

Piling Equipment Specialists

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In March 2022 and March 2023 ABI Equipment Ltd were contracted to supply ABI Mobilram piling rigs to RJ McLeod for use on the installation of plastic sheet piles at two sites in Fort William, Scotland.

Plastic sheet piling is made from recycled PVC and can offer several advantages over steel sheet piling in some locations. Corrosion, or lack of it, can be a real benefit for permanent structures that require low maintenance. Plastic piles are ideally suited to water-based applications such as bank projection and flood defence. They are light in weight and easier to handle than steel sheets making them ideal for restricted access locations.

In March 2022 RJ McLeod contacted ABI Equipment regarding the hire of a piling rig that would be suitable for the installation of plastic sheet piling. It was decided that our ABI TM14/17VSL Mobilram would be the best rig for the job. The variable static moment, variable frequency vibrator was the perfect tool to install these piles as it permitted the operator to delicately control the delivery of static moment and vibration frequency, thereby minimizing the stress on the pile and maximizing the chances of successful installation without causing damage to the pile.

The sheet piling works were to form the foundations for the harbour development at St. Ola. At least 12 overnight berths for visiting boats were to be created plus a mooring location for four boats and a sea plane to 'come alongside'.

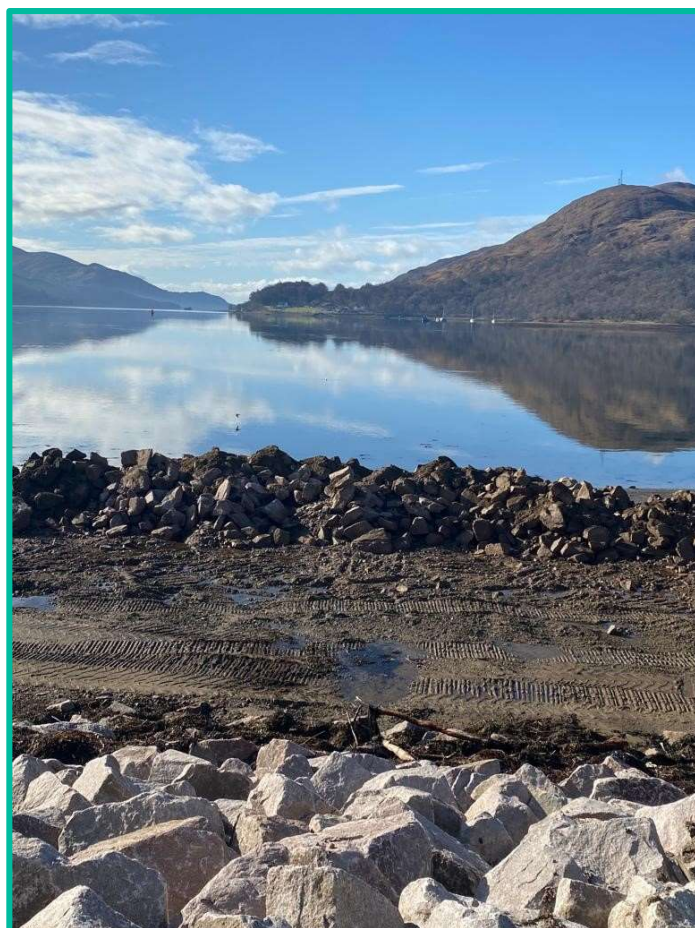
Harbour Development St Ola & Flood defences at Caol & Lochyside

Client: RJ McLeod

Equipment: ABI Mobilram TM14/17VSL

ABI Mobilram TM13

Technique: Piling with Vibration and pre-augering



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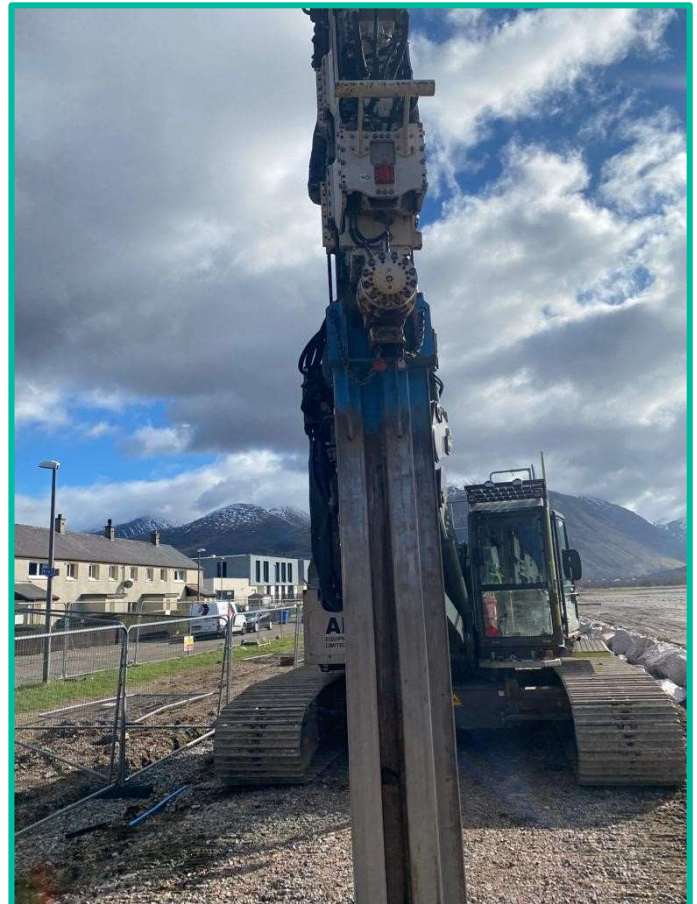


The 4.0m long piles were installed using a supporting steel mandrel that wrapped around the plastic to protect it as it penetrated the ground. The 1000m line of sheet piling was pre-augered using the same Mobilram in order to reduce ground resistance and deal with any potential obstructions. During the project approximately 23 linear metres of plastic sheet piling wall were installed per day. The ultra-low emissions engine and ABI's Efficiency Drive also made a significant contribution to minimising fuel consumption and reducing exhaust and noise emissions in this beautiful location.

Following the success of the St. Ola project, RJ McLeod approached us again in March 2023 to supply another Mobilram for a second visit to the same location. This time the working area was going to be significantly smaller, and it was decided to utilise one of our most compact ABI Mobilrams, the TM13.

The rig was used to install plastic sheet piling as part of an £11m flood prevention scheme by Highland Council. The prevention scheme came about as a result of flooding in the area in 2005 which damaged 20 homes and the local sewerage works. The 2005 flood was caused by a large tidal surge in Loch Linnhe.

The project required the installation of a 2020m wall of plastic sheet piles varying in depths from 2.5m to 4.0m. Given the coastal nature of works the ground conditions were mostly sand & gravel with some obstructions making it very difficult to install the plastic piles without damaging them. Again, a steel mandrel was used to assist the installation process and protect the plastic sheets.



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Caol and Lochside is one of 42 prioritised flood protection schemes identified in the National Flood Risk Management Strategy for Scotland. It will increase flood protection to over 300 properties in the Caol and Lochside area.

The 2km long flood protection scheme consists of 1200 metres of embankment and 800 metres of flood wall with two flood gates and associated drainage. The flood defence will be constructed between the Caledonian Canal and Soldier's Bridge in the River Lochy, as well as providing environmental benefits to the wider community.

There will be improved access to the towpath at the Caledonian Canal and improved walking and cycling routes along the length of the scheme.



Stephen Moore from RJ McLeod (Contractors) Ltd said:

“We were extremely pleased with the way in which both the TM14/17VSL and the TM13 Mobilrams handled the installation of the plastic sheet piling. The use of plastic sheets was a first for us and we learnt a huge amount about the handling of these piles during both projects.

The team at ABI provided us with excellent support throughout the projects and we're indebted to them for the expertise and knowledge they were able to share with us.”