LIQUID BULK TERMINAL RUBIS

TANK PROTECTION PROJECT

Project Name	Liquid Bulk Terminal Rubis
Main Subcontractor	Geka Bouw B.V.
Location	Taiwan
Product	Sheet Piles
Total Tonnage	283 MT
Delivery Date	March 2009

INTRODUCTION

Europile BV in the Netherlands secured yet another Tank Protection Project, this time for the Rubis Tank Terminal in Rotterdam, Netherlands.

Legislation required that they needed to have an impervious fire proof barrier put in place around the oil tanks. They had to have a perimeter that would withstand the possible scenario of a massive failure of the tanks and all the contents flowing out into the surrounding area. In addition, this liquid could well be on fire at the time so the perimeter had to cater for this potential issue as well.

ESC SCOPE OF SUPPLY

SHEET PILES

The Bill of Quantities included:

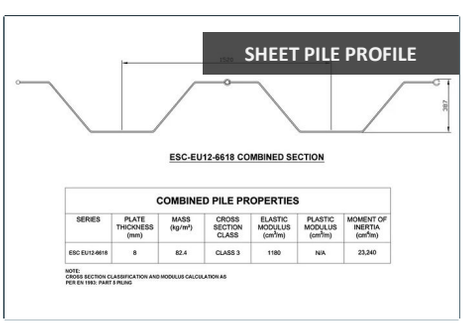
ESC-EU12 Steel Sheet Piles Grade Q345B in various lengths from 9.5m to 10.5m (252 tons)

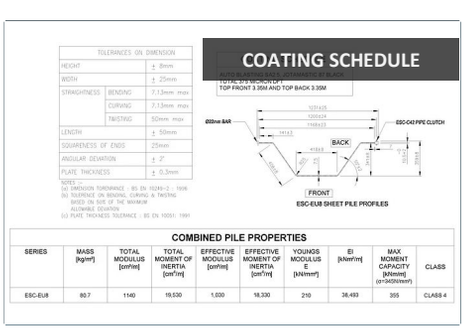
ESC-EU8 Steel Sheet Piles Grade Q345B in various lengths from 5.7m to 7.7m (31 tons)

Calculations were carried out by ESC in order to ensure that the stringent requirements of the Client and the Contractor were met whilst at the same time the budget constraints needed to be adhered to.

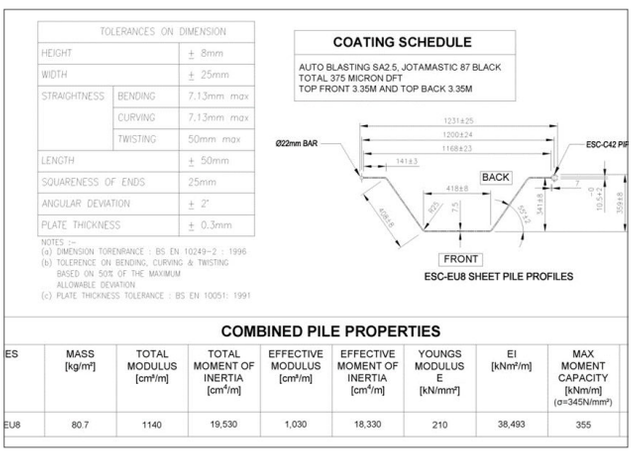
All EU12 sheet piles were painted on the top 3.35 metres on the front side and the top 4.0 metres on the back side with 375 microns of Jotamastic 87 black paint. The EU8 sheet piles were painted on the top 3.35 metres on the front side and the top 3.35 metres on the back side with 375 microns of Jotamastic 87 black paint All painting works were carried out in the ESC factory in China.

The ESC sheet piles with their wide profile made an ideal selection due to their very limited clutches per metre of wall. The sealing of the clutch is at least half that of other sheet piles and this also means less risk of seepage for the Contractor.





PROJECT DETAILS



TOLERANCES ON DIMENSION		
HEIGHT		± 8mm
WIDTH		± 25mm
STRAIGHTNESS	BENDING	7.13mm max
	CURVING	7.13mm max
	TWISTING	50mm max
LENGTH		± 50mm
SQUARENESS OF ENDS		25mm
ANGULAR DEVIATION		± 2°
PLATE THICKNESS		± 0.3mm

NOTES :–
(a) DIMENSION TORENRANCE : BS EN 10249–2 : 1996
(b) TOLERENCE ON BENDING, CURVING & TWISTING BASED ON 50% OF THE MAXIMUM ALLOWABLE DEVIATION
(c) PLATE THICKNESS TOLERANCE : BS EN 10051: 1991

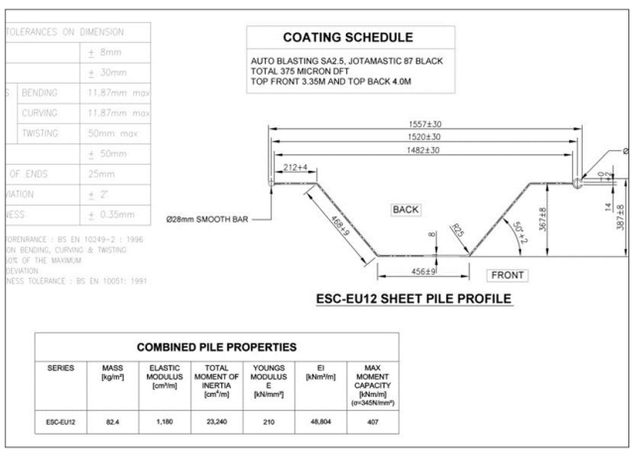
COATING SCHEDULE

AUTO BLASTING SA2.5, JOTAMASTIC 87 BLACK
TOTAL 375 MICRON DFT
TOP FRONT 3.35M AND TOP BACK 3.35M

ESC-EU8 SHEET PILE PROFILES

COMBINED PILE PROPERTIES

ES	MASS [kg/m²]	TOTAL MODULUS [cm³/m]	TOTAL MOMENT OF INERTIA [cm⁴/m]	EFFECTIVE MODULUS [cm³/m]	EFFECTIVE MOMENT OF INERTIA [cm⁴/m]	YOUNGS MODULUS E [kN/mm²]	EI [kNm²/m]	MAX MOMENT CAPACITY [kNm/m] (σ=345N/mm²)
EU8	80.7	1140	19,530	1,030	18,330	210	38,493	355



TOLERANCES ON DIMENSION		
		± 8mm
		± 30mm
	BENDING	11.87mm max
	CURVING	11.87mm max
	TWISTING	50mm max
		± 50mm
OF ENDS		25mm
ATION		± 2°
ESS		± 0.35mm

TORENRANCE : BS EN 10249–2 : 1996
ON BENDING, CURVING & TWISTING
SITE OF THE MAXIMUM
DEVIATION
NESS TOLERANCE : BS EN 10051: 1991

COATING SCHEDULE

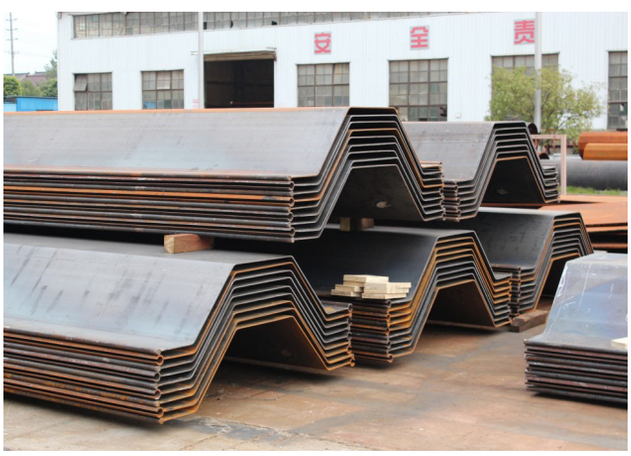
AUTO BLASTING SA2.5, JOTAMASTIC 87 BLACK
TOTAL 375 MICRON DFT
TOP FRONT 3.35M AND TOP BACK 4.0M

ESC-EU12 SHEET PILE PROFILE

COMBINED PILE PROPERTIES

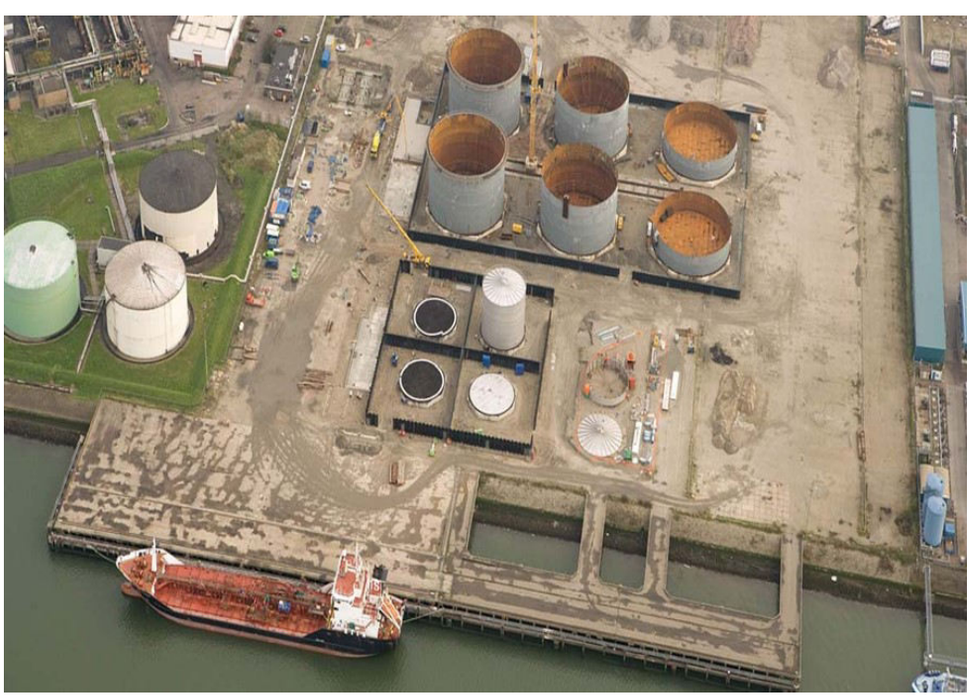
SERIES	MASS [kg/m²]	ELASTIC MODULUS [cm³/m]	TOTAL MOMENT OF INERTIA [cm⁴/m]	YOUNGS MODULUS E [kN/mm²]	EI [kNm²/m]	MAX MOMENT CAPACITY [kNm/m] (σ=345N/mm²)
ESC-EU12	82.4	1,180	23,240	210	48,804	407

PACKING & DELIVERY TO SITE



ON-SITE INSTALLATION

Email: escglobal@escpile.com
Website: www.escglobalgroup.com

CONCRETE FOUNDATIONS

PROJECT COMPLETED