




FW: Brooklyn Creek Washout

May 6, 2019 8:36 AM

Subject	FW: Brooklyn Creek Washout
From	Hawkings, John FLNR:EX
To	Jordan, Peter FLNR:EX
Cc	Chow, Brian FLNR:EX; Trent, Tennessee FLNR:EX
Sent	April 19, 2013 9:58 AM
Attachments	<div><p>IMG-20130 409-00149</p></div> <div><p>IMG-20130 409-00150</p></div>



IMG-20130
409-00151



IMG-20130
409-00152

IMG-20130
409-00152



IMG-20130
409-00153



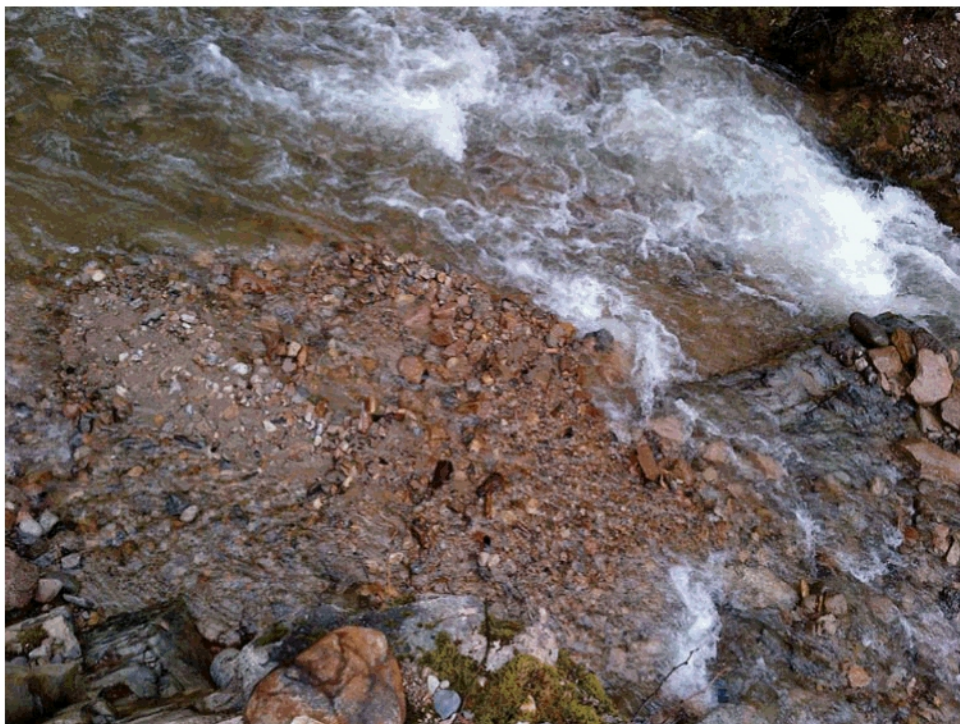
IMG-20130
409-00154



IMG-20130
409-00154



IMG-20130
409-00155



Hi Peter,

Just wanted to pass on this note from the resident at Brooklyn as it may provide additional information to assist in your evaluation.

Thanks,
John

From: s.22

Sent: Thursday, April 18, 2013 2:05 PM

To: Hawkings, John FLNR:EX

Cc: Brown, Edena Y LASS:EX

Subject: RE: Brooklyn Creek Washout

Importance: High

Edena/John,

We are already having another avalanche of gravel coming down the creek. It has already filled the dam for the power station, and the domestic water reservoir filled so much full of gravel, it forced the creek to re-route over the top and wash it out. We had the excavators in to clean it out, but it is already filling again. All this, and we haven't even had spring run-off yet.

What are you going to do about this and when are you coming to clean the mess up?

s.22

From: Hawkings, John FLNR:EX [mailto:John.Hawkings@gov.bc.ca]

Sent: April-02-13 2:41 PM

To: s.22

Cc: Brown, Edena Y LASS:EX

Subject: Brooklyn Creek Washou

s.22

I wanted to let you know that I have been in contact with Edena Brown, Constituency Assistant for MLA Katrine Conroy. We will be undertaking further assessment of the 2012 slide at Brooklyn/Pup Creek as well as an additional assessment of current situation. I will be in touch when I have further information.

Thanks,

John Hawkings

Manager, Trails




Ministry of Forests, Lands and Natural Resource Operations

Ph 604.898.2105 | Fax 604.898.2191

<mailto:John.Hawkings@gov.bc.ca>

FW: Brooklyn Creek Washout

May 6, 2019 8:38 AM

Subject	FW: Brooklyn Creek Washout
From	Hawkings, John FLNR:EX
To	Jordan, Peter FLNR:EX
Cc	Chow, Brian FLNR:EX; Marshall, Bill J FLNR:EX; Trent, Tennessee FLNR:EX
Sent	April 30, 2013 8:14 AM
Attachments	<div><p>IMG-20130429-00246</p></div> <div><p>IMG-20130429-00245</p></div>



IMG-20130
429-00244



IMG-20130
429-00243

IMG-20130
429-00243



IMG-20130
429-00242



IMG-20130
429-00241



IMG-20130
429-00241



IMG-20130
429-00240





IMG-20130
429-00239



IMG-20130
429-00238



IMG-20130
429-00237



IMG-20130
429-00236



Hi Peter,

Some recent correspondence and pictures from a resident of Brooklyn. I was wondering if you have had a chance to visit the site and have a look?

Thanks,
John

From: s.22
Sent: Monday, April 29, 2013 9:57 PM
To: Hawkings, John FLNR:EX
Cc: s.22
LASS:EX
Subject: RE: Brooklyn Creek Washout
Importance: High

Brown, Edena Y

John,

We were finally able to get through the snow to find out what is going on with the disaster up at the rail bed. We discovered what we had all expected, because nothing was done properly last year to fix this mess, a large portion of the bank on the South side has collapsed into the creek. This is not surprising that was going to happen, one can only look at the pictures and figure it out. I believe this would explain the continued mess washing down on the power and domestic water intakes for all of us.

It has almost become a full time job having to have somebody handy with a large excavating machine to rescue the community, especially every time more earth comes down. The amount of general silt and gravel, even without the large earth movements is ridiculous. We don't believe there is a community in the entire province of British Columbia that would put up with this for more than one day.

We are asking now what the government is going to do immediately to fix this situation? What happens

if more and or larger portions continue to collapse into the creek? What is going on with the section of the creek that is just running in no man's land through the bush? Why was all this not fixed last year?

We would like a very frank answer, this has been going on now for a year and nothing has been done to fix anything.

Please let us know immediately how and when this is going to be handled.

Best regards,

s.22

From: Hawkings, John FLNR:EX [<mailto:John.Hawkings@gov.bc.ca>]
Sent: April-02-13 2:41 PM
To: s.22
Cc: Brown, Edena Y LASS:EX
Subject: Brooklyn Creek Washou

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Thanks,

John Hawkings
Manager, Trails
Ministry of Forests, Lands and Natural Resource Operations
Ph 604.898.2105 | Fax 604.898.2191
<mailto:John.Hawkings@gov.bc.ca>

FW: Brooklyn Creek Washout7

May 6, 2019 8:50 AM

Subject	FW: Brooklyn Creek Washout7
From	Hawkings, John FLNR:EX
To	Chow, Brian FLNR:EX
Cc	Jordan, Peter FLNR:EX
Sent	May 6, 2013 3:24 PM
Attachments	 1518b  LB484340

Hi Brian,

We should probably discuss this response from **s.22** **s.13**
s.13

John

From: **s.22**
Sent: Monday, May 6, 2013 1:35 PM
To: Hawkings, John FLNR:EX
Cc: Brown, Edena Y LASS:EX
Subject: RE: Brooklyn Creek Washout
Importance: High

John,

Can you please send us the name of the engineer, and engineering firm, and when they are coming.

s.22

The results from all that are very clear this spring what has gone on, and is no longer acceptable at the cost of our drinking water, power system, and watershed. We will not tolerate this sort of activity at our cost of another disaster continuing to come down the creek on top of us, like already this spring, just so an engineering firm can try to make a job last longer for more money. We are looking for clear assurances from you and the government that this will not happen again. We want to be thoroughly involved in the plans made to remediate the rail grade, entire creek, the power station intakes, the drinking water well drilling, and properties/structures remediation down at Brooklyn. The impute, and decisions from all of the drinking water users, property owners, and community members of Brooklyn, will be part of the plan to remediate this entire mess, and there is a return to a long term comfort level acceptable for all of use affected.

On another note, the rail grade from the tunnel side going to Faron and the Paulson highway is completely snowed in. There is a possibility of coming from the bottom at Castlegar, but there still could be some shaded spots not open, I am not quite sure. If it is required, I suggest coming across in a boat to Brooklyn, and getting a ride up to the disaster. We know the road is open for sure, and then they can walk down the creek to the bottom here at Brooklyn. It is just a suggestion.

Best regards,

Jeremy

From: Hawkings, John FLNR:EX [mailto:John.Hawkings@gov.bc.ca]
Sent: May-06-13 9:21 AM
To: **s.22**
Subject: RE: Brooklyn Creek Washout

s.22

We have reviewed the report by Deverney Engineering as well as the photos you have send. Engineering and geo-

technical staff will visit the area and the site and assess the situation shortly. I will follow up with you after they have assessed the site and communicated back with us on findings and any recommendations.

Thanks,
John Hawkings

From: s.22
Sent: Monday, April 29, 2013 9:57 PM
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Cc: s.22
Subject: RE: Brooklyn Creek Washout
Importance: High

Brown, Edena Y LASS:EX

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We would like a very frank answer, this has been going on now for a year and nothing has been done to fix anything.

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Best regards,

Jeremy Nelson

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John Hawkings
Manager, Trails
Ministry of Forests, Lands and Natural Resource Operations
Ph 604.898.2105 | Fax 604.898.2191
<mailto:John.Hawkings@gov.bc.ca>

s.3

Page 016 to/à Page 024

Withheld pursuant to/removed as

s.3

Boyer, Dwain

To: DRNICOL
Subject: RE: CP Rail Fill

We formally advised CPR to fly the line annually to check structures. Wrt this site; I was advised to let them know of the problem and advise them of the consequence of inaction. This decision because of our need to prioritize activities. However, now that we are aware of CPR and BNR problems and the fact that groups are lobbying government to buy these linear properties for recreation use; I am going to write an issue paper to address the problem using this and the BNR failure up Cottonwood as make the point about the huge liability tied to these ROW's. Hopefully, the exposure will prompt action by CPR and BNR.

From: DRNICOL
To: DBOYER@NELSON.ENV.GOV.BC.CA
Subject: RE: CP Rail Fill
Date: Monday, September 29, 1997 8:33AM

To: DBOYER --INTERNET DBOYER@NELSON.ENV.

Has CPR been requested to repair/ are they required to repair sections of their right of way that have a high likelihood of failure?

.ACOOMBS MBJONES

Regards,
Douglas Nicol
Regional Geotechnical Engineer
*** Forwarding note from DBOYER --INTERNET 09/26/97 09:04 ***
Subject: RE: CP Rail Fill
To: DRNICOL <DRNICOL@MFOR01.FOR.GOV.BC.CA>

A property owner on the Lake (Arrow) notified me of the slump late May 96. I inspected May 23, 1996 and notified CPR (Eric Williamson, P.Eng., 469-6305). They flew it on June 5, 1996 and said the freshet flows were over and that they were not taking any action at that time. He advised that there is a concrete culvert under the fill that seem to discharging.

I wrote a memo report and sent it to CPR and the landowner and our enforcement people Sept, 1996.

Soon thereafter I received a request for approval of a subdivision on the Lake below the slump. I attended the site on Sept 18, 1996. I observed by digging at the downstream toe that there was indeed a arc culvert. I walked the creek to the lake and determined that most of the debris from a failure would likely runout on two benches (11 and 9%). There would be a slug of soil and debris and water entering the lake and a risk of some remobilization so I approved the subdivision with a large setback to prevent buildings being put at risk. I also did not identify any buildings that would be impacted. The existing houses are setback from the creek sufficient distances.

Page 1

Let me know if you want any of the file information. This reminds me to include these properties in the list of risky areas I will have to identify with the Regional District.

From: DRNICOL
To: DBOYER@NELSON.ENV.GOV.BC.CA
Subject: CP Rail Fill
Date: Thursday, September 25, 1997 4:46PM

To: DBOYER --INTERNET DBOYER@NELSON.ENV.
cc: MBJONES --MFOR01 Marvin Jones ACOOMBS --MFOR01 Al Coombs
DRNICOL --MFOR01

I talked to [REDACTED] re: water being ponded behind the abandoned CP rail line (near the Bulldog FSR) between the tunnel and the rockfall. He indicated that due to a plugged culvert, 50 feet of water was being ponded behind fill (fill length up to 100m) and is over topping the rail bed. Access has been reduced from 20' to 4' (constantly being repaired by ATVs). [REDACTED] had concerns with respect to safety of recreation users, environmental impact, and ensuring the integrity of the railbed for longer term access.

I relayed a message to Dave Wilford of CP regarding a potential slide and they were going to make direct contact with [REDACTED].

[REDACTED] also indicated that you have been on sight Dwain sometime this year. What is your assessment of the situation and has CP been previously contacted?

Marvin, could this have any impact on the proposed FSR through this area?

Regards,
Douglas Nicol
Regional Geotechnical Engineer

Memo to File:

June 8, 1996

5
Eric Wilson; CP Rail left me a message saying that he had flown over the site yesterday and that "everything was o.k. for the time being" and that he will forward a letter.

Dwain Boyer

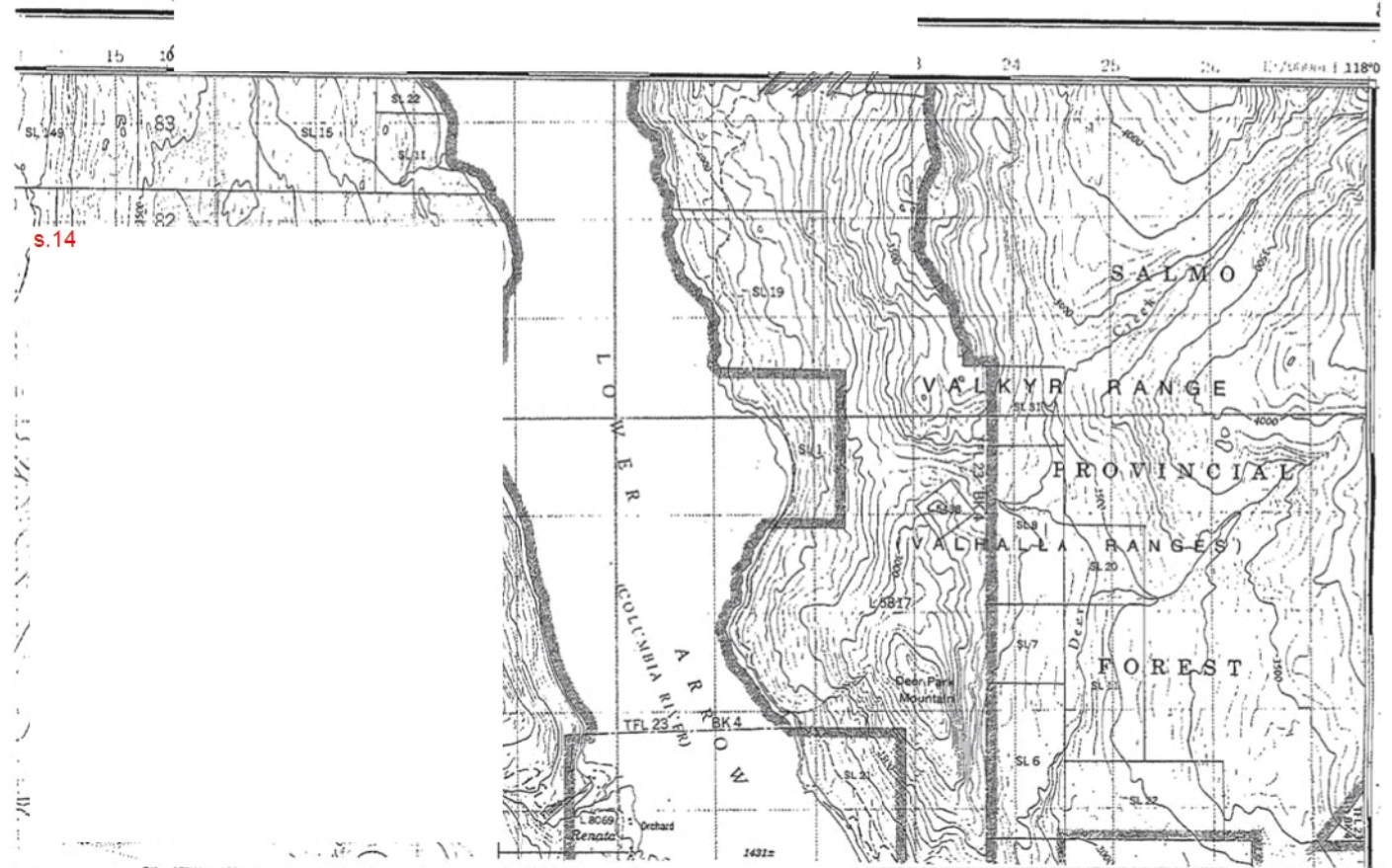
1
*no significant pondage
snow almost gone in watershed
6' concrete culvert shown on their file*

cl not doing anything at this time.

Wain - s.14

office

82-E-8
1:50,000



FILE REPORT: 76800-20/05079

CPR Landslide Brooklyn Creek

Background:

May 22, 1996, [REDACTED] called the office to report a landslide off the abandoned CPR line on the west side of Arrow Lake.

He reported that a section (200' long) of the railway fill had slide into Brooklyn Creek and there is the potential for another larger slide that could damage their water intakes and properties. It could reach the Arrow Lake. There are 5 recreation homes adjacent to the creek, on the lake, that are at risk.

[REDACTED] speculated that the slide occurred a few weeks ago. They had experienced silty water which is uncommon at such low flows.

Site Investigations:

May 22 evening I had a conversation with [REDACTED]. May 23, I am attending the site. I called CPR Revelstoke, May 22 to alert CPR of the problem and ask if they had flown the boundary line recently. Ed Palsz (837-246). He said he would make inquiries and return my call.

Attached 1:50,000 shows the location of the slide. BC 7849 109-111 also cover the area.

I attended the site at 11:00 a.m., took photos, took necessary measurements and recorded some video footage.

Rough dimensions of the fill failed material and pondage are shown on the attached sketches. The slump was on the upstream side of the crossing. (photos 1 - 61) There was no evidence of any culvert through the base of the structure at the time. The upstream side of the railway grade was covered in debris (photos 3, 5 & 6). There was no evidence of a culvert at the downstream side of the railway grade (photos 11 & 12). Approximately 100 m upstream from the crossing, in a 1.3 m wide and 0.6 m deep half culvert (see photos 7, 8 & 9) was used to convey the water by the structure and discharge it on the slope as shown in the sketch and photos 9 & 10. The flow in the creek above the structure was estimated at 7 ft³/s.

Unfortunately, a section of the conveyance channel failed (see photos and sketch) resulting in all the water flowing to the railway crossing embankment. The failure was caused when foundation pedestals were displaced by a minor hill slope failure. The water flowing into and ponding against the fill may have caused the failure of the railway fill.

Approximately 7 ft³/s was exiting the ^{toe} toe of the fill as shown in photo 8 and sketch # 1. There was no evidence of distress or weakening of the remaining railway grade. There was no seepage or slumping on the down slope face of the fill and there was only minor evidence of fines emerging at the toe. The base of the fill seems to have a large percentage of large rock.



Province of
British Columbia
MINISTRY OF ENVIRONMENT
LANDS AND PARKS

BC
Environment

#401 -333 Victoria Street
Nelson, British Columbia
V1L 4K3
Telephone: (604)354-6333
Main Fax: (604)354-6332
EP Fax: (604)354-6367

wrong #
File: ~~76800-20/05079~~

September 20, 1996

CP Rail
PO Box 50
Revelstoke BC V0E 2S0
Attention: Eric Williamson / Ed Palsz

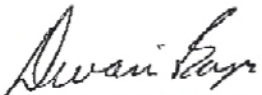
and

s.22

Re: Landslide on Brooklyn Creek

Attached is a copy of my report on the slide off the CP Rail Line at the tributary to Brooklyn Creek.

Yours truly,


Dwain Boyer, P. Eng.
Engineering Section Head

DCB:lp

cc: Conservation Officer Service, Castlegar

attachment

CPR Landslide Brooklyn Creek

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Approximately 7 ft³/s was exiting the ^{toe} of the fill as shown in photo 8 and sketch # 1. There was no evidence of distress or weakening of the remaining railway grade. There was no seepage or slumping on the down slope face of the fill and there was only minor evidence of fines emerging at the toe. The base of the fill seems to have a large percentage of large rock.

Waterline on the trees and valley wall upstream of the railway grade suggest that water levels (pondage) has been 2-3 metres higher than today. (Could also be marks left when the fill failed).

The estimated distance from the crossing to full pondage upstream is 100 m. Pondage on May 23 was 78 m.

At 2:30 p.m. I called Ed Palsz; CP Rail. He advised that they had not flown the line yet, but had plans to do so in 2 weeks. They had not received any notification of a landslide. When asked what should be done I advised him to inspect the site. At a minimum they could fix the bypass channel to get through high water. There is still plenty of snow in the mountains and we can expect higher runoff when we get a warm spell.

I also walked to the Pup Creek crossing and noted that the culvert under this large fill is partially blocked. The concrete wing wall on the right side of the inlet structure has fallen into the channel.

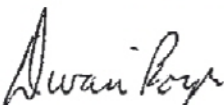
On Sept. 18, 1996, I walked the creek channel down to the lake and had a better look at the downstream side of the railway grade. By digging into the fill I was able to confirm that there was a concrete culvert under the fill. The downstream side has been buried for many decades. It is unlikely that a significant volume of material in the form of a debris flow, initiated by a mass failure of the railway grade, would reach the properties on the lakeshore. At the site the gradients are steep enough to mobilize a debris flow. However, there are a number of flatter reaches downstream where the main volume of debris would arrest. During such an event there would obviously be major impacts on water quality. The water supply system for the residents would be damaged. Also, there could be flooding of private property.

Office Assessment:

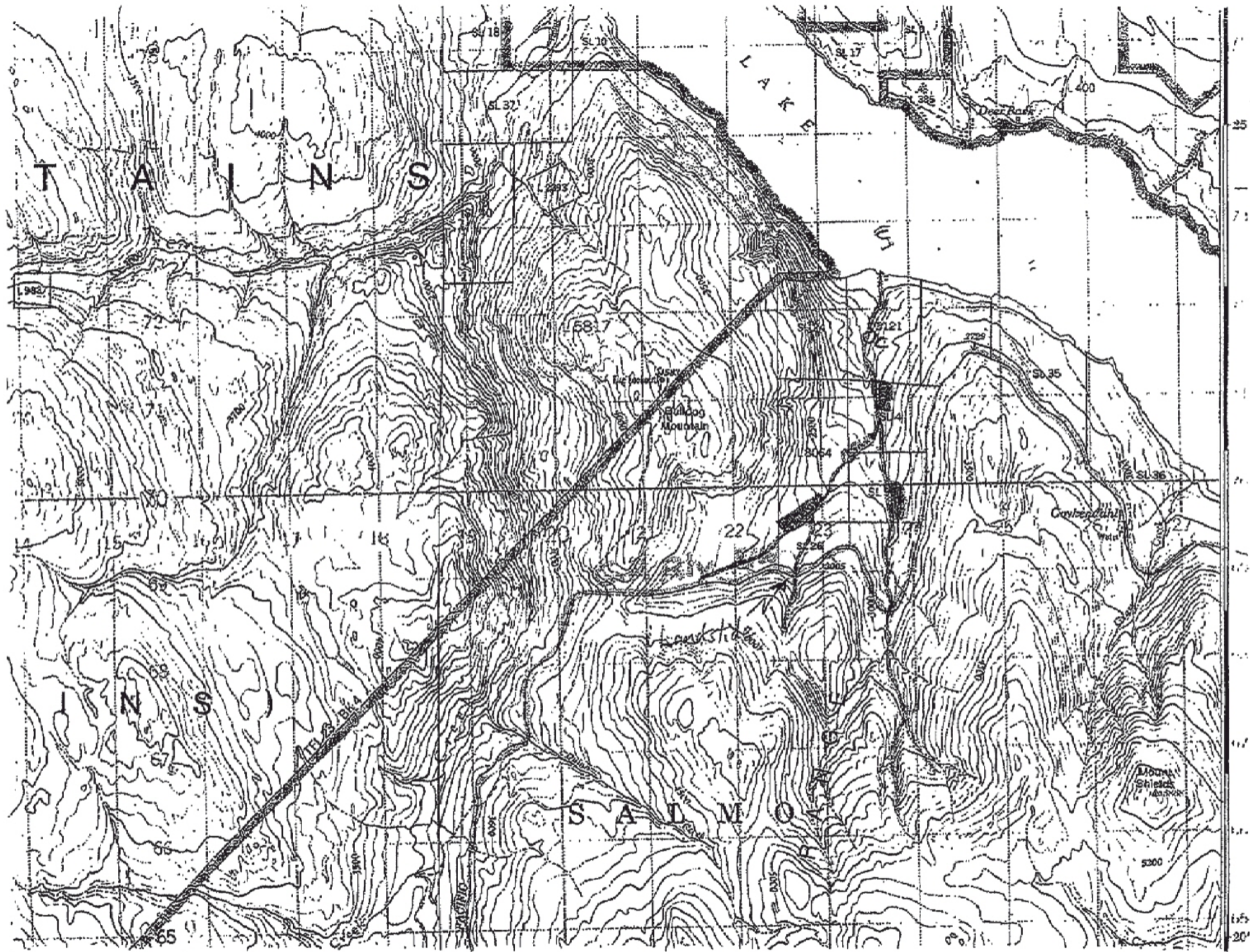
May 24 a.m., Eric Williamson; structural engineer 489-6305 (w), 489-8675 (cell), 489-7428 (autotel), returned my call to advise that he had flown the line April 30 and the crossing was fine. He advised that he would discuss with Ed Palsz and get back to me so I could advise s.22

I plotted the profile of the creek channel and examined air photos. If the railway fill fails it will run on the 20% slope to the confluence with Brooklyn Creek (see location map) and down Brooklyn Creek some distance. However, there appears to be a low gradient reach about 600 m long, where a lot or all of the course material may settle out.

However there would be a significant impact on water systems and a flood way during the freshet could cause property damage. A debris flow event would also have negative impact on the fishery resource.



Dwain Boyer, P. Eng.
Engineering Section Head



300'

20-40'

Lake is behind

May 23/96

Site Sketches: Brooklyn Creek

Sketch 1
N/S

To
Arrow
Lake

20%

15%

3%

32m

100m

70m

A: & cross section

Top of r.t. grate

60m

70m

1.3m

0.2

10cm

7 ft 3/8

B Plan Sketch

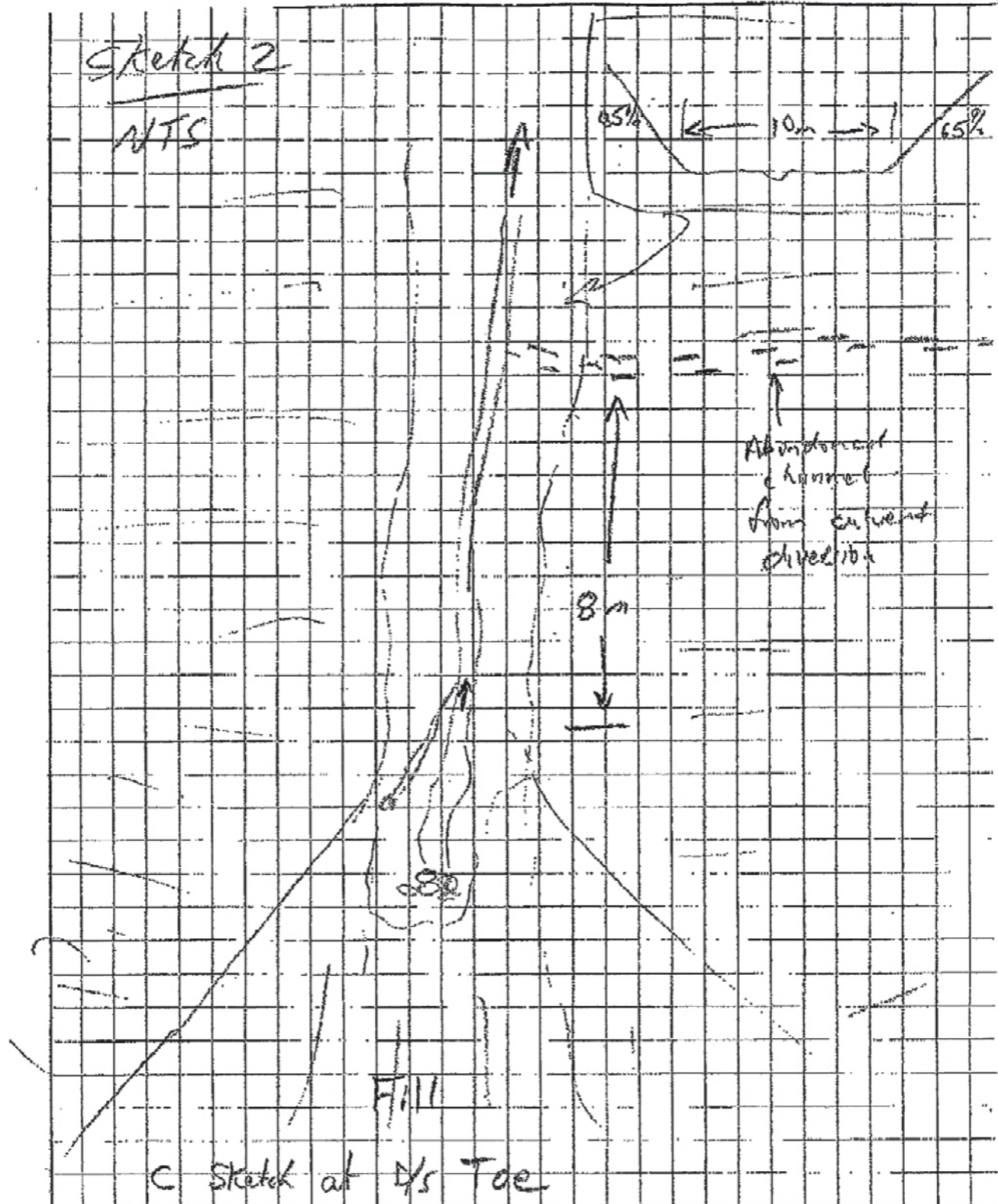
60%

5m

60%

Sketch 2

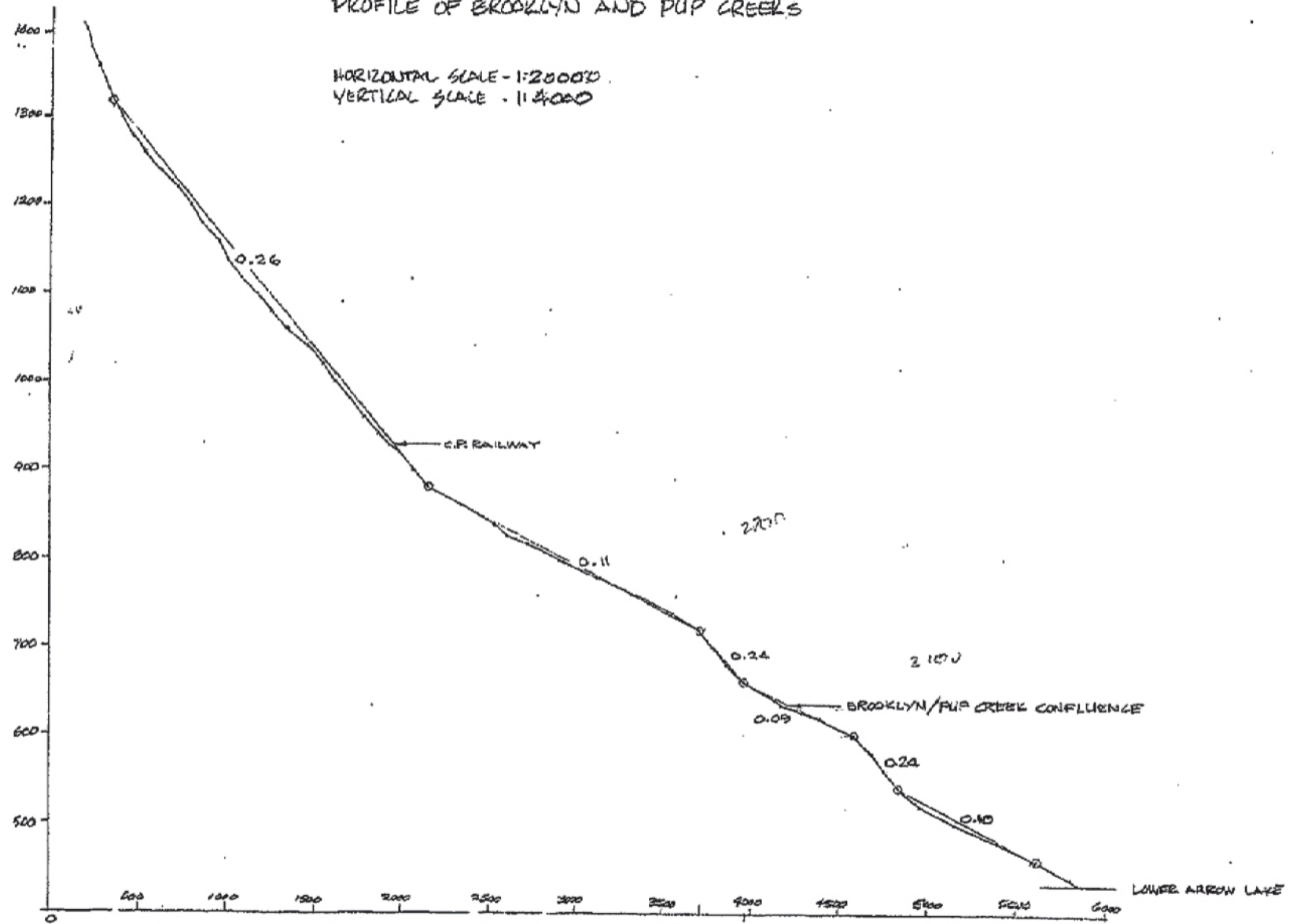
NTS



C Sketch at 1/5 Toe

PROFILE OF BROOKLYN AND PUP CREEKS

HORIZONTAL SCALE - 1:20000
VERTICAL SCALE - 1:4000



BROOKLYN CREEK - CPR FAILURE

MAY 23, 1996

1. View of fill failure looking east
2. Closer view of fill failure looking east
3. Closer view of fill failure looking east - diversion channel
4. View of remaining fill
5. View of gully upstream from vantage point on top of railway fill
6. View of failure looking west
7. View of half culvert side hill diversion channel. Arrow points to diversion structure
8. View of failed section of channel
9. End of diversion channel
10. Dry channel down slope where water was previously diverted
11. Flow emerging from downstream toe of fill. Arrows show two spots where flow emerges
12. Closer view of main flow from toe of fill.













7



8



9



10


11





FW: Follow up on Brooklyn Creek Assessment

May 6, 2019 9:18 AM

Subject	FW: Follow up on Brooklyn Creek Assessment
From	Hawkings, John FLNR:EX
To	Chow, Brian FLNR:EX
Cc	Jordan, Peter FLNR:EX; Trent, Tennessee FLNR:EX
Sent	July 22, 2013 9:41 AM
Attachments	 MOF_Lands_Hawki...

Hi Brian,

Just to keep you in the loop on Brooklyn Creek. Here is a proposal from Terra Erosion for some preliminary assessment and prescription work. I anticipate going ahead with the proposal.

John

From: Pierre Raymond [<mailto:pierre@terraerosion.com>]
Sent: Monday, July 22, 2013 8:44 AM
To: Hawkings, John FLNR:EX
Cc: Will Halleran
Subject: RE: Follow up on Brooklyn Creek Assessment

Hi John,

s.22 . I had a meeting with Will Halleran to discuss the Hawkings Creek project and we could do the assessment in August if you would like us to do so. Attached is an estimate to carry out a field visit, develop a report, recommendations and cost for implementation of the work.

Please let me know if you would like to proceed with this and/or if you have any questions.

Regards,

Pierre Raymond
Terra Erosion Control Ltd.
Tel: 250 352 2757 Fax: 250 352 2756
www.terraerosion.com

From: Hawkings, John FLNR:EX [<mailto:John.Hawkings@gov.bc.ca>]
Sent: Tuesday, July 16, 2013 11:00 AM
To: Pierre Raymond
Subject: Follow up on Brooklyn Creek Assessment

Hi Pierre,

In reference to our discussion on June 6, I wanted to follow up on the possibility of Terra Erosion Control doing an assessment and mitigation of the landslide at Brooklyn/Pub Creek on Arrow Lake. I was wondering if you have had a chance to consider this project further.

Thanks and I look forward to hearing from you,

John Hawkings
Manager, Trails
Ministry of Forests, Lands and Natural Resource Operations
Ph 604.898.2105 | Fax 604.898.2191
<mailto:John.Hawkings@gov.bc.ca>



Terra Erosion

July 20, 2012



Terra Erosion Control Ltd.

July 20, 2012


Ministry of Forests, Lands and Natural Resource Operations Brooklyn Creek Slide Assessment Proposal for Consulting Fees & Rates

Tasks	Labour		Materials & Equipment			
	PR	WH	Unit	Quant.	Rate	Total
	\$100.00 \$/Hr	\$110.00 \$/Hr				
Task 1 - Site Visit and Reconnaissance						
1.1	Communication with client	1.0				
1.2	Preparation and planning	4.0	4.0			
1.3	Proposed field assessment (Date TBA August 16 to 20, 2013)	10.0	10.0	Truck	1	\$140
Task Total Hours		15.0	14.0	Sub-Total Cost		\$140
Sub-Total Cost		\$1,500	\$1,540			
Total Estimated Cost					\$3,180	
Task 2 – Development of Proposed Options for Treatment and Cost Estimate for Implementation						
2.1	Design Coordination & Communication with Client	2.0	0.0			
2.2	Proposed Site Prescription Development, Cost Development	40.0	16.0			
Task Total Hours		42.0	16.0			
Sub-Total Cost		\$4,200	\$1,760			
Total Estimated Cost					\$9,140	

Note: All receipts to be submitted for invoice
10% mark-up included in materials, equipment, expenses and subcontractor.

FW: Follow up on Brooklyn Creek Assessment

May 6, 2019 9:19 AM

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To	Chow, Brian FLNR:EX
Cc	Jordan, Peter FLNR:EX; Trent, Tennessee FLNR:EX
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Subject: RE: Follow up on Brooklyn Creek Assessment

Hi John,

s.22 . I had a meeting with Will Halleran to discuss the Hawkings Creek project and we could do the assessment in August if you would like us to do so. Attached is an estimate to carry out a field visit, develop a report, recommendations and cost for implementation of the work.

Please let me know if you would like to proceed with this and/or if you have any questions.

Regards,

Pierre Raymond
Terra Erosion Control Ltd.
Tel: 250 352 2757 Fax: 250 352 2756
www.terraerosion.com

From: Hawkings, John FLNR:EX [<mailto:John.Hawkings@gov.bc.ca>]
Sent: Tuesday, July 16, 2013 11:00 AM
To: Pierre Raymond
Subject: Follow up on Brooklyn Creek Assessment

Hi Pierre,

In reference to our discussion on June 6, I wanted to follow up on the possibility of Terra Erosion Control doing an assessment and mitigation of the landslide at Brooklyn/Pub Creek on Arrow Lake. I was wondering if you have had a chance to consider this project further.

Thanks and I look forward to hearing from you,

John Hawkings
Manager, Trails
Ministry of Forests, Lands and Natural Resource Operations
Ph 604.898.2105 | Fax 604.898.2191
<mailto:John.Hawkings@gov.bc.ca>



Terra Erosion

July 20, 2012



Terra Erosion Control Ltd.

July 20, 2012

Ministry of Forests, Lands and Natural Resource Operations Brooklyn Creek Slide Assessment Proposal for Consulting Fees & Rates

Report for Estimating						
Tasks	Labour		Materials & Equipment			
	PR	WH	Unit	Quant.	Rate	Total
	\$100.00 \$/Hr	\$110.00 \$/Hr				
Task 1 - Site Visit and Reconnaissance						
1.1	Communication with client	1.0				
1.2	Preparation and planning	4.0	4.0			
1.3	Proposed field assessment (Date TBA August 16 to 20, 2013)	10.0	10.0	Truck	1	\$140
						\$140
Task Total Hours		15.0	14.0	Sub-Total Cost		\$140
Sub-Total Cost		\$1,500	\$1,540			
Total Estimated Cost				\$3,180		
Task 2 – Development of Proposed Options for Treatment and Cost Estimate for Implementation						
2.1	Design Coordination & Communication with Client	2.0	0.0			
2.2	Proposed Site Prescription Development, Cost Development	40.0	16.0			
Task Total Hours		42.0	16.0			
Sub-Total Cost		\$4,200	\$1,760			
Total Estimated Cost				\$9,140		

Note: All receipts to be submitted for invoice
10% mark-up included in materials, equipment, expenses and subcontractor.

Page 053 to/à Page 059

Withheld pursuant to/removed as

s.14

RE: Brooklyn Cr C&W rail trail field inspection

May 6, 2019 9:20 AM

Subject	RE: Brooklyn Cr C&W rail trail field inspection
From	Hawkings, John FLNR:EX
To	Jordan, Peter FLNR:EX
Cc	Chow, Brian FLNR:EX
Sent	May 16, 2013 11:54 AM

Thank you very much for this Peter. I would like to forward to Jan Hill from the AG's office to get his thoughts on sharing this report with the water users as well as providing them with an indication that we will be following up with Terra Erosion control – I am waiting to hear from Pierre Raymond as he is tied up in the field most of this week. Do you have any concerns with this being shared in part or entirety?

Thanks,
John

From: Jordan, Peter FLNR:EX
Sent: Thursday, May 16, 2013 11:44 AM
To: Hawkings, John FLNR:EX
Cc: Chow, Brian FLNR:EX
Subject: Brooklyn Cr C&W rail trail field inspection

Hello John

Here are my notes from my field inspection last week. Please phone if you have any further questions.

<< File: BrooklynCr_notes_PJ_May2013.doc >>

Peter Jordan, Ph.D., P.Geo.
Research Geomorphologist
B.C.Forest Service
401 - 333 Victoria St., Nelson, BC V1L 4K3
phone 250-354-6227 cell 250-352-5225 peter.jordan@gov.bc.ca
<< OLE Object: Picture (Device Independent Bitmap) >>

RE: Brooklyn slide

May 6, 2019 9:20 AM

Subject	RE: Brooklyn slide
From	Hawkings, John FLNR:EX
To	Chow, Brian FLNR:EX
Sent	June 4, 2015 8:21 AM

No, I only have anecdotal information and those pictures. The work was done by Tourism BC and I have not had a chance to go through the files I have from them to determine what related records we have. I was given the impression it was 'field fit' and that it may not have involved an engineer.

I hope to get to the records today, but it will be an arduous, manual search.

John

From: Chow, Brian FLNR:EX

Sent: Thursday, June 4, 2015 8:19 AM

To: Hawkings, John FLNR:EX

Subject: RE: Brooklyn slide

Hi John,

Do you have a drawing for what was "designed" that was used for the construction?

Brian

From: Hawkings, John FLNR:EX

Sent: Thursday, June 4, 2015 7:25 AM

To: Chow, Brian FLNR:EX

Subject: RE: Brooklyn slide

Hi Brian,

No, I don't recall hearing that. I wonder if one of the locals told Les that. Here is a picture of the culvert, circa 2004 with the trash rack. I am pretty sure the picture is from the completion of the install with no re-veg on the slope and it came with a pic of the installers. The last pic looks like it is from a few months later.

From: Chow, Brian FLNR:EX

Sent: Wednesday, June 3, 2015 5:24 PM

To: Hawkings, John FLNR:EX

Subject: Brooklyn slide

Hi John,

Had a voice message from Les Thiessen regarding the culvert installation where he suggested, from his recollection, that the grate that was installed at the inlet was not part of the original design but that one of the locals had installed it. Do you know anything about this?

Brian Chow, M.Eng., P.Eng.

Chief Engineer

Engineering Branch, Timber Operations, Pricing & First Nations

Ministry of Forests and Natural Resource Operations

PO Box 9510 Stn Prov Govt

3rd Flr - 1520 Blanshard Street




Victoria, BC V8W 3K2

Ph: (250)953-4370 fax:(250)953-3687

e-mail: brian.chow@gov.bc.ca

RE: Brooklyn slide

May 6, 2019 9:20 AM

Subject	RE: Brooklyn slide
From	Hawkings, John FLNR:EX
To	Chow, Brian FLNR:EX
Sent	June 4, 2015 7:24 AM
Attachments	<div><p>Brooklyn Culvert R...</p><p> Brooklyn - Johnson, ...</p></div>



Brooklyn
during ex...



IMG_0585-
2004



Hi Brian,

No, I don't recall hearing that. I wonder if one of the locals told Les that. Here is a picture of the culvert, circa 2004 with the trash rack. I am pretty sure the picture is from the completion of the install with no re-veg on the slope and it came with a pic of the installers. The last pic looks like it is from a few months later.

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Brian Chow, M.Eng., P.Eng.

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Victoria, BC V8W 3K2

Ph: (250)953-4370 fax:(250)953-3687

e-mail: brian.chow@gov.bc.ca

RE: Brooklyn slide

May 6, 2019 9:21 AM

Subject	RE: Brooklyn slide
From	Hawkings, John FLNR:EX
To	Chow, Brian FLNR:EX
Sent	June 4, 2015 9:15 AM

Sorry Brian, I may have misinterpreted your question... are you asking about the 2004 installation or the 2012 design/install by SNT?

JH

From: Chow, Brian FLNR:EX

Sent: Thursday, June 4, 2015 9:00 AM

To: Hawkings, John FLNR:EX

Subject: RE: Brooklyn slide

I had left Les a message inquiring about how he determined the culvert diameter and he had left me a voice mail.

I will follow-up with Les some more to see if he has any "design" drawings.

Brian

From: Hawkings, John FLNR:EX

Sent: Thursday, June 4, 2015 8:22 AM

To: Chow, Brian FLNR:EX

Subject: RE: Brooklyn slide

No, I only have anecdotal information and those pictures. The work was done by Tourism BC and I have not had a chance to go through the files I have from them to determine what related records we have. I was given the impression it was 'field fit' and that it may not have involved an engineer.

I hope to get to the records today, but it will be an arduous, manual search.

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From: Chow, Brian FLNR:EX

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To: Hawkings, John FLNR:EX

Subject: RE: Brooklyn slide

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Subject: RE: Brooklyn slide

Hi Brian,

No, I don't recall hearing that. I wonder if one of the locals told Les that. Here is a picture of the culvert, circa 2004 with the trash rack. I am pretty sure the picture is from the completion of the install with no re-veg on the slope and it came with a pic of the installers. The last pic looks like it is from a few months later.

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3rd Flr - 1520 Blanshard Street
Victoria, BC V8W 3K2
Ph: (250)953-4370 fax:(250)953-3687
e-mail: brian.chow@gov.bc.ca

RE: Follow up on Brooklyn Creek Assesment

May 6, 2019 9:21 AM

Subject	RE: Follow up on Brooklyn Creek Assesment
From	Jordan, Peter FLNR:EX
To	Hawkings, John FLNR:EX; Chow, Brian FLNR:EX
Sent	July 31, 2013 11:40 AM

Hi John

I'm not an expert in preparing contracts for this sort of thing. But it might be a good idea to add something like this to line (b):

"... including alternative prescriptions, costs and benefits, if appropriate."

s.13

Developing a prescription for this kind of thing is kind of open-ended, and the best treatments aren't immediately obvious. Basically we are paying them for their ideas.

Peter

From: Hawkings, John FLNR:EX
Sent: Wednesday, July 31, 2013 11:30 AM
To: Jordan, Peter FLNR:EX; Chow, Brian FLNR:EX
Subject: RE: Follow up on Brooklyn Creek Assesment

Hi Brian and Peter,

If you have a couple of minutes and are able to quickly review this proposed Schedule A-Services for Terra Erosion Control it would be a great help. Any additional details you think would be important to include would be welcome. Is there a way to define the scope of potential mitigation to ensure they are 'reasonable'.

Thanks,
John

From: Jordan, Peter FLNR:EX
Sent: Monday, July 22, 2013 10:10 AM
To: Hawkings, John FLNR:EX
Subject: RE: Follow up on Brooklyn Creek Assesment

Hello John

Good that this is going ahead. You can tell Pierre and Will that they're welcome to call me and compare notes, either before or after their field assessment. Although I don't expect to go in the field again.

Peter

From: Hawkings, John FLNR:EX
Sent: Monday, July 22, 2013 9:41 AM
To: Chow, Brian FLNR:EX

Cc: Jordan, Peter FLNR:EX; Trent, Tennessee FLNR:EX
Subject: FW: Follow up on Brooklyn Creek Assesment

Hi Brian,

Just to keep you in the loop on Brooklyn Creek. Here is a proposal from Terra Erosion for some preliminary assessment and prescription work. I anticipate going ahead with the proposal.

John

From: Pierre Raymond [<mailto:pierre@terraerosion.com>]
Sent: Monday, July 22, 2013 8:44 AM
To: Hawkings, John FLNR:EX
Cc: Will Halleran
Subject: RE: Follow up on Brooklyn Creek Assesment

Hi John,

s.22 I had a meeting with Will Halleran to discuss the Hawkings Creek project and we could do the assessment in August if you would like us to do so. Attached is an estimate to carry out a field visit, develop a report, recommendations and cost for implementation of the work.

Please let me know if you would like to proceed with this and/or if you have any questions.

Regards,

Pierre Raymond
Terra Erosion Control Ltd.
Tel: 250 352 2757 Fax: 250 352 2756
www.terraerosion.com

From: Hawkings, John FLNR:EX [<mailto:John.Hawkings@gov.bc.ca>]
Sent: Tuesday, July 16, 2013 11:00 AM
To: Pierre Raymond
Subject: Follow up on Brooklyn Creek Assesment

Hi Pierre,

In reference to our discussion on June 6, I wanted to follow up on the possibility of Terra Erosion Control doing an assessment and mitigation of the landslide at Brooklyn/Pub Creek on Arrow Lake. I was wondering if you have had a chance to consider this project further.

Thanks and I look forward to hearing from you,

John Hawkings
Manager, Trails
Ministry of Forests, Lands and Natural Resource Operations
Ph 604.898.2105 | Fax 604.898.2191
<mailto:John.Hawkings@gov.bc.ca>

RE: Follow up on Brooklyn Creek Assesment

May 6, 2019 9:21 AM

Subject	RE: Follow up on Brooklyn Creek Assesment
From	Jordan, Peter FLNR:EX
To	Hawkings, John FLNR:EX
Sent	July 22, 2013 10:09 AM

Hello John

Good that this is going ahead. You can tell Pierre and Will that they're welcome to call me and compare notes, either before or after their field assessment. Although I don't expect to go in the field again.

Peter

From: Hawkings, John FLNR:EX
Sent: Monday, July 22, 2013 9:41 AM
To: Chow, Brian FLNR:EX
Cc: Jordan, Peter FLNR:EX; Trent, Tennessee FLNR:EX
Subject: FW: Follow up on Brooklyn Creek Assesment

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Ph 604.898.2105 | Fax 604.898.2191
<mailto:John.Hawkings@gov.bc.ca>

RE: Follow up on Brooklyn Creek Assesment

May 6, 2019 9:21 AM

Subject	RE: Follow up on Brooklyn Creek Assesment
From	Hawkings, John FLNR:EX
To	Jordan, Peter FLNR:EX; Chow, Brian FLNR:EX
Sent	July 31, 2013 11:29 AM
Attachments	 FS1-A  MOF_Lands_Hawki...

Hi Brian and Peter,

If you have a couple of minutes and are able to quickly review this proposed Schedule A-Services for Terra Erosion Control it would be a great help. Any additional details you think would be important to include would be welcome. Is there a way to define the scope of potential mitigation to ensure they are 'reasonable'.

Thanks,
John

From: Jordan, Peter FLNR:EX
Sent: Monday, July 22, 2013 10:10 AM
To: Hawkings, John FLNR:EX
Subject: RE: Follow up on Brooklyn Creek Assesment

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Good that this is going ahead. You can tell Pierre and Will that they're welcome to call me and compare notes, either before or after their field assessment. Although I don't expect to go in the field again.

Peter

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Sent: Monday, July 22, 2013 9:41 AM
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Cc: Jordan, Peter FLNR:EX; Trent, Tennessee FLNR:EX
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Cc: Will Halleran
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Pierre Raymond
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Sent: Tuesday, July 16, 2013 11:00 AM
To: Pierre Raymond
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John Hawkings
 Manager, Trails
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 Ph 604.898.2105 | Fax 604.898.2191
<mailto:John.Hawkings@gov.bc.ca>



**Terra Erosion
Control Ltd.**

July 20, 2012

**Ministry of Forests, Lands and Natural Resource Operations
Brooklyn Creek Slide Assessment
Proposal for Consulting Fees & Rates**

		Labour		Materials & Equipment			
Tasks		PR	WH	Unit	Quant.	Rate	Total
		\$100.00 \$/Hr	\$110.00 \$/Hr				
Task 1 - Site Visit and Reconnaissance							
1.1	Communication with client	1.0					
1.2	Preparation and planning	4.0	4.0				
1.3	Proposed field assessment (Date TBA August 16 to 20, 2013)	10.0	10.0	Truck	1	\$140	\$140
Task Total Hours		15.0	14.0	Sub-Total Cost		\$140	
Sub-Total Cost		\$1,500	\$1,540				
Total Estimated Cost				\$3,180			
Task 2 – Development of Proposed Options for Treatment and Cost Estimate for Implementation							
2.1	Design Coordination & Communication with Client	2.0	0.0				
2.2	Proposed Site Prescription Development, Cost Development	40.0	16.0				
Task Total Hours		42.0	16.0				
Sub-Total Cost		\$4,200	\$1,760				
Total Estimated Cost				\$9,140			

Note: All receipts to be submitted for invoice
 10% mark-up included in materials, equipment, expenses and subcontractor.



Ministry of
Forests, Lands and
Natural Resource Operations

Schedule A - Services

CONTRACT NO. **RC14213-016**
FILE NO: **16660-20/31979 C&W**

Attachment to the Agreement with **Terra Erosion Control Ltd.** for **Brooklyn Creek Slide Assessment**.

1. THE SERVICES

1.01 The Contractor shall provide the following Services:

- (a) Field site assessment of failed fill slope on the Columbia and Western Rail Trail at Brooklyn Creek as identified on the attached map including all relevant areas downstream of the rail grade with potential to impact water quality.
- (b) Proposed site prescription for mitigation of downstream sediment impacts to water license holders resulting from slide.

2. KEY PERSONNEL

The Services shall be performed by the following "Key Personnel":

- Pierre Raymond
- Will Halleran

and there shall be no substitution for the person(s) listed above without the prior consent of the Province.

3. RELATED DOCUMENTS

- (a) Notes from field inspection of Brooklyn Creek washout on C&W rail grade, 9 May 2013, Peter Jordan, P.Geo.
- (b) Landslide Assessment, Pup Creek and Brooklyn Creek at Brooklyn, Deverney Engineering Services, August 16, 2012
- (c) Brooklyn Creek Slide Assessment Proposal for Consulting Fees and Rates, Terra Erosion Control Ltd., July 20, 2013



Page 074 to/à Page 075

Withheld pursuant to/removed as

s.14

RE: Phone Message

May 6, 2019 9:21 AM

Subject	RE: Phone Message
From	Hawkings, John FLNR:EX
To	Chow, Brian FLNR:EX
Sent	March 11, 2013 9:09 AM
Attachments	 IMG_0585-2004 

From: Hawkings, John FLNR:EX
Sent: Friday, March 8, 2013 1:49 PM
To: Chow, Brian FLNR:EX
Subject: RE: Phone Message

Here is the report and pictures by Deverney Engineering. I am pretty sure he has incorrectly described the fill/culvert prior to the May 2012 slide incorrectly. Not sure why he thinks the culvert was installed at 'mid-slope' and that water was intended to drain through course rubble. After infilling the trestle, CP ran a flume to a culvert in the upper east corner of the fill slope. Around 2003-4 there was a smaller washout and Tourism BC repaired it and installed a new culvert at the bottom of the fill slope, not middle of the slope as reported (picture attached). This past fall, we repaired the slope again, rebuilt the grade and installed a new culvert (Les Thiessen and Rick Johnson oversaw the project-Final report attached).

<< File: 20130307135837.pdf >> << File: 20130307135747.pdf >>

<< File: Brooklyn Culvert Repair-2004.JPG >> << File: Final Report Brooklyn Creek repairs.pdf >>

A local resident in Brooklyn has been pressuring the Ministry etc. to take responsibility for past and future impacts to

water licenses including the micro hydro project. Not sure what the province's approach to this may or may not be. Thanks in advance for your input.

John

From: Chow, Brian FLNR:EX
Sent: Friday, March 8, 2013 12:55 PM
To: Hawkings, John FLNR:EX
Subject: Phone Message

Hi John,

Got your phone message. Can you send me the report?

:) Brian Chow, M.Eng., P.Eng.
Chief Engineer
Engineering Branch, Timber Operations and Pricing
Ministry of Forests, Lands and Natural Resource Operations
PO Box 9510 Stn Prov Govt
Victoria, BC V8W 9C3
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e-mail: brian.chow@gov.bc.ca <<mailto:brian.chow@gov.bc.ca>>

Page 078 to/à Page 080

Withheld pursuant to/removed as

s.14

From: [Hawkings, John FLNR:EX](#)
To: [Chow, Brian FLNR:EX](#); [Jordan, Peter FLNR:EX](#); [Will Halleran](#); ["Pierre Raymond"](#)
Subject: FW: Discuss Contract Scope for Brooklyn Creek Assessment

When: Thursday, August 15, 2013 1:30 PM-2:30 PM (GMT-08:00) Pacific Time (US & Canada).
Where: Conference Call. Call No. 1-877-353-9184; Participant ID: 6916707

Note: The GMT offset above does not reflect daylight saving time adjustments.

~~*~*~*~*~*~*~*

Sorry Brian, wasn't sure if you wanted to participate. Glad to have you on the call.

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

From: Hawkings, John FLNR:EX
Sent: Friday, August 2, 2013 3:44 PM
To: Jordan, Peter FLNR:EX; Will Halleran; 'Pierre Raymond'
Subject: Discuss Contract Scope for Brooklyn Creek Assessment
When: Thursday, August 15, 2013 1:30 PM-2:30 PM (GMT-08:00) Pacific Time (US & Canada).
Where: Conference Call. Call No. 1-877-353-9184; Participant ID: 6916707

Conference Call.
Call No. 1-877-353-9184;
Participant ID: **s.15**

May 6, 2019 9:22 AM



Scan_2019
0502-4



Scan_2019
0502-3



Scan_2019
0502-2



Scan_2019
0502-1



Scan_2019
0502



Scan_2019
0502-5

s.22

- instructing client

May 6, 2019 9:24 AM

Subject	s.22 - instructing client
From	Trent, Tennessee FLNR:EX
To	Chow, Brian FLNR:EX
Sent	July 28, 2016 4:11 PM

Hi Brian,

This is a follow up to the phone message that I just left on your land line. s.14

s.14,s.22

s.14

I am told there is a

chance that you may not be aware of this fact.

When you're back in the office could you please give me a call regarding this case? I would like to speak to you and I believe Lisa Lee, crown attorney will also be contacting you. Apparently I need your permission to hire a helicopter to view the site with Lisa and potentially one other alluvial fan expert (a contractor).

Thank you

Tennessee

Tennessee Trent - Manager, Trails

Recreation Sites and Trails BC

Sea to Sky Office

101-42000 Loggers Lane

Squamish, BC

V8B 0H3

604.898.2194 office

tennessee.trent@gov.bc.ca

RE: s.22 , contact info

May 6, 2019 9:24 AM

Subject	RE s.22 , contact info
From	Trent, Tennessee FLNR:EX
To	Chow, Brian FLNR:EX
Cc	s.22
Sent	August 9, 2016 3:08 PM

Thank you Brian. s.22 I'll give you a call later this week. Is there a time that is good for you?

TT

Tennessee Trent - Manager, Trails

Recreation Sites and Trails BC

Sea to Sky Office

101-42000 Loggers Lane

Squamish, BC

V8B 0H3

604.898.2194 office

tennessee.trent@gov.bc.ca

From: Chow, Brian FLNR:EX

Sent: Tuesday, August 9, 2016 3:07 PM

To: Trent, Tennessee FLNR:EX

Cc: s.22

Subject: s.22 , contact info

Hi Tennessee,

Per discussion, tracked s.22 down. Just off the phone with him.

He would be interested for the Brooklyn Creek issue. Advised him that you and he would need to figure out an agreement should you be engaged and left to you to work that out.

Hi email as noted below, his cell phone number is s.22

Brian Chow, M.Eng., P.Eng.

Chief Engineer

Engineering Branch, Timber Operations, Pricing & First Nations

Ministry of Forests, Lands and Natural Resource Operations

PO Box 9510 Stn Prov Govt

3rd Flr - 1520 Blanshard Street

Victoria, BC V8W 3K2

Ph: (250)953-4370 fax:(250)953-3687

e-mail: brian.chow@gov.bc.ca

From: s.22

Sent: Tuesday, August 9, 2016 2:52 PM

To: Chow, Brian FLNR:EX

Subject: Your message

Hi Brian

I got your phone message. s.22

Yes, that's my phone number. Also my government email still works, although I don't check it that often. This one is better.

Were you talking about the Rialto road? The Walker slide is at 4 km on that road. (Walker Cr is a small creek near Rialto Cr)

s.22

May 6, 2019 9:25 AM



ttrent notes BChow

Call to Chris Maslin

Date Aug. 8, 2016.

- C.M.
- Coal chute - North Fork
 - \$25,000.00 road work into section.
 - remaining gates but leaving buried lock blocks
 - Signage
 - picnic table, gazebos (west end station).

Brian Chow s.22
- will contact

Aug. 9, 2016.

Page

- Committed to providing his contact for TARA / McElhannay.
- Described planning process just underway and the opportunities to manage the risk that may come from that.

July 11, 2018.

Doug Kelly, Brian Chow, Vera U.
+ DS + TT

- MOTI Guidelines for trail crossings of public roadways
- RST can lead on MOTI O&U Crossing document consultation
 - Brian Chow can provide technical advice or engineering considerations
- Call Doug Kelly re: FSRUR updates.

s.22

Aug 3, 2018
 Brian Chou, Glenn Moore

- Recreational bridge standards discussion
 - where we are
 - what Eng. Branch needs
- why?
 - custom bridges being used everywhere

- 4-4.3 kpa ~ 6 people / sq m.

- CSA 06 - Design of highway bridges
 - Eng. Br. Bridge Design + Construction Manual

*looking for similar standards for design for recreation bridges

- need a design vehicle configuration
 - axle spacing
 - vehicle load
 - vehicle width

design vehicle for loading

- wall

- Use standards
 - ATV, motorcycle, moped, snowmobile, hunting, equestrian.
 - Consider user intent (ATV, etc)
- fail to obey signs.
- install signage for long weekend
- Call RAPP number. / NEW line.

August 14, 2018.

Brain chow

- weighted criteria

Experience

Approach

Price

recommended by
Brian

Weight

Min Score

50

42.5

30

20

100

so how do we gauge experience / approach

- use mandatory criteria.
 - ↳ biker requirements / mandates.
- ↳ Brian will help with this.

* might need multi-year contract.

* Inspection firms.

↳ need to come up with one.

D Scott Probation Review.

Date Nov 30, 2017

- Managing his time.
 - ↳ is high demand.
 - w/ time in Kirby V.
- Need support from other managers in ensuring his time is spent on
- Brian Chan
 - ↳ management framework for Real Trails
- 3-4 / year (1 / region / year)
 - ↳ David leads trail planning + trail design
- Developing Provincial Trails Program.
 - ↳ framework under which we manage trails in the Province.
- * John H has to provide specific authorization for flights + travel.
- * Need to ensure that Daniel is working under a schedule which conforms in provincial policy re schedule.
- * My Performance profile.

Page

Brian ~~Green~~

Call to Eng. Branch re: KVR.

Date Jan 16, 2017.

- Life Knight DScott, IT.
- Jason Olmstead
- Gino Fournier
- Barry Theholm.

- Dec. 8, 2016 note re:

- Looking towards Land (Resource Managers System.
 - ↳ Cengage Model (LRM-conversation)
 - ↳ Eng. Br.
 - ↳ new Cengage.

- CBR → no special component.

↳ not really used for retaining walls.

↳ inspection system tied into spreadsheets

- Could get fully customisable system.

↳ Cengage.

↳ customisable

↳ Mike Dunkley SOG BCTS.

critical
dog
* Brian Quinn BCTS - Victoria.

↳ can advise

* Les Higgs → P.Eng in PG.

↳ LRMWA

↳ expert on Cengage.

- Gino → Eng. Branch is managing ~ 24 PST structures.

- Paul Clark former Eng. Consultant / Ministry Employee

↳ Kamloops Regional Office

- BCTS doesn't want trestle

↳ so need to customise.

* need asset management plan.

↳ what question are we trying to answer - what do we.

Brian Chow.

Date

- Need more capital projects for F2018.
- Cascade Trestle re-decking.

JH discussion

Jan 11, 2017.

- Note to Branch + office.

important to specify why decision was made.

- request.
- clearly met operational objectives
- priority to real trails.
- listed.

* Look at resource features - Stake Lakes TPB report

- DCK Section 57 applications

- lost applications → all proponents re-apply.

* - PSTBC not enforcement agency.

- Need to ensure s.22

are on

correct page list

- goal: facilitate recreation, support partners + agreement holders.

Jan 22 DCK meeting

- PST recognizes that trail maintenance on existing trails is low risk
- different from new trail construction.

s.22

Page |

ttrent notes Brooklyn Creek

May 6, 2019 9:25 AM



ttrent notes Brooklyn Creek

Date May 31, 2017

Mike Walsh - SNT

- review Aracama road seepage (Lyle Armour) issue in field again today.
- ground water is a very difficult issue.
 - ↳ Not groundwater issue.
 - ↳ clarity is often difficult in ground water cases.
- Mike is going to Waramata KVR to look at Smithurst fill slope failure at my request from last week and will also review Aracama (Lyle Armour) issue again.

Call to s.22

11:34am May 31, 2017

- re: message left requesting a phone call.
- left message

Call from s.22

11:59am May 31, 2017

re: Agreement Fife to Christina Lake
Cascade Trestle.

s.22

s.22

Tennessee will send email regarding
File → Cascade Trestle.

s.22

would like engineering inspections
for rail grade.

- CBT grant work on lower 8 km's of CWRT
going well. Looking to build campsite on
CPR land.

- CWT5 had AGM ~100 people.

s.22

- BCT5 has "not fixed" culvert at Shields Creek
Landslide came down from PCT5 road
on East end of Buldog tunnel.

s.22

- brought up the CBT grant on
CWT5/culvert and asked why I wanted
to see it (RDC) director.
- Got \$k from s.22 ' to put up flag
at Farron.

- Conflict internal to CWT5 regarding
this application.
- Steve Rigby + Harry Kilgough

s.22

- Whole upper yard area is Interfor Property
- CPR lands ~ 50' wide
- Pulling wood out of yard due to break
down of log loader at Celgar.
- Industrial area of parking area at
Roughouse is owned by Interfor.
- Chris Sutton an executive is

Date _____

- Working to keep access through CME/Interfor lands
- Wants to move to recreation/transportation designation
 - ↳ in 2014 revised strategic approach

s.22

- BCTS, ATCO and other "co-ops" have plans to buy or sections
- Told **s.22** that if a decision to use CWT as a road came forward that can be considered but it would not likely continue to be managed as a trail by PSTBC.

s.22

page |

Date

- Damage to shields creek FSR by BCTS
received access via rail grade.

s.22

ESMS CMHC
416 250 3245

Ian McLellan.

Page

phone message.

Date June 30, 2017.

s.22

- re email regarding Brooklyn Creek
- did spend time on it at beginning of month.
- Just back from holidays got letter from s.22

- s.22

s.14, s.22

s.14,s.22

Date

0900h

s.22

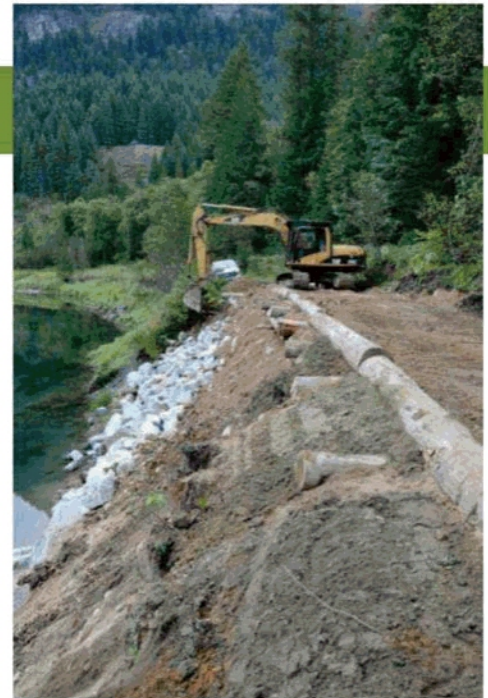
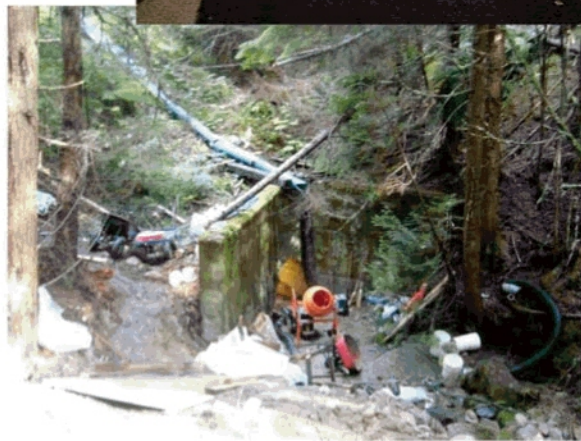
July 5, 2017

Page



RSTBC_AGM_2013_rail_trails

Rail Trails fiscal 2014 Operations and Capital Works



Recreation Sites
and Trails BC

REC 31979 Rail Trail Engineered Inventory

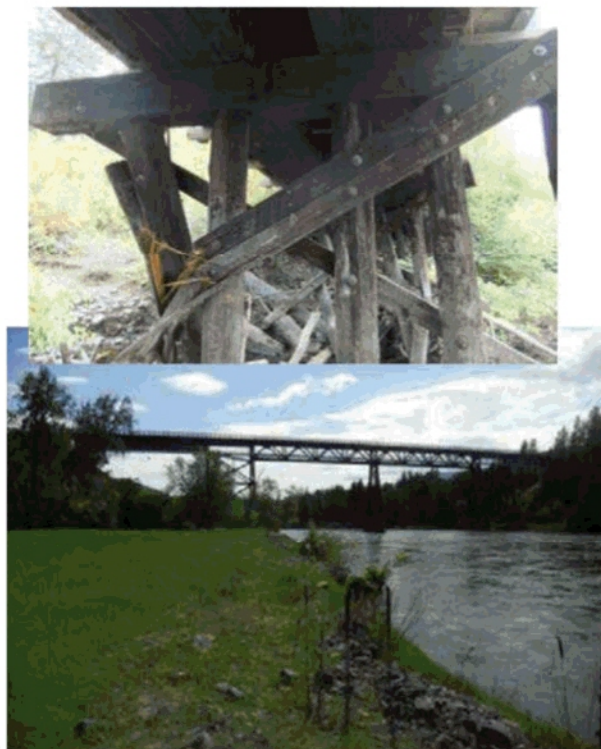
Rail Trail Section	Bridges	Retaining Walls	Major Culverts	Culverts	Tunnels	Kilometers
SVRT	4	11	4	89	0	50
CWRT	10	37	26	266	7	162
KVR	41	7	34	206	5	381
Total	55	55	64	561	12	593



Recreation Sites
and Trails BC

REC 31979 Rail Trail Engineered Inventory

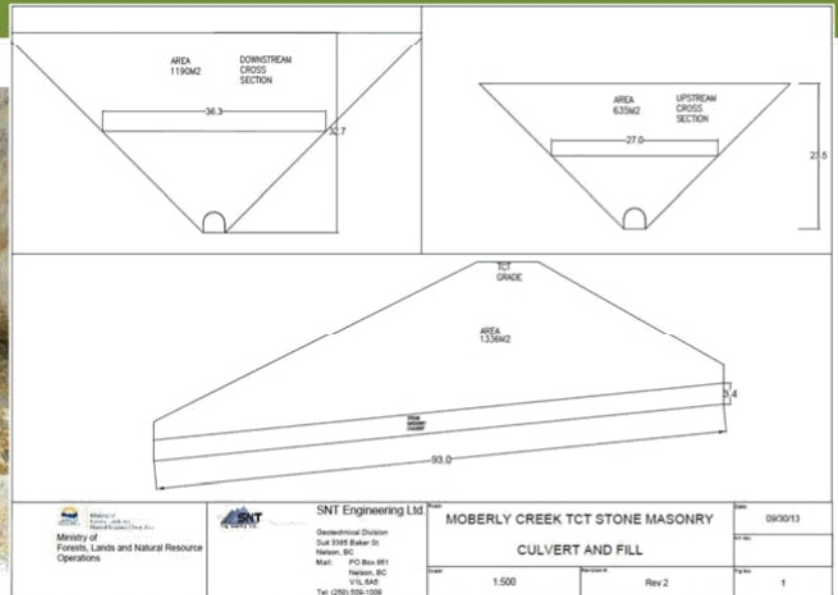
55 Bridges



Recreation Sites
and Trails BC

REC 31979 Rail Trail Engineered Inventory

64 Major Culverts



Recreation Sites
and Trails BC

REC 31979 Rail Trail Engineered Inventory

55 retaining walls



Recreation Sites
and Trails BC

Fiscal 2014 – Capital Projects REC 31979

3 Major Projects

1. Slocan Valley Rail Trail Capital Upgrade
2. Naramata Resurfacing
3. Grand Forks Surfacing



Recreation Sites
and Trails BC

Fiscal 2014 – Operational Projects REC 31979

~ 600 kilometers of rail trail and associated engineered features to maintain

- Focusing on high priority items that present risk to safety, property and environment
- Otter Creek Wood Bridges – maintenance on 6 structures
- Culvert maintenance in major fills at Christian, Rathmullen, Neff, Grass, Storbo and Arvid Creeks
- Other maintenance items across rail trails to manage surface drainage and rail bed integrity

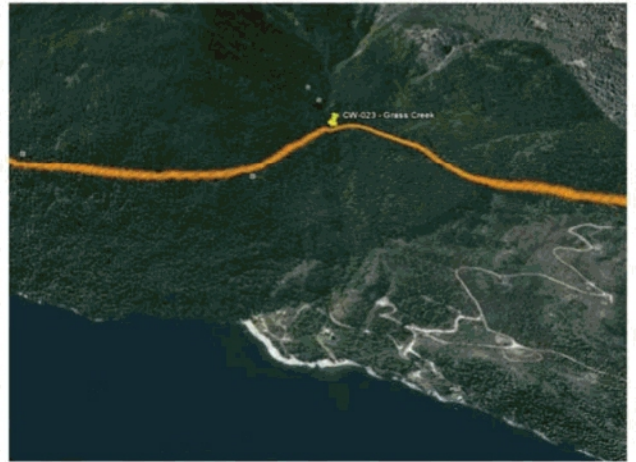


Recreation Sites
and Trails BC

Fiscal 2014 – Operational Projects REC 31979

Grass Creek – Structure CW-023

- 81.0 meter long, 1400 x 1100mm concrete culvert
- located on Grass Creek below a 20 meter deep fill
- Private land, homes, licensed water intakes, spawning habitat downstream
- High priority for repair due to downstream values and holes in floor and walls of culvert



Recreation Sites
and Trails BC

Fiscal 2014 – Operational Projects REC 31979

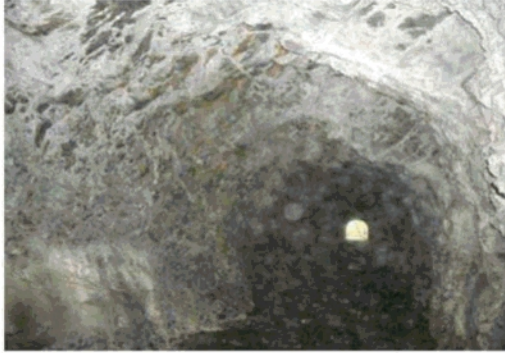
Grass Creek – Structure CW-023

- Repair involved:
 - challenging logistics
 - confined space regulations
 - machine works
 - construction works
 - concrete works
 - dam and pump around requirements in creek



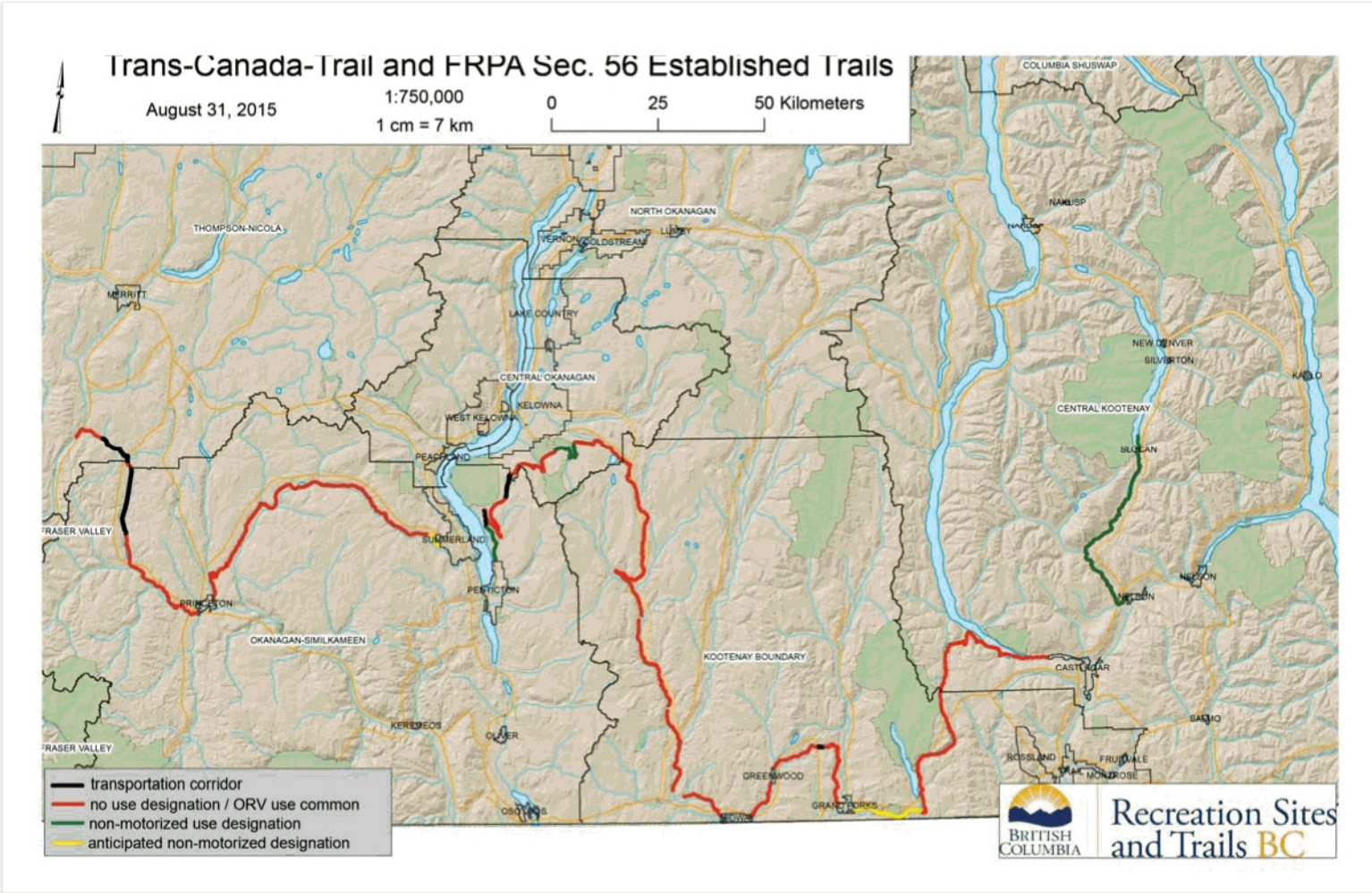
Recreation Sites
and Trails BC

Rail Trails – Questions?



Recreation Sites
and Trails BC

TCT_FRPA_Sec-56_Rail_Trails_11x17



Trent Sept 13 2017 to Jan 7 2019 109

May 6, 2019 9:26 AM



Trent Sept 13 2017 to Jan 7 2019 109

s.22

June 20, 2018

- left message.
- re: Culvert maintenance on SIRT at Lebedah flats
↳ Culvert maintained to standard.

s.22

Read UNDRIP + 2017 Report (Aind-Chopman)
on Fredet.

Brian Chow

June 29, 2018.

- allow for inclusion of structures not found
structures
- road grade, slope stability issues should
be considered
- Use RFP.
↳ draft schedule A for Brian's review.
- BR says PST needs engineer.
↳ consider keeping engineer in engineering group
but allocating to full-time PST work.