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Haydon Wick Brook Flood Alleviation Scheme



Residents of Haydon Wick (Swindon, UK) need no longer live in fear of flooding, thanks to Royal HaskoningDHV's leading role in a £6.6m (€7.9m) Environment Agency flood alleviation and environmental improvement scheme.

What the client says:

"Our aim with this scheme was to ensure that residents of Haydon Wick need no longer live in fear of heavy rain while at the same time improving the existing natural environment, to encourage wildlife.
"Royal HaskoningDHV helped us create the original business case and design, supported us in managing the on-going project and ensured that the contractor, Galliford Try, maintained the necessary environmental and safety standards throughout.

“The resulting work was carried out to the highest quality within the budget available with minimal disruption to neighbouring homes and businesses. Although their role has been largely invisible to the general public, without the expertise of Royal HaskoningDHV we could not have managed this project through to a successful conclusion.” said Peter Collins, Environment Agency.

Client:

Multi-agency: Funded by Defra (The UK Government Department responsible for the Environment, Food and Rural Affairs) through the Environment Agency, Swindon Borough Council and Thames Water.

What was the problem?

Back in July 2007, 120 homes, four businesses and an electricity sub-station just outside Swindon, UK faced near disaster as the Haydon Wick Brook – a previously unloved ditch bisecting a modern housing estate, home only to the odd shopping trolley and discarded bicycle - proved incapable of handling the unprecedented rain that fell in just a few days that summer. Around 50 houses were badly flooded by what was known locally as ‘The Big One’.



What was the solution?

The Haydon Wick Brook Flood Alleviation Scheme was promoted by the UK’s Environment Agency to reduce the risk of similar flooding from the

Brook. It required the installation of some 3,700 sheet piles along 2 kilometres of the Brook to restrain and direct the watercourse, together with the building of embankments, and the replacement of old and inadequate bridges. All this was to be achieved in a way which enhanced the local area.

The resulting works will protect surrounding properties from a 1-in-100 year flood risk, that is, a flood with a one per cent chance of occurring in any single year.

Martin Whiting, Project Director for Royal HaskoningDHV throughout the project commented: "One of the challenges we faced was the diversity of environments along the Haydon Wick Brook. Some areas were very close to housing, others to footpaths and public open spaces as well as passing through a small but important area of ancient woodland. The design solution had to incorporate and blend with all the different natural and man-made features and required the use of different finishes. For example, quality brick facing with stone coping was used near the housing with steel sheets in the woodland, designed to rust on the surface and blend in with the natural environment.

"Working in a predominantly residential area was a particular challenge, with equipment often sited, and operating, close to existing housing. It was of vital importance to ensure the work was carried out with the minimal disturbance to residents. Where necessary, we had to reinstate gardens directly affected by the works to a high standard. All of this had to be done within a fairly tight budget."

Why was the end result a success?

The end result, completed in October 2013 and officially opened in November, is not merely an engineering success; its design has improved the ambience of the surrounding residential area.

Maintaining and enhancing the natural environment was a key part of the design. Retention (and where necessary replacement) of existing tree and shrub plantings was important to create a pleasant space for local residents and to encourage wildlife. Two kingfisher nests have been incorporated to encourage nesting as the habitat is highly suitable for them.

After the completion of the design work and the obtaining of the necessary planning consents, site work at Haydon Wick began in July 2012, with completion initially set for spring 2013. Martin Whiting commented: "The unprecedented bad weather we experienced early in 2013 together with a surprising number of unknown and unmapped services not revealed on existing plans or highlighted during the site surveys, impacted on the planned timescale and required us to redesign some aspects, and where necessary obtain permissions to alter the design. All of which had to be achieved within the agreed budget."



What has our role been?

Royal HaskoningDHV has been involved in this scheme since 2008, when we worked with the Environment Agency to build the business case for the necessary investment and proposed the Project Appraisal Report (PAR).

We then created the detailed design for the contractor, Galliford Try, after which our remit became to supervise the construction and ensuring the works were built to the design, and to the necessary safety and environmental standards. We also provided on-going tactical design support as changes were required during the construction phase.

Given a number of personnel changes by various parties involved, a key part of our role was to ensure the original vision for the project was

retained and not unnecessarily expanded.

Benjamin Rostaing, Project Manager on site since June 2013, highlighted the strength of the 'Team Van Oord' approach, with one of the partners, May Gurney, providing an on-site Supervisor - the first time, in fact, Royal HaskoningDHV worked with them as sub-consultants. Benjamin said: "Given the relationship we have with them through Team Van Oord, we had a huge degree of confidence in their abilities and knew they would be able to step ably into the role. This was a massive help in ensuring continuity of delivery on the ground."

Martin Whiting concludes; "Managing the budget for the client across the life of the project was important, given the changes to the original design required by the 'unknown services'. By applying 'value engineering' we were able to deliver the plan in line with the budget without compromising the overall look or importantly the strength of the flood alleviation works."

Alice Johnson, Project Manager from the start of work onsite in April 2012 to May 2013, says: "One of the keys to the success of this project was the need for attention to detail from the outset, even from the planning stage.

"Conceptually, the work was quite straightforward, but there were a lot of details that only came to light once we were on site. These required changes to the original logistics plans and schedules, to design and implement solutions. It's very satisfying to see the final result: a solution that not only manages the environmental risk but is a significant enhancement to the living space of local residents."

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Contact us

Martin Whiting

Public Sector Business Director

London, UK

 +44 207 340 9688

 +44 7789 48 08 81

 martin.whiting@rhdhv.com

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