



Mussafah Channel Relocation Project Summary and Achievements

Project Objectives



- To provide a safe navigation channel with unrestricted air draft for vessels between the Mussafah Industrial Port and the Arabian Gulf
- To minimize the environmental impacts on the marine protected area arising from the construction works
- To provide an increased depth of 9m allowing the Mussafah Industries to expand their commercial operations

Channel Location & Alignment



Location Plan



Project Details

- Employer Abu Dhabi Urban Planning Council
- Engineer AECOM
- Contractor National Marine Dredging Company

- Date of Commencement 8th June 2008
- Date of Completion **25th January 2011**
- Project Duration 962 days
- Hours of Operation 24 hours per day

Channel Dimensions

- Total Channel Length 53 km
- Channel Width Min. 200 m / Max. 868 m
- Channel Depth -9.00 m ACD
- Unrestricted Air Draft



Project Statistics

- Total Dredged Volume 65 million cu.m
- Average Dredged Volume 2.2 million cu.m / month
- Peak Dredged Volume 4.2 million cu.m / month
- *65 million cu.m represents the volume required to fill a football pitch (100m by 50m) that is 13km tall, or nearly 16 times taller than the Burj Khalifa*

Environmental

- The channel passes through the Bul Sayeef Marine Protected Area with its varied marine life including sea grass, dolphins, turtles, corals and dugongs.
- An Environmental Impact Assessment was undertaken by UPC and approved by the Environmental Agency Abu Dhabi (EAD).
- This area has a significant flamingo habitat, and was a breeding ground in 2009 for the first time since 1998/99.



Project Challenges

- Time constraint to operate the new channel prior to the air draft restriction in the existing channel
- Large volume of material to dredge within the timeframe
- Heavy construction works in a sensitive marine protected area
- Undertaking dredging works in an operational shipping channel
- Dredging works in an offshore environment

Stakeholders and Coordination

- **Abu Dhabi Ports Company (ADPC)**
 - Close coordination of all works to ensure ADPC requirements were addressed
 - Design and Ship Simulation validation
 - Construction and Navigation Interface works
 - Handing over the Channel for operations
- **Environmental Agency Abu Dhabi (EAD)**
 - Close coordination with EAD to develop the Environmental Impact Assessment and obtain all necessary approvals



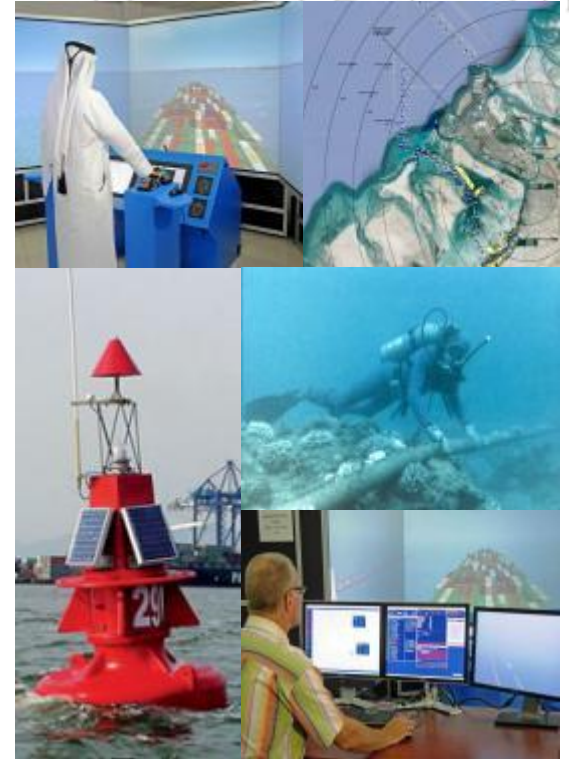
Construction Details



- Contract Value AED 1.5 Billion
- Max no. of dredges working 7 HDCSD / 2 TSHD
- Maximum Pumping Distance 6 km
- Km of pipeline 30 km
- Man Hours 3,550,000
- Construction Personnel 650 people

Other Works

- Channel Entrance Study
- Ship Simulation Study
- Ground investigation works
- Removal of Obstructions
- Navigation Buoys
- Vessel Traffic System (radar)
- Subsea utilities relocation works



Reclamation Areas

- Fill Area 1 (Habitat Island) 942,000m²
- Fill Area 2 913,000m²
- Fill Area 3 1,922,000m²
- Fill Area 4 not used due to environmental sensitivity
- Fill Area 5 3,539,000m²
- Fill Area 6 (ICAD VI) 2,238,000m²
- Fill Area 7 1,631,000m²

Comparison between the channel and similar projects

Project	Country	Project Duration	Average Depth (m)	Size (m3)	Implementation Period (month)	Average Dredging per Month (m3)	Costs (dollar)
Musaffah Water Channel	UAE	2008-2010	6.2	65,000,000	30	2,166,667	409,400,000
Melbourne Port	Australia	2008-2009	2.4	22,000,000	22	1,000,000	222,000,000
Thames Gateway	Britain	2010-2012	5.5	23,000,000	36	638,889	77,500,000
Panama Channel (expansion)	Panama	2007-2014	13	130,000,000	96	1,354,167	5,250,000,000
Yangtze River	China	1998-2010	5.5	152,130,000	144	1,056,458	2,420,000,000

Thank You

