

August 2017

CASE STUDY

LARGE-SCALE STORMWATER SOLUTION BRINGS ADDED BENEFITS TO HOUSEBUILDER

- **Large diameter HDPE structured wall pipes successfully used in Bedfordshire**

Pre-fabricating large diameter pipe fittings off-site, along with a move towards more modular construction, is a growing trend within the industry that is reaping significant benefits in terms of best value solutions. It works particularly well in the case of large diameter HDPE structured wall products, which are helping to solve complex design issues that might otherwise cause escalating costs and programme delays and ultimately affect the ability to deliver major projects within budget.

When a leading UK housebuilder wanted to ensure a proposed stormwater solution would withstand the worst case predicted storm events, it turned to large diameter plastic pipes and gained considerable additional benefits.

The developers wanted an engineered drainage solution, designed to work with the sloping gradient found on site. Set in the countryside town of Houghton Regis, the Regent's Place large-scale residential development comprises a mix of 180 two, three and four-bedroom houses nestled in a tranquil area, offering stunning views of the landscape.

The development required a below ground stormwater solution, able to store up to 2,052m³ of surface water run-off to cater for both '1 in 30' year and '1 in 100 plus 30% climate change' year storm events.

The landscape surrounding the Regent's Place development features a large public open space with limited footprint for drainage design and sloping gradients. Taking on the challenge, the BPF Pipes Group member Polypipe Civils worked closely with the housebuilder and the consultant engineers to design a stormwater solution. This incorporated staggered legs to

take site conditions into account, that also met site requirements and adopted elements laid out under Section 104 agreement for the approving water company, Anglian Water.

The attenuation tank supplied for the Regent's Place project boasts a 3m diameter offset vortex flow control chamber which controls discharge water from the tank at an agreed rate of 10 l/s, so the local watercourse is not overwhelmed. To control additional flow when required, the chamber also features a penstock flow control.

Perfect fit

Over 500m of pipes forming 14 pipe runs in 2100mm diameter were supplied. The technical team engineered the pipe to ring stiffness SN2 to meet ground conditions, burial depths, native soil pressures and loading on-site. The system was tested to pass required deformation and buckling checks in accordance with BS EN 1295-1.

To accompany the pipe runs, the system incorporated 34 pre-fabricated modularised fittings which included 90° bends and 'F', 'T' and double 'T' fittings to fit the limited on-site dimensions perfectly.

The socket and spigot nature of these engineered fittings kept jointing to a minimum, allowing for easy pipe alignment and speedy installation using electro-fusion jointing. This in turn significantly reduced on-site installation time and cost.

Working on many residential projects and understanding the implications surrounding routine maintenance work is vital to the success of such a project. In order to make maintenance work less strenuous and safer overall for installers, the pipe supplier also provided 10 access manholes in 1200mm and 1800mm diameters. The manholes assist workmen by providing easy access to a pipeline.

Keith Millard, Senior Engineer at Taylor Wimpey said: "This stormwater attenuation system was designed to not only fit the available area, but it also saved us time and costs on the installation by having the system and fittings delivered as one-piece modular units ready to install."

The Houghton Regis development adds to a growing asset base of large diameter plastic pipes and fittings in preferential use around the UK.

A full list of BPF Pipes Group members is available at www.bfppipesgroup.com/members

ENDS

PHOTO CAPTION: Plastic pipes and fittings have many benefits – and in larger diameters too

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About the BPF Pipes Group

Part of the British Plastics Federation, the BPF Pipes Group is a trade association representing manufacturers and material suppliers of plastic piping systems across the UK. Committed to sustainable construction, its aims are to provide a forum for the exchange of technical expertise between member companies and to promote the importance of plastic as a pipework material, for the full spectrum of above and below ground, pressure and non-pressure applications. It also plays a key role in initiating and disseminating research and informing and influencing the standards bodies pertaining to plastic pipe systems. It works closely with the BPF and TEPFPA, the European Plastic Pipes and Fittings Association.