

Our Ref: 112990/KW
Your Ref: Weldale Street, Reading

3rd Floor
The News Building
3 London Bridge Street
London
SE1 9SG

TEL: 020 7828 8205 FAX: 084 4381 4412
Email: london@fairhurst.co.uk
Website: www.fairhurst.co.uk

18 May 2022

Rebecca Moon
Environmental Health Officer
Reading Council

Re Weldale Street Reading, Application Number 220617

Dear Rebecca

Many thanks for reviewing the Fairhurst Validation Report (112990, R9, April 2022). We are in receipt of the memorandum to Jonathan Markwell dated 10 May 2022 (ref EP/735289).

I am writing to address the concerns raised in the memorandum, to set out the wider context of the validation report and more specifically regarding the cover layer thicknesses encountered across the site.

Overall and where possible, the Contractor has installed the required thicknesses of topsoil and subsoil. This letter will go into more detail in the areas where this was not achievable (B1, C1 and B2) and set out justification why a reduced cover layer thickness still remains protective of the site end-user.

Context of Capping Thickness Design

The Fairhurst Remediation Strategy (ref 112990, R6 dated August 2019) was prepared prior to the finalisation of the soft landscaping design.

The Remediation Strategy set out that *'the clean cover requirements are to be designed by the Landscaped Architect and agreed with the LPA Contaminated Land Officer prior to finalising the landscape design but are expected to comprise a minimum of 150mm topsoil and 300mm subsoil.'*

At the time of the Remediation Strategy report, the Landscape Architect's design plans were not known, and therefore an assumption on the likely growing medium required for landscaping purposes was made. This assumption was not driven by the geo-environmental risk.

As stated in the Strategy, there are currently no prescriptive standards in relation to the design of cover systems however reference was made to NHBC guidance and the BRE 'Cover Systems for Land Regeneration' (2004) (withdrawn). The BRE Cover Systems document is based on sound science and research which remains relevant and has been used as reference in the absence of any supplementary industry guidance. In essence, the cover systems described in the document are based on a capping of clean soil placed directly on the residually contaminated soils left in place on site. Over time mixing of these layers will occur through earthworm activities and other physical and biological processes in the ground. The aim of the cover thickness is to maintain acceptable levels of contamination in the ground once 100% mixing has occurred.

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Orange Alert Barrier

The orange alert barrier installed is a thick needle-punched nonwoven geotextile membrane manufactured from polypropylene fibres. The specification for the orange alert barrier utilised within the cover system build up was provided with the Validation Report. Given the type of alert barrier installed, soil mixing with in-situ soils below the alert barrier is prevented and therefore the thickness derived to bring down the concentrations to below the GAC is no longer relevant. In the absence of home grown product, the risk to residential end users relate to dermal contact/inhalation and to a lesser extent, ingestion of contaminated soils. The placement of a barrier to the Made Ground soils beneath the clean growing medium therefore mitigates the viability of these pathways. The topsoil/subsoil thickness therefore needs to be at a minimum thickness to provide a suitable growing medium only.

For this reason, the minimum of 300mm cover achieved across site is protective of the end-user and whilst it differs in some limited areas from the 450mm cover that was considered appropriate within the Remediation Strategy, risks remain low.

Southern Boundary with Chatham Street

The trial pits excavated in the southern area of the site in squares B1 and C1 showed the specified thicknesses were not achieved. To add context, please see attached a cross section of this area of the site.

The original trial pits excavated by Fairhurst were located above the pile capping of the existing pile wall extending into the soft landscaped area. The required depth of excavation in these locations could not be achieved due to concrete piles and subsequently the topsoil/subsoil thicknesses were not achieved. Therefore, in this case, the pile cap acts as a barrier to human health, coupled with the presence of the orange geo-textile membrane, risks to the end users in these locations are mitigated.

To demonstrate compliance with the strategy in the wider areas, the contractor has excavated three more trial pits in areas of B1, C1 and D1, please see the photographs appended to this letter. Trial pit location B2 encountered 300mm of topsoil over 150mm subsoil and locations C1 and D1 encountered 300mm topsoil over a minimum of 300mm subsoil. All three locations were underlain by the orange geotextile membrane.

It should be noted that during the excavation, the orange geotextile membrane was damaged (see photo of location D1 below). Where this happened, the contractor has reinstated the membrane prior to backfilling.

Location of B2

A trial pit was excavated near the original location within square B2 and demonstrates compliance with the Remediation Strategy. Some variation in cover layer thicknesses can be expected throughout site partially due to the location of services, as was the case here, and partially due to settlement. The second trial pit excavated by the Contractor within this area showed 300mm topsoil over 150mm subsoil and 150mm reject stone underlain by the orange geo-textile membrane.

Summary

Of the ten trial pits excavated across the site, three did not comply with the 450mm cover thickness specified (B1, B2 and C1). Two of these were as a consequence of the presence of an existing pile wall underlying the area (B1 and C1) and hence the structure provides a barrier beneath the capping layer. One location (B2) was re-dug near the original location away from

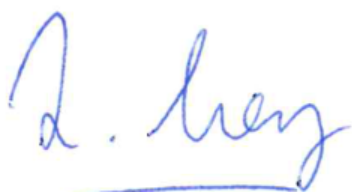
services and demonstrates cover thickness was achieved. While some variation in cover can be expected across site partly due to settlement, for the reasons set out above regarding the prevention of mixing and the placement of a barrier layer in the form of the orange geotextile, the risk of contact/ingestion and inhalation to human to end-users remain low.

Please do not hesitate to contact me, if you have any further queries, comments or concerns.

Yours sincerely

For

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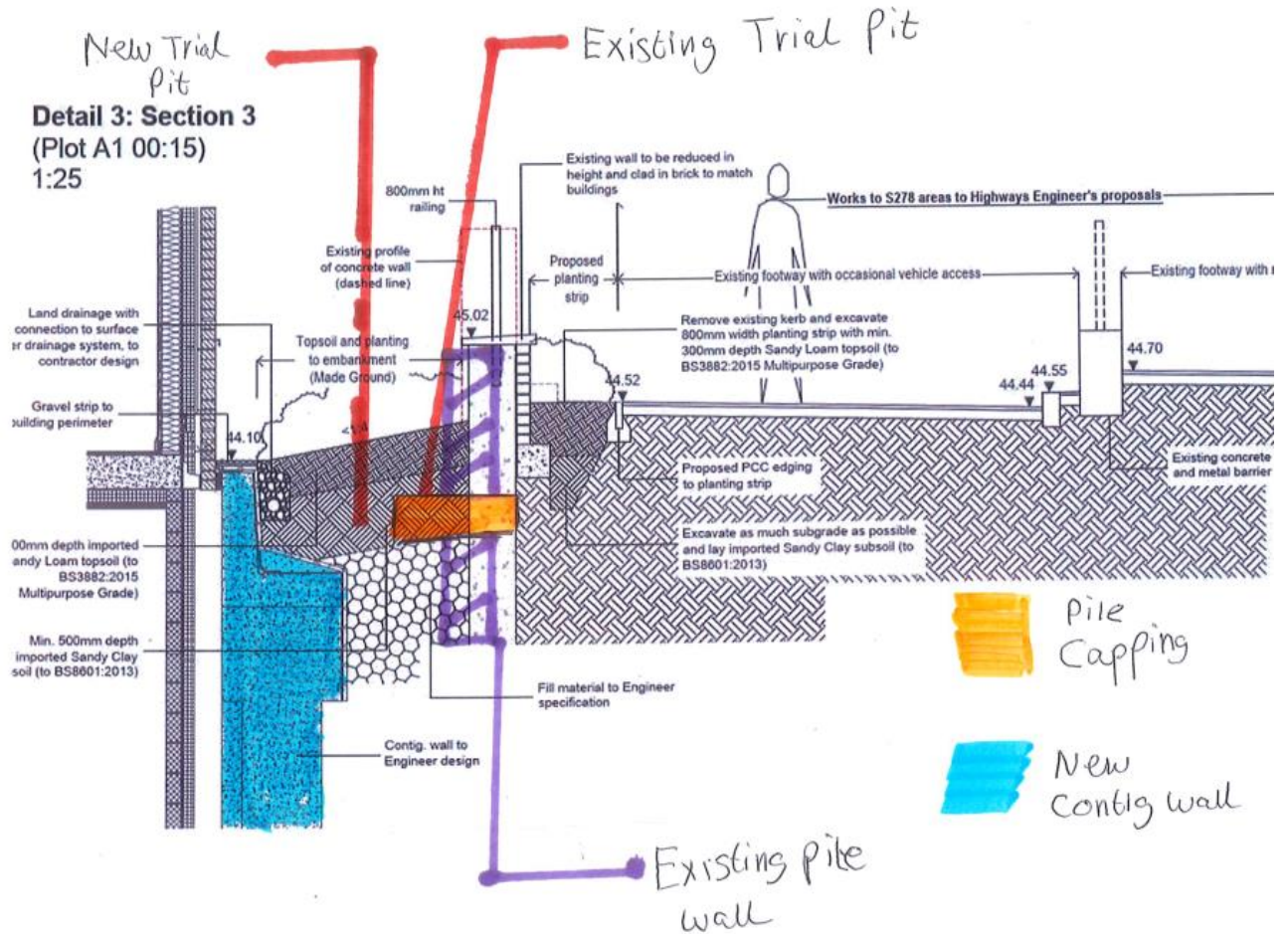


Kerstin Wray
BSc (Hons), PhD, MEnvSc
Principal Geo-environmental Consultant



Original cover layer verification pit locations

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Cross-section of the southern boundary and location with areas of B1 and C1.

New trial pit locations



BY EMAIL ONLY



Additional Trial pit excavation at locations B1 and C1 where trial pits met the specification



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Trial pit in location D1. The contractor has reinstated the geotextile membrane on backfilling.



Trial pit location in square B2, demonstrating compliance with the specification.