

Our Ref: AC00100/JaggerLaneEmley/LS/NP-01

Date: 5 June 2015

Ms L Shaw
Pollution & Noise Control
Environmental Health
Kirklees Council
Flint Street
Huddersfield
HD1 6LG

Dear Lisa

Land Adjoining 23 Jagger Lane, Emley Moor, Huddersfield, HD8 9SY
Planning Refs: 2012/62/90390/E & 2015/44/90287/E
Supplemental Contamination Investigation for Development of 2 No. Detached Dwellings

Further to the letter from Julia Steadman of Kirklees Council to Neil Bowen Architects Limited (ref. 2015/44/90287/E) dated 31st March 2015, I write to present the results from an investigation within the brick barn to fulfill the requirement of item 1 in the letter with a view to Condition 7 of the planning permission being discharged. Items 2 to 5 of the letter have previously been dealt with in correspondence between ourselves and were incorporated into the revised Remediation Statement (v4 dated 24th April 2015) previously provided to you by email on the same date.

At the time of the investigation an inspection was also made of the ground surface and vehicle inspection pit following the recent removal of the floor slab to the large shed. The investigation also involved the excavation of 2 trial pits within this area.

Previous Reports

This report follows on from the issue of the following documents:

- *'Phase 1 Contamination Audit'* prepared by A.L.H Environmental Services in February 2012;
- *'Phase 2 Contamination Site Investigation and Risk assessment Report'* prepared by AC Environment Solutions Limited in January 2015;
- *'Remediation Statement'* (version 4) prepared by AC Environment Solutions Limited and dated 24th April 2015.

Investigation of Soils Within the Brick Barn

The investigation was undertaken on 21st May 2015 and followed the proposed scope set out as item 5 in the Remediation Statement and involved the following:

- The excavation of 3 shallow trial pits by mini-digger across the dirt floor of the brick barn building to depths of between 0.50 and 0.95 metre at the locations (BB1-BB3) shown on the plan presented as Attachment 1;
- The collection of 1 soil sample from each pit (3 samples in total);
- Site supervision and recording by a Chartered Environmental Surveyor.

At the time of the investigation, the brick barn building was still standing, pending the outcome of discussions between the applicant and Louise Clarke (Kirklees Council Planning) regarding demolition. The eastern two thirds of the floor area was unsurfaced (dirt) and the western one third was surfaced in concrete.

BB1 was excavated into the soils adjoining and extending into a brick arch structure that had been identified at ground level within the south eastern corner of the building during the previous investigation. The excavation exposed a brick lined pit measuring 1.7m² and 0.85 metre deep in front of the arch which was provided with a brick floor. A composite sample from the soils excavated from this location was taken for analysis.

Excavation of the surface soils by hand adjoining the exposed arch top identified a second similar arch structure and it is conceivable that at least one further arch also exists possibly making up a row of buried brick arch structures extending along the internal eastern elevation of the building.

It is possible that the arches formed part of the kilns associated with the former brickworks identified at this location in the 2012 Phase 1 Contamination Audit. Although whole orange coloured bricks and brick fragments were noted in the soils at BB1, no obvious evidence of burnt or scorched material was noted and no evidence of any former chimney to the brickworks has been identified. The size of the building and the period of occupancy of the brickworks within the second half of the 1800s (disused by 1893) suggests that this was a small works, possibly only established to supply the nearby Speedwell Colliery which had come into existence around the same time.

The remaining 2 trial pits (BB2 and BB3) were excavated into the dirt floor elsewhere within the brick barn.

The trial pit locations are identified on the plan presented as Attachment 1 and a photographic record of the investigation is presented as Attachment 2.

A description of the succession of soils encountered from the trial pit excavations is presented in the following table.

Table 1 – Trial Pit Information Relating to the Brick Barn

| Trial Pit | Depth (m) | Description | Sample Depth (m) |
|-----------|-------------|--|------------------|
| BB1 | 0.00 - 0.05 | Firm dark grey soil (Made Ground) | Composite |
| | 0.05 - 0.85 | Orange red brown sandy silty soil with occasional orange bricks and brick fragments, occasional fragments of roofing slate, linoleum, carpet underlay and blue polythene bag of concrete above brick floor (Made Ground) | |
| BB2 | 0.00 - 0.05 | Firm dark grey soil (Made Ground) | 0.00 - 0.25 |
| | 0.05 - 0.25 | Firm orange brown and grey clayey soils with occasional fine to coarse orange brick fragments (Made Ground). | |
| | 0.25 - 0.50 | Stiff yellow beige and grey Clay (Natural or reworked natural) | |
| BB3 | 0.00 - 0.05 | Firm dark grey soil (Made Ground) | 0.20 - 0.40 |
| | 0.05 - 0.40 | Orange red brown sandy soil with orange brick rubble fill (Made Ground) | |
| | 0.40 - 0.65 | Firm orange red and grey silty sand with many angular stone cobbles and boulders (Made Ground) | |
| | 0.65 - 0.95 | Firm yellow orange and grey sandy clay with stone cobbles (Natural or reworked natural) | |

There was no obvious olfactory evidence of contamination noted and no fuel odours were apparent.

Three soil samples were submitted for chemical laboratory analysis to Chemtest which is UKAS (United Kingdom Accreditation Service) accredited (UKAS testing Nos. 2183) and has MCERTS accreditation for soil testing.

In determining the scope of the chemical testing suite, reference has been made to the DoE (Department of the Environment) Industry Profile on '*Ceramics, cement and asphalt manufacturing works*' dated 1996. This shows that bricks fall within 'structural clay products' which are manufactured from clays or shales and mainly consist of finely crystalline hydrated aluminosilicates. In the Industry Profile the raw materials are not considered to be potential contaminants and the final product is considered to be of low contaminative potential.

Furthermore, since no visual or olfactory signs of fuels or solvents were noted during sampling, it was considered that there was no need to extend the scope of analysis beyond the suite specified under item 4 of the Remediation Statement, as reproduced in the table below.

Table 2 – Chemical Testing Suite

| Soil Testing Suite for Further Investigation of the Barn |
|---|
| Acidity / alkalinity (pH), metals (arsenic, boron, cadmium, total chromium, chromium VI, copper, lead, mercury, nickel, selenium, zinc), sulphate, sulphide, thiocyanate, free cyanide, total cyanide, total phenol, speciated PAHs, organic matter |

The results of the chemical analysis on the soil samples are attached (Attachment 3) and these have been assessed against the following assessment criteria:

1. The Contaminated Land Exposure Assessment (CLEA) model issued by the Department for Environment, Food and Rural Affairs (DEFRA) in March 2002. This specifies Soil Guideline Values (SGVs) for a selected number of substances, above which the concentrations could pose an unacceptable risk to the health of site users which warrant further investigation or remediation.
2. Sutable 4 Use Levels (S4ULs) for human health risk assessment from research undertaken by Land Quality Management Limited (LQM) in collaboration with the Chartered Institute of Environmental Health (CIEH) and dating from January 2015. This specifies S4ULs for a range of common contaminants (some of which are not covered by CLEA) above which the concentrations could pose an unacceptable risk to the health of site users which may warrant further investigation or remediation

In reference 1 of the above the concentrations can be compared against values for 3 categories of land use (residential, allotments and commercial) and under reference 2, 6 categories of land use (residential with and without home grown produce, allotments, commercial, public open space near residential housing and public parks. For the purposes of this assessment the analytical results on the soil samples have been compared against the values for residential use with home grown produce.

Where no SGVs or S4ULs values are provided for a particular determinand, for the purposes of a screening assessment, secondary generic assessment criteria have been used in the form of either the Dutch or old ICRC values. However these have been used with caution and as a preliminary indicator only.

For the assessment of petroleum hydrocarbons and polyaromatic hydrocarbons, S4UL values relevant to a soil organic matter (SOM) content of 6% was used based on the average SOM value from the 3 samples of 6.43%.

The results of the chemical analysis on the soil samples are attached (Attachment 3) and the results of the generic assessment are presented in the following tables.

Table 3 - Summary of Metal Analysis Results for Soils

| Parameters | Range of Levels Found on Site (mg/kg) | CLEA SGV (mg/kg) | Proportion of Samples Exceeding CLEA SGV | LQM CIEH S4UL (mg/kg) | Proportion of Samples Exceeding LQM CIEH S4UL |
|---------------------|---------------------------------------|------------------|--|-----------------------|---|
| Arsenic | 8.2-19 | 32 | 0 | | |
| Boron ¹ | <0.4-2.4 | | | 290 | 0 |
| Cadmium | <0.10-0.25 | 10 | 0 | | |
| Chromium (total) | 24-29 | | | 910 | 0 |
| Chromium VI | <0.50 | | | 6 | 0 |
| Copper ¹ | 24-40 | | | 2400 | 0 |
| Lead | 8.2-71 | 450 | 0 | 200 ² | 0 |
| Mercury | <0.10-0.12 | 170 | 0 | | |
| Nickel ¹ | 27-41 | 130 | 0 | | |
| Selenium | <0.20-0.45 | 350 | 0 | | |
| Zinc ¹ | 15-81 | | | 3700 | 0 |

1. Phototoxic parameters which may be detrimental to the growth and maintenance of plants

2. Category 4 Screening Level issued by DEFRA in March 2014 (no CLEA SGV or LQM CIEH S4UL values available)

Table 4 - Summary of Inorganic Compound Analysis Results for Soils

| Parameters | Range of Levels Found on Site (mg/kg) | CLEA SGV (mg/kg) | Proportion of Samples Exceeding CLEA SGV | LQM CIEH S4UL (mg/kg) | Proportion of Samples Exceeding LQM CIEH S4UL |
|---|---------------------------------------|------------------|--|-----------------------|---|
| Total sulphate | 690-1300 | | | 2000 ¹ | 0 |
| Sulphate (2:1 water soluble) as SO ₄ | 0.033-0.22g/l | | | 0.25g/l ² | 0 |
| Sulphide | 5.2-160 | | | 200 ³ | 0 |
| Thiocyanate | <5.0 | | | 20 ³ | 0 |
| Cyanide (total) | <0.50 | | | 20 ³ | 0 |
| Cyanide (free) | <0.50 | | | 20 ³ | 0 |

1. ICRCL Threshold for buildings and hard cover (no CLEA SGV or LQM CIEH S4UL values available)

2. Water Supply (Water Quality) Regulations 1989 and 2000 maximum

3. Dutch Intervention value (no CLEA SGV or LQM CIEH S4UL values available)

Table 5 - Summary of Other Organic Compound Analysis Results on Soils

| Parameters | Range of Levels Found on Site (mg/kg) | CLEA SGV (mg/kg) | Proportion of Samples Exceeding CLEA SGV | LQM CIEH S4UL (mg/kg) (@6% SOM ¹) | Proportion of Samples Exceeding LQM CIEH S4UL |
|---|---------------------------------------|------------------|--|---|---|
| Semi-volatile organic compounds | | | | | |
| Total phenols | <0.30 | 420 | 0 | | |
| Polycyclic Aromatic Hydrocarbons (PAH)s | | | | | |
| Acenaphthene | <0.10 | | | 1100 | 0 |
| Acenaphthylene | <0.10 | | | 920 | 0 |
| Anthracene | <0.10 | | | 11000 | 0 |
| Benzo(a)anthracene | <0.10 | | | 13 | 0 |
| Benzo(a)pyrene | <0.10 | | | 3.0 | 0 |
| Benzo(b)fluoranthene | <0.10 | | | 3.7 | 0 |
| Benzo(g,h,i)perylene | <0.10 | | | 350 | 0 |
| Benzo(k)fluoranthene | <0.10 | | | 100 | 0 |
| Chrysene | <0.10 | | | 27 | 0 |
| Dibenz(ah)anthracene | <0.10 | | | 0.3 | 0 |
| Fluoranthene | <0.10 | | | 890 | 0 |
| Fluorene | <0.10 | | | 860 | 0 |
| Indeno(1,2,3-cd)pyrene | <0.10 | | | 41 | 0 |
| Naphthalene | <0.10 | | | 13 | 0 |
| Phenanthrene | <0.10 | | | 440 | 0 |
| Pyrene | <0.10 | | | 2000 | 0 |
| PAHs (total) | <2.0 | | | 40 ² | 0 |

1. S4UL values relevant to a soil organic matter content of 6% selected based on the average value for the site of 6.43%
2. Dutch Intervention value (no CLEA SGV, LQM CIEH S4UL or EIC AGS CL:AIRE GAC values available)

The above assessment has shown that none of the parameters analysed exceeded their respective screening values. Soil pH (acidity/alkalinity) was determined to be within the range of 6.4 to 8.7 which is considered to be within a range which is acceptable.

It is therefore considered that the soils within the brick barn are suitable for the proposed use, subject to the requirements of item 9 in the Remediation Statement (unexpected significant contamination) during the development. It is also advised that the unsuitable items identified within the soils to be retained (linoleum, carpet underlay and blue polythene bag of concrete) and any further similar materials that may be subsequently encountered, should be removed for appropriate offsite disposal.

Vehicle Inspection Pit and Floor Slab to the Large Shed

At the time of the investigation, the large concrete portal framed shed had been demolished and the concrete slab measuring 150-180mm thick had been removed to expose the underlying soils in which the vehicle inspection pit remained.

In accordance with item 3b. of the Remediation Statement an inspection of the ground surface beneath the floor slab was undertaken. Fill material was observed across the surface which included fragments of concrete and areas of a red sandy gravel and dark grey clinker gravel sub base, through which 2 shallow trial pits were excavated (TP7 and TP8). The thickness of fill was proven to depths of between 0.1 and 0.3 metre.

The inspection pit and trial pit locations are identified on the attached plan presented as Attachment 1 and a photographic record is presented as Attachment 2.

A description of the succession of soils encountered from the trial pit excavations is presented in the table below.

Table 6 – Trial Pit Information Relating to the Large Shed

| Trial Pit | Depth (m) | Description | Sample Depth (m) |
|-----------|-------------|---|------------------|
| TP7 | 0.00 - 0.10 | Red sandy gravel (Made Ground) | |
| | 0.10 - 0.30 | Dark grey organic soil with dark grey fine sandy clinker gravel (Made Ground) | |
| | 0.30 - 0.35 | Firm yellow beige and grey Clay (Natural or reworked natural) | |
| TP8 | 0.00 - 0.10 | Dark grey subrounded medium clinker gravel (Made Ground) | |
| | 0.10 - 0.20 | Firm yellow and grey Clay (Natural or reworked natural)) | |

No samples were taken from TP7 and TP8 for chemical analysis since no obvious visual or olfactory evidence of hydrocarbon contamination was noted from across the ground surface or within the trial pits.

The vehicle inspection pit was observed to be of robust construction, with the sidewalls being lined with 3 leaves of brick with polythene between the first and second leaves and the external wall enclosed by reinforced concrete to a thickness of at least 150mm. Some water was observed within the pit in which no visual or olfactory evidence of hydrocarbon contamination was noted. Neither was any oil staining observed to the internal brickwork

The applicant is currently looking into a means of disposing of the inspection pit water (along with the contents of 2 old 205 litre metal drums) in accordance with item 3a. of the Remediation Statement. Following this, due to the robust construction of the inspection pit, its apparent clean condition and its location beneath the footprint of one of the proposed dwellings which is to be founded on a concrete floor slab, it is proposed to leave the inspection pit insitu and backfilled with a concrete slurry or suitable grade of engineering fill, such as site won crushed concrete or brick.



I hope the above is acceptable to allow the discharge of Condition 7, but please contact me if there is any matter you wish to discuss further.

Kind regards

N F Pickard

Nick Pickard BSc MRICS CEnv
Associate and Chartered Environmental Surveyor
AC Environment Solutions Limited

Tel Direct: 01709 711850
Mobile: 07847 254463
Email: info@acenvironment.co.uk

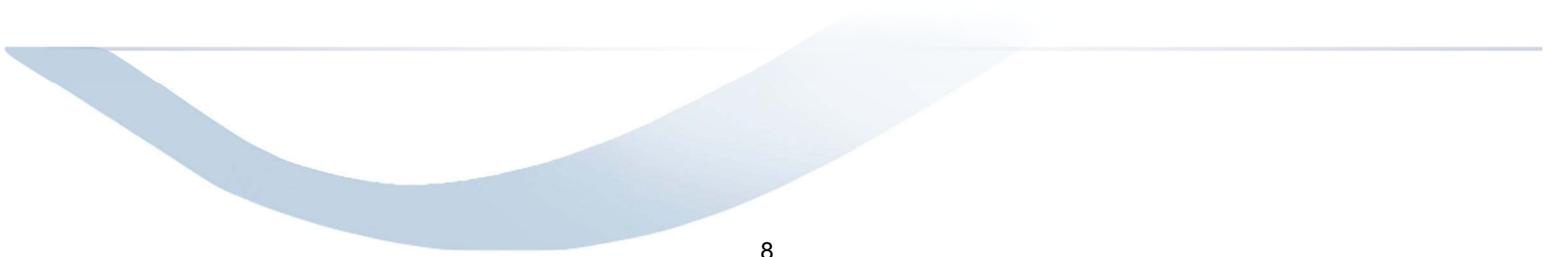
Cc Mr Andrew Schofield – R & B Schofield Building Contractors

Attachments

1. Trial pit location plan
2. Photographic record
3. Chemical laboratory analysis results



Attachment 1
Trial Pit Location Plan



REVISIONS

| Date | Description | By |
|------|-------------|----|
| | | |

DO NOT SCALE FROM THIS DRAWING FOR CONSTRUCTION PURPOSES




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 AC Environment Solutions Ltd
 Unit 5A Enterprise Court, Farfield Park, Manvers,
 Rotherham, South Yorkshire S63 5DB
 Website www.ACEnvironment.co.uk
 Telephone 01709 711850
 Email info@ACEnvironment.co.uk

Client Name:
 R&B Schofield Building Contractors
 Highlands Court
 15 Jagger Lane
 Emley
 West Yorkshire
 HD8 9SY

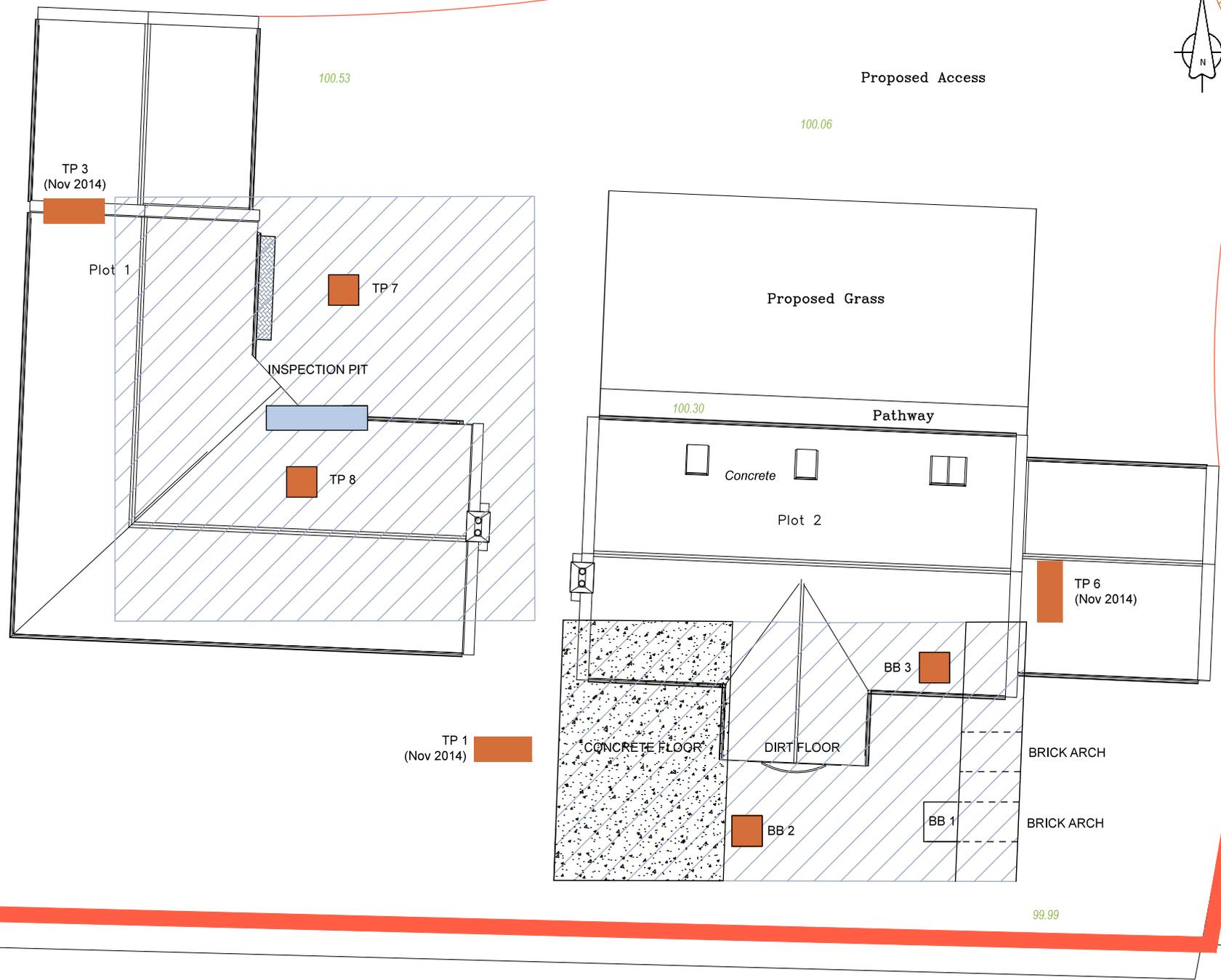
Site Name:
 Land adjoining Jagger Lane, Emley

Project Title:
 Proposed Residential Development

Scale: 1:128 **Date:** 28/05/2015 **Drawn By:** ALH **Checked By:** NFP

Drawing Title:
 Trial Pit Locations

DWG No: **Job No:** AC00100 **Rev:** 0



TP 1
(Nov 2014)



99.99



Attachment 2
Photographic Record



Photograph 1 Brick arches exposed beneath the floor at the eastern end of the brick barn (the tape extends to 1 metre for scale)



Photograph 2 Location of pit BB1 which exposed a small brick lined enclosure with brick floor extending from the soil filled brick arch

| | |
|----------------------|--|
| Site Address: | Land Adjoining 23 Jagger Lane, Emley Moor, Huddersfield, West Yorkshire, HD8 9SY |
| Title: | Attachment 2 – Photographic Record |
| Client: | R & B Schofield Building Contractors |
| Date: | 21/05/2015 |



Photograph 3 Location of BB1 (as described above). The soils incorporated some red brick, roofing slate, linoleum, carpet underlay and a blue polythene bag of concrete (top right)



Photograph 4 Trial hole BB2 excavated within the dirt floor of the brick barn (the tape extends to 1 metre for scale)

| | |
|----------------------|--|
| Site Address: | Land Adjoining 23 Jagger Lane, Emley Moor, Huddersfield, West Yorkshire, HD8 9SY |
| Title: | Attachment 2 – Photographic Record |
| Client: | R & B Schofield Building Contractors |
| Date: | 21/05/2015 |



Photograph 5 BB2 and excavated soil arisings



Photograph 6 BB3 excavated within the dirt floor of the brick barn

| | |
|----------------------|--|
| Site Address: | Land Adjoining 23 Jagger Lane, Emley Moor, Huddersfield, West Yorkshire, HD8 9SY |
| Title: | Attachment 2 – Photographic Record |
| Client: | R & B Schofield Building Contractors |
| Date: | 21/05/2015 |



Unit 5A Enterprise Court, Farfield Park, Manvers,
Rotherham, South Yorkshire S63 5DB



Photograph 7 BB3 and excavated soil arisings



Photograph 8 Ground exposed beneath the floor slab of the demolished larger shed, looking south west and showing the location of the vehicle inspection pit (centre)

| | |
|----------------------|--|
| Site Address: | Land Adjoining 23 Jagger Lane, Emley Moor, Huddersfield, West Yorkshire, HD8 9SY |
| Title: | Attachment 2 – Photographic Record |
| Client: | R & B Schofield Building Contractors |
| Date: | 21/05/2015 |





Photograph 9 Vehicle inspection pit looking north west. The pit was lined with 3 leaves of brick with polythene between the first and second leaves and was encased with >150mm of reinforced concrete



Photograph 10 Vehicle inspection pit looking south east (the tape extends to 1m for scale)

| | |
|----------------------|--|
| Site Address: | Land Adjoining 23 Jagger Lane, Emley Moor, Huddersfield, West Yorkshire, HD8 9SY |
| Title: | Attachment 2 – Photographic Record |
| Client: | R & B Schofield Building Contractors |
| Date: | 21/05/2015 |



Photograph 11 TP7 excavated to the north of the inspection pit and at which 0.30m of Made Ground was encountered above a natural or reworked natural clay



Photograph 12 TP8 excavated on the southern side of the inspection pit and at which 0.10m of clinker gravel was encountered above natural or reworked natural clay (the tape extends to 1m for scale)

| | |
|----------------------|--|
| Site Address: | Land Adjoining 23 Jagger Lane, Emley Moor, Huddersfield, West Yorkshire, HD8 9SY |
| Title: | Attachment 2 – Photographic Record |
| Client: | R & B Schofield Building Contractors |
| Date: | 21/05/2015 |



Attachment 3
Chemical Laboratory Analysis Results



Final Report

Report Number: 15-11824 Issue-1

Initial Date of Issue: 01-Jun-2015

Client: A C Environment Solutions Ltd

Client Address: Unit 5A Enterprise Court
Farfield Park
Manvers
Rotherham
South Yorkshire
S63 5DB

Contact(s): Info
Nick Pickard

Project: AC12v2-Jagger Lane, Emley Moor

Quotation No.: Q14-02390

Order No.:

No. of Samples: 3

Turnaround: (Wkdays) 5

Date Approved: 01-Jun-2015

Date Received: 22-May-2015

Date Instructed: 26-May-2015

Results Due Date: 01-Jun-2015

Approved By:

Details: Keith Jones, Technical Manager

Project: AC12v2-Jagger Lane, Emley Moor

| Client: A C Environment Solutions Ltd | | Chemtest Job No.: | | | 15-11824 | 15-11824 | 15-11824 |
|---------------------------------------|---------|----------------------|-------|------|------------------|-----------|-----------|
| Quotation No.: Q14-02390 | | Chemtest Sample ID.: | | | 144185 | 144186 | 144187 |
| Order No.: | | Client Sample Ref.: | | | | | |
| | | Client Sample ID.: | | | BB1 Composite | BB2 | BB3 |
| | | Sample Type: | | | SOIL | SOIL | SOIL |
| | | Top Depth (m): | | | | 0 | 0.20 |
| | | Bottom Depth(m): | | | | 0.25 | 0.40 |
| | | Date Sampled: | | | 21-May-15 | 21-May-15 | 21-May-15 |
| Determinand | Accred. | SOP | Units | LOD | | | |
| Moisture | N | 2030 | % | 0.02 | 15 | 17 | 22 |
| Stones | N | 2030 | % | 0.02 | < 0.020 | < 0.020 | < 0.020 |
| Soil Colour | N | | | | brown | brown | brown |
| Other Material | N | | | | stones | none | none |
| Soil Texture | N | | | | sand | clay | clay |
| pH | M | 2010 | | | 8.7 | 6.4 | 7.4 |
| Boron (Hot Water Soluble) | M | 2120 | mg/kg | 0.4 | < 0.40 | 2.4 | 0.95 |
| Sulphate (2:1 Water Soluble) as SO4 | M | 2120 | g/l | 0.01 | 0.033 | 0.22 | 0.16 |
| Cyanide (Free) | M | 2300 | mg/kg | 0.5 | < 0.50 | < 0.50 | < 0.50 |
| Cyanide (Total) | M | 2300 | mg/kg | 0.5 | < 0.50 | < 0.50 | < 0.50 |
| Thiocyanate | M | 2300 | mg/kg | 5 | < 5.0 | < 5.0 | < 5.0 |
| Sulphide (Easily Liberatable) | M | 2325 | mg/kg | 0.5 | 160 | 5.2 | 93 |
| Sulphate (Total) | M | 2430 | % | 0.01 | 0.12 | 0.13 | 0.069 |
| Arsenic | M | 2450 | mg/kg | 1 | 8.2 | 19 | 19 |
| Cadmium | M | 2450 | mg/kg | 0.1 | < 0.10 | 0.25 | 0.13 |
| Chromium | M | 2450 | mg/kg | 1 | 24 | 29 | 26 |
| Copper | M | 2450 | mg/kg | 0.5 | 39 | 40 | 24 |
| Mercury | M | 2450 | mg/kg | 0.1 | < 0.10 | 0.12 | < 0.10 |
| Nickel | M | 2450 | mg/kg | 0.5 | 41 | 33 | 27 |
| Lead | M | 2450 | mg/kg | 0.5 | 8.2 | 71 | 54 |
| Selenium | M | 2450 | mg/kg | 0.2 | < 0.20 | 0.45 | < 0.20 |
| Zinc | M | 2450 | mg/kg | 0.5 | 15 | 81 | 60 |
| Chromium (Hexavalent) | N | 2490 | mg/kg | 0.5 | < 0.50 | < 0.50 | < 0.50 |
| Organic Matter | M | 2625 | % | 0.4 | 12 | 4.7 | 2.6 |
| Naphthalene | M | 2700 | mg/kg | 0.1 | < 0.10 | < 0.10 | < 0.10 |
| Acenaphthylene | M | 2700 | mg/kg | 0.1 | < 0.10 | < 0.10 | < 0.10 |
| Acenaphthene | M | 2700 | mg/kg | 0.1 | < 0.10 | < 0.10 | < 0.10 |
| Fluorene | M | 2700 | mg/kg | 0.1 | < 0.10 | < 0.10 | < 0.10 |
| Phenanthrene | M | 2700 | mg/kg | 0.1 | < 0.10 | < 0.10 | < 0.10 |
| Anthracene | M | 2700 | mg/kg | 0.1 | < 0.10 | < 0.10 | < 0.10 |
| Fluoranthene | M | 2700 | mg/kg | 0.1 | < 0.10 | < 0.10 | < 0.10 |
| Pyrene | M | 2700 | mg/kg | 0.1 | < 0.10 | < 0.10 | < 0.10 |

Project: AC12v2-Jagger Lane, Emley Moor

| | | | | |
|---------------------------------------|-----------------------------|------------------|--------------|----------------------|
| Client: A C Environment Solutions Ltd | Chemtest Job No.: | 15-11824 | 15-11824 | 15-11824 |
| Quotation No.: Q14-02390 | Chemtest Sample ID.: | 144185 | 144186 | 144187 |
| Order No.: | Client Sample Ref.: | | | |
| | Client Sample ID.: | BB1 Composite | BB2 | BB3 |
| | Sample Type: | SOIL | SOIL | SOIL |
| | Top Depth (m): | | 0 | 0.20 |
| | Bottom Depth(m): | | 0.25 | 0.40 |
| | Date Sampled: | 21-May-15 | 21-May-15 | 21-May-15 |
| Determinand | Accred. | SOP | Units | LOD |
| Benzo[a]anthracene | M | 2700 | mg/kg 0.1 | < 0.10 < 0.10 < 0.10 |
| Chrysene | M | 2700 | mg/kg 0.1 | < 0.10 < 0.10 < 0.10 |
| Benzo[b]fluoranthene | M | 2700 | mg/kg 0.1 | < 0.10 < 0.10 < 0.10 |
| Benzo[k]fluoranthene | M | 2700 | mg/kg 0.1 | < 0.10 < 0.10 < 0.10 |
| Benzo[a]pyrene | M | 2700 | mg/kg 0.1 | < 0.10 < 0.10 < 0.10 |
| Indeno(1,2,3-c,d)Pyrene | M | 2700 | mg/kg 0.1 | < 0.10 < 0.10 < 0.10 |
| Dibenz(a,h)Anthracene | M | 2700 | mg/kg 0.1 | < 0.10 < 0.10 < 0.10 |
| Benzo[g,h,i]perylene | M | 2700 | mg/kg 0.1 | < 0.10 < 0.10 < 0.10 |
| Total Of 16 PAH's | M | 2700 | mg/kg 2 | < 2.0 < 2.0 < 2.0 |
| Total Phenols | M | 2920 | mg/kg 0.3 | < 0.30 < 0.30 < 0.30 |

Report Information

Key

- U UKAS accredited
- M MCERTS and UKAS accredited
- N Unaccredited
- S This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
- SN This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
- T This analysis has been subcontracted to an unaccredited laboratory
- I/S Insufficient Sample
- U/S Unsuitable Sample
- N/E not evaluated
- < "less than"
- > "greater than"

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVCOs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis

All Asbestos testing is performed at our Coventry laboratory

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container

Sample Retention and Disposal

All soil samples will be retained for a period of 60 days from the date of receipt

All water samples will be retained for 14 days from the date of receipt

Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.co.uk