



Tier Environmental Ltd

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Our Reference: TL1177GIRL01

10 September 2019

Claire Westwood
Development Management Team Leader
Development Management
Three Rivers District Council
Three Rivers House, Northway
Rickmansworth
Herts
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Dear Claire

Affinity Water Response To Planning Application 19/1179/Ful

This letter is a response to the concerns raised by Affinity Water on the 26th July with regard to the above planning application for the site. It is considered that each of the concerns can be allayed in the response below and, as such, Tier Environmental consider that the proposed development will not pose a risk to the public water supply.

1. *“Creating pathways between shallow gravel groundwater and deep chalk groundwater potentially allowing naturally occurring manganese present in the gravel aquifer to migrate to the chalk”*

The ground conditions at the site have been shown to comprise River Terrace deposits which directly overlie the Chalk Aquifer. During all investigation works, there has been no distinction between the groundwater present in the drift deposits and the deeper groundwater below. It is therefore evident that the groundwater within the shallow gravels is in direct hydraulic conductivity to the Chalk Aquifer and therefore it is not possible that driven piles would create a new pathway when groundwaters are already freely able to move between strata.

2. *“As a above, but this also applies to other contaminants present due to the site being a former landfill”*

The site boundary does not fall within the former landfill site boundary; this landfill site is present to the northeast of the study site. In addition, the site investigations to date have found very little made ground at the site. Granular Made Ground was encountered at depths of between 0.00m bgl and 0.70 bgl in the northern, eastern and southern areas of the Site. The majority of Made Ground was encountered within the north-eastern corner of the Site. The Made Ground was generally recovered as brown, slightly clayey, slightly gravelly, silt. Gravel is angular to subangular, fine to coarse of, chalk, flint, glass, concrete, tile, ceramic and brick fragments. These deposits are not consistent with a landfill site.



3. *“Turbidity during piling causing our sources to reach above 1NTU and shut down”*

The proposed development is to be founded on driven piles which are a percussive and penetrative action. The risk of increased turbidity is the use of driven piles is much lower than CFA or rotary borehole piles and therefore will be restricted to the area directly surrounding the piles and, even then, only for the duration of the piling works. Water well uses are unlikely to be affected by the construction and operation of the proposed development, given the distance of the site from the closest abstraction well. Indeed, such water quality well issues are more likely to be affected by regional natural water quality characteristics and their natural variability.

4. *“Piling potentially blocking significant fissures hence creating a “curtain” effect. This could cause the flow paths to change around our sources, potentially causing greater drawdown for the same output”*

The Chalk bedrock below the site was encountered at depths below 4.4m bgl, as completely weathered to structureless putty in the upper sections (Dm grade) at depths up to circa 6m bgl becoming weathered and clast supported (Dc grade) to depths of circa 11m bgl with structured grade Chalk at greater depths. The highly weathered nature of the Chalk means that significant fissures are extremely unlikely to have formed or stayed open during the recent geological past. As such, the risk of the driven piles blocking said fissures and restricting water supplies is considered to be negligible.

Notwithstanding the above, we note that the Environment Agency has not raised an objection to the proposed scheme, and has proposed a condition in respect of penetrative piling requiring written consent from the LPA in advance of such piling methods being carried out. Therefore, ensuring that the proposed development will not pose a risk to the public water supply.

I hope this letter response will address the concerns of Affinity Water; however, if any further clarification is required, please contact me at our Warrington office.

For and on behalf of

TIER ENVIRONMENTAL LTD

A handwritten signature in black ink, appearing to be "James Blyth", written over a horizontal line.

James Blyth MSc BSc FGS
Director