

John Hart Generating Station Replacement Project

March 2017

Community Construction Update Report #45

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Project Status

- The upstream water intake maintenance gates have been lowered into place;
- Also on the upstream side of the dam, work has started on setting the trashrack base, which when in place, will prevent trees or branches from entering the water intake and power tunnel;
- Rock drilling for the top heading of the tunnel under the dam is complete;
- The 1,575 metre long power tunnel is more than 75% complete – at about the 1,200 metre mark;
- Powerhouse concrete and component installation work continues;
- The three turbine inlet tunnels are progressing well with the steel liners placed in inlets #1 and #3, which will convey water to the turbines;
- The 520 metre long tailrace tunnel is about 90% complete; and
- The temporary rock berm, placed in the Campbell River beside the tailrace outlet for the rock plug drilling, is now complete.



View of the work on the downstream side of the John Hart dam.

Project Schedule

- April: Water bypass outlet steel liner installation continues;
- May: Improvement work underway on roadway to new surge tank site (this access road crosses the public trail leading to the Elk Falls suspension bridge);
- May: Begin construction work on the downstream low-level outlet (new water release to maintain flows down Elk Falls Canyon);
- June: Concrete work to begin at surge tank site;
- July 9: Date of annual John Hart Community Site Event – look for more event details in the April report;
- July: Complete the tailrace tunnel rock excavation, although the first rock breakthrough is anticipated in April;
- August: Power tunnel excavation to be complete to the vertical intake shaft; and
- September: Second-stage concrete work starts at the water intake gates at the dam to prepare for the operating works installation.

Rebar work on one of three water bypass inlets entering the powerhouse. The bypass inlet shown is entering from the power tunnel.



Construction Pictures – John Hart Dam



Mar 15

Construction Pictures – Water Maintenance Intake Gates



- 5 On the upstream side of the John Hart dam, the new water intake works and the two gates that will provide isolation for future intake operating gate inspection and tunnel inspection. Water control is provided by wicket gates and then second, by a turbine inlet valve.

Tunnelling under the dam on the downstream side.
Pokes through, in mid-March, to the upstream side.




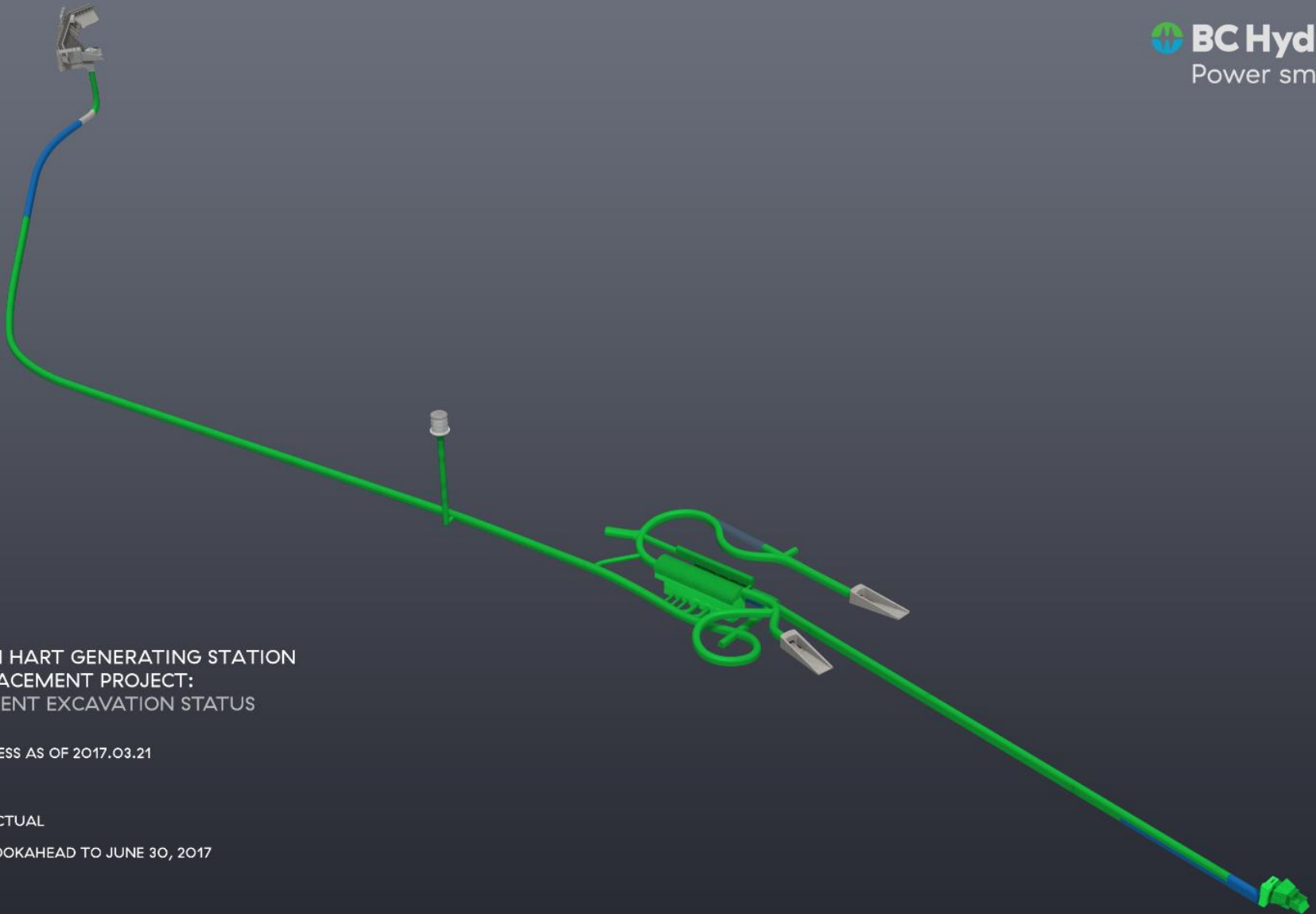
Construction Overview – Rock Removal



JOHN HART GENERATING STATION
REPLACEMENT PROJECT:
CURRENT EXCAVATION STATUS

PROGRESS AS OF 2017.03.21

 ACTUAL
 LOOKAHEAD TO JUNE 30, 2017



The rock face of the power tunnel as crews work towards the John Hart dam. Drilling work.



View down the power tunnel
towards the powerhouse. The tunnel
is just over 8 metres in diameter.



View within the power tunnel looking upstream, with the first of the water bypass inlets, Inlet #1, shown on the right.



View from the power tunnel
down Water Bypass Inlet #2
towards the powerhouse
facility. A close-up view is on
next page.





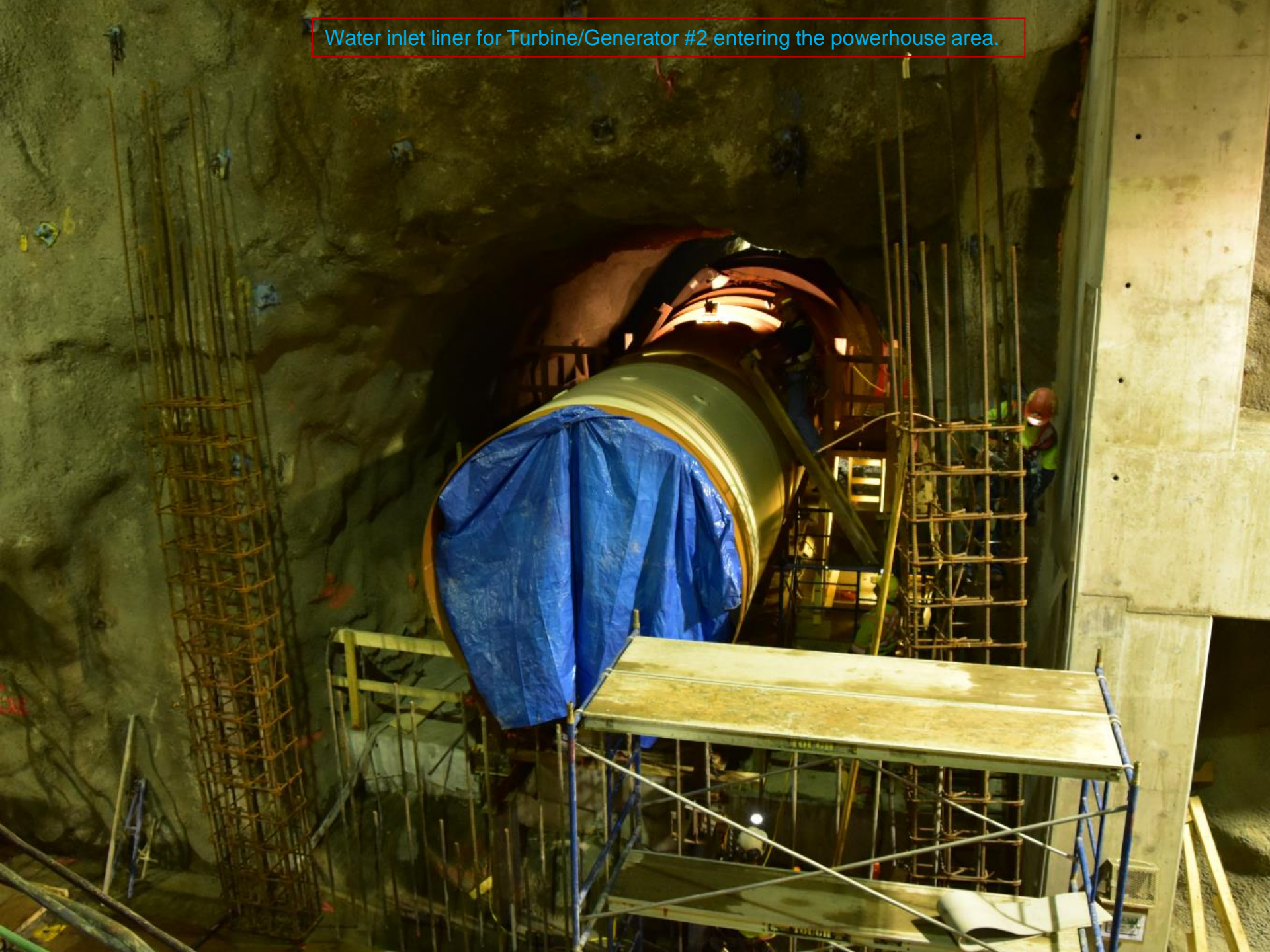
View from power tunnel down
Turbine/Generator #1 water inlet.



Inside Turbine/Generator #1 inlet liner.



Water inlet liner for Turbine/Generator #2 entering the powerhouse area.



View from service tunnel lookout.



Construction Pictures – Powerhouse



Stephen Watson BCH
@Puntledge

The John Hart hydro project continues to advance as planned.

[#Powerhouse](#)

Good work [@SNCLavalin](#) [@AeconGroup](#)
[#FrontierKemper](#) [@generalelectric](#)



RETWEETS
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Scroll case inside Turbine/Generator #3.





Service tunnel entrance

Turbine/Generator #3

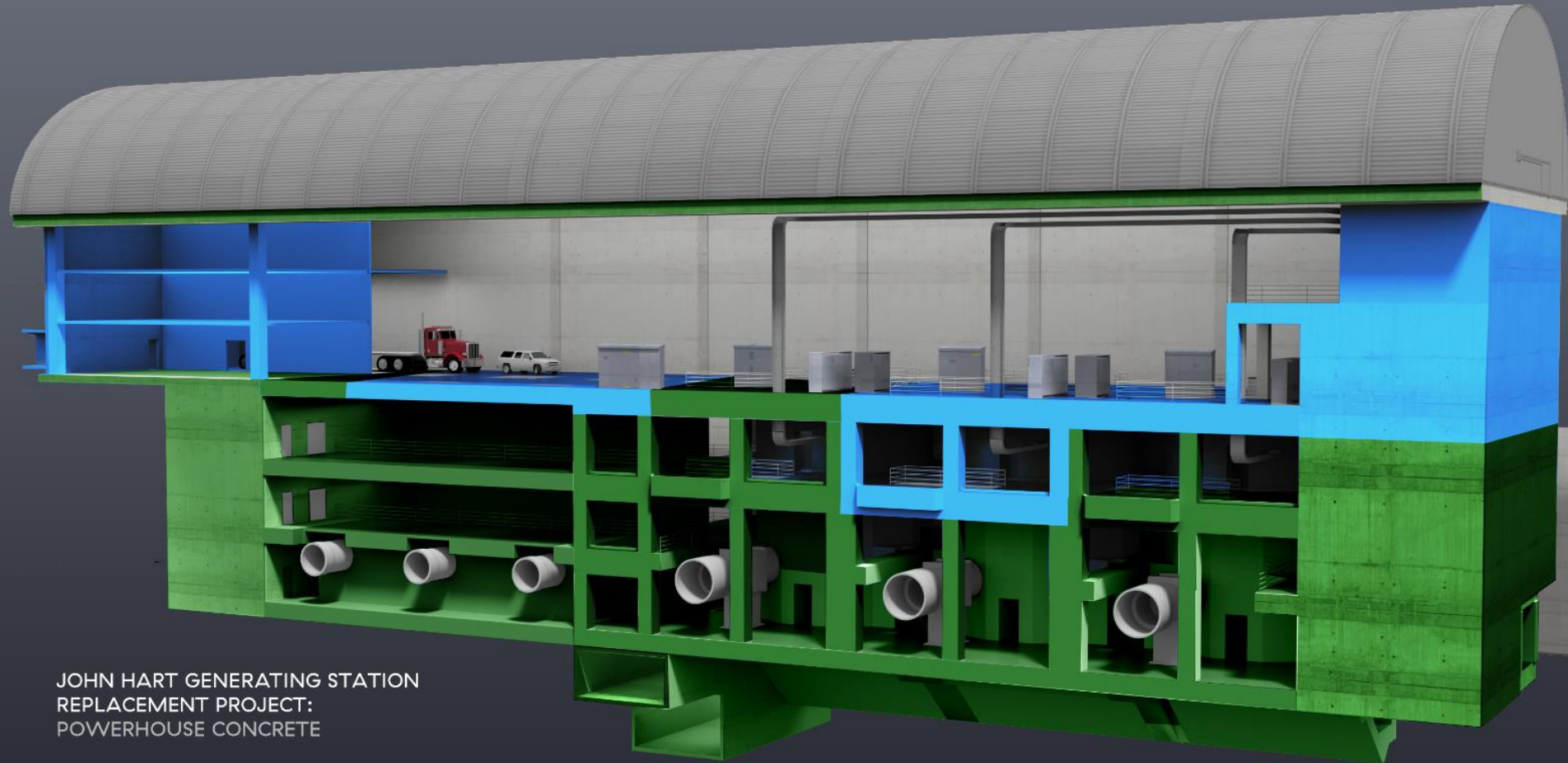


Main access tunnel entrance.



View of powerhouse area from main access tunnel.

Construction Overview – Concrete Placement



JOHN HART GENERATING STATION
REPLACEMENT PROJECT:
POWERHOUSE CONCRETE

PROGRESS AS OF 2017.03.21

- CONCRETE PLACED
- LOOKAHEAD TO JUNE 30, 2017

View down the tailrace tunnel. At the far end you can see the Jumbo driller and its two tail-lights (see next page).



Crews working (drilling) on the downstream face of the tailrace tunnel. This is the upper bench or level of two levels that are excavated for the 10.7 metre high tunnel.



The tailrace area and the rock placed in the Campbell River for the rock pad.



Environment

The environmental team remains actively engaged in monitoring and maintaining high standards of stewardship throughout the project's various sites.

- Turbidity levels of water remained compliant at the tailrace berm during the placement of rock into the river.
- To maintain control of pH levels of the water discharging into the Campbell River, the water treatment plant operators installed an inline CO2 bubbler (shown below).
- Pumps are still in place near the surge towers in case additional surface drainage is needed in the area.
- While spring is in the air, there's been no frog activity yet until the neighbouring wetlands are fully out of the thaw. However, blue herons have been spotted.



City Council and Community Liaison Committee Tour



The second group of BC Hydro's Campbell River community liaison committee (left) toured the site on March 10, and City Council and senior staff (above) were provided a tour on March 17.

People Profile – Jason Stewart

About Jason

Background:

Jason joined the project one week after graduating from UBC with a Bachelor of Applied Science in Civil Engineering in 2016. He brings some great experience having spent two summers working locally with McElhanney as a junior municipal design engineer followed by work terms in oil and gas, and then piling and marine installations.

Home:

Jason is a true Islander. Born in Port Alberni, he moved to Campbell River with his family in 2003 and, except for the time spent away at school, he's been here ever since.

Hobbies:

Jason is an avid mountain biker and snowboarder, depending on the season. As an outdoor enthusiast he also enjoys camping and hiking on his time off, so he's happy to be home in Campbell River to pursue his favourite activities.

Project Responsibility:

Jason is a swing-shift Field Engineer for the ASL-JV. He works with the superintendent and general foreman to ensure contract specifications are met. He also identifies and resolves technical issues associated with design and concrete lift drawings while aiding in the safe progression of critical path work.

“We have an incredible skillset within our trades and supervision, and it has been a privilege to work alongside the depth of talent we have here.”



Construction – Point Of Interest

Each month, BC Hydro and InPower BC will provide a construction fact, occurrence, or situation.

Pumping power at the tailrace

When maintenance or repairs are required inside the new underground generating station or tunnels, stopping the water from moving through the system requires more than simply ‘turning off the tap’ up at the dam by closing the gates:

- Using a 25 metre deep wet well with large capacity pumps (shown below), water will be collected and drained back into the Campbell River from the tailrace area. The tailrace gates would be closed to stop the river from entering the tailrace during maintenance.
- It will take about three days to completely empty water from the tunnels.
- These pumps are powerful – pumping out water at approximately 9,050 litres per minute through a 250 mm in diameter discharge pipe (green pipes shown below).
- There is a low holding area at the end of the tailrace tunnel designed for fish salvage, before the final unwatering takes place. Not all tunnels have this feature for fish salvage.
- The tailrace tunnel will be completely emptied and inspected on a four to five year cycle once the hydroelectric facility goes into operation in fall 2018.

