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Land between 145-147 Downhills Way N17 6AH  
Planning Ref: HGY/2021/3223

The following pages provide information which seeks to discharge Condition 4 (part 2).

# CONTAMINATED LAND RISK ASSESSMENT

## Phase 2 Environmental Site Investigation Report

### Site

Land between 145-147 Downhills Way  
London  
N17 6AH

### Client

UK Bauhaus Ltd

### Report Reference

PH2-2023-000030

### Prepared by

STM Environmental Consultants Ltd

### Date

22/08/2023



**CONSULTING GEO-ENVIRONMENTAL  
ENGINEERS AND SCIENTISTS**

Phase 1 Contaminated Land Desk Studies, Geo-Environmental Site Investigations, Environmental Due Diligence, Flood Risk Assessments, Surface Water Management Strategies (SuDS), Ecology, Noise and Air Quality Assessments, Environmental Management Systems, GIS & Data Management Systems

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## 1 DOCUMENT CONTROL



### CONTAMINATED LAND RISK ASSESSMENT PHASE 2 ENVIRONMENTAL SITE INVESTIGATION REPORT



**Site Address:** Land between 145-147 Downhills Way  
London  
N17 6AH

**Site Coordinates:** 532310, 190214

**Prepared for:** UK Bauhaus Ltd

**Report Reference:** PH2-2023-000030

**Version No:** 1.0

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## 2 DISCLAIMERS

This report and any information or advice which it contains, is provided by STM Environmental Consultants Ltd (STM) and can only be used and relied upon by UK Bauhaus Ltd (Client). Any party other than the Client using or placing reliance upon any information contained in this report, do so at their own risk.

STM has exercised such professional skill, care and diligence as may reasonably be expected of a properly qualified and competent consultant when undertaking works of this nature. However, STM gives no warranty, representation or assurance as to the accuracy or completeness of any information, assessments or evaluations presented within this report.

This report excludes consideration of potential hazards arising from any activities at the Site other than normal use and occupancy for the intended land uses. Hazards associated with any other activities have not been assessed and must be subject to a specific risk assessment by the parties responsible for those activities.

It should be noted that this report has been produced for environmental purposes only. It should not in any way be construed to be or used to replace a geotechnical survey, structural survey, asbestos survey, buried services survey, unexploded ordnance survey or invasive plant survey.

All coordinates and ground levels stated within the report are approximated based on OS mapping and LIDAR data. It is recommended that a topographic survey is undertaken if more accurate estimates are required.

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### 3 EXECUTIVE SUMMARY

| SECTION                                 | SUMMARY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Site Location and Description</b>    | The site is located at 145-147 Downhills Way, London, N17 6AH. It is approximately centred at national grid reference 532310, 190214 and occupies an area of approximately 0.05 ha.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Proposed Development</b>             | The development proposal is for the 'erection of 4 x Detached Three Bedroom Dwelling Houses, with on-site parking, waste and cycle storages'. It is understood that private gardens are included in the proposed development.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Summary of Phase 1 Desk Study</b>    | <p>A Phase 1 Desk Study was carried out by STM in August 2023 which indicated that the site has been subject to past Potentially Contaminative Land Uses (PCLUs) including Car Storage while off site PCLUs include Saw Mills (5m W), (Cabinet) Works (5m W) and (Printing Machinery) Works (25m W). A conceptual risk site model was constructed and a qualitative risk assessment carried out. This identified potentially significant Potential Pollutant Linkages with respect to human health and property receptors.</p> <p>The Desk Study recommended that an intrusive site investigation be carried out with the objective of determining the presence and extent of any soil and gaseous contamination at the site.</p>                                                                                                                                        |
| <b>Summary of Site Investigation</b>    | <p>Site investigation works were carried out on the 19<sup>th</sup> July 2023. A total of 3no. boreholes and 1no. machine excavated trial pit were excavated at the site. 1no. of the boreholes (BH01) was advanced to 10mbgl for both geotechnical and environmental purposes, 2no. boreholes (BH02 and BH03) were undertaken to 3mbgl and 1no. trial pit (TP01) was excavated to a maximum depth of 1mbgl for environmental purposes only.</p> <p>The boreholes (BH01-BH03) were installed as groundwater, ground gas and vapour monitoring wells to depths between 3-5mbgl. 3no. rounds of ground gas monitoring were undertaken over 3 weeks.</p> <p>A total of 5no. soil samples were collected from depths ranging between 0.2-0.6mbgl and submitted to a UKAS/MCERTS accredited laboratory for analysis of Heavy Metals, TPH, BTEX, PAHs, SVOCs and Asbestos.</p> |
| <b>Updated Contamination Assessment</b> | <p>Made Ground consisting of SILT/CLAY was encountered to a maximum depth of 1mbgl. The Made Ground was underlain by CLAY to 10mbgl, the maximum depth of the boreholes.</p> <p>Visual indications of contamination of the Made Ground were observed (i.e. brick and concrete fragments, occasional bituminous material, and rare glass fragments) generally across the site. No significant odours or PID readings were recorded during the investigation.</p>                                                                                                                                                                                                                                                                                                                                                                                                          |

| SECTION                                       | SUMMARY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                               | <p>A Generic Quantitative Risk Assessment was carried out where the results of the soil sample analysis were compared to Generic Assessment Criteria (GAC) for a residential housing with home-grown produce land use scenario.</p> <p>Results of the soil sample analyses identified concentrations above the chosen GAC for Arsenic and Lead in soils from all 4no. sampling locations (BH01-BH03 and TP01).</p> <p>Asbestos was detected in one of the samples analysed. Quantification reported that the total percentage of Asbestos in the sample was less than 0.001%. As such it is not considered a cause for concern.</p> <p>A Gas Screening Value (GSV) of 0.0038 l/hr was calculated using the results of the ground gas monitoring. The GSV indicates that the site should be classified as “Characteristic Situation 1 (CS1) – Very Low Gas Risk” meaning that no gas protection measures are considered to be required.</p> <p>The Conceptual Risk Model for the site was reassessed incorporating the results of the site investigation.</p> <p>Potentially Significant Potential Pollutant Linkages were considered to exist with respect to human health receptors. These are concerned with the risk of human health receptors (future occupiers) being exposed to the identified contamination while undertaking recreational activities in gardens.</p> |
| <p><b>Conclusions and Recommendations</b></p> | <p>Given the findings of the site investigation, it is recommended that remedial measures are undertaken in order to break the Potential Pollutant Linkages identified so as to render the site suitable for the proposed residential end use.</p> <p>Remedial measures will likely comprise of the excavation of Made Ground and replacement with clean certified fill to a depth of 600mm across areas of the site that are intended for use as gardens.</p> <p>A formal remediation strategy will need to be submitted to the Local Planning Authority for approval. Once completed, the remedial works will need to be validated and a remediation verification report submitted to the Local Planning Authority for approval prior to occupation of the development.</p> <p>It is recommended that a “watching brief” is kept at all times during the development. Should any unexpected contamination be encountered then the discovery strategy outlined in this document should be followed.</p>                                                                                                                                                                                                                                                                                                                                                                     |

## 4 INTRODUCTION

STM Environmental Consultants Limited were commissioned by UK Bauhaus Ltd to undertake a preliminary risk assessment at 145-147 Downhills Way, London, N17 6AH (the site).

### 4.1 Development Proposal

The development proposal is for the *'erection of 4 x Detached Three Bedroom Dwelling Houses, with on-site parking, waste and cycle storages'*. It is understood that private gardens are included in the proposed development.

The proposed development plans are available in [Appendix 1](#).

### 4.2 Report Objectives

The main objectives of the study were to:

-  Provide information for a generic quantitative risk assessment (GQRA) to be undertaken;
-  Refine the Conceptual Site Risk Model using the findings of the GQRA;
-  Inform the need for and scope of any remedial works that may be required.

A summary of the findings of the site investigation and GQRA are detailed within this report.

This report should be read in conjunction with the Desk Study Report (Ref: PH1-2023-000061) produced for the site by STM Environmental Consultants in August 2023 which is summarised below.

## 5 SUMMARY OF DESK STUDY FINDINGS

### 5.1 Site Location

The site is located at 145-147 Downhills Way, London, N17 6AH. It is approximately centred at national grid reference 532310, 190214 and occupies an area of approximately 0.05 ha.

The site lies within the jurisdiction of London Borough of Haringey Council in terms of the planning process. Maps showing the location of the site are shown in Figure 1 below.

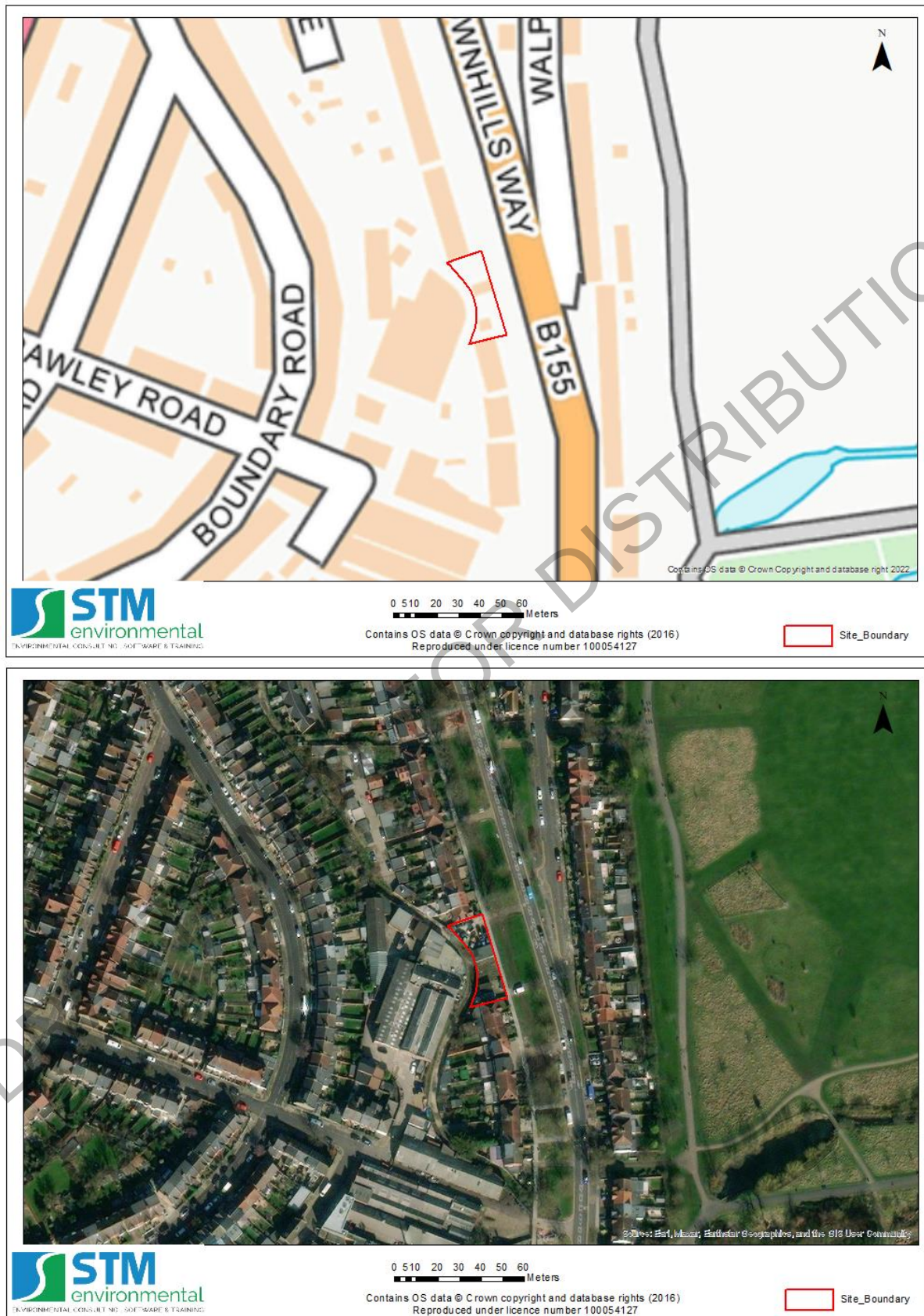
### 5.2 Current Site and Surrounding Land Uses

The site is currently a construction site post demolition of the former Small Domestic Garages. The main current uses in the immediate surrounding area include residential and commercial.

### 5.3 Site History

Examination of Ordnance Survey historic maps revealed that the site was open undeveloped land until c. 1935-36, when 1no. building was developed in the south of the site. Aerial Photography from the Groundsure's Screening Report showed an additional building developed on the centre of the site, as well as a Car Park with multiple cars stored. All buildings were demolished by the time the site walkover took place on the 19<sup>th</sup> July 2023. The surrounding area has been predominately residential, with Industrial uses to the SW and W.

Figure 1: Site Location and Aerial Map



## 5.4 Previous Site Investigations

A search of relevant information on London Borough of Haringey Council's planning portal did not identify any records of previous contaminated land site investigations undertaken at or in the vicinity of the site.

## 5.5 Qualitative Risk Assessment

A qualitative risk assessment was undertaken in order to assess the magnitude of the potential risks identified in the Phase 1 Report.

### 5.5.1 Potential Sources

Any Potentially Contaminative Land Uses (PCLUs) within a 50m radius of the site as well as any PCLUs with high pollution migration potential within 250m of the site were considered to be of concern and were included within the assessment.

A summary is provided in the table below.

Table 1: Summary of potential contamination sources, period of operation and distance from site.

| Site Name/<br>Description                 | Industrial Profile                | Approx.<br>Year Use<br>Established | Approx.<br>Year Use<br>Ended | Direction | Approx.<br>Distance from<br>Site (m) |
|-------------------------------------------|-----------------------------------|------------------------------------|------------------------------|-----------|--------------------------------------|
| <b>Potential<br/>Made Ground</b>          | -                                 | Unknown                            | Current<br>(2023)            | Onsite    | 0                                    |
| <b>Car Park</b>                           | -                                 | Unknown                            | Unknown                      | Onsite    | 0                                    |
| <b>Saw Mills</b>                          | -                                 | c.1913-14                          | c.1935-36                    | W         | 5                                    |
| <b>(Cabinet)<br/>Works</b>                | -                                 | c.1954-56                          | c.1986-95                    | W         | 5                                    |
| <b>(Printing<br/>Machinery)<br/>Works</b> | Printing and<br>Bookbinding Works | c.1954-56                          | c.1986-95                    | W         | 5-25                                 |

### 5.5.2 Potential Receptors

Potential human health receptors were considered to include future site users. Property receptors were considered to include onsite buildings and services.

According to the BGS Geoindex, the site is located on bedrock of London Clay Formation comprising Clay, Silt and Sand. No superficial deposits were identified during the search.

Data from the BGS indicates that the site is underlain by an Unproductive Bedrock Aquifer. The site does not lie within a Source Protection Zone and there are no recorded water abstractions within 500m of the site.

The nearest surface water body is the Moselle which has been culverted, located adjacent W. No designated ecological receptors were identified on or within 250m of the site.

### 5.5.3 Conceptual Site Risk Model

A preliminary conceptual site risk model (CSM) was constructed in order to assess potential pollutant linkages.

Potentially significant potential pollutant linkages (PPLs) were identified with respect to:

- Human health receptors (PPL1a, PPL1b); and
- Property (PPL6a and PPL6b)

The desk study recommended that an intrusive site investigation be carried out to determine the presence and extent of any soil and gaseous contamination at the site.

## 6 SITE INVESTIGATION

The site investigation works were carried out on the 19<sup>th</sup> July 2023 and were undertaken in general accordance with the following guidance:

- Land contamination risk management (LCRM) guidance - DEFRA;
- BS 10175 - Code of practice for the Investigation of potentially contaminated sites British Standard Institution;
- BS 10176:2020 - Taking soil samples for determination of volatile organic compounds (VOCs);
- BS5930:2015 Code of Practice for Ground Investigation
- BS 8485: 2015 - Code of practice for the Characterisation and remediation from Ground Gas in Affected Developments. British Standard Institution;
- BS8576:2013, Guidance on investigations for ground gas – Permanent gases and Volatile Organic Compounds (VOCs);
- C665, 2007 - Assessing Risks posed by Hazardous Ground Gases to Buildings CIRIA.

### 6.1.1 Sampling Strategy

A total of 3no. boreholes and 1no. machine excavated trial pit were excavated at the site. 1no. of the boreholes (BH01) was advanced to 10mbgl for both geotechnical and environmental purposes, 2no. boreholes (BH02 and BH03) were undertaken to 3mbgl and 1no. trial pit (TP01) was excavated to a maximum depth of 1mbgl for environmental purposes only.

A semi-targeted sampling strategy was used to select the locations of the exploratory positions, with boreholes being generally equally spaced out across the site, with efforts being made to ensure that samples were collected from the most sensitive areas (i.e. gardens) of the proposed development.

As the investigation was primarily focused on assessing the quality of near surface soils, samples were collected at depths between 0.2 – 0.6mbgl.

A map showing the locations of boreholes and the borehole logs are available in [Appendix 2](#) and [Appendix 3](#) respectively.

### 6.1.2 On-site Screening of Volatile Organic Compounds

Soil from each borehole was screened on site for Volatile Organic Compounds (VOCs) using a hand held Minirae Photo-Ionisation Detector (PID) which has a detection limit of 0.1 parts per billion (ppb). The PID was calibrated in the field prior to use using a gas of known concentration (isobutylene gas – 100ppm).

Soil vapour readings were taken using the headspace method, which involved placing the soil sample into a sealed plastic bag and then taking a reading by placing the PID filter into the bag.

### 6.1.3 Sample Collection and Transport

All samples were put into sample containers (jars and tubs) that were tightly sealed with minimal headspace. The sample containers were put into a cooler box immediately on collection and kept cool until analysis was undertaken at the laboratory.

#### 6.1.4 Laboratory Analysis

A total of 5no. soil samples were submitted to a UKASIMCERTs accredited laboratory for analysis of the following:

- Heavy Metals – Arsenic, Boron, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, Selenium, Zinc;
- Petroleum Hydrocarbons (TPHCWG);
- Total Phenols - Total Phenols (Monohydric);
- Monoaromatics – Benzene, Toluene, Ethylbenzene, p & m-xylene, o-xylene, MTBE (Methyl Tertiary Butyl Ether);
- Speciated PAHs – Naphthalene, Acenaphthylene, Acenaphthene, Fluorene, Phenanthrene, Anthracene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenz(a,h)anthracene, Benzo(ghi)perylene;
- Total PAHs - Speciated Total EPA-16 PAHs;
- Asbestos Screening and Quantification;
- Inorganics - pH – Automated, Total Cyanide, Water Soluble Sulphate, Sulphide, Total Organic Carbon (TOC);
- SVOCs.

#### 6.1.5 Groundwater, Ground Gas and Vapour Monitoring

3no. of the boreholes (BH01 and BH03) were installed with standpipes equipped with monitoring apparatus to a depths between 3- 5mbgl in order to allow for the measurement of groundwater levels and the estimation of Gas Screening Values (GSVs) as per CIRIA 665 and BS8485 guidance.

The wells were constructed using 63mm HDPE plain pipe in a bentonite seal from existing ground level to 1.0mbgl and 63mm HDPE slotted pipe in a gravel surround to the base of the borehole. The wells were fitted with a gas tap assembly and a lockable cover at ground level to provide protection.

The frequency of ground gas monitoring on site was decided in line with recommendations by CIRIA to provide monitoring data sufficient to allow the prediction of worst-case conditions. Based on the gas generation potential of the site and the sensitivity of the proposed development, 3no. monitoring visits were considered appropriate.

### 6.2 Site Investigation Findings

#### 6.2.1 Ground Conditions

Made Ground consisting of SILT/CLAY was encountered to a maximum depth of 1mbgl. The Made Ground was underlain by CLAY to 10mbgl, the maximum depth of the boreholes.

The borehole logs are shown in [Appendix 3](#) and photographs from some of the soils extracted from the boreholes are presented in [Appendix 4](#).

#### 6.2.2 Groundwater

Groundwater was not encountered during the site investigation. However, it was encountered up to depths of 3.40mbgl in the subsequent monitoring rounds..

#### 6.2.3 Visual and Olfactory Signs of Contamination

Visual indications of contamination of the Made Ground were observed (i.e. brick and concrete fragments, occasional bituminous material, and rare glass fragments) generally across the site. No significant odours or PID readings were recorded during the investigation. The PID readings can be seen in the borehole logs shown in [Appendix 3](#).

### 6.3 Laboratory Sample Analysis Results

A total of 5no. soil samples were submitted for analysis. The full results of the laboratory sample analysis can be seen in [Appendix 5](#).

## 7 RISK ASSESSMENT

### 7.1 Generic Quantitative Risk Assessment (Human Health)

A Generic Quantitative Risk Assessment (GQRA) was conducted using the soil analytical results in order to further evaluate the significance of the potential pollutant linkages identified in the Preliminary Risk Assessment in the Desk Study.

#### 7.1.1 Generic Assessment Criteria for Soils

The GAC used for the screening of the soils and their sources are outlined in the table in [Appendix 6](#). The GAC used are a combination of the DEFRA's Category 4 Screening Levels and the CIEH\LOM GAC for residential with homegrown produce land use scenario as the development includes private gardens.

#### 7.1.2 Soil Organic Matter Content

Sample results indicated that soils on the site have an average Total Organic Carbon (TOC) content of 2.91%, which based on a conversion factor of 1.72, indicates a Soil Organic Matter (SOM) of around 5.01%. For reasons of conservatism, a soil organic matter content of 2.5% (rather than 6%) was assumed.

#### 7.1.3 Contaminants Exceeding Generic Assessment Criteria

A summary of contaminants that were found to be present in concentrations that exceeded the GAC is shown Table 2 below.

Several contaminants were found to have concentrations that exceeded their relevant GACs. The elevated concentrations were identified in all of the borehole locations, with the maximum concentration of both contaminants identified in BH01/1.

Table 2: Contaminants Exceeding GAC

| Contaminant | GAC (mg/kg) | No. of Exceedances | Measured Concentrations (mg/kg) |         | Exceedance Borehole Locations   |
|-------------|-------------|--------------------|---------------------------------|---------|---------------------------------|
|             |             |                    | Mean                            | Maximum |                                 |
| Arsenic     | 37          | 1                  | 26.9                            | 50.6    | BH01/1*                         |
| Lead        | 200         | 4                  | 552.9                           | 1301    | BH01/1*, BH02/1, BH03/1, TP01/1 |

\*Maximum value location

#### 7.1.4 Statistical Analysis

The results of statistical analysis are presented in [Appendix 7](#). Arsenic and Lead had sample means that exceeded their relevant GAC.

All of the contaminants that exhibited exceedances of the GAC (i.e. listed in the table above) had non-normal distributions and failed the Mean Value test.

## 7.2 Asbestos

Asbestos was identified in a 2no. samples (BH01/1 and TP01/1) at a depth of between 0.3-0.4mbgl. The Asbestos was identified as Chrysotile. Quantification reported that the total percentage of Asbestos in the sample (114g) was less than 0.001%. As such it is not considered a cause for concern.

## 7.3 Ground Gas Risk Assessment

A summary of the gas monitoring results is presented in Table 3 below. The full results are available in [Appendix 8](#). The readings include measurements during rising and falling atmospheric pressure conditions.

Table 3: Summary of ground gas monitoring results

| Borehole | Barometric Pressure | Flow l/hr | CH <sub>4</sub> % | CO <sub>2</sub> % | O <sub>2</sub> % | H <sub>2</sub> S ppm | CO ppm  | VOCs ppm |
|----------|---------------------|-----------|-------------------|-------------------|------------------|----------------------|---------|----------|
| BH01     | 1005-1017           | 0.1       | 0.0               | 1.4-2.3           | 18.9-19.2        | 0.0                  | 0.0-1.0 | 0.0-4.8  |
| BH02     | 1005-1017           | 0.1       | 0.0               | 2.7-3.8           | 18.3-18.8        | 0.0                  | 0.0-1.0 | 0.0-1.5  |
| BH03     | 1005-1017           | 0.1       | 0.0               | 2.9-3.1           | 18.0-18.4        | 0.0                  | 0.0-1.0 | 0.9-1.1  |

No Methane was detected at the site. A maximum Carbon Dioxide concentration of 3.8% by volume in air (v/v) and maximum flow rate of 0.1 l/hr were recorded. A maximum PID reading of 4.8 ppm was observed.

In accordance with CIRIA C665, the Gas Screening Value (GSV) for Carbon Dioxide was calculated as follows:

$$\text{GSV} = (3.8/100) * 0.1 = 0.0038 \text{ l/hr}$$

A GSV of 0.0038 l/hr indicates that the site should be classified as Wilson and Card "Characteristic Situation 1 (CS1) – Very Low Gas Risk" meaning that standard gas protection measures are not required.

Based on the typical maximum concentration of Carbon Dioxide being between less than 5% v/v, the site is considered to be Green (i.e. ground gas protection measures are not required) under the [NHBC classification system](#).

## 8 RE-ASSESSMENT OF POTENTIAL POLLUTANT LINKAGES

The Potential Pollutant Linkages (PPLs) identified as being plausible in the Desk Study are concerned with the following risks:

-  Risk of direct contact (ingestion and absorption) with and inhalation of contaminants to on-site human health receptors (PPL1a – Future Occupiers and PPL1c – Construction Workers);
-  Risk of injury/death of on-site human health receptors as a result of explosion due to accumulation of ground gas from on and off-site sources in confined spaces within on-site dwellings. (PPL1b – Future Occupiers and PPL1d - Construction Workers);
-  Risk of direct contact with (ingestion and absorption) and inhalation of contaminants to off-site human health receptors as a result of on-site contaminants migrating off-site (PPL2a);

- Risk of injury/death to off-site human health receptors as a result of explosion due to migration of on-site ground gas and subsequent accumulation in confined spaces in off-site buildings. (PPL2b);
- Risk of deterioration of groundwater quality resulting from the migration of on-site contaminants into the underlying aquifer (PPL3);
- Risk of deterioration of surface water quality resulting from the migration and entry of on-site contaminants into the surface water receptor (PPL4);
- Risk of deterioration of ecological quality resulting from the migration and entry of on-site contaminants to the ecological receptor during development and after completion (PPL5);
- Risk of damage to buildings and services from on and off-site contaminants (PPL6a);
- Risk of damage to property as a result of explosion due to accumulation of ground gas from on and off-site sources in confined spaces within buildings (PPL6b).

The Desk Study concluded that PPL1a, PPL1b, PPL6a and PPL6b had the potential to be significant. All of the PPLs were re-assessed considering the soil analytical results obtained from site investigation. The table below presents the results of the re-assessment.

A detailed explanation of the risk assessment methodology is available in [Appendix 9](#).

Table 4: Results of Qualitative Risk Assessment.

| CRITERIA                    | POTENTIAL POLLUTANT LINKAGES                          |                                             |                                                           |                                                 |                                                      |                                    |                       |                         |                   |                                  |                                    |
|-----------------------------|-------------------------------------------------------|---------------------------------------------|-----------------------------------------------------------|-------------------------------------------------|------------------------------------------------------|------------------------------------|-----------------------|-------------------------|-------------------|----------------------------------|------------------------------------|
|                             | PPL1a                                                 | PPL1b                                       | PPL1c                                                     | PPL1d                                           | PPL2a                                                | PPL2b                              | PPL3                  | PPL4                    | PPL5              | PPL6a                            | PPL6b                              |
| POTENTIAL PATHWAY/ RECEPTOR | Contact/ Inhalation - Human Health (Future Occupiers) | Explosion - Human Health (Future Occupiers) | Contact/ Inhalation - Human Health (Construction Workers) | Explosion - Human Health (Construction Workers) | Contact/ Inhalation - Offsite Human Health Receptors | Explosion - Human Health Receptors | Contact - Groundwater | Contact - Surface Water | Contact - Ecology | Contact - On & Off-Site Property | Explosion - On & Off-Site Property |
| SEVERITY                    | Major (4)                                             | Major (4)                                   | Major (4)                                                 | Major (4)                                       | Major (4)                                            | Major (4)                          | Moderate (3)          | Moderate (3)            | Moderate (3)      | Moderate (3)                     | Moderate (3)                       |
| LIKELIHOOD                  | Possible (3)                                          | Improbable (1)                              | Improbable (1)                                            | Improbable (1)                                  | Improbable (1)                                       | Improbable (1)                     | Improbable (1)        | Improbable (1)          | Improbable (1)    | Improbable (1)                   | Improbable (1)                     |
| RISK                        | Moderate (12)                                         | Low (4)                                     | Low (4)                                                   | Low (4)                                         | Low (4)                                              | Low (4)                            | Very Low (3)          | Very Low (3)            | Very Low (3)      | Very Low (3)                     | Very Low (3)                       |
| POTENTIALLY SIGNIFICANT?    | YES                                                   | NO                                          | NO                                                        | NO                                              | NO                                                   | NO                                 | NO                    | NO                      | NO                | NO                               | NO                                 |

## **8.1 Potential Risks to On-Site Human Health**

PPL1a and PPL1c are concerned with the risk of direct contact (ingestion and dermal absorption) with and inhalation of on and off-site contaminants by on site human health receptors. PPL1a and PPL1c are considered to have the potential to be significant given the Arsenic and Lead contamination identified. As the proposal is to introduce residential dwellings with private gardens, it is possible that human health receptors (i.e. construction workers and future occupiers of the dwellings) could be exposed to contamination during groundworks and while undertaking recreational activities in the gardens.

PPL1c is considered unlikely to be significant as it is considered that any potential risks to groundworkers can be adequately dealt with by ensuring that standard health and safety measures are implemented during the construction phase.

Although Chrysotile Asbestos was identified in one location, quantification reported that the total percentage of Asbestos in the sample was less than 0.001%. Therefore, it was not considered to be a cause for concern.

PPL1b and PPL1d are concerned with the risk of injury/death of on-site human health receptors as a result of explosion due to the potential accumulation of ground gases and vapours from on and off-site sources. PPL1b and PPL1d are considered unlikely to have the potential to be significant as the ground gas monitoring indicated that the site should be awarded with a CS1, meaning that standard gas protection measures will not be required.

## **8.2 Potential Risks to Off-Site Human Health**

PPL2a is concerned with the risk of direct contact and inhalation of contaminants originating from the site by off-site human health receptors. PPL2a is considered unlikely to have the potential to be significant as it is considered that the contaminants present at the site are not of sufficient magnitude or mobility as to significantly impact off-site human receptors.

PPL2b is concerned with the risk of injury/death of on-site human health receptors as a result of explosion due to accumulation of ground gases from on-site sources. PPL2b is considered unlikely to be significant for the same reasons as PPL1b.

## **8.3 Potential Risks to Groundwater Receptors**

PPL3 is concerned with the risk of deterioration of groundwater quality resulting from the migration of on-site contaminants into the underlying aquifer. PPL3 is considered unlikely to have the potential to be significant as the underlying aquifer is classified as Unproductive and there are no Source Protection Zones in the vicinity of the site.

## **8.4 Potential Risks to Surface Water Receptors**

PPL4 is concerned with the risk of negative impacts on surface water quality resulting from the migration and entry of on-site contaminants into surface water receptors. The nearest water course is the Moselle which has been culverted, located adjacent W. It is considered that the identified Arsenic and Lead contamination present at the site is of insufficient magnitude and mobility to significantly impact the water body.

## 8.5 Potential Risks to Ecological Receptors

PPL5 is concerned with the risk of negative ecological impacts resulting from potential on-site contaminants. PPL5 is considered unlikely to have the potential to be significant given that no designated ecological receptors were identified onsite or within 250m of the site.

## 8.6 Potential Risks to Property Receptors

PPL6a is concerned with the risk of damage to on site buildings and services from on and off-site contaminants. If contaminated, the soil may contain aggressive chemicals (i.e. Sulphates, VOCs) that can attack building materials and services. PPL6a is considered unlikely to have the potential to be significant as site investigation did not identify any elevated levels of aggressive contaminants.

PPL6b is concerned with the risk of damage to property as a result of explosion due to migration of on and off-site ground gases and vapours and their subsequent accumulation in confined spaces in on-site buildings. PPL6b is considered unlikely to be significant for the same reasons as PPL1b.

# 9 CONCLUSIONS

In response to the findings of the Desk Study carried out for the site by STM Environmental Consultants, an environmental site investigation was carried out on the 19<sup>th</sup> July 2023. The objective of the investigation was to determine the presence and extent of potential contamination at the site in order to further inform the risk assessment process.

A total of 3no. boreholes and 1no. machine excavated trial pit were excavated at the site. 1no. of the boreholes (BH01) was advanced to 10mbgl for both geotechnical and environmental purposes, 2no. boreholes (BH02 and BH03) were undertaken to 3mbgl and 1no. trial pit (TP01) was excavated to a maximum depth of 1mbgl for environmental purposes only. A total of 5no. soil samples were collected from depths ranging between 0.2 - 0.6mbgl and submitted to a UKAS/MCERTS accredited laboratory for analysis of Heavy Metals, TPH, BTEX, PAHs, SVOCs and Asbestos.

3no. of the boreholes (BH01 - BH03) were excavated and installed as ground gas, vapour and groundwater monitoring wells. 3no. rounds of ground gas, groundwater and vapour monitoring were undertaken over a period of 3 weeks.

A Generic Quantitative Risk Assessment was carried out where the results of the soil sample analysis were compared to Generic Assessment Criteria (GAC) for a residential with homegrown produce land use scenario.

Results of the soil sample analysis indicate that concentrations Arsenic and Lead exceeded their chosen GAC in all 4no. of the sampling locations.

Asbestos was detected in a single of the samples analysed with quantification indicating that the percentage of Asbestos is less than 0.001%, therefore this was not considered to be a cause for concern.

Ground gas monitoring did not identify any concentrations of Methane; however, a maximum Carbon Dioxide concentration of 3.8%v/v was identified. A GSV of 0.0038 l/hr indicates that the site should be classified as Wilson and Card "Characteristic Situation 1 (CS1) – Very Low Gas Risk" meaning that standard gas protection measures are not considered to be required.

The Conceptual Risk Model for the site was reassessed incorporating the results of the site investigation.

Potentially Significant Potential Pollutant linkages were considered to exist with respect to human health receptors. These are concerned with the risk of human health receptors (future occupiers) being exposed to the contamination identified while undertaking recreational activities in gardens.

The revised conceptual site risk model is summarised in Table 5 below.

Table 5: Summary of revised conceptual site risk model

| Potential Receptor                                | Potential Pathway                               | Potential Hazard                      | PSPPL?     | Risk            |
|---------------------------------------------------|-------------------------------------------------|---------------------------------------|------------|-----------------|
| <b>On-Site Human Health</b><br>(Future Occupiers) | Ingestion/Absorption<br>Inhalation              | Adverse health<br>Injury/Death        | <b>Yes</b> | <b>Moderate</b> |
|                                                   | Build-up of Methane/ VOCs<br>in confined spaces | Explosion/ Fire<br>Injury/Death       | <b>No</b>  | <b>Low</b>      |
| <b>On-Site Human Health</b><br>(Groundworkers)    | Ingestion/Absorption<br>Inhalation              | Adverse health<br>Injury/Death        | <b>No</b>  | <b>Low</b>      |
|                                                   | Build-up of Methane/ VOCs<br>in confined spaces | Explosion/ Fire<br>Injury/Death       | <b>No</b>  | <b>Low</b>      |
| <b>Off-Site Human Health</b>                      | Ingestion/Absorption<br>Inhalation              | Adverse health<br>Injury/Death        | <b>No</b>  | <b>Low</b>      |
|                                                   | Build-up of Methane/ VOCs<br>in confined spaces | Explosion/ Fire<br>Injury/Death       | <b>No</b>  | <b>Low</b>      |
| <b>Groundwater</b>                                | Percolation/Leaching                            | Adverse<br>groundwater quality        | <b>No</b>  | <b>Very Low</b> |
| <b>Surface Water</b>                              | Lateral Migration<br>Groundwater baseflow       | Adverse<br>Surface water quality      | <b>No</b>  | <b>Very Low</b> |
| <b>Ecology</b>                                    | Ingestion/Absorption                            | Adverse health<br>Injury/Death        | <b>No</b>  | <b>Very Low</b> |
| <b>Property</b>                                   | Physical Contact/Absorption                     | Damage to building and<br>services    | <b>No</b>  | <b>Very Low</b> |
|                                                   | Build-up of Methane/ VOCs<br>in confined spaces | Explosion/ Fire<br>Damage to building | <b>No</b>  | <b>Very Low</b> |

## 10 RECOMMENDATIONS

### 10.1 Remedial Action

Given the findings of the site investigation, it is recommended that remedial measures are undertaken in order to break the Potential Pollutant Linkages identified so as to render the site suitable for the proposed residential end use.

Remedial measures will likely comprise the excavation of Made Ground and replacement with clean certified fill to a depth of 600mm across areas of the site that are intended for use as gardens.

A formal remediation strategy will need to be submitted to the Local Planning Authority for approval. Once completed, the remedial works will need to be validated by a qualified Environmental Consultant

and a remediation verification report submitted to the Local Planning Authority for approval prior to occupation of the development.

## 10.2 Watching Brief and Discovery Strategy

It is recommended that a “watching brief” is kept at all times during the development. Should any unexpected contamination be encountered then the discovery strategy outlined below should be followed.

- Works should be halted if any suspicious ground conditions are identified by groundworkers;
- The Contractor should assess the need for any immediate health and safety or environmental management control measures. If control measures are considered to be required, they should be implemented;
- The Contractor should notify the Client’s Environmental Consultant and the Local Planning Authority;
- The Environmental Consultant should attend the site to record the extent of ‘contamination’ and if necessary, to collect samples;
- If remedial action is considered necessary then the proposed works should be agreed with the Local Planning Authority prior to implementation;
- Once remediation is complete, the Environmental Consultant should collate evidence of work carried out for inclusion in a Remediation Verification Report which should be submitted to the Local Planning Authority.

## 10.3 Health and Safety

Given that contaminants were identified on the site, measures will be necessary to protect the health and safety of site workers during the site works. The following measures are suggested to provide a minimum level of protection.

- Provision of appropriate Personal Protective Equipment (PPE) including protective clothing, footwear, gloves and dust masks to all groundworkers on-site. These should not be removed from site, and advice should be given on when and how they are to be used;
- Great care should be taken to minimise the amount of dust and mud generated on-site;
- Good practices relating to personal hygiene (i.e. washing and changing procedures) should be adhered to on-site, i.e. food and drink should only be consumed within designated areas on the site and smoking should be prohibited in all working areas;
- Availability of site welfare;
- Daily safety briefings.

All site works should be carried out in accordance with Health and Safety Executive regulations and guidelines and the Contractor’s Construction Health and Safety Plan. Particular should be made to the Health and Safety Executive (HSE) document “Protection of Workers and the General Public during the Development of Contaminated Land”.

## 10.4 Waste Disposal

Groundworks at the site are likely to give rise to waste soils. These may require classification before removal from site to an appropriately licensed facility for treatment or final disposal. The Environment Agency’s Hazardous Waste Technical Guidance document (WM3) outlines the methodology for classifying wastes.

The contractor will need to keep a full documentary record of the waste disposal works in line with Duty of Care requirements. The record will include waste transfer notes and details of the receiving

site. Copies of all relevant documents should be provided to the Client's Environmental Consultant for inclusion in the remediation verification report.

### 10.5 Services

The Statutory Water Undertaker for the area should be contacted in relation to new services that are to be installed as part of the proposed development in order to determine their specification for the type of pipework/conduits that should be used on this site.

## 11 INFORMATION GAPS AND UNCERTAINTIES

Assumptions have been made regarding the nature and scale of the activities that took place on the site and the types of potential contaminants that may have resulted. There are therefore a number of uncertainties associated with the investigation which include, but are not limited to, the following:

- This report is based on data obtained from the chosen sampling locations only. Although efforts have been made to ensure adequate coverage of the site when designing the investigation, it is nonetheless possible that (as with any site investigation) there may be locations which were not sampled where localised pockets of contamination exist.
- The site investigation and risk assessment were designed to investigate only the most likely contaminants associated with the potential sources of contamination identified in the Desk Study. The presence of additional unknown contaminants cannot be discounted.

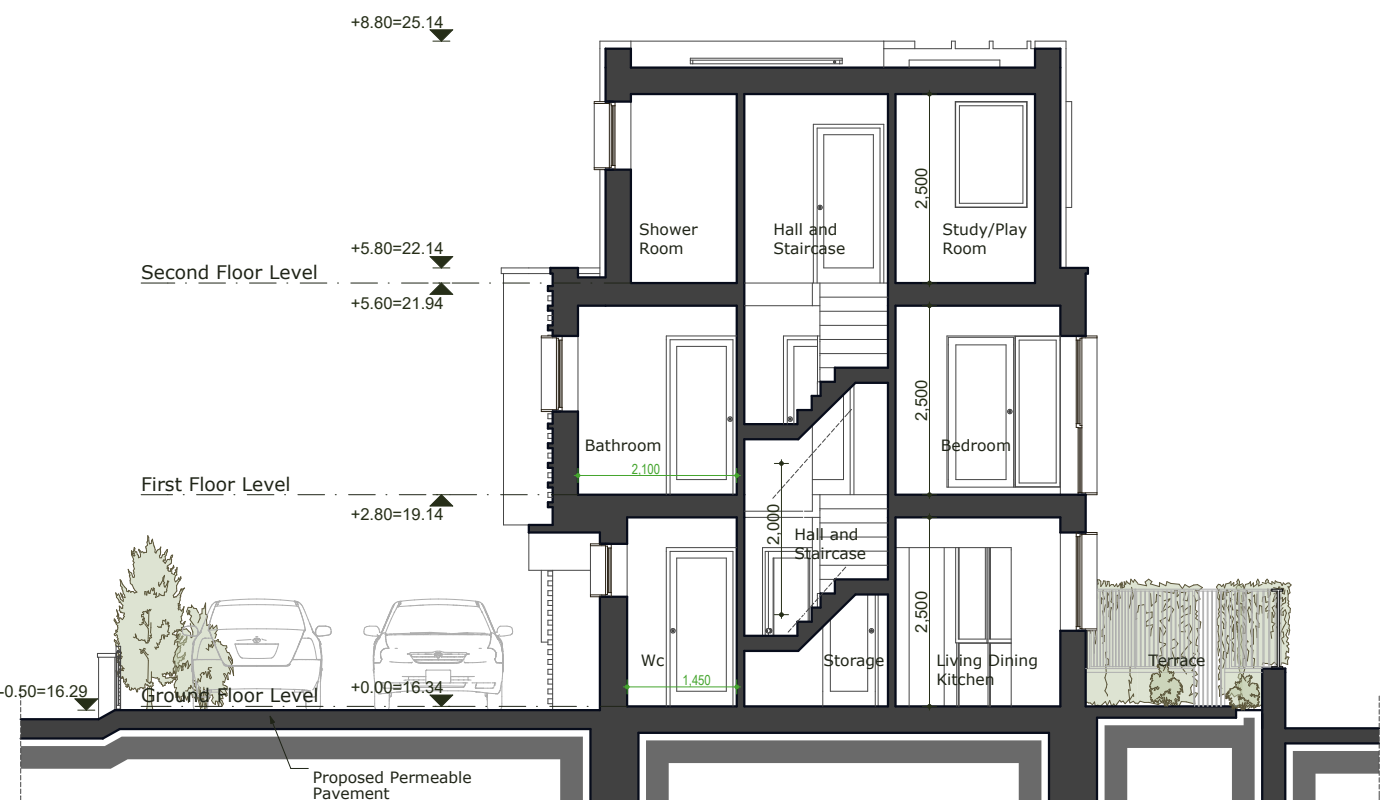
These uncertainties will need to be reviewed along with the Conceptual Site Risk Model should further information come to light in the future.

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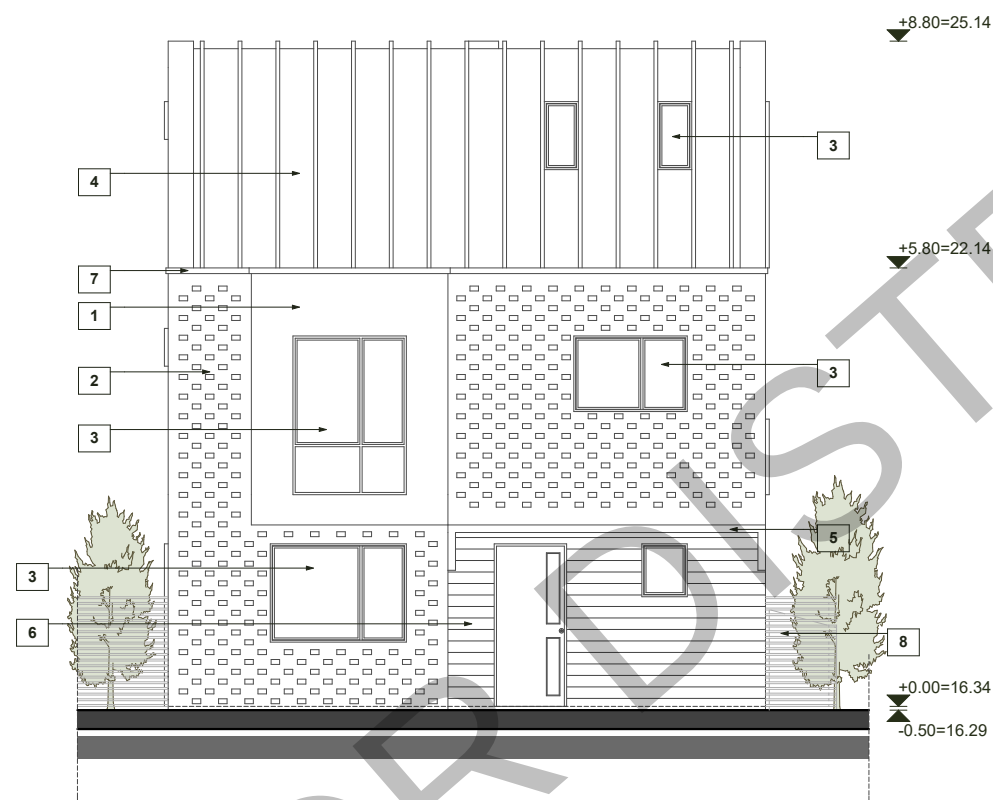
## 12 APPENDICES

### 12.1 Appendix 1 – Proposed Development Plans

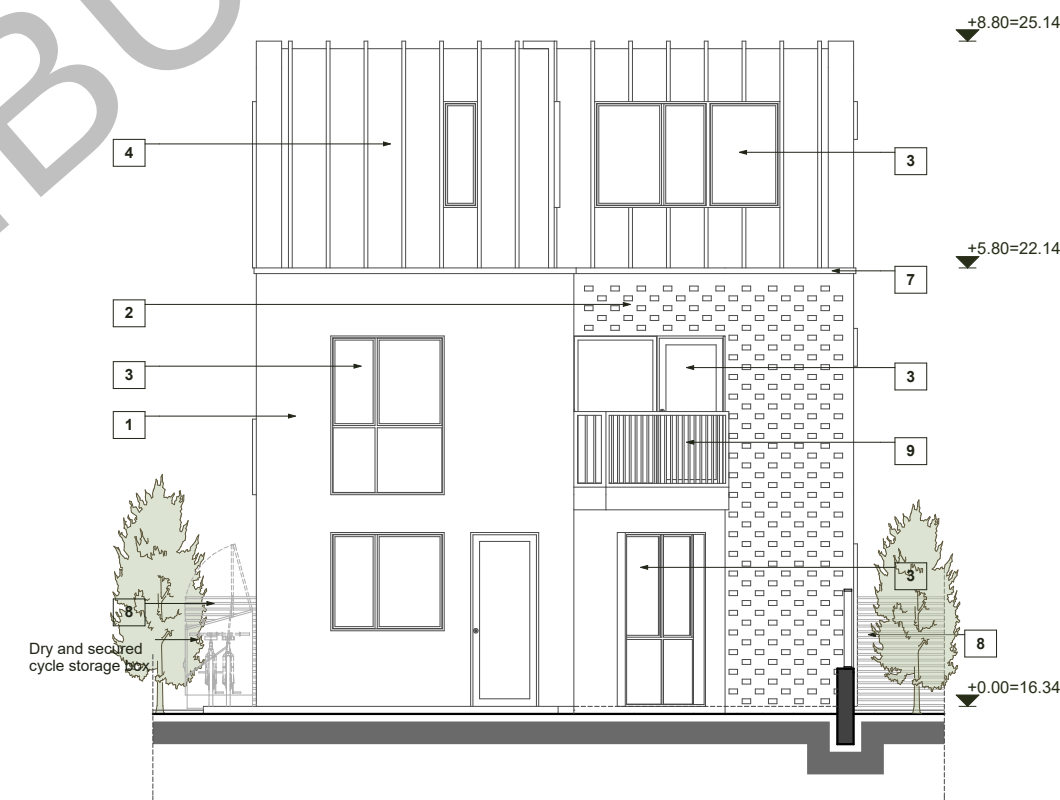
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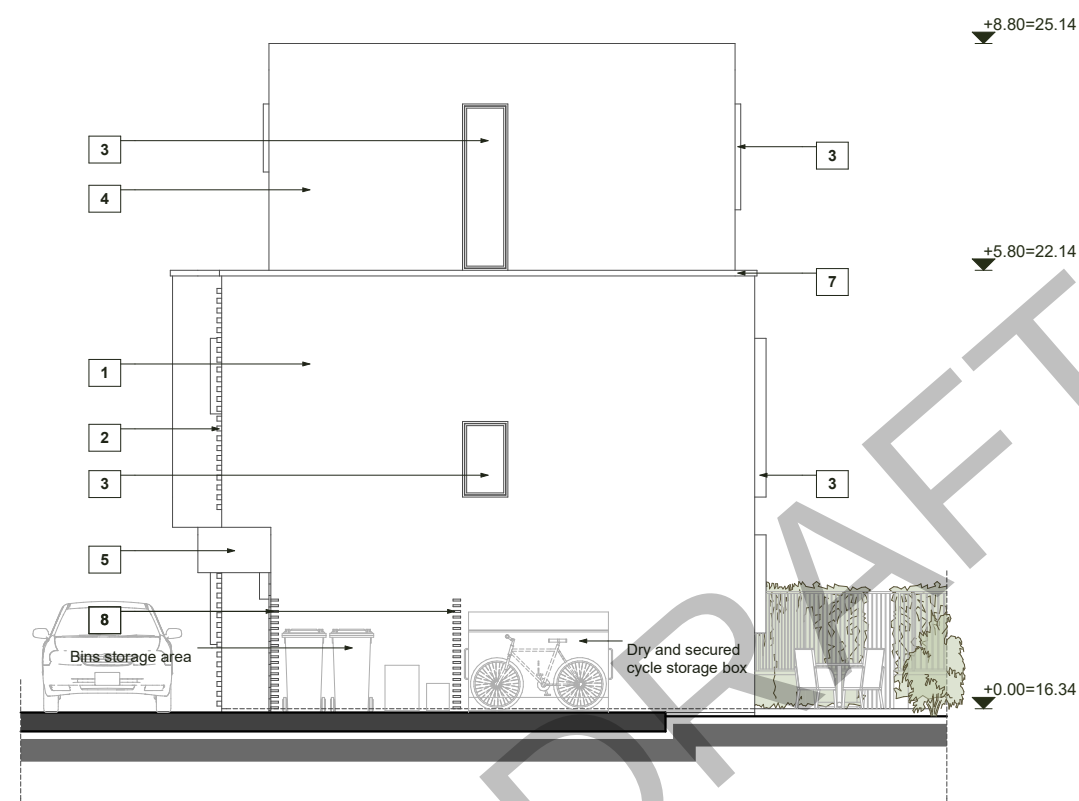
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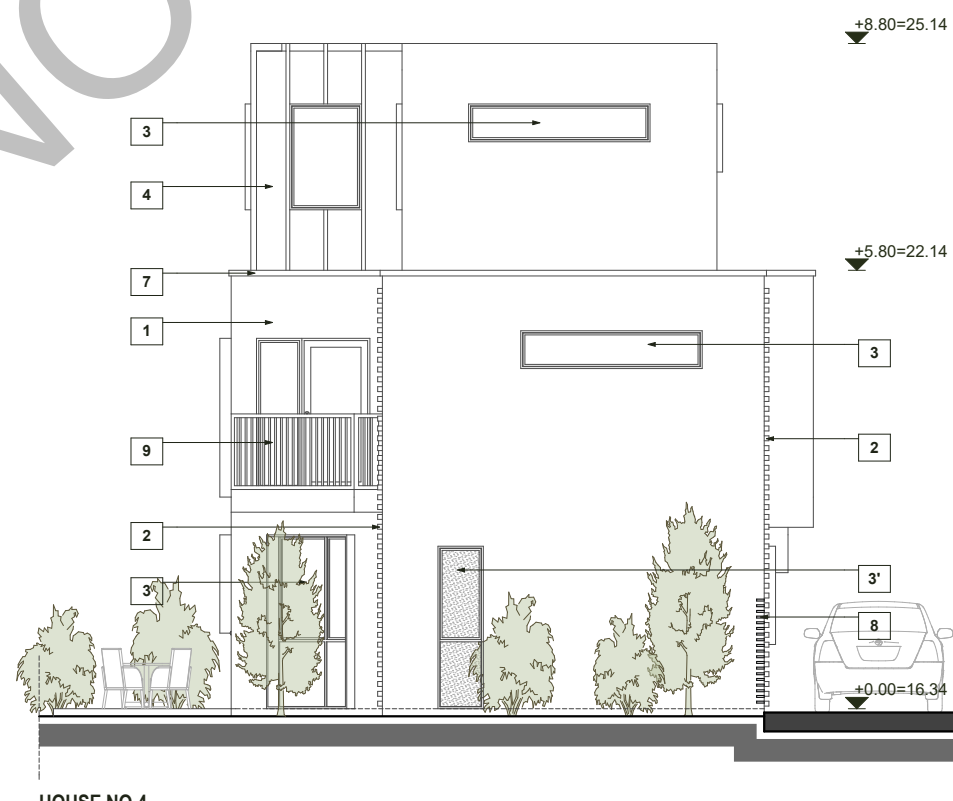
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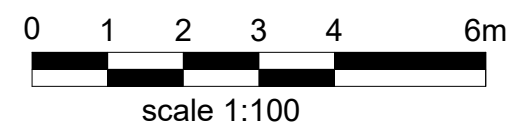
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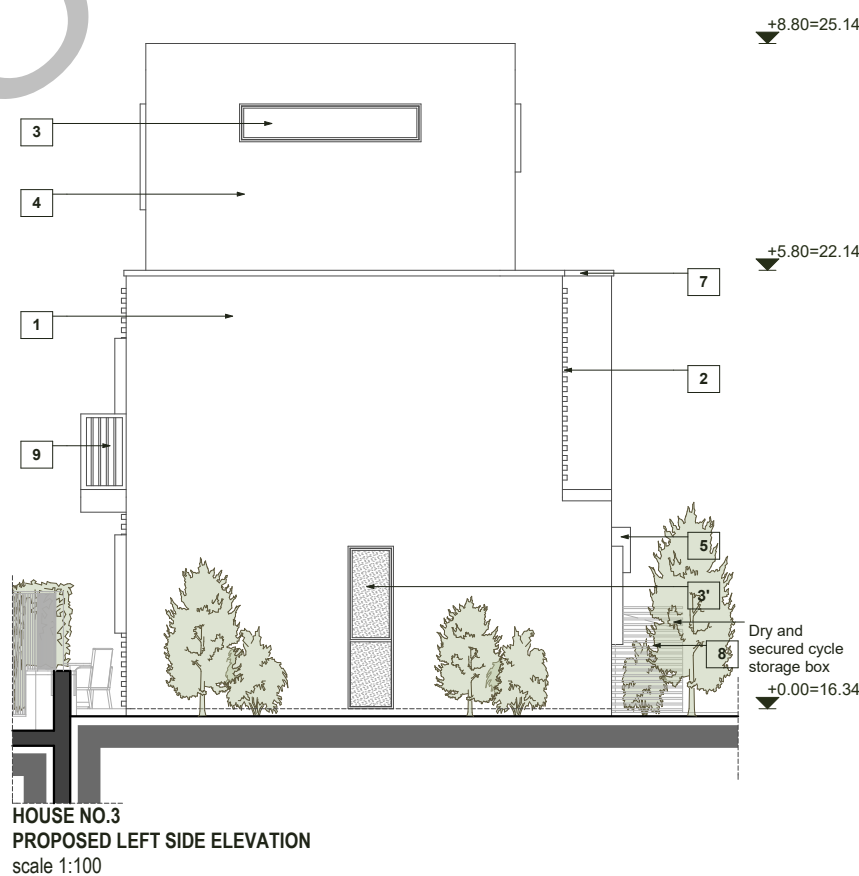
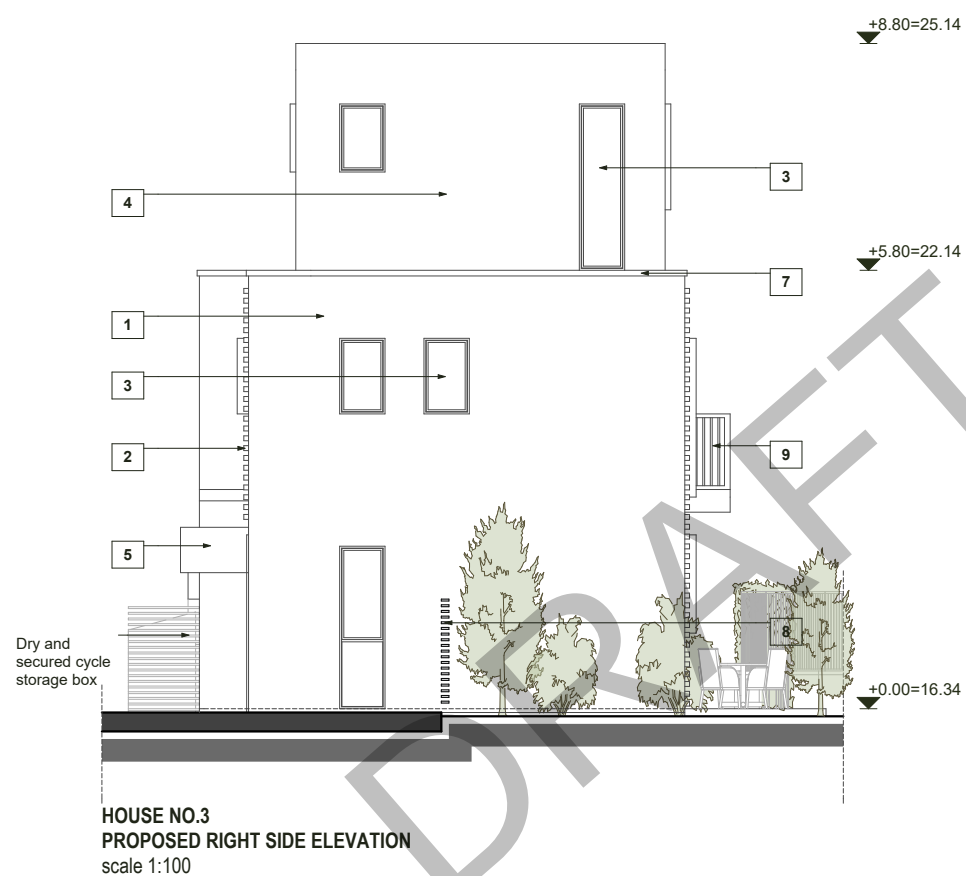
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- 3\*. DOUBLE GLAZED WINDOWS WITH OBSCURED GLAZING AND ALUMINIUM DARK GREY FRAME COLOUR
4. COPPER METAL CLADDING
5. COPPER METAL CANOPY FOR THE MAIN ENTRANCE
6. TIMBER CLADDING ON MAIN ENTRANCE AREA
7. STONE COPING
8. TIMBER SCREENING FENCE
9. METAL BALUSTRADE FOR BALCONY WITH COLOUR TO MATCH THE WINDOWS' FRAME



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| A                                                                                                                                                                                                           | 15.02.2023                                     |             |                                     |
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| Scale                                                                                                                                                                                                       | 1/100 @A2                                      | Date        | 10/2021                             |
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| Project No.                                                                                                                                                                                                 | 21999                                          | Drawing No. | A109                                |
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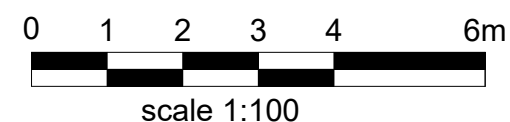


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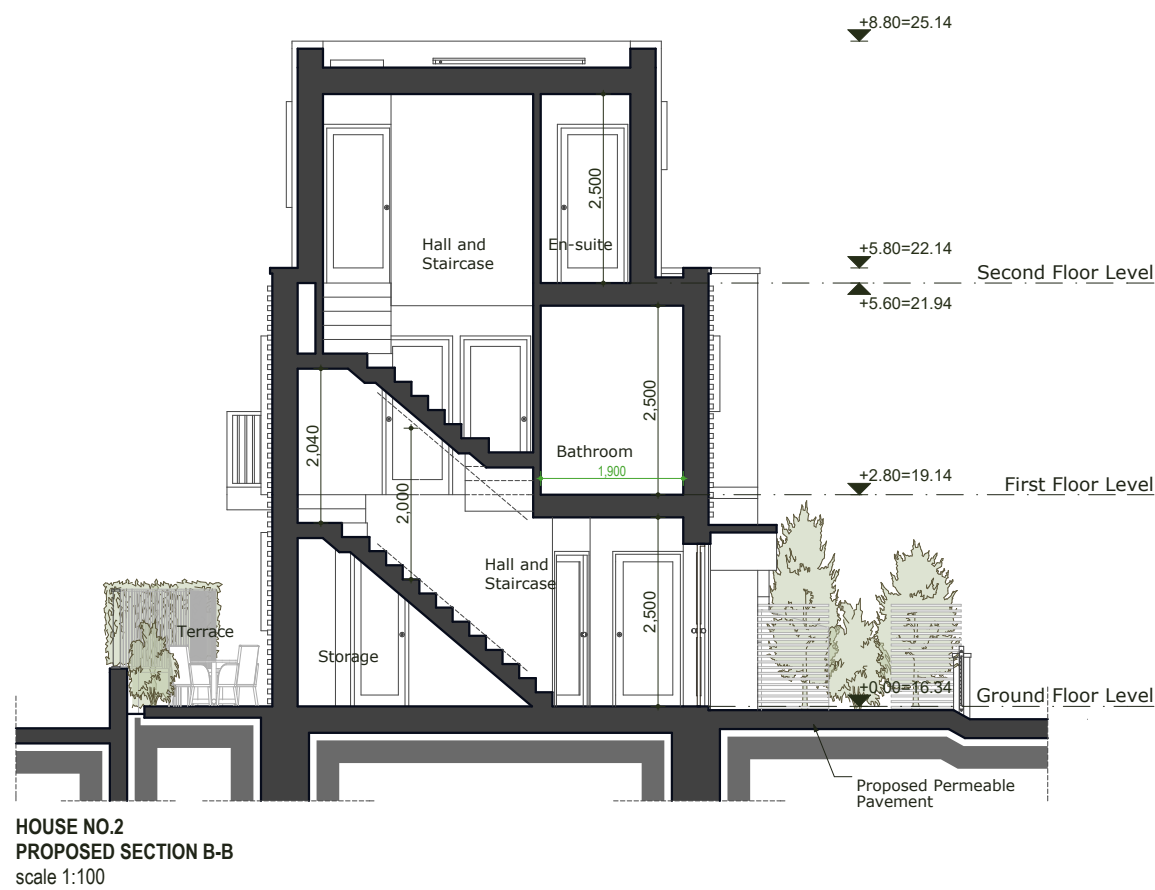
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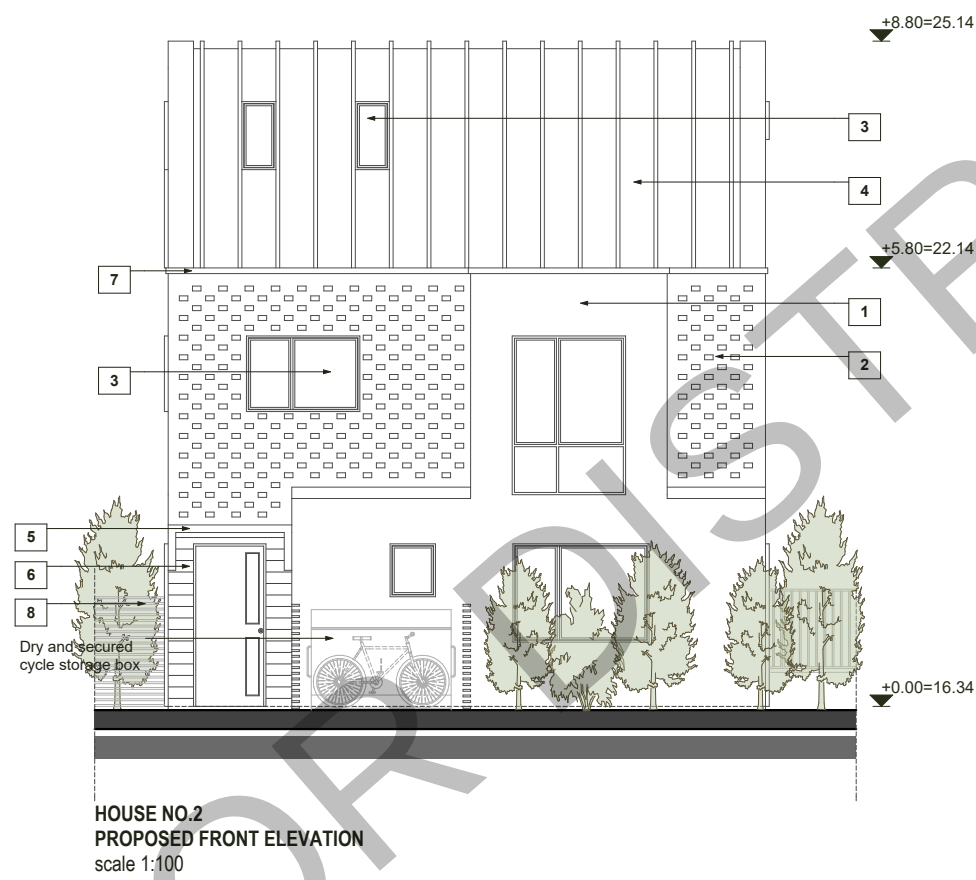


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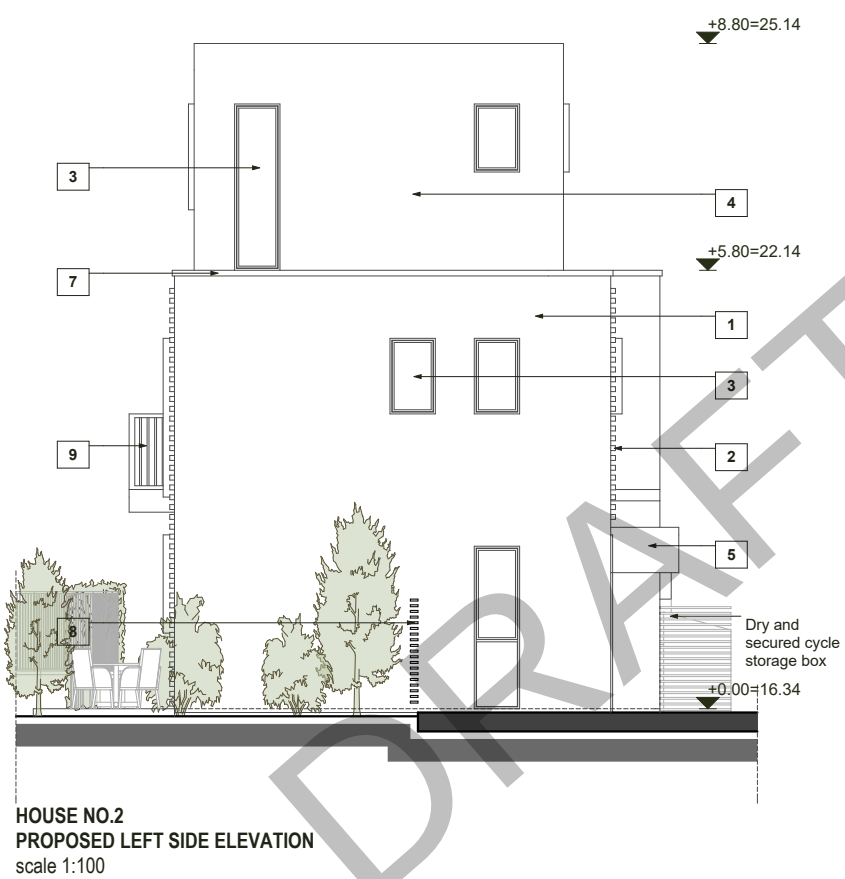
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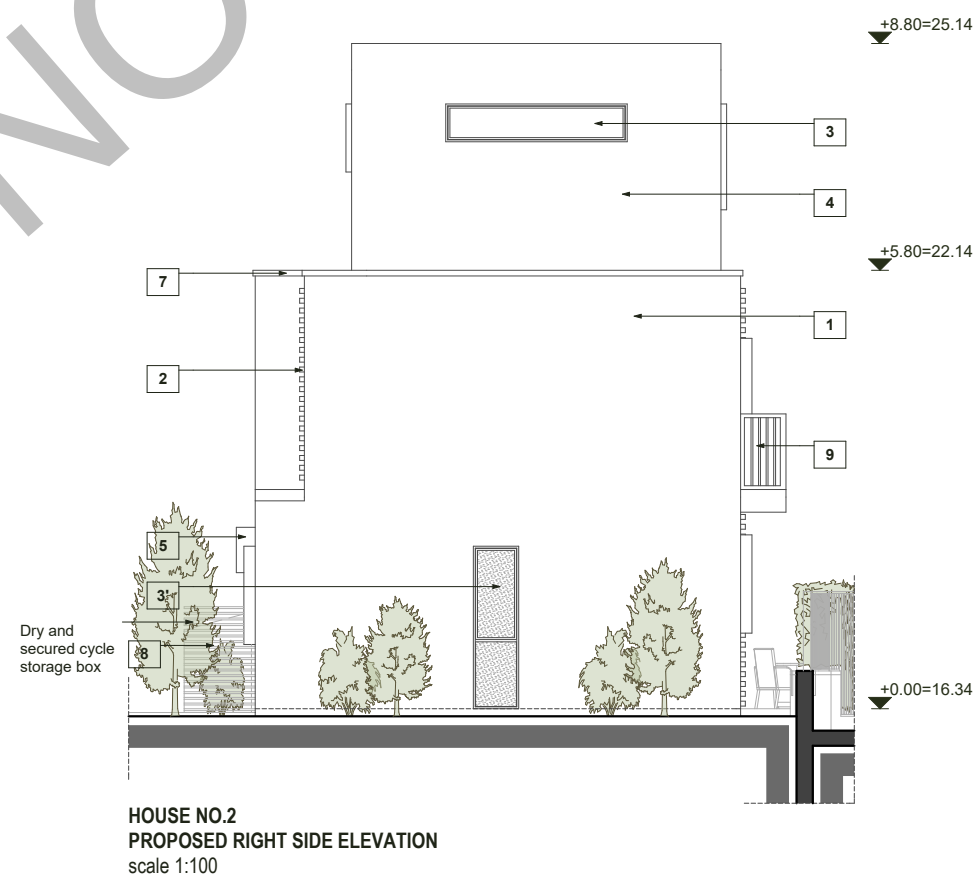
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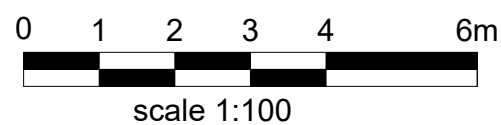
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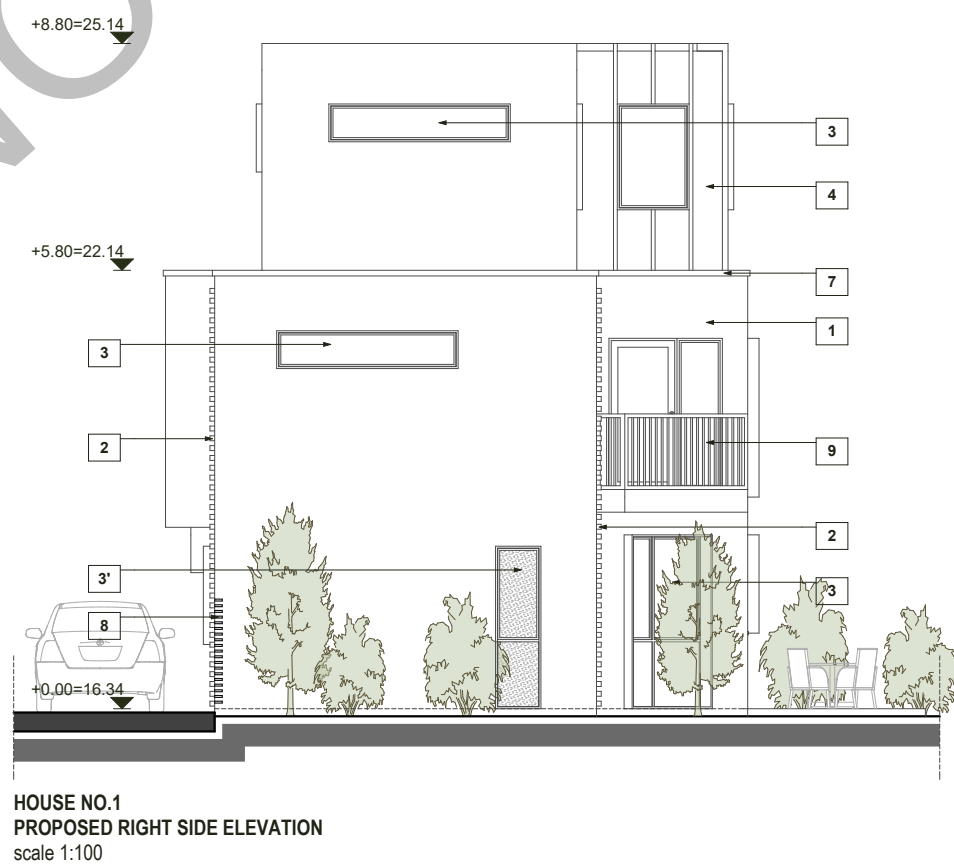
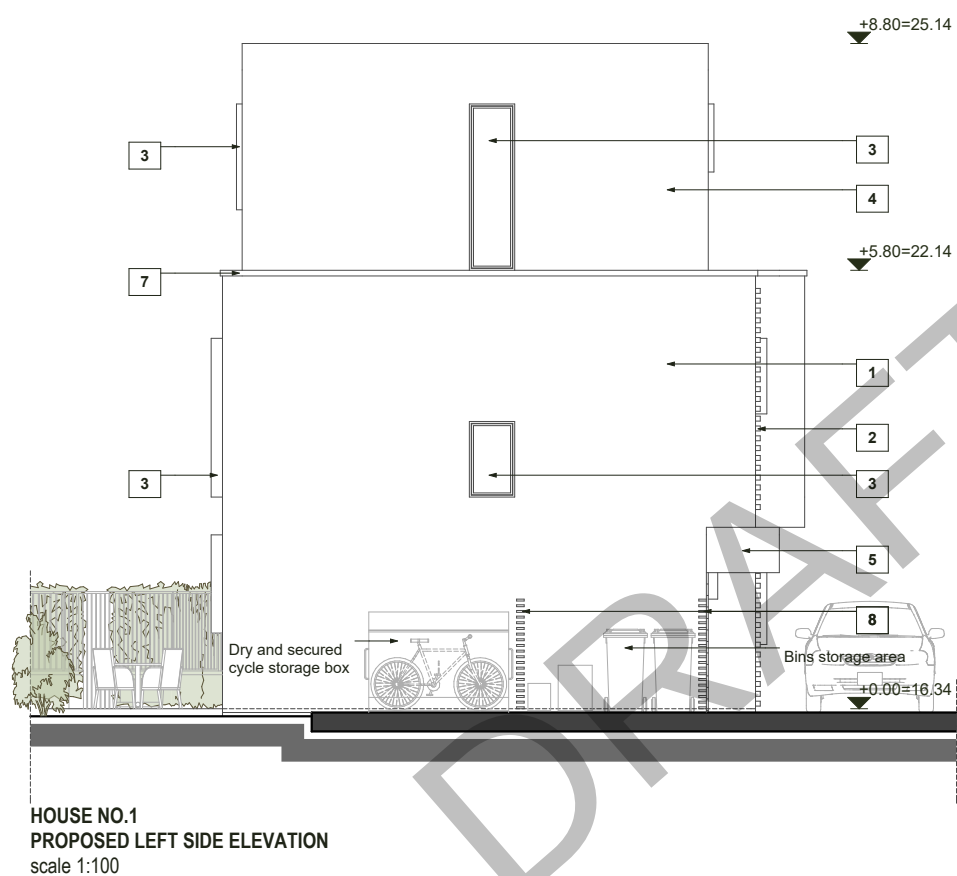
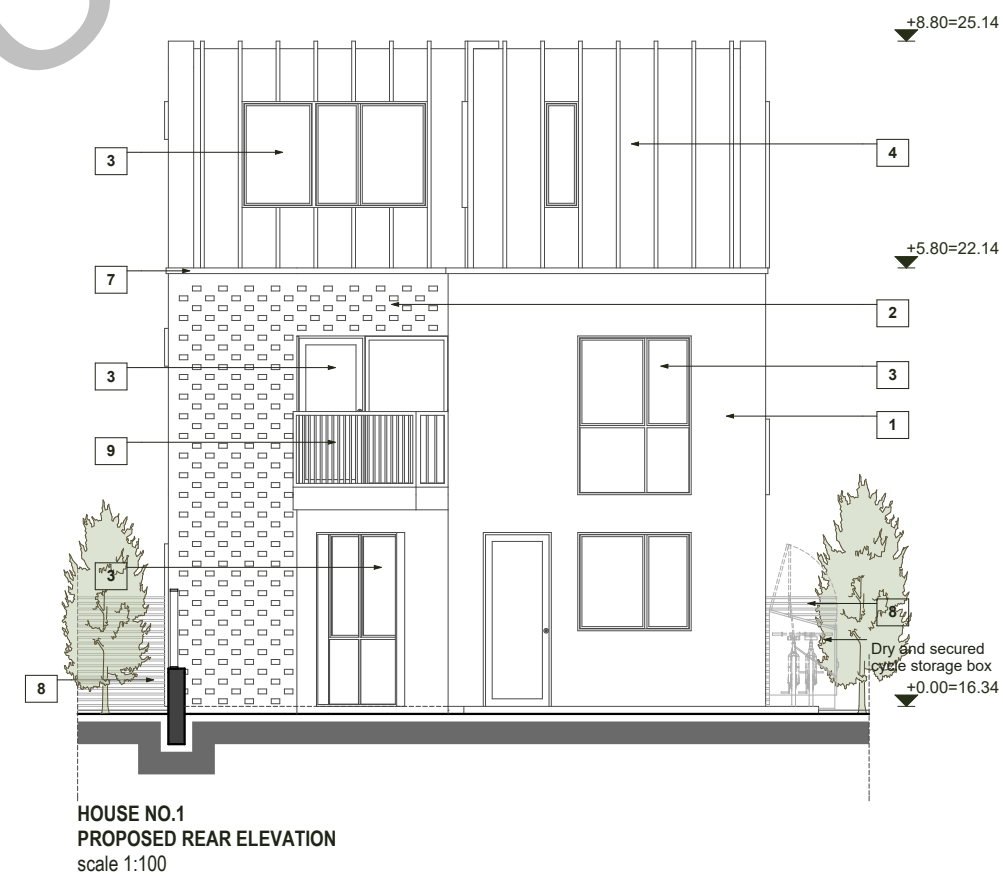
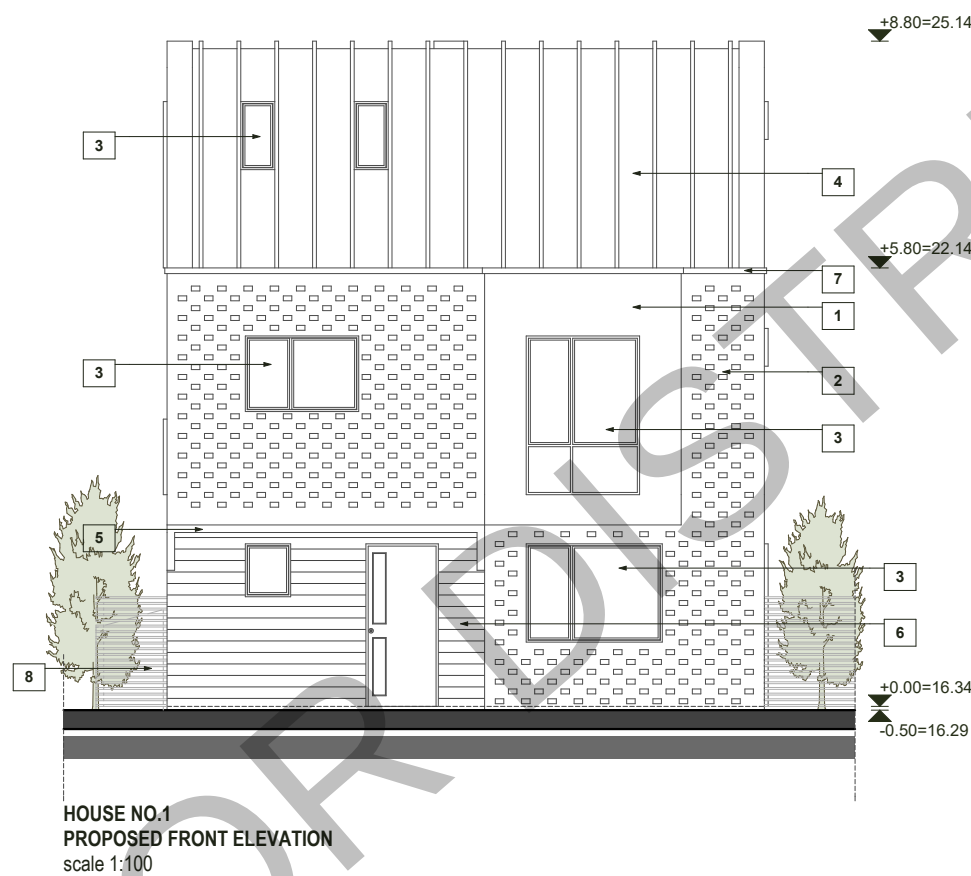
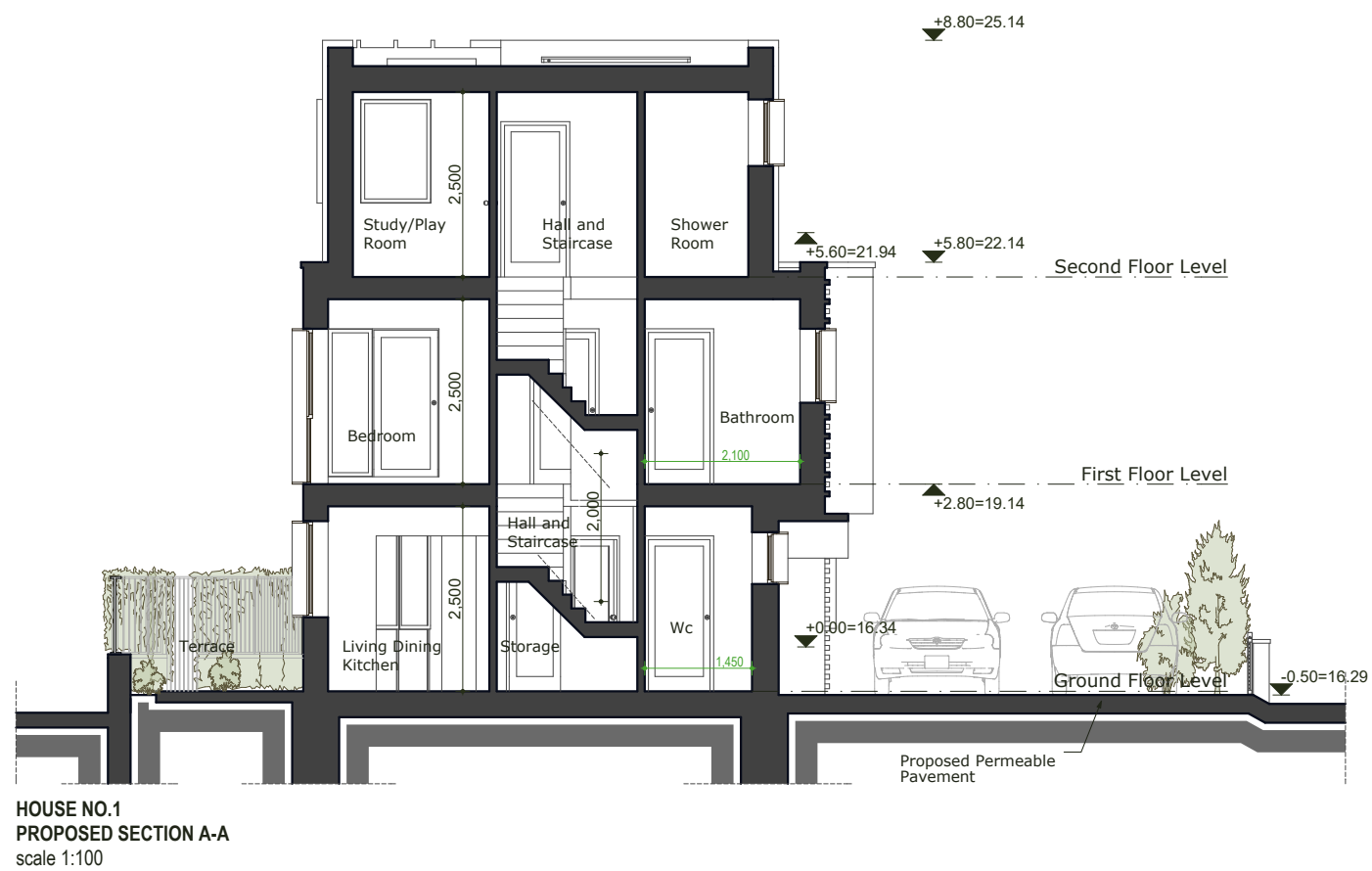
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| Project No.                                                                                                                                                                                         | Drawing No.                                    | Revision                            |
| 21999                                                                                                                                                                                               | A107                                           | A                                   |
| Drawing title                                                                                                                                                                                       | House No.2<br>Section B-B and Elevations       |                                     |

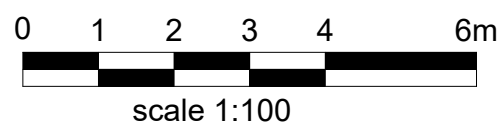


LEGEND:

INCLUSIVE DESIGN ANNOTATIONS  
THESE SHOULD BE READ IN CONJUNCTION WITH THE DESIGN  
AND ACCESS STATEMENT - INCLUSIVE DESIGN CHAPTER

FINISHES LEGEND:

1. BUFF FACING BRICKWORK
2. BUFF FACING BRICKWORK WITH OVERHANGING BRICKS DETAIL
3. DOUBLE GLAZED WINDOWS AND DOORS WITH ALUMINIUM DARK GREY FRAME COLOUR
- 3\*. DOUBLE GLAZED WINDOWS WITH OBSCURED GLAZING AND ALUMINIUM DARK GREY FRAME COLOUR
4. COPPER METAL CLADDING
5. COPPER METAL CANOPY FOR THE MAIN ENTRANCE
6. TIMBER CLADDING ON MAIN ENTRANCE AREA
7. STONE COPING
8. TIMBER SCREENING FENCE
9. METAL BALUSTRADE FOR BALCONY WITH COLOUR TO MATCH THE WINDOWS' FRAME



Notes  
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|                                                                                                                                                                                                             |                                                |                                     |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|-------------------------------------|
| Rev.                                                                                                                                                                                                        | Date                                           | Revisions                           |
| A                                                                                                                                                                                                           | 15.02.2023                                     | Inclusive Design Concerns addressed |
| PLANNING                                                                                                                                                                                                    |                                                |                                     |
| <br>ARCH<br>ARCHITECTURAL DESIGN STUDIO<br>400 West Green Road<br>N15 3PX<br>Tel: 07842410527<br>Web: www.archpl.co.uk |                                                |                                     |
| Client                                                                                                                                                                                                      | Kendal Enterprises LTD                         |                                     |
| Project                                                                                                                                                                                                     | Land between Nos.145-147 Downhills Way N17 6AH |                                     |
| Scale                                                                                                                                                                                                       | 1/100 @A2                                      | Date 10/2021                        |
| Drawn By                                                                                                                                                                                                    | VC                                             | Checked By AEC                      |
| Project No.                                                                                                                                                                                                 | Drawing No.                                    | Revision                            |
| 21999                                                                                                                                                                                                       | A106                                           | A                                   |
| Drawing title                                                                                                                                                                                               | House No.1<br>Section A-A and Elevations       |                                     |



- FINISHES LEGEND:**
- BUFF FACING BRICKWORK
  - BUFF FACING BRICKWORK WITH OVERHANGING BRICKS DETAIL
  - TIMBER LOOK CLADDING - ENTRANCE AREAS
  - COPPER METAL CLADDING
  - DOUBLE GLAZED WINDOWS WITH ALUMINIUM, DARK GREY FRAME
  - DOUBLE GLAZED OBSCURED WINDOWS WITH ALUMINIUM, DARK GREY FRAME
- LEGEND:**
- NEIGHBOURING PROPERTY

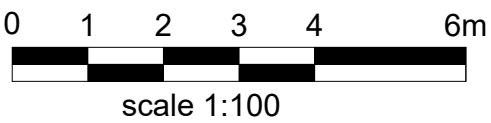
**LINES LEGEND:**  
--- BOUNDARY LINE

**NOTES FOR WASTE AND RECYCLE STORAGE AREA:**  
Waste and recycle storage area as per Haringey Council's Sustainable Design & Construction Supplementary Planning Document, Appendix 3:  
- 1 x 240L waste bin  
- 1 x 240 recycle bin  
- 1 x garden waste sack  
- 1 x food waste box

**NOTES FOR PROPOSED PAVEMENT:**  
Proposed Pavement on site to be permeable pavement.

**NOTES BICYCLE METAL STORAGE BOX:**  
- <https://www.trimetals.co.uk/product/protect-a-cycle/>  
- "Protect a Cycle" is a highly secure and convenient storage solution for cycles. It is supplied with two stainless steel hasps with padlocks for the front door, an integral metal base, heavy duty ground anchor with high security chain complete with padlock;  
- Tested and certified by the Loss Prevention Certification Board (awarded the LPS1175 Security Rating 1);  
- "Secured By Design approved - Police Preferred Specification";  
- Padlocks, ground anchor and security chain included;  
- Integral metal base included with fixings for securing to concrete;  
- PVC coated galvanised panels - anthracite colour;  
- Generous size - stores up to 3 adult bikes;  
- Quality build - all stainless steel fasteners;  
- Fire resistant - complies with National Building Regulations.

**LINES LEGEND:**  
--- BOUNDARY LINE



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|                                                                                                                                                                                                                       |                                                |                                     |         |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|-------------------------------------|---------|
| A                                                                                                                                                                                                                     | 15.02.2023                                     | Inclusive Design Concerns addressed |         |
| Rev.                                                                                                                                                                                                                  | Date                                           | Revisions                           |         |
| PLANNING                                                                                                                                                                                                              |                                                |                                     |         |
| <div><p>ARCHITECTURAL DESIGN STUDIO<br/>400 West Green Road<br/>N15 3PX<br/>Tel: 07842410527<br/>Web: www.archpl.co.uk</p></div> |                                                |                                     |         |
| Client                                                                                                                                                                                                                | Kendal Enterprises LTD                         |                                     |         |
| Project                                                                                                                                                                                                               | Land between Nos.145-147 Downhills Way N17 6AH |                                     |         |
| Scale                                                                                                                                                                                                                 | 1/100 @A2                                      | Date                                | 10/2021 |
| Drawn By                                                                                                                                                                                                              | VC                                             | Checked By                          | AEC     |
| Project No.                                                                                                                                                                                                           | Drawing No.                                    | Revision                            |         |
| 21999                                                                                                                                                                                                                 | A105                                           | A                                   |         |
| Drawing title                                                                                                                                                                                                         |                                                | Proposed                            |         |
| Street (Front) and Rear Elevations Treatment                                                                                                                                                                          |                                                |                                     |         |



MAIN BUILDINGS  
LINE RESPECTED

HOUSE NO.1  
ROOF PLAN

HOUSE NO.2  
ROOF PLAN

HOUSE NO.3  
ROOF PLAN

HOUSE NO.4  
ROOF PLAN

MAIN BUILDINGS  
LINE RESPECTED

#### GENERAL NOTES:

- Rear boundary to comprise of low height brick walls with timber screening above. Timber screening to provide privacy for rear terraces/gardens, doubled by climbing vegetation for additional privacy and ambience improvement. The use of timber screening will also facilitate a controlled penetration of light in the gardens, contributing to creation of good quality ambient areas.
- Proposed vegetation to be carefully controlled by way of chosen species in order to avoid deep and extensive roots system. Potted vegetation to be favoured against ground planted, where certain plants might be preferred and which might impact the buildings foundations or existing river culvert

#### NOTES FOR WASTE AND RECYCLE STORAGE AREA:

- Waste and recycle storage area as per Haringey Council's Sustainable Design & Construction Supplementary Planning Document, Appendix 3: -
- 1 x 240L waste bin
  - 1 x 240L recycle bin
  - 1 x garden waste sack
  - 1 x food waste box

#### NOTES FOR PROPOSED PAVEMENT:

Proposed Pavement on site to be permeable pavement.

#### NOTES BICYCLE METAL STORAGE BOX:

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- Padlocks, ground anchor and security chain included;
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- PVC coated galvanised panels - anthracite colour;
- Generous size - stores up to 3 adult bikes;
- Quality build - all stainless steel fasteners;
- Fire resistant - complies with National Building Regulations.

WALLS / CEILINGS LEGEND:  
PROPOSED WALLS / CEILINGS

LINES LEGEND:  
BOUNDARY LINE



- Notes
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A 03.02.2022 Buildings alignment represented

Rev. Date Revisions

PLANNING



ARCH  
ARCHITECTURAL DESIGN STUDIO  
400 West Green Road  
N15 3PX  
Tel: 07842410527  
Web: www.archpl.co.uk

Client Kendal Enterprises LTD

Project Land between Nos.145-147 Downhills Way N17 6AH

Scale 1/100 @A2

Date 10/2021

Drawn By VC

Checked By AEC

Project No.  
21999

Drawing No.  
A104

Revision  
A

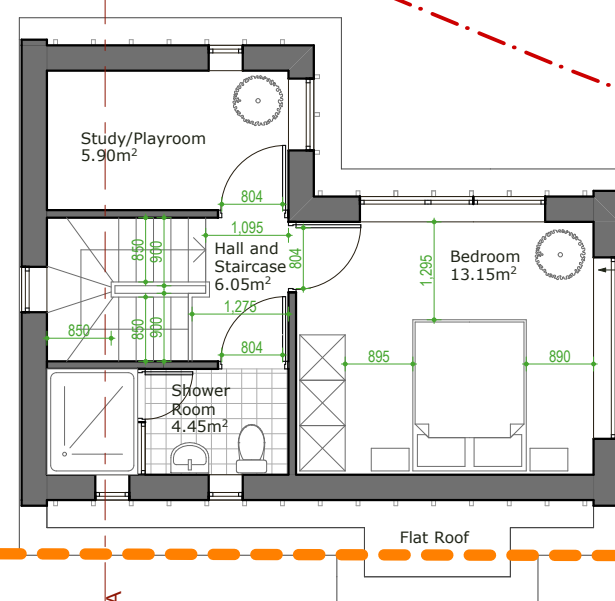
Drawing title

Proposed  
Roof Plans

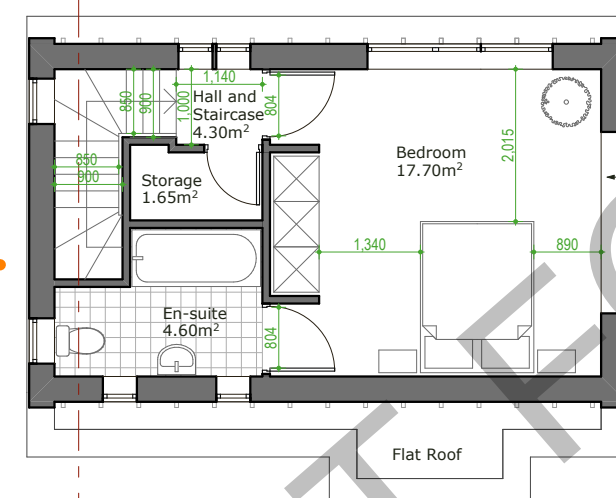


MAIN BUILDINGS  
LINE RESPECTED

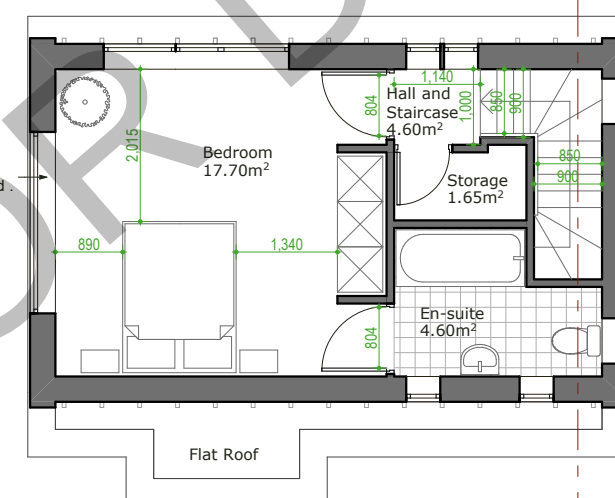
HOUSE NO.1  
SECOND FLOOR GIA = 30.55sqm



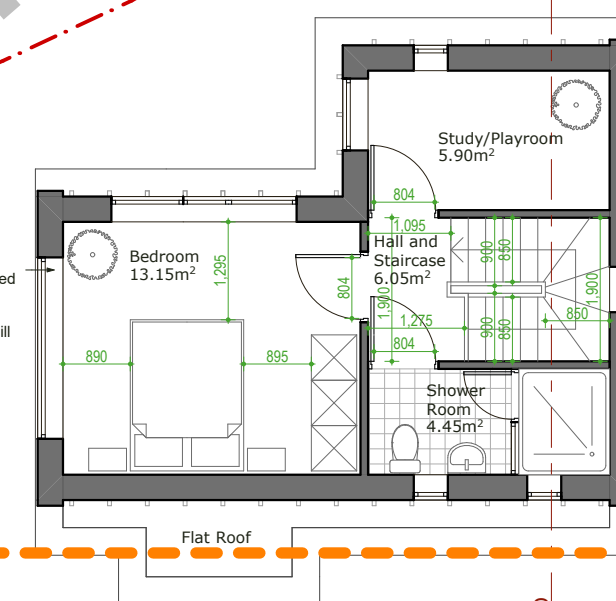
HOUSE NO.2  
SECOND FLOOR GIA = 29.40sqm



HOUSE NO.3  
SECOND FLOOR GIA = 29.40sqm



HOUSE NO.4  
SECOND FLOOR GIA = 30.55sqm



MAIN BUILDINGS  
LINE RESPECTED

LEGEND:  
INCLUSIVE DESIGN ANNOTATIONS  
THESE SHOULD BE READ IN CONJUNCTION WITH THE DESIGN  
AND ACCESS STATEMENT - INCLUSIVE DESIGN CHAPTER

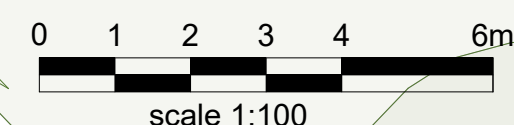
GENERAL NOTES:  
- Rear boundary to comprise of low height brick walls with timber screening above. Timber screening to provide privacy for rear terraces/gardens, doubled by climbing vegetation for additional privacy and ambience improvement. The use of timber screening will also facilitate a controlled penetration of light in the gardens, contributing to creation of good quality ambient areas.  
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NOTES FOR WASTE AND RECYCLE STORAGE AREA:  
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- PVC coated galvanised panels - anthracite colour;  
- Generous size - stores up to 3 adult bikes;  
- Quality build - all stainless steel fasteners;  
- Fire resistant - complies with National Building Regulations.

WALLS / CEILINGS LEGEND:  
PROPOSED WALLS / CEILINGS  
LINES LEGEND:  
BOUNDARY LINE



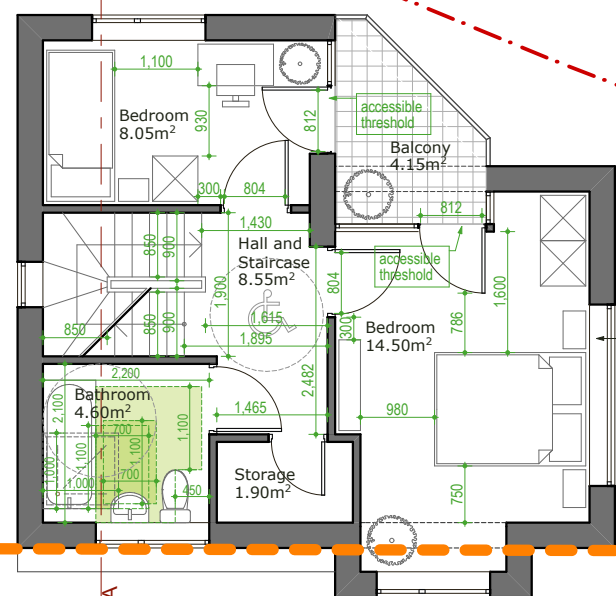
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|                                                                                                                                                                                                             |                                                |                                     |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|-------------------------------------|
| C                                                                                                                                                                                                           | 15.02.2021                                     | Inclusive Design Concerns addressed |
| B                                                                                                                                                                                                           | 08.02.2021                                     | Inclusive Design Annotations        |
| A                                                                                                                                                                                                           | 03.02.2021                                     | Buildings alignment represented     |
| Rev.                                                                                                                                                                                                        | Date                                           | Revisions                           |
| PLANNING                                                                                                                                                                                                    |                                                |                                     |
| <br>ARCH<br>ARCHITECTURAL DESIGN STUDIO<br>400 West Green Road<br>N15 3PX<br>Tel: 07842410527<br>Web: www.archpl.co.uk |                                                |                                     |
| Client                                                                                                                                                                                                      | Kendal Enterprises LTD                         |                                     |
| Project                                                                                                                                                                                                     | Land between Nos 145-147 Downhills Way N17 6AH |                                     |
| Scale                                                                                                                                                                                                       | 1/100 @A2                                      | Date 10/2021                        |
| Drawn By                                                                                                                                                                                                    | VC                                             | Checked By AEC                      |
| Project No.                                                                                                                                                                                                 | 21999                                          | Drawing No. A103                    |
| Drawing title                                                                                                                                                                                               | Proposed Second Floor Plans                    |                                     |
|                                                                                                                                                                                                             |                                                | Revision C                          |

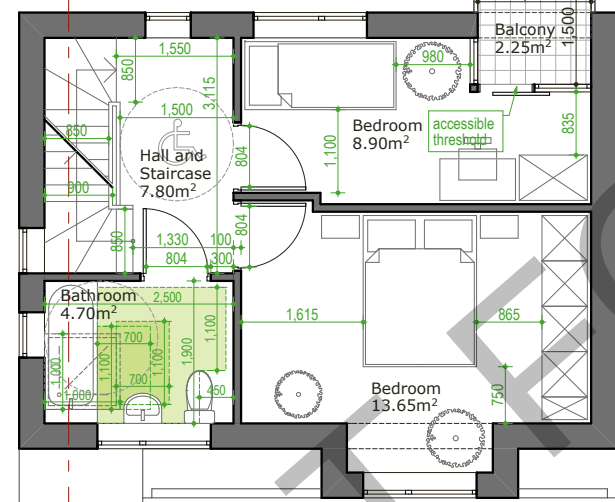


MAIN BUILDINGS  
LINE RESPECTED

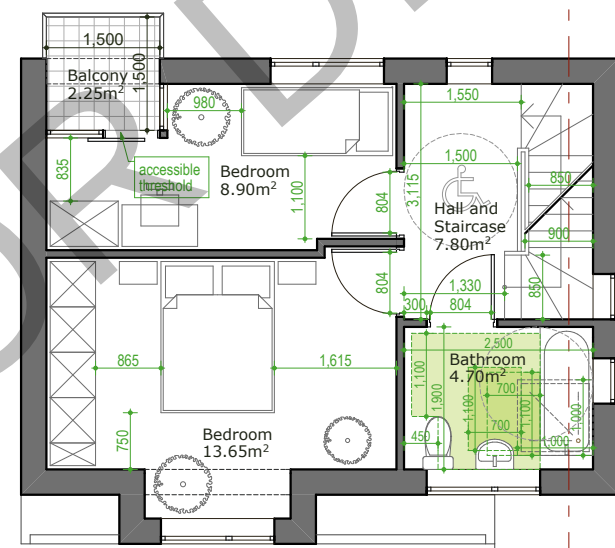
MAIN BUILDINGS  
LINE RESPECTED



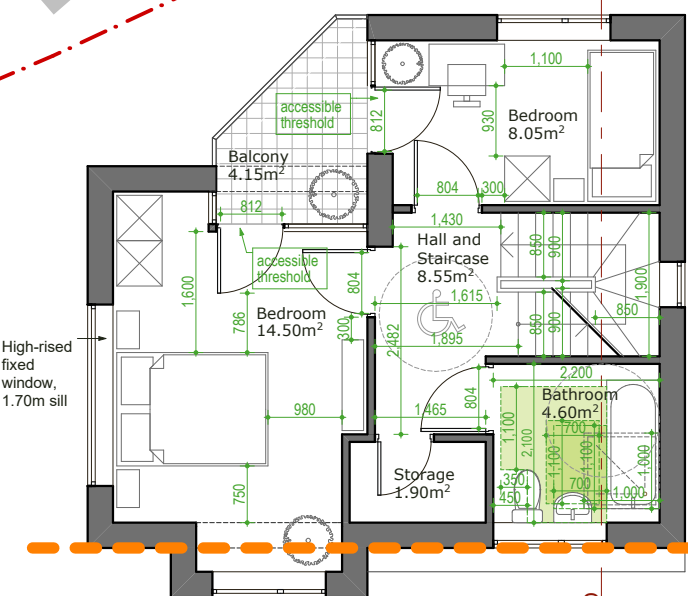
HOUSE NO.1  
FIRST FLOOR GIA = 38.60sqm



HOUSE NO.2  
FIRST FLOOR GIA = 37.00sqm



HOUSE NO.3  
FIRST FLOOR GIA = 37.00sqm



HOUSE NO.4  
FIRST FLOOR GIA = 38.60sqm

LEGEND:  
INCLUSIVE DESIGN ANNOTATIONS  
THESE SHOULD BE READ IN CONJUNCTION WITH THE DESIGN  
AND ACCESS STATEMENT - INCLUSIVE DESIGN CHAPTER

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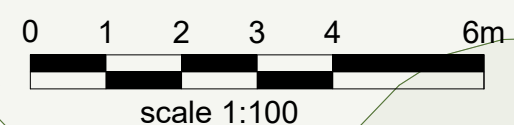
NOTES FOR WASTE AND RECYCLE STORAGE AREA:  
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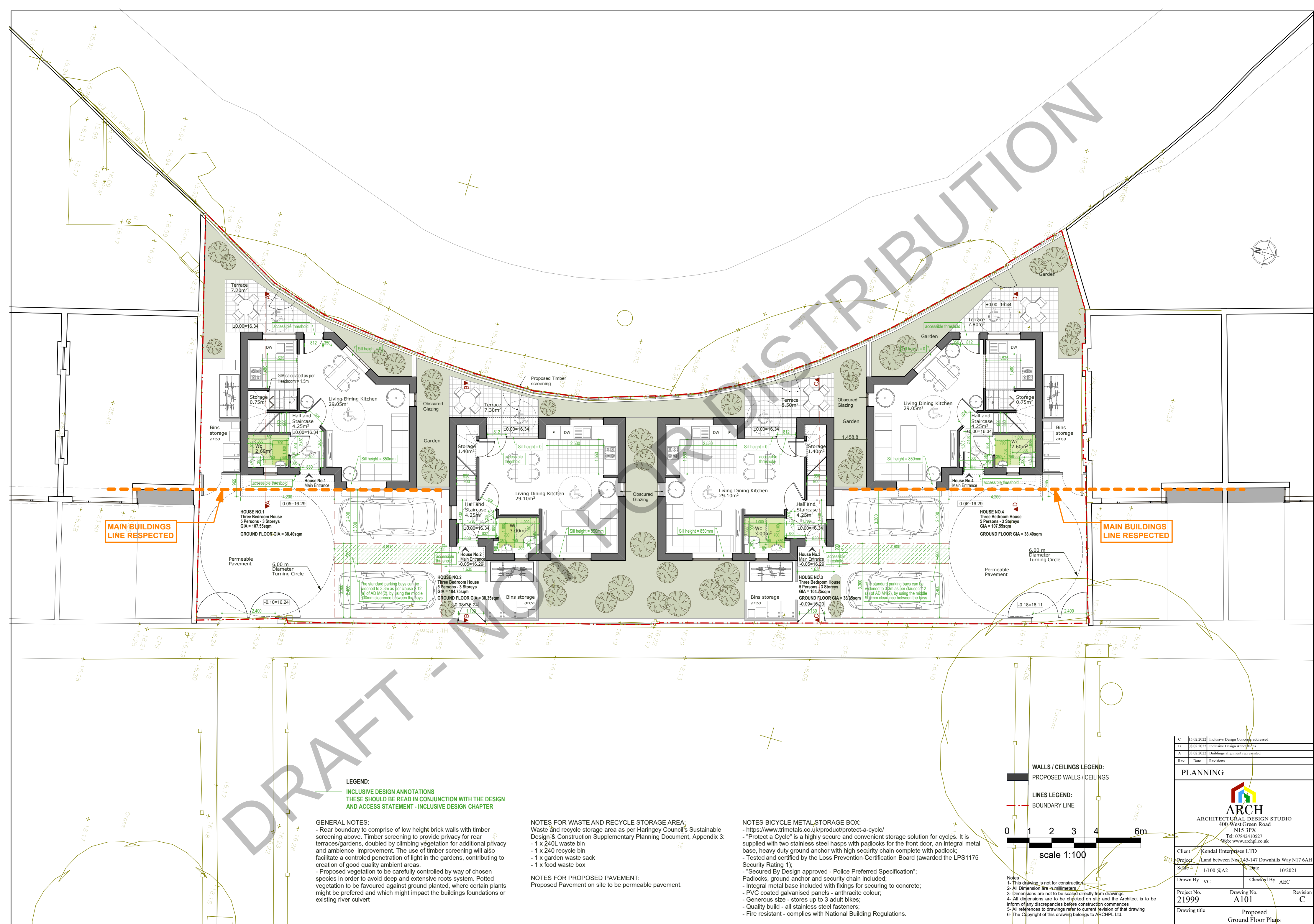
WALLS / CEILINGS LEGEND:  
PROPOSED WALLS / CEILINGS

LINES LEGEND:  
BOUNDARY LINE



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|                                                                                                                                                                                                             |                                                |                                     |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|-------------------------------------|
| C                                                                                                                                                                                                           | 15.02.2021                                     | Inclusive Design Concerns addressed |
| B                                                                                                                                                                                                           | 08.02.2021                                     | Inclusive Design Annotations        |
| A                                                                                                                                                                                                           | 03.02.2021                                     | Buildings alignment represented     |
| Rev.                                                                                                                                                                                                        | Date                                           | Revisions                           |
| PLANNING                                                                                                                                                                                                    |                                                |                                     |
| <br>ARCH<br>ARCHITECTURAL DESIGN STUDIO<br>400 West Green Road<br>N15 3PX<br>Tel: 07842410527<br>Web: www.archpl.co.uk |                                                |                                     |
| Client                                                                                                                                                                                                      | Kendal Enterprises LTD                         |                                     |
| Project                                                                                                                                                                                                     | Land between Nos 145-147 Downhills Way N17 6AH |                                     |
| Scale                                                                                                                                                                                                       | 1/100 @A2                                      | Date 10/2021                        |
| Drawn By                                                                                                                                                                                                    | VC                                             | Checked By AEC                      |
| Project No.                                                                                                                                                                                                 | 21999                                          | Revision C                          |
| Drawing title                                                                                                                                                                                               | Proposed<br>First Floor Plans                  |                                     |



**LEGEND:**  
INCLUSIVE DESIGN ANNOTATIONS  
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- 1 x garden waste sack  
- 1 x food waste box

**NOTES FOR PROPOSED PAVEMENT:**  
Proposed Pavement on site to be permeable pavement.

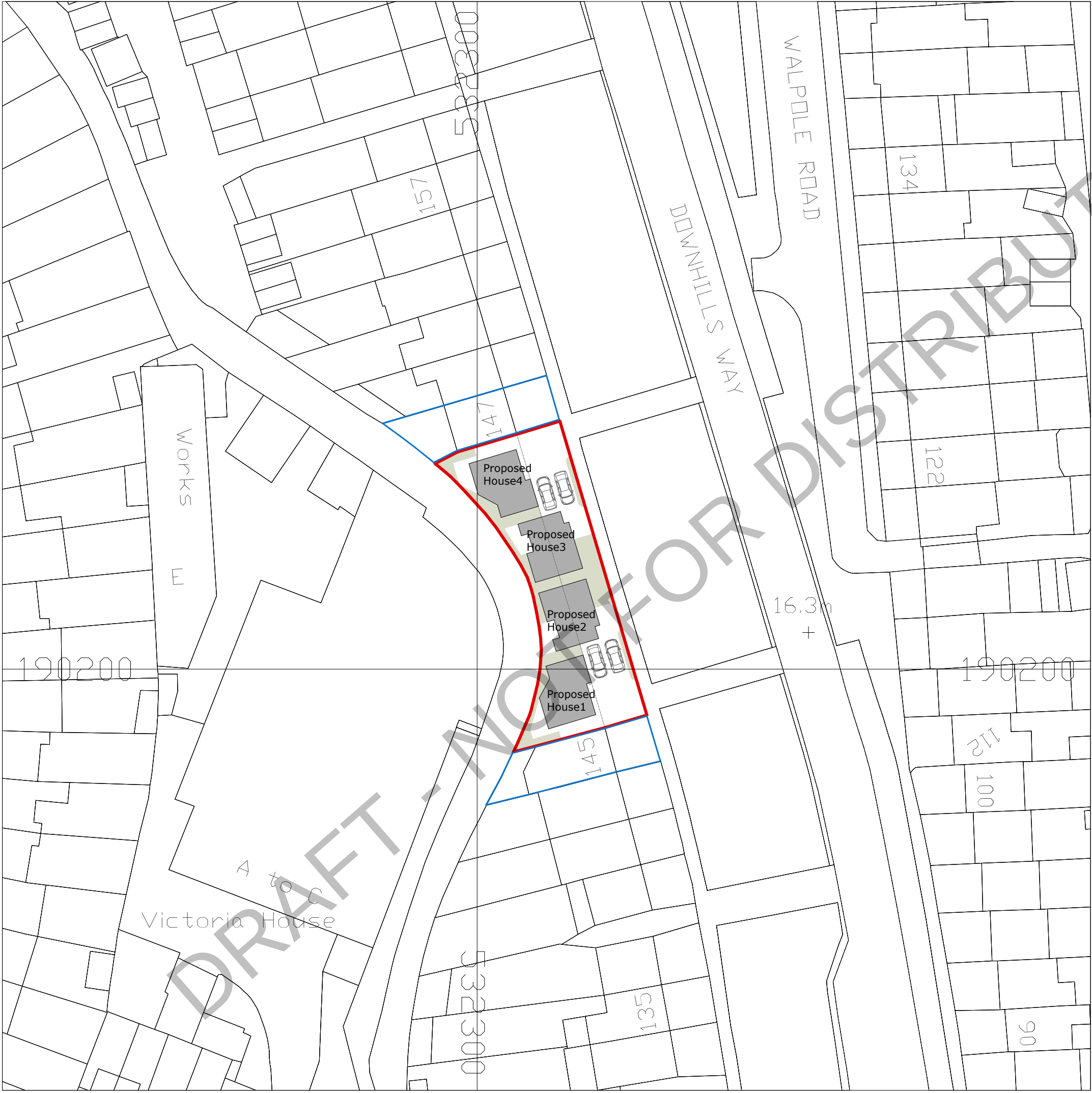
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**WALLS / CEILINGS LEGEND:**  
PROPOSED WALLS / CEILINGS  
**LINES LEGEND:**  
BOUNDARY LINE

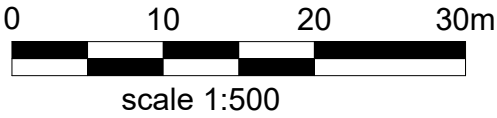


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|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|-------------------------------------|
| C                                                                                                                                                                                                                  | 15.02.2021                                     | Inclusive Design Concerns addressed |
| B                                                                                                                                                                                                                  | 08.02.2021                                     | Inclusive Design Annotations        |
| A                                                                                                                                                                                                                  | 03.02.2021                                     | Buildings alignment represented     |
| Rev.                                                                                                                                                                                                               | Date                                           | Revisions                           |
| <b>PLANNING</b>                                                                                                                                                                                                    |                                                |                                     |
| <br><b>ARCH</b><br>ARCHITECTURAL DESIGN STUDIO<br>400 West Green Road<br>N15 3PX<br>Tel: 07842410527<br>Web: www.archpl.co.uk |                                                |                                     |
| Client                                                                                                                                                                                                             | Kendal Enterprises LTD                         |                                     |
| Project                                                                                                                                                                                                            | Land between Nos 145-147 Downhills Way N17 6AH |                                     |
| Scale                                                                                                                                                                                                              | 1/100 @A2                                      | Date 10/2021                        |
| Drawn By                                                                                                                                                                                                           | VC                                             | Checked By AEC                      |
| Project No.                                                                                                                                                                                                        | 21999                                          | Drawing No. A101                    |
| Drawing title                                                                                                                                                                                                      | Proposed Ground Floor Plans                    |                                     |
|                                                                                                                                                                                                                    |                                                | Revision C                          |



PROPOSED BLOCK PLAN scale 1:500

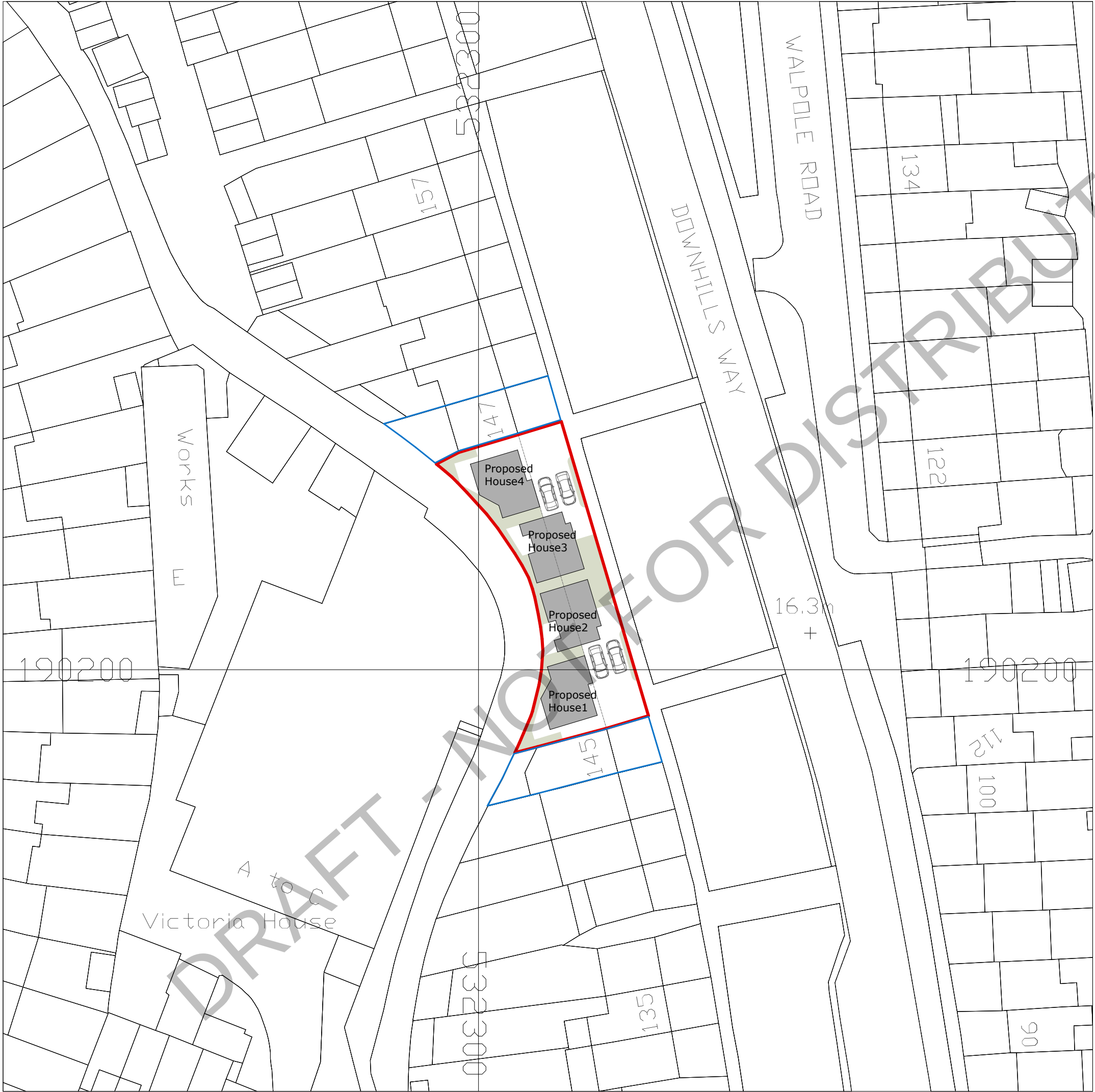


LINES LEGEND:

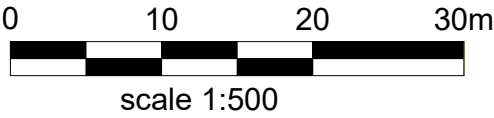
- APPLICATION'S SITE BOUNDARIES
- OTHER LAND OWNED BY CLIENT/APPLICANT

- Notes
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| Rev.                                                                                                                                                                                                                         | Date                                           | Revisions      |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|----------------|
| PLANNING                                                                                                                                                                                                                     |                                                |                |
| <div><br/>ARCH<br/>ARCHITECTURAL DESIGN STUDIO<br/>400 West Green Road<br/>N15 3PX<br/>Tel: 07842410527<br/>Web: www.archpl.co.uk</div> |                                                |                |
| Client                                                                                                                                                                                                                       | Kendal Enterprises LTD                         |                |
| Project                                                                                                                                                                                                                      | Land between Nos.145-147 Downhills Way N17 6AH |                |
| Scale                                                                                                                                                                                                                        | 1/500 @A3                                      | Date 10/2021   |
| Drawn By                                                                                                                                                                                                                     | VC                                             | Checked By AEC |
| Project No.<br>21999                                                                                                                                                                                                         | Drawing No.<br>A100_3                          | Revision<br>-  |
| Drawing title                                                                                                                                                                                                                | Proposed Block Plan                            |                |



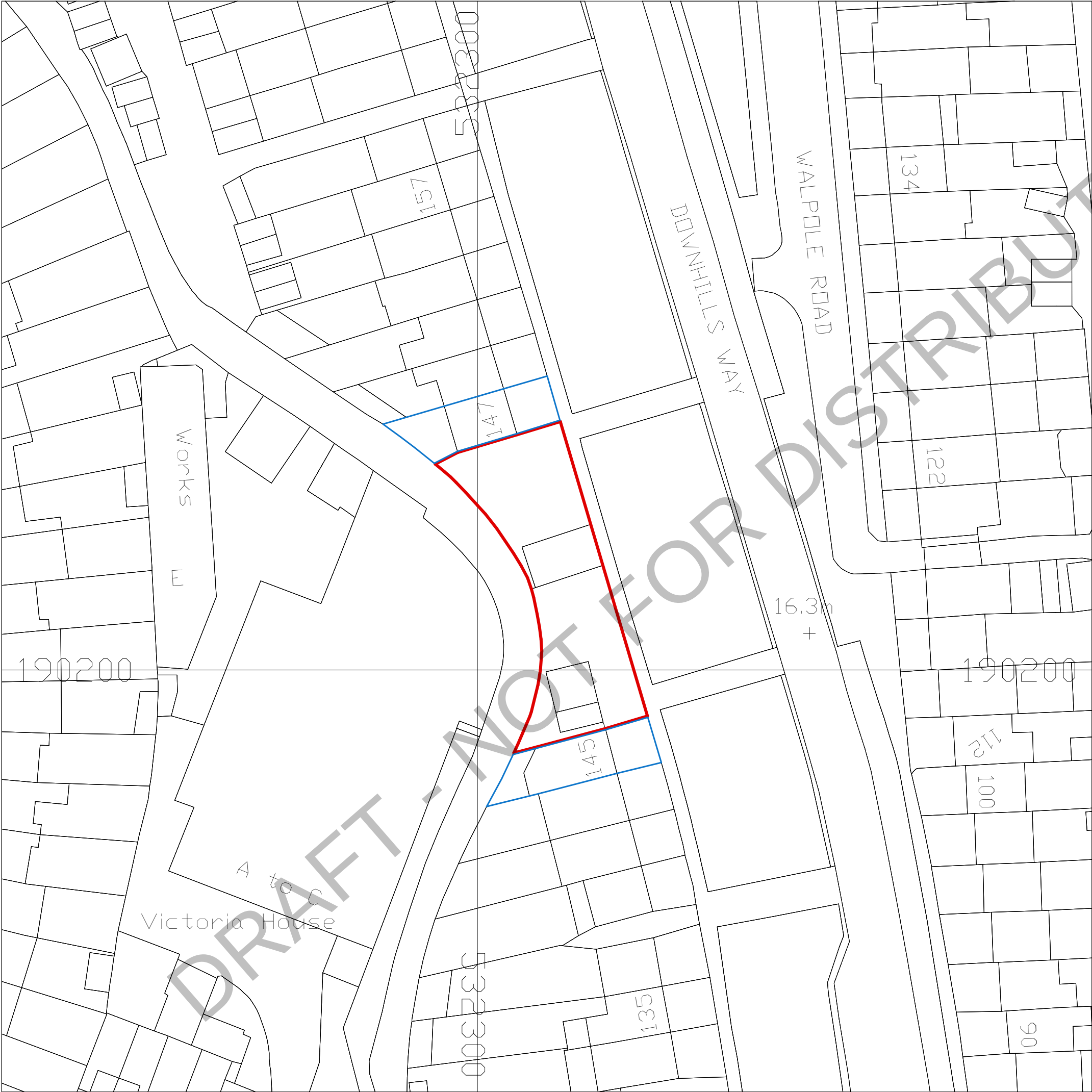
PROPOSED SITE PLAN scale 1:500



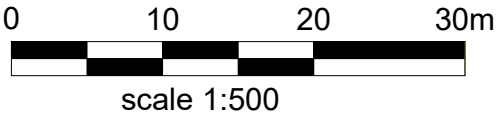
- LINES LEGEND:**
- APPLICATION'S SITE BOUNDARIES
  - OTHER LAND OWNED BY CLIENT/APPLICANT

- Notes**
- This drawing is not for construction
  - All Dimension are in millimeters
  - Dimensions are not to be scaled directly from drawings
  - All dimensions are to be checked on site and the Architect is to be inform of any discrepancies before construction commences
  - All references to drawings refer to current revision of that drawing
  - The Copyright of this drawing belongs to ARCHPL Ltd.

| Rev.                                                                                                                                                                                                                                | Date                                           | Revisions      |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|----------------|
| PLANNING                                                                                                                                                                                                                            |                                                |                |
| <div><br/><b>ARCH</b><br/>ARCHITECTURAL DESIGN STUDIO<br/>400 West Green Road<br/>N15 3PX<br/>Tel: 07842410527<br/>Web: www.archpl.co.uk</div> |                                                |                |
| Client                                                                                                                                                                                                                              | Kendal Enterprises LTD                         |                |
| Project                                                                                                                                                                                                                             | Land between Nos.145-147 Downhills Way N17 6AH |                |
| Scale                                                                                                                                                                                                                               | 1/500 @A3                                      | Date 10/2021   |
| Drawn By                                                                                                                                                                                                                            | VC                                             | Checked By AEC |
| Project No.<br>21999                                                                                                                                                                                                                | Drawing No.<br>A100_2                          | Revision<br>-  |
| Drawing title                                                                                                                                                                                                                       | Proposed Site Plan                             |                |



EXISTING SITE PLAN scale 1:500

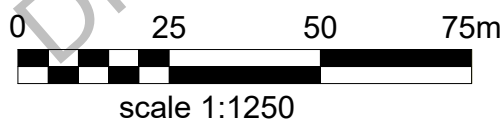
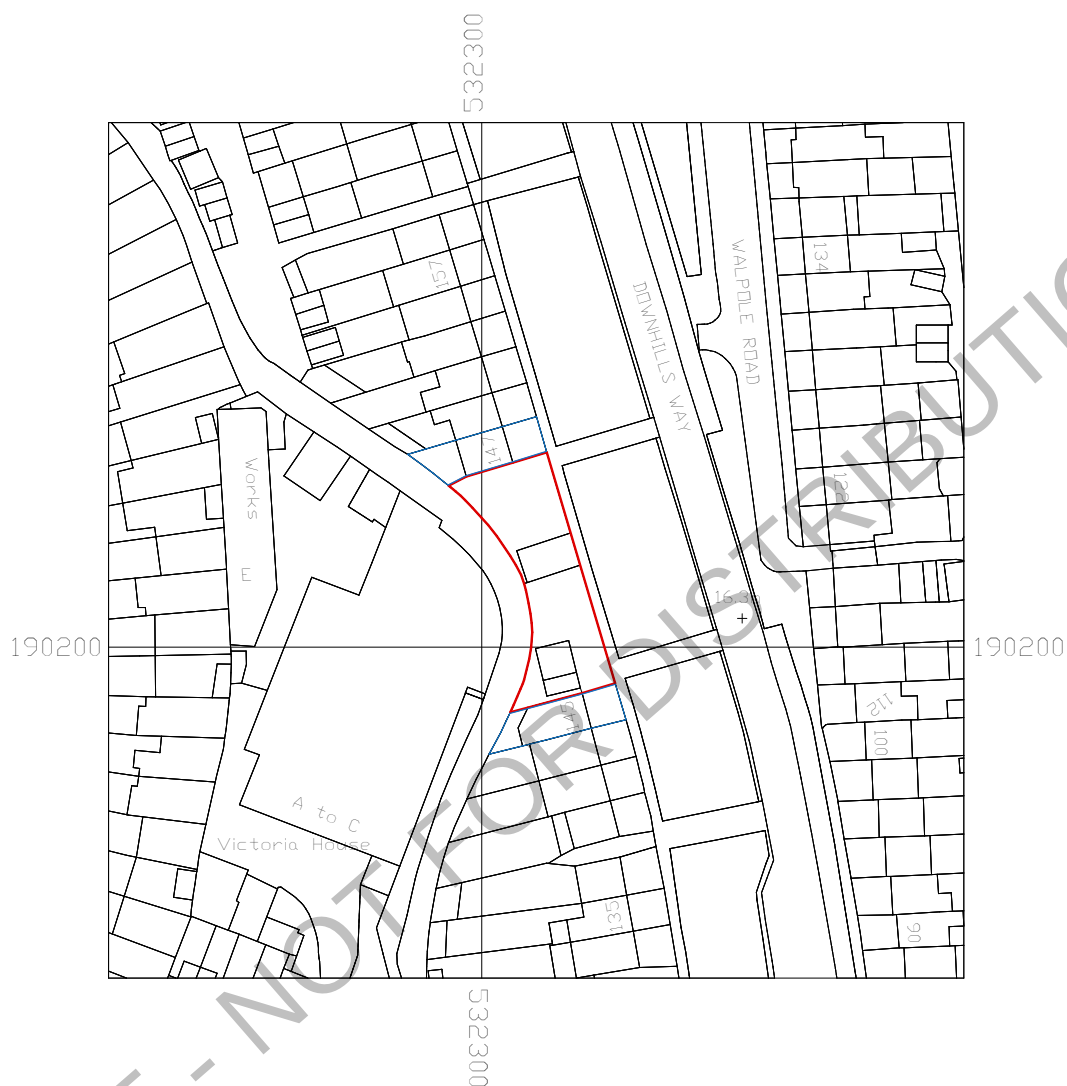


LINES LEGEND:

- APPLICATION'S SITE BOUNDARIES
- OTHER LAND OWNED BY CLIENT/APPLICANT

Notes  
1- This drawing is not for construction  
2- All Dimension are in millimeters  
3- Dimensions are not to be scaled directly from drawings  
4- All dimensions are to be checked on site and the Architect is to be inform of any discrepancies before construction commences  
5- All references to drawings refer to current revision of that drawing  
6- The Copyright of this drawing belongs to ARCHPL Ltd.

| Rev.                                                                                                                                                                                                                         | Date                                           | Revisions      |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|----------------|
| PLANNING                                                                                                                                                                                                                     |                                                |                |
| <div><br/>ARCH<br/>ARCHITECTURAL DESIGN STUDIO<br/>400 West Green Road<br/>N15 3PX<br/>Tel: 07842410527<br/>Web: www.archpl.co.uk</div> |                                                |                |
| Client                                                                                                                                                                                                                       | Kendal Enterprises LTD                         |                |
| Project                                                                                                                                                                                                                      | Land between Nos.145-147 Downhills Way N17 6AH |                |
| Scale                                                                                                                                                                                                                        | 1/500 @A3                                      | Date 10/2021   |
| Drawn By                                                                                                                                                                                                                     | VC                                             | Checked By AEC |
| Project No.<br>21999                                                                                                                                                                                                         | Drawing No.<br>A100_1                          | Revision<br>-  |
| Drawing title                                                                                                                                                                                                                | Existing Site Plan                             |                |



#### LINES LEGEND:

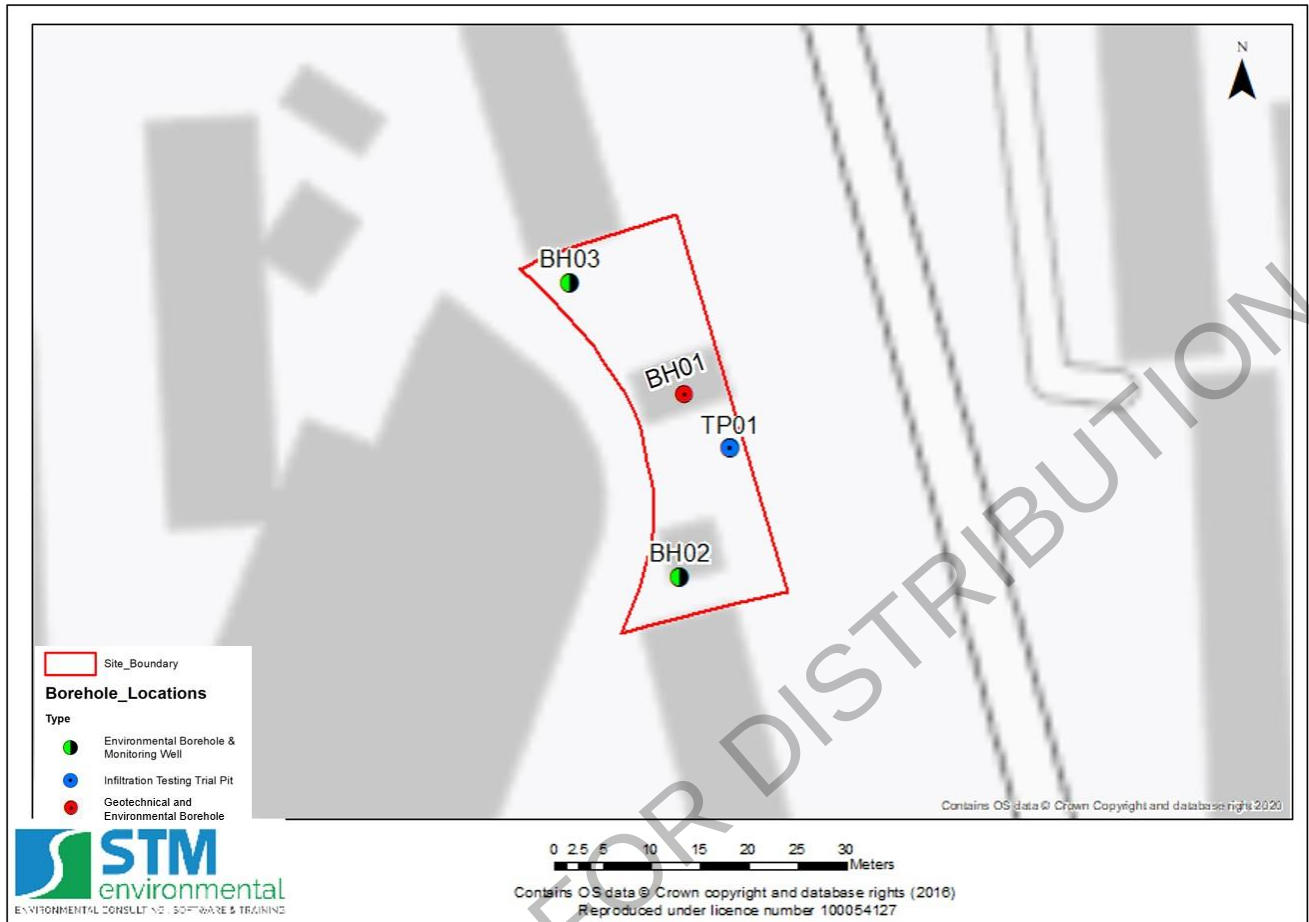
- APPLICATION SITE BOUNDARIES
- OTHER LAND OWNED BY THE CLIENT / APPLICANT

#### Notes

- 1- This drawing is not for construction
- 2- All Dimension are in millimeters
- 3- Dimensions are not to be scaled directly from drawings
- 4- All dimensions are to be checked on site and the Architect is to be inform of any discrepancies before construction commences
- 5- All references to drawings refer to current revision of that drawing
- 6- The Copyright of this drawing belongs to ARCHPL Ltd.

| Rev.                                                                                                                                                                                                               | Date                                           | Revisions      |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|----------------|
| PLANNING                                                                                                                                                                                                           |                                                |                |
| <br><b>ARCH</b><br>ARCHITECTURAL DESIGN STUDIO<br>400 West Green Road<br>N15 3PX<br>Tel: 07842410527<br>Web: www.archpl.co.uk |                                                |                |
| Client                                                                                                                                                                                                             | Kendal Enterprises LTD                         |                |
| Project                                                                                                                                                                                                            | Land between Nos.145-147 Downhills Way N17 6AH |                |
| Scale                                                                                                                                                                                                              | 1/1250 @A4                                     | Date 10/2021   |
| Drawn By                                                                                                                                                                                                           | VC                                             | Checked By AEC |
| Project No.                                                                                                                                                                                                        | 21999                                          | Revision -     |
| Drawing No.                                                                                                                                                                                                        | A100_0                                         |                |
| Drawing title                                                                                                                                                                                                      | Location Plan                                  |                |

## 12.2 Appendix 2 - Borehole Location Plan



## 12.3 Appendix 3 - Borehole Logs

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# Borehole Log

Borehole No.

**BH01**

Sheet 1 of 1

|               |                                                     |                |                         |                      |
|---------------|-----------------------------------------------------|----------------|-------------------------|----------------------|
| Project Name: | Land between 145-147 Downhills Way                  | Project No.    | Co-ords:                | Hole Type            |
|               |                                                     | GT-2023-000082 | 532310.00 - 190215.00   | WLS                  |
| Location:     | Land between 145-147 Downhills Way, London, N17 6AH | Level:         | 16.22                   | Scale                |
|               |                                                     |                |                         | 1:50                 |
| Client:       | UK Bauhaus Ltd                                      | Dates:         | 19/07/2023 - 19/07/2023 | Logged By            |
|               |                                                     |                |                         | M. Forshaw/ Z. Price |

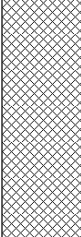
| Well | Water Strikes | Samples and In Situ Testing |      |                     | Depth (m) | Level (m) | Legend | Stratum Description                                                                                                                                                  |    |
|------|---------------|-----------------------------|------|---------------------|-----------|-----------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
|      |               | Depth (m)                   | Type | Results             |           |           |        |                                                                                                                                                                      |    |
|      |               | 0.30                        | ES   | PID=0               |           |           |        | Made Ground - Black and dark grey slightly gravelly SILT with an abundance of brick and concrete fragments, occasional bituminous material, and rare glass fragments |    |
|      |               | 1.00                        | ES   | PID=0               | 0.80      | 15.42     |        | Made Ground - Brown and grey CLAY with rare brick fragments                                                                                                          | 1  |
|      |               | 1.00                        |      | N=6 (1,0/1,1,2,2)   | 1.00      | 15.22     |        | Firm becoming stiff brown and grey CLAY                                                                                                                              |    |
|      |               |                             |      | PID=0               |           |           |        |                                                                                                                                                                      |    |
|      |               | 2.00                        | D    | N=8 (1,1/2,2,2,2)   |           |           |        |                                                                                                                                                                      | 2  |
|      |               | 2.00                        |      |                     |           |           |        |                                                                                                                                                                      |    |
|      |               | 3.00                        |      | N=8 (1,1/2,2,2,2)   |           |           |        |                                                                                                                                                                      | 3  |
|      |               | 4.00                        | D    | N=14 (2,3/3,3,4,4)  |           |           |        |                                                                                                                                                                      | 4  |
|      |               | 4.00                        |      |                     |           |           |        |                                                                                                                                                                      |    |
|      |               | 5.00                        | D    | N=18 (2,3/4,4,5,5)  |           |           |        |                                                                                                                                                                      | 5  |
|      |               | 5.00                        |      |                     |           |           |        |                                                                                                                                                                      |    |
|      |               | 6.00                        | D    | N=20 (3,4/4,5,5,6)  | 5.80      | 10.42     |        | Very stiff dark grey CLAY                                                                                                                                            | 6  |
|      |               | 6.00                        |      |                     |           |           |        |                                                                                                                                                                      |    |
|      |               | 7.00                        | D    | N=22 (4,5/5,5,6,6)  |           |           |        |                                                                                                                                                                      | 7  |
|      |               | 7.00                        |      |                     |           |           |        |                                                                                                                                                                      |    |
|      |               | 8.00                        |      | N=30 (4,5/6,7,8,9)  |           |           |        |                                                                                                                                                                      | 8  |
|      |               | 9.00                        | D    | N=33 (5,7/7,8,8,10) |           |           |        |                                                                                                                                                                      | 9  |
|      |               | 9.00                        |      |                     |           |           |        |                                                                                                                                                                      |    |
|      |               | 10.00                       |      | N=28 (3,5/7,7,7,7)  | 10.00     | 6.22      |        | End of borehole at 10.00 m                                                                                                                                           | 10 |

## Remarks

Borehole advanced to a maximum depth of 10mbgl. Monitoring well installed to 5mbgl using 63mm HDPE plain pipe in a bentonite seal from existing ground level to 1.00mbgl and 63mm HDPE slotted pipe in a gravel surround to the base of pipe. No groundwater was encountered. Elevation levels and borehole location grid references are approximated based on LiDAR data.





|                                                                                                                                                                                              |                             |      |         |                               |              |                                                                                   |                                                                                                                 |                                            |                                                                                       |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|------|---------|-------------------------------|--------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|--------------------------------------------|---------------------------------------------------------------------------------------|
|                                                                                                              |                             |      |         | <h1>Trial Pit Log</h1>        |              |                                                                                   |                                                                                                                 | Trialpit No<br><b>TP01</b><br>Sheet 1 of 1 |                                                                                       |
| Project Name: Land between 145-147 Downhills Way                                                                                                                                             |                             |      |         | Project No.<br>GT-2023-000082 |              | Co-ords: 532316.00 - 190208.00<br>Level: 16.33                                    |                                                                                                                 | Date<br>19/07/2023                         |                                                                                       |
| Location: Land between 145-147 Downhills Way, London, N17 6AH                                                                                                                                |                             |      |         | Dimensions (m):<br>Depth 1.00 |              |                                                                                   |                                                                                                                 | Scale<br>1:25                              |                                                                                       |
| Client: UK Bauhaus Ltd                                                                                                                                                                       |                             |      |         |                               |              |                                                                                   |                                                                                                                 | Logged<br>M. Forshaw/ Z. Price             |                                                                                       |
| Water<br>Strike                                                                                                                                                                              | Samples and In Situ Testing |      |         | Depth<br>(m)                  | Level<br>(m) | Legend                                                                            | Stratum Description                                                                                             |                                            |                                                                                       |
|                                                                                                                                                                                              | Depth                       | Type | Results |                               |              |                                                                                   |                                                                                                                 |                                            |                                                                                       |
|                                                                                                                                                                                              | 0.40                        | ES   | PID=0   |                               |              |  | Made Ground - Brown, dark grey and dark yellow slightly sandy CLAY with occasional brick and concrete fragments |                                            |                                                                                       |
|                                                                                                                                                                                              |                             |      | PID=0   | 0.80                          | 15.53        |  | Dark brown CLAY                                                                                                 |                                            |                                                                                       |
|                                                                                                                                                                                              |                             |      |         | 1.00                          | 15.33        |  | End of pit at 1.00 m                                                                                            |                                            |                                                                                       |
|                                                                                                                                                                                              |                             |      |         |                               |              |                                                                                   | 1                                                                                                               |                                            |                                                                                       |
|                                                                                                                                                                                              |                             |      |         |                               |              |                                                                                   | 2                                                                                                               |                                            |                                                                                       |
|                                                                                                                                                                                              |                             |      |         |                               |              |                                                                                   | 3                                                                                                               |                                            |                                                                                       |
|                                                                                                                                                                                              |                             |      |         |                               |              |                                                                                   | 4                                                                                                               |                                            |                                                                                       |
|                                                                                                                                                                                              |                             |      |         |                               |              |                                                                                   | 5                                                                                                               |                                            |                                                                                       |
| Remarks: Trial pit excavated by digger to a maximum depth of 1mbgl. No groundwater encountered. Elevation levels and borehole location grid references are approximated based on LiDAR data. |                             |      |         |                               |              |                                                                                   |                                                                                                                 |                                            |  |
| Stability:                                                                                                                                                                                   |                             |      |         |                               |              |                                                                                   |                                                                                                                 |                                            |                                                                                       |

## 12.4 Appendix 4 - Photographs



General Overview of the site





Overview of the site and the Dynamic Windowless Sampler Rig, as well as the soil encountered in BH01



Soils encountered at BH01



Soils encountered at BH02 and BH03



## 12.5 Appendix 5 – Laboratory Certification

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## Certificate of Analysis

**Client:** STM ENVIRONMENTAL

**Project:** 23072708

**Quote:** BEC230228809 V2.1

**Project Ref:** STM

**Site:** 145-147 Downhill

**Contact:** Parminder Bhatia

**Address:** Unit 6, Crane Mews  
32 Gould Road  
Twickenham  
London  
TW2 6RS

**E-Mail:** Parminder@stmenvironmental.co.uk

**Phone:** 07760469516

**No. Samples Received:** 5

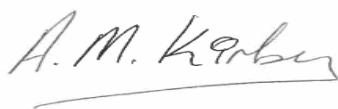
**Date Received:** 22/07/2023

**Analysis Date:** 02/08/2023

**Date Issued:** 02/08/2023

**Report Type:** Final Version 01

This report supersedes any versions previously issued by the laboratory



Reported by Customer Service Co-Ordinator  
Angela Kirby



Client: STM ENVIRONMENTAL  
Project Name: STM-145-147 Downhill  
Project No: 23072708  
Date Issued: 02/08/2023

**Samples Analysed**

| <b><u>Text ID</u></b> | <b><u>Sample Reference</u></b> | <b><u>Sampling Date</u></b> | <b><u>Sample Type</u></b> | <b><u>Sample Description</u></b> |
|-----------------------|--------------------------------|-----------------------------|---------------------------|----------------------------------|
| 23072708-001          | BH01/1-0-ES-0.30               | 20/07/2023 00:00:00         | SOLID                     | Soil Sample                      |
| 23072708-002          | BH02/1-0-ES-0.20               | 20/07/2023 00:00:00         | SOLID                     | Soil Sample                      |
| 23072708-003          | BH02/2-0-ES-0.60               | 20/07/2023 00:00:00         | SOLID                     | Soil Sample                      |
| 23072708-004          | BH03/1-0-ES-0.40               | 20/07/2023 00:00:00         | SOLID                     | Soil Sample                      |
| 23072708-005          | TP01/1-0-ES-0.40               | 19/07/2023 00:00:00         | SOLID                     | Soil Sample                      |

DRAFT - NOT FOR DISTRIBUTION

Analysis Results

| Analysis                     | Method Code    | MDL  | Units              | Accred. | Sample ID     | 001              | 002              | 003              | 004              | 005              |
|------------------------------|----------------|------|--------------------|---------|---------------|------------------|------------------|------------------|------------------|------------------|
|                              |                |      |                    |         | Customer ID   | BH01/1-0-ES-0.30 | BH02/1-0-ES-0.20 | BH02/2-0-ES-0.60 | BH03/1-0-ES-0.40 | TP01/1-0-ES-0.40 |
|                              |                |      |                    |         | Sample Type   | SOLID            | SOLID            | SOLID            | SOLID            | SOLID            |
|                              |                |      |                    |         | Sampling Date | 20/07/2023       | 20/07/2023       | 20/07/2023       | 20/07/2023       | 19/07/2023       |
|                              |                |      |                    |         |               |                  |                  |                  |                  |                  |
| >C6-C8 Aliphatic HS_1D_AL    | GROHSA/BTEXHSA | 0.2  | mg/kg <sup>^</sup> | UM      |               | <0.226           | <0.248           |                  | <0.242           | <0.226           |
| >C7-C8 Aromatic HS_1D_AR     | GROHSA/BTEXHSA | 0.01 | mg/kg <sup>^</sup> | UM      |               | <0.011           | <0.012           |                  | <0.012           | <0.011           |
| >C8-C10 Aliphatic HS_1D_AL   | GROHSA/BTEXHSA | 0.2  | mg/kg <sup>^</sup> | UM      |               | <0.226           | <0.248           |                  | <0.242           | <0.226           |
| >C8-C10 Aromatic HS_1D_AR    | GROHSA/BTEXHSA | 0.04 | mg/kg <sup>^</sup> | UM      |               | <0.045           | <0.05            |                  | <0.049           | <0.045           |
| C5-C6 Aliphatic HS_1D_AL     | GROHSA/BTEXHSA | 0.2  | mg/kg <sup>^</sup> | UM      |               | <0.226           | <0.248           |                  | <0.242           | <0.226           |
| C5-C7 Aromatic HS_1D_AR      | GROHSA/BTEXHSA | 0.01 | mg/kg <sup>^</sup> | UM      |               | <0.011           | <0.012           |                  | <0.012           | <0.011           |
| Total GRO C5-C10 HS_1D_Total | GROHSA/BTEXHSA | 0.2  | mg/kg <sup>^</sup> | UM      |               | <0.226           | <0.248           |                  | <0.242           | <0.226           |
| pH (2.5:1 extraction)        | PHSOIL         | 1    | pH units           | UM      |               | 8.1              | 8.5              | 7.9              | 8.1              | 8.1              |
| Phenol Index                 | SFAPI          | 0.5  | mg/kg <sup>^</sup> | U       |               | <0.6             | <0.6             | <0.7             | <0.6             | <0.6             |
| Sulphide as S                | SFAPI          | 0.5  | mg/kg <sup>^</sup> | N       |               | <0.6             | <0.6             | <0.7             | <0.6             | <0.6             |
| Total Cyanide                | SFAPI          | 0.5  | mg/kg <sup>^</sup> | UM      |               | 4.4              | <0.6             | <0.7             | <0.6             | <0.6             |
| Total Organic Carbon         | WSLM59         | 0.02 | % m/m <sup>^</sup> | U       |               | 5.10             | 1.51             | 1.25             | 2.59             | 4.11             |
| Arsenic as As                | ICPMSS         | 0.3  | mg/kg <sup>^</sup> | UM      |               | 50.6             | 18.0             | 11.4             | 23.6             | 30.9             |
| Cadmium as Cd                | ICPMSS         | 0.2  | mg/kg <sup>^</sup> | UM      |               | 1.1              | 0.3              | 0.2              | 0.8              | 2.4              |
| Copper as Cu                 | ICPMSS         | 1.6  | mg/kg <sup>^</sup> | UM      |               | 727.6            | 70.9             | 22.0             | 108.6            | 907.3            |
| Lead as Pb                   | ICPMSS         | 0.7  | mg/kg <sup>^</sup> | UM      |               | 1301             | 316.5            | 29.3             | 333.7            | 784.2            |
| Mercury as Hg                | ICPMSS         | 0.5  | mg/kg <sup>^</sup> | UM      |               | 0.6              | 1.5              | <0.5             | 0.6              | 0.9              |
| Nickel as Ni                 | ICPMSS         | 2    | mg/kg <sup>^</sup> | UM      |               | 72.6             | 31.2             | 28.2             | 37.1             | 56.8             |
| Selenium as Se               | ICPMSS         | 0.5  | mg/kg <sup>^</sup> | UM      |               | <0.5             | <0.5             | <0.5             | <0.5             | <0.5             |

Analysis Results

| Analysis                     | Method Code | MDL  | Units              | Accred. | Sample ID     | 001              | 002              | 003              | 004              | 005              |
|------------------------------|-------------|------|--------------------|---------|---------------|------------------|------------------|------------------|------------------|------------------|
|                              |             |      |                    |         | Customer ID   | BH01/1-0-ES-0.30 | BH02/1-0-ES-0.20 | BH02/2-0-ES-0.60 | BH03/1-0-ES-0.40 | TP01/1-0-ES-0.40 |
|                              |             |      |                    |         | Sample Type   | SOLID            | SOLID            | SOLID            | SOLID            | SOLID            |
|                              |             |      |                    |         | Sampling Date | 20/07/2023       | 20/07/2023       | 20/07/2023       | 20/07/2023       | 19/07/2023       |
|                              |             |      |                    |         |               |                  |                  |                  |                  |                  |
| Total Chromium as Cr         | ICPMSS      | 1.2  | mg/kg <sup>^</sup> | UM      |               | 49.3             | 34.3             | 51.0             | 42.5             | 39.0             |
| Zinc as Zn                   | ICPMSS      | 16   | mg/kg <sup>^</sup> | UM      |               | 964.9            | 166.3            | 77.6             | 317.3            | 862.2            |
| Boron as B                   | ICPBOR      | 0.5  | mg/kg <sup>^</sup> | UM      |               | 3.2              | 1.7              | 3.0              | 1.7              | 2.3              |
| Acid Soluble Sulphate as SO4 | ICPACIDS    | 20   | mg/kg <sup>^</sup> | UM      |               | 2060             | 1040             | 425              | 618              | 1240             |
| Benzene<br>HS_1D_AR          | BTEXHSA     | 10   | µg/kg <sup>^</sup> | UM      |               | <11              | <12              |                  | <12              | <11              |
| Ethylbenzene<br>HS_1D_AR     | BTEXHSA     | 10   | µg/kg <sup>^</sup> | UM      |               | <11              | <12              |                  | <12              | <11              |
| m/p-Xylene<br>HS_1D_AR       | BTEXHSA     | 20   | µg/kg <sup>^</sup> | UM      |               | <23              | <25              |                  | <24              | <23              |
| o-Xylene<br>HS_1D_AR         | BTEXHSA     | 10   | µg/kg <sup>^</sup> | UM      |               | <11              | <12              |                  | <12              | <11              |
| Toluene<br>HS_1D_AR          | BTEXHSA     | 10   | µg/kg <sup>^</sup> | UM      |               | <11              | <12              |                  | <12              | <11              |
| Acenaphthene                 | PAHMSUS     | 0.08 | mg/kg <sup>^</sup> | UM      |               | <0.09            | <0.10            | <0.11            | <0.10            | <0.09            |
| Acenaphthylene               | PAHMSUS     | 0.08 | mg/kg <sup>^</sup> | U       |               | <0.09            | <0.10            | <0.11            | <0.10            | <0.09            |
| Anthracene                   | PAHMSUS     | 0.08 | mg/kg <sup>^</sup> | U       |               | 0.36             | 0.18             | <0.11            | 0.51             | 0.33             |
| Benzo[a]anthracene           | PAHMSUS     | 0.08 | mg/kg <sup>^</sup> | UM      |               | 1.00             | 0.51             | <0.11            | 1.31             | 0.73             |
| Benzo[a]pyrene               | PAHMSUS     | 0.08 | mg/kg <sup>^</sup> | UM      |               | 1.40             | 0.61             | <0.11            | 1.32             | 1.05             |
| Benzo[b]fluoranthene         | PAHMSUS     | 0.08 | mg/kg <sup>^</sup> | UM      |               | 1.39             | 0.50             | <0.11            | 1.34             | 1.14             |
| Benzo[g,h,i]perylene         | PAHMSUS     | 0.08 | mg/kg <sup>^</sup> | UM      |               | 0.96             | 0.42             | <0.11            | 0.80             | 0.79             |
| Benzo[k]fluoranthene         | PAHMSUS     | 0.08 | mg/kg <sup>^</sup> | UM      |               | 0.78             | 0.38             | <0.11            | 0.81             | 0.68             |
| Chrysene                     | PAHMSUS     | 0.08 | mg/kg <sup>^</sup> | UM      |               | 1.43             | 0.65             | <0.11            | 1.53             | 1.07             |
| Dibenzo[a,h]anthracene       | PAHMSUS     | 0.08 | mg/kg <sup>^</sup> | UM      |               | 0.24             | 0.11             | <0.11            | 0.21             | 0.19             |

Analysis Results

| Analysis               | Method Code | MDL  | Units              | Accred. | Sample ID     | 001                | 002              | 003              | 004              | 005              |
|------------------------|-------------|------|--------------------|---------|---------------|--------------------|------------------|------------------|------------------|------------------|
|                        |             |      |                    |         | Customer ID   | BH01/1-0-ES-0.30   | BH02/1-0-ES-0.20 | BH02/2-0-ES-0.60 | BH03/1-0-ES-0.40 | TP01/1-0-ES-0.40 |
|                        |             |      |                    |         | Sample Type   | SOLID              | SOLID            | SOLID            | SOLID            | SOLID            |
|                        |             |      |                    |         | Sampling Date | 20/07/2023         | 20/07/2023       | 20/07/2023       | 20/07/2023       | 19/07/2023       |
|                        |             |      |                    |         |               |                    |                  |                  |                  |                  |
| Fluoranthene           | PAHMSUS     | 0.08 | mg/kg <sup>^</sup> | UM      |               | 2.28               | 1.00             | <0.11            | 3.00             | 1.96             |
| Fluorene               | PAHMSUS     | 0.08 | mg/kg <sup>^</sup> | UM      |               | <0.09              | <0.10            | <0.11            | <0.10            | <0.09            |
| Indeno[1,2,3-cd]pyrene | PAHMSUS     | 0.08 | mg/kg <sup>^</sup> | UM      |               | 0.94               | 0.41             | <0.11            | 0.76             | 0.80             |
| Naphthalene            | PAHMSUS     | 0.08 | mg/kg <sup>^</sup> | UM      |               | <0.09              | <0.10            | <0.11            | <0.10            | <0.09            |
| Phenanthrene           | PAHMSUS     | 0.08 | mg/kg <sup>^</sup> | UM      |               | 0.67               | 0.35             | <0.11            | 1.22             | 0.58             |
| Pyrene                 | PAHMSUS     | 0.08 | mg/kg <sup>^</sup> | UM      |               | 2.42               | 1.02             | <0.11            | 3.03             | 1.95             |
| Total PAH 16           | PAHMSUS     | 1.28 | mg/kg <sup>^</sup> | U       |               | 14.2               | 6.52             | <1.74            | 16.2             | 11.6             |
| 1,2,4-Trichlorobenzene | SVOC SW     | 0.1  | mg/kg <sup>^</sup> | N       |               | <0.1               |                  |                  |                  |                  |
| 1,2-Dichlorobenzene    | SVOC SW     | 0.1  | mg/kg <sup>^</sup> | U       |               | <0.1               |                  |                  |                  |                  |
| 1,3-Dichlorobenzene    | SVOC SW     | 0.1  | mg/kg <sup>^</sup> | U       |               | <0.1               |                  |                  |                  |                  |
| 1,4-Dichlorobenzene    | SVOC SW     | 0.1  | mg/kg <sup>^</sup> | U       |               | <0.1               |                  |                  |                  |                  |
| 1-Methylnaphthalene    | SVOC SW     | 0.1  | mg/kg <sup>^</sup> | U       |               | 0.2                |                  |                  |                  |                  |
| 2,4,5-Trichlorophenol  | SVOC SW     | 0.1  | mg/kg <sup>^</sup> | U       |               | <0.1               |                  |                  |                  |                  |
| 2,4,6-Trichlorophenol  | SVOC SW     | 0.1  | mg/kg <sup>^</sup> | U       |               | <0.1               |                  |                  |                  |                  |
| 2,4-Dichlorophenol     | SVOC SW     | 0.1  | mg/kg <sup>^</sup> | U       |               | <0.1               |                  |                  |                  |                  |
| 2,4-Dimethylphenol     | SVOC SW     | 0.1  | mg/kg <sup>^</sup> | U       |               | <0.1* <sub>B</sub> |                  |                  |                  |                  |
| 2,4-Dinitrophenol      | SVOC SW     | 0.5  | mg/kg <sup>^</sup> | N       |               | <0.6               |                  |                  |                  |                  |
| 2,4-Dinitrotoluene     | SVOC SW     | 0.2  | mg/kg <sup>^</sup> | U       |               | <0.2               |                  |                  |                  |                  |
| 2,6-Dinitrotoluene     | SVOC SW     | 0.5  | mg/kg <sup>^</sup> | U       |               | <0.6               |                  |                  |                  |                  |

Analysis Results

| Analysis                   | Method Code | MDL | Units              | Accred. | Sample ID     | 001              | 002              | 003              | 004              | 005              |
|----------------------------|-------------|-----|--------------------|---------|---------------|------------------|------------------|------------------|------------------|------------------|
|                            |             |     |                    |         | Customer ID   | BH01/1-0-ES-0.30 | BH02/1-0-ES-0.20 | BH02/2-0-ES-0.60 | BH03/1-0-ES-0.40 | TP01/1-0-ES-0.40 |
|                            |             |     |                    |         | Sample Type   | SOLID            | SOLID            | SOLID            | SOLID            | SOLID            |
|                            |             |     |                    |         | Sampling Date | 20/07/2023       | 20/07/2023       | 20/07/2023       | 20/07/2023       | 19/07/2023       |
|                            |             |     |                    |         |               |                  |                  |                  |                  |                  |
| 2-Chloronaphthalene        | SVOC SW     | 0.1 | mg/kg <sup>^</sup> | U       |               | <0.1             |                  |                  |                  |                  |
| 2-Chlorophenol             | SVOC SW     | 0.1 | mg/kg <sup>^</sup> | U       |               | <0.1             |                  |                  |                  |                  |
| 2-Methylnaphthalene        | SVOC SW     | 0.1 | mg/kg <sup>^</sup> | U       |               | 0.2              |                  |                  |                  |                  |
| 2-Methylphenol             | SVOC SW     | 0.1 | mg/kg <sup>^</sup> | U       |               | <0.1             |                  |                  |                  |                  |
| 2-Nitroaniline             | SVOC SW     | 0.5 | mg/kg <sup>^</sup> | N       |               | <0.6             |                  |                  |                  |                  |
| 2-Nitrophenol              | SVOC SW     | 0.1 | mg/kg <sup>^</sup> | U       |               | <0.1             |                  |                  |                  |                  |
| 3- & 4-Methylphenol        | SVOC SW     | 0.1 | mg/kg <sup>^</sup> | U       |               | <0.1             |                  |                  |                  |                  |
| 3-Nitroaniline             | SVOC SW     | 0.5 | mg/kg <sup>^</sup> | N       |               | <0.6             |                  |                  |                  |                  |
| 4,6-Dinitro-2-methylphenol | SVOC SW     | 0.2 | mg/kg <sup>^</sup> | N       |               | <0.2             |                  |                  |                  |                  |
| 4-Bromophenyl-phenylether  | SVOC SW     | 0.1 | mg/kg <sup>^</sup> | U       |               | <0.1             |                  |                  |                  |                  |
| 4-Chloro-3-methylphenol    | SVOC SW     | 0.1 | mg/kg <sup>^</sup> | U       |               | <0.1             |                  |                  |                  |                  |
| 4-Chloroaniline            | SVOC SW     | 0.5 | mg/kg <sup>^</sup> | N       |               | 1.1              |                  |                  |                  |                  |
| 4-Chlorophenol             | SVOC SW     | 0.5 | mg/kg <sup>^</sup> | U       |               | <0.6             |                  |                  |                  |                  |
| 4-Chlorophenyl-phenylether | SVOC SW     | 0.1 | mg/kg <sup>^</sup> | U       |               | <0.1             |                  |                  |                  |                  |
| 4-Nitroaniline             | SVOC SW     | 0.6 | mg/kg <sup>^</sup> | N       |               | <0.7             |                  |                  |                  |                  |
| 4-Nitrophenol              | SVOC SW     | 0.5 | mg/kg <sup>^</sup> | N       |               | <0.6             |                  |                  |                  |                  |
| Acenaphthene               | SVOC SW     | 0.1 | mg/kg <sup>^</sup> | U       |               | <0.1             |                  |                  |                  |                  |
| Acenaphthylene             | SVOC SW     | 0.1 | mg/kg <sup>^</sup> | U       |               | 0.5              |                  |                  |                  |                  |
| Anthracene                 | SVOC SW     | 0.1 | mg/kg <sup>^</sup> | U       |               | 0.2              |                  |                  |                  |                  |

Analysis Results

| Analysis                    | Method Code | MDL | Units              | Accred. | Sample ID     | 001                | 002              | 003              | 004              | 005              |
|-----------------------------|-------------|-----|--------------------|---------|---------------|--------------------|------------------|------------------|------------------|------------------|
|                             |             |     |                    |         | Customer ID   | BH01/1-0-ES-0.30   | BH02/1-0-ES-0.20 | BH02/2-0-ES-0.60 | BH03/1-0-ES-0.40 | TP01/1-0-ES-0.40 |
|                             |             |     |                    |         | Sample Type   | SOLID              | SOLID            | SOLID            | SOLID            | SOLID            |
|                             |             |     |                    |         | Sampling Date | 20/07/2023         | 20/07/2023       | 20/07/2023       | 20/07/2023       | 19/07/2023       |
|                             |             |     |                    |         |               |                    |                  |                  |                  |                  |
| Azobenzene                  | SVOC SW     | 0.3 | mg/kg <sup>^</sup> | N       |               | <0.3               |                  |                  |                  |                  |
| Benzo[a]anthracene          | SVOC SW     | 0.2 | mg/kg <sup>^</sup> | U       |               | 0.8                |                  |                  |                  |                  |
| Benzo[a]pyrene              | SVOC SW     | 0.2 | mg/kg <sup>^</sup> | U       |               | 1.0                |                  |                  |                  |                  |
| Benzo[b]fluoranthene        | SVOC SW     | 0.2 | mg/kg <sup>^</sup> | U       |               | 1.2                |                  |                  |                  |                  |
| Benzo[g,h,i]perylene        | SVOC SW     | 0.5 | mg/kg <sup>^</sup> | U       |               | 0.7                |                  |                  |                  |                  |
| Benzo[k]fluoranthene        | SVOC SW     | 0.2 | mg/kg <sup>^</sup> | U       |               | 0.4                |                  |                  |                  |                  |
| Benzoic Acid                | SVOC SW     | 0.5 | mg/kg <sup>^</sup> | N       |               | <0.6               |                  |                  |                  |                  |
| Benzyl alcohol              | SVOC SW     | 0.5 | mg/kg <sup>^</sup> | U       |               | <0.6* <sub>B</sub> |                  |                  |                  |                  |
| Biphenyl                    | SVOC SW     | 0.1 | mg/kg <sup>^</sup> | U       |               | <0.1               |                  |                  |                  |                  |
| bis(2-Chloroethoxy)methane  | SVOC SW     | 0.1 | mg/kg <sup>^</sup> | U       |               | <0.1               |                  |                  |                  |                  |
| bis(2-Chloroethyl)ether     | SVOC SW     | 0.1 | mg/kg <sup>^</sup> | U       |               | <0.1               |                  |                  |                  |                  |
| bis(2-Chloroisopropyl)ether | SVOC SW     | 0.5 | mg/kg <sup>^</sup> | U       |               | <0.6               |                  |                  |                  |                  |
| bis(2-Ethylhexyl)phthalate  | SVOC SW     | 0.2 | mg/kg <sup>^</sup> | U       |               | <0.2               |                  |                  |                  |                  |
| Butylbenzylphthalate        | SVOC SW     | 0.2 | mg/kg <sup>^</sup> | U       |               | <0.2               |                  |                  |                  |                  |
| Carbazole                   | SVOC SW     | 0.3 | mg/kg <sup>^</sup> | N       |               | <0.3               |                  |                  |                  |                  |
| Chrysene                    | SVOC SW     | 0.2 | mg/kg <sup>^</sup> | U       |               | 0.8                |                  |                  |                  |                  |
| Coronene                    | SVOC SW     | 0.3 | mg/kg <sup>^</sup> | N       |               | <0.3               |                  |                  |                  |                  |
| Dibenzo[a,h]anthracene      | SVOC SW     | 0.5 | mg/kg <sup>^</sup> | U       |               | <0.6               |                  |                  |                  |                  |
| Dibenzofuran                | SVOC SW     | 0.1 | mg/kg <sup>^</sup> | U       |               | <0.1               |                  |                  |                  |                  |

Analysis Results

| Analysis                   | Method Code | MDL | Units              | Accred. | Sample ID     | 001              | 002              | 003              | 004              | 005              |
|----------------------------|-------------|-----|--------------------|---------|---------------|------------------|------------------|------------------|------------------|------------------|
|                            |             |     |                    |         | Customer ID   | BH01/1-0-ES-0.30 | BH02/1-0-ES-0.20 | BH02/2-0-ES-0.60 | BH03/1-0-ES-0.40 | TP01/1-0-ES-0.40 |
|                            |             |     |                    |         | Sample Type   | SOLID            | SOLID            | SOLID            | SOLID            | SOLID            |
|                            |             |     |                    |         | Sampling Date | 20/07/2023       | 20/07/2023       | 20/07/2023       | 20/07/2023       | 19/07/2023       |
|                            |             |     |                    |         |               |                  |                  |                  |                  |                  |
| Diethylphthalate           | SVOC SW     | 0.1 | mg/kg <sup>^</sup> | U       |               | <0.1             |                  |                  |                  |                  |
| Dimethylphthalate          | SVOC SW     | 0.1 | mg/kg <sup>^</sup> | U       |               | <0.1             |                  |                  |                  |                  |
| Di-n-butylphthalate        | SVOC SW     | 0.1 | mg/kg <sup>^</sup> | U       |               | 0.2              |                  |                  |                  |                  |
| Di-n-octylphthalate        | SVOC SW     | 0.2 | mg/kg <sup>^</sup> | U       |               | <0.2             |                  |                  |                  |                  |
| Diphenyl ether             | SVOC SW     | 0.1 | mg/kg <sup>^</sup> | U       |               | <0.1             |                  |                  |                  |                  |
| Fluoranthene               | SVOC SW     | 0.2 | mg/kg <sup>^</sup> | U       |               | 1.5              |                  |                  |                  |                  |
| Fluorene                   | SVOC SW     | 0.2 | mg/kg <sup>^</sup> | U       |               | <0.2             |                  |                  |                  |                  |
| Hexachlorobenzene          | SVOC SW     | 0.1 | mg/kg <sup>^</sup> | U       |               | <0.1             |                  |                  |                  |                  |
| Hexachlorobutadiene        | SVOC SW     | 0.1 | mg/kg <sup>^</sup> | N       |               | <0.1             |                  |                  |                  |                  |
| Hexachlorocyclopentadiene  | SVOC SW     | 0.1 | mg/kg <sup>^</sup> | N       |               | <0.1             |                  |                  |                  |                  |
| Hexachloroethane           | SVOC SW     | 0.1 | mg/kg <sup>^</sup> | U       |               | <0.1             |                  |                  |                  |                  |
| Indeno[1,2,3-cd]pyrene     | SVOC SW     | 0.5 | mg/kg <sup>^</sup> | U       |               | 0.8              |                  |                  |                  |                  |
| Isophorone                 | SVOC SW     | 0.1 | mg/kg <sup>^</sup> | N       |               | <0.1             |                  |                  |                  |                  |
| Naphthalene                | SVOC SW     | 0.1 | mg/kg <sup>^</sup> | U       |               | 1.0              |                  |                  |                  |                  |
| Nitrobenzene               | SVOC SW     | 0.5 | mg/kg <sup>^</sup> | U       |               | <0.6             |                  |                  |                  |                  |
| N-Nitroso-di-n-propylamine | SVOC SW     | 0.9 | mg/kg <sup>^</sup> | N       |               | <1.0             |                  |                  |                  |                  |
| N-Nitrosodiphenylamine     | SVOC SW     | 0.1 | mg/kg <sup>^</sup> | N       |               | <0.1             |                  |                  |                  |                  |
| Pentachlorophenol          | SVOC SW     | 0.5 | mg/kg <sup>^</sup> | N       |               | <0.6             |                  |                  |                  |                  |
| Phenanthrene               | SVOC SW     | 0.1 | mg/kg <sup>^</sup> | U       |               | 0.8              |                  |                  |                  |                  |

Analysis Results

| Analysis                                     | Method Code          | MDL   | Units              | Accred. | Sample ID     | 001              | 002              | 003              | 004              | 005              |
|----------------------------------------------|----------------------|-------|--------------------|---------|---------------|------------------|------------------|------------------|------------------|------------------|
|                                              |                      |       |                    |         | Customer ID   | BH01/1-0-ES-0.30 | BH02/1-0-ES-0.20 | BH02/2-0-ES-0.60 | BH03/1-0-ES-0.40 | TP01/1-0-ES-0.40 |
|                                              |                      |       |                    |         | Sample Type   | SOLID            | SOLID            | SOLID            | SOLID            | SOLID            |
|                                              |                      |       |                    |         | Sampling Date | 20/07/2023       | 20/07/2023       | 20/07/2023       | 20/07/2023       | 19/07/2023       |
|                                              |                      |       |                    |         |               |                  |                  |                  |                  |                  |
| Phenol                                       | SVOC SW              | 0.1   | mg/kg <sup>^</sup> | U       |               | <0.1             |                  |                  |                  |                  |
| Pyrene                                       | SVOC SW              | 0.2   | mg/kg <sup>^</sup> | U       |               | 1.4              |                  |                  |                  |                  |
| >C10-C40<br>EH_1D_Total                      | TPHFIDUS             | 10    | mg/kg <sup>^</sup> | U       |               |                  |                  | 18.7             |                  |                  |
| >C10-C12 (Aliphatic)<br>EH_CU_1D_AL          | TPHFIDUS (Aliphatic) | 4     | mg/kg <sup>^</sup> | U       |               | <4.52            | <4.96            |                  | <4.85            | <4.52            |
| >C12-C16 (Aliphatic)<br>EH_CU_1D_AL          | TPHFIDUS (Aliphatic) | 4     | mg/kg <sup>^</sup> | U       |               | <4.52            | <4.96            |                  | <4.85            | <4.52            |
| >C16-C21 (Aliphatic)<br>EH_CU_1D_AL          | TPHFIDUS (Aliphatic) | 4     | mg/kg <sup>^</sup> | U       |               | <4.52            | <4.96            |                  | <4.85            | <4.52            |
| >C21-C35 (Aliphatic)<br>EH_CU_1D_AL          | TPHFIDUS (Aliphatic) | 10    | mg/kg <sup>^</sup> | U       |               | 30.4             | <12.4            |                  | 26.5             | 19.0             |
| >C35-C44 (Aliphatic)<br>EH_CU_1D_AL          | TPHFIDUS (Aliphatic) | 6     | mg/kg <sup>^</sup> | N       |               | 7.55             | <7.43            |                  | <7.27            | <6.78            |
| Total TPH >C8-C40 (Aliphatic)<br>EH_CU_1D_AL | TPHFIDUS (Aliphatic) | 20    | mg/kg <sup>^</sup> | U       |               | 46.6             | <24.8            |                  | 38.3             | 24.3             |
| >C10-C12 (Aromatic)<br>EH_CU_1D_AR           | TPHFIDUS (Aromatic)  | 4     | mg/kg <sup>^</sup> | U       |               | <4.52            | <4.96            |                  | <4.85            | <4.52            |
| >C12-C16 (Aromatic)<br>EH_CU_1D_AR           | TPHFIDUS (Aromatic)  | 4     | mg/kg <sup>^</sup> | U       |               | <4.52            | <4.96            |                  | <4.85            | <4.52            |
| >C16-C21 (Aromatic)<br>EH_CU_1D_AR           | TPHFIDUS (Aromatic)  | 4     | mg/kg <sup>^</sup> | U       |               | 8.74             | <4.96            |                  | 11.5             | 5.00             |
| >C21-C35 (Aromatic)<br>EH_CU_1D_AR           | TPHFIDUS (Aromatic)  | 10    | mg/kg <sup>^</sup> | U       |               | 80.4             | 33.0             |                  | 79.9             | 59.4             |
| >C35-C44 (Aromatic)<br>EH_CU_1D_AR           | TPHFIDUS (Aromatic)  | 6     | mg/kg <sup>^</sup> | N       |               | 18.6             | 8.75             |                  | 17.0             | 16.0             |
| Total TPH >C8-C40 (Aromatic)<br>EH_CU_1D_AR  | TPHFIDUS (Aromatic)  | 20    | mg/kg <sup>^</sup> | U       |               | 108              | 49.2             |                  | 108              | 78.6             |
| Total Moisture at 35°C                       | CLANDPREP            | 0.1   | %                  | N       |               | 11.6             | 19.3             | 26.3             | 17.5             | 11.5             |
| Description of Solid Material                | CLANDPREP            |       | -                  | N       |               | MADE GROUND      | CLAY             | CLAY             | CLAY             | MADE GROUND      |
| Asbestos Identification                      | SUB002               |       | -                  | N       |               | CH               | NAIIS            | NAIIS            | NAIIS            | CH               |
| Asbestos Stage 2                             | SUB002               | 0.001 | %                  | N       |               | <0.001           |                  |                  |                  | <0.001           |



Client: STM ENVIRONMENTAL  
Project Name: STM-145-147 Downhill  
Project No: 23072708  
Date Issued: 02/08/2023

### Deviating Sample Report

All samples received in an appropriate condition with no deviancies noted with the samples.

### Analysis Method

| <u>Method Code</u>   | <u>Method Description</u>                           | <u>Analysis Method</u> |
|----------------------|-----------------------------------------------------|------------------------|
| BTEXHSA              | BTEX by GCFID                                       | As Received            |
| CLANDPREP            | Basic Solid Description                             | As Received            |
| CLANDPREP            | DW35 - CLand Prep and Dry Weight Correction to 35°C | As Received            |
| GROHSA/BTEXHSA       | GRO CWG UK (C5-C10) Ali/Aro Split                   | As Received            |
| ICPACIDS             | Sulphate as SO <sub>4</sub> (Acid Soluble)          | Air Dried & Ground     |
| ICPBOR               | Boron (Water Soluble) by ICPOES                     | Air Dried & Ground     |
| ICPMSS               | Arsenic in Solids by ICPMS                          | Air Dried & Ground     |
| ICPMSS               | Cadmium in Solids by ICPMS                          | Air Dried & Ground     |
| ICPMSS               | Chromium in Solids by ICPMS                         | Air Dried & Ground     |
| ICPMSS               | Copper in Solids by ICPMS                           | Air Dried & Ground     |
| ICPMSS               | Lead in Solids by ICPMS                             | Air Dried & Ground     |
| ICPMSS               | Mercury in Solids by ICPMS                          | Air Dried & Ground     |
| ICPMSS               | Nickel in Solids by ICPMS                           | Air Dried & Ground     |
| ICPMSS               | Selenium in Solids by ICPMS                         | Air Dried & Ground     |
| ICPMSS               | Zinc in Solids by ICPMS                             | Air Dried & Ground     |
| PAHMSUS              | 16 PAHs by GCMS                                     | As Received            |
| PHSOIL               | pH (2.5:1)                                          | As Received            |
| SFAPI                | Cyanide (Total) by SFA                              | As Received            |
| SFAPI                | Phenol Index (Total) by SFA                         | As Received            |
| SFAPI                | Sulphide by SFA                                     | As Received            |
| SUB002               | Asbestos Stage 1 (with Stage 2 Trigger)             |                        |
| SUB002               | Asbestos Stage 2: Quantification                    |                        |
| SVOCSW               | SVOCs (Target List) by GCMS                         | As Received            |
| TPHFIDUS             | TPH (>C10-C40) Total                                | As Received            |
| TPHFIDUS (Aliphatic) | TPH (CWG UK) Aliphatic Split with Carbon Banding    | As Received            |
| TPHFIDUS (Aromatic)  | TPH (CWG UK) Aromatic Split with Carbon Banding     | As Received            |
| WSLM59               | TOC: Total Organic Carbon                           | Air Dried & Ground     |



Client: STM ENVIRONMENTAL  
Project Name: STM-145-147 Downhill  
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Date Issued: 02/08/2023

### Result Report Notes

Letters alongside results signify that the result has associated report notes.  
The report notes are as follows:

| <u>Letter</u> | <u>Note</u>                                                                                                                                                                                                                                                                                                                  |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A             | Due to the matrix of the sample the laboratory has had to deviate from our standard protocols to be able to process the sample and provide a result. Where applicable the accreditation has been removed and this should be taken into consideration when utilising the data.                                                |
| B             | The QC associated with this result has not wholly met the QMS requirements, the accreditation has therefore been removed. However, the Laboratory has confidence in the performance of the method as a whole and that the integrity of the data has not been significantly compromised.                                      |
| C             | Due to matrix interference, the internal standard and/or surrogate has not met the QMS requirements. This should be taken into consideration when utilising the data.                                                                                                                                                        |
| D             | A non-standard volume or mass has been used for this test which has resulted in a raised detection limit.                                                                                                                                                                                                                    |
| E             | Due to the parameter value being beyond our calibration range (and following the maximum size of dilution allowed, where applicable), the result cannot be quantified and as such the result will appear as a greater than symbol (>) with the accreditation removed. This data should be used for indicative purposes only. |
| F             | Based on the sample history, appearance and smell a dilution was applied prior to testing. Unfortunately, the result is either above (>) or below (<) our calibration range. Results above our calibration range have accreditation removed. The data should be used for indicative purposes only.                           |
| G             | The day 5 oxygen reading was below the capability of the instrument to detect, and therefore the calculated BOD has been reported unaccredited for guidance purposes only.                                                                                                                                                   |

### HWOL Acronym Key

| <u>Acronym</u> | <u>Description</u>                                                    |
|----------------|-----------------------------------------------------------------------|
| HS             | Headspace Analysis                                                    |
| EH             | Extractable Hydrocarbons - i.e everything extracted by the solvent(s) |
| CU             | Clean up - e.g. by florisil, silica gel                               |
| 1D             | GC - Single coil gas chromatography                                   |
| Total          | Aliphatics & Aromatics                                                |
| AL             | Aliphatics only                                                       |
| AR             | Aromatics only                                                        |
| +              | Operator to indicate cumulative e.g. EH_CU+HS_1D_Total                |



Client: STM ENVIRONMENTAL  
Project Name: STM-145-147 Downhill  
Project No: 23072708  
Date Issued: 02/08/2023

### Additional Information

This report refers to samples as received. SOCOTEC UK Ltd takes no responsibility for accuracy or competence of sampling by others.

Results within this report relate only to the samples tested.

The accreditation codes are as follows:

- U = UKAS accredited analysis
- M = MCERT accredited analysis
- N = Unaccredited analysis

Any units marked with ^ signify results are reported on a dry weight basis of 35° c.

All Air Dried and Ground Samples (ADG) are oven dried at less than 35° c.

This report shall not be reproduced except in full, without written approval of the laboratory.

Opinions and interpretations given are outside the scope of our UKAS accreditation.

Any samples marked with \* are not covered by our scope of UKAS accreditation. If applicable, further report notes have been added.

Any solid samples where the Major Constituents are not one of the following ( Sand, Silt, Clay, Made Ground) are not one of our accredited matrix types.

Any samples marked with ‡ have had MCERTS accreditation removed for this result

Any samples marked with a tick in the deviant table is deviant for the specific reason.

Any samples reported as IS, NA, ND mean the following:

- IS = Insufficient Sample to complete analysis
- NA = Sample is not amenable for the required analysis
- ND = Results cannot be determined

Items listed with a 'SUB' method code prefix have been carried out by an external subcontracted laboratory.

Our deviating sample report does not include deviancy information for Subcontracted analysis. Please see the report from the subcontracted lab for information regarding any deviancies for this analysis.

Summaries of analysis methods are available upon request.

## **End of Certificate of Analysis**

## 12.6 Appendix 6 – Chosen Generic Assessment Criteria

### 12.6.1 Soils Criteria

| Residential With Home-grown Produce (RWHP) - 2.5% Organic Matter |                       |                    |
|------------------------------------------------------------------|-----------------------|--------------------|
| Contaminant                                                      | Concentration (mg/kg) | Source             |
| <b>Heavy Metals</b>                                              |                       |                    |
| Arsenic                                                          | 37                    | CAT4               |
| Cadmium                                                          | 11                    | LQM SULs RWHP 2.5% |
| Chromium                                                         | 910                   | LQM SULs RWHP 2.5% |
| Chromium - Hexavalent                                            | 6                     | LQM SULs RWHP 2.5% |
| Copper                                                           | 2400                  | LQM SULs RWHP 2.5% |
| Lead                                                             | 200                   | LQM SULs RWHP 2.5% |
| Mercury                                                          | 40                    | LQM SULs RWHP 2.5% |
| Nickel                                                           | 180                   | LQM SULs RWHP 2.5% |
| Selenium                                                         | 250                   | LQM SULs RWHP 2.5% |
| Zinc                                                             | 3700                  | LQM SULs RWHP 2.5% |
| <b>VOCs</b>                                                      |                       |                    |
| Toluene                                                          | 290                   | LQM SULs RWHP 2.5% |
| Benzene                                                          | 0.17                  | LQM SULs RWHP 2.5% |
| Ethylbenzene                                                     | 110                   | LQM SULs RWHP 2.5% |
| m,p xylenes                                                      | 130                   | LQM SULs RWHP 2.5% |
| <b>PAHs</b>                                                      |                       |                    |
| Acenaphthylene                                                   | 420                   | LQM SULs RWHP 2.5% |
| Acenaphthene                                                     | 510                   | LQM SULs RWHP 2.5% |
| Fluorene                                                         | 400                   | LQM SULs RWHP 2.5% |
| Phenanthrene                                                     | 220                   | LQM SULs RWHP 2.5% |
| Anthracene                                                       | 5400                  | LQM SULs RWHP 2.5% |
| Fluoranthene                                                     | 560                   | LQM SULs RWHP 2.5% |
| Pyrene                                                           | 1200                  | LQM SULs RWHP 2.5% |
| Benzo(a)anthracene                                               | 11                    | LQM SULs RWHP 2.5% |
| Chrysene                                                         | 22                    | LQM SULs RWHP 2.5% |
| Benzo (b) fluoranthene                                           | 3.3                   | LQM SULs RWHP 2.5% |
| Benzo(k)fluoranthene                                             | 93                    | LQM SULs RWHP 2.5% |
| Benzo(a)pyrene                                                   | 2.4                   | CAT4               |
| Dibenz-a-h-anthracene                                            | 0.28                  | LQM SULs RWHP 2.5% |
| Indeno(1,2,3-cd)pyrene                                           | 36                    | LQM SULs RWHP 2.5% |
| Benzo (g,h,i) perylene                                           | 340                   | LQM SULs RWHP 2.5% |
| Napthalene                                                       | 5.6                   | LQM SULs RWHP 2.5% |
| <b>Petroleum Hydrocarbons - TPH (CWG)</b>                        |                       |                    |
| Aliphatics >C5-6                                                 | 78                    | LQM SULs RWHP 2.5% |
| Aliphatics >C6-8                                                 | 230                   | LQM SULs RWHP 2.5% |

| Residential With Home-grown Produce (RWHP) - 2.5% Organic Matter |                          |                    |
|------------------------------------------------------------------|--------------------------|--------------------|
| Contaminant                                                      | Concentration<br>(mg/kg) | Source             |
| Aliphatics >C8-10                                                | 65                       | LQM SULs RWHP 2.5% |
| Aliphatics >C10-12                                               | 330                      | LQM SULs RWHP 2.5% |
| Aliphatics >C12-16                                               | 2400                     | LQM SULs RWHP 2.5% |
| Aliphatics >C16-C35                                              | 92000                    | LQM SULs RWHP 2.5% |
| Aliphatics >C21-35                                               | 1500                     | LQM SULs RWHP 2.5% |
| Aliphatics >C35-44                                               | 92000                    | LQM SULs RWHP 2.5% |
| Aromatics >C5-7                                                  | 140                      | LQM SULs RWHP 2.5% |
| Aromatics >C8-10                                                 | 83                       | LQM SULs RWHP 2.5% |
| Aromatics >C10-12                                                | 180                      | LQM SULs RWHP 2.5% |
| Aromatics >C12-16                                                | 330                      | LQM SULs RWHP 2.5% |
| Aromatics >C16-21                                                | 540                      | LQM SULs RWHP 2.5% |
| Aromatics >C16-21                                                | 1500                     | LQM SULs RWHP 2.5% |
| Aromatics >C35-44                                                | 1500                     | LQM SULs RWHP 2.5% |

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LQM SULs RWHP 2.5% - LQM Suitable for Use Levels - Residential With Home-grown Produce (RWHP) – 2.5% Organic Matter) CAT4 – Category 4 Screening Levels

## 12.7 Appendix 7 – Exceedances and Statistical Analysis Summary

DRAFT - NOT FOR DISTRIBUTION

| Contaminant | Sample ID | Sample Depths (mgb) | Actual Measured Concentration (mg/kg) | GAC Value (mg/kg) | GAC Source                                                         |
|-------------|-----------|---------------------|---------------------------------------|-------------------|--------------------------------------------------------------------|
| Arsenic     | BH01/1    | 0.3                 | 50.6                                  | 37                | Category 4 Screening Levels - Residential (with homegrown produce) |
| Lead        | BH01/1    | 0.3                 | 1301                                  | 200               | LQM Suitable for Use Levels - Residential (With Plant Uptake)      |
| Lead        | BH02/1    | 0.2                 | 316.5                                 | 200               | LQM Suitable for Use Levels - Residential (With Plant Uptake)      |
| Lead        | BH03/1    | 0.4                 | 333.7                                 | 200               | LQM Suitable for Use Levels - Residential (With Plant Uptake)      |
| Lead        | TP01/1    | 0.4                 | 784.2                                 | 200               | LQM Suitable for Use Levels - Residential (With Plant Uptake)      |

| Parameter              | GAC  | GAC Source                                                                          | No. Samples | Mean  | Maximum | Outliers Excluded | Max. Value Location | Mean Exceedence | Std Deviation | Non-Detects | W_Shapir o-Wilk | W_Critical | Distribution | T Statistic | Upper 95th percentile (US95) | Mean Value Test Result | Max Value Test Result  | One Sample T Test - T0 | One Sample T Test - Tn | One Sample T Test Result             | One Sample T Evidence Level (%) | Krit- Chebychev | UCL05- Chebychev | K0- Chebychev | Chebychev Test Result         | Chebychev Evidence Level (%) | Samples Exceeding GAC          |
|------------------------|------|-------------------------------------------------------------------------------------|-------------|-------|---------|-------------------|---------------------|-----------------|---------------|-------------|-----------------|------------|--------------|-------------|------------------------------|------------------------|------------------------|------------------------|------------------------|--------------------------------------|---------------------------------|-----------------|------------------|---------------|-------------------------------|------------------------------|--------------------------------|
| Aliphatics <C6-8       | 230  | LQM Suitable for Use Levels - Residential (With Plant Uptake - 2.5% Organic Matter) | 4           | 0     | 0       | 0                 | N/A                 | No              | 0             | 4           | 0               | 0          | N/A          | 2.353       | 0                            | N/A                    | N/A                    | N/A                    | N/A                    | N/A                                  | 51                              | 4.36            | 0                | 0             | Reject H0 (k0 < kcrit)        | 0                            | None                           |
| Aliphatics >C8-10      | 65   | LQM Suitable for Use Levels - Residential (With Plant Uptake - 2.5% Organic Matter) | 4           | 0     | 0       | 0                 | N/A                 | No              | 0             | 4           | 0               | 0          | N/A          | 2.353       | 0                            | N/A                    | N/A                    | N/A                    | N/A                    | N/A                                  | 51                              | 4.36            | 0                | 0             | Reject H0 (k0 < kcrit)        | 0                            | None                           |
| Aromatics >C8-10       | 83   | LQM Suitable for Use Levels - Residential (With Plant Uptake - 2.5% Organic Matter) | 4           | 0     | 0       | 0                 | N/A                 | No              | 0             | 4           | 0               | 0          | N/A          | 2.353       | 0                            | N/A                    | N/A                    | N/A                    | N/A                    | N/A                                  | 51                              | 4.36            | 0                | 0             | Reject H0 (k0 < kcrit)        | 0                            | None                           |
| Aliphatics <C5-6       | 78   | LQM Suitable for Use Levels - Residential (With Plant Uptake - 2.5% Organic Matter) | 4           | 0     | 0       | 0                 | N/A                 | No              | 0             | 4           | 0               | 0          | N/A          | 2.353       | 0                            | N/A                    | N/A                    | N/A                    | N/A                    | N/A                                  | 51                              | 4.36            | 0                | 0             | Reject H0 (k0 < kcrit)        | 0                            | None                           |
| Aromatics >C5-7        | 140  | LQM Suitable for Use Levels - Residential (With Plant Uptake - 2.5% Organic Matter) | 4           | 0     | 0       | 0                 | N/A                 | No              | 0             | 4           | 0               | 0          | N/A          | 2.353       | 0                            | N/A                    | N/A                    | N/A                    | N/A                    | N/A                                  | 51                              | 4.36            | 0                | 0             | Reject H0 (k0 < kcrit)        | 0                            | None                           |
| Arsenic                | 37   | Category 4 Screening Levels - Residential (with homegrown produce)                  | 5           | 26.9  | 50.6    | 0                 | BH01/1              | No              | 15.07         | 0           | 0.9375          | 0.762      | Normal       | 2.132       | 41.2656                      | FAILED                 | Max. Value NOT Outlier | -1.499                 | -2.015                 | DO NOT reject H0 (t0 > t(n-1, 0.95)) | 90                              | 4.36            | 56.2781187       | -1.498939     | DO NOT reject H0 (k0 > kcrit) | 69                           | BH01/1                         |
| Cadmium                | 11   | LQM Suitable for Use Levels - Residential (With Plant Uptake)                       | 5           | 0.96  | 2.4     | 0                 | TP01/1              | No              | 0.88          | 0           | 0.8754          | 0.762      | Normal       | 2.132       | 1.8037                       | PASSED                 | Max. Value is Outlier  | -25.371                | -2.015                 | Reject H0 t0 < t(n-1, 0.95)          | 99.5                            | 4.36            | 2.6853705        | -25.37101     | Reject H0 (k0 < kcrit)        | 99                           | None                           |
| Copper                 | 2400 | LQM Suitable for Use Levels - Residential (With Plant Uptake)                       | 5           | 367.3 | 907.3   | 0                 | TP01/1              | No              | 416.96        | 0           | 0.8024          | 0.762      | Normal       | 2.132       | 764.8356                     | PASSED                 | Max. Value NOT Outlier | -10.901                | -2.015                 | Reject H0 t0 < t(n-1, 0.95)          | 99.5                            | 4.36            | 1180.29248       | -10.90101     | Reject H0 (k0 < kcrit)        | 99                           | None                           |
| Lead                   | 200  | LQM Suitable for Use Levels - Residential (With Plant Uptake)                       | 5           | 552.9 | 1301    | 0                 | BH01/1              | YES             | 497.81        | 0           | 0.9266          | 0.762      | Normal       | 2.132       | 1027.5779                    | FAILED                 | Max. Value NOT Outlier | 1.585                  | -2.015                 | DO NOT reject H0 (t0 > t(n-1, 0.95)) | 51                              | 4.36            | 1523.58796       | 1.5853517     | DO NOT reject H0 (k0 > kcrit) | 0                            | BH01/1, BH02/1, BH03/1, TP01/1 |
| Mercury                | 40   | LQM Suitable for Use Levels - Residential (With Plant Uptake)                       | 5           | 0.72  | 1.5     | 0                 | BH02/1              | No              | 0.54          | 1           | 0.9634          | 0.762      | Normal       | 2.132       | 1.2396                       | PASSED                 | Max. Value NOT Outlier | -161.168               | -2.015                 | Reject H0 t0 < t(n-1, 0.95)          | 99.5                            | 4.36            | 1.78262422       | -161.1678     | Reject H0 (k0 < kcrit)        | 99                           | None                           |
| Nickel                 | 130  | LQM Suitable for Use Levels - Residential (With Plant Uptake)                       | 5           | 45.18 | 72.6    | 0                 | BH01/1              | No              | 18.95         | 0           | 0.8874          | 0.762      | Normal       | 2.132       | 63.245                       | PASSED                 | Max. Value NOT Outlier | -10.01                 | -2.015                 | Reject H0 t0 < t(n-1, 0.95)          | 99.5                            | 4.36            | 82.1234818       | -10.0103      | Reject H0 (k0 < kcrit)        | 99                           | None                           |
| Selenium               | 250  | LQM Suitable for Use Levels - Residential (With Plant Uptake)                       | 5           | 0     | 0       | 0                 | N/A                 | No              | 0             | 5           | 0.8874          | 0.762      | N/A          | 2.132       | 0                            | N/A                    | N/A                    | N/A                    | N/A                    | N/A                                  | 99.5                            | 4.36            | 0                | -10.0103      | Reject H0 (k0 < kcrit)        | 99                           | None                           |
| Chromium               | 910  | LQM Suitable for Use Levels - Residential (With Plant Uptake)                       | 5           | 43.22 | 51      | 0                 | BH02/2              | No              | 6.99          | 0           | 0.9449          | 0.762      | Normal       | 2.132       | 49.8838                      | PASSED                 | Max. Value NOT Outlier | -277.316               | -2.015                 | Reject H0 t0 < t(n-1, 0.95)          | 99.5                            | 4.36            | 56.8476332       | -277.316      | Reject H0 (k0 < kcrit)        | 99                           | None                           |
| Zinc                   | 3700 | LQM Suitable for Use Levels - Residential (With Plant Uptake)                       | 5           | 477.7 | 964.9   | 0                 | BH01/1              | No              | 408.65        | 0           | 0.8966          | 0.762      | Normal       | 2.132       | 867.292                      | PASSED                 | Max. Value NOT Outlier | -17.632                | -2.015                 | Reject H0 t0 < t(n-1, 0.95)          | 99.5                            | 4.36            | 1274.46847       | -17.63209     | Reject H0 (k0 < kcrit)        | 99                           | None                           |
| Benzene                | 0.17 | LQM Suitable for Use Levels - Residential (With Plant Uptake - 2.5% Organic Matter) | 4           | 0     | 0       | 0                 | N/A                 | No              | 0             | 4           | 0.939           | 0.762      | N/A          | 2.353       | 0                            | N/A                    | N/A                    | N/A                    | N/A                    | N/A                                  | 99.5                            | 4.36            | 0                | -17.63209     | Reject H0 (k0 < kcrit)        | 99                           | None                           |
| Ethylbenzene           | 110  | LQM Suitable for Use Levels - Residential (With Plant Uptake - 2.5% Organic Matter) | 4           | 0     | 0       | 0                 | N/A                 | No              | 0             | 4           | 0.939           | 0.762      | N/A          | 2.353       | 0                            | N/A                    | N/A                    | N/A                    | N/A                    | N/A                                  | 99.5                            | 4.36            | 0                | -17.63209     | Reject H0 (k0 < kcrit)        | 99                           | None                           |
| m,p xylenes            | 130  | LQM Suitable for Use Levels - Residential (With Plant Uptake - 2.5% Organic Matter) | 4           | 0     | 0       | 0                 | N/A                 | No              | 0             | 4           | 0.939           | 0.762      | N/A          | 2.353       | 0                            | N/A                    | N/A                    | N/A                    | N/A                    | N/A                                  | 99.5                            | 4.36            | 0                | -17.63209     | Reject H0 (k0 < kcrit)        | 99                           | None                           |
| Toluene                | 290  | LQM Suitable for Use Levels - Residential (With Plant Uptake - 2.5% Organic Matter) | 4           | 0     | 0       | 0                 | N/A                 | No              | 0             | 4           | 0.939           | 0.762      | N/A          | 2.353       | 0                            | N/A                    | N/A                    | N/A                    | N/A                    | N/A                                  | 99.5                            | 4.36            | 0                | -17.63209     | Reject H0 (k0 < kcrit)        | 99                           | None                           |
| Acenaphthene           | 510  | LQM Suitable for Use Levels - Residential (With Plant Uptake - 2.5% Organic Matter) | 6           | 0     | 0       | 0                 | N/A                 | No              | 0             | 6           | 0.939           | 0.762      | N/A          | 2.015       | 0                            | N/A                    | N/A                    | N/A                    | N/A                    | N/A                                  | 99.5                            | 4.36            | 0                | -17.63209     | Reject H0 (k0 < kcrit)        | 99                           | None                           |
| Acenaphthylene         | 420  | LQM Suitable for Use Levels - Residential (With Plant Uptake - 2.5% Organic Matter) | 6           | 0.08  | 0.5     | 0                 | BH01/1              | No              | 0.2           | 5           | 0.4961          | 0.788      | Non-Normal   | 2.015       | 0.2513                       | PASSED                 | Max. Value is Outlier  | -5039                  | -1.943                 | Reject H0 t0 < t(n-1, 0.95)          | 99.5                            | 4.36            | 0.44666667       | -5039         | Reject H0 (k0 < kcrit)        | 99                           | None                           |
| Anthracene             | 5400 | LQM Suitable for Use Levels - Residential (With Plant Uptake - 2.5% Organic Matter) | 6           | 0.26  | 0.51    | 0                 | BH03/1              | No              | 0.18          | 1           | 0.9815          | 0.788      | Normal       | 2.015       | 0.4081                       | PASSED                 | Max. Value NOT Outlier | -75138.198             | -1.943                 | Reject H0 t0 < t(n-1, 0.95)          | 99.5                            | 4.36            | 0.5766608        | -75138.2      | Reject H0 (k0 < kcrit)        | 99                           | None                           |
| Benzo(a)anthracene     | 11   | LQM Suitable for Use Levels - Residential (With Plant Uptake - 2.5% Organic Matter) | 6           | 0.73  | 1.31    | 0                 | BH03/1              | No              | 0.45          | 1           | 0.9771          | 0.788      | Normal       | 2.015       | 1.092                        | PASSED                 | Max. Value NOT Outlier | -56.41                 | -1.943                 | Reject H0 t0 < t(n-1, 0.95)          | 99.5                            | 4.36            | 1.51917054       | -56.4098      | Reject H0 (k0 < kcrit)        | 99                           | None                           |
| Benzo(a)pyrene         | 2.4  | Category 4 Screening Levels - Residential (with homegrown produce)                  | 6           | 0.9   | 1.4     | 0                 | BH01/1              | No              | 0.52          | 1           | 0.901           | 0.788      | Normal       | 2.015       | 1.3246                       | PASSED                 | Max. Value NOT Outlier | -7.079                 | -1.943                 | Reject H0 t0 < t(n-1, 0.95)          | 99.5                            | 4.36            | 1.82256662       | -7.079095     | Reject H0 (k0 < kcrit)        | 98                           | None                           |
| Benzo(b)fluoranthene   | 3.3  | LQM Suitable for Use Levels - Residential (With Plant Uptake - 2.5% Organic Matter) | 6           | 0.93  | 1.39    | 0                 | BH01/1              | No              | 0.56          | 1           | 0.8331          | 0.788      | Normal       | 2.015       | 1.3858                       | PASSED                 | Max. Value NOT Outlier | -10.446                | -1.943                 | Reject H0 t0 < t(n-1, 0.95)          | 99.5                            | 4.36            | 1.91824965       | -10.4458      | Reject H0 (k0 < kcrit)        | 99                           | None                           |
| Benzo (g,h,i) perylene | 340  | LQM Suitable for Use Levels - Residential (With Plant Uptake - 2.5% Organic Matter) | 6           | 0.61  | 0.96    | 0                 | BH01/1              | No              | 0.35          | 1           | 0.8823          | 0.788      | Normal       | 2.015       | 0.8984                       | PASSED                 | Max. Value NOT Outlier | -2385.404              | -1.943                 | Reject H0 t0 < t(n-1, 0.95)          | 99.5                            | 4.36            | 1.23199489       | -2385.404     | Reject H0 (k0 < kcrit)        | 99                           | None                           |
| Benzo(k)fluoranthene   | 93   | LQM Suitable for Use Levels - Residential (With Plant Uptake - 2.5% Organic Matter) | 6           | 0.51  | 0.81    | 0                 | BH03/1              | No              | 0.31          | 1           | 0.9             | 0.788      | Normal       | 2.015       | 0.7634                       | PASSED                 | Max. Value NOT Outlier | -730.539               | -1.943                 | Reject H0 t0 < t(n-1, 0.95)          | 99.5                            | 4.36            | 1.06034178       | -730.5389     | Reject H0 (k0 < kcrit)        | 99                           | None                           |
| Chrysene               | 22   | LQM Suitable for Use Levels - Residential (With Plant Uptake - 2.5% Organic Matter) | 6           | 0.91  | 1.53    | 0                 | BH03/1              | No              | 0.56          | 1           | 0.9476          | 0.788      | Normal       | 2.015       | 1.3769                       | PASSED                 | Max. Value NOT Outlier | -91.648                | -1.943                 | Reject H0 t0 < t(n-1, 0.95)          | 99.5                            | 4.36            | 1.91649134       | -91.64844     | Reject H0 (k0 < kcrit)        | 99                           | None                           |
| Dibenz-a-h anthracene  | 0.28 | LQM Suitable for Use Levels - Residential (With Plant Uptake - 2.5% Organic Matter) | 6           | 0.13  | 0.24    | 0                 | BH01/1              | No              | 0.11          | 2           | 0.8649          | 0.788      | Normal       | 2.015       | 0.2122                       | PASSED                 | Max. Value NOT Outlier | -3.583                 | -1.943                 | Reject H0 t0 < t(n-1, 0.95)          | 99.5                            | 4.36            | 0.31362565       | -3.582758     | DO NOT reject H0 (k0 > kcrit) | 93                           | None                           |
| Fluoranthene           | 560  | LQM Suitable for Use Levels - Residential (With Plant Uptake - 2.5% Organic Matter) | 6           | 1.62  | 3       | 0                 | BH03/1              | No              | 1.05          | 1           | 0.9902          | 0.788      | Normal       | 2.015       | 2.4844                       | PASSED                 | Max. Value NOT Outlier | -1306.616              | -1.943                 | Reject H0 t0 < t(n-1, 0.95)          | 99.5                            | 4.36            | 3.48856108       | -1306.616     | Reject H0 (k0 < kcrit)        | 99                           | None                           |
| Fluorene               | 400  | LQM Suitable for Use Levels - Residential (With Plant Uptake - 2.5% Organic Matter) | 6           | 0     | 0       | 0                 | N/A                 | No              | 0             | 6           | 0.9902          | 0.788      | N/A          | 2.015       | 0                            | N/A                    | N/A                    | N/A                    | N/A                    | N/A                                  | 99.5                            | 4.36            | 0                | -1306.616     | Reject H0 (k0 < kcrit)        | 99                           | None                           |
| Indeno(1,2,3-cd)pyrene | 36   | LQM Suitable for Use Levels - Residential (With Plant Uptake - 2.5% Organic Matter) | 6           | 0.02  | 0.04    | 0                 | BH01/1              | No              | 0.35          | 1           | 0.8368          | 0.788      | Normal       | 2.015       | 0.9069                       | PASSED                 | Max. Value NOT Outlier | -247.059               | -1.943                 | Reject H0 t0 < t(n-1, 0.95)          | 99.5                            | 4.36            | 1.24273411       | -247.0594     | Reject H0 (k0 < kcrit)        | 99                           | None                           |
| Naphthalene            | 5.6  | LQM Suitable for Use Levels - Residential (With Plant Uptake - 2.5% Organic Matter) | 6           | 0.17  | 1       | 0                 | BH01/1              | No              | 0.41          | 5           | 0.4961          | 0.788      | Non-Normal   | 2.015       | 0.5025                       | PASSED                 | Max. Value is Outlier  | -32.6                  | -1.943                 | Reject H0 t0 < t(n-1, 0.95)          | 99.5                            | 4.36            | 0.89333333       | -32.6         | Reject H0 (k0 < kcrit)        | 99                           | None                           |
| Phenanthrene           | 220  | LQM Suitable for Use Levels - Residential (With Plant Uptake - 2.5% Organic Matter) | 6           | 0.6   | 1.22    | 0                 | BH03/1              | No              | 0.41          | 1           | 0.9907          | 0.788      | Normal       | 2.015       | 0.9429                       | PASSED                 | Max. Value NOT Outlier | -1301.778              | -1.943                 | Reject H0 t0 < t(n-1, 0.95)          | 99.5                            | 4.36            | 1.33815108       | -1301.778     | Reject H0 (k0 < kcrit)        | 99                           | None                           |

|                    |       |                                                                                     |   |       |      |   |        |    |       |   |        |       |            |       |         |        |                        |            |        |                             |      |      |            |           |                        |    |      |
|--------------------|-------|-------------------------------------------------------------------------------------|---|-------|------|---|--------|----|-------|---|--------|-------|------------|-------|---------|--------|------------------------|------------|--------|-----------------------------|------|------|------------|-----------|------------------------|----|------|
| Pyrene             | 1200  | LQM Suitable for Use Levels - Residential (With Plant Uptake - 2.5% Organic Matter) | 6 | 1.64  | 3.03 | 0 | BH03/1 | No | 1.07  | 1 | 0.9904 | 0.788 | Normal     | 2.015 | 2.5202  | PASSED | Max. Value NOT Outlier | -2732.949  | -1.943 | Reject H0 t0 < t(n-1, 0.95) | 99.5 | 4.36 | 3.54847229 | -2732.949 | Reject H0 (t0 < kcrit) | 99 | None |
| Phenol             | 200   | LQM Suitable for Use Levels - Residential (With Plant Uptake - 2.5% Organic Matter) | 1 | 0     | 0    | 0 | N/A    | No | 0     | 1 | NaN    | 0     | N/A        | 0     | 0       | N/A    | N/A                    | N/A        | N/A    | N/A                         | 99.5 | 4.36 | 0          | -2732.949 | Reject H0 (t0 < kcrit) | 99 | None |
| Aliphatics >C10-12 | 330   | LQM Suitable for Use Levels - Residential (With Plant Uptake - 2.5% Organic Matter) | 4 | 0     | 0    | 0 | N/A    | No | 0     | 4 | NaN    | 0     | N/A        | 2.353 | 0       | N/A    | N/A                    | N/A        | N/A    | N/A                         | 99.5 | 4.36 | 0          | -2732.949 | Reject H0 (t0 < kcrit) | 99 | None |
| Aliphatics >C12-16 | 2400  | LQM Suitable for Use Levels - Residential (With Plant Uptake - 2.5% Organic Matter) | 4 | 0     | 0    | 0 | N/A    | No | 0     | 4 | NaN    | 0     | N/A        | 2.353 | 0       | N/A    | N/A                    | N/A        | N/A    | N/A                         | 99.5 | 4.36 | 0          | -2732.949 | Reject H0 (t0 < kcrit) | 99 | None |
| Aliphatics >C21-35 | 1500  | LQM Suitable for Use Levels - Residential (With Plant Uptake - 2.5% Organic Matter) | 4 | 18.98 | 30.4 | 0 | BH01/1 | No | 13.51 | 1 | 0.8962 | 0.748 | Normal     | 2.353 | 34.8644 | PASSED | Max. Value NOT Outlier | -219.319   | -2.132 | Reject H0 t0 < t(n-1, 0.95) | 99.5 | 4.36 | 48.4173104 | -219.3194 | Reject H0 (t0 < kcrit) | 99 | None |
| Aliphatics >C35-44 | 92000 | LQM Suitable for Use Levels - Residential (With Plant Uptake - 2.5% Organic Matter) | 4 | 1.89  | 7.55 | 0 | BH01/1 | No | 3.78  | 3 | 0.6293 | 0.748 | Non-Normal | 2.353 | 6.3288  | PASSED | Max. Value is Outlier  | -48740.722 | -2.132 | Reject H0 t0 < t(n-1, 0.95) | 99.5 | 4.36 | 10.117     | -48740.72 | Reject H0 (t0 < kcrit) | 99 | None |
| Aromatics >C10-12  | 180   | LQM Suitable for Use Levels - Residential (With Plant Uptake - 2.5% Organic Matter) | 4 | 0     | 0    | 0 | N/A    | No | 0     | 4 | 0.9465 | 0.748 | N/A        | 2.353 | 0       | N/A    | N/A                    | N/A        | N/A    | N/A                         | 99.5 | 4.36 | 0          | -48740.72 | Reject H0 (t0 < kcrit) | 99 | None |
| Aromatics >C12-16  | 330   | LQM Suitable for Use Levels - Residential (With Plant Uptake - 2.5% Organic Matter) | 4 | 0     | 0    | 0 | N/A    | No | 0     | 4 | 0.9465 | 0.748 | N/A        | 2.353 | 0       | N/A    | N/A                    | N/A        | N/A    | N/A                         | 99.5 | 4.36 | 0          | -48740.72 | Reject H0 (t0 < kcrit) | 99 | None |
| Aromatics >C16-21  | 540   | LQM Suitable for Use Levels - Residential (With Plant Uptake - 2.5% Organic Matter) | 4 | 6.31  | 11.5 | 0 | BH03/1 | No | 4.98  | 1 | 0.9781 | 0.748 | Normal     | 2.353 | 12.1679 | PASSED | Max. Value NOT Outlier | -214.374   | -2.132 | Reject H0 t0 < t(n-1, 0.95) | 99.5 | 4.36 | 17.164357  | -214.3737 | Reject H0 (t0 < kcrit) | 99 | None |
| Aromatics >C21-35  | 1500  | LQM Suitable for Use Levels - Residential (With Plant Uptake - 2.5% Organic Matter) | 4 | 63.18 | 80.4 | 0 | BH01/1 | No | 22.37 | 0 | 0.8637 | 0.748 | Normal     | 2.353 | 89.4929 | PASSED | Max. Value NOT Outlier | -128.462   | -2.132 | Reject H0 t0 < t(n-1, 0.95) | 99.5 | 4.36 | 111.940898 | -128.4618 | Reject H0 (t0 < kcrit) | 99 | None |
| Aromatics >C35-44  | 1500  | LQM Suitable for Use Levels - Residential (With Plant Uptake - 2.5% Organic Matter) | 4 | 15.09 | 18.6 | 0 | BH01/1 | No | 4.36  | 0 | 0.8439 | 0.748 | Normal     | 2.353 | 20.2154 | PASSED | Max. Value NOT Outlier | -681.373   | -2.132 | Reject H0 t0 < t(n-1, 0.95) | 99.5 | 4.36 | 24.5892224 | -681.3731 | Reject H0 (t0 < kcrit) | 99 | None |

## 12.8 Appendix 8 – Ground Gas Monitoring Results

DRAFT - NOT FOR DISTRIBUTION

| Site Name: |                          | Land between 145-147 Downhills Way, London, N17 6AH |      |         |                |        |                   |                 |          |             |            |       |      |                         |       |               |
|------------|--------------------------|-----------------------------------------------------|------|---------|----------------|--------|-------------------|-----------------|----------|-------------|------------|-------|------|-------------------------|-------|---------------|
| Date       | Monitoring Undertaken By | Borehole Reference                                  | Flow | Methane | Carbon Dioxide | Oxygen | Hydrogen Sulphide | Carbon Monoxide | PID VOCs | Water Level | Well Depth | Bal.  | Rel. | Pressure Falling/Rising | Time  | Comments      |
| dd/mm/yy   | Name                     | BH#                                                 | l/hr | %       | %              | %      | ppm               | ppm             | ppm      | mbgl        | mbgl       | %     | %    |                         |       |               |
| 27/07/2023 | AA                       | BH01                                                | 0.10 | 0.00    | 1.40           | 19.10  | 0.00              | 0.00            | 1.50     | 3.40        | 4.70       | 78.70 | 0.00 | 1012, Rising Pressure   | 14:00 | Rainy and wet |
|            |                          | BH02                                                | 0.10 | 0.00    | 2.70           | 18.80  | 0.00              | 1.00            | 1.50     | 2.60        | 2.80       | 77.50 | 0.02 |                         |       |               |
|            |                          | BH03                                                | 0.10 | 0.00    | 2.90           | 18.30  | 0.00              | 1.00            | 1.10     | NGW         | 2.80       | 77.80 | 0.03 |                         |       |               |
| 03/08/2023 | AA                       | BH01                                                | 0.10 | 0.00    | 2.00           | 19.20  | 0.00              | 0.00            | 4.80     | 2.40        | 4.70       | 78.40 | 0.02 | 1005, Falling pressure  | 14:00 | Sunny and Dry |
|            |                          | BH02                                                | 0.10 | 0.00    | 3.60           | 18.70  | 0.00              | 0.00            | 0.80     | 2.60        | 2.80       | 77.30 | 0.00 |                         |       |               |
|            |                          | BH03                                                | 0.10 | 0.00    | 3.10           | 18.40  | 0.00              | 0.00            | 0.50     | 2.60        | 2.80       | 78.10 | 0.03 |                         |       |               |
| 11/08/2023 | AA                       | BH01                                                | 0.10 | 0.00    | 2.30           | 18.90  | 0.00              | 1.00            | 0.00     | 1.75        | 4.70       | 78.30 | 0.03 | 1017, Rising Pressure   | 11:30 | Sunny and Dry |
|            |                          | BH02                                                | 0.10 | 0.00    | 3.80           | 18.30  | 0.00              | 1.00            | 0.00     | 2.00        | 2.80       | 77.50 | 0.02 |                         |       |               |
|            |                          | BH03                                                | 0.10 | 0.00    | 2.90           | 18.00  | 0.00              | 1.00            | 0.00     | 2.60        | 2.80       | 78.80 | 0.00 |                         |       |               |

## 12.9 Appendix 9 - Assessment Methodology

- Severity considers the potential impact of the linkage on the receptors if the linkage was active. Categories range from slight/superficial to fatal.
- Likelihood considers the chances of the linkage occurring and is classified into categories from improbable to frequent.

By assigning scores with each of the above categories, the risk assessment can be undertaken using the formula:

$$\text{RISK} = \text{LIKELIHOOD} \times \text{SEVERITY}$$

The matrix given in Table 6 provides a means of calculating the overall risk; while Table 7 provides the qualitative assessment based on the risk score.

Table 6: Contamination Risk Matrix

|                        |                 | Potential Severity |                |                |                |             |
|------------------------|-----------------|--------------------|----------------|----------------|----------------|-------------|
|                        |                 | Fatal<br>5         | Major<br>4     | Moderate<br>3  | Minor<br>2     | Slight<br>1 |
| Probable<br>Likelihood | Frequent<br>5   | Very High          | High           | Moderate       | Low - Moderate | Low         |
|                        | Probable<br>4   | High               | High           | Moderate       | Low - Moderate | Low         |
|                        | Possible<br>3   | Moderate           | Moderate       | Low - Moderate | Low - Moderate | Very Low    |
|                        | Remote<br>2     | Low - Moderate     | Low - Moderate | Low - Moderate | Low            | Very Low    |
|                        | Improbable<br>1 | Low                | Low            | Very Low       | Very Low       | Very Low    |

Table 7: Assessment description for risk scores

| Risk Score | Risk Assessment |
|------------|-----------------|
| 1-3        | Very Low        |
| 4-5        | Low             |
| 6-10       | Low to Moderate |
| 11-15      | Moderate        |
| 16-20      | High            |
| 21-25      | Very High       |

Table 8: Risk Classification System

| Risk Term              | Description                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Very Low</b>        | The presence of an identified hazard does not give rise to the potential to cause significant harm to groundwater, surface water, ecological and/or property receptors. In the event of such harm being realized, it is not likely to be Severe.                                                                                                                                                                                               |
| <b>Low</b>             | The presence of an identified hazard does not give rise to the potential to cause significant harm to human health receptors. In the event of such harm being realized, it is not likely to be Severe.                                                                                                                                                                                                                                         |
| <b>Low to Moderate</b> | It is possible that harm could arise to a designated receptor from an identified hazard, but it is likely that this harm, if realized, would at worst normally be mild.                                                                                                                                                                                                                                                                        |
| <b>Moderate</b>        | It is possible that harm could arise to a designated receptor from an identified hazard. However, it is either relatively unlikely that such harm would be severe, or if any harm were to occur it is more likely that the harm would be relatively mild. Investigation (if not already undertaken) is normally required to clarify the risk and to determine the potential liability. Some remedial works may be required in the longer term. |
| <b>High</b>            | Harm is likely to arise to a designated receptor from an identified hazard at the site without appropriate remedial action. Investigation is required and remedial works may be necessary in the short term and are likely over the longer term.                                                                                                                                                                                               |
| <b>Very High</b>       | There is a high probability that severe harm could arise to a designated receptor from an identified hazard, or, there is an evidence that severe harm to a designated receptor is currently happening. Urgent investigation and remediation are likely to be required.                                                                                                                                                                        |

## 13 ABBREVIATIONS

| Abbreviation | Description                                         |
|--------------|-----------------------------------------------------|
| BTEX         | Benzene, Toluene, Ethylene and Xylene               |
| c.           | Circa                                               |
| CLRA         | Contaminated Land Risk Assessment                   |
| CSM          | Conceptual Site Risk Model                          |
| EA           | Environment Agency                                  |
| GAC          | Generic Assessment Criteria                         |
| IPC          | Integrated Pollution Control                        |
| LAPC         | Local Authority Pollution Control                   |
| LQM S4ULs    | Land Quality Management Suitable for Use Levels     |
| NPPF         | National Planning Policy Framework                  |
| OS           | Ordnance Survey                                     |
| PAHs         | Polycyclic aromatic hydrocarbons                    |
| Part IIA     | Part IIA of the Environmental Protection Act 1990   |
| PID          | Photoionization Detector                            |
| PCB          | Polychlorinated Biphenyl                            |
| PCLU         | Potentially Contaminative Land Use                  |
| PPL          | Potential Pollutant Linkage                         |
| PRA          | Preliminary Risk Assessment                         |
| PSPPL        | Potentially Significant Potential Pollutant Linkage |
| RWHP         | Residential with Home-grown Produce                 |
| SI           | Site Investigation                                  |
| SOM          | Soil Organic Matter                                 |
| SPOSH        | Significant Possibility of Significant Harm         |
| TOC          | Total Organic Carbon                                |
| TPH          | Total Petroleum Hydrocarbons                        |
| TPHCWG       | Total Petroleum Hydrocarbon Criteria Working Group  |
| UXO          | Unexploded Ordnance                                 |

## 14 REFERENCES

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