

WATCO BREAKWATER (BERTHS 3 & 4)

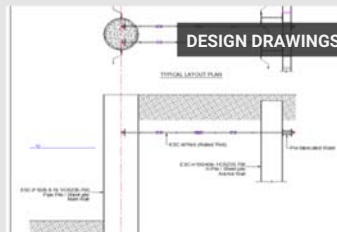
CASE STUDY

Greens Port Industrial Park is located at the eastside of the Houston heavy industrial zone, along the Houston Ship Channel in Harris County, Texas. Greens Port offers deep water barge docks along the channel with approximately 3 million square feet of indoor warehousing and numerous cranes ranging from 5 to 125 ton capacity.

Midyear 2014, ESC Steel Inc was engaged by WATCO Companies Inc for material supply and assist on geotechnical & structural design for Berth 3 and Berth 4 as an extension to the existing bulkhead that in service, in order to provide greater port capacity.

The design brief the Proposed bulkhead top at +12' above MSL; Existing platform ranging +9.5' to +13.5' above MSL; Design scour depth -42' below MSL; Total exposed height at 54' (16.459m); Surcharge 1000 psf (48kPa); Average water elevation at +1' above MSL

Due to the existence of a very dense sand layer in various thickness along the proposed bulkhead line, there were certain areas with hard driving condition that had been encountered. With the expertise of the contractor onsite and site advice sharing from the ESC team, Russell Marine managed to achieve full pile penetration nicely under the assistance of the use of a driving guide, pre-boring method and then use of diesel and air hammer.



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