









### Great Basin Spadefoot

Spadefoots are unique desert adapted amphibians, similar to frogs and toads, but different as they have specialized hind legs that enable them to burrow underground. Great Basin Spadefoots depend on a variety of habitats to survive and breed including wetland, riparian and grassland.

### **Built In Digging Spade!**

At every stage of development, spadefoots have a shovel like digging pad on their hind legs. Using this amazing "tool", a spadefoot can burrow into loose soil in a few seconds. Spadefoots burrow underground for protection from summer heat, to hibernate in winter, and for protection from prey.

MORE VIELEN

To avoid the heat, the Great Basin Spadefoots are mostly active at night. To see better, they have large eyes with vertical pupils.

### Who is Snoring?

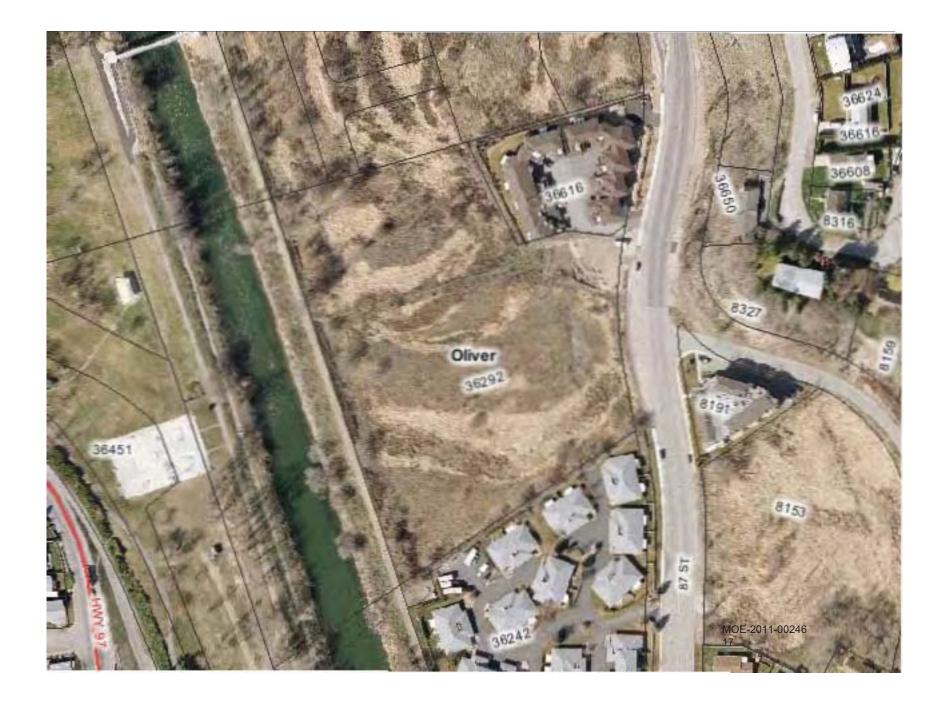
When looking for a mate, an adult male spadefoot makes a sound similar to "Gwaaah...gwaaa..."

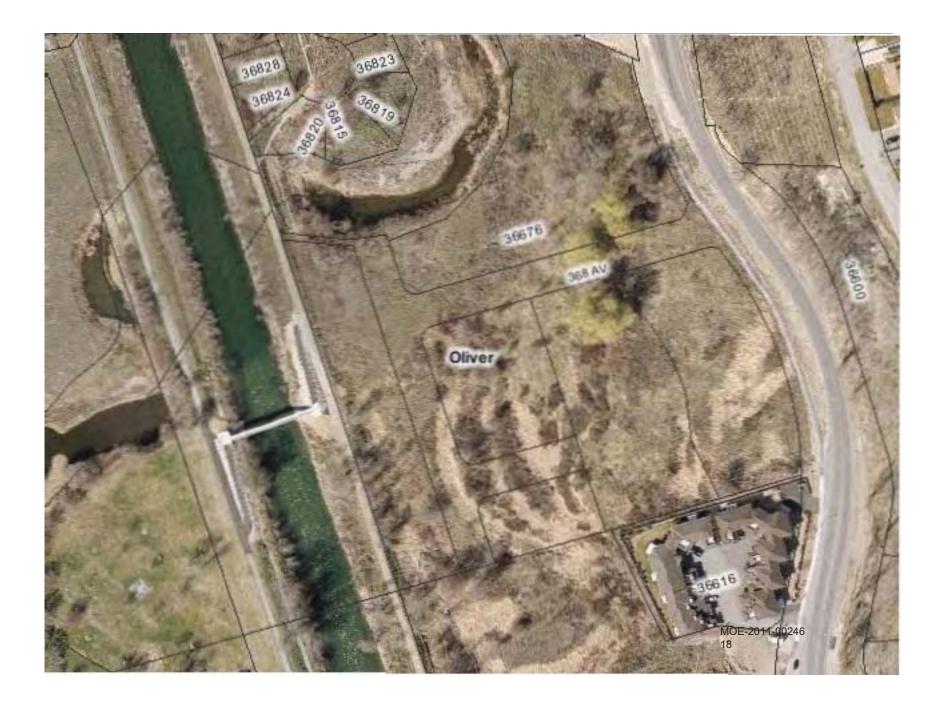


A small amphibian approximately 40 to 64 mm in length

The Great Basin Spadefoot is one of the rare species found in the South Okanagan-Similkameen. It is found in and around this wetland. Please help to protect this remnant wetland and the surrounding upland dry areas!

Produced by the South Okanagan - Similkameen Stewardship Program, the Okanagan Similkameen Conservation Allance, and the Town of Olive







# Popowich, Tracy CSNR:EX

To: Sent: Co From: Subject: Thomson, Skye FLNR:EX Monday, May 16, 2011 4:40 PM Pryce, Conrad FLNR:EX; Dyer, Orville N FLNR:EX Furness, Grant A FLNR:EX; Beck, Jim L ENV:EX Air Photos for Technical Report for Oliver land clearing wetland

Conrad and Orv,

property. them to this file as they show the remnants of an oxbow channel and the small pond on the southern edge of the As discussed, I prepared three additional air photo maps of the site (Years 2001, 2004 and 2007). You may want to add







Oliver Land Oliver Land Oliver Land Oliver Land 2007 Or.:learing - 2001 Or.:learing - 2004 Or.

Cheers, Skye

Subject: FW: FYI - Technical Report for Oliver land clearing wetland Sent: Monday, May 16, 2011 10:35 AM To: Thomson, Skye FLNR:EX From: Pryce, Conrad FLNR:EX

Water Act. Thanks Conrad Hi Skye please review this and let me know if this report is sufficient to support that the pond is a stream under the

From: Furness, Grant A FLNR:EX Sent: Monday, May 16, 2011 8:58 AM To: Pryce, Conrad FLNR:EX; Beck, Jim L ENV:EX Subject: FYI - Technical Report for Oliver land clearing wetland

properties. See note from Orv. It explains where information came from related to wetlands on the Singla and Benchmark

I will save a copy of this in the professional reports file on the Case File

Grant Furness Ecosystems Section Head Ministry of Forests, Lands and Natural Resource Operations Penticton 250.490.8277

From: Dyer, Orville N FLNR:EX Sent: Friday, May 13, 2011 4:45 PM To: Furness, Grant A FLNR:EX Subject: Oliver land clearing wetland

Here is what I have from our mapping Hi Grant There might be more after I can talk to Mike, but thought I should provide what I had now. s.22 and Mike Sarell.

<< File: Oliver land clearing wetland.docx >>



# 2007 Ortho Photo





# 2004 Ortho Photo



## **Case Summary**

igator: igator's Phone: igation: n Review n Review n Review n Start Date: Agency: ption:	Nembers: Dhone Number	Joint Agency Contact: Other Joint Agency: Case Description: WORKS IN AND ABOUT OLIVER RIVER	Investigation Review Date: Investigation Start Date: 2011-04-14	Investigation Review No Process:	Paper File Created:         Yes           Joint Investigation:         No		Lead Investigator's Phone:	Lead Investigator: HAMILTON, BOB : 45671	Opened By: COOKE, LESLIE : 90419	Status: Open	Category: CO SERVICE Type: WATER	Case File #: 201102063	Details
		WORKS IN AND ABOUT A OLIVER RIVER	2011-04-14	No	No	No		HAMILTON, BOB : 45671	COOKE, LESLIE : 90419	Open	CO SERVICE WATER	201102063	
201102063 CO SERVICE WATER Open COOKE, LESLIE : 90419 COOKE, LESLIE : 90419 HAMILTON, BOB : 45671 : No Yes No No No No WORKS IN AND ABOUT A OLIVER RIVER		Joint Agency Phone: Joint Agency Case No: STREAM - OLIVER WETL/	Lead Agency: Joint Agency:	Transferred Agency Contact:	Other Transferred Agency:	Transferred to Agency:	Other Source Agency:	Source Ref #:	Source:	Admin Org Unit:	Discovery Date: Closed Date:	Opened Date:	
DE ESLIE : 90419 , BOB : 45671 AND ABOUT A :		ANDS ADJACENT TO TH	MINISTRY OF ENVIRONMENT MINISTRY OF ENVIRONMENT		v:		VIA MEMBER OF THE PUBLIC	KEITH BARIC	MINISTRY OF ENVIRONMENT	SOUTH OKANAGAN ZONE	2011-04-14	2011-05-11 10:25 AM	

HAMILTON, BOB : 45671 COOKE, LESLIE : 90419

2011-05-11 2011-05-11

2021-05-08 2021-05-08

Environment:PROD	User ID:	Date Printe	
nt:PROD	LESLIE, BARBARA : 81828	Date Printed:2011/08/03	

MOE-2011-00246 25

Report ID: CORS-001 Page 1 of 4

Parties Involved:				
Name	Role	Nature of Involvement	Phone Number	Address
BENCHMARK LIFESTYLES INC.	SUSPECT			2ND FLOOR - 1674 BERTRAM STREET
SINGLA BROS.	SUSPECT	LOT 1 PLAN 38854 DL		KELOWNA BC V1Y 9G4 CAN 567 HEATHER ROAD PO
HOLDINGS LTD.		2450S SDYD		BOX 102 PENTICTON BC
AGUR, ROBIN	SUSPECT	LOTS 4-9 KAP64043, DL	604	s.22 WORK
		2450S, SDYD		ADDRESS: 484 MAIN STREET PENTICTON BC
				V2A 5C5 SUMMERLAND BC
				CAN

SiteSite TypeDescription1. 8-1; SOUTH OKANAGAN ZONEADJACENT TO 87TH STREET IN OLIVER 3 SEPARATE PARCELS: PID: 008 814 864 PID: 024 476 846 PID: 003 063 101 OLIVER WETLANDS ADJACENT TO THE OKANAGAN RIVER IN OLIVER LOCAL NAME IS MACPHERSON MEADOWS	Sites:		
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Notes:					
Date	Name		Comments		
17-JUL-11		6	REVIEWED BY SGT.		
27-JUN-11		ΑA 	REVIEWED BY INSP LESLIE	SLIE	
20-JUN-11		: 45671	LETTER OF ADVISE SENT TO BENCHMARK	<b>NT TO BENCHMARK</b>	
19-MAY-11		: 45671	AFFAVADIT OF SERVICE, HAND DELIVERED, WITH A LETTER OF	E, HAND DELIVERED, V	VITH A LETTER OF
			HAMILTON		
21-APR-11	1 HAMILTON, BOB : 45671	: 45671	ON APRIL 21, 2011, THE MINISTRY OF FORESTS, LANDS AND	MINISTRY OF FOREST	rs, lands and
			NATURAL RESOURCE OPERATIONS (FLNRO)	OPERATIONS (FLNRO) /	ATTENDED THE
20-APR-11	1 HAMILTON, BOB : 45671	: 45671		PORTS OF UNAUTHOR	RIZED WORKS
				F WETLANDS WITHIN C	OLIVER
			MUNICIPALITY BOUNDARIES, INVESTIGATION UNDERWAY PHOTOS TAKEN. SEE ATTACHMENTS	ARIES, INVESTIGATION	UNDERWAY,
Attachments:	nts:				
Attach#	Attach# Description	Photo File	File	Attached By	Attached Date
→	LETTER OF ADVICE TO No	No	LOA_SINGLA V2 MAY	COOKE, LESLIE :	2011-06-02

Attachments:	ents:			
Attach#	Attach# Description Photo File	File	Attached By	Attached Date
-	LETTER OF ADVICE TO No	LOA_SINGLA V2 MAY	COOKE, LESLIE :	2011-06-02
)	SINGLA	19_2011.PDF	90419	
	AGUR	19_2011.PDF	90419	
ω	NON-COMPLIANCE No	NON_COMPLIANCE_FOR COOKE, I	COOKE, LESLIE :	2011-06-02
	FORM	M_WORD97.DOC	90419	
4	URBAN CONNECTIONS, No	URBAN	COOKE, LESLIE :	2011-06-07
	BRAD ELENKO	CONNECTIONS.PDF	90419	
	INFORMATION LETTER			

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MOE-2011-00246 27	Report ID: CORS-001
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Site:	1. 8-1; SOUTH OKANAGANParty Address:ZONE; ADJACENT TO 87THSTREET IN OLIVER3 SEPARATE PARCELS: PID:008 814 864	s: 567 HEATHER ROAD PO BOX 102 PENTICTON BC V2A 6N8 CAN
	PID: 024 476 846 PID: 003 063 101 OLIVER WETLANDS ADJACENT TO THE OKANAGAN RIVER IN OLIVER LOCAL NAME IS MACPHERSON MEADOWS	
<b>Enforcement Actions</b>		
Enforcement Action No. 1		
Type: Effective Date: Admin Action Type:	ADMINISTRATIVE ACTION 2011-05-19 ADVISORY LETTER	End Date:
Comments:	LETTER OF ADVISE SENT FROM GRANT FURNESS, HEAD	NESS, ECOYSYTEMS SECTION
<b>Contravention No.2</b>	WATER ACT AND REGULATIONS 93 (2)(Q) : MAKE STREAM WITHOUT LAWFUL AUTHORITY	2) : MAKE CHANGE IN/ABOUT
Species: Est. Incident Date	2011-04-20 0:00 Party:	AGUR, ROBIN
Site:	1. 8-1; SOUTH OKANAGAN ZONE; ADJACENT TO 87TH STREET IN OLIVER 3 SEPARATE PARCELS: PID: 008 814 864 PID: 003 063 101 OLIVER WETLANDS ADJACENT TO THE OKANAGAN RIVER IN OLIVER LOCAL NAME IS MACPHERSON MEADOWS	
<b>Enforcement Actions</b>		
Enforcement Action No. 2 Type: Effective Date: Admin Action Type: Comments:	ADMINISTRATIVE ACTION 2011-05-19 ADVISORY LETTER LETTER OF ADVISE SENT BY GRANT FURNESS, ECOSYSTEMS S	End Date: SS, ECOSYSTEMS SECTION HEAD
Contravention No.3	WATER ACT AND REGULATIONS 93 (2)(Q) : MAKE CHANGE STREAM WITHOUT LAWFUL AUTHORITY	2) : MAKE CHANGE IN/ABOUT
Date Printed:2011/08/03		Page 3 of 4
Date Printed:2011/08/03	]	) (

No BURKE FRAME BARRISTERS.PDF

BURKE FRAME BARRISTERS, CLIENT TO ROBIN AGUR

LETTER

СЛ

Est. Incident Date

2011-04-20 0:00

Party:

LTD. 567 HEATHER ROAD PO BOX 102 PENTICTON BC V2A 6N8 CAN

SINGLA BROS. HOLDINGS

Species:

**Contravention No.1** 

WATER ACT AND REGULATIONS 93 (2)(Q) : MAKE CHANGE IN/ABOUT STREAM WITHOUT LAWFUL AUTHORITY

28	MOE-2	
	011-00246	

Report ID: CORS-001 Page 4 of 4

Enforcement Action No. 3 Type: Effective Date: Admin Action Type:	<b>Enforcement Actions</b>	Species: Est. Incident Date Site:	
ADMINISTRATIVE ACTION 2011-06-20 ADVISORY LETTER		2011-04-21 0:00 1. 8-1; SOUTH OKANAGAN ZONE; ADJACENT TO 87TH STREET IN OLIVER 3 SEPARATE PARCELS: PID: 008 814 864 PID: 024 476 846 PID: 003 063 101 OLIVER WETLANDS ADJACENT TO THE OKANAGAN RIVER IN OLIVER LOCAL NAME IS MACPHERSON MEADOWS	
End Date:		Party Address:	
ate:		BENCHMARK LIFESTYLES INC. 2ND FLOOR - 1674 BERTRAM STREET KELOWNA BC V1Y 9G4 CAN	

Vehicles:

Admin Action Type: Comments:

SEE ATTACHMENT, LETTER OF ADVISE SENT FROM GRANT FURNESS, ECOYSYTEMS SECTION HEAD



June 7, 2011

File: 76970-30/ OKA-R XREF: 31010-20 COORS: 201102063 Your File: 16-35-01

Burke Frame Barristers 203-1211 Summit Drive Kamloops, BC V2A 5R9

Dear Mr. Burke:

# Re: Clarification on the Letter of Advice dates, May 19, 2011

client, Mr. Robin Agur, dated May 19, 2011. Thank-you for letter of May 26, 2011, regarding the Letter of Advice provided to your

in and about a stream including modifications and activities that impacted the land, and supporting Water Regulation. The recommendations in that letter relate to changes compliance with steps that are intended to address non-compliance with the Water Act, changes were made without complying with section 9 of the Water Act, or Part 7 of the vegetation and natural environment of the stream, including the habitat areas. As these As stated on the second page of the Letter of Advice, its purpose is to seek voluntary Water Regulation, the recommendations still stand.

Answers to your questions are as follows, using the numbering system provided:

- The 'stream' is unnamed, and refers to the springs and swamp/wetland areas contained within the subject property.
- N and, possibly, in-filling. The changes in and about a stream include: vegetation removal, soil excavation,
- 3 The works began on, or about, April 6, and continued for several weeks. Infilling has been occurring for about the past two weeks.
- 4 oxbows. All of these provide water supply to habitat areas. include of hydric and sub-hydric depressions, and former Okanagan River surfacing primarily in the original natural channel of the Okanagan River but also The spring and swamp/wetland areas are scattered throughout the property are

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- S and function of the biophysical features that were on the site previously, as noted The impact to them can be characterized as significant alteration of the structure in several environmental assessments.
- 6. I am designated as an Officer, and Habitat Officer under the Water Act and the Water Regulation.
- 7. Further compliance actions, if necessary, may come from the Conservation Officer Service and/or the Assistant Regional Water Manager.

Please contact me if clarification is required. is without prejudice to any enforcement that may be taken based upon actions to date. this information is not intended to preclude any further compliance actions, and therefore I trust this reply provides information with respect to your questions. The provision of

Sincerely,

Grant Furness Ecosystems Section Head Okanagan

GF/cl

Cc: Industrial Place, Penticton, B.C. Sergeant Jim Beck, South Okanagan Zone, Conservation Officer Service, 102 V2A 7C8

Natural Resource Operations, 102 Industrial Place, Penticton, B.C. Conrad Pryce, Water Allocation Section Head, Ministry of Forests, Lands and V2A 7C8

# Popowich, Tracy CSNR:EX

From: Sent: To: Cc:	Furness, Grant A FLNR:EX Friday, April 15, 2011 9:35 AM Okanagan Compliance Mailbox ENV:EX Hamilton, Bob ENV:EX
To:	Okanagan Compliance Mailbox ENV:EX
Cc:	Hamilton, Bob ENV:EX
Subject:	FW: Contact
Attachments:	Letter to the Editor on veg destruction 2 Apr 11.doc

will be pursueing. We just need the Compliance Case files to state such. Cathy – please enter this into OKC for discussion. I have spoke to Bob, and we agreed that this is not anything that we

T×.

Grant Furness Ecosystems Section Head Ministry of Forests, Lands and Natural Resource Operations Penticton 250.490.8277

From: Hamilton, Bob ENV:EX Sent: Thursday, April 14, 2011 3:21 PM To: Furness, Grant A FLNR:EX Cc: Nield, Lora M FLNR:EX Subject: FW: Contact

I have photos

From: Beck, Jim L ENV:EX Sent: Thursday, April 14, 2011 12:10 PM To: Hamilton, Bob ENV:EX Cc: Jevons, Dave ENV:EX Subject: FW: Contact

Hi Bob,

Jim you as it may be a RAR vs Water Act issue. Let's talk before you head out. I am assigning you to this one, please conduct an assessment and report back, you may want to bring an ES person with

From: Jevons, Dave ENV:EX Sent: Wednesday, April 13, 2011 10:44 AM To: Beck, Jim L ENV:EX Subject: FW: Contact

Jim – fyi and follow up

Thanks

Dave Jevons | Division Initiatives Manager Conservation Officer Service | Ministry of Environment | 250-356-5005

s.22	This is the first letter to any editor or any newspaper that I have ever written. I have never felt that people pay serious attention to events that do not directly benefit or threaten them and even less attention to the opinions of others' personal views on matters that are (or should be) of public interest. This environmental destruction does, I should think, directly negatively impact nearly all of us who recreate along the river dikes or live in the vicinity of the damage. It also degrades the quality of life of all who call Oliver home, whether they acknowledge that fact or not.	Perhaps, there is some logical explanation for this recent sad devastation. I'd like to believe that the destruction has been carried out as part of a plan to implement some unannounced public good. If not, then town council needs to amend current bylaw(s) or enact new ones SOON to curtail similar needless destruction of our environment from happening again.	Surely some of us can see the irony in celebrating the restoration of 2 river oxbows at the northern edge of town last year and a year later within a kilometre of that hard-won restoration project that took 10 years to bring to fruition, we lose the last of any semi-natural riparian habitat within town boundaries in one fell swoop. Home and/or refuge for all kinds of mammals, birds, reptiles, and probably many species of smaller critters has been suddenly transformed into 3 wretched barren patches of mineral soil that will frequently blow onto neighbouring properties this spring and gradually turn into huge weed plots as summer progresses. Individually and collectively, those of us who live in this wonderful little town have to devise better ways of doing business in order to help protect and conserve our deteriorating environment.	Within the past 3 weeks, the only sizeable parcels of semi-natural floodplain land left within town boundaries have been completely cleared and grubbed without any rational explanation for doing so that I've learned from any source. I simply can't believe that the residential or commercial sector is so buoyant in Oliver that multiple hectares of floodplain needed to be instantly stripped of all vegetation to prepare the land for development at this moment!	LOSS OF LAST THREE SEMI-NATURAL RIVER BOTTOM LOTS IN OLIVER	Editor, please print letter in its entirety or call me to discuss any proposed modifications. Thanks. Phone number $_{ m s.22}$	Letter to the Editor:	Sent: Wednesday, April 13, 2011 9:02 AM To: Conservation Officer Service CSD:EX Subject: Contact This is not an emergency but a CO should formally investigate what has happened here (soon) and at least make the 3 owners aware that people are aware of the damage they have done. It appears that Oliver Town Council has tried to do the right thing. Council may only be guilty of being too trusting with the landowners who have totally cleared the land and filed in the wetlands. It is too late to preserve any other substantial semi-natural floodplain properties in Oliver but these selfsh landowners should not give other landowners in other jurisdictions the idea that they can do the same there without any penalty whatsoever. The BC RAR has been needlessly violated as well as wetlands obliterated without any repercussions. The s.22 letter to the editor below gives some information about what has happened in Oliver over the past month. Thank you for any attention you can give to this case and a CO should field inspect it to better appreciate what has transpired and determine what action(s) can be taken to prevent this kind of thing from happening again somewhere else. I'm happy to accompany any CO who would like to inspect the devastation.	From: s.22
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Page 33 redacted for the following reason:

### Letter to the Editor:

Editor, please print letter in its entirety or call me to discuss any proposed modifications. Thanks. Phone number s.22

# LOSS OF LAST THREE SEMI-NATURAL RIVER BOTTOM LOTS IN OLIVER

prepare the land for development at this moment! that I've learned from any source. I simply can't believe that the residential or commercial sector is so buoyant in Oliver that multiple hectares of floodplain needed to be instantly stripped of all vegetation to boundaries have been completely cleared and grubbed without any rational explanation for doing so Within the past 3 weeks, the only sizeable parcels of semi-natural floodplain land left within town

to devise better ways of doing business in order to help protect and conserve our deteriorating summer progresses. Individually and collectively, those of us who live in this wonderful little town have will frequently blow onto neighbouring properties this spring and gradually turn into huge weed plots as of smaller critters has been suddenly transformed into 3 wretched barren patches of mineral soil that one fell swoop. Home and/or refuge for all kinds of mammals, birds, reptiles, and probably many species environment. years to bring to fruition, we lose the last of any semi-natural riparian habitat within town boundaries in of town last year and a year later within a kilometre of that hard-won restoration project that took 10 Surely some of us can see the irony in celebrating the restoration of 2 river oxbows at the northern edge

destruction has been carried out as part of a plan to implement some unannounced public good. If not, Perhaps, there is some logical explanation for this recent sad devastation. I'd like to believe that the destruction of our environment from happening again. then town council needs to amend current bylaw(s) or enact new ones SOON to curtail similar needless

attention to the opinions of others' personal views on matters that are (or should be) of public interest. all who call Oliver home, whether they acknowledge that fact or not. recreate along the river dikes or live in the vicinity of the damage. It also degrades the quality of life of This environmental destruction does, I should think, directly negatively impact nearly all of us who people pay serious attention to events that do not directly benefit or threaten them and even less This is the first letter to any editor or any newspaper that I have ever written. I have never felt that

# Popowich, Tracy CSNR:EX

Wednesday, May 11, 2011 11:21 AM Cooke, Leslie ENV:EX Hamilton, Bob ENV:EX RE: Coors Number
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T×.

Bob: we are proceeding with non-compliance actions.

I need to know when you were on site.

T×.

Grant Furness Ecosystems Section Head Ministry of Forests, Lands and Natural Resource Operations Penticton 250.490.8277

From: Cooke, Leslie ENV:EX Sent: Wednesday, May 11, 2011 10:53 AM To: Furness, Grant A FLNR:EX Cc: Hamilton, Bob ENV:EX Subject: Coors Number

Grant/Bob: I have opened up a Coors file for the Oliver Wetlands Infilling, here is the Coors Number: 201102063.

I conducted a search on the PEP website and could not find an ERS! But I might be missing something

reviewed, thank you. get a chance could you please follow-up with Grant. This Coors file is just showing basic information so will need to be Grant you will have to confirm with Bob on dates which he attended the site. So, Bob when you return to the Office and

Les

Leslie Cooke Program Administrative Support Conservation Officer Service Ministry of Environment Penticton BC (250) 490-8209 Fax: (250) 490-8210

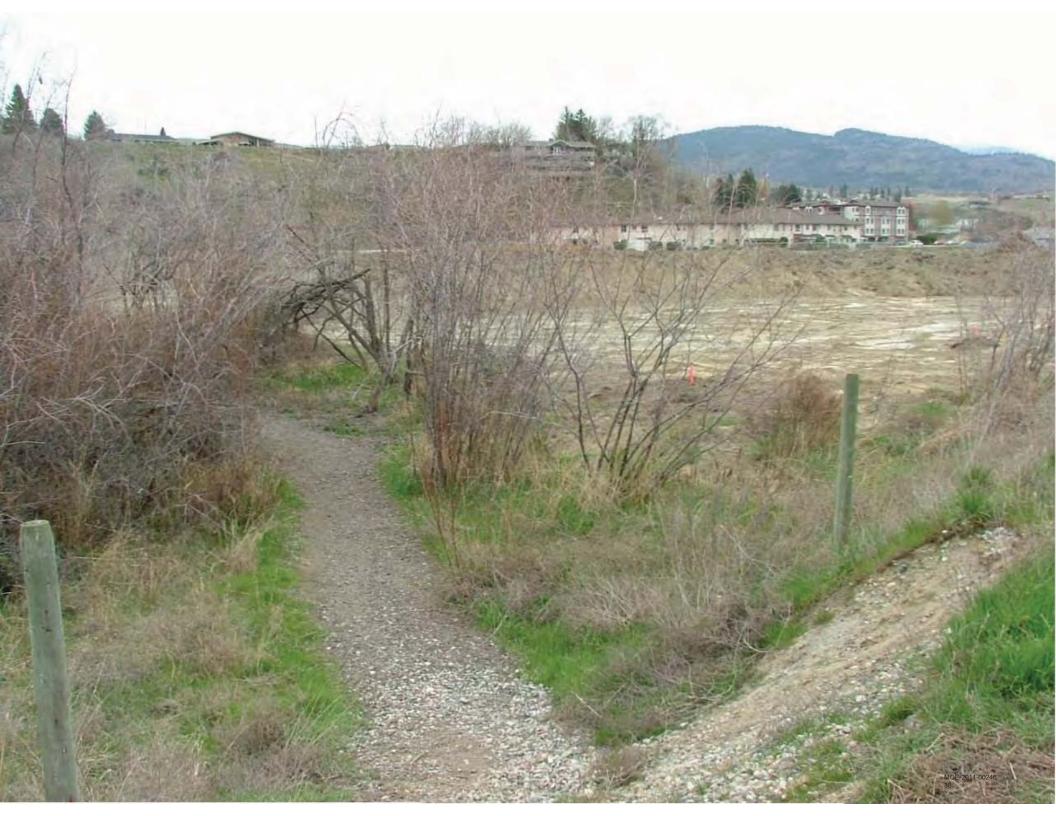
Report All Poachers and Polluters (RAPP) 1-877-952-RAPP (7277) or <u>www.rapp.bc.ca</u>

mailto:leslie.cooke@gov.bc.ca

Please consider the environment before printing this email.

















































































































































































































































Popowich, Tracy CSNR:EX
From: Sent: To: Dyer, Orville N FLNR:EX; Thomson, Skye FLNR:EX Prvce, Conrad FLNR:EX; Hamilton, Bob ENV:EX; Beck, Jim L ENV:EX; Nield, Lora M
FLNR:EX; Fernan, Machelle R FLNR:EX; Baric, Keith J ENV:EX RE: Emailing: Dyer-Thomson 2011 Oliver land clearing wetland habitat information
Tx. For doing this. Please review the document with the intent of adding the Agur property as well. This is the property to the immediate north. Upon a field inspection today, the ponded water on the Agur property is sufficient to treat both properties in a similar manner. Our intent is to provide a Letter of Advice for both.
Please treat in confidence in the short term.
Tx.
Grant Furness Ecosystems Section Head Ministry of Forests, Lands and Natural Resource Operations Penticton 250.490.8277
Original Message From: Dyer, Orville N FLNR:EX Sent: Wednesday, May 18, 2011 3:25 PM To: Thomson, Skve FLNR:EX
Thanks Skye
Grant: the Oliver land clearing summary has been updated on L drivesee below.
Orville Dyer RPBio Ecosystems Biologist Ministry of Natural Resource Operations, Penticton 102 Industrial Place, Penticton, BC, V2A 7C8
Original Message From: Thomson, Skye FLNR:EX Sent: Wednesday, May 18, 2011 12:59 PM To: Dyer, Orville N FLNR:EX Cc: Pryce, Conrad FLNR:EX Subject: RE: Emailing: Dver-Thomson 2011 Oliver land clearing wetland habitat information
Orv, I have added my comments to the attached technical report. My comments are in italicized font. I also saved it on the L drive.

Cheers, Skye

-----Original Message-----From: Dyer, Orville N FLNR:EX Sent: Wednesday, May 18, 2011 10:00 AM To: Thomson, Skye FLNR:EX Subject: Emailing: Dyer-Thompson 2011 Oliver land clearing wetland habitat information

Skye:

Thanks for showing me the snipping tool. Very helpful!

The location of the file is...

L:\General\Compliance and Enforcement\Case Files\FY2011\Oliver - River Bottom Lots\QP Reports

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Popowich, Tracy CSNR:EX
Sont: Furness, Grant A FLNR:EX
Peterson, Dan FLNR:EX Dickenson, Kevin FLNR:EX; Cunningham, Ken FLNR:EX; Pryce, Conrad
Subject: FYI - More on Agur Infill Attachments: IMG_0059.JPG
This is a continuation of information provided to Rick Manwaring several weeks back, where our Minister had a request from the local MLA.
The agent for Robin Agur has requested information that, following discussions with COS and Water Mgmt, is not available for release due to the fact that an investigation is ongoing. I will be advising him of this later today.
In the meantime, we are putting the final touches on a 'preliminary assessment' related to the contravention. We are prepared to release this info. Our initial assessment indicates that there is insufficient information at this time to substantiate that a 'stream' exists (Water Act definition). However, there is sufficient evidence to indicate that a 'wetland' exists. Unfortunately, we are not in
a position to do further assessment that is required to prove this due to site conditions (recent photo attached), and until we can line up some technical specialists to assess the site.
also plan on contacting Mr. Agur directly to determine if there is an amicable solution to this.
Grant Furness Ecosystems Section Head Ministry of Forests, Lands and Natural Resource Operations Penticton 250.490.8277
From: Urban Connections [mailto:urbanconnections@telus.net] Sent: Wednesday, July 6, 2011 7:41 AM To: Furness, Grant A FLNR:EX
<b>Cc:</b> 'Robin Agur'; Barisoff.MLA, Bill LASS:EX; Slater.MLA, John LASS:EX <b>Subject:</b> RE: Your request for information Grant.
I will be in Penticton on Thursday, so I will come into the office to pick up the information on Thursday afternoon. I will be looking to receive <u>all</u> correspondence from the files including but not limited to inter-office memos, letters of
complaint, letters from the Town of Oliver, memos and correspondence from conservation officers, and site inspection reports. When I am in the office if you could have the files available to confirm that all correspondence has been provided, that would be great. As I mentioned earlier, if you feel some of the information is not available to me, please advise me and I will make an FOI request to obtain the information.
Thank you for your cooperation in this matter.
Regards,
Brad D. Elenko, MCIP, NP Urban Connections / Elenko Notary Public

250.495.0499 ph 250.495.0489 fax <u>urbanconnections@telus.net</u> <u>belenko@notaries.bc.ca</u>

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From: Furness, Grant A FLNR:EX [mailto:Grant.Furness@gov.bc.ca] Sent: Tuesday, July 05, 2011 1:44 PM To: 'Urban Connections' Cc: 'robinadur@me.com'

Cc: 'robinagur@me.com' Subject: Your request for information

Brad.

I tried phoning you earlier, and have left a voice mail for you to return my call.

would like to discuss. If so, please advise, so we can arrange a time. information to you via email. As such, I see no need to make a trip to our office, unless there are some details that you provide that to you in the near future. We have just about completed our preliminary assessment of findings for the Agur property in Oliver, and are able to I anticipate providing this for you by end of day July 6. I can provide the

At this time, this is all we are able to provide as this matter remains under investigation.

Feel free to give me a call at your convenience.

Grant Furness Ecosystems Section Head Ministry of Forests, Lands and Natural Resource Operations Penticton 250.490.8277

Subject: FLNR:EX Cc: 'Robin Agur'; Barisoff.MLA, Bill LASS:EX; Slater.MLA, John LASS:EX; Enzmann, Rudy J LASS:EX; Pryce, Conrad To: Furness, Grant A FLNR:EX Sent: Tuesday, July 5, From: Urban Connections [mailto:urbanconnections@telus.net] 2011 7:27 AM

Grant,

not confidential and there should be not issue in providing this information to me. Please have this information regarding allegations of provincial Act contraventions, or allegations of environmental destruction. This information is conservation and enforcement staff, and all letters and correspondence from complainants including the Town of Oliver 9 Water Act Contravention. Specifically we are looking for all letters, memo's, and all correspondence from your receive the contents of all files that have had correspondence related to any evidence of your allegation about a Section that are present in Mr. Agur's Oliver's properties files. I suspect you have more than one file, and we would like to As noted in my June 30<sup>th</sup> letter to you, I will be in Penticton on Thursday afternoon to pick up the copies of the contents

picked up. available for pickup on Thursday afternoon, or alternatively contact me to let me know when this information could be

Thank you Grant for your attention to this matter.

Regards,

Brad D. Elenko, MCIP, NP Urban Connections / Elenko Notary Public

250.495.0499 ph 250.495.0489 fax <u>urbanconnections@telus.net</u> <u>belenko@notaries.bc.ca</u>

This message is intended only for the use of the individual or entity named above, and may contain information that is privileged, confidential or exempt from disclosure under applicable law. If you are not the intended recipient or their employee or agent responsible for receiving the message on the their behlaf, your receipt of this message is in error and not meant to waive privilege in the message. Please notify us immediatly, and delete the message and any attachements without reading the attachments. Any dissemination, distr bution or copying of this communication by anyone other than the intended recipient is strictly prohibited. Thank you.



Popowich, Tracy CSNR:EX	SNR:EX
From: Sent: To: Subject:	Beck, Jim L ENV:EX Tuesday, May 17, 2011 12:35 PM Hamilton, Bob ENV:EX FW: FYI - Oliver Wetlands Non-compliance
fyi	
From: Pryce, Conrad FLNR:EX Sent: Friday, May 13, 2011 8: To: Furness, Grant A FLNR:EX Cc: Beck, Jim L ENV:EX Subject: RE: FYI - Oliver Wetl	From: Pryce, Conrad FLNR:EX Sent: Friday, May 13, 2011 8:57 AM To: Furness, Grant A FLNR:EX Cc: Beck, Jim L ENV:EX Subject: RE: FYI - Oliver Wetlands Non-compliance
Hi Grant	S13 have used revisions on
and saved as version 3 Conradedits.	
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Grant, as discussed in ou and COS) review the sho agree on the content of 1 enforcement action. If C in the share drive, and I	Grant, as discussed in our NC Form meeting, before you send this letter out, it is appropriate that all parties (ESD, Water and COS) review the short technical report that documents that the pond on the Singla property is a stream. Once we agree on the content of this technical report, this will be our support for moving forward if we require further enforcement action. If Orv has a technical report close to a draft state, suggest placing this draft version 1 of this report in the share drive, and I (and/or Skye Thomson) will assist to finalize the report.
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Regards Conrad	
From: Furness, Grant A FLNR:EX Sent: Wednesday, May 11, 2011 2:27 PM To: Beck, Jim L ENV:EX; Pryce, Conrad FLNR:EX Subject: FYI - Oliver Wetlands Non-compliance	=LNR:EX 1, 2011 2:27 PM Pryce, Conrad FLNR:EX tlands Non-compliance
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Grant Furness Ecosystems Se Ministry of Forests, Lands and	Ecosystems Section Head sts, Lands and

Natural Resource Operations Penticton 250.490.8277

Pages 164 through 165 redacted for the following reasons:

To: Sent: <u>C</u> From: Subject: Hamilton, Bob ENV:EX RE: FYI - Oliver Wetlands Non-compliance Tuesday, May 17, 2011 12:21 PM Furness, Grant A FLNR:EX; Pryce, Conrad FLNR:EX Beck, Jim L ENV:EX

Jim this file as he will be the primary investigator if enforcement action is required at a later date. I reviewed it and it looks fine to me. Please make sure that Officer Hamilton is forwarded any additional emails etc on

From: Furness, Grant A FLNR:EX Sent: Tuesday, May 17, 2011 8:29 AM To: Pryce, Conrad FLNR:EX Cc: Beck, Jim L ENV:EX Subject: RE: FYI - Oliver Wetlands Non-compliance

×

Jim – did you have any comments on the LoA?

Grant Furness Ecosystems Section Head Ministry of Forests, Lands and Natural Resource Operations Penticton 250.490.8277

From: Pryce, Conrad FLNR:EX Sent: Monday, May 16, 2011 10:43 PM To: Furness, Grant A FLNR:EX; Beck, Jim L ENV:EX Cc: Dyer, Orville N FLNR:EX; Thomson, Skye FLNR:EX Subject: Re: FYI - Oliver Wetlands Non-compliance

s.13

this and hopefully this will be ready sometime Tues or Weds. Tx Conrad

sent by Blackberry

Orv and Skye are working on

Sent: Monday, May 16, 2011 03:10 PM To: Furness, Grant A FLNR:EX; Beck, Jim L ENV:EX; Pryce, Conrad FLNR:EX Subject: RE: FYI - Oliver Wetlands Non-compliance From: Furness, Grant A FLNR:EX

Jim/Conrad: any update on the LoA – is this OK to proceed?

Grant Furness Ecosystems Section Head

Ministry of Forests, Lands and

Natural Resource Operations

From: Furness, Grant A FLNR:EX Sent: Wednesday, May 11, 2011 2:27 PM To: Beck, Jim L ENV:EX; Pryce, Conrad FLNR:EX Subject: FYI - Oliver Wetlands Non-compliance

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Subject:		Cc:	To:	Sent:	From:
RE: FYI - Oliver Wetlands Non-compliance	FLNR:EX	Beck, Jim L ENV:EX; Dyer, Orville N FLNR:EX; Hamilton, Bob ENV:EX; Thomson, Skye	Furness, Grant A FLNR:EX	Friday, May 13, 2011 10:10 AM	Pryce, Conrad FLNR:EX

#### Thanks Grant, sounds good.

**Regards Conrad** the part of the report re: demonstrating that the pond is a stream current state of knowledge. I have copied Skye as well as he will be the Water Stewardship Officer assisting to review Please note that Skye Thomson will be assisting to review the technical report to make it as defensible as possible at the

Subject: RE: FYI - Oliver Wetlands Non-compliance Cc: Beck, Jim L ENV:EX; Dyer, Orville N FLNR:EX; Hamilton, Bob ENV:EX To: Pryce, Conrad FLNR:EX From: Furness, Grant A FLNR:EX Sent: Friday, May 13, 2011 9:17 AM

#### T×.

determination of the site containing a stream: Yes still working on gathering info for the report. Please recall that there were three things going into the

- <u>+</u> Historic evidence that the area was a pond such as pictures, air photos, etc – Orv is looking into that
- Ν Was there biological evidence of a stream (wetland) – e.g. wetland inventory, amphibian inventory, etc – Orv is looking into this
- ω Is there current evidence that this is a stream – ponded water, etc

confirms number three. My understanding was that the photos evidence provided by s.22 and added to by Hamilton (late yesterday pm)

So we are just in need of the gathering of Points 1 and 2.

Grant Furness Ecosystems Section Head Ministry of Forests, Lands and Natural Resource Operations Penticton 250.490.8277

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<< File: LOA\_Singlav3ConradEdit.docx >>

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Oliver land learing wetland.d.

#### Oliver land clearing

sites shown on the attached photograph prior to being cleared and levelled. The following summarizes information related to determining whether wetlands were present at the

3375 was 80% Waterbirch-dogwood swamp and 20% cultivated field in 1938. #3442 (Appendix 1) was 80% Waterbirch-dogwood swamp and 20% open water in 1938. Polygon Historic biophysical mapping by Lea (2008), based on 1938 air photos, reported that polygon

Risk Act (SARA) as Threatened) in 2003 and 2004 s.22 reported Great Basin Spadefoots (listed by the Species at s.18

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#### References

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Conrad and Orv,

property. them to this file as they show the remnants of an oxbow channel and the small pond on the southern edge of the As discussed, I prepared three additional air photo maps of the site (Years 2001, 2004 and 2007). You may want to add





Oliver Land Oliver Land Oliver Land Slearing - 2007 Or.Jearing - 2001 Or.Jearing - 2004 Or.

Cheers, Skye

Sent: Monday, May 16, 2011 10:35 AM To: Thomson, Skye FLNR:EX Subject: FW: FYI - Technical Report for Oliver land clearing wetland From: Pryce, Conrad FLNR:EX

Water Act. Thanks Conrad Hi Skye please review this and let me know if this report is sufficient to support that the pond is a stream under the

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Grant Furness Ecosystems Section Head Ministry of Forests, Lands and Natural Resource Operations Penticton 250.490.8277

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<< File: Oliver land clearing wetland.docx >>



2007 Ortho Photo





## Popowich, Tracy CSNR:EX

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Grant Furness Ecosystems Section Head Ministry of Forests, Lands and Natural Resource Operations Penticton 250.490.8277

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## Popowich, Tracy CSNR:EX

From:Furness, Grant A FLNR:EXSent:Thursday, April 14, 2011 4:15 PMTo:Peterson, Dan FLNR:EXCc:Hamilton, Bob ENV:EXSubject:FYI - Town of Oliver DirectiveAttachments:2759\_001.pdf

concern locally. Dan: this is a follow up t the note provided earlier today for your signature. It appears that this has caused quite a

Grant Furness Ecosystems Section Head Ministry of Forests, Lands and Natural Resource Operations Penticton 250.490.8277

From: Nield, Lora M FLNR:EX Sent: Thursday, April 14, 2011 3:51 PM To: Furness, Grant A FLNR:EX Subject: FW: Singla Bros.

Lora Nield Senior Ecosystem Biologist Ministry of Forests, Lands and Natural Resource Operations Penticton Office 250-490-8212

Sent: Thursday, April 14, 2011 1:20 PM From: Lin Martinson [mailto:Imartinson@oliver.ca]

Subject: FW: Singla Bros. **To:** Tom Szalay; Linda Schultz; XT:Bliss, Wayde; Town of Oliver CITZ:IN; Shawn Goodsell **Cc:** 'ccowan@rdos.bc.ca'; Dyer, Orville N FLNR:EX; Nield, Lora M FLNR:EX; Tiernan, Machelle R FLNR:EX; Anna McIndoe

CC: FYI



Folio: 00613.610

April 12, 2011

Singla Bros. Holdings Ltd. 567 Heather Road Penticton, BC V2A 6N8

# Re: Land Clearing on Lot 1, Plan 38854, D.L. 2450s, S.D.Y.D., Oliver, B.C.

virtually identical to those in Bylaw 1272. areas, because the format of the replacement bylaw and its environmental guidelines are environmental features rather than setting out to purposely degrade or destroy habitat lands. It is disappointing that this work has proceeded during the re-enactment of Bylaw 1272, since the Town strongly encouraged property owners to respect existing The Town of Oliver is aware of the recent site clearing activities on the above subject

and anger over your actions expressed by nearby residents, the Town now provides you related to the above clearing. with the following information on property maintenance matters and nuisance concerns In acknowledgement of your actions and in response to the rising level of disappointment

### NOXIOUS WEED CONTROL

and once areas are infested by invasive plants, it is extremely difficult - if not and fish habitat; altering the composition and structure of native plant region's unique scenic values and tourism opportunities; reducing water quality efficient. In response, the Town strongly requests that the cleared site be seeded very important that these plants are detected early and response is quick and impossible - to restore the area to its natural state. capacity to establish quickly and easily on both disturbed and undisturbed sites, communities; and destroying valuable wildlife habitat. Invasive plants have the endangering our health and well-being; dramatically damaging some of the productivity of our cropland and rangeland; lowering real estate values impacts to our local environment and economy by: reducing the agricultural invasive alien plant species have the potential to pose undesirable or detrimental with the land clearing stage of development. With the growing season upon us, The Town is very concerned with the environmental impacts that are associated Recognizing the above, it is

mixtures or plants, which are available through many local landscape companies with regionally appropriate (e.g. native), non-invasive, non-persistent seed

incurred by the RDOS to control the infestation shall be charged to the owner and the owner and occupier or their agent shall clear the property of noxious or property shall prevent any infestation on their property. If an infestation occurs, the same manner and with the same remedies as property taxes. if unpaid, can recover the costs incurred as debt, which may also be collected in infestation within 72 hours from the date of service of the order. the owner or occupier of a property requiring action necessary to control the Officer or any other person authorized to enforce this Bylaw may issue an order to application of chemical or biological treatments." destructive Infestation Control Bylaw. The Bylaw states that, "owners and occupiers of real within the municipality are subject to the RDOS' Noxious Insect and Pest Similkameen's (RDOS') Noxious Weed Control Service. To clarify, the Town of Oliver participates in the Regional District Okanagan insects and related pests by direct removal The Bylaw Enforcement or by the lawful As a result, lands All costs

### DUST CONTROL

native vegetation is the most effective form of erosion and sediment control. retained and the entire site vegetated with a seed mix, as mentioned above, as watercourses and properties. Vegetation within riparian areas should also be would include runoff and dust controls to prevent soil from entering nearby erosion and sedimentation of soil from your lands. Mitigation for these impacts Another concern for the Municipality and your neighbours is the impacts of

prosecution where individual fines of up to \$2,000 may be pursued separate offence, and each offence will be individually ticketed. In addition, your failure to effectively control dust emanating from your lands may prompt court Town would consider dust emanating from each of your lots to constitute a fine that can be issued by a Bylaw Enforcement or RCMP Officer(s). The separate offence, which under Oliver's Municipal Ticketing Bylaw is a \$75 rest, enjoyment, comfort, or convenience of persons in the neighbourhood." The Town outlines, that each day that a violation of this provision occurs is a Town that creates or causes the creation of dust that disturbs the quiet, peace undertake any activity on any highway, public place or private property in the To clarify, the Town's Property Maintenance Bylaw states that, "no person shall

PO Box 638 Oliver, BC V0H 1T0 • Tel: 250.485.6200 • Fax: 250.498#466 • WWW.oliver.ca

£.

## NOISE CONTROL and NUISANCE CONCERNS

Okanagan River Channel immediately adjacent to your site. control right of way (also known locally, as the "Hike and Bike" trail) for the trespassers have also gained access from your lands to the Province's flood further dust and nuisance concerns for our citizens. In addition, these recreational motorized vehicles (i.e. dirt bikes and all-terrain vehicles), creating noise, and The Town is now also aware that people are trespassing on to your lands with

effectively secured from trespassers who may be actually creating these property shall allow such real property to be used so that a noise or sound which property. disturbances. The Town will not take any action in keeping trespassers off of your lies with the property owner. It is therefore up to you to ensure that the property is responsibility for ensuring private property is not used to create unwanted noises that can be issued by a Bylaw Enforcement or RCMP Officer(s). The offence, which under Oliver's Municipal Ticketing Bylaw is a \$75 fine and outlines, that each day that a violation of this provision occurs is a separate enjoyment, comfort, or convenience of a person in the vicinity." The Town originates from that property disturbs or tends to disturb the quiet, peace, rest To outline, Oliver's Noise Bylaw states that, "no owner or occupier of real

also be collected in the same manner and with the same remedies as property subject to the requirement, and can recover the costs incurred as debt, which may accordance with Section 17 under the Charter at the expense of the person(s) (including noise and dust control). The municipality may take action in may impose remedial action requirements to remedy declared nuisances Alternatively and outside of the above bylaw enforcement process, under Division 12 'Remedial Action Requirements' of Part 3 of the Community Charter Council

prevent detrimental effects on other parties and river processes," under the Dike new access for these vehicles to the dike as mentioned above. One of the major tasks of concerning recreation vehicle use on the recently cleared lands and these lands providing information or issues that are forthcoming regarding these Provincial regulations. functioning to prevent access to the dike. The Town will continue to communicate any dike, as well as if the right-of-way fence adjacent to your property is still intact and Maintenance Act. Staff from MNRO will be inspecting the site and any damage to the the Water Stewardship staff is "to maintain the safety and integrity of dikes and to Operations (MNRO), Water Stewardship Division regarding issues raised by residents The Town is also dealing with concerns from staff of the Ministry of Natural Resource

their investigation, of compliance with the Riparian Areas Regulation (RAR) under the has occurred on your property. Recognizing this, there may be further concerns, based on In addition to the above and to update you, the MNRO is aware of the land alteration that

and applicable landowners to avoid unnecessary encroachment into the Riparian Assessment Area, as defined under RAR. Fisheries Protection Act. The Town's preference would be to work with the Province

your convenience. Should you have any questions about the above, please do not hesitate to contact me at that this letter provides you with direction on these serious property maintenance issues. your property for noxious weeds, dust control, noise and related nuisances to avoid any reiterates that property owners who have undertaken any works during this transition further complaints from community members and bylaw enforcement action. Staff trusts In response, the Town strongly encourages you to take an active approach to managing period and prior to the reenactment of the new bylaw will be proceeding at their own risk. The Town is extremely concerned with the after effects of your land clearing, and

Yours truly

Director of Development Services / Subdivision Approving Officer Stephanie Johnson, MCIP

T. Szalay, Municipal Manager

<u>;;</u>

L. Schultz, Deputy Corporate Officer

A. McIndoe, Contract Environmental Planner

O. Dyer, Wildlife Biologist - MNROM. Tiernan, Flood Hzd Mgmt. Tech. – MNRO

W. Bliss, Building Inspector
S. Goodsell, Director of Operations
CRF
C. Cowan, RDOS
L. Nield, Sr. Ecosystems Biologist - MNRO

PO Box 638 Oliver, BC V0H 1T0 • Tel: 250.485.6200 • MOE-2011-00246 Fax: 250.4989466 • WWW.oliver.ca

## Popowich, Tracy CSNR:EX

Subject:			Cc:	To:	Sent:	From:
FYI - Update On Oliver Wetlands Compliance Actions	Robert FLNR:EX; McGifford, Beth ENV:EX	Nield, Lora M FLNR:EX; Thomson, Skye FLNR:EX; Tobin, Patrick J FLNR:EX; Warner,	Okanagan Compliance Mailbox ENV:EX; Cooke, Leslie ENV:EX; Dyer, Orville N FLNR:EX;	Hamilton, Bob ENV:EX; Beck, Jim L ENV:EX; Pryce, Conrad FLNR:EX	Friday, May 20, 2011 8:50 AM	Furness, Grant A FLNR:EX

Just a brief note to bring everyone up to speed.

LoA provided to Paul Singla by Hamilton yesterday am.

LoA provided to Brad Elenko, who is the agent for Robin Agur, by Furness yesterday pm.

Town of Oliver has been provided copies of the letters.

Copies of letters are on the Case Files.

I plan to go view the site on May 25 to see if equipment still on site.

Thanks to all who helped pull this together.

Grant Furness Ecosystems Section Head Ministry of Forests, Lands and Natural Resource Operations Penticton 250.490.8277























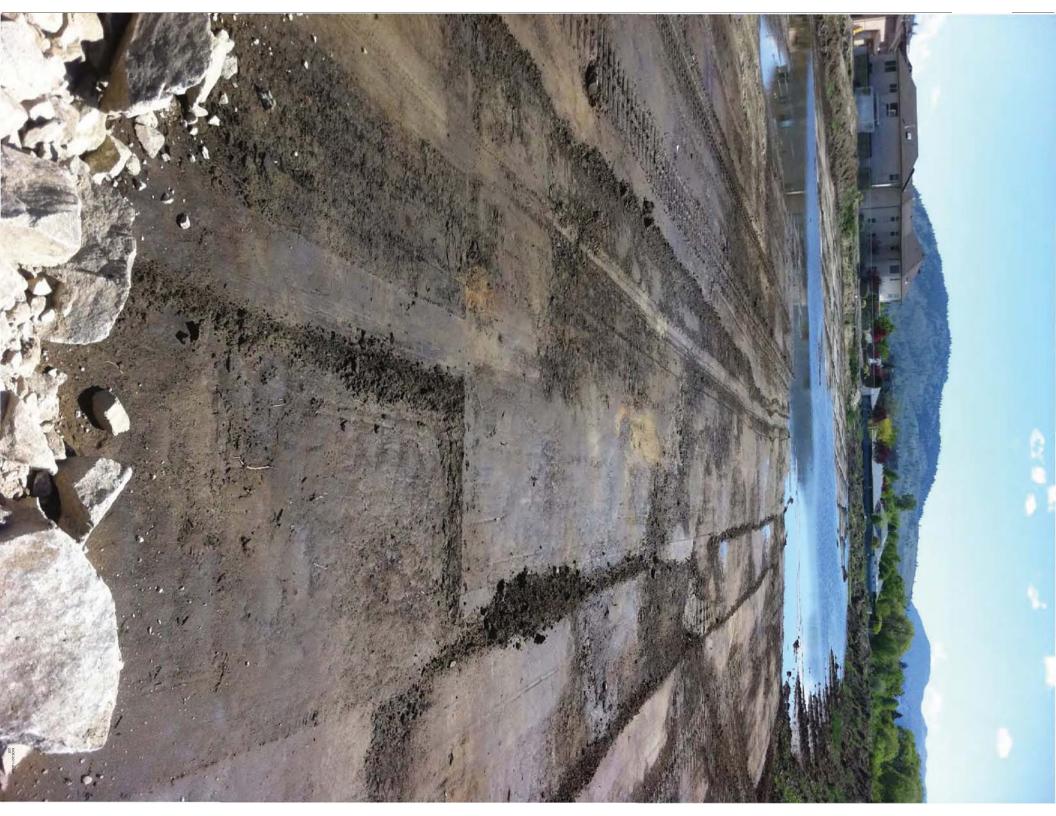
















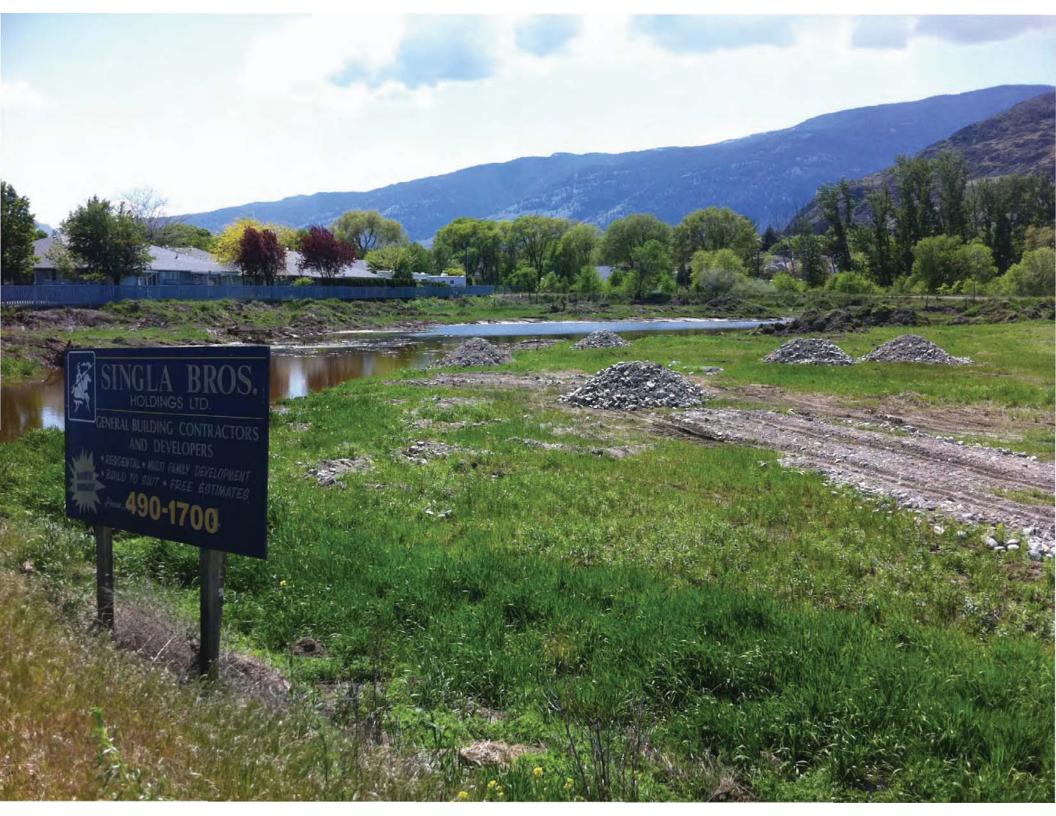






















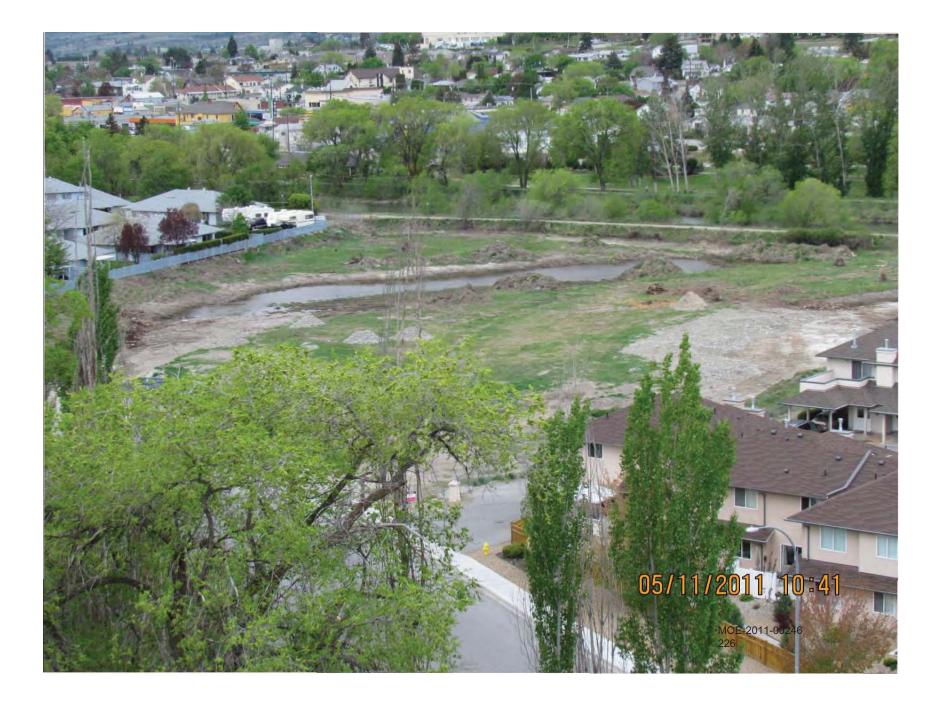
























































































June 7, 2011

File: 76970-30/OKA-R XREF: 31010-20 COORS: 201102063

Urban Connections Box 313, 100-8305 68<sup>th</sup> Ave. Osoyoos BC V0H 1V0

Attention: Mr. Brad Elenko

# Re: Your letter of May 25, 2011

Thank-you for your letter dated May 25, 2011.

and about a stream including modifications and activities that impacted the land, supporting Water Regulation. The recommendations in that letter relate to changes in Regulation, the recommendations still stand. changes were made without meeting section 9 of the Water Act, or Part 7 of the Water vegetation and natural environment of the stream, including the habitat areas. As these compliance with steps that are intended to address the requirements of the Water Act, and As stated on the second page of the Letter of Advice, its purpose is to seek voluntary

There are several items from your letter that require clarification

- -Agur's property at this point as we are still gathering information. We are not able to provide you with all the files we have with respect to Mr.
- N However, assessment of available information from our technical staff indicates
- 3 It was suggested at our meeting on May 19, 2011, that the property owner engage that the requirements of the Water Act, and Water Regulation have not been met. a qualified professional/s, with a background in wetland ecology or hydrology. We would be available to discuss the findings of the qualified professionals.
- 4 I do not recall stating that the ".....burden of proof was now on the owner to prove out that you must have misunderstood, or misinterpreted, what I said legislation for over twenty years, and know this is not the case. As such, I point that a contravention has not occurred". I have dealt with environmental Perhaps at that point, the technical experts could meet.

Resource Management Thompson Okanagan Region 102 Industrial Place Penticton, BC V2A 7C8

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

MOE-2011-00246 264

any contrary advice from the Province. Please provide any documentation that you relayed to you via local government processes. It is important to understand if you had you were aware that there were environmental sensitivity issues related to the property as consulted with the Province to obtain any relevant environmental information for the site My understanding is that prior to any development work occurring on the Agur property,

Please contact me if clarification is required. this information is not intended to preclude any further compliance actions, and therefore I trust this reply provides information with respect to your questions. The provision of is without prejudice to any enforcement that may be taken based upon actions to date.

Grant Furness Singerely,

Grant Furness Ecosystems Section Head Okanagan

GF/cl

Cc: Sergeant Jim Beck, Conservation Officer Service, 102 Industrial Place, Penticton, Conrad Pryce, Section Head, Water Allocation, Ministry of Forests, Lands and Natural Resource Operations, 102 Industrial Place, Penticton, B.C. V2A 7C8 B.C. V2A 7C8

Subject: RE: Media Request: CHBC TV News on N	Cc: Jevons, Dave ENV:EX		Sent: Thursday, May 19, 2011 10:10 AM	From: Beck, Jim L ENV:EX
RE: Media Request: CHBC TV News on Mcpherson Meadows oxbow	EX	Dalal, Suntanu GCPE:EX; Hamilton, Bob ENV:EX; Stern, Mike ENV:EX	2011 10:10 AM	

### Hi Suntanu,

Officer Hamilton will address this when time permits, he has a number of issues on the go at present.

### Jim L. Beck

Jim L. Beck Sergeant - South Okanagan Zone Conservation Officer Service Penticton, BC 250-490-8205

From: Dalal, Suntanu GCPE:EX Sent: Thursday, May 19, 2011 9:53 AM To: Beck, Jim L ENV:EX; Hamilton, Bob ENV:EX; Stern, Mike ENV:EX Subject: Media Request: CHBC TV News on Mcpherson Meadows oxbow... Cc: Jevons, Dave ENV:EX

Ξ.

Reporter April Lawrence (250-488-2686) of CHBC TV New in Penticton has heard that a couple of COs visited a site on 87<sup>th</sup> Street in the Mcpherson Meadows area of Oliver recently to take a look at land next to an oxbow that has been chewed-up by a developer. The reporter wants to know if an investigation is underway.

Does anyone know about this?

The reporter is working on the story for today.

Thanks,

Suntanu Dalal Communications Officer Ministry of Environment 250 387-9745

<< OLE Object: Picture (Device Independent Bitmap) >>

### Compliance and Enforcement Policy and Procedure **Non-Compliance** Form Version 2 - May, 2009

# Section A: Record of Non-Compliance

File #: 31010-50/IRP-ES

### Who Completes This Section?

 Tracking internal divisional response to non-compliance
 Referring an investigation to the COS, i.e. investigation is not subject to IRP *or* Requesting a pre-investigation review by the IRT or RMCT The program area for the purpose of:

The COS for the purpose of:

1) Initiating a pre-investigation review. (This form is not for use by the COS to refer incidents of non-compliance to a program area for potential response. An occurrence report is used for that purpose.)

Date Initiated: April 20, 2011 Initiator: G. Furness

Company/Individual: Ecosystems

Address: Penticton

Licence/Approval/Permit #:

Date of Non-Compliance: approx April 6, 2011

**Regulatory requirement contravened:** unauthorized works in and about a stream

**Non-Compliance Decision Matrix:** 

Environmental, human health or safety - Level of Impact: Level 3

Likelihood of Compliance - Category: Category B

Summary: Infilling of one or more wetlands within Oliver municpal boundary

### Please Attach, if applicable:

🛛 Photos

 $\boxtimes$ Correspondence with any/all agencies

> $\boxtimes$

File Notes/sketch/site map

Inspection Form

Permit/Approval/Licence

- Company/Property searches (BC Online) Record of past non-compliance
- Non-compliance entry in program database

### Additional Notes

### COORS: 201102063

parcels: PID: 008 814 864 (Singla Bros.); PID: 024 476 846 (Agur); and PID: 003 063 101 adjacent to 87<sup>th</sup> St. in Oliver. The area of concern is now being described as three separate properties have had unauthorized work in and about a stream. (Benchmark Lifestyles). A map is in the Case File folder. Potentially, wetlands on each of the lumping together of public complaints about vegetation removal and habitat destruction This file has been complicated by a subdivision referral from the Town of Oliver, and the

The work activties received a fair amount of public scrutiny, and complaints to this office, the Minister's Office (MoE) and local government. Local media has carried stories on this issue.

sensitive development permit area' bylaw for the area. However, the Town had inappropriately adopted the bylaw, and temporarily retracted it. There are two conflicting professional reports outlining the associated habitat values. Canadian Wildlife Service records s22 indicate that great basin spadefoot Oliver was not in support of the development as proposed, as there was an 'environmentally s.18

s.18

records.

This pond is also identified on FLNRO

### Section B: Purpose of Form

Who Completes This Section?

- The program area for the purpose of:
- Tracking internal divisional response to non-compliance
   Referring an investigation to the COS, i.e. investigation is not subject to IRP *or* Requesting a pre-investigation review by the IRT or RMCT

The COS for the purpose of:

1) Initiating a pre-investigation review. (*This form is not for use by the COS to refer incidents of non-compliance to a program area for potential response*. An occurrence report is used for that purpose.)

# Indicate the purpose for completing this form (select one option below only):

 $\boxtimes~$  1. Recommendation of internal divisional response to non-compliance.

Action: Advisory

Notes: Letter of Advice with remedial measures

Initiator: Ecosystems

Section Head:

Date: May 10/11

May 15/11

Furness Date:

ROUTING: Initiator: Forward sections A & B of this form to your Section Head.

2. Referral to the COS for investigation (i.e. investigation is not subject to the IRP).

Initiator: Forward sections A & B of this form to the COS Field Supervisor in location of non-ROUTING: compliance.

3. Request for pre-investigation review

**Complete Section C: Request for Pre-Investigation Review** 

# Section C: Request for Pre-Investigation Review

Who Completes This Section?

Investigation Review Team (IRT). The initiator (program area staff or CO) for the purpose of requesting a pre-investigation review by the

# Has cross-divisional consultation occurred?

No

Why not?

Yes

With Whom? Water Mgmt ((Pryce); Beck (COS)

Was there consensus? Yes

"streams" as defined by the Water Act. If No, what were the points of disagreement? Whether the impacted areas were

# Estimated staff resources/ budget requirements

Staff resources (estimated): Assumes compliance with LOA. Ecosystems 2 days, with approx 50/50 split between field and office time. Water - 1 day; COS - 1 day

If additional non-compliance with LOA, Ecosystems - 1 day; Water 1 - days COS - 5 days

Financial Resources (estimated): -

### Has the Investigation already begun?

No

Yes, due to exigent circumstances

Yes, due to ongoing program support not having been previously anticipated

Date submitted to the IRT via Field Supervisor or Section Head: May 10/11

#### ROUTING:

PROGRAM AREAS: Send to the Section Head who will then form the IRT. COS: Send to the Field Supervisor who will then form the IRT.



Decision Date (click to update tracking log):

**Division Representative Name: Division Representative Name: Division Representative Name:** COS Field Supervisor: Beck

Division: EP

Division: ES Division: WS

Pryce Furness

# Section D: Pre-investigation Review by the IRT

Who Completes This Section?

The COS Field Supervisor for the purpose of recording the decision made by the IRT.

having received the form. The IRT must conduct a pre investigation review and make a decision within 15 business days of

### Investigation Supported (Check one):

S

Rationale for Decision:

Action/Direction/Notes:

ROUTING:

IRT: Advise relevant parties within their division of the IRT's decision. COS Field Supervisor: Notify initiator and update tracking log. COS Admin: File paper copy of Non Compliance Form using the file number found on the form.

Yes

Action/Direction/Notes:

Financial Resources Allocated (by division):

Staff Resources Assigned:

COS Lead Investigator: Attach this form to COORS case. investigator. ROUTING: COS Field Supervisor: Notify initiator, update tracking log and forward the form to the lead IRT: Advise relevant parties within their division of the IRT's decision.

completed you will receive the completed copy). COS Admin: File paper copy of this form using COORS case number (once investigation is

Referral is made to the Regional Management Compliance Team (RMCT)

The IRT is unable to resource the investigation; and/or The IRT cannot reach consensus;

The investigation is sensitive in nature.

Action/Direction/Notes:

Recommended Allocation of Financial Resources (If applicable):

Recommended Assignment of Staff (If applicable):

ROUTING:

IRT: Advise relevant parties within division of the IRT's decision. COS Field Supervisor: Notify COS Operations Manager and update tracking Log.

IRT Members:

# Section E: Pre-Investigation Review by the RMCT

Who Completes This Section?

a referral made by the IRT for a pre-investigation review. The COS Operations Manager for the purpose of recording the decision made by the RMCT as a result of



RMCT must conduct a pre investigation review and make decision within 15 business days of receiving the NCF from the IRT.

### Investigation Supported (Check one):

S

Rationale for Decision:

RMCT: Advise relevant parties within their division of the RMCT's decision. COS Operations Manager: Notify the COS Field Supervisor. COS Field Supervisor: Notify IRT and initiator and update tracking log. COS Admin: Replace filed paper copy of the form using the file number found on the form. ROUTING.

Yes

### **Resources Assigned:**

Agree with the recommendations by the IRT in Section D

detailed below. Do not agree with the recommendations by the IRT in Section D. Resources assigned are

Allocation of Financial Resources:

Assignment of Staff:

Notes:

ROUTING:

COS Admin: Replace filed paper copy of this form using COORS case number (once investigation RMCT: Advise relevant parties within their division of the RMCT's decision. COS Operations Manager: Notify Field Supervisor. COS Field Supervisor: Notify initiator and IRT, update tracking log & forward form to lead COS Lead Investigator: Open COORS case & attach form investigator

**RMCT Members:** 

is completed you will receive the completed copy).

Division Representative Name: **Division Representative Name: Division Representative Name:** COS Operations Manager:

> Division: EP Division: EP Division: EP

Decision Date (click to update tracking log):

# Section F: Investigation Findings and Recommendation(s)

Who Completes This Section?

The lead investigator (COS) for the purpose of outlining the investigation findings and recommendations to the IRT/RMCT.

**COORS Number:** 

**Investigative Team Findings** 

**Non-Compliance Decision Matrix:** 

Environmental, human health or safety - Level of Impact: Level 3

Likelihood of Compliance - Category: Category B

Summary:

Investigative Team Recommendation(s):

Action: Advisory

Notes:

**Investigative Team Members:** 

Division Representative Name: Division Representative Name: Division Representative Name: COS Lead Investigator: Division: EP Division: EP Division: EP

Date submitted to IRT/RMCT for Post Investigation Review (click to update tracking log):

ROUTING:

COS Lead Investigator Forward form to Field Supervisor. COS Field Supervisor: Convene IRT or if pre-investigation review was conducted by the RMCT, forward this form to the Ops Manager for convening of the RMCT. Update the tracking log.

0

VIIII INT or RMCT must conduct a post investigation review and make decision within 15 business days of receiving the NCF from the IRT.

# Section G: Post Investigation Review by the IRT or RMCT

Who Completes This Section?

The COS Field Supervisor (IRT) OR the COS Operations Manager (RMCT) for the purpose of recording the results of the post-investigation review.



**IRT or RMCT** must conduct a post investigation review and make a decision within 15 business days of receiving Section F of the Non-Compliance Form.

Recommendation Supported? Yes N 0

Rationale:

**Action Required:** 

Staff Assigned:

### **IRT/RMCT** Members:

**Division Representative Name: Division Representative Name: Division Representative Name:** COS Field Supervisor/Operations Manager: Division: EP Division: EP Division: EP

Decision Date (click to update tracking log):

#### ROUTING:

IRT/RMCT: Advise relevant parties within their division of the decision. COS Operations Manager: Notify Field Supervisor of decision. COS Field Supervisor: Notify Investigative Team and update tracking log with decision date and result. COS Admin: Replace paper file with completed version of the form using the COORS case number.

Subject:	Cc:	To:	Sent:	From:
Oliver - Bottom Lots along dike May 18, 2011 Photos updated in case file site	Hamilton, Bob ENV:EX; Thomson, Skye FLNR:EX	Furness, Grant A FLNR:EX; Dyer, Orville N FLNR:EX	Thursday, May 19, 2011 11:35 AM	Tiernan, Machelle R FLNR:EX

Hi Grant,

folder. All photos were taken at the same locations to photos taken earlier in April so comparisons can be made. Photo's of the site viewing/inspection from May 18, 2011 have been updated into your Photo's file under the case file

Have a great day, Machelle

From:\$19Sent:Monday, May 16, 2011 9:23 AMTo:Hamilton, Bob ENV:EXSubject:FW: Oliver photo dates

October 2010. If you need to talk to her - her email address is below and her cell # is Hi Bob - Anna McIndoe confirms that the dates of the photographs taken in Oliver are from early s.22

Thanks S19

-----Original Message-----From: Anna McIndoe <u>[mailto:acmcindoe@gmail.com]</u> Sent: Friday, May 13, 2011 4:45 PM To: <sub>\$19</sub> Subject: Oliver photo date

you were taken in early October 2010. Based on all my other photo dates from that camera that I have, I can confirm that the photos I gave

Anna

Popowich, Tracy CSNR:EX
From:       Beck, Jim L ENV:EX         Sent:       Wednesday, May 18, 2011 4:07 PM         To:       Pryce, Conrad FLNR:EX; Hamilton, Bob ENV:EX         Cc:       Thomson, Skye FLNR:EX; Furness, Grant A FLNR:EX; Dyer, Orville N FLNR:EX         Subject:       RE: Oliver wetland disturbance
I approve of this approach provided that your program or ES is willing and able to support the there is a "stream" on the property in question, same as discussed previously with the Singla property. I think that both property owners should be contacted to be made aware and requested or order not to fill in the pond or stream section on their properties as soon as possible due to the amount of work being conducted on these properties. This would permit us time to get supportive documentation etc together.
Jim L. Beck Sergeant - South Okanagan Zone Conservation Officer Service Penticton, BC 250-490-8205
From: Pryce, Conrad FLNR:EX Sent: Wednesday, May 18, 2011 3:50 PM To: Hamilton, Bob ENV:EX Cc: Beck, Jim L ENV:EX; Thomson, Skye FLNR:EX; Furness, Grant A FLNR:EX; Dyer, Orville N FLNR:EX Subject: RE: Oliver wetland disturbance
Thanks Bob. This is new information that there is a "pond" located on Agur's property. I just talked to Grant and we think there are grounds for Grant to issue LOA to Agur as well, subject to approval from Jim Beck. Proving that this is a stream is important if Agur and Singla do not comply with the LOA. i.e.: impotant to demonstrate that these surface water expressions are streams and per Water Act definition – this is being documented in a technical report being prepared by Orv and Skye. rgds Conrad
From: Hamilton, Bob ENV:EX Sent: Wednesday, May 18, 2011 3:42 PM To: Furness, Grant A FLNR:EX Cc: Pryce, Conrad FLNR:EX; Nield, Lora M FLNR:EX; Beck, Jim L ENV:EX Subject: Oliver wetland disturbance
I have attached photos of the activity today. The gravel trucks were trucking in fill onto the Northern property (Robin Agur Property). There is a sizable collection of water on both properties as is best viewed by the last few photos taken from a distance and from above.
I would recommend that both landowners be contacted to advise what is happening, even if a definitive decision has not yet been made. It may prevent running out there again when reports of fill being deposited in the water.
L:\General\Compliance and Enforcement\Case Files\FY2011\Oliver - River Bottom Lots\Photos\May 18, 2011 Bob H Photos

Subject:         FW: Oliver "wetlands"           Attachments:         8 May 2011 003.jpg; 8 May 2011 001.jpg; 8 May 2011 002.jpg	FLNR:EX	Cc: Hamilton, Bob ENV:EX; Beck, Jim L E		Sent: Monday, May 9, 2011 8:42 AM	From: Furness, Grant A FLNR:EX
001.jpg; 8 May 2011 002.jpg		Hamilton, Bob ENV:EX; Beck, Jim L ENV:EX; Pryce, Conrad FLNR:EX; Nield, Lora M	VV:EX		

Cathy: please add this info to the files.

Lora: please keep me apprised of any developments with respect to RAR non-compliance.

Penticton Natural Resource Operations Ministry of Forests, Lands and Grant Furness 250.490.8277 **Ecosystems Section Head** 

#### From:

Sent: Sunday, May 8, 2011 8:59 AM s.22

**To:** Ridley, Teri; Luszcz, Tanya M ENV:EX; Hamilton, Bob ENV:EX; Furness, Grant A FLNR:EX; Pryce, Conrad FLNR:EX **Cc:** Stephanie Johnson; s.22

Subject: Oliver "wetlands"

,∎

is nothing in the environmental reports done on the Agur property that I have now read that suggest that that property need not comply with the 30 m no veg removal requirement from the Natural Boundary of the OK River. On the contrary, the more comprehensive report noted there were many real and potential ecological values on that property before all even with the partial gravel fill placed in it at the easterly end. The swale to the north of this one is showing water now for some distance and that pond will grow as the river level rises. Clearly, the requirements of the WATER ACT have been ignored on this propery and on the property to the east where the wetland now covered over by gravel fill was even were recently erased. PROTECTION ACT has been violated on the Singla Property and the Agur property abutting the river to the north. There deeper than these ones in the attached photos. All one needs is a tape measure to determine that the FISH discharge in Oliver. Surely no one in their right mind can now deny that the two swales at the south end of the Singla property were and are "wetlands". The deeper southerly one is becoming one long lake from the dike to the road now The 3 attached photos I took this morning at a river discharge of ~ 37 cms which is still less than the mean annual peak

I expect that Provincial staff will carry out their regulatory responsibilites to the best of their abilities in these cases of blatant wanton environmental destruction strongly backed by Local gov't and Federal Regulatory staff.

of this illegal activity s.22







From: Sent:	Hamilton, Bob ENV:EX Thursday, April 21, 2011 12:07 PM
To:	Furness, Grant A FLNR:EX
Cc:	Beck, Jim L ENV:EX
Subject:	FW: Oliver works on private land

Grant, would you like to address Keith's concerns? I believe this is a RAR issue.

From: Baric, Keith J ENV:EX Sent: Thursday, April 21, 2011 12:00 PM To: Hamilton, Bob ENV:EX Subject: Oliver works on private land

Hi Bob:

Sorry to bother you as I realize you are very busy.

SOWMA so I realize I am stretching my jurisdiction here, this is more Grant's agency's (FLNRO) work, but went and had a look (at the request of the member of the public). Note, most of my work deals with this member of the public wanted to talk to someone from MoE. adjacent to the Okanagan River. s.22 informed me that you were on site recently and had a look. I too A member of the public contacted me last week, very discouraged about some infilling on private land

comes into freshet. s.22 argument is that this large lot (just east of the dyke) as well as an adjunct parcel well within 30metres. s.22 also pointed out that the area is starting to fill up with water as the river most lot next to Heritage House taken in 2009 next to Heritage House did contain water and wetland species. s.22 sent me a picture of the eastern member of the public illustrated to me with a tape measure that the clearing just east of the dyke was I realize that the property is not connected to the river, hence RAR doesn't apply. However, the

since I have walked in the area in the past, I think<sub>s.22</sub>may be right. Of course they are both filled in now so it is very difficult to determine what they looked like before, but

Anyhow, just thought I would relay the information passed onto me

that (i.e., section 2.2 of the document attached I also realize the legislation is on wetlands and enforcement of the Water Act is in transition. However, I thought that even wetlands are considered a stream under the Act. Even our own publications state

Perhaps you can educate me on this at some point because I really didn't have a good answer for the http://www.env.gov.bc.ca/wld/documents/bmp/wetlandways2009/wetlandways\_docintro.html). member of the public.

Photos are attached.





Keith J. Baric- BSc. MSc. Planning Section Head- Okanagan Ministry of Environment Kootenay Okanagan Region ph: 250-490-8260 Fax: 250-490-2231 Keith.Baric@gov.bc.ca

Subject:	Cc:	To:	Sent:	From:
Opinion Required for Benchmark	Pryce, Conrad FLNR:EX; Beck, Jim L ENV:EX; Hamilton, Bob ENV:EX	Thomson, Skye FLNR:EX; Dyer, Orville N FLNR:EX	Monday, May 30, 2011 1:21 PM	Furness, Grant A FLNR:EX

River Bottom file. The other two properties Agur and Singla have Letters of Advice. We are suggesting the Benchmark property be treated likewise. As define d in the Water Act, existed on the Benchmark property. This is the third of three properties on the Oliver landowner of Bechmark, the Compliance Comm is seeking your expert opinion as to whether a 'stream' Following discussions with Conrad on May 25, and confirmation from the Town of Oliver that they had not directed the

s.18

Please confirm that there is sufficient evidence to move forward with a LoA.

Ξ.

Grant Furness Ecosystems Section Head Ministry of Forests, Lands and Natural Resource Operations Penticton 250.490.8277

Cc:		To:	Sent:	From:
McEwan, Dave ENV:EX	White, Tara FLNR:EX; Matthews, Steve FLNR:EX	Beck, Jim L ENV:EX; Stern, Mike ENV:EX; Hamilton, Bob ENV:EX; Nield, Lora M FLNR:EX;	Thursday, June 2, 2011 8:53 AM	Mitchell, Jerry R ENV:EX
	_		Beck, Jim L ENV:EX; Stern, Mike ENV:EX; Hamilton, Bob ENV:EX; Nield, White, Tara FLNR:EX; Matthews, Steve FLNR:EX McEwan, Dave ENV:EX	Thursday, June 2, 2011 8:53 AM Beck, Jim L ENV:EX; Stern, Mike ENV:EX; Hamilton, Bob ENV:EX; Nield, White, Tara FLNR:EX; Matthews, Steve FLNR:EX McEwan, Dave ENV:EX

Guys,

the sender what is happening with this file and get back to me. Here is an email from s.22 regarding the issue with riparian damage in Oliver. Could someone please inform Thanks.

From: Biodiversity Information Requests ENV:EX Sent: Wednesday, June 1, 2011 1:34 PM To: Mitchell, Jerry R ENV:EX Subject: FW: oxbow wetlands and habitat ..urgent!!

Hey Jerry

to forward what I get in this box somewhere. Let me know if you think it should go somewhere else. public that just doesn't fit. I know this isn't your specific business area, but it's your region, and would I like to be able I am monitoring the Biodiversity mailbox, that s.22 monitored. Occasionally something comes in from the

Dave

Dave McEwan Ecosystem Information Section Knowledge Management Branch Ministry of Environment

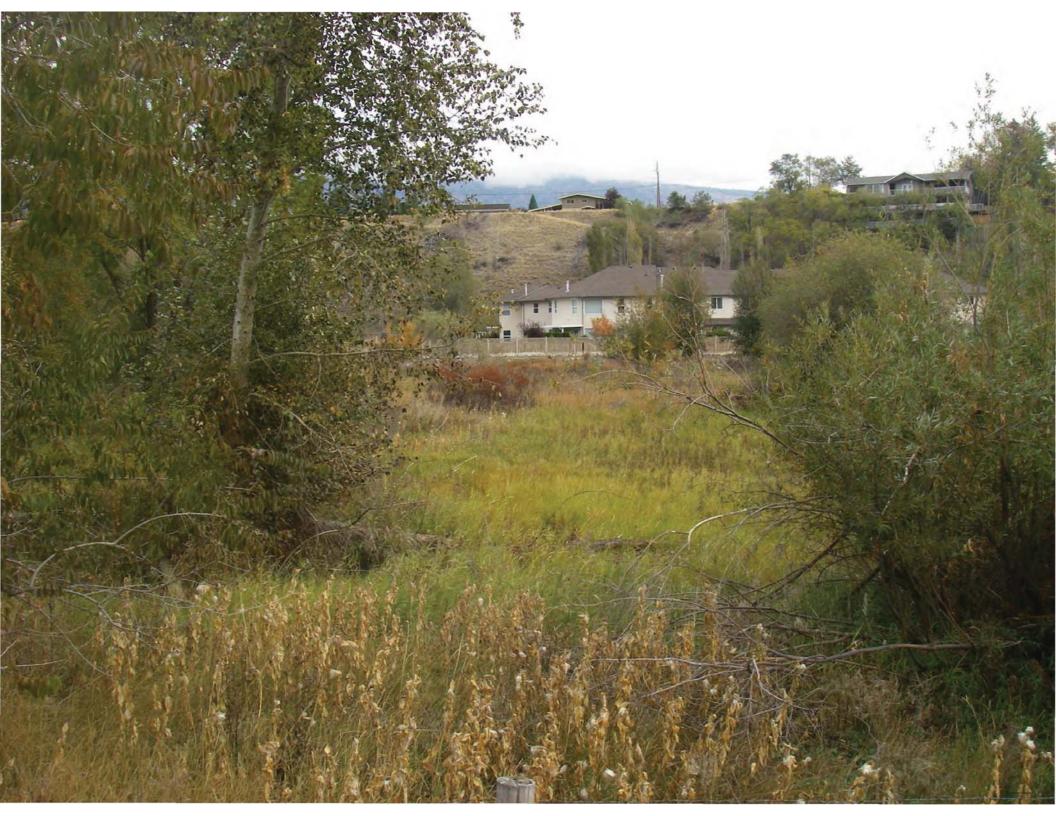
Ph: (250) 387-1109 E-mail: <u>Dave.McEwan@gov.bc.ca</u>

**From:** s.22 **Sent:** Tuesday, May 31, 2011 6:40 PM **To:** Rindiversity Information Begulacts I

**To:** Biodiversity Information Requests ENV:EX **Subject:** oxbow wetlands and habitat ..urgent!!

stop them in their tracks..this includes our town council needs to stop ..and not "permit" the actions. it is not too late and habitat..there are three areas of concern very close to each other..the one most west is useally an area with cattails and come see for yourself and feel very strongly you can stop them and advise the return of the some what destroyed much of this habitat will return to natural vegitation and be able to harbour the birds and wetlands species..please step in strong and agile then they head out feeding in the daytime to return to bed down for the night. this area is off the okanagan river just beside the river on the east side near a seniors car residence name heritage house. we need help to move across to the area neerer the river to raise the fawns with the natural plant food available while the fawns become water table that habitats many species, including birds and in the spring is a birthing grounds for white tail deer then they protected...it is not too late to stop this..need someone to come view and stop the permission of filling in this area. it is hi, many citizens in our community of Oliver B.C. are devastated at the filling in of wetland/habitats that are to be

MOE-2011-00246 286 marshland, etc.people have been discussing petitioning our town council..but that may take too long..Awaiting your interest.. s.22









Subject:		Cc:	To:	Sent:	From:
RE: Photos: pre-clearing Oliver properties	ENV:EX	Dyer, Orville N FLNR:EX; Furness, Grant A FLNR:EX; Nield, Lora M FLNR:EX; Beck, Jim L	Hamilton, Bob ENV:EX	Friday, May 13, 2011 2:15 PM	S19

- ÷ Anna McIndoe R.P.Bio. Shared Environmental Planner – hired by SOSCP and Town of Oliver.
- Ν She will confirm the actual date from her files by next Monday.
- ω there. She did not physically walk into those properties of interest on that date and therefore does not have personal knowledge about how wet they were at that time – except for her interpretation of the vegetation growing
- 4 experts Mike Sarell R.P. Bio – has physically been to all three sites and Yes, Anna McIndoe could give expert opinion related to vegetation and ecosystems and so could two other wetland and amphibian species inventory in that area. s.22 Ph.D who has done

work to contribute to this if you require other expert analysis or opinion. Anna's time is covered as a contractor – the other two are not. SOSCP has funding under the environmental planning

s.19

Sent: Friday, May 13, 2011 1:56 PM From: Hamilton, Bob ENV:EX

**T**<u>o</u>: S19

Subject: RE: Photos: pre-clearing Oliver properties Cc: Dyer, Orville N FLNR:EX; Furness, Grant A FLNR:EX; Nield, Lora M FLNR:EX; Beck, Jim L ENV:EX

I have a few questions:

- <u>+</u> Who took these photos?
- Ν When were the photos taken?
- ω Does the camera person have any personal knowledge of just how wet these properties were?
- 4 Is there anyone on staff or any person who could give expert opinion that the vegetation growing here could grow in wetlands? (Stream)

From S19

FLNR:EX Sent: Friday, May 13, 2011 1:09 PM To: Dyer, Orville N FLNR:EX; Furness, Grant A FLNR:EX; Hamilton, Bob ENV:EX; Beck, Jim L ENV:EX; Nield, Lora M

Subject: Photos: pre-clearing Oliver properties

MOE-2011-00246 292 I have 13 photos of the three Oliver properties before they were cleared (Penticton Courtyard Lands, Singla Brothers and Benchmark). They are all labelled appropriately.

They are at:

L:\General\Ecosystems\Oliver Land Clearing 2011\Oliver cleared lands photos

S19











Importance: High	Subject: Please Prep for signature	Cc: Hamilton, Bob ENV:EX	To: McGifford, Beth ENV:EX	Sent: Wednesday, May 18, 2011 5:03 PM	From: Furness, Grant A FLNR:EX	
	or signature	ENV:EX	h ENV:EX	/lay 18, 2011 5:03 PM	It A FLNR:EX	

Beth: two letters.

I need to sign 3 copies of each asap and then have a pdf of each emailed back to me.

These need to be hand delivered by Bob tomorrow.

T×.



LOA Agurv1.docx LOA\_Singlav2.doc

 $\times$ 

T×.

Grant Furness Ecosystems Section Head Ministry of Forests, Lands and Natural Resource Operations Penticton 250.490.8277

Pages 299 through 302 redacted for the following reasons:

s.13, s.14

Popowich, Tracy CSNR:EX

Grant,

in question. make arrangements to obtain copies of all information that exists in all MFLNRO files pertaining to Mr. Agur's properties Further to your letter dated June 7, 2011, please see my response attached. I will be contacting you early next week to The original letter has been sent in the mail and you should receive it early next week.

Thank you in advance for your cooperation in this matter. If you have any questions, do not hesitate to contact me.

Regards,

Brad D. Elenko, MCIP, NP Urban Connections / Elenko Notary Public

250.495.0499 ph 250.495.0489 fax <u>urbanconnections@telus.net</u> <u>belenko@notaries.bc.ca</u>

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Ν



June 30, 2011

Ministry of Forests, Lands and Natural Resource Operations 102 Industrial Place Penticton, B.C. V2A 7C8

Attention: Grant Furness

Dear Mr. Furness:

# Re: Ministry FLNRO Letter of Advice <u>Alleged Non-compliance Lots 4-9, KAP64043 – Oliver, B.C.</u>

allegations of a contravention of the Water Act alleging there has been "changes in and of a contravention, and you have repeatedly continued to avoid providing me with the you refer to. I have repeatedly asked you to provide the evidence to support your claim two letters, not provided any evidence of the stream or the location of the stream that about a stream" you have to date, after numerous phone conversations, a meeting and evidence Thank you for your letter dated June 7, 2011. Although you continue to make

In my letter to you date May 25, 2011, I specifically asked you to provide me with the contents of the files you have on the properties in question, and in your June 7<sup>th</sup> letter you refused to provide me with the information stating "we are still gathering information". I am again asking you to provide me with the information contained in your shows where the steam in question was located. If you are unwilling to provide me with this information, I will proceed to make a Freedom of Information request to obtain the files on the subject property as this information should certainly provide the evidence that information.

show there was stream on the property, and as you could not provide me with any evidence to support your allegation, you did in fact state to me that your department believes there was a contravention of the Water Act and the it was our responsibility to prove that there was no contravention. 2011, I had specifically requested that you provide me with the evidence you have to I would also like to clarify a point in your letter. When we met in your office on May 19th

an Environmental Assessment prepared for the site prior to clearing the site, and the report stated: "The channelization of the river 50 years ago, plus the fact that no hydrostatically and naturally generated wetlands exists on this site proves that these properties are not ever going to become a valuable and natural riparian ecosystem on their own." there were environmentally sensitive issues related to the property. In response, we had You state in your June 7th letter that it is your understanding that we were aware that

Box 313, 100 – 8305 68<sup>th</sup> Avenue, Osoyoos, British Columbia, V0H 1V0 ph 250.495.0499 fax 250.495.0489 urbanconnections@telus.net MOE-2011-00246

Grant Furness June 30, 2011 Page Two

areas was noted in either of the two environmental assessments prepared for the the lands we were not aware of any wetland areas on the site, as no mention of wetland meandered through the area, which was nearly 60 years ago. As such, prior to clearing mention of a wetland area on the subject property. The report simply suggests there are "old swales indicating historic flows on the property", which is simply stating that prior to the Okanagan River Channel being channelized in the early 1950's, the river may have Ы property. Assessment for the subject properties, and the biologist author of that report made no addition, the Town of Oliver commissioned the preparation of an Ecological

considering your unwillingness to provide us such evidence, we have no reason to Without any evidence to support your allegation of a wetland on the believe that there is a contravention of the Water Act. property, and

excavation, and the Water Act contravention so we can proceed to deal with your clear evidence Again, if you believe there is a contravention of the Water Act, please provide us with the concerns. of the presence of a wetland on the subject property prior to its

Also, please make arrangements to have the contents of the files you have on these properties available for our pick up the week of July 4<sup>th</sup>, 2011, as we do want to review the contents of the file.

Water Act, and to receiving copies of all information that is present in all files related the Mr. Agur's properties in question. The information we receive from you is imperative for receiving the evidence you have to support your allegation of a contravention of us to be able to evaluate your allegations, and provide information back to you. Thank you for your cooperation and your attention to this matter. I look forward to the

Sincerely

Elenko C

Urban Connections

attach.

g

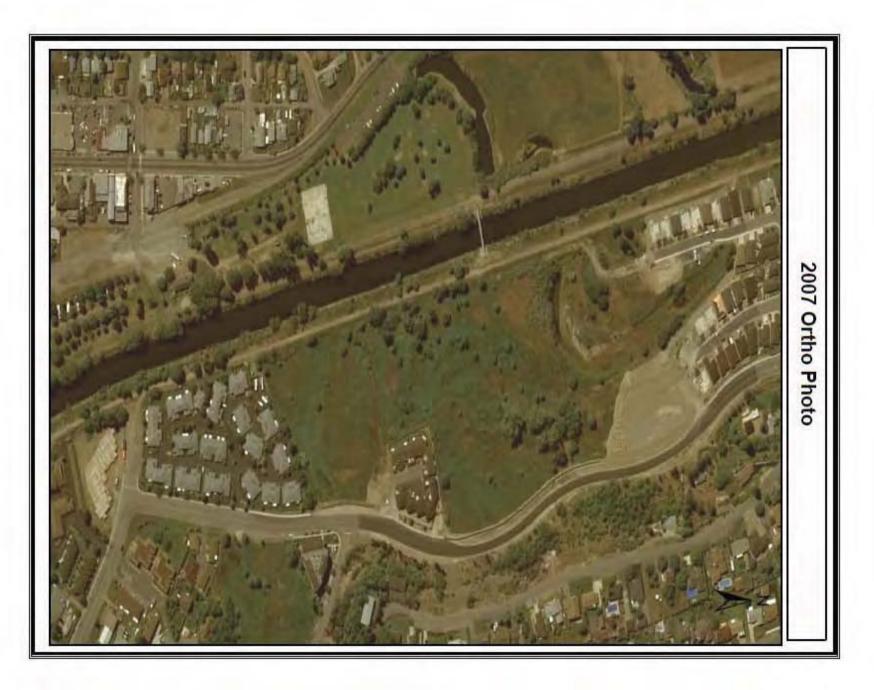
Honorable Bill Barisoff, MLA John Slater, MLA Conrad Pryce, Section Head, Water Allocation, MFLNRO Robin Agur Rudy Enzmann



MOE-2011-00246 312



MOE-2011-00246 313



From: Sent:	Furness, Grant A FLNR:EX Wednesday, May 11, 2011 9:30 AM
To:	Dyer, Orville N FLNR:EX
Cc:	Baric, Keith J ENV:EX; Nield, Lora M FLNR:EX; Beck, Jim L ENV:EX; Pryce, Conrad
	FLNR:EX; Hamilton, Bob ENV:EX; Okanagan Compliance Mailbox ENV:EX
Subject:	Request: Oliver Land Clearing
Importance:	High

Orv: I need you to compile an evidence package as we move forward on compliance actions.

between 87 St and the Okanagan River channel. PID: 008 814 864. The pond was in the SE part of the lot. clearing. The property in question is the Singla Bros. parcel, which is the southern of the two properties, located was based on our ability to demonstrate that a stream (Water Act definition) occurred on the site prior to the land WS, ES and COS met yesterday, and we are pursuing compliance action on one of the three properties. That decision

Preliminary evidence that the area was a stream was based on 3 factors:

- <u>-</u> Current surface ponding of water
- Our wetlands mapping. This information came from Lora Nield
- ωN see if s.22 has any historic pictures of the site that s.22 can share. Mapping from CWS, and a reference name of Devon Pond for the site. This info came from s.22 Also

this point. area was a stream. compliance action can be compiled. Secondly, I need you to put together a 2 pager on the findings – with a focus on the out a LoA in the immediate future, but need to be sure the information that was used in us reaching agreement for What I need you to do asap is scope out points 2 and 3, and confirm we are on solid ground. We are planning to send We are not required to compile info on environmental values (e.g. species and ecosystems at risk) at

Please confirm that you can put this together. Please come and discuss if you have any questions.

X

Penticton Natural Resource Operations Ministry of Forests, Lands and Grant Furness 250.490.8277 **Ecosystems Section Head** 

Popowich, Tracy CSNR:EX
From: Pryce, Conrad FLNR:EX Sent: Friday. April 29. 2011 2:13 PM
To: Furness, Grant A FLNR:EX; Beck, Jim L ENV:EX; Hamilton, Bob ENV:EX Okanagan Compliance Mailbox ENV:EX; Cunningham, Ken FLNR:EX; Crampton, Ray W
Subject: Request: Oliver River Bottom Lots
Interim response s.22
After doing cursory review of case file
I will fill in NC form early next week depending on workload hopefully Monday
The properties that were cleared is private property and not part of SOWMA. Some crown land with similar habitat values to the north is protected via SOWMA.
The Town of Oliver has RAR authority, and had enacted local authority regarding protection of env. sensitive areas. Town of Oliver is the lead with regard to land use and development. I see this as an issue for Town of Oliver to deal with as they are responsible for land use decisions.
s.13
More technical information (in addition to the Sarrell and Schefler RAR assessment reports) re: proving that original site condition was a "stream" as defined under the Water Act existed prior to the site being cleared. Please forward any technical reports/info supporting this.
As mentioned last week to Grant, Water program has lost 3 staff and has other water rights compliance issues to deal with, and does not have staff capacity to undertake this work. Unless it can be definitively shown this involves a "stream" under the Water Act, it is inappropriate to initiate any action under the Water Act.
I am copying to Ken Cunningham and Ray Crampton and Dave Hails; as I do not support in-principle proceeding with taking action under the Water Act (unless it can be definitely shown that this a stream.
Sorry I can't help more at this time, rgds Conrad
sent by Blackberry
From: Furness, Grant A FLNR:EX Sent: Wednesday, April 27, 2011 03:57 PM To: Pryce, Conrad FLNR:EX; Beck, Jim L ENV:EX; Hamilton, Bob ENV:EX Cc: Okanagan Compliance Mailbox ENV:EX Subject: Request: Oliver River Bottom Lots
The non-compliance form is now available for review. My understanding is that this file has reached a stalemate, and needs to be elevated for a decision as to whether to pursue actions under the Water Act.
Note: the information is all stored on the LAN, under Case files/2011/river bottom lots oliver

Cathy will be cleaning up the file, and all the info should be nice and tidy by Monday morning.

form). stated that RAR did not apply. However, they do not make that determination (see the non-compliance Conrad: note I clarified the RAR applicability for the two properties adjacent to the dyke. It was the QEP who

Grant Furness Ecosystems Section Head

Ministry of Forests, Lands and

Natural Resource Operations

Penticton 250.490.8277

From:	Dyer, Orville N FLNR:EX
Sent:	Wednesday, June 1, 2011 9:44 AM
To:	Furness, Grant A FLNR:EX; Thomson, Skye FLNR:EX
Cc:	Pryce, Conrad FLNR:EX; Beck, Jim L ENV:EX; Hamilton, Bob ENV:EX
Subject:	RE: Requests: Oliver Bottom Lands

I should be able to work on it from here.

I sent Skye a note so we can arrange how to coordinate working on the files.

Orville Dyer RPBio Ecosystems Biologist Ministry of Natural Resource Operations, Penticton 102 Industrial Place, Penticton, BC, V2A 7C8 Phone (250) 490-8244 Fax (250) 490-2231 email:orville.dyer@gov.bc.ca

From: Furness, Grant A FLNR:EX Sent: Tuesday, May 31, 2011 1:51 PM To: Thomson, Skye FLNR:EX; Dyer, Orville N FLNR:EX Cc: Pryce, Conrad FLNR:EX; Beck, Jim L ENV:EX; Hamilton, Bob ENV:EX Subject: Requests: Oliver Bottom Lands

summary of where this is at. As we move forward on this file, I suggest that this technical assessment package needs to be cleaned up. Here is a

- We are now looking at the third property to determine if we proceed with a LoA
- 1. We 2.

s.13

.ω

s.13

4 It is also generally unclear as to whether the discussion points are around wetlands or springs. s.13 s.13

Therefore, my suggestion

s.13

s.13

Orv: can you undertake this work remotely?

Grant Furness Ecosystems Section Head Ministry of Forests, Lands and Natural Resource Operations Penticton 250.490.8277

Popowich, Tracy CSNR:EX
From:       Hamilton, Bob ENV:EX         Sent:       Wednesday, June 8, 2011 3:48 PM         To:       Furness, Grant A FLNR:EX         Subject:       RE: Update: 3rd Property Oliver
You can use the COORS number on the letter. Looks good
From: Furness, Grant A FLNR:EX Sent: Wednesday, June 8, 2011 3:36 PM To: Pryce, Conrad FLNR:EX; Hamilton, Bob ENV:EX Cc: Beck, Jim L ENV:EX; Dyer, Orville N FLNR:EX; Thomson, Skye FLNR:EX Subject: Update: 3rd Property Oliver
This relates to the Benchmark property – Not Responsive Not Responsive
I need to work out a few things as s.22
I met with the Town of Oliver yesterday, to bring them up to speed.
They are in discussions with Benchmark regarding a development permit. They are aware of our potential concerns for the property.
They would like to work with us, but are in need of some documentation asap.
I have drafted a LoA (attached).
The LoA can not go out until Conrad has reviewed the technical report from Orv and Skye.
This LoA is not to be sent until Conrad has had the opportunity to review (others may as well).
It is essentially the same letter as the LoA for the other two properties, except minor revisions as to who did the site assessment, location of spring/wetlands, etc.
If this does not occur by end of day Thursday, I will get Orv to send it out for me. Hopefully, the reviews can occur prior to so I can take of this.
Bob: can you determine if the proper file numbers are on the letter.
Tx.
<< File: draft LoA Benchmark June 8.docx >>
Grant Furness Ecosystems Section Head Ministry of Forests, Lands and Natural Resource Operations

Pages 321 through 322 redacted for the following reasons:

Popowich, Tracy CSNR:EX
From:       Erwin, Corey W ENV:EX         Sent:       Monday, May 16, 2011 10:38 AM         To:       Dyer, Orville N FLNR:EX         Subject:       RE: 1938 photo from s.22       collection at oliver
Not a problem. Based on the 1938 airphotos, the banding pattern you see in the larger polygon (west of 87th st) represent these very old river channels. The dark green colouring and shrubby vegetation associated with these channels, visible on the recent imagery, suggest that these channels remain moist (if not wet), and nutrient rich. There appear to be a few patches of a similar shrubby complex in the smaller polygon east of 87th st. These however, do not appear to be as moist (wet) and rich as those found across the road to the west. It is very difficult to see this area on the 1938 photos due the vegetation cover and poor quality of the image. But, in my opinion both polygons do definitely contain shrubby remnants of the riparian habitat associated with the former river channel. Thanks.
Corey Erwin, Provincial Terrestrial Ecosystems Ecologist B.C. Ministry of Environment Knowledge Mgt Branch, Environmental Sustainability Division K (250) 387-7202
Please consider the environment before printing this email
Original Message From: Dyer, Orville N FLNR:EX Sent: Monday, May 16, 2011 8:56 AM To: Erwin, Corey W ENV:EX Subject: RE: 1938 photo from <sub>S22</sub> collection at oliver
Thanks Corey
That is helpful.
The investigation has expanded to the area roughly outlined in red on the attachment.
Can you provide a comment on that area, similar to what you wrote below?
Thanks.
Orville Dyer RPBio Ecosystems Biologist Ministry of Natural Resource Operations, Penticton 102 Industrial Place,
Penticton, BC, V2A 7C8 Phone (250) 490-8244 Fax (250) 490-2231 email:orville.dyer@gov.bc.ca
Original Message From: Erwin, Corey W ENV:EX

We have a wetland infill there (actually the whole lot is scraped and are trying to gather evidence to show it was a wetland. Recent air photos show some vegetation that is likely wetland but no water, since it has been so dry.	Can you check the 1938 air photo from s.22 collection to see if there was an obvious wetland at the location shown on the attachment.	Hi Corey	Original Message From: Dyer, Orville N FLNR:EX Sent: Thursday, May 12, 2011 3:05 PM To: Erwin, Corey W ENV:EX Cc: Dyer, Orville N FLNR:EX Subject: 1938 photo from <sup>S22</sup> collection at oliver	Please consider the environment before printing this email	Corey Erwin, Provincial Terrestrial Ecosystems Ecologist B.C. Ministry of Environment Knowledge Mgt Branch, Environmental Sustainability Division K (250) 387-7202	Hi Orville, Unfortunately the photo is really dark and not the greatest quality in that area but from what I can see, it looks like a good portion of the lot is part of an old river channel. It was not actively flowing in 1938 but definitely would have been subject to frequent inundation with seasonal flooding and could have retained enough moisture to support a permanent wetland feature. Is the site in a depression? It appears to be on the photo. Let me know if you have any other questions.	Sent: Monday, May 16, 2011 8:51 AM To: Dyer, Orville N FLNR:EX Subject: RE: 1938 photo from <sub>s.22</sub> collection at oliver
	We have a wetland infill there (actually the whole lot is scraped and are trying to gather evidence to show it was a wetland. Recent air photos show some vegetation that is likely wetland but no water, since it has been so dry.	Can you check the 1938 air photo from s.22 collection to see if there was an obvious wetland at the location shown on the attachment. We have a wetland infill there (actually the whole lot is scraped and are trying to gather evidence to show it was a wetland. Recent air photos show some vegetation that is likely wetland but no water, since it has been so dry.	Hi Corey         Can you check the 1938 air photo from the see if there was an obvious wetland at the location shown on the attachment.         We have a wetland infill there (actually the whole lot is scraped and are trying to gather evidence to show it was a wetland. Recent air photos show some vegetation that is likely wetland but no water, since it has been so dry.	<ul> <li>Original Message From: Dyer, Orville N FLNR:EX Sent: Thursday, May 12, 2011 3:05 PM To: Erwin, Corey W ENV:EX Cc: Dyer, Orville N FLNR:EX Subject: 1938 photo from s22 collection at oliver</li> <li>Hi Corey</li> <li>Can you check the 1938 air photo from to see if there was an obvious wetland at the location shown on the attachment.</li> <li>We have a wetland infill there (actually the whole lot is scraped and are trying to gather evidence to show it was a wetland. Recent air photos show some vegetation that is likely wetland but no water, since it has been so dry.</li> </ul>	<ul> <li>Please consider the environment before printing this email</li> <li>Original Message From: Dyer, Orville N FLNR:EX Sent: Thursday, May 12, 2011 3:05 PM To: Enwin, Corey W ENV:EX Cc: Dyer, Orville N FLNR:EX Subject: 1938 photo from sz2 collection at oliver</li> <li>Hi Corey</li> <li>Can you check the 1938 air photo from sz2 collection to see if there was an obvious wetland at the location shown on the attachment.</li> <li>We have a wetland infill there (actually the whole lot is scraped and are trying to gather evidence to show it was a wetland. Recent air photos show some vegetation that is likely wetland but no water, since it has been so dry.</li> </ul>	Corey Erwin, Provincial Terrestrial Ecosystems Ecologist B.C. Ministry of Environment Knowledge         Mgt Branch, Environmental Sustainability Division K (250) 387-7202         Please consider the environment before printing this email        Original Message         From: Dyer, Orville N FLNR:EX         Sent: Thursday, May 12, 2011 3:05 PM         To: Enwin, Corey W ENV:EX         Cc. Dyer, Orville N FLNR:EX         Subject: 1938 photo from szz collection at oliver         Hi Corey         Can you check the 1938 air photo from the attachment.         Scan you check the 1938 air photo from the attachment.         Sent: Thurs a wetland infill there (actually the whole lot is scraped and are trying to gather evidence to show it was a wetland. Recent air photos show some vegetation that is likely wetland but no water, since it has been so dry.	H Orville,         Unfortunately the photo is really dark and not the greatest quality in that area but from what I can see, it looks like a good portion of the lot is part of an old river channel. It was not actively flowing in 1938 but definitely would have been subject to frequent inundation with seasonal flooding and could have retained enough moisture to support a permanent wetland feature. Is the site in a depression? It appears to be on the photo.         Let me know if you have any other questions.         Corey Erwin, Provincial Terrestrial Ecosystems Ecologist B.C. Ministry of Environment Knowledge Mgt Branch, Environment before printing this email        Original Message         From: Dyer, Orville N FLNR:EX         Sent: Thursday, May 12, 2011 3:05 PM         To: Enviro, Corey W ENV:EX         C: Dyer, Orville N FLNR:EX         Subject: 1938 photo from size collection at oliver         HI Corey         Can you check the 1938 air photo from the attachment.         we have a wetland infill there (actually the whole lot is scraped and are trying to gather evidence to show it was a wetland. Recent air photos show some vegetation that is likely wetland but no water, since it has been so dry.

Sent: Subject: ö From: Furness, Grant A FLNR:EX Tuesday, July 12, 2011 11:28 AM Furness, Grant A FLNR:EX; Bulmer, Chuck E FLNR:EX; Filatow, Deepa ENV:EX RE: Question: Water Officer status

If the answer is yes to the officer designation. I need full names along with picture

Grant Furness Ecosystems Section Head Ministry of Forests, Lands and Natural Resource Operations Penticton 250.490.8277

From: Furness, Grant A FLNR:EX Sent: Tuesday, July 12, 2011 9:27 AM To: Bulmer, Chuck E FLNR:EX; Filatow, Deepa ENV:EX Subject: Question: Water Officer status

property to perform your duties. The alternative is obtaining a warrant. property in question is to obtain designation of "officer" under the Water Act. It allows right of entry on private Hi Guys: just doing some background work here for the Agur wetland file. The easiest way to provide you access to the

Are you OK with that the designation. If so, I will need a photo (head and shoulders) for your id card

I am attaching a couple of photos from when I was on site last Thursday. Still pretty wet.

<< File: 034.JPG >>

<< File: 030.JPG >>

<< File: 029.JPG >>

<< File: 031.JPG >>

compliance actions. will support that the wetland area meets the definition of 'stream' under the WA, thereby allowing us to pursue Also, I have arranged to have a discussion with Water staff to ensure that we can obtain information in a manner that

Second question, how do you want to schedule the field work, and when. Is there too much water on the site

Grant Furness Ecosystems Section Head Ministry of Forests, Lands and Natural Resource Operations Penticton 250.490.8277









From: Sent: To:

Furness, Grant A FLNR:EX Tuesday, July 12, 2011 3:34 PM Filatow, Deepa ENV:EX



Dyer-Thomson 2011 Oliver land ...

Grant Furness Ecosystems Section Head Ministry of Forests, Lands and Natural Resource Operations Penticton 250.490.8277

## Oliver (87<sup>th</sup> street) land clearing of wetlands and habitat, 2011: Preliminary Assessment of Agur Property

#### July 6, 2011.

Thomson, M.Sc., G.I.T. (Water Stewardship). This technical report is compiled by Mr. Orville Dyer, RPBio (Ecosystems Biologist) and by Mr. Skye

#### Background

wetlands were present at the site prior to being cleared and modified by the land owner. technical report summarizes information available to date related to determining whether the Penticton office of the Ministry of FLNRO. Follow-up site inspections were made and this On April 4, 2011, 2011, a non-compliance issue related to infilling of a wetland was reported to

water or not, including all side channels" of a stream, whether above or below the natural boundary and whether usually containing swamp and gulch" and a stream channel is defined as" means the bed of a stream and the banks of water supply, whether usually containing water or not, and a lake, river, creek, spring, ravine, According to the BC Water Act, a stream is defined as "includes a natural watercourse or source

stream channel that has or may have an impact on a stream. environment or flow of water within the stream, or b) any activity or construction within the means a) any modification to the nature of the stream including the land, vegetation, natural stream" under a Section 9 Approval. Under the Water Act, "changes in and about a stream" Section 9 of the Water Act requires that a person may only make "changes in and about a

located along 87<sup>th</sup> Street in Oliver, BC The property is legally described as Lots 2-9, DL 2450s, SDYD, Plan KAP64042 and is physically



Figure 1: Aerial Photo showing subject property and lot boundary.

## Part A – Ecosystems Comments:

### **Historic Context:**

- open water areas." with this community is "usually surrounded by other wetland types such as marshes and shallow high water table for part of year; imperfectly to poorly drained soils." The comment associated in 1938. The description of Water birch - red-ozier dogwood swamp is "active floodplain area; extrapolated to be 100% Water birch - red-ozier dogwood swamp in 1800 and Cultivated Field Water birch - red-ozier dogwood swamp and 20% cultivated field in 1938. Polygon 3588 was swamp and 20% open water in 1938. Polygon 3375 located on the subject property was 80% #3442 (Appendix 1) located on the subject property was 80% Water birch - red-ozier dogwood Historic biophysical mapping by Lea (2008), based on 1938 air photos, reported that polygon
- . difficult to see this area on the 1938 photos due the vegetation cover and poor quality of the do not appear to be as moist (wet) and rich as those found across the road to the west. It is very few patches of a similar shrubby complex in the smaller polygon east of 87th st. These however, suggest that these channels remain moist (if not wet), and nutrient rich. There appear to be a colouring and shrubby vegetation associated with these channels, visible on the recent imagery, larger polygon (west of 87th st) represent these very old river channels. The dark green a permanent wetland feature. Based on the 1938 airphotos, the banding pattern you see in the frequent inundation with seasonal flooding and could have retained enough moisture to support old river channel. It was not actively flowing in 1938 but definitely would have been subject to quality in that area but from what I can see, it looks like a good portion of the lot is part of an habitat, provided the following. "Unfortunately the photo is really dark and not the greatest Corey Erwin, Terrestrial Ecosystems Ecologist, expert with air photo interpretation for mapping habitat associated with the former river channel. " image. But, in my opinion both polygons do definitely contain shrubby remnants of the riparian

### **Recent Context:**

- mentioned above (Appendix 2). Three recent air photographs show wetland/riparian vegetation in the historic river channels
- . Species at Risk Act (SARA) as Threatened) in 2003 and 2004 s.22 reported Great Basin Spadefoot adults (listed by the s.18

the vacant properties that were cleared. into so the most likely location for Spadefoots to breed and to live for the rest of the year is on Most of the surrounding area is houses with turf lawns, which spadefoots have difficulty digging require standing water to lay eggs and generally do not travel more than about 200m away. s.18 Spadefoots

• mapped 5 swales "indicating historic flows" that could potentially hold water, seasonally, and the Town of Oliver prior to the land clearing (Sarell 2011a and b). His report provides mapped Mike Sarell, local biologist, consultant and RPBio, conducted an assessment of this property for present on the site provide breeding sites for amphibians. In follow-up discussions, he indicated that wetlands were birch, cottonwood, roses and willows (See Sarell 2011a, attached). He also identified and locations of native plants, including several that are associated with water, including water

# Part B – Water Stewardship Comments:

assessment. to the land clearing. The following paragraphs outline the rationale for this preliminary information is required to ascertain the presence of a stream (i.e. swamp or spring) on site prior swamp(s), existed, or their exact location, because of a lack of pre-condition data. Further information obtained after May 19, 2011, it is not possible to clearly indicate that a stream, or based on the information available to staff on that date. However, upon review of additional further compliance and enforcement action. A Letter of Advice, dated May 19, 2011, was issued Water Act. It is necessary to assess whether a stream exists on the site prior to considering Stewardship Staff to assess if there was a stream on the subject property, as defined by the This section summarizes field observations and results of a desktop review performed by Water

within the high water mark of the 1:200 year floodplain (Appendix 3). or many of these depressions seasonally inundated with water. The subject property also lies air photos that the site contains depressions formed as part of remnant cut-off oxbows, with one river, and have subsequently been cut off from the main channel. It is apparent from archived meanders would have been part of the natural Okanagan River channel prior to dyking of the north and south of the subject property (see Air Photos in attached appendices). These meandering watercourse, as evidenced by the oxbow and meander scars on parcels immediately control (Symonds, 2000). Prior to the channelization, the Okanagan River was a natural The Okanagan River was channelized during the period from 1950 to 1958 to help with flood

frequency of inundation, and boundary of the swamp. meaning of "swamp" but there are unresolved questions related to the presence of springs, vegetation, standing water and soggy ground. These conditions are consistent with the ordinary noted that there may be evidence of biological features of a swamp; namely indicator what frequency? Is there any apparent hydraulic connection to other streams? In Part A, it was is the quantity of water typically held by those features at such times, for how long and with water, including as a natural source of water supply on a seasonal or periodic basis. If so, what standing water or soggy ground to establish the presence of a stream feature which contains occurring spring or swamp on site, such as water emerging on the ground or the presence of about those points. For example, we must consider whether there is evidence of a naturally wetland, or a spring on the site, several points need to be considered and information gathered Therefore, a swamp is a stream as is a spring. To determine if there is a swamp, also known as a usually containing water or not, and a lake, river, creek, spring, ravine, swamp and gulch. The definition of "stream" includes a natural watercourse or source of water supply, whether

needs to be studied if further enforcement action is to be considered. assessment has not been done at the time of this preliminary report The occurrence of springs there is a spring source or other inflow to the area at this time, however, detailed hydrologic surface, usually at a clearly defined point. Due to this ponding, it is difficult to identify whether diffuse influx of groundwater. Springs are typically an emergence of groundwater at the land (i.e. removing topsoil). The source of water for this ponding is most likely the result of a broad depressions are the likely result of recent excavations and land modifications by the land owner The site currently contains several areas of depressions containing ponded water, but these

to ascertain if the subsurface hydrogeology supports the presence of spring(s) on site. natural boundary of any swamp(s). Also, qualified groundwater professionals could be retained the "wet" areas to determine the extent of the saturated soil – this would help delineate the scientist, with expertise in hydrology, is suggested to conduct an assessment of the soil type in office study searches of available habitat data be compiled by Ecosystems staff. Also, a soil relative costs and benefits in reviewing how best to proceed. It is recommended that continued recommendations may prove costly in terms of staff resources, the programs should assess of the hydrology on the site, including any hydraulic connection to the Okanagan River. As the It is recommended that the Ecosystems Section lead further assessments to determine the extent

Signature:

Date:

#### References

Branch, Ministry of Environment, Lands and Parks, 98 pp. Kreye, R., Wei, M., and Reksten, D., 1996. Defining the source area of water supply springs. Hydrology

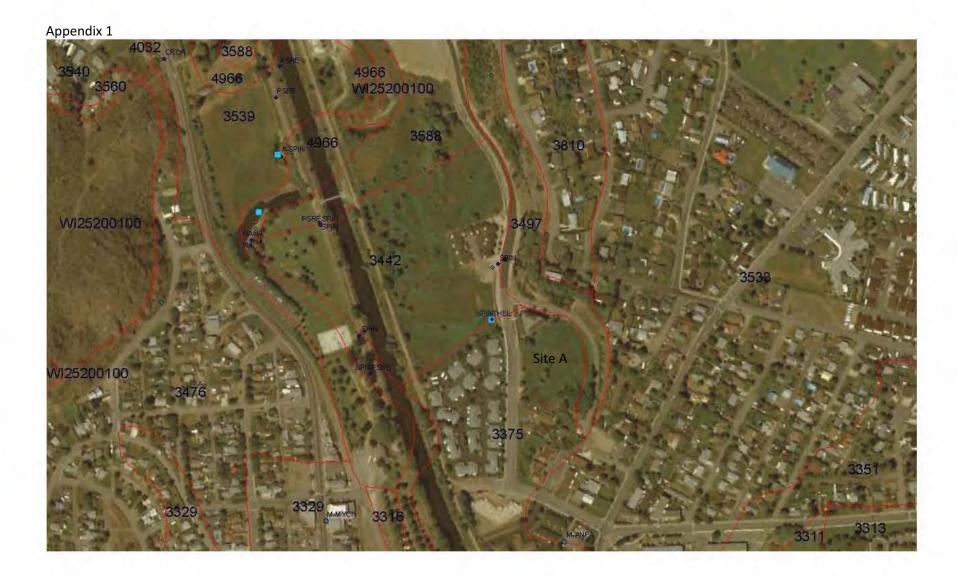
Valley of British Columbia – pre-European contact to the present. Davidsonia 19(1):3-36. Accessed May 13, 2011. Available: http://www.davidsonia.org/files/Okanagan\_Lea\_1.pdf Lea, E.C. 2008. Historical (pre-settlement) ecosystems of the Okanagan Valley and Lower Similkameen

Ministry of Forests, Lands and Natural Resource Operations. 2011. GIS database

Sarell, M. 2011a. An Initial Ecological Assessment of Lots 4, 5, 6, 7, 8 & 9, D.L. 2450s, SDYD, Plan KAP64042, in Oliver BC. Prepared for the Town of Oliver 28 January 2011

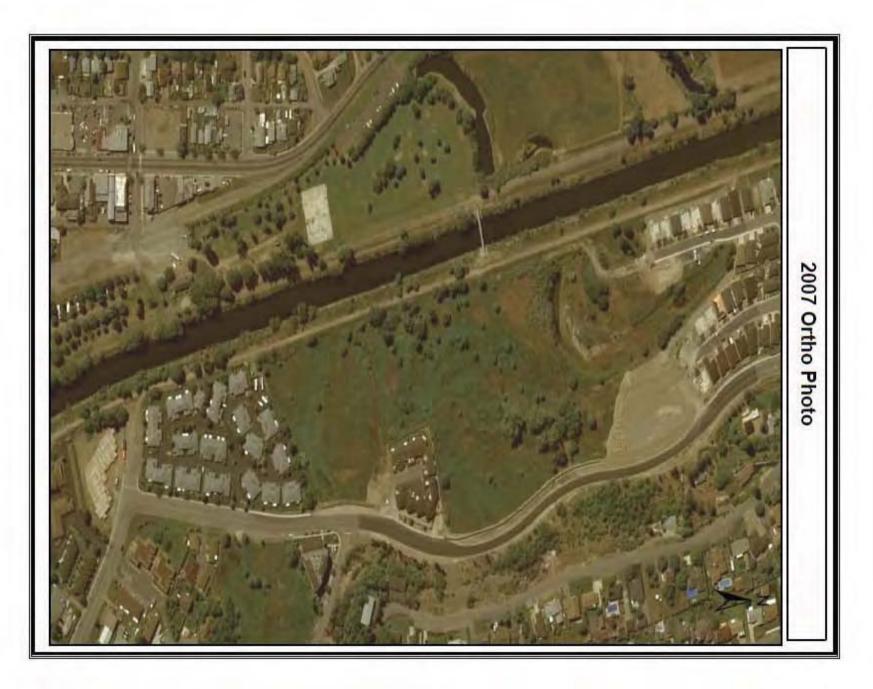
Sarell, M. 2011b. An Initial Ecological Assessment of Proposed Lots 2 & 3, D.L. 2450s, SDYD, Plar KAP64042, in Oliver BC. Prepared for the Town of Oliver 28 January 2011

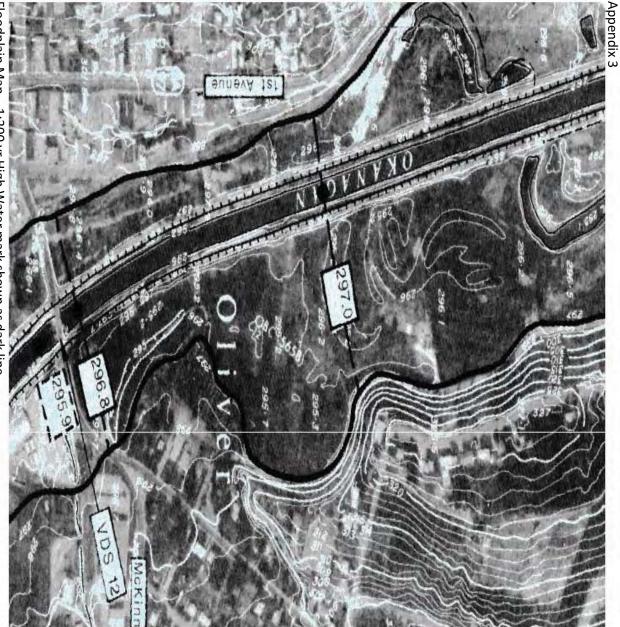
Symonds, B.J., 2000. Background and History of Water Management of the Okanagan Lake and River. Memo. Ministry of Environment, Lands and Parks. Penticton, BC.



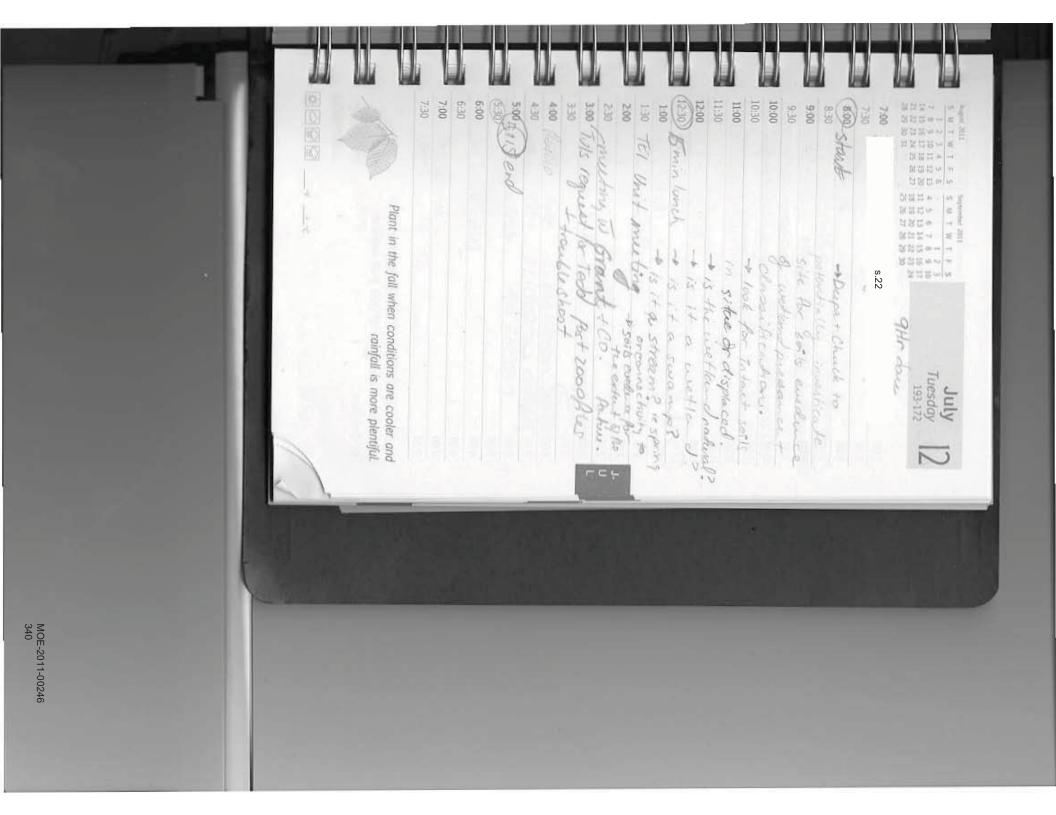








Floodplain Map – 1:200 yr High Water mark shown as dark line.



MOE-2011-00246 341



#### use) Sent: **To:** Pryce, Conrad FLNR:EX **Subject:** 2 Questions Sent: Wednesday, July 13, 2011 9:37 AM From: Furness, Grant A FLNR:EX Penticton Natural Resource Operations Ministry of Forests, Lands and Grant Furness depending on dates. Looks like you will be accompanied by an Okanagan Ecosystem staff for the field work. We can work out who later Is this possible? be gathering info that will be useful in the determination of whether there is a 'stream' on site Deepa: I spoke with Water Mgmt today, still being a little concerned that when we go out and do the field work, we will Subject: Weltland assessment methodology To: Filatow, Deepa ENV:EX; Bulmer, Chuck E FLNR:EX Sent: Thursday, July 14, 2011 9:00 AM Soil nutrient regime D and pH SA (need to follow up with Wil and the lab to see if there are analysis and criteria we can that are swamp or stream indicators e.g., bebb's willow ??) Residual plant structures preserved in the soil (e.g., indicators of shrubs and trees including particularly plant species smell, lab analysis of soil samples (redox status), mineral horizons, Von post of >6, horizon type and thickness Glysolic soil types as indicated on site by glyed horizons (including distinct glyeing which has a colour criteria), sulphur Buried horizons that may indicate flood frequency. Subhygric conditions as indicated by mottling or water table within the top 30cm of soil surface. Identify intact soils horizons in situ or displaced to evaluate indicators of stream or swamp: Subject: Т<u>о</u> From: Popowich, Tracy CSNR:EX From: Furness, Grant A FLNR:EX 250.490.8277 Ecosystems Section Head Filatow, Deepa ENV:EX Thursday, July 14, 2011 2:00 PM Furness, Grant A FLNR:EX RE: Weltland assessment methodology s.13

connection for the Agur site. a call to discuss the information that we would need to obtain to support the "wetland is a swamp is a stream" Conrad: yesterday afternoon Skye, Deepa Filatow (MoE bioterrain specialist) and Chuck Bulmer (NRO soil scientist) had

I think we were fairly clear on the actions that would be required, including:

- Defined wetland boundaries
- Soil profiles and chemistry
- Indicators of wetland vegetation

# If there is any other info that you see as key to building the wetland case, can you let me know.

Skye indicated that perhaps a final discussion with you and the specialists would be beneficial

and the difference between that and the hydrostatic pressure that may be impacting water ponding on the site We did discuss the other factors that be used in the determination of a stream, particularly the presence of a spring,

some benefits for both as far as shared learnings. Is there any possibility of this occurring It would really be beneficial if Skye could be available for a field day to work along side the soils folks, there would be

Finally, it looks like there is no rush to conduct this work, and we will be looking at doing this in the next several weeks.

I would appreciate a responses to the 2 questions.

×

Penticton Natural Resource Operations Ministry of Forests, Lands and Grant Furness 250.490.8277 **Ecosystems Section Head** 

Subject: Info Required To: Pryce, Conrad FLNR:EX Sent: Tuesday, July 5, 2011 3:22 PM From: Furness, Grant A FLNR:EX

property. Conrad: I am attempting to line up some professional assistance to determine if there are any streams on the Agur

Please advise if these are the questions that should be answered:

- <u>+</u> Is there a hydraulic connection between the wetlands on the property and Okanagan River channel.
- ωN Are there any known and defined springs on the site.
- A soil scientist assessment of the extent of the saturated soils to delineate the wetland boundary

I am looking at a few options. Obviously we will likely have the most success with a wetland that meets the stream

definition, so anything in that regard would be extremely useful.

Grant Furness Ecosystems Section Head Ministry of Forests, Lands and Natural Resource Operations Penticton 250.490.8277

# Popowich, Tracy CSNR:EX

Filatow, Deepa ENV:EX	Cc:
Thomson, Skye FLNR:EX; Pryce, Conrad FLNR:EX	To:
Thursday, July 14, 2011 2:45 PM	Sent:
Furness, Grant A FLNR:EX	From:

Skye/Conrad: see below from Deepa. Still looking to confirm that info we gather will be meaningful.

T×.

Grant Furness Ecosystems Section Head Ministry of Forests, Lands and Natural Resource Operations Penticton 250.490.8277

From: Filatow, Deepa ENV:EX Sent: Thursday, July 14, 2011 2:00 PM To: Furness, Grant A FLNR:EX Subject: RE: Weltland assessment methodology

Buried horizons that may indicate flood frequency. Subhygric conditions as indicated by mottling or water table within the top 30cm of soil surface. Identify intact soils horizons in situ or displaced to evaluate indicators of stream or swamp:

smell, lab analysis of soil samples (redox status), mineral horizons, Von post of >6, horizon type and thickness that are swamp or stream indicators e.g., bebb's willow ??) Residual plant structures preserved in the soil (e.g., indicators of shrubs and trees including particularly plant species Glysolic soil types as indicated on site by glyed horizons (including distinct glyeing which has a colour criteria), sulphur

use) Soil nutrient regime D and pH SA (need to follow up with Wil and the lab to see if there are analysis and criteria we can

From: Furness, Grant A FLNR:EX Sent: Thursday, July 14, 2011 9:00 AM To: Filatow, Deepa ENV:EX; Bulmer, Chuck E FLNR:EX Subject: Weltland assessment methodology

be gathering info that will be useful in the determination of whether there is a 'stream' on site Deepa: I spoke with Water Mgmt today, still being a little concerned that when we go out and do the field work, we will

Is this possible?

Looks like you will be accompanied by an Okanagan Ecosystem staff for the field work. We can work out who later depending on dates.

Grant Furness Ecosystems Section Head Ministry of Forests, Lands and Natural Resource Operations Penticton 250.490.8277

# Popowich, Tracy CSNR:EX

Т<u>о</u> Sent: From: Subject: RE: agur mapping Erwin, Corey W ENV:EX Wednesday, November 9, Filatow, Deepa ENV:EX 2011 7:46 AM

dominated tops. The other component is most likely grass/weed dominated (probably more recently disturbed). on the image but I remember that it did connect along that western edge. And yes, the darker, shrub areas are the rose Looks good...I would join the two polygons closest to the dike. There is a little less of the wetter swale type evident here

Corey Erwin, Provincial Terrestrial Ecosystems Ecologist

B.C. Ministry of Environment
 Knowledge Mgt Branch, Environmental Sustainability Division
 (250) 387-7202



From: Filatow, Deepa ENV:EX Sent: Tuesday, November 8, 2011 3:38 PM To: Erwin, Corey W ENV:EX Subject: agur mapping

Any feedback on this initial line work would be very helpful. (note the scale  $\sim$ 1:1500) areas that I think are the rose dominated stuff. I am not sure what the lower-lying grey herbaceous looking stuff is. Here is the start of my line work. My next polygons will outline the treed areas and other set for the purply grey shrub << OLE Object: Picture (Device Independent Bitmap) >>

Deepa Spaeth Filatow, P. Geo. Provincial Bioterrain Specialist Ministry of Environment Knowledge Management Branch

Ecosystem Information Section 101-1690 Powick Rd. Kelowna, B.C., V1X 7G5 (250) 861-7675 Fax (250) 861-7677

# Popowich, Tracy CSNR:EX

From:Erwin, Corey W ENV:EXSent:Tuesday, November 8, 2011 11:40 AMTo:Filatow, Deepa ENV:EXSubject:Agur property veg notes

Hi Deepa,

of the swales but not much else due to the recent scraping of the surface. the tops of the swales intermixed with the other species. There was evidence of willow? in the form of roots on the tops of standing water (at least recently evaporated standing water). Some (Scirpus and Typha) were also found scattered on water) species. These plants were found primarily in association with the bottoms of the swales where we saw evidence Attached is a scanned copy of my veg card....note the fairly abundant presence of 4 aquatic (associated with standing

described as often occurring in areas where surface flooding is minimal but water table is maintained at depth. communities have likely survived due to the abundance of seasonal sub-surface flow. Note - the FIO7 community is were present before the river was diked, when flooding would have occurred more frequently. Since then, these property. So the communities we see today are likely remnants of the floodplains and marsh plant communities which where he notes the scattered presence of Wild rose, Bebb's willow, Sandbar willow, water birch and cottonwood on the (FI08) low/mid bench floodplain plant communities. This is supported by Mike Sarrel's ecological assessment report resembled something similar to a combination of the Water birch – Rose (FI07) & Cottonwood – Snowberry – Rose the Wetlands of British Columbia. What was the shrubby component (visible on the historic air photos) probably characteristics to both the Cattail (Wm05) and Great Bulrush (Wm06) marsh wetland plant communities described in for the majority of the growing season. The wetter plant assemblage and physical site features have similar Overall, the presence of these species suggests that there is water at or near the surface over portions of the property

Make sense? Anything else we need to say?



Corey Erwin, Provincial Terrestrial Ecosystems Ecologist

B.C. Ministry of Environment
 Knowledge Mgt Branch, Environmental Sustainability Division
 (250) 387-7202



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# Popowich, Tracy CSNR:EX

To: Sent: From: Subject: Bulmer, Chuck E FLNR:EX Monday, November 21, 2011 2:33 PM Filatow, Deepa ENV:EX RE: Agur\_Field\_Investigation\_aug2011.docx

Hi Deepa.



cb comments \gur\_Field\_Investi..

A few minor edits, and I compressed the pics...

Chuck Bulmer

Soil Scientist Thompson Okanagan Ministry of Forests Lands Natural Resource Operations

3401 Reservoir Rd Vernon BC V1B 2C7 250-260-4765 internet http://www.for.gov.bc.ca/rsi/index.htm

From: Filatow, Deepa ENV:EX
Sent: Monday, November 21, 2011 10:10 AM
To: Furness, Grant A FLNR:EX; Dyer, Orville N FLNR:EX; Bulmer, Chuck E FLNR:EX; Erwin, Corey W ENV:EX
Subject: Agur\_Field\_Investigation\_aug2011.docx

<< File: Agur\_Field\_Investigation\_aug2011.docx >>

## Field Investigation of Potential Wetland Ecosystems on the Agur Property Oliver, B.C. August 18, 2011

## Introduction

#### Purpose

compiled below. They describe the ecosystem types observed on the property and are intended to of the suspected wetland complex on this property. Field notes and mapping information have been interpretations and patterns detected on the remote imagery to further describe the nature and history defined under the term 'stream' in the water act. Field investigation was also used to validate inform recommendations and options for conservation and rehabilitation. record any soils and vegetation evidence of swamps (wetlands), springs, streams or other features Field investigation was carried out on August 18, 2011 on the Agur property in Oliver B.C. to observe and

## Terminology

wetland ecosystems as defined in Wetlands of British Columbia: a guide to identification. Land and ecosystems follow Field Manual for Describing Terrestrial Ecosystems 2<sup>nd</sup> Edition. Land Management in the field in British Columbia, Canada. Terminology and methodologies for describing the site, soils Management .Hand Book #52 <a href="http://www.for.gov.bc.ca/hfd/pubs/Docs/Lmh/Lmh52.htm">http://www.for.gov.bc.ca/hfd/pubs/Docs/Lmh/Lmh52.htm</a>. As such, the HB25 when making table and page references). This report also uses specific terminology to describe Hand Book #25. http://www.for.gov.bc.ca/hfd/pubs/docs/Lmh/Lmh25-2.htm (here after referred to as This document uses terminology consistent with the methodology for describing terrestrial ecosystems term **wetland** is used as a broad category which includes swamps, marshes, bogs and fens

#### Summary

swamp, marsh and moist meadow ecosystems underlain by glyesolic (wetland) soils. analysis, supports the existence of a nutrient rich, mineral soil, wetland complex, including a mosaic of Information, obtained through air photo interpretation, previous studies, field investigation and soil lab

buried by the piling of trans-located soil and vegetation; other areas were levelled and buried with what surface of the Agur property. Very little original vegetation remained intact on the site. Some areas were appeared to be imported fill. At the time of this investigation most of the vegetation and topsoil were scoured and gouged from the

patch (~1m<sup>2</sup>) around two of the property stakes. Some evidence was also gathered from the piles of Horizons) are common and within 16 cm of the original ground surface. This observation meets the disturbed and trans-located materials and from the scoured areas. Seasonally wetted horizons (Gleyed Soils profile observations were gathered from 2 locations where the soils were left intact in a small

observed at the ground surface indicating processes associated with wetting and evaporation, and a criteria for both gleysolic soil type and hygric moisture regime. Abundant salt and mineral crusts were nutrient rich water source

photos and on the ground. Wildlife observations during the field visit include a water fowl nest, tree willow, rose, and alderberry (Sarell 2011). Wildlife trails and heavy use areas are evident on the air photos and evidence from two prior studies recorded the presence of native vegetation including frog, and a doe and fawn indicating continued wildlife use of this mineral rich wetland area. recorded. These shed light on the patterns of vegetation evident on the aerial photographs. In addition, In addition, observations of re-establishing wetland vegetation and remnants of plant parts were

# Natural History of the Site

vegetation in 2011. Today wetland and aquatic vegetation are re-establishing on the site and there is communities and a high, fluctuating water table (2007 imagery) prior to the removal of top soil and oxbow lakes and wetlands remained where the former Okanagan River channel previously existed. The photos and in the buried horizons observed in the soil profile. After channelization a complex of several site would have been subject to frequent flooding and inundation. This is evidenced on the 1938 air The Ager Agur property is situated on the floodplain of the Okanagan River, a tributary of the Columbia continued use by wildlife species (see Appendix C). characteristics of present day soils and vegetation reflect a site dominated by marsh and swamp plant multiple meandering channels and a complex of wetlands and oxbow lakes. Under these conditions the over a 10000 year period. Prior to the channelization of the Okanagan River the site was occupied by River system. The Okanagan River floodplain has accumulated, since deglaciation of the Okanagan basin,

## Methodology

# **Air Photo Interpretation**

materials. Patterns of shrubby and herbaceous vegetation communities were identified for field photos in 3 dimensions. Bing map and Google imagery were also used as they offered clearer resolution and undulation of the topography were also identified on the air photo. verification of species composition. The old river meanders and oxbow lakes as well as a subtle rolling communities and by Deepa Spaeth Filatow for identifying landforms and indicators of soils and surficial and the ability to zoom in on particular features of interest. Available imagery ranged from 1938 to Air photo interpretation was carried out using available photos and a mirror stereoscope to view the 2007). Initial interpretation of the air photos was carried out by Corey Erwin for identifying vegetation

#### **Field Work**

soils and ecosystems was completed using the <u>Field Manual for Describing Terrestrial Ecosystems in 2<sup>nd</sup></u> Field investigation was carried out on Aug 18, 2011 between 10am and 4pm. Field descriptions of site

terminology used in the field are described in this manual. Edition, BC Ministry of Forests and Range and BC Ministry of Environment 2010. All codes and

drilled at Agur-Auger. Several test soil auger pits were conducted to determine the extent and depth to an intact soil profile was preserved. Soil samples were collected at Agurplot1 to verify hand texturing salt crust present on the low moist rises between the wetter swales was collected for chemical analysis. to verify location and patterns of landform and vegetation on the air photo imagery. A sample of surface locations. In addition, several features on the ground (swales, rises and piled up materials) were GPS'd vegetation, wildlife and hydrologic observations were also recorded in field notes. A hand held GPS mottled horizons and the water table. Photos were taken during the visit using a digital camera. Site, ecosystem site series). A full soil pit description was collected at Agerplot2. A 1m deep auger whole was and to measure pH and mineral composition in order to confirm soil nutrient regime (key in identifying Full site and soils descriptions and a partial vegetation description were completed at Agurplot1 where (Garmin GPS Map 76 Cx) with an accuracy of +-10m was used to record observation, test pit and photo

The following personal were involved with this field investigation:

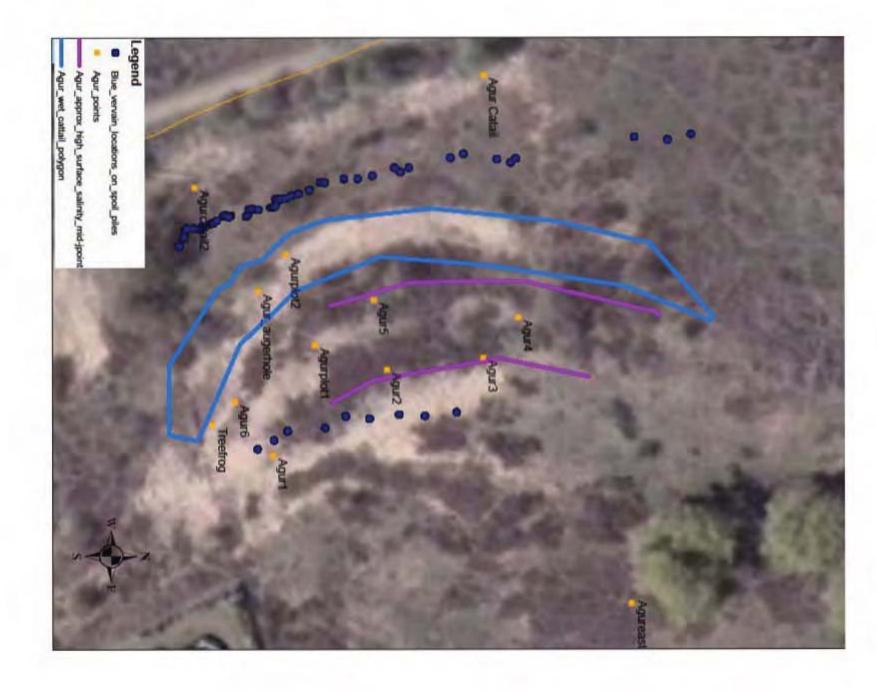
- Deepa Filatow, P.Geo, Provincial Bioterrain Specialist, Officer under the Water Act of B.C
- Corey Erwin, RPBio., P.Ag., Terrestrial Ecosystem Ecologist, Officer under the Water Act of B.C.
- Orville Dyer, R.PBio., Wildlife Biologist, Officer under the Water Act of B.C.
- Chuck Bulmer, P.Ag., Ecologist-Soil Restoration, Officer under the Water Act of B.C

## Lab Analysis

extractable elements, and p.-PH was measured in distilled water solution. Total Carbon and Nitrogen Soils samples were labeled and sealed in freezer Ziploc bags and sent to the MOE Lab for analysis. Lab results are included in Appendix B. Mehlich 3 extraction methods were used in the analysis of for the distribution of sand, silt and clay. were measured and particle distribution analysis was conducted on the mineral particle fraction <2mm

## **Observations**

and correspond to the written observations and photographs captured in this report. The following map shows GPS points lines and polygons collected during the August 18<sup>th</sup> 2011 field visit



#### Soils

inundation, flooding and channel evulsion were active. indicative of flooding and sediment deposition of during inundation, or of historic movement of the salt rich with abundant faunal droppings and a thick Ah horizon. This layer formed over 100s of years seepage and mottling; and gleyed colours common (HB25 table 1.1). The surface horizon is organic and recorded with significant and strong mottling within the top 30cm of the original ground surface. This is may be a key to flood frequency. It is most likely that these predate the diking of the river when channel meanders. Dating methods could be used to determine the age of these buried horizons and wetland complex. Buried horizons were present in both sites which is common in floodplain soils and (swale bottoms) in this complex and represent the soil of the moist meadow/swamp portions of the evaporates (HB25 table 1.1). These two sites were outside the boundary of the wetter marsh units 15:1, deep soils , fine soil textures, no coarse fragments and seepage indicators such as gleying and (Rich) as indicated by an Ah horizon >10 cm, a pH >7.4, a Mull humus form, a C:N ratio ranging from 10and has been removed over the majority of the site. The soil nutrient regime was determined to be E having water removed slowly enough to keep soil wet for most of the growing season; permanent indicative of a soil moisture regime of at least 6 (Hygric). A hygric soil moisture regime is defined as Appendix C. At the two locations with intact soils (Augerplot1 and Agurplot2), gleysolic soils were Full site and soils descriptions are found in Appendix A for site agurplot 1. Photos of 3 soil profiles are in

bottoms and cattail vegetation. Gleyed horizons were found at all test auger pits 1-5. depth of 55cm with water. Observation points Agurcatail 1 and Agurcattail2 correspond to swale aquatic and wetland vegetation was present in these areas. A auger core was extracted, at the way point have intact surface soils horizons. Material characteristics present were still consistent with horizons layer was recorded at a depth of 100-115cm. When this layer was hit the auger whole filled up to a labelled Agurauger, to a depth of 115cm. The top meter of material was a silty loam texture. A gravel materials, see HB25 table 2.29 for definitions of these terms). Soils at the swale bottom were moist and typically found within the top 100cm of the original surface (organic rich, mucky, mesic and humic and aquatic vegetation during field investigation, had all been scoured (approximately 0.5m) and did not The wetter low-lying units indicated by a golden colour on the air photos and by the presence of Typha

drier than the other soil pit locations and was most likely associated with a moist medow The soil pit at Agureast had buried horizons at depth. Mottling was weaker at this site. This location is

#### Vegetation

are primarily only found in association with standing water. Some Scirpus and Typha were also found species, Typha latifolia, Luzula speciosa, Equisetum pratense, Asclepias speciosa and Scirpus lacustris, 2 aquatic plant species, Polygonum amphibium and Alisma plantago aquatic, and 5 typic wetland scattered on the rises between swales. There was also evidence of the presence of woody tree/shrub were found primarily in association with the bottoms of the swales. Of note are the 2 aquatics which

not much else was present due to the recent scraping of the surface species (most likely Salix as noted in the Sarrel report) in the form of roots on the tops of the swales but

notes the scattered presence of Wild rose, Bebb's willow, Sandbar willow, water birch and cottonwood floodplain plant communities. This is supported by Mike Sarrel's ecological assessment report where he combination of the Water birch – Rose (FI07) & Cottonwood – Snowberry – Rose (FI08) low/mid bench or near the surface over portions of the property for the majority of the growing season. The wetter on the property. The shrubby ecosystems visible on the 2007 air photos, but not on site due to clearing, were most likely a Great Bulrush (Wm06) marsh wetland plant communities described in the Wetlands of British Columbia. plant assemblage and physical site features have similar characteristics to both the Cattail (Wm05) and Overall, the presence of the aquatic and associated wetland plant species suggests that there is water at

Locations of this red listed species have been reported to the CDC. indicated by the blue dots on the map. This is a species associated with wetlands and wetland margins. Blue Vervain, a red listed plant species, has revegetated the disturbed and piled up soil materials

#### Other

۵ A nest with egg shells (-most likely larger water fowl) were was also observed at this plot. Observation of These were characterized by gleying and salt crusts at the current ground surface. with a GPS polygon. Two GPS lines were collected at the high point of the rises between the swales. current boundary of the western most swale recovering to cattails and aquatic vegetation was outlined the swale 1. Suspected Blue Vervain population locations were also recorded with GPS way points. The tree frog was recorded with a GPS way point. A doe and her fawn were observed at the south end of

## Discussion

abundance of seasonal sub-surface flow. Note - the FIO7 community is described in the Wetlands of flooding would have occurred more frequently. Since then, these communities likely survived due to the and marsh plant communities. These ecosystems were present before the river was diked, when property, prior to the recent removal of the top soil and vegetation, are likely remnants of the floodplain British Columbia as often occurring in areas where surface flooding is minimal but water table is Based on the information presented above, the plant communities and soils present on the Agur maintained at depth.

Supportive indicators include:

- table); gleyed colours (indicating permanently saturated soils) and prominent mottling within the top 20 cm of soil (indicating imperfectly to poorly drained soils and seasonally fluctuating water
- wetland species occupy the areas corresponding to the golden vegetation patterns on the air photo and correspond to the wettest portion of the wetland complex;

- ٠ ecosystems; and evidence of woody species such as willow and rose on the rises adjacent the wettest
- . swamp ecosystems adjacent the golden areas on the air photos). the presence of mottling, precipitates, and woody vegetative structures on the rises (indicating

organic soil identification include horizon type, thickness and depths. organic horizon depths it is not possible to verify the existence and type of organic soils. The criteria for materials were observed in the disturbed areas but without having intact soil horizons to measure Evidence also suggests that there may have been additional wetland types present on the site. Organic

salt marshes are most common along streams or rivers, where glacial drift is thin enough to for wildlife as it is likely used as a salt lick. In other jurisdictions it has been noted that inland salts have accumulated on the surface at the end of the summer following scour and removal of http://web4.msue.msu.edu/mnfi/communities/community.cfm?id=10664 recharge and evaporative losses. High salt concentration also highlights the value of this area top soil in the spring. This would suggest water inputs high in salts and minerals or continuous Accumulation of salt is high in the swamp units. This is particularly evident because significant permit brine from deep saline aquifers to remain concentrated and emerge at discrete points.

of these high salt concentrations on foundations utilities and other structures. discharge, the river or precipitation inputs? Can the accumulation and concentration of salts and the chemical signature of the water in this area related to ground water inputs, deep ground water discovered at site AgurAuger at a depth of 100cm. What is the extent of this layer? Is there connectivity minerals be used to measure water input rates? The other question not to be overlooked is the impact could indicate groundwater inputs to the wetland complex. This should also be investigated further. Is and inflow of water from the Okanagan River? The second is the high salt levels in the surface layer that potential connectivity of the site to the Okanagan River through a coarse textured gravelly layer Two hydrologic questions arise from this soils and ecosystem investigation. The first relates to the

salt and mineral rich ecosystems associated with the rises between swales. Incorporating the entire aquatic and aquatic species. Preservation of these complexes would also enhance the recovery of the Portions of this valuable marsh, swamp wetland complex are already recovering to a mixture of semidevelopment plan, the ecological values present on this property will be at least partially preserved. rehabilitation efforts. By incorporating wildlife habitat and wetland ecosystem features into the content/uploads/BCWetlandActionPlan\_WSP\_2010.pdf. towards wetland conservation goals outlined in the Wetland Action Plan 2010 http://bcwetlands.ca/wpcomplex and would benefit from a more detailed mapping exercise. Such activities would be a step preserve wildlife habitat. Restoration planning should consider the original patterns of ecosystems in the complex of wetland features into the development plan could create an appealing greenspace and The wetland complexes present on the property represent desirable opportunities for restoration and

## REFERENCES

Sarell, Mike, RPBio.; January 2011; An Initial Ecological Assessment of Lots 4, 5, 6, 7, 8 & 9, D.L. 2450s, SDYD, Plan KAP64042, in Oliver BC; Prepared for the Town of Oliver.

#25. http://www.for.gov.bc.ca/hfd/pubs/docs/Lmh/Lmh25-2.htm Describing Terrestrial Ecosystems 2<sup>nd</sup> Edition. Land Management Hand Book B.C. Ministry of Forests and Range and B.C. Ministry of Environment; 2010; Field Manual for

W.H. MacKenzie and J.R. Moran; 2004; Wetlands of British Columbia: a guide to identification. Land Management .Hand Book

#52; <a href="http://www.for.gov.bc.ca/hfd/pubs/Docs/Lmh/Lmh52.htm">http://www.for.gov.bc.ca/hfd/pubs/Docs/Lmh/Lmh52.htm</a>

http://bcwetlands.ca/wp-content/uploads/BCWetlandActionPlan\_WSP\_2010.pdf. The Wetland Stewardship Partnership; 2010; A Wetland Action Plan for British Columbia;

#### **APENDIX A – FIELD FORMS**

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#### **APPENDIC B – SOIL LAB ANALYSIS RESULTS**

#### **Analysis Report**

#### **Ministry of Environment**

Environmental Sustainability and Strategic Policy Division

Knowledge Management Branch - Laboratory

Requisition #S1218SubmitterDeepa Spaeth Filatow, P. Geo.Office:M.O.E. KMB EcosystemsProjectSoil samples for analysis.Date2011/08/23Date Out:2011/09/15

			Mehli	ch 3 Extra	ctable Ele	ments	-	-	Mehl	ich 3 Extra	ctable Eler	ments	E.C.	pН	Total C and N		Soil Texture		
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1	80	5.34	10629	5.87	176	1051	2265	125	8132	118.6	8666	9.05	22.3	7.96	8.57	0.730	19.4	63.4	17.2
2	4.19	0.33	5409	5.63	170	128	1004	58.6	940	5.44	659	1.63	5.86	8.41	2.67	0.168	9.5	75.2	15.3
4	289	< 0.01	1733	4.38	459	33.1	314	54.5	264	2.19	229	0.63	2.65	8.32	0.42	0.031	10.5	84.4	5.0
5	293	< 0.01	758	3.26	421	28.9	201	59.8	134	0.85	93.1	0.68	1.69	7.48	0.24	0.020	67.3	30.2	2.5
6	20.6	0.44	4571	0.97	837	150	569	112	378	9.10	353	0.69	3.80	8.06	1.38	0.112	19.0	72.2	8.9
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7	109	< 0.01	8082	5.05	255	610	21280	25	99655	10.0	94088	0.37	85.0	8.61	Soil Sample 7 (Salt/Cca?, crust near pit soil site 1)

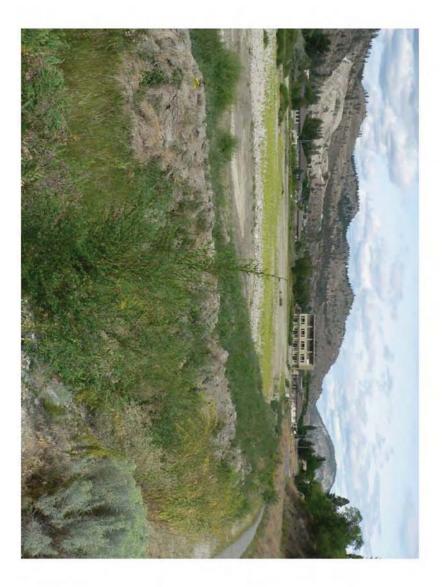
## **APPENDIX C - PHOTOS**

SITE OVERVIEW PHOTOS OF AGUR PROPERY









MOE-2011-00246 366





STONG MOTTLING AT CURRENT SOIL SURFACE AT AUGER 3



AQUATIC VEGETATION Alisma plantago-aquatica









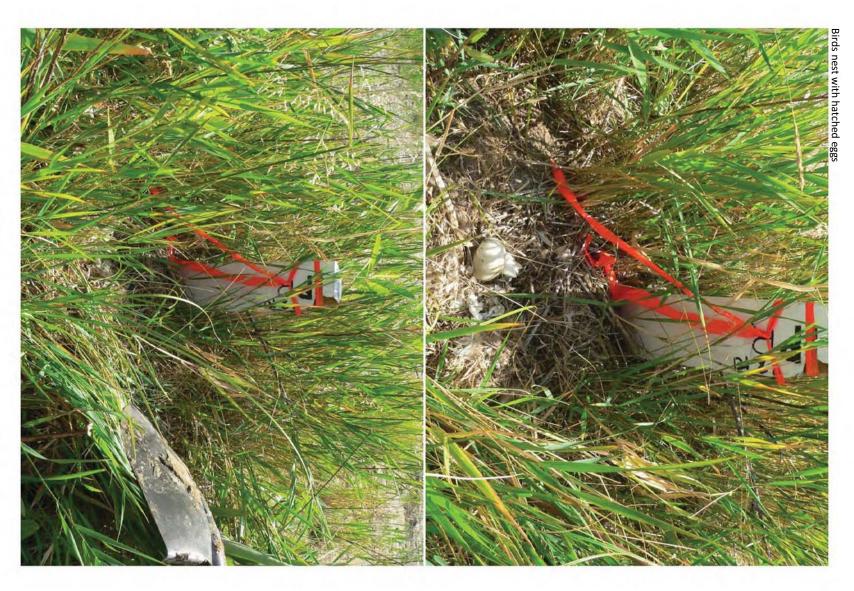




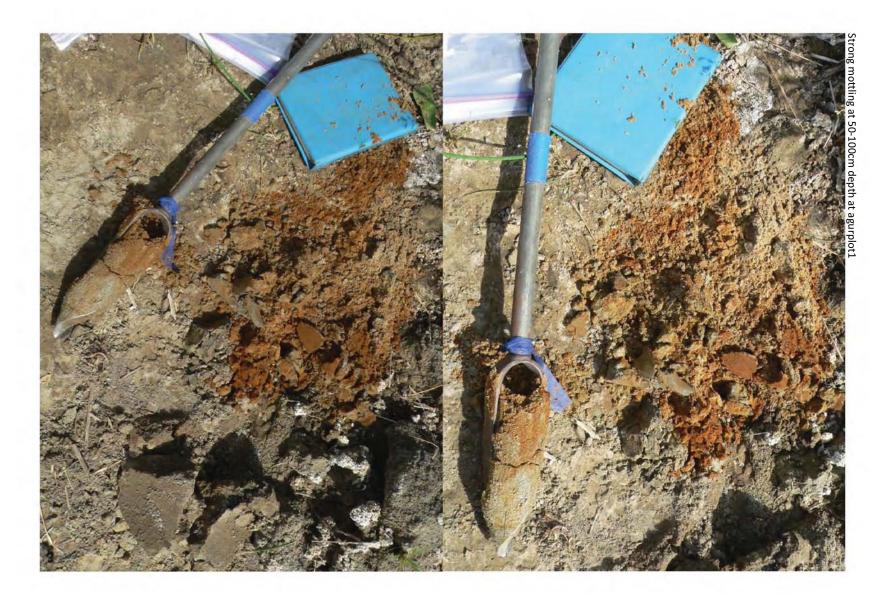














Salt crusts on surface of soil adjacent the soil pit at aagurplot1.

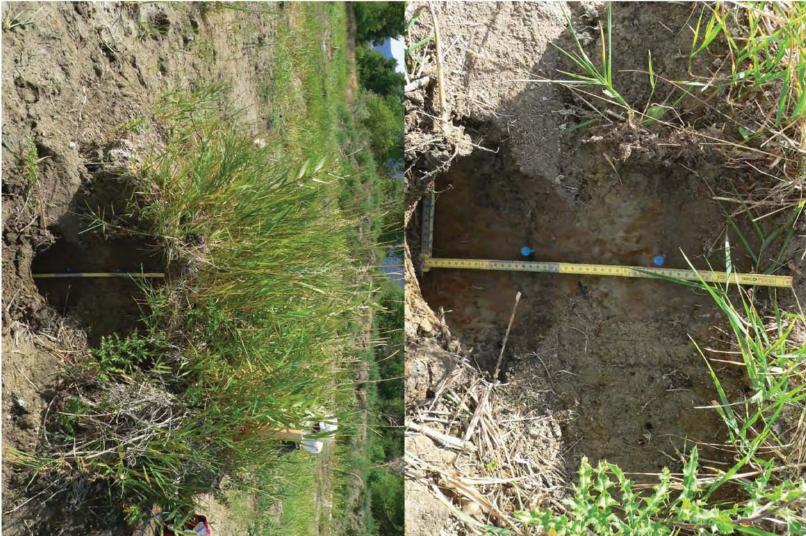


Soil provile at agurplot. Note burried horizons and mottling.













# Popowich, Tracy CSNR:EX

From: Sent: To:

Subject:

Filatow, Deepa ENV:EX Monday, November 21, 2011 10:10 AM Furness, Grant A FLNR:EX; Dyer, Orville N FLNR:EX; Bulmer, Chuck E FLNR:EX; Erwin, Corey W ENV:EX Agur\_Field\_Investigation\_aug2011.docx



Agur\_Field\_Investi gation\_aug20...

# Field Investigation of Potential Wetland Ecosystems on the Agur Property Oliver, B.C. August 18, 2011

### Introduction

### Purpose

compiled below. They describe the ecosystem types observed on the property and are intended to of the suspected wetland complex on this property. Field notes and mapping information have been interpretations and patterns detected on the remote imagery to further describe the nature and history defined under the term 'stream' in the water act. Field investigation was also used to validate inform recommendations and options for conservation and rehabilitation. record any soils and vegetation evidence of swamps (wetlands), springs, streams or other features Field investigation was carried out on August 18, 2011 on the Agur property in Oliver B.C. to observe and

### Terminology

wetland ecosystems as defined in Wetlands of British Columbia: a guide to identification. Land and ecosystems follow Field Manual for Describing Terrestrial Ecosystems 2<sup>nd</sup> Edition. Land Management in the field in British Columbia, Canada. Terminology and methodologies for describing the site, soils Management .Hand Book #52 <a href="http://www.for.gov.bc.ca/hfd/pubs/Docs/Lmh/Lmh52.htm">http://www.for.gov.bc.ca/hfd/pubs/Docs/Lmh/Lmh52.htm</a>. As such, the HB25 when making table and page references). This report also uses specific terminology to describe Hand Book #25. http://www.for.gov.bc.ca/hfd/pubs/docs/Lmh/Lmh25-2.htm (here after referred to as This document uses terminology consistent with the methodology for describing terrestrial ecosystems term **wetland** is used as a broad category which includes swamps, marshes, bogs and fens.

### Summary

swamp, marsh and moist meadow ecosystems underlain by glyesolic (wetland) soils. analysis, supports the existence of a nutrient rich, mineral soil, wetland complex, including a mosaic of Information, obtained through air photo interpretation, previous studies, field investigation and soil lab

buried by the piling of trans-located soil and vegetation; other areas were levelled and buried with what surface of the Agur property. Very little original vegetation remained intact on the site. Some areas were appeared to be imported fill. At the time of this investigation most of the vegetation and topsoil were scoured and gouged from the

patch (~1m<sup>2</sup>) around two of the property stakes. Some evidence was also gathered from the piles of Horizons) are common and within 16 cm of the original ground surface. This observation meets the disturbed and trans-located materials and from the scoured areas. Seasonally wetted horizons (Gleyed Soils profile observations were gathered from 2 locations where the soils were left intact in a small

observed at the ground surface indicating processes associated with wetting and evaporation, and a criteria for both gleysolic soil type and hygric moisture regime. Abundant salt and mineral crusts were nutrient rich water source

photos and on the ground. Wildlife observations during the field visit include a water fowl nest, tree willow, rose, and alderberry (Sarell 2011). Wildlife trails and heavy use areas are evident on the air photos and evidence from two prior studies recorded the presence of native vegetation including frog, and a doe and fawn indicating continued wildlife use of this mineral rich wetland area. recorded. These shed light on the patterns of vegetation evident on the aerial photographs. In addition, In addition, observations of re-establishing wetland vegetation and remnants of plant parts were

# Natural History of the Site

vegetation in 2011. Today wetland and aquatic vegetation are re-establishing on the site and there is communities and a high, fluctuating water table (2007 imagery) prior to the removal of top soil and characteristics of present day soils and vegetation reflect a site dominated by marsh and swamp plant and in the buried horizons observed in the soil profile. After channelization a complex of several oxbow meandering channels and a complex of wetlands and oxbow lakes. Under these conditions the site a 10000 year period. Prior to the channelization of the Okanagan River the site was occupied by multiple system. The Okanagan River floodplain has accumulated, since deglaciation of the Okanagan basin, over continued use by wildlife species (see Appendix C). lakes and wetlands remained where the former Okanagan River channel previously existed. The would have been subject to frequent flooding and inundation. This is evidenced on the 1938 air photos The Ager property is situated on the floodplain of the Okanagan River, a tributary of the Columbia River

### Methodology

# **Air Photo Interpretation**

verification of species composition. The old river meanders and oxbow lakes as well as a subtle rolling and the ability to zoom in on particular features of interest. Available imagery ranged from 1938 to photos in 3 dimensions. Bing map and Google imagery were also used as they offered clearer resolution and undulation of the topography were also identified on the air photo materials. Patterns of shruby and herbaceous vegetation communities were identified for field communities and by Deepa Spaeth Filatow for identifying landforms and indicators of soils and surficial Air photo interpretation was carried out using available photos and a mirror stereoscope to view the 2007). Initial interpretation of the air photos was carried out by Corey Erwin for identifying vegetation

### **Field Work**

soils and ecosystems was completed using the <u>Field Manual for Describing Terrestrial Ecosystems in 2<sup>nd</sup></u> Field investigation was carried out on Aug 18, 2011 between 10am and 4pm. Field descriptions of site

terminology used in the field are described in this manual. Edition, BC Ministry of Forests and Range and BC Ministry of Environment 2010. All codes and

drilled at Agur\_Auger. Several test soil auger pits were conducted to determine the extent and depth to an intact soil profile was preserved. Soil samples were collected at Agurplot1 to verify hand texturing salt crust present on the low moist rises between the wetter swales was collected for chemical analysis. to verify location and patterns of landform and vegetation on the air photo imagery. A sample of surface locations. In addition, several features on the ground (swales, rises and piled up materials) were GPS'd vegetation, wildlife and hydrologic observations were also recorded in field notes. A hand held GPS mottled horizons and the water table. Photos were taken during the visit using a digital camera. Site, ecosystem site series). A full soil pit description was collected at Agerplot2. A 1m deep auger whole was and to measure pH and mineral composition in order to confirm soil nutrient regime (key in identifying Full site and soils descriptions and a partial vegetation description were completed at Agurplot1 where (Garmin GPS Map 76 Cx) with an accuracy of +-10m was used to record observation, test pit and photo

The following personal were involved with this field investigation:

- Deepa Filatow, P.Geo, Provincial Bioterrain Specialist, Officer under the Water Act of B.C
- Corey Erwin, RPBio., P.Ag., Terrestrial Ecosystem Ecologist, Officer under the Water Act of B.C.
- Orville Dyer, R.PBio., Wildlife Biologist, Officer under the Water Act of B.C.
- Chuck Bulmer, P.Ag., Ecologist-Soil Restoration, Officer under the Water Act of B.C

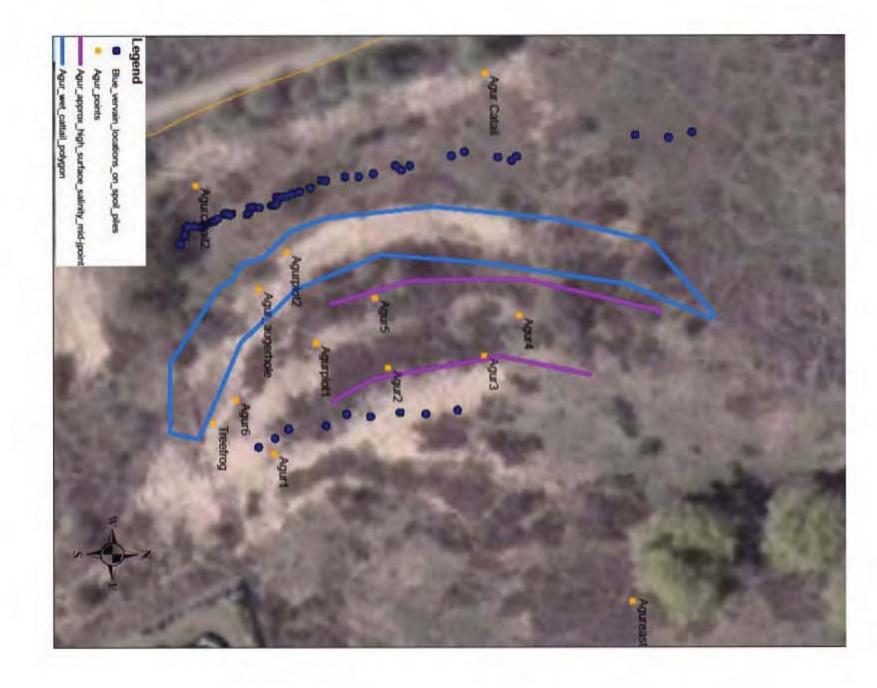
### Lab Analysis

extractable elements. PH was measured in distilled water solution. Total Carbon and Nitrogen were results are included in Appendix B. Mehlich 3 extraction methods were used in the analysis of Soils samples were ladled and sealed in freezer Ziploc bags and sent to the MOE Lab for analysis. Lab distribution of sand, silt and clay. measured and particle distribution analysis was conducted on the mineral particle fraction <2mm for the

### **Observations**

and correspond to the written observations and photographs captured in this report. The following map shows GPS points lines and polygons collected during the August 18<sup>th</sup> 2011 field visit





#### Soils

inundation, flooding and channel evulsion were active. channel meanders. Dating methods could be used to determine the age of these buried horizons and indicative of flooding and sediment deposition of during inundation or of historic movement of the salt rich with abundant faunal droppings and a thick Ah horizon. This layer formed over 100s of years seepage and mottling; and gleyed colours common (HB25 table 1.1). The surface horizon is organic and recorded with significant and strong mottling within the top 30cm of the original ground surface. This is may be a key to flood frequency. It is most likely that these predate the diking of the river when wetland complex. Buried horizons were present in both sites which is common in floodplain soils and (swale bottoms) in this complex and represent the soil of the moist meadow/swamp portions of the evaporates (HB25 table 1.1). These two sites were outside the boundary of the wetter marsh units 15:1, deep soils , fine soil textures, no coarse fragments and seepage indicators such as gleying and (Rich) as indicated by an Ah horizon >10 cm, a pH >7.4, a Mull humus form, a C:N ratio ranging from 10and has been removed over the majority of the site. The soil nutrient regime was determined to be E having water removed slowly enough to keep soil wet for most of the growing season; permanent indicative of a soil moisture regime of at least 6 (Hygric). A hygric soil moisture regime is defined as Appendix C. At the two locations with intact soils (Augerplot1 and Agurplot2), gleysolic soils were Full site and soils descriptions are found in Appendix A for site agurplot 1. Photos of 3 soil profiles are in

aquatic and wetland vegetation was present in these areas. A auger core was extracted, at the way point bottoms and cattail vegetation. Gleyed horizons were found at all test auger pits 1-5. depth of 55cm with water. Observation points Agurcatail 1 and Agurcattail2 correspond to swale layer was recorded at a depth of 100-115cm. When this layer was hit the auger whole filled up to a labelled Agurauger, to a depth of 115cm. The top meter of material was a silty loam texture. A gravel materials, see HB25 table 2.29 for definitions of these terms). Soils at the swale bottom were moist and typically found within the top 100cm of the original surface (organic rich, mucky, mesic and humic have intact surface soils horizons. Material characteristics present were still consistent with horizons and aquatic vegetation during field investigation, had all been scoured (approximately 0.5m) and did not The wetter low-lying units indicated by a golden colour on the air photos and by the presence of Typha

drier than the other soil pit locations and was most likely associated with a moist medow The soil pit at Agureast had buried horizons at depth. Mottling was weaker at this site. This location is

### Vegetation

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#### Other

swale 1. Suspected Blue Vervain population locations were also recorded with GPS way points. The tree frog was recorded with a GPS way point. A doe and her fawn were observed at the south end of the These were characterized by gleying and salt crusts at the current ground surface. with a GPS polygon. Two GPS lines were collected at the high point of the rises between the swales. current boundary of the western most swale recovering to cattails and aquatic vegetation was outlined A nest with egg shells (most likely larger water fowl) were also observed at this plot. Observation of a

### Discussion

abundance of seasonal sub-surface flow. Note - the FIO7 community is described in the Wetlands of flooding would have occurred more frequently. Since then, these communities likely survived due to the and marsh plant communities. These ecosystems were present before the river was diked, when property, prior to the recent removal of the top soil and vegetation, are likely remnants of the floodplain British Columbia as often occurring in areas where surface flooding is minimal but water table is Based on the information presented above, the plant communities and soils present on the Agur maintained at depth.

Supportive indicators include:

- table); gleyed colours (indicating permanently saturated soils) and prominent mottling within the top 20 cm of soil (indicating imperfectly to poorly drained soils and seasonally fluctuating water
- wetland species occupy the areas corresponding to the golden vegetation patterns on the air photo and correspond to the wettest portion of the wetland complex;

- ٠ ecosystems; and evidence of woody species such as willow and rose on the rises adjacent the wettest
- . swamp ecosystems adjacent the golden areas on the air photos). the presence of mottling, precipitates, and woody vegetative structures on the rises (indicating

organic soil identification include horizon type, thickness and depths. organic horizon depths it is not possible to verify the existence and type of organic soils. The criteria for materials were observed in the disturbed areas but without having intact soil horizons to measure Evidence also suggests that there may have been additional wetland types present on the site. Organic

salt marshes are most common along streams or rivers, where glacial drift is thin enough to for wildlife as it is likely used as a salt lick. In other jurisdictions it has been noted that inland salts have accumulated on the surface at the end of the summer following scour and removal of http://web4.msue.msu.edu/mnfi/communities/community.cfm?id=10664 recharge and evaporative losses. High salt concentration also highlights the value of this area top soil in the spring. This would suggest water inputs high in salts and minerals or continuous Accumulation of salt is high in the swamp units. This is particularly evident because significant permit brine from deep saline aquifers to remain concentrated and emerge at discrete points.

of these high salt concentrations on foundations utilities and other structures. discharge, the river or precipitation inputs? Can the accumulation and concentration of salts and the chemical signature of the water in this area related to ground water inputs, deep ground water discovered at site AgurAuger at a depth of 100cm. What is the extent of this layer? Is there connectivity minerals be used to measure water input rates? The other question not to be overlooked is the impact could indicate groundwater inputs to the wetland complex. This should also be investigated further. Is and inflow of water from the Okanagan River? The second is the high salt levels in the surface layer that potential connectivity of the site to the Okanagan River through a coarse textured gravelly layer Two hydrologic questions arise from this soils and ecosystem investigation. The first relates to the

salt and mineral rich ecosystems associated with the rises between swales. Incorporating the entire aquatic and aquatic species. Preservation of these complexes would also enhance the recovery of the development plan, the ecological values present on this property will be at least partially preserved. rehabilitation efforts. By incorporating wildlife habitat and wetland ecosystem features into the content/uploads/BCWetlandActionPlan\_WSP\_2010.pdf. towards wetland conservation goals outlined in the Wetland Action Plan 2010 http://bcwetlands.ca/wpcomplex and would benefit from a more detailed mapping exercise. Such activities would be a step preserve wildlife habitat. Restoration planning should consider the original patterns of ecosystems in the complex of wetland features into the development plan could create an appealing greenspace and Portions of this valuable marsh, swamp wetland complex are already recovering to a mixture of semi-The wetland complexes present on the property represent desirable opportunities for restoration and

### REFERENCES

Sarell, Mike, RPBio.; January 2011; An Initial Ecological Assessment of Lots 4, 5, 6, 7, 8 & 9, D.L. 2450s, SDYD, Plan KAP64042, in Oliver BC; Prepared for the Town of Oliver.

#25. http://www.for.gov.bc.ca/hfd/pubs/docs/Lmh/Lmh25-2.htm Describing Terrestrial Ecosystems 2<sup>nd</sup> Edition. Land Management Hand Book B.C. Ministry of Forests and Range and B.C. Ministry of Environment; 2010; Field Manual for

W.H. MacKenzie and J.R. Moran; 2004; Wetlands of British Columbia: a guide to identification. Land Management .Hand Book

#52; <a href="http://www.for.gov.bc.ca/hfd/pubs/Docs/Lmh/Lmh52.htm">http://www.for.gov.bc.ca/hfd/pubs/Docs/Lmh/Lmh52.htm</a>

http://bcwetlands.ca/wp-content/uploads/BCWetlandActionPlan\_WSP\_2010.pdf. The Wetland Stewardship Partnership; 2010; A Wetland Action Plan for British Columbia;

#### **APENDIX A – FIELD FORMS**

	UMBIA BC ENVIRON	MENT	ID. AGU		OPERT	1 00	LIVER BC	/	_	DSF, CE, C	0,9
	GENERAL A		SITE DIAGRAM								
	LOCATION AGUR	proper	Hors	hul jake-	PLOT # 1						
	FOREST REGION KAM MAPSHE		UTM //	LAT./ 3	14330	Bledistar		etsail			
NO	AIRPHOTO NO.	X CO-ORI	1X A								
F		SITE		100	a se	1					
SCRIP'	PLOT ASSES	SIMENT OF	-		restrict and	1					
	BGC UNIT	SITE SERIES	YPE OF U	TRANS./ DISTRIB.		ECOSE	+++ origina	~ 5 Sur	Jace	DLUE	
DE		GIME EC	DR) SUCC		STRUC STAGE		CLASS WSE	DISTURB. SC	1	PHOTO ROLL OF	v
SITE	ELEV. SLOPE	2 % ASI	PECT	· MESO S POS.	LOPE	SURFAC TOPOG	ST s cha	EXPOS. TYPE	_	FRAME NOS.	
S		SUBSTRATE (%)									
	The soil was a	ORG. MATTER	2	ROCKS	0						
	Intact soil pro	DEC. WOOD		MINERAL SOIL	98						
4	soil was sra	hardnuxa	, INSDA	n). P	risum	able	this	BEDROCK	0	WATER	+
	States marking States marking	yt 'und	listerbe	m). Pr d' du	resum re to	the 1	the like	9	a	WATER	

TERR	AIN TE			25			AL 2		-	SURF		P		GEOMORPH. 1 JU PROCESS 2			PROFILE DIAGRAM						
SOIL	CLASS.				HUN	IUS	FOR	M				Ab											
ROOTI	NG DEPTH	l c	HI CONTRACT	OOT		PE		N		WAT	ER SOUL	RCE G	à	DRA	NAGE	P							
R. Z. P.	ART. SIZE	S		ESTRI		PTH	1	/	cm	SEEPAGE NP cm					D RG.	F-0 *	Bg &						
	ANIC HOR	ZONS/LAYE	RS														THE THERE						
HOR/	DEPTH	FABR			AB.		CAL	AB.	SIZE	PH	COMMENTS (consistency, character, fauna, etc):					- Bq -							
LF	1-0	J	1 vr c	/51	MD.	1	AB.	nu.			only top land lift converses some libric no				mp filere and	Hall & A							
	rest was Ath + menual to section									whom below	to dres												
						-	-				101	the as	the and a										
						-			-	1			11	LXD US	10		- g g						
			-	-	-	-	-		-					-			1 1/4						
MINE	MINERAL HORIZONS/LAYERS														AMM. S								
HOR/	HOR/ DEPTH COLOUR AS			TEXT.		OAF		RAGM		R( AB	SIZE	and the second se	CTURE		COMMENTS (mottles, o		clay films, effervesc., etc						
ZAN	-	10YR 2/2	7	SiL	G	C	S	TOTAL	SHAPE	P	SILE	CLASS	KIND	r-	1	1-20-1	12 1						
-		2.57512		SIL		-	0	0	-	F	V		-	-		lour IOYR 4/							
Ba		7.5YR4/4	7	DIC	-	-	0	0	-	-	V	-		-	Arvelys	its cannot add as St							
Abb	30-38	5V 5/2	1	S	-	0	-	0	-	F	V		-	-			-						
Bg Z		7.5 28341	/		-	2	2	-	-	. 1			-	-		Sand well sorted							
Cg.	53-100	1	7	S	0	0	0	0	1	N				-		sand well se							
Ahl	0-3			51				0					30		An	aluss she	showing This to be Alt						

FS882 (2) HRE 98/5 \* Educated estimate from similar soil conditions.

	SPP. C	COMP. PART.	_	CESSED /	OVER	191	E (A)	SHRU	JB (B)	HER	B (C) MOSS / LICHEN (D)	SURVEYOR(S) C. ERWIN		PLOT NO.	PAGE	OF
	TREES			T	A1 A2	A3	A	B1	B2	В	HERB LAYER (C)		%	MOSS / LICHEN / SEEDLING	(D)	%
						-		•			Typha latif	olia *	A			
	1	In	1Sy	NO	les	\$	ad	ja	ren	A	Luzula par	viflova i	F		1 1	
			130		1	na		-	4	K	Equisetium pr	ratense	F	5		
			ate			1	1		L	/	Asclepias sp		A		11	
			<u>   </u>	-i-		+	÷				Scippus lac	ustris?*	A	< no inflorescen	<u>(b)</u>	
GETATION			<u> </u>	+		+	-	-							+ +	
ATI	SHRUB	BS			in dia			B1	B2	в					1 1	
E	Ros	a	aci	cul	ari	and a		-	-	F		· 11				
5	7					i	1							ADDITIONAL SPECIES	LA	TER %
ZE	- 1					1			-	1		1 1				
-	on	M	DIAN	d.	in		i	-						1	1	
CHER	be	ters	C.En	5	ma	le	5			-	~	i i		-	-	
							i				Polygonum a	nohibium	A	(in standing!	1	_
(filler)	1	Į.					- 1		-	$\bigcirc$	Alisma plantaq	0- BOWERER*	A		reas	
						1	i.		4	~		11		where water oile	Send	
							-		-	-	► aquatic sp.	ecies		0 23 1	tion	
									i					of year (ie: lake	Sun	never
	NOTES	S:	1	de	2110	₩.	5	0	qui	287	ic specie	es; A=Al	au	ndant / Fà Few		

FS882 (3) HRE 98/5

#### **APPENDIC B – SOIL LAB ANALYSIS RESULTS**

#### **Analysis Report**

#### **Ministry of Environment**

Environmental Sustainability and Strategic Policy Division

Knowledge Management Branch - Laboratory

Requisition #S1218SubmitterDeepa Spaeth Filatow, P. Geo.Office:M.O.E. KMB EcosystemsProjectSoil samples for analysis.Date2011/08/23Date Out:2011/09/15

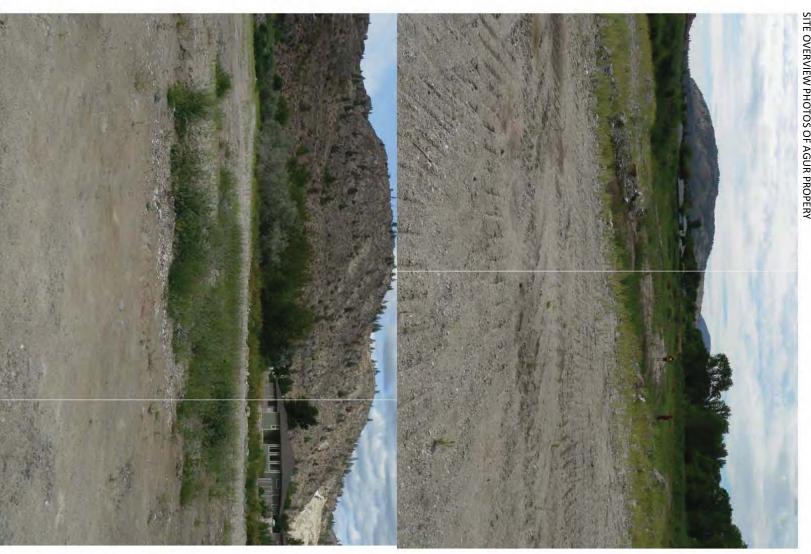
	Mehlich 3 Extractable Elements								Mehl	ich 3 Extra	ctable Ele	ments	E.C.	pН	Total C and N		Soil Texture		
Sample	Al	В	Ca	Cu	Fe	K	Mg	Mn	Na	Р	S	Zn	Cond.	(H2O)	С	Ν	Sand	Silt	Clay
	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mS/cm	pН	%	%	%	%	%
1	80	5.34	10629	5.87	176	1051	2265	125	8132	118.6	8666	9.05	22.3	7.96	8.57	0.730	19.4	63.4	17.2
2	4.19	0.33	5409	5.63	170	128	1004	58.6	940	5.44	659	1.63	5.86	8.41	2.67	0.168	9.5	75.2	15.3
4	289	< 0.01	1733	4.38	459	33.1	314	54.5	264	2.19	229	0.63	2.65	8.32	0.42	0.031	10.5	84.4	5.0
5	293	< 0.01	758	3.26	421	28.9	201	59.8	134	0.85	93.1	0.68	1.69	7.48	0.24	0.020	67.3	30.2	2.5
6	20.6	0.44	4571	0.97	837	150	569	112	378	9.10	353	0.69	3.80	8.06	1.38	0.112	19.0	72.2	8.9
	Requisiti	on #	S1219																

Mehlich 3 Extractable Elements Mehlich 3 Extractable Elements E.C. pН Sample B Ca Cu Fe K Mg Mn Na Р S Zn Cond. (H2O) ID Al mg/Kg mS/cm pН Soil Sample 7 (Salt/Cca?, crust near pit soil site 7 109 < 0.01 8082 5.05 255 610 21280 25 99655 10.0 94088 0.37 85.0 8.61 1)

> MOE-2011-00246 401

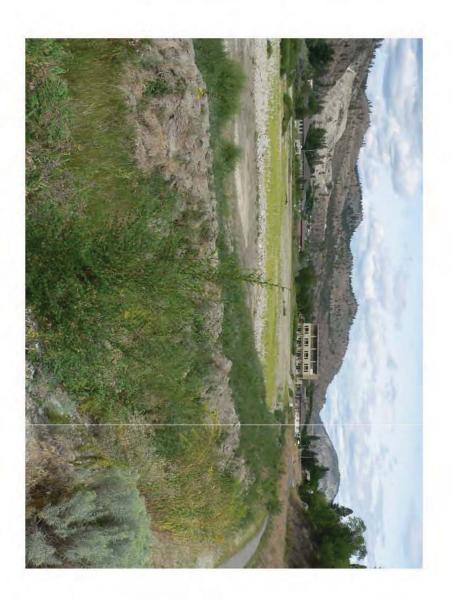
## **APPENDIX C - PHOTOS**

SITE OVERVIEW PHOTOS OF AGUR PROPERY













STONG MOTTLING AT CURRENT SOIL SURFACE AT AUGER 3



AQUATIC VEGETATION Alisma plantago-aquatica











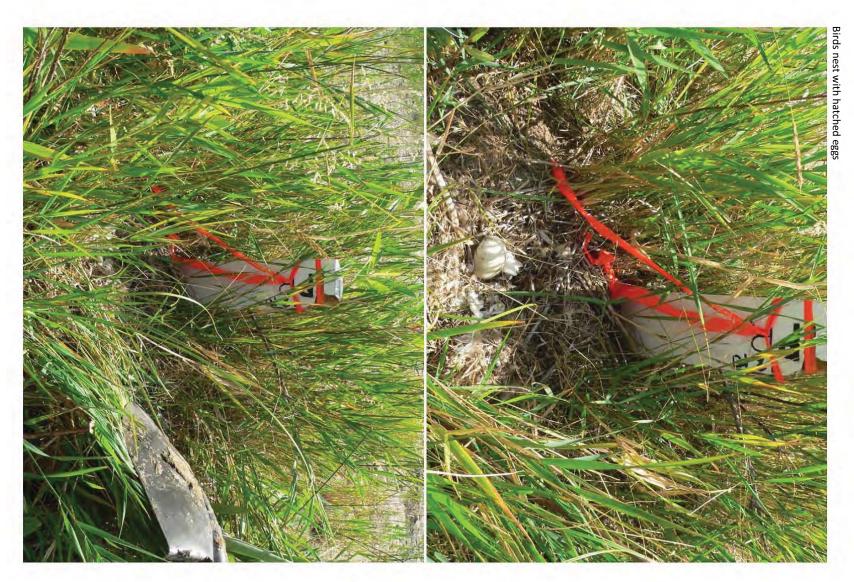
Typha and Scirpus re-vegetating swales.





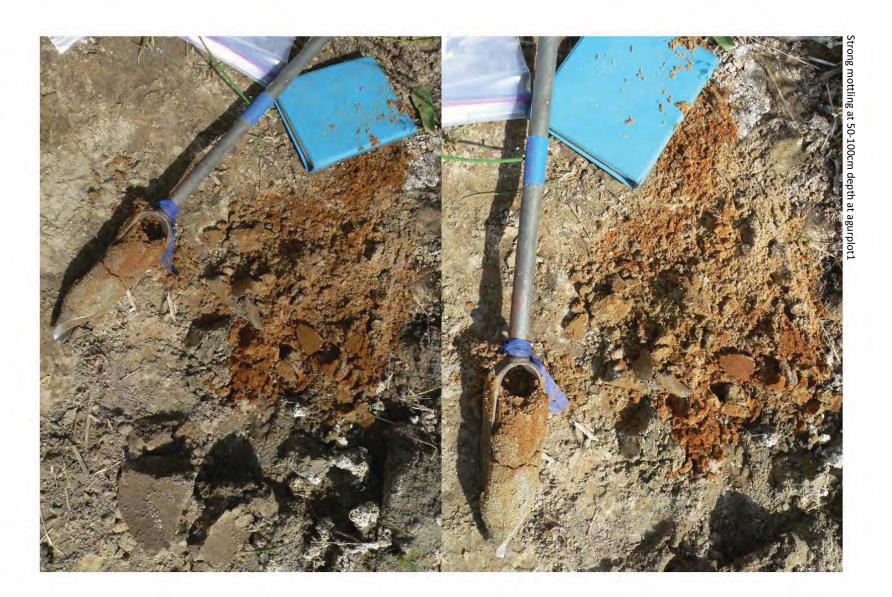






AGURPLOT1







Salt crusts on surface of soil adjacent the soil pit at aagurplot1.



Soil provile at agurplot. Note burried horizons and mottling.

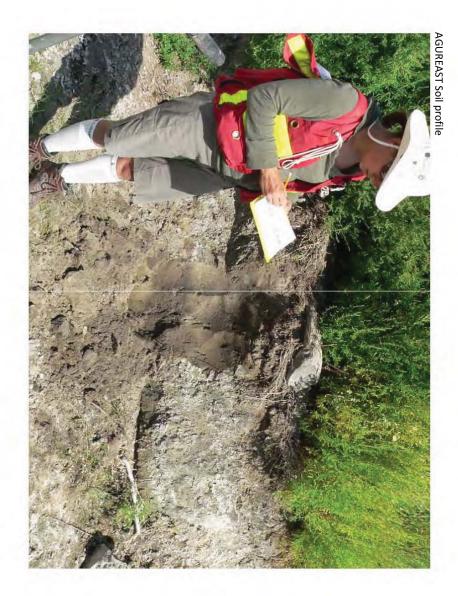












Popowich, Tracy CSNR:EX
From: Sent: To: Subject: Erviay, August 19, 2011 10:24 AM Dyer, Orville N FLNR:EX; Bulmer, Chuck E FLNR:EX; Filatow, Deepa ENV:EX RE: cattail biology and growth
Interestingthanks. C
Corey Erwin, Provincial Terrestrial Ecosystems Ecologist
B.C. Ministry of Environment Knowledge Mgt Branch, Environmental Sustainability Division K (250) 387-7202
P Please consider the environment before printing.
Original Message From: Dyer, Orville N FLNR:EX Sent: Friday, August 19, 2011 10:23 AM To: Bulmer, Chuck E FLNR:EX; Erwin, Corey W ENV:EX; Filatow, Deepa ENV:EX Subject: cattail biology and growth
Broadleaf cattail can be highly productive. In a single growing season, a plant grown from seed produced 34 aerial shoots that were 18 to 24 inches (46-61 cm) tall, 29 shoots that were 4 to 18 inches (10-46 cm) tall, 35 shoots measuring 2 to 4 inches (5-10 cm), and 104 lateral buds [238].
May be over 200000 seeds from one plant Seeds likely persist for many years in soil
http://www.fs.fed.us/database/feis/plants/graminoid/typlat/all.html#INTRODUCTORY
Orville Dyer RPBio Ecosystems Biologist Ministry of Natural Resource Operations, Penticton 102 Industrial Place, Penticton, BC, V2A 7C8 Phone (250) 490-8244 Fax (250) 490-2231 email:orville.dyer@gov.bc.ca
Original Message From: Dyer, Orville N FLNR:EX Sent: Thursday, August 18, 2011 6:26 PM To: Filatow, Deepa ENV:EX; Bulmer, Chuck E FLNR:EX; Erwin, Corey W ENV:EX Subject: Agur property map with gps
Ŧ

MOE-2011-00246 429

Ν

Let me know if you want me to change anything. Thanks for the help. Very interesting for me to see your work.

### Popowich, Tracy CSNR:EX

Т<u>о</u> Sent: From: Attachments: Subject: Erwin, Corey W ENV:EX Friday, November 18, 2011 3:21 PM Filatow, Deepa ENV:EX RE: Field Investigation Summary.docx Field Investigation Summary.docx

discussion. I wouldn't try to make recommendations now other than a few possible suggestions to close out your interp, field work, lab analysis, etc..), Observations (soils & veg) & Discussion (summary of findings)? sections - maybe Intro {purpose, terminology, background (natural history), Methodologies (air photo ok I took a stab at editing it. I didn't move any of the text around but I would suggest minimizing the

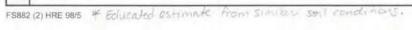
From: Filatow, Deepa ENV:EX Sent: 18 November 2011 13:38 To: Erwin, Corey W ENV:EX Subject: Field Investigation Summary.docx

Pages 431 through 435 redacted for the following reasons:

	RITISH UMBIA		RY OF FO			JECT AGU	R PR	COPERT	1 0	LIVER R	BC	AQUR PLOT FIELD NO.		SURVEYOR(S) DSF, CE, CL	3,01	
					LOC	ATION	N					SIT	E DI	AGRAM		
	GENERAL	AG	UR P	nope	ity	Oli	un B	SC .				Mars	de-	PLOT # 1		
	FOREST REGION	AM M	APSHEET		UTM ZONE	11	LAT./ 3 NORTH.	14330	LONG	154515	87	Bled star		- A Tiest	1	
NO	AIRPHOTO NO.	AIRPHOTO X CO-ORD. Y CO-ORD. MAP										And	1	- A J	A	
F		SITE INFORMATION														
SCRIPTION	PLOT REPRESEN	PLOT ASSESS MONT OF AGUR PROPERTY FOR PROBENCE, EXTENT T REPRESENTING TYPE OF WETLANDS.												and i want		
SC	BGC UNIT	BGC SITE				TRANS. DISTRIE			ECOSECTION			diamad surface				
DE	MOISTURE REGIME	MOISTURE C NUTRIENT EC			(D?)	D?) SUCCESS. STATUS			Ia CLASS WS(6		bles	DISTURB. SQ		PHOTO ROLL OF	ROLL OFV	
SITE	ELEV.	ELEV. M. SLOPE 2 % ASPECT " MESO SLOPE SURFACE TOPOG. ST S Chi								cha	EXPOS. TYPE		FRAME NOS.			
S		NOTES										SUB	STR	ATE (%)		
	The so	The soil was sampled here where a ~Im2 pedon of original									nd	ORG. MATTER	2	ROCKS	0	
	intact	intact soil proble was preserved where surrounding										DEC. WOOD	0	MINERAL SOIL	98	
		Soil was scoundauxus (~Stem). Prisumably this											_			

stakes marking property boundaries or the like. Stakes marking property boundaries or the like. Stakes marking was also in tact on top of the pedon + a birds nest was on top.

TERRAIN TEXTURE 1 25														GEOMORPH. 1 J. U PROCESS 2		IIU	PROFILE DIAGRAM		
SOIL CLASS.					HU	HUMUS FORM						HYDR	OGEO.	1	-	la	Ah		
ROOTIN	G DEPTH	1 0	413	ROOT		YPE		N		WAT	R SOU	RCE G	à	DRAIN	AGE	P	P-		
R. Z. P	RT. SIZE	5		RESTR		EPT	н	-	cm	SEE	AGE	NP	cm	FLOO	D RG	E-0 #	Bg		
ORGA	NIC HOR	ZONS/LAYE		L'II LIV				-		1							AKE -		
HOR/	DEPTH	FABR			MYCEL		ECAL		OTS SIZE	PHY	COMM	ENTS (c	onsister	cy, cha	aracter.	fauna, etc):	- Ba .		
LAYER	-	STRUCTURE	VP	OST	AB.	+	AB	AB.	SIZE	1	-					10			
LF	1-0		+	-	-	+	-		-	-						when before where	als 5 0		
-	-		+		_	+			-	-							- ann		
-	-	1	-	-		-	_	-	-	-	_	offic analysis reading were					- S Cg =		
	-	1	-	-	_	+	_	-	-	-	-			_			- 4 2 0 9		
		1											-		_		ANN S		
HOR/	DEPTH	COLOUR	ASP	TEXT	1 %	COA	RSEI	FRAGM	ENTS	R	OOTS	STRUC	CTURE	IDH/	COMM	ENTS (mottles	lay films, effervesc., etc		
LAYER	DEPTH		Aar	IEAL	G	C		TOTAL		AB.	SIZE	CLASS	KIND	V	COMM	ENTO (monea. c	ady minis, one result on		
ZAh1	0-16	10722/2	17	SiL	0	Ū.	19	0	1	P	V				dryre	OUT INTRY!	2-1		
Bal	16-30	2.575/2	17	SIL	12		0	0	1	F	V				manahas	and when some St.			
Abb	30-38		17		0		12	2	-	F	V								
Baz	38-55	5×5/2	7	S	0	0	6	0	1	1					Char S	and well sorted			
Ca	53 100		17	S	0	0	0	0		N						same well so			
Ant	0-3		1	5				0		-			30				is This to be A		
- COLLA			_	10	-	_	-	~			-	-		-	111		of D proper.		



		% COVER BY LAYER	TREE (A)	SHRUB	(B) HE	B (C) MOSS / LICHEN (D) SURVEYOR(S)	2	PLOT NO.	PAGE	OF
	TREES	A1 A2	A3 A	B1	B2 B	HERB LAYER (C)	%	MOSS / LICHEN / SEEDLING	; (D)	%
	121			2		Typha latifolia , 7	F A			
	In isu	vales	00	iars	enA	Luzula parviflora 1	F		ii	
	10 50	andin	Left 1		X	Equisetum pratense	F	- S		
	wate	1 1 1	1		1	Asclepias speciosa 1	A		i i	
	1 1		× 1			Seinous lacustris ??	* A	to no inflorescer	ich 1	
Z										
GETATION				Li					1 1	
AT	SHRUBS			B1 8	32 B	i i	_			
E	Rosa acia	ularis			F	· · · · · · · · · · · · · · · · · · ·			<u> </u>	
U	7		11	+++		i ;	_	ADDITIONAL SPECIES	LA	YER %
VE	· ( .		+ + -	 	_	1 1	_			
-	on mound	x in	1	 					1	$\square$
	between	swal	25	 			-	5		_
				 		Polygonum amphibium!	* A	Sin standing!	-	_
	1		1		$\Lambda$	Alisma plantago-aquatica	* A	) water or 10	reas	_
			<u>+i</u>	 	( )		_	where water or		F
			++-		$\geq$	aquatic species			riak	
					<u> </u>			of year (ie: lat		need
	NOTES: 💑 🗲	aenot	es	aq	unt	ic species; A=	Abu	ndant / F2 Few		
FS882	2 (3) HRE 98/5									

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#### **Analysis Report**

Ministry of Environment Environmental Sustainability and Strategic Policy Division Knowledge Management Branch - Laboratory

 Requisition #
 \$1218

 Submitter
 Deepa Spath Filatow, P. Geo.

 Office:
 M.O.E. KMB Ecosystems

 Project
 Soil samples for analysis.

 Date
 In:

 In:
 2011/08/23

 Date Out:
 2011/09/15

	Mehlich 3 Extractable Elements							Mehl	ich 3 Extra	ctable Eler	ments	E.C.	pН	Total C and N		So	oil Texture		
Sample	Al	В	Ca	Cu	Fe	K	Mg	Mn	Na	Р	S	Zn	Cond.	(H2O)	С	Ν	Sand	Silt	Clay
	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mS/cm	pН	%	%	%	%	%
1	80	5.34	10629	5.87	176	1051	2265	125	8132	118.6	8666	9.05	22.3	7.96	8.57	0.730	19.4	63.4	17.2
2	4.19	0.33	5409	5.63	170	128	1004	58.6	940	5.44	659	1.63	5.86	8.41	2.67	0.168	9.5	75.2	15.3
4	289	< 0.01	1733	4.38	459	33.1	314	54.5	264	2.19	229	0.63	2.65	8.32	0.42	0.031	10.5	84.4	5.0
5	293	< 0.01	758	3.26	421	28.9	201	59.8	134	0.85	93.1	0.68	1.69	7.48	0.24	0.020	67.3	30.2	2.5
6	20.6	0.44	4571	0.97	837	150	569	112	378	9.10	353	0.69	3.80	8.06	1.38	0.112	19.0	72.2	8.9
	Requisiti	on #	S1219																

Mehlich 3 Extractable Elements Mehlich 3 Extractable Elements E.C. pН Sample Al В Ca Cu Fe Κ Mg Mn Na Р S Zn Cond. (H2O) ID mg/Kg pН Soil Sample 7 (Salt/Cca?, crust near pit soil site 7 109 < 0.01 8082 5.05 255 610 21280 25 99655 10.0 94088 0.37 85.0 8.61 1)

> MOE-2011-00246 439

Page 440 redacted for the following reason:

### Popowich, Tracy CSNR:EX

Subject: Final re	Cc: Dyer, O	To: Filatow,	Sent: Thursda	From: Dawsor
-inal report and invoice for analysis of 6 soil samples submitted by Deepa, 2011/08/23	Dyer, Orville N FLNR:EX; Bulmer, Chuck E FLNR:EX; LaJeunesse, Annette M CSNR:EX	Filatow, Deepa ENV:EX	Thursday, September 15, 2011 3:40 PM	Dawson, Clive R ENV:EX

Hello Deepa, Orville and Chuck,

Here are the analysis results for the 5 soil samples and 1 crust sample sent in august  $23^{rd}$ 

the combined invoices? Orville, could you please supply me with an account number and authorization to initiate a JV for the \$296.50 charge for

Thanks all for making use of our lab's services!

http://www.for.gov.bc.ca/hre/lab/index.htm Ph: (250) 952-4133 Fx: (250) 952-4119 Clive.Dawson@gov.bc.ca Ship to: 4300 North Road, Victoria, B.C. V8Z 5J3 Mail to: PO Box 9536 STN PROV GOVT, Victoria, B.C. V8W 9C4 **Technical Services (Laboratory) Knowledge Management Branch Environmental Sustainability Division B.C. Ministry of Environment** Supervisor, Analytical Chemistry Services Clive R. Dawson Regards,





S1218Final..xls Invoice\_S1218110 915.pdf

S1219Final..xls 915.pdf

Invoice\_S1219110

MOE-2011-00246 441

From: Sadowy, Amber ENV:EX Sent: Thursday, September 15, 201 To: Dawson, Clive R ENV:EX Subject: Deepa	2011 2:44 PM
From: Filatow, Deepa ENV:EX Sent: Thursday, August 25, 2011 3	3:59 PM
<b>To:</b> Sadowy, Amber ENV:EX <b>Cc:</b> Bulmer, Chuck E FLNR:EX; Dyer, Orville N FLNR:EX <b>Subject:</b> RE: soil samples	, Orville N FLNR:EX
Hi Amber, For the 5 soil samples (#1-#6 {I thinl	Hi Amber, For the 5 soil samples (#1-#6 {I think I skipped number #5))we will do all the analysis listed below.
Basic handling Drying/Seiving Partical size distribution Electrical conductivity (water)	
pH (water) Total C and N Mehlich III extraction for Al, B, Ca, Cu, Fe, K, Mg, Mn, Na, P, Zn	u, Fe, K, Mg, Mn, Na, P, Zn
For the salt sample (#7) We want pH and electrical conductivity and the extractable tell us what the dilution and the amount of the extractable Please send the invoice to Orville and cc Orv, Chuck and De	For the salt sample (#7) We want pH and electrical conductivity and the extractable elements but suspect it may just dissolve. In which case just tell us what the dilution and the amount of the extractable. Please send the invoice to Orville and cc Orv, Chuck and Deepa with results.
lf you have any questions please contact Chuck or myself Cheers Deepa	ntact Chuck or myself.
<b>Deepa Spaeth Filatow, P.Geo</b> Provincial Bioterrain Specialist  Knov	<b>Deepa Spaeth Filatow, P.Geo</b> Provincial Bioterrain Specialist  Knowledge Management Branch   Ministry of Environment   250-861-7675
From: Sadowy, Amber ENV:EX Sent: Monday, August 22, 2011 8:4 To: Filatow, Deepa ENV:EX Subject: FW: soil samples	8:41 AM
Hi Deepa,	
I've provided you with our cost per	I've provided you with our cost per sample, where noted please specify which analysis you would like:
Basic Handling Drying/Seiving	\$2.75 \$3.75

Amber.5adowy@gov.bc.ca Ph: 250.952.4136 Fx: 250.952.4119
---

From: Filatow, Deepa ENV:EX Sent: Friday, August 19, 2011 4:47 PM To: Dawson, Clive R ENV:EX Cc: Dyer, Orville N FLNR:EX; Bulmer, Chuck E FLNR:EX Subject:

Hi Clive,

I have 6 soil samples. They are field moist in zip lock bags on the way to you. Could you give me a total price for required analysis and one with optional analysis added on.

you have a chart in your office. I did all my colours moist crushed. Also I missed getting a Muncel colour on the 2 top horizons (sample #1 and 2) any chance you could get that for me? Do

analysis. Once we have the price we will get confirmation from Orville (or Grant) and account coding before we proceed with the

### Required

Particle size distribution Electrical conductivity pH Organic Carbon (and N)

#### Optional

Exchangeable cations Extractable trace metals

# Please contact me if you have any questions.

Cheers

#### Deepa

Deepa Spaeth Filatow, P. Geo. Provincial Bioterrain Specialist Ministry of Environment Knowledge Management Branch Ecosystem Information Section 101-1690 Powick Rd. Kelowna, B.C., V1X 7G5 (250) 861-7675 Fax (250) 861-7677

MOE-2011-00246 444



## **Analysis Report**

### **Knowledge Management Branch - Laboratory Ministry of Environment Environmental Sustainability and Strategic Policy Division**

Requisition # Submitter

S1218

Sample		Date Out:	Date In:	Project	Office:	Submitter
Al mg/Kg						
B mg/Kg		C1/60/1107	2011/08/23	Soil samples for analysis	M.O.E. KMB Ecosystems	Deepa Spaeth Filatow, P. Geo
Ca mg/Kg	Meh			for analysis.	3 Ecosystems	h Filatow, P.
Cu mg/Kg	Mehlich 3 Extractable Elements				51	Geo.
Fe mg/Kg	table Elemer					
K mg/Kg	nts					
Mg mg/Kg						
Mn mg/Kg						

**4** 0 **4** 10

80 4.19 289 293 20.6

10629 5409

5.87 5.63

< 0.01 < 0.01 5.34 0.33

758 4571 1733

4.38 3.26 0.97

421 837 459 176 170

1051 128 33.1 28.9 150

54.5 58.6

59.8 112

2265 1004 314 201 569

125

0.44



# **Analysis Report**

### **Knowledge Management Branch - Laboratory Ministry of Environment Environmental Sustainability and Strategic Policy Division**

9 4 N	3 2	1	Sample	Date Out:	Date In:	Project	Office:	Submitter	<b>Requisition</b> #
134 378	940 264	8132	Na Mg/Kg		• •				#
0.85 9.10	5.44 2.19	118.6	mennich o Extractable Elements p S mg/Kg mg/Kg i	2011/09/15	2011/08/23	Soil samples for analysis.	M.O.E. KMB Ecosystems	Deepa Spaeth Filatow, P. Geo	S1218
93.1 353	659 229	8666	mg/Kg			for analysis.	B Ecosystems	1 Filatow, P.	
0.68 0.69	1.63 0.63	9.05	nts Zn mg/Kg	2				Geo.	
1.69 3.80	5.86 2.65	22.3	E.C. Cond. mS/cm	С П					
7.48 8.06	8.41 8.32	7.96	рн (H2O) <b>рН</b>	<b>5</b>					
0.24 1.38	2.67 0.42	8.57	Total Cand N C N % %						
0.020 0.112	0.168	0.730	and N %						

MOE-2011-00246 447



# **Analysis Report**

### **Knowledge Management Branch - Laboratory Ministry of Environment Environmental Sustainability and Strategic Policy Division**

J	4	3	2	1		Sample		Date Out:	Date In:	Project	Office:	Submitter	Requisition #
19.0	67.3	10.5	9.5	19.4	%	Sand		K)	•		ľ	I	
72.2	30.2	84.4	75.2	63.4	%	Silt	Soil Texture	2011/09/15	2011/08/23	Soil samples for analysis	M.O.E. KMB Ecosystems	Deepa Spaeth Filatow, P. Geo	S1218
8.9	2.5	5.0	15.3	17.2	%	Clav				for analysis.	Ecosystems	Filatow, P. (	
Soil Sample 6 (0-10cm, Agur/Auger, Swale bottom)	Soil Sample 5 (Bg 34-50+cm, sample from 37-45cm)	Soil Sample 4 (Bg 13-27cm)	Soil Sample 2 (Aho-13cm)	Soil Sample 1 (Oh or Ah? 4-0cm)		D						Jeo.	

MOE-2011-00246 448

Victoria, BC V8W 9N3 P.O. Box 9519 STN PROV GOVT NRO Corporate Service - Client Services Branch Tel: (250) 387-9873 Fax: (250) 356-9239

Page 1

**B.C. Ministry of Environment** 

# Please E-mail account number and JV authorization to clive.dawson@gov.bc.ca.

\$265.00	ue:	Total Due:	
\$50.00	0	\$10.00	Z
\$58.75	0	Extractables \$11.75	Extrac
\$12.50	0	stor \$2.50	Factor
\$16.25	0	\$3.25	<u> </u>
\$37.50	0	(SP) \$7.50	vity (SP)
\$18.75	0	rushing/Sieving \$3.75	rushin
\$13.75	0	arge \$2.75	Charge
\$57.50	0	\$11.50	Size
Subtotal	% DISC.	Base Price	on

Delivered Product

\$265 00	IP.	Total Due:			
\$50.00	0	\$10.00	%C and N	ъ	S-00001218
\$58.75	0	\$11.75	Mehlich Extractables	ъ	S-00001218
\$12.50	0	\$2.50	Moisture Factor	ъ	S-00001218
\$16.25	0	\$3.25	рН (Н2О)	ъ	S-00001218
\$37.50	0	\$7.50	Conductivity (SP)	ъ	S-00001218
\$18.75	0	\$3.75	Drying/Crushing/Sieving	Сī	S-00001218
\$13.75	0	\$2.75	Handling Charge	ъ	S-00001218
\$57.50	0	\$11.50	Particle Size	Сī	S-00001218
Subtotal	% Disc.	Base Price	Description	Amount	Requisition



Ministry of Environment Knowledge Management Branch Analytical Chemistry Section

INVOICE

September 15, 2011

Orville Dyer B.C. MFLNR Regional Operations - Okanagan 102 Industrial Place

<u>.</u>

Canada V2A 7C8 Penticton, B.C.

Attention: **Orville Dyer** 

Description: Preparation and analysis of 5 soils submitted by Deepa Spaeth Filatow, P. Geo., August 23, 2011.



# **Analysis Report**

# Environmental Sustainability and Strategic Policy Division Knowledge Management Branch - Laboratory **Ministry of Environment**

Sample		Date Out:	Date In:	Project	Office:	Submitter	Requisition #
Al mg/Kg							++
B mg/Kg		2011/09/15	2011/08/23	Soil samples for analysis	M.O.E. KMB Ecosystem	Deepa Spaeth Filatow, P. Geo	S1219
Ca Cu mg/Kg mg/Kg	Meh			for analysis.	3 Ecosystems	h Filatow, P.	
Cu Fe mg/Kg mg/Kg	Mehlich 3 Extractable Element					Geo.	
Fe K mg/Kg mg/Kg	table Elemer						
K mg/Kg	nts						
Mg mg/Kg							
Mn mg/Kg							

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# **Analysis Report**

### Knowledge Management Branch - Laboratory **Ministry of Environment Environmental Sustainability and Strategic Policy Division**

	Sample	Date Out:	Date In:	Project	Office:	Submitter	Requisition #
	Ma Na mg/Kg						
	Mehlich 3 Extractable Element P S g mg/Kg mg/Kg	2011/09/15	2011/08/23	Soil samples for analysis	M.O.E. KMB Ecosystems	Deepa Spaeth Filatow, P. Geo	S1219
	ractable Elements S Zn mg/Kg mg/Kg			for analysis	3 Ecosystem	h Filatow, P	
	ents Zn mg/Kg			·	IS	. Geo.	
	E.C. Cond. mS/cm						
	рН (H2O) <b>рН</b>						
Soil Sample 7	D						

1

99655

10.0

94088

0.37

85.0

(Salt/Cca?, crust near 8.61 pit soil site 1)

451	MOE-2011-002
	)0246

NRO Corporate Service - Client Services Branch Tel: (250) 387-9873 Fax: (250) 356-9239 Victoria, BC V8W 9N3 P.O. Box 9519 STN PROV GOVT

Page 1

B.C. Ministry of Environment

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on@gov.b	
on@gov.bc.	
on@gov.bc.c	
Please E-mail account number and JV authorization to clive.dawson@gov.bc.ca.	

Total Due:	\$11.75	\$2.50	\$3.25	\$7.50	\$3.75	\$2.75
	0	0	0	0	0	0
\$31.50	\$11.75	\$2.50	\$3.25	\$7.50	\$3.75	\$2.75

¢21 лО		Total Due:
\$11.75	0	\$11.75
\$2.50	0	\$2.50
\$3.25	0	\$3.25
\$7.50	0	\$7.50
\$3.75	0	\$3.75
\$2.75	0	\$2.75
Subtotal	% Disc.	Base Price

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Requisition	Amount	Description	Base Price	% Disc.	Subtotal
S-00001219	-	Handling Charge	\$2.75	0	\$2.75
S-00001219	-	Drying/Crushing/Sieving	\$3.75	0	\$3.75
S-00001219	-	Conductivity (SP)	\$7.50	0	\$7.50
S-00001219	-	pH (H2O)	\$3.25	0	\$3.25
S-00001219	-	Moisture Factor	\$2.50	0	\$2.50
S-00001219	-	Mehlich Extractables	\$11.75	0	\$11.75

Description:

Attention:

Orville Dyer B.C. MFLNR Regional Operations - Okanagan 102 Industrial Place Penticton, B.C. Canada V2A 7C8 Preparation and analysis of 1 soil/crust sample submitted by Deepa Spaeth Filatow, P. Geo., August 23, 2011. **Orville Dyer** 

To:	INVOICE NO:	COLUMB The Best Place un
Orville Dyer B.C. MFLNR Regional Op	S1219110915	Earth E

Ministry of Environment Knowledge Management Branch Analytical Chemistry Section

INVOICE

September 15, 2011

# Popowich, Tracy CSNR:EX

Attachments:	Subject:		To:	Sent:	From:
Agur_approx_high_surface_salinity_mid-jpoint.kml;	Oliver: Agur property photos and kml files	E FLNR:EX	Dyer, Orville N FLNR:EX; Filatow, Deepa ENV:EX; Erwin, Corey W ENV:EX; Bulmer, Chuck	Friday, August 19, 2011 12:59 PM	Dyer, Orville N FLNR:EX

Ξ.

need to download them today, likely, prior to weekend <u>ftp://ftp.env.gov.bc.ca/pub/outgoing/Dyer/</u> The photos are at the following ftp site. I think they get removed after about 3 or 4 days, so you will

The kml files are the from the map I sent earlier.

102 Industrial Place, Penticton, BC, V2A 7C8 Phone (250) 490-8244 Fax (250) 490-2231 email:orville.dyer@gov.bc.ca Ministry of Natural Resource Operations, Penticton Ecosystems Biologist **Orville Dyer RPBio** 

From: Dyer, Orville N FLNR:EX Sent: Friday, August 19, 2011 12:44 PM To: Filatow, Deepa ENV:EX; Erwin, Corey W ENV:EX; Bulmer, Chuck E FLNR:EX Subject: QP reports for Agur property including plant species and locations -Original Message-

Thought these might be useful, especially the review.

Agur\_wet\_cattail\_polygon Agur\_approx\_high\_surface\_salinity\_mid-ipoint

Agur\_poi Blue\_vervain\_locations\_on\_spoil\_piles nts

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Legend

Agurcatail2

Agur\_augerhole Agur6 Treefrog Agur1

Agurplot2 Agurplot1

Agur5 Agur2

Agur3

Agur Catail

Agur4

Agureast



Agur\_approx\_high\_surface\_salinity\_mid-jpoint Agur\_wet\_cattail\_polygon

Blue\_vervain\_locations\_on\_spoil\_piles
Agur\_points

Legend

Agurcatail2

Agur6 Treefrog Agur\_augerhole

Agur1

Agurplot1

Agurplot2

Agur2

Agur Catail

Agur4

Agur3

Agureast

# Popowich, Tracy CSNR:EX

	Attachments:	Subject:	To:	Sent:	From:
Assessment of Lot 2 and 3 18 Feb 2011.pdf	Sarell Initial Ecological Review of Agur 28 Jan 2011.pdf; Sarell An Initial Ecological	QP reports for Agur property including plant species and locations	Filatow, Deepa ENV:EX; Erwin, Corey W ENV:EX; Bulmer, Chuck E FLNR:EX	Friday, August 19, 2011 12:44 PM	Dyer, Orville N FLNR:EX

Thought these might be useful, especially the review.

### Lots 4, 5, 6, 7, 8 & 9, D.L. 2450s, SDYD, Plan KAP64042, An Initial Ecological Assessment of in Oliver BC

Prepared for the Town of Oliver 28 January 2011

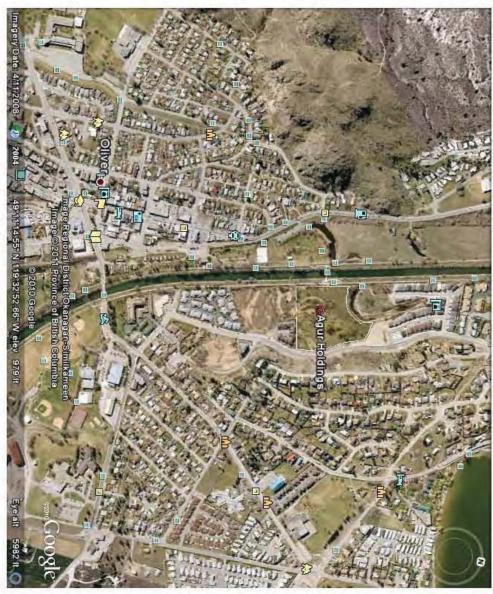
by Mike Sarell, RPBio

#### Introduction

a Registered Professional Biologist (RPBio). ensure that habitat for Species at Risk are maintained or suitably mitigated, as deemed by assessments of the property to determine the ecological merits of the property and to (OCP) Environmental Development Permit Area. The Environmental Development Permit process requires owners that are planning development to conduct environmental The subject property is currently included in the Oliver Official Community Plan's

reasonable and justifiable. the OCP by removing the lands from the Environmental Development Permit Area is the site. This assessment must also gauge whether the proponents's application to amend report was not completed by a Registered Professional Biologist, the Town has hired that "no blue or red listed species at risk were found." However, because the submitted provide "[no] environmentally sensitive [or] pristine or valuable habitat for the area," and An environmental assessment was recently submitted for the subject property on 87th Ophiuchus Consulting to further augment and evaluate the environmental conditions on Street and 368 A Ave. (Scheffler 2010). The report concluded that the subject lands

channel (Sarell and Burgar 2010). contribute to fish habitat and ecological integrity of the riparian function along the river adjacent to the Okanagan River Channel dike. A setback from the dike was recommended immediately to the north of the holdings. The western boundary of the holdings also lies ecosystems were considered wasteland by developers and planners. Development in this area began about 20 years ago when the wetland and riparian holdings are approximately 3.3 ha in size and lies in the floodplain of the Okanagan River for this property under the Riparian Areas Regulation (RAR) because of its ability to (Figure 1). The property to the north has been developed and so have several to the south. The assessment was conducted on property holdings along 87th street in Oliver, BC. The An oxbow lies



north of Oliver. Figure 1: Location of the Agur Holdings on the east side of the Okanagan River Channel,

#### Methods

The site was visited twice, the first time on 28 December 2010 and the second and most thorough visit was on 15 January 2011. A handheld gps unit was used to store digital camera. observation data, with an accuracy less than +/- 5m. Photographs were taken with a

#### Results

#### Vegetation

climax, non native plant species, all of the non desirable or invader variety of annual grasses or forbs." This is odd as the report identifies willow species and golden rod as hour visit to the site, and Figure 2 shows the distribution of these plants. showy milkweed. Table 1 lists the obvious native plants observed on site during a three being present, which are both native, and the photograph on the front cover clearly shows The report prepared by Scheffler (2010) states that the property is "vegetated by non

birds and bats.		
suckering. Cottonwood is and important wildlife tree for	(	Black Cotton Wood
had been fallen by beavers. Beaver-fallen trees were	CW	Rlack Cottonwood
Seven cottonwoods were observed; one was mature but		
cavity nesting birds.		
the SW corner of the site. Mature trees are important for	WB	Water Birch
Five trees were observed; three of these were located in		
property by the oxbow.		
A large mature patch occurs in the NW corner of the	WS	Sandhar Willow
Three mature shrubs were observed.	BW	Bebb's Willow
Observed once growing on a water birch.	Clem	Clematis
food for many bird species.	111	
Observed twice on the site; the berries are an important	ΗŢ	Rlack Hawthorn
Observed twice on the site.	OG	Oregon Grape
the west side.		opraume Dogoane
One small patch on the east side and two large patches on		Spreading Doghane
Monarch Butterfly.		DITOWA TATIVANCO
Prevalent throughout the site; important food plant for		Chours Millinged
Observed twice on the site with one being very mature.	EB	Blue Elderberry
bird nests were observed in rose.		
southwest quadrant where the patches are extensive. 24	WR	Wild Rose
Small patches occur throughout the site except for the		
	(map)	- process
Ahundance	Code	Snecies

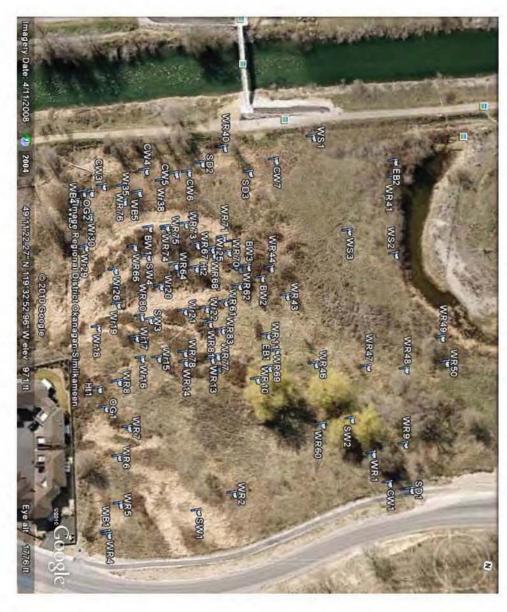


Figure 2: Native vegetation and patches of vegetation docuemented on the Agur holdings.

often preclude less aggressive rare plants from occurring. somewhat compromised by the aggressive agronomic species occurring on site which not have been likely to observe any rare plants. The likelihood of rare plants occurring is in the spring. Scheffler examined the site in September and October and therefore would Rare plants were not searched for as this requires a rare plant specialist and is best done



A very large Bebb's Willow that would be many decades old.



A mature cottonwood felled by a beaver several years ago but there are already suckers. 4 MOE-2011-00246 459

#### Wildlife

wildlife sign observed. Wildlife, or sign of wildlife, was incidentally recorded. Figure 3 shows the location of

amphibians like the Tiger Salamander (Endangered) or Great Basin Spadefoot any water at the time of the survey. Amphibians: Five swales occur on the property (SW in Figure 2) and did not contain underground burrows. The adjacent oxbow makes this quite probable. (Threatened). Both of these amphibians spend winters and hot dry weather in If these do, they could certainly be used by breeding

present. This survey was conducted in January when only pheasant, juncos, chickadees significant, and cause for suspicion that the Endangered Yellow-breasted Chat could be evidence of woodpecker nesting and are often further used by other birds and mammals. rose (BN), fiver were Bullock's Oriole nests high in Siberian Elm trees (BNH), and two the importance of the site for rare and migratory birds. and a Hawk Owl were observed. Breeding bird surveys would be important to determine were cavity nests (WH) in the very large weeping willows on the site. Cavity nests are Birds: A total of 33 bird nests were observed. Twenty-four nests were observed in wild The cursory survey for nests in wild rose, and the subsequent abundance of nests is

weeping willows present and could be using old woodpecker holes or the exfoliating bark on the very large beaver and a medium sized burrowing animal (see photo) are present. Bats are likely also Mammals: Scheffler identifies deer and vole use of the site. In addition to those species



Are variety of nest styles were found in wild rose on the holdings.





Two woodpecker holes were observed in the very large weeping willows (left) and a mammal burrow (right) was observed in a wild rose thicket.





Figure 3: A composite of all wildlife observations on the Agur holdings, most of which were bird nests in wild rose thickets.

#### Conclusion

some rare bird and amphibian species, as well as rare plants. thickets, mature water birch, cottonwood, swales) that may provide important habitat for shrubs suggest that natural recovery has been ongoing for decades and that some of the property is in early succession (10 years) but the maturity of some of the native trees and property. It cannot be stated that this is a pristine site, as some of the lands appears to property was never heavily disturbed. There are at least moderate quality habitats (rose have been disturbed, probably by farming activity. The Scheffler report states that the The Agur site contains native plants and old swales indicating historic flows on the

quadrant of the study area, possibly the weeping willows, etc.). as maintaining and enhancing important habitat areas or features (e.g., the south west developer to establish buffers from water features (e.g., the river and the oxbow) as well conclusions of the Scheffler assessment. The typical approach to developing within conclude that the holdings do not have the criteria to be treated as EDPA, despite the demonstrate that any of these species do not rely on the property, make it impossible to adequate studies (i.e. proper experience, survey intensity, and time of year) to EDPA is to properly identify important ecosystems and features and then work with the The fact that suitable habitat does exist for Species at Risk and there have been no

Sincerely,

Mike Sarell, RPBio



# Proposed Lots 2 & 3, D.L. 2450s, SDYD, Plan KAP64042, An Initial Ecological Assessment of

### in Oliver BC

Prepared for the **Town of Oliver** 08 February 2011

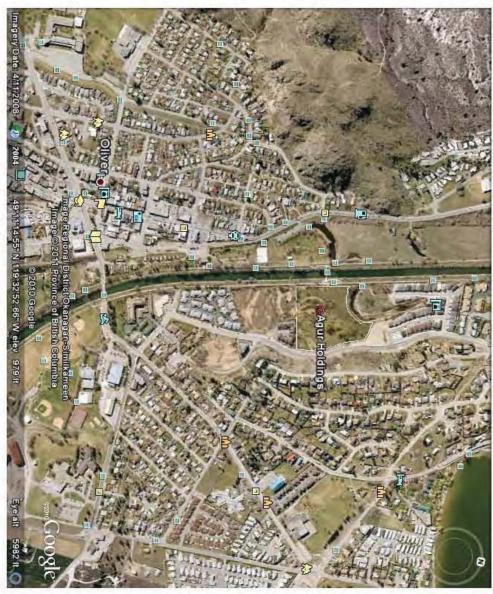
by Mike Sarell, RPBio

#### Introduction

sensitivity adjacent to the wetland oxbow and Okanagan River. and report made on the subdivision." Therefore, the Town sought to verify and further the Approving Officer for the Town can "personally examine or have an examination pristine or valuable habitat for the area," and that "no blue or red listed species at risk The report concluded that the subject lands provide "[no] environmentally sensitive [or] holdings on 87th Street and 368 A Ave., which included the area of proposed lots 2 & 3. An environmental assessment (Scheffler 2010) was recently submitted for property examine the feasibility of proposed lots 2 & 3 based on their potential environmental were found." However, in accordance with Section 86 (1)(c)(vi) of the Land Title Act,

present. oxbow is not affected by RAR, although it has not been confirmed that fish are not have setbacks from orphaned oxbows for ecological reasons. It is presumed that the the river channel (Sarell and Burgar 2010). The report also acknowledged the need to ability to contribute to fish habitat and ecological integrity of the riparian function along for this edge of the property under the Riparian Areas Regulation (RAR) because of its adjacent to the Okanagan River Channel dike. A setback from the dike was recommended of the Okanagan River (Figure 1). The property to the north has been developed and so of a larger property holding that is approximately 3.3 ha in size and lies in the floodplain application on property holdings along 87th street in Oliver, BC. The two parcels are part proposed lots 2 & 3. The western boundary of the holdings and proposed lot 3 also lies have several to the south. An oxbow lies immediately to the north of the holdings and the An assessment was conducted for the proposed lots 2 & 3 of the proposed subdivision

dike and meeting the floodplain construction level (FCL). (MWLAP 2004a), which include a minimum 7.5m building setback from the toe of the developments conform to the Flood Hazard Area Land Use Management Guidelines environmental assessment examines the potential impacts of the proposed subdivision of parcel coverage of 35% (excluding driveways, decks/patios and swimming pools). All parcels must provide an amenity area of no less than  $60m^2$  per dwelling unit. This zoning allows for a maximum density of 30 dwelling units per hectare and maximum lots 2 & 3 with a RM2 zoning. Furthermore, the Town is obliged to ensure that The current zoning of the property holdings is Multi-Family Dwelling (RM2). This



north of Oliver. Figure 1: Location of the Agur Holdings on the east side of the Okanagan River Channel,

#### Methods

digital camera. observation data, with an accuracy less than +/- 5m. Photographs were taken with a The site was visited twice, the first time on 28 December 2010 and the second and most thorough visit was on 15 January 2011. A handheld gps unit was used to store

mapserver and from surveyed plans. There may be a slight inaccuracy in their projection. Data was projected onto Google Earth. Lot boundaries were reproduced from the RDOS

#### Results

#### Vegetation

shows the distribution of these plants. mature Sandbar Willow, a single but mature Blue Elderberry shrub, and a small patch of showy milkweed. Within the proposed lots 2 and 3, exist a fairly extensive stand of grasses or forbs." This is odd as the report identifies willow species and golden rod as climax, non native plant species, all of the non desirable or invader variety of annual being present, which are both native, and the photograph on the front cover clearly shows The report prepared by Scheffler (2010) states that the property is "vegetated by non Wild Rose. Table 1 lists the obvious native plants observed on the site, and Figure 2

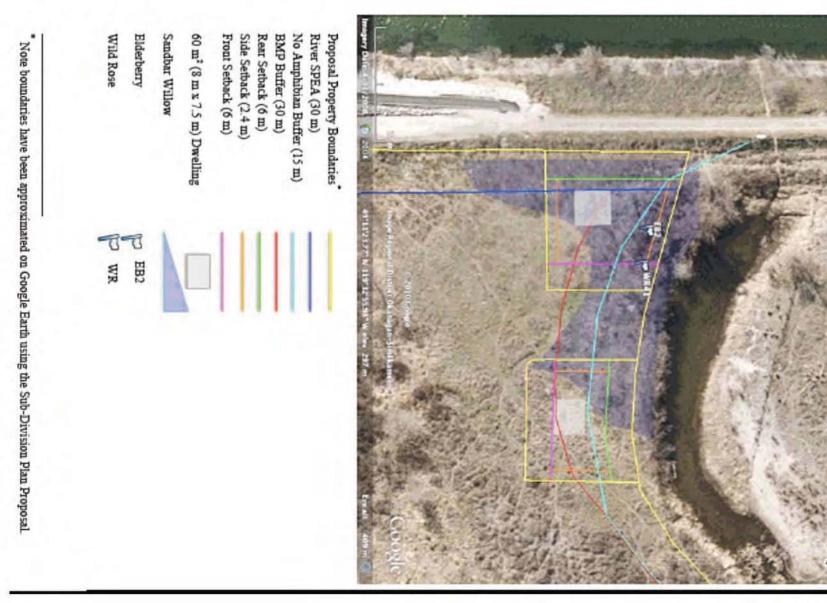
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Species	Code (map)	Abundance
Wild Rose	WR	Single small patch in proposed Lot 3.
Blue Elderberry	EB	Single shrub in proposed Lot 3.
Showy Milkweed		Prevalent throughout the open areas in both proposed lots; important food plant for Monarch Butterfly.
Sandbar Willow	WS	A large mature patch occurs primarily in proposed Lot 3 but extends into proposed Lot 2.

Table 1:
Native
vegetation
0n
proposed L
Lots
2
2 and 3.

occurring on site which often preclude less aggressive rare plants from occurring in the spring and summer. Scheffler examined the site in September and October and plants occurring is somewhat compromised by the aggressive agronomic species therefore would not have been likely to observe any rare plants. The likelihood of rare Rare plants were not searched for as this requires a rare plant specialist and is best done

#### Wildlife

should follow standard protocols (RISC 1998) and be conducted by qualified personnel. development within 250m of a breeding site to protect Tiger Salamander populations. vicinity of a breeding site. Hammerson (2002) recommended restricting land these amphibians spend winters and hot dry weather in underground burrows in the (Endangered) or Great Basin Spadefoots (Threatened) breeding at the oxbow. Both of mammals but their greatest value would be for providing habitat and movement corridors BC (WLAP 2004b) recommend a minimum of 30m setback. Any amphibian surveys Management Practices for Amphibian and Reptile in Urban and Rural Environments in But adopting this level of protection would hinder all development in the area. The Best for amphibians. No surveys have looked whether there are any Tiger Salamanders These two lots have some significance of providing habitat for various birds and Figure 2: Native vegetation and setbacks on proposed Lots 2 and 3.



#### Discussion

Development within a floodplain and adjacent to fish habitat and wetlands should be carefully examined. This is recognized in the Town of Oliver's Official Community Plan fragile habitat." (2008), which states "that any human activity in and around the oxbows is sensitive to the

provided by the Ministry of Water, Land, and Air Protection." development within the flood plain in accordance with the regulations and standards of the dike as the SPEA, despite the OCP stating that "The Town will permit 2004a). This was not considered when other developments were allowed to use the edge metre swath on the outward side of the dikes during a massive flood event (MWLAP two river systems that still support Sockeye Salmon in the entire Columbia watershed. integrity of the Okanagan River Channel as it is provincially significant and only one of properties were assigned a SPEA at its full width (30m) to help improve the ecological the Streamside Protection and Enhancement Area has been established along the Furthermore, the Water Stewardship Division that manages the dikes could require a 7.5 Okanagan River (Sarell and Burgar 2010). Through this process, most undeveloped The Riparian Areas Regulation (RAR) has been incorporated into the Town's bylaws and

protected and enhanced. Also, it has not been established that fish are not present in the considered (No Amphibian Buffer - Figure 2), providing the area within the buffer was amphibians did not use this oxbow for breeding then a reduced buffer might be protect amphibian populations (Figure 2). If the proponents were to confirm that orphaned oxbow, however any fish would be introduced species. The BMP for Amphibians and Reptiles (MWLAP 2004b) recommends a 30m buffer to

670m<sup>2</sup>. Both proposed lots just achieve these criteria. area of 500m<sup>2</sup> but the zoning bylaw also states that the parcel must not be less than less than 25m. If a parcel had the minimum dimension requirements it would have an by law also states that each parcel must have a width of not less than 20m and a depth not coverage is 35% (excluding driveways, decks/patios and swimming pools). The zoning and rear property lines and 2.4 from the sides. Furthermore, the maximum parcel how many units would fit on the property. The building setbacks are 6m from the front sizes of 60m<sup>2</sup>. A single dwelling is depicted on each lot in Figure 2 to provide a sense of Both proposed lots are zoned RM2 (multi-family dwelling) and have minimum dwelling

Okanagan River SPEA, oxbow buffer, and dike management, the area to build on is minimum-sized dwelling footprints. When environmental concerns, such as the substantially less, and could only accommodate 2 to 3 minimum-sized dwelling If environmental concerns are not fully considered, each lot can accommodate 4 footprints

#### Conclusion

the dike to conduct emergency dike repairs on the outer side of the dike. as well. Additionally, the Water Stewardship anticipates requiring a 7.5m swath along presence/absence of fish in the oxbow, to ensure that RAR does not apply to the oxbow proponents could prove that amphibians are not present then a reduced buffer might be for Amphibians and Reptiles calls for a minimum 30m buffer (MWLAP 2004b). If the is being improved where full restoration is not possible. The recommended SPEA for the considered. Furthermore, the proponent is responsible for determining the portion of the original river prior to diking, creates important wetland habitat. The BMP Okanagan River Channel at this site is 30m (Sarell and Burgar 2010). The oxbow, a The Okanagan River Channel is being restored where possible or its ecological integrity The proposed subdivision of lots 2 and 3 occur in an area that has ecological constraints.

at Risk have not been conducted. It is quite possible that two species of rare amphibians although it is likely that the site was historically disturbed. Adequate surveys for Species occur on the lots. The proposed lots do contain native plants, including a large stand of sandbar willow,

and environmentally sensitive development, utilizing a variety of strategies to protect and smaller. If the lots are not subdivided, it provides greater flexibility to create an attractive footprints. The recommended environmental setbacks make the developable area even area. At most, each proposed parcel could accommodate 4 minimum-sized dwelling enhance the most sensitive areas. The proposed lots barely meet the minimum bylaw criteria for parcel dimensions and

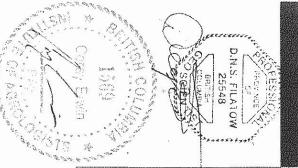
Sincerely

Mike Sarell, RPBio



#### References

- Hammerson, G. 2002. Mapping guide for the Tiger Salamander (Elcode AAAA00001). BC Conservation Data Centre, Victoria, BC.
- Ministry of Water, Lands and Air Protection. 2004a. Flood Hazard Area Land Use Management Guidelines.
- Ministry of Water, Lands and Air Protection. 2004b. Best Management Practices for Amphibians and Reptiles in Urban and Rural Environments in British Columbia.
- Resource Inventory Standards Committee. 1998. Inventory Met6hods for Pond-breeding Biodiveristy No. 37. Amphibians and Painted Turtle: Standards for Components of British Columbia's
- Sarell, M. and J. Burgar. 2010. Comprehensive Riparian Area Assessment of Streamside Protection along the Okanagan River Channel within the Town of Oliver.
- Town of Oliver. 2008. Official Community Plan
- Town of Oliver. . 2005. Zoning Bylaw No. 720, Consolidated for Public Convenience



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#### ECOSYSTEM ON THE AGUR FIELD INVESTIGATION POTENTIAL WETLAND ROPERTY, OLIVER, B.C. 0

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Ministry of Environment British Columbia

Deepa Filatow, P.Geo Corey Erwin, R.P.Bio, P.Ag

#### ECOSYSTEM ON THE AGUR FIELD INVESTIGATION OF POTENTIAL WETLAND U ROPERTY, OLIVER, B.C.

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## Field Investigation of Potential Wetland Ecosystems on the Agur Property Oliver, B.C. August 18, 2011

### Introduction

#### Purpose

of the suspected wetland complex on this property. Field notes and mapping information have been interpretations and patterns detected on the remote imagery to further describe the nature and history Field investigation was carried out on August 18, 2011 on the Agur property in Oliver B.C. to observe and inform recommendations and options for conservation and rehabilitation. compiled below. They describe the ecosystem types observed on the property and are intended to defined under the term 'stream' in the water act. Field investigation was also used to validate record any soils and vegetation evidence of swamps (wetlands), springs, streams or other features

#### Terminology

term wetland is used as a broad category which includes swamps, marshes, bogs and fens Hand Book #25. http://www.for.gov.bc.ca/hfd/pubs/docs/Lmh/Lmh25-2.htm (here after referred to as and ecosystems follow Field Manual for Describing Terrestrial Ecosystems 2<sup>nd</sup> Edition. Land Management Management .Hand Book #52 http://www.for.gov.bc.ca/hfd/pubs/Docs/Lmh/Lmh52.htm. As such, the wetland ecosystems as defined in Wetlands of British Columbia: a guide to identification. Land HB25 when making table and page references). This report also uses specific terminology to describe in the field in British Columbia, Canada. Terminology and methodologies for describing the site, soils This document uses terminology consistent with the methodology for describing terrestrial ecosystems

#### Summary

swamp, marsh and moist meadow ecosystems underlain by glyesolic (wetland) soils. analysis, supports the existence of a nutrient rich, mineral soil, wetland complex, including a mosaic of Information, obtained through air photo interpretation, previous studies, field investigation and soil lab

buried by the piling of trans-located soil and vegetation; other areas were levelled and buried with what surface of the Agur property. Very little original vegetation remained intact on the site. Some areas were appeared to be imported fill. At the time of this investigation most of the vegetation and topsoil were scoured and gouged from the

patch (~ $1m^2$ ) around two of the property stakes. Some evidence was also gathered from the piles of Soils profile observations were gathered from 2 locations where the soils were left intact in a small criteria for both gleysolic soil type and hygric moisture regime. Abundant salt and mineral crusts were Horizons) are common and within 16 cm of the original ground surface. This observation meets the disturbed and trans-located materials and from the scoured areas. Seasonally wetted horizons (Gleyed

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observed at the ground surface indicating processes associated with wetting and evaporation, and nutrient rich water source ച

frog, and a doe and fawn indicating continued wildlife use of this mineral rich wetland area photos and on the ground. Wildlife observations during the field visit include a water fowl nest, tree willow, rose, and alderberry (Sarell 2011). Wildlife trails and heavy use areas are evident on the air photos and evidence from two prior studies recorded the presence of native vegetation including recorded. These shed light on the patterns of vegetation evident on the aerial photographs. In addition, In addition, observations of re-establishing wetland vegetation and remnants of plant parts were

# Natural History of the Site

vegetation in 2011. Today wetland and aquatic vegetation are re-establishing on the site and there is communities and a high, fluctuating water table (2007 imagery) prior to the removal of top soil and and in the buried horizons observed in the soil profile. After channelization a complex of several oxbow would have been subject to frequent flooding and inundation. This is evidenced on the 1938 air photos meandering channels and a complex of wetlands and oxbow lakes. Under these conditions the site a 10000 year period. Prior to the channelization of the Okanagan River the site was occupied by multiple system. The Okanagan River floodplain has accumulated, since deglaciation of the Okanagan basin, over continued use by wildlife species (see Appendix C). characteristics of present day soils and vegetation reflect a site dominated by marsh and swamp plant lakes and wetlands remained where the former Okanagan River channel previously existed. The The Agur property is situated on the floodplain of the Okanagan River, a tributary of the Columbia River

### Methodology

# **Air Photo Interpretation**

and undulation of the topography were also identified on the air photo photos in 3 dimensions. Bing map and Google imagery were also used as they offered clearer resolution verification of species composition. The old river meanders and oxbow lakes as well as a subtle rolling materials. Patterns of shrubby and herbaceous vegetation communities were identified for field communities and by Deepa Spaeth Filatow for identifying landforms and indicators of soils and surficial 2007). Initial interpretation of the air photos was carried out by Corey Erwin for identifying vegetation and the ability to zoom in on particular features of interest. Available imagery ranged from 1938 to Air photo interpretation was carried out using available photos and a mirror stereoscope to view the

#### **Field Work**

soils and ecosystems was completed using the <u>Field Manual for Describing Terrestrial Ecosystems in 2<sup>nd</sup></u> terminology used in the field are described in this manual. Edition, BC Ministry of Forests and Range and BC Ministry of Environment 2010. All codes and Field investigation was carried out on Aug 18, 2011 between 10am and 4pm. Field descriptions of site

Ministry Of Environment, Knowledge Management Branch, Ecosystem Information Section Deepa Spaeth Filatow, P.Geo and Corey Erwin, R.P.Bio, P. Ag.

chemical analysis. and photo locations. In addition, several features on the ground (swales, rises and piled up materials) camera. Site, vegetation, wildlife and hydrologic observations were also recorded in field notes. A hand drilled at Agur\_augerhole. Several test soil auger pits were conducted to determine the extent and ecosystem site series). A full soil pit description was collected at Agerplot2. A 1m deep auger whole was and to measure pH and mineral composition in order to confirm soil nutrient regime (key in identifying an intact soil profile was preserved. Soil samples were collected at Agurplot1 to verify hand texturing sample of surface salt crust present on the low moist rises between the wetter swales was collected for were GPS'd to verify location and patterns of landform and vegetation on the air photo imagery. A held GPS (Garmin GPS Map 76 Cx) with an accuracy of +-10m was used to record observation, test pit depth to mottled horizons and the water table. Photos were taken during the visit using a digital Full site and soils descriptions and a partial vegetation description were completed at Agurplot1 where

The following personal were involved with this field investigation:

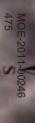
- Deepa Filatow, P.Geo, Provincial Bioterrain Specialist, Officer under the Water Act of B.C
- Corey Erwin, R.P.Bio., P.Ag., Terrestrial Ecosystem Ecologist, Officer under the Water Act of B.C
- Orville Dyer, R.PBio., Wildlife Biologist, Officer under the Water Act of B.C
- Chuck Bulmer, P.Ag., Ecologist-Soil Restoration, Officer under the Water Act of B.C

#### Lab Analysis

extractable elements, and pH was measured in distilled water solution. Total Carbon and Nitrogen were distribution of sand, silt and clay. measured and particle distribution analysis was conducted on the mineral particle fraction <2mm for the results are included in Appendix B. Mehlich 3 extraction methods were used in the analysis of Soils samples were labelled and sealed in freezer Ziploc bags and sent to the MOE Lab for analysis. Lab

### **Observations**

and correspond to the written observations and photographs captured in this report. The following map shows GPS points lines and polygons collected during the August 18<sup>th</sup> 2011 field visit



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Agur\_approx\_high\_surface\_salinity\_mid-jpoint

Agur\_points Deepa Spaeth Filatow, P.Geo and Corey Erwin, R.P.Bio, P. Ag. Ministry Of Environment, Knowledge Management Branch, Ecosystem Information Section ы

Legend



Agureas

#### Soils

be used to determine the age of these buried horizons and may be a key to flood frequency. It is most deposition during inundation, or of historic movement of the channel meanders. Dating methods could were present in both sites which is common in floodplain soils and indicative of flooding and sediment and represent the soil of the moist meadow/swamp portions of the wetland complex. Buried horizons evaporates (HB25 table 1.1). Electrical conductivity and pH are high in all horizons at site Agurplot1. and has been removed over the majority of the site. The soil nutrient regime was determined to be E salt rich with abundant faunal droppings and a thick Ah horizon. This layer formed over 100s of years seepage and mottling; and gleyed colours common (HB25 table 1.1). The surface horizon is organic and recorded with significant and strong mottling within the top 30cm of the original ground surface. This is active likely that these predate the diking of the river when inundation, flooding and channel evulsion were These two sites were outside the boundary of the wetter marsh units (swale bottoms) in this complex 15:1, deep soils , fine soil textures, no coarse fragments and seepage indicators such as gleying and (Rich) as indicated by an Ah horizon >10 cm, a pH >7.4, a Mull humus form, a C:N ratio ranging from 10having water removed slowly enough to keep soil wet for most of the growing season; permanent indicative of a soil moisture regime of at least 6 (Hygric). A hygric soil moisture regime is defined as Appendix C. At the two locations with intact soils (Augerplot1 and Agurplot2), gleysolic soils were Full site and soils descriptions are found in Appendix A for site agurplot 1. Photos of 3 soil profiles are in

depth of 55cm with water. Observation points Agurcatail 1 and Agurcattail2 correspond to swale labelled Agurauger, to a depth of 115cm. The top meter of material was a silty loam texture. A gravel aquatic and wetland vegetation was present in these areas. A auger core was extracted, at the way point have intact surface soil horizons. Material characteristics present were still consistent with horizons and aquatic vegetation during field investigation, had all been scoured (approximately 0.5m) and did not bottoms and cattail vegetation. Gleyed horizons were found at all test auger pits 1-5 layer was recorded at a depth of 100-115cm. When this layer was hit the auger whole filled up to a materials, see HB25 table 2.29 for definitions of these terms). Soils at the swale bottom were moist and typically found within the top 100cm of the original surface (organic rich, mucky, mesic and humic The wetter low-lying units indicated by a golden colour on the air photos and by the presence of Typha

drier than the other soil pit locations and was most likely associated with a moist medow The soil pit at Agureast had buried horizons at depth. Mottling was weaker at this site. This location is

#### Vegetation

scattered on the rises between swales. There was also evidence of the presence of woody tree/shrub species, Typha latifolia, Luzula speciosa, Equisetum pratense, Asclepias speciosa and Scirpus lacustris, 2 aquatic plant species, Polygonum amphibium and Alisma plantago aquatic, and 5 typic wetland are primarily only found in association with standing water. Some Scirpus and Typha were also found were found primarily in association with the bottoms of the swales. Of note are the 2 aquatics which

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not much else was present due to the recent scraping of the surface. species (most likely Salix as noted in the Sarrel report) in the form of roots on the tops of the swales but

notes the scattered presence of Wild rose, Bebb's willow, Sandbar willow, water birch and cottonwood floodplain plant communities. This is supported by Mike Sarrel's ecological assessment report where he combination of the Water birch – Rose (FI07) & Cottonwood – Snowberry – Rose (FI08) low/mid bench or near the surface over portions of the property for the majority of the growing season. The wetter on the property. The shrubby ecosystems visible on the 2007 air photos, but not on site due to clearing, were most likely a Great Bulrush (Wm06) marsh wetland plant communities described in the Wetlands of British Columbia. plant assemblage and physical site features have similar characteristics to both the Cattail (Wm05) and Overall, the presence of the aquatic and associated wetland plant species suggests that there is water at

Locations of this red listed species have been reported to the CDC. indicated by the blue dots on the map. This is a species associated with wetlands and wetland margins. Blue Vervain, a red listed plant species, has revegetated the disturbed and piled up soil materials

### **Ecosystem Delineation**

type. these two units. Some patterns of ecosystems present on the imagery were not labelled because there to the WmO5 and Wm06 units described in the previous section above and the soils described at field work. Ecosytems delineated on Map 1 and 2 in Appendix E reflect the marsh unit that corresponds was insufficient evidence in the field, previous reports and/or on the imagery to confirm ecosystem vegetation section and the soils described at site Agurplot1. Agurplot 2 is near the boundary between Agur\_augerhole. The swamp units correspond to the FI07 and FI08 units also described in the 2007 ortho photo imagery augmented by available imagery in Bing maps and Google and verified during The Maps 1 and 2 in Appendix D delineate the ecosystems present on the site as interpreted on the

#### Other

with a GPS polygon. Two GPS lines were collected at the high point of the rises between the swales current boundary of the western most swale recovering to cattails and aquatic vegetation was outlined swale 1. Suspected Blue Vervain population locations were also recorded with GPS way points. The frog was recorded with a GPS way point. A doe and her fawn were observed at the south end of the A nest with egg shells (most likely larger water fowl) was also observed at this plot. Observation of a tree These were characterized by gleying and salt crusts at the current ground surface

#### Discussion

and marsh plant communities. These ecosystems were present before the river was diked, when property, prior to the recent removal of the top soil and vegetation, are likely remnants of the floodplain Based on the information presented above, the plant communities and soils present on the Agur

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abundance of seasonal sub-surface flow. Note - the FIO7 community is described in the Wetlands of flooding would have occurred more frequently. Since then, these communities likely survived due to maintained at depth. British Columbia as often occurring in areas where surface flooding is minimal but water table is the

Supportive indicators include:

- table); gleyed colours (indicating permanently saturated soils) and prominent mottling within the top 20 cm of soil (indicating imperfectly to poorly drained soils and seasonally fluctuating water
- high electrical conductivity, high pH and mineral composition;
- photo and correspond to the wettest portion of the wetland complex; wetland species occupy the areas corresponding to the golden vegetation patterns on the air
- ecosystems; and evidence of woody species such as willow and rose on the rises adjacent the wettest
- swamp ecosystems adjacent the golden areas on the air photos). the presence of mottling, precipitates, and woody vegetative structures on the rises (indicating

organic soil identification include horizon type, thickness and depths. organic horizon depths it is not possible to verify the existence and type of organic soils. The criteria for materials were observed in the disturbed areas but without having intact soil horizons to measure Evidence also suggests that there may have been additional wetland types present on the site. Organic

jurisdictions it has been noted that inland salt marshes are most common along streams or also highlights the value of this area for wildlife as it is likely used as a salt lick. In other indicative of sites suitable only for wetland and salt tolerant species. High salt concentration top soil in the spring. This would suggest water inputs high in salts and minerals or continuous salts have accumulated on the surface at the end of the summer following scour and removal of concentrated and emerge at discrete points. rivers, where glacial drift is thin enough to permit brine from deep saline aquifers to remain profile. CEC above 2 precludes the growth of traditional crop species and higher than 4 is recharge and evaporative losses. Electrical conductivity was found to be high throughout the Accumulation of salt is high in the swamp units. This is particularly evident because significant

http://web4.msue.msu.edu/mnfi/communities/community.cfm?id=10664

the chemical signature of the water in this area related to ground water inputs, deep ground water could indicate groundwater inputs to the wetland complex. This should also be investigated further. Is and inflow of water from the Okanagan River? The second is the high salt levels in the surface layer that potential connectivity of the site to the Okanagan River through a coarse textured gravelly layer discharge, the river or precipitation inputs? Can the accumulation and concentration of salts and discovered at site AgurAuger at a depth of 100cm. What is the extent of this layer? Is there connectivity Two hydrologic questions arise from this soils and ecosystem investigation. The first relates to the

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of these high salt concentrations on foundations utilities and other structures minerals be used to measure water input rates? The other question not to be overlooked is the impact

towards wetland conservation goals outlined in the Wetland Action Plan 2010 http://bcwetlands.ca/wpcomplex and would benefit from a more detailed mapping exercise. Such activities would be a step preserve wildlife habitat. Restoration planning should consider the original patterns of ecosystems in the complex of wetland features into the development plan could create an appealing greenspace and salt and mineral rich ecosystems associated with the rises between swales. Incorporating the entire aquatic and aquatic species. Preservation of these complexes would also enhance the recovery of the Portions of this valuable marsh, swamp wetland complex are already recovering to a mixture of semidevelopment plan, the ecological values present on this property will be at least partially preserved. rehabilitation efforts. By incorporating wildlife habitat and wetland ecosystem features into the content/uploads/BCWetlandActionPlan WSP 2010.pdf. The wetland complexes present on the property represent desirable opportunities for restoration and

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### REFERENCES

Sarell, Mike, RPBio.; January 2011; An Initial Ecological Assessment of Lots 4, 5, 6, 7, 8 & 9, D.L. 2450s, SDYD, Plan KAP64042, in Oliver BC; Prepared for the Town of Oliver.

http://www.for.gov.bc.ca/hfd/pubs/docs/Lmh/Lmh25-2.htm Describing Terrestrial Ecosystems 2<sup>nd</sup> Edition. Land Management Hand Book #25 B.C. Ministry of Forests and Range and B.C. Ministry of Environment; 2010; Field Manual for

W.H. MacKenzie and J.R. Moran; 2004; Wetlands of British Columbia: a guide to identification. Land Management .Hand Book #52;

http://www.for.gov.bc.ca/hfd/pubs/Docs/Lmh/Lmh52.htm.

http://bcwetlands.ca/wp-content/uploads/BCWetlandActionPlan\_WSP\_2010.pdf. The Wetland Stewardship Partnership; 2010; A Wetland Action Plan for British Columbia;

#### **APENDIX A – FIELD FORMS**

	UTISH MINISTRY UMBIA BC ENVIR		ID. AGU		ERTY O	LIVER BC	1		DSF, CE, CI	5,01
		L	OCATION				SIT	E DI	AGRAM	
	LOCATION AGUR property Oliver BC						Marsl	y.	PLOT# 1	
	FOREST KAM MAPSHEET UTM ZONE // LAT./ 314330 LONG/545/587						Bledystar-	-	ctgail /	-
NO	AIRPHOTO NO.	X CO-ORD	). Y CO-	- 10 10 10 10 10 10 10 10	AP NIT		Thomas			J
F			INFORMA					عب	- w	
RIP	PLOT ASS	SESS MENT OF	HOUR PROP HPE OF W	ETLANDS.	PRESENCE	EXTENT T	1	de la	in stands	
SC	BGC UNIT	SITE SERIES	ne or w	TRANS./ DISTRIB.	ECOS	ECTION	original	~ 50 500	loce	oved
DE	MOISTURE REGIME	REGIME EC	D?) SUCCE		TAGE 10	CLASS WSE	DISTURB. SO		PHOTO ROLL OF	v
E	ELEV. SLC m.	DPE 2 % ASF	•ECT	MESO SLOPE POS. LV		ST s cha	EXPOS. TYPE		FRAME NOS.	
S	NOTES					SUB	STR	ATE (%)		
	The soil was sampled here where a ~Im2 pedon of original					ORG. MATTER	2	ROCKS	0	
	intact soil profile was preserved where surrounding					DEC, WOOD	0	MINERAL SOIL	98	
	soil was scourdaway (~Stem). Presumably this					BEDROCK	1	WATER		

Deepa Spaeth Filatow, P.Geo and Corey Erwin, R.P.Bio, P. Ag. Ministry Of Environment, Knowledge Management Branch, Ecosystem Information Section Nov 2011-11-16

TERRA	JIN TE			25	-	FICI		-	-	SURF		P			NORPH. 1 JU	PROFILE DIAGRAM
SOIL C	LASS.				HUN	IUS F	OR	M		-		HYDR	OGEO.	-	E la.	Ah
ROOTIN	G DEPTH	4 c	10 1 2	ROOT		PE		N		WAT	ER SOUF	RCE G	à	DRA	INAGE P	
R.Z. PA	RT. SIZE	S		AYER		EPTH		/	cm	SEE	PAGE	NP	cm	FLO	DD RG. F-0 *	Bg
ORGA	NIC HOR	ZONS/LAYE	RS													THE CONTRACT
HOR/ LAYER	DEPTH	FABR			AB.	FE		RO AB.	OTS SIZE	PH	COMM	ENTS (c	onsisten	cy, cł	naracter, fauna, etc):	- Bq
LF	1-0	1			AU.						only	top bul	litter o	743	xs - some hboc much	103- 5_ 5
			-	-		-	-	-		-	- CH		noticity 5		nesection helicia	anno 1
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MINER	AL HOR	ZONS/LAYE	RS		-		_					_	_	_		ANN S
HOR/ LAYER	DEPTH	1		TEXT.	% C G	C	SE F	TOTAL		RC AB.	SIZE	CLASS	KIND	PH	COMMENTS (mottles,	clay films, effervesc., etc
ZAh2	0-16	10YR 2/2	7	SIL	0	0	0	0	1	P	V				dry rolour 10XR 4/	2-1
Bal	16-30	2.575/2 7.5784/4	7	SIL	0	0	0	0	1	F	V				Therebyers came options Si	
Ahb	30 38	1	7		0	0	0	0	~	F	V					
Bg2	38-59	54.5/2 15 VR3/4	7	S	0	0	12	Ø	2	4					fine Sand well sorted	
Ca	53-100		7	S	0	0	0	0	-	N					F-IN sand well so	
AT	0-3			51				10					NO		A list the	my this to be Al

FS882 (2) HRE 98/5 \* Educated estimate from similar soil conditions.

Horizons designated as Ah1 and Ah2 are Ahsca1 and Ahsca2 according to the pH and Na in the lab analysis results. Ah1 was originally thought to be a humic organic horizon until lab results confirmed it to be a mineral horizon. Green edits on the form reflect this modification.

Nov 2011-11-16

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MOE-2011- 0246

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National Statement and Advantage

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## **APPENDIC B – SOIL LAB ANALYSIS RESULTS**

## **Analysis Report**

## **Ministry of Environment**

Environmental Sustainability and Strategic Policy Division

Knowledge Management Branch - Laboratory

S1218
Deepa Spaeth Filatow, P. Geo.
M.O.E. KMB Ecosystems
Soil samples for analysis.
2011/08/23
2011/09/15

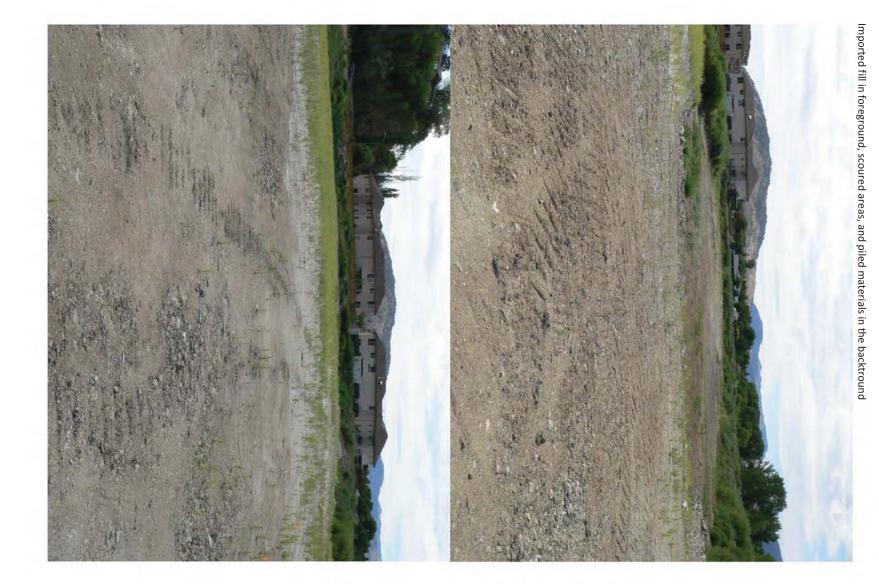
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1(Ahs1)	80	5.34	10629	5.87	176	1051	2265	125	8132	118.6	8666	9.05	22.3	7.96	8.57	0.730	19.4	63.4	17.2
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4(Bg1)	289	< 0.01	1733	4.38	459	33.1	314	54.5	264	2.19	229	0.63	2.65	8.32	0.42	0.031	10.5	84.4	5.0
5(Bg2)	293	< 0.01	758	3.26	421	28.9	201	59.8	134	0.85	93.1	0.68	1.69	7.48	0.24	0.020	67.3	30.2	2.5
6(Cg)	20.6	0.44	4571	0.97	837	150	569	112	378	9.10	353	0.69	3.80	8.06	1.38	0.112	19.0	72.2	8.9
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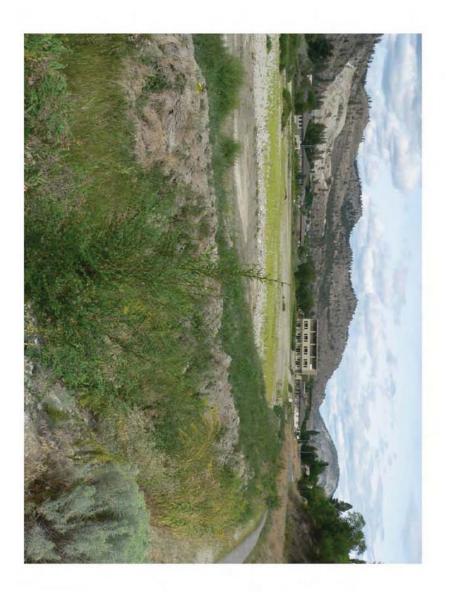
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7	109	< 0.01	8082	5.05	255	610	21280	25	99655	10.0	94088	0.37	85.0	8.61	Soil Sample 7 (Salt/Cca?, crust near pit soil site 1)

Deepa Spaeth Filatow, P.Geo and Corey Erwin, R.P.Bio, P. Ag. Ministry Of Environment, Knowledge Management Branch, Ecosystem Information Section Nov 2011-11-16













AQUATIC VEGETATION Alisma plantago-aquatica



Nov

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MOE-2011-00246 491









WILDLIFE TRACKS IN THE MUD





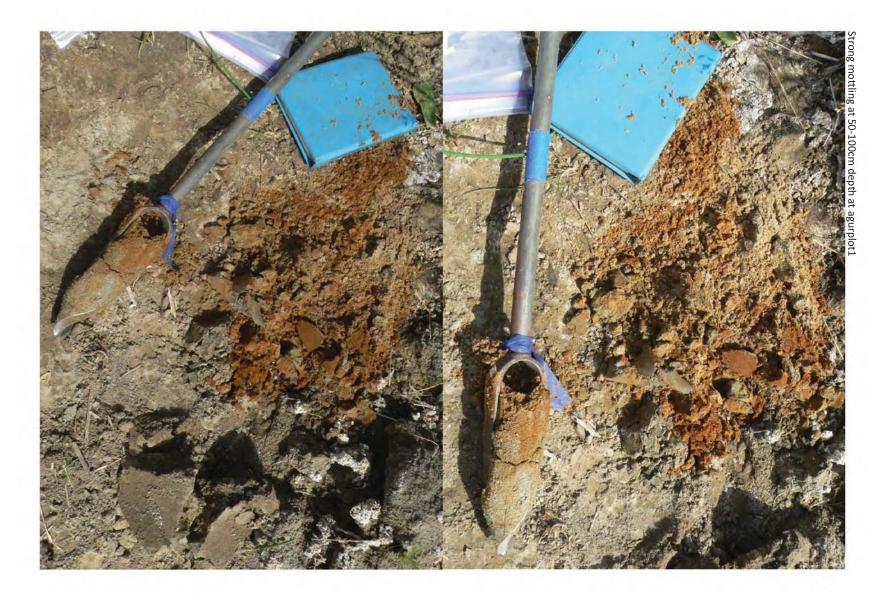


Blue Vervain







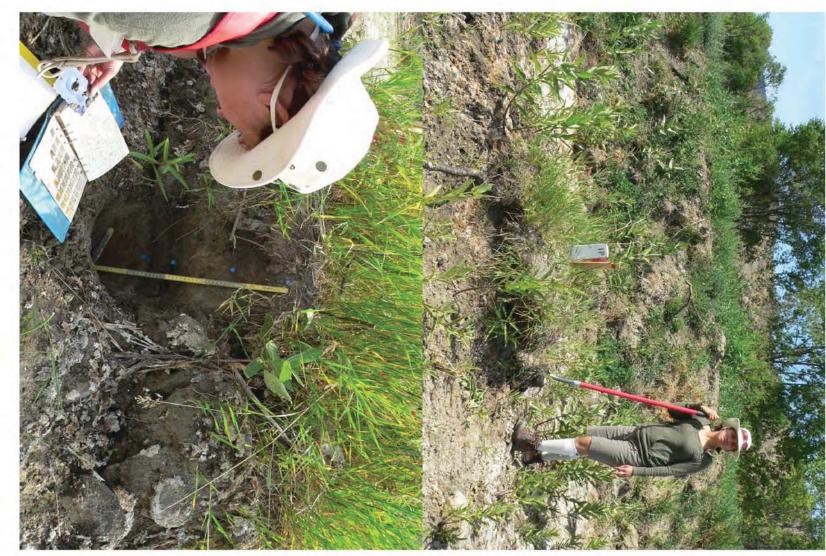




Deepa Spaeth Filatow, P.Geo and Corey Erwin, R.P.Bio, P. Ag. 2011-11-16 Ministry Of Environment, Knowledge Management Branch, Ecosystem Information Section 34



Soil provile at agurplot. Note burried horizons and mottling.













**APPENDIX D - Delinieation of Ecosystems** 

## Popowich, Tracy CSNR:EX

From:Baric, Keith J ENV:EXSent:Monday, April 18, 2011 10:14 AMTo:s.22Subject:Some info

Hi s.22

governments/developers should be adhering to. different Acts that help protect wetlands (even ones that are suspected)...and guidelines that local Great to speak with you yesterday. I have attached some information for you. One is the document link explains the

information in here very relevant to the sites that were impacted down in Oliver. http://www.env.gov.bc.ca/wld/documents/bmp/wetlandways2009/wetlandways\_docintro.html. There is some great

conducted by Ike Scheffler, but the SOSCP and the Town went jointly in on hiring Mike Sarell to do a comprehensive with the Town of Oliver (Stephanie Johnson) to see if you can get a copy of the report. There was an earlier report subsequently cleared and filled in. The report was a joint effort by SOSCP and the Town of Oliver. The work that was carried out by Mike Sarell (Ophiuchus Consulting) was specifically aimed at the lots that were I spoke with s.19 South Okanagan Similkameen Conservation Program) this morning. s.19 is going to check

time, taking their direction from Ecosystems (Grant Furness) with Ministry of Forest, Lands and NRO I also spoke with the Conservation Officer Service. Apparently, they have not been tasked with an investigation at this survey/assessment.

EDP areas. (Anna McIndoe) as a attempt to amend the OCP. You will notice the properties in question were identified as proposed I have also attached the original Environmental Development Map that we received in 2010 from the Town of Oliver



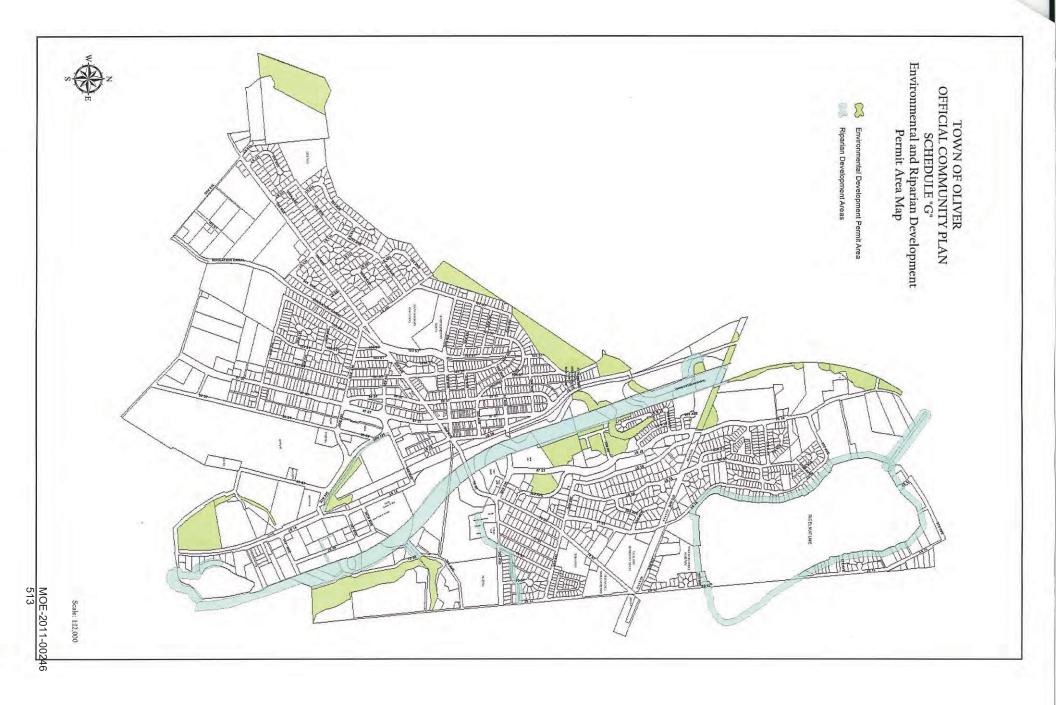
EDP areas proposed.pdf

information perhaps on their findings during their survey work in the area on these properties cited the fact that spadefoots were likely to occur on both sites. Note, the likely occurrence of spadefoots in the area was very high. Our original referral letter back to the developers s.22 s.22 can give you more

Regards,

Keith

Keith J. Baric- BSc. MSc. Planning Section Head- Okanagan Ministry of Environment Kootenay Okanagan Region ph: 250-490-8260 Fax: 250-490-2231 Keith.Baric@gov.bc.ca



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Attachments:	Subject:	To:	Sent:	From:
Heritage House pre demolition.JPG	Re: Some info	Baric, Keith J ENV:EX	Tuesday, April 19, 2011 3:14 PM	s.22

Keith, Check this photo out. Swamp grasses in light colour in centre of photo.

To: Sent: Monday, April 18, 2011 10:14 AM Subject: Some info From: Baric, -- Original Message ------- veith J ENV:EX s.22

Ξ. s.22

ō that help protect wetlands (even ones that are suspected)...and guidelines that local governments/developers should be adhering Great to speak with you yesterday. I have attached some information for you. One is the document link explains the different Acts

in here very relevant to the sites that were impacted down in Oliver http://www.env.gov.bc.ca/wld/documents/bmp/wetlandways2009/wetlandways\_docintro.html. There is some great information

I spoke with

that was carried out by Mike Sarell (Ophiuchus Consulting) was specifically aimed at the lots that were subsequently cleared and Town went jointly in on hiring Mike Sarell to do a comprehensive survey/assessment. Johnson) to see if you can get a copy of the report. There was an earlier report conducted by Ike Scheffler, but the SOSCP and the filled in. The report was a joint effort by SOSCP and the Town of Oliver. s.19 is going to check with the Town of Oliver (Stephanie s.19 ..South Okanagan Similkameen Conservation Program) this morning. The work

their direction from Ecosystems (Grant Furness) with Ministry of Forest, Lands and NRO. I also spoke with the Conservation Officer Service. Apparently, they have not been tasked with an investigation at this time, taking

I have also attached the original Environmental Development Map that we received in 2010 from the Town of Oliver (Anna McIndoe) as a attempt to amend the OCP. You will notice the properties in question were identified as proposed EDP areas.

properties cited the fact that spadefoots were likely to occur on both sites. on their findings during their survey work in the area Note, the likely occurrence of spadefoots in the area was very high. Our original referral letter back to the developers on these s.22 s.22 can give you more information perhaps

Regards,

Keith

Fax: 250-490-2231 ph: 250-490-8260 Kootenay Okanagan Region Ministry of Environment Planning Section Head- Okanagan Keith J. Baric-BSc. MSc. Keith.Baric@gov.bc.ca



Popowich, Tracy CSNR:EX	X
From: Sent: To:	Baric, Keith J ENV:EX Tuesday, April 19, 2011 3:37 PM s.22
bject: achments:	RE: Some info Oliver_Land_Clearing_East.jpg;    Oliver_Land_Clearing_West.jpg
Good photo that captures the vegetation quite well. of what the properties looked like prior to clearing/fill.	getation quite well. Here are some ortho maps that made provide some greater context e prior to clearing/fill.
From: s.22 Sent: April 19, 2011 3:14 PM To: Baric, Keith J ENV:EX Subject: Re: Some info	
Keith, Check this photo out. Swamp gr s.22	Keith, Check this photo out. Swamp grasses in light colour in centre of photo. s.22
From: Baric, Keith J ENV:EX To: s.22 Sent: Monday, April 18, 2011 10:14 AM Subject: Some info	0:14 AM
Hi s.22	I have attached some information for you One is the document link explains the different Acts
Great to speak with you yesterday. I have attached some informatic that help protect wetlands (even ones that are suspected)and guic to. <u>http://www.env.gov.bc.ca/wld/documents/bmp/wetlandways2009</u> , in here very relevant to the sites that were impacted down in Oliver.	Great to speak with you yesterday. I have attached some information for you. One is the document link explains the different Acts that help protect wetlands (even ones that are suspected)and guidelines that local governments/developers should be adhering to. http://www.env.gov.bc.ca/wld/documents/bmp/wetlandways2009/wetlandways_docintro.html. There is some great information in here very relevant to the sites that were impacted down in Oliver.
I spoke with s.19 that was carried out by Mike Sarell filled in. The report was a joint eff Johnson) to see if you can get a co Town went jointly in on hiring Mik	I spoke with s.19South Okanagan Similkameen Conservation Program) this morning. The work that was carried out by Mike Sarell (Ophiuchus Consulting) was specifically aimed at the lots that were subsequently cleared and filled in. The report was a joint effort by SOSCP and the Town of Oliver. s.19 is going to check with the Town of Oliver (Stephanie Johnson) to see if you can get a copy of the report. There was an earlier report conducted by Ike Scheffler, but the SOSCP and the Town went jointly in on hiring Mike Sarell to do a comprehensive survey/assessment.
I also spoke with the Conservation their direction from Ecosystems (G	I also spoke with the Conservation Officer Service. Apparently, they have not been tasked with an investigation at this time, taking their direction from Ecosystems (Grant Furness) with Ministry of Forest, Lands and NRO.
I have also attached the original Environme McIndoe) as a attempt to amend the OCP.	I have also attached the original Environmental Development Map that we received in 2010 from the Town of Oliver (Anna McIndoe) as a attempt to amend the OCP. You will notice the properties in question were identified as proposed EDP areas.
Note, the likely occurrence of spadefoots in the area properties cited the fact that spadefoots were likely t on their findings during their survey work in the area	Note, the likely occurrence of spadefoots in the area was very high. Our original referral letter back to the developers on these properties cited the fact that spadefoots were likely to occur on both sites. s.22 can give you more information perhaps on their findings during their survey work in the area s.22

Keith

Keith J. Baric- BSc. MSc. Planning Section Head- Okanagan Ministry of Environment Kootenay Okanagan Region ph: 250-490-8260 Fax: 250-490-2231 Keith.Baric@gov.bc.ca





## Popowich, Tracy CSNR:EX

Sent:       Thursday, April 21, 2011 1:26 PM         To:       Hamilton, Bob ENV:EX         Cc:       Beck, Jim L ENV:EX; Baric, Keith J ENV:EX         Schoot:       DE: Olivor works on private land	-
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Apparently things are not what they first appeared.

I believe there are now two areas. One was the area to be subdivided which I am comfortable is not a compliance issue, appears that there was at least one wetland, and it was mapped by Christina, on our inventory. and the other is now a potential unauthorized infill that is a block or so away, and distant to the channel. However, it

I am currently putting all the info into the Case Files.

In neither case does RAR apply.

I will speak to Keith.

Grant Furness Ecosystems Section Head Ministry of Forests, Lands and Natural Resource Operations Penticton 250.490.8277

From: Hamilton, Bob ENV:EX Sent: Thursday, April 21, 2011 12:07 PM To: Furness, Grant A FLNR:EX Cc: Beck, Jim L ENV:EX Subject: FW: Oliver works on private land

Grant, would you like to address Keith's concerns? I believe this is a RAR issue.

From: Baric, Keith J ENV:EX Sent: Thursday, April 21, 2011 12:00 PM To: Hamilton, Bob ENV:EX Subject: Oliver works on private land

Hi Bob:

Sorry to bother you as I realize you are very busy.

from MoE. jurisdiction here, this is more Grant's agency's (FLNRO) work, but this member of the public wanted to talk to someone request of the member of the public). Note, most of my work deals with SOWMA so I realize I am stretching my Okanagan River. s.22 informed me that you were on site recently and had a look. I too went and had a look (at the A member of the public contacted me last week, very discouraged about some infilling on private land adjacent to the

a picture of the eastern most lot next to Heritage House taken in 2009. I realize that the property is not connected to the river, hence RAR doesn't apply. However, the member of the public east of the dyke) as well as an adjunct parcel next to Heritage House did contain water and wetland species. s.22 sent me out that the area is starting to fill up with water as the river comes into freshet. s.22 argument is that this large lot (just illustrated to me with a tape measure that the clearing just east of the dyke was well within 30metres. s.22 also pointed

walked in the area in the past, I thinks.22 may be right. Of course they are both filled in now so it is very difficult to determine what they looked like before, but since I have

Anyhow, just thought I would relay the information passed onto me

I also realize the legislation is on wetlands and enforcement of the Water Act is in transition. However, I thought that public. Perhaps you can educate me on this at some point because I really didn't have a good answer for the member of the document attached <a href="http://www.env.gov.bc.ca/wld/documents/bmp/wetlandways2009/wetlandways\_docintro.html">http://www.env.gov.bc.ca/wld/documents/bmp/wetlandways2009/wetlandways\_docintro.html</a>). even wetlands are considered a stream under the Act. Even our own publications state that (i.e., section 2.2 of the

Photos are attached.

IMG\_0035.JPG >> << File: IMG\_0036.JPG >> << File: IMG\_0038.JPG >> << File: IMG\_0039.JPG >> << File: IMG\_0040.JPG >> << File: Heritage House adjacent land parcel before infill.JPG >> << File: IMG\_0037.JPG >> << File: IMG\_0041.JPG >> << File:

Keith J. Baric- BSc. MSc. Planning Section Head- Okanagan Ministry of Environment Kootenay Okanagan Region ph: 250-490-8260 Fax: 250-490-2231 Keith.Baric@gov.bc.ca

















## Popowich, Tracy CSNR:EX

FLNR:EX; Hamilton, Bob ENV:EX; Okanagan Compliance Mailbox ENV:EX Request: Oliver Land Clearing	Cc: Baric, Keith J ENV:EX; Nield, Lora M FLNR:EX; Beck, Jim L ENV:EX; Pryce, Conrad	To: Dyer, Orville N FLNR:EX	Sent: Wednesday, May 11, 2011 9:30 AM	From: Furness, Grant A FLNR:EX
x ENV:EX	:EX; Pryce, Conrad			

Orv: I need you to compile an evidence package as we move forward on compliance actions.

between 87 St and the Okanagan River channel. PID: 008 814 864. The pond was in the SE part of the lot. clearing. The property in question is the Singla Bros. parcel, which is the southern of the two properties, located was based on our ability to demonstrate that a stream (Water Act definition) occurred on the site prior to the land WS, ES and COS met yesterday, and we are pursuing compliance action on one of the three properties. That decision

Preliminary evidence that the area was a stream was based on 3 factors:

- <u>-</u> Current surface ponding of water
- Our wetlands mapping. This information came from Lora Nield
- ωN see if s.22 has any historic pictures of the site that s.22 can share. Mapping from CWS, and a reference name of Devon Pond for the site. This info came from s.22 Also

this point. area was a stream. compliance action can be compiled. Secondly, I need you to put together a 2 pager on the findings – with a focus on the out a LoA in the immediate future, but need to be sure the information that was used in us reaching agreement for What I need you to do asap is scope out points 2 and 3, and confirm we are on solid ground. We are planning to send We are not required to compile info on environmental values (e.g. species and ecosystems at risk) at

Please confirm that you can put this together. Please come and discuss if you have any questions.

Ξ.

Penticton Natural Resource Operations Ministry of Forests, Lands and Grant Furness 250.490.8277 **Ecosystems Section Head** 

Popowich, Tracy CSNR:EX
From:       Furness, Grant A FLNR:EX         Sent:       Wednesday, May 18, 2011 3:56 PM         To:       Dyer, Orville N FLNR:EX; Thomson, Skye FLNR:EX         Cc:       Pryce, Conrad FLNR:EX; Hamilton, Bob ENV:EX; Beck, Jim L ENV:EX; Nield, Lora M
FLNR:EX; Hernan, Machelle R FLNR:EX; Baric, Keith J ENV:EX RE: Emailing: Dyer-Thomson 2011 Oliver land clearing wetland habitat information
Tx. For doing this. Please review the document with the intent of adding the Agur property as well. This is the property to the immediate north. Upon a field inspection today, the ponded water on the Agur property is sufficient to treat both properties in a similar manner. Our intent is to provide a Letter of Advice for both.
Please treat in confidence in the short term.
Tx.
Grant Furness Ecosystems Section Head Ministry of Forests, Lands and Natural Resource Operations Penticton 250.490.8277
Original Message From: Dyer, Orville N FLNR:EX Sent: Wednesday, May 18, 2011 3:25 PM To: Thomson, Skyp El NR-EX
Thanks Skye
Grant: the Oliver land clearing summary has been updated on L drivesee below.
Orville Dyer RPBio Ecosystems Biologist Ministry of Natural Resource Operations, Penticton 102 Industrial Place,
Penticton, BC, V2A 7C8 Phone (250) 490-8244 Fax (250) 490-2231 email:orville.dyer@gov.bc.ca
Original Message From: Thomson, Skye FLNR:EX Sent: Wednesday, May 18, 2011 12:59 PM To: Dyer, Orville N FLNR:EX
Cc: Pryce, Conrad FLNR:EX Subject: RE: Emailing: Dyer-Thomson 2011 Oliver land clearing wetland habitat information
Orv, I have added my comments to the attached technical report. My comments are in italicized font. I also saved it on the L drive.

Cheers, Skye

-----Original Message-----From: Dyer, Orville N FLNR:EX Sent: Wednesday, May 18, 2011 10:00 AM To: Thomson, Skye FLNR:EX Subject: Emailing: Dyer-Thompson 2011 Oliver land clearing wetland habitat information

Skye:

Thanks for showing me the snipping tool. Very helpful!

The location of the file is...

L:\General\Compliance and Enforcement\Case Files\FY2011\Oliver - River Bottom Lots\QP Reports