

Catford Raw Water Main & Shafts

Client:	Barratt Homes
Location:	South East London
Value:	£570k
Duration:	6 Months



The completed access shaft showing the intermediate landing platform



Temporary timber decking constructed within the live sewer

In Brief...

As part of their development for over 500 new properties in Catford, South London, Barratt homes employed Barhale to construct a new 7.5m diameter permanent access shaft, over an existing Y-branch of a Thames Water Trunk Main Sewer. The developer planned to construct directly above the existing sewer and therefore required the shaft to provide man-entry access to the sewer to facilitate maintenance requirements in the future.

Customer Benefits...

The project was delivered to budget and in time for the opening of Barratt Homes' marketing suite, and was commended by Paul Williams, Senior Project Manager for Barratt Homes:

"I would like to thank [the delivery team] for all your hard work, and pass on my compliments as to how well run the project was... a credit to your company."

The project demonstrated the successful management of multi – stakeholder engagement, as well as specialist delivery within a live sewer environment. The extensive use of in-house designs and fabrications also highlighted Barhale's capacity to provide self-sufficient solutions to complex problems.

Technical Features...

The scope of the project was to:

- Construct the shaft
- Locate the existing sewer
- Divert live sewer flows via over pumping into a temporary twin-wall pipe
- Demolish the existing brick chamber
- Rebuild the Y-branch channel in concrete
- Re-introduce flows back into the channel
- Install access/observation platforms and manhole access cover slab

The works were carried out in a very restricted area, located in between two Network Rail tracks and delivered in conjunction with the construction of Barratt Homes' Marketing Suite by a third part contractor. As such, all elements of the works involved constant stakeholder liaison and various approvals from asset owners such as Thames Water Developer Services and Network Rail.

The team were required to design and build the 7.5m diameter, 10m deep shaft through an under-pinning method, using a 3t excavator within the shaft alongside skilled miners.

Extensive confined space safety measures were in place throughout the works to ensure the risks associated with live sewer working were mitigated. Regular mock rescues were carried out during the project to ensure the rescue team were familiar with their roles and the approved emergency procedures.

Technical Features Cont...

Before the team could start demolishing the existing sewer chamber they had to construct a temporary timber decking inside the live sewer. The decking was constructed by confined space trained miners entering the live sewer and bolting the side rail timber beams onto the brick wall of the chamber, before nailing timber boards onto the support rails to create the platform. This decking prevented debris from falling into the live sewer below, as well as providing a working platform for the team. The team utilised Barhale's in-house Temporary Works Designers to ensure the decking would be certified to support the weight of the 3t excavator situated on top.

The existing sewer chamber was found to be surrounded in a thick layer of concrete. As the timber decking was anchored to the existing brick sewer the team feared that any vibration caused through use of a machine mounted concrete breaker, or German Jiggers, may damage the brick structure and cause the decking to fail. To mitigate this risk, the team opted to use a Darda Rock Splitter – which has the capacity of splitting rock and concrete up to 400t without the creation of vibration, dust or excessive noise.

Once the area surrounding the existing sewer had been excavated as per design, the top of the chamber was demolished and the timber decking was removed to expose the live flows. The team were then able to successfully divert the live flow through over-pumping into a temporary 600mm diameter plastic flume pipe, which enabled live flows to continue during the construction of the new channel.

Following the successful diversion of the sewer flows and demolition of the existing chamber, the team constructed a newly designed concrete channel to tie in to the 3 existing sewer pipes which met within the shaft. This was successfully delivered by Barhale's skilled carpenters who constructed bespoke shuttering designs to facilitate the complex concrete pour.

To complete the access shaft, the project team engaged Barhale's in house steel fabrication department (BCS) to develop an intermediate landing platform, access ladders and handrails.



Completed concrete channel to tie together the 3 existing sewer pipes inside the shaft



Live sewer flow diverted through temporary 600mm flume pipe during formwork construction