



March 17, 2010

Township of Muskoka Lakes
P.O. Box 129
1 Bailey Street
Port Carling, ON
POB 1J0

Attn: Mr. Walt Schmid, P.Eng., CAO

**Re: North Bala Falls Small Hydro Project – Response to Elevation Request Dated
November 27, 2009**

Dear Walt:

The following letter attempts to address those concerns outlined in your report issued to Council dated November 24, 2009 that was attached to your elevation request dated November 27, 2009 to our consultant Hatch Energy and the MOE Director of the EAAB. Many of the items were discussed with you previously during our meeting of January 22, 2010 and subsequent phone conversation on February 1, 2010.

Item 1. Will the Bala North Dam be Operated within the Lake Muskoka / Bala Reach Operating Ranges as set out in the MRWMP?

- a. *The municipality seeks further clarification both from MNR and SREL as to the impact on Lake Muskoka water levels during high flows or the spring freshet, resulting from the establishment of the temporary cofferdam/working platform proposed to be constructed in the North Channel upstream of the powerhouse intake. Will the temporary cofferdam/working platform result in temporary higher water levels in Lake Muskoka? If so, to what extent?*

MNR will continue operations of the two dams to maintain the water levels on Lake Muskoka and the Bala Reach during the construction period as they do currently. Both the North and South Bala dams will remain operational during the construction period. The proposed upstream cofferdam will be located upstream of the road bridge leaving all of the North Dam spill bays available for passing flow. The South Dam will continue to have priority in terms of releasing flows from the Lake. Additional spill capacity is available at the North Dam once the maximum spill capacity at the South Dam is achieved.

The construction of a temporary cofferdam will have little or no effect on water levels during high flows or the spring freshet. Any raising of the water level caused by the cofferdam can be easily compensated for by the removal of stop logs. Note that the upstream cofferdam will cover a relatively small area, as the actual intake structure will be constructed in the dry behind a rock

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March 17, 2010

plug. The cofferdam will only be required for some localized deepening of the intake channel. In order to limit any possible complications with spill operations, the construction schedule is planned to employ the upstream cofferdam outside of the spring freshet months of April and May.

- b. Does the south dam have the capability to convey all the upstream flow? If not, to what extent does the south dam have the ability to relieve higher water levels on Lake Muskoka?*

The combined capacity of the north and south dams corresponds to the 1:100 year spring flood of 470 m³/s at a lake water level of 226.4 m. The south dam has the capacity to pass 252 m³/s and the north dam 218 m³/s. With the cofferdam in place, creating a restriction in the north channel, the reduced combined flood capacity of the north and south dams would be approximately 430 m³/s at a lake water level of 226.4 m (as estimated by our consultant Hatch). This reduced capacity corresponds approximately to the 1:48 year return period spring flood flows.

It should be noted that based on historical records, the majority of the high spill requirements occur during the spring freshet period in April/May. In order to limit complications with spill operations, the construction schedule, as stated in Section 5.2.8.2 of our ESR is planned such that the upstream temporary cofferdam will be installed in the initial year of construction following the spring freshet (July) with the intention of removing it prior to the freshet the following year (February), thereby avoiding this period of high flow.

As is typical for these types of installation, the cofferdam will be constructed to withstand the 1 in 20 year spring flood event. The 1 in 20 year flood for this location is 362 m³/s which is less than the temporary combined capacity of the two dams.

- c. Are there other constrictions upstream of the North Dam that has a greater effect on any backwater effects in Lake Muskoka created by the working platform?*

There are upstream constrictions that can create localized changes in water level at the dam. In addition, given the large size of Lake Muskoka also experiences wind effects that can change water levels. All of these issues are currently managed within the MRWMP and will continue to be during the construction period.

- d. What measures are proposed to mitigate upstream flooding during construction should the introduction of the working platform create increased water levels on the Lake?*

Should a flood event occur that could not be passed by the combined South Dam and reduced capacity North Dam, SREL would have the cofferdam removed to allow the flood to pass. Given that the proposed work to be done behind the cofferdam will only be excavation work to deepen the channel, removing the cofferdam can be done quickly and easily, without any damage to our new construction. Note again, that the construction schedule will be designed to have this work completed outside of the spring freshet high flow period to minimize the chance of this scenario occurring.

Item 2. That any potential generating facility consider the need for scenic flows, public access for traditional uses and continuity of business in the local areas.

- a. It is recommended that both dams be modelled in order to visually observe the proposed controlled water flows. Based on this observation, a better determination can be made to establish an acceptable aesthetic flow over the dams.*

SREL and its consultant Hatch, with the assistance of MNR, completed a Qualitative Flow Assessment for the project in June 2009. An abridged version of this report is provided attached for your review. It includes photos from various locations around both dams at a flow of 2 m³/s. Unfortunately we were not able to reduce the flow to 1 cms at that time due to some worn or warped logs. In order to reduce to 1 cms, we will likely require replacement of stoplogs. A video was also taken at south dam at a flow of approximately 2.5 cms. Unfortunately, MNR had already started removing some of the logs before we were able to film the flow at 2.0 cms. This 28 second video is available to Council on request.

- b. A joint review committee of MNR, SREL, and township representatives, perhaps a member of the MRWMP Public Advisory Committee are recommended.*

SREL would welcome meeting with the MNR, Township representatives, and MRWMP Standing Advisory Committee (SAC) (note the PAC is no longer in effect) (as deemed appropriate) to discuss this report and its findings at the Township's convenience. It is our understanding that the Township has already been in contact with the MRWMP SAC. SREL has discussed this possibility of this committee with MNR, who has agreed to be an observer of the "joint review committee" that you suggest and could provide any regulatory input as requested. They would not, however, be a member of the actual review committee.

Note that it is our understanding that the final minimum flows to be provided over the North and South Falls will be determined by the province (MOE and/or MNR).

Item 3. That a member of the MRWMP Public Advisory Committee be included on the review team for the proposed development.

- a. Input from this important committee would be beneficial to the final analysis of the ESR. Additional time to seek MRWMP input is required.*

SREL has provided contact information for the MRWMP Standing Advisory Committee (SAC) Chair.

It should be noted by the Township that SREL met with the MRWMP SAC on November 4, 2009 (during the 44 day public review/comment period for the ESR) at MNR's Bracebridge offices to announce the release of the ESR document and outline the highlights of the document with focus on the proposed addendum to the MRWMP. A question and answer period followed the brief presentation.

The Water Management Planning Section of the ESR is intended to be a stand-alone document. Upon the official order for amendment, this stand alone document will be reviewed by the SAC and a determination made by MNR in consultation with the committee. The WMP order follows the EA process.

Item 4. That the ESR addresses the heritage value of the North Bala Falls and any related heritage impact the hydro generating station may have on the falls.

- a. *Ministry of Culture must sign a letter of clearance of the archaeological condition prior to any construction operations, earth moving or blasting takes place.*

SREL received a letter from the Ministry of Culture dated March 6, 2009, accepting the Stage 2 Archaeological Report for the Project that recommends complete clearance of the archaeological condition of the subject property. A copy of this letter is attached.

- b. *It is noted that the Historica document should be revised to clarify that ownership of the old Bala #1 Generating Station (Mill Street) resides with the Township of Muskoka Lakes.*

SREL acknowledges that while the Township of Muskoka Lakes owns the “building and property” that the Bala #1 Generating Station (Burgess GS), the actual “business” is owned and operated by Algonquin Power or its subsidiary, as are the rights to the water rights for the facility.

- c. *Council has received recent correspondence from the Muskoka Branch of the Architectural Conservancy of Ontario expressing concern that the project will negatively impact cultural qualities of the area. Additional time is required for further dialogue between all parties to fully understand their concerns.*

It is assumed that the Township has had sufficient time to dialogue with the Architectural Conservancy between the issuance of the elevation request and the writing of this response. No update has been received by SREL regarding this matter. SREL has, however, since contacted the President of the group (February 13, 2010) and offered to meet with its representatives. At the time of writing, however, the group has not be able to provide a date at which they are available to meet. It should be noted by the Township that this group is not a government regulatory body, but instead a possibly affected stakeholder and special interest group.

- d. *Official Plan: It should be noted that sections of the Planning Act speak to Green Energy Development. Further discussions with SREL and Hatch Energy are required to fully understand the proposed concepts and proposed mitigating measures.*

As quoted on the Ministry of Municipal Affairs and Housing website “As a result of the new approvals framework established through the Green Energy Act (GEA) and related regulations, most renewable energy developments ... with some exceptions, are exempt from the provisions of the Planning Act.” This exemption includes projects and facilities which generate electricity from renewable sources such as water (as is the case for the North Bala Falls Project). The effect of this exemption is that renewable energy projects are not affected by the following local planning instruments:

- Official plans
- Demolition control by-laws
- By-laws or orders passed under Part V of the Planning Act, including zoning, site plan, holding and interim control by-laws
- Development permit system by-laws

Also, the GEA has amended the Planning Act to allow leases up to 40 years for renewable energy projects without obtaining an approval under the Act.

Policy 1.8.3 of the Provincial Policy Statement, 2005 directs that renewable energy systems shall be permitted across Ontario – in settlement areas, rural areas and prime agricultural areas – in accordance with provincial and federal requirements.

As stated in the ESR, SREL is proposing to mitigate impacts by:

- Ensuring access is maintained to both sides of the north and south falls
- Professionally landscaping the area to create a public park and river/sunset view lookout
- Providing an upper lookout area adjacent to the road, that is handicap accessible
- Incorporating interpretive signage into the site to describe the heritage of the area and its history with waterpower.
- Assisting the Township with the constructing/installation of a year round snowmobile/pedestrian bridge between the Bala wharf and Diver's Point. The details of this are, however, still to be discussed.

Item 5. That the ESR take into consideration the potential impact that the proposed construction may have on the Bala economy, including the winter economy, by addressing safe snowmobiling movement around the site, by investigating alternative water crossings of Bala Bay.

Impact on Bala's Economy During Construction:

- a. It is recommended that an Economic Impact Study be conducted by SREL to illustrate to what sectors of the local economy may benefit and what sectors may be negatively impacted and what can be done to mitigate effects. The study should consider the creation of a local committee, comprised of SREL, the contractor and local representatives that would meet on a regular basis to identify "items of concern" prior to the issues becoming "problems". This committee should develop "proactive" business strategies in support of local businesses and retailers i.e. roadside signage indicating "Bala Merchants are Open for Business During Construction".*

SREL is currently considering the preparation of an Economic Impact Study. SREL will look to the Township for assistance with the development of a Terms of Reference for such as report should we decide to proceed. SREL has also scheduled a meeting with the Chamber of Commerce Executive for March 25th to discuss strategies and suggestions they may have to minimize potential negative impacts to their respective businesses during the construction period. Since this meeting was set up, the C of C has posted a notice to all members requesting input for this meeting.

- b. SREL should ensure existing tourism events such as the Bala Bay Regatta, Cranberry Festival etc. Are minimally effected by any construction interruption.*

SREL is committed to working with the community to ensure that existing tourism events are minimally effected during the construction period. By completing all road work during the off-peak season, road interruptions should be minimized. Much of this could be attained by restricting or limiting construction activities during these events which generally occur on weekends. (Regatta – Civic holiday weekend, Cranberry Festival – Weekend after Thanksgiving, Craft and Gift Fair – 2 weekends: July and Oct, Antique and Nostalgia Show – 2 weekends July and October, Santa Clause Parade – weekend in November). Other events such as the summer

market that occurs on Mondays, will have to be investigated with the Contractor and market organizer.

- c. It is recommended that SREL incorporate “buy local where possible” policies in its agreements with project contractors.*

It is SREL’s intention to discuss this option with the Chamber of Commerce at the March 25th meeting discussed above.

- d. Snowmobiling during construction: There may be safety issues with snowmobiles crossing the proposed temporary Bailey Bridge if it has a steel deck.*

SREL’s engineers have indicated that an alternative deck material is entirely possible and will be included in the construction specifications (possibly timber). Note that this Bailey Bridge will only be in place for the first winter season. This will not be an issue for the second winter season.

- e. SREL has proposed a joint venture with the Municipality for the provision of a Four Season Bridge from Divers Point Park to the Bala Wharf. Further discussions with the Township and the local snowmobile club are required to address this issue.*

SREL remains committed to assisting the Township with the installation of the above mentioned bridge, should the North Bala Falls Small Hydro Project proceed, and the installation/construction of the bridge coincides with the Hydro Project’s construction period. Details of such a joint venture would need to be worked out in further discussions between the Township and SREL.

It should be noted that if the hydro project doesn’t proceed, this bridge would have to be significantly higher and more expensive than currently planned. Alternatively, the Township would need to obtain a navigational restriction to the North Channel from Transport Canada, or it would restrict access to the existing Purk’s Place Boat House and Marina (not currently zoned for marina use).

- f. SREL proposes to close Bala Falls Road between the CPR overpass and MR#169 during construction. Township Council approval is required for this road closure.*

SREL will apply for approval of this road closure at the appropriate time in the construction process. Is it possible to get this approval at this point in time?

- a. Section 5.2.1 of the ESR speaks to the possible crushing of rock on site. How will noise and dust emissions be monitored and controlled? During what time of year is the crushing proposed?*

Subsequent to the issuance of the ESR, SREL’s engineers have concluded that no on-site crushing will be required.

- b. The ESR should address the introduction of the upstream cofferdam/working platform in the North Channel and any potential backwater effects it may have. The Township requires further clarification and input from Hatch and MNR.*

See Item 1.

- c. *Muskoka Road #169 will be closed for two nights during construction as the intake channel is constructed under the roadway.*

Road closures will be coordinated with the appropriate emergency services, so as to ensure that an option exists for emergency response during those closures. The conditions surrounding road closures will be agreed upon before permission is granted.

- d. *A one lane Bailey Bridge is proposed for 2 weeks prior to installation of a two lane Bailey Bridge structure. Timing of the installation is requested to ensure proper coordination with other Bala events and activities.*

Two 2-week lane reductions will be required before the installation of the **two** lane Bailey Bridge structure to install its the foundations. A second set of two 2-week lane reductions will be required upon removal of the bridge to remove the foundation work. All four weeks of lane reductions are planned to be conducted in the off-peak season (between the months of November and Victoria Day weekend). Notice of these lane reductions will be provided to the Municipality as well as the local businesses to ensure they don't coincide with any Bala events or activities. This timing will not be known until after a contractor is chosen.

Impact on Bala's Economy during Operation:

- e. *Will reduced flows over the North and South Falls have a negative effect on both existing and new spawning beds? Is 200 m2 of "manmade" spawning habitat sufficient to maintain the fishery?*

Fisheries and Oceans Canada (DFO) is the federal agency responsible for fish habitat, while the MNR is the provincial agency responsible for fish community and fisheries. A Fisheries Act Authorization is issued by DFO when the impacts to fish habitat are adequately mitigated. A mitigation plan has been proposed. A Fisheries Act Authorization application will be filed with the DFO. This typically follows the submission of the ESR. The DFO and MNR have both reviewed the ESR and provided comments. These comments are being addressed by SREL and its fisheries experts. Application for Fisheries Act Authorization will be filed thereafter. This authorization will be issued only upon satisfaction of the DFO conditions.

- f. *Reduced flow over the North and South Dams: The Township needs to fully understand the visual impact on both falls and potential economic impact. Consideration should be given by the province, providing it flexibility to increase the minimum flows over the dams is the proposed flows seriously affect the aesthetics of the falls.*

Please see answer to Item 2 above. The final determination of the flows to be released over each of the dams will be determined by MNR. As stated in Item 5 a), SREL is currently considering conducting an Environmental Impact Study to investigate impacts from changes to the aesthetics of the falls and any possible mitigation measures.

- g. *The township wishes to participate in the proposed park design and discussions relating to ongoing park operations as well as the development of illustrative plaques in the Bala Falls area as recommended by Historica.*

SREL is committed to forming a Public Advisory Group to gather input on the park design and illustrative plaques among other things. A representative from the Township would be welcomed

to the group when it is formed during the detailed design stage of the project (following the EA process).

- h. Section 9.4 should be revised to indicate that Burgess Generating Facility is owned by the Township and operated by Algonquin Power.*

SREL acknowledges that while the Township of Muskoka Lakes owns the “building and property” that the Bala #1 Generating Station (Burgess GS), the “business” is owned and operated by Algonquin Power or its subsidiary, as are the rights to the water rights for the facility.

Public Safety

- i. The ESR should confirm that the upstream and downstream booms are in fact the final locations.*

The final location of safety booms will be determined by Transport Canada (TC). TC has reviewed the ESR and provided written comments on the project as provided attached. These comments confirm that the proposed upstream and downstream boom locations are “reasonable” as shown in the ESR. An Application for Navigational Water Protection Act Authorization will be filed after final acceptance of the ESR. This authorization will be issued only upon satisfaction of the TC.

- j. The Township requires further clarification as to the expected flows in and around the Bala Wharf under various flow conditions during different times of year. A comparison of existing flow velocities is also requested (water going over the existing North Dam). The Township requires that flow velocity figures be created for the area further out into Bala Bay to understand the potential impact on recreational swimming, canoeing and boating in the area and related safety issues.*

The attached letter from TC confirms that while velocities may exceed 0.61 m/s at the intake, the velocity near the Bala Wharf will dissipate to 0.3 m/s during spring low and at full plant operation. TC further concludes that navigation will not be affected in the Bala Wharf area.

- k. Clarification is required regarding the ability of the public to access the north shore of the North Falls. Will currents from the tailrace prohibit swimming in the area?*

As illustrated on the attached figure 6.5 from the ESR, there will be no restricted access to the north shore of the North Falls, downstream of the dam. TC’s attached letter also states that while velocity at the outfall will increase from 0.6 to 1.3 m/s, overall velocities will be reduced from 2.4 to 1.3 m/s. It also states that velocities will quickly dissipate to negligible. Therefore, velocities will not be significantly affected on the north shore.

SREL, however, cautions the Township that swimming in this area is currently not advised. “Danger – Fast Water – Keep Away – No Swimming” signs are posted on the downstream face of the North Dam. SREL cannot, therefore, suggest that it would be safe to swim in the area either with, or without, the installation of our project.

TC’s letter does, however, indicate that because the flow from the tailrace will be straight out from the plant and perpendicular to the shore, it will eliminate the swirling (circular) flow which presently occurs in that area during high flows. The removal or reduction of this swirling water should allow for easier handling of small vessels in the zone around the tailrace.

- l. Confirmation is required that public will have access to the south bank of the North Channel.*

As the attached Figure 6.5 from the ESR illustrates, there will be no restricted areas along the south bank of the North Channel, downstream of the North Dam. SREL is also proposing to construct a new set of stairs down this incline to facilitate access.

- m. Section 6.3.6.1 requires clarification regarding the “portage” route between Lake Muskoka and the Moon River.*

Suggested alternative portage routes to replace the current upstream “take out” on the crown land adjacent to Purk’s Place, include the flat area adjacent to the Bala Wharf (Bala Bay) and Diver’s Point, during summer low flow conditions. “Put in” locations downstream include the Town Dock in Bala Reach. TC’s attached letter confirms that these locations are appropriate.

- n. Section 6.3.6.1 indicates that access to the water in the area of the works will be discontinued. Clarification is requested as to how this restriction will be done.*

The attached Figure 6.5 clearly outlines the restricted area during the operations phase of the project. The water side of the tailrace restricted area will be enclosed by a floating safety boom and the land side will be blocked with a combination of landscaping features (vegetation and rocks) as well as architecturally designed handrail systems that meet the Ontario Building Code to keep children from falling through or people climbing on.

The landside of the restricted area around the intake will be enclosed by fencing. All attempts will be made to ensure that this fencing is either visually appealing or masked by vegetation. The upstream end of this area will be blocked with a floating safety boom.

There are currently no plans to fence the area along the upstream north shore of the north channel as this is Municipal land. SREL would be open to discussions with the Municipality should they wish to have SREL assist with the installation of fencing and/or landscaping to provide a physical barrier between the land and water. The water in this area is currently not easily accessible by land already because of the very dense shrubbery and rocks (see photo attached).

SREL also do not have any current plans to erect any barrier on the CP Rail land where it meets the restricted zone unless requested by CP Rail. Again, the water in this area is not easily accessible from land as the rail bridge abutments and vegetation restrict access to a large extend (see photo attached).

- o. The Township requires clarification that the trail along the north side of the upstream North Channel will not be affected by the proposed construction or operations.*

No work is proposed to be completed on or near the north shore of the North Channel, upstream or downstream of the North Dam, with the exception of the downstream anchor for the relocated boom and the installation of the proposed year round pedestrian/snowmobile bridge should the Township wish to proceed. See above item (n) for possibilities regarding barriers to water in this area.

- p. SREL is requested to identify any restrictions or warnings that may be imposed on divers in and around the works.*

Divers will no longer be able to dive in the area shown in yellow on the attached Figure 6.5.

Generally diving is not recommended near intakes or upstream of dams. It has been suggested by members of the public that divers currently use the area off Diver's point to commence dives. While this is not recommended either with or without our project, our project should not significantly change the existing strength of the currents in this area. Divers would, however, risk the chance of swimming below the two closely spaced safety booms. This is currently the situation with the adjacent south dam. Signage will be posted to notify people of the dangers of passing into the restricted zones beyond the safety booms, similar to what is present at the south dam.

There would be a small restricted area within the tailrace boom downstream of the plant as shown on Figure 6.5. It is assumed that divers generally use the deeper areas downstream of the dams and should, therefore, they should not be significantly impacted by our project.

Future Employment and Economy

- q. The Township requests that an Economic Impact Study be undertaken by an independent consultant to identify both the positive and negative attributes of the proposed development after the construction is completed and the plant is operational. The study should identify amongst other things, the effect on the seasonal and year round economy given the proposed changes to the North and South Falls. If negative concerns are raised the report should identify possible mitigating measures that could be taken.*

As stated above, SREL are seriously considering undertaking an Economic Impact study to identify impacts to the local economy for the construction and operational periods and outline possible mitigation measures.

Bonding and Securities

- r. The Township inquires whether the Province requires a Bond or Security for the completion of the project.*

It is my understanding that the Provincial Government does not generally require such a thing for these types of projects. However, SREL are required to provide security to the Ontario Power Authority (OPA) under our FIT application and eventual FIT contract to ensure that we do proceed to Commercial Operation.

In addition, both the original MNR site release program and the recent OPA FIT application required verification of SREL's financial capability to complete the project.

Township of Muskoka Lakes
March 17, 2010

Please feel free to distribute this letter to the other councillors and/or staff as you feel appropriate.


Respectfully,

Karen McGhee

North Bala Small Hydro Project Manager
Swift River Energy Limited

c.c. Trion Clarke, Hatch Energy
Kristina Rudzki, EAAB, MOE

Legend

 Areas to which access will remain restricted (by signage and floating safety booms) following construction.

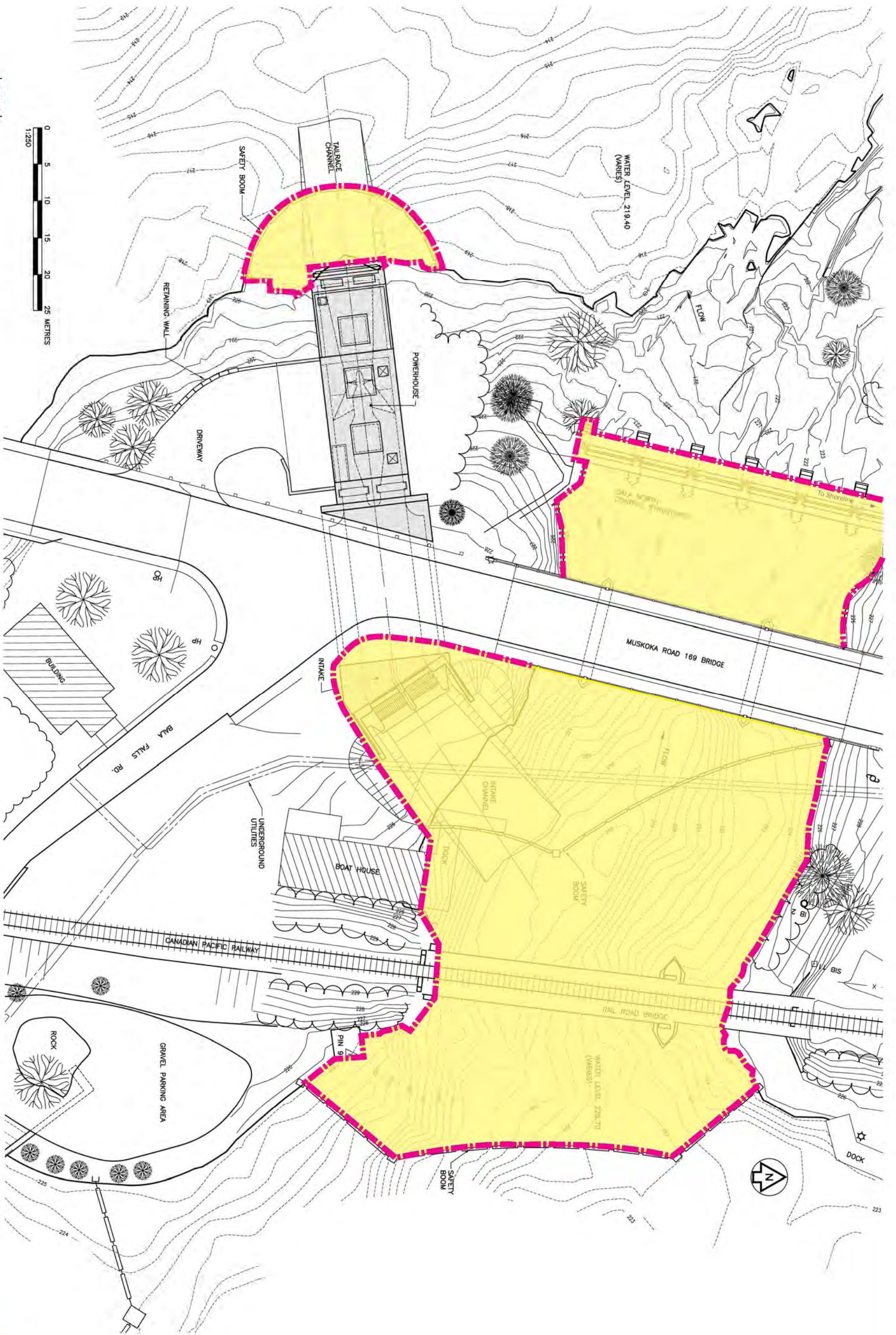


Figure 6.5
 Swift River Energy Ltd.
 North Bala Small Hydro Project
Areas Restricted During Operation

Ministry of Culture

Culture Programs Unit
Programs and Services Branch
435 S. James St., Suite 334
Thunder Bay, ON P7E 6S7
Tel: (807) 475-1632
Fax: (807) 475-1297
Email: paige.campbell@ontario.ca

Ministère de la Culture

Unité des programmes culturels
Direction des programmes et des services
Bureau 334, 435 rue James sud
Thunder Bay, ON P7E 6S7
Tél: (807) 475-1632
Télééc: (807) 475-1297
Email: paige.campbell@ontario.ca



March 6, 2009

Donna Morrison
Advance Archaeology
PO Box 493
Port Hope, ON L1A 3Z4

Dear Donna,

Re: Review and acceptance into the provincial register of reports the archaeological assessment report entitled "Stage 2 Archaeological Assessment of North Bala Hydroelectric Development, part of Lots 14 and 15, Concession A of Geographic Medora Township and part of Lot 33, Concessions 6 and 7 of Geographic Wood Township, now in the Township of Muskoka Lakes, Muskoka District Municipality" written on December 10, 2008, received on March 4, 2009

PIF: P121-065-2008

RIMS: HD00370

This office has reviewed the above-mentioned report, which has been submitted to this Ministry as a condition of licensing in accordance with Part VI of the Ontario Heritage Act, R.S.O. 1990, c 0.18. This review is to ensure that the licensed professional consultant archaeologist has met the terms and conditions of their archaeological licence, that archaeological sites have been identified and documented according to the 1993 technical guidelines set by the Ministry and that the archaeological fieldwork and report recommendations ensure the conservation, protection and preservation of the cultural heritage of Ontario.

This Stage 2 field assessment revealed no archaeological materials and it is recommended that there should be a complete clearance of the archaeological condition on the subject property. The Ministry of Culture concurs with these recommendations and accepts this report into the provincial register of archaeological reports.

Please contact me with any concerns regarding this matter.

Yours,

A handwritten signature in black ink, appearing to read "Paige Campbell", written over a light blue horizontal line.

Paige Campbell
Acting Archaeology Review Officer
cc Swift River Energy Ltd.



Transport Canada
Marine

Transports Canada
Maritime

100 Front Street South
Sarnia ON,
N7T 2M4

Our File # 8200-07-6495

January 22 2010

Hatch
4342 Queen Street,
PO Box 1001
Niagara Falls, ON
L2E 6W1

Attn: Trion Clarke

Re: Proposed hydroelectric Power Generation, Swift River Energy , North Bala Dam, Town of Bala, Province of Ontario

Dear Mr. Clarke;

I have completed my review of the Environmental Screening Review Report, dated October 2009, for the above described project.

I had previously commented on the Draft report March 12, 2009 and had concerns with the potential interference to navigation in the area of the intake channel, the surface water velocities proposed, impacts on portaging around the dam and the proposed safety boom requirements/locations. To address these concerns I requested additional information be provided either in the report or separately.

During my current review I have identified the following :

Navigation Interference

- **Purk's Place:** Impacts to the Purk's Place Boat House and Marina continue to be of critical interest to me. The ESR addresses this issue in a number of areas (3.5.5.1, 5.3.8, table 6.1, 6.3.6.1, 6.3.7.1 and in the D17 summary Volume II). Most of these references accurately reflect my concerns and indicate that a negotiated and mutually agreeable solution will be found between Swift River and Purk's Place. I am slightly concerned that the wording in table 6.1 implies that a settlement has been reached – where the remainder of the information indicates that negotiations continue.
- **Surface Water Velocities:** The additional information you have provided includes surface water velocities both current and expected in the intake and tailrace areas. I have used these figures (and descriptions in the document and those recently provided), to assess the impacts to navigation caused by the flow.
 - Velocity in the intake area may exceed 0.61 m/s, dissipating to 0.3 m/s nearing the Town Dock Bala Bay. These velocities reasonably correspond to the existing Spring flow velocities and will occur during the operation of the generator. Navigation will be affected in the immediate area of the intake but not in the Town Dock area.
 - Velocity in the outfall area will increase over existing for that location (0.6m/s to 1.3 m/s); however, overall the velocities will be reduced (2.4m/s maximum to 1.3m/s maximum) and directed straight downstream. This will remove the circular flow patterns that exist and should make navigating a small vessel easier and more predictable.

Canada



- Velocity in the intake area during extreme storm events (figure 6.2d) will be quite high and not suitable for small boat navigation near the Town Dock Bala Bay. Your further explanation of this figure (email of January 18, 2010) indicates that this flow and velocity will only be experienced during 1:100 year storm events. These are extreme events and very rare. Small vessels should not be affected as they will not be using the area for navigation at those times.
- **Bala Regatta:** I have corresponded directly with the Bala Aquatic Association concerning their historic regatta and you have addressed their concerns in the ESR (2.2.5.7) and with the surface water velocity and plant flow figures (6.1, 6.2c). Their activities should be able to continue as they have planned.
- **Historic Portage:** There is evidence that portaging takes place adjacent to Purk's Place using the Crown lands as a take out location. If the intake channel is built on those lands the portage take out will have to move. I assessed the overall location during my review and completed a site inspection. There exists an alternate location for take out (Diver's Point) and a second take out location adjacent to the Town Dock (Bala Bay). Put in locations exist downstream and will not be affected by the project (Town Dock in Bala Reach).
- **Water Levels:** The electrical generator is to be operated as a "run-of-the-river" system using the existing Muskoka River Water Management Plan (MRWMP) with a potential change in the Target Operating Level (TOL) of minus 5 centimeters. This change will not affect navigation either upstream or downstream.
- **Safety/Warning Booms:** I have assessed the proposed locations for both the intake and tailrace areas.
 - The intake boom location (Bala Bay, upstream of the rail bridge) seems to be a reasonable location and will provide continued access to the Town Dock, Diver's Point and will allow the Bala Regatta to continue without significant changes. The boom will directly affect the Purk's Place business by preventing water access to the docks and building. The existing Crown lands and portage will also be negatively affected.
 - The downstream Tailrace Boom is reasonably located and will not remove access to navigation of any significant water area. Surface water velocities will be in the 1.2 m/s to 1.3 m/s range and quickly dissipate to negligible. This should not interfere with small boat traffic during the generator operation. I understand that this location was chosen to minimize the water area removed from navigation, reduce the visual impact to adjacent owners and maintain access to the North Bala Falls and public access points.

Outstanding Considerations

During detailed project review we will require:

- A report on known accidents or fatalities in the North and South Bala dam areas.
- Final details of the Safety/Warning boom design (size, type, colour, spacing and anchoring system).
- Details of the temporary dewatering berms, installation, marking and removal plans.
- Water velocity changes and navigation protection during berm installations.
- Fish habitat Compensation plans and shoal creation areas to assess their impacts to navigation.



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- Temporary and permanent public safety measures planned and details (throw rings, fencing, navigation marking, signage etc.).
- Portage marking
- Possible Snowmobile/Pedestrian Bridge crossing of Bala Bay (section 6.3.6.1) – this will require a complete and separate application and approval under the Navigable Waters Protection Act (NWPA).
- A follow up report of actual surface water velocities obtained during testing and run up of the operating hydro electric generator. This will be required in the intake area, the Town Dock Bala Bay and the tailrace area as a check against the modeling.

Please note that we will be a Responsible Authority (RA) for the Canadian Environmental Assessment Act (CEAA) as I have confirmed that Booms still trigger under the CEAA Law List. We will be participating in the current review initiated by the Department of Fisheries and Oceans (DFO-FHM).

I must stress that the impacts to the Purk's Place business remain outstanding and hinder our ability to approve the proposed project. Navigation and Riparian access concerns must be addressed before Transport Canada proceeds with detailed project approvals.

If you have any questions, comments or concerns with my review of the ESR please do not hesitate to contact me at your convenience. I have two office locations 613-990-5901 Ottawa and 613-925-1934 Prescott. My email address is al.robertson@tc.gc.ca for both offices.

Yours truly;

Al Robertson
Senior NWP Officer
Transport Canada
Navigable Waters Protection
Ontario Region



Swift River Energy Limited

Qualitative Flow Assessment
for Leakage Flows

North Bala Hydro Project

327078.201.07

Rev. 0

February 2010

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1	North Bala Dam Photo Series
2	South Bala Dam Photo Series

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Number	Title
1	Spring Qualitative Flow Assessment – Photo Locations at Bala North Dam
2	Spring Qualitative Flow Assessment – Photo Locations at Bala South Dam

1. Introduction

The proposed North Bala Small Hydro Project will result in a reduction of flows spilled through the North and South Bala dams. To qualitatively assess the impact that the reduced flows will have on the flow aesthetics downstream of each structure, a visual assessment of the flow conditions was carried out on June 11, 2009. Over the course of the day, the Ministry of Natural Resources (MNR) operations crew (5 staff) led by Mr. Len Hoare (Dam Operator), and Mr. Dave MacPherson (Water Management Technical Specialist), provided assistance in adjusting the dam log settings and corresponding flow releases. The qualitative/visual flow assessment was photographically documented by Ms. Joanne McHenry of Hatch Ltd. The intention of the detailed photographic record was to document the visible changes in downstream water levels, turbulence, and flow direction, with the changes in spill at each dam.

Log manipulations were performed at the North Dam in the morning and the South Dam in the afternoon. Prior to the day of the site visit, MNR operations staff had jacked down the lower logs in each of the sluiceway bays at both dams to minimize the amount of leakage passing through the structures. All logs were in place at the start of the photographic series for both dams such that the only flows passing downstream of the structures were due to uncontrolled leakage which MNR staff estimated to be 2.0 m³/s per dam. Logs were then successively removed from the sluiceway bays using the monorail hoist structures present at each dam to slowly increase the downstream flow. In between each log removal a series of photographs was taken at predetermined locations along the downstream channels.

2. Photographic Record of Various Dam Discharges

2.1 Details of Site Visit

2.1.1 *Site Conditions*

The weather conditions at the dams remained constant over the course of the day consisting primarily of sun, clear skies, and little to no wind. The average temperature for the day was approximately 20°C.

2.1.2 *Plan for Photographic Documentation*

The location of photographs taken downstream of the Bala North and South dams is presented in Figures 1 and 2, respectively. In both cases, a number of locations were pre-determined to provide multiple perspectives of the hydraulic conditions downstream of the dams.

2.1.3 *Plan for Flow Manipulation*

Mr. Hoare was the primary reference source for identifying flow rates through each structure throughout the day. The flows at the start of the photograph records were approximately 2 m³/s through each of the dams. It should be noted that although the lower logs in the bays had been jacked down and the upper logs pounded down as they were replaced, it was impossible for MNR staff to totally eliminate the gaps between the individual logs and thus eliminate the water leaking through the log stacks. As a result, for both dams, the estimated amount of water leaking through the log stacks equal to 2 m³/s was added to the amount of water estimated to be passing over the log stacks to arrive at a total downstream flow estimate. It is anticipated that the amount of stop log leakage could be reduced down to 1 m³/s if some of the especially worn or warped logs were replaced with new logs, and additional effort was directed at jacking down all of the stop logs in each of the sluiceway bays as opposed to only part of the stop log stacks.

Photographs were taken at the North Dam at the six locations identified in Figure 1, while logs were removed by MNR staff to reach a spill of more than 25 m³/s. At this point, the focus shifted to the South Dam where a second pair of MNR staff had been working to add logs to the sluiceway bays to close the structure to flows while the North Dam was being opened to flow (thereby maintaining the overall site discharge). Photographs of the south channel were taken at the 15 locations identified in Figure 2, while logs were removed by MNR staff from the South Dam to reach a sluiceway spill of more than 40 m³/s.

During the day, Mr. Hoare was consulted on the total amount of flow estimated to be passing through the dam at each log setting, and this information was recorded beside the photograph numbers.




2.2 Results of Flow Assessment

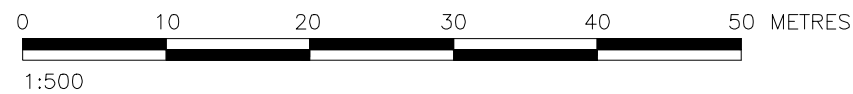
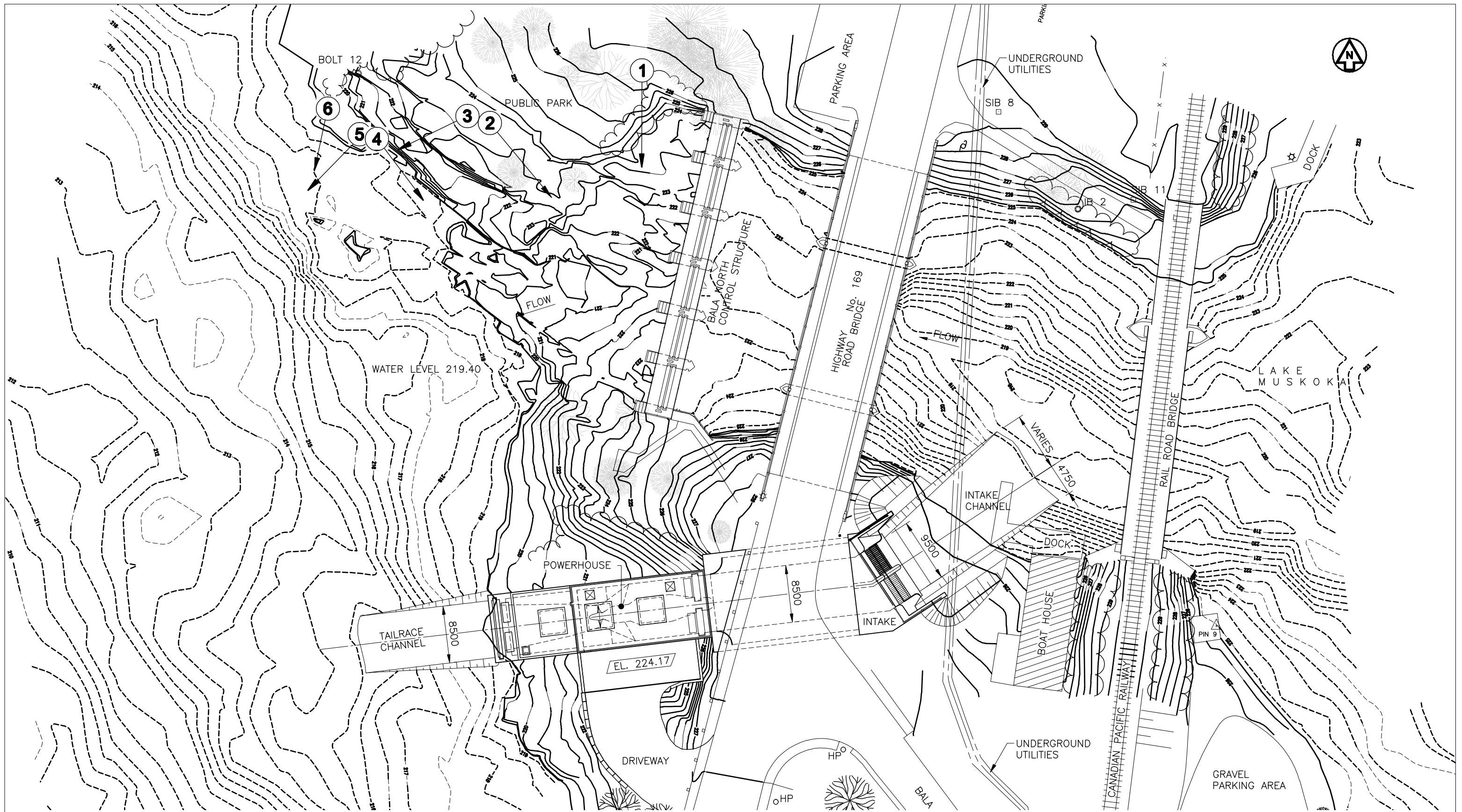
The photographs for the leakage only settings at the North and South Bala dams are presented in Tables 1 and 2 respectively, with the recorded log setting specified in the first column. The location 1 photograph (North Dam) and 1 and 2 photographs (South Dam) of the sluiceway bays are specifically intended to provide a visual appreciation of the total amount of water leaking through the logs.

Table 1 – North Bala Dam Photo Series (Bays Referenced in Downstream Direction, Left to Right)

<p>Q = 2.0 cms</p> <table border="1"> <thead> <tr> <th>Bay</th> <th>Logs</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>8</td> </tr> <tr> <td>2</td> <td>8</td> </tr> <tr> <td>3</td> <td>8</td> </tr> <tr> <td>4</td> <td>8</td> </tr> <tr> <td>5</td> <td>7</td> </tr> <tr> <td>6</td> <td>7</td> </tr> </tbody> </table>	Bay	Logs	1	8	2	8	3	8	4	8	5	7	6	7	 <p>Location 1 - Photo 1112</p>	 <p>Location 2 - Photo 1113</p>	 <p>Location 3 - Photo 1114</p>
	Bay	Logs															
	1	8															
	2	8															
	3	8															
	4	8															
5	7																
6	7																
 <p>Location 4 - Photo 1115</p>	 <p>Location 5 - Photo 1116</p>	 <p>Location 6 - Photo 1117</p>															

Table 2 – South Bala Dam Photo Series

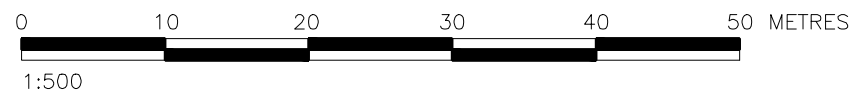
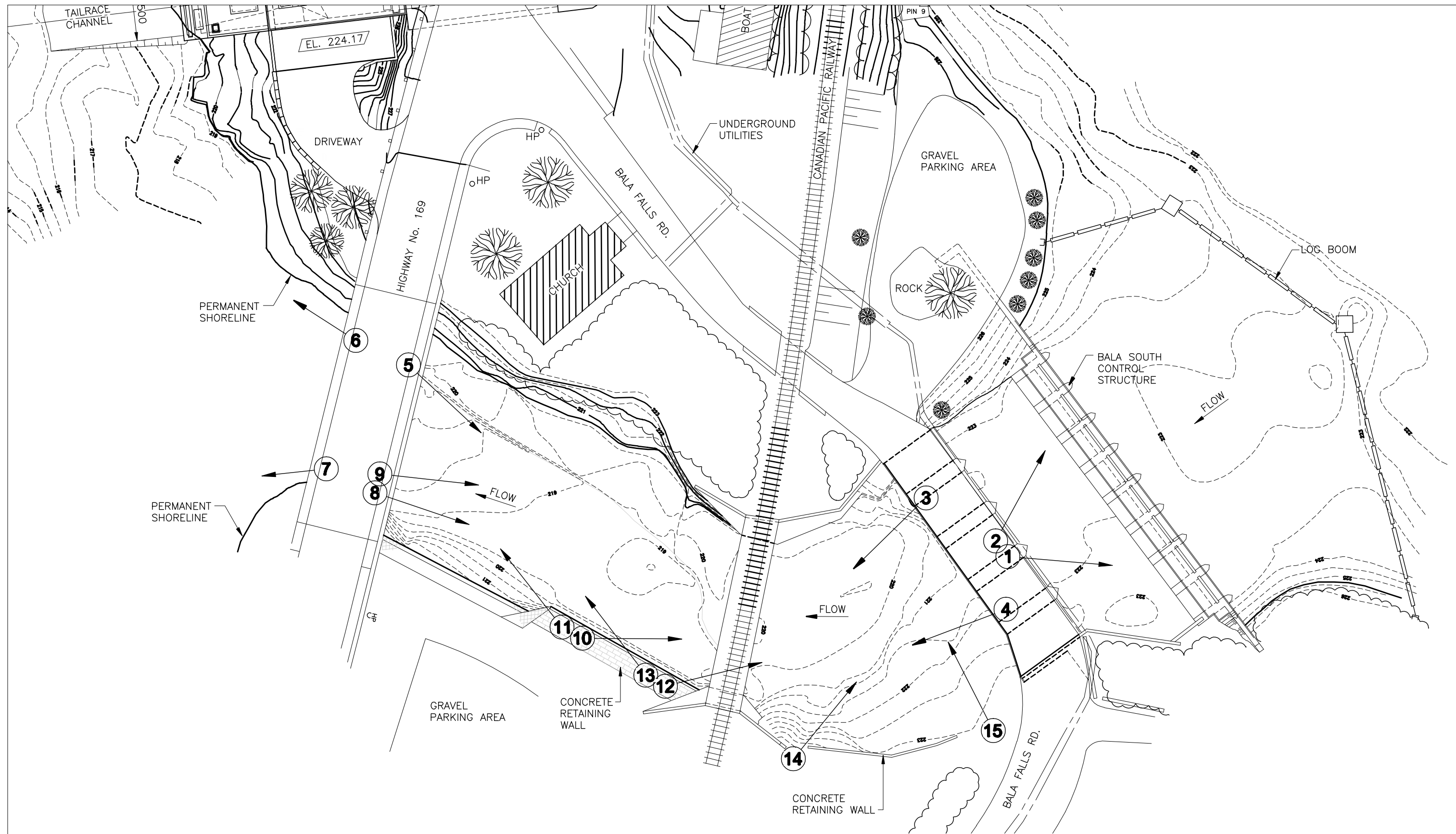
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	Bay	Logs																					
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	 <p>Location 6 - Photo 1184</p>	 <p>Location 7 - Photo 1185</p>	 <p>Location 8 - Photo 1186</p>	 <p>Location 9 - Photo 1187</p>	 <p>Location 10 - Photo 1188</p>																		
	 <p>Location 11 - Photo 1189</p>	 <p>Location 12 - Photo 1190</p>	 <p>Location 13 - Photo 1191</p>	 <p>Location 14 - Photo 2180</p>	 <p>Location 15 - Photo 2178</p>																		



ALL DIMENSIONS ARE IN MILLIMETRES.
ALL ELEVATIONS ARE IN METRES.

Figure 1
Swift River Energy Ltd.
North Bala Small Hydro Project
Spring Qualitative Flow Assessment - Photo Locations at Bala North Dam





ALL DIMENSIONS ARE IN MILLIMETRES.
ALL ELEVATIONS ARE IN METRES.

Figure 2
Swift River Energy Ltd.
North Bala Small Hydro Project
HATCH
energy
Spring Qualitative Flow Assessment - Photo Locations at Bala South Dam



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