

PRODUCTION OF A DIGITAL LANDSLIDE INVENTORY MAP, PEACE RIVER AREA (NTS 84C)

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The Peace River Lowlands of Alberta and British Columbia is one of the most historically active mass movement areas in western Canada. In this study area, the Peace River has incised through approximately 120 m of Quaternary sediments and 30 m into the underlying bedrock. Numerous failures continue to cause infrastructure problems for the town of Peace River. Tributaries of the Peace River, such as the Smoky River, Heart River, Whitemud Creek, Cadotte River and Buchanan Creek have also been subject to landslides during the Holocene. Failures of varying types have occurred in both the Quaternary sediments and the underlying shale bedrock.

The Alberta Geological Survey is currently undertaking a large surficial mapping program in the Peace River map-area (NTS 84C). The purpose of producing these digital maps is multi-faceted, providing surficial information for mineral and aggregate exploration, oil and gas industry, and information for infrastructure as examples. However, this also includes mapping large areas affected by downslope movement mapped as colluvium. Larger failures are also individually mapped and indicated by symbols.

Relevant information such as colluvium polygons, landslide symbols and sediments of known higher activity levels (i.e. glaciolacustrine sediments) are filtered in a geographical information system (GIS) to produce a preliminary landslide inventory map. The larger landslides represented by symbols are then examined by air photo stereo pairs and crudely classified and subsequently tagged in GIS. This provides a quick, informative, derivative digital product from existing surficial maps with active digital layers on various surficial materials, landslide types, and areas affected by existing landslides, which are prone to additional failure.