

INTEGRATING TERRESTRIAL AND WATERBORNE ERT SURVEYS AT THE RIPLEY LANDSLIDE NEAR ASHCROFT, BC

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The Ripley Landslide is a slow-moving slide located some 8 km south of Ashcroft, B.C. It is located adjacent to the Thompson River and poses a hazard to a critical transportation corridor through which Canadian Pacific and Canadian National railways operate. Elsewhere along the Thompson River valley there are several other known landslides with similar geological conditions as the Ripley slide. An international research project has developed at this site to develop a better understanding of the soil stratigraphy, slope kinematics and stability issues within this region using the Ripley Landslide as a case study.

Geophysical surveying was employed for mapping the subsurface at this site. Both terrestrial and water borne geophysical surveys were conducted. A number of geophysical techniques were applied; however, the ERT surveys proved most effective and are the focus of this presentation. The terrestrial ERT survey used a Wenner-Schlumberger array with 48 electrodes spaced 5 m apart and the waterborne ERT survey used a reverse Wenner array with an electrode spacing of 10 m. The waterborne and terrestrial ERT data sets were merged into a single data set and then inverted using Loke's RES3DINV inversion program.

The presentation will compare the resistivity inversion before and after merging for factors such as depth of exploration and lateral resolution. These will then be used in conjunction with evidence from several boreholes, to evaluate the effectiveness of ERT to map the subsurface geology of the Ripley Landslide