

MUNSTER BLACKWATER RIVER, FERMOY SOUTH DRAINAGE AND FLOOD ALLEVIATION SCHEME

Further Information on the Scheme

Design Elements:

The following is a summary of the varying complexities of the design elements.

- The flood walls incorporating the pull-up post system included challenging foundations with combined sheetpile, bearing piles and ground anchors. These included the installation of anchors under existing adjacent buildings.
- The foundations were constructed at depths well below adjacent river levels, in a busy town centre with the busy N72 passing through the middle of the site.
- The incorporation of the pull-up post system required a complex reinforcement arrangement, pouring sequence and waterproofing details to ensure the voids housing the pull posts were securely fixed and no concrete entered during the construction phase.
- The pull-up post system is the real innovation in use on this scheme and has numerous benefits as outlined hereunder.

Innovation:

The following is a summary of the innovation elements of the pull-up post.

- The installation of the pull-up posts is the first such installation in the World.
- Ideally in order to provide robust flood defence structures, full height permanent walls would be used. However, within town centres the river views are required to be protected for the public. In towns such as Clonmel and Mallow walls in combination with demountable barriers are used. However, these barriers are stored away from the location of use so the use of a pull-up post system was proposed to the OPW and following proper investigation and verification of its suitability by us it was accepted for use in Fermoy.
- The following photographs show the ease of installation of the pull-up post system and how it adds 1.8m protection height above the permanent flood walls:









Operational Benefits:

Because of the innovation of this product it has the following cost, time, H&S and ease of installation benefits including:

1. There is a significant time savings in the overall barrier installation.
2. There is a greater reliability than demountable temporary barrier system due to the vertical flood posts being in the position they are needed. In the case of Fermoy the barriers would have been stored on the Northside of the town. As the bridge closes during times of flooding this would mean transporting them around the motorway bypass so this journey is eliminated.
3. The resources (plant, labour traffic management) required to complete the installation are reduced thus resulting in cost savings during the life of the scheme.
4. From a H&S point of view, the use of pull-up posts has a large H&S benefit as it only involves one lift of the vertical heavy post with a machine and a lock into place. This avoids the following risky tasks:
 - Load pallet from storage unit onto flatbed truck and transport to site
 - Unload storage pallet off truck
 - Lift individual post off pallet and onto the top of the flood wall adjacent to a swollen river

Society Benefits:

The benefits to society of the flood scheme includes:

- The barriers on Fermoy South protects 187 properties. Photos below show the before and after scenario during two large flood events from 2009 and 2015.
- The use of the pull-up post system provides confidence that the defence system will be installed in time during a flood event. The significant benefit of this can really be realised when horror stories present on the nightly news are viewed.
- The benefit of the quick mode of operation was demonstrated during the recent floods when a malfunction in the flood prediction software meant a late call was made to install the barriers above the permanent walls and the river came within 200mm of overtopping the walls. If a normal demountable system was in place the town would have been flooded but because of the pull-up post being present the barriers were put in place and secured in time to avoid catastrophe. The photo below demonstrates how close the permanent wall was to being overtopped.



2009 flood



2015 Flood alert



Recent late barrier installation



New amenity in use during rowing regatta