

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

Client: Shetland Isles Council

Project Name: Toft Pier Redevelopment

Value & Duration: 18 months and £3,010,000



Working on behalf of Shetland Islands Council, TMS were appointed as Principal Contractor for the construction of a new pier in Toft at the north end of Shetland Mainland. The work was completed over an 18-month period with a break during the winter 'windy' season and a further break forced by the recent COVID-19 construction shut-down. TMS worked closely with Shetland Island Council to develop 'COVID Safe' practices to allow safe and timely return to the island for continuation of the works during the on-going pandemic. The new pier was required to replace a redundant, much smaller jetty that had once served as the inter-island ferry berth. Following relocation of the ferry to a new "roll on/roll off" berth, the original jetty had fallen into disrepair and TMS were therefore appointed to construct a new pier to be used for the operation of the islands' fish-farming vessels.

The full scope of the project included (a) Piling work - installation of interlocking steel sheet piles to the full perimeter of the new pier encapsulating the old jetty structure; design and installation of sacrificial anode cathodic protection system to the sheet piles and installation of anchor walls, walings, tie bars and backfill within the sheet piles to form the pier substructure; (b) Concrete works – the casting of a full perimeter of reinforced concrete capping beam to the sheet piles, including installation of mooring bollards, access ladders and fenders and also the casting of a new reinforced concrete pier deck, including ducts, access and inspection pits for water, electricity, CCTV and navigation lighting equipment; (c) Installation and connection of water and electrical services, including installation of CCTV security system and navigation lighting; (d) Dredging of 6,000m³ of seabed sand, gravel, clay and rock to increase berth and approach channel depths.

The piling work was undertaken using 'traditional' piling methods with an 80t hydraulic crawler crane based on the pier which was built out from the land sequentially with waling, ties and back-fill works completed in phases using temporary bulk-head walls for fill containment. Reinforced concrete capping beams were installed using our own bespoke falsework system to allow the sheet pile capping beam to be cast safely over water. The exposed coastal location and strong winds made the concrete works particularly challenging. Close monitoring of weather forecasts and efficient use of calm periods were required to successfully complete the concrete works which, due to the COVID pandemic, were forced into the winter months. Dredging was undertaken using a long-reach excavator aboard our modular barge system that was shipped to the islands by road. A 3D dredge model was designed and input to the excavator's onboard GPS dig control system to ensure accurate dredge level control. The seabed material from the dredging was transported to shore in our hopper barges where it was subsequently used to fill and cap exhausted open-cast quarry pits locally.

