

John Hart Dam Seismic Upgrade Project

Community Construction Report #7

November-December 2023

Prepared by: Stephen Watson
(O) 250-755-4795 or (C) 250-616-9888
Twitter: @SWatson_BCH
Email: steve.watson@bchydro.com

Project Status

- November: Campbell River Mirror story: **BC Hydro's seismic upgrade work at John Hart Dam progressing**. The link: <https://www.campbellrivermirror.com/community/bc-hydros-seismic-upgrade-work-at-john-hart-dam-progressing-7103916>
- The additional water seepage barrier, called a plastic concrete cut-off wall, within the middle earth-fill dam is planned to be complete in spring 2024.
- The dredging work beside the north earth-fill dam continues.
- Reservoir dredgeate material is being permanently stored within the old penstock corridor.
- About 130 people were working at the site.
- The site shut down from December 23 through January 1 for the holiday season.



Construction Photos – Old Penstock Corridor

A November 7 view looking towards the near completed containment berm in the distance, and the start of the second berm in the foreground.



Construction Photos – Old Penstock Corridor

November 17 photo of the berm work progressing.



Construction Photos – Old Penstock Corridor

A similar December 20 view. The completed berm is about 9 metres high. Dredgeate material from the reservoir is being placed within the corridor on the other side of this berm.



Construction Photos – Old Penstock Corridor

A December 20 view of the temporary public trail system being constructed over the berm to provide continued public access to the Elk Falls Suspension Bridge. Fencing will be placed on either side of the trail for public safety. The temporary trail will open in early January, and once open, the bridge will be removed. This will then allow for the construction of the third berm.





A22 Wednesday, December 13, 2023

Campbell River Mirror

www.campbellrivermirror.com

BC Hydro to donate the John Hart pedestrian bridge to Rotary Club

The pedestrian bridge that crosses over the old John Hart penstock corridor will be removed by January and donated to the Rotary Club of Campbell River.

The bridge was installed by BC Hydro in 2013 as part of the John Hart Generating Station Replacement Project to allow for continued public access to the Elk Falls Provincial Park during project construction. Over the last ten years there's been about

three million bridge crossings with people walking to and back from Elk Falls. Now, with the old penstock corridor to be largely filled in over the next year with material as a result of the John Hart Dam Seismic Upgrade Project, the bridge is no longer needed as the trail will become land-based.

"During our Campbell River community liaison committee meetings we mentioned that the bridge may be

removed and through that, and with our long and ongoing relationship, we decided to donate it to the Rotary Club," said Stephen Watson, BC Hydro spokesperson.

"Our collaboration with them, and BC Parks, on the creation and opening of the Elk Falls Suspension Bridge in 2015 provided a great foundation for our community-minded relationship."

The galvanized steel bridge is 36.5 metres long and 1.8

metres wide and weighs about 13,000 kg. It will be removed by crane and then trucked to a storage facility that the Rotary Club has identified within the Campbell River area.

"We appreciate the donation of this bridge to our club, as it demonstrates support for the community and the confidence BC Hydro has in our club's ongoing work within Campbell River," said Lorrie Bewza,

Past President, Rotary Club of Campbell River, and who led the Elk Falls Suspension Bridge Project. "Our club is reviewing several locations to reinstall the bridge and will select the one that has the most positive and beneficial impact on our community."

BC Hydro will be re-routing the land-based trail through the old penstock corridor area, twice, while the construction activities in this area take place.

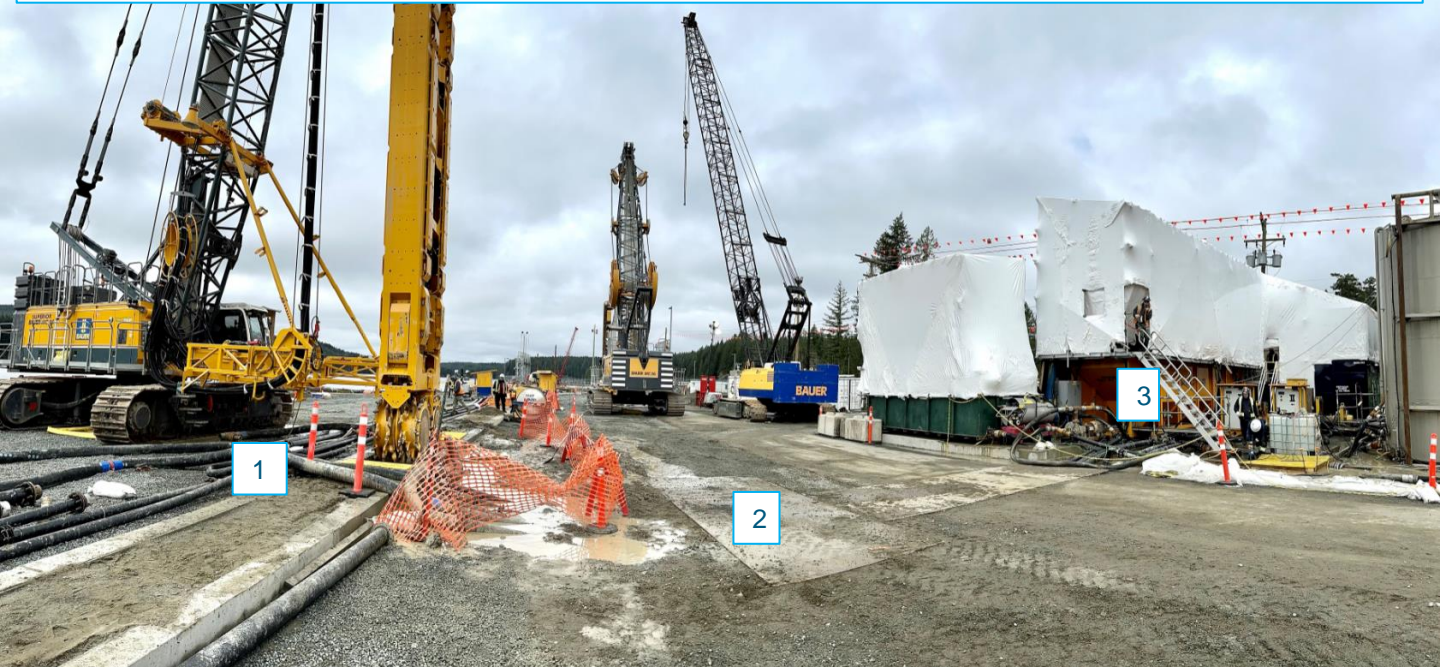
December 20 view of the old penstock corridor from the Millennium Trail. The inset photo shows this area in September.



Construction Photos – Middle Earthfill Dam

A November 17 photo of the work along the new water seepage barrier wall. The two excavators can dig down to 37 metres. They are placing over 100 panels to form the wall that's about 230 metres long. As crews excavate and remove the existing earth-fill material, clay bentonite is put in its place. Then a pipe is lowered to the bottom of the excavation and concrete is filled in, pushing the bentonite upward and out. After a panel is completed, to provide time for the concrete to set, crews move to work on a different section of the wall to begin a new wall panel.

- 1: Hoses remove material to create the wall and also deliver the clay bentonite/concrete to build the wall.
- 2: Shoring is in place so the hoses can be placed under the road and maintain construction traffic.
- 3: The various materials transfer to and from the holding facilities during wall construction.



Construction Photos – Old Penstock Corridor

A November 17 photo of the work along the concrete guide wall to build the water seepage barrier.



Construction Photos – Middle Earthfill Dam

November 17.
1: Water seepage barrier guide wall to enable construction of the water seepage barrier.



1

Construction Photos – Middle Earthfill Dam



November 17 photo showing the last section of the guide wall form work being built beside and attaching to the concrete section of the John Hart Dam.

Construction Photos – Middle Earthfill Dam

December 7 view across the dam to the work activities.



Construction Photos – North Earthfill Dam

November 17.
1: Work along the training wall below the spillway gates.

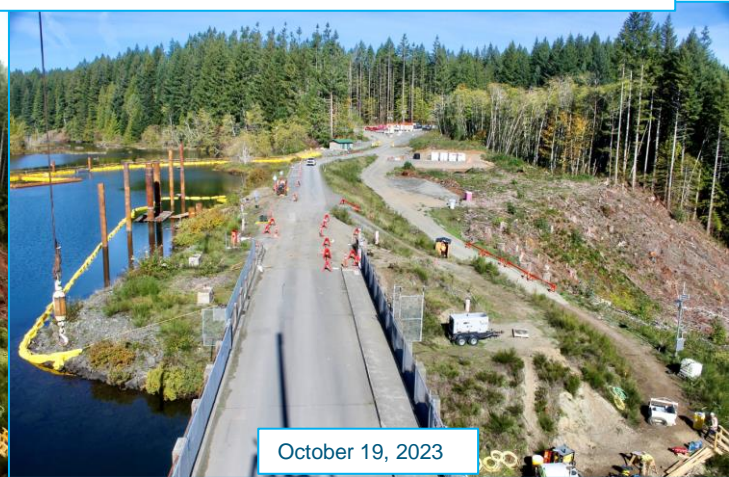


Construction Photos – Timelapse Camera

We have two cameras on the spillway gate hoist system. This camera shows the north earth-fill dam.



September 27, 2023



October 19, 2023



November 10, 2023



December 11, 2023

Construction Photos – North Earthfill Dam

November 17 photo of the barge work removing material to enable the placement of a compacted upstream berm.



Construction Photos – North Earthfill Dam

A November 17 view of the dredgegate removal process.



Construction Photos – North Earthfill Dam

A November 23 photo showing another perspective of the dredgeate removal process, with the silt curtains in the background.



Construction Photos – North Earthfill Dam

An early morning November drone photo of the barge work.



Construction Photos – North Earthfill Dam

A November 23 view of the walkway and the two silt curtains that contain water turbidity within the work zone.



Construction Photos – North Earthfill Dam

A November 22 photo that demonstrates the effectiveness of the two silt curtains between the dredgegate removal work zone and the clean water within the John Hart Reservoir.



Community Engagement

Our primary community engagement is through our Campbell River Hydroelectric Facilities Liaison Committee (November 2 hybrid meeting top right), our Campbell River Hydroelectric Facilities Discovery Centre, these construction reports, and the majorprojects.ca website.

In 2023, we had 12,455 people visit the Discovery Centre (bottom right) and below are some of the visitor comments:

"We had read the information signs but this place complimented them so well and really helped us understand the big picture."

"I'm glad safety is so important."

"I think it's great that they're going to such lengths to preserve safe pedestrian access to the Elk Falls Suspension Bridge."

"That's clever." (Filling in the penstock corridor with material dredged from the reservoir.)

"I come out here about once a week to check on the progress of the project."



The centre is closed annually from December to January.

Environmental Feature

The project installed steel piles in the reservoir beside the North Earthfill Dam to support the silt curtains and to support the dredgeate removal process. The pile driving process, such as the hammer technique, would result in sound levels that require special mitigation to protect fish from high sound exposure. The following mitigation measures were successfully implemented:

- Implement fish deterrence operation to drive fish away from the work site prior to pile driving operations;
- Use vibratory hammer for all pile driving activities unless an impact hammer is specifically required;
- Apply a soft start-up procedure where the impact energy is gradually increased over a 10-minute period;
- Install sound attenuation through bubble curtains around the full wetted length of the steel pile (see photo) prior to and during pile driving work; and
- Ensure the instantaneous peak sound level does not exceed 207 decibels (dB), and the cumulative sound level not exceed 203 dB immediately outside of the bubble curtain. Hydroacoustic monitoring is continuous, and if thresholds are exceeded, work is stopped, and the Department of Fisheries and Oceans is contacted to discuss additional sound mitigation measures.

By implementing these mitigation measures the pile driving operation has been completed with no fish injury or mortality.



People Profile – Brian Sappok

Background:

In 2012, Brian started working as a mechanic apprentice for Bauer Foundations in Germany where the company is headquartered. Over the years he's worked on various projects around the world such as in the United Kingdom, Dominican Republic, United States including Florida and Alaska, Cuba, Australia and now Canada. Brian is always thrilled to see different countries and learn about the various cultures.

Home:

Aresing in Bavaria, Germany.

Hobbies:

Scuba diving, snowboarding, and climbing. These are wonderful hobbies to have for the Campbell River area and the broader Vancouver Island region.

Project Responsibility:

Brian maintains all the Bauer equipment and is on the day shift. The equipment, like a car, may require specific servicing about every 250-500 hours of operation. Some of equipment was made in Germany and shipped to the site. In Germany, Brian made the gear box for the cutter frame that can go down 37 metres. "The project is unique just by the surrounding nature and wildlife. I'm very happy to be part of this project that will help bring a positive impact to the Campbell River community."



Construction Point of Interest – Tree Stumps

The dredging work includes the removal of old tree stumps (photo on right) on the upstream side of the dam. In consultation with First Nations, we agreed to set aside removed cedar tree stumps to be inspected for any cultural significance such as the identification of Culturally Modified Trees. So far about 10% of the tree stumps are cedar. There are fewer stumps on the upstream side of the north earth-fill dam as compared to the upstream side of the middle earth-fill dam. The 1947 photo below shows some of the stumps before the reservoir was filled.

