

PROJECT SHEET

QATAR ECONOMIC ZONE 3

CANAL EXCAVATION, QUAY WALLS CONSTRUCTION AND CHANNEL DREDGING

INTRODUCTION

The State of Qatar is developing the Qatar Economic Zone 3 (QEZ3), an industrial zone located between the town of Al-Wakrah and Mesaieed Industrial City on the Eastern Qatari coast, just north of the new Hamad Port. The development will be a key gateway to Qatar, providing an economic hub around the Port for manufacturing, logistics and trade in various industrial sectors and so fostering a import and export synergy.

The site encompasses a total area of 37 km² including an industrial canal approximately 1,600 m long and 500 m wide for small to medium size vessels and dhows. The canal basin will connect to the existing navigation channel via an access channel approximately 7 km long and partly protected by breakwaters.

SCOPE OF WORK

The consortium was awarded the contract for the canal excavation, quay walls construction and channel dredging. The contract was executed between November 2014 and February 2016 by approximately 1500 people.

The scope of work included:

- Reclamation, compaction and ground improvement works
- Excavation of the canal basin
- Dredging and excavation of an access channel
- Site formation
- Breakwater construction
- Quay wall construction
- Revetment construction
- Flood bund construction
- Environmental mitigation works
- Supply, installation and commissioning of navigation aids



FEATURES

Client	New Port Project Steering Committee (NPP SC)
Location	Umm Alhoul, Qatar
Period	2013 / 2016
Contractor	Hyundai Engineering & Construction Co. Ltd / Boskalis Westminster Middle East Ltd Consortium



- A** Artist impression of the canal basin
- B** Dry excavation of the canal basin
- C** Stilling pond to control the fines in the dredge process water prior to discharge

CANAL EXCAVATION AND QUAY WALL CONSTRUCTION WORKS

The canal basin was excavated using dry earthmoving equipment. Some 80 excavators, 20 bulldozers, 150 haul trucks and numerous support equipment, such as wheel loaders, were used to break and excavate approximately 8.2 million m³ of rock-like material. The excavated material was re-used in reclamation of the project site area and in the construction of the temporary bunds and the breakwaters.

The excavation of the canal basin included part of the access channel to approximately the 2.5 m CD contour, 3.8 km from the basin entrance. The material excavated from the canal basin was re-used to construct temporary





bunds, the area between the bunds was dewatered. Subsequently, the existing seabed was lowered to the design depth.

The breakwaters were constructed with 420,000 m³ of rock partly from the excavation and partly imported. Some additional 250,000 m³ of rock was used to construct the revetment at the entrance to the canal basin.

During the execution, 10,000 pre-cast concrete blocks were produced on the project site and installed together with 2,000 in situ cast blocks, such as the capping beam. In total, 250,000 m³ concrete was used in the construction of the quay walls. Fenders and bollards were also installed.

After the excavation was completed in November 2015, the temporary bunds were removed and the canal basin was flooded in February 2016.

DREDGING

The remaining 3 km of the access channel was dredged to a depth of 8 m CD and to a width of 150 m. Between May 2015 and September 2015, the heavy-duty Cutter Suction Dredger (CSD) Taurus II removed 1.5 million m³ of material, which was discharged by submerged, floating and shore pipelines into rehandling basins in the dry excavation part of the access channel.

Subsequently, the material consisting of sediments and predominantly hard rock was excavated from the rehandling area and used in the reclamation onshore.

ENVIRONMENT

The project was carried out in line with the strict environmental regulations and in compliance with

the Environmental Impact Assessment requirements. Prior to execution, some 1,500 coral colonies, 4,500 mangroves and 3,600 m² sea grass were relocated. Discharge of process water was restricted. To comply with the requirements, a series of channels and pump locations were constructed to route the dredging process water and seepage in the dry excavation through a two-stage stilling basin of 750,000 m² back into the sea. Furthermore, a compliance monitoring campaign was carried out during the dredging stages and was additional to the monitoring executed throughout the project duration.

SAFETY

The Boskalis safety philosophy NINA (No Injuries, No Accidents) was introduced at the start of the project. No major incidents or accidents occurred during the project.



- D** CSD Taurus dredging the access channel to the canal basin
- E** Construction of the quay wall from prefab concrete blocks

Royal Boskalis Westminster N.V.
PO Box 43
3350 AA Papendrecht
The Netherlands
T +31 78 69 69 000
F +31 78 69 69 555
royal@boskalis.com
www.boskalis.com