

Marlow Flood Alleviation Scheme

Client: Environment Agency

Location: Buckinghamshire

Value: £550k

Duration: 5 Months

Project Background...

Marlow's enviable location on the banks of the River Thames in Buckinghamshire has been both a blessing and a curse for the picturesque town in recent years, with residents and businesses suffering from numerous instances of flooding. Most notably, this was in 2014 when 23 properties were flooded.

The Environment Agency identified that there were a total of 287 properties, which were "at risk" of river flooding in the town. To enable the completion of the wider Marlow Flood Alleviation Scheme, Barhale were selected to deliver advanced protection works on the river bank to the south east of the town.



Aerial view of the site showing the RC flood defence wall surrounding two private properties



Sheet-piled headwall structure

Technical Features...

The scheme involved the construction of:

- Approximately 135m of brick clad reinforced concrete flood wall, to an average height of 1.5m, along the river bank, bordering two local properties
- An 11m long sheet-piled headwall structure with flap-valve in the highway ditch running parallel to the A404
- Dye testing of the road gullies on either side of the recently constructed raised section of road to determine the flow paths
- Reinstatement of two private, residential gardens (hard and soft landscaping works)

Due to the close proximity of the work site to the river, the team had to allow for numerous precautions on site, including comprehensive archaeological, ecological and UXO watching briefs during tree clearance and excavation operations. Munitions awareness briefings and archaeological toolbox talks have been given by accredited Explosive Ordnance Disposal (EOD) Engineers and archaeological contractors respectively.

To deliver efficiencies within the programme, the team divided the flood wall construction in to several separate activities, with multiple labour teams working on each. This allowed them to:

- Condense the construction programme by enabling multiple tasks to run concurrently, therefore reducing disruption to local property owners and the public
- Reduce the amount of time the archaeologist and UXO Engineer had to spend on site, as multiple excavation was done at once
- Reduce the requirement for ground supporting temporary works

Following the completion of preliminary works, which included the removal of vegetation and trees, the team constructed the sheet-piled head wall within the existing drainage ditch. This has created a watertight barrier to protect against flood water backflows. A non-return flap valve has been installed within the headwall to allow the ditch to drain under normal conditions.

During construction, the team utilised over-pumping techniques to ensure the drainage ditch maintained normal flows. The team then constructing the 1.5m tall, 135m long reinforced concrete wall.



A section of the 1.5m tall flood defence wall



Pouring of reinforced concrete base slab. The excavator and the concrete wagon were positioned within a private residential garden

Customer Benefits – Community Engagement...

Due to the close proximity of local residents and public thoroughfares, there was a risk that this scheme could cause disruption to the local community. In fact, during the construction of the reinforced concrete wall, Barhale's workforce, including large items of plant, had to construct foundation slab pours inside private, residential gardens. The project also involved full reinstatement of two residential gardens following the wall construction. This has included patio slab laying and soft landscaping of new turf and top-soil.

The team's determination to deliver the works sensitively, with a strong focus on communication, has promoted collaboration with both the EA and Buckinghamshire County Council, to ensure the local community were engaged throughout the project. The team held local engagement surgeries before works commenced and have developed site specific 'Customer Contact' cards for the project.

During the works, the site was visited by Sir James Bevan, CEO of the Environment Agency, along with members of his team. The visit went extremely well, with Sir James commenting on how impressed he was with the works, particularly regarding how quickly the team mobilised to site following the contract award, and their efforts in proactively engaging with local stakeholders.