

Clarification on pressurised/pumped distribution systems

Reason for clarification;

The EPA has received a number of queries from local authorities and practitioners in relation to the requirements of the code of practice for pressurised/pumped distribution systems for intermittent filters and polishing filters. The clarification relates to pipe sizes, orifice spacings and lateral spacings. Infiltration laterals should be a minimum of 32 mm in diameter as stated in CEN 12566:2 and BS 6297:2007. The orifices should be at a max of 0.3m spacings and the laterals themselves are at a maximum spacing on 0.6m. These systems require bespoke design with design calculations in accordance with internationally recognised best practice (e.g. *US EPA Design Manual: Onsite Wastewater Treatment and Disposal*). It is also important to note that Figure 8.1 is an example of a pumped distribution system and is not the required design for all systems.

Amendments (additions in red)

Page 26 – Title of Figure 8.2 – change Illustration to Example

Page 28 and 30 – Table 8.1 and Table 8.2:

Insert 'minimum' after '32 mm' and 'to 1.0m' after '0.3' (i.e. 0.3 to 1.0m spacings) under the heading '**Infiltration laterals**'.

Insert 'Maximum' after '1.0m' under the heading '**Lateral Centres separation**'

Footnote 3 in Table 8.1 and Footnote 1 in Table 8.2 – Add the following sentence to the footnote.

'In effect a bespoke design with appropriate hydraulic calculations is required. This should be undertaken by a competent person in accordance with internationally recognised design practice, e.g. *US EPA Design Manual: Onsite Wastewater Treatment and Disposal Systems*.'

Clarification on disposal of effluent from Polishing Filters (Tertiary Treatment Systems)

Reason for clarification;

In Section 10 *Tertiary Treatment Systems* of the Code of Practice there is currently no guidance on what to do with the effluent discharging from tertiary treatment systems (sand filters, reed beds or package treatment systems). According to the under-riding principles of the Code, the tertiary treated effluent has been treated to a high enough standard such that it can discharge to the groundwater. However, the hydraulic issue still needs to be accounted for such that the effluent does not back up and create problems to the tertiary treatment process itself. Hence, some calculations have been carried out to discharge an appropriate percolation area for the discharge of such clean effluent depending on the T-value of the subsoil into which it is being discharged.

These calculations (which include a safety factor of 3.5) show that the area of subsoil required for the discharge of tertiary treated effluent, A is as follows.

$$A = 0.125 \times T^1 \text{ [m}^2 \text{ per p.e.]}$$

Amendments (additions in red)

- Insert paragraph at end of Section 10.1.2

The final effluent at the base of the polishing filter shall be discharged to a 300mm deep gravel distribution layer (Pea Gravel, 10-20mm). The sizing of this Gravel Distribution shall be calculated according to Table 10.4.

- Insert paragraph at end of Section 10.2

The effluent from the tertiary treatment wetland system shall be discharged to a 300mm deep gravel distribution area (Pea Gravel, 10-20mm), sized according to Table 10.4.

- Insert paragraph at end of first paragraph in Section 10.3

The effluent from the packaged tertiary treatment systems shall be discharged to a 300mm deep gravel distribution area (Pea Gravel, 10-20mm), sized according to Table 10.4.

¹ T or P value can be used.

Table 10.4 Area required (m² per p.e.) for distribution area receiving tertiary treated effluent.

<i>P/T values</i>	<i>Tertiary treated effluent</i>		
	<i>Sand polishing filter²</i>	<i>Constructed wetland</i>	<i>Packaged system</i>
3-20	no distribution area required	$0.125 \times T$	$0.125 \times T$
20-75	$0.125 \times T$		

A minimum depth of 300mm is to be maintained between the point of infiltration and the bedrock/water table.

- In addition a clarification to Section 10.1 Polishing filters, paragraph 2 is needed, as follows.

All polishing filters should have a minimum thickness of 0.9 m of free-draining unsaturated soil or sand between the point of infiltration of the effluent **on the top of the filter** and the water table **or** bedrock.

- In addition a slight clarification to Section 10.1.2, paragraph 2 is advised, as follows.

The filter specifications of the range of sands suitable for the polishing filter sand layers are shown in Table 10.2. Where the filter is soil covered and sown with grass, sands at the upper end of the grading shown in Table 10.2 are recommended, **i.e. Effective Size (D10) 0.25 – 0.75mm; D60/D10 (C_u) < 4 throughout the overall depth of 900mm.** Figure 8.5 is an example of a stratified sand filter that can also be used as a polishing filter.

² The polishing filter may be beneath the treatment system or offset with appropriate distribution pipework where required.