Soil Hydrological Investigation

September 1, 2022
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South Lake Tahoe, Eldorado County, CA 96151
APN 025-580-007.

Summary of findings:

Ms. Munnecke observed a pit partially excavated for a cell tower foundation. The pit varied in depth, with up to an 8-foot cut on the upper slope and approximately a 4 foot cut on the downslope side. Excavation was halted due to the inability of the backhoe to dig through the hard granitic bedrock. The bedrock slopes to the northeast nearly parallel to the surface topography with approximately 5 percent slope.

A pit was described in the deepest area with the smoothest wall for a soil profile description. At this location, there is 10 inches of fill material over the original soil The buried surface horizon is present from 10 to 22 inches, and subsoil is present from 22 to 41 inches. At 41 inches, highly weathered granitic material is present with 85 percent paragravels. Roots are present in this horizon so it was not called paralithic horizon (Cr). From 65 to 94 inches, is a paralithic horizon composed of fractured and moderately weathered granitic bedrock Fine and medium roots extend into these fractures. At 94 inches is hard bedrock. At this weathered to hard bedrock interface, there is a layer less than 1 inch thick, where roots are restricted above the bedrock. There are no signs of redoximorphic features in the form of iron concentrations or depletions in this profile.

Across the wall of this pit, the boundary to the weathered and hard bedrock is visible, and there are no signs of water perching above this boundary. In some areas the fractured bedrock is not present, and the weathered “grus” material gradually becomes less and less weathered and very difficult to dig and is root restrictive. The vegetation in this area is Jeffrey pine forest with montane shrubs such as greenleaf manzanita in the understory. There is an area of SEZ to the northwest, but it is lower in elevation and does not affect the hydrology of this area. Seasonal groundwater tables are typically perched above the bedrock layer not within the bedrock, thus a water table is not anticipated in the requested excavation depth of 13.5 feet.

Soil Profile Descriptions

Marchel Munnecke

Field Date: 9-1-2022

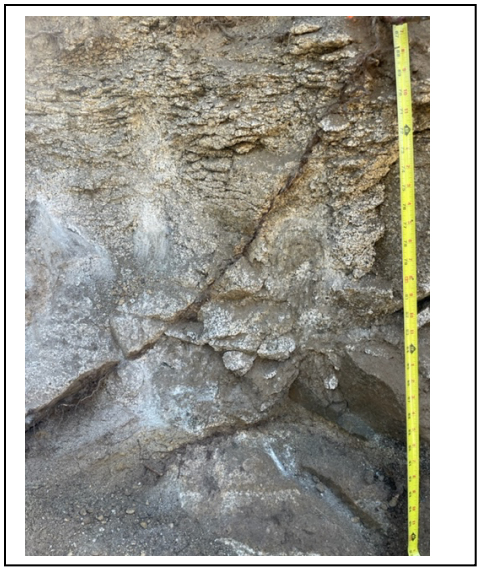

Photo 1a. Soil profile description, 1b. Weathered and fractured bedrock.

Pit 1:

Drainage Class: Somewhat excessively drained

Hydrologic Group: A

Parent Material: Colluvium and residuum from granitic parent material over highly weathered and hard granitic bedrock.

Slope: 8 % (estimate as location has been excavated) **Aspect:** Northeast

Description:

Oi 0 to 2 inches; mulch and pine needles; clear smooth boundary.

A 2 to 10 inches; gravelly loamy coarse sand, dark grayish brown (10YR 4/2), very dark grayish brown (10YR 2/2) moist; moderate fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine to medium roots; many very fine to fine irregular pores; 15 percent gravels; clear smooth boundary.

Ab 10 to 22 inches; gravelly loamy coarse sand, brown (10YR 5/3), very dark grayish brown (10YR 3/2) moist; moderate medium granular structure; soft, very friable, nonsticky and

nonplastic; many very fine to fine and common coarse roots; many very fine to fine irregular pores; 25 percent gravel; gradual wavy boundary.

Bw 22 to 41 inches; gravelly loamy coarse sand, brown (10YR 5/3), dark grayish brown (10YR 4/2) moist; moderate medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine to coarse roots; many very fine and fine irregular pores; 30 percent gravel; clear wavy boundary.

C 41 to 65 inches; Coarse paragravelly sand; pale brown and light yellowish brown (10YR 6/3, 10YR 6/4), dark yellowish brown (10YR 4/4) moist; structureless; moderately hard, firm, nonsticky and nonplastic; few fine to medium roots; many very fine and fine irregular pores; 85 percent gravel; clear wavy boundary.

Cr 65 to 94 inches; light grey and very pale brown (10YR 7/2, 10YR 7/3) weathered granitic bedrock with black minerals; roots are limited to cracks in the weathered granitic rock.

R 94- 96+ inches; Hard granitic bedrock.

Photo 2. Panorama of pit.