Dubai Coastal Developments

Deltares in Dubai

Deltares has worked with the leading developers in Dubai, including Nakheel, Damac Properties, Emaar Properties, Dubai Properties, Meraas, Mafco, Arola, and many more. Deltares’ involvement commenced with detailed impact assessments for the first palm island: Palm Jumeirah.

Deltares' involvement in Dubai Coastal Developments includes:
- Palm Jumeirah
- Palm Deira
- Arabian Canal
- Jumeirah Golf Estates
- Jumeirah Beach Residence
- Jumeirah Lakes Towers
- Deira Creek
- Dubai Creek
- Dubai Creek Harbour
- Bluewaters
- Dubai Waterfront
- Dubai Marina
- Dubai Harbour
- Marina City
- Waterfront City
- The World
- Palm Jebel Ali
- The World Islands
- The Palm
- The Palm Jumeirah
- Palm Deira
- Dubai National Aquatic Park
- Beaches
- Water level design
- Flow and flushing of sluice gates in Arabian Channel
- Review of wave and tidal conditions
- Design advice on breakwater layout
- Review of coastal erosion impact assessments
- Ecological and coastal monitoring
- Design of coastal improvements
- Estuarine and coastal conditions
- Marine and coastal infrastructure
- Deltares provides high-end specialist services for the design, monitoring, construction, and long-term monitoring of coastal infrastructure projects.

Deltares provides high-end specialist services for the design, monitoring, and long-term monitoring of coastal infrastructure projects. Our key asset is that we cover all related disciplines within a single project. From feasibility to detailed design, Deltares can offer integrated solutions for coastal erosion, flooding, wave, and sediment transport, and environmental impact assessments.

Deltares has a proven track record of delivering projects for the leading developers in Dubai. Our involvement started with a detailed impact assessment for the first palm island: Palm Jumeirah. Since the early start of the coastal developments in Dubai, Deltares has worked with the leading developers in Dubai, including Nakheel, Damac Properties, Emaar Properties, and many more.

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Deltres

Determining hydraulic conditions (wind, wave, water levels)

Deltares performed the following assessments: the derived environmental conditions at the coast of Dubai, of the governing environmental conditions is crucial. Based on harbours in this type of environment, a detailed assessment known as Shamals, the intensity of these processes can be sand transport. Particularly, during northwesterly storms, the coastal environment of Dubai is governed by processes of artificial islands, land reclamation and other coastal developments. The special sand transport processes also occur at the mouth of the major coastal rivers and estuaries. Based on the coastal conditions, the derived environmental conditions are required in order to address changes in the natural systems and to evaluate due to construction of new coastal developments.

Overview of study activities

Environmental conditions

The design of coastal structures for the protection of the coastal development projects against severe wave attack was based on numerical wave models. These models yield the velocity of incident waves and the amount of wave energy to the different design scenarios. Based on the results of the scale tests, the designs were validated in operation.

Beach design

For most of the new beaches, and at some of the existing beach schemes, future resistance and washable profiles were determined. Coastal impact assessments

The coastal development projects along the Dubai coast were assessed using the dedicated spatial modelling tool HABITAT©. This tool enables a quantitative assessment of the areas at risk and demarcates the influence zones. Suitable impact assessments were carried out using the dedicated spatial modelling tool HABITAT©. This tool enables a quantitative assessment of the areas at risk and demarcates the influence zones. Suitable impact assessments were carried out using the dedicated spatial modelling tool HABITAT©. This tool enables a quantitative assessment of the areas at risk and demarcates the influence zones.