

WATCO BREAKWATER (BERTHS 3 & 4)

BULKHEAD CONSTRUCTION PROJECT

Project Name	WATCO Breakwater (Berths 3 & 4)
Client	WATCO Companies
Main Contractor	Russell Marine
Engineer	Lainer & Associates
Location	Greensport Facility, Texas, USA
Product	Sheet Piles, Pipe Piles, Bollards, Tie Rods
Delivery Date	2014

INTRODUCTION

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.

Due to the existence of a very dense sand layer in various thicknesses 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 from the ESC team, Russell Marine managed to achieve full pile penetration nicely using a driving guide, pre-boring method and then a combination of a hydraulic vibrohammer combined with a diesel drop hammer.



ESC SCOPE OF SUPPLY

TUBULAR PILES & SHEET PILES

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.

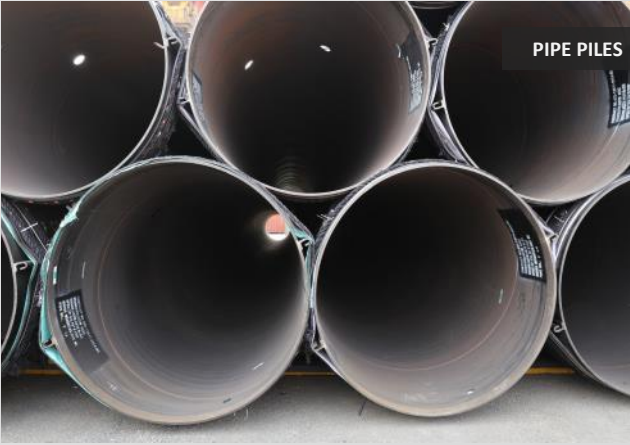
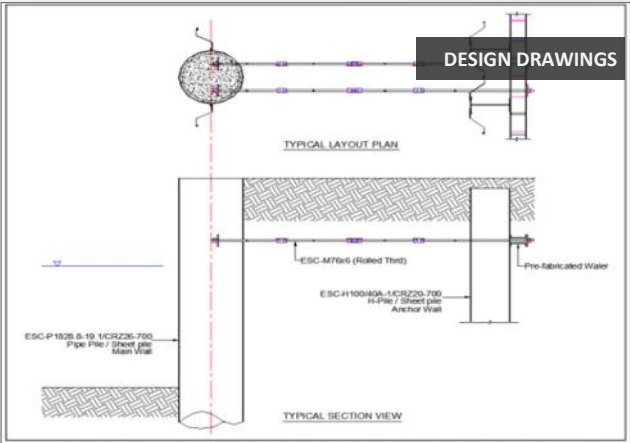
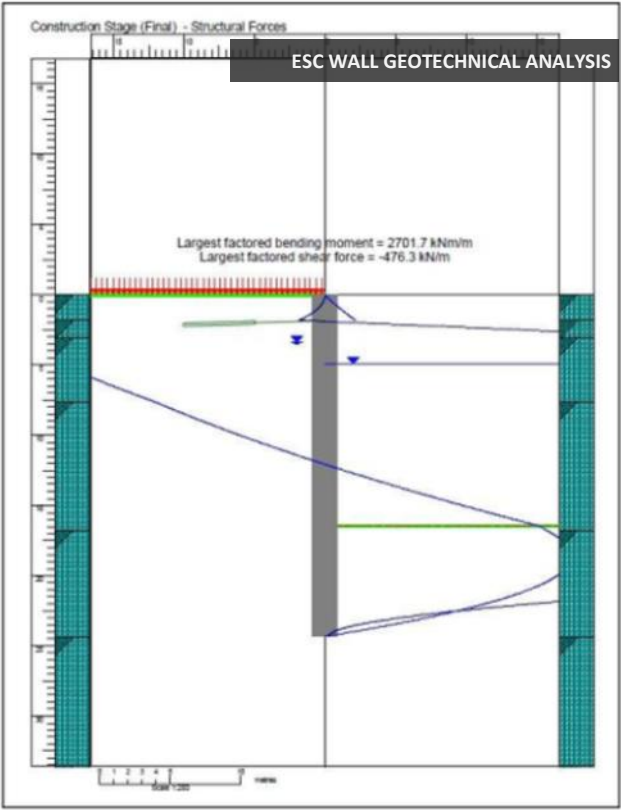
The design brief was as follows:-

- ▶ 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

ESC conducted face to face meetings with Lainer & Associates as well as Watco in New Orleans & Houston to get all design & pricing aspects

PROJECT DETAILS & MATERIALS



WELDING OF CLUTCH



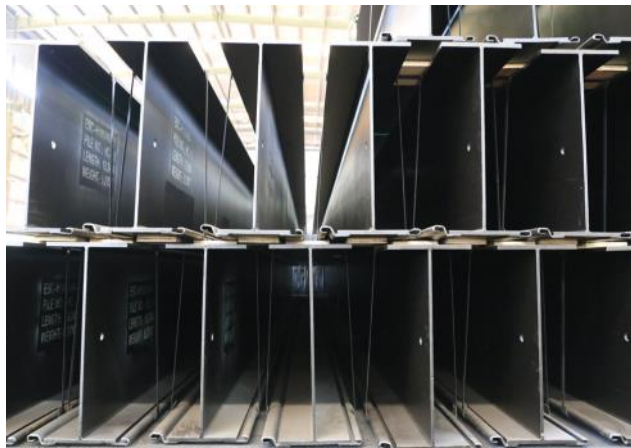
BLASTING OF PIPES



PAINTING



STACKING



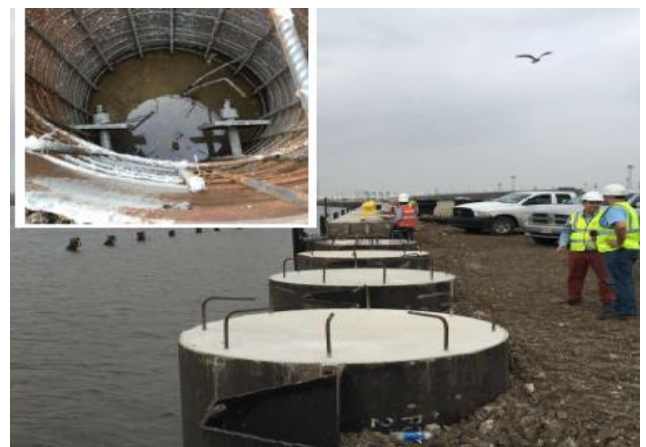
SHIP LOADING



ON-SITE INSTALLATION



ON-SITE INSTALLATION



PROJECT COMPLETED

