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Code for Adoption Agreements

Sewerage sector documents: Change proposal (Ref 004)

Modification proposal	Design and Construction Guidance: Add new sub-clauses for plastic corrugated wall arch structures for below stormwater attenuation and storage applications
Independent Sewerage Adoption Panel Recommendation	The Panel recommended approving the change proposal
Decision	Ofwat has approved this change proposal using the wording recommended by the Panel with a minor grammatical adjustment,
Publication date	16/02/2022
Implementation date	01/04/2022

Background

ADS Europe BV (**ADS**) submitted this change proposal on 3 September 2021 to the Independent Sewerage Adoption Panel (**the Panel**), with the Panel publishing the proposal on its website on the same day. The function of the Panel is to consider change proposals to the sewerage sector guidance and model sewerage adoption agreement which apply to companies operating wholly or mainly in England. These documents were developed by companies as required by the Code for Adoption Agreements (**the Code**) and came into effect in April 2020. A change proposal is defined in the Code as a proposed change to the sector guidance or the model adoption agreements.

ADS has requested that a change be made to the Design and Construction Guidance (**DCG**) set out in Appendix C to the sewerage sector guidance, which is used by developers when planning, designing and constructing foul and surface water drainage systems (including pumping stations and rising mains) intended for adoption under an agreement made in accordance with Section 104 of the Water Industry Act 1991. Specifically, ADS has requested

a change to section C7.8 which sets out the detailed design components of tanks. It requested that an additional section is added to allow thermoplastic corrugated wall stormwater collection chambers to be included in the types of tanks that are able to be adopted under the Code. It has also requested a change to section E2 which provides guidance on appropriate materials. The proposed sub-section would add guidance on appropriate materials to use for thermoplastic corrugated wall stormwater collection chambers.

The Panel considered the change proposal at its meetings on 19 October 2021 and 17 December 2021. At its meeting in October, the Panel decided that it required further information and discussion in order to finalise its recommendation. Ofwat agreed to provide the Panel with an extension to submit its recommendation until 5 January 2022. On 5 January 2022, the Panel provided its recommendation to us.

The change proposal

ADS has requested two changes be made to the DCG based on concerns that components that are not specifically identified in the DCG may not be considered for adoption by sewerage companies. It considers that thermoplastic corrugated wall stormwater collection chambers are a viable alternative to other below ground stormwater attenuation and storage tanks that are identified in the DCG, such as geocellular crates and large diameter pipes. ADS has therefore proposed adding guidance to the DCG on the use of thermoplastic corrugated wall stormwater collection chambers.

The first change set out in the change proposal would add a new sub-section between sections C7.8.3 and C7.8.4 of the DCG. Section C7 sets out guidance on the detail design components of various components of sewerage systems. Section C7.8 of this guidance concerns tanks. The proposed sub-section would add the following design guidance on thermoplastic corrugated wall stormwater collection chambers:

> "C7.8.3(b) The structural design of Thermoplastic Corrugated Wall Stormwater Collection Chambers (Arches) should be carried out by a person competent to do so using ASTM F2787, ASTM F2418 and ASTM F2922. Verified product performance data specific to ASTM F2418 Clause 5.6.2 and ASTM F2922 Clause 5.6.2 should be used for the engineer to make their assessment (see E2.49)."

The second change in the change proposal would add a new sub-section to section E of the DCG. This section provides guidance on the materials that should be used when constructing sewerage systems. The proposal would add the following guidance on the appropriate materials to use in the construction of Thermoplastic Corrugated Wall Stormwater Collection Chambers:

> "E2.49 Thermoplastic Corrugated Wall Stormwater Collection Chambers

1. Thermoplastic Corrugated Wall Stormwater Collection Chambers (Arches), including integral components, to be used for the control and management of stormwater run-off, shall comply with the requirements of ASTM F2787. Product performance data used in the structural design of these attenuation and infiltration systems shall be determined through testing carried out in accordance with ASTM F2418 and ASTM F2922."

Consultation and assessment

In submitting its recommendation, the Panel confirmed that it met the Code requirement[1] to assess the change in terms of:

- The need for change, for example, is it a service improvement or is it needed to address a particular issue?
- Consistency with the principles and objectives of the Code, and any relevant statutory requirements; and
- The impact of the change (be it positive and/or negative) on customers and on sewerage companies.

In considering the change proposal, the Panel has:

- discussed the proposal at two meetings;
- sought feedback from Panel members on the wording of the change proposal;
- obtained external advice from technical consultants, the Water Research Centre (**WRc**); and
- raised further queries with ADS and considered its responses.

The Panel did not receive any comments from interested parties following its publication of this change proposal.

Panel recommendation

On 5 January 2022, the Panel recommended to Ofwat, by unanimous decision, that it approves making a change to the DCG based on the proposal by ADS. However, it recommended an alternative approach to addressing this issue than that proposed by ADS. In making its decision, the Panel stated that it took account of the following factors:

- undertakers will consider such assets for adoption and have done so in the past under the existing provisions of the DCG;
- the low level of adoption of such assets to date could be due, in part, to limited awareness by developers that undertakers are willing to consider such assets;

[1] See paragraph 3.8.11 of the Code.

- undertakers will carry out their own risk assessment of assets put forward for adoption; nevertheless, ADS's further responses to the Panel's questions addressed the key risks identified by the Panel in its consideration; and
- the DCG itself should not be restricted to particular products and the adoption of such assets should be assessed against objective criteria.

The Panel recommended that rather than amending the DCG in line with the wording that ADS proposed, a more generic change should be made instead. Such an approach would allow the DCG to include half pipe or arch structures such as Thermoplastic Corrugated Wall Stormwater Collection Chambers as well other manufacturers, products and design rationales. The Panel therefore recommended that section 7.8 of the DCG be amended with the addition of a new sub-clause 'd', as set out in red text below.

"**C7.8 Tanks**

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);

d) Where half pipe or arch structures are proposed, the design must (in addition to the above) demonstrate how the system can be cleaned/jetted and done so without damage or erosion of base materials or membrane. With

> further design evidence outlining how in areas of a high water table, groundwater is kept out of the system and when positioned under highways that the loading criteria is acceptable to both undertaker and adopting Highway Authority (if applicable)."

The Panel considered that its recommendation was consistent with the Code principles, particularly in relation to competition and innovation, including not unduly preventing opportunities for innovation that improves services. The Panel also stated it was satisfied that the principle of the proposal enables the DCG to better meet the principles of the Code, and that its recommended wording also supports this.

Our decision and reasons

We have considered the above issues, and all the supporting documentation provided to us by the Panel, and have decided to approve the change proposal. As set out above, the current wording of section C7.8 of the DCG could restrict developers, sewerage companies and self-lay providers (**SLPs**) to only consider certain options when deciding on the design of sewerage systems to be adopted. It is not the intention of the DCG to promote certain design options over other viable alternatives. As a result, we agree with ADS's proposal that there is a need for the DCG to be changed to address this issue.

The Panel recommended alternative wording to that which was put forward by ADS in its change proposal (see above). We agree with the recommendation by the Panel that a more generic change to the DCG is a better solution to this issue. This approach would allow a greater number of potential approaches to designing flow attenuation tanks under the DCG. We agree with the Panel that this enables the DCG to better meet the Code principles, in particular in relation to competition, innovation, and customer focus, by clarifying that a broader range of structures may be considered under section C7.8 of the DCG.

We therefore approve the change proposal put forward by ADS to amend section C7.8. However, we will make this amendment using the alternative wording recommended by the Panel (with a minor grammatical change). This will add a new sub-section C7.8.4 d) to the DCG:

> "d) Where half pipe or arch structures are proposed, the design must (in addition to the above) demonstrate how the system can be cleaned/jetted and done so without damage or erosion of base materials or membrane. Further design evidence should outline how, in areas of a high water table, groundwater is kept out of the system and, when positioned under highways, that the loading criteria is acceptable to both undertaker and adopting Highway Authority (if applicable)."

We note that ADS's change proposal also proposed a change to section E2 of the DCG in order to provide guidance on the materials that should be used in the construction of

Thermoplastic Corrugated Wall Stormwater Collection Chambers. As the change we are making to the DCG does not specify a particular approach to designing half-pipe or arched structures, we do not consider that there is a need to specify the materials that should be used in the construction of such structures. Accordingly, no change to section E2 of the DCG will be made as a result of this change proposal.

Decision notice

In accordance with paragraph 3.9.4 of the Code Ofwat approves this change proposal using the wording recommended by the Panel with a minor grammatical adjustment.

Emily Bulman
Director, Markets and Charging