

ASDA Superstore, Long Eaton

Type of System: Stormwater Soakaway

Date of Installation: 2000

Tank Size: 700m³

Site Problem:

A new ASDA development in Long Eaton, near Nottingham, had the requirement that stormwater runoff from the development needed to be managed using a soakaway system.

Original Solution:

The original design envisaged a soakaway structure constructed from concrete blocks on a concrete base with an aggregate backfill that had a void ratio of 30% and a total tank volume of 1,600m³. The impermeable concrete base limited the infiltration to only around the four sides of the tank. The blocks to form the tank were to be laid with gaps formed in alternate courses to allow water to flow out. The outside void using blocks would be in the order of 10-15% flowing then into the gravel (<30% void).



GEOCELL

Environmental Sustainable
Solutions Ltd.

Sladen Mill, Halifax Road,
Littleborough, Lancashire,
OL15 0LB

Tel: +44 (0)1706 374 416

Fax: +44 (0)1706 376 785

Email: sales@y-ess.com

Web: www.y-ess.com

Registered in England
No. 03115064 Registered Office





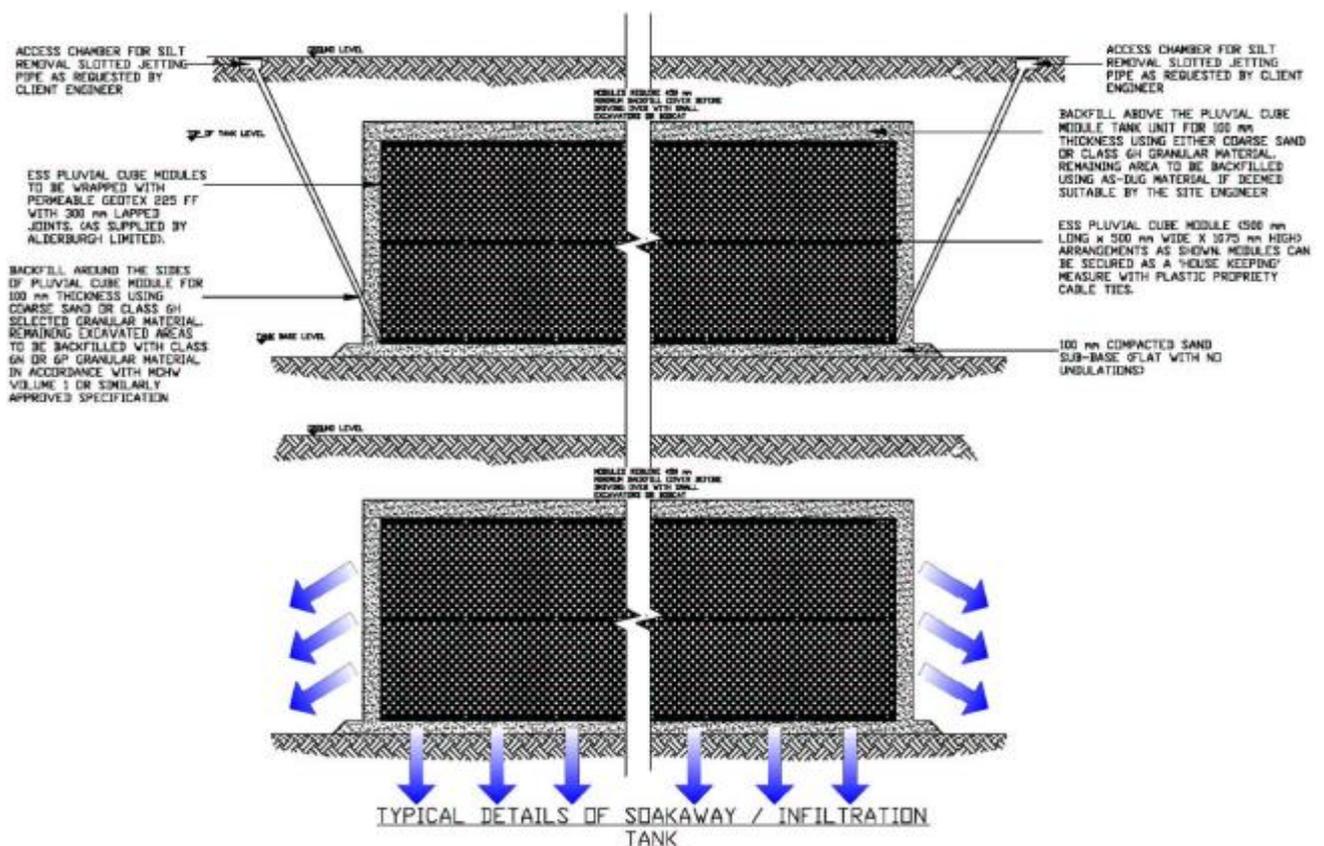
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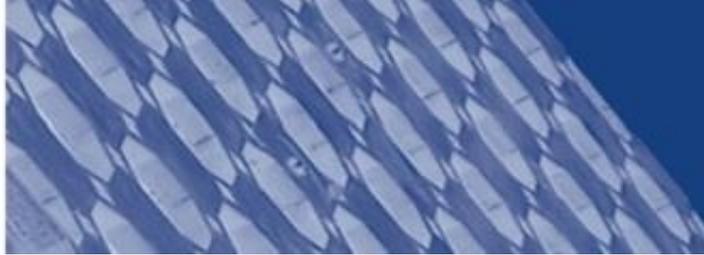
ESS Solution:

Using the ESS Geocell modules with a void ratio of 95% reduced the size of the tank to 700m³ (including an overcapacity factor of safety of 250m³). The tank was wrapped in Geotex 225 FF (filter fabric) with a permeability of 314.85 l/m²/sec. The tank included the ESS flushing system for cleaning the tank which was requested by the client's engineer.

Installation:

Layers of single ESS Geocell modules were used for the soakaway construction. During installation the contractor encountered a pipe across the tank site. The intruding pipe was supported by concrete blocks and ESS Geocell modules at the bottom, and covered by aggregate to above soffit level without disturbing the pipe. The tank was installed with a nominal fall of 1 in 500 to encourage collection of silt along the edge of the tank. The silt trap in the base was made up of 80/100 ESS Geo Void units (void ratio of 95%), placed above a slotted pipe running through the bottom of the tank connecting the two access chambers. The slotted pipe was connected to lockable chambers at a slope of 1:2 for sufficient scour during flushing. The sides as well as the base of the soakaway system was then wrapped using Geotex 225 FF supplied by ESS. The system has been working without any requirement for cleaning from time of installation (several years).





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Summary:

- The Geocell modules provided a more efficient design, meaning less excavation was required (approx. 800m³) and installation time was reduced (from 3-4 weeks to 5 days).
- The flexibility of the installation allowed for an unexpected pipeline to be left in place, saving potential costs whilst not compromising the effectiveness of the soakaway structure.
- Using Geotex 225 FF meant there was better infiltration, and a flushing system was also used, meaning there was no access chamber required through the tank.



ESS Single
Geocell Module

