

## SITE C PROJECT CONSTRUCTION

# NORTH BANK SLOPE STABILIZATION

Prior to the start of Site C construction, extensive geotechnical studies were undertaken throughout the project area, including an analysis of slope stability. These studies confirmed that a large excavation on the steep north bank was required to remove unstable materials and flatten the slope for long-term stability.

### Slope stabilization activities

As part of Site C construction, work has been underway since the summer of 2015 to remove unstable material on the north bank to create stable slopes for eventual dam construction. Stability issues and the potential for tension cracks on the north bank were expected, which is why the slope is being excavated prior to completion of the permanent works.

Slope stabilization activities include the construction of access roads and haul roads, excavation of unstable materials and relocation and storage of excavated materials for future use on other areas of the project.

The north bank slope stabilization activities are expected to take about five years to complete. This work includes the removal of approximately eleven million cubic metres of material.

### Tension cracks

In February 2017, a 400-metre-long tension crack developed on the north bank, upstream of the future location of the dam.

This crack emerged during the construction of a haul road and resulted in a temporary stoppage of some construction excavation activities. BC Hydro and Peace River Hydro Partners agreed on a plan to stabilize the slope. By April 2017 the slope was stabilized with buttresses (berms) at the toe of the slope. This enabled the safe construction of the contractor's construction road in the area.

In May 2017, a second, smaller tension crack was observed in the temporary excavation above the future diversion tunnel portal. The slope was unloaded to make it safe while construction proceeds. A constructability review was conducted to identify opportunities to re-sequence the work.



Excavation of material, part of the slope stabilization on the north bank of the Site C dam site

## **Safety is priority**

As part of the on-going slope stabilization work, BC Hydro and its contractors are aware of the potential for slope movements. In such an event, safety is the number one priority. Qualified professionals — including engineers and other technical experts — are engaged to monitor and assess the situation, and develop a plan for the safe removal of the material.

Flattening the north bank slope is part of BC Hydro's plan to construct and maintain Site C in accordance with international and Canadian safety practices to withstand unlikely but major events, such as an extreme earthquake.

## **Anticipated timeline**

2015 to 2019

### **Report of the Joint Review Panel**

On May 1, 2014, the Joint Review Panel submitted its report on Site C to the federal and provincial governments, as part of the independent environmental assessment process.

The Joint Review Panel reported: *"NRCan noted that the Proponent had appropriately conducted the slope stability analysis and had established conservative impact lines. NRCan concluded that BC Hydro had adopted current standards and best practices related to slope stability for the Project."*