

## Geocellular Tanks

On 1<sup>st</sup> April 2020 The Sewerage Sector's Design and Construction Guidance (DCG) will be implemented.

This introduces the concept of geocellular tanks for adoption, which have not previously been considered by United Utilities (UU). The purpose of this note is to provide guidance around the scenarios in which UU think it may be appropriate for use.

C7.8 Tanks states;

1. *A tank is an underground structure that creates a void space for the temporary storage of surface water before infiltration, controlled release or use.*
2. *Tanks should have provision for access for inspection and cleaning. This should include a means of removing any sediment and a means of trapping sediment to prevent it from being washed downstream during cleaning operations.*
3. *The structural design of geocellular tanks should be carried out by a person competent to do so using the guidance, in CIRIA Report C737 'Structural and Geotechnical Design of Modular Geocellular Drainage Systems' or other established engineering principles. Verified product performance data should be used for the engineer to make their assessment (see E2.48).*
4. *The design of flow attenuation facilities should, wherever practicable, include the following criteria:*
  - a. *Gravity tank sewers or tanks formed from oversized pipes should be designed as online storage;*
  - b. *Where parallel pipes are used for attenuation, a minimum of one pipe should act as online storage, the remainder as offline;*
  - c. *The design of attenuation facilities should seek to prevent a build-up of silt and other debris (e.g., by use of benching and low-flow channels).*

### Our position

UU will consider the use of geocellular tanks that enable sustainable drainage solutions that discharge flows to ground that cannot be achieved at surface level.

UU will not currently adopt geocellular products that are used purely for attenuation purposes on the adoptable network.

A designer can continue to specify geocellular tanks, as they do now, for private attenuation that interact with the adoptable network (for offline storage for volumes above the 30 year event). Water and Sewerage Companies have no duty to adopt the 100 year volumes within below ground systems. The DCG explains that '*provided there is provision for the flows to reach a particular feature, surface SuDS features designed to take 1 in 100 year rainfall event plus climate change will normally be adoptable*'. The designer should discuss this with the Lead Local Flood Authority and or Local Planning Authority in any pre-app discussion.

### Why will we accept it for infiltration solutions?

- The DCG also introduces the concept that flows from surface water sewers can discharge to ground (via infiltration) as its effective point of outfall, subject to assessment in line with CIRIA C753 The SuDS Manual. UU recognise that geocellular tanks can provide the surface area needed to enable an infiltration system to drain to half-volume in a 24 hour period, as required by the standards.

### Why won't we accept it for attenuation only?

- Below ground storage offered for adoption should be designed to be self-cleansing. It is unclear how this is achieved in the design of geocellular tanks.

## Geocellular tanks

- In the scenario that below ground storage becomes silted, UU typically arrange for tanks to be cleansed via high pressure water jetting operations. It is unclear how we would use our fleet to complete this activity (see figure 1 below).
- UU regularly inspect the tank systems on our public sewer network. This can often be via utilising CCTV equipment. It is unclear how CCTV equipment could be used to obtain a condition survey of a geocellular tank.
- UU prioritise non-dig rehabilitation methods for any repair or remediation work to any surface water sewers. We are not aware of any rehabilitation options for geocellular tank structures.



Figure 1 - United Utilities City Flex