

Commercial Quay, Alderney

Propeller and HSS jet scour protection

- using concrete mattress

Contractor: Geomarine
2010

Commercial; Quay was built in 1870 using concrete walling blocks and traditional core infill. Unfortunately, it was founded on sand strata and few metres above rockhead allowing propeller and HSS jet action to underscour the foundations. Proserve were engaged to design the scour protection apron and supply the required concrete mattress system.



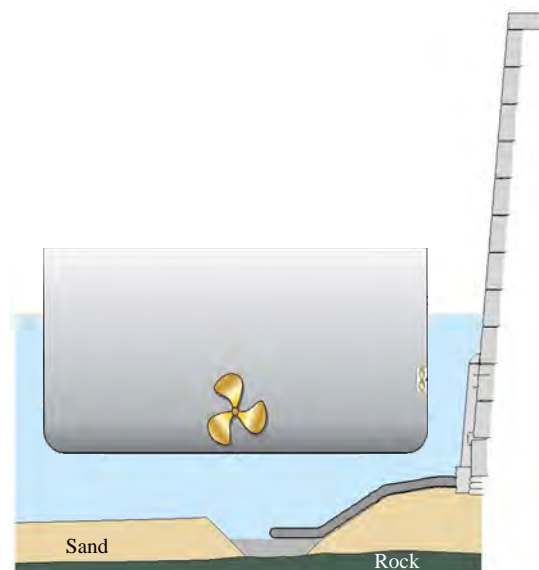
Proserve Ltd.
80 Priory Road,
Kenilworth,
Warwickshire, CV8 1LQ,
England

UK: 01926 512222
Int: 00 44 1926 512222
office@proserveltd.co.uk
www.proserveltd.co.uk

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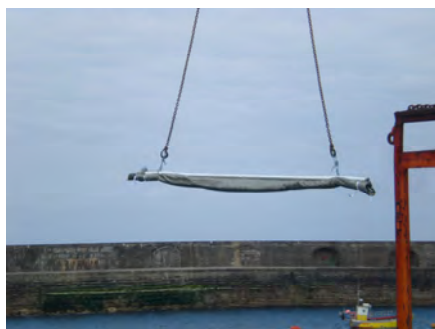
Mattress filling from Commercial Quay



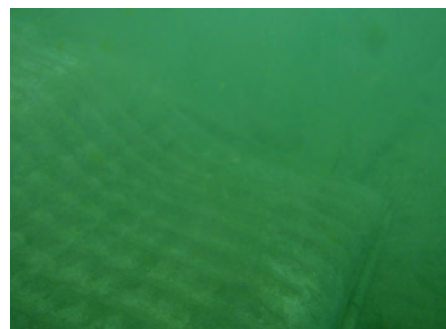
Section through quay wall and mattress

The scour apron was designed to resist the suction forces due to propeller and jet action and a 240mm constant thickness mattress was selected. A survey of rockhead levels was undertaken which allowed a robust apron edge detail to be formed down to rockhead, avoiding risk of future underscour.

The edge protection trench was safely airlifted and lower levels infilled with tremie concrete. The concrete mattress system was prepared for ease of diver installation. Concrete mattress panels were pre-rolled on scaffold poles, lowered into place, clipped to the quay, unrolled, zipped together and finally pump filled with micro concrete.



Mattress bundle being lowered into place



Filled mattress