

SuDS Retaining Wall

Attenuation Pond, Webwall, Bellway Homes, Nottingham, UK



CASE STUDY



Project Description

A large Bellway Homes development on a greenfield site near Arnold to create a new northern suburb within Nottingham.

The Challenge

Typically, planning consents are granted based on SuDS retention equivalent to a green field site. For reasonably large developments, such as this, the volume of water accumulated from rain run-off would mean sizeable ponds using up valuable building land. The designer proposed a basin with steep slopes to save space; the lower portion at 60 degrees and the upper 30 degrees. The challenge was to provide a steep wall with a green finish which can withstand surface run-off erosion and be structurally sound at minimum cost.

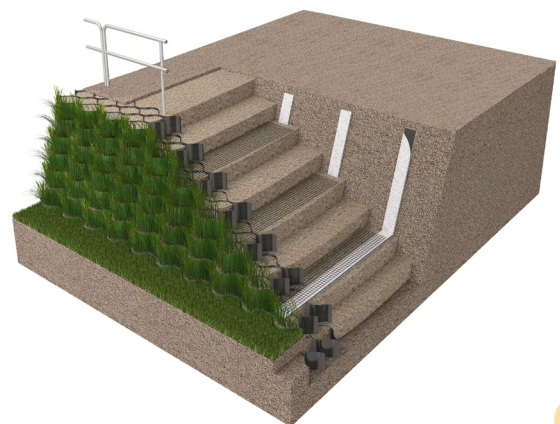
The Solution

ABG offered Webwall® as it uses locally won materials to stabilise weak or low cohesion soils. Laid in horizontal layers, infilled and compacted using site won materials, it was shaped to fit local contours and fitted neatly around the outfall structures. This avoided the costly importing of aggregates and reduced the impact on the environment from the extraction and transport of aggregate to site. During build up and filling, the front cells are filled with topsoil to encourage growth in the front cell once construction is complete. Vegetation on the face gives a pleasing visual impact and improves system longevity.

The wall needed to be stable during construction and service. Calculations showed that layers of Abgrid geogrid were needed for wall heights above two meters.

Project Information

Client	Bellway Homes
Contractor	ABG Installs
Product	Webwall, Abgrid, Fildrain, Erosamat Type 1
Quantity	600m ² of wall facing
Benefits	<ul style="list-style-type: none">• Use locally won fill saving on cost and environmental impact• Green integrated solution• Versatile flexible profile



ABG Webwall, Fildrain and Abgrid

ABG LTD

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As these ponds are at the bottom of a series of swales, there will be a higher water table at times of heavy rain. Strips of **Fildrain** are included behind the **Webwall**® to provide drainage for ground water flows to prevent saturation of the reinforced section of the structure. The **Abgrid** alone was used to reinforce the upper slopes and the face was protected from surface erosion with **Erosamat**® **Type 1** while vegetation established. The overall construction was finished on time, within budget and to specification and will form a green civic amenity in the midst of a new urban development.

The ABG Service

ABG offered a full turnkey design, supply and installation package (installation by the ABG subsidiary, ABG Installs). This package was chosen based on the technical proposal, meeting the construction program and ultimately cost effectiveness.



Layers of **Abgrid** and **Webwall** are progressively built and backfilled with locally won fill. The front cell is filled with topsoil and planted. The **Webwall** is shaped to fit with headwall structures



Finished structure with upper slopes reinforced with **Abgrid** and surface protected with **Erosamat Type 1**



Finished pond starting to green and blend with the natural environment

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