

# soiltechnics

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## Verification Report

Plots 7-23 Residential Development

Elizabeth Square, Durrington

August 2024



## Project Details

Site: Elizabeth Square, Durrington  
Document Title: Verification Report  
Document no.: STV5959-R09-Rev\_A  
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## Document history and status

| Revision | Date        | Description | Author | Reviewer |
|----------|-------------|-------------|--------|----------|
| A        | August 2024 | FINAL       | MOH    | JB       |



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## 1 Introduction

### 1.1 Scheme Outline

- 1.1.1 The site is located at the former HM Revenues And Customs complex at Barrington Road, Worthing, BH12 4SD.
- 1.1.2 The redevelopment of the site comprises the demolition of the former HMRC buildings and construction of a residential development comprising a mixture of houses, apartments and a care home. Plans of the existing and proposed site layout are provided within Appendix A. Approximately, this comprises of 139 residential plots, 4 blocks of flats, and a care home.
- 1.1.3 The development is controlled under the Worthing Borough Council planning regime, under the planning application number AWDM/0605/22.
- 1.1.4 This Verification Report is for the verification of all remedial requirements associated with Plots 7 to 23 only. A proposed development plan is included below, with the plots covered by this report highlighted in purple.



Figure 1-A: Proposed Layout and Year-End Plots

### 1.2 Brief

- 1.2.1 To facilitate the safe development of the project, a Remediation Strategy and Verification Plan (Report ref: STV5959-R01-Rev\_C) was developed by Soiltechnics Limited, dated May 2023.
- 1.2.2 The aim of this Verification Report is to present all relevant lines of evidence obtained directly by Soiltechnics and those provided by 3<sup>rd</sup> parties, to demonstrate the required remedial actions have been completed satisfactorily, and the site is suitable and safe for use, in terms of the risks from contaminated land.

### **1.3 Investigation Standards**

- 1.3.1 The investigation followed the principles of BS10175:2011+A2:2017 '*Investigation of potentially Contaminated Sites – Code of Practice*'. The investigation was also undertaken with reference to the Environment Agency's online publication '*Land contamination risk management (LCRM)*'.

### **1.4 Limitations**

- 1.4.1 Soiltechnics disclaims any responsibility to our Client and others in respect of any matters outside the scope of this report. This report has been prepared with reasonable skill, care and diligence in accordance with the terms of our contract, taking account of the resources, investigations and testing devoted to it by agreement with our Client. This report is confidential to our Client and Soiltechnics accepts no responsibility of whatsoever nature to third parties to whom this report or any part thereof is made known. Any such party relies upon the report at their own risk.

## 2 Site Conditions and Remedial Strategy

### 2.1 Sources of information

2.1.1 Reference has been made to the following sources of information. Full copies of all documents can be provided upon request.

| Author                               | Document Title                                                 | Date & Document Reference          | Report Context                                                                                                                                                                   |
|--------------------------------------|----------------------------------------------------------------|------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ashdown Ground Investigation Limited | Combined Geotechnical and Ground Contamination Risk Assessment | December 2018<br>R18-13236         | Preliminary geoenvironmental risk assessment, an assessment of ground conditions and a geotechnical appraisal                                                                    |
| Soiltechnics                         | Ground Investigation Report                                    | April 2021<br>STS5226-G01-Rev_A    | Supplementary works to address outstanding geotechnical and contamination concerns at the site.                                                                                  |
| Soiltechnics                         | Piling Risk Assessment                                         | February 2023<br>STV5959-R02-Rev-A | A piling risk assessment in order to satisfy planning condition 29 of the planning application.                                                                                  |
| Soiltechnics                         | Supplementary Ground Investigation Report                      | May 2023<br>STV5959-R03-Rev_A      | The previous ground investigation works identified some data gaps which required further investigation once access into previously unexplored areas of the site was facilitated. |
| Soiltechnics                         | Remediation Strategy                                           | May 2023<br>STV5959-R01-Rev_C      | A remedial and verification strategy for the site to address identified contaminant linkages.                                                                                    |
| Soiltechnics                         | Subsoil Verification Testing                                   | August 2023<br>L-STV5959M-001      | Stockpile sampling and characterisation work on imported subsoils.<br>Included as Appendix D.                                                                                    |

Table 2-A: Summary of Previous Reports

### 2.2 Relevant Contaminant Linkages

- 2.2.1 Both the Ashdown and Soiltechnics reports noted sporadic elevated levels of PAHs and metals within the Made Ground deposits following soil testing. In addition, asbestos fibres were identified in Made Ground local to the former maintenance compound although given the variability of the Made Ground, its presence elsewhere could not be discounted.
- 2.2.2 The risk assessment concluded that while sporadic, due to the sensitivity of a residential development, contaminant levels could pose an unacceptable level of risk to proposed end users, and therefore the site required remediation.
- 2.2.3 Relevant contamination linkages identified relate solely to human health receptors and can be summarised as follows:
- i) Inhalation of asbestos fibres present within Made Ground soils.
  - ii) Contact, inhalation and ingestion of soils and dusts arising from Made Ground soils.
  - iii) Accumulation and inhalation of radon.
- 2.2.4 Given the previous uses of the site, it was also acknowledged that there was a potential for unexpected and previously unknown contamination to be present, such as localised gross hydrocarbon contamination. If present, this had potential to impact both human health and sensitive water receptors.

## **2.3 Outline of Remedial Strategy**

2.3.1 To mitigate the risks posed by the identified relevant contaminant linkages, the Remediation Strategy detailed four key remedial actions which required evidencing through verification works, specifically:

- i) Prepare a discovery strategy and provide a watching brief in the event of encountering unexpected or previously unencountered contamination.
- ii) Installation of barrier pipe for underground drinking water infrastructure to prevent permeation of organic contaminants into drinking water.
- iii) Install a cover system in proposed soft landscaped areas to prevent end user exposure to identified contamination.
- iv) Install basic Radon Protection measures to prevent ingress into buildings.

2.3.2 The following report sections address each remedial action in turn.

### **3 Unexpected Contamination**

#### **3.1 Remedial Requirement**

- 3.1.1 As with the development of any site, there was the potential to encounter unexpected contamination, in particular within the areas of former oil storage and drainage interceptors.
- 3.1.2 A contamination discovery protocol was established, and a copy provided to the developer to communicate and distribute through their workforce.

#### **3.2 Verification Works**

- 3.2.1 Soiltechnics have been in regular contact with the developer throughout the enabling works and build programme, and have not been informed of any contamination discovery event. The contractors on site were aware of their reporting obligations.
- 3.2.2 In addition, the plots under scope of this Verification Report are not in any areas suspected of containing oil or fuel infrastructure.
- 3.2.3 No unexpected contamination is believed to have been encountered, and this remedial action is considered to have been satisfactorily addressed.

## **4 Drinking Water Barrier Pipe**

### **4.1 Remedial Requirement & Verification Plan**

- 4.1.1 To address risk from residual hydrocarbon contamination permeating into below ground drinking water infrastructure, barrier pipe was required to be installed for all new below-ground water supply pipes.
- 4.1.2 The verification of the installation was to be evidenced by the provision of delivery tickets showing protective barrier pipe has been delivered to site, and by providing photographs showing the subsequent installation.

### **4.2 Deviation**

- 4.2.1 The contractor deviated from the agreed remedial strategy without consultation with Soiltechnics.
- 4.2.2 A Water Main Design drawing, dated June 2023, see Appendix B, shows that standard PE pipe is planned to be installed in all areas of the site, with the exception of two hotspot areas. One in the area of a known drainage interceptor tank, the other in the area of known former heating oil storage near the centre of the site.
- 4.2.3 Neither of these hotspot areas are in the plots covered by this Verification Report. It can therefore be assumed that standard PE pipe has been installed for the water supply infrastructure.
- 4.2.4 Whilst this is a significant deviation from the Remediation Strategy, the change can be retrospectively justified as chemical testing results from all three phases of intrusive work show low levels of organic contaminants outside of the highlighted hotspot areas. However, agreement should have been sought from both the consultant and the regulator.
- 4.2.5 The contractor has also provided a series of photographs showing the installation of the standard PE water mains, taken from each day of the installation works. A selection of these photographs are presented within Appendix B, and a full copy can be provided upon request.
- 4.2.6 The photographs confirm the use of standard PE pipe.
- 4.2.7 The photographs also do not show any evidence of significant hydrocarbon contamination.

### **4.3 Verification**

- 4.3.1 Protective barrier pipe has not been installed within the drinking water infrastructure supplying the properties. However, on a review of the CSM and previous laboratory data, the site-wide recommendation was given out of an abundance of caution, and a zoned approach to barrier pipe requirement is a reasonable alteration.
- 4.3.2 Furthermore, as the photographs and video footage viewed of the service trench excavations do not show significant organic contamination to be present, the risk is considered low.
- 4.3.3 Overall, the use of standard PE pipe is considered suitable for the supply of drinking water.

## **5 Clean Cover Verification**

### **5.1 Remedial and Verification Requirements**

- 5.1.1 In areas of hard landscaping, no remedial works are considered necessary.
- 5.1.2 In all private gardens and planted areas of public open space, the cover requirement should be a minimum of 600mm thick. This reduces to 300mm in grassed public open space lawn areas.
- 5.1.3 All materials utilised in the cover system should be chemically suitable and laboratory testing was required to confirm suitability of the material, at a minimum testing frequency of 1 sample per 100m<sup>3</sup> per soil type, subject to a minimum of 3 samples.
- 5.1.4 On site inspections were required to confirm the minimum thickness and adequate installation of the cover system. Based upon the overall development proposals, inspection pits were required at a frequency of one in every five plots. However, as this is a partial discharge of a smaller number of plots (17 No.), a higher pit frequency would be recommended.

### **5.2 Material Source**

- 5.2.1 The topsoil was sourced through Eurogreen Environmental Ltd, and a pre-delivery compliance testing certificate was provided to give assurance of suitability. This is included within Appendix C.
- 5.2.2 Delivery certificates were not made available to confirm the overall volume of topsoil material imported.
- 5.2.3 Subsoil was imported from two sites, called Billingshurst and Newick. A site visit was undertaken to inspect the stockpiled materials and sample them to determine suitability prior to use. This is reported within Appendix D, and the assessment confirmed that material was suitable for use. Delivery notes of the subsoil imports have been provided, and a full copy can be provided upon request.

### **5.3 Clean Cover Inspection**

- 5.3.1 A second site visit was undertaken by Soiltechnics on the 2<sup>nd</sup> July 2024, following the placement of clean cover system in Plots 12 to 20 to inspect the overall thickness of the cover soils and undertake additional sampling and analysis on the topsoil and subsoil materials in-situ.
- 5.3.2 The pit inspection records are provided within Appendix E, and confirm the cover system to be of sufficient thickness and suitable composition.

5.3.3 An exploratory hole plan is provided below.



Figure 5-A: Pit Verification Plan

5.3.4 It should be noted that at the time of inspection the landscaping of Plots 7 to 11 and Plots 21 to 23 was still underway, and therefore fell outside of our scope for final inspection. This results in an overall inspection frequency of approximately 1 pit for every 3 plots.

5.3.5 To address the data-gap, in the 8 northern plots, the developer has provided a series of site photographs and a video demonstrating the reduce dig exercise and laying of the clean cover system in these plots, two examples are provided below.



Figure 5-B: Laying of subsoil (contractor provided)



Figure 5-C: Laying of topsoil (contractor provided)

- 5.3.6 Given the observations on site, level of work observed, and evidence provided, Soiltechnics are confident that our observations made in the completed areas of the site can be applied to the other plots under consideration within this report, and that a satisfactory cover system is in place across the private landscaping areas in Plots 7 to 23.

## 5.4 Contamination Observations

- 5.4.1 No visual or olfactory evidence of contamination was noted within the clean cover soils, and no suspected ACMs were identified.

## 5.5 Physical Verification

- 5.5.1 No undesirable or injurious artefacts were observed within the topsoil, such as over-sized materials, sharps, or plastics.
- 5.5.2 The material underlying the topsoil comprised of a compact clay subsoil, which contain occasional brick and other similar anthropogenic materials, such as concrete. Whilst undesirable, this does not present a risk of harm to the end users and the frequency of inclusions is not sufficient to render the unacceptable.

## 5.6 Chemical Verification

- 5.6.1 The volume of topsoil and subsoil used across all plots has been estimated at 250m<sup>3</sup> each (850m<sup>2</sup> at 300mm thickness). A sample of each strata was obtained from all five pits, satisfying the minimum requirement of 3 per strata and 1 per 100m<sup>3</sup> frequency, achieving 1 test per 50m<sup>3</sup>.
- 5.6.2 Samples obtained from site were sent to an independent accredited laboratory for chemical analysis, and the samples were handled in accordance with BS ISO 18400-105:2017 '*Soil quality — Sampling Part 105: Packaging, transport, storage and preservation of samples*'.
- 5.6.3 The chemical laboratory test results are presented in Appendix F, and the GQRA screening assessment is presented in Appendix G.
- 5.6.4 The results have been screened using the C4SL and S4UL generic assessment criteria, under a residential with plant uptake scenario at 1% SOM.
- 5.6.5 Of the 10 samples analysed, one exceedance was detected for inorganic contaminants (lead) and one for organic contamination (heavy end TPH). All other levels of contaminants were below the relevant screening criteria. No asbestos was detected under laboratory conditions, and there was no evidence of ACMs observed through field inspections.
- 5.6.6 The single lead exceedance was encountered within the topsoil sample obtained from VTP102 and exhibited a concentration of 300mg/kg, in comparison to the C4SL of 200mg/kg. The topsoil at this location did not appear to be of a different composition from other locations, and it is likely this result is an outlier or representative of the natural variance of heterogeneous chemical distribution in the soil. It should also be noted that this results fall within acceptable limits of a residential without plant uptake scenario, and those for public open space settings. The mean concentration of all samples is 92 mg/kg, the upper quartile is 130 mg/kg, and the 95<sup>th</sup> confidence interval is 160 mg/kg, all of which are below the threshold. Overall, the levels of lead detected are not considered to pose an unacceptable risk to the development.
- 5.6.7 Total TPH concentrations were below detection limits in all samples, with the exception of the subsoil from VTP104, which exhibited concentrations of EC16-21 and EC21-35 hydrocarbon bands above the GAC values (420 mg/kg vs 260 mg/kg, and 4,200 mg/kg vs 1,100 mg/kg, respectively). There was no evidence of hydrocarbon contamination during the fieldwork and the overlying topsoil sample shows all TPH and PAH levels to be below detectable limits. Within the VTP104 subsample, all PAH compounds are below their respective threshold values, indicating the TPH present is likely to be of low toxicity. As with the occurrence of lead, as no other elevated results have been detected in any other samples on site, and the presence of hydrocarbon contamination is not corroborated with field observations, this is considered to pose a minimal risk to the development.

## 5.7 Conclusion

- 5.7.1 Overall, the soils are considered to be suitable for use, in terms of the risks from land contamination, and placed at a sufficient thickness to protect against contamination in the underlying Made Ground at depth.

## **6 Gas Protection Measures**

### **6.1 Remedial Requirement**

- 6.1.1 To address risk from radon ingress, basic radon gas protection measures were required to be installed in all properties.

### **6.2 Verification**

- 6.2.1 Membrane Testing Solutions were commissioned as the independent verifier for the scheme. They have inspected the plots under the scope of this report, and a copy of their certification of approval is provided within Appendix H.

## **7 Final Remarks, Monitoring & Maintenance**

### **7.1 Remedial Works Conclusion**

- 7.1.1 Remedial works carried out on the scheme comprised the installation of a clean cover system and basic radon protection measures. Verification works were undertaken through a combination of site inspections, a review of contractor supplied records, and the sampling and analysis of materials. There is sufficient lines of evidence to demonstrate the satisfactory completion of these elements.
- 7.1.2 Protective barrier pipe was required to be installed; however the developer deviated from the agreed approach without consultation. On review, the adoption of standard PE water mains is a safe and suitable approach.
- 7.1.3 Overall, the development is considered safe and suitable for use in relation to the risk of harm from land contamination.

### **7.2 Post Construction Monitoring**

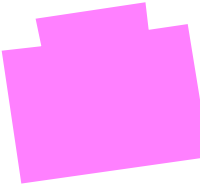
- 7.2.1 No post construction monitoring is required.

### **7.3 Long Term Maintenance**

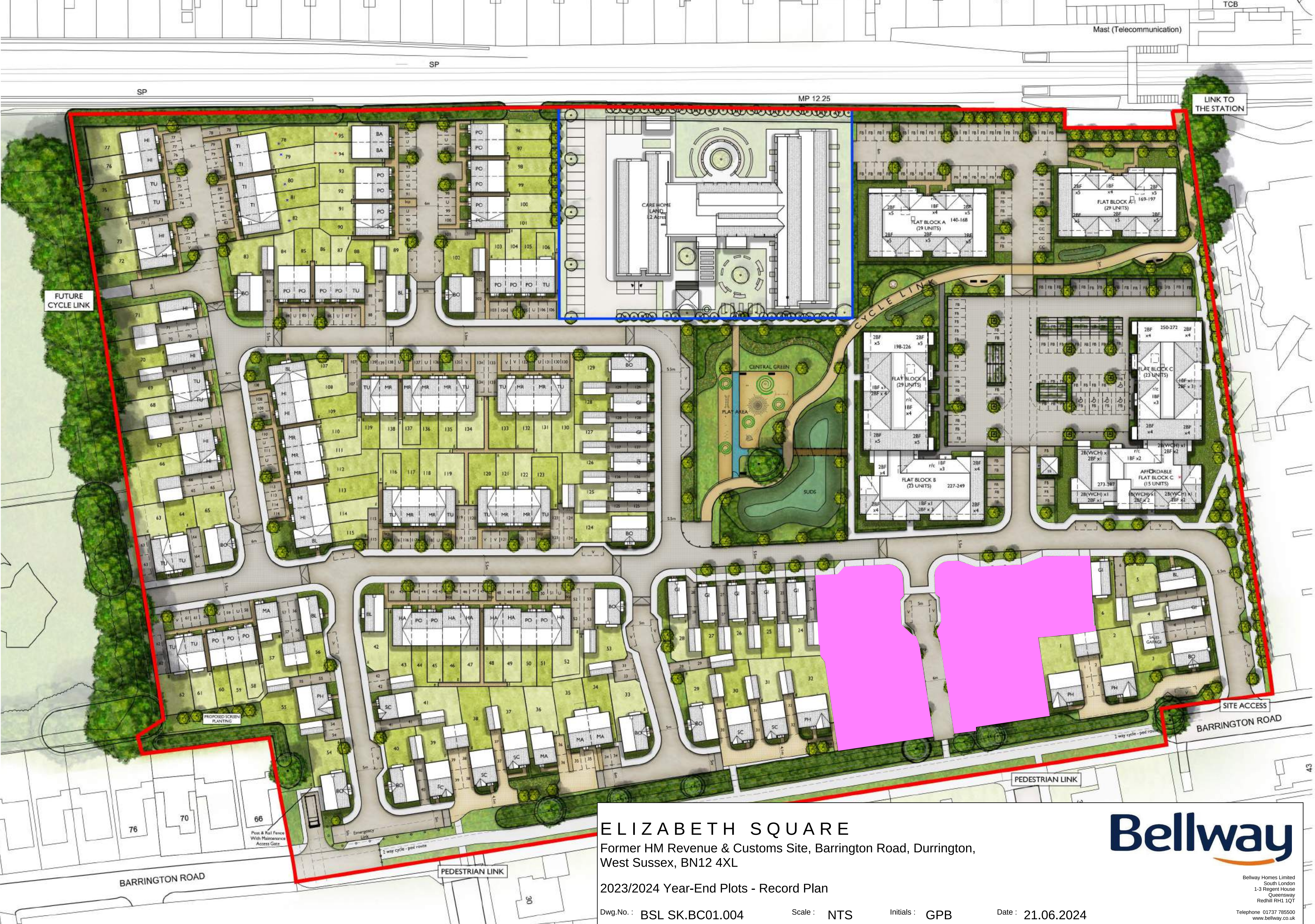
- 7.3.1 Post completion and following occupation of the buildings, landscaping and maintenance works may disturb or damage the clean cover system. Based upon the levels of contamination encountered and the site setting, it is considered unlikely that the cover system would be damaged in a way sufficient to compromise the protection of human health. As such, there is no formal monitoring or maintenance necessary for upkeep of the cover system.
- 7.3.2 All buildings on site have a radon gas membrane and passive ventilation. Both aspects will be adequately protected by the building slab throughout the lifespan of the property and therefore do not require regular upkeep. However, the membrane would be put at risk of damage during any significant structural; renovation works. No works must be permitted which could compromise the integrity of the installation without full consideration. Therefore, the owner of the buildings must be made aware of the location and purpose of the radon protection measures within the buildings' construction.

## **Appendix A     Drawings**

Legend :



2023/2024 Year-End Units  
Plots - 7-23 (17no.)



ELIZABETH SQUARE

Former HM Revenue & Customs Site, Barrington Road, Durrington,  
West Sussex, BN12 4XL

2023/2024 Year-End Plots - Record Plan

Dwg.No. : BSL SK.BC01.004

Scale : NTS

Initials : GPB

Date : 21.06.2024



Bellway Homes Limited  
South London  
1-3 Regent House  
Queensway  
Redhill RH1 1QT  
Telephone 01737 785500  
www.bellway.co.uk

## **Appendix B     Drinking Water Barrier Pipe Verification**



- Notes
1. This drawing has been prepared in accordance with the scope of SNR ENG Ltd's appointment by its Client and is subject to the terms and conditions of said appointment. Unless agreed in writing by SNR ENG Ltd no other party may use or rely upon the contents of this drawing.
  2. No liability is accepted by SNR ENG Ltd for any use of this drawing other than for the purpose for which it was originally prepared.
  3. This drawing should be read in conjunction with all other relevant drawings and specifications.
  4. Do not scale from this drawing; only written dimensions should be used. If in doubt contact SNR ENG Ltd. If received electronically it is the responsibility of the recipient to print this drawing to the correct scale.
  5. All dimensions are in metres unless noted otherwise.
  6. The contractor shall prior to construction check and verify that the details shown on this drawing are fully compatible with any constructed dimensions or levels. Any discrepancies should be immediately reported in writing to SNR ENG Ltd.
  7. This drawing may include data provided by third parties. No liability is accepted by SNR ENG Ltd as to the accuracy of this data.
  8. This drawing shall not be reproduced without the written permission of SNR ENG Ltd.

**Disclaimer**  
This plan and any information supplied with it is furnished as a general guide, is only valid at the date of issue and no warranty as to its correctness is given or implied. In particular this plan and any information shown on it must not be relied upon in the event of any works (including but not limited to excavations) in the vicinity of SOUTHERN WATER assets or for the purposes of determining the suitability of a point of connection to the sewerage or distribution systems.

CONSULT ALL UTILITY PLANS  
BEFORE ANY EXCAVATION

**AS-LAID Disclaimer**  
As-laid data capture should be recorded in accordance with Section 3.7.5 of the Code of Practice for the Self-Laying of Water Mains and Services (England and Wales). The Water Company's asset data is recorded on a geographic information (digital mapping) or CAD system. Therefore, it is important that accurate location information is supplied to the Water Company.

**AS-LAID Drawing**  
If an As-laid drawing is required by the Water Company in AutoCAD format, please contact [info@snr-eng.co.uk](mailto:info@snr-eng.co.uk) for further information.

KEY:

EXISTING:

— WATER MAIN

● FIRE HYDRANT (FH)

PROPOSED:

— WATER MAIN

● SERVICE CONNECTION

● TEMPORARY WASHOUT (TW)

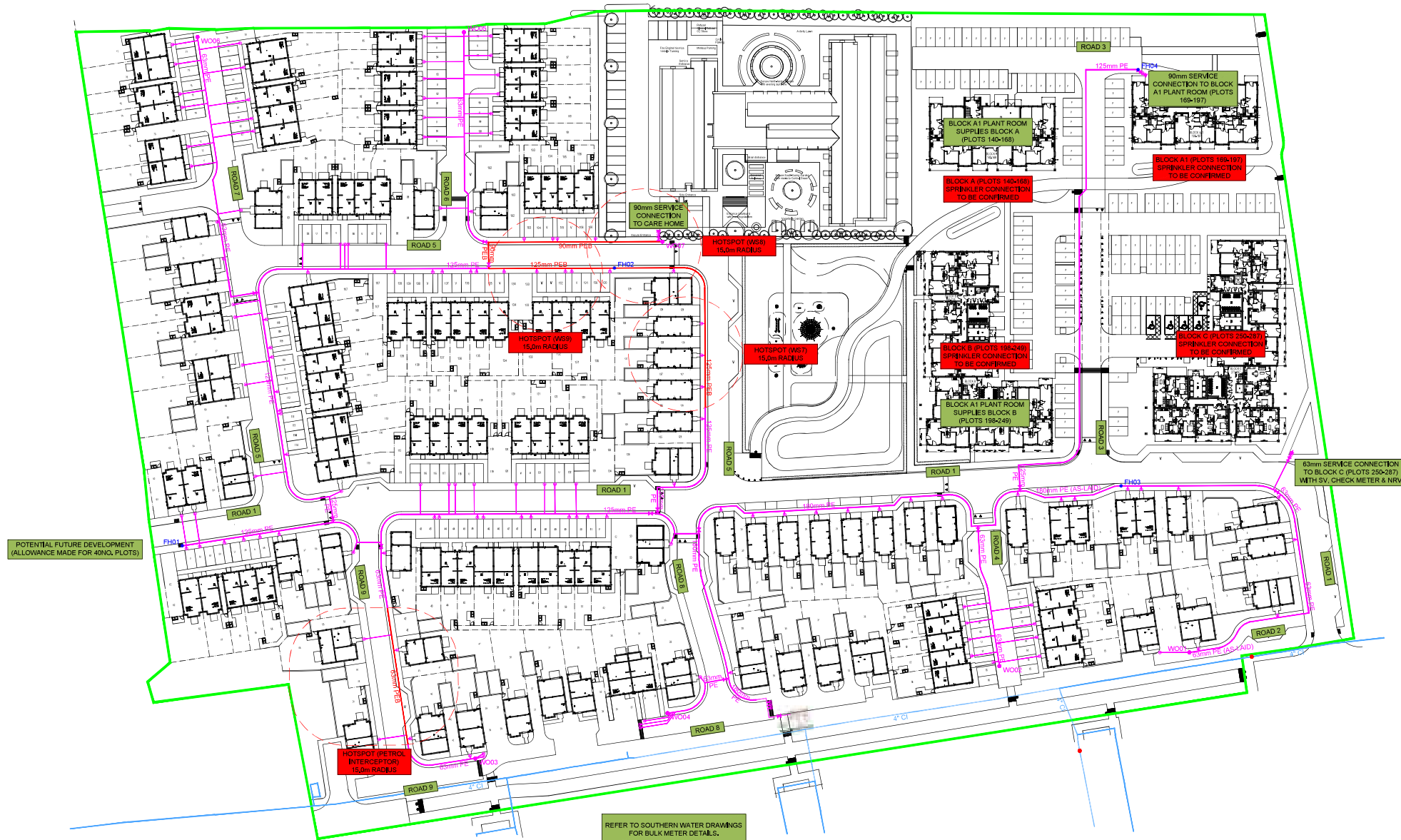
● SLUCE VALVE  
(ANTI-CLOCKWISE CLOSING  
UNLESS STATED OTHERWISE)

● WASHOUT (WO)

● CHECK VALVE

NOTE:

- SERVICE CONNECTIONS <30m TO BE 25mm.
- SERVICE CONNECTIONS >30m TO BE 32mm.
- SERVICE CONNECTIONS TO PEB MAINS SHALL ALSO BE IN BARRIER PIPE.
- SERVICE CONNECTION TO CARE HOME & APARTMENT BLOCKS TO BE FITTED WITH EXTERNAL CHECK METER ARRANGEMENT (CONSISTING OF A SV, METER & CHECK VALVE).













## **Appendix C     3<sup>rd</sup> Party Topsoil Compliance Testing**



**TIM O'HARE ASSOCIATES**  
SOIL & LANDSCAPE CONSULTANCY

Mr Jonathan Cowley  
Eurogreen Environmental Ltd  
North Barn Farm  
Titnore Lane  
Worthing  
West Sussex, BN12 6NZ

14<sup>th</sup> June 2024  
Our Ref: TOHA/24/1399/SS  
Your Ref: as below

Dear Sirs

**Topsoil Analysis Report: 10mm Topsoil – Batch No. 9**

We have completed the analysis of the soil sample recently submitted, referenced *Batch No. 9*, and have pleasure reporting our findings.

The purpose of the analysis was to determine the suitability of the sample for general landscape purposes (trees, shrubs, amenity grass). In addition, this sample has been assessed to determine its compliance with the requirements of the British Standard for Topsoil (*BS3882:2015 – Specification for Topsoil – Table 1, Multipurpose Topsoil*).

This report presents the results of analysis for the sample submitted to our office, and it should be considered 'indicative' of the topsoil source. The report and results should therefore not be used by third parties as a means of verification or validation testing or waste designation purposes, especially after the topsoil has left the Eurogreen Environmental Ltd site.

**SAMPLE EXAMINATION**

The sample was described as a very dark brown (Munsell Colour 10YR 2/2), slightly moist, friable, moderately calcareous LOAMY SAND with a weakly developed, fine to medium granular structure\*. The sample was virtually stone-free, and contained a moderate proportion of organic fines and occasional woody fragments. No unusual odours, deleterious materials, roots or rhizomes of pernicious weeds were observed.

\*This appraisal of soil structure was made from examination of a disturbed sample. Structure is a key soil characteristic that may only be accurately assessed by examination in an in-situ state.

---

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## ANALYTICAL SCHEDULE

The sample was submitted to a UKAS and MCERTS accredited laboratory for a range of physical and chemical tests to confirm the composition and fertility of the soil, and the concentration of selected potential contaminants. The following parameters were determined:

- particle size analysis (sand, silt, clay);
- stone content (2-20mm, 20-50mm, >50mm);
- pH and electrical conductivity values;
- exchangeable sodium percentage;
- major plant nutrients (N, P, K, Mg);
- organic matter content;
- C:N ratio;
- heavy metals (As, B, Cd, Cr, Cu, Pb, Hg, Ni, Se, Zn);
- total cyanide and total (mono) phenols;
- speciated PAHs (US EPA16 suite);
- aromatic and aliphatic TPH (C5-C35 banding);
- benzene, toluene, ethylbenzene, xylene (BTEX).

The results are presented on the attached Certificate of Analysis and an interpretation of the results is given below.

## RESULTS OF ANALYSIS

### Particle Size Analysis and Stone Content

The sample fell into the *loamy sand* texture class, which is usually considered suitable for general landscape applications provided the soil's physical condition is satisfactory.

The sample was virtually stone-free, and as such, stones should not restrict the use of the soil for general landscape purposes.

### pH and Electrical Conductivity Values

The sample was strongly alkaline in reaction (pH 8.3). This pH value would be considered suitable for general landscape purposes provided species with a wide pH tolerance or those known to prefer alkaline soils are selected for planting, turfing and seeding.

The electrical conductivity (salinity) value (water extract) was moderate, which indicates that soluble salts should not be present at levels that would be harmful to plants.

The electrical conductivity value by  $\text{CaSO}_4$  extract was equal to the maximum specified value (3300  $\mu\text{S}/\text{cm}$ ) given in BS3882:2015 – Table 1.

### Organic Matter and Fertility Status

The sample was well supplied with organic matter and all major plant nutrients.

The C:N ratio of the sample was acceptable for general landscape purposes.

### Potential Contaminants

With reference to BS3882:2015 - Table 1: Notes 3 and 4, there is a requirement to confirm levels of potential contaminants in relation to the topsoil's proposed end use. This includes human health, environmental protection and metals considered toxic to plants. In the absence of site-specific assessment criteria, the concentrations that affect human health have been compared with the *residential with homegrown produce* land use in the Suitable For Use Levels (S4ULs) presented in *The LQM/CIEH S4ULs for Human Health Risk Assessment* (2015) and the DEFRA SP1010: *Development of Category 4 Screening Levels (C4SLs) for Assessment of Land Affected by Contamination – Policy Companion Document* (2014).

Of the potential contaminants determined, none was found at levels that exceeded their guideline values.

### Phytotoxic Contaminants

Of the phytotoxic (toxic to plants) contaminants determined (copper, nickel, zinc), none was found at levels that exceeded the maximum permissible levels specified in BS3882:2015 – Table 1.

### CONCLUSION

The purpose of the analysis was to determine the suitability of the topsoil sample for general landscape purposes. The analysis has also been undertaken to determine the sample's compliance with the requirements of the British Standard for Topsoil (BS3882:2015 – Specification for Topsoil – Table 1, Multipurpose Topsoil).

From the soil examination and subsequent laboratory analysis, the sample was described as a strongly alkaline, non-saline, moderately calcareous, virtually stone-free *loamy sand* with an adequate structure. The sample contained sufficient reserves of organic matter and all major plant nutrients. Of the potential contaminants determined, none exceeded their respective guideline values.

To conclude, based on our findings, the topsoil represented by this sample would be considered suitable for general landscape purposes (trees, shrubs and amenity grass), provided the physical condition of the soil is satisfactory and species with a wide pH tolerance or those known to prefer alkaline soils are selected.

The topsoil was also fully compliant with the requirements of the British Standard for Topsoil (BS3882:2015 – Specification for Topsoil – Table 1, Multipurpose Topsoil).

### Soil Handling Recommendations

It is important to maintain the physical condition of the soil and avoid structural damage during all phases of soil handling (e.g. stockpiling, resspreading, cultivating, planting, seeding or turfing). As a consequence, soil handling operations should be carried out when soil is reasonably dry and non-plastic (friable) in consistency.

It is important to ensure that the soil is not unnecessarily compacted by trampling or trafficking by site machinery, and soil handling should be stopped during and after heavy rainfall and not continued until the soil is friable in consistency. If the soil is structurally damaged and compacted at any stage during the course of soiling or landscaping works, it should be cultivated appropriately to relieve the compaction and to restore the soil's structure prior to any planting, turfing or seeding.

Further details on soil handling are provided in Annex A of BS3882:2015.

We hope this report meets with your approval and provides the necessary information. Please do not hesitate to contact the undersigned if we can be of further assistance.

Yours faithfully



**Ebony Gheorghe**  
BSc MSc  
Soil Scientist



**Tim White**  
BSc MSc M(SoilSci) CSci  
Senior Associate

For & on behalf of Tim O'Hare Associates LLP



| Sample Reference                   |       | Accession |
|------------------------------------|-------|-----------|
| Clara (0.050 mm)                   | %     | UKAS      |
| SW 15 (0.02-0.10 mm)               | %     | UKAS      |
| Granit 05 (0.02-0.10 mm)           | %     | UKAS      |
| Testura Gipsa (0.6 Classification) | %     | UKAS      |
| Stirata di Gesso                   | % D99 | GLP       |
| Stirata di Gesso                   | % D99 | GLP       |
| Stirata di Gesso                   | % D99 | GLP       |

|    |
|----|
| 0  |
| 11 |
| 26 |
| 10 |
| 3  |
| 0  |
| 0  |

|      |
|------|
| 5.3  |
| 592  |
| 2787 |
| 5.5  |
| 5.8  |
| 0.32 |
| 1.8  |
| 87   |
| 0208 |
| 127  |

|      |
|------|
| 7    |
| 90.2 |
| 18   |
| +1.8 |
| 43   |
| 35   |
| +0.3 |
| 5    |
| +1.0 |
| 48   |
| 1.3  |
| +1.0 |
| +1.0 |

|       |
|-------|
| -0.05 |
| 0.06  |
| -0.09 |
| -0.05 |
| 0.58  |
| -0.03 |
| 1.00  |
| -0.67 |
| 0.43  |
| 0.48  |
| 0.81  |
| 0.19  |
| 0.40  |
| 0.27  |
| -0.09 |
| 0.28  |
| 0.    |

|        |
|--------|
| -0.920 |
| -0.850 |
| -0.760 |
| -0.65  |
| -0.52  |
| -0.38  |
| -0.22  |
| -0.08  |
| 0.08   |
| 0.22   |
| 0.38   |
| 0.52   |
| 0.65   |
| 0.76   |
| 0.85   |
| 0.92   |

|                                |
|--------------------------------|
| <input type="radio"/> A. 0.007 |
| <input type="radio"/> B. 0.008 |
| <input type="radio"/> C. 0.009 |
| <input type="radio"/> D. 0.005 |
| <input type="radio"/> E. 0.006 |
| <input type="radio"/> F. 0.003 |

色

**Ebony Okeagba**  
 MD, PhD  
 Staff Scientist

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## **Appendix D     Imported Subsoil Verification Record**



Unit 9, Clarence Avenue  
Westpoint Enterprise Park  
Trafford Park  
Manchester  
M17 1QS

t: 0161 9470270  
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w: [www.soiltechnics.net](http://www.soiltechnics.net)

Clive Hilton  
Bellway Homes Limited, South London

Date: 2<sup>nd</sup> August 2023  
Your Ref: Barrington Road,  
Worthing  
Our Ref: L-STV59595M-001

## **RE: Subsoil Verification Testing at Barrington Road, Goring-by-Sea, Worthing, BN12 4EA**

### **Introduction**

Further to our email correspondence of 28<sup>th</sup> June 2023, we are pleased to enclose our subsoil verification assessment.

We confirm our brief was to undertake sampling of subsoil stockpiles originating from the Bellway site at Billingshurst and a HGH site at Newick, both of which have been imported for use within the residential development at Barrington Road, Goring-by-Sea. The scope of the assessment is to determine the suitability of the soils for reuse on site, in terms of the risks to human health.

### **Site location and description**

The residential development site is located on land south of the Durrington-on-Sea train station and North of Barrington Road, Goring-by-Sea, which provides access to the site.

The development is for the construction of approximately 139 residential plots, 4 blocks of flats and a care home with associated access, open space, parking, landscaping, infrastructure and other associated works. The development is controlled under the Worthing Borough Council planning regime, under the planning application number AWDM/0605/22.

### **Summary of findings**

| Aspect               | Comments                                                                                                                                                        |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Material tested      | Billingshurst Material, Newick Material                                                                                                                         |
| Current placement    | 3x Billingshurst stockpiles (total of 2,600m <sup>3</sup> ), 1x Newick stockpile (total of 550m <sup>3</sup> )                                                  |
| Approximate volume   | ~3,150m <sup>3</sup>                                                                                                                                            |
| Testing frequency    | 10x Billingshurst, 3x Newick.<br>Equivalent to 1 sample per 250m <sup>3</sup> .                                                                                 |
| Physical suitability | No injurious, or over-sized artefacts identified.                                                                                                               |
| Chemical suitability | Contaminants are within acceptable levels.                                                                                                                      |
| Overall comments     | Chemically and physical suitable for use. No further testing required.                                                                                          |
| Recommendations      | Organic matter content appears low, consider applying an organic based soil improver, or testing to BS:3882 standards to ensure suitability as a growing medium |

## Material origin

The subsoil materials are understood to be imported from two separate developments, a Bellway site at Billingshurst and a HGH site at Newick. On review of desk study and investigation reports provided, it was concluded that there is no evidence to indicate the site has been subject to activities which could produce a significant source of chemical contamination, and the materials are considered to be clean and naturally occurring.

Chemical testing has been carried out for reassurance purposes and to ensure no unexpected contamination is present or cross-contamination has occurred.

## Fieldwork

The fieldwork was undertaken on 4<sup>th</sup> July 2023 and comprised the collection of soil samples from the recently formed stockpiles.

The dimensions of the stockpile have not been surveyed and the volume estimates provided below are based on visual observations at the time of the site visit.

| Stockpile Origin | Stockpile Reference | Approximate Volume  | Approximate Dimensions | Samples Obtained |
|------------------|---------------------|---------------------|------------------------|------------------|
| Billingshurst    | SL01                | 50m <sup>3</sup>    | 4m x 6m x 2.5m         | 2                |
|                  | SL02                | 800m <sup>3</sup>   | 8m x 25m x 5m          | 4                |
|                  | SL03                | 1,600m <sup>3</sup> | 10m x 40m x 5m         | 4                |
| Newick           | SL04 / SL05         | 500m <sup>3</sup>   | 7m x 25m x 3.5m        | 3                |

The Billingshurst subsoil typically comprised of brown, slightly gravelly clay. With gravels of fine, subrounded flint. The material included infrequent inclusions of brick and concrete.

The Newick subsoil comprised of firm brown slightly sandy slightly gravelly clay. With gravels of fine to coarse, subrounded to subangular flint, brick and concrete.

Sampling was evenly distributed across the extent of the stockpiles. Generally sampling was undertaken following the principles of ISO 18400-104:2018 *Soil quality – Sampling - Part 104: Strategies*. Laboratory testing was undertaken on all samples collected for a general suite of organic and inorganic contaminants, as well as asbestos. Laboratory test results are presented within Appendix B. The stockpile location plan is shown below.



Fig 1 A Stockpile Location

The following photographs presented below shows one of the Billingshurst stockpiles and a stockpile of Newark soil.



Figure 1: Billingshurst soil stockpile SL01

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*Figure 2: Billingshurst soil stockpile SL02*



*Figure 3: Billingshurst soil stockpile SL03*

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Figure 4: Billingshurst soil stockpile SL04/05

### Assessment for reuse

The soils were screened against published, widely accepted generic criteria for a residential end-use (with plant uptake).

No exceedances were detected within Billingshurst soil samples.

Exceedances from the Newick soil materials showed exceedances of Dibenz(a,h)anthracene, with a maximum concentration of 0.31 mg/kg, against the guideline value of 0.24mg/kg. As the exceedance is marginal, and all other PAH compounds fall below the guideline values, it is not considered to represent a significant risk to future residents, and can be discounted. Details of laboratory testing screening is presented within Appendix C.

Observations from the fieldworks, and screening of the laboratory analysis indicate that the imported soil materials are not impacted by contamination and are considered chemically suitable for re-use on site.

No injurious, undesirable, or over-sized materials were identified within the soil stockpile and is therefore considered broadly physically suitable for use.

**Conclusions**

Based on evidence obtained during our investigations, we are of the opinion that the subsoil deposits at the site are not affected by chemical contamination and can be reused within a residential development.

Should any of the soils be suspected to contain contamination or non-inert materials (by virtue of visual or olfactory evidence) upon excavation, then such soils should be stockpiled separately, and additional testing carried out as considered necessary.

Yours sincerely,

Prepared by  
Richard Farrell BSc.  
Geoenvironmental Consultant, Soiltechnics Limited

Supervised/reviewed by  
Mark Hamill BSc, MSc, CEnv, MIEEnvSc.  
Technical Director, Soiltechnics Limited

Encs.

| Appendices | Principal coverage                                         |
|------------|------------------------------------------------------------|
| A          | Definitions of geo-environmental terms used in this report |
| B          | Chemical laboratory test results                           |
| C          | GQRA chemical screening assessments                        |

## Appendix A

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## Definition of geo-environmental terms used in this report

### ***Conceptual model***

Textual and/or schematic hypothesis of the nature and sources of contamination, potential migration pathways (including description of the ground and groundwater) and potential receptors, developed on the basis of the information obtained from the investigatory process.

### ***Contamination***

Presence of a substance which is in, on or under land, and which has the potential to cause harm or to cause pollution of controlled water.

### ***Controlled water***

Inland freshwater (any lake, pond or watercourse above the freshwater limit), water contained in underground strata and any coastal water between the limit of highest tide or the freshwater line to the three mile limit of territorial waters.

### ***Harm***

Adverse effect on the health of living organisms, or other interference with ecological systems of which they form part, and, in the case of humans, including property.

### ***Pathway***

Mechanism or route by which a contaminant comes into contact with, or otherwise affects, a receptor.

### ***Receptor***

Persons, living organisms, ecological systems, controlled waters, atmosphere, structures and utilities that could be adversely affected by the contaminant(s).

### ***Risk***

Probability of the occurrence of, and magnitude of the consequences of, an unwanted adverse effect on a receptor.

### ***Risk assessment***

Process of establishing, to the extent possible, the existence, nature and significance of risk.

## Definition of environmental risk/hazard terms used in this report

Based on CIRIA report C552 '*Contaminated land risk assessment – A guide to good practice*'.

### Potential hazard severity definition

| Category      | Definition                                                                                                                                                                    |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Severe</b> | Acute risks to human health, catastrophic damage to buildings/property, major pollution of controlled waters                                                                  |
| <b>Medium</b> | Chronic risk to human health, pollution of sensitive controlled waters, significant effects on sensitive ecosystems or species, significant damage to buildings or structures |
| <b>Mild</b>   | Pollution of non-sensitive waters, minor damage to buildings or structures                                                                                                    |
| <b>Minor</b>  | Requirement for protective equipment during site works to mitigate health effects, damage to non-sensitive ecosystems or species                                              |

### Probability of risk definition

| Category               | Definition                                                                                                                            |
|------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| <b>High likelihood</b> | Pollutant linkage may be present, and risk is almost certain to occur in long term, or there is evidence of harm to the receptor      |
| <b>Likely</b>          | Pollutant linkage may be present, and it is probable that the risk will occur over the long term                                      |
| <b>Low likelihood</b>  | Pollutant linkage may be present, and there is a possibility of the risk occurring, although there is no certainty that it will do so |
| <b>Unlikely</b>        | Pollutant linkage may be present, but the circumstances under which harm would occur are improbable                                   |

### Level of risk for potential hazard definition

| Probability of risk    | Potential severity |              |              |              |
|------------------------|--------------------|--------------|--------------|--------------|
|                        | Severe             | Medium       | Mild         | Minor        |
| <b>High likelihood</b> | Very high          | High         | Moderate     | Low/Moderate |
| <b>Likely</b>          | High               | Moderate     | Low/Moderate | Low          |
| <b>Low likelihood</b>  | Moderate           | Low/Moderate | Low          | Very low     |
| <b>Unlikely</b>        | Low/Moderate       | Low          | Very low     | Very low     |

See below for definitions of 'very high' to 'very low'

## Definition of environmental risk/hazard terms used in this report

Based on CIRIA report C552 '*Contaminated land risk assessment – A guide to good practice*'.

### Risk classifications and likely action required:

#### **Very high risk**

High probability that severe harm could arise to a designated receptor from an identified hazard OR there is evidence that severe harm to a designated receptor is currently happening. This risk, if realised is likely to result in substantial liability. Urgent investigation and remediation are likely to be required.

#### **High risk**

Harm is likely to arise to a designated receptor from an identified hazard. This risk, if realised, is likely to result in substantial liability. Urgent investigation is required and remedial works may be necessary in the short term and are likely over the long term.

#### **Moderate risk**

It is possible that harm could arise to a designated receptor from an identified hazard. However, it is either relatively unlikely that any such harm would be severe, or if any harm were to occur it is likely that the harm would be relatively mild. Investigation is normally required to clarify risks and to determine potential liability. Some remedial works may be required in the long term.

#### **Low risk**

It is possible that harm could arise to a designated receptor from an identified hazard but it is likely that this harm, if realised, would at worst normally be mild.

#### **Very low risk**

It is a low possibility that harm could arise to a designated receptor. On the event of such harm being realised it is not likely to be severe.

## List of documents used in assessment of chemical contamination

| No. | Title                                                                                                                                     | Publication reference / publisher                                     |
|-----|-------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|
| 1   | Human health toxicological assessment of contaminants in soil                                                                             | EA Science Report – SC050021/SR2                                      |
| 2   | Updated technical background to the CLEA model                                                                                            | EA Science Report – SC050021/SR3                                      |
| 3   | CLEA Software (Version 1.03 beta) Handbook                                                                                                | EA Science Report - SC050021/SR4                                      |
| 4   | Guidance on comparing Soil Contamination Data with a Critical Concentration                                                               | CIEH                                                                  |
| 5   | The LQM/CIEH S4ULs for Human Health Risk Assessment (2015)                                                                                | LQM/CIEH                                                              |
| 6   | Assessment of Risks to Human Health from Land Contamination: An overview of the development of soil guideline values and related research | R&D Publication, Contaminated Land Report CLR 7                       |
| 7   | Contaminants of Soil: Collation of Toxicological Data and Intake Values for Humans                                                        | R&D Publication, Contaminated Land Report CLR 9                       |
| 8   | The Contaminated Land Exposure Assessment Model (CLEA): Technical Basis and Algorithms                                                    | R&D Publication, Contaminated Land Report CLR 10                      |
| 9   | Model Procedures for the Management of Land Contamination                                                                                 | R&D Publication, Contaminated Land Report CLR 11                      |
| 10  | Contaminants in Soil: Collection of Toxicological Data and Intake Values for Human Values                                                 | R&D Publications, Tox. 6                                              |
| 11  | Soil Guideline Values for Contamination (2002)                                                                                            | R&D Publications, SGV 10                                              |
| 12  | Soil Guideline Values (2009)                                                                                                              | EA Science Reports – SC050021                                         |
| 13  | Atkins ATRISK <sup>SOIL</sup> (2011)                                                                                                      | <a href="http://www.atrisksoil.co.uk">http://www.atrisksoil.co.uk</a> |
| 14  | Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination (September 2014)                              | CL:AIRE                                                               |

|         |                                                      |
|---------|------------------------------------------------------|
| CIEH    | Chartered institute of Environmental Health          |
| LQM     | Land Quality Management                              |
| EA      | Environment Agency                                   |
| CL:AIRE | Contaminated Land: Applications in Real Environments |

## Testing suite summary

| Table summarising testing suites |                                                                                                                                                                                                                                                                                             |                             |
|----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|
| Suite                            | Parameters                                                                                                                                                                                                                                                                                  | Medium                      |
| Suite 1                          | Arsenic, beryllium, boron, cadmium, chromium (total and VI), copper, lead, mercury, nickel, selenium, vanadium zinc, cyanide (free, total and complex), organic matter content, PAH (16 speciated), pH, phenol (total), TOC                                                                 | Soil                        |
| Suite 2                          | Arsenic, boron (water soluble), beryllium, cadmium, chromium (total), copper, lead, mercury, nickel, selenium, vanadium, zinc, cyanide (free, total and complex, PAH (16 speciated), pH, phenol (total), sulfate (water soluble), sulfide, nitrate                                          | Leachate                    |
| Suite 3                          | Arsenic, boron (water soluble), beryllium, cadmium, chromium (total), copper, lead, mercury, nickel, selenium, vanadium, zinc, cyanide (free, total and complex, PAH (16 speciated), pH, phenol (total), sulfate (water soluble), sulfide, nitrate                                          | Water                       |
| Suite 4                          | TPH Texas Banding Aliphatic/Aromatic Split, BTEX, MTBE, PAH (16 speciated), organic matter                                                                                                                                                                                                  | Soil                        |
| Suite 5                          | TPH Texas Banding Aliphatic/Aromatic Split, BTEX, MTBE, PAH (16 speciated)                                                                                                                                                                                                                  | Leachate                    |
| Suite 6                          | TPH Texas Banding Aliphatic/Aromatic Split, BTEX, MTBE, PAH (16 speciated)                                                                                                                                                                                                                  | Water                       |
| Suite 7                          | TPH Texas Banding Aliphatic/Aromatic Split, BTEX, TOC, organic matter                                                                                                                                                                                                                       | Soil                        |
| Suite 8                          | Sulphur (total), sulphate (water and acid soluble), pH                                                                                                                                                                                                                                      | Soil                        |
| Suite 9                          | Sulphate, ammoniacal nitrogen, dissolved magnesium, pH                                                                                                                                                                                                                                      | Water                       |
| Suite 10                         | VOC, SVOC, TOC, organic matter                                                                                                                                                                                                                                                              | Soil                        |
| Suite 11                         | VOC, SVOC                                                                                                                                                                                                                                                                                   | Leachate                    |
| Suite 12                         | VOC, SVOC                                                                                                                                                                                                                                                                                   | Water                       |
| Suite 13                         | Organotins dibutyltin/ tributyl-tin/tetrabutyltin/triphenyl-tin, tetraethyl-lead/tetramethyl-lead                                                                                                                                                                                           | Soil                        |
| Suite 14                         | Organotin                                                                                                                                                                                                                                                                                   | Leachate                    |
| Suite 15                         | Organotin                                                                                                                                                                                                                                                                                   | Water                       |
| Suite 16                         | TPH Texas Banding Aliphatic/Aromatic Split, BTEX, VOC, SVOC                                                                                                                                                                                                                                 | Soil,<br>water,<br>leachate |
| Suite 17                         | TPH Texas Banding Aliphatic/Aromatic Split, BTEX, SVOC, VOC, arsenic, boron (water soluble), beryllium, cadmium, chromium (total), copper, lead, mercury, nickel, selenium, vanadium, zinc, cyanide (free, total and complex, pH, phenol (total), sulfate (water soluble), sulfide, nitrate | Soil,<br>water,<br>leachate |
| Concrete BRE suite               | pH, sulphate (water and acid soluble), magnesium (water soluble), ammonia (water soluble), chloride, nitrate                                                                                                                                                                                | Soil                        |

## Appendix B

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# Final Report

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**Report No.:** 23-23395-1

**Initial Date of Issue:** 19-Jul-2023

**Re-Issue Details:**

**Client** Soiltechnics Limited

**Client Address:** 1st Floor Unit 9 Westpoint Enterprise  
Park  
Clarence Avenue  
Trafford Park  
Manchester  
M17 1QS

**Contact(s):** Admin

**Project** STV5959 Barrington Road, Worthing

**Quotation No.:** **Date Received:** 11-Jul-2023

**Order No.:** POR015875 **Date Instructed:** 11-Jul-2023

**No. of Samples:** 13

**Turnaround (Wkdays):** 7 **Results Due:** 19-Jul-2023

**Date Approved:** 18-Jul-2023

**Approved By:**

**Details:** Stuart Henderson, Technical  
Manager

---

## Results - Soil

**Project: STV5959 Barrington Road, Worthing**

|                                     |                             |            |              |            |                      |                      |                      |                      |                      |                      |                      |                      |                      |
|-------------------------------------|-----------------------------|------------|--------------|------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| <b>Client: Soiltechnics Limited</b> | <b>Chemtest Job No.:</b>    |            |              |            | 23-23395             | 23-23395             | 23-23395             | 23-23395             | 23-23395             | 23-23395             | 23-23395             | 23-23395             | 23-23395             |
| <b>Quotation No.:</b>               | <b>Chemtest Sample ID.:</b> |            |              |            | 1672171              | 1672172              | 1672173              | 1672174              | 1672175              | 1672176              | 1672177              | 1672178              | 1672179              |
| <b>Order No.:</b> POR015875         | <b>Client Sample Ref.:</b>  |            |              |            | 1                    | 2                    | 2                    | 3                    | 4                    | 1                    | 1                    | 2                    | 3                    |
|                                     | <b>Client Sample ID.:</b>   |            |              |            | SL010.201            | SL011.502            | SL020.102            | SL020.203            | SL020.304            | SL020.601            | SL030.101            | SL030.202            | SL030.303            |
|                                     | <b>Sample Location:</b>     |            |              |            | SL01                 | SL01                 | SL02                 | SL02                 | SL02                 | SL02                 | SL03                 | SL03                 | SL03                 |
|                                     | <b>Sample Type:</b>         |            |              |            | SOIL                 | SOIL                 | SOIL                 | SOIL                 | SOIL                 | SOIL                 | SOIL                 | SOIL                 | SOIL                 |
|                                     | <b>Top Depth (m):</b>       |            |              |            | 0.20                 | 1.50                 | 0.10                 | 0.20                 | 0.30                 | 0.60                 | 0.10                 | 0.20                 | 0.30                 |
|                                     | <b>Date Sampled:</b>        |            |              |            | 04-Jul-2023          | 04-Jul-2023          | 04-Jul-2023          | 04-Jul-2023          | 04-Jul-2023          | 04-Jul-2023          | 04-Jul-2023          | 04-Jul-2023          | 04-Jul-2023          |
|                                     | <b>Asbestos Lab:</b>        |            |              |            | DURHAM               | DURHAM               | DURHAM               | DURHAM               | DURHAM               | DURHAM               | DURHAM               | NEW-ASB              | NEW-ASB              |
| <b>Determinand</b>                  | <b>Accred.</b>              | <b>SOP</b> | <b>Units</b> | <b>LOD</b> |                      |                      |                      |                      |                      |                      |                      |                      |                      |
| ACM Type                            | U                           | 2192       |              | N/A        | -                    | -                    | -                    | -                    | -                    | -                    | -                    | -                    | -                    |
| Asbestos Identification             | U                           | 2192       |              | N/A        | No Asbestos Detected | No Asbestos Detected | No Asbestos Detected | No Asbestos Detected | No Asbestos Detected | No Asbestos Detected | No Asbestos Detected | No Asbestos Detected | No Asbestos Detected |
| Moisture                            | N                           | 2030       | %            | 0.020      | 21                   | 19                   | 15                   | 14                   | 13                   | 16                   | 5.4                  | 12                   | 11                   |
| Soil Colour                         | N                           | 2040       |              | N/A        | Brown                | Brown                | Brown                | Brown                | Brown                | Brown                | Brown                | Brown                | Brown                |
| Other Material                      | N                           | 2040       |              | N/A        | Stones               | Stones               | 50% Stones           | 45% Stones           | Stones               | Stones               | 50% Stones           | Stones               | Stones               |
| Soil Texture                        | N                           | 2040       |              | N/A        | Clay                 | Clay                 | Sand                 | Sand                 | Clay                 | Sand                 | Gravel               | Sand                 | Sand                 |
| pH                                  | M                           | 2010       |              | 4.0        | 7.6                  | 7.8                  | 7.8                  | 7.5                  | 7.1                  | 7.6                  | 7.7                  | 7.4                  | 8.0                  |
| Boron (Hot Water Soluble)           | M                           | 2120       | mg/kg        | 0.40       | 3.1                  | 3.5                  | 1.9                  | 1.2                  | 0.49                 | 1.8                  | 6.6                  | 1.5                  | 1.0                  |
| Cyanide (Complex)                   | M                           | 2300       | mg/kg        | 0.50       | < 0.50               | < 0.50               | < 0.50               | < 0.50               | < 0.50               | < 0.50               | < 0.50               | < 0.50               | < 0.50               |
| Cyanide (Free)                      | M                           | 2300       | mg/kg        | 0.50       | < 0.50               | < 0.50               | < 0.50               | < 0.50               | < 0.50               | < 0.50               | < 0.50               | < 0.50               | < 0.50               |
| Cyanide (Total)                     | M                           | 2300       | mg/kg        | 0.50       | < 0.50               | < 0.50               | < 0.50               | < 0.50               | < 0.50               | < 0.50               | < 0.50               | < 0.50               | < 0.50               |
| Arsenic                             | M                           | 2455       | mg/kg        | 0.5        | 11                   | 9.2                  | 9.2                  | 8.4                  | 8.4                  | 6.5                  | 14                   | 8.4                  | 8.6                  |
| Beryllium                           | U                           | 2455       | mg/kg        | 0.5        | 0.8                  | 0.7                  | 0.6                  | 0.7                  | 0.7                  | < 0.5                | 0.9                  | 0.6                  | 0.7                  |
| Cadmium                             | M                           | 2455       | mg/kg        | 0.10       | < 0.10               | < 0.10               | 0.21                 | < 0.10               | 0.20                 | < 0.10               | < 0.10               | < 0.10               | < 0.10               |
| Chromium                            | M                           | 2455       | mg/kg        | 0.5        | 26                   | 24                   | 26                   | 23                   | 18                   | 16                   | 31                   | 20                   | 24                   |
| Copper                              | M                           | 2455       | mg/kg        | 0.50       | 52                   | 21                   | 20                   | 18                   | 15                   | 25                   | 31                   | 16                   | 23                   |
| Mercury                             | M                           | 2455       | mg/kg        | 0.05       | < 0.05               | < 0.05               | 0.05                 | < 0.05               | < 0.05               | < 0.05               | < 0.05               | < 0.05               | 0.05                 |
| Nickel                              | M                           | 2455       | mg/kg        | 0.50       | 16                   | 18                   | 15                   | 15                   | 11                   | 11                   | 13                   | 13                   | 17                   |
| Lead                                | M                           | 2455       | mg/kg        | 0.50       | 23                   | 24                   | 27                   | 24                   | 14                   | 26                   | 20                   | 24                   | 33                   |
| Selenium                            | M                           | 2455       | mg/kg        | 0.25       | 0.53                 | 0.62                 | 0.56                 | 0.56                 | 0.37                 | 0.38                 | 0.43                 | 0.50                 | 0.68                 |
| Vanadium                            | U                           | 2455       | mg/kg        | 0.5        | 34                   | 32                   | 29                   | 30                   | 22                   | 23                   | 38                   | 28                   | 33                   |
| Zinc                                | M                           | 2455       | mg/kg        | 0.50       | 65                   | 57                   | 59                   | 50                   | 36                   | 46                   | 46                   | 49                   | 64                   |
| Chromium (Hexavalent)               | N                           | 2490       | mg/kg        | 0.50       | < 0.50               | < 0.50               | < 0.50               | < 0.50               | < 0.50               | < 0.50               | < 0.50               | < 0.50               | < 0.50               |
| LOI                                 | M                           | 2610       | %            | 0.10       | 5.5                  | 4.5                  | 5.1                  | 4.5                  | 4.6                  | 5.9                  | 6.2                  | 5.0                  | 4.3                  |
| Organic Matter                      | M                           | 2625       | %            | 0.40       | 1.9                  | 2.1                  | 3.1                  | 1.8                  | 4.2                  | 1.4                  | 0.95                 | 2.4                  | 1.5                  |
| TPH >C5-C6                          | N                           | 2670       | mg/kg        | 1.0        | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                |
| TPH >C6-C7                          | N                           | 2670       | mg/kg        | 1.0        | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                |
| TPH >C7-C8                          | N                           | 2670       | mg/kg        | 1.0        | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                |
| TPH >C8-C10                         | N                           | 2670       | mg/kg        | 1.0        | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                |
| TPH >C10-C12                        | N                           | 2670       | mg/kg        | 1.0        | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                |
| TPH >C12-C16                        | N                           | 2670       | mg/kg        | 1.0        | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                |
| TPH >C16-C21                        | N                           | 2670       | mg/kg        | 1.0        | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                |
| TPH >C21-C35                        | N                           | 2670       | mg/kg        | 1.0        | < 1.0                | < 1.0                | < 1.0                | 2.7                  | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                |
| Total TPH >C5-C35                   | N                           | 2670       | mg/kg        | 10         | < 10                 | < 10                 | < 10                 | < 10                 | < 10                 | < 10                 | < 10                 | < 10                 | < 10                 |
| Naphthalene                         | M                           | 2800       | mg/kg        | 0.10       | 0.62                 | 0.64                 | 1.2                  | 0.55                 | 1.1                  | 0.65                 | 0.74                 | 0.83                 | 0.90                 |
| Acenaphthylene                      | N                           | 2800       | mg/kg        | 0.10       | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               |

## Results - Soil

**Project: STV5959 Barrington Road, Worthing**

|                                     |                             |            |              |            |             |             |             |             |             |             |             |             |             |
|-------------------------------------|-----------------------------|------------|--------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <b>Client: Soiltechnics Limited</b> | <b>Chemtest Job No.:</b>    |            |              |            | 23-23395    | 23-23395    | 23-23395    | 23-23395    | 23-23395    | 23-23395    | 23-23395    | 23-23395    | 23-23395    |
| <b>Quotation No.:</b>               | <b>Chemtest Sample ID.:</b> |            |              |            | 1672171     | 1672172     | 1672173     | 1672174     | 1672175     | 1672176     | 1672177     | 1672178     | 1672179     |
| <b>Order No.:</b> POR015875         | <b>Client Sample Ref.:</b>  |            |              |            | 1           | 2           | 2           | 3           | 4           | 1           | 1           | 2           | 3           |
|                                     | <b>Client Sample ID.:</b>   |            |              |            | SL010.201   | SL011.502   | SL020.102   | SL020.203   | SL020.304   | SL020.601   | SL030.101   | SL030.202   | SL030.303   |
|                                     | <b>Sample Location:</b>     |            |              |            | SL01        | SL01        | SL02        | SL02        | SL02        | SL02        | SL03        | SL03        | SL03        |
|                                     | <b>Sample Type:</b>         |            |              |            | SOIL        | SOIL        | SOIL        | SOIL        | SOIL        | SOIL        | SOIL        | SOIL        | SOIL        |
|                                     | <b>Top Depth (m):</b>       |            |              |            | 0.20        | 1.50        | 0.10        | 0.20        | 0.30        | 0.60        | 0.10        | 0.20        | 0.30        |
|                                     | <b>Date Sampled:</b>        |            |              |            | 04-Jul-2023 | 04-Jul-2023 | 04-Jul-2023 | 04-Jul-2023 | 04-Jul-2023 | 04-Jul-2023 | 04-Jul-2023 | 04-Jul-2023 | 04-Jul-2023 |
|                                     | <b>Asbestos Lab:</b>        |            |              |            | DURHAM      | DURHAM      | DURHAM      | DURHAM      | DURHAM      | DURHAM      | DURHAM      | NEW-ASB     | NEW-ASB     |
| <b>Determinand</b>                  | <b>Accred.</b>              | <b>SOP</b> | <b>Units</b> | <b>LOD</b> |             |             |             |             |             |             |             |             |             |
| Acenaphthene                        | M                           | 2800       | mg/kg        | 0.10       | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      |
| Fluorene                            | M                           | 2800       | mg/kg        | 0.10       | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      |
| Phenanthrene                        | M                           | 2800       | mg/kg        | 0.10       | 0.14        | 0.18        | 0.14        | < 0.10      | < 0.10      | 0.33        | < 0.10      | < 0.10      | < 0.10      |
| Anthracene                          | M                           | 2800       | mg/kg        | 0.10       | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      |
| Fluoranthene                        | M                           | 2800       | mg/kg        | 0.10       | < 0.10      | 0.14        | 0.47        | < 0.10      | < 0.10      | 0.42        | < 0.10      | < 0.10      | < 0.10      |
| Pyrene                              | M                           | 2800       | mg/kg        | 0.10       | < 0.10      | 0.12        | 0.52        | < 0.10      | < 0.10      | 0.26        | < 0.10      | < 0.10      | < 0.10      |
| Benzo[a]anthracene                  | M                           | 2800       | mg/kg        | 0.10       | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      |
| Chrysene                            | M                           | 2800       | mg/kg        | 0.10       | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      |
| Benzo[b]fluoranthene                | M                           | 2800       | mg/kg        | 0.10       | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      |
| Benzo[k]fluoranthene                | M                           | 2800       | mg/kg        | 0.10       | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      |
| Benzo[a]pyrene                      | M                           | 2800       | mg/kg        | 0.10       | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      |
| Indeno(1,2,3-c,d)Pyrene             | M                           | 2800       | mg/kg        | 0.10       | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      |
| Dibenz(a,h)Anthracene               | N                           | 2800       | mg/kg        | 0.10       | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      |
| Benzo[g,h,i]perylene                | M                           | 2800       | mg/kg        | 0.10       | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      |
| Total Of 16 PAH's                   | N                           | 2800       | mg/kg        | 2.0        | < 2.0       | < 2.0       | 2.3         | < 2.0       | < 2.0       | < 2.0       | < 2.0       | < 2.0       | < 2.0       |
| Total Phenols                       | M                           | 2920       | mg/kg        | 0.10       | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      |

## Results - Soil

**Project: STV5959 Barrington Road, Worthing**

|                                     |                             |            |              |            |                      |                      |                      |                      |
|-------------------------------------|-----------------------------|------------|--------------|------------|----------------------|----------------------|----------------------|----------------------|
| <b>Client: Soiltechnics Limited</b> | <b>Chemtest Job No.:</b>    |            |              |            | 23-23395             | 23-23395             | 23-23395             | 23-23395             |
| Quotation No.:                      | <b>Chemtest Sample ID.:</b> |            |              |            | 1672180              | 1672181              | 1672182              | 1672183              |
| Order No.: POR015875                | Client Sample Ref.:         |            |              |            | 4                    | 1                    | 1                    | 2                    |
|                                     | Client Sample ID.:          |            |              |            | SL030.604            | SL040.601            | SL050.201            | SL050.602            |
|                                     | Sample Location:            |            |              |            | SL03                 | SL04                 | SL05                 | SL05                 |
|                                     | Sample Type:                |            |              |            | SOIL                 | SOIL                 | SOIL                 | SOIL                 |
|                                     | Top Depth (m):              |            |              |            | 0.60                 | 0.60                 | 0.20                 | 0.60                 |
|                                     | Date Sampled:               |            |              |            | 04-Jul-2023          | 04-Jul-2023          | 04-Jul-2023          | 04-Jul-2023          |
|                                     | Asbestos Lab:               |            |              |            | NEW-ASB              | DURHAM               | DURHAM               | NEW-ASB              |
| <b>Determinand</b>                  | <b>Accred.</b>              | <b>SOP</b> | <b>Units</b> | <b>LOD</b> |                      |                      |                      |                      |
| ACM Type                            | U                           | 2192       |              | N/A        | -                    | -                    | -                    | -                    |
| Asbestos Identification             | U                           | 2192       |              | N/A        | No Asbestos Detected | No Asbestos Detected | No Asbestos Detected | No Asbestos Detected |
| Moisture                            | N                           | 2030       | %            | 0.020      | 16                   | 12                   | 7.5                  | 7.4                  |
| Soil Colour                         | N                           | 2040       |              | N/A        | Brown                | Brown                | Brown                | Brown                |
| Other Material                      | N                           | 2040       |              | N/A        | Stones               | Stones               | Stones               | Stones               |
| Soil Texture                        | N                           | 2040       |              | N/A        | Sand                 | Sand                 | Sand                 | Sand                 |
| pH                                  | M                           | 2010       |              | 4.0        | 7.6                  | 6.6                  | 9.7                  | 9.9                  |
| Boron (Hot Water Soluble)           | M                           | 2120       | mg/kg        | 0.40       | 0.50                 | 0.48                 | 1.4                  | 1.3                  |
| Cyanide (Complex)                   | M                           | 2300       | mg/kg        | 0.50       | < 0.50               | < 0.50               | < 0.50               | < 0.50               |
| Cyanide (Free)                      | M                           | 2300       | mg/kg        | 0.50       | < 0.50               | < 0.50               | < 0.50               | < 0.50               |
| Cyanide (Total)                     | M                           | 2300       | mg/kg        | 0.50       | < 0.50               | < 0.50               | < 0.50               | < 0.50               |
| Arsenic                             | M                           | 2455       | mg/kg        | 0.5        | 9.9                  | 10                   | 10                   | 6.8                  |
| Beryllium                           | U                           | 2455       | mg/kg        | 0.5        | 0.7                  | < 0.5                | 0.6                  | 0.5                  |
| Cadmium                             | M                           | 2455       | mg/kg        | 0.10       | 0.12                 | < 0.10               | 0.31                 | 0.21                 |
| Chromium                            | M                           | 2455       | mg/kg        | 0.5        | 23                   | 17                   | 19                   | 14                   |
| Copper                              | M                           | 2455       | mg/kg        | 0.50       | 18                   | 19                   | 22                   | 16                   |
| Mercury                             | M                           | 2455       | mg/kg        | 0.05       | 0.06                 | 0.06                 | 0.09                 | 0.08                 |
| Nickel                              | M                           | 2455       | mg/kg        | 0.50       | 15                   | 10                   | 17                   | 11                   |
| Lead                                | M                           | 2455       | mg/kg        | 0.50       | 41                   | 30                   | 77                   | 74                   |
| Selenium                            | M                           | 2455       | mg/kg        | 0.25       | 0.59                 | 0.56                 | 0.54                 | 0.36                 |
| Vanadium                            | U                           | 2455       | mg/kg        | 0.5        | 35                   | 23                   | 31                   | 25                   |
| Zinc                                | M                           | 2455       | mg/kg        | 0.50       | 61                   | 58                   | 110                  | 84                   |
| Chromium (Hexavalent)               | N                           | 2490       | mg/kg        | 0.50       | < 0.50               | < 0.50               | < 0.50               | < 0.50               |
| LOI                                 | M                           | 2610       | %            | 0.10       | 4.5                  | 3.0                  | 4.1                  | 4.0                  |
| Organic Matter                      | M                           | 2625       | %            | 0.40       | 2.4                  | 1.3                  | 1.6                  | 1.4                  |
| TPH >C5-C6                          | N                           | 2670       | mg/kg        | 1.0        | < 1.0                | < 1.0                | < 1.0                | < 1.0                |
| TPH >C6-C7                          | N                           | 2670       | mg/kg        | 1.0        | < 1.0                | < 1.0                | < 1.0                | < 1.0                |
| TPH >C7-C8                          | N                           | 2670       | mg/kg        | 1.0        | < 1.0                | < 1.0                | < 1.0                | < 1.0                |
| TPH >C8-C10                         | N                           | 2670       | mg/kg        | 1.0        | < 1.0                | < 1.0                | < 1.0                | < 1.0                |
| TPH >C10-C12                        | N                           | 2670       | mg/kg        | 1.0        | < 1.0                | < 1.0                | 12                   | < 1.0                |
| TPH >C12-C16                        | N                           | 2670       | mg/kg        | 1.0        | < 1.0                | < 1.0                | 14                   | 3.4                  |
| TPH >C16-C21                        | N                           | 2670       | mg/kg        | 1.0        | < 1.0                | < 1.0                | 18                   | 23                   |
| TPH >C21-C35                        | N                           | 2670       | mg/kg        | 1.0        | < 1.0                | < 1.0                | 57                   | 170                  |
| Total TPH >C5-C35                   | N                           | 2670       | mg/kg        | 10         | < 10                 | < 10                 | 100                  | 190                  |
| Naphthalene                         | M                           | 2800       | mg/kg        | 0.10       | 1.2                  | 0.64                 | 0.70                 | 0.57                 |
| Acenaphthylene                      | N                           | 2800       | mg/kg        | 0.10       | < 0.10               | < 0.10               | 0.11                 | 0.14                 |

## Results - Soil

**Project: STV5959 Barrington Road, Worthing**

|                                     |                             |            |              |            |             |             |             |             |
|-------------------------------------|-----------------------------|------------|--------------|------------|-------------|-------------|-------------|-------------|
| <b>Client: Soiltechnics Limited</b> | <b>Chemtest Job No.:</b>    |            |              |            | 23-23395    | 23-23395    | 23-23395    | 23-23395    |
| Quotation No.:                      | <b>Chemtest Sample ID.:</b> |            |              |            | 1672180     | 1672181     | 1672182     | 1672183     |
| Order No.: POR015875                | Client Sample Ref.:         |            |              |            | 4           | 1           | 1           | 2           |
|                                     | Client Sample ID.:          |            |              |            | SL030.604   | SL040.601   | SL050.201   | SL050.602   |
|                                     | Sample Location:            |            |              |            | SL03        | SL04        | SL05        | SL05        |
|                                     | Sample Type:                |            |              |            | SOIL        | SOIL        | SOIL        | SOIL        |
|                                     | Top Depth (m):              |            |              |            | 0.60        | 0.60        | 0.20        | 0.60        |
|                                     | Date Sampled:               |            |              |            | 04-Jul-2023 | 04-Jul-2023 | 04-Jul-2023 | 04-Jul-2023 |
|                                     | Asbestos Lab:               |            |              |            | NEW-ASB     | DURHAM      | DURHAM      | NEW-ASB     |
| <b>Determinand</b>                  | <b>Accred.</b>              | <b>SOP</b> | <b>Units</b> | <b>LOD</b> |             |             |             |             |
| Acenaphthene                        | M                           | 2800       | mg/kg        | 0.10       | < 0.10      | < 0.10      | 0.35        | 0.23        |
| Fluorene                            | M                           | 2800       | mg/kg        | 0.10       | < 0.10      | < 0.10      | 0.22        | 0.19        |
| Phenanthrene                        | M                           | 2800       | mg/kg        | 0.10       | < 0.10      | < 0.10      | 2.5         | 2.1         |
| Anthracene                          | M                           | 2800       | mg/kg        | 0.10       | < 0.10      | < 0.10      | 0.61        | 0.58        |
| Fluoranthene                        | M                           | 2800       | mg/kg        | 0.10       | < 0.10      | < 0.10      | 4.2         | 4.3         |
| Pyrene                              | M                           | 2800       | mg/kg        | 0.10       | < 0.10      | < 0.10      | 3.4         | 3.6         |
| Benzo[a]anthracene                  | M                           | 2800       | mg/kg        | 0.10       | < 0.10      | < 0.10      | 1.7         | 2.0         |
| Chrysene                            | M                           | 2800       | mg/kg        | 0.10       | < 0.10      | < 0.10      | 1.9         | 2.3         |
| Benzo[b]fluoranthene                | M                           | 2800       | mg/kg        | 0.10       | < 0.10      | < 0.10      | 2.5         | 2.5         |
| Benzo[k]fluoranthene                | M                           | 2800       | mg/kg        | 0.10       | < 0.10      | < 0.10      | 0.95        | 1.0         |
| Benzo[a]pyrene                      | M                           | 2800       | mg/kg        | 0.10       | < 0.10      | < 0.10      | 1.8         | 2.1         |
| Indeno(1,2,3-c,d)Pyrene             | M                           | 2800       | mg/kg        | 0.10       | < 0.10      | < 0.10      | 1.4         | 1.4         |
| Dibenz(a,h)Anthracene               | N                           | 2800       | mg/kg        | 0.10       | < 0.10      | < 0.10      | 0.28        | 0.31        |
| Benzo[g,h,i]perylene                | M                           | 2800       | mg/kg        | 0.10       | < 0.10      | < 0.10      | 1.4         | 1.5         |
| Total Of 16 PAH's                   | N                           | 2800       | mg/kg        | 2.0        | < 2.0       | < 2.0       | 24          | 25          |
| Total Phenols                       | M                           | 2920       | mg/kg        | 0.10       | < 0.10      | < 0.10      | < 0.10      | < 0.10      |

## Test Methods

| SOP  | Title                                                              | Parameters included                                                                                                                                                                                                                                                       | Method summary                                                                                                                                                                         |
|------|--------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2010 | pH Value of Soils                                                  | pH                                                                                                                                                                                                                                                                        | pH Meter                                                                                                                                                                               |
| 2030 | Moisture and Stone Content of Soils(Requirement of MCERTS)         | Moisture content                                                                                                                                                                                                                                                          | Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.                                                                                   |
| 2040 | Soil Description(Requirement of MCERTS)                            | Soil description                                                                                                                                                                                                                                                          | As received soil is described based upon BS5930                                                                                                                                        |
| 2120 | Water Soluble Boron, Sulphate, Magnesium & Chromium                | Boron; Sulphate; Magnesium; Chromium                                                                                                                                                                                                                                      | Aqueous extraction / ICP-OES                                                                                                                                                           |
| 2192 | Asbestos                                                           | Asbestos                                                                                                                                                                                                                                                                  | Polarised light microscopy / Gravimetry                                                                                                                                                |
| 2300 | Cyanides & Thiocyanate in Soils                                    | Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate                                                                                                                                                                                           | Alkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.                                                                                    |
| 2455 | Acid Soluble Metals in Soils                                       | Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc                                                                                                                  | Acid digestion followed by determination of metals in extract by ICP-MS.                                                                                                               |
| 2490 | Hexavalent Chromium in Soils                                       | Chromium [VI]                                                                                                                                                                                                                                                             | Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide. |
| 2610 | Loss on Ignition                                                   | loss on ignition (LOI)                                                                                                                                                                                                                                                    | Determination of the proportion by mass that is lost from a soil by ignition at 550°C.                                                                                                 |
| 2625 | Total Organic Carbon in Soils                                      | Total organic Carbon (TOC)                                                                                                                                                                                                                                                | Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.                                                                                             |
| 2670 | Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID              | TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40                                                                                                                                                                                            | Dichloromethane extraction / GC-FID                                                                                                                                                    |
| 2800 | Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS | Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene* | Dichloromethane extraction / GC-MS                                                                                                                                                     |
| 2920 | Phenols in Soils by HPLC                                           | Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.                                                                                                                         | 60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.                                                                               |

## **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"                                                                                                |
| SOP | Standard operating procedure                                                                                  |
| LOD | Limit of detection                                                                                            |

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, SVOCs, PCBs, Phenols

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

All Asbestos testing is performed at the indicated laboratory

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

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### **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
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

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### **Sample Retention and Disposal**

All soil samples will be retained for a period of 30 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.com](mailto:customerservices@chemtest.com)

## Appendix C

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## QRA Screening

| Assessments                                    | Status         | Date     | Created by | Reviewed By |
|------------------------------------------------|----------------|----------|------------|-------------|
| Acute human health risk - Soils                | Not undertaken |          |            |             |
| Chronic human health risk - Soils              | Complete       | 26.08.23 | RF         | MOH         |
| Chronic human health risk - Groundwater vapour | Not undertaken |          |            |             |
| Controlled waters risk - Surface water         | Not undertaken |          |            |             |
| Controlled waters risk - Drinking water        | Not undertaken |          |            |             |
| Controlled waters - Free phase indicator       | Not undertaken |          |            |             |
| Phytotoxicity                                  | Not undertaken |          |            |             |
| Ecotoxicity                                    | Not undertaken |          |            |             |

## Key

| Assessment                        | Abbr.   | QRA Source (in order of preference)   | Last Update |
|-----------------------------------|---------|---------------------------------------|-------------|
| All                               | NGA     | No guideline value available          | -           |
| Chronic human health risk - Soils | C4SL    | Category 4 Screening Levels (DEFRA)   | May 2021    |
|                                   | S4UL    | Suitable 4 Use Levels (LQM)           | August 2015 |
|                                   | ATK     | Atrisk Soil Screening Values (Atkins) | June 2017   |
|                                   | CL:AIRE | Generic Assessment Criteria (CL:AIRE) | Jan 2010    |

Chronic human health risk (soils)

|                                     |                  |                         |                   |                                    |  |          |          |          |          |          |          |          |          |          |          |          |          |          |          |  |
|-------------------------------------|------------------|-------------------------|-------------------|------------------------------------|--|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|--|
| Scenario                            |                  |                         |                   |                                    |  |          |          |          |          |          |          |          |          |          |          |          |          |          |          |  |
| End user                            |                  |                         |                   | Proposed site user                 |  |          |          |          |          |          |          |          |          |          |          |          |          |          |          |  |
| Receptor                            |                  |                         |                   | Residential with homegrown produce |  |          |          |          |          |          |          |          |          |          |          |          |          |          |          |  |
| SOM                                 |                  |                         |                   | 1.00%                              |  |          |          |          |          |          |          |          |          |          |          |          |          |          |          |  |
| GAC Preference                      |                  |                         |                   | C4SLs over S4ULs                   |  |          |          |          |          |          |          |          |          |          |          |          |          |          |          |  |
| Unspecified TPH GAC                 |                  |                         |                   | Worst-case aliphatic/aromatic      |  |          |          |          |          |          |          |          |          |          |          |          |          |          |          |  |
| Contaminant                         | Guideline source | Guideline value (mg/kg) | Max value (mg/kg) | Location                           |  | SL01     | SL01     | SL02     | SL02     | SL02     | SL02     | SL03     | SL03     | SL03     | SL03     | SL04     | SL05     | SL05     |          |  |
|                                     |                  |                         |                   | Depth (m)                          |  | 0.20     | 1.50     | 0.10     | 0.20     | 0.30     | 0.60     | 0.10     | 0.20     | 0.30     | 0.60     | 0.60     | 0.20     | 0.60     |          |  |
|                                     |                  |                         |                   | Date                               |  | 04/07/23 | 04/07/23 | 04/07/23 | 04/07/23 | 04/07/23 | 04/07/23 | 04/07/23 | 04/07/23 | 04/07/23 | 04/07/23 | 04/07/23 | 04/07/23 | 04/07/23 | 04/07/23 |  |
| Inorganics - Metals                 |                  |                         |                   |                                    |  |          |          |          |          |          |          |          |          |          |          |          |          |          |          |  |
| Arsenic                             | C4SL             | 37                      | 14                |                                    |  | 11       | 9.2      | 9.2      | 8.4      | 8.4      | 6.5      | 14       | 8.4      | 8.6      | 9.9      | 10       | 10       | 6.8      |          |  |
| Beryllium                           | S4UL             | 1.7                     | 0.9               |                                    |  | 0.8      | 0.7      | 0.6      | 0.7      | 0.7      | < 0.5    | 0.9      | 0.6      | 0.7      | 0.7      | < 0.5    | 0.6      | 0.5      |          |  |
| Boron                               | S4UL             | 290                     | 6.6               |                                    |  | 3.1      | 3.5      | 1.9      | 1.2      | 0.49     | 1.8      | 6.6      | 1.5      | 1        | 0.5      | 0.48     | 1.4      | 1.3      |          |  |
| Cadmium                             | C4SL             | 22                      | 0.31              |                                    |  | < 0.10   | < 0.10   | 0.21     | < 0.10   | 0.2      | < 0.10   | < 0.10   | < 0.10   | < 0.10   | 0.12     | < 0.10   | 0.31     | 0.21     |          |  |
| Chromium (III)                      | S4UL             | 910                     | 31                |                                    |  | 26       | 24       | 26       | 23       | 18       | 16       | 31       | 20       | 24       | 23       | 17       | 19       | 14       |          |  |
| Chromium (VI)                       | C4SL             | 21                      | <LoD              |                                    |  | < 0.50   | < 0.50   | < 0.50   | < 0.50   | < 0.50   | < 0.50   | < 0.50   | < 0.50   | < 0.50   | < 0.50   | < 0.50   | < 0.50   | < 0.50   |          |  |
| Copper                              | S4UL             | 2400                    | 52                |                                    |  | 52       | 21       | 20       | 18       | 15       | 25       | 31       | 16       | 23       | 18       | 19       | 22       | 16       |          |  |
| Cyanide - Free                      | ATK              | 34                      | <LoD              |                                    |  | < 0.50   | < 0.50   | < 0.50   | < 0.50   | < 0.50   | < 0.50   | < 0.50   | < 0.50   | < 0.50   | < 0.50   | < 0.50   | < 0.50   | < 0.50   |          |  |
| Lead                                | C4SL             | 200                     | 77                |                                    |  | 23       | 24       | 27       | 24       | 14       | 26       | 20       | 24       | 33       | 41       | 30       | 77       | 74       |          |  |
| Mercury                             | S4UL             | 40                      | 0.09              |                                    |  | < 0.05   | < 0.05   | 0.05     | < 0.05   | < 0.05   | < 0.05   | < 0.05   | < 0.05   | 0.05     | 0.06     | 0.06     | 0.09     | 0.08     |          |  |
| Nickel                              | S4UL             | 130                     | 18                |                                    |  | 16       | 18       | 15       | 15       | 11       | 11       | 13       | 13       | 17       | 15       | 10       | 17       | 11       |          |  |
| Selenium                            | S4UL             | 250                     | 0.68              |                                    |  | 0.53     | 0.62     | 0.56     | 0.56     | 0.37     | 0.38     | 0.43     | 0.5      | 0.68     | 0.59     | 0.56     | 0.54     | 0.36     |          |  |
| Vanadium                            | S4UL             | 410                     | 38                |                                    |  | 34       | 32       | 29       | 30       | 22       | 23       | 38       | 28       | 33       | 35       | 23       | 31       | 25       |          |  |
| Zinc                                | S4UL             | 3700                    | 110               |                                    |  | 65       | 57       | 59       | 50       | 36       | 46       | 46       | 49       | 64       | 61       | 58       | 110      | 84       |          |  |
| Inorganics - Asbestos               |                  |                         |                   |                                    |  |          |          |          |          |          |          |          |          |          |          |          |          |          |          |  |
| Asbestos Type                       | N/A              |                         |                   |                                    |  |          |          |          |          |          |          |          |          |          |          |          |          |          |          |  |
| Asbestos Screen                     | N/A              |                         |                   |                                    |  |          |          |          |          |          |          |          |          |          |          |          |          |          |          |  |
| Inorganics - Soil Parameters        |                  |                         |                   |                                    |  |          |          |          |          |          |          |          |          |          |          |          |          |          |          |  |
| Organic matter                      | N/A              |                         |                   |                                    |  |          |          |          |          |          |          |          |          |          |          |          |          |          |          |  |
| Organics - PAH & Phenol             |                  |                         |                   |                                    |  |          |          |          |          |          |          |          |          |          |          |          |          |          |          |  |
| Acenaphthene                        | S4UL             | 210                     | 0.35              |                                    |  | 1.9      | 2.1      | 3.1      | 1.8      | 4.2      | 1.4      | 0.95     | 2.4      | 1.5      | 2.4      | 1.3      | 1.6      | 1.4      |          |  |
| Acenaphthylene                      | S4UL             | 170                     | 0.14              |                                    |  | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | 0.35     | 0.23     |          |  |
| Anthracene                          | S4UL             | 2400                    | 0.61              |                                    |  | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | 0.61     | 0.58     |          |  |
| Benzo(a)anthracene                  | S4UL             | 7.2                     | 2                 |                                    |  | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | 1.7      | 2        |          |  |
| Benzo(a)pyrene                      | C4SL             | 5                       | 2.1               |                                    |  | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | 1.8      | 2.1      |          |  |
| Benzo(b)fluoranthene                | S4UL             | 2.6                     | 2.5               |                                    |  | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | 2.5      | 2.5      |          |  |
| Benzo(ghi)perylene                  | S4UL             | 320                     | 1.5               |                                    |  | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | 1.4      | 1.5      |          |  |
| Benzo(k)fluoranthene                | S4UL             | 77                      | 1                 |                                    |  | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | 0.95     | 1        |          |  |
| Chrysene                            | S4UL             | 15                      | 2.3               |                                    |  | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | 1.9      | 2.3      |          |  |
| Dibenz(a,h)anthracene               | S4UL             | 0.24                    | 0.31              |                                    |  | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | 0.28     | 0.31     |          |  |
| Fluoranthene                        | S4UL             | 280                     | 4.3               |                                    |  | < 0.10   | 0.14     | 0.47     | < 0.10   | < 0.10   | 0.42     | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | 4.2      | 4.3      |          |  |
| Fluorene                            | S4UL             | 170                     | 0.22              |                                    |  | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | 0.22     | 0.19     |          |  |
| Indeno(1,2,3-cd)pyrene              | S4UL             | 27                      | 1.4               |                                    |  | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | 1.4      | 1.4      |          |  |
| Naphthalene                         | S4UL             | 2.3                     | 1.2               |                                    |  | 0.62     | 0.64     | 1.2      | 0.55     | 1.1      | 0.65     | 0.74     | 0.83     | 0.9      | 1.2      | 0.64     | 0.7      | 0.57     |          |  |
| Phenanthrene                        | S4UL             | 95                      | 2.5               |                                    |  | 0.14     | 0.18     | 0.14     | < 0.10   | < 0.10   | 0.33     | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | 2.5      | 2.1      |          |  |
| Phenol                              | S4UL             | 120                     | <LoD              |                                    |  | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   |          |  |
| Pyrene                              | S4UL             | 620                     | 3.6               |                                    |  | < 0.10   | 0.12     | 0.52     | < 0.10   | < 0.10   | 0.26     | < 0.10   | < 0.10   | < 0.10   | < 0.10   | < 0.10   | 3.4      | 3.6      |          |  |
| Organics - Banded TPH (unspecified) |                  |                         |                   |                                    |  |          |          |          |          |          |          |          |          |          |          |          |          |          |          |  |
| EC >5-EC6 (unspecified)             | S4UL             | 42                      | <LoD              |                                    |  | < 1.0    | < 1.0    | < 1.0    | < 1.0    | < 1.0    | < 1.0    | < 1.0    | < 1.0    | < 1.0    | < 1.0    | < 1.0    | < 1.0    | < 1.0    |          |  |
| EC >6-EC7 (unspecified)             | S4UL             | 70                      | <LoD              |                                    |  | < 1.0    | < 1.0    | < 1.0    | < 1.0    | < 1.0    | < 1.0    | < 1.0    | < 1.0    | < 1.0    | < 1.0    | < 1.0    | < 1.0    | < 1.0    |          |  |
| EC >7-EC8 (unspecified)             | S4UL             | 13                      | <LoD              |                                    |  | < 1.0    | < 1.0    | < 1.0    | < 1.0    | < 1.0    | < 1.0    | < 1.0    | < 1.0    | < 1.0    | < 1.0    | < 1.0    | < 1.0    | < 1.0    |          |  |
| EC >08-EC10 (unspecified)           | S4UL             | 27                      | <LoD              |                                    |  | < 1.0    | < 1.0    | < 1.0    | < 1.0    | < 1.0    | < 1.0    | < 1.0    | < 1.0    | < 1.0    | < 1.0    | < 1.0    | < 1.0    | < 1.0    |          |  |
| EC >10-EC12 (unspecified)           | S4UL             | 74                      | 12                |                                    |  | < 1.0    | < 1.0    | < 1.0    | < 1.0    | < 1.0    | < 1.0    | < 1.0    | < 1.0    | < 1.0    | < 1.0    | < 1.0    | 12       | < 1.0    |          |  |
| EC >12-EC16 (unspecified)           | S4UL             | 140                     | 14                |                                    |  | < 1.0    | < 1.0    | < 1.0    | < 1.0    | < 1.0    | < 1.0    | < 1.0    | < 1.0    | < 1.0    | < 1.0    | < 1.0    | 14       | 3.4      |          |  |
| EC >16-EC21 (unspecified)           | S4UL             | 260                     | 23                |                                    |  | < 1.0    | < 1.0    | < 1.0    | < 1.0    | < 1.0    | < 1.0    | < 1.0    | < 1.0    | < 1.0    | < 1.0    | < 1.0    | 18       | 23       |          |  |
| EC >21-EC35 (unspecified)           | S4UL             | 1100                    | 170               |                                    |  | < 1.0    | < 1.0    | < 1.0    | 2.7      | < 1.0    | < 1.0    | < 1.0    | < 1.0    | < 1.0    | < 1.0    | < 1.0    | 57       | 170      |          |  |

## **Appendix E      Garden Verification Records**

# Cover System Verification Record

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## General Site Details

|           |                           |                       |                          |
|-----------|---------------------------|-----------------------|--------------------------|
| Site Name | Barrington Road, Worthing | Development Use       | Residential with gardens |
| Date      | 02/07/24                  | Groundwork Contractor |                          |
| Engineer  | CJ                        | Developer             | Bellway                  |

## Verification Action Undertaken

|                             |                                                                                                                                                                                                                                      |                     |        |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------|
| Plot No. / Area             | Plot 12                                                                                                                                                                                                                              | Exploratory Hole ID | VTP101 |
| General Comment             | Excavated an inspection pit to verify the depth and composition of the clean cover system.                                                                                                                                           |                     |        |
| Samples Taken               | ES – 0.15m, 0.5m                                                                                                                                                                                                                     |                     |        |
| No-Dig / Demarcation Layers | N/A                                                                                                                                                                                                                                  |                     |        |
| Physical Suitability        | No undesirable or injurious objects were observed within any of the materials inspected, such as sharps, metals, plastics or over-sized materials, except for a few cobble-sized fragments of brick and concrete within the subsoil. |                     |        |

## Remediation Requirement

|                          |                                 |                                     |        |
|--------------------------|---------------------------------|-------------------------------------|--------|
| Minimum Total Thickness: | ≥ 600mm                         | Observed Conditions (if applicable) |        |
| Topsoil:                 | 150mm – 300mm                   | Minimum Thickness:                  | >800mm |
| Subsoil:                 | ≥300mm – 450mm loosened subsoil | Topsoil:                            | 300mm  |
| Geotextile Marker:       | N/A                             | Subsoil:                            | >500mm |
| No-Dig Layer:            | N/A                             | Geotextile Marker:                  | N/A    |
|                          |                                 | No-Dig Layer:                       | N/A    |

## Photographs

|                                                                                     |                                                                                      |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| Photograph (spatial):                                                               | Photograph (detail)                                                                  |
|  |  |

## Verification Outcome

|            |                                                                                                                                                                               |
|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Conclusion | The aspects considered under this inspection record have <b>Passed</b> / <b>Failed</b> verification.                                                                          |
| Exclusions | Where chemical analysis has been undertaken, please refer to the Verification Report for a discussion on the results and confirmation of compliance and chemical suitability. |

# Cover System Verification Record

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## General Site Details

|           |                           |                       |                          |
|-----------|---------------------------|-----------------------|--------------------------|
| Site Name | Barrington Road, Worthing | Development Use       | Residential with gardens |
| Date      | 02/07/24                  | Groundwork Contractor |                          |
| Engineer  | CJ                        | Developer             | Bellway                  |

## Verification Action Undertaken

|                             |                                                                                                                                                                                                                                               |                     |        |
|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------|
| Plot No. / Area             | Plot 14                                                                                                                                                                                                                                       | Exploratory Hole ID | VTP102 |
| General Comment             | Excavated an inspection pit to verify the depth and composition of the clean cover system.                                                                                                                                                    |                     |        |
| Samples Taken               | ES – 0.1m, 0.5m                                                                                                                                                                                                                               |                     |        |
| No-Dig / Demarcation Layers | N/A                                                                                                                                                                                                                                           |                     |        |
| Physical Suitability        | No undesirable or injurious objects were observed within any of the materials inspected, such as sharps, metals, plastics or over-sized materials, except for a few cobble-sized fragments of brick, concrete, and flint, within the subsoil. |                     |        |

## Remediation Requirement

|                          |                                 |
|--------------------------|---------------------------------|
| Minimum Total Thickness: | ≥ 600mm                         |
| Topsoil:                 | 150mm – 300mm                   |
| Subsoil:                 | ≥300mm – 450mm loosened subsoil |
| Geotextile Marker:       | N/A                             |
| No-Dig Layer:            | N/A                             |

## Observed Conditions (if applicable)

|                    |        |
|--------------------|--------|
| Minimum Thickness: | >800mm |
| Topsoil:           | 300mm  |
| Subsoil:           | >500mm |
| Geotextile Marker: | N/A    |
| No-Dig Layer:      | N/A    |

## Photographs

| Photograph (spatial):                                                               | Photograph (detail)                                                                  |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
|  |  |

## Verification Outcome

|            |                                                                                                                                                                               |
|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Conclusion | The aspects considered under this inspection record have <b>Passed</b> / <b>Failed</b> verification.                                                                          |
| Exclusions | Where chemical analysis has been undertaken, please refer to the Verification Report for a discussion on the results and confirmation of compliance and chemical suitability. |

# Cover System Verification Record

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## General Site Details

|           |                           |                       |                          |
|-----------|---------------------------|-----------------------|--------------------------|
| Site Name | Barrington Road, Worthing | Development Use       | Residential with gardens |
| Date      | 02/07/24                  | Groundwork Contractor |                          |
| Engineer  | CJ                        | Developer             | Bellway                  |

## Verification Action Undertaken

|                             |                                                                                                                                                                                                                                                                                                                                                                               |                     |        |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------|
| Plot No. / Area             | Plot 18                                                                                                                                                                                                                                                                                                                                                                       | Exploratory Hole ID | VTP103 |
| General Comment             | Excavated an inspection pit to verify the depth and composition of the clean cover system.                                                                                                                                                                                                                                                                                    |                     |        |
| Samples Taken               | ES – 0.1m, 0.5m                                                                                                                                                                                                                                                                                                                                                               |                     |        |
| No-Dig / Demarcation Layers | N/A                                                                                                                                                                                                                                                                                                                                                                           |                     |        |
| Physical Suitability        | No undesirable or injurious objects were observed within any of the materials inspected, such as sharps, metals, plastics. There were several intact bricks within the topsoil and subsoil, and gravel- to cobble-sized fragments of concrete, flint, and brick within the subsoil.<br>Whilst undesirable the frequency of occurrence is not sufficient to warrant a failure. |                     |        |

## Remediation Requirement

| Remediation Requirement                               | Observed Conditions (if applicable) |
|-------------------------------------------------------|-------------------------------------|
| Minimum Total Thickness: $\geq 600\text{mm}$          | Minimum Thickness: $>800\text{mm}$  |
| Topsoil: 150mm – 300mm                                | Topsoil: 300mm                      |
| Subsoil: $\geq 300\text{mm}$ – 450mm loosened subsoil | Subsoil: $>500\text{mm}$            |
| Geotextile Marker: N/A                                | Geotextile Marker: N/A              |
| No-Dig Layer: N/A                                     | No-Dig Layer: N/A                   |

## Photographs

| Photograph (spatial):                                                               | Photograph (detail)                                                                  |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
|  |  |

## Verification Outcome

|            |                                                                                                                                                                               |
|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Conclusion | The aspects considered under this inspection record have <b>Passed</b> / <b>Failed</b> verification.                                                                          |
| Exclusions | Where chemical analysis has been undertaken, please refer to the Verification Report for a discussion on the results and confirmation of compliance and chemical suitability. |

# Cover System Verification Record

soiltechnics

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## General Site Details

|           |                           |                       |                          |
|-----------|---------------------------|-----------------------|--------------------------|
| Site Name | Barrington Road, Worthing | Development Use       | Residential with gardens |
| Date      | 02/07/24                  | Groundwork Contractor |                          |
| Engineer  | CJ                        | Developer             | Bellway                  |

## Verification Action Undertaken

|                             |                                                                                                                                                                                                                                                                                                         |                     |        |
|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------|
| Plot No. / Area             | Plot 20                                                                                                                                                                                                                                                                                                 | Exploratory Hole ID | VTP104 |
| General Comment             | Excavated an inspection pit to verify the depth and composition of the clean cover system.                                                                                                                                                                                                              |                     |        |
| Samples Taken               | ES – 0.1m, 0.4m                                                                                                                                                                                                                                                                                         |                     |        |
| No-Dig / Demarcation Layers | N/A                                                                                                                                                                                                                                                                                                     |                     |        |
| Physical Suitability        | No undesirable or injurious objects were observed in any of the materials inspected, such as sharps, metals, or plastic, except for a piece of red tape found at 0.5m bgl. The subsoil in this pit was very compacted, resembling a stiff to very stiff clay, and was difficult to dig through by hand. |                     |        |

## Remediation Requirement

|                          |                                 |                                     |                    |        |
|--------------------------|---------------------------------|-------------------------------------|--------------------|--------|
| Minimum Total Thickness: | ≥ 600mm                         | Observed Conditions (if applicable) | Minimum Thickness: | >600mm |
| Topsoil:                 | 150mm – 300mm                   | Topsoil:                            |                    | 300mm  |
| Subsoil:                 | ≥300mm – 450mm loosened subsoil | Subsoil:                            |                    | >300mm |
| Geotextile Marker:       | N/A                             | Geotextile Marker:                  |                    | N/A    |
| No-Dig Layer:            | N/A                             | No-Dig Layer:                       |                    | N/A    |

## Photographs

|                                                                                     |                                                                                      |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| Photograph (spatial):                                                               | Photograph (detail)                                                                  |
|  |  |

## Verification Outcome

|            |                                                                                                                                                                               |
|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Conclusion | The aspects considered under this inspection record have <b>Passed</b> / <b>Failed</b> verification.                                                                          |
| Exclusions | Where chemical analysis has been undertaken, please refer to the Verification Report for a discussion on the results and confirmation of compliance and chemical suitability. |

# Cover System Verification Record

soiltechnics

environmental • geotechnical • building fabric

## General Site Details

|           |                           |                       |                          |
|-----------|---------------------------|-----------------------|--------------------------|
| Site Name | Barrington Road, Worthing | Development Use       | Residential with gardens |
| Date      | 02/07/24                  | Groundwork Contractor |                          |
| Engineer  | CJ                        | Developer             | Bellway                  |

## Verification Action Undertaken

|                             |                                                                                                                                                                                                                                                                                                         |                     |        |
|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------|
| Plot No. / Area             | Plot 16                                                                                                                                                                                                                                                                                                 | Exploratory Hole ID | VTP105 |
| General Comment             | Excavated an inspection pit to verify the depth and composition of the clean cover system.                                                                                                                                                                                                              |                     |        |
| Samples Taken               | ES – 0.1m, 0.5m                                                                                                                                                                                                                                                                                         |                     |        |
| No-Dig / Demarcation Layers | N/A                                                                                                                                                                                                                                                                                                     |                     |        |
| Physical Suitability        | No undesirable or injurious objects were observed in any of the materials inspected, such as sharps, metals, or plastic. There were some cobble-sized fragments of concrete within the subsoil.<br>Based upon a visual inspection only, the soils appear to be physically suitable as a growing medium. |                     |        |

## Remediation Requirement

|                          |                                 |
|--------------------------|---------------------------------|
| Minimum Total Thickness: | ≥ 600mm                         |
| Topsoil:                 | 150mm – 300mm                   |
| Subsoil:                 | ≥300mm – 450mm loosened subsoil |
| Geotextile Marker:       | N/A                             |
| No-Dig Layer:            | N/A                             |

## Observed Conditions (if applicable)

|                    |        |
|--------------------|--------|
| Minimum Thickness: | >700mm |
| Topsoil:           | 300mm  |
| Subsoil:           | >400mm |
| Geotextile Marker: | N/A    |
| No-Dig Layer:      | N/A    |

## Photographs

| Photograph (spatial):                                                               | Photograph (detail)                                                                  |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
|  |  |

## Verification Outcome

|            |                                                                                                                                                                               |
|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Conclusion | The aspects considered under this inspection record have <b>Passed</b> / <b>Failed</b> verification.                                                                          |
| Exclusions | Where chemical analysis has been undertaken, please refer to the Verification Report for a discussion on the results and confirmation of compliance and chemical suitability. |

## **Appendix F      Laboratory Test Results**



# Final Report

---

**Report No.:** 24-21549-1

**Initial Date of Issue:** 15-Jul-2024

**Re-Issue Details:**

**Client** Soiltechnics Limited

**Client Address:** 1st Floor Unit 9 Westpoint Enterprise  
Park  
Clarence Avenue  
Trafford Park  
Manchester  
M17 1QS

**Contact(s):** Admin

**Project** STV5959 Barrington Road

**Quotation No.:** **Date Received:** 08-Jul-2024

**Order No.:** 019124 **Date Instructed:** 08-Jul-2024

**No. of Samples:** 10

**Turnaround (Wkdays):** 5 **Results Due:** 12-Jul-2024

**Date Approved:** 15-Jul-2024

**Approved By:**

**Details:** David Smith, Technical Director

**For details about application of accreditation to specific matrix types, please refer to the Table at the back of this report**

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## Results - Soil

**Project: STV5959 Barrington Road**

|                                     |                  |                             |            |              |            |                      |                      |                      |                      |                      |                      |                      |                      |
|-------------------------------------|------------------|-----------------------------|------------|--------------|------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| <b>Client: Soiltechnics Limited</b> |                  | <b>Chemtest Job No.:</b>    |            |              |            | 24-21549             | 24-21549             | 24-21549             | 24-21549             | 24-21549             | 24-21549             | 24-21549             | 24-21549             |
| Quotation No.:                      |                  | <b>Chemtest Sample ID.:</b> |            |              |            | 1831491              | 1831492              | 1831493              | 1831494              | 1831495              | 1831496              | 1831497              | 1831498              |
| Order No.: 019124                   |                  | Client Sample Ref.:         |            |              |            | 1                    | 2                    | 1                    | 2                    | 1                    | 2                    | 1                    | 2                    |
|                                     |                  | Client Sample ID.:          |            |              |            | VTP1010.1501         | VTP1010.502          | VTP1020.101          | VTP1020.502          | VTP1030.501          | VTP1030.502          | VTP1040.401          | VTP1040.402          |
|                                     |                  | Sample Location:            |            |              |            | VTP101               | VTP101               | VTP102               | VTP102               | VTP103               | VTP103               | VTP104               | VTP104               |
|                                     |                  | Sample Type:                |            |              |            | SOIL                 | SOIL                 | SOIL                 | SOIL                 | SOIL                 | SOIL                 | SOIL                 | SOIL                 |
|                                     |                  | Top Depth (m):              |            |              |            | 0.15                 | 0.50                 | 0.10                 | 0.50                 | 0.10                 | 0.50                 | 0.10                 | 0.40                 |
|                                     |                  | Date Sampled:               |            |              |            | 02-Jul-2024          | 02-Jul-2024          | 02-Jul-2024          | 02-Jul-2024          | 02-Jul-2024          | 02-Jul-2024          | 02-Jul-2024          | 02-Jul-2024          |
|                                     |                  | Asbestos Lab:               |            |              |            | DURHAM               | DURHAM               | DURHAM               | DURHAM               | DURHAM               | DURHAM               | DURHAM               | DURHAM               |
| <b>Determinand</b>                  | <b>HWOL Code</b> | <b>Accred.</b>              | <b>SOP</b> | <b>Units</b> | <b>LOD</b> |                      |                      |                      |                      |                      |                      |                      |                      |
| ACM Type                            |                  | U                           | 2192       |              | N/A        | -                    | -                    | -                    | -                    | -                    | -                    | -                    | -                    |
| Asbestos Identification             |                  | U                           | 2192       |              | N/A        | No Asbestos Detected | No Asbestos Detected | No Asbestos Detected | No Asbestos Detected | No Asbestos Detected | No Asbestos Detected | No Asbestos Detected | No Asbestos Detected |
| Moisture                            |                  | N                           | 2030       | %            | 0.020      | 11                   | 20                   | 8.7                  | 14                   | 9.8                  | 15                   | 7.6                  | 13                   |
| Soil Colour                         |                  | N                           | 2040       |              | N/A        | Brown                | Brown                | Brown                | Brown                | Brown                | Brown                | Brown                | Brown                |
| Other Material                      |                  | N                           | 2040       |              | N/A        | Stones and Roots     | Roots and Stones     | Stones               | Stones               | Stones               | Stones               | Stones               | Stones               |
| Soil Texture                        |                  | N                           | 2040       |              | N/A        | Sand                 | Sand                 | Sand                 | Sand                 | Sand                 | Sand                 | Sand                 | Sand                 |
| pH at 20C                           |                  | M                           | 2010       |              | 4.0        | 8.2                  | 8.1                  | 8.2                  | 8.3                  | 8.6                  | 8.7                  | 8.2                  | 8.8                  |
| Boron (Hot Water Soluble)           |                  | M                           | 2120       | mg/kg        | 0.40       | 0.49                 | 1.9                  | 1.9                  | 2.0                  | 2.2                  | 2.1                  | 0.65                 | 1.4                  |
| Cyanide (Complex)                   |                  | M                           | 2300       | mg/kg        | 0.50       | < 0.50               | < 0.50               | < 0.50               | < 0.50               | < 0.50               | < 0.50               | < 0.50               | < 0.50               |
| Cyanide (Free)                      |                  | M                           | 2300       | mg/kg        | 0.50       | < 0.50               | < 0.50               | < 0.50               | < 0.50               | < 0.50               | < 0.50               | < 0.50               | < 0.50               |
| Cyanide (Total)                     |                  | M                           | 2300       | mg/kg        | 0.50       | < 0.50               | < 0.50               | < 0.50               | < 0.50               | < 0.50               | < 0.50               | < 0.50               | < 0.50               |
| Arsenic                             |                  | M                           | 2455       | mg/kg        | 0.5        | 19                   | 16                   | 15                   | 16                   | 15                   | 12                   | 14                   | 10                   |
| Beryllium                           |                  | U                           | 2455       | mg/kg        | 0.5        | 2.5                  | 0.9                  | 1.0                  | 1.0                  | 0.9                  | 0.8                  | 0.8                  | 0.8                  |
| Cadmium                             |                  | M                           | 2455       | mg/kg        | 0.10       | 0.50                 | 0.37                 | 0.38                 | 0.17                 | 0.18                 | 0.13                 | 0.13                 | < 0.10               |
| Chromium                            |                  | M                           | 2455       | mg/kg        | 0.5        | 5.0                  | 8.7                  | 6.8                  | 32                   | 27                   | 30                   | 27                   | 28                   |
| Copper                              |                  | M                           | 2455       | mg/kg        | 0.50       | 81                   | 72                   | 99                   | 34                   | 37                   | 30                   | 32                   | 22                   |
| Mercury                             |                  | M                           | 2455       | mg/kg        | 0.05       | 0.54                 | 0.33                 | 0.40                 | 0.09                 | 0.14                 | 0.07                 | 0.10                 | 0.07                 |
| Nickel                              |                  | M                           | 2455       | mg/kg        | 0.50       | 33                   | 25                   | 23                   | 20                   | 17                   | 18                   | 16                   | 16                   |
| Lead                                |                  | M                           | 2455       | mg/kg        | 0.50       | 140                  | 130                  | 300                  | 54                   | 61                   | 38                   | 46                   | 34                   |
| Selenium                            |                  | M                           | 2455       | mg/kg        | 0.25       | 1.3                  | 0.87                 | 0.71                 | 1.1                  | 1.1                  | 0.87                 | 0.93                 | 0.91                 |
| Vanadium                            |                  | U                           | 2455       | mg/kg        | 0.5        | 32                   | 32                   | 30                   | 41                   | 37                   | 37                   | 31                   | 36                   |
| Zinc                                |                  | M                           | 2455       | mg/kg        | 0.50       | 440                  | 310                  | 260                  | 90                   | 98                   | 83                   | 88                   | 60                   |
| Chromium (Hexavalent)               |                  | N                           | 2490       | mg/kg        | 0.50       | < 0.50               | < 0.50               | < 0.50               | < 0.50               | < 0.50               | < 0.50               | < 0.50               | < 0.50               |
| Organic Matter                      |                  | M                           | 2625       | %            | 0.40       | 1.7                  | 1.3                  | 1.8                  | 1.7                  | 1.5                  | 1.2                  | 1.6                  | 1.1                  |
| TPH >C5-C6                          | EH_1D_Total      | N                           | 2670       | mg/kg        | 1.0        | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                |
| TPH >C6-C7                          | EH_1D_Total      | N                           | 2670       | mg/kg        | 1.0        | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                |
| TPH >C7-C8                          | EH_1D_Total      | N                           | 2670       | mg/kg        | 1.0        | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                |
| TPH >C8-C10                         | EH_1D_Total      | N                           | 2670       | mg/kg        | 1.0        | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                |
| TPH >C10-C12                        | EH_1D_Total      | N                           | 2670       | mg/kg        | 1.0        | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                |
| TPH >C12-C16                        | EH_1D_Total      | N                           | 2670       | mg/kg        | 1.0        | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                |
| TPH >C16-C21                        | EH_1D_Total      | N                           | 2670       | mg/kg        | 1.0        | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | 420                  |
| TPH >C21-C35                        | EH_1D_Total      | N                           | 2670       | mg/kg        | 1.0        | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | 4200                 |
| Total TPH >C5-C35                   |                  | N                           | 2670       | mg/kg        | 10         | < 10                 | < 10                 | < 10                 | < 10                 | < 10                 | < 10                 | < 10                 | 4600                 |
| Naphthalene                         |                  | M                           | 2800       | mg/kg        | 0.10       | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               |

## Results - Soil

**Project: STV5959 Barrington Road**

|                                     |                  |                             |            |              |            |        |        |              |             |             |             |             |             |             |
|-------------------------------------|------------------|-----------------------------|------------|--------------|------------|--------|--------|--------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <b>Client: Soiltechnics Limited</b> |                  | <b>Chemtest Job No.:</b>    |            |              |            |        |        | 24-21549     | 24-21549    | 24-21549    | 24-21549    | 24-21549    | 24-21549    | 24-21549    |
| Quotation No.:                      |                  | <b>Chemtest Sample ID.:</b> |            |              |            |        |        | 1831491      | 1831492     | 1831493     | 1831494     | 1831495     | 1831496     | 1831498     |
| Order No.: 019124                   |                  | Client Sample Ref.:         |            |              |            |        |        | 1            | 2           | 1           | 2           | 1           | 2           | 1           |
|                                     |                  | Client Sample ID.:          |            |              |            |        |        | VTP1010.1501 | VTP1010.502 | VTP1020.101 | VTP1020.502 | VTP1030.501 | VTP1030.502 | VTP1040.401 |
|                                     |                  | Sample Location:            |            |              |            |        |        | VTP101       | VTP101      | VTP102      | VTP102      | VTP103      | VTP103      | VTP104      |
|                                     |                  | Sample Type:                |            |              |            |        |        | SOIL         | SOIL        | SOIL        | SOIL        | SOIL        | SOIL        | SOIL        |
|                                     |                  | Top Depth (m):              |            |              |            |        |        | 0.15         | 0.50        | 0.10        | 0.50        | 0.10        | 0.50        | 0.10        |
|                                     |                  | Date Sampled:               |            |              |            |        |        | 02-Jul-2024  | 02-Jul-2024 | 02-Jul-2024 | 02-Jul-2024 | 02-Jul-2024 | 02-Jul-2024 | 02-Jul-2024 |
|                                     |                  | Asbestos Lab:               |            |              |            |        |        | DURHAM       | DURHAM      | DURHAM      | DURHAM      | DURHAM      | DURHAM      | DURHAM      |
| <b>Determinand</b>                  | <b>HWOL Code</b> | <b>Accred.</b>              | <b>SOP</b> | <b>Units</b> | <b>LOD</b> |        |        |              |             |             |             |             |             |             |
| Acenaphthylene                      |                  | N                           | 2800       | mg/kg        | 0.10       | < 0.10 | < 0.10 | < 0.10       | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      |
| Acenaphthene                        |                  | M                           | 2800       | mg/kg        | 0.10       | < 0.10 | < 0.10 | < 0.10       | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      |
| Fluorene                            |                  | M                           | 2800       | mg/kg        | 0.10       | < 0.10 | < 0.10 | < 0.10       | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      |
| Phenanthrene                        |                  | M                           | 2800       | mg/kg        | 0.10       | < 0.10 | 0.20   | < 0.10       | 0.15        | 0.10        | 0.34        | < 0.10      | 0.12        |             |
| Anthracene                          |                  | M                           | 2800       | mg/kg        | 0.10       | < 0.10 | < 0.10 | < 0.10       | < 0.10      | < 0.10      | 0.11        | < 0.10      | < 0.10      |             |
| Fluoranthene                        |                  | M                           | 2800       | mg/kg        | 0.10       | 0.18   | 0.41   | < 0.10       | 0.45        | 0.29        | 0.60        | < 0.10      | 0.22        |             |
| Pyrene                              |                  | M                           | 2800       | mg/kg        | 0.10       | 0.17   | 0.36   | < 0.10       | 0.40        | 0.27        | 0.48        | < 0.10      | 0.19        |             |
| Benzo[a]anthracene                  |                  | M                           | 2800       | mg/kg        | 0.10       | < 0.10 | < 0.10 | < 0.10       | 0.22        | < 0.10      | 0.26        | < 0.10      | < 0.10      |             |
| Chrysene                            |                  | M                           | 2800       | mg/kg        | 0.10       | < 0.10 | < 0.10 | < 0.10       | 0.21        | < 0.10      | 0.24        | < 0.10      | < 0.10      |             |
| Benzo[b]fluoranthene                |                  | M                           | 2800       | mg/kg        | 0.10       | < 0.10 | < 0.10 | < 0.10       | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      |             |
| Benzo[k]fluoranthene                |                  | M                           | 2800       | mg/kg        | 0.10       | < 0.10 | < 0.10 | < 0.10       | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      |             |
| Benzo[a]pyrene                      |                  | M                           | 2800       | mg/kg        | 0.10       | < 0.10 | < 0.10 | < 0.10       | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      |             |
| Indeno(1,2,3-c,d)Pyrene             |                  | M                           | 2800       | mg/kg        | 0.10       | < 0.10 | < 0.10 | < 0.10       | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      |             |
| Dibenz(a,h)Anthracene               |                  | N                           | 2800       | mg/kg        | 0.10       | < 0.10 | < 0.10 | < 0.10       | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      |             |
| Benzo[g,h,i]perylene                |                  | M                           | 2800       | mg/kg        | 0.10       | < 0.10 | < 0.10 | < 0.10       | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      |             |
| Total Of 16 PAH's                   |                  | N                           | 2800       | mg/kg        | 2.0        | < 2.0  | < 2.0  | < 2.0        | < 2.0       | < 2.0       | 2.0         | < 2.0       | < 2.0       |             |
| Total Phenols                       |                  | M                           | 2920       | mg/kg        | 0.10       | < 0.10 | < 0.10 | < 0.10       | < 0.10      | < 0.10      | < 0.10      | < 0.10      | < 0.10      |             |

## Results - Soil

**Project: STV5959 Barrington Road**

|                                     |                  |                             |            |              |            |                      |                      |
|-------------------------------------|------------------|-----------------------------|------------|--------------|------------|----------------------|----------------------|
| <b>Client: Soiltechnics Limited</b> |                  | <b>Chemtest Job No.:</b>    |            |              |            | 24-21549             | 24-21549             |
| Quotation No.:                      |                  | <b>Chemtest Sample ID.:</b> |            |              |            | 1831499              | 1831500              |
| Order No.: 019124                   |                  | Client Sample Ref.:         |            |              |            | 1                    | 2                    |
|                                     |                  | Client Sample ID.:          |            |              |            | VTP1050.101          | TVP1050.502          |
|                                     |                  | Sample Location:            |            |              |            | VTP105               | VTP105               |
|                                     |                  | Sample Type:                |            |              |            | SOIL                 | SOIL                 |
|                                     |                  | Top Depth (m):              |            |              |            | 0.10                 | 0.50                 |
|                                     |                  | Date Sampled:               |            |              |            | 02-Jul-2024          | 02-Jul-2024          |
|                                     |                  | Asbestos Lab:               |            |              |            | DURHAM               | DURHAM               |
| <b>Determinand</b>                  | <b>HWOL Code</b> | <b>Accred.</b>              | <b>SOP</b> | <b>Units</b> | <b>LOD</b> |                      |                      |
| ACM Type                            |                  | U                           | 2192       |              | N/A        | -                    | -                    |
| Asbestos Identification             |                  | U                           | 2192       |              | N/A        | No Asbestos Detected | No Asbestos Detected |
| Moisture                            |                  | N                           | 2030       | %            | 0.020      | 8.7                  | 14                   |
| Soil Colour                         |                  | N                           | 2040       |              | N/A        | Brown                | Brown                |
| Other Material                      |                  | N                           | 2040       |              | N/A        | Stones               | Stones               |
| Soil Texture                        |                  | N                           | 2040       |              | N/A        | Sand                 | Sand                 |
| pH at 20C                           |                  | M                           | 2010       |              | 4.0        | 8.3                  | 8.6                  |
| Boron (Hot Water Soluble)           |                  | M                           | 2120       | mg/kg        | 0.40       | 0.64                 | 1.9                  |
| Cyanide (Complex)                   |                  | M                           | 2300       | mg/kg        | 0.50       | < 0.50               | < 0.50               |
| Cyanide (Free)                      |                  | M                           | 2300       | mg/kg        | 0.50       | < 0.50               | < 0.50               |
| Cyanide (Total)                     |                  | M                           | 2300       | mg/kg        | 0.50       | < 0.50               | < 0.50               |
| Arsenic                             |                  | M                           | 2455       | mg/kg        | 0.5        | 12                   | 16                   |
| Beryllium                           |                  | U                           | 2455       | mg/kg        | 0.5        | 0.7                  | 1.5                  |
| Cadmium                             |                  | M                           | 2455       | mg/kg        | 0.10       | 0.11                 | 0.19                 |
| Chromium                            |                  | M                           | 2455       | mg/kg        | 0.5        | 23                   | 47                   |
| Copper                              |                  | M                           | 2455       | mg/kg        | 0.50       | 28                   | 32                   |
| Mercury                             |                  | M                           | 2455       | mg/kg        | 0.05       | 0.09                 | 0.06                 |
| Nickel                              |                  | M                           | 2455       | mg/kg        | 0.50       | 14                   | 35                   |
| Lead                                |                  | M                           | 2455       | mg/kg        | 0.50       | 38                   | 32                   |
| Selenium                            |                  | M                           | 2455       | mg/kg        | 0.25       | 0.82                 | 1.3                  |
| Vanadium                            |                  | U                           | 2455       | mg/kg        | 0.5        | 27                   | 59                   |
| Zinc                                |                  | M                           | 2455       | mg/kg        | 0.50       | 80                   | 82                   |
| Chromium (Hexavalent)               |                  | N                           | 2490       | mg/kg        | 0.50       | < 0.50               | < 0.50               |
| Organic Matter                      |                  | M                           | 2625       | %            | 0.40       | 1.2                  | 0.48                 |
| TPH >C5-C6                          | EH_1D_Total      | N                           | 2670       | mg/kg        | 1.0        | < 1.0                | < 1.0                |
| TPH >C6-C7                          | EH_1D_Total      | N                           | 2670       | mg/kg        | 1.0        | < 1.0                | < 1.0                |
| TPH >C7-C8                          | EH_1D_Total      | N                           | 2670       | mg/kg        | 1.0        | < 1.0                | < 1.0                |
| TPH >C8-C10                         | EH_1D_Total      | N                           | 2670       | mg/kg        | 1.0        | < 1.0                | < 1.0                |
| TPH >C10-C12                        | EH_1D_Total      | N                           | 2670       | mg/kg        | 1.0        | < 1.0                | < 1.0                |
| TPH >C12-C16                        | EH_1D_Total      | N                           | 2670       | mg/kg        | 1.0        | < 1.0                | < 1.0                |
| TPH >C16-C21                        | EH_1D_Total      | N                           | 2670       | mg/kg        | 1.0        | < 1.0                | < 1.0                |
| TPH >C21-C35                        | EH_1D_Total      | N                           | 2670       | mg/kg        | 1.0        | < 1.0                | < 1.0                |
| Total TPH >C5-C35                   |                  | N                           | 2670       | mg/kg        | 10         | < 10                 | < 10                 |
| Naphthalene                         |                  | M                           | 2800       | mg/kg        | 0.10       | < 0.10               | < 0.10               |

## Results - Soil

**Project: STV5959 Barrington Road**

| Client: Soiltechnics Limited |           | Chemtest Job No.:    |      |       |      | 24-21549    | 24-21549    |
|------------------------------|-----------|----------------------|------|-------|------|-------------|-------------|
| Quotation No.:               |           | Chemtest Sample ID.: |      |       |      | 1831499     | 1831500     |
| Order No.: 019124            |           | Client Sample Ref.:  |      |       |      | 1           | 2           |
|                              |           | Client Sample ID.:   |      |       |      | VTP1050.101 | TVP1050.502 |
|                              |           | Sample Location:     |      |       |      | VTP105      | VTP105      |
|                              |           | Sample Type:         |      |       |      | SOIL        | SOIL        |
|                              |           | Top Depth (m):       |      |       |      | 0.10        | 0.50        |
|                              |           | Date Sampled:        |      |       |      | 02-Jul-2024 | 02-Jul-2024 |
|                              |           | Asbestos Lab:        |      |       |      | DURHAM      | DURHAM      |
| Determinand                  | HWOL Code | Accred.              | SOP  | Units | LOD  |             |             |
| Acenaphthylene               |           | N                    | 2800 | mg/kg | 0.10 | < 0.10      | < 0.10      |
| Acenaphthene                 |           | M                    | 2800 | mg/kg | 0.10 | < 0.10      | < 0.10      |
| Fluorene                     |           | M                    | 2800 | mg/kg | 0.10 | < 0.10      | < 0.10      |
| Phenanthrene                 |           | M                    | 2800 | mg/kg | 0.10 | < 0.10      | 0.46        |
| Anthracene                   |           | M                    | 2800 | mg/kg | 0.10 | < 0.10      | < 0.10      |
| Fluoranthene                 |           | M                    | 2800 | mg/kg | 0.10 | < 0.10      | 0.44        |
| Pyrene                       |           | M                    | 2800 | mg/kg | 0.10 | < 0.10      | 0.32        |
| Benzo[a]anthracene           |           | M                    | 2800 | mg/kg | 0.10 | < 0.10      | 0.15        |
| Chrysene                     |           | M                    | 2800 | mg/kg | 0.10 | < 0.10      | 0.14        |
| Benzo[b]fluoranthene         |           | M                    | 2800 | mg/kg | 0.10 | < 0.10      | 0.10        |
| Benzo[k]fluoranthene         |           | M                    | 2800 | mg/kg | 0.10 | < 0.10      | < 0.10      |
| Benzo[a]pyrene               |           | M                    | 2800 | mg/kg | 0.10 | < 0.10      | 0.11        |
| Indeno(1,2,3-c,d)Pyrene      |           | M                    | 2800 | mg/kg | 0.10 | < 0.10      | < 0.10      |
| Dibenz(a,h)Anthracene        |           | N                    | 2800 | mg/kg | 0.10 | < 0.10      | < 0.10      |
| Benzo[g,h,i]perylene         |           | M                    | 2800 | mg/kg | 0.10 | < 0.10      | < 0.10      |
| Total Of 16 PAH's            |           | N                    | 2800 | mg/kg | 2.0  | < 2.0       | < 2.0       |
| Total Phenols                |           | M                    | 2920 | mg/kg | 0.10 | < 0.10      | < 0.10      |

## Test Methods

| SOP  | Title                                                              | Parameters included                                                                                                                                                                                                                                                       | Method summary                                                                                                                                                                         | Water Accred. |
|------|--------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| 2010 | pH Value of Soils                                                  | pH at 20°C                                                                                                                                                                                                                                                                | pH Meter                                                                                                                                                                               |               |
| 2030 | Moisture and Stone Content of Soils(Requirement of MCERTS)         | Moisture content                                                                                                                                                                                                                                                          | Determination of moisture content of soil as a percentage of its as received mass obtained at <30°C.                                                                                   |               |
| 2040 | Soil Description(Requirement of MCERTS)                            | Soil description                                                                                                                                                                                                                                                          | As received soil is described based upon BS5930                                                                                                                                        |               |
| 2120 | Water Soluble Boron, Sulphate, Magnesium & Chromium                | Boron; Sulphate; Magnesium; Chromium                                                                                                                                                                                                                                      | Aqueous extraction / ICP-OES                                                                                                                                                           |               |
| 2192 | Asbestos                                                           | Asbestos                                                                                                                                                                                                                                                                  | Polarised light microscopy / Gravimetry                                                                                                                                                |               |
| 2300 | Cyanides & Thiocyanate in Soils                                    | Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate                                                                                                                                                                                           | Alkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.                                                                                    |               |
| 2455 | Acid Soluble Metals in Soils                                       | Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc                                                                                                                  | Acid digestion followed by determination of metals in extract by ICP-MS.                                                                                                               |               |
| 2490 | Hexavalent Chromium in Soils                                       | Chromium [VI]                                                                                                                                                                                                                                                             | Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazine. |               |
| 2625 | Total Organic Carbon in Soils                                      | Total organic Carbon (TOC)                                                                                                                                                                                                                                                | Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.                                                                                             |               |
| 2670 | Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID              | TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40                                                                                                                                                                                            | Dichloromethane extraction / GC-FID                                                                                                                                                    |               |
| 2800 | Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-MS | Acenaphthene*; Acenaphthylene; Anthracene*; Benzo[a]Anthracene*; Benzo[a]Pyrene*; Benzo[b]Fluoranthene*; Benzo[ghi]Perylene*; Benzo[k]Fluoranthene; Chrysene*; Dibenz[ah]Anthracene; Fluoranthene*; Fluorene*; Indeno[123cd]Pyrene*; Naphthalene*; Phenanthrene*; Pyrene* | Dichloromethane extraction / GC-MS                                                                                                                                                     |               |
| 2920 | Phenols in Soils by HPLC                                           | Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.                                                                                                                         | 60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.                                                                               |               |

## **Report Information**

### **Key**

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|     |                                                                                                               |
|-----|---------------------------------------------------------------------------------------------------------------|
| 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"                                                                                                |
| SOP | Standard operating procedure                                                                                  |
| LOD | Limit of detection                                                                                            |

This report shall not be reproduced except in full, and only with the prior approval of the laboratory.

Any comments or interpretations are outside the scope of UKAS accreditation.

The Laboratory is not accredited for any sampling activities and reported results relate to the samples 'as received' at the laboratory.

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 EPH, VPH, TPH, BTEX, VOCs, SVOCs, PCBs, Phenols.

For all other tests the samples were dried at  $\leq 30^{\circ}\text{C}$  prior to analysis.

All Asbestos testing is performed at the indicated laboratory .

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

### **Sample Deviation Codes**

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- 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
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

### **Sample Retention and Disposal**

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All soil samples will be retained for a period of 30 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.

### **Water Sample Category Key for Accreditation**

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- DW - Drinking Water
- GW - Ground Water
- LE - Land Leachate
- NA - Not Applicable

## **Report Information**

PL - Prepared Leachate  
PW - Processed Water  
RE - Recreational Water  
SA - Saline Water  
SW - Surface Water  
TE - Treated Effluent  
TS - Treated Sewage  
UL - Unspecified Liquid

### **Clean Up Codes**

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NC - No Clean Up  
MC - Mathematical Clean Up  
FC - Florisil Clean Up

### **HWOL Acronym System**

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HS - Headspace analysis  
EH - Extractable hydrocarbons – i.e. everything extracted by the solvent  
CU - Clean-up – e.g. by Florisil, silica gel  
1D - GC – Single coil gas chromatography  
Total - Aliphatics & Aromatics  
AL - Aliphatics only  
AR - Aromatic only  
2D - GC-GC – Double coil gas chromatography  
#1 - EH\_2D\_Total but with humics mathematically subtracted  
#2 - EH\_2D\_Total but with fatty acids mathematically subtracted  
+ - Operator to indicate cumulative e.g. EH+EH\_Total or EH\_CU+HS\_Total

If you require extended retention of samples, please email your requirements to:  
[customerservices@chemtest.com](mailto:customerservices@chemtest.com)

## **Appendix G      GQRA Screening Assessment**

## QRA Screening

| Assessments                                    | Status         | Date     | Created by | Reviewed By |
|------------------------------------------------|----------------|----------|------------|-------------|
| Acute human health risk - Soils                | Not undertaken |          |            |             |
| Chronic human health risk - Soils              | Complete       | 08.08.24 | MOH        | JB          |
| Chronic human health risk - Groundwater vapour | Not undertaken |          |            |             |
| Controlled waters risk - Surface water         | Not undertaken |          |            |             |
| Controlled waters risk - Drinking water        | Not undertaken |          |            |             |
| Controlled waters - Free phase indicator       | Not undertaken |          |            |             |
| Phytotoxicity                                  | Not undertaken |          |            |             |
| Ecotoxicity                                    | Not undertaken |          |            |             |

## Key

| Assessment                        | Abbr.   | QRA Source (in order of preference)   | Last Update |
|-----------------------------------|---------|---------------------------------------|-------------|
| All                               | NGA     | No guideline value available          | -           |
| Chronic human health risk - Soils | C4SL    | Category 4 Screening Levels (DEFRA)   | May 2021    |
|                                   | S4UL    | Suitable 4 Use Levels (LQM)           | August 2015 |
|                                   | ATK     | Atrisk Soil Screening Values (Atkins) | June 2017   |
|                                   | CL:AIRE | Generic Assessment Criteria (CL:AIRE) | Jan 2010    |

Chronic human health risk (soils)

| Scenario                            |                  |                                    |                   |           |        |                      |                      |                      |                      |                      |                      |                      |                      |                      |                      |  |  |
|-------------------------------------|------------------|------------------------------------|-------------------|-----------|--------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|--|--|
| End user                            |                  | Proposed site user                 |                   |           |        |                      |                      |                      |                      |                      |                      |                      |                      |                      |                      |  |  |
| Receptor                            |                  | Residential with homegrown produce |                   |           |        |                      |                      |                      |                      |                      |                      |                      |                      |                      |                      |  |  |
| SOM                                 |                  | 1.00%                              |                   |           |        |                      |                      |                      |                      |                      |                      |                      |                      |                      |                      |  |  |
| GAC Preference                      |                  | CASLs over S4ULs                   |                   |           |        |                      |                      |                      |                      |                      |                      |                      |                      |                      |                      |  |  |
| Unspecified TPH GAC                 |                  | Worst-case aliphatic/aromatic      |                   |           |        |                      |                      |                      |                      |                      |                      |                      |                      |                      |                      |  |  |
| Contaminant                         | Guideline source | Guideline value (mg/kg)            | Max value (mg/kg) | Location  |        | VTP101               | VTP101               | VTP102               | VTP102               | VTP103               | VTP103               | VTP104               | VTP104               | VTP105               | VTP105               |  |  |
|                                     |                  |                                    |                   | Depth (m) |        | 0.15                 | 0.50                 | 0.10                 | 0.50                 | 0.10                 | 0.50                 | 0.10                 | 0.40                 | 0.10                 | 0.50                 |  |  |
|                                     |                  |                                    |                   | Date      |        | 02/07/24             | 02/07/24             | 02/07/24             | 02/07/24             | 02/07/24             | 02/07/24             | 02/07/24             | 02/07/24             | 02/07/24             | 02/07/24             |  |  |
| Inorganics - Metals                 |                  |                                    |                   |           |        |                      |                      |                      |                      |                      |                      |                      |                      |                      |                      |  |  |
| Arsenic                             | C4SL             | 37                                 | 19                |           |        | 19                   | 16                   | 15                   | 16                   | 15                   | 12                   | 14                   | 10                   | 12                   | 16                   |  |  |
| Boron                               | S4UL             | 290                                | 2.2               |           |        | 0.49                 | 1.9                  | 1.9                  | 2                    | 2.2                  | 2.1                  | 0.65                 | 1.4                  | 0.64                 | 1.9                  |  |  |
| Cadmium                             | C4SL             | 22                                 | 0.5               |           |        | 0.5                  | 0.37                 | 0.38                 | 0.17                 | 0.18                 | 0.13                 | 0.13                 | < 0.10               | 0.11                 | 0.19                 |  |  |
| Chromium (III)                      | S4UL             | 910                                | 47                |           |        | 5                    | 8.7                  | 6.8                  | 32                   | 27                   | 30                   | 27                   | 28                   | 23                   | 47                   |  |  |
| Chromium (VI)                       | C4SL             | 21                                 | <LoD              |           |        | < 0.50               | < 0.50               | < 0.50               | < 0.50               | < 0.50               | < 0.50               | < 0.50               | < 0.50               | < 0.50               | < 0.50               |  |  |
| Copper                              | S4UL             | 2400                               | 99                |           |        | 81                   | 72                   | 99                   | 34                   | 37                   | 30                   | 32                   | 22                   | 28                   | 32                   |  |  |
| Cyanide - Free                      | ATK              | 34                                 | <LoD              |           |        | < 0.50               | < 0.50               | < 0.50               | < 0.50               | < 0.50               | < 0.50               | < 0.50               | < 0.50               | < 0.50               | < 0.50               |  |  |
| Lead                                | C4SL             | 200                                | 300               |           |        | 140                  | 130                  | 300                  | 54                   | 61                   | 38                   | 46                   | 34                   | 38                   | 32                   |  |  |
| Mercury                             | S4UL             | 40                                 | 0.54              |           |        | 0.54                 | 0.33                 | 0.4                  | 0.09                 | 0.14                 | 0.07                 | 0.1                  | 0.07                 | 0.09                 | 0.06                 |  |  |
| Nickel                              | S4UL             | 130                                | 35                |           |        | 33                   | 25                   | 23                   | 20                   | 17                   | 18                   | 16                   | 16                   | 14                   | 35                   |  |  |
| Selenium                            | S4UL             | 250                                | 1.3               |           |        | 1.3                  | 0.87                 | 0.71                 | 1.1                  | 1.1                  | 0.87                 | 0.93                 | 0.91                 | 0.82                 | 1.3                  |  |  |
| Vanadium                            | S4UL             | 410                                | 59                |           |        | 32                   | 32                   | 30                   | 41                   | 37                   | 37                   | 31                   | 36                   | 27                   | 59                   |  |  |
| Zinc                                | S4UL             | 3700                               | 440               |           |        | 440                  | 310                  | 260                  | 90                   | 98                   | 83                   | 88                   | 60                   | 80                   | 82                   |  |  |
| Inorganics - Asbestos               |                  |                                    |                   |           |        |                      |                      |                      |                      |                      |                      |                      |                      |                      |                      |  |  |
| Asbestos Type                       |                  | N/A                                |                   |           |        |                      |                      |                      |                      |                      |                      |                      |                      |                      |                      |  |  |
| Asbestos Screen                     |                  | N/A                                |                   |           |        |                      |                      |                      |                      |                      |                      |                      |                      |                      |                      |  |  |
| Inorganics - Soil Parameters        |                  |                                    |                   |           |        | No Asbestos Detected | No Asbestos Detected | No Asbestos Detected | No Asbestos Detected | No Asbestos Detected | No Asbestos Detected | No Asbestos Detected | No Asbestos Detected | No Asbestos Detected | No Asbestos Detected |  |  |
| Organic matter                      |                  | N/A                                |                   |           |        |                      |                      |                      |                      |                      |                      |                      |                      |                      |                      |  |  |
| Organics - PAH & Phenol             |                  |                                    |                   |           |        | 1.7                  | 1.3                  | 1.8                  | 1.7                  | 1.5                  | 1.2                  | 1.6                  | 1.1                  | 1.2                  | 0.48                 |  |  |
| Acenaphthene                        | S4UL             | 210                                | <LoD              | < 0.10    | < 0.10 | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               |  |  |
| Acenaphthylene                      | S4UL             | 170                                | <LoD              | < 0.10    | < 0.10 | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               |  |  |
| Anthracene                          | S4UL             | 2400                               | 0.11              | < 0.10    | < 0.10 | < 0.10               | < 0.10               | < 0.10               | 0.11                 | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               |  |  |
| Benzo(a)anthracene                  | S4UL             | 7.2                                | 0.26              | < 0.10    | < 0.10 | < 0.10               | 0.22                 | < 0.10               | 0.26                 | < 0.10               | < 0.10               | < 0.10               | < 0.10               | 0.15                 |                      |  |  |
| Benzo(a)pyrene                      | C4SL             | 5                                  | 0.11              | < 0.10    | < 0.10 | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               | 0.11                 |                      |  |  |
| Benzo(b)fluoranthene                | S4UL             | 2.6                                | 0.1               | < 0.10    | < 0.10 | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               | 0.1                  |                      |  |  |
| Benzo(ghi)perylene                  | S4UL             | 320                                | <LoD              | < 0.10    | < 0.10 | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               |  |  |
| Benzo(k)fluoranthene                | S4UL             | 77                                 | <LoD              | < 0.10    | < 0.10 | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               |  |  |
| Chrysene                            | S4UL             | 15                                 | 0.24              | < 0.10    | < 0.10 | < 0.10               | 0.21                 | < 0.10               | 0.24                 | < 0.10               | < 0.10               | < 0.10               | < 0.10               | 0.14                 |                      |  |  |
| Dibenz(a,h)anthracene               | S4UL             | 0.24                               | <LoD              | < 0.10    | < 0.10 | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               |  |  |
| Fluoranthene                        | S4UL             | 280                                | 0.6               | 0.18      | 0.41   | < 0.10               | 0.45                 | 0.29                 | 0.6                  | < 0.10               | 0.22                 | < 0.10               | 0.44                 |                      |                      |  |  |
| Fluorene                            | S4UL             | 170                                | <LoD              | < 0.10    | < 0.10 | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               |  |  |
| Indeno(1,2,3-cd)pyrene              | S4UL             | 27                                 | <LoD              | < 0.10    | < 0.10 | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               |  |  |
| Naphthalene                         | C4SL             | 15                                 | <LoD              | < 0.10    | < 0.10 | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               |  |  |
| Phenanthrene                        | S4UL             | 95                                 | 0.46              | < 0.10    | 0.2    | < 0.10               | 0.15                 | 0.1                  | 0.34                 | < 0.10               | 0.12                 | < 0.10               | 0.46                 |                      |                      |  |  |
| Phenol                              | S4UL             | 120                                | <LoD              | < 0.10    | < 0.10 | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               | < 0.10               |  |  |
| Pyrene                              | S4UL             | 620                                | 0.48              | 0.17      | 0.36   | < 0.10               | 0.4                  | 0.27                 | 0.48                 | < 0.10               | 0.19                 | < 0.10               | 0.32                 |                      |                      |  |  |
| Organics - Banded TPH (unspecified) |                  |                                    |                   |           |        |                      |                      |                      |                      |                      |                      |                      |                      |                      |                      |  |  |
| EC >5-EC6 (unspecified)             | S4UL             | 42                                 | <LoD              | < 1.0     | < 1.0  | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                |  |  |
| EC >6-EC7 (unspecified)             | S4UL             | 70                                 | <LoD              | < 1.0     | < 1.0  | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                |  |  |
| EC >7-EC8 (unspecified)             | S4UL             | 100                                | <LoD              | < 1.0     | < 1.0  | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                |  |  |
| EC >08-EC10 (unspecified)           | S4UL             | 27                                 | <LoD              | < 1.0     | < 1.0  | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                |  |  |
| EC >10-EC12 (unspecified)           | S4UL             | 74                                 | <LoD              | < 1.0     | < 1.0  | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                |  |  |
| EC >12-EC16 (unspecified)           | S4UL             | 140                                | <LoD              | < 1.0     | < 1.0  | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                |  |  |
| EC >16-EC21 (unspecified)           | S4UL             | 260                                | 420               | < 1.0     | < 1.0  | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | 420                  | < 1.0                | < 1.0                | < 1.0                |  |  |
| EC >21-EC35 (unspecified)           | S4UL             | 1100                               | 4200              | < 1.0     | < 1.0  | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | < 1.0                | 4200                 | < 1.0                | < 1.0                | < 1.0                |  |  |

## **Appendix H      Gas Protection Measures Verification**

## INDEPENDENT INSPECTION & VALIDATION

### CERTIFICATE OF CONFORMANCE

DATE: 18.7.23

PROJECT NAME: Bellway Site, Barrington Rd, Durrington-On-Sea, BN12 4SE

CONTRACT NO: C908 Plot 3 - Visqueen Zedex CPT membrane & GR Foil Tape

#### **INSPECTION, VALIDATION & INTEGRITY TESTING DETAILS:**

MTS Ltd were requested to attend site to inspect/validate the membrane installed to the above mentioned areas. On initial inspection our validation surveyor noted that the membrane had been installed to a very high standard. Our surveyor then using a seam pick probe test inspected all welded seams for integrity and all membrane for any damage or defects. He then inspected all GR Foil tape used to seal pipes, service entries, vents etc. Checking for the adhesion and specific overlaps. Everything was installed to the design and specification and photo evidence was taken of all the above for the inclusion in the final report.

**MembraneTestingSolutions Ltd** hereby confirm that the elements of the project detailed above have been inspected and validated by a suitably qualified Independent consultant in accordance with industry requirements, with the test result noted below:

**CONCLUSION (PASS/FAIL)** Pass-In-Full

Where the conclusion above indicates a Pass, the construction activities may proceed subject to suitable protection measures of the membrane being applied in accordance with the manufacturers recommendations.

Signed for on behalf of **MembraneTestingSolutions Ltd**



Name: Rob Tait

Dated: 18.7.23

Signed for on behalf of The Client:

Name: Martin Stefanov

Dated: 18.7.23

**Membrane Testing Solutions Limited** • The Studio, Parsonage House, Parsonage Street, Halstead, Essex CO9 2JR

Telephone: 0844 557 3786 • email: [sales@mtsltd.net](mailto:sales@mtsltd.net) • [www.mtsltd.net](http://www.mtsltd.net)

Registered Office: 1, Second Avenue, Halstead, Essex, CO9 2SU • Company Registration Number: 8879115

## INDEPENDENT INSPECTION & VALIDATION CERTIFICATE OF CONFORMANCE

DATE: 18.7.23

PROJECT NAME: Bellway Site, Barrington Rd, Durrington-On-Sea, BN12 4SE

CONTRACT NO: C908 Plot 4 - Visqueen Zedex CPT membrane & GR Foil Tape

### **INSPECTION, VALIDATION & INTEGRITY TESTING DETAILS:**

MTS Ltd were requested to attend site to inspect/validate the membrane installed to the above mentioned areas. On initial inspection our validation surveyor noted that the membrane had been installed to a very high standard. Our surveyor then using a seam pick probe test inspected all welded seams for integrity and all membrane for any damage or defects. He then inspected all GR Foil tape used to seal pipes, service entries, vents etc. Checking for the adhesion and specific overlaps. Everything was installed to the design and specification and photo evidence was taken of all the above for the inclusion in the final report.

MembraneTestingSolutions Ltd hereby confirm that the elements of the project detailed above have been inspected and validated by a suitably qualified independent consultant in accordance with industry requirements, with the test result noted below:

CONCLUSION (PASS/FAIL) Pass-In-Full

Where the conclusion above indicates a Pass, the construction activities may proceed subject to suitable protection measures of the membrane being applied in accordance with the manufacturers recommendations.

Signed for on behalf of MembraneTestingSolutions Ltd



Name: Rob Tait

Dated: 18.7.23

Signed for on behalf of The Client:

Name: Martin Stefanov

Dated: 18.7.23

Membrane Testing Solutions Limited • The Studio, Parsonage House, Parsonage Street, Halstead, Essex CO9 2JR  
Telephone: 0844 557 3786 • email: sales@mtsltd.net • www.mtsltd.net

Registered Office: 1, Second Avenue, Halstead, Essex, CO9 2SU • Company Registration Number 8879015

## INDEPENDENT INSPECTION & VALIDATION CERTIFICATE OF CONFORMANCE

DATE: 18.7.23

PROJECT NAME: Bellway Site, Barrington Rd, Durrington-On-Sea, BN12 4SE

CONTRACT NO: C908 Plot 5 - Visqueen Zedex CPT membrane & GR Foil Tape

### **INSPECTION, VALIDATION & INTEGRITY TESTING DETAILS:**

MTS Ltd were requested to attend site to inspect/validate the membrane installed to the above mentioned areas. On initial inspection our validation surveyor noted that the membrane had been installed to a very high standard. Our surveyor then using a seam pick probe test inspected all welded seams for integrity and all membrane for any damage or defects. He then inspected all GR Foil tape used to seal pipes, service entries, vents etc. Checking for the adhesion and specific overlaps. Everything was installed to the design and specification, There was 1 minor defect found, The defect was marked up and immediately repaired. The repair was validated proving a pass. Photo evidence was taken of all the above for the inclusion in the final report.

**MembraneTestingSolutions Ltd** hereby confirm that the elements of the project detailed above have been inspected and validated by a suitably qualified independent consultant in accordance with industry requirements, with the test result noted below:

CONCLUSION (PASS/FAIL)      Pass-In-Full

Where the conclusion above indicates a Pass, the construction activities may proceed subject to suitable protection measures of the membrane being applied in accordance with the manufacturers recommendations.

Signed for on behalf of **MembraneTestingSolutions Ltd**



Name: Rob Tait

Dated: 18.7.23

Signed for on behalf of The Client:

Name: Martin Stefanov

Dated: 18.7.23

**Membrane Testing Solutions Limited** • The Studio, Parsonage House, Parsonage Street, Halstead, Essex CO9 2JR

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Registered Office: 1, Second Avenue, Halstead, Essex. CO9 2SU • Company Registration Number: 8871015

## INDEPENDENT INSPECTION & VALIDATION

### CERTIFICATE OF CONFORMANCE

DATE: 18.7.23

PROJECT NAME: Bellway Site, Barrington Rd, Durrington-On-Sea, BN12 4SE

CONTRACT NO: C908 Plot 6 - Visqueen Zedex CPT membrane & GR Foil Tape

#### **INSPECTION, VALIDATION & INTEGRITY TESTING DETAILS:**

MTS Ltd were requested to attend site to inspect/validate the membrane installed to the above mentioned areas. On initial inspection our validation surveyor noted that the membrane had been installed to a very high standard. Our surveyor then using a seam pick probe test inspected all welded seams for integrity and all membrane for any damage or defects. He then inspected all GR Foil tape used to seal pipes, service entries, vents etc. Checking for the adhesion and specific overlaps. Everything was installed to the design and specification. There was 1 minor defect found. The defect was marked up and immediately repaired. The repair was validated proving a pass. Photo evidence was taken of all the above for the inclusion in the final report.

**MembraneTestingSolutions Ltd** hereby confirm that the elements of the project detailed above have been inspected and validated by a suitably qualified independent consultant in accordance with industry requirements, with the test result noted below:

CONCLUSION (PASS/FAIL) Pass-In-Full

Where the conclusion above indicates a Pass, the construction activities may proceed subject to suitable protection measures of the membrane being applied in accordance with the manufacturers recommendations.

Signed for on behalf of **MembraneTestingSolutions Ltd**



Name: Rob Tait

Dated: 18.7.23

Signed for on behalf of The Client:

Name: Martin Stefanov

Dated: 18.7.23

**Membrane Testing Solutions Limited** • The Studio, Parsonage House, Parsonage Street, Halstead, Essex CO9 2JR

Telephone: 0844 557 3786 • email: [sales@mtsltd.net](mailto:sales@mtsltd.net) • [www.mtsltd.net](http://www.mtsltd.net)

Registered Office: 1, Second Avenue, Halstead, Essex, CO9 2SU • Company Registration Number: 8879195

## INDEPENDENT INSPECTION & VALIDATION

### CERTIFICATE OF CONFORMANCE

DATE: 18.7.23

PROJECT NAME: Bellway Site, Barrington Rd, Durrington-On-Sea, BN12 4SE

CONTRACT NO: C908 Plot 7 - Visqueen Zedex CPT membrane & GR Foil Tape

#### **INSPECTION, VALIDATION & INTEGRITY TESTING DETAILS:**

MTS Ltd were requested to attend site to inspect/validate the membrane installed to the above mentioned areas. On initial inspection our validation surveyor noted that the membrane had been installed to a very high standard. Our surveyor then using a seam pick probe test inspected all welded seams for integrity and all membrane for any damage or defects. He then inspected all GR Foil tape used to seal pipes, service entries, vents etc. Checking for the adhesion and specific overlaps. Everything was installed to the design and specification. There were 2 minor defects found. The defects were marked up and immediately repaired. The repairs were validated proving a pass. Photo evidence was taken of all the above for the inclusion in the final report.

**MembraneTestingSolutions Ltd** hereby confirm that the elements of the project detailed above have been inspected and validated by a suitably qualified independent consultant in accordance with industry requirements, with the test result noted below:

**CONCLUSION (PASS/FAIL)** Pass-In-Full

Where the conclusion above indicates a Pass, the construction activities may proceed subject to suitable protection measures of the membrane being applied in accordance with the manufacturers recommendations.

Signed for on behalf of **MembraneTestingSolutions Ltd**



Name: Rob Tait

Dated: 18.7.23

Signed for on behalf of The Client:

Name: Martin Stefanov

Dated: 18.7.23

Membrane Testing Solutions Limited • The Studio, Parsonage House, Parsonage Street, Halstead, Essex CO9 2JR

Telephone: 0844 557 3786 • email: [sales@mtsltd.net](mailto:sales@mtsltd.net) • [www.mtsltd.net](http://www.mtsltd.net)

Registered Office: 1, Second Avenue, Halstead, Essex. CO9 2SU • Company Registration Number: 8879095

## INDEPENDENT INSPECTION & VALIDATION CERTIFICATE OF CONFORMANCE

DATE: 18.7.23

PROJECT NAME: Bellway Site, Barrington Rd, Durrington-On-Sea, BN12 4SE

CONTRACT NO: C908 Plot 8 - Visqueen Zedex CPT membrane & GR Foil Tape

### **INSPECTION, VALIDATION & INTEGRITY TESTING DETAILS:**

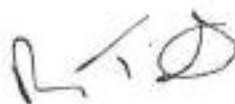
MTS Ltd were requested to attend site to inspect/validate the membrane installed to the above mentioned areas. On initial inspection our validation surveyor noted that the membrane had been installed to a very high standard. Our surveyor then using a seam pick probe test inspected all welded seams for integrity and all membrane for any damage or defects. He then inspected all GR Foil tape used to seal pipes, service entries, vents etc. Checking for the adhesion and specific overlaps. Everything was installed to the design and specification, There was 1 minor defect found, The defect was marked up and immediately repaired. The repair was validated proving a pass. Photo evidence was taken of all the above for the inclusion in the final report.

**MembraneTestingSolutions Ltd** hereby confirm that the elements of the project detailed above have been inspected and validated by a suitably qualified independent consultant in accordance with industry requirements, with the test result noted below:

CONCLUSION (PASS/FAIL) Pass-In-Full

Where the conclusion above indicates a Pass, the construction activities may proceed subject to suitable protection measures of the membrane being applied in accordance with the manufacturers recommendations.

Signed for on behalf of **MembraneTestingSolutions Ltd**



Name: Rob Tait

Dated: 18.7.23

Signed for on behalf of The Client:

Name: Martin Stefanov

Dated: 18.7.23

**Membrane Testing Solutions Limited** • The Studio, Parsonage House, Parsonage Street, Halstead, Essex CO9 2JR

Telephone: 0844 557 3786 • email: [sales@mtsltd.net](mailto:sales@mtsltd.net) • [www.mtsltd.net](http://www.mtsltd.net)

Registered Office: 1, Second Avenue, Halstead, Essex, CO9 2SU • Company Registration Number: 8871015

## PHOTOGRAPHIC VALIDATION EVENT, INSPECTION CERTIFICATE OF INSTALLATION

**DATE:** 10.8.2023

**PROJECT NAME:** Barrington Road, Durrington - CW - Sea

**CONTRACT NO:** C908 - Plot 12-15 - Visqueen Radon Barrier - Full Line Out

### **PHOTOGRAPHIC INSPECTION & VALIDATION DETAILS:**

Due to time and program constraints, and with consideration to a premier installer, namely GB Lining services Ltd installing the membrane. MTS Ltd agreed with the client to accept photographic evidence as proof of install. Upon receipt of the copious photographs received, our validation surveyor inspected all in a timely and methodical way. Checking that all membrane had been installed to the entire footprint of the build, checking the seams were welded, checking all service entries and corner detailing and the like had been sealed using GR lap tape. All appeared to have been installed well however, MTD Ltd can not check the integrity of the welds or the adherence of the GR lap tape.

**MembraneTestingSolutions Ltd** hereby confirm that the elements of the project detailed above have been photographically inspected, reviewed and validated by a suitably qualified independent consultant in accordance with industry requirements, with the test result noted below:

**CONCLUSION (PASS/FAIL)** ..... **PASS IN FULL** .....

Where the conclusion above indicates a Pass, the construction activities may proceed subject to suitable protection measures of the membrane being applied in accordance with the manufacturer's recommendations.

**Signed for on behalf of MembraneTestingSolutions Ltd:**



**Name:** ..... Michael Smith .....

**Dated:** ..... 10.8.2023 .....

**Membrane Testing Solutions Limited • The Studio, Parsonage House, Parsonage Street, Halstead, Essex CO9 2JR**

**Telephone: 0844 557 3786 • email: sales@mtsltd.net • www.mtsltd.net**

## PHOTOGRAPHIC VALIDATION EVENT, INSPECTION CERTIFICATE OF INSTALLATION

**DATE:** 10.8.2023

**PROJECT NAME:** Barrington Road, Durrington - CW - Sea

**CONTRACT NO:** C908 - Plot 21 - Visqueen Radon Barrier - Full Line Out

### **PHOTOGRAPHIC INSPECTION & VALIDATION DETAILS:**

Due to time and program constraints, and with consideration to a premier installer, namely GB Lining services Ltd installing the membrane. MTS Ltd agreed with the client to accept photographic evidence as proof of install. Upon receipt of the copious photographs received, our validation surveyor inspected all in a timely and methodical way. Checking that all membrane had been installed to the entire footprint of the build, checking the seams were welded, checking all service entries and corner detailing and the like had been sealed using GR lap tape. All appeared to have been installed well however, MTD Ltd can not check the integrity of the welds or the adherence of the GR lap tape.

**MembraneTestingSolutions Ltd** hereby confirm that the elements of the project detailed above have been photographically inspected, reviewed and validated by a suitably qualified independent consultant in accordance with industry requirements, with the test result noted below:

**CONCLUSION (PASS/FAIL)** ..... **PASS IN FULL** .....

Where the conclusion above indicates a Pass, the construction activities may proceed subject to suitable protection measures of the membrane being applied in accordance with the manufacturer's recommendations.

**Signed for on behalf of MembraneTestingSolutions Ltd:**



**Name:** ..... Michael Smith .....

**Dated:** ..... 10.8.2023 .....

**Membrane Testing Solutions Limited • The Studio, Parsonage House, Parsonage Street, Halstead, Essex CO9 2JR**

**Telephone: 0844 557 3786 • email: sales@mtsltd.net • www.mtsltd.net**

## **PHOTOGRAPHIC VALIDATION EVENT, INSPECTION** **CERTIFICATE OF INSTALLATION**

**DATE:** 10.8.2023

**PROJECT NAME:** Barrington Road, Durrington - CW - Sea

**CONTRACT NO:** C908 - Plot 22 - Visqueen Radon Barrier - Full Line Out

### **PHOTOGRAPHIC INSPECTION & VALIDATION DETAILS:**

Due to time and program constraints, and with consideration to a premier installer, namely GB Lining services Ltd installing the membrane. MTS Ltd agreed with the client to accept photographic evidence as proof of install. Upon receipt of the copious photographs received, our validation surveyor inspected all in a timely and methodical way. Checking that all membrane had been installed to the entire footprint of the build, checking the seams were welded, checking all service entries and corner detailing and the like had been sealed using GR lap tape. All appeared to have been installed well however, MTD Ltd can not check the integrity of the welds or the adherence of the GR lap tape.

**MembraneTestingSolutions Ltd** hereby confirm that the elements of the project detailed above have been photographically inspected, reviewed and validated by a suitably qualified independent consultant in accordance with industry requirements, with the test result noted below:

**CONCLUSION (PASS/FAIL)** ..... **PASS IN FULL** .....

Where the conclusion above indicates a Pass, the construction activities may proceed subject to suitable protection measures of the membrane being applied in accordance with the manufacturer's recommendations.

**Signed for on behalf of MembraneTestingSolutions Ltd:**



**Name:** ..... Michael Smith .....

**Dated:** ..... 10.8.2023 .....

**Membrane Testing Solutions Limited • The Studio, Parsonage House, Parsonage Street, Halstead, Essex CO9 2JR**

**Telephone: 0844 557 3786 • email: sales@mtsltd.net • www.mtsltd.net**

## PHOTOGRAPHIC VALIDATION EVENT, INSPECTION CERTIFICATE OF INSTALLATION

**DATE:** 10.8.2023

**PROJECT NAME:** Barrington Road, Durrington - CW - Sea

**CONTRACT NO:** C908 - Plot 23 - Visqueen Radon Barrier - Full Line Out

### **PHOTOGRAPHIC INSPECTION & VALIDATION DETAILS:**

Due to time and program constraints, and with consideration to a premier installer, namely GB Lining services Ltd installing the membrane. MTS Ltd agreed with the client to accept photographic evidence as proof of install. Upon receipt of the copious photographs received, our validation surveyor inspected all in a timely and methodical way. Checking that all membrane had been installed to the entire footprint of the build, checking the seams were welded, checking all service entries and corner detailing and the like had been sealed using GR lap tape. All appeared to have been installed well however, MTD Ltd can not check the integrity of the welds or the adherence of the GR lap tape.

**MembraneTestingSolutions Ltd** hereby confirm that the elements of the project detailed above have been photographically inspected, reviewed and validated by a suitably qualified independent consultant in accordance with industry requirements, with the test result noted below:

**CONCLUSION (PASS/FAIL)** ..... **PASS IN FULL** .....

Where the conclusion above indicates a Pass, the construction activities may proceed subject to suitable protection measures of the membrane being applied in accordance with the manufacturer's recommendations.

**Signed for on behalf of MembraneTestingSolutions Ltd:**



**Name:** ..... Michael Smith .....

**Dated:** ..... 10.8.2023 .....

**Membrane Testing Solutions Limited • The Studio, Parsonage House, Parsonage Street, Halstead, Essex CO9 2JR**

**Telephone: 0844 557 3786 • email: sales@mtsltd.net • www.mtsltd.net**

## PHOTOGRAPHIC VALIDATION EVENT, INSPECTION CERTIFICATE OF INSTALLATION

**DATE:** 10.8.2023

**PROJECT NAME:** Barrington Road, Durrington - CW - Sea

**CONTRACT NO:** C908 - Plot 32 - Visqueen Radon Barrier - Full Line Out

### **PHOTOGRAPHIC INSPECTION & VALIDATION DETAILS:**

Due to time and program constraints, and with consideration to a premier installer, namely GB Lining services Ltd installing the membrane. MTS Ltd agreed with the client to accept photographic evidence as proof of install. Upon receipt of the copious photographs received, our validation surveyor inspected all in a timely and methodical way. Checking that all membrane had been installed to the entire footprint of the build, checking the seams were welded, checking all service entries and corner detailing and the like had been sealed using GR lap tape. All appeared to have been installed well however, MTD Ltd can not check the integrity of the welds or the adherence of the GR lap tape.

**MembraneTestingSolutions Ltd** hereby confirm that the elements of the project detailed above have been photographically inspected, reviewed and validated by a suitably qualified independent consultant in accordance with industry requirements, with the test result noted below:

**CONCLUSION (PASS/FAIL)** ..... **PASS IN FULL** .....

Where the conclusion above indicates a Pass, the construction activities may proceed subject to suitable protection measures of the membrane being applied in accordance with the manufacturer's recommendations.

**Signed for on behalf of MembraneTestingSolutions Ltd:**

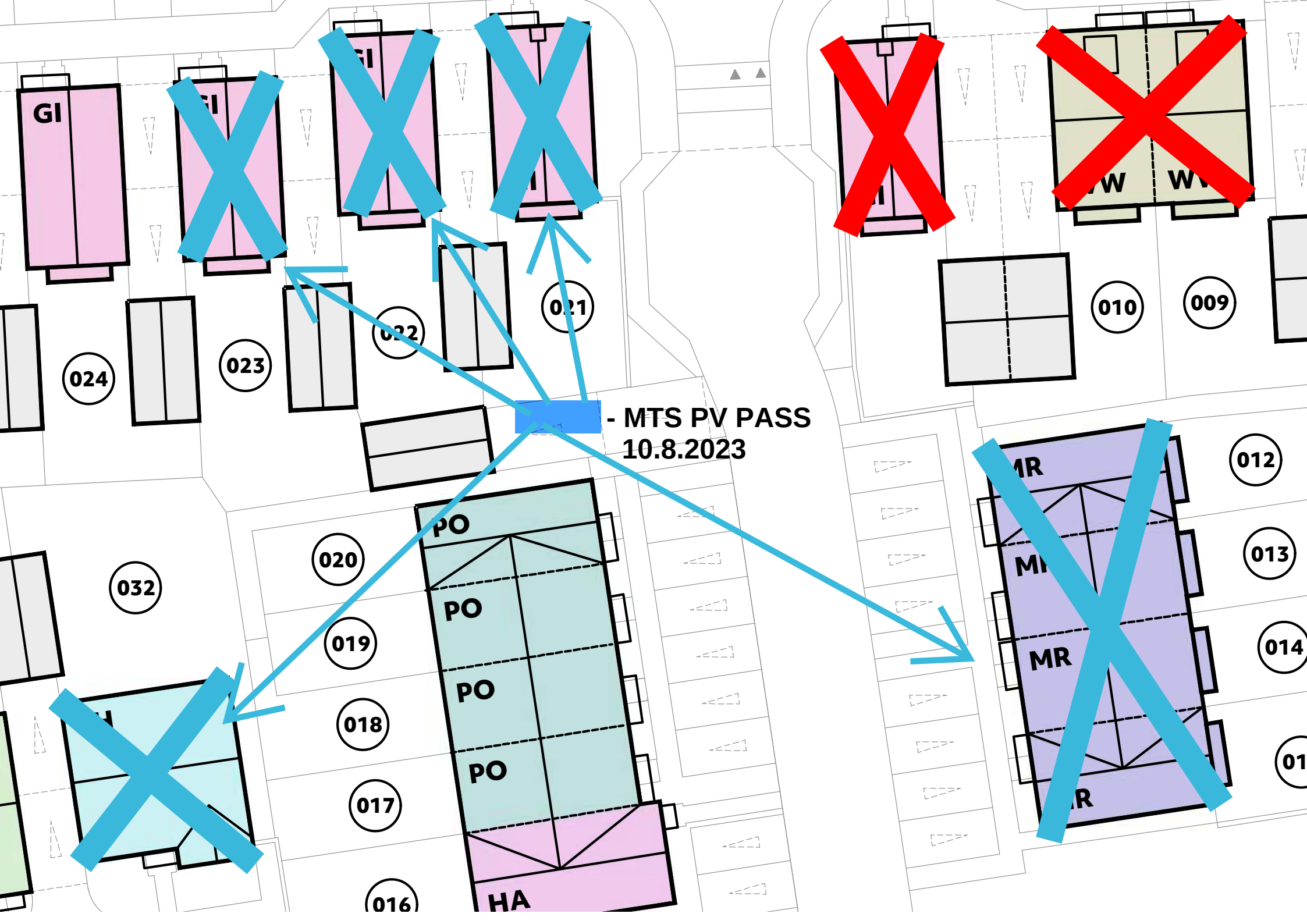


**Name:** ..... Michael Smith .....

**Dated:** ..... 10.8.2023 .....

**Membrane Testing Solutions Limited • The Studio, Parsonage House, Parsonage Street, Halstead, Essex CO9 2JR**

**Telephone: 0844 557 3786 • email: sales@mtsltd.net • www.mtsltd.net**



## PHOTOGRAPHIC VALIDATION EVENT, INSPECTION CERTIFICATE OF INSTALLATION

**DATE:** 17.8.2023

**PROJECT NAME:** Barrington Road, Durrington - CW - Sea

**CONTRACT NO:** C908 - Plot 16 - Visqueen Radon Barrier - Full Line Out

### **PHOTOGRAPHIC INSPECTION & VALIDATION DETAILS:**

As per the the quotation, and with consideration to a premier installer, namely GB Lining services Ltd installing the membrane. MTS Ltd agreed with the client to accept photographic evidence as proof of install. Upon receipt of the copious photographs received, our validation surveyor inspected all in a timely and methodical way. Checking that all membrane had been installed to the entire footprint of the build, checking the seams were welded, checking all service entries and corner detailing and the like had been sealed using GR lap tape. All appeared to have been installed well however, MTD Ltd can not check the integrity of the welds or the adherence of the GR lap tape.

**MembraneTestingSolutions Ltd** hereby confirm that the elements of the project detailed above have been photographically inspected, reviewed and validated by a suitably qualified independent consultant in accordance with industry requirements, with the test result noted below:

**CONCLUSION (PASS/FAIL)** ..... **PASS IN FULL** .....

Where the conclusion above indicates a Pass, the construction activities may proceed subject to suitable protection measures of the membrane being applied in accordance with the manufacturer's recommendations.

**Signed for on behalf of MembraneTestingSolutions Ltd:**



**Name:** ..... Michael Smith .....

**Dated:** ..... 17.8.2023 .....

**Membrane Testing Solutions Limited • The Studio, Parsonage House, Parsonage Street, Halstead, Essex CO9 2JR**

**Telephone: 0844 557 3786 • email: sales@mtsltd.net • www.mtsltd.net**

## PHOTOGRAPHIC VALIDATION EVENT, INSPECTION CERTIFICATE OF INSTALLATION

**DATE:** 17.8.2023

**PROJECT NAME:** Barrington Road, Durrington - CW - Sea

**CONTRACT NO:** C908 - Plot 17 - Visqueen Radon Barrier - Full Line Out

### **PHOTOGRAPHIC INSPECTION & VALIDATION DETAILS:**

As per the quotation, and with consideration to a premier installer, namely GB Lining services Ltd installing the membrane. MTS Ltd agreed with the client to accept photographic evidence as proof of install. Upon receipt of the copious photographs received, our validation surveyor inspected all in a timely and methodical way. Checking that all membrane had been installed to the entire footprint of the build, checking the seams were welded, checking all service entries and corner detailing and the like had been sealed using GR lap tape. All appeared to have been installed well however, MTD Ltd can not check the integrity of the welds or the adherence of the GR lap tape.

**MembraneTestingSolutions Ltd** hereby confirm that the elements of the project detailed above have been photographically inspected, reviewed and validated by a suitably qualified independent consultant in accordance with industry requirements, with the test result noted below:

**CONCLUSION (PASS/FAIL)** ..... **PASS IN FULL** .....

Where the conclusion above indicates a Pass, the construction activities may proceed subject to suitable protection measures of the membrane being applied in accordance with the manufacturer's recommendations.

**Signed for on behalf of MembraneTestingSolutions Ltd:**



**Name:** ..... Michael Smith .....

**Dated:** ..... 17.8.2023 .....

**Membrane Testing Solutions Limited • The Studio, Parsonage House, Parsonage Street, Halstead, Essex CO9 2JR**

**Telephone: 0844 557 3786 • email: sales@mtsltd.net • www.mtsltd.net**

## PHOTOGRAPHIC VALIDATION EVENT, INSPECTION CERTIFICATE OF INSTALLATION

**DATE:** 17.8.2023

**PROJECT NAME:** Barrington Road, Durrington - CW - Sea

**CONTRACT NO:** C908 - Plot 18 - Visqueen Radon Barrier - Full Line Out

### **PHOTOGRAPHIC INSPECTION & VALIDATION DETAILS:**

As per the quotation, and with consideration to a premier installer, namely GB Lining services Ltd installing the membrane. MTS Ltd agreed with the client to accept photographic evidence as proof of install. Upon receipt of the copious photographs received, our validation surveyor inspected all in a timely and methodical way. Checking that all membrane had been installed to the entire footprint of the build, checking the seams were welded, checking all service entries and corner detailing and the like had been sealed using GR lap tape. All appeared to have been installed well however, MTD Ltd can not check the integrity of the welds or the adherence of the GR lap tape.

**MembraneTestingSolutions Ltd** hereby confirm that the elements of the project detailed above have been photographically inspected, reviewed and validated by a suitably qualified independent consultant in accordance with industry requirements, with the test result noted below:

**CONCLUSION (PASS/FAIL)** ..... **PASS IN FULL** .....

Where the conclusion above indicates a Pass, the construction activities may proceed subject to suitable protection measures of the membrane being applied in accordance with the manufacturer's recommendations.

**Signed for on behalf of MembraneTestingSolutions Ltd:**



**Name:** ..... Michael Smith .....

**Dated:** ..... 17.8.2023 .....

**Membrane Testing Solutions Limited • The Studio, Parsonage House, Parsonage Street, Halstead, Essex CO9 2JR**

**Telephone: 0844 557 3786 • email: sales@mtsltd.net • www.mtsltd.net**

## PHOTOGRAPHIC VALIDATION EVENT, INSPECTION CERTIFICATE OF INSTALLATION

**DATE:** 17.8.2023

**PROJECT NAME:** Barrington Road, Durrington - CW - Sea

**CONTRACT NO:** C908 - Plot 19 - Visqueen Radon Barrier - Full Line Out

### **PHOTOGRAPHIC INSPECTION & VALIDATION DETAILS:**

As per the quotation, and with consideration to a premier installer, namely GB Lining services Ltd installing the membrane. MTS Ltd agreed with the client to accept photographic evidence as proof of install. Upon receipt of the copious photographs received, our validation surveyor inspected all in a timely and methodical way. Checking that all membrane had been installed to the entire footprint of the build, checking the seams were welded, checking all service entries and corner detailing and the like had been sealed using GR lap tape. All appeared to have been installed well however, MTD Ltd can not check the integrity of the welds or the adherence of the GR lap tape.

**MembraneTestingSolutions Ltd** hereby confirm that the elements of the project detailed above have been photographically inspected, reviewed and validated by a suitably qualified independent consultant in accordance with industry requirements, with the test result noted below:

**CONCLUSION (PASS/FAIL)** ..... **PASS IN FULL** .....

Where the conclusion above indicates a Pass, the construction activities may proceed subject to suitable protection measures of the membrane being applied in accordance with the manufacturer's recommendations.

**Signed for on behalf of MembraneTestingSolutions Ltd:**



**Name:** ..... Michael Smith .....

**Dated:** ..... 17.8.2023 .....

**Membrane Testing Solutions Limited • The Studio, Parsonage House, Parsonage Street, Halstead, Essex CO9 2JR**

**Telephone: 0844 557 3786 • email: sales@mtsltd.net • www.mtsltd.net**

## PHOTOGRAPHIC VALIDATION EVENT, INSPECTION CERTIFICATE OF INSTALLATION

**DATE:** 17.8.2023

**PROJECT NAME:** Barrington Road, Durrington - CW - Sea

**CONTRACT NO:** C908 - Plot 20 - Visqueen Radon Barrier - Full Line Out

### **PHOTOGRAPHIC INSPECTION & VALIDATION DETAILS:**

As per the quotation, and with consideration to a premier installer, namely GB Lining services Ltd installing the membrane. MTS Ltd agreed with the client to accept photographic evidence as proof of install. Upon receipt of the copious photographs received, our validation surveyor inspected all in a timely and methodical way. Checking that all membrane had been installed to the entire footprint of the build, checking the seams were welded, checking all service entries and corner detailing and the like had been sealed using GR lap tape. All appeared to have been installed well however, MTD Ltd can not check the integrity of the welds or the adherence of the GR lap tape.

**MembraneTestingSolutions Ltd** hereby confirm that the elements of the project detailed above have been photographically inspected, reviewed and validated by a suitably qualified independent consultant in accordance with industry requirements, with the test result noted below:

**CONCLUSION (PASS/FAIL)** ..... **PASS IN FULL** .....

Where the conclusion above indicates a Pass, the construction activities may proceed subject to suitable protection measures of the membrane being applied in accordance with the manufacturer's recommendations.

**Signed for on behalf of MembraneTestingSolutions Ltd:**

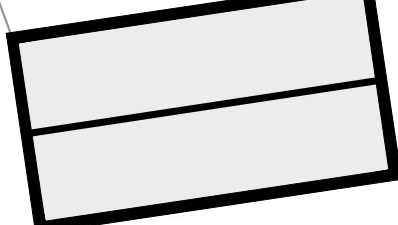


**Name:** ..... Michael Smith .....

**Dated:** ..... 17.8.2023 .....

**Membrane Testing Solutions Limited • The Studio, Parsonage House, Parsonage Street, Halstead, Essex CO9 2JR**

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**MTS PV PASS**  
**17-8-2023**

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