

7. Geotechnical Characterization Report

ENGEO provided a report to characterize the subsurface conditions at PPMT based on field assessments, existing construction documentation, geotechnical reports, and other documents for geotechnical and geological data. The Berth 7 area is underlain by Young Bay Mud over a thin layer of sandy clay atop bedrock. At Berth 8, there is Young Bay Mud and a layer Old Bay Clay below the sandy clay. The graving basins sit on excavated bedrock or lean cement fill placed on top of bedrock. The area around the finger piers is underlain by Young Bay Mud (likely on the order of 20 feet thick) over bedrock. The team did not observe any areas of potential slope movement or obvious slope instability.

Additionally, ENGEO provided estimates of foundation capacity for the purpose of evaluating existing conditions and planning upgrades. In general, retrofit piles should be driven to refusal in bedrock in order to achieve significant capacity. The preliminary capacities are 100 kips per square foot of end area for concrete or timber piles and 600 kips for steel pipe piles. In areas of Berth 8 an additional capacity of 700 pounds per square foot (psf) of surface area could be achieved in skin friction in the Old Bay Clay. If greater capacity is necessary, predrilling approximately 10 feet into the bedrock prior to driving piles to refusal would achieve a higher end bearing capacity. These capacities assume dead-plus-live loading and should be reevaluated based on pile location once a pile demand is developed. Based on rock outcrops, the bearing capacity at the graving basins is an estimated 8,000 pounds per square foot (psf) for dead-plus-live loading for elements bearing on the bedrock. For load combinations that include seismic loading, this allowable capacity can be increased to 10,500 psf.

ENGEO performed an underdeck geotechnical inspection at Berths 5-8 to assess the geotechnical conditions beneath the wharf area. The pavement settlement at Berth 5 is caused by the erosion of soil/weathered bedrock at the top of the slope below the wharf. Similarly, at areas below the deck of Berths 7 and 8, pavement settlement observed at the interface between the land and wharf is due to soil erosion in areas without a headwall. It is likely that the eroded soil at this area is utility trench backfill due to utility penetration. ENGEO recommends installing a confinement structure at the top of the slope to retain and protect fill from erosion and backfilling the area of lost ground so the pavement can be restored and stabilized.

Details of this report can be found in Attachment 8.6

