

Map 15 of 26 - Tea Creek

Preliminary Impact Lines, Highway 29 Realignments and Agriculture Assessment

March 2013

Kilometre 95-104

Current Conditions

Location

This map sheet covers from approximately river kilometre 95 to 104 (measured downstream from the W.A.C. Bennett Dam). Tea Creek is located along the north bank near river kilometre 100.

Geology and Topography

The north and south side of Peace River generally comprises high bedrock slopes overlain by interbedded sand, silt and clay. The upper slopes tend to be steep and subject to slow-moving landslides while the lower slopes tend to be shallower and covered by colluvium (landslide debris).

Agriculture Assessment

Improved (irrigated and/or drained) agricultural land capability ratings are provided for the Site C project component areas where additional soil survey work has been undertaken as part of the Agriculture Assessment.

For remaining lands outside the Site C project component areas, including the Peace River valley downstream of the Site C dam, unimproved agricultural land capability ratings are provided. The unimproved ratings reflect published agricultural capability maps from the 1970s, based on an assumed low climatic moisture deficit (CMD) during the growing season in the range of 34 mm. However, subsequent climate studies have confirmed much drier conditions in the Peace River valley, with a CMD in the range of 148 mm, which results in a Class 3 unimproved climatic capability rating. With irrigation, it is likely that Peace River valley soils downstream of the Site C dam historically rated as Class 2 or Class 3 with aridity or soil water holding capacity limitations, which would now be rated as unimproved Class 3 due to climatic limitations, would improve to Class 2 or Class 1 with irrigation.

Reservoir Conditions and Preliminary Impact Lines Related to the Proposed Site C Reservoir Proposed Reservoir

Within this map sheet, the proposed Site C reservoir would have a width ranging from about 800 metres to 1,400 metres. Based on the river surface elevation at the time of topographic survey, the reservoir would cause an increase in water depth over river conditions ranging from about 46 metres at the upstream end to about 50 metres at the downstream end.

Preliminary Impact Lines

Some of the lower slopes along the both sides of Peace River are located just above the proposed Maximum Normal Reservoir Level. Consequently the **flood impact line** extends several metres inland from the proposed reservoir shoreline at some locations. On rare occasions, flooding of these low-lying areas could occur due to wind generated waves combined with high reservoir levels, or from small landslide-generated waves.

The **erosion impact line** on both sides of Peace River is typically located within 50 metres of the proposed reservoir shoreline and is usually located outside the flood impact line.

The **stability impact line** along both sides of the river is located at the top of the valley above the crest of the high bank slopes, and encompasses areas of potential slow-moving landslides.

Land Use Within Preliminary Impact Lines

BC Hydro has developed an approach to land use on private property within the impact lines. The approach focuses on public safety, maximizing flexibility for land owners, and minimizing the amount of land required by the project. BC Hydro's approach would be as follows:

- BC Hydro would purchase land between the current river shoreline and the area required for the proposed reservoir, up to the Maximum Normal Reservoir Level (461.8 metres above sea level)
- No new residential structures would be permitted within impact lines
- Non-residential structures could remain, pending site specific geotechnical assessment
- Within the Stability Impact Line, existing residential structures could remain for a period of time, at the owner's request and provided a site-specific geotechnical assessment determines that it is safe to do so
- Within the Flood, Erosion or Landslide-Generated Wave Impact Line, existing residential structures would not be permitted to remain, to protect public safety
- Other activities such as agriculture, grazing and trapping could continue within the impact lines

The establishment of reservoir impact lines is intended to ensure public safety while maximizing land use flexibility, and to minimize the amount of land required by the project. BC Hydro will purchase the property rights required for the impact lines. Where impacts and implications on zoning, land use and property acquisition cannot be avoided, BC Hydro will identify and evaluate options for mitigation.

BC Hydro is meeting directly with property owners whose land may be impacted to discuss their specific property interests.

Peace River Valley Definition

BC Hydro defined the Peace River Valley as a spatial area, reflecting the Peace River mainstem from the Peace Canyon Dam to the B.C.—Alberta border. The upper edge of the Peace River Valley is defined as the crest of the top of high bank slopes, typically between El. 620 and 850m. The purpose of spatially defining the valley was to provide a consistent area for use where relevant in the Environmental Impact Statement.

