

From: [REDACTED]
To: [REDACTED]
Cc: [REDACTED]
Subject: Condition 6 clarification follow-up
Date: 06 November 2024 16:13:48

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Following our discussion on 05/11/24 in relation to Condition 6, please find additional information concerning the water supply at Wethersfield:

Tank locations – Wethersfield

Main accommodation blocks

1026 – no tank required due to being an isolation building with very low occupancy.
1027 (6000 litres) – larger tank was installed due to en-suites so more showers could be used simultaneously
1028 (4,000 litres)
1029 (4,000 litres)
1030 (4,000 litres)
1031 (4,000 litres)
1032 (4,000 litres)

These tanks are sized to ensure turnover of the water supply approximately every 12 hours to prevent stagnation.

Portakabin village

3 tanks (10,000 litre capacity)

Cookhouse

1072 (6,000litre)

Reason for installation:

The tanks were installed to reduce peak load on the main water supply with limited flow rate. The mains water supply to each building fills/tops up the tanks slowly and a booster pump set then serves the buildings hot and cold water supply.

The water tanks are sized according to the maximum planned occupancy for each building, hence why they vary in size. The tank sizing is calculated on the expected water use per Service User at 55 litres.

Based on 140 users in a block, 7700 litres (140 x 55 litres) would be used meaning the tank will turn over approximately every 12 hours.

The average use of a water user in a domestic setting is higher than 55 litres, however this includes domestic appliances and other water uses which do not apply at Wethersfield.

Staff and visitor numbers

The table below is for a typical 24-hour period. Please note that visitor's numbers are dependent on-site operations and will therefore vary daily.

Org	Perm	Average Visitors daily
	73	0
	8	0
	19	0
	8	8 – Sub-contractors (This is dependant on the work to be done)
	4	0
Home Office	1	3 – O&A team
Total	113	11

Staff / visitors water supply

No booster tanks have been installed to support usage by staff, contractors or visitors as these are not required.

The staff/visitor water use is limited to drinking, washing hands and toilet use only. This is very low usage and not continuously in use for periods of time (like a shower), therefore the impact on the sites water supply is negligible.

Water use calculation

We have used the Chartered Institute of Building Services Engineers (CIBSE) guidelines for hostel usage of 90 litres per person and then subtracted the approximate use on other buildings (cookhouse, welfare, recreation) to reach 55 litres per person.

These estimations are based on different systems and showers (electric v mixer) in the accommodation blocks / Portakabins which use varying amounts of water.

An approximate make-up of this is below:

- Shower: 30-35 litres
- Handwashing: 2 litres
- WC flush: 15-20 litres

The booster tank is sized to be as small as possible to turn over as frequently as possible without running out, as it is important to maintain the highest levels of water wholesomeness and hygiene by preventing water stagnation.

Simultaneous shower use

Service Users are limited by the number of showers on site to prevent overwhelming the supply.

As an example (using the smallest booster tank - 4000 litres in a single accommodation block), approximately 116 people would need to be simultaneously showering for a minimum of 5 minutes each before the booster tank (theoretically) is emptied. However, the tank is on a constant fill and there aren't 116 showers available.

Similarly, in the Portakabin village, 400 people would need to simultaneously use the showers to empty the tank, overlooking the fact of the constant fill mechanism.

Kind regards,

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