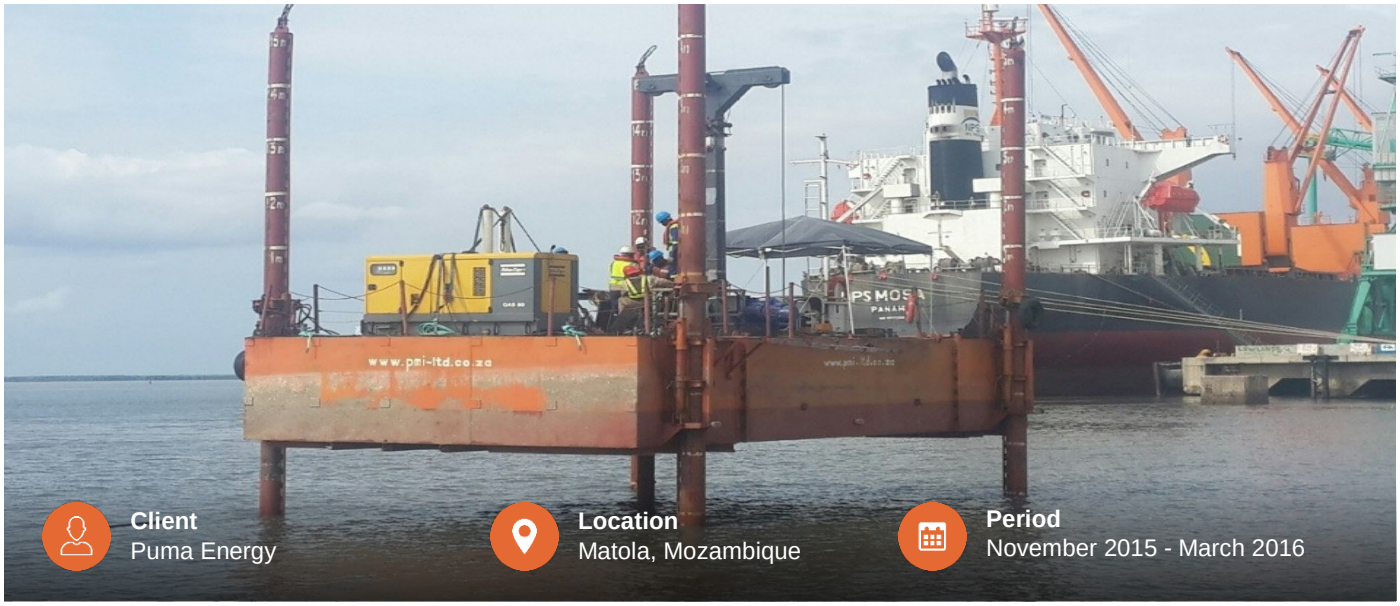
PROJECT SHEET

MATOLA MARINE TERMINAL SITE INVESTIGATIONS & FEED



Marine BH and CPT Geotechnical Investigations; Geophysical, and Bathymetric Surveys & FEED

PMI were appointed by Puma Energy to undertake marine site investigations to inform the FEED Engineering for a new white fuel products terminal at Matola, Mozambique.

The Scope of Work included:

Offshore Geotechnical Investigations:

PMI performed 10 no. Jack Up Barge CPT tests, and 10 no. JUB geotechnical boreholes ranging from 10m to 50m seabed depth. The PMI senior Geotechnical Engineer was in close contact with the Client's Engineer during the works, to ensure that optimum information was obtained for the designs. The PMI team included a Barge Master, Vessel Captain, CPT and drilling teams, and logistical support.

Logging and Laboratory Testing: Geotechnical logging in .ags format, Sample processing and transport, laboratory test scheduling, and oversight of laboratory testing processes were undertaken by PMI as part of the service.

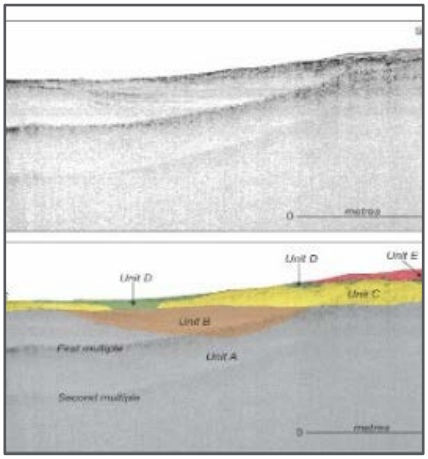
Offshore Bathymetric and Geophysical Surveys:

Bathymetric surveys, sub-bottom profiling, magnetometer surveys, and side scan sonar surveys of the 110Ha offshore site area were undertaken with one of PMI's custom fitted survey vessels. A PMI Marine Geophysicist, and Marine Surveyor supervised

works.

FEED Engineering:

Puma Energy required the preliminary design of a fit for purpose marine terminal: to accommodate 120,000 DWT vessels; with a top structure fitted with loading arms and designed to handle 16" gasoline, gasoil, and



bitumen lines, and a 12" jet fuel line.

Execution

The marine surveys were undertaken in November 2015. Data from the surveys was fed into the Conceptual Design process, and was used to finalise the scope of the geotechnical investigations.

BH and CPT work commenced in December 2015, with the CPTu campaign. Site work was completed in March 2016. Due to the shallow hard layers encountered, and associated CPT refusal, the borehole campaign had to be expanded to obtain enough design information

Conclusion

The project was completed at a higher production rate than expected, within budget, and to the satisfaction of the Client, Puma Energy, and the Consulting Engineers, SBE.