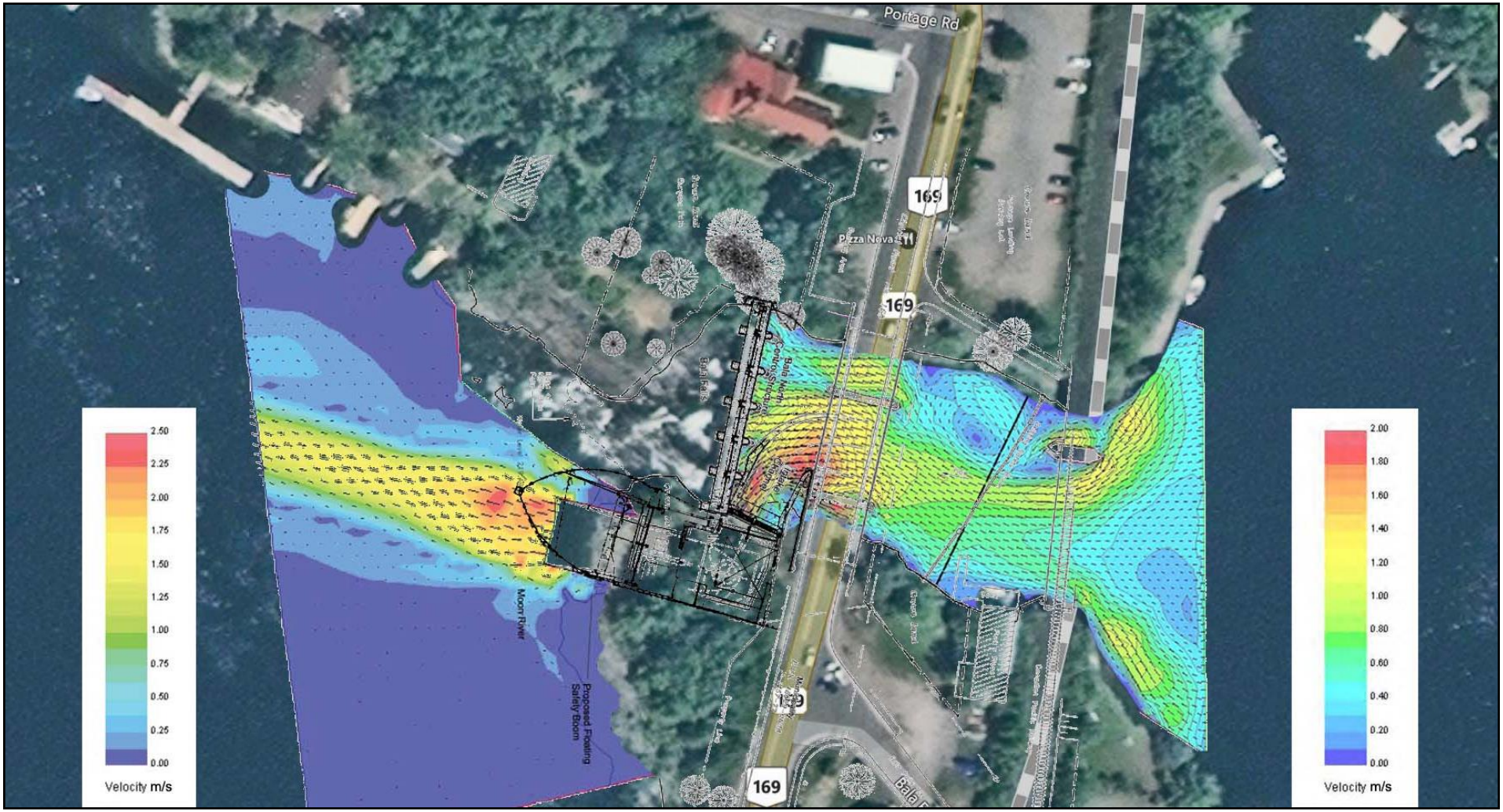


Proposed Hydro-electric Generating Station at the Bala Falls

Too dangerous to be in the middle of a popular in-water recreational area

Would not comply with 2013 Environmental Approval

The proponent's plan is too dangerous

For both the proposed **construction** and **operation**, the proposed plan would be **too dangerous** …

1. Water would be dangerous **outside** of downstream safety boom
2. To be safe, the upstream safety boom would need to be **farther upstream**
3. The upstream cofferdam would risk damage to crucial infrastructure
   - both MNRF's Bala north dam and District's highway bridge

1

Unaddressed **operating** concern

Proposed downstream safety boom

(Drowning unsuspecting tourists)

Proposed generating station would make the water dangerous **outside** of their proposed downstream safety boom

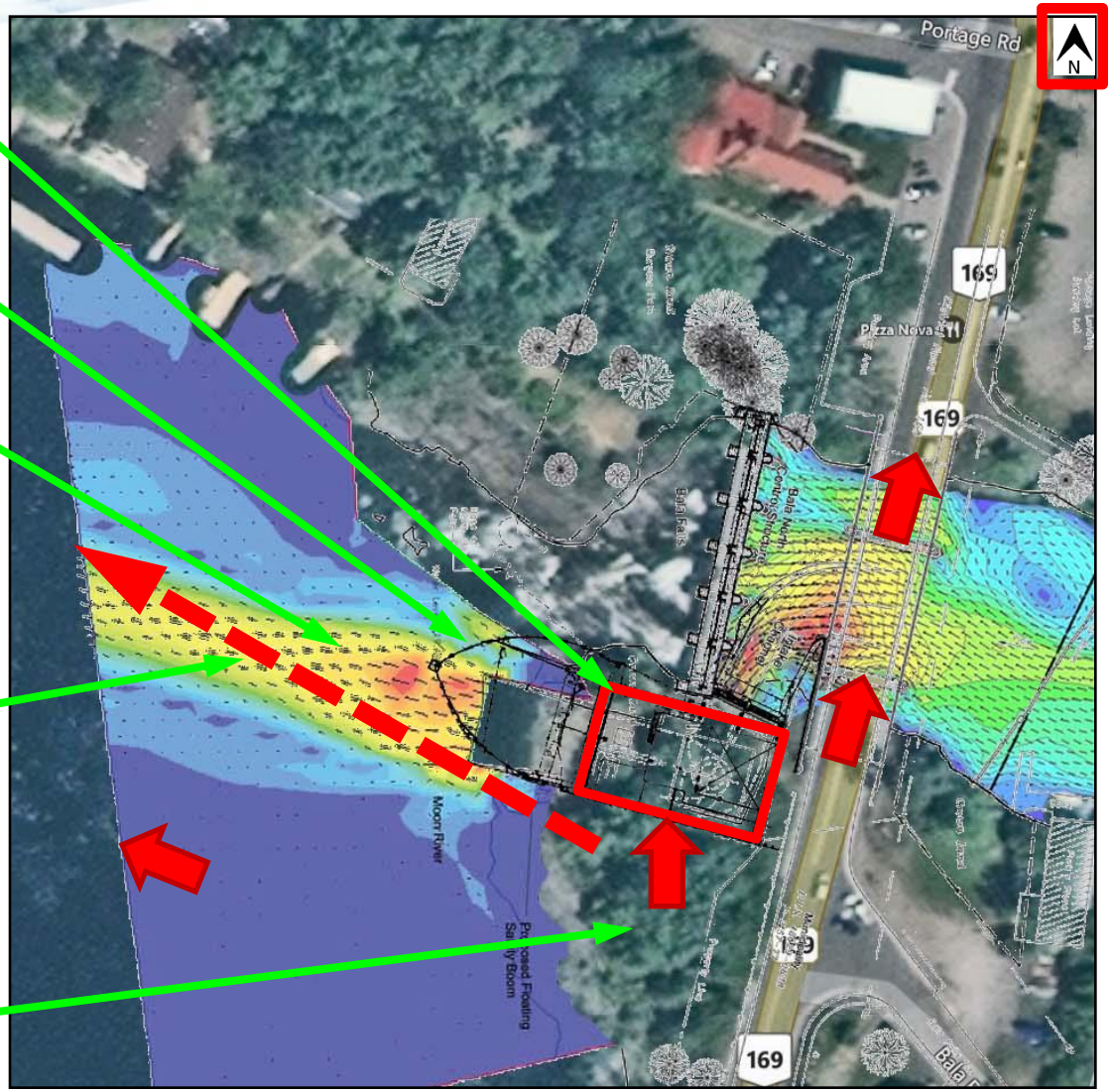
Proposed hydro-electric generating station

Proposed downstream safety boom

Proponent's flow simulation

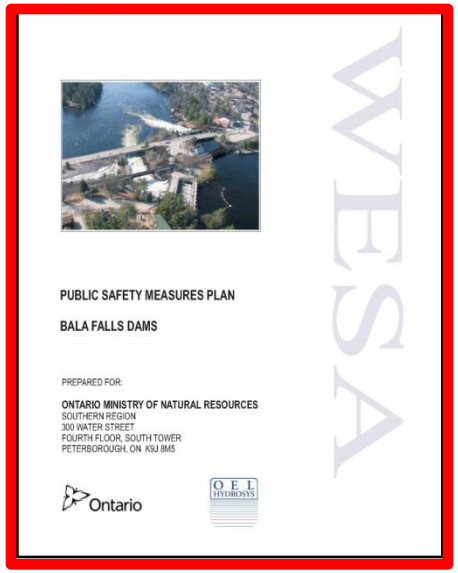
Canoe path to and from proposed portage

Township's Portage Landing



Background – MNRF and CDA

- MNRF's 2011 *Public Safety Measures Plan* for the Bala Dams requires the public be **warned in advance of flow changes to the Moon River**
- Canadian Dam Association's 2011 *Guidelines for Public Safety Around Dams* states: ***"A safety boom acts as a physical barrier to delineate a dangerous water area."***
  - Canadian Oxford Dictionary: **"Delineate" – *serve as the outline of***


WESA

PUBLIC SAFETY MEASURES PLAN

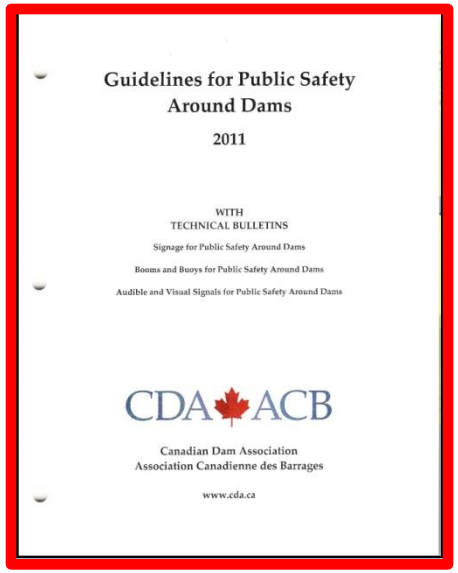
BALA FALLS DAMS

PREPARED FOR:

ONTARIO MINISTRY OF NATURAL RESOURCES
SOUTHERN REGION
300 WATER STREET
FOURTH FLOOR, SOUTH TOWER
PETERBOROUGH, ON K9J 8M5

Ontario

OEI HYDROSYS


Guidelines for Public Safety Around Dams

2011

WITH
TECHNICAL BULLETINS

Signage for Public Safety Around Dams

Booms and Buoys for Public Safety Around Dams

Audible and Visual Signals for Public Safety Around Dams

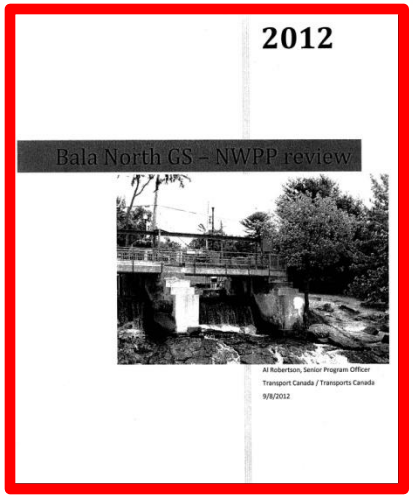
CDA ACB

Canadian Dam Association
Association Canadienne des Barrages

www.cda.ca

Background – Transport Canada

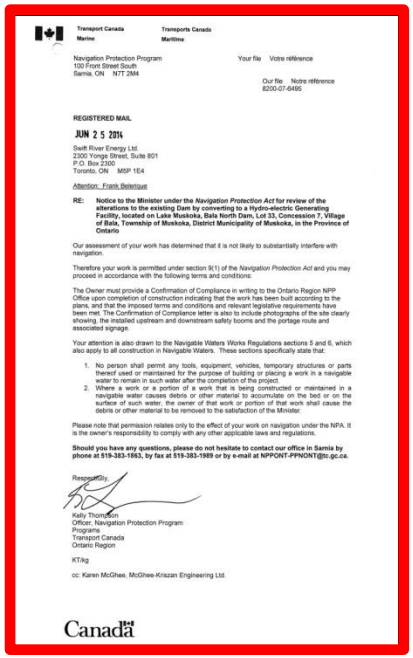
- Transport Canada's 2012 Review stated water velocities up to 0.5 to 0.7 m/s are safe
  - Proposed project would create flows **more than twice** this, **outside** of the proposed safety boom
- Transport Canada's 2014 approval under the 2014 *Navigation Protection Act*
  - Considered boating only in Lake Muskoka
    - **Did not assess boating in the Moon River**
  - **Did not assess in-water recreation anywhere**, such as the swimming, wading, and Scuba diving which are so popular



2012

Bala North GS – NWPP review

Al Robertson, Senior Program Officer
Transport Canada / Transports Canada
9/8/2012



Transport Canada Marine / Transports Canada Maritime

Navigation Protection Program
100 Front Street South
Sarnia, ON N7T 2M4

Your file Votre référence

Our file Notre référence
8200-07-6495

REGISTERED MAIL

JUN 25 2014

Swift River Energy Ltd.
2300 Yonge Street, Suite 801
P.O. Box 2300
Toronto, ON M5P 1E4

Attention: Frank Belerique

RE: **Notice to the Minister under the *Navigation Protection Act* for review of the alterations to the existing Dam by converting to a Hydro-electric Generating Facility, located on Lake Muskoka, Bala North Dam, Lot 33, Concession 7, Village of Bala, Township of Muskoka, District Municipality of Muskoka, in the Province of Ontario**

Our assessment of your work has determined that it is not likely to substantially interfere with navigation.

Therefore your work is permitted under section 9(1) of the *Navigation Protection Act* and you may proceed in accordance with the following terms and conditions:

The Owner must provide a Confirmation of Compliance in writing to the Ontario Region NPP Office upon completion of construction indicating that the work has been built according to the plans, and that the imposed terms and conditions and relevant legislative requirements have been met. The Confirmation of Compliance letter is also to include photographs of the site clearly showing, the installed upstream and downstream safety booms and the portage route and associated signage.

Your attention is also drawn to the Navigable Waters Works Regulations sections 5 and 6, which also apply to all construction in Navigable Waters. These sections specifically state that:

1. No person shall permit any tools, equipment, vehicles, temporary structures or parts thereof used or maintained for the purpose of building or placing a work in a navigable water to remain in such water after the completion of the project.
2. Where a work or a portion of a work that is being constructed or maintained in a navigable water causes debris or other material to accumulate on the bed or on the surface of such water, the owner of that work or portion of that work shall cause the debris or other material to be removed to the satisfaction of the Minister.

Please note that permission relates only to the effect of your work on navigation under the NPA. It is the owner's responsibility to comply with any other applicable laws and regulations.

Should you have any questions, please do not hesitate to contact our office in Sarnia by phone at 519-383-1863, by fax at 519-383-1989 or by e-mail at NPPONT-PPNONT@tc.gc.ca.

Regards,

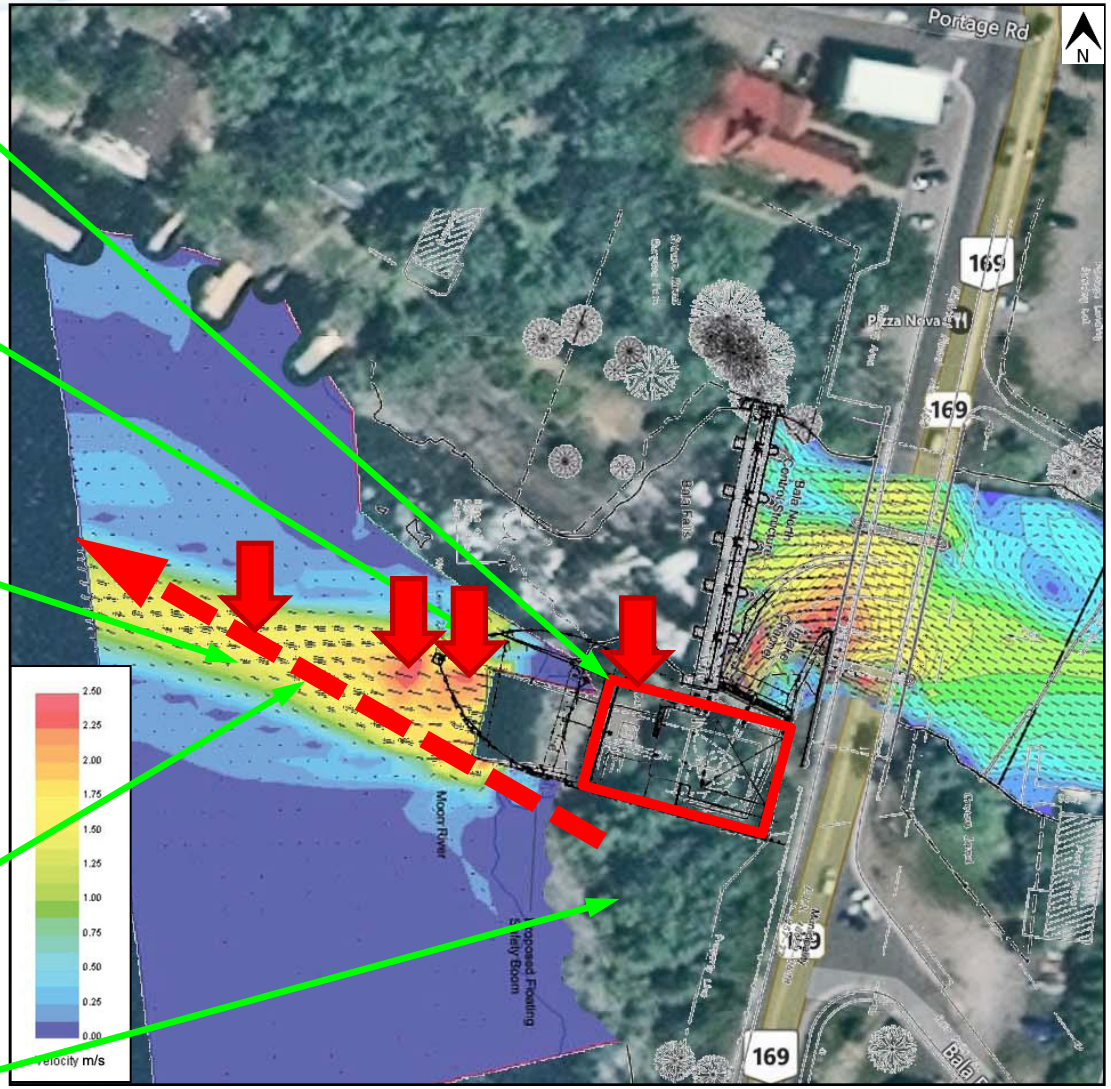
Kelly Thompson
Officer, Navigation Protection Program
Programs
Transport Canada
Ontario Region

KT/kg

cc: Karen McGhee, McGhee-Kriszan Engineering Ltd.

Canada

Proposed generating station would make the water dangerous **outside** of their proposed downstream safety boom



Proposed hydro-electric generating station would start without warning

Proposed downstream safety boom

Proponent’s flow simulation shows water outside of proposed safety boom would be at least double the speed considers safe

Proponent’s proposed portage would encourage canoeing and kayaking through dangerous water outside of safety boom

Township’s Portage Landing

2

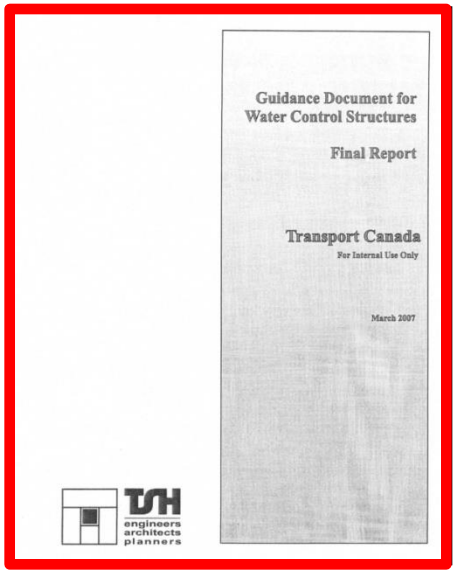
Unaddressed **operating** concern

Proposed upstream safety boom

(Location required for safety would bankrupt an important local business)

Upstream safety boom location

- Internal 2007 document *Guidance Document for Water Control Structures*
  - Provides methods to determine distance upstream of hazard for safety booms
- These methods were used in the 2011 *Public Safety Measures Plan* for the Bala Dams to determine the upstream safety boom for the Bala north dam needed to be relocated 15 m farther upstream, which was done in 2013



Guidance Document for Water Control Structures

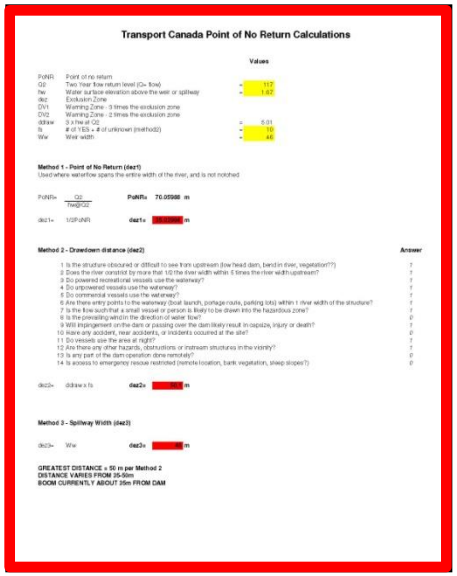
Final Report

Transport Canada

For Internal Use Only

March 2007

TSH engineers architects planners



Transport Canada Point of No Return Calculations

Values

PoNR:	Point of no return	
Q2:	Two Year flow return level (2x flow)	= 117
hw:	Water surface elevation above the weir or spillway	= 1.62
dez:	Exclusion Zone	
DV1:	Warning Zone - 3 times the exclusion zone	
DV2:	Warning Zone - 2 times the exclusion zone	
ddraw:	3 x hw at Q2	= 5.01
fs:	# of 1 ES = # of unknown (method2)	= 10
Ww:	Weir width	= 46

Method 1 - Point of No Return (dez1)

Used where waterflow spans the entire width of the river, and is not notched

PoNRf= $\frac{Q2}{hw@Q2}$ **PoNRf= 70.05988 m**

dez1= 1/2*PoNR **dez1= [redacted] m**

Method 2 - Drawdown distance (dez2)

	Answer
1 Is the structure obscured or difficult to see from upstream (low head dam, bend in river, vegetation??)	?
2 Does the river constrict by more that 1/2 the river width within 5 times the river width upstream?	?
3 Do powered recreational vessels use the waterway?	?
4 Do unpowered vessels use the waterway?	?
5 Do commercial vessels use the waterway?	?
6 Are there entry points to the waterway (boat launch, portage route, parking lots) within 1 river width of the structure?	?
7 Is the flow such that a small vessel or person is likely to be drawn into the hazardous zone?	?
8 Is the prevailing wind in the direction of water flow?	0
9 Will impingement on the dam or passing over the dam likely result in capsize, injury or death?	?
10 Have any accident, near accidents, or incidents occurred at the site?	0
11 Do vessels use the area at night?	?
12 Are there any other hazards, obstructions or instream structures in the vicinity?	?
13 Is any part of the dam operation done remotely?	0
14 Is access to emergency rescue restricted (remote location, bank vegetation, steep slopes?)	0

dez2= ddraw x fs **dez2= [redacted] m**

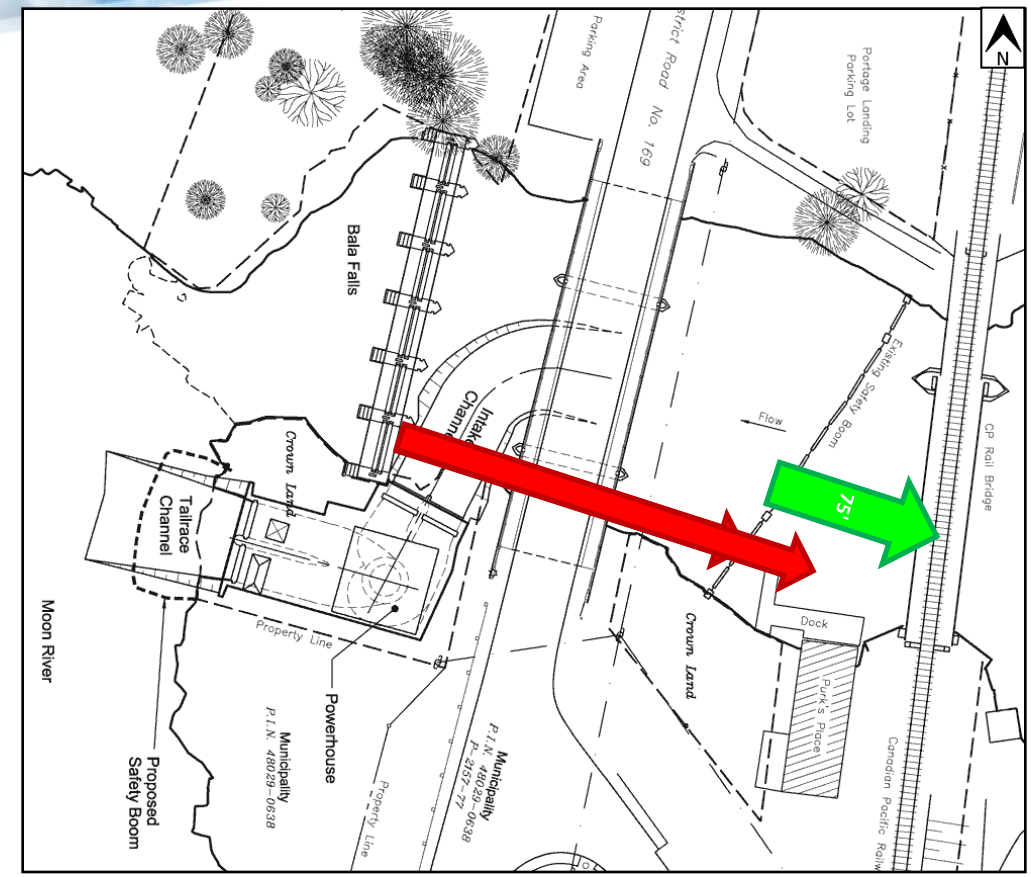
Method 3 - Spillway Width (dez3)

dez3= Ww **dez3= [redacted] m**

GREATEST DISTANCE = 50 m per Method 2
DISTANCE VARIES FROM 35-50m
BOOM CURRENTLY ABOUT 35m FROM DAM

Required to be farther upstream

- Transport Canada's methods require the upstream safety boom to be **farther upstream due to the intake** for proposed generating
  - By 10 m due to remote operation
  - Plus 13 m width of intake



- Result would be boats could not reach Purk's Place docks
  - Riparian rights are protected by law, so infringement is not allowed

3

Unaddressed **construction** concern

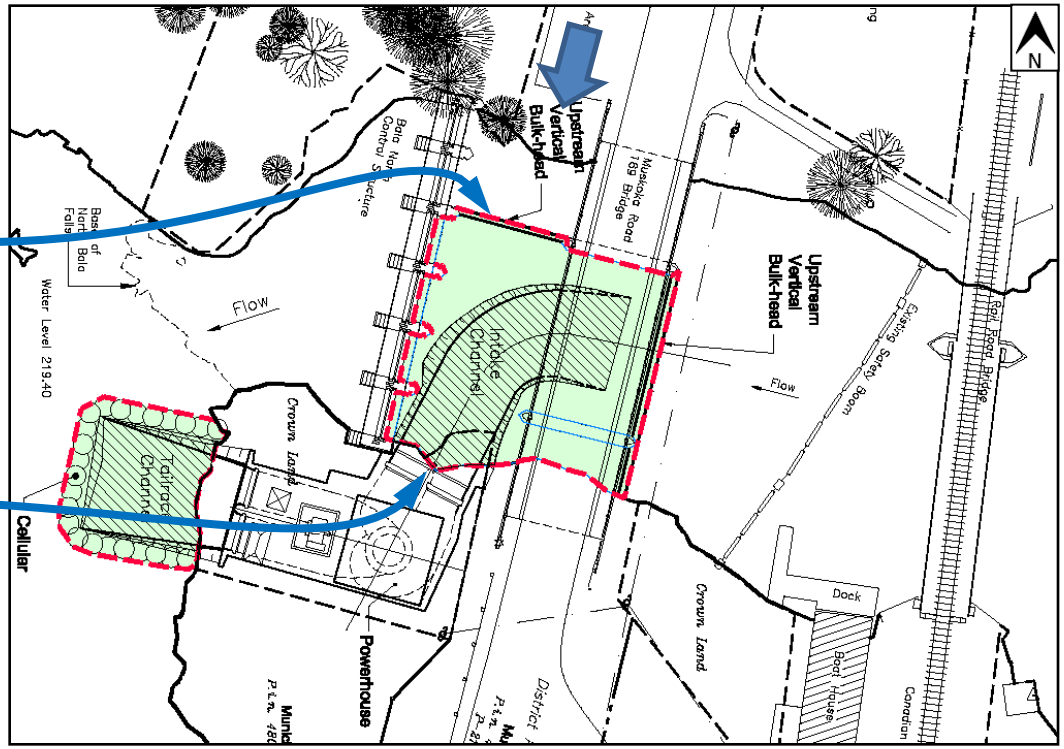
Proposed upstream cofferdam

(Risks damaging both MNRF's Bala north dam and District's highway bridge, flooding the Moon River and requiring a 50 km detour)

Background – soldier pile cofferdam

- During the proposed construction, an upstream cofferdam would be needed to keep water from the intake excavation

Drawing is from proponent's 2012 Addendum



- The proponent's schemes which received Environmental Approval did not threaten damage to other's crucial infrastructure

Background – highway bridge and north dam

- Intake would be here
  - Requiring cofferdam during construction to keep water away

Support piers

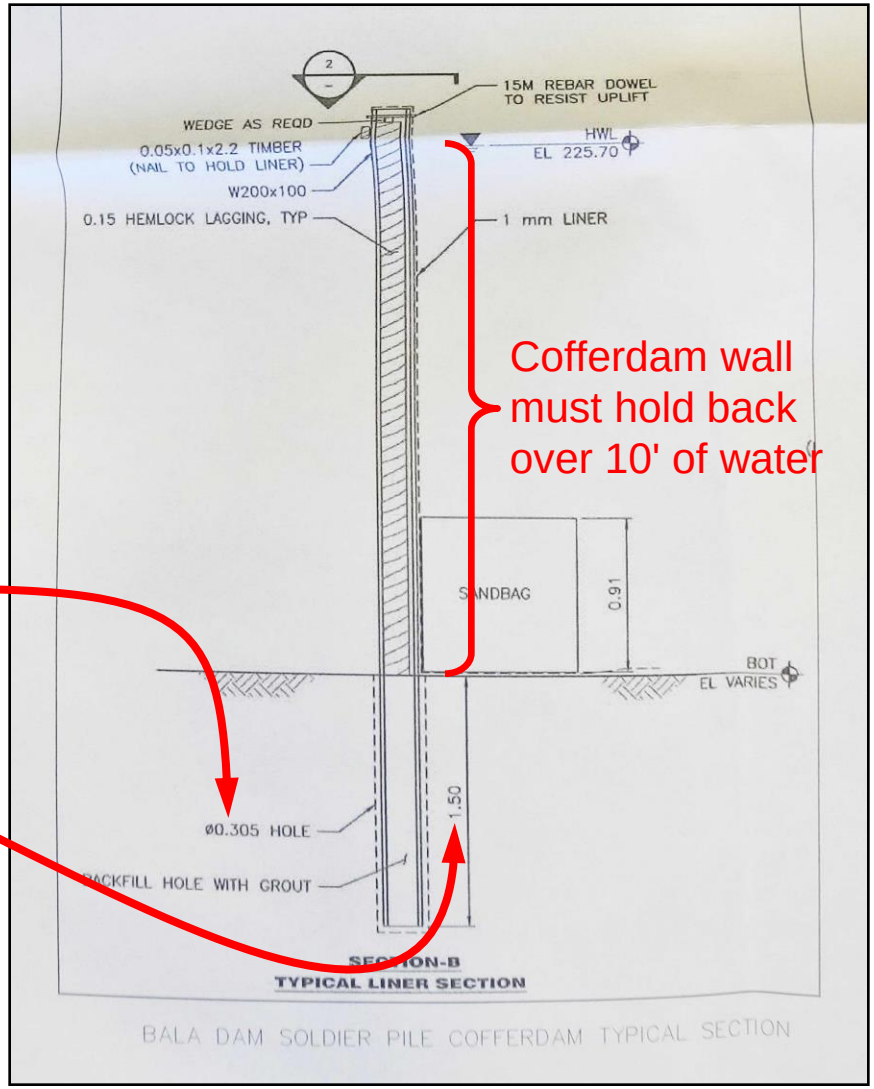
- View looking south
  - Left: District Municipality of Muskoka's Muskoka Road 169 bridge over the Bala north channel
  - Right: MNRF's Bala north dam

Background – soldier pile cofferdam

- Proponent is now planning a *soldier pile cofferdam*
  - Similar to this retaining wall, it would have vertical steel beams with horizontal timber lagging between those beams

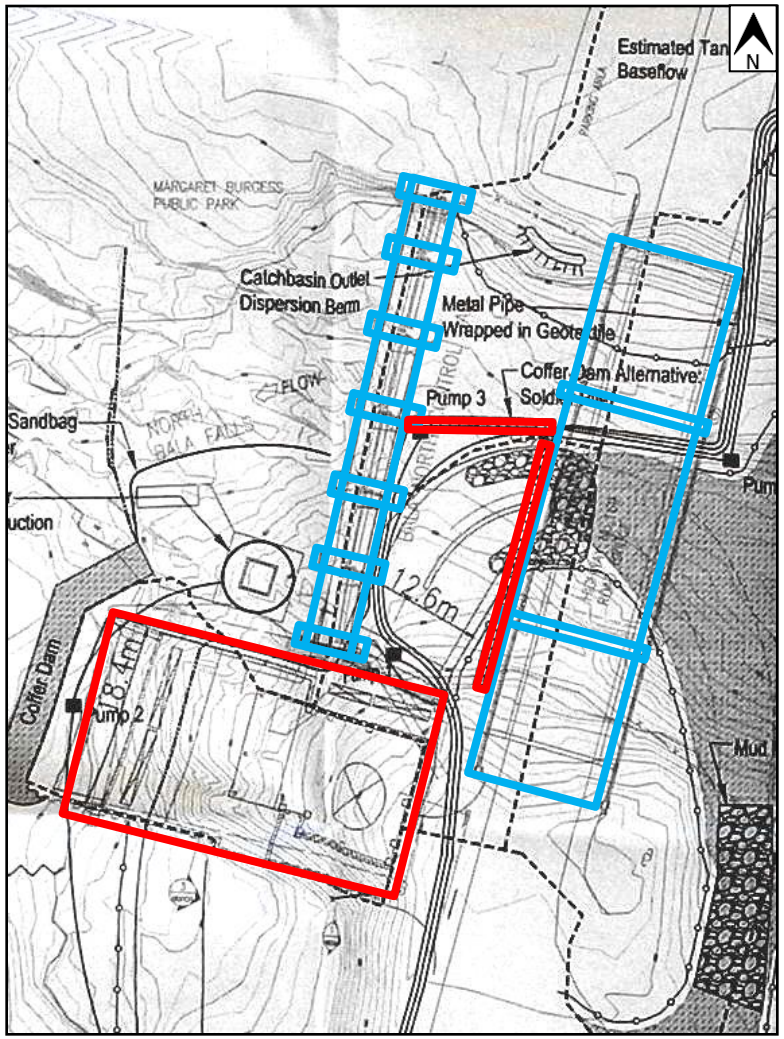
Anchoring the steel beams

- The steel beams would be anchored by boring into the bed of the Bala north channel
  - Proponent's drawing shows a vertical beam every 8', each in a hole bored 1' in diameter and 5' deep
  - Boreholes would be **directly adjacent to dam and bridge piers**, and to intake excavation



Upstream cofferdam proposal

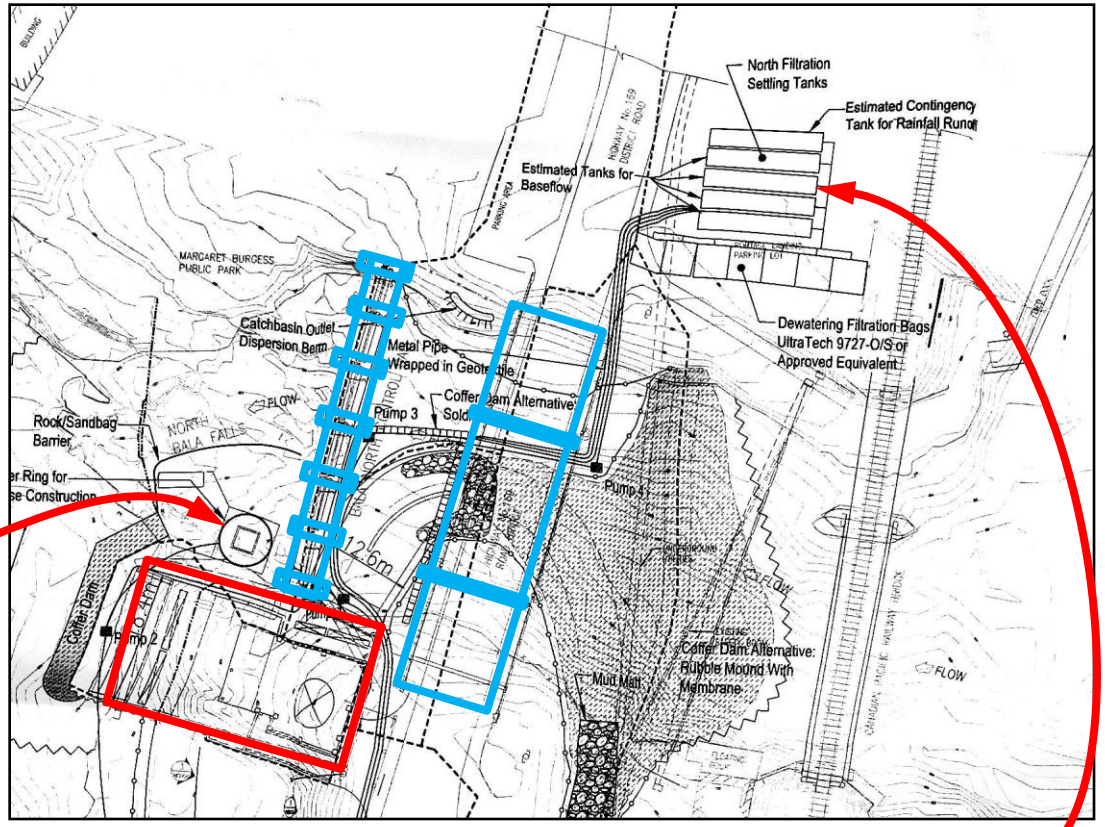
- Proponent's new upstream cofferdam proposal risks damage to both the MNRF's Bala north dam and the District's bridge
  - Their previous cofferdam proposal would not comply with the MNRF's cofferdam lowering plan
  - Damage to the dam could result in **flooding the Moon River**
  - Damage to the bridge could result in a **50 km detour** for months



- These risks have not been conveyed to all stakeholders

But wait, it gets worse

- This larger view of the proponent's October 20, 2016 drawing shows other concerns
  - Mount for proposed construction crane would obstruct flow through sluice 6, which MNRF would not allow
  - Settling tanks in the Don's Bakery parking lot are not allowed by the proponent's lease from the Township of Muskoka Lakes



- Proponent is providing conflicting information to stakeholders

Summary

- It would be **unprecedented** to locate such a proposed project in the middle of an in-water recreational area
  - The MNRF has no experience with such an extreme situation, yet the proponent has not shown how, or even if they could operate this safely
  - The Moon River would be dangerous **outside** of their proposed downstream safety boom
  - The upstream safety boom needs to be farther upstream
  - The planned upstream cofferdam risks damage to crucial infrastructure
- The proponent is providing conflicting information
  - The purpose of environmental assessments is to avoid such secretive and selective disclosures