AL JEER FISHING HARBOUR

QUAY WALL PROJECT

Project Name	Al Jeer Fishing Harbour
Project Owner	Government of Ras Al Khaimah
Consultant	Gibb Ltd
General Contractor	Athena SA
Project Location	Ras Al Khaimah , United Arab Emirates
Product	Sheet Piles & Corrosion Protection Coating
Total Tonnage	920 MT
Year	2007

INTRODUCTION

The Government of Ras Al Khaimah needed to improve their harbour and berthing facilities for the local fishing fleets. The decision was made to construct a shallow water quay wall in the Al Jeer Harbour. The requirement was for a permanent quay wall with a dredge depth of -8.0 for fishing vessels. Durability was for 50 years. All designs were to be as per the British Standards.

The Port Authorities considered several options, including suspended decks and concrete block walls, however due to economics and timing, ESC's sheet pile wall solution with tie rods won the contract.

ESC carried out the alternative design calculations on behalf of the Contractor (Athena SA) and submitted them for approval to the Client (RAK Government) and their Consultant (Gibb Ltd). All relevant drawings and engineering detailing was provided by ESC for this project. Once approval was received the manufacturing was carried out in the ESC factory for delivery to the site.

As always, ESC personnel were on site to assist Athena SA during the beginning of the installation process. Several recommendations were made regarding piling guides and handling processes. ESC provided efficient Dawson Lifting Shackles that helped increase the productivity of the installation, while ensuring maximum safety during the process.

INITIAL DEADMAN SHEET PILE WALL INSTALLATION BEGINS ON SITE

NOW THE MAIN WALL SHEET PILE INSTALLATION STARTS

Email: info@escsteel.com
Website: www.escsteel.com

PROJECT DETAILS

SOIL PROFILE

The existing seabed was between approximately -2.0 EL to +1.0 EL in the vicinity of the proposed wall. Subsequent filling activity has reclaimed the area to approximately +3.0 EL. Fill material is dense to very dense sandy gravel with cobbles and boulders.

The original seabed is a layer of medium dense to very dense silty sand, overlying a medium dense to very dense silty gravel layer with sandstone bands up to 8.0m thick.

Below the gravel layer are pockets of medium dense to dense sands, overlying a very dense sand layer with sandstone bands at approximately -13.0EL.

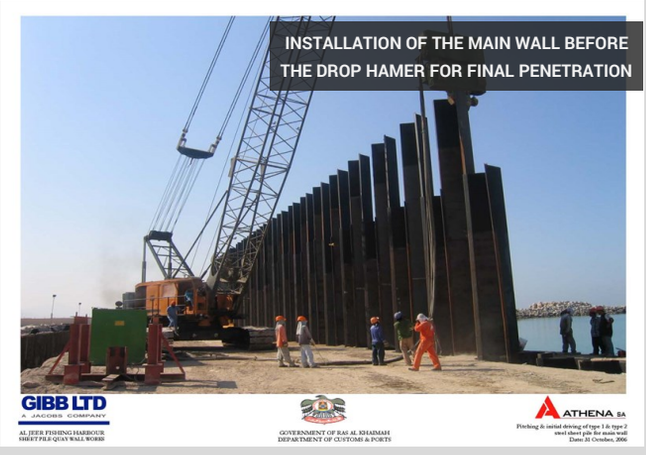
STRUCTURAL SPECIFICATIONS FOR SHEET PILES

The specifications for the proposed Main Wall and the Anchor Wall piles are as follow:

WALL TYPE	PILE TYPE	PILE LENGTH (m)	DESIGN STRESS (N/mm^2)	MAX. SECTION MODULUS (cm^3/m)
Main Wall	**ESC46A (6268)**	10.5	355	4040
Anchor Wall	**ESC18A**	3.0	275	1800

The total sheet pile tonnage supplied was 920 tons. Pile shoes were fitted to all Main Wall piles due to the hard driving conditions.

The tie rods were supplied by Dextra Manufacturing under the guidance and design of ESC. The rods supplied were M47mm of steel grade 950/1050 at 3.0 metre centres in 15.0 metre lengths. Tie rods were wrapped in Denso tape prior to installation.

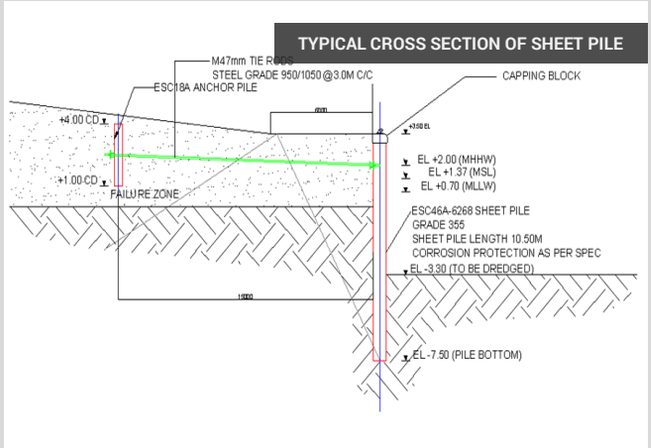


INSTALLATION OF THE MAIN WALL BEFORE THE DROP HAMER FOR FINAL PENETRATION

TIE ROD INSTALLATION IS UNDERWAY

COATING REQUIREMENTS

The specified coating for the sheet piles is for sand blasting to SA2.5 followed by 50 micron of primer and then 400 micron of coal tar epoxy paint. The coating is to be applied to the entire front surface and two metres of the back surface of the Main Wall piles only.

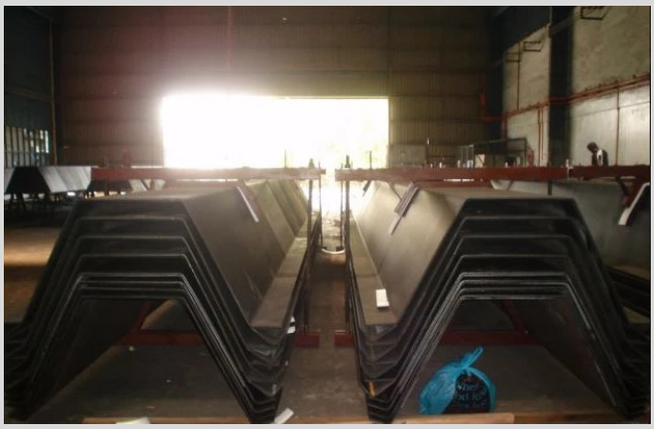


TYPICAL CROSS SECTION OF SHEET PILE

INSTALLATION DETAILS

Installation was done by pitching the sheet piles in a piling frame and driving to refusal with an ICE 815 vibro hammer. Piles were then driven to the final required level using an IHC S90 hydraulic hammer, together with a pile helmet.

STACKING

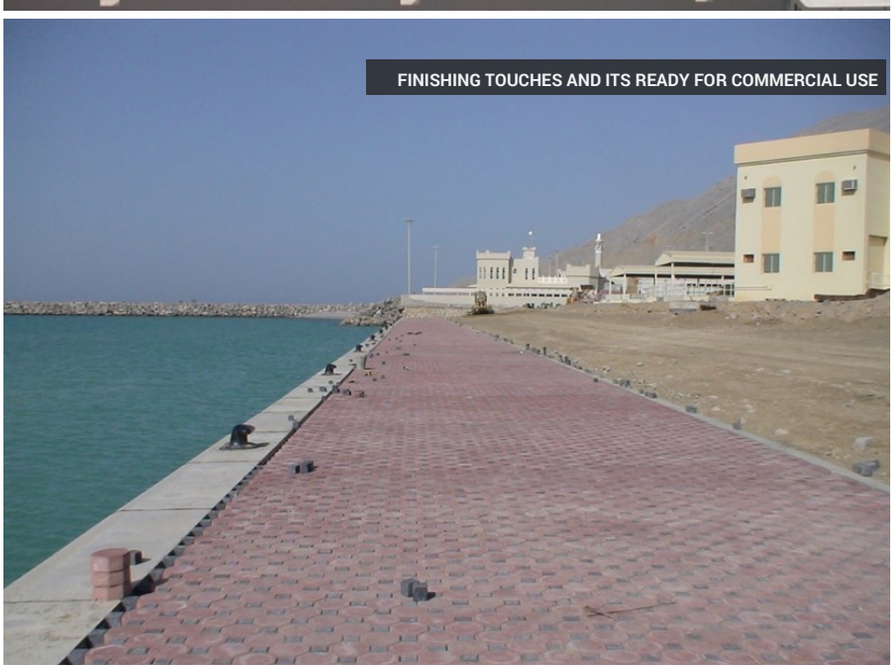


ON-SITE INSTALLATION

PROJECT COMPLETION

FINISHING COMPACTION WORKS BEGINS

READY FINAL COMPACTION CONTINUES NOW THAT ALL SHEET PILES AND TIE RODS ARE INSTALLED



FINISHING TOUCHES AND ITS READY FOR COMMERCIAL USE

Email: info@escsteel.com
Website: www.escsteel.com