

## Ada Coastal Protection - Phase 1 and 2

Accra, Ghana

Temporary works for the construction of groynes to minimize beach erosion and promote beach regeneration.



### The project

Since the construction of the Akosombo Dam in 1963, coastlines near the Volta River mouth have eroded at an estimated rate of 6m/year. To minimize beach erosion and promote beach regeneration, it was proposed that dump rock groynes be constructed.

After completion of Phase 1 Coastal Protection Works (temporary works for the construction of 7 groynes), Phase 2 promptly followed temporary works for the construction of 15 groynes, using 6 highly specialized geotechnical crawler cranes and 3 (three) 60t purpose-built self automated bogeys.

## The challenge

The jetties were designed to accommodate vertical and lateral forces from the 100t CAT C385 excavator for the placement of armour rocks up to 4t as well as dynamic forces from breaking waves.

The work commenced during the season of the highest waves which frequently generated splashes reaching heights of 20m. This made working conditions extremely difficult particularly since the impact of these wave splashes often damaged the wooden decks between the main beams of the jetties.

## The solution

The temporary works of each groyne included:

- Design and Construction of two 5.6m wide steel jetties over the full length of the groyne (between 114 & 186m).
- Design and Construction of sheet pile cofferdam around groyne anchor area (between 70 and 120m).
- Dismantling of Jetties and Cofferdam after completion of groyne construction.

The temporary jetties were supported on 711 x 13 mm and 711 x 18 mm steel tubes, up to 24m in length, with embedment of between 6m and 15m below seabed level. The jetties were designed to accommodate 100t excavator crane and 60t bogey operating on seabed levels of up to - 4.5 m CD and wave heights of up to 3m.

The sheet pile cofferdams were constructed of AZ14, AZ20 and AZ24 sheet piles and closely spaced tube front wall to assist construction of the rock groyne anchors in shallow water. The sheet piles were designed to cantilever under wave impact forces in conditions with seabed levels of up to - 2.0 m CD.

## Project facts

### Owner(s)

Government of Ghana - Ministry of Water Resources, Works and Housing

### Keller business unit(s)

Keller Africa

### Main contractor(s)

Dredging International Services (Cyprus)

### Engineer(s)

IMDC - International Marine & Dredging Consultants  
PMI - Project Management International

### Solutions

Marine structures

### Markets

Infrastructure

### Techniques

Jetty construction

### Email address

[info.za@keller.com](mailto:info.za@keller.com)