

“Creating Space Underground” – Aloha Style Alan Howard



Pohakulani blessing ceremony January 16, 2015

Brierley Associates has been helping to *Create Space Underground* in Hawai'i for more than a year serving as Southland/Mole JV's underground engineer for the Kaneohe/Kailua Gravity Sewer Tunnel Project on the island of Oahu, Hawai'i. Construction of this project for the City and County of Honolulu started in spring 2014 and has an estimated completion date of early 2017. In late April 2015, the project team launched a 13-ft diameter Robbins main beam TBM named "Pohakulani" (meaning rock girl from the heavens) from the 77-ft deep by 87-ft diameter TIPS Shaft at the Kailua Regional Wastewater Treatment Plant. Pohakulani will bore through almost three miles of basalt bedrock and end its journey at the 40-ft deep by 30-ft diameter shaft at the Kaneohe Wastewater Pre-Treatment Facility.

Brierley Associates involvement began in 2013 during the bid phase when Alan Howard (Principal) and Sean Harvey (Associate) performed pre-bid evaluations for the Southland/Mole JV. These evaluations focused on the project Geotechnical Baseline Report (GBR), anticipated ground conditions and behavior during excavation, as well corresponding tunnel support. After the Southland/Mole JV won the project, Brierley Associates role transitioned to construction engineering.

During 2014, Jeremiah Jezerski (Associate) led a team that provided designs and stamped contractor submittals for a myriad of underground project elements ranging from temporary support and underpinning to microtunneling. Eventually, Jeremiah relocated to

Hawai'i during diaphragm wall construction by Layne Christensen for the TIPS Shaft where Pohakulani was launched.

Philip Burgmeier (Associate) was responsible for evaluation of the horseshoe-shaped opening to be made through the side of the diaphragm wall constructed Kailua TIPS shaft and Kaneohe shaft. To evaluate stresses around the openings before and after shaft penetration, Phil developed a finite-element model for each shaft using Midas GTS NX.

Greg Van Etten (Tunnel Engineering Geologist) was assigned as the full-time tunnel geologist and relocated from our Moraga, CA office to Oahu during the fourth quarter of 2014. Greg's primary responsibilities are mapping all tunnel excavations and providing initial support recommendations and documentation based on the Brierley designs. This opportunity has allowed Greg to work again with several Southland underground colleagues from the recently completed New Irvington Tunnel near Sunol, CA.

In other Hawai'i news, Southland/Mole JV is the apparent low bidder on a related treatment plant contract adjacent to the ongoing work at the Kailua end of the project. Brierley Associates is pleased to be in discussions with them to continue our role in providing contractor designs for underground elements. All of us at Brierley Associates look forward to this opportunity to assist the City and County of Honolulu improve its wastewater infrastructure... *Mahalo!*

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