

Kaneohe/Kailua Sewer Tunnel

Kailua and Oahu, Hawaii

In support of tunneling operations, Keller installed slurry wall access and exit shafts, and a comprehensive ground improvement program along the tunnel alignment.



The project

The new Kaneohe / Kailua Sewer tunnel is a 3-mile long, 12-foot diameter, gravity conveyance tunnel designed to increase the reliability and capacity of the community's sewer system.

The challenge

Anticipated soil conditions included highly variable sequences of fill, alluvium, clays, sands, and gravels, and silts. A further challenge included a high groundwater table.

The solution

Keller installed reinforced concrete slurry walls for two shafts (ID up to 84 feet and depth 105 feet) and designed and implemented an extensive ground improvement program involving the installation of over 5,800 jet grouting columns treating over 54,000 cubic yards for watertight bottom plugs and structural support and cutoff grouting along the tunnel alignment, diversion structures, and pipelines. Jet grouting was accomplished utilizing both single-axis and multi-axis drill rigs.

In addition, Keller employed real-time monitoring of all pertinent parameters utilizing advanced onboard computers, sensors, wireless remote transmission, viewing data in real-time so as to mitigate any potential problems as the work was being installed.

Project facts

Owner(s)

City and County of Honolulu

Keller business unit(s)

Keller

Main contractor(s)

Southland / Mole JV

Engineer(s)

Department of Design and Construction, Waste Water Division, City and County of Honolulu

Solutions

Ground improvement
Support of excavation
Groundwater control and dewatering

Markets

Infrastructure
Tunnels and shafts

Techniques

Diaphragm walls
Jet grouting

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