

Port of Dundee – East Development

Epic new wharf brings significant benefits to Dundee

£22.1m

/ Project value

August 2020

/ The project commenced

October 2021

/ The project was completed

In August 2020, we commenced construction of a new wharf at the Port of Dundee and the preparation of 15 hectares of land to support its emerging energy transition sector. A continuation of our partnership with Forth Ports following the completion of Tilbury2, our work is a key component of the “epic” £40m redevelopment programme at the port that promises to bring significant benefits to Dundee and the whole of Scotland.

The brief

The scheme which sees the creation of suitable areas of land and berthing facilities associated with offshore renewable energy industries, consisted of replacing the existing Caledon East Wharf with a new heavy lift quayside that is capable of roll on/roll off operations as well as conventional lift on/off. Prince Charles Wharf also received a major upgrade to increase capacity after almost 45 years of service.



“This significant investment in the Port of Dundee demonstrates our commitment to bring large-scale renewables and decommissioning projects to Scotland. We are pleased to work with GRAHAM on this project in Dundee following their successful delivery of our new freight ferry terminal in Tilbury2 earlier this year.”

David Webster
Senior Port Manager

“This is a fantastic scheme for GRAHAM to be working on and another opportunity to demonstrate our wide-ranging marine construction and civils capabilities. The offshore renewables construction facility at the Port of Dundee promises to bring significant benefits to both Dundee and indeed the whole of Scotland, both socially and economically, creating jobs and supporting the supply of low carbon electricity.”

Leo Martin

GRAHAM Civil Engineering Division Director

The challenges

Reconstruction of the wharf involved significant work within an operational port environment, meaning access through site had to be maintained at all times. Port personnel, visiting seamen and cruise passengers also required admission to and from their vessels throughout the duration of the works. On the Dundee scheme, we took existing spoil heaps on the site and processed the material by screening and crushing to create a suitable earthworks material. The design was adapted to incorporate the use of this material to create a permanent working platform over very weak underlying soils below the site.

The solution

The port remained operational and open for vessels throughout the project, with a newly fabricated wave turbine being transported through the site for loading onto a barge at the Prince Charles Wharf Extension (PCWE). We maintained a road to the quay throughout the works for use by Port of Dundee. The route was re-located as the works progressed, with the Traffic Management Plan being updated to suit as the route changed.

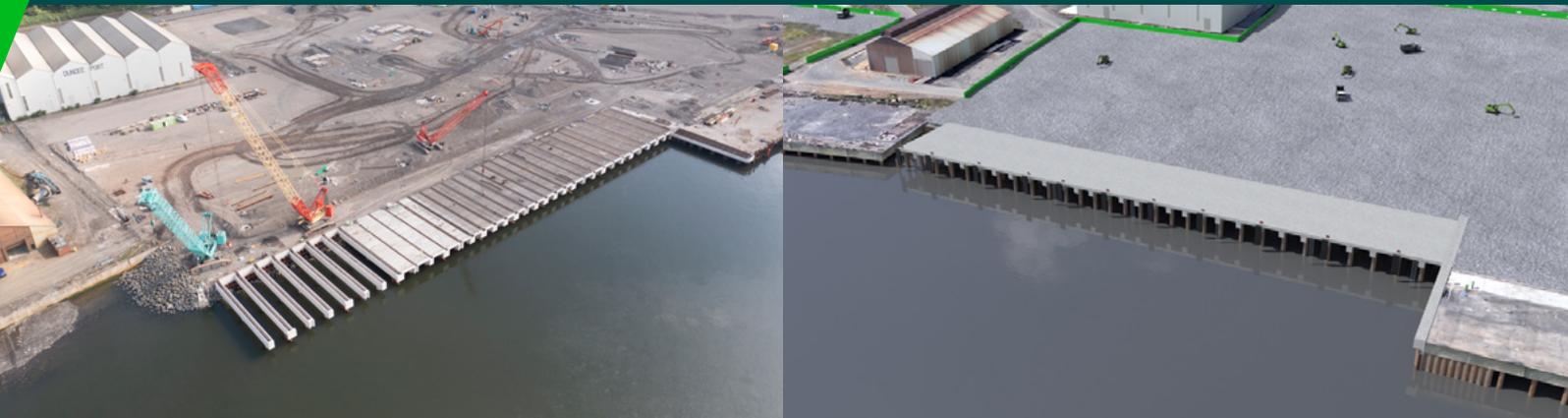
We adapted the design to incorporate the use of material to create a permanent working platform over very weak underlying soils below the site. This resulted in minimal removal of waste to landfill and a vast reduction in the volume of imported aggregates. The only stone imported was the top 150mm of Type 3 material. 60,000m³ was excavated from bunds on site, stabilised and used. 10,000m³ of concrete slabs from demolished buildings were crushed and used for site fill material. We used the material that was excavated from site efficiently to aid in soil stabilisation which resulted in diverting all the material away from landfill, allowing the client to gain an extra 10% of the site.

Outputs & Benefits

Waste Management: We took existing spoil heaps on the site and processed the material by screening and crushing to create a suitable earthworks material. The only stone imported was the top 150mm of Type 3 material, 60,000m³ was excavated from bunds on site. This resulted in minimal removal of waste to landfill and a vast reduction in the volume of imported aggregates.

Materials Delivery: Working closely with supply chain partner AccelorMittal we made sure piles were procured and delivered to site without delays. We arranged delivery of 700t of sheet piles from sea from Luxembourg, managing the necessary pilotage and berthing.

Piling: Precast beams of up to 50 tonnes were rolled over and lifted into place. As a major risk identified was penetrating the rock with the piling of the deck, we worked with our designer to agree a penetration depth of roughly 4m. Temporary bracing to hold the piles in place ensured a minimum of plant marine was required.



For more information on how we're delivering lasting impact:

+44 (0) 28 9268 9500

info@graham.co.uk

graham.co.uk

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