SECTION 2. SITE CHARACTERIZATION

2.1 Regional Geology

The Island of Oahu was built by the extrusion of basaltic lavas from the Waianae and Koolau shield volcanoes. The older Waianae Volcano is estimated to be middle to late Pliocene in age and forms the bulk of the western third of the island. The younger Koolau Volcano is estimated to be late Pliocene to early Pleistocene (Ice Age) in age and forms the majority of the eastern two-thirds of the island. The Waianae Volcano became extinct while the Koolau Volcano was still active, and its eastern flank was partially buried below Koolau lavas banking against its eastern flank. These banked or ponded lavas formed a broad plateau referred to as the Schofield Plateau.

The Schofield Plateau was formed when lavas from the Koolau Volcano ponded against the already eroded slopes of the Waianae Volcano in the late Pleistocene Epoch. The dips of the lava beds are generally near horizontal (between 3 to 5 degrees from horizontal). The lava flows on the plateau have undergone in-situ weathering extending to depths of 50 to 100 feet and are characterized by the red colors of the soil. In general, the H-2 North, H-2 South, H-1/Kamehameha, and Waikele CCTV sites are located on the southerly side of the Schofield Plateau.

Physical and chemical weathering, followed by erosion of this plateau, generated sediments which were transported to the coast. The Ko Olina CCTV site is generally located in areas of colluvial deposits overlying basalt rock formation at greater depths.

2.2 Existing Site Conditions

The project sites are located along Interstate Route H-1 Freeway from the Paiwa Interchange to the Waiawa Interchange, on the Route H-2 Freeway between the Waipio Interchange and the Waiawa Interchange, and Farrington Highway near the Ko Olina exit in the Districts of Honolulu and Ewa on the Island of Oahu, Hawaii. The project locations and general vicinities are shown on the Project Location Map, Plate 1. The approximate locations of each site are shown on the Site Plans, Plates 2.1 through 2.5. The following provides a brief description of the existing conditions at each CCTV site.

2.2.1 Waikele CCTV Site

The CCTV site is located next to the far-right shoulder lane before Exit No. 7 from the H-1 Freeway Westbound. The site slopes gently towards the Freeway with an existing ground surface elevation of about +168 feet Mean Sea Level (MSL). The site is covered with grass.

2.2.2 H-1/Kamehameha CCTV Site

The site is located in the median between the H-1 Freeway eastbound Exit 8A ramp and the H-99 Kamehameha Highway. The site is relatively flat; however, it is adjacent to the embankment slope of the H-1 eastbound Exit 8A ramp. The site is covered with grass.

2.2.3 H-2 North CCTV Site

The site is located in the grassy median between the H-2 Freeway Inbound and Outbound. The site is relatively flat, with an existing ground surface elevation of about +296 feet MSL.

2.2.4 H-2 South CCTV Site

The site is located on the far-right shoulder lane of the H-2 Inbound before Exit 1A. The site is relatively flat and covered with asphalt. The site has a ground surface elevation of about +195 feet MSL.

2.2.5 Ko Olina CCTV Site

The site is located between Farrington Highway Inbound and Farrington Highway merge to Ali'inui Drive. The site is relatively flat, with an existing ground surface elevation of about +62 feet MSL. The site is covered with grass.

2.3 Subsurface Conditions

We explored the subsurface conditions at the CCTV sites by drilling and sampling one boring at each location. The borings extended to depths of about 15.5 to 21.5 feet below the existing ground surface. The approximate boring locations are shown on the Site Plans, Plates 2.1 through 2.5.

The subsurface conditions at each CCTV location are presented in the following subsections.

2.3.1 Waikele CCTV Site

Boring No. 1, drilled near the Waikele CCTV site, generally encountered a 4-foot thick layer of residual soil consisting of very stiff silty clay soils underlain by boulders and saprolite extending to a depth of 10 feet below the existing ground surface. The saprolite consisted of loose silty sand and was underlain by hard to very hard basalt formation extending to the maximum depth explored about 20 feet below the existing ground surface.

2.3.2 H-1/Kamehameha CCTV Site

Boring No. 2, drilled near the H-1/Kamehameha CCTV site, generally encountered fill consisting of very stiff sandy silt and loose clayey sand extending to 14 feet below the existing ground surface. The fill layer was underlain by residual soil consisting of soft to medium stiff clayey silt extending to the maximum depth explored about 21.5 feet below the existing ground surface.

2.3.3 H-2 North CCTV Site

Boring No. 3, drilled near the H-2 North CCTV site, generally encountered fill consisting of very stiff silty clay extending to approximately 2.5 feet below the existing ground surface. The fill was underlain by hard to very hard basalt formation extending to the maximum depth explored about 15.5 feet below the existing ground surface.

2.3.4 H-2 South CCTV Site

Boring No. 4, drilled near the H-2 South CCTV site, generally encountered 3 inches of asphaltic concrete underlain by 7 feet of fill. The fill consisted of sandy gravel and very stiff clayey silt. The fill was underlain by residual soils consisting of medium dense silty gravel and very dense cobbly boulders extending to the maximum depth explored about 20.5 feet below the existing ground surface.

2.3.5 Ko Olina CCTV Site

Boring No. 5, drilled near the Ko Olina CCTV site, generally encountered fill extending to a depth of 12 feet below ground surface. The fill was underlain by colluvium extending to a maximum depth explored of 21.5 feet below the existing ground surface. The fill generally consisted of medium dense silty sand. The colluvium generally consisted of dense sandy gravel and silty sand.

We did not encounter groundwater in the borings at the time of our field exploration. However, groundwater levels are subject to change due to rainfall, time of year, seasonal precipitation, surface water runoff, and other factors.

Detailed descriptions of the materials encountered from our field exploration are presented on the Logs of Borings in Appendix A. Results of the laboratory tests performed on selected soil and rock samples are presented in Appendix B. Photographs of core samples retrieved from our field exploration are presented in Appendix C.

END OF SITE CHARACTERIZATION