

Appendix 2

Proposed construction of 5 No. new dwellings on land adjacent to No. 35 Peterborough Road, Crowland PE6 0BE



To be read in conjunction with Planning Report

Philip Robinson
CALDIC (UK) Ltd
Stainsby Close
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Derbyshire
S42 5UG

17 August 2018

Dear Philip,

Re: Peterborough Road, Crowland – Remediation Main Works Proposal

FLI QDS Remediation Limited
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1. Introduction

We are pleased to present our proposal and associated costs for the soil source removal remediation works to be completed by FLI QDS at Peterborough Road, Crowland.

The objective for the site is to mitigate the potential impact to future residents and to controlled water receptors from two identified hotspots of Volatile Organic Compound contamination (VOCs) and thereby render the site suitable for residential redevelopment. The detected VOCs are chlorinated solvents and are associated with the site's historical land use as a chemical storage facility and dry cleaning factory.

We understand that Caldic would like to complete voluntary groundwater betterment on land to the west of the site which has elevated concentrations of chlorinated solvents. Our proposal for this element of the works will be presented separately.

2. Previous Remediation Works and 2017 Works

Between March and November 2010 a groundwater and soil remediation programme was undertaken, with more than two tonnes of contaminant mass removed.

Following active remediation and a re-assessment of remedial targets in May 2012, we understand that in September 2012, an area to the west of the site was excavated to a depth of approximately 1.5m bgl. A number of soil samples taken from the base of the remedial excavation, indicated that residual soil contamination remained above the original human health target concentrations and subsequent groundwater sampling confirmed that shallow groundwater impacts had rebounded. It was therefore concluded that further remediation of the site is required.

In July 2017, QDS Remediation (now FLI QDS Remediation Ltd) completed an additional intrusive site investigation to further assess and delineate the known VOC contamination. Groundwater monitoring and sampling was also completed at this stage both on and offsite. The soil data obtained confirmed the presence of the VOC contamination in the west of the site (referred to as Hotspot A)

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and shallow impacts in the east (Hotspot B). The contamination in Hotspot A has been identified in both the shallow Made Ground (top metre) and deeper down within the underlying clay to a maximum depth of 4m below ground level (mbgl). Visual and olfactory evidence of chlorinated solvents were identified within the two hotspots at depths typically between 1 and 2mbgl. The granular backfill installed within the remedial excavation in Hotspot A was also found to be contaminated with VOC contamination.

Elevated chlorinated solvents were detected in the monitoring well to the west of the site. Some visible asbestos containing materials were identified on the site surface during the 2017 investigation.

FLI QDS commissioned Hydrock Consultants Limited in June 2017 to complete a Desk Study, Quantitative Risk Assessment and Remedial Strategy (also dated July 2017). The objectives were to review and update the findings of the previous works and the 2017 site investigation to derive an updated Conceptual Site Model, carry out an assessment of the risks associated with the current contamination at the site, and to make recommendations for remedial actions.

The DQRA confirmed that at present, active inhalation pathways through volatilisation of chlorinated solvents remain at the site for both soil and groundwater based on the site data. For controlled waters (the shallow groundwater), an active pathway of infiltration followed by dilution and lateral migration and attenuation within granular deposits was identified.

The key human health risk drivers identified by the DQRA are tetrachloroethene (PCE) and trichloroethene (TCE). 1,2-dichloroethane (1,2-DCA) and vinyl chloride are also present at concentrations above their screening values. For controlled waters, TCE, 1,2-DCA and dichloromethane are present within Hotspot A are in exceedance of the relevant target concentrations.

3. Remedial Strategy and Planning

FLI QDS has assessed the feasibility of on-site treatment of the contaminated soils. Though more sustainable than off-site disposal, due to the development and planning timeframe, the cohesive nature of the contaminated soils, and the locality of the site within a residential area, it is considered that excavation of the soil source and transport to a suitably licenced facility will be the most effective option for the site. All works will be completed in conjunction with a Materials Management Plan (MMP).

The proposed soil remediation works will ensure that the site is suitable for its intended residential end-use. It is therefore anticipated that the voluntary works will meet the requirements of any subsequent planning conditions given for the development by South Holland District Council and can be completed in advance of the Planning Submission and Planning Permission.

4. Soil Source Removal: Scope of Works

The soil source remediation works are designed to include:

- Preparatory works including vegetation, hardstanding clearance and site set-up;
- Excavation of impacted soils;
- Segregation of soils fit for reuse;
- Disposal of failing soils to a licenced offsite facility via an approved Waste Carrier;
- Removal of any encountered Dense Non-aqueous Phase Liquid (DNAPL) encountered during excavations;
- Emplacement of an Enhanced Reductive Dechlorination substrate (ERD) within the excavations to promote long term attenuation of residual VOCs;
- Backfilling of excavations with imported and suitable site-won materials;
- Validation of remedial excavations.

Our cost for undertaking the soil source removal works would be £225,500 (+VAT). We anticipate that the works will take up to eight weeks to complete given the site constraints and operational considerations for the transfer of impacted materials.

For the purposes of pricing the works, we have made the following assumptions which may be subject to change depending on contractual and regulatory negotiations:

1. The regulator will be informed of the voluntary remediation works and we will require written agreement of our methodology prior to mobilisation to site;
2. Pre-start works will include the stripping of concrete hardstanding in the remedial excavation areas and preparation of stockpiling area for contaminated soils. An allowance has been made for vegetation clearance and removal from site;
3. All cleared hardstanding to be sent for recycling offsite;
4. Hotspot A will be excavated to a maximum depth of 4mbgl. Trench boxes will be required to advance the excavation at the western and southern boundaries. Granular imported fill will be used to backfill the trench box excavations;
5. Hotspot B will require further delineation to define the required remedial extents;
6. FLI QDS have allowed for the validation of the extents and base of the excavations on a 5m grid given the small size of the site;
7. Segregation and testing of soils will be completed prior to offsite disposal.
8. We have allowed for the management of groundwater in excavations utilising temporary holding tanks;
9. ERD will be applied to the base of the excavations as a polishing method which will facilitate the medium to long term control of residual chlorinated solvents within groundwater. This will be emplaced within a layer of imported aggregate;
10. FLI QDS have made an allocation for grading of the site during the backfilling phase. Existing hardstanding in the central part of the site will be retained during the offsite disposal of contaminated soils. Once the remedial excavations have been completed, the hardstanding will be cleared and will be sent for recycling offsite; and

11. A validation report will be issued on completion of the works.

In advance of mobilisation to the site, FLI QDS will complete a letter drop to the neighbouring residents informing them of the intended remediation works and the projected timeframes. Mobilisation of plant and equipment to the site will be undertaken in accordance with our Traffic Management Plan which will be included within our Construction Phase Plan and the accompanying Method Statements/Risk Assessments.

A fully costed Activity Schedule is attached to this letter. The remediation works will be managed and staffed from our Rotherham office.

We hope that this proposal acceptable to you and we look forward to delivering the works.

Yours sincerely

Rob Timson C.WEM

Senior Project Manager

For FLI QDS Remediation Limited via email

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