

# RABAT'S SUBMARINE OUTFALL – MOROCCO

2.150 m long outfall, Ø 2.000 mm  
and diffuser at -25.40 CD



## ETERMAR

CLIENT

REDAL, S.A.





## Rabat's Submarine Outfall – Morocco

CONSTRUCTION TIME

29 MONTHS

### DESCRIPTION

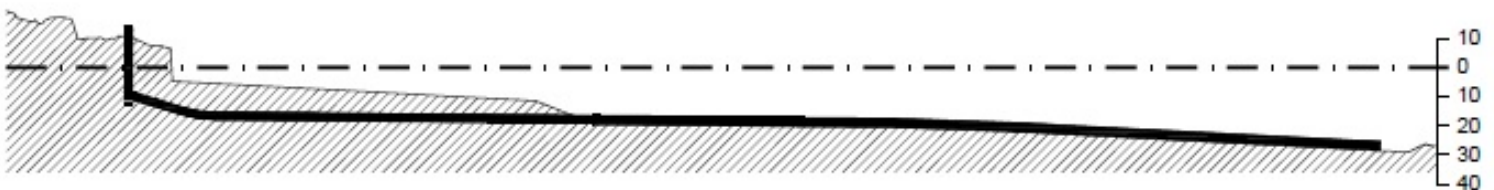
On Land Outfall (from 0 to 800 m):

- Construction of a tunnelling well (also definitive well) with 12 m of diameter and 23 m depth until -11.40 ZH.
- Construction by TBM of a tunnel, 800 m long with armed concrete pipes with external diameter of 2.630 mm and internal diameter of 2.000 mm.
- The pipes with 2,5 m each have been placed while the TBM advances and reached the 800 m at quota -18.m ZH with a minimum soil covering of 4,5 m.

Submarine outfall (from 800 to 1.250 m):

- Trench opening with suction dredge for HDPE DN 2.000 pipe installation in natural founds in all the extension.
- The pipes were produced in Norway and towed to Mohammedia port in Morocco, where they have been prepared (assembly of concrete stabilizers) in two pieces of 450 and 900 m and then towed to Rabat for placement.

The HDPE pipe was connected to the concrete tunnel by a specially made pipe joint. To execute such operation a well was dredged to remove the TBM and proceed with the Outfall's connection. This delicate operation took place during September and October of 2009 with total success.



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