

CASE STUDY

NORTH BERWICK HARBOUR WALL REMEDIATION

Project: Stabilising & re-pointing of the harbour wall face and removal of the existing, and installation of the new, stop log channels and crane foundations.

Location: North Berwick, Scotland

Client: East Lothian Council

Project Overview

The works are situated on the South West and North West Piers at North Berwick Harbour in East Lothian. The South West Pier is approx. 30m long, 5m wide at the top and 5m high above the sill at the harbour entrance. There is a slight batter on the external faces of the walls to give them extra stability in rough seas. These piers, completed in the early 1800's, consist of masonry blocks on the external faces and are founded on bedrock. It is believed that rubble forms the core and at some point the blocks have been removed from the top of the pier and have been replaced with a concrete surfacing.



(North West Pier) North Berwick Harbour (South West Pier)



The original stop log channel.

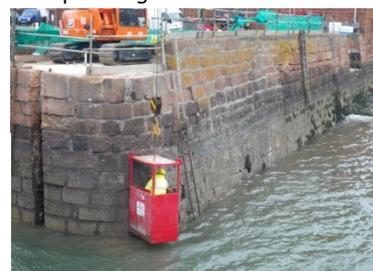
Stop log channels are inset into either side of the harbour entrance and the stop logs are lowered into position in heavy seas to reduce wave action in the harbour. There is a manually operated stop log crane at the end of the South West pier, just visible in the above photo.

It was decided that remedial works be carried out to stop further deterioration of the pier and provide a quicker and safer handling of the stop logs. These works comprised of the following:

1. A survey of the stop log channels.
2. A survey of the stop logs.
3. Fabrication of a steel stop log retrieval beam.
4. Re-pointing of the joints between the masonry blocks, for a 10m length from the pier's roundhead.
5. Grouting the core of the wall, to fill any possible voids, for a 10m length from the pier's roundhead.
6. Replacement of the stop log channels on the South West and North West Pier.
7. Removal and disposal of the existing stop log crane.
8. Replacement of the concrete foundation for the stop log crane.
9. Replacement of the crane.



Roundhead of pier prior to re-pointing.



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The South West pier harbour wall after having been re-pointed.



The steel reinforcement for the foundation of the new pier crane.



The new pier crane foundation having been concreted and awaiting the arrival of the crane itself.

Result

The order of the works was governed, to some degree, by the tides but as there were four separate main parts to the contract (the grouting of the pier, the pointing of the harbour wall, the building of the crane foundation and installation of the new stop log channels) we were able to manage the project effectively around this ensuring that all of the works were completed on programme.

Where possible, we used local suppliers which helped to support the local economy, particularly important for local government contracts and it also ensured that materials were delivered as, and when, required so we weren't waiting for deliveries.



Left: One of the two stop log channels being checked prior to being grouted into position.



Right: One of the completed stop log channels installed at the end of the pier roundhead.

This project was the first of its kind we have undertaken as a company and it couldn't have run more smoothly. The site team and the engineers worked closely to ensure that the best design solution was used, we remained on programme and that materials arrived on time. Our client, East Lothian Council, was extremely happy with the end result and we completed the contract in a safe and efficient manner.



The crane fully installed and operational.



The new crane being used to lift a stop log into position.



The first stop log being lowered into position in the stop log channels.