



Analysis of Subgrade Instability of Heihe-Beian Highway K177 +100-K179 +300 of China

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Heihe-beian highway of China go through the zone of degradation region of permafrost, which is located in the end north of Xiaoxing'anling, and is a hilly region, whose elevation is 210-350m, the relative height difference is 140m, surface vegetation is very flourish. The annual average temperature is 0 celsius, the depth of seasonal frozen soil is between 2.1 m to 2.6m, the geographic features is low altitude, high latitude. Plate tectonics is lie in wuyun-jieya new fault zone, basement plate is volcanic rocks and granite of late indosinian, overburden is mudstone, sandy mudstone alternating with muddy sandstones, fine sandstone, medium to coarse sand, conglomerate alternating with thin mudstone, and island permafrost is distributed in the regions. Because of this geological structure and climatic conditions, geological conditions is very unstable: Melt snow in spring and precipitation in summer of the surface infiltrated into loose cover, and is encounter by mudstone, frozen soil layer, then cause seepage erosion in the interface of aquifuge, which reduce effective stress of the soil, then the soli body slide under the action of gravity and cause subgrade instability.

Key words: Subgrade, Landslide, Hilly, Permafrost Island, Seepage erosion