

Portsmouth Ferry Terminal

Protection of Berths 1 & 2

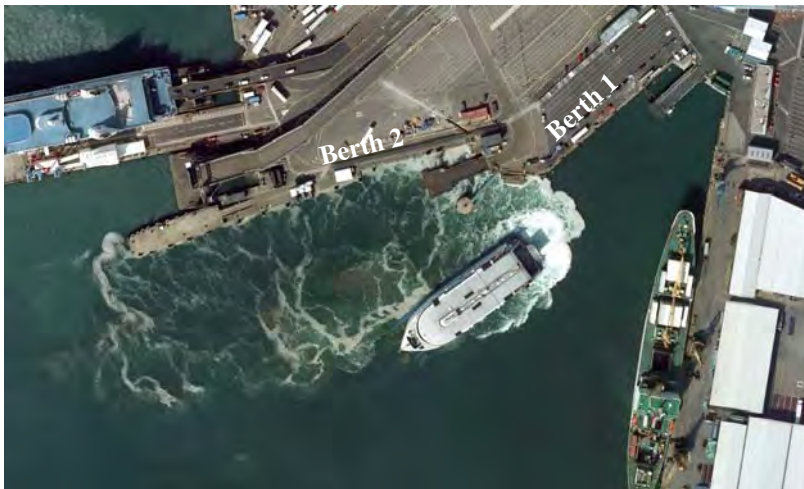
- using concrete mattress



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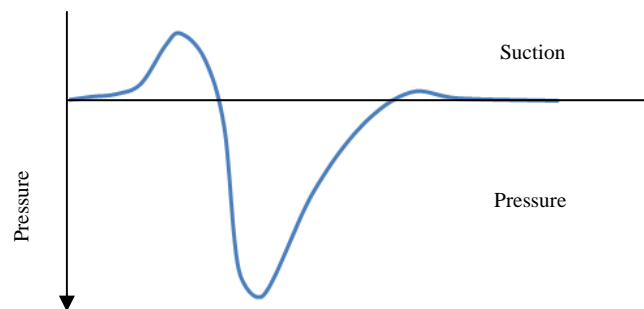
Fabriform



Berth 1 HSS vessel coming into berth

HSS activity at Berths 1 and 2 required scour aprons due to the vessels' rotating jets during reversing and berthing. This is shown in the picture above.

In 2003-04 Proserve carried out a design check on Berth 1 for 7.2MW jets, using CFD modelling by the University of Southampton. The vessels' jets exert a large positive pressure on the mattress, with an associated area of suction. Proserve used the CFD study to carry out an uplift stability design on the 200mm thick mattress.



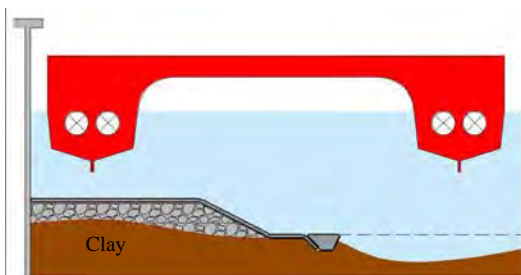
Bed pressure distribution from an angled jet

To reinforce Berth 1's quay wall structure, the ground was made up under the inner hull.

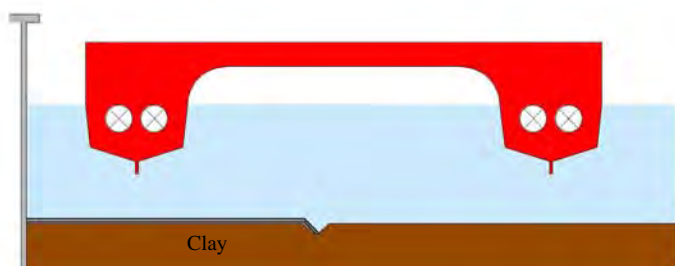
Berth 1 has been in service for 6 years service to date. Scour to the unprotected area of outer hull is some 1-2m to date in London Clay. The edge protection is monitored annually.

In 2010, Proserve designed and supplied the mattress system for Berth 2, which was to be used by a larger HSS vessel with 9MW jets. This mattress was designed by comparison with Berth 1 and experience from other HSS berth protection projects.

The scour apron to Berth 2 was in 2 sections; 220mm Constant Thickness mattress for the quay wall protection, and Filter Point mattress of 133mm average thickness was specified to protect the dolphin just south of the linkspan. As before, the edge protection is to be inspected annually.



Section through Berth 1 showing scour profile in London Clay after 5 years service



Section through Berth 2 as installed