

Risk Assessment of Soils in plots 3 & 4 adjacent to Alexine

Malting Lane, Donington, Spalding, Lincolnshire, PE11 4XA

Planning Application No. not known

1. Scope of the Risk Assessment

1.1 Under instructions from D Sainty, Fenhouse Land Ltd, 12 Mulberry Way, Spalding, Lincolnshire, PE11 2QT, I have prepared this risk assessment based on the following:

The Environmental Risk Assessment report from Stuart Guy Consulting, 13-12-01, dated 14th January 2013

A visit to the site on 22nd September 2016

Information on the site from David Sainty, the site owner and developer, Bob Merchant, the architect for this development, and the neighbour in the completed house adjacent to plot 1

Analysis of samples by The Environmental Laboratory Ltd, report number 16-08696, dated 29th September 2016

1.2 The purpose of this report is to assess whether the soils in these plots could present a significant risk of harm to the occupiers of the site or to the environment and to check that no further sources of contamination were present on site or near to it

1.3 It is essential that the earlier report is examined in conjunction with this report.

2. Background to this abbreviated testing of soils

2.1 The original site visit on 6th January 2013 found that the concrete was extremely clean with no stains, so it was concluded that it was unlikely that gross contamination of the site had occurred. However, removal of concrete and hardcore required replacement soil of appropriate quality, but records of that action were not available. Therefore, the soil that was applied to the completed houses was sampled on the day of the visit. The opportunity was then taken to sample the soil in the two plots that were to be developed to confirm that no significant contamination was present on site.

3 Site Visit on 22nd September 2016

3.1 The site was visited when the weather was dry and bright. A walk around the area found the concrete casting plant had been developed and one new house had been constructed further along the lane. No other changes were apparent and there was no evidence for any

sources of potential contamination, such as dumping of waste, on or near to the new development site.

3.2 Two bungalows had been constructed on the site in the south eastern corner and on the eastern boundary (photo 1). The new development plan is to construct one bungalow on the northern boundary (plot 1, photo 2) with the garden area to the south (photo 3) and one bungalow on the western boundary (plot 2, photo 4) next to the original bungalow.

3.3 Two hand dug holes down to about 400 mm (except for HD1b where compacted stones and large slabs prevented digging any deeper than 300 mm) were sampled and mixed in a bucket before taking the sample for analysis. HD1a and b (photos 5 & 6) were quite difficult to excavate, but with the use of the fork and the pick axe, two holes were eventually achieved. However, the area that was to be the garden could not be hand dug as after trying four different places and using the pick axe for about 20 minutes, it was obvious that the hard core was extremely well compacted and could not be dug out by hand. The neighbour from the adjacent completed house (plot 3) came out and explained that the pile of soil at the end of plot 1 (photos 7 & 8) originated from the drive of his bungalow, so the soil from that pile was sampled.

3.3 The soil in plot 2 was slightly better in that it was mixed with stones and fragments of slabs and concrete, but it was not compacted. Two holes were hand dug on the footprint of the house (HD2a and b – photos 9 & 10) and from the garden area (HD3a & b – photos 11 and 12) and samples taken from each pair of holes, mixed and sampled.

3.4 The samples were placed into a cool box containing an ice pack for transport to the office. The cool box (with a new ice pack) was sent by carrier to The Environmental Laboratory Ltd where UKAS accreditation has been obtained for most of the species required. A general suite of heavy metals, speciated total petroleum hydrocarbons (TPH) and speciated polycyclic aromatic hydrocarbons (PAH) for analysis was requested.

4. Analytical Results

4.1 The soils from plots 1 and 2 reported concentrations of metals that were low compared to soil guideline values, where they exist, or compared to those normally found.

4.2 The soil from the neighbour's drive and the soils on plot 2 reported low concentrations of TPH, but the soil sample from HD1 in the front of plot 1 (mainly on the footprint of the bungalow or the paved area) reported slightly elevated TPH of 227 mg/kg. However, that was all in the >C₂₀ fractions. The soil sample from the pile excavated from the neighbour's drive (stock 3) reported very low concentrations of TPH.

4.3 The soil from plot 2 reported low concentrations of PAH, but the sample from HD1 (plot 1) reported elevated PAH (with benzo(α)pyrene being above the Category 4 value of about 4 mg/kg) that is consistent with small amounts of heavy oil being present. The sample from the soil excavated from the neighbour's drive reported very low concentrations of PAH.

5 Risk Assessment

5.1 This site was used to park and service lorries, had a small diesel tank on it and was covered over a large area with concrete and tarmac. Please see the earlier report to view the argument that the site was extremely clean and required no further site investigation, but as the concrete was very thick and the sub-base very deep, all that had to be removed from site. As a further precaution and to improve the gardens, the rear gardens had to be excavated to 600 mm and replaced with soil of suitable quality. This minimal soil testing exercise has shown that there is no gross contamination present that could present a risk of harm to the occupiers of the bungalows, but the concrete, rubble and sub base still have to be removed.

5.2 Three of the four soil samples taken from plots 1 & 2 were very uncontaminated and presented no risk of harm to the occupiers of the houses. One soil sample (HD1 from plot 1) reported slightly elevated petroleum hydrocarbons (TPH), mainly in the heavy fractions, and slightly elevated polycyclic aromatic hydrocarbons (PAH). These components are not volatile, migrate only slowly through water transport and are typical of used lubricating oils; indeed it could have originated from the heavy machinery that was used to remove the concrete slabs.

5.3 The strategy to provide clean capping appears to be vindicated by this investigation and once the hardcore has been excavated and top soil applied, the very small risk of harm from contamination will have been mitigated. The excavation should remove all hardcore and soil to about 600 mm and be replaced with clean sub soil and top soil of at least 300 mm.

5.4 No other potential sources of contamination were identified in the near vicinity of the site.

5.5 No further site investigation is necessary.

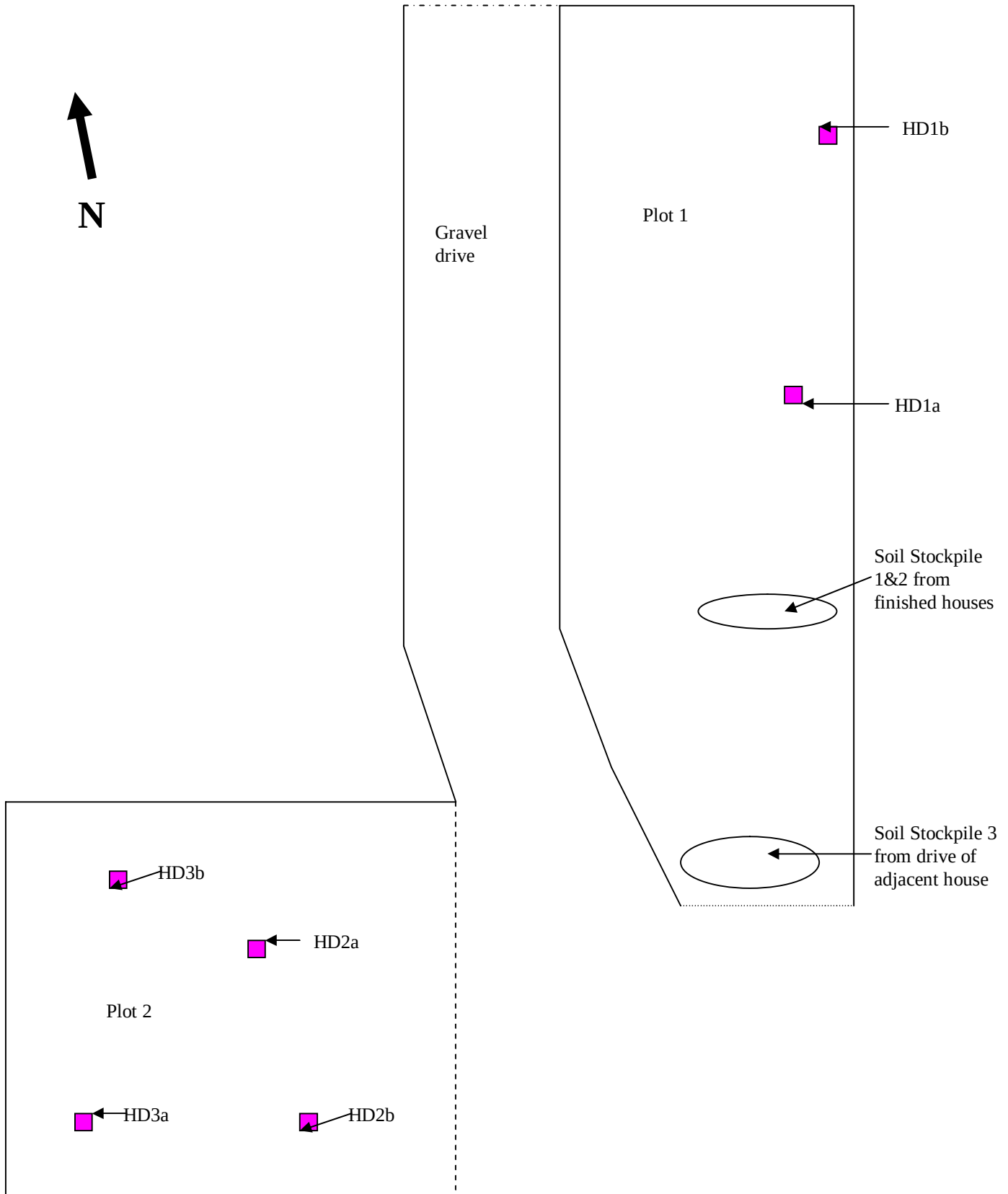
6 Summary

6.1 Sample of soil from plots 1 & 2 that were analysed for metals, TPH and PAH reported concentration for all species that were very low or low. However, as the hardcore has not been analysed, it will require excavation from the plots and replacement with clean sub base and top soil.

6.1 No further investigation or remediation is necessary.

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Plan of site for 2nd phase, not to scale



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Report number 13-12-01/2

Date 2nd October 2016

Photo 1 Old bungalow to right, new ones to corner and left



Photo 2 Plot 1 leading from road into site



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Photo 3 Plot 1 looking onto rear garden and into site



Photo 4 Plot 2, the former barn and concrete floor have been removed



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Photo 5 HD1a on soft area to eastern side of plot 1



Photo 6 HD1b near north of plot 1 on soft area to eastern side



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Photo 7 Stock pile 3 arising from excavation of driveway to right



Photo 8 Stockpile 3 arising from excavation of adjacent drive



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Photo 9 HD2a on plot 2 near drive and northern boundary



Photo 10 HD2b on plot 2 near road and southern boundary



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Photo 11 HD3a near rear of plot 2 and southern boundary



Photo 12 HD3b near rear of plot 2 and northern boundary

