## LEGEND

Proposed Gateway Pipeline KP (Rev U)

Tunnel Portal

Proposed Gateway Pipeline Route (Rev U)

- Proposed Facility Powerline
- ----- Proposed Facility Road
- Potential Access

Clore and Hoult Tunnels

- Proposed Pump Station
- Indian Reserve

National Park (NP) / Provincial Park (PP)

Other Protected Area\*

Crown Resv. (CR) / Forest Rec. (FR)

Land Title Parcel

\*Alberta Protected Area Types Include: Ecological Reserve (ER), Heritage Rangeland (HR), Natural Area (NA), Provincial Recreation Area (PRA), Wilderness Area (WA), Wildland Park (WPP), Willmore Wilderness Park (WP) \*British Columbia Protected Area Types Include: Conservancy (CV), Ecological Reserve (ER), Protected Area (PA), Recreation Area (RA), Wildlife Management Area (WMA)

## DATA NOTES

- Pipeline Route Rev U, 2011 (KPs Rev U) supplied by WorleyParsons Calgary. - National Parks: NRCan CLAB Lv1; AB Protected Areas and Crown Reserves: TPR, AB Government; BC Protected Areas, Special Protection, and Forest Recreation:
- ILMB, BC Government; (Aug. 2012).
- Water Body names provided by IHS Inc.
- Indian Reserve obtained from GeoBase®, current as of August 2012.
- Land Title Parcels current to Sept. 20, 2010.
- Imagery displayed acquired from BC Imagery Warehouse as 1m pixel size, from 1996-2003.

Geohazard Legend					
C		Geohazard			
2:2:3		Potential Geohazard			
Abbreviation	Name	Description			
*typical DF278	Geohazard ID	Geohazard ID number referenced in Report on Quantitative Geohazard Assessment (AMEC, 2012).			
AVU	Avulsion	Area potentially subject to channel switching or erosion of a new channel on an alluvial fan.			
DF	Debris Flow	Area potentially subject to debris flow hazard (very rapid flow of saturated debris in a steep, confined channel).			
AVA	Avalanche	Area potentially subject to snow avalanche (rapid down-slope movement of snow and ice, possibly with entrained debris). Does not include rock avalanches.			
RF	Rockfall	Area potentially subject to direct fall and rolling rocks from rock bluffs, rock or rock cuts, and/or colluvium or soil slopes.			
SM	Shallow to moderately deep- seated slide	Area with suspected or confirmed translational sliding of soil o rock with a rupture surface less than 10-15 m deep.			
		Potential geohazard corridor shows a 400 m wide corrido parallel to the route to indicate that shallow to moderate deep seated slides may occur in this general area.			
DS	Deep-seated slide	Area with suspected or confirmed translational, rotational or compound sliding of soil or rock with a rupture surface greater than about 15 m deep.			
SC	Scour	Area potentially subject to erosion of particles from a stream bed to produce either temporary or permanent downcutting.			
LM	Lateral Migration	Area potentially subject to the lateral movement of a stream channel as a result of erosion and undercutting of banks. Reoccupation of subchannels and channel switching in meandering or braided systems is also considered to be lateral migration.			
LS	Lateral Spreading	Area potentially subject to lateral ground displacements as a result of liquefaction or weakening of loose or soft geological units as a result of seismic shaking			

## Notes:

- and investigation.
- inspection, LiDAR and other sources.

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PREPARED FOR	ENBRIDGE NORTHERN GATEWAY PROJECT
E N B R I D G E NORTHERN GATEWAY DEFLINES	PROPOSED NORTHERN GATEWAY PIPELINE ROUTE – GEOHAZARDS

## PROPOSED NORTHERN GATEWAY PIPELINE ROUTE – GEOHAZARDS

1. Geohazards shown on the following maps correspond to those listed in Appendix B of Report on Quantitative Geohazard Assessment (B69-7), May 2012. Geohazard boundaries are based on AMECs understanding of geotechnical conditions at the time of the report and will be refined as the project moves towards detailed engineering with further data acquisition (including LiDAR)

2. Note that the geohazard polygons do not always indicate areas of defined or active hazard. The Report on Quantitative Geohazard Assessment (B69-7) and Appendix B should be read in conjunction with this mapping. Polygons may also indicate;

a. Areas which do not identify specific hazard locations but depict a larger region where the hazard might occur locally within the overall area.

b. Areas where screening criteria necessary for hazard initiation is only partially met and there is no known documented occurrence.

3. Some hazards such as rock fall, avulsion, debris flows and avalanches, and lateral erosion and scour, have common polygon outlines. In the case of rock fall, avulsion, debris flows and avalanches, the polygons were determined on the basis of the outline of the associated alluvial and colluvial fans. While the intercepts of the various terrain hazards are consistent with the Rev U centerline, the total downslope area potentially affected by aforementioned hazards is likely overestimated in most cases. Potential areas affected will be refined based on detailed field

4. This work is intended for use by Northern Gateway Pipelines subject to the limitations discussed in the notes on this map and the accompanying information. It is not intended for use by third parties. Any use by third parties is strictly at that party's sole risk.

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	FIGURE NO.		
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	FIGURE ID	11-055-000a	
	DATE	24 Sep 2012	
rawing is prepared solely for the use of the contractual customer	SCALE	N/A	