ENV:EX'; Bryan Shoji; Mathewson, Andrew; Ford, Bruce; Aikman, Jennie S ENV:EX; Rod.Dalziel@gov.bc.ca

Cc: Dave Crosby (Dave.Crosby@scrd.ca); Shane Walkey (Shane.Walkey@scrd.ca)

Subject: RE: Chapman Lake Water Supply Improvement - BC Parks

All:

Further to our meeting planned for tomorrow we offer the following comments and discussion:

1. It was discussed that the temporary permit issued last summer needs to be signed-off and finalized and an original signed copy hand delivered tomorrow.

2. The preferred plan is to complete the construction of the proposed works at Chapman Lake to support the installation of the diversion of water to a total depth of 8.0 m. To support the effective implementation of the preliminary design drawing provided during the March 16, 2016 meeting a DRAFT Park Use-Permit application and the supporting documentation has been prepared. These DRAFT documents are attached.

3. Revision to the water license are ongoing. There is currently some debate about the need to submit a new water license application versus an amendment to the existing license. There are active discussions to clarify this item. For your information a DRAFT amendment application has been prepared.

4. The need for stakeholder consultation was discussed to meet the obligations of the BC Park Act. Consultation efforts have been ongoing. The background documents are provided to summarize the consultation completed to date with a summary of some of the key issues. A couple specific areas that we are discussing are:

- a. what specific areas of interest we should explore further in order to fulfil BC Parks' Public Participation requirements / expectations for a "comprehensive public consultation process" mentioned in the Tetrahedron Park Management Plan.
- b. Other groups to consult / encourage participation from

5. BC Parks was going to investigate their files and documents to determine if the planned scope of work at Chapman Lake could be completed with an amendment. The results of this investigation will be provided to the project team.

Once the background documents are reviewed and discussed we are hoping to reach consensus on the way forward to advance the project.

Let us know if you have any further comments, otherwise we look forward to the meeting planned for tomorrow.

Thanks.

Brett deWynter, P.Eng.

s.22

-----Original Appointment-----

From: Platz, Chris ENV:EX [mailto:Chris.Platz@gov.bc

Sent: Wednesday, April 06, 2016 8:02 AM

To: Platz, Chris ENV:EX; Bryan Shoji; Mathewson, Andrew; Ford, Bruce; dewynter, Brett; Aikm Hirner, Joanna ENV:EX

Subject: Chapman Lake Water Supply Improvement - BC Parks ↑

When: Friday, April 08, 2016 10:30 AM-12:00 PM (UTC-08:00) Pacific Time (US

Where: ENV R North Van, 1610 Mount Seymour Road Main Fl RM N. Van (seats 10

Good morning,

I am canvassing for agenda topics. Please send me your items and I will formulate an agenda for
Chris

Hi all,

As discussed during our first meeting I am looking to book a follow-up meeting in early April; if
this date works and if there is anyone else you would like invited to the meeting.

I will call for agenda items a few days ahead of the meeting but if you have any items now please

Chris

SCRD – Chapman Lake additional drawdown proposal

Summary of concerns raised by Tetrahedron Advisory Committee meeting 09 May 16

Attendance: Michel Frenette ((Tetrahedron Outdoor Club) (TOC)), Philip Gaulin (TOC), Vic E (TOC), Duane Sept, Daniel Bouman (Tetrahedron Alliance), Cindy Harlow ((Sunshine Coast (Association (SCCA))), Barry Janyk, Jason Hertz (SCCA), Rod Dalziel (BC Parks), George Smith (attend but provided comment (see below))

- 1999 Whitehead IA
 - 17 year old report is out of date and cannot be confidently relied on
 - What has changed since report?
 - Climate changes – wetter winters, drier summers, less and higher snow
 - Science has improved
 - Ecosystem classification advancements
 - Improved age class mapping
 - Updated Species at Risk data
- Limited Mountain Hemlock (MH) forests on the Sunshine Coast
 - Sensitive to disturbance
 - Difficult to maintain and rehab this zone
- Concerns around stability of lakeshore after drawdown (3-8m)
 - Turbidity and siltation
 - Sections of steep sided shoreline in proposed 8m drawdown
 - Referred to Tyson Lake IPP project as example of lake sedimentation
 - Noted that Whitehead did not adequately assess
- What should be included in further study and research
 - BC Parks not SCRD should commission IA and provide aspects of report
 - A soil specialist should assess area (shoreline, upland and drawdown area)
 - Testing bedrock depth and composition
 - Current and detailed analysis of fisheries values
 - Aquatic invertebrates
 - Hydrology
 - Adjacent forest water table
 - Aquatic vegetation
 - Long-term growth and development in the SCRD
 - Forest fire concern/threat
- Temporary siphon system

- Strong opinion from most that alternate source options have not been adequately investigated
 - Greater study into existing aquifers in region
 - Feel SCRD is moving ahead with easiest and cheapest option not the best for the communities
 - Most identified need multiple water sources outside of Chapman watershed
- BC Parks mandate
 - Emphasized BC Parks must balance protection of park values and water needs in Management Planning
- Public consultation
 - The intent of public consultation has changed from time described in Management Planning
 - Should be thorough public consultation
 - Not telling public what is being done and not considering public input
 - Public consultation is far from adequate thus far (09 May 16)
- Terms of Reference being requested
 - For 1999 IA
 - Current AECOM contract
 - What was scope of SCRD investigation for of options for additional municipal water
- Consensus on final points
 1. Need current, improved Impact Assessment
 2. There is temporary short term solution in the siphon system
 3. Need more time to properly investigate other water sources

"My overriding concern is that the prime directive of BC Parks is to protect representative of the ecological matrix of our province and that here in the Sunshine Coast Forest District they have protected less than 3% of our land base. Thus the Tetrahedron has particular importance for biodiversity in BC and for the Sunshine Coast. Chapman Lake is the largest lake in Tetrahedron at the heart of the little remaining unlogged forest. The water quality of Chapman Lake is dependent upon the natural land and water system within which Chapman sits. It is accurate that they have created knowing full well that there was a small dam on Chapman and that the lake was the water supply for the SCRD, and that there was the capacity to draw down the lake up to 3 m in years of drought. Further the management plan envisioned that at some point, modifications would be made to deal with future water requirements, if there was no option and if several steps were taken to ensure responsible analysis, public involvement and appropriate management.

In the meantime, climate change, essentially unbridled development and population growth

have the aquifer capacity to provide water to 10,000 people per year in perpetuity), no real of reservoir creation outside the Chapman watershed, no subsidizing of back yard water collection, annual automatic summer prohibition of lawn and driveway watering, etc. They have initiated a metering project, but as yet they have developed no real redundancy in their supply system. the dependency on one Chapman system seems a shortsighted engineering solution based on the cheapest short term fix to a serious long term problem.

If I had confidence that the trenching of Chapman Lake was truly the only remaining option after consideration of all options by competent consultants aware of the full range of modern options, the importance of maintaining biodiversity, then I would agree with the trenching. Unfortunately, annually dropping the water level 8 metres (that's 25 feet folks) will reduce a significant portion of the lake surface due to the rather conical bathymetry of the lake. From my point of view, this will convert a largely intact lake into nothing but a more sterile reservoir which will expose serious amounts of the system, which will have serious impacts on the fish and wildlife and forest ecosystem through the health of the lake.

Thus, I feel that Parks BC needs to ensure that the ecological impact analysis done before the trenching is approved, must be done to the highest standards. The earlier 1999 analysis is far from satisfactory and an in-depth update is necessary. Having a firm contracted by the proponent, the SCRD, is not sufficient. Parks must ensure that the study, the public review and the consultations with the shishálh are at the highest and fully transparent level. Parks must also be satisfied that the SCRD has truly conducted a full analysis of options for long term water supply security that extend beyond the cheap Chapman Watershed options and build redundancy into the system.

Meanwhile, there is a real alternative means of resolving this situation rationally. The SCRD has purchased the hardware for their proposed syphon system. They could install this "temporary" system to secure water supply during the peak of the potential summer drought for several years. At the same time, the SCRD could utilize the trenching budget to engage competent experts to examine and develop for alternate, long term means of providing water, such as: a full analysis of the aquifer potential within and well beyond the Chapman watershed; analysis of where lower elevation impoundment reservoirs could be situated, within and outside the Chapman; the practicality of providing subsidies for backyard water collection systems; mandatory summer restrictions on watering lawns and driveways; conduct a regional growth management analysis, etcetera."

George Smith (email dated 29 April 16)

Review and Comment

Sunshine Coast Regional District (SCRD)'s Park Use Permit Amendment Application to Install Gravity-fed Withdrawal System to Access Additional Water from Chapman Lake (submitted April 2016)

Comments prepared by Joanna Hirner, Conservation Specialist, South Coast Region, BC Parks
June 6, 2016

Comments specific to the current PUP Amendment Application ("the Application"):

- a) **Rationale for the project:** The background and rationale justifying why this project is needed are not clearly described. Although the introduction of the Application describes that the SCR D Board approved the proposed project in the fall of 2015, details of previous processes and information considered leading up to this decision are not provided. The application should include a clear rationale for the project, including description and results of processes and studies that led to development of the proposed plan, and a description of the benefits of the project. The application should also provide information on alternative options that were considered, and why the proposal to withdraw additional water from Chapman Lake using a gravity-fed water system is the preferred option for dealing with long-term water scarcity issues.
- b) **Other water supply and demand management options:** The introduction states that the proposed additional capacity to drawdown water from Chapman Lake will "only be utilized during periods of drought and until the long term source development projects specified in the Comprehensive Regional Water Plan are constructed." What long-term source development projects are being referred to here, and what is the timeline for their construction? Are there demand management options (other than water metering) being considered or implemented that could further reduce the need for drawdown of Chapman Lake?
- c) **Information on past and future "drawdown regime":** The nature of the past and future "drawdown regime" (i.e. parameters such as frequency of drawdown to and below -3 m, maximum depth of annual drawdown, timing, duration and rate of drawdown, etc.) has important implications for assessment of impacts. More information about the past drawdown regime (particularly in the last 10 years), and clearer information about predicted drawdown regime in the future, is requested. Specific comments/questions:
 - i) We understand that extensive data from monitoring of drawdown is available from recent years. Can this information be presented to provide a better understanding of existing conditions? For example, over the past 10 or 20 years, what has been the duration (start/end) and timing of drawdown below 0 m? What is the average and range of depth of maximum drawdown?
 - ii) The application states that the SCR D Board has passed a resolution committing to only draw water from below -3 m to avoid Stage 4 water restrictions (i.e. when Stage 3 restrictions are required). What are the criteria that trigger Stage 3 and Stage 4 restrictions? Are data available on the timing and frequency of these restrictions in the past, and are there predictions about timing and frequency in the future?

- iii) Predictions about future water needs and drawdown appear to rely primarily on the Opus DaytonKnight (2013) assessment and Staats (2014). Information from these two studies is discussed separately in several parts of the application. Clarity about predicted drought frequency and “drawdown regime” could be improved if the results of both studies and how they relate to predicted drawdown regime were both discussed in detail the same section (i.e. Section 3.2.3 Water Quantity).
 - iv) According to the application, the Opus DaytonKnight (2013) analysis predicts that the current water supply is sufficient to support a 1 in 21 year low water return period, and taking into account predicted population growth and demand management (water metering), a 1 in 15 year drought return period by 2036. Does this mean that the probability of drawdown below -3 m is once every 21 years now, and once every 15 years by 2036?
 - v) Can the findings of the Staats (2014) report be further interpreted to make some specific predictions about drawdown regime in the lake? For example, the Staats (2014) report predicts that annual snow pack will be diminished and will melt earlier and more rapidly. Does this then mean that drawdown to -3 or lower is more likely to occur earlier and last longer in the future?
 - vi) Does Staats (2014) provide more quantitative predictions than those presented in the application? E.g. water scarcity issues are predicted to be more **frequent** in the near future; does Staats (2014) make more specific predictions about how frequently and how soon will this change occur? As another example, the Staats (2014) study apparently predicted that total water consumption during summer could **regularly** exceed the equivalent to the available water supply in the next 10 years if: 1) water demand does not change, 2) snow pack continues to decrease in winter, 3) summer temperatures increase by an average of 1 to 2°C, and 4) prolonged droughts become more common. What is meant by **regularly**, and how likely are the four factors listed here, that would cause the regular exceedance of the available water supply?
 - vii) The analysis done by Staats (2014) appears to indicate that climate change effects will cause the need for drawdown to be greater and more frequent (by some unknown quantity) than predicted in the Opus DaytonKnight (2013) assessment. Is our interpretation correct?
- d) **Hydrology of the Chapman Lake watershed:** The application should include an updated analysis of the hydrodynamics and recharge rates of Chapman Lake, as described in Section 3.2.1 of the application. Currently Section 3.2.1 relies on information from Whitehead (1999) which may now be out of date, especially because of changes in climate. In particular, the results of Staats (2014) suggest that recharge rates may have changed. As summarized in the application, “decreasing trends in precipitation were resulting in less recharge to storage reservoirs” and other changes may be resulting in changes to “the entire water holding dynamic of the watershed”. Is there a danger of multiple years of drought and drawdown permanently lowering the water table?
- e) **Project description and construction plans:** There are many details still to be developed regarding the design and construction of the project, including footprint, schedule, construction techniques and design, etc. Many of these details have implications for the potential impacts of the project. BC Parks requests to review more detailed designs and plans as they are developed. Some specific comments/questions:

- i) **Temporary construction area:** During the site visit on May 31, 2016, sensitive wetland and drainage features were observed in much of the temporary construction area identified in the current application. Environmental features observed included relatively large areas of moss and other vegetation characteristic of wetlands, small streams, small pools with egg masses of Northern Pacific Treefrog, Long-toed Salamander, and Northwestern Salamander, adult Long-toed Salamanders and Northern Pacific Treefrogs, and a fish (likely Dolly Varden) within a small stream reach. Within the temporary construction area, the area subject to previous disturbance during the original construction appears quite small and limited to higher ground (e.g. where the helicopter pad is located and higher ground to the northeast). The footprint of the construction area needs to be very carefully managed and minimized in order to protect the above mentioned sensitive values. Site clearing should be kept to a minimum and limited to previously disturbed areas. Strategies may include keeping equipment on exposed lakebed wherever possible, using raised platforms for structures or equipment that must be kept on land, building boardwalks to limit traffic to defined paths and minimize impacts to ground and vegetation, etc. BC Parks would like to see a plan detailing a more refined project footprint and mitigation measures to prevent impacts prior to construction.
- ii) **Determination of geotechnical information:** During the May 31, 2016, site visit there was some discussion of tests to be used to determine the nature of the rock in the trench and at the dam. There was some indication that if certain conditions of the rock were not met, the project would become infeasible. Is our interpretation of the discussion correct? If so, what is the likelihood that rock conditions could render this project infeasible? Testing to determine geotechnical conditions should occur early enough in the project to prevent unnecessary impacts (e.g. associated with set up of the construction area) if the project is determined infeasible.
- iii) **Site restoration:** The application references that site restoration/remediation/reclamation plans will be developed for temporary construction areas and for dealing with rock generated through construction. BC Parks would like to review and comment on these plans prior to construction. The restoration plan should include preservation and replacement of existing habitat features such as on-site large woody debris, and even vegetation if possible.
- iv) **Other environmental management plans for construction and operations:** In addition to a site restoration plan, the application refers to several other environmental management plans, including spill prevention and response plans, wildlife and waste management plan for camp and construction site, water management plan for dealing with water during trenching, sediment/erosion control plans. BC Parks would like to review and comment on these plans and appreciates that a commitment has been made to provide them in Section 5 of the application. Plans should be provided for review as early as possible to allow BC Parks staff time to review and comment prior to construction.
- i) **Placement of intake:** The current design drawing shows that the bottom of the intake pipe is actually 9.2 m below high water. Would this then make it possible for drawdown below -8 m, either on purpose or through some kind of malfunction?
- f) **Sensitive species and ecosystems:** The lists of sensitive species and ecosystems is a list of species with potential to occur in the area, and does not include interpretation of the

likelihood of occurrence in or around Chapman Lake, what the potential impacts might be to these species/ecosystems, and how impacts might be mitigated. This additional analysis needs to be added to the application.

- g) **Acid rock drainage:** Assessment of the potential for acid rock drainage resulting from blasting and installation of the gravity fed pipe is not mentioned in the application. Information on steps taken to ensure acid rock drainage does not occur should be provided.
- h) **Flows and fish in lower sections of Chapman Creek:** Although there may be fish immediately downstream of the dam in Chapman Creek within the park, the majority of fish and fish habitat values in Chapman Creek, including all anadromous species, are outside of the park. However, determination of appropriate flows for fish in the lower section of Chapman Creek is relevant to the impacts of this project in the park in the sense that the amount of flow required for fish will affect the amount of drawdown required from Chapman Lake. The higher the minimum flow requirements for fish, the more drawdown may be required from Chapman Lake if other sources of water or demand side management are not used to reduce water requirements from Chapman Lake. This increase in drawdown requirements would have implications for future drawdown regimes and associated impacts in the park during operations. There appears to be disagreement around what minimum flow is required to sustain fish in Chapman Creek. To clarify future flow requirements for fish, BC Parks would like to see some further analysis and discussion around this issue, in particular comparing work done by DFO in the 1990s which suggested a minimum flow of $0.3 \text{ m}^3/\text{s}$, to the more recent work by Dr. Dave Bates which suggests that current minimum flows of $0.22 \text{ m}^3/\text{s}$ set by the SCRD for fish may be acceptable. It is important to note that Bates (2015) recommended further study and monitoring of salmonids and their habitat in the lower sections of Chapman Creek to confirm that $0.22 \text{ m}^3/\text{s}$ is acceptable; these studies should help clarify the issue of flow requirements. The Bates (2015) report also identifies three locations in Chapman Creek where adult passage may be hampered at flows around $0.2 \text{ m}^3/\text{s}$, and suggests strategically timed water releases to help adult fish migrate upstream during low flows. The implications of such releases on drawdown regime should also be considered.

Comments regarding the Whitehead (1999) assessment and appropriateness of relying heavily on Whitehead (1999) for assessing impacts of current project:

- a) Whitehead (1999) based much of his impact assessment and its conclusions on the fact that Chapman Lake was already subject to seasonal disturbance through summer drawdown, and that under the "existing drawdown regime", no significant negative effects had been observed. The absence of negative effects under the existing regime was used to extrapolate that although increased drawdown would increase the severity of drawdown effects, the "seasonal timing and duration of drawdown (would) not change significantly relative to the existing regime without pumping", and thus significant negative effects were considered unlikely under increased drawdown.
- b) Existing conditions (drawdown regime, climate variables, etc.) most likely have changed between 1999 and the present. The fact that existing conditions were a key part of Whitehead's (1999) conclusions about impacts, and existing conditions have very likely changed since 1999, calls into question the appropriateness of using the Whitehead (1999) assessment of impacts for the current project.
- c) Field data included in Whitehead's (1999) assessment was limited. Field work done in support of the Whitehead (1999) assessment was done over a three day period in September 1998. For some values likely to be affected by drawdown, such as fish and water quality, the limited field data collected by Whitehead (1999) was the only recent field data available for assessing the status of these values.
- d) Whitehead (1999) acknowledged uncertainty in his conclusions about impacts, and recommended baseline (1999 growing season) and post-construction monitoring to allow for detection of unexpected impacts of increased drawdown. If impacts were detected, Whitehead (1999) recommended that adaptive management be used to mitigate impacts, including exploration of other water sources and demand management options to reduce drawdown. Presumably the limited amount of field data available was another reason why Whitehead (1999) recommended further baseline field sampling of several values prior to construction, and post-construction monitoring during operations.
- e) **In summary:** existing conditions of climate, drawdown regime, and/or environmental values have likely changed since 1999. Even if conditions have not changed, Whitehead's (1999) recommendation to conduct further field sampling both pre and post construction to support adaptive management and prevent unexpected negative impacts during operations still has merit. **Thus additional field sampling prior to project construction is recommended. The results of field sampling should be used to update the impact assessment provided as part of the current Park Use Permit application, and provided to BC Parks for further review and comment.**

Comments and recommendations for additional field sampling and impact assessment:

- a) **Water quality:** Whitehead (1999) included a preliminary list of water quality parameters that should be included in a monitoring program. A professional with expertise in limnology and water quality monitoring, especially as it relates to aquatic life values such as fish, should review Whitehead's (1999) recommendations and be involved in the design of a baseline water quality monitoring program. Field visits should also be used to assess for evidence of sloughing of exposed sediments during drawdown and lake recharge. Further assessment of water quality parameters should also consider water quality issues specific to reservoirs with large drawdown. For example, high levels of methylmercury are known to be generated in newly created reservoirs but evidence also suggests that large drawdown in established reservoirs may also lead to increases in methyl mercury formation (see Azimuth (2015)¹ and references therein, particularly from section 2.6.3). The implications of releases of hydrogen sulfide as observed by Whitehead (1999) should also be considered in assessing potential water quality impacts. Finally, Whitehead's (1999) assessment of potential impacts on water quality and aquatic resources included interpretation of bathymetric and hydrology information available at the time, as it related to lake drying, sloughing of lake bed sediments, etc. The assessment should be updated with more recent bathymetry mapping and updated information about recent and future predicted hydrology.
- b) **Fish and fish habitat:**
 - i) General: Whitehead (1999) recommended several parameters to be monitored to assess impacts on fish pre- and post-project. A professional with expertise in monitoring fish populations and habitat use should review Whitehead's (1999) recommendations and be involved in the design of the monitoring program. Monitoring of important aspects of fish habitat should also be incorporated into the program. For example, monitoring of water quality parameters such as nitrogen and phosphorus can indicate lake productivity, as can monitoring of invertebrates. Temperature and oxygen profiles are also important for assessment of impacts on fish. Finally, drawdown over many years can change the substrate composition in the littoral zone, which may have implications for fish habitat and productivity.
 - ii) Dolly Varden: There is limited information about fish in Chapman Lake, but Whitehead's (1999) sampling confirmed that there are Dolly Varden char in the lake. Although it is apparently unlikely that the fish are Bull Trout, an experienced fish biologist should visually confirm the fish in Chapman Lake are Dolly Varden. Recent discussions with fish biologists from the Ministry of Forests, Lands and Natural Resource Operations suggest that Dolly Varden char may be prevented from accessing their spawning streams during the drawdown period. Ad-fluvial char (i.e. those that spawn in tributary streams but otherwise sub-adults/adults live in lake) within the South Coast region have been documented migrating to spawning inlet streams in mid to late July and return to lake to overwinter as late as mid-November. In addition, Dolly Varden in cold water/high elevation systems such as Chapman

¹ <https://www.bchydro.com/content/dam/BCHydro/customer-portal/documents/corporate/environment-sustainability/water-use-planning/lower-mainland/brgmon-12-yr2-2015-03-01.pdf>

Lake tend to migrate to spawning streams earlier in the summer than in warmer systems, increasing the probability that the period of greatest drawdown will overlap with spawning migrations. To understand the implications of drawdown on spawning, additional fish surveys should be designed to narrow down the timing and location of spawning char.

- iii) Fish in Chapman Creek downstream of dam: The assessment and field sampling regime should consider fish values immediately downstream of the dam, in terms of potential construction impacts but also in terms of potential temperature effects related to the pipe drawing water from below surface, which is known to lead to temperature effects in water released from reservoirs.
- c) **Amphibians:** Aquatic-breeding amphibians may be using the lake shore for breeding, and observations during the May 31, 2016 site visit confirm that amphibians are using adjacent wetlands for breeding. The presence of aquatic breeding amphibians and their habitat, and potential impacts of the project on these values, should be assessed. The potential for Chapman Creek to contain Coastal Tailed Frogs immediately downstream of the dam, and potential impacts to this species from construction and/or operations, should also be considered.
- d) **Vegetation and ecological community assessment and mapping:** Vegetation and ecological communities in the riparian and littoral areas of the lake are assumed to be sensitive to changes in climate and drawdown regime, including changes that may have occurred since 1999, and changes that may occur in the future.
 - i) The Whitehead (1999) assessment included mapping of different riparian habitat types, surficial materials, and “ecosystem units” (now called “ecological communities”) around the lake. Given that the classification of ecological communities and the distribution of habitat types may have changed since the Whitehead (1999) assessment was completed, this mapping and classification of ecological communities should be updated. The update is important in part because changes since the last assessment may reflect effects of changes in climate and drawdown regime since 1998. Changes in distribution of habitat types and ecological communities can also be used for monitoring ecological changes following implementation of the proposed project. In particular, the extent and distribution of wetland communities should be mapped and monitored because they are likely to be particularly sensitive to longer and deeper drawdown of Chapman Lake.
 - ii) Whitehead (1999) surveyed several environmental parameters, including vegetation species and distribution, along nine transects perpendicular to the lakeshore. Transect locations were chosen to represent the diversity of riparian and littoral habitat conditions in the lake. These transect locations could be resampled to detect changes in since 1999, and to allow for continued monitoring post-project implementation. Alternatively, a new monitoring protocol could be developed involving different transect locations. The transects should include enough riparian area above the high water mark to detect changes in terrestrial vegetation that could be a result of more prolonged and/or deeper drawdown of the lake following implementation of the proposed project.

- iii) Pre-construction rare plant survey of construction footprint is proposed in section 4.1.1 and BC Parks supports surveying for rare plants within the temporary and permanent construction footprint.
- iv) If long-term annual increases in drawdown lead to lowering of the water table and drying of terrestrial vegetation, it seems possible that this could increase probability of wildfire, especially if climate change more generally leads to warmer and drier conditions. The assessment should consider and evaluate this possibility.
- e) **Invertebrate monitoring:** As noted under “Fish and fish habitat” above, invertebrates are the main food source of fish and are indicators of lake productivity and water quality. Thus invertebrate sampling may be valuable as part of the pre- and post-project monitoring.
- f) **Post-construction monitoring plans:** Whitehead (1999) recommended monitoring of key parameters post-construction to allow for detection of unexpected or unacceptable impacts, and adaptive management. A plan for post-construction monitoring designed for this purpose should be developed and added to the current application.
- g) **Workplan for field study:** BC Parks would like to see a work plan for field studies planned prior to construction. This plan will also support application for a Research permit.

RE: Chapman Lake Water Supply Improvement - BC Pa

Monday, October 16, 2016
1:59 PM

Subject	RE: Chapman Lake Water Supply Improvement - BC Pa
From	Hirner, Joanna ENV:EX
To	Dalziel, Rod ENV:EX; Aikman, Jennie S ENV:EX
Cc	Platz, Chris ENV:EX
Sent	Friday, June 3, 2016 12:51 PM
Attachments	 April PUP Amendme...

Hi everybody,

Thanks Rod, your response looks good to me

Regarding the written notification by the 3rd and the request for a letter, I was still around when the helicopter load came back from Chapman Lake, and warned Brian and AECOM that our communication associated letter would probably come early next week rather than Friday. They didn't seem concerned, but they emphasized that they would really like something in advance of a planned briefing with them on Thursday June 9th next week.

I have attached my comments that could be shared with them next week. It will be important to note that these are not the only and final comments from BC Parks, as Brett appeared to suggest in his email at the May 26 meeting notes. Especially because Rod and Chris may not have time to fully review before they are sent next week. And many details (and impacts) of the project are still unknown. My comments cover all my comments about the stakeholder and public consultation to date. Not sure if we are intended to.

If you do have time please review my comments and provide any edits. There is some new stuff added to downstream fish flows and some comments that came from observations during the May 31 meeting and available here: Z:\1_PPA_Files\S_Coast_Region\PPA_Ops\Areas\Sunshine_CoastArea\Park_Lake_PUPs\Sunshine_Coast_Regional_District\PUP_102714_Chapman_Lake_water_infrastructure\Joanna_Hirner\Emails\April_PUP_Amendment_Comments_DRAFT.docx

Thanks!

Joanna

Joanna Hirner (MRM, RPBio)

Conservation Specialist

South Coast Region, BC Parks

604-924-2228

From: Dalziel, Rod ENV:EX

Sent: Thursday, June 2, 2016 2:12 PM

To: Hirner, Joanna ENV:EX; Aikman, Jennie S ENV:EX

Cc: Platz, Chris ENV:EX

Subject: RE: Chapman Lake Water Supply Improvement - BC Parks

Below is what I plan to provide as response to Brett's email

Not including:

- Joanna confirmed that written notification of where additional information is required for the PUP application will be provided by June 3rd, 2016.
- It was requested that a separate letter be provided from BC Parks stating that the permanent solution for Chapman Lake can not be constructed during 2016. The delay to the project is a concern for the Regional District Board. A separate letter stating that the project can not be completed by the summer is being requested for the communication to the Regional District Board. This letter is being requested by June 3rd, 2016, since there is a presentation to the Board scheduled for June 9th.

Hello Brett,

Thank you for providing summary of the May 26th meeting. The following is the requested information.

Please find attached summary of Tetrahedron Advisory Committee notes.

Please expect further comment from BC Parks on the PUP amendment application.

I am confirming a PUP amendment application will need to be submitted to extend the current term siphon option" to 31 Oct 17.

I am confirming a Research PUP application will need to be submitted for the additional field work during the summer of 2016 at the Chapman Lake site.

Stakeholders that have reached out to BC Parks and whom wish to be included in consultation include: Tetrahedron Advisory Committee, Tetrahedron Alliance, Sunshine Coast Conservation Association, Tetrahedron

Ruby Lake Lagoon Society.

Regards,

Rod Dalziel

Sunshine Coast Area Supervisor

BC Parks - South Coast Region - Ministry of Environment

PO Box 950, 6451 Sechelt Inlet Road, Sechelt, BC V0N 3

Desk (604) 885-6755 Mobile (604) 741-1967 Fax (604) 885-

Rod.Dalziel@gov.bc.ca

Visit the BC Parks website @ bcparks.ca



From: dewynter, Brett [mailto:Brett.dewynter@aecom.ca]

Sent: Monday, May 30, 2016 8:58 AM

To: Bryan Shoji; Dave Crosby; Mathewson, Andrew; Ford, Bruce; Aikman, Jennie S ENV:EX; D Hirner, Joanna ENV:EX; Shane Walkey (Shane.Walkey@scrd.ca)

Cc: Platz, Chris ENV:EX

Subject: RE: Chapman Lake Water Supply Improvement - BC Parks

All: Provided below are the notes and key action items from our meeting on May 26, 2016. Please know if you have any comments or concerns.

Meeting Date: May 26, 2016 at the SCRD Office

Meeting Attendees: Joanne Hirner, Rod Dalziel, Bryan Shoji, Dave Crosby, Shane Walkey, Bruce Mathewson, Brett deWynter.

Meeting Notes:

1. Meeting Overview: Due to the scheduled site visit to Chapman Lake being cancelled (low impromptu meeting was held at the Regional District Office. This meeting was held between Regional District and AECOM.
2. It was verbally confirmed that a Park Use Permit to construct the permanent solution to all of Chapman Lake to be lowered by an additional 5 m will not be provided for the 2016 construction. Joanna confirmed that written notification of where additional information is required for Use application will be provided by June 3rd, 2016. This letter will include comments from I regarding concerns from the Stakeholder meetings and any other functional concerns. It is letter provided by June 3rd, 2016 will be a complete set of comments from BC Parks regarding
3. One of the primary concerns noted by BC Parks were potential changes to the Chapman Lake Whitehead report was published. Shane from the Regional District stated that he will see pictures (preferably aerial pictures) of Chapman at the time when the Whitehead report is published. Historical pictures can be used to visually note any changes in the Chapman Lake site during the years.
4. Detailed bathymetric survey and level data for Chapman Lake exists for the past few years compiled to establish an estimate of the drawdown durations in the recent past and make the future lake drawdown frequency and durations.
5. BC Parks will investigate and provide written notification confirming if the temporary siphon needs to be re-submitted. It is preferable for the current permit to be extended. To minimize water shortages again this summer, the siphon may need to be installed this summer. A siphon will be needed next summer for the construction of the permanent solution and a siphon permit needs to be extended to October 31, 2017.
6. It is expected that environmental field work and geotechnical investigations will need to be completed this summer to address the comments provided by BC Parks. It will be confirmed by BC Parks if the work needs to be completed for the field work that will occur during the summer of 2016 at the site.
7. Rod noted that some Stakeholders have suggested that they have not been well informed. It was requested that Rod provide a list of Stakeholders since it is the intention to meet with Stakeholders. It was also noted that the consultation efforts to date have been more heavily focused on First Nation consultation and support prior to completing a broader communication effort. Consultation has been delayed due to the political challenges at the Sechelt Band.
8. It was confirmed that the consultation in the future will be focused on meetings with the specific community. It was also noted that the SCRD held open meetings with the community at several different times during the week of May 16th and 25th, 2016. Drinking water supply issues were a major discussion topic at the community meetings.
9. It was requested that a separate letter be provided from BC Parks stating that the permanent solution for Chapman Lake can not be constructed during 2016. The delay to the project is a concern for the Regional District Board. A separate letter stating that the project can not start this summer is being requested for the communication to the Regional District Board. This letter was requested by June 3rd, 2016, since there is a presentation to the Board scheduled for June 3rd, 2016.

10. Rod noted that Ranger Training starts on the week of June 6th and continues for the next 2 weeks. Rod noted that BC Parks staff would like to attend the site prior to confirming all the notes regarding Chapman Lake construction. This means we need to find a day during the week of May 30th for the site visit to ensure the project is not further delayed. After the meeting the weather for the site visit and the morning of Tuesday, May 31, 2016 was picked for the site visit.

Brett deWynter, P.Eng.
Water Group, Canada West

s.22

brett.deWynter@aecom.com

From: dewynter, Brett

Sent: Monday, April 25, 2016 10:54 AM

To: 'Bryan Shoji'; 'Dave Crosby'; Mathewson, Andrew; Ford, Bruce; Chris.Platz@gov.bc.ca; Jennie.Aikman@gov.bc.ca; Hirner, Joanna ENV:EX (Joanna.Hirner@gov.bc.ca)

Cc: Rod.Dalziel@gov.bc.ca

Subject: FW: Chapman Lake Water Supply Improvement - BC Parks

All:

Thanks for the meeting on Friday, April 8, 2016. Further to the meeting we confirm the following:

1. Bryan Shoji of the Sunshine Coast Regional District confirmed that acceptance of the temporary Permit was provided via e-mail to BC Parks on April 6, 2016.

2. The preliminary Park Use Plan that was submitted to BC Parks prior to the meeting was discussed from BC Parks was that the plan is acceptable however, it was noted that only a preliminary review documents had been completed. The areas where it was requested that AECOM focus prior to submitting documents to Front Counter BC is explaining the potential impacts of the construction activities and mitigation plans.

3. It was noted that BC Parks has reached-out to other government agencies to obtain initial comments received from DFO is to ensure minimum fish flows are maintained in the Chapman Lake minimum fish flow rate suggested in the meeting was roughly double the flow rate suggested in the report. The issue of the minimum flow in Chapman Creek will only be improved with the completion of the project at Chapman Lake, however, the debate about the minimum flow required in Chapman Lake remains.

4. The consultation effort spent to date was summarized and provided in a document to BC Parks for the meeting. During the discussion it was indicated that the public consultation efforts spent to date are reasonable. BC Parks would prefer that the consultant/SCRD obtains a letter of non-objection from Squamish First Nation communities. The consultation completed to date needs to continue until the letters of non-objection are obtained from the First Nations and the consultation will be completed. The current indication is that this will be satisfactory for BC Parks. During the Park Use Permit review.

5. BC Parks completed their own internal review of the documentation and currently hold the legal ability to issue a Park Use Permit; however, this item is currently under review by a government lawyer. If there are any changes resulting in BC Parks not being able to issue the Permit this year, BC Parks will inform the SCRD as soon as possible.

6. The tentatively planned schedule is:

- a. AECOM will submit the Park Use Permit application during the week of April 11th, 2016;
- b. AECOM will confirm the water license submission required and then make the application by the week of April 11th, 2016;
- c. BC Parks will continue to review the construction plans and then the application of the Park Use Permit. The internal review will be ongoing with a focus on the potential environmental impacts and the associated mitigation plan. BC Parks was invited to reach-out to AECOM or the SCRD to discuss the document review if they have any questions and we would be happy to provide responses.
- d. Depending on the rate of snow melt the plan is to complete a site visit. This site visit is planned for the second week of May 9th, 2016. The site visit will include 2 – 3 representatives from BC Parks, the SCRD, AECOM and a representative from In-situ (i.e. the Sechelt Band archivist). The goal is to coordinate the site visit so everyone can be on-site together. This will allow the site visit to be reviewed and discussed while on-site.

Let us know if you have any further comments or concerns with the above notes. Please note that the Park Use Permit application and Water License Amendment have been submitted to Front Counter BC.

Brett deWynter, P.Eng.

s.22

From: dewynter, Brett

Sent: Thursday, April 07, 2016 11:06 AM

To: 'Platz, Chris ENV:EX'; Bryan Shoji; Mathewson, Andrew; Ford, Bruce; Aikman, Jennie S ENV:EX; Rod.Dalziel@gov.bc.ca

Cc: Dave Crosby (Dave.Crosby@scrd.ca); Shane Walkey (Shane.Walkey@scrd.ca)

Subject: RE: Chapman Lake Water Supply Improvement - BC Parks

All:

Further to our meeting planned for tomorrow we offer the following comments and disc

1. It was discussed that the temporary permit issued last summer needs to be signed-off and f completed and an original signed copy hand delivered tomorrow.

2. The preferred plan is to complete the construction of the proposed works at Chapman Lake support the installation of the diversion of water to a total depth of 8.0 m. To support the effc preliminary design drawing provided during the March 16, 2016 meeting a DRAFT Park Use-Pe the supporting documentation has been prepared. These DRAFT document are attached.

3. Revision to the water license are ongoing. There is currently some debate about the need to water license application versus an amendment to the existing license. There are active discus clarify this item. For your information a DRAFT amendment application has been prepared.

4. The need for stakeholder consultation was discussed to meet the obligations of the BC Park efforts have been ongoing. The background documents are provided to summarize the consul completed to date with a summary of some of the key issues. A couple specific areas that we are:

- a. what specific areas of interest we should explore further in order to fulfil BC Parks Public Participation requirements / expectations for a "comprehensive public consu mentioned in the Tetrahedron Park Management Plan.
- b. Other groups to consult / encourage participati

5. BC Parks was going to investigate their files and documents to determine if the planned sco Chapman Lake could be completed with an amendment. The results of this investigation will b project team.

Once the background documents are reviewed and discussed we are hoping to reach consensu to advance the project.

Let us know if you have any further comments, otherwise we look forward to the meeting pla Thanks.

Brett deWynter, P.Eng.

s.22

-----Original Appointment-----

From: Platz, Chris ENV:EX [mailto:Chris.Platz@gov.bc

Sent: Wednesday, April 06, 2016 8:02 AM

To: Platz, Chris ENV:EX; Bryan Shoji; Mathewson, Andrew; Ford, Bruce; dewynter, Brett; Aikm Hirner, Joanna ENV:EX

Subject: Chapman Lake Water Supply Improvement - BC Parks I

When: Friday, April 08, 2016 10:30 AM-12:00 PM (UTC-08:00) Pacific Time (US

Where: ENV R North Van. 1610 Mount Seymour Road Main Fl RM N. Van (seats 10-

Good morning,

I am canvassing for agenda topics. Please send me your items and I will formulate an agenda fo Chris

Hi all,

As discussed during our first meeting I am looking to book a follow-up meeting in early April; p this date works and if there is anyone else you would like invited to the meeting.

I will call for agenda items a few days ahead of the meeting but if you have any items now ple: Chris

FW: Chapman Lake Water Supply Improvement - BC Parks Meeting

Thursday, October 12, 2017

12:05 PM

Subject	FW: Chapman Lake Water Supply Improvement - BC Parks Meeting
From	Dalziel, Rod ENV:EX
To	Hirner, Joanna ENV:EX
Cc	Aikman, Jennie S ENV:EX; Platz, Chris ENV:EX
Sent	Friday, June 3, 2016 2:27 PM
Attachments	 April PUP Amendme...  SCRD - Chapman ...

Great work, Joanna. I am so glad we have your big brain taking a close look at this for us. I have made just a few comments in your attached document.
 Could I leave it up to whoever is sending this out to include my responses to Brett's email and summary of TAC meeting.

Rod Dalziel

Sunshine Coast Area Supervisor

BC Parks - South Coast Region - Ministry of Environment

☐: PO Box 950, 6451 Sechelt Inlet Road, Sechelt, BC V0N 3A0

☎: Desk (604) 885-6755 Mobile (604) 741-1967 Fax (604) 885-2445

✉: Rod.Dalziel@gov.bc.ca

Visit the **BC Parks website** @ bcparks.ca



BC Parks

From: Hirner, Joanna ENV:EX

Sent: Friday, June 3, 2016 12:51 PM

To: Dalziel, Rod ENV:EX; Aikman, Jennie S ENV:EX

Cc: Platz, Chris ENV:EX

Subject: RE: Chapman Lake Water Supply Improvement - BC Parks Meeting

Hi everybody,

Thanks Rod, your response looks good to me.

Regarding the written notification by the 3rd and the request for a letter, I was still around when the second helicopter load came back from Chapman Lake, and warned Brian and AECOM that our comments and any associated letter would probably come early next week rather than Friday. They didn't seem concerned, although they emphasized that they would really like something in advance of a planned briefing with the SCRD Board on Thursday June 9th next week.

I have attached my comments that could be shared with them next week. It will be important to emphasize that these are not the only and final comments from BC Parks, as Brett appeared to suggest in his email summarizing the May 26 meeting notes. Especially because Rod and Chris may not have time to fully review before they would be sent next week. And many details (and impacts) of the project are still unknown. My comments also don't include any comments about the stakeholder and public consultation to date. Not sure if we are intended to provide them written comments about this but if we are, would be important to let them know those comments still forthcoming.

If you do have time please review my comments and provide any edits. There is some new stuff, especially related to downstream fish flows and some comments that came from observations during the May 31 site visit. Attached and available here: [Z:\1_PPA Files\S Coast Region\PPA Ops\Areas\Sunshine Coast Area\Park Use Permits \(PUPs\)\Sunshine Coast Regional District\PUP 102714 Chapman Lake water infrastructure\Joanna Comments and Emails\April PUP Amendment Comments DRAFT.docx](#)

Thanks!

Joanna

Joanna Hirner (MRM, RPBio)

Conservation Specialist

South Coast Region, BC Parks

604-924-2228

From: Dalziel, Rod ENV:EX

Sent: Thursday, June 2, 2016 2:12 PM

To: Hirner, Joanna ENV:EX; Aikman, Jennie S ENV:EX

Cc: Platz, Chris ENV:EX

Subject: RE: Chapman Lake Water Supply Improvement - BC Parks Meeting

Below is what I plan to provide as response to Brett's email.

Not including:

- Joanna confirmed that written notification of where additional information is required for the current Park Use application will be provided by June 3rd, 2016.
- It was requested that a separate letter be provided from BC Parks stating that the permanent water supply solution for Chapman Lake can not be constructed during 2016. The delay to the project will be a significant concern for the Regional District Board. A separate letter stating that the project can not be constructed this summer is being requested for the communication to the Regional District Board. This letter is being requested by June 3rd, 2016, since there is a presentation to the Board scheduled for June 9th, 2016.

Hello Brett,

Thank you for providing summary of the May 26th meeting. The following is the requested information.

Please find attached summary of Tetrahedron Advisory Committee meeting.

Please expect further comment from BC Parks on the PUP amendment application.

I am confirming a PUP amendment application will need to be submitted to extend the current amendment "short term siphon option" to 31 Oct 17.

I am confirming a Research PUP application will need to be submitted for the additional field work that will occur during the summer of 2016 at the Chapman Lake site.

Stakeholders that have reached out to BC Parks and whom wish to be included in consultation process: Tetrahedron Advisory Committee, Tetrahedron Alliance, Sunshine Coast Conservation Association, Tetrahedron Outdoor Club, Ruby Lake Lagoon Society.

Regards,

Rod Dalziel

Sunshine Coast Area Supervisor

BC Parks - South Coast Region - Ministry of Environment

☎ PO Box 950, 6451 Sechelt Inlet Road, Sechelt, BC V0N 3A0

☎ Desk (604) 885-6755 Mobile (604) 741-1967 Fax (604) 885-2445

✉ Rod.Dalziel@gov.bc.ca

Visit the BC Parks website @ bcparks.ca



BC Parks

From: dewynter, Brett [<mailto:Brett.dewynter@aecom.com>]

Sent: Monday, May 30, 2016 8:58 AM

To: Bryan Shoji; Dave Crosby; Mathewson, Andrew; Ford, Bruce; Aikman, Jennie S ENV:EX; Dalziel, Rod ENV:EX; Hirner, Joanna ENV:EX; Shane Walkey (Shane.Walkey@scrd.ca)

Cc: Platz, Chris ENV:EX

Subject: RE: Chapman Lake Water Supply Improvement - BC Parks Meeting

All: Provided below are the notes and key action items from our meeting on May 26, 2016. Please review and let me know if you have any comments or concerns.

Meeting Date: May 26, 2016 at the SCRD Office

Meeting Attendees: Joanne Hirner, Rod Dalziel, Bryan Shoji, Dave Crosby, Shane Walkey, Bruce Ford, Andrew Mathewson, Brett deWynter.

Meeting Notes:

1. Meeting Overview: Due to the scheduled site visit to Chapman Lake being cancelled (low cloud level), an impromptu meeting was held at the Regional District Office. This meeting was held between BC Parks, the Regional District and AECOM.
2. It was verbally confirmed that a Park Use Permit to construct the permanent solution to allow for the surface of Chapman Lake to be lowered by an additional 5 m will not be provided for the 2016 construction season. Joanna confirmed that written notification of where additional information is required for the current Park Use application will be provided by June 3rd, 2016. This letter will include comments from Rod Dalziel regarding concerns from the Stakeholder meetings and any other functional concerns. It is envisioned that the letter provided by June 3rd, 2016 will be a complete set of comments from BC Parks regarding the current Park Use permit application.
3. One of the primary concerns noted by BC Parks were potential changes to the Chapman Lake site since the Whitehead report was published. Shane from the Regional District stated that he will search the archive for pictures (preferably aerial pictures) of Chapman at the time when the Whitehead report was published. The historical pictures can be used to visually note any changes in the Chapman Lake site during the past 15+ years.
4. Detailed bathometric survey and level data for Chapman Lake exists for the past few years. This data will be compiled to establish an estimate of the drawdown durations in the recent past and make projections about the future lake drawdown frequency and durations.
5. BC Parks will investigate and provide written notification confirming if the temporary syphon application needs to be re-submitted. It is preferable for the current permit to be extended. To minimize the chance of water shortages again this summer, the syphon may need to be installed this summer. Additionally the syphon will be needed next summer for the construction of the permanent solution meaning the temporary syphon permit needs to be extended to October 31, 2017.

6. It is expected that environmental field work and geotechnical investigations will need to be completed this summer to address the comments provided by BC Parks. It will be confirmed by BC Parks if a research permit needs to be completed for the field work that will occur during the summer of 2016 at the Chapman Lake site.
7. Rod noted that some Stakeholders have suggested that they have not been well informed about the project. It was requested that Rod provide a list of Stakeholders since it is the intention to meet with all the major park Stakeholders. It was also noted that the consultation efforts to date have been more heavily focused on the First Nation consultation and support prior to completing a broader communication effort. The First Nation consultation has been delayed due to the political challenges at the Sechelt Band.
8. It was confirmed that the consultation in the future will be focused meetings with the specific Stakeholders. It was also noted that the SCR D held open meetings with the community at several different locations during the week of May 16th and 25th, 2016. Drinking water supply issues were a major discussion item during the community meetings.
9. It was requested that a separate letter be provided from BC Parks stating that the permanent water supply solution for Chapman Lake can not be constructed during 2016. The delay to the project will be a significant concern for the Regional District Board. A separate letter stating that the project can not be constructed this summer is being requested for the communication to the Regional District Board. This letter is being requested by June 3rd, 2016, since there is a presentation to the Board scheduled for June 9th, 2016.
10. Rod noted that Ranger Training starts on the week of June 6th and continues for the next 2-weeks. It was also noted that BC Parks staff would like to attend the site prior to confirming all the notes regarding the planned Chapman Lake construction. This means we need to find a day during the week of May 30th, 2016 to complete the site visit to ensure the project is not further delayed. After the meeting the weather forecast was reviewed and the morning of Tuesday, May 31, 2016 was picked for the site visit.

Brett deWynter, P.Eng.

Water Group, Canada West

S.22

brett.deWynter@aecom.com

From: dewynter, Brett

Sent: Monday, April 25, 2016 10:54 AM

To: 'Bryan Shoji'; 'Dave Crosby'; Mathewson, Andrew; Ford, Bruce; Chris.Platz@gov.bc.ca; Jennie.Aikman@gov.bc.ca; Hirner, Joanna ENV:EX (Joanna.Hirner@gov.bc.ca)

Cc: Rod.Dalziel@gov.bc.ca

Subject: FW: Chapman Lake Water Supply Improvement - BC Parks Meeting

All:

Thanks for the meeting on Friday, April 8, 2016. Further to the meeting we confirm the following items:

1. Bryan Shoji of the Sunshine Coast Regional District confirmed that acceptance of the temporary syphon Park Use Permit was provided via e-mail to BC Parks on April 6, 2016.
2. The preliminary Park Use Plan that was submitted to BC Parks prior to the meeting was discussed. The indication from BC Parks was that the plan is acceptable however, it was noted that only a preliminary review of the documents had been completed. The areas where it was requested that AECOM focus prior to submitting the final documents to Front Corner BC is explaining the potential impacts of the construction activities complete with the mitigation plans.
3. It was noted that BC Parks has reached-out to other government agencies to obtain initial comments. One of the key comments received from DFO is to ensure minimum fish flows are maintained in the Chapman Creek. The minimum fish flow rate suggested in the meeting was roughly double the flow rate suggested in the Dave Bates report. The issue of the minimum low in Chapman Creek will only be improved with the completion of the proposed project at Chapman Lake, however, the debate about the minimum flow required in Chapman Creek is independent of this project. The Dave Bates report will be forwarded to BC Parks for information.
4. The consultation effort spent to date was summarized and provided in a document to BC Parks prior to the meeting. During the discussion it was indicated that the public consultation efforts spent to date seemed reasonable. BC Parks would prefer that the consultant/SCR D obtains a letter of non-objection from the Sechelt and Squamish First Nation communities. The consultation completed to date needs to continue and be documented. Once the letters of non-objection are obtained from the First Nations and the consultation with the community is completed the current indication is that this will be satisfactory for BC Parks. During the Park Use Permit review BC Parks would continue to reach-out to other government agencies and local governments.
5. BC Parks completed their own internal review of the documentation and currently hold the opinion that they have the legal ability to issue a Park Use Permit; however, this item is currently under review by the internal government lawyer. If there are any changes resulting in BC Parks not being able to issue the construction permit this year, BC Parks will inform the SCR D as soon as possible.
6. The tentatively planned schedule is:
 - a. AECOM will submit the Park Use Permit application during the week of April 11th, 2016;
 - b. AECOM will confirm the water license submission required and then make the application during the week of April 11th, 2016;
 - c. BC Parks will continue to review the construction plans and then the application once it is submitted. The internal review will be ongoing with a focus on the potential environmental impacts and the associate

mitigation plan. BC Parks was invited to reach-out to AECOM or the SCRD during their document review if they have any questions and we would be happy to provide responses.
d. Depending on the rate of snow melt the plan is to complete a site visit. This site visit is tentatively planned for the second week of May 9th, 2016. The site visit will include 2 – 3 representatives from BC Parks, the SCRD, AECOM and a representative from In-situ (i.e. the Sechelt Band arch. consultant). The goal is to coordinate the site visit so everyone can be on-site together. This will allow any concerns to be reviewed and discussed while on-site.

Let us know if you have any further comments or concerns with the above notes. Please note that the Park-Use Permit application and Water License Amendment have been submitted to Front Counter BC. Thanks.

Brett deWynter, P.Eng.

s.22

From: dewynter, Brett

Sent: Thursday, April 07, 2016 11:06 AM

To: 'Platz, Chris ENV:EX'; Bryan Shoji; Mathewson, Andrew; Ford, Bruce; Aikman, Jennie S ENV:EX; Hirner, Joanna ENV:EX; Rod.Dalziel@gov.bc.ca

Cc: Dave Crosby (Dave.Crosby@scrd.ca); Shane Walkey (Shane.Walkey@scrd.ca)

Subject: RE: Chapman Lake Water Supply Improvement - BC Parks Meeting

All:

Further to our meeting planned for tomorrow we offer the following comments and discussion items:

1. It was discussed that the temporary permit issued last summer needs to be signed-off and finalized. This will be completed and an original signed copy hand delivered tomorrow.
2. The preferred plan is to complete the construction of the proposed works at Chapman Lake this summer to support the installation of the diversion of water to a total depth of 8.0 m. To support the efforts shown in the preliminary design drawing provided during the March 16, 2016 meeting a DRAFT Park Use-Permit application and the supporting documentation has been prepared. These DRAFT document are attached.
3. Revision to the water license are ongoing. There is currently some debate about the need to complete a new water license application versus an amendment to the existing license. There are active discussion with FLNR to clarify this item. For your information a DRAFT amendment application has been prepared.
4. The need for stakeholder consultation was discussed to meet the obligations of the BC Parks process. These efforts have been ongoing. The background documents are provided to summarize the consultation efforts completed to date with a summary of some of the key issues. A couple specific areas that we would like to discuss are:
 - a. what specific areas of interest we should explore further in order to fulfil BC Parks First Nations and Public Participation requirements / expectations for a "comprehensive public consultation process" mentioned in the Tetrahedron Park Management Plan.
 - b. Other groups to consult / encourage participation.
5. BC Parks was going to investigate their files and documents to determine if the planned scope of work at Chapman Lake could be completed with an amendment. The results of this investigation will be shared with the project team. Once the background documents are reviewed and discussed we are hoping to reach consensus regarding the plan to advance the project.

Let us know if you have any further comments, otherwise we look forward to the meeting planned for tomorrow.

Thanks.

Brett deWynter, P.Eng.

s.22

-----Original Appointment-----

From: Platz, Chris ENV:EX [<mailto:Chris.Platz@gov.bc.ca>]

Sent: Wednesday, April 06, 2016 8:02 AM

To: Platz, Chris ENV:EX; Bryan Shoji; Mathewson, Andrew; Ford, Bruce; dewynter, Brett; Aikman, Jennie S ENV:EX; Hirner, Joanna ENV:EX

Subject: Chapman Lake Water Supply Improvement - BC Parks Meeting

When: Friday, April 08, 2016 10:30 AM-12:00 PM (UTC-08:00) Pacific Time (US & Canada).

Where: ENV R North Van. 1610 Mount Seymour Road Main Fl RM N. Van (seats 10-20) ENV:EX

Good morning,

I am canvassing for agenda topics. Please send me your items and I will formulate an agenda for our meeting.

Chris

Hi all,

As discussed during our first meeting I am looking to book a follow-up meeting in early April; please let me know if this date works and if there is anyone else you would like invited to the meeting.

I will call for agenda items a few days ahead of the meeting but if you have any items now please send them along.

Chris

Review and Comment

Sunshine Coast Regional District (SCRD)'s Park Use Permit Amendment Application to Install Gravity-fed Withdrawal System to Access Additional Water from Chapman Lake (submitted April 2016)

Comments prepared by Joanna Hirner, Conservation Specialist, South Coast Region, BC Parks
June 6, 2016

Comments specific to the current PUP Amendment Application ("the Application"):

- a) **Rationale for the project:** The background and rationale justifying why this project is needed are not clearly described. Although the introduction of the Application describes that the SCRD Board approved the proposed project in the fall of 2015, details of previous processes and information considered leading up to this decision are not provided. The application should include a clear rationale for the project, including description and results of processes and studies that led to development of the proposed plan, and a description of the benefits of the project. The application should also provide information on alternative options that were considered, and why the proposal to withdraw additional water from Chapman Lake using a gravity-fed water system is the preferred option for dealing with long-term water scarcity issues.
- b) **Other water supply and demand management options:** The introduction states that the proposed additional capacity to drawdown water from Chapman Lake will "only be utilized during periods of drought and until the long term source development projects specified in the Comprehensive Regional Water Plan are constructed." What long-term source development projects are being referred to here, and what is the timeline for their construction? Are there demand management options (other than water metering) being considered or implemented that could further reduce the need for drawdown of Chapman Lake?
- c) **Information on past and future "drawdown regime":** The nature of the past and future "drawdown regime" (i.e. parameters such as frequency of drawdown to and below -3 m, maximum depth of annual drawdown, timing, duration and rate of drawdown, etc.) has important implications for assessment of impacts. More information about the past drawdown regime (particularly in the last 10 years), and clearer information about predicted drawdown regime in the future, is requested. Specific comments/questions:
 - i) We understand that extensive data from monitoring of drawdown is available from recent years. Can this information be presented to provide a better understanding of existing conditions? For example, over the past 10 or 20 years, what has been the duration (start/end) and timing of drawdown below 0 m? What is the average and range of depth of maximum drawdown?
 - ii) The application states that the SCRD Board has passed a resolution committing to only draw water from below -3 m to avoid Stage 4 water restrictions (i.e. when Stage 3 restrictions are required). What are the criteria that trigger Stage 3 and Stage 4 restrictions? Are data available on the timing and frequency of these restrictions in the past, and are there predictions about timing and frequency in the future?

Comment [RD1]: This is great starting point Joanna and I think very important to understand how we got to this proposal

- iii) Predictions about future water needs and drawdown appear to rely primarily on the Opus DaytonKnight (2013) assessment and Staats (2014). Information from these two studies is discussed separately in several parts of the application. Clarity about predicted drought frequency and “drawdown regime” could be improved if the results of both studies and how they relate to predicted drawdown regime were both discussed in detail the same section (i.e. Section 3.2.3 Water Quantity).
- iv) According to the application, the Opus DaytonKnight (2013) analysis predicts that the current water supply is sufficient to support a 1 in 21 year low water return period, and taking into account predicted population growth and demand management (water metering), a 1 in 15 year drought return period by 2036. Does this mean that the probability of drawdown below -3 m is once every 21 years now, and once every 15 years by 2036?
- v) Can the findings of the Staats (2014) report be further interpreted to make some specific predictions about drawdown regime in the lake? For example, the Staats (2014) report predicts that annual snow pack will be diminished and will melt earlier and more rapidly. Does this then mean that drawdown to -3 or lower is more likely to occur earlier and last longer in the future?
- vi) Does Staats (2014) provide more quantitative predictions than those presented in the application? E.g. water scarcity issues are predicted to be more **frequent** in the near future; does Staats (2014) make more specific predictions about how frequently and how soon will this change occur? As another example, the Staats (2014) study apparently predicted that total water consumption during summer could **regularly** exceed the equivalent to the available water supply in the next 10 years if: 1) water demand does not change, 2) snow pack continues to decrease in winter, 3) summer temperatures increase by an average of 1 to 2°C, and 4) prolonged droughts become more common. What is meant by **regularly**, and how likely are the four factors listed here, that would cause the regular exceedance of the available water supply?
- vii) The analysis done by Staats (2014) appears to indicate that climate change effects will cause the need for drawdown to be greater and more frequent (by some unknown quantity) than predicted in the Opus DaytonKnight (2013) assessment. Is our interpretation correct?
- d) **Hydrology of the Chapman Lake watershed:** The application should include an updated analysis of the hydrodynamics and recharge rates of Chapman Lake, as described in Section 3.2.1 of the application. Currently Section 3.2.1 relies on information from Whitehead (1999) which may now be out of date, especially because of changes in climate. In particular, the results of Staats (2014) suggest that recharge rates may have changed. As summarized in the application, “decreasing trends in precipitation were resulting in less recharge to storage reservoirs” and other changes may be resulting in changes to “the entire water holding dynamic of the watershed”. Is there a danger of multiple years of drought and drawdown permanently lowering the water table?
- e) **Project description and construction plans:** There are many details still to be developed regarding the design and construction of the project, including footprint, schedule, construction techniques and design, etc. Many of these details have implications for the potential impacts of the project. BC Parks requests to review more detailed designs and plans as they are developed. Some specific comments/questions:

s.13

- i) **Temporary construction area:** During the site visit on May 31, 2016, sensitive wetland and drainage features were observed in much of the temporary construction area identified in the current application. Environmental features observed included relatively large areas of moss and other vegetation characteristic of wetlands, small streams, small pools with egg masses of Northern Pacific Treefrog, Long-toed Salamander, and Northwestern Salamander, adult Long-toed Salamanders and Northern Pacific Treefrogs, and a fish (likely Dolly Varden) within a small stream reach. Within the temporary construction area, the area subject to previous disturbance during the original construction appears quite small and limited to higher ground (e.g. where the helicopter pad is located and higher ground to the northeast). The footprint of the construction area needs to be very carefully managed and minimized in order to protect the above mentioned sensitive values. Site clearing should be kept to a minimum and limited to previously disturbed areas. Strategies may include keeping equipment on exposed lakebed wherever possible, using raised platforms for structures or equipment that must be kept on land, building boardwalks to limit traffic to defined paths and minimize impacts to ground and vegetation, etc. BC Parks would like to see a plan detailing a more refined project footprint and mitigation measures to prevent impacts prior to construction.
- ii) **Determination of geotechnical information:** During the May 31, 2016, site visit there was some discussion of tests to be used to determine the nature of the rock in the trench and at the dam. There was some indication that if certain conditions of the rock were not met, the project would become infeasible. Is our interpretation of the discussion correct? If so, what is the likelihood that rock conditions could render this project infeasible? Testing to determine geotechnical conditions should occur early enough in the project to prevent unnecessary impacts (e.g. associated with set up of the construction area) if the project is determined infeasible.
- iii) **Site restoration:** The application references that site restoration/remediation/reclamation plans will be developed for temporary construction areas and for dealing with rock generated through construction. BC Parks would like to review and comment on these plans prior to construction. The restoration plan should include preservation and replacement of existing habitat features such as on-site large woody debris, and even vegetation if possible s.13
- iv) **Other environmental management plans for construction and operations:** In addition to a site restoration plan, the application refers to several other environmental management plans, including spill prevention and response plans, wildlife and waste management plan for camp and construction site, water management plan for dealing with water during trenching, sediment/erosion control plans. BC Parks would like to review and comment on these plans and appreciates that a commitment has been made to provide them in Section 5 of the application. Plans should be provided for review as early as possible to allow BC Parks staff time to review and comment prior to construction.
- i) **Placement of intake:** The current design drawing shows that the bottom of the intake pipe is actually 9.2 m below high water. Would this then make it possible for drawdown below -8 m, either on purpose or through some kind of malfunction?
- f) **Sensitive species and ecosystems:** The lists of sensitive species and ecosystems is a list of species with potential to occur in the area, and does not include interpretation of the

likelihood of occurrence in or around Chapman Lake, what the potential impacts might be to these species/ecosystems, and how impacts might be mitigated. This additional analysis needs to be added to the application.

- g) **Acid rock drainage:** Assessment of the potential for acid rock drainage resulting from blasting and installation of the gravity fed pipe is not mentioned in the application. Information on steps taken to ensure acid rock drainage does not occur should be provided.
- h) **Flows and fish in lower sections of Chapman Creek:** Although there may be fish immediately downstream of the dam in Chapman Creek within the park, the majority of fish and fish habitat values in Chapman Creek, including all anadromous species, are outside of the park. However, determination of appropriate flows for fish in the lower section of Chapman Creek is relevant to the impacts of this project in the park in the sense that the amount of flow required for fish will affect the amount of drawdown required from Chapman Lake. The higher the minimum flow requirements for fish, the more drawdown may be required from Chapman Lake if other sources of water or demand side management are not used to reduce water requirements from Chapman Lake. This increase in drawdown requirements would have implications for future drawdown regimes and associated impacts in the park during operations. There appears to be disagreement around what minimum flow is required to sustain fish in Chapman Creek. To clarify future flow requirements for fish, BC Parks would like to see some further analysis and discussion around this issue, in particular comparing work done by DFO in the 1990s which suggested a minimum flow of $0.3 \text{ m}^3/\text{s}$, to the more recent work by Dr. Dave Bates which suggests that current minimum flows of $0.22 \text{ m}^3/\text{s}$ set by the SCRDP for fish may be acceptable. It is important to note that Bates (2015) recommended further study and monitoring of salmonids and their habitat in the lower sections of Chapman Creek to confirm that $0.22 \text{ m}^3/\text{s}$ is acceptable; these studies should help clarify the issue of flow requirements. The Bates (2015) report also identifies three locations in Chapman Creek where adult passage may be hampered at flows around $0.2 \text{ m}^3/\text{s}$, and suggests strategically timed water releases to help adult fish migrate upstream during low flows. The implications of such releases on drawdown regime should also be considered.

Comments regarding the Whitehead (1999) assessment and appropriateness of relying heavily on Whitehead (1999) for assessing impacts of current project:

- a) Whitehead (1999) based much of his impact assessment and its conclusions on the fact that Chapman Lake was already subject to seasonal disturbance through summer drawdown, and that under the "existing drawdown regime", no significant negative effects had been observed. The absence of negative effects under the existing regime was used to extrapolate that although increased drawdown would increase the severity of drawdown effects, the "seasonal timing and duration of drawdown (would) not change significantly relative to the existing regime without pumping", and thus significant negative effects were considered unlikely under increased drawdown.
- b) Existing conditions (drawdown regime, climate variables, etc.) most likely have changed between 1999 and the present. The fact that existing conditions were a key part of Whitehead's (1999) conclusions about impacts, and existing conditions have very likely changed since 1999, calls into question the appropriateness of using the Whitehead (1999) assessment of impacts for the current project.
- c) Field data included in Whitehead's (1999) assessment was limited. Field work done in support of the Whitehead (1999) assessment was done over a three day period in September 1998. For some values likely to be affected by drawdown, such as fish and water quality, the limited field data collected by Whitehead (1999) was the only recent field data available for assessing the status of these values.
- d) Whitehead (1999) acknowledged uncertainty in his conclusions about impacts, and recommended baseline (1999 growing season) and post-construction monitoring to allow for detection of unexpected impacts of increased drawdown. If impacts were detected, Whitehead (1999) recommended that adaptive management be used to mitigate impacts, including exploration of other water sources and demand management options to reduce drawdown. Presumably the limited amount of field data available was another reason why Whitehead (1999) recommended further baseline field sampling of several values prior to construction, and post-construction monitoring during operations.
- e) **In summary:** existing conditions of climate, drawdown regime, and/or environmental values have likely changed since 1999. Even if conditions have not changed, Whitehead's (1999) recommendation to conduct further field sampling both pre and post construction to support adaptive management and prevent unexpected negative impacts during operations still has merit. **Thus additional field sampling prior to project construction is recommended. The results of field sampling should be used to update the impact assessment provided as part of the current Park Use Permit application, and provided to BC Parks for further review and comment.**

Comment [RD4]: Is there a suggestion or question here? Or just presenting the statement from the report for the following points?

Comments and recommendations for additional field sampling and impact assessment:

a) **Water quality:** Whitehead (1999) included a preliminary list of water quality parameters that should be included in a monitoring program. A professional with expertise in limnology and water quality monitoring, especially as it relates to aquatic life values such as fish, should review Whitehead's (1999) recommendations and be involved in the design of a baseline water quality monitoring program. Field visits should also be used to assess for evidence of sloughing of exposed sediments during drawdown and lake recharge. Further assessment of water quality parameters should also consider water quality issues specific to reservoirs with large drawdown. For example, high levels of methylmercury are known to be generated in newly created reservoirs but evidence also suggests that large drawdown in established reservoirs may also lead to increases in methyl mercury formation (see Azimuth (2015)¹ and references therein, particularly from section 2.6.3). The implications of releases of hydrogen sulfide as observed by Whitehead (1999) should also be considered in assessing potential water quality impacts. Finally, Whitehead's (1999) assessment of potential impacts on water quality and aquatic resources included interpretation of bathymetric and hydrology information available at the time, as it related to lake drying, sloughing of lake bed sediments, etc. The assessment should be updated with more recent bathymetry mapping and updated information about recent and future predicted hydrology.

Comment [RD5]: Particularly after a heavy rain event.

b) **Fish and fish habitat:**

- i) **General:** Whitehead (1999) recommended several parameters to be monitored to assess impacts on fish pre- and post-project. A professional with expertise in monitoring fish populations and habitat use should review Whitehead's (1999) recommendations and be involved in the design of the monitoring program. Monitoring of important aspects of fish habitat should also be incorporated into the program. For example, monitoring of water quality parameters such as nitrogen and phosphorus can indicate lake productivity, as can monitoring of invertebrates. Temperature and oxygen profiles are also important for assessment of impacts on fish. Finally, drawdown over many years can change the substrate composition in the littoral zone, which may have implications for fish habitat and productivity.
- ii) **Dolly Varden:** There is limited information about fish in Chapman Lake, but Whitehead's (1999) sampling confirmed that there are Dolly Varden char in the lake. Although it is apparently unlikely that the fish are Bull Trout, an experienced fish biologist should visually confirm the fish in Chapman Lake are Dolly Varden. Recent discussions with fish biologists from the Ministry of Forests, Lands and Natural Resource Operations suggest that Dolly Varden char may be prevented from accessing their spawning streams during the drawdown period. Ad-fluvial char (i.e. those that spawn in tributary streams but otherwise sub-adults/adults live in lake) within the South Coast region have been documented migrating to spawning inlet streams in mid to late July and return to lake to overwinter as late as mid-November. In addition, Dolly Varden in cold water/high elevation systems such as Chapman

¹ <https://www.bchydro.com/content/dam/BCHydro/customer-portal/documents/corporate/environment-sustainability/water-use-planning/lower-mainland/brgmon-12-yr2-2015-03-01.pdf>

Lake tend to migrate to spawning streams earlier in the summer than in warmer systems, increasing the probability that the period of greatest drawdown will overlap with spawning migrations. To understand the implications of drawdown on spawning, additional fish surveys should be designed to narrow down the timing and location of spawning char.

- iii) Fish in Chapman Creek downstream of dam: The assessment and field sampling regime should consider fish values immediately downstream of the dam, in terms of potential construction impacts but also in terms of potential temperature effects related to the pipe drawing water from below surface, which is known to lead to temperature effects in water released from reservoirs.
- c) **Amphibians:** Aquatic-breeding amphibians may be using the lake shore for breeding, and observations during the May 31, 2016 site visit confirm that amphibians are using adjacent wetlands for breeding. The presence of aquatic breeding amphibians and their habitat, and potential impacts of the project on these values, should be assessed. The potential for Chapman Creek to contain Coastal Tailed Frogs immediately downstream of the dam, and potential impacts to this species from construction and/or operations, should also be considered.
- d) **Vegetation and ecological community assessment and mapping:** Vegetation and ecological communities in the riparian and littoral areas of the lake are assumed to be sensitive to changes in climate and drawdown regime, including changes that may have occurred since 1999, and changes that may occur in the future.
 - i) The Whitehead (1999) assessment included mapping of different riparian habitat types, surficial materials, and "ecosystem units" (now called "ecological communities") around the lake. Given that the classification of ecological communities and the distribution of habitat types may have changed since the Whitehead (1999) assessment was completed, this mapping and classification of ecological communities should be updated. The update is important in part because changes since the last assessment may reflect effects of changes in climate and drawdown regime since 1998. Changes in distribution of habitat types and ecological communities can also be used for monitoring ecological changes following implementation of the proposed project. In particular, the extent and distribution of wetland communities should be mapped and monitored because they are likely to be particularly sensitive to longer and deeper drawdown of Chapman Lake.
 - ii) Whitehead (1999) surveyed several environmental parameters, including vegetation species and distribution, along nine transects perpendicular to the lakeshore. Transect locations were chosen to represent the diversity of riparian and littoral habitat conditions in the lake. These transect locations could be resampled to detect changes in since 1999, and to allow for continued monitoring post-project implementation. Alternatively, a new monitoring protocol could be developed involving different transect locations. The transects should include enough riparian area above the high water mark to detect changes in terrestrial vegetation that could be a result of more prolonged and/or deeper drawdown of the lake following implementation of the proposed project.

- iii) Pre-construction rare plant survey of construction footprint is proposed in section 4.1.1 and BC Parks supports surveying for rare plants within the temporary and permanent construction footprint.
- iv) If long-term annual increases in drawdown lead to lowering of the water table and drying of terrestrial vegetation, it seems possible that this could increase probability of wildfire, especially if climate change more generally leads to warmer and drier conditions. The assessment should consider and evaluate this possibility.
- e) **Invertebrate monitoring:** As noted under "Fish and fish habitat" above, invertebrates are the main food source of fish and are indicators of lake productivity and water quality. Thus invertebrate sampling may be valuable as part of the pre- and post-project monitoring.
- f) **Post-construction monitoring plans:** Whitehead (1999) recommended monitoring of key parameters post-construction to allow for detection of unexpected or unacceptable impacts, and adaptive management. A plan for post-construction monitoring designed for this purpose should be developed and added to the current application.
- g) **Workplan for field study:** BC Parks would like to see a work plan for field studies planned prior to construction. This plan will also support application for a Research permit.

s.13

SCRD – Chapman Lake additional drawdown proposal

Summary of concerns raised by Tetrahedron Advisory Committee meeting 09 May 16

Attendance: Michel Frenette ((Tetrahedron Outdoor Club) (TOC)), Philip Gaulin (TOC), Vic Bonaguru (TOC), Duane Sept, Daniel Bouman (Tetrahedron Alliance), Cindy Harlow ((Sunshine Coast Conservation Association (SCCA)), Barry Janyk, Jason Hertz (SCCA), Rod Dalziel (BC Parks), George Smith ((unable to attend but provided comment (see below))

- 1999 Whitehead IA
 - 17 year old report is out of date and cannot be confidently relied on
 - What has changed since report?
 - Climate changes – wetter winters, drier summers, less and higher snowpack
 - Science has improved
 - Ecosystem classification advancements
 - Improved age class mapping
 - Updated Species at Risk data
- Limited Mountain Hemlock (MH) forests on the Sunshine Coast
 - Sensitive to disturbance
 - Difficult to maintain and rehab this zone
- Concerns around stability of lakeshore after drawdown (3-8m)
 - Turbidity and siltation
 - Sections of steep sided shoreline in proposed 8m drawdown
 - Referred to Tyson Lake IPP project as example of lake sedimentation
 - Noted that Whitehead did not adequately assess
- What should be included in further study and research
 - BC Parks not SCRD should commission IA and provide aspects of report
 - A soil specialist should assess area (shoreline, upland and drawdown area)
 - Testing bedrock depth and composition
 - Current and detailed analysis of fisheries values
 - Aquatic invertebrates
 - Hydrology
 - Adjacent forest water table
 - Aquatic vegetation
 - Long-term growth and development in the SCRD
 - Forest fire concern/threat
- Temporary siphon system
 - As is already approved should be tested this year to provide more time for application review
- SCRD decision and process
 - Should have referendum

- Strong opinion from most that alternate source options have not been adequately investigated
 - Greater study into existing aquifers in region
 - Feel SCRD is moving ahead with easiest and cheapest option not the best for the communities
 - Most identified need multiple water sources outside of Chapman watershed
- BC Parks mandate
 - Emphasized BC Parks must balance protection of park values and water needs as stated in Management Planning
- Public consultation
 - The intent of public consultation has changed from time described in Management Plan
 - Should be thorough public consultation
 - Not telling public what is being done and not considering public input
 - Public consultation is far from adequate thus far (09 May 16)
- Terms of Reference being requested
 - For 1999 IA
 - Current AECOM contract
 - What was scope of SCRD investigation for of options for additional municipal water source
- Consensus on final points
 1. Need current, improved Impact Assessment
 2. There is temporary short term solution in the siphon system
 3. Need more time to properly investigate other water sources

"My overriding concern is that the prime directive of BC Parks is to protect representative components of the ecological matrix of our province and that here in the Sunshine Coast Forest District the government has protected less than 3% of our land base. Thus the Tetrahedron has particular importance for biodiversity in BC and for the Sunshine Coast. Chapman Lake is the largest lake in Tetrahedron Park and at the heart of the little remaining unlogged forest. The water quality of Chapman Lake is dependent upon the natural land and water system within which Chapman sits. It is accurate that the park was created knowing full well that there was a small dam on Chapman and that the lake was central to the water supply for the SCRD, and that there was the capacity to draw down the lake up to 3 metres a year in years of drought. Further the management plan envisioned that at some point, modifications could be made to deal with future water requirements, if there was no option and if several steps were taken first to ensure responsible analysis, public involvement and appropriate management.

In the meantime, climate change, essentially unbridled development and population growth have increased the summer draw on water supply. Unfortunately the SCRD has done virtually nothing of real substance to create a long term water supply and management system that moves beyond dependency on one creek, which has experienced serious slope stability issues, the Chapman. They have done no real population growth analysis, no substantive aquifer analysis (like Gibsons, which discovered that they

have the aquifer capacity to provide water to 10,000 people per year in perpetuity), no real consideration of reservoir creation outside the Chapman watershed, no subsidizing of back yard water collection, no annual automatic summer prohibition of lawn and driveway watering, etc. They have initiated the water metering project, but as yet they have developed no real redundancy in their supply system. Increasing the dependency on one Chapman system seems a shortsighted engineering solution based on achieving the cheapest short term fix to a serious long term problem.

If I had confidence that the trenching of Chapman Lake was truly the only remaining option following consideration of all options by competent consultants aware of the full range of modern options and the importance of maintaining biodiversity, then I would agree with the trenching. Unfortunately, potentially annually dropping the water level 8 metres (that's 25 feet folks) will reduce a significant portion of the lake surface due to the rather conical bathymetry of the lake. From my point of view, this will turn a largely intact lake into nothing but a more sterile reservoir which will expose serious amounts of silt into the system, which will have serious impacts on the fish and wildlife and forest ecosystem that depend on the health of the lake.

Thus, I feel that Parks BC needs to ensure that the ecological impact analysis done before this project is approved, must be done to the highest standards. The earlier 1999 analysis is far from satisfactory; an in-depth update is necessary. Having a firm contracted by the proponent, the SCRD, is not sufficient. Parks must ensure that the study, the public review and the consultations with the shísháhlh Nation are at the highest and fully transparent level. Parks must also be satisfied that the SCRD has truly conducted full analysis of options for long term water supply security that extend beyond the cheap Chapman Watershed options and build redundancy into the system.

Meanwhile, there is a real alternative means of resolving this situation rationally. The SCRD has already purchased the hardware for their proposed syphon system. They could install this "temporary" means of securing water supply during the peak of the potential summer drought for several years. At the same time, the SCRD could utilize the trenching budget to engage competent experts to examine the potential for alternate, long term means of providing water, such as: a full analysis of the aquifer potential in the SCRD area within and well beyond the Chapman watershed; analysis of where lower elevation impoundment reservoirs could be situated, within and outside the Chapman; the practicality of providing subsidies for backyard water collection systems; mandatory summer restrictions on watering lawns and driveways; conduct a regional growth management analysis, etcetera."

George Smith (email dated 29 April 16)

RE: Chapman Lake Water Supply Improvement - BC Pa

Monday, October 16, 2016
2:01 PM

Subject	RE: Chapman Lake Water Supply Improvement - BC Par
From	Aikman, Jennie S ENV:EX
To	Hirner, Joanna ENV:EX; Dalziel, Rod ENV:EX
Cc	Platz, Chris ENV:EX
Sent	Friday, June 3, 2016 5:19 PM
Attachments	 April PUP Amendme...  SCRD - Ltr to B Shoji - D...

Well done on the comments Joanna, it is very evident that you have done a thorough review of the associated reports.

Please see the attached version with my comments. As you will, I have concerns about the reference required to develop a "monitoring program" for water quality and fish. I also think we need to let what we are requiring them to assess this summer as part of their permit amendment application require for pre- or post-construction assessment and monitoring. Let's discuss my comments with the office on Monday.

Also, I understand Bryan Shoji was requesting a letter from me about the process and timeline letter – attached. If you have any comments, please get them to me by noon on Monday as I will letter out in advance of Joanna sending her comments.

Thanks.

Jennie

Jennie Aikman
 Regional Director
 South Coast Region, BC Parks
 Ministry of Environment
 Office phone: (604) 924-2227
 Cell phone: (778) 875-8494

From: Hirner, Joanna ENV:EX

Sent: Friday, June 3, 2016 12:51 PM

To: Dalziel, Rod ENV:EX; Aikman, Jennie S ENV:

Cc: Platz, Chris ENV:EX

Subject: RE:Chapman Lake Water Supply Improvement - BC Parks

Hi everybody,

Thanks Rod, your response looks good to me

Regarding the written notification by the 3rd and the request for a letter, I was still around when the helicopter load came back from Chapman Lake, and warned Brian and AECOM that our communication associated letter would probably come early next week rather than Friday. They didn't seem concerned, but they emphasized that they would really like something in advance of a planned briefing with them Thursday June 9th next week.

I have attached my comments that could be shared with them next week. It will be important to note that these are not the only and final comments from BC Parks, as Brett appeared to suggest in his email May 26 meeting notes. Especially because Rod and Chris may not have time to fully review before sent next week. And many details (and impacts) of the project are still unknown. My comments include any comments about the stakeholder and public consultation to date. Not sure if we are intended

If you do have time please review my comments and provide any edits. There is some new stuff added to downstream fish flows and some comments that came from observations during the May 31 meeting and available here: Z:\1_PPA_Files\South Coast Region\PPA_Ops\Areas\Sunshine_CoastArea\Park_Lake_PUPs\Sunshine_Coast Regional District\PUP_102714_Chapman_Lake_water_infrastructure\Joanna_Hirner_Emails\April_PUP_Amendment_Comments_DRAFT.docx

Thanks!

Joanna

Joanna Hirner (MRM, RPBio)

Conservation Specialist

South Coast Region, BC Parks

604-924-2228

From: Dalziel, Rod ENV:EX

Sent: Thursday, June 2, 2016 2:12 PM

To: Hirner, Joanna ENV:EX; Aikman, Jennie S ENV

Cc: Platz, Chris ENV:EX

Subject: RE: Chapman Lake Water Supply Improvement - BC Parks

Below is what I plan to provide as response to Brett's email

Not including:

- Joanna confirmed that written notification of where additional information is required for Use application will be provided by June 3rd, 2016.
- It was requested that a separate letter be provided from BC Parks stating that the permanent solution for Chapman Lake can not be constructed during 2016. The delay to the project is a concern for the Regional District Board. A separate letter stating that the project can not start in the summer is being requested for the communication to the Regional District Board. This letter is being requested by June 3rd, 2016, since there is a presentation to the Board scheduled for June 3rd, 2016.

Hello Brett,

Thank you for providing summary of the May 26th meeting. The following is the requested information.

Please find attached summary of Tetrahedron Advisory Committee meeting.

Please expect further comment from BC Parks on the PUP amendment application.

I am confirming a PUP amendment application will need to be submitted to extend the current term siphon option" to 31 Oct 17.

I am confirming a Research PUP application will need to be submitted for the additional field work during the summer of 2016 at the Chapman Lake site.

Stakeholders that have reached out to BC Parks and whom wish to be included in consultation are: Tetrahedron Advisory Committee, Tetrahedron Alliance, Sunshine Coast Conservation Association, Tetrahedron Ruby Lake Lagoon Society.

Regards,

Rod Dalziel

Sunshine Coast Area Supervisor

BC Parks - South Coast Region - Ministry of Environment

PO Box 950, 6451 Sechelt Inlet Road, Sechelt, BC V0N 3S0

Desk (604) 885-6755 Mobile (604) 741-1967 Fax (604) 885-7111

Rod.Dalziel@gov.bc.ca

Visit the BC Parks website @ bcparks.ca



From: dewynter, Brett [mailto:Brett.dewynter@aecom.ca]

Sent: Monday, May 30, 2016 8:58 AM

To: Bryan Shoji; Dave Crosby; Mathewson, Andrew; Ford, Bruce; Aikman, Jennie S ENV:EX; D Hirner, Joanna ENV:EX; Shane Walkey (Shane.Walkey@scrd.ca)

Cc: Platz, Chris ENV:EX

Subject: RE: Chapman Lake Water Supply Improvement - BC Parks

All: Provided below are the notes and key action items from our meeting on May 26, 2016. Please let me know if you have any comments or concerns.

Meeting Date: May 26, 2016 at the SCRD Office

Meeting Attendees: Joanne Hirner, Rod Dalziel, Bryan Shoji, Dave Crosby, Shane Walkey, Bruce Mathewson, Brett deWynter.

Meeting Notes:

1. Meeting Overview: Due to the scheduled site visit to Chapman Lake being cancelled (low water), an impromptu meeting was held at the Regional District Office. This meeting was held between the Regional District and AECOM.
2. It was verbally confirmed that a Park Use Permit to construct the permanent solution to all of Chapman Lake to be lowered by an additional 5 m will not be provided for the 2016 construction season. Joanna confirmed that written notification of where additional information is required for Use application will be provided by June 3rd, 2016. This letter will include comments from the Regional District regarding concerns from the Stakeholder meetings and any other functional concerns. This letter provided by June 3rd, 2016 will be a complete set of comments from BC Parks regarding the project.
3. One of the primary concerns noted by BC Parks were potential changes to the Chapman Lake Whitehead report was published. Shane from the Regional District stated that he will see if aerial pictures (preferably aerial pictures) of Chapman at the time when the Whitehead report was published. Historical pictures can be used to visually note any changes in the Chapman Lake site during the years.
4. Detailed bathymetric survey and level data for Chapman Lake exists for the past few years.

- compiled to establish an estimate of the drawdown durations in the recent past and make the future lake drawdown frequency and durations.
5. BC Parks will investigate and provide written notification confirming if the temporary syphon needs to be re-submitted. It is preferable for the current permit to be extended. To minimize water shortages again this summer, the syphon may need to be installed this summer. As a syphon will be needed next summer for the construction of the permanent solution, the syphon permit needs to be extended to October 31, 2017.
 6. It is expected that environmental field work and geotechnical investigations will need to be completed this summer to address the comments provided by BC Parks. It will be confirmed by BC Parks if the permit needs to be completed for the field work that will occur during the summer of 2016 at the site.
 7. Rod noted that some Stakeholders have suggested that they have not been well informed. It was requested that Rod provide a list of Stakeholders since it is the intention to meet with Stakeholders. It was also noted that the consultation efforts to date have been more heavily focused on First Nation consultation and support prior to completing a broader communication effort. Consultation has been delayed due to the political challenges at the Sechelt Band.
 8. It was confirmed that the consultation in the future will be focused meetings with the specific community. It was also noted that the SCRDP held open meetings with the community at several different locations during the week of May 16th and 25th, 2016. Drinking water supply issues were a major discussion topic at the community meetings.
 9. It was requested that a separate letter be provided from BC Parks stating that the permanent solution for Chapman Lake can not be constructed during 2016. The delay to the project is a concern for the Regional District Board. A separate letter stating that the project can not be completed this summer is being requested for the communication to the Regional District Board. This letter was requested by June 3rd, 2016, since there is a presentation to the Board scheduled for June 16th, 2016.
 10. Rod noted that Ranger Training starts on the week of June 6th and continues for the next 2 weeks. It was noted that BC Parks staff would like to attend the site prior to confirming all the notes regarding Chapman Lake construction. This means we need to find a day during the week of May 30th to the site visit to ensure the project is not further delayed. After the meeting the weather forecast was reviewed and the morning of Tuesday, May 31, 2016 was picked for the site visit.

Brett deWynter, P.Eng.
Water Group, Canada West

s.22

brett.deWynter@aecom.com

From: dewynter, Brett

Sent: Monday, April 25, 2016 10:54 AM

To: 'Bryan Shoji'; 'Dave Crosby'; Mathewson, Andrew; Ford, Bruce; Chris.Platz@gov.bc.ca; Jennie.Aikman@gov.bc.ca; Hirner, Joanna ENV:EX (Joanna.Hirner@gov.bc.ca)

Cc: Rod.Dalziel@gov.bc.ca

Subject: FW: Chapman Lake Water Supply Improvement - BC Parks

All:

Thanks for the meeting on Friday, April 8, 2016. Further to the meeting we confirm the following:

1. Bryan Shoji of the Sunshine Coast Regional District confirmed that acceptance of the temporary Permit was provided via e-mail to BC Parks on April 6, 2016.

2. The preliminary Park Use Plan that was submitted to BC Parks prior to the meeting was discussed. BC Parks was that the plan is acceptable however, it was noted that only a preliminary review documents had been completed. The areas where it was requested that AECOM focus prior to finalizing documents to Front Corner BC is explaining the potential impacts of the construction activities and mitigation plans.

3. It was noted that BC Parks has reached-out to other government agencies to obtain initial comments. A key comment received from DFO is to ensure minimum fish flows are maintained in the Chapman Lake. The minimum fish flow rate suggested in the meeting was roughly double the flow rate suggested in the report. The issue of the minimum flow in Chapman Creek will only be improved with the completion of the project at Chapman Lake, however, the debate about the minimum flow required in Chapman Lake remains.

4. The consultation effort spent to date was summarized and provided in a document to BC Parks prior to the meeting. During the discussion it was indicated that the public consultation efforts spent to date were reasonable. BC Parks would prefer that the consultant/SCRDP obtains a letter of non-objection from the Squamish First Nation communities. The consultation completed to date needs to continue until the letters of non-objection are obtained from the First Nations and the consultation with the community is completed. The current indication is that this will be satisfactory for BC Parks. During the Park Use Plan meeting, it was noted that BC Parks would like to see the consultation effort completed prior to the start of the construction of the permanent solution.

5. BC Parks completed their own internal review of the documentation and currently hold the

have the legal ability to issue a Park Use Permit; however, this item is currently under review by a government lawyer. If there are any changes resulting in BC Parks not being able to issue the permit this year, BC Parks will inform the SCRD as soon as possible.

6. The tentatively planned schedule is:

- a. AECOM will submit the Park Use Permit application during the week of April 11th, 2016;
- b. AECOM will confirm the water license submission required and then make the application during the week of April 11th, 2016;
- c. BC Parks will continue to review the construction plans and then the application on April 11th, 2016. The internal review will be ongoing with a focus on the potential environmental impacts and the associated mitigation plan. BC Parks was invited to reach-out to AECOM or the SCRD to request a document review if they have any questions and we would be happy to provide responses.
- d. Depending on the rate of snow melt the plan is to complete a site visit. This site visit is planned for the second week of May 9th, 2016. The site visit will include 2–3 representatives from BC Parks, the SCRD, AECOM and a representative from In-situ (i.e. the Sechelt Band). The goal is to coordinate the site visit so everyone can be on-site together. This will allow the site visit to be reviewed and discussed while on-site.

Let us know if you have any further comments or concerns with the above notes. Please note that the Permit application and Water License Amendment have been submitted to Front Counter BC.

Brett deWynter, P.Eng.

s.22

From: dewynter, Brett

Sent: Thursday, April 07, 2016 11:06 AM

To: 'Platz, Chris ENV:EX'; Bryan Shoji; Mathewson, Andrew; Ford, Bruce; Aikman, Jennie S ENV:EX; Rod.Dalziel@gov.bc.ca

Cc: Dave Crosby (Dave.Crosby@scrd.ca); Shane Walkey (Shane.Walkey@scrd.ca)

Subject: RE: Chapman Lake Water Supply Improvement - BC Parks

All:

Further to our meeting planned for tomorrow we offer the following comments and discussion:

1. It was discussed that the temporary permit issued last summer needs to be signed-off and finalized and an original signed copy hand delivered tomorrow.
2. The preferred plan is to complete the construction of the proposed works at Chapman Lake to support the installation of the diversion of water to a total depth of 8.0 m. To support the effective preliminary design drawing provided during the March 16, 2016 meeting a DRAFT Park Use Permit and the supporting documentation has been prepared. These DRAFT documents are attached.
3. Revision to the water license are ongoing. There is currently some debate about the need to submit a new water license application versus an amendment to the existing license. There are active discussions to clarify this item. For your information a DRAFT amendment application has been prepared.
4. The need for stakeholder consultation was discussed to meet the obligations of the BC Park Act. Efforts have been ongoing. The background documents are provided to summarize the consultation completed to date with a summary of some of the key issues. A couple specific areas that we are discussing are:
 - a. what specific areas of interest we should explore further in order to fulfil BC Parks Public Participation requirements / expectations for a "comprehensive public consultation" mentioned in the Tetrahedron Park Management Plan.
 - b. Other groups to consult / encourage participation

5. BC Parks was going to investigate their files and documents to determine if the planned scope of work at Chapman Lake could be completed with an amendment. The results of this investigation will be provided to the project team.

Once the background documents are reviewed and discussed we are hoping to reach consensus to advance the project.

Let us know if you have any further comments, otherwise we look forward to the meeting planned for tomorrow.

Brett deWynter, P.Eng.

s.22

-----Original Appointment-----

From: Platz, Chris ENV:EX [mailto:Chris.Platz@gov.bc.ca]

Sent: Wednesday, April 06, 2016 8:02 AM

To: Platz, Chris ENV:EX; Bryan Shoji; Mathewson, Andrew; Ford, Bruce; dewynter, Brett; Aikman, Jennie; Joanna ENV:EX

Subject: Chapman Lake Water Supply Improvement - BC Parks

When: Friday, April 08, 2016 10:30 AM-12:00 PM (UTC-08:00) Pacific Time (US & Canada)

Where: ENV R North Van. 1610 Mount Seymour Road Main Floor N. Van (seats 10-12)

Good morning,

I am canvassing for agenda topics. Please send me your items and I will formulate an agenda for
Chris

Hi all,

As discussed during our first meeting I am looking to book a follow-up meeting in early April; if
this date works and if there is anyone else you would like invited to the meeting.

I will call for agenda items a few days ahead of the meeting but if you have any items now please
Chris

Review and Comment

Sunshine Coast Regional District (SCRD)'s Park Use Permit Amendment Application to Install Gravity-fed Withdrawal System to Access Additional Water from Chapman Lake (submitted April 2016)

Comments prepared by Joanna Hirner, Conservation Specialist, South Coast Region, BC Parks
June 6, 2016

Comments specific to the current PUP Amendment Application ("the Application"):

- a) **Rationale for the project:** The background and rationale justifying why this project is needed are not clearly described. Although the introduction of the Application describes that the SCRD Board approved the proposed project in the fall of 2015, details of previous processes and information considered leading up to this decision are not provided. The application should include a clear rationale for the project, including description and results of processes and studies that led to development of the proposed plan, and a description of the benefits of the project. The application should also provide information on alternative options that were considered, and why the proposal to withdraw additional water from Chapman Lake using a gravity-fed water system is the preferred option for dealing with long-term water scarcity issues.
- b) **Other water supply and demand management options:** The introduction states that the proposed additional capacity to drawdown water from Chapman Lake will "only be utilized during periods of drought and until the long term source development projects specified in the Comprehensive Regional Water Plan are constructed." What long-term source development projects are being referred to here, and what is the timeline for their construction? Are there demand management options (other than water metering) being considered or implemented that could further reduce the need for drawdown of Chapman Lake?
- c) **Information on past and future "drawdown regime":** The nature of the past and future "drawdown regime" (i.e. parameters such as frequency of drawdown to and below -3 m, maximum depth of annual drawdown, timing, duration and rate of drawdown, etc.) has important implications for assessment of impacts. More information about the past drawdown regime (particularly in the last 10 years), and clearer information about predicted drawdown regime in the future, is requested.

Specific comments/questions:

- i. We understand that extensive data from monitoring of drawdown is available from recent years. Can this information be presented to provide a better understanding of existing conditions? For example, over the past 10 or 20 years, what has been the duration (start/end) and timing of drawdown below 0 m? What is the average and range of depth of maximum drawdown?
- ii. The application states that the SCRD Board has passed a resolution

that trigger Stage 3 and Stage 4 restrictions? Are data available on the timing and frequency of these restrictions in the past, and are there predictions about timing and frequency in the future?

- iii. Predictions about future water needs and drawdown appear to rely primarily on the Opus DaytonKnight (2013) assessment and Staats (2014). Information from these two studies is discussed separately in several parts of the application. Clarity about predicted drought frequency and "drawdown regime" could be improved if the results of both studies and how they relate to predicted drawdown regime were both discussed in detail the same section (i.e. Section 3.2.3 Water Quantity).
 - iv. According to the application, the Opus DaytonKnight (2013) analysis predicts that the current water supply is sufficient to support a 1 in 21 year low water return period, and taking into account predicted population growth and demand management (water metering), a 1 in 15 year drought return period by 2036. Does this mean that the probability of drawdown below -3 m is once every 21 years now, and once every 15 years by 2036?
 - v. Can the findings of the Staats (2014) report be further interpreted to make some specific predictions about drawdown regime in the lake? For example, the Staats (2014) report predicts that annual snow pack will be diminished and will melt earlier and more rapidly. Does this then mean that drawdown to -3 or lower is more likely to occur earlier and last longer in the future?
 - vi. Does Staats (2014) provide more quantitative predictions than those presented in the application? E.g. water scarcity issues are predicted to be more **frequent** in the near future; does Staats (2014) make more specific predictions about how frequently and how soon will this change occur? As another example, the Staats (2014) study apparently predicted that total water consumption during summer could **regularly** exceed the equivalent to the available water supply in the next 10 years if: 1) water demand does not change, 2) snow pack continues to decrease in winter, 3) summer temperatures increase by an average of 1 to 2°C, and 4) prolonged droughts become more common. What is meant by **regularly**, and how likely are the four factors listed here, that would cause the regular exceedance of the available water supply?
 - vii. The analysis done by Staats (2014) appears to indicate that climate change effects will cause the need for drawdown to be greater and more frequent (by some unknown quantity) than predicted in the Opus DaytonKnight (2013) assessment. Is our interpretation correct?
- d) **Hydrology of the Chapman Lake watershed:** The application should include an updated analysis of the hydrodynamics and recharge rates of Chapman Lake, as described in Section 3.2.1 of the application. Currently Section 3.2.1 relies on information from Whitehead (1999) which may now be out of date, especially because of changes in climate. In particular, the results of Staats (2014) suggest that recharge rates may have changed. As summarized in the application, "decreasing trends in precipitation were

changes to “the entire water holding dynamic of the watershed”. Is there a danger of multiple years of drought and drawdown permanently lowering the water table?

- e) **Project description and construction plans:** There are many details still to be developed regarding the design and construction of the project, including footprint, schedule, construction techniques and design, etc. Many of these details have implications for the potential impacts of the project. BC Parks requests to review more detailed designs and plans as they are developed.

Some specific comments/questions:

- i) **Temporary construction area:** During the site visit on May 31, 2016, sensitive wetland and drainage features were observed in much of the temporary construction area identified in the current application. Environmental features observed included relatively large areas of moss and other vegetation characteristic of wetlands, small streams, small pools with egg masses of Northern Pacific Treefrog, Long-toed Salamander, and Northwestern Salamander, adult Long-toed Salamanders and Northern Pacific Treefrogs, and a fish (likely Dolly Varden) within a small stream reach. Within the temporary construction area, the area subject to previous disturbance during the original construction appears quite small and limited to higher ground (e.g. where the helicopter pad is located and higher ground to the northeast). The footprint of the construction area needs to be very carefully managed and minimized in order to protect the above mentioned sensitive values. Site clearing should be kept to a minimum and limited to previously disturbed areas. Strategies may include keeping equipment on exposed lakebed wherever possible, using raised platforms for structures or equipment that must be kept on land, building boardwalks to limit traffic to defined paths and minimize impacts to ground and vegetation, etc. BC Parks would like to see a plan detailing a more refined project footprint and mitigation measures to prevent impacts prior to construction.
- ii) **Determination of geotechnical information:** During the May 31, 2016, site visit there was some discussion of tests to be used to determine the nature of the rock in the trench and at the dam. There was some indication that if certain conditions of the rock were not met, the project would become infeasible. Is our interpretation of the discussion correct? If so, what is the likelihood that rock conditions could render this project infeasible? Testing to determine geotechnical conditions should occur early enough in the project to prevent unnecessary impacts (e.g. associated with set up of the construction area) if the project is determined infeasible.
- iii) **Site restoration:** The application references that site restoration/remediation/reclamation plans will be developed for temporary construction areas and for dealing with rock generated through construction. These plans would be a requirement of the permit, and BC Parks would like to will require time to conduct a review and comment on these plans prior to construction. The restoration plan should include preservation and replacement of existing habitat features such as on-site large woody debris, and even vegetation if possible.
- iv) **Other environmental management plans for construction and operations:**

management plans, including spill prevention and response plans, wildlife and waste management plan for camp and construction site, water management plan for dealing with water during trenching, and sediment/erosion control plans. BC Parks **would likewill need** to review and comment on these plans and appreciates that a commitment has been made to provide them in Section 5 of the application. Plans should be provided for review as early as possible to allow BC Parks staff time to review and comment prior to construction.

- i) **Placement of intake:** The current design drawing shows that the bottom of the intake pipe is actually 9.2 m below high water. Would this then make it possible for drawdown below -8 m, either on purpose or through some kind of malfunction?
- f) **Sensitive species and ecosystems:** The lists of sensitive species and ecosystems is a list of species with potential to occur in the area, and does not include interpretation of the likelihood of occurrence in or around Chapman Lake, what the potential impacts might be to these species/ecosystems, and how impacts might be mitigated. This additional analysis needs to be added to the application.
- g) **Acid rock drainage:** Assessment of the potential for acid rock drainage resulting from blasting and installation of the gravity fed pipe is not mentioned in the application. Information on steps taken to ensure acid rock drainage does not occur should be provided.
- h) **Flows and fish in lower sections of Chapman Creek:** Although there may be fish immediately downstream of the dam in Chapman Creek within the park, the majority of fish and fish habitat values in Chapman Creek, including all anadromous species, are outside of the park. However, determination of appropriate flows for fish in the lower section of Chapman Creek is relevant to the impacts of this project in the park in the sense that the amount of flow required for fish will affect the amount of drawdown required from Chapman Lake. The higher the minimum flow requirements for fish, the more drawdown may be required from Chapman Lake if other sources of water or demand side management are not used to reduce water requirements from Chapman Lake. This increase in drawdown requirements would have implications for future drawdown regimes and associated impacts in the park during operations. There appears to be disagreement around what minimum flow is required to sustain fish in Chapman Creek. To clarify future flow requirements for fish, BC Parks would like to see some further analysis and discussion around this issue, in particular comparing work done by DFO in the 1990s which suggested a minimum flow of 0.3 m³/s, to the more recent work by Dr. Dave Bates which suggests that current minimum flows of 0.22 m³/s set by the SCRD for fish may be acceptable. It is important to note that Bates (2015) recommended further study and monitoring of salmonids and their habitat in the lower sections of Chapman Creek to confirm that 0.22 m³/s is acceptable; these studies should help clarify the issue of flow requirements, **although would not be a requirement for the permit application**. The Bates (2015) report also identifies three locations in Chapman Creek where adult passage may be hampered at flows around 0.2 m³/s, and suggests strategically timed water releases to help adult fish migrate upstream during low flows. *The implications of such releases on downstream regime should also be considered.*

Comments regarding the Whitehead (1999) assessment and appropriateness of relying heavily on Whitehead (1999) for assessing impacts of current project:

- a) Whitehead (1999) based much of his impact assessment and its conclusions on the fact that Chapman Lake was already subject to seasonal disturbance through summer drawdown, and that under the "existing drawdown regime", no significant negative effects had been observed. The absence of negative effects under the existing regime was used to extrapolate that although increased drawdown would increase the severity of drawdown effects, the "seasonal timing and duration of drawdown (would) not change significantly relative to the existing regime without pumping", and thus significant negative effects were considered unlikely under increased drawdown.
- b) Existing conditions (drawdown regime, climate variables, etc.) most likely have changed between 1999 and the present. The fact that existing conditions were a key part of Whitehead's (1999) conclusions about impacts, and existing conditions have very likely changed since 1999, calls into question the appropriateness of using the Whitehead (1999) assessment of impacts for the current project.
- c) Field data included in Whitehead's (1999) assessment was limited. Field work done in support of the Whitehead (1999) assessment was done over a three day period in September 1998. For some values likely to be affected by drawdown, such as fish and water quality, the limited field data collected by Whitehead (1999) was the only recent field data available for assessing the status of these values.
- d) Whitehead (1999) acknowledged uncertainty in his conclusions about impacts, and recommended baseline (1999 growing season) and post-construction monitoring to allow for detection of unexpected impacts of increased drawdown. If impacts were detected, Whitehead (1999) recommended that adaptive management be used to mitigate impacts, including exploration of other water sources and demand management options to reduce drawdown. Presumably the limited amount of field data available was another reason why Whitehead (1999) recommended further baseline field sampling of several values prior to construction, and post-construction monitoring during operations.
- e) **In summary:** existing conditions of climate, drawdown regime, and/or environmental values have likely changed since 1999. Even if conditions have not changed, Whitehead's (1999) recommendation to conduct further field sampling both pre and post construction to support adaptive management and prevent unexpected negative impacts during operations still has merit. **Thus additional field sampling prior to project construction is recommended. The results of field sampling should be used to update the impact assessment provided as part of the current Park Use Permit application, and provided to BC Parks for further review and comment. The following section provides recommendations for additional field sampling and impact assessment.**

Comments and recommendations for additional field sampling and impact assessment:

- a) **Water quality:** Whitehead (1999) included a preliminary list of water quality parameters that should be ~~monitored~~~~included in a monitoring program~~. A professional with expertise in limnology and water quality monitoring, especially as it relates to aquatic life values such as fish, should review Whitehead's (1999) recommendations and be involved in ~~the design of~~~~determining the~~ appropriate baseline water quality ~~monitoring program~~~~parameters~~. Field visits should also be used to assess for evidence of sloughing of exposed sediments during drawdown and lake recharge. Further assessment of water quality parameters should also consider water quality issues specific to reservoirs with large drawdown. For example, high levels of methylmercury are known to be generated in newly created reservoirs but evidence also suggests that large drawdown in established reservoirs may also lead to increases in methyl mercury formation (see Azimuth (2015)¹ and references therein, particularly from section 2.6.3). The implications of releases of hydrogen sulfide as observed by Whitehead (1999) should also be considered in assessing potential water quality impacts. Finally, Whitehead's (1999) assessment of potential impacts on water quality and aquatic resources included interpretation of bathymetric and hydrology information available at the time, as it related to lake drying, sloughing of lake bed sediments, etc. The assessment should be updated with more recent ~~bathymetry mapping~~ ~~where available~~ and updated information about recent and future predicted hydrology.
- b) **Fish and fish habitat:**
 - i) General: Whitehead (1999) recommended several parameters to be monitored to assess impacts on fish pre- and post-project. A professional with expertise in monitoring fish populations and habitat use should review Whitehead's (1999) recommendations and be involved in ~~the design of the monitoring program~~~~determining the appropriate parameters to be monitored~~. Monitoring of ~~important~~ aspects of fish habitat should also be ~~incorporated into the program~~~~assessed~~. For example, monitoring of water quality parameters such as nitrogen and phosphorus can indicate lake productivity, as can monitoring of invertebrates. Temperature and oxygen profiles are also important for assessment of impacts on fish. Finally, drawdown over many years can change the substrate composition in the littoral zone, ~~which may have implications for fish habitat and productivity~~.
 - ii) Dolly Varden: There is limited information about fish in Chapman Lake, but Whitehead's (1999) sampling confirmed that there are Dolly Varden char in the lake. Although it is apparently unlikely that the fish are Bull Trout, an experienced fish biologist should visually confirm the fish in Chapman Lake are Dolly Varden. Recent discussions with fish biologists from the Ministry of Forests, Lands and Natural Resource Operations suggest that Dolly Varden char may be prevented from accessing their spawning streams during the drawdown period. Ad-fluvial char (i.e.

¹ <https://www.bchydro.com/content/dam/BCHydro/customer->

those that spawn in tributary streams but otherwise sub-adults/adults live in lake) within the South Coast region have been documented migrating to spawning inlet streams in mid to late July and return to lake to overwinter as late as mid-November. In addition, Dolly Varden in cold water/high elevation systems such as Chapman Lake tend to migrate to spawning streams earlier in the summer than in warmer systems, increasing the probability that the period of greatest drawdown will overlap with spawning migrations. To understand the implications of drawdown on spawning, additional fish surveys should be designed to narrow down the timing and location of spawning char.

- iii) Fish in Chapman Creek downstream of dam: The assessment and field sampling regime should consider fish values immediately downstream of the dam, in terms of potential construction impacts but also in terms of potential temperature effects related to the pipe drawing water from below surface, which is known to lead to temperature effects in water released from reservoirs.
- c) **Amphibians:** Aquatic-breeding amphibians may be using the lake shore for breeding, and observations during the May 31, 2016 site visit confirm that amphibians are using adjacent wetlands for breeding. The presence of aquatic breeding amphibians and their habitat, and potential impacts of the project on these values, should be assessed. The potential for Chapman Creek to contain Coastal Tailed Frogs immediately downstream of the dam, and potential impacts to this species from construction and/or operations, should also be considered.
- d) **Vegetation and ecological community assessment and mapping:** Vegetation and ecological communities in the riparian and littoral areas of the lake are assumed to be sensitive to changes in climate and drawdown regime, including changes that may have occurred since 1999, and changes that may occur in the future.
 - i) The Whitehead (1999) assessment included mapping of different riparian habitat types, surficial materials, and "ecosystem units" (now called "ecological communities") around the lake. Given that the classification of ecological communities and the distribution of habitat types may have changed since the Whitehead (1999) assessment was completed, this mapping and classification of ecological communities should be updated. The update is important in part because changes since the last assessment may reflect effects of changes in climate and drawdown regime since 1998. Changes in distribution of habitat types and ecological communities can also be used for monitoring ecological changes following implementation of the proposed project. In particular, the extent and distribution of wetland communities should be mapped and monitored because they are likely to be particularly sensitive to longer and deeper drawdown of Chapman Lake.
 - ii) Whitehead (1999) surveyed several environmental parameters, including vegetation species and distribution, along nine transects perpendicular to the lakeshore. Transect locations were chosen to represent the diversity of riparian and littoral habitat conditions in the lake. These transect locations could be resampled to detect changes in since 1999, and to allow for continued monitoring post-project implementation.

Fr

water mark to detect changes in terrestrial vegetation that could be a result of more prolonged and/or deeper drawdown of the lake following implementation of the proposed project.

- iii) Pre-construction rare plant survey of construction footprint is proposed in section 4.1.1 and BC Parks supports surveying for rare plants within the temporary and permanent construction footprint.
- iv) If long-term annual increases in drawdown lead to lowering of the water table and drying of terrestrial vegetation, it seems possible that this could increase probability of wildfire, especially if climate change more generally leads to warmer and drier conditions. The assessment should consider and evaluate this possibility!
- e) **Invertebrate monitoring:** As noted under "Fish and fish habitat" above, invertebrates are the main food source of fish and are indicators of lake productivity and water quality. Thus invertebrate sampling may be valuable as part of the pre- and post-project monitoring.
- f) **Post-construction monitoring plans:** Whitehead (1999) recommended monitoring of key parameters post-construction to allow for detection of unexpected or unacceptable impacts, and adaptive management. A plan for post-construction monitoring designed for this purpose should be developed and added to the current application.
- g) **Workplan for field study:** BC Parks would like to see a work plan for field studies planned prior to construction. This plan will also support application for a Research permit.

C
o
n
s
i
d
e
r
i
n
g

C
o
n
s
i
d
e
r
i
n
g



June 3, 2016

VIA EMAIL

Bryan Shoji
General Manager, Infrastructure Services
Sunshine Coast Regional District
1975 Field Road, Sechelt, BC V0N 3A1
Email: Bryan.Shoji@scrd.ca

Dear Bryan,

I understand you have requested clarification of the process and timelines related to the Coast Regional District's (SCRD) application for amendment to your Park Use Permit (Auth#102714).

The permit amendment application was made on [DATE]. Since receiving the permit a BC Parks staff have conducted an assessment of the application to determine if it is complete and additional information is required. BC Parks staff have also had the opportunity to meet from the Ministry of Forests, Lands and Natural Resource Operation (FLNRO) and Fisheries and Oceans Canada to provide information on the application and seek early feedback.

Based on the preliminary review of the application we have determined that additional information is required in order to fully adjudicate the proposal. Staff had the opportunity to provide a summary of their preliminary assessment at a meeting with the SCRD and AECOM on May 31, 2016 and there was further discussion during the site visit to Chapman Lake which took place on May 31, 2016. Joanna Hirner, Conservation Specialist, will provide a full written summary of comments and anticipates having them to you before June 9, 2016.

We understand the SCRD also requires a Section 11 approval under the *Water Act* for work on a stream. We are working closely with FLNRO to coordinate our authorization process wherever possible so we are not duplicating effort and can deliver the decisions within a reasonable timeframe.

The Tetrahedron Park Management Plan states: "Where regional water supply improves, proposed within the park, an impact assessment and comprehensive public consultation will be developed". I recognize that the SCRD has undertaken some consultation with key stakeholder groups. Given the high degree of stakeholder interest in the proposal and the direction

involving all groups together would be preferred. To address this interest of the stakeholders the SCRDC may want to consider holding a larger meeting with the stakeholder groups to

I am aware that the SCRDC has initiated consultation with Shishálh Nation and Squamish. The SCRDC is able to get a letter of support from the Nations that will facilitate our consultation process, as we will be following up with the First Nations to seek confirmation their interests have been addressed.

Given the requirement for additional field work and windows for construction we are not have the information required in order to make a decision on the permit amendment in allow for works to commence in 2016. We are willing to extend the terms of the current amendment for one additional year to allow use of the siphon system as a back-up measure. SCRDC to employ until a decision on the trench/piping proposal can be made.

Rod Dalziel, Area Supervisor, will continue to be the main contact for the permit application. Please follow-up with him at Rod.Dalziel@gov.bc.ca if you have any further questions.

With regards,

Jennie Aikman
Regional Director, South Coast Region
BC Parks

Cc: Brett Dewynter, AECOM
Rod Dalziel, Area Supervisor, BC Parks
Joanna Hirner, Conservation Specialist, BC Parks
Chris Platz, Parks and Protected Areas Section Head, BC Parks

RE: Chapman Lake Water Supply Improvement - BC Pa

Monday, October 16, 2016

2:05 PM

Subject	RE: Chapman Lake Water Supply Improvement - BC Parks M
From	dewynter, Brett
To	Aikman, Jennie S ENV:EX; Dalziel, Rod ENV:EX; Hirner, Joanna EN
Cc	Platz, Chris ENV:EX; Mathewson, Andrew; Dave Crosby; Shane Walkey (Shane.Walkey@sc Bryan Shoji
Sent	Monday, June 6, 2016 9:01 AM

Jennie/Rod/Joanna:

Further to the below notes, please confirm the status of Items 2, 5, 6, 7 and 9. We review these items today or tomorrow as there is a meeting with the SCRD Board on the 9th, 2016.

Thanks for your help.

Brett deWynter, P.Eng.

s.22

From: dewynter, Brett

Sent: Monday, May 30, 2016 8:58 AM

To: 'Bryan Shoji'; 'Dave Crosby'; Mathewson, Andrew; Ford, Bruce; Jennie.Aikman
Rod.Dalziel@gov.bc.ca; Hirner, Joanna ENV:EX (Joanna.Hirner@gov.bc.ca); Shane
(Shane.Walkey@scrd.ca)

Cc: Chris.Platz@gov.bc.ca

Subject: RE: Chapman Lake Water Supply Improvement - BC Parks M

All: Provided below are the notes and key action items from our meeting on May 26, 2016. Please review and let me know if you have any comments or concerns.

Meeting Date: May 26, 2016 at the SCRD Office

Meeting Attendees: Joanne Hirner, Rod Dalziel, Bryan Shoji, Dave Crosby, Shane Walkey, Andrew Mathewson, Brett deWynter.

Meeting Notes:

1. Meeting Overview: Due to the scheduled site visit to Chapman Lake being cancelled (due to weather level), an impromptu meeting was held at the Regional District Office. This meeting was attended by BC Parks, the Regional District and AECOM.
2. It was verbally confirmed that a Park Use Permit to construct the permanent road for the surface of Chapman Lake to be lowered by an additional 5 m will not be required for the 2016 construction season. Joanna confirmed that written notification of the permit information is required for the current Park Use application will be provided by June 3rd. This letter will include comments from Rod Dalziel regarding concerns from the previous meetings and any other functional concerns. It is envisioned that the letter by June 3rd, 2016 will be a complete set of comments from BC Parks regarding the current project.
3. One of the primary concerns noted by BC Parks were potential changes to the site since the Whitehead report was published. Shane from the Regional District will search the archive for pictures (preferably aerial pictures) of Chapman Lake at the time the Whitehead report was published. The historical pictures can be used to verify any changes in the Chapman Lake site during the past 15+ years.
4. Detailed bathymetric survey and level data for Chapman Lake exists for the years 1998-2000. This data will be compiled to establish an estimate of the drawdown duration over the past and make projections about the future lake drawdown frequency and capacity.
5. BC Parks will investigate and provide written notification confirming if the term 'drawdown' is applicable to the project.

application needs to be re-submitted. It is preferable for the current permit to minimize the chance of water shortages again this summer, the syphon may be installed this summer. Additionally the syphon will be needed next summer for construction of the permanent solution meaning the temporary syphon permit

6. It is expected that environmental field work and geotechnical investigations completed this summer to address the comments provided by BC Parks. It was noted by BC Parks if a research permit needs to be completed for the field work that during the summer of 2016 at the Chapman Lake site.
7. Rod noted that some Stakeholders have suggested that they have not been involved about the project. It was requested that Rod provide a list of Stakeholders with an intention to meet with all the major park Stakeholders. It was also noted that efforts to date have been more heavily focused on the First Nation consultation prior to completing a broader communication effort. The First Nation consultation
8. It was confirmed that the consultation in the future will be focused meetings with Stakeholders. It was also noted that the SCRD held open meetings with the community at several different locations during the week of May 16th and 25th, 2016. Drinking water issues were a major discussion item during the community meetings.
9. It was requested that a separate letter be provided from BC Parks stating that the water supply solution for Chapman Lake can not be constructed during 2016. The project will be a significant concern for the Regional District Board. A separate letter that the project can not be constructed this summer is being requested for the communication to the Regional District Board. This letter is being requested by
10. Rod noted that Ranger Training starts on the week of June 6th and continues for 4 weeks. It was also noted that BC Parks staff would like to attend the site prior to the notes regarding the planned Chapman Lake construction. This means we need a day during the week of May 30th, 2016 to complete the site visit to ensure the visit is not further delayed. After the meeting the weather forecast was reviewed and the

Brett deWynter, P.Eng.

Water Group, Canada West

s.22

brett.deWynter@aecom.com

From: dewynter, Brett

Sent: Monday, April 25, 2016 10:54 AM

To: 'Bryan Shoji'; 'Dave Crosby'; Mathewson, Andrew; Ford, Bruce; Chris.Platz@gov.bc.ca; Jennie.Aikman@gov.bc.ca; Hirner, Joanna ENV:EX (Joanna.Hirner@gov.bc.ca)

Cc: Rod.Dalziel@gov.bc.ca

Subject: FW: Chapman Lake Water Supply Improvement - BC Parks Project

All:

Thanks for the meeting on Friday, April 8, 2016. Further to the meeting we confirmed the following items:

1. Bryan Shoji of the Sunshine Coast Regional District confirmed that acceptance of the syphon Park Use Permit was provided via e-mail to BC Parks on April 6, 2016.
2. The preliminary Park Use Plan that was submitted to BC Parks prior to the meeting. The indication from BC Parks was that the plan is acceptable however, it was noted that a preliminary review of the documents had been completed. The areas where it was noted that AECOM focus prior to submitting the final documents to Front Corner BC is explain impacts of the construction activities complete with the mitigation plans.
3. It was noted that BC Parks has reached-out to other government agencies to obtain comments. One of the key comments received from DFO is to ensure minimum fish flow maintained in the Chapman Creek. The minimum fish flow rate suggested in the

roughly double the flow rate suggested in the Dave Bates report. The issue of the Chapman Creek will only be improved with the completion of the proposed project. Lake, however, the debate about the minimum flow required in Chapman Creek is

4. The consultation effort spent to date was summarized and provided in a document prior to the meeting. During the discussion it was indicated that the public consultation to date seemed reasonable. BC Parks would prefer that the consultant/SCRD obtain an objection from the Sechelt and Squamish First Nation communities. The consultation needs to continue and be documented. Once the letters of non-objection are received from the First Nations and the consultation with the community is completed the current plan that this will be satisfactory for BC Parks. During the Park Use Permit review BC Parks

5. BC Parks completed their own internal review of the documentation and currently hold the opinion that they have the legal ability to issue a Park Use Permit; however, this is currently under review by the internal government lawyer. If there are any changes resulting in being able to issue the construction permit this year, BC Parks will inform the SCRD as soon as possible.

6. The tentatively planned schedule is:

- a. AECOM will submit the Park Use Permit application during the week of April 11th, 2016;
- b. AECOM will confirm the water license submission required and then submit the application during the week of April 11th, 2016;
- c. BC Parks will continue to review the construction plans and then the application when it is submitted. The internal review will be ongoing with a focus on the potential environmental impacts and the associated mitigation plan. BC Parks was in contact with AECOM or the SCRD during their document review if they have any questions and we would be happy to provide responses.
- d. Depending on the rate of snow melt the plan is to complete a site visit tentatively planned for the second week of May 9th, 2016. The site visit will have 3 representatives from BC Parks, the SCRD, AECOM and a representative (i.e. the Sechelt Band arch. consultant). The goal is to coordinate the site visit so everyone can be on-site together. This will allow any concerns to be reviewed.

Let us know if you have any further comments or concerns with the above notes. The Park-Use Permit application and Water License Amendment have been submitted to the Counter BC. Thanks.

Brett deWynter, P.Eng.

s.22

From: dewynter, Brett

Sent: Thursday, April 07, 2016 11:06 AM

To: 'Platz, Chris ENV:EX'; Bryan Shoji; Mathewson, Andrew; Ford, Bruce; Aikman, Brian; Hirner, Joanna ENV:EX; Rod.Dalziel@gov.bc.ca

Cc: Dave Crosby (Dave.Crosby@scrd.ca); Shane Walkey (Shane.Walkey@scrd.ca)

Subject: RE: Chapman Lake Water Supply Improvement - BC Parks

All:

Further to our meeting planned for tomorrow we offer the following comments and items:

1. It was discussed that the temporary permit issued last summer needs to be signed and finalized. This will be completed and an original signed copy hand delivered tomorrow.

2. The preferred plan is to complete the construction of the proposed works at Chapman Lake this summer to support the installation of the diversion of water to a total depth of 8. The efforts shown in the preliminary design drawing provided during the March 16th DRAFT Park Use-Permit application and the supporting documentation has been provided. The DRAFT document are attached.

3. Revision to the water license are ongoing. There is currently some debate about complete a new water license application versus an amendment to the existing license. We are in active discussion with FLNR to clarify this item. For your information a DRAFT amendment application has been prepared.

4. The need for stakeholder consultation was discussed to meet the obligations of the process. These efforts have been ongoing. The background documents are provided. The consultation efforts completed to date with a summary of some of the key issues and specific areas that we would like to discuss are:

- a. what specific areas of interest we should explore further in order to fulfill First Nations and Public Participation requirements / expectations for a “public consultation process” mentioned in the Tetrahedron Park Management Plan
- b. Other groups to consult / encourage participation

5. BC Parks was going to investigate their files and documents to determine if the work at Chapman Lake could be completed with an amendment. The results of this will be shared with the project team.

Once the background documents are reviewed and discussed we are hoping to re-visit the plan to advance the project.

Let us know if you have any further comments, otherwise we look forward to the meeting for tomorrow. Thanks.

Brett deWynter, P.Eng.

s.22

-----Original Appointment-----

From: Platz, Chris ENV:EX [mailto:Chris.Platz@gov.bc.ca]

Sent: Wednesday, April 06, 2016 8:02 AM

To: Platz, Chris ENV:EX; Bryan Shoji; Mathewson, Andrew; Ford, Bruce; dewynter, Jennie S ENV:EX; Hirner, Joanna ENV:EX

Subject: Chapman Lake Water Supply Improvement - BC Parks IV

When: Friday, April 08, 2016 10:30 AM-12:00 PM (UTC-08:00) Pacific Time (US & Canada)

Where: ENV R North Van. 1610 Mount Seymour Road Main Floor N. Van (seats 100)
Good morning,

I am canvassing for agenda topics. Please send me your items and I will formulate a meeting agenda for the meeting.

Chris

Hi all,

As discussed during our first meeting I am looking to book a follow-up meeting in May. Please let me know if this date works and if there is anyone else you would like invited to the meeting. I will call for agenda items a few days ahead of the meeting but if you have any items to add please send them along.

Chris

Re: Chapman Lake Water Supply Improvement - BC Pa

Monday, October 16, 2016

2:05 PM

Subject	Re: Chapman Lake Water Supply Improvement - BC Par
From	Dalziel, Rod ENV:EX
To	Aikman, Jennie S ENV:EX
Cc	Hirner, Joanna ENV:EX; Platz, Chris ENV:EX
Sent	Monday, June 6, 2016 10:49 AM

Hello Jennie,

The letter looks really good. One note is the extension is likely to be requested for one year, probably into October 2017 to ensure coverage of potentially dry autumn.

Cheers,

Rod

Sent from my iPad

On Jun 3, 2016, at 5:19 PM, Aikman, Jennie S ENV:EX <Jennie.Aikman@gov.bc.ca>

Well done on the comments Joanna, it is very evident that you have done a great job of their application and the associated reports.

Please see the attached version with my comments. As you will, I have conceivably reference to SCRD being required to develop a "monitoring program" for water fish. I also think we need to be very clear about what we are requiring them to do in summer as part of their permit amendment application and what we may require post-construction assessment and monitoring. Let's discuss my comments with

Also, I understand Bryan Shoji was requesting a letter from me about the project timelines. I have drafted a letter – attached. If you have any comments, please let me know by noon on Monday as I would like to get the letter out in advance of Joanna's comments.

Thanks.

Jennie

Jennie Aikman

Regional Director

South Coast Region, BC Parks

Ministry of Environment

Office phone: (604) 924-2227

Cell phone: (778) 875-8494

From: Hirner, Joanna ENV:EX

Sent: Friday, June 3, 2016 12:51 PM

To: Dalziel, Rod ENV:EX; Aikman, Jennie S ENV:EX

Cc: Platz, Chris ENV:EX

Subject: RE: Chapman Lake Water Supply Improvement - BC Parks

Hi everybody,

Thanks Rod, your response looks good to me.

Regarding the written notification by the 3rd and the request for a letter, I was told when the second helicopter load came back from Chapman Lake, and warned AECOM that our comments and any associated letter would probably come later rather than Friday. They didn't seem concerned, although they emphasized they really like something in advance of a planned briefing with the SCRD Board.

I have attached my comments that could be shared with them next week. It was also to emphasize that these are not the only and final comments from BC Parks.

to suggest in his email summarizing the May 26 meeting notes. Especially bec Chris may not have time to fully review before they would be sent next week details (and impacts) of the project are still unknown. My comments also don comments about the stakeholder and public consultation to date. Not sure if to provide them written comments about this but if we are, would be import:

If you do have time please review my comments and provide any edits. There stuff, especially related to downstream fish flows and some comments that c observations during the May 31 site visit. Attached and available here: [Z:\1_P Region\PPA Ops\Areas\Sunshine Coast Area\Park Use Permits \(PUPs\)\Sunshin District\PUP 102714 Chapman Lake water infrastructure\Joanna Comments a](#)

Thanks!

Joanna

Joanna Hirner (MRM, RPBio)

Conservation Specialist

South Coast Region, BC Parks

604-924-2228

From: Dalziel, Rod ENV:EX

Sent: Thursday, June 2, 2016 2:12 PM

To: Hirner, Joanna ENV:EX; Aikman, Jennie S ENV

Cc: Platz, Chris ENV:EX

Subject: RE: Chapman Lake Water Supply Improvement - BC Parks P

Below is what I plan to provide as response to Brett's e

Not including:

- ? Joanna confirmed that written notification of where additional informa for the current Park Use application will be provided by June 3rd, 2016.
- ? It was requested that a separate letter be provided from BC Parks stating permanent water supply solution for Chapman Lake can not be construc The delay to the project will be a significant concern for the Regional Dis separate letter stating that the project can not be constructed this sum requested for the communication to the Regional District Board. This let requested by June 3rd, 2016, since there is a presentation to the Board sc

Hello Brett,

Thank you for providing summary of the May 26th meeting. The following is information.

Please find attached summary of Tetrahedron Advisory Committee r

Please expect further comment from BC Parks on the PUP amendment ap

I am confirming a PUP amendment application will need to be submitted to e amendment "short term siphon option" to 31 Oct 17.

I am confirming a Research PUP application will need to be submitted for th work that will occur during the summer of 2016 at the Chapman Lake site.

Stakeholders that have reached out to BC Parks and whom wish to be include process: Tetrahedron Advisory Committee, Tetrahedron Alliance, Sunshine C Association, Tetrahedron Outdoor Club, Ruby Lake Lagoon Society.

Regards,

Rod Dalziel

Sunshine Coast Area Supervisor

BC Parks - South Coast Region - Ministry of Environn

✉: PO Box 950, 6451 Sechelt Inlet Road, Sechelt, BC V0N

☎: Desk (604) 885-6755 Mobile (604) 741-1967 Fax (604) 885

✉: Rod.Dalziel@gov.bc.ca

Visit the BC Parks website @ bcparks.ca

From: dewynter, Brett [<mailto:Brett.dewynter@aecom.ca>]

Sent: Monday, May 30, 2016 8:58 AM

To: Bryan Shoji; Dave Crosby; Mathewson, Andrew; Ford, Bruce; Aikman, Jeli Dalziel, Rod ENV:EX; Hirner, Joanna ENV:EX; Shane Walkey (Shane.Walkey@:

Cc: Platz, Chris ENV:EX

Subject: RE: Chapman Lake Water Supply Improvement - BC Parks

All: Provided below are the notes and key action items from our meeting on Please review and let me know if you have any comments or concerns.

Meeting Date: May 26, 2016 at the SCRD Office

Meeting Attendees: Joanne Hirner, Rod Dalziel, Bryan Shoji, Dave Crosby, Sha Ford, Andrew Mathewson, Brett deWynter.

Meeting Notes:

1. Meeting Overview: Due to the scheduled site visit to Chapman Lake being (cloud level), an impromptu meeting was held at the Regional District Office. The meeting was held between BC Parks, the Regional District and AECOM.
2. It was verbally confirmed that a Park Use Permit to construct the permanent allow for the surface of Chapman Lake to be lowered by an additional 5 m provided for the 2016 construction season. Joanna confirmed that written where additional information is required for the current Park Use application provided by June 3rd, 2016. This letter will include comments from Rod Dalziel concerns from the Stakeholder meetings and any other functional concerns envisioned that the letter provided by June 3rd, 2016 will be a complete response.
3. One of the primary concerns noted by BC Parks were potential changes to the Lake site since the Whitehead report was published. Shane from the Regional District stated that he will search the archive for pictures (preferably aerial pictures of Chapman at the time when the Whitehead report was published. The historical can be used to visually note any changes in the Chapman Lake site during the past years.
4. Detailed bathymetric survey and level data for Chapman Lake exists for several years. This data will be compiled to establish an estimate of the drawdown over the recent past and make projections about the future lake drawdown for various durations.
5. BC Parks will investigate and provide written notification confirming if the siphon application needs to be re-submitted. It is preferable for the current application to be extended. To minimize the chance of water shortages again this summer may need to be installed this summer. Additionally the siphon will be needed over the summer for the construction of the permanent solution meaning the temporary siphon will be in place for a longer period.
6. It is expected that environmental field work and geotechnical investigation will be completed this summer to address the comments provided by BC Parks. It was confirmed by BC Parks if a research permit needs to be completed for the investigation will occur during the summer of 2016 at the Chapman Lake site.
7. Rod noted that some Stakeholders have suggested that they have not been informed about the project. It was requested that Rod provide a list of Stakeholders since it is the intention to meet with all the major park Stakeholders. It was noted that the consultation efforts to date have been more heavily focused on consultation and support prior to completing a broader communication strategy. Nation consultation has been delayed due to the political challenges at the moment.
8. It was confirmed that the consultation in the future will be focused more on specific Stakeholders. It was also noted that the SCRD held open meetings with the community at several different locations during the week of May 16th and 17th. Drinking water supply issues were a major discussion item during the community meetings.

9. It was requested that a separate letter be provided from BC Parks stating permanent water supply solution for Chapman Lake can not be constructed. The delay to the project will be a significant concern for the Regional District. A separate letter stating that the project can not be constructed this summer was requested for the communication to the Regional District Board. This letter was requested by June 3rd, 2016, since there is a presentation to the Board scheduled for June 3rd, 2016.
10. Rod noted that Ranger Training starts on the week of June 6th and continues for 2-weeks. It was also noted that BC Parks staff would like to attend the site visit confirming all the notes regarding the planned Chapman Lake construction. We need to find a day during the week of May 30th, 2016 to complete the site visit to ensure the project is not further delayed. After the meeting the weather was not ideal.

Brett deWynter, P.Eng.

Water Group, Canada West

s.22

brett.deWynter@aecom.com

From: dewynter, Brett

Sent: Monday, April 25, 2016 10:54 AM

To: 'Bryan Shoji'; 'Dave Crosby'; Mathewson, Andrew; Ford, Bruce; Chris.Plat@bc.ca; Jennie.Aikman@gov.bc.ca; Hirner, Joanna ENV:EX (Joanna.Hirner@gov.bc.ca)

Cc: Rod.Dalziel@gov.bc.ca

Subject: FW: Chapman Lake Water Supply Improvement - BC Parks Information

All:

Thanks for the meeting on Friday, April 8, 2016. Further to the meeting we discussed the following items:

1. Bryan Shoji of the Sunshine Coast Regional District confirmed that acceptance of a temporary syphon Park Use Permit was provided via e-mail to BC Parks on April 8, 2016.
2. The preliminary Park Use Plan that was submitted to BC Parks prior to the meeting was discussed. The indication from BC Parks was that the plan is acceptable however, only a preliminary review of the documents had been completed. The area requested that AECOM focus prior to submitting the final documents to BC Parks on explaining the potential impacts of the construction activities complete with a detailed site plan.
3. It was noted that BC Parks has reached-out to other government agencies for comments. One of the key comments received from DFO is to ensure minimum flow is maintained in the Chapman Creek. The minimum fish flow rate suggested in the report is roughly double the flow rate suggested in the Dave Bates report. The issue of low flow in Chapman Creek will only be improved with the completion of the project at Chapman Lake, however, the debate about the minimum flow required in Chapman Creek is independent of this project. The Dave Bates report will be forwarded to BC Parks for review.
4. The consultation effort spent to date was summarized and provided in a document to BC Parks prior to the meeting. During the discussion it was indicated that the preliminary efforts spent to date seemed reasonable. BC Parks would prefer that the consultant obtains a letter of non-objection from the Sechelt and Squamish First Nations. The consultation completed to date needs to continue and be documented. Once letters of non-objection are obtained from the First Nations and the consultation with them is completed the current indication is that this will be satisfactory for BC Parks. Once the Park Use Permit review is completed BC Parks would continue to reach-out to other government agencies for comments.
5. BC Parks completed their own internal review of the documentation and concluded their opinion that they have the legal ability to issue a Park Use Permit; however, this is currently under review by the internal government lawyer. If there are any concerns in BC Parks not being able to issue the construction permit this year, BC Parks will be able to issue the permit next year.

SCRD as soon as possible.

6. The tentatively planned schedule is:

- a. AECOM will submit the Park Use Permit application during the week of April 11th, 2016;
- b. AECOM will confirm the water license submission required and the application during the week of April 11th, 2016;
- c. BC Parks will continue to review the construction plans and then once it is submitted. The internal review will be ongoing with a focus on potential environmental impacts and the associated mitigation plan. BC Parks is invited to reach-out to AECOM or the SCRD during their document review. If we have any questions and we would be happy to provide responses.
- d. Depending on the rate of snow melt the plan is to complete a site visit tentatively planned for the second week of May 9th, 2016. This will include 2 – 3 representatives from BC Parks, the SCRD, AECOM and a representative from In-situ (i.e. the Sechelt Band arch. consultant). We will coordinate the site visit so everyone can be on-site together. This will be a good opportunity for everyone to meet and discuss the project.

Let us know if you have any further comments or concerns with the above notes. We will ensure that the Park-Use Permit application and Water License Amendment have been submitted to Front Counter BC. Thanks.

Brett deWynter, P.Eng.

s.22

From: dewynter, Brett

Sent: Thursday, April 07, 2016 11:06 AM

To: 'Platz, Chris ENV:EX'; Bryan Shoji; Mathewson, Andrew; Ford, Bruce; Aikr, David ENV:EX; Hirner, Joanna ENV:EX; Rod.Dalziel@gov.bc.ca

Cc: Dave Crosby (Dave.Crosby@scrd.ca); Shane Walkey (Shane.Walkey@scrd.ca)

Subject: RE: Chapman Lake Water Supply Improvement - BC Parks First Nations

All:

Further to our meeting planned for tomorrow we offer the following commercial items:

1. It was discussed that the temporary permit issued last summer needs to be finalized. This will be completed and an original signed copy hand delivered to the SCRD.
2. The preferred plan is to complete the construction of the proposed works by the end of this summer to support the installation of the diversion of water to a total diversion of 100% to support the efforts shown in the preliminary design drawing provided during the 2016 meeting a DRAFT Park Use-Permit application and the supporting documents have been prepared. These DRAFT documents are attached.
3. Revision to the water license are ongoing. There is currently some debate as to whether to complete a new water license application versus an amendment to the existing license. There are active discussions with FLNR to clarify this item. For your information a DRAFT application has been prepared.
4. The need for stakeholder consultation was discussed to meet the obligations under the process. These efforts have been ongoing. The background documents are prepared to summarize the consultation efforts completed to date with a summary of some of the issues. A couple specific areas that we would like to discuss are:
 - a. what specific areas of interest we should explore further in order to meet BC Parks First Nations and Public Participation requirements / expectations for a "comprehensive public consultation process" mentioned in the Tetrahedron Management Plan.
 - b. Other groups to consult / encourage participation from
5. BC Parks was going to investigate their files and documents to determine if the scope of work at Chapman Lake could be completed with an amendment. This will be a good opportunity for everyone to meet and discuss the project.

investigation will be shared with the project team.

Once the background documents are reviewed and discussed we are hoping consensus regarding the plan to advance the project.

Let us know if you have any further comments, otherwise we look forward to planned for tomorrow. Thanks.

Brett deWynter, P.Eng.

s.22

-----Original Appointment-----

From: Platz, Chris ENV:EX [mailto:Chris.Platz@gov.bc

Sent: Wednesday, April 06, 2016 8:02 AM

To: Platz, Chris ENV:EX; Bryan Shoji; Mathewson, Andrew; Ford, Bruce; dew; Aikman, Jennie S ENV:EX; Hirner, Joanna ENV:EX

Subject: Chapman Lake Water Supply Improvement - BC Parks N

When: Friday, April 08, 2016 10:30 AM-12:00 PM (UTC-08:00) Pacific Time (l

Where: ENV R North Van. 1610 Mount Seymour Road Main Fl RM N. Van (sea

Good morning,

I am canvassing for agenda topics. Please send me your items and I will form for our meeting.

Chris

Hi all,

As discussed during our first meeting I am looking to book a follow-up meeting please let me know if this date works and if there is anyone else you would like to attend the meeting.

I will call for agenda items a few days ahead of the meeting but if you have any please send them along.

Chris

RE: Chapman Lake Water Supply Improvement - BC Pa

Monday, October 16, 2016
2:06 PM

Subject	RE: Chapman Lake Water Supply Improvement - BC Par
From	Aikman, Jennie S ENV:EX
To	Dalziel, Rod ENV:EX
Sent	Monday, June 6, 2016 1:15 PM

Thank you for reviewing – I saw Brett's note requesting more time, so will reflect

From: Dalziel, Rod ENV:EX

Sent: Monday, June 6, 2016 10:50 AM

To: Aikman, Jennie S ENV:EX

Cc: Hirner, Joanna ENV:EX; Platz, Chris ENV:EX

Subject: Re: Chapman Lake Water Supply Improvement - BC Parks

Hello Jennie,

The letter looks really good. One note is the extension is likely to be requested for one year, probably into October 2017 to ensure coverage of potentially dry autumn

Cheers,

Rod

Sent from my iPad

On Jun 3, 2016, at 5:19 PM, Aikman, Jennie S ENV:EX <Jennie.Aikman@gov.bc.ca>

Well done on the comments Joanna, it is very evident that you have done a great job of their application and the associated reports.

Please see the attached version with my comments. As you will, I have concealed reference to SCRD being required to develop a "monitoring program" for water fish. I also think we need to be very clear about what we are requiring them to do this summer as part of their permit amendment application and what we may require post-construction assessment and monitoring. Let's discuss my comments with

Also, I understand Bryan Shoji was requesting a letter from me about the project timelines. I have drafted a letter – attached. If you have any comments, please reply by noon on Monday as I would like to get the letter out in advance of Joanna's comments.

Thanks.

Jennie

Jennie Aikman

Regional Director

South Coast Region, BC Parks

Ministry of Environment

Office phone: (604) 924-2227

Cell phone: (778) 875-8494

From: Hirner, Joanna ENV:EX

Sent: Friday, June 3, 2016 12:51 PM

To: Dalziel, Rod ENV:EX; Aikman, Jennie S ENV:EX

Cc: Platz, Chris ENV:EX

Subject: RE: Chapman Lake Water Supply Improvement - BC Parks

Hi everybody,

Thanks Rod, your response looks good to me

Regarding the written notification by the 3rd and the request for a letter, I was told when the second helicopter load came back from Chapman Lake, and warned AECOM that our comments and any associated letter would probably come out rather than Friday. They didn't seem concerned, although they emphasized

really like something in advance of a planned briefing with the SCRD Board c

I have attached my comments that could be shared with them next week. It v
to emphasize that these are not the only and final comments from BC Parks, .
to suggest in his email summarizing the May 26 meeting notes. Especially bec
Chris may not have time to fully review before they would be sent next week
details (and impacts) of the project are still unknown. My comments also don
comments about the stakeholder and public consultation to date. Not sure if
to provide them written comments about this but if we are, would be import:

If you do have time please review my comments and provide any edits. There
stuff, especially related to downstream fish flows and some comments that c
observations during the May 31 site visit. Attached and available here: [Z:\1_P
Region\PPA Ops\Areas\Sunshine Coast Area\Park Use Permits \(PUPs\)\Sunshin
District\PUP 102714 Chapman Lake water infrastructure\Joanna Comments a](#)

Thanks!

Joanna

Joanna Hirner (MRM, RPBio)
Conservation Specialist
South Coast Region, BC Parks
604-924-2228

From: Dalziel, Rod ENV:EX

Sent: Thursday, June 2, 2016 2:12 PM

To: Hirner, Joanna ENV:EX; Aikman, Jennie S ENV

Cc: Platz, Chris ENV:EX

Subject: RE: Chapman Lake Water Supply Improvement - BC Parks

Below is what I plan to provide as response to Brett's e

Not including:

- ? Joanna confirmed that written notification of where additional informa
for the current Park Use application will be provided by June 3rd, 2016.
- ? It was requested that a separate letter be provided from BC Parks stating
permanent water supply solution for Chapman Lake can not be construc
The delay to the project will be a significant concern for the Regional Dis
separate letter stating that the project can not be constructed this summ
requested for the communication to the Regional District Board. This let
requested by June 3rd, 2016, since there is a presentation to the Board sc

Hello Brett,

Thank you for providing summary of the May 26th meeting. The following is
information.

Please find attached summary of Tetrahedron Advisory Committee r

Please expect further comment from BC Parks on the PUP amendment ap

I am confirming a PUP amendment application will need to be submitted to e
amendment "short term siphon option" to 31 Oct 17.

I am confirming a Research PUP application will need to be submitted for th
work that will occur during the summer of 2016 at the Chapman Lake site.
Stakeholders that have reached out to BC Parks and whom wish to be include
process: Tetrahedron Advisory Committee, Tetrahedron Alliance, Sunshine C
Association, Tetrahedron Outdoor Club, Ruby Lake Lagoon Society.

Regards,

Rod Dalziel

Sunshine Coast Area Supervisor
BC Parks - South Coast Region - Ministry of Environme
✉ PO Box 950, 6451 Sechelt Inlet Road, Sechelt, BC V0N 3
☎ Desk (604) 885-6755 Mobile (604) 741-1967 Fax (604) 885-2
✉ Rod.Dalziel@gov.bc.ca
Visit the BC Parks website @ bcparks.ca

From: dewynter, Brett [mailto:Brett.dewynter@aecom.

Sent: Monday, May 30, 2016 8:58 AM

To: Bryan Shoji; Dave Crosby; Mathewson, Andrew; Ford, Bruce; Aikman, Je
Dalziel, Rod ENV:EX; Hirner, Joanna ENV:EX; Shane Walkey (Shane.Walkey@

Cc: Platz, Chris ENV:EX

Subject: RE: Chapman Lake Water Supply Improvement - BC Parks

All: Provided below are the notes and key action items from our meeting on
Please review and let me know if you have any comments or concerns.

Meeting Date: May 26, 2016 at the SCRD Offi

Meeting Attendees: Joanne Hirner, Rod Dalziel, Bryan Shoji, Dave Crosby, Sha
Ford, Andrew Mathewson, Brett deWynter.

Meeting Notes:

1. Meeting Overview: Due to the scheduled site visit to Chapman Lake (bein cloud level), an impromptu meeting was held at the Regional District Off meeting was held between BC Parks, the Regional District and AECOM.
2. It was verbally confirmed that a Park Use Permit to construct the permar allow for the surface of Chapman Lake to be lowered by an additional 5 m provided for the 2016 construction season. Joanna confirmed that writte where additional information is required for the current Park Use applica provided by June 3rd, 2016. This letter will include comments from Rod D concerns from the Stakeholder meetings and any other functional conce envisioned that the letter provided by June 3rd, 2016 will be a complete s
3. One of the primary concerns noted by BC Parks were potential changes t Lake site since the Whitehead report was published. Shane from the Reg stated that he will search the archive for pictures (preferably aerial pictu Chapman at the time when the Whitehead report was published. The his can be used to visually note any changes in the Chapman Lake site during
4. Detailed bathometric survey and level data for Chapman Lake exists for years. This data will be compiled to establish an estimate of the drawdo the recent past and make projections about the future lake drawdown f durations.
5. BC Parks will investigate and provide written notification confirming if th syphon application needs to be re-submitted. It is preferable for the curr be extended. To minimize the chance of water shortages again this sumr may need to be installed this summer. Additionally the syphon will be ne summer for the construction of the permanent solution meaning the ter
6. It is expected that environmental field work and geotechnical investigati be completed this summer to address the comments provided by BC Par confirmed by BC Parks if a research permit needs to be completed for th will occur during the summer of 2016 at the Chapman Lake site.
7. Rod noted that some Stakeholders have suggested that they have not be informed about the project. It was requested that Rod provide a list of S since it is the intension to meet with all the major park Stakeholders. It v that the consultation efforts to date have been more heavily focused on consultation and support prior to completing a broader communication Nation consultation has been delayed due to the political challenges at t
8. It was confirmed that the consultation in the future will be focused mer specific Stakeholders. It was also noted that the SCRD held open meetir community at several different locations during the week of May 16th a Drinking water supply issues were a major discussion item during the c

meetings.

9. It was requested that a separate letter be provided from BC Parks stating permanent water supply solution for Chapman Lake can not be constructed. The delay to the project will be a significant concern for the Regional District. A separate letter stating that the project can not be constructed this summer was requested for the communication to the Regional District Board. This letter was requested by June 3rd, 2016, since there is a presentation to the Board scheduled for June 10th, 2016.
10. Rod noted that Ranger Training starts on the week of June 6th and continues for 2-weeks. It was also noted that BC Parks staff would like to attend the site visit confirming all the notes regarding the planned Chapman Lake construction. We need to find a day during the week of May 30th, 2016 to complete the site visit to ensure the project is not further delayed. After the meeting the weather was not ideal.

Brett deWynter, P.Eng.

Water Group, Canada West

s.22

brett.deWynter@aecom.com

From: dewynter, Brett

Sent: Monday, April 25, 2016 10:54 AM

To: 'Bryan Shoji'; 'Dave Crosby'; Mathewson, Andrew; Ford, Bruce; Chris.Platt@bc.ca; Jennie.Aikman@gov.bc.ca; Hirner, Joanna ENV:EX (Joanna.Hirner@gov.bc.ca)

Cc: Rod.Dalziel@gov.bc.ca

Subject: FW: Chapman Lake Water Supply Improvement - BC Parks

All:

Thanks for the meeting on Friday, April 8, 2016. Further to the meeting we discussed the following items:

1. Bryan Shoji of the Sunshine Coast Regional District confirmed that acceptance of a temporary syphon Park Use Permit was provided via e-mail to BC Parks on April 8, 2016.
2. The preliminary Park Use Plan that was submitted to BC Parks prior to the meeting was discussed. The indication from BC Parks was that the plan is acceptable however only a preliminary review of the documents had been completed. The area was requested that AECOM focus prior to submitting the final documents to BC Parks on explaining the potential impacts of the construction activities complete with the preliminary Park Use Plan.
3. It was noted that BC Parks has reached-out to other government agencies for comments. One of the key comments received from DFO is to ensure minimum flow maintained in the Chapman Creek. The minimum fish flow rate suggested in the report is roughly double the flow rate suggested in the Dave Bates report. The issue of low flow in Chapman Creek will only be improved with the completion of the project at Chapman Lake, however, the debate about the minimum flow required in Chapman Creek is independent of this project. The Dave Bates report will be forwarded to BC Parks for review.
4. The consultation effort spent to date was summarized and provided in a document to BC Parks prior to the meeting. During the discussion it was indicated that the preliminary efforts spent to date seemed reasonable. BC Parks would prefer that the consultant obtains a letter of non-objection from the Sechelt and Squamish First Nations. The consultation completed to date needs to continue and be documented. Once letters of non-objection are obtained from the First Nations and the consultation with them is completed the current indication is that this will be satisfactory for BC Parks. Once the Park Use Permit review BC Parks would continue to reach-out to other government agencies for comments.
5. BC Parks completed their own internal review of the documentation and concluded their opinion that they have the legal ability to issue a Park Use Permit; however, the permit is currently under review by the internal government lawyer. If there are any comments from the internal government lawyer, BC Parks will be kept informed.

in BC Parks not being able to issue the construction permit this year, BC Parks will submit the application to the SCRDC as soon as possible.

6. The tentatively planned schedule is:

- a. AECOM will submit the Park Use Permit application during the week of April 11th, 2016;
- b. AECOM will confirm the water license submission required and the application during the week of April 11th, 2016;
- c. BC Parks will continue to review the construction plans and then once it is submitted. The internal review will be ongoing with a focus on potential environmental impacts and the associated mitigation plan. BC Parks will be invited to reach-out to AECOM or the SCRDC during their document review. If we have any questions and we would be happy to provide responses.
- d. Depending on the rate of snow melt the plan is to complete a site visit tentatively planned for the second week of May 9th, 2016. This will include 2 – 3 representatives from BC Parks, the SCRDC, AECOM and a representative from In-situ (i.e. the Sechelt Band arch. consultant). We will coordinate the site visit so everyone can be on-site together. This will be a good opportunity to discuss the project and the water license.

Let us know if you have any further comments or concerns with the above notes. We will ensure that the Park-Use Permit application and Water License Amendment have been submitted to the Front Counter BC. Thanks.

Brett deWynter, P.Eng.

s.22

From: dewynter, Brett

Sent: Thursday, April 07, 2016 11:06 AM

To: 'Platz, Chris ENV:EX'; Bryan Shoji; Mathewson, Andrew; Ford, Bruce; Aik, Joanna ENV:EX; Hirner, Joanna ENV:EX; Rod.Dalziel@gov.bc.ca

Cc: Dave Crosby (Dave.Crosby@scrd.ca); Shane Walkey (Shane.Walkey@scrd.ca)

Subject: RE: Chapman Lake Water Supply Improvement - BC Parks

All:

Further to our meeting planned for tomorrow we offer the following commercial items:

1. It was discussed that the temporary permit issued last summer needs to be finalized. This will be completed and an original signed copy hand delivered to you.
2. The preferred plan is to complete the construction of the proposed works by this summer to support the installation of the diversion of water to a total of 100 cfs to support the efforts shown in the preliminary design drawing provided during the 2016 meeting a DRAFT Park Use-Permit application and the supporting documents have been prepared. These DRAFT documents are attached.
3. Revision to the water license are ongoing. There is currently some debate as to whether to complete a new water license application versus an amendment to the existing license. There is an active discussion with FLNR to clarify this item. For your information a DRAFT application has been prepared.
4. The need for stakeholder consultation was discussed to meet the obligation process. These efforts have been ongoing. The background documents are provided to summarize the consultation efforts completed to date with a summary of some of the issues. A couple specific areas that we would like to discuss are:
 - a. what specific areas of interest we should explore further in order to meet BC Parks First Nations and Public Participation requirements / expectations. A "comprehensive public consultation process" mentioned in the Tetrahedron Management Plan.
 - b. Other groups to consult / encourage participation

5. BC Parks was going to investigate their files and documents to determine if the scope of work at Chapman Lake could be completed with an amendment. This will be a good opportunity to discuss the project and the water license.

investigation will be shared with the project team.

Once the background documents are reviewed and discussed we are hoping consensus regarding the plan to advance the project.

Let us know if you have any further comments, otherwise we look forward to planned for tomorrow. Thanks.

Brett deWynter, P.Eng.

s.22

-----Original Appointment-----

From: Platz, Chris ENV:EX [mailto:Chris.Platz@gov.bc

Sent: Wednesday, April 06, 2016 8:02 A

To: Platz, Chris ENV:EX; Bryan Shoji; Mathewson, Andrew; Ford, Bruce; dew Aikman, Jennie S ENV:EX; Hirner, Joanna ENV:EX

Subject: Chapman Lake Water Supply Improvement - BC Parks I

When: Friday, April 08, 2016 10:30 AM-12:00 PM (UTC-08:00) Pacific Time

Where: ENV R North Van. 1610 Mount Seymour Road Main Fl RM N. Van (s ENV:EX

Good morning,

I am canvassing for agenda topics. Please send me your items and I will form for our meeting.

Chris

Hi all,

As discussed during our first meeting I am looking to book a follow-up meeting please let me know if this date works and if there is anyone else you would like to attend the meeting.

I will call for agenda items a few days ahead of the meeting but if you have any items please send them along.

Chris

Letter re: Tetrahedron Park Permit Application

Friday, October 13, 2017

9:37 AM

Subject	Letter re: Tetrahedron Park Permit Application
From	Aikman, Jennie S ENV:EX
To	Bryan Shoji
Cc	Dalziel, Rod ENV:EX; Hirner, Joanna ENV:EX; Platz, Chris ENV:EX; brett.dewynter@aecom.com
Sent	Tuesday, June 7, 2016 2:37 PM
Attachments	 SCRD Applicatio...  ATT00001

Hi Bryan,

As requested, attached is a letter regarding the SCRD's permit application and the process and general timelines.

Joanna Hirner will be sending her comments through tomorrow morning.

With regards,

Jennie

Jennie Aikman
 Regional Director
 South Coast Region, BC Parks
 Ministry of Environment
 Office phone: (604) 924-2227
 Cell phone: (778) 875-8494



June 6, 2016

VIA EMAIL

Bryan Shoji
General Manager, Infrastructure Services
Sunshine Coast Regional District
1975 Field Road, Sechelt, BC V0N 3A1
Email: Bryan.Shoji@scrd.ca

Dear Bryan,

I understand you have requested clarification of the process and timelines related to the Sunshine Coast Regional District's (SCRD) application for amendment to your Park Use Permit (Auth#102714).

The permit amendment application was made in April 2016. Since receiving the permit application BC Parks staff have conducted an assessment of the application to determine if it is complete, or if additional information is required. BC Parks staff have also had the opportunity to meet with staff from the Ministry of Forests, Lands and Natural Resource Operation (FLNRO) and Fisheries and Oceans Canada to provide information on the application and seek early feedback.

Based on the preliminary review of the application we have determined that additional information is required in order to fully adjudicate the proposal. Staff had the opportunity to provide a verbal summary of their preliminary assessment at a meeting with the SCRD and AECOM on May 26, 2016 and there was further discussion during the site visit to Chapman Lake which took place on May 31, 2016. Joanna Hirner, Conservation Specialist, will provide a full written summary of comments and anticipates having them to you before June 9, 2016.

We understand the SCRD also requires a Section 11 approval under the *Water Act* for works in and about a stream. We are working closely with FLNRO to coordinate our authorization processes wherever possible so we are not duplicating effort and can deliver the decisions within a reasonable timeframe.

The Tetrahedron Park Management Plan states: "Where regional water supply improvements are proposed within the park, an impact assessment and comprehensive public consultation process will be developed". I recognize that the SCRD has undertaken some consultation with key stakeholder groups. Given the high degree of stakeholder interest in the proposal and the direction in the park management plan, it is in both our interests to ensure stakeholders have been adequately engaged on this proposal. We understand that meetings have occurred, and that the SCRD and AECOM are working to address the comments of the stakeholder groups to the extent possible. We have received feedback from stakeholders that there are concerns with the proposal and that a meeting

Ministry of Environment
BC Parks and Conservation Officer Service Division
South Coast Region

Mailing Address:
1610 Mount Seymour Road
North Vancouver BC V7G 2R9

Telephone: (604) 924-2200
Facsimile: (604) 924-2244
<http://www.gov.bc.ca/>
<http://www.gov.bc.ca/env/>

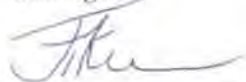
involving all groups together would be preferred. To address this interest of the stakeholder groups, the SCRD may want to consider holding a larger meeting with the stakeholder groups together.

I am aware that the SCRD has initiated consultation with shishálh Nation and Squamish Nation; if the SCRD is able to get a letter of support from the Nations that will facilitate our consultation process, as we will be following up with the First Nations to seek confirmation their interests have been addressed.

Given the requirement for additional field work we are not likely to have the information required in order to make a decision on the permit amendment in time to allow for construction work to commence in 2016. We are willing to extend the terms of the current permit amendment through to October 31, 2017 to allow use of the siphon system as a back-up measure for the SCRD to employ until a decision on the trench/piping proposal can be made.

Please note that any research or field work that involves intrusive sampling methods (e.g. fish sampling, rock boring) will require a park use permit. Information on our research permit policy is available on the BC Parks website: <http://www.env.gov.bc.ca/bcparks/permits/>. Rod Dalziel, Area Supervisor, will continue to be the main contact for the permit application, so please follow-up with him at Rod.Dalziel@gov.bc.ca if you have any further questions.

With regards,



Jennie Aikman
Regional Director, South Coast Region
BC Parks

Cc: Brett Dewynter, AECOM
Rod Dalziel, Area Supervisor, BC Parks
Joanna Hirner, Conservation Specialist, BC Parks
Chris Platz, Parks and Protected Areas Section Head, BC Parks

Re: Chapman Lake Water Supply Improvement - BC Pa

Monday, October 16, 2016
2:06 PM

Subject	Re: Chapman Lake Water Supply Improvement - BC Parks M
From	Hirner, Joanna ENV:EX
To	dewynter, Brett; Aikman, Jennie S ENV:EX; Dalziel, Rod EN\
Cc	Platz, Chris ENV:EX; Mathewson, Andrew; Dave Crosby; Shane Walkey (Shane.Walkey@scrd.ca); Fc
Sent	Wednesday, June 8, 2016 7:40 AM
Attachments	 SCRD - Chapman ...  April PUP Amendme...

Hello Brett,

Further to Jennie's letter yesterday, attached are detailed comments on the current P application. Note that many of the comments attached include requests for additional update the current application, so although these comments can be considered comp information that was presented in the April 2016 Park Use Permit application, BC Park opportunity to provide further comments as additional information about the project

Also, here are some further responses that hopefully address the rest of the outstanding discussed during the May 26, 2016 meeting:

Please find attached summary of Tetrahedron Advisory Committee meeting, prepa

A PUP amendment application will need to be submitted to extend the current amendment "option" to 31 Oct 17.

Stakeholders that have reached out to BC Parks and whom wish to be included in consultation Advisory Committee, Tetrahedron Alliance, Sunshine Coast Conservation Association, Tetrahed Ruby Lake Lagoon Society.

Best regards,

Joanna

Joanna Hirner (RPBio)

Conservation Specialist

BC Parks, South Coast Region

604-924-2228

From: dewynter, Brett

Sent: Monday, June 06, 2016 9:01 AM

To: Aikman, Jennie S ENV:EX; Dalziel, Rod ENV:EX; Hirner, Joanna

Cc: Platz, Chris ENV:EX; Mathewson, Andrew; Dave Crosby; Shane Walkey (Shane.Walkey@scrd.ca); Bryan Shoji

Subject: RE: Chapman Lake Water Supply Improvement - BC Parks M

Jennie/Rod/Joanna:

Further to the below notes, please confirm the status of Items 2, 5, 6, 7 and 9. We would appr today or tomorrow as there is a meeting with the SCRD Board on the morning of June 9th, 2016. Thanks for your help.

Brett deWynter, P.Eng.

s.22

From: dewynter, Brett

Sent: Monday, May 30, 2016 8:58 AM

To: 'Bryan Shoji'; 'Dave Crosby'; Mathewson, Andrew; Ford, Bruce; Jennie.Aikman@gov.bc.ca; Rod.Dalziel@gov.bc.ca; Hirner, Joanna ENV:EX (Joanna.Hirner@gov.bc.ca); Shane Walkey (Sha

Cc: Chris.Platz@gov.bc.ca

Subject: RE: Chapman Lake Water Supply Improvement - BC Parks M

All: Provided below are the notes and key action items from our meeting on May 26, 2016. Please know if you have any comments or concerns.

Meeting Date: May 26, 2016 at the SCRD Offi

Meeting Attendees: Joanne Hirner, Rod Dalziel, Bryan Shoji, Dave Crosby, Shane Walkey, Bruce Mathewson, Brett deWynter.

Meeting Notes:

1. Meeting Overview: Due to the scheduled site visit to Chapman Lake being cancelled (low flow), an impromptu meeting was held at the Regional District Office. This meeting was held between Board members, District and AECOM.

2. It was verbally confirmed that a Park Use Permit to construct the permanent solution to allow Chapman Lake to be lowered by an additional 5 m will not be provided for the 2016 construction. It was confirmed that written notification of where additional information is required for the current project will be provided by June 3rd, 2016. This letter will include comments from Rod Dalziel regarding Stakeholder meetings and any other functional concerns. It is envisioned that the letter provide

3. One of the primary concerns noted by BC Parks were potential changes to the Chapman Lake Whitehead report was published. Shane from the Regional District stated that he will search the (preferably aerial pictures) of Chapman at the time when the Whitehead report was published. pictures can be used to visually note any changes in the Chapman Lake site during the past 15+

4. Detailed bathymetric survey and level data for Chapman Lake exists for the past few years. compiled to establish an estimate of the drawdown durations in the recent past and make projections for future lake drawdown frequency and durations.

5. BC Parks will investigate and provide written notification confirming if the temporary syphon be re-submitted. It is preferable for the current permit to be extended. To minimize the chance again this summer, the syphon may need to be installed this summer. Additionally the syphon \ summer for the construction of the permanent solution meaning the temporary syphon permit extended to October 31, 2017.

6. It is expected that environmental field work and geotechnical investigations will need to be completed during the summer of 2016 to address the comments provided by BC Parks. It will be confirmed by BC Parks if a request for a permit is required for the field work to be completed for the field work that will occur during the summer of 2016 at the Chapman I

7. Rod noted that some Stakeholders have suggested that they have not been well informed and was requested that Rod provide a list of Stakeholders since it is the intention to meet with all the Stakeholders. It was also noted that the consultation efforts to date have been more heavily focused on Nation consultation and support prior to completing a broader communication effort. The First has been delayed due to the political challenges at the Sechelt Band.

8. It was confirmed that the consultation in the future will be focused meetings with the specific community. The SCRDP also noted that the SCRDP held open meetings with the community at several different locations on May 16th and 25th, 2016. Drinking water supply issues were a major discussion item during the meetings.

9. It was requested that a separate letter be provided from BC Parks stating that the permanent solution for Chapman Lake can not be constructed during 2016. The delay to the project will be for the Regional District Board. A separate letter stating that the project can not be constructed being requested for the communication to the Regional District Board. This letter is being requested 2016, since there is a presentation to the Board scheduled for June 9th, 2016.

10. Rod noted that Ranger Training starts on the week of June 6th and continues for the next 2-3 weeks. Rod noted that BC Parks staff would like to attend the site prior to confirming all the notes regarding Chapman Lake construction. This means we need to find a day during the week of May 30th, 2016 for a site visit to ensure the project is not further delayed. After the meeting the weather forecast was good for Tuesday, May 31, 2016 was picked for the site visit.

Brett deWynter, P.Eng.

Water Group, Canada West

s. 22

brett.deWynter@aecom.com

From: dewynter, Brett

Sent: Monday, April 25, 2016 10:54 AM

To: 'Bryan Shoji'; 'Dave Crosby'; Mathewson, Andrew; Ford, Bruce; Chris.Platz@gov.bc.ca; Jennie.Aikman@gov.bc.ca; Hirner, Joanna ENV:EX (Joanna.Hirner@gov.bc.ca)

Cc: Rod.Dalziel@gov.bc.ca

Subject: FW: Chapman Lake Water Supply Improvement - BC Parks

All:

Thanks for the meeting on Friday, April 8, 2016. Further to the meeting we confirm the foll

1. Bryan Shoji of the Sunshine Coast Regional District confirmed that acceptance of the temporary Permit was provided via e-mail to BC Parks on April 6, 2016.

2. The preliminary Park Use Plan that was submitted to BC Parks prior to the meeting was disc

from BC Parks was that the plan is acceptable however, it was noted that only a preliminary re documents had been completed. The areas where it was requested that AECOM focus prior to documents to Front Corner BC is explaining the potential impacts of the construction activities mitigation plans.

3. It was noted that BC Parks has reached-out to other government agencies to obtain initial co key comments received from DFO is to ensure minimum fish flows are maintained in the Chapr minimum fish flow rate suggested in the meeting was roughly double the flow rate suggested in report. The issue of the minimum low in Chapman Creek will only be improved with the comple project at Chapman Lake, however, the debate about the minimum flow required in Chapman l

4. The consultation effort spent to date was summarized and provided in a document to BC Pa meeting. During the discussion it was indicated that the public consultation efforts spent to da reasonable. BC Parks would prefer that the consultant/SCRD obtains a letter of non-objection Squamish First Nation communities. The consultation completed to date needs to continue an Once the letters of non-objection are obtained from the First Nations and the consultation wit completed the current indication is that this will be satisfactory for BC Parks. During the Park L

5. BC Parks completed their own internal review of the documentation and currently hold the have the legal ability to issue a Park Use Permit; however, this item is currently under review l government lawyer. If there are any changes resulting in BC Parks not being able to issue the l this year, BC Parks will inform the SCRD as soon as possible.

6. The tentatively planned schedule is:

- a. AECOM will submit the Park Use Permit application during the week of April
- b. AECOM will confirm the water license submission required and then make the app week of April 11th, 2016;
- c. BC Parks will continue to review the construction plans and then the application o The internal review will be ongoing with a focus on the potential environmental impa associate mitigation plan. BC Parks was invited to reach-out to AECOM or the SCRD d document review if they have any questions and we would be happy to provide respo
- d. Depending on the rate of snow melt the plan is to complete a site visit. This site vis planned for the second week of May 9th, 2016. The site visit will include 2 – 3 repre Parks, the SCRD, AECOM and a representative from In-situ (i.e. the Sechelt Band arch goal is to coordinate the site visit so everyone can be on-site together. This will allow reviewed and discussed while on-site.

Let us know if you have any further comments or concerns with the above notes. Please note Permit application and Water License Amendment have been submitted to Front Counter BC.

Brett deWynter, P.Eng.

s.22

From: dewynter, Brett

Sent: Thursday, April 07, 2016 11:06 AM

To: 'Platz, Chris ENV:EX'; Bryan Shoji; Mathewson, Andrew; Ford, Bruce; Aikman, Jennie S ENV ENV:EX; Rod.Dalziel@gov.bc.ca

Cc: Dave Crosby (Dave.Crosby@scrd.ca); Shane Walkey (Shane.Walkey@

Subject: RE: Chapman Lake Water Supply Improvement - BC Parks l

All:

Further to our meeting planned for tomorrow we offer the following comments and disci

1. It was discussed that the temporary permit issued last summer needs to be signed-off and l completed and an original signed copy hand delivered tomorrow.

2. The preferred plan is to complete the construction of the proposed works at Chapman Lake support the installation of the diversion of water to a total depth of 8.0 m. To support the effc preliminary design drawing provided during the March 16, 2016 meeting a DRAFT Park Use-Pe the supporting documentation has been prepared. These DRAFT document are attached.

3. Revision to the water license are ongoing. There is currently some debate about the need to water license application versus an amendment to the existing license. There are active discus clarify this item. For your information a DRAFT amendment application has been prepared.

4. The need for stakeholder consultation was discussed to meet the obligations of the BC Park efforts have been ongoing. The background documents are provided to summarize the consul completed to date with a summary of some of the key issues. A couple specific areas that we are:

- a. what specific areas of interest we should explore further in order to fulfil BC Parks Public Participation requirements / expectations for a "comprehensive public consu

mentioned in the Tetrahedron Park Management Plan.

b. Other groups to consult / encourage participati

5. BC Parks was going to investigate their files and documents to determine if the planned scc Chapman Lake could be completed with an amendment. The results of this investigation will be project team.

Once the background documents are reviewed and discussed we are hoping to reach consensus to advance the project.

Let us know if you have any further comments, otherwise we look forward to the meeting please. Thanks.

Brett deWynter, P.Eng.

s.22

-----Original Appointment-----

From: Platz, Chris ENV:EX [mailto:Chris.Platz@gov.bc

Sent: Wednesday, April 06, 2016 8:02 AM

To: Platz, Chris ENV:EX; Bryan Shoji; Mathewson, Andrew; Ford, Bruce; dewynter, Brett; Aikman; Hirner, Joanna ENV:EX

Subject: Chapman Lake Water Supply Improvement - BC Parks N

When: Friday, April 08, 2016 10:30 AM-12:00 PM (UTC-08:00) Pacific Time (US &

Where: ENV R North Van. 1610 Mount Seymour Road Main Floor N. Van (seats 10-12)

Good morning,

I am canvassing for agenda topics. Please send me your items and I will formulate an agenda for the meeting.

Hi all,

As discussed during our first meeting I am looking to book a follow-up meeting in early April; please let me know if this date works and if there is anyone else you would like invited to the meeting.

I will call for agenda items a few days ahead of the meeting but if you have any items now please let me know. Thanks.

Chris