

Subject: RE: APP/14/01296 - Site 3 Former Council Depot, Harts Farm Way.

Sally,

I've been through the additional information, and there is some additional detail to the outline proposals seen in June. The additional information does not take the form of a piling risk assessment, but I note that page 6, Pile Design (E) refers to the submission of a piling risk assessment following (subsequent to) the granting of planning permission (e.g. discharge of c11), alongside a full pile load assessment & confirmation of pile no's/grouping under reinforced pile caps.

It is further noted that the wording of condition no. 11 refers to the "method of piling foundations...to be carried out in accordance with a *scheme*...approved...by the LPA". This does not strictly require the submission & approval of a "piling risk assessment", albeit that the reason for the condition is the consideration of risks from the process of installing-, and presence/nature of- foundation structures.

With respect to some of the points made in my previous response – the document does confirm a pile former design to encourage lateral displacement, and does set out the basis upon which the founding zone depth has been derived (based upon an qualitative spatial interpolation between quantitative spot measurements [trial hole logs]). A risk that piles will terminate within the chalk strata is also identified, with maximal pile depth limited to 6.0m BGL, and shallowest proven chalk at 4.5m BGL (whole site centre).

I note from the available borehole logs that:

- The alluvial gravels transition into chalk first by increasing chalk gravel content, and then to upper chalk layers universally described as 'soft', and occasionally 'clayey' (weathered/comminuted).
- Competent / Hard chalk typically exists 3-5m below the horizon between the gravels & the soft weathered material in the upper layers of the chalk unit.
- Generally (across the site), the horizon between chalk & gravels is significantly greater than 6.0m BGL.

The principal aquifer is likely to consist of fracture/fissure space (& flow) within the competent structure - attenuation is expected to be reasonable within soft chalk, and matrix flow limited. A pile depth limit of 6.0m is likely to 'miss' the strata completely in most locations, but may penetrate chalk in places. However, if depths are limited as suggested, where penetrated it is unlikely that the pile will extend more than 2 meters into the chalk. It is therefore unlikely (given the descriptions in the trial hole logs) that significant fissures will be intersected.

The risk that piles installed in accordance with these proposals may create a pathway between currently discontinuous groundwater bodies is creation is not nil / negligible, but nor is it considered to be high, for reasons that I have previously outlined.

I note that the submitted information refers to skin friction calculations for 200/230mm piles (presumably size limited due to selected method & formers

available on the market, or preferred sizes for other reasons), and that up to 3 no. piles are proposed beneath reinforced pile caps where previously 2 were thought to be sufficient. This demonstrates that a) 2 no. piles were inadequate to meet the load capacity, and b) that the pile design remains relatively fluid & further design changes are possible.

To accommodate greater loading, either greater depth, increased diameter, or increased number of piles is needed. I have a slight reservation in that we are being asked to discharge a condition based upon a scheme which is not unlikely to be altered, whether prior to commencement of installation, or amended on site for technical reasons (e.g. lack of local competency in founding strata, where 3 no. piles may be insufficient, & there may therefore be a need to exceed the 6.0m depth limit. However, it is noted that the source protection zones (SPZ1 & SPZ1c) are some 200m from the site (the site should in theory be down-hydraulic-gradient of the abstracted springs), and that the principal aquifer is likely in practice to correspond to competent, fissured chalk generally found at >9.0m BGL at this site (well below the proposed depth limit).

As previously indicated, I don't have any in principle objections to the proposals, and the recent submission clarifies some points of uncertainty. The submitted document does not represent a piling risk assessment, but equally, the condition doesn't strictly require one. The scheme submitted for approval includes a provision to 'flesh out' the pile design & consideration of risks, and in this way, the condition could reasonably be argued to have been met.

On this basis, whilst it would be ideal to have a fully developed design & risk assessment - I do not believe that an objection to discharge of c.11 is justified. Proceeding in accordance with the submitted scheme commits the developer to consider risks of piling more formally as the technical design is progressed (within the specified limiting parameters of target strata & depth). If the 6.0 m depth limit is technically feasible in engineering terms, I consider that the piled foundations will present a very low risk of significant pathway creation, and a moderate risk of short-term mobilisation (local surface water being the primary receptor).

Best Regards,

Jon

Jonathan Driver
Environmental Control Officer