



Aberdeen Harbour Expansion Project

SEA DEFENCE DEVELOPMENT

The challenge

To enable the creation of a breakwater defence system via the use of accropodes, Dragados have built an onsite production facility which will be used to manufacture some 9,000 accropodes throughout the duration of the project. The accropodes, which vary in weight from 20 to 40 tonnes per unit, will be used as outer armour for the north and south breakwaters, which are designed to shelter the new harbour. Due to the weight of the units, they exert a significant downward force when placed as the final layer of breakwater protection, and this ensures that the force of the waves cannot displace the other, inner, layers. The complex geometrical shape of the accropodes also allows each individual unit to be interlocked with another, forming a single, strong entity, able to withstand all weather conditions.

Our solution

Phoenix Cement, CEM II/B-V +SR (Portland-fly ash cement), was proposed as a single product replacement for a Blue Circle Portland Cement / GGBS on site blend considered previously. Blue Circle Phoenix is readily available from our rail fed Aberdeen depot which is within 2 - 3 miles of the site and complied with all aspects of the concrete specification. Phoenix was the single product choice for use in concreting for a range of applications including the accropode production facility, piling and quay walls.

Results and benefits

The mixtures designed with Tarmac cement comply with all structural requirements, providing very good strength values at 28 days. Phoenix met with the customers' expectations and was chosen as a one product solution for multiple application considerations; the early strength required for a precast concrete production facility, chemical resistance for piling and sea defence purposes, lower heat of hydration for larger concrete pours along with improved workability and ultimate strength.

“The service from Tarmac cement has always been very good, we have never had any problem in that regard. The material deliveries are always punctual and according to the requested product demand”

QA Team - Dragados UK

For more details visit: [tarmac.com](https://www.tarmac.com)

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