tmsMaritime

Project Case Study

TMS Maritime is a leading UK specialist in marine civil engineering, ancillary floating plant and diving services

Client: Aberdeenshire Council

Value: £2,500,000

Project: Stonehaven Pier Reconstruction

Description: Working on behalf of Aberdeenshire Council, TMS were appointed as Principal Contractor to construct three new pier heads around three historic ones in Stonehaven Harbour. The three new pier heads were to encapsulate the existing Net Pier, South Pier and Fish Jetty structures which had all been considered to have reached the end of their serviceable life and were at risk of failure if their condition were allowed to degrade further. The full scope of the project included:

- Procurement of approx. 200-tonnes sheet piles, 400m^3 of concrete, 1000t imported aggregates and 1000t arisings off-site.
- Partial demolition of the existing piers, including underwater demolition of a concrete cill structure between the South and Fish Jetties.
- Installation of interlocking steel sheet piles to three sides enclosing the existing piers.
- Design and installation of sacrificial anode cathodic protection system to the sheet piles.
- Installation of anchor walls, tie bars and backfill within the sheet piles to form the new pier substructures.
- Casting of perimeter reinforced concrete capping beams to the sheet piles, including installation of mooring rings and access ladders.
- Casting of a new reinforced concrete pier deck, including ducts and access chambers. This included spare ducts for future- proofing the piers.
- Fabrication and installation of a new boom gate system between the Fish Jetty and South Pier to protect the inner harbour.

The piling work was undertaken using Movax and impact hammer piling equipment on a 45t excavator supported by cranes (45t or 25t crawler cranes). A modular barge and tugboat were used during the busy tourist months to transport most of the plant and equipment between the piers as two of the three were inaccessible for deliveries with articulated lorries, and smaller lorry movements would have increased the impact on local and tourist traffic. Due to the age and uncertainty over the existing piers structural integrity, vibration and tilt monitoring systems were set up to ensure there was no movement on the piers during the loading and piling works. These attached onto the existing piers during the works and were set with trigger warnings that would alert the construction team if movement occurred. The exposed coastal location and strong winds means that the working weather window was between May and November as the piers are frequently inundated with seawater outside of these months. Therefore, close monitoring of weather forecasts and efficient use of calm periods was required to successfully complete the project without having to work into the winter months.