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TITLE: REEVALUATION OF THE 1964 "L" ST. SLIDE

### ABSTRACT

During the 1964 Alaskan earthquake, a translational slide occurred in west Anchorage. The graben extended approximately 4000 ft. along the bluff and varied in width from 50 ft. to 250 ft. The maximum horizontal displacement of the soil block was approximately 14 ft.

The methodology used by Woodward-Clyde Consultants for the reevaluation of the 1964 Fourth Avenue slide was used to determine the failure mechanism. This methodology consisted of backcalculating the range of undrained shear strength necessary to cause the observed seismically induced displacement and compare the range of backcalculated undrained shear strength for the 1964 subsurface conditions.

The following conclusions can be stated from the reevaluation of the 1964 "L" Street slide based on the limited program of field investigation, laboratory tests, and analyses:

- 1) Because of the denseness and locations of the major sand layers it is not likely that the 1964 "L" Street slide was caused by the liquefaction of sand layers.
- 2) The undrained shear strength ranges backcalculated using the observed in the 1964 "L" Street displacement patterns and the displacement computation procedure compare very favorably with the undrained shear strength ranges estimated for the 1964 conditions using the SHANSEP approach.
- 3) The backcalculated reduction in the undrained shear strength using the 1964 "L" Street slide conditions and the displacement computation procedures indicates that about 60 to 70 percent strength reduction is required to compute the displacement patterns observed in the 1964 "L" Street slide.
- 4) Based in the three preceding conclusions, that the 1964 "L" Street slide was likely caused primarily by the failure through the upper part of the normally consolidated to lightly overconsolidated Bootlegger Cove Formation. It is also likely that the failure involved the loss of undrained shear strength due to earthquake (cyclic) loading and significant loss of undrained shear strength due to large straining of the clays, silts, and some sands in the Bootlegger Cove Formation.

