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CONTAMINATED LAND RISK ASSESSMENT

Phase 2 Environmental Site Investigation Report

Site
1 Hampshire Street
Camden
London
NW5 2SS

Client
Redtree (North London) Limited

Report Reference
PH2-2020-000026

Prepared by
STM Environmental Consultants Ltd

Date
09/07/2020

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Site Coordinates:	529714, 184955
Prepared for:	Redtree (North London) Ltd
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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.

3 EXECUTIVE SUMMARY

SECTION	SUMMARY
Site Location and Description	The site is located at 1 Hampshire Street, Camden, NW5 2SS. It is approximately centred at national grid reference 529714, 184955 and occupies an area of approximately 0.005ha.
Proposed Development	It is understood that the works are required for alterations to the existing building to provide commercial office units on the ground floor with residential flats above. No soft landscaping is planned as part of the development.
Summary of Site Investigation	Site investigation works were carried out on the 22nd of June 2020. A total of 4no. sampling locations (BH01 – BH04) were excavated to a maximum depth of 1.2 mbgl using a hand auger. A total of 8no. soil samples were collected and submitted to an UKAS/MCERTS accredited laboratory for analysis of Heavy Metals, TPH, BTEX, PAHs and Asbestos. The strata encountered in each borehole generally consisted of conglomerated concrete and brick hardcore to a maximum depth of 0.5 mbgl underlain by Made Ground up to 0.65 mbgl comprising light brown Clay with occasional to abundant brick fragments. This was generally underlain by light brown Clay. No significant odours or PID readings were recorded during the investigation.
Updated Contamination Assessment	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 Commercial Land Use scenario. None of the contaminants analysed were present in concentrations that exceeded the GAC in any of the borehole locations. 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 property receptors (i.e. buildings and services) associated with the proposed development.
Conclusions and Recommendations	Given the findings of the site investigation, it is recommended that mitigation measures are undertaken in order to break the Potential Pollutant Linkages identified so as to render the site suitable for the proposed end use. All services, and in particular potable water, should be supplied using materials that are resistant to attack and degradation to chemical attack. Reference should be made to the document '*Selection of Water Supply*

SECTION	SUMMARY
	Pipes to be used in Brownfield Sites', issued in January 2011 by the UK Water Industry Research. It is recommended that the Statutory Water Undertaker for the area is 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. Given that contaminants have been identified on the site, measures will be necessary to protect the health and safety of site workers during the site works. 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". 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.

4 INTRODUCTION

STM Environmental Consultants Limited were commissioned by Redtree (North London) Ltd to undertake a preliminary risk assessment at 1 Hampshire Street, Camden, NW5 2SS (the site).

The report was produced to support the alterations to the existing building to provide 16 Luxury Apartments and 3 Commercial Office Units. The proposed development plans are available in Appendix 1.

4.1 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.

5 SUMMARY OF THE SITE

5.1 Site Location

The site is located at 1 Hampshire Street, Camden, NW5 2SS at grid reference is 529714, 184955. The site has an area of approximately 0.005 ha.

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

5.2 Site Current and Surrounding Land Uses

The site is currently used as a photographic studio. The surrounding area is predominantly mixed residential and commercial use.

5.3 Previous Site Investigations

A Geotechnical Site Investigation was undertaken at the site by STM Environmental Consultants in October 2019 (Ref. GT-2019-000065).

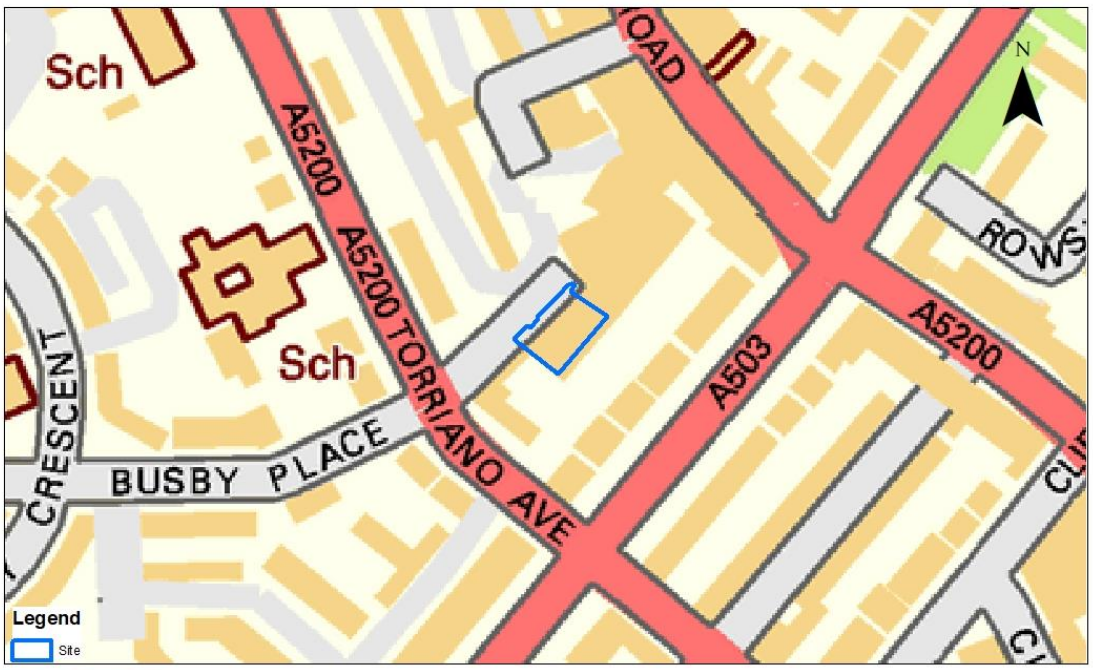
5.4 Potential Receptors

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

According to mapping provided by the BGS, the site is located on bedrock of clays, silts, and sands of the London Clay Formation. No superficial deposits are indicated.

The Environment Agency classifies the bedrock aquifer as an Unproductive Aquifer. There are no groundwater source protection zones within 1000m of the site. According to BGS mapping information, groundwater is likely to be more than 5m below the ground surface throughout the year.

There are no surface water bodies within 250m of the site.



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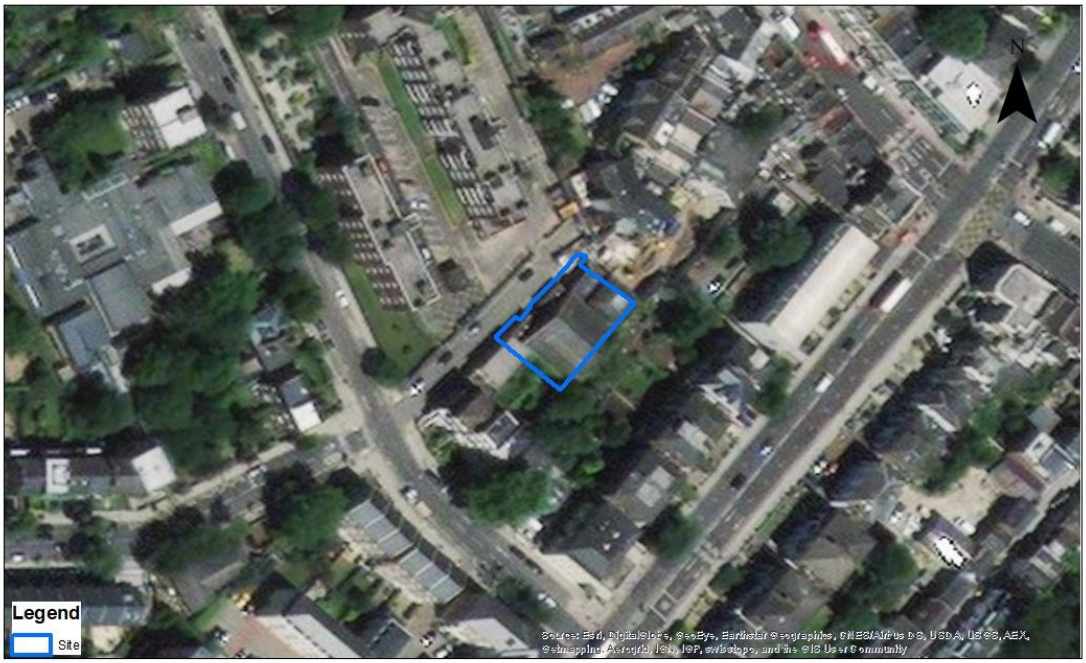

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6 SITE INVESTIGATION

The site investigation works were carried out on the 22nd of June 2020 and were undertaken in general accordance with the following guidance:

- CLR 11: Model procedures for the management of land contamination – DEFRA & Environment Agency;
- BS 10175 - Code of practice for the Investigation of potentially contaminated sites British Standard Institution;
- 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 Strategy and Scope of the Site Investigation and Risk Assessment

6.1.1 Sampling Strategy

A total of 4no. sampling locations (BH01 – BH04) were excavated at the site. A non-targeted sampling strategy was used to select the locations of the exploratory positions with boreholes being generally equally spaced out across the site.

As the investigation was primarily focused on assessing the quality of near surface soils, samples were collected at depths between 0.25 – 0.9 mbgl.

A map showing the locations of boreholes and the borehole logs are available in Appendix 2.

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 8no. soil samples were submitted to an UKAS\MCERTs 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);

6.1.5 Ground Gas and Vapour Monitoring

No ground gas or vapour monitoring was carried out as part of the investigation.

6.2 Site Investigation Findings

6.2.1 Ground Conditions

Boreholes were advanced to a maximum depth of 1.2 mbgl. The strata encountered in each borehole generally consisted of conglomerated concrete and brick hardcore to a maximum depth of 0.5 mbgl underlain by Made Ground up to 0.65 mbgl comprising light brown Clay with occasional to abundant brick fragments. This was generally underlain by light brown Clay.

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 investigation.

6.2.3 Visual and Olfactory Signs of Contamination

Visual indications of contamination of the Made Ground were observed (i.e. brick fragments) generally across the site. No significant odours or PID readings were recorded during the investigation.

6.3 Laboratory Sample Analysis Results

A total of 8no. soil samples were submitted for analysis. The full results of the laboratory sample analysis can be seen in Appendix 5.

7 GENERIC QUANTITATIVE RISK ASSESSMENT

A GQRA was conducted using the soil analytical results in order to further evaluate the significance of the potential pollutant linkages identified in the PRA.

7.1 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 Category 4 Screening Levels and the CIEH\LQM GAC for residential without plant uptake and commercial use scenarios.

7.1.1 Soil Organic Matter Content

Sample results indicated that soils on the site have an average total organic carbon (TOC) content of 1.0125%, which based on a conversion factor of 1.72, indicates a Soil Organic Matter (SOM) of around 1.74%. For reasons of conservatism, a soil organic matter content of 1% rather than 2.5% was assumed.

7.2 Statistical Tests

Although the sample size was insufficient to be considered statistically valid, it was nonetheless considered useful to undertake statistical analysis on the sample results.

The statistical analysis was carried out in accordance with the methodology laid out in the document "Guidance on comparing soil contamination data with a critical concentration" published by the Chartered Institute of Environmental Health and CLAIRE.

7.2.1 Test Scenario

The "Planning" scenario was used to undertake the statistical tests. Under this scenario, the Alternative Hypothesis is that "the true mean is lower than the critical concentration" and the Null hypothesis is that "the true mean is equal to or greater than the critical concentration". The critical concentration was taken as the relevant GAC for each contaminant.

7.2.2 Non-Detects

For the purpose of the statistical tests, sample results where the contaminant concentrations were below the limit of detection were set to zero. Statistical tests were only carried out on datasets where at least one of the samples returned a contaminant concentration above the limit of detection.

7.2.3 Data Distribution

The Shapiro-Wilk normality test was used to assess whether datasets were normally or non-normally distributed.

7.3 Results of Statistical Analysis

7.3.1 Contaminants Exceeding Generic Assessment Criteria

Concentrations of Arsenic, Lead and PAHs were identified above the Residential GAC in each of the boreholes. However, none of the contaminants analysed for were found to be present in concentrations that exceeded the commercial land use GAC. A summary of contaminants that were present in concentrations that exceeded the residential GAC is given in Table 1 below. As can be seen, the majority of the exceedances were found in BH03.

Table 1: Contaminants exceeding the Residential Land Use GAC

Contaminant	Borehole ID	Sample Depth (m)	Result (mg/kg)	GAC Value (mg/kg)	GAC Source
Arsenic	BH01/1	0.25	51	37	Category 4 Screening Levels - Residential (with homegrown produce)
Dibenzo (ah) anthracene	BH03/1	0.55 - 0.8	3.2	0.31	LQM Suitable for Use Levels - Residential (Without Plant Uptake - 1% Organic Matter)
Lead	BH03/1, BH04/1	0.3 - 0.55	320 - 350	210	LQM Suitable for Use Levels - Residential (Without Plant Uptake)
Benzo (a) anthracene	BH03/1	0.55	24	11	LQM Suitable for Use Levels - Residential (Without Plant Uptake - 1% Organic Matter)

Contaminant	Borehole ID	Sample Depth (m)	Result (mg/kg)	GAC Value (mg/kg)	GAC Source
Chrysene	BH03/1	0.55	17	15	LQM Suitable for Use Levels - Residential (Without Plant Uptake - 1% Organic Matter)
Benzo (a) pyrene	BH03/1	0.55	24	2.4	LQM Suitable for Use Levels - Residential (Without Plant Uptake - 1% Organic Matter)
Benzo (b) fluoranthene	BH03/1	0.55	26	3.9	LQM Suitable for Use Levels - Residential (Without Plant Uptake - 1% Organic Matter)

7.3.2 Statistical Analysis

The results of statistical analysis are presented in

Contaminant	Value (mg/kg)	Source
Arsenic	640	Category 4 Screening Levels - Commercial
Cadmium	190	LQM SULs - Commercial
Chromium	8600	LQM SULs - Commercial
Chromium - Hexavalent	33	Category 4 Screening Levels - Commercial
Copper	68000	LQM SULs - Commercial
Lead	2330	LQM SULs - Commercial
Mercury	1100	LQM SULs - Commercial
Nickel	980	LQM SULs - Commercial
Selenium	12000	LQM SULs - Commercial
Zinc	730000	LQM SULs - Commercial
Toluene	56000	LQM SULs - Commercial (1% Organic Matter)
Benzene	90	Category 4 Screening Levels - Commercial
Ethylbenzene	5700	LQM SULs - Commercial (1% Organic Matter)
m,p xylenes	5900	LQM SULs - Commercial (1% Organic Matter)
Naphthalene-d8	190	LQM SULs - Commercial (1% Organic Matter)
Acenaphthylene	83000	LQM SULs - Commercial (1% Organic Matter)
Acenaphthene	84000	LQM SULs - Commercial (1% Organic Matter)
Fluorene	63000	LQM SULs - Commercial (1% Organic Matter)

Contaminant	Value (mg/kg)	Source
Phenanthrene	22000	LQM SULs - Commercial (1% Organic Matter)
Anthracene	520000	LQM SULs - Commercial (1% Organic Matter)
Fluoranthene	23000	LQM SULs - Commercial (1% Organic Matter)
Pyrene	54000	LQM SULs - Commercial (1% Organic Matter)
Benzo(a)anthracene	170	LQM SULs - Commercial (1% Organic Matter)
Chrysene	350	LQM SULs - Commercial (1% Organic Matter)
Benzo (b) fluoranthene	44	LQM SULs - Commercial (1% Organic Matter)
Benzo(k)fluoranthene	1200	LQM SULs - Commercial (1% Organic Matter)
Benzo(a)pyrene	35	LQM SULs - Commercial (1% Organic Matter)
Dibenz-a-h-anthracene	3.5	LQM SULs - Commercial (1% Organic Matter)
Indeno(1,2,3-cd)pyrene	500	LQM SULs - Commercial (1% Organic Matter)
Benzo (g,h,i) perylene	3900	LQM SULs - Commercial (1% Organic Matter)
Phenols, Total Detected 5 speciated	440	LQM SULs - Commercial (1% Organic Matter)
Aliphatics >C5-6	3200	LQM SULs - Commercial (1% Organic Matter)
Aliphatics >C6-8	7800	LQM SULs - Commercial (1% Organic Matter)
Aliphatics >C8-10	2000	LQM SULs - Commercial (1% Organic Matter)
Aliphatics >C10-12	9700	LQM SULs - Commercial (1% Organic Matter)
Aliphatics >C12-16	59000	LQM SULs - Commercial (1% Organic Matter)
Aliphatics >C16-C35	1600000	LQM SULs - Commercial (1% Organic Matter)
Aliphatics >C21-35	28000	LQM SULs - Commercial (1% Organic Matter)
Aliphatics >C35-44	1600000	LQM SULs - Commercial (1% Organic Matter)
Aromatics >C5-7	27	LQM SULs - Commercial (1% Organic Matter)
Aromatics >C8-10	3500	LQM SULs - Commercial (1% Organic Matter)
Aromatics >C10-12	16000	LQM SULs - Commercial (1% Organic Matter)

Contaminant	Value (mg/kg)	Source
Aromatics >C12-16	36000	LQM SULs - Commercial (1% Organic Matter)
Aromatics >C16-21	28000	LQM SULs - Commercial (1% Organic Matter)
Aromatics >C35-44	28000	LQM SULs - Commercial (1% Organic Matter)

7.3.3 GAC for Residential (without homegrown produce)

Contaminant	Concentration (mg/kg)	GAC Literature Source
Arsenic	40	Category 4 Screening Levels - Residential (without homegrown produce)
Cadmium	85	LQM SULs - RWOPU
Chromium	910	LQM SULs - RWOPU
Chromium - Hexavalent	6	LQM SULs - RWOPU
Copper	7100	LQM SULs - RWOPU
Lead	310	LQM SULs - RWOPU
Mercury	56	LQM SULs - RWOPU
Nickel	180	LQM SULs - RWOPU
Selenium	430	LQM SULs - RWOPU
Zinc	40000	LQM SULs - RWOPU
Toluene	860	LQM SULs - RWOPU (1% OM)
Benzene	1.4	Category 4 Screening Levels - Residential (without homegrown produce)
Ethylbenzene	83	LQM SULs - RWOPU (1% OM)
m,p xylenes	79	LQM SULs - RWOPU (1% OM)
Acenaphthylene	2900	LQM SULs - RWOPU (1% OM)
Acenaphthene	3000	LQM SULs - RWOPU (1% OM)
Fluorene	2800	LQM SULs - RWOPU (1% OM)
Phenanthrene	1300	LQM SULs - RWOPU (1% OM)
Anthracene	31000	LQM SULs - RWOPU (1% OM)
Fluoranthene	1500	LQM SULs - RWOPU (1% OM)
Pyrene	3700	LQM SULs - RWOPU (1% OM)
Benzo(a)anthracene	11	LQM SULs - RWOPU (1% OM)
Chrysene	30	LQM SULs - RWOPU (1% OM)
Benzo (b) fluoranthene	3.9	LQM SULs - RWOPU (1% OM)
Benzo(k)fluoranthene	110	LQM SULs - RWOPU (1% OM)
Benzo(a)pyrene	2.5	LQM SULs - RWOPU (1% OM)
Dibenz-a-h-anthracene	0.31	LQM SULs - RWOPU (1% OM)
Indeno(1,2,3-cd)pyrene	45	LQM SULs - RWOPU (1% OM)
Benzo (g,h,i) perylene	360	LQM SULs - RWOPU (1% OM)
Aliphatics >C5-6	42	LQM SULs - RWOPU (1% OM)
Aliphatics >C6-8	100	LQM SULs - RWOPU (1% OM)
Aliphatics >C8-10	27	LQM SULs - RWOPU (1% OM)
Aliphatics >C10-12	130	LQM SULs - RWOPU (1% OM)
Aliphatics >C12-16	1100	LQM SULs - RWOPU (1% OM)
Aliphatics >C16-C35	65000	LQM SULs - RWOPU (1% OM)
Aliphatics >C21-35	1900	LQM SULs - RWOPU (1% OM)

Contaminant	Concentration (mg/kg)	GAC Literature Source
Aliphatics >C35-44	65000	LQM SULs - RWOPU (1% OM)
Aromatics >C5-7	0.38	LQM SULs - RWOPU (1% OM)
Aromatics >C8-10	47	LQM SULs - RWOPU (1% OM)
Aromatics >C10-12	250	LQM SULs - RWOPU (1% OM)
Aromatics >C12-16	1800	LQM SULs - RWOPU (1% OM)
Aromatics >C16-21	1900	LQM SULs - RWOPU (1% OM)
Aromatics >C21-35	1900	LQM SULs - RWOPU (1% OM)
Aromatics >C35-44	1900	LQM SULs - RWOPU (1% OM)
Napthalene	2.3	LQM SULs - RWOPU (1% OM)
Phenol	440	LQM SULs - RWOPU (1% OM)

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7.4 Asbestos

No Asbestos was detected in any of the samples analysed.

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)
- 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)
- 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 derogation of groundwater quality resulting from the migration of on-site contaminants into the underlying aquifer (PPL3)
- Risk of derogation of surface water quality resulting from the migration and entry of on-site contaminants into the surface water receptor (PPL4)
- Risk of damage to buildings and services from on-site contaminants (PPL5a)
- 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 (PPL5b).

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 8.

Table 2: Results of Qualitative Risk Assessment.

CRITERIA	POTENTIAL POLLUTANT LINKAGES							
	PPL1a	PPL1b	PPL2a	PPL2b	PPL3	PPL4	PPL5a	PPL5b
SEVERITY	Major (4)	Major (4)	Major (4)	Major (4)	Moderate (3)	Moderate (3)	Moderate (3)	Moderate (3)
LIKELIHOOD	Improbable (1)	Improbable (1)	Improbable (1)	Improbable (1)	Improbable (1)	Improbable (1)	Remote (2)	Improbable (1)
RISK	Low (4)	Low (4)	Low (4)	Low (4)	Very Low (3)	Very Low (3)	Low to Moderate (6)	Very Low (3)

POTENTIALLY SIGNIFCANT?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**	**YES**	**NO**

8.1 Potential Risks to On-Site Human Health

PPL1a was considered unlikely to have the potential to be significant. Although concentrations of contaminants above the residential GAC were identified, it is understood that the ground floor of the proposed development will be used for commercial purposes with no soft landscaped areas. Again, although it is possible that construction workers could be exposed to contamination during groundworks, the use of appropriate PPE and health and safety measures as required under CDM regulations should be sufficient to negate this risk.

PPL1b was considered unlikely to have the potential to be significant as no potential sources of explosive ground gases were identified at the site.

8.2 Potential Risks to Off-Site Human Health

PPL2a was not considered to have the potential to be significant as it is considered unlikely that any contaminants present at the site would be of sufficient magnitude or mobility as to significantly impact off-site human receptors.

PPL2b was considered unlikely to have the potential to be significant as no potential sources of explosive ground gases were identified at the site.

8.3 Potential Risks to Groundwater Receptors

PPL3 was 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 was considered unlikely to have the potential to be significant as no surface water bodies were identified within the vicinity of the site.

8.5 Potential Risks to Property Receptors

PPL5a is considered to have the potential to be significant. Given that elevated concentrations of potentially aggressive contaminants (i.e. PAHs) were identified in the soils tested, it is possible that they could impact upon the services such as drinking water pipes at the site if these are not made of suitably resistant materials.

PPL5b was considered unlikely to have the potential to be significant as no potential sources of explosive ground gases were identified on or in the vicinity of the site.

9 CONCLUSIONS

An environmental site investigation was carried out on the 22nd of June 2020. 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.

It is understood that the ground floor of the proposed development will be covered entirely in permanent hard standing and will be used for commercial purposes.

A total of 4no. boreholes were advanced to a maximum depth of 1.2 mbgl for the purposes of environmental soil sampling. 8no. soil samples were taken from depths ranging from 0.25 – 0.9 mbgl. The samples were submitted to an UKAS/MCERTS accredited laboratory for analysis of Heavy Metals, TPH, BTEX and PAHs and Asbestos.

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 commercial land use scenario. Although the site investigation found concentrations of Lead, Arsenic and PAHs that were elevated when compared to background, none of the contaminants were found to exceed the adopted GAC.

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 property (i.e. piped water services) receptors into the proposed development.

10 RECOMMENDATIONS

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

It is recommended that the Statutory Water Undertaker for the area is 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.

It is recommended that all services, and in particular potable water, should be supplied using materials that are resistant to attack and degradation to chemical attack. Reference should be made to the document '*Selection of Water Supply Pipes to be used in Brownfield Sites'*, issued in January 2011 by the UK Water Industry Research.

10.1 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.

10.2 Health and Safety

Given that contaminants have been 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".

10.3 Waste Disposal

Groundworks at the site are likely to give rise to waste soils. These will require classification before removal from site. The Environment Agency's Hazardous Waste Technical Guidance document (WM3) outlines the methodology for classifying wastes. Once classified the waste can be removed to an appropriately licensed facility for treatment or final disposal. The contractor will need to keep a full documentary record of these 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.

11 INFORMATION GAPS AND UNCERTAINTIES

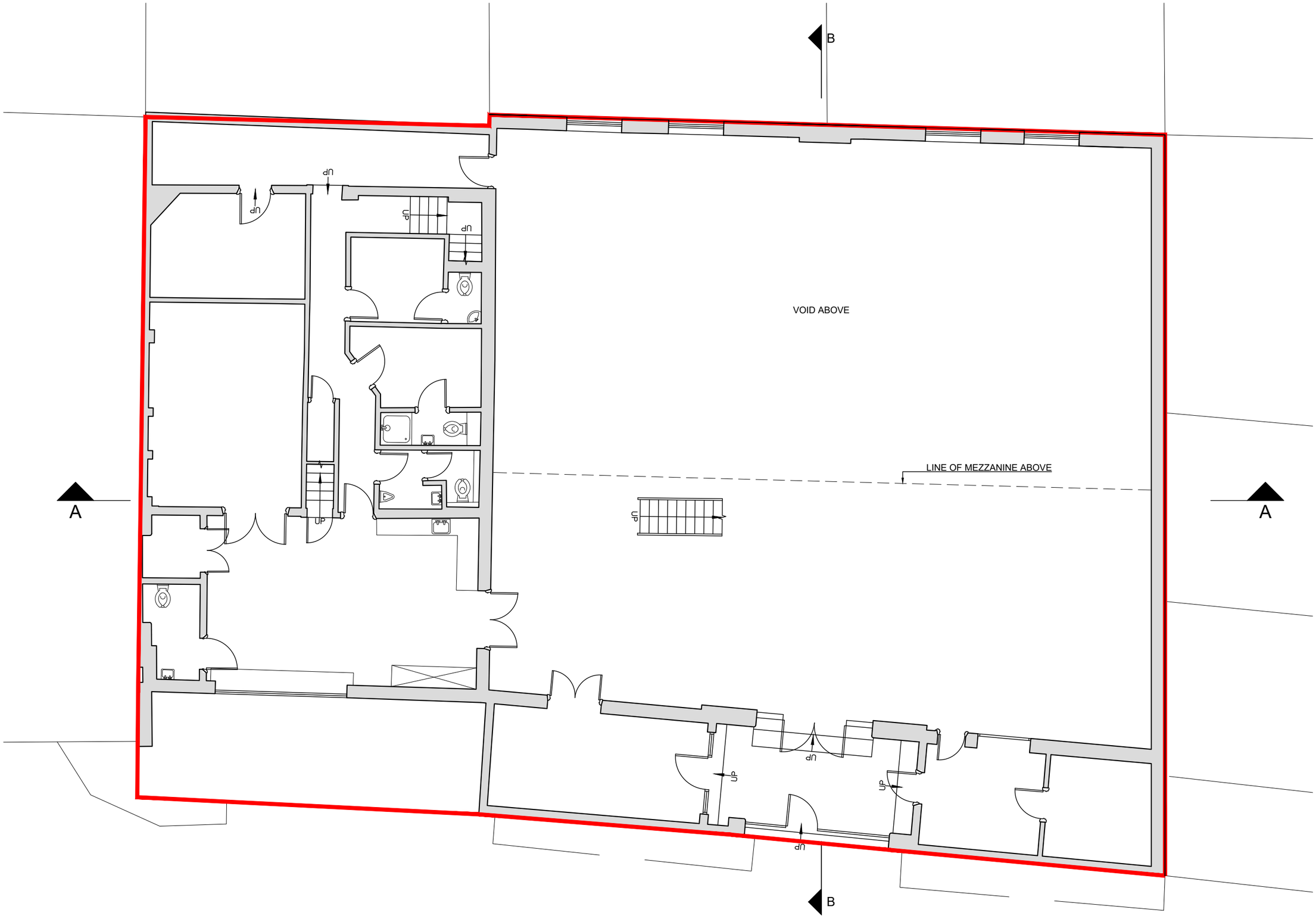
Assumptions have been made regarding the nature and scale of the activities that took place on the site and the types of potential contaminants that may have resulted. There are therefore a number of uncertainties associated with the investigation which include, but are not limited to, the following:

- 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 former industrial use. 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.

12 APPENDICES

12.1 Appendix 1 – Proposed Development Plans



NOTES

SITE BOUNDARY

EXISTING GROUND FLOOR PLAN

SCALE 1:100

0 1 2 3 4 5M

1:100

N

drawing status:	P L A N N I N G

revision:	description:	date:
P.01	Issued for INFORMATION	01.08.19

P L A N N I N G

SADAarchitecture

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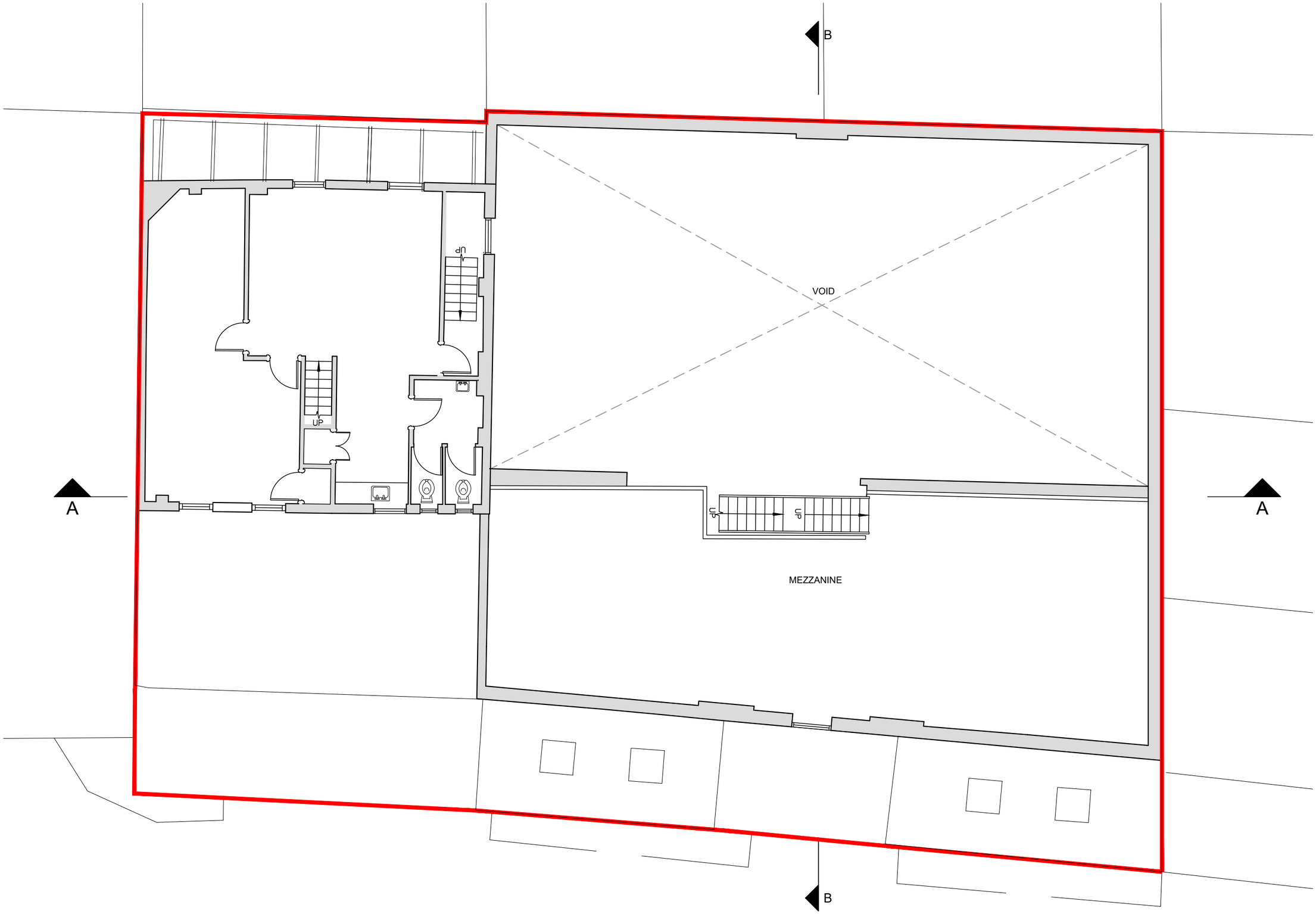
project:	**17-010** - 2 Hampshire Street, Camden		
drawing:	EXISTING GROUND FLOOR PLAN		
date:	01.08.19	drawn by: LM	check: CC
scale:	1:100@A3	drwg no.: A200	rev. no.: P.01



NOTES

SITE BOUNDARY

EXISTING FIRST FLOOR PLAN

SCALE 1:100

0 1 2 3 4 5M

1:100

N

drawing status: P L A N N I N G

revision:	description:	date:
P.01	Issued for INFORMATION	01.08.19

P L A N N I N G

SADAarchitecture

P : Suite 14, Arquen House, 4-6 Spicer St, St Albans, AL3 4PQ.

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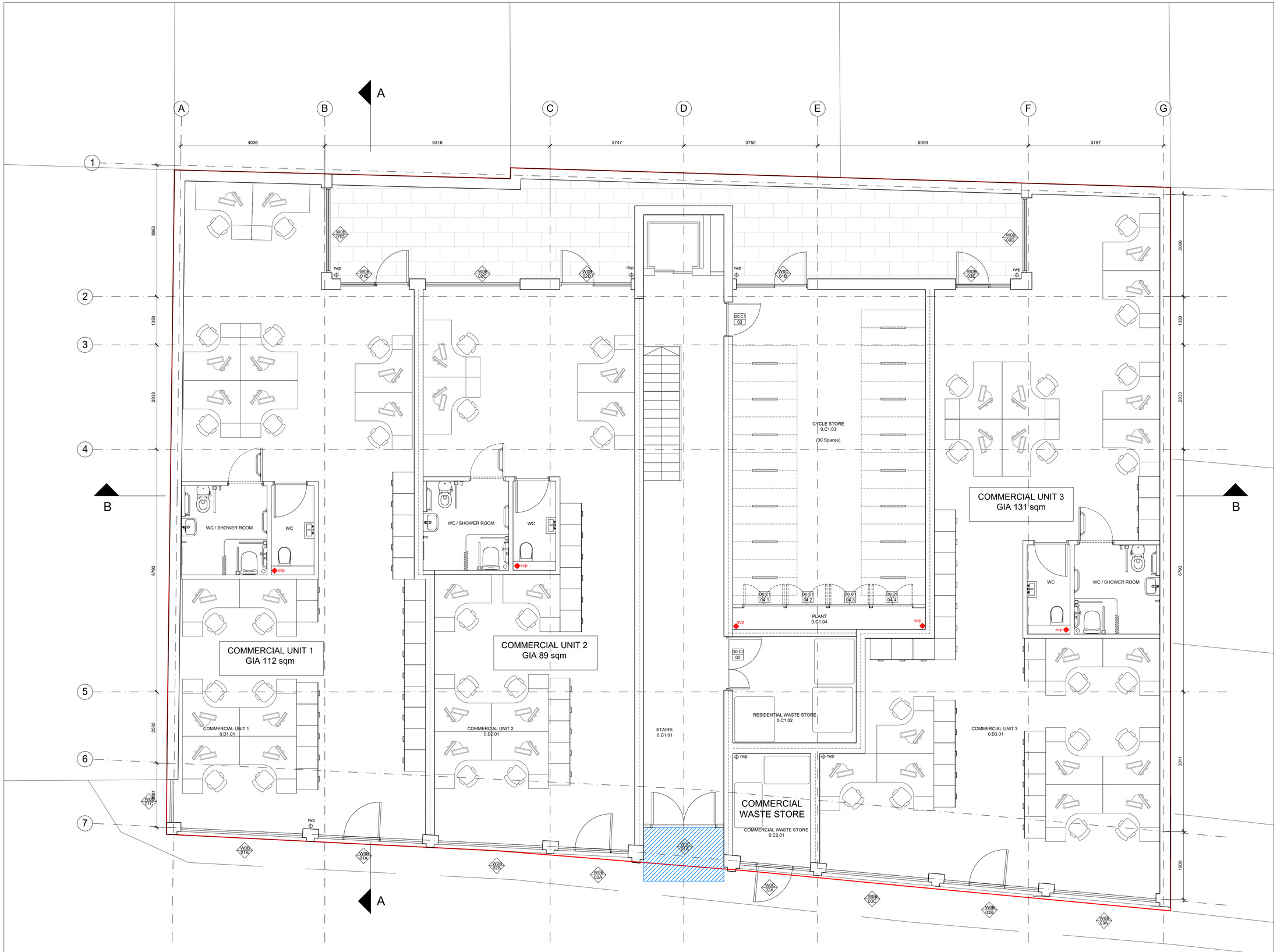
W : www.sada-architecture.com

T : 01727 860810

project:	**17-010** - 2 Hampshire Street, Camden		
drawing:	EXISTING FIRST FLOOR PLAN		
date:	01.08.19	drawn by: LM	check: CC
scale:	1:100@A3	drwg no.: A201	rev. no.: P.01



NOTES

DO NOT SCALE - USE FIGURED DIMENSIONS ONLY.

ALL DIMENSIONS TO BE CHECKED ON SITE PRIOR TO CONSTRUCTION AND ANY DISCREPANCIES TO BE HIGHLIGHTED BY CONTRACTOR.

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT SPECIFICATIONS AND DRAWINGS.

ALL LEVELS ARE TO FINISHED LEVELS UNLESS OTHERWISE INDICATED.

LEGEND

drawing status:	PRELIMINARY

revision:	description:	date:
PC.01	Issued for Information	19.06.18
PC.02	Issued for Information	19.11.19
PC.03	Issued for Information	18.02.20

CONSTRUCTION

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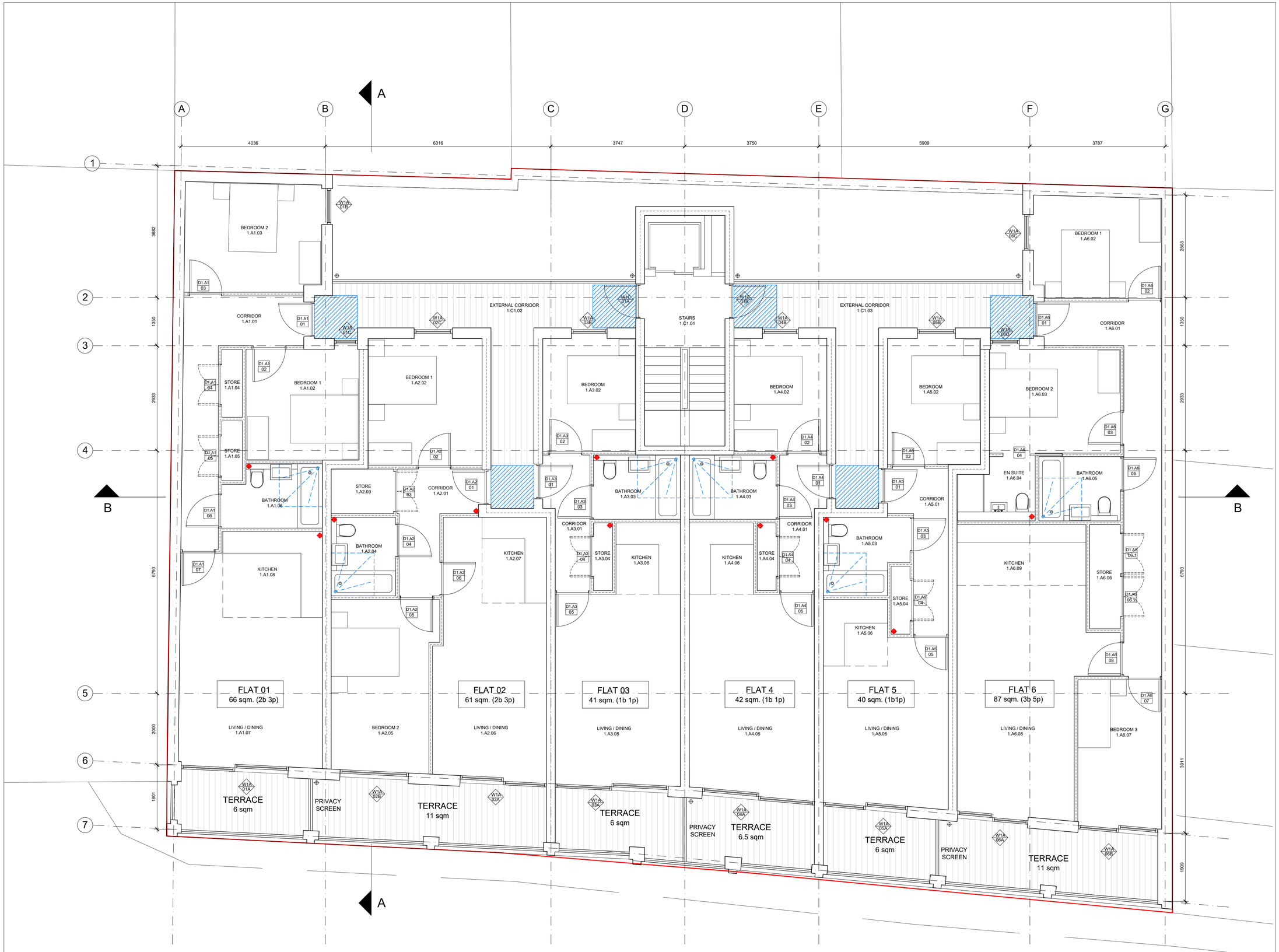
project:	17-010-1 HAMPSHIRE STREET,LONDON NW5 2TE		
drawing:	PROPOSED GROUND FLOOR PLAN		
date:	26.01.17	drawn by: RP	check: CC
scale:	1:50 @ A1	drwg no.: 300	rev. no.: PC.03



NOTES

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ALL LEVELS ARE TO FINISHED LEVELS UNLESS OTHERWISE INDICATED.

LEGEND

drawing status:	PRELIMINARY

revision:	description:	date:
PC.01	Issued for Information	19.06.18
PC.02	Issued for Information	18.02.19

CONSTRUCTION

SADAarchitecture

P : 26 George Street, St Albans, Hertfordshire, AL3 4ES, UK
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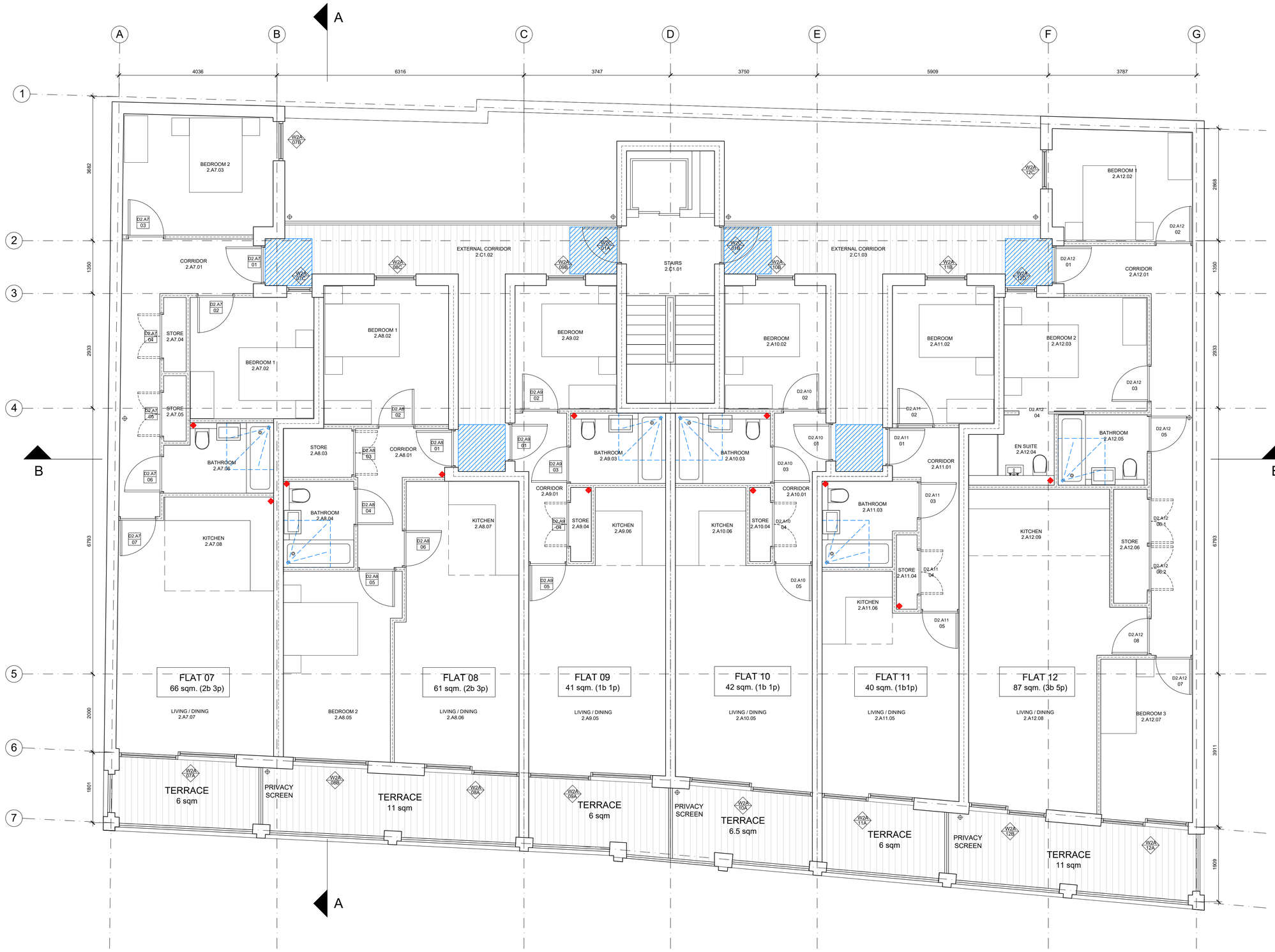
project:	17-010-1 HAMPSHIRE STREET,LONDON NW5 2TE		
drawing:	PROPOSED FIRST FLOOR PLAN		
date:	26.01.17	drawn by: RP	check: CC
scale:	1:50 @ A1	drwg no.: 301	rev. no.: PC.02



NOTES

DO NOT SCALE - USE FIGURED DIMENSIONS ONLY.

ALL DIMENSIONS TO BE CHECKED ON SITE PRIOR TO CONSTRUCTION AND ANY DISCREPANCIES TO BE HIGHLIGHTED BY CONTRACTOR.

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT SPECIFICATIONS AND DRAWINGS.

ALL LEVELS ARE TO FINISHED LEVELS UNLESS OTHERWISE INDICATED.

LEGEND

drawing status:	PRELIMINARY

revision:	description:	date:
PC.01	Issued for Information	19.06.18
PC.02	Issued for Information	18.02.20

CONSTRUCTION

SADAarchitecture

P : 26 George Street, St Albans, Hertfordshire, AL3 4ES, UK
E : letterbox@sada-architecture.com
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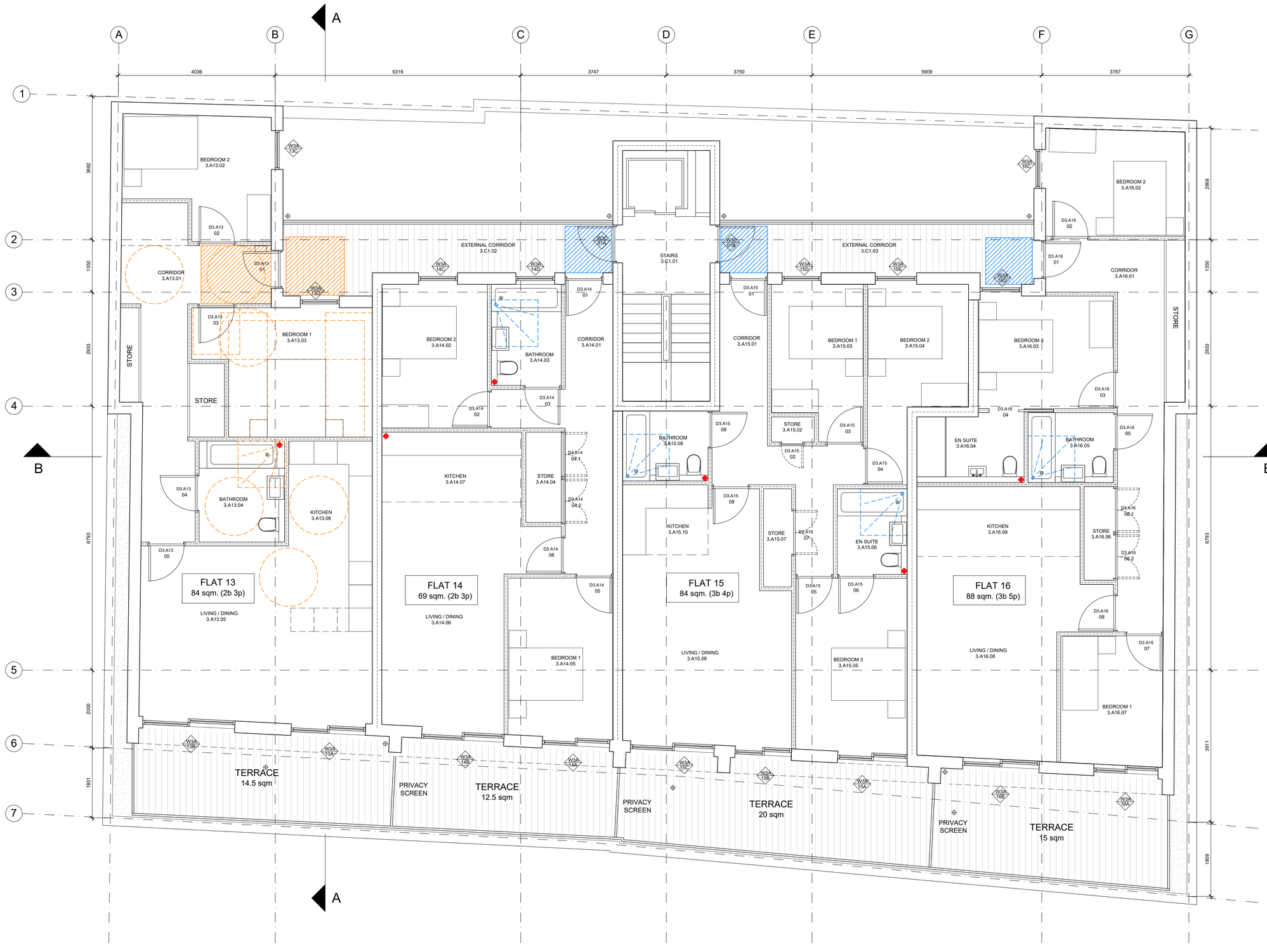
project:	17-010-1 HAMPSHIRE STREET,LONDON NW5 2TE		
drawing:	PROPOSED SECOND FLOOR PLAN		
date:	26.01.17	drawn by: RP	check: CC
scale:	1:50 @ A1	drwg no.: 302	rev. no.: PC.02



NOTES

DO NOT SCALE - USE FIGURED DIMENSIONS ONLY.

ALL DIMENSIONS TO BE CHECKED ON SITE PRIOR TO CONSTRUCTION AND ANY DISCREPANCIES TO BE HIGHLIGHTED BY CONTRACTOR.

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT SPECIFICATIONS AND DRAWINGS.

ALL LEVELS ARE TO FINISHED LEVELS UNLESS OTHERWISE INDICATED.

LEGEND

drawing status: **PRELIMINARY**

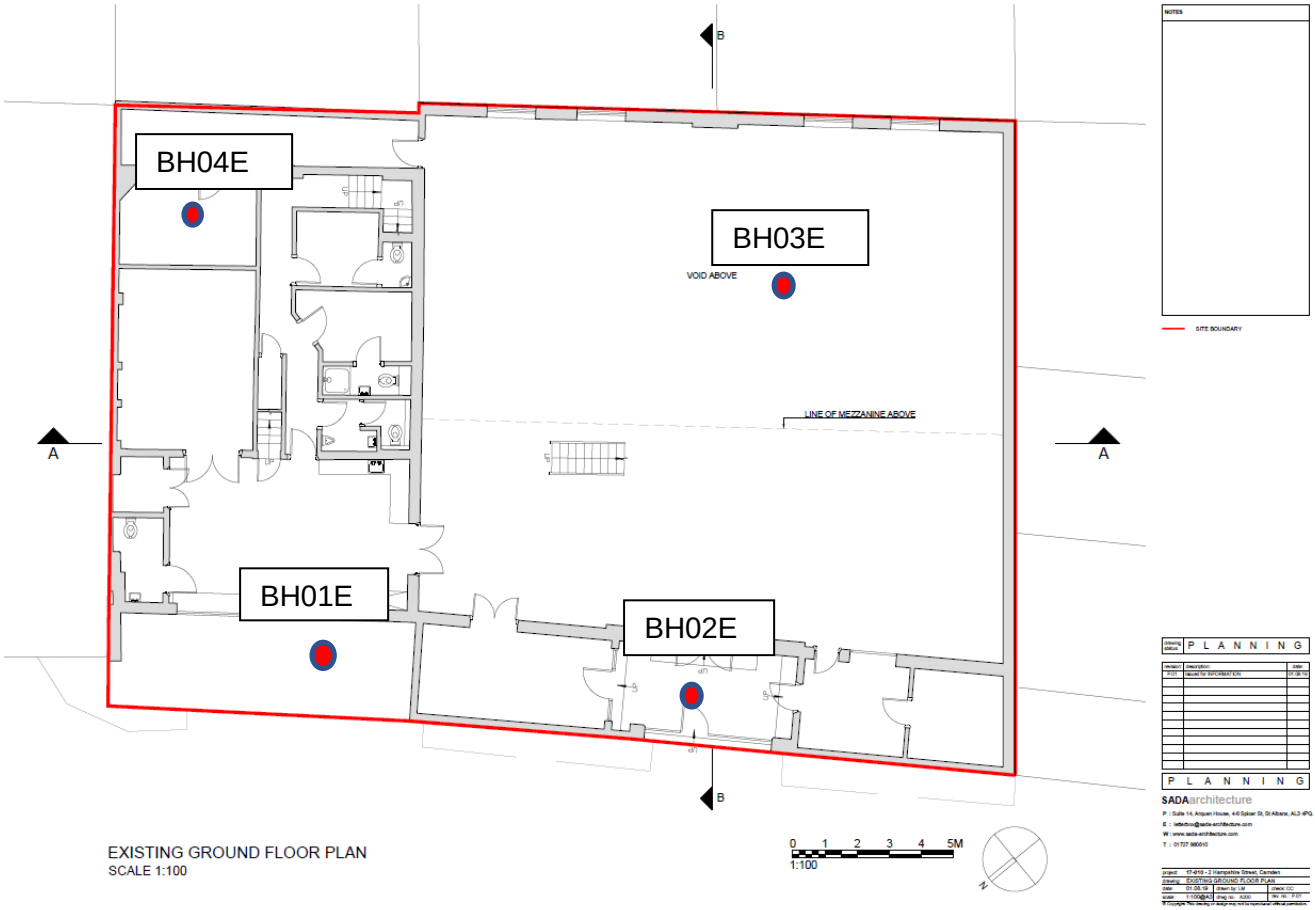
revision:	description:	date:
PC.01	Issued for Information	19.06.18
PC.02	Issued for Information	18.02.20

CONSTRUCTION

SADAarchitecture
P : 26 George Street, St Albans, Hertfordshire, AL3 4ES, UK
E : letterbox@sada-architecture.com
W : www.sada-architecture.com
T : 01727 860810

project: 17-010-1 HAMPSHIRE STREET,LONDON NW5 2TE
drawing: PROPOSED THIRD FLOOR PLAN
date: 26.01.17 | drawn by: RP | check: CC
scale: 1:50 @ A1 | drwg no.: 303 | rev. no.: PC.02

12.2 Appendix 2 - Borehole Location Plan



12.3 Appendix 3 - Borehole Logs

Borehole Log

Borehole No. **BH01E**

Sheet 1 of 1

Project Name: 1 Hampshire Street	Project No. 1 Hampshire Street	Co-ords: -	Hole Type HA
Location: 1 Hampshire Street, Camden, London, NW5 2SS		Level: 47.00	Scale 1:50
Client: Kildara Construction		Dates: 22/06/2020 - 22/06/2020	Logged By P. Bhatia

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.15	46.85		Conglomerated concrete.
		0.25	ES		0.30	46.70		Made Ground - Light brown CLAY. Occasional fragments of brick.
		0.75	ES					Light brown CLAY.
					1.00	46.00		End of borehole at 1.00 m

Remarks
Borehole advanced to 1mbgl. No GW encountered.

Borehole Log

Borehole No. **BH02E**

Sheet 1 of 1

Project Name: 1 Hampshire Street	Project No. 1 Hampshire Street	Co-ords: -	Hole Type HA
Location: 1 Hampshire Street, Camden, London, NW5 2SS		Level: 47.00	Scale 1:50
Client: Kildara Construction		Dates: 22/06/2020 - 22/06/2020	Logged By P. Bhatia

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.40	46.60		Conglomerated concrete.
		0.50	ES		0.50	46.50		Brick hardcore.
		0.80	ES		0.65	46.35		Made Ground - Light brown CLAY. Occasional fragments of brick.
								Light brown CLAY.
					1.20	45.80		End of borehole at 1.20 m

Remarks

Borehole advanced to 1.2mbgl. No GW encountered.

Borehole Log

Borehole No. **BH03E**

Sheet 1 of 1

Project Name: 1 Hampshire Street	Project No. 1 Hampshire Street	Co-ords: -	Hole Type HA
Location: 1 Hampshire Street, Camden, London, NW5 2SS		Level: 47.00	Scale 1:50
Client: Kildara Construction		Dates: 22/06/2020 - 22/06/2020	Logged By P. Bhatia

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.45	46.55		Conglomerated concrete.
		0.55	ES		0.50	46.50		Made Ground - Blackish brown concrete rubble.
		0.80	ES		0.60	46.40		Made Ground - Light brown CLAY . Abundant brick fragments.
								Light brown CLAY.
					1.20	45.80		End of borehole at 1.20 m

Remarks
Borehole advanced to 1.2mbgl. No GW encountered.

Borehole Log

Borehole No. **BH04E**

Sheet 1 of 1

Project Name: 1 Hampshire Street	Project No. 1 Hampshire Street	Co-ords: -	Hole Type HA
Location: 1 Hampshire Street, Camden, London, NW5 2SS		Level: 47.00	Scale 1:50
Client: Kildara Construction		Dates: 22/06/2020 - 22/06/2020	Logged By

Well	Water Strikes	Samples and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.10	46.90		Conglomerated concrete.
		0.30	ES		0.20	46.80		Brick hardcore.
					0.35	46.65		Made Ground - Light brown silty CLAY. Abundant brick fragments.
		0.90	ES					Light brown CLAY.
					1.00	46.00		End of borehole at 1.00 m

Remarks
Borehole advanced to 1mbgl. No GW encountered.

12.4 Appendix 4 - Photographs


20


1


2


03


04

12.5 Appendix 5 – Laboratory Certification

Parminder Bhatia
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TW2 6RS

e: info@stmenvironmental.co.uk

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 20-16086

Project / Site name:	1 Hampshire Street, London NW5 2SS	**Samples received on:**	24/06/2020
Your job number:	1 HAMPSHIRE STREET	**Sample instructed/ Analysis started on:**	24/06/2020
Your order number:		**Analysis completed by:**	02/07/2020
Report Issue Number:	1	**Report issued on:**	02/07/2020
Samples Analysed:	8 soil samples		

Signed: Karolina Marek

Karolina Marek
PL Head of Reporting Team

For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 20-16086

Project / Site name: 1 Hampshire Street, London NW5 2SS

Lab Sample Number				1544036	1544037	1544038	1544039	1544040
Sample Reference				BH01/1	BH01/2	BH02/1	BH02/2	BH03/1
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.25	0.50	0.20	0.80	0.55
Date Sampled				22/06/2020	22/06/2020	22/06/2020	22/06/2020	22/06/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	11	12	18	20	11
Total mass of sample received	kg	0.001	NONE	1.0	0.50	1.1	0.50	1.0
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	8.1	8.1	7.9	7.9	9.0
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1	< 1	< 1
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	120	400	350	180	2400
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.061	0.20	0.17	0.092	1.2
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	60.9	202	174	91.6	1190
Sulphide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	12
Total Organic Carbon (TOC)	%	0.1	MCERTS	1.0	0.5	0.8	1.7	1.0
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	1.8
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	1.5
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	2.3
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	1.6
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	1.0	16
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.25	3.7
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	2.5	31
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	2.2	31
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	1.5	24
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	1.6	17
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	2.4	26
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	1.0	13
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	1.9	24
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	1.2	13
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	0.29	3.2
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	1.2	15
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	< 0.80	< 0.80	17.1	223
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	51	12	13	12	16
Boron (water soluble)	mg/kg	0.2	MCERTS	1.4	3.4	1.5	3.2	4.0
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	38	51	57	40	22
Copper (aqua regia extractable)	mg/kg	1	MCERTS	26	32	38	44	140
Lead (aqua regia extractable)	mg/kg	1	MCERTS	100	79	78	150	350
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.4	< 0.3	0.4	0.8	0.5
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	35	52	48	23	22
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	85	79	82	77	140

Analytical Report Number: 20-16086

Project / Site name: 1 Hampshire Street, London NW5 2SS

Lab Sample Number				1544036	1544037	1544038	1544039	1544040
Sample Reference				BH01/1	BH01/2	BH02/1	BH02/2	BH03/1
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.25	0.50	0.20	0.80	0.55
Date Sampled				22/06/2020	22/06/2020	22/06/2020	22/06/2020	22/06/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics & Oxygenates								
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	1.8
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	6.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0	< 8.0	15
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	65	< 8.0	< 8.0	< 8.0	43
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	69	< 10	< 10	< 10	66
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	7.7	3.4
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	8.6	16
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	< 10	< 10	14	110
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	180	< 10	11	37	250
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	190	< 10	19	67	380

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Lab Sample Number				1544041	1544042	1544043		
Sample Reference				BH03/2	BH04/1	BH04/2		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				0.80	0.30	0.90		
Date Sampled				22/06/2020	22/06/2020	22/06/2020		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1		
Moisture Content	%	N/A	NONE	17	18	16		
Total mass of sample received	kg	0.001	NONE	0.50	1.0	0.50		
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected		
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	7.9	7.6	7.7		
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1		
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	440	3900	920		
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.22	2.0	0.46		
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	219	1960	462		
Sulphide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Total Organic Carbon (TOC)	%	0.1	MCERTS	0.8	1.2	1.1		
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	0.43	0.40		
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	0.61	0.62		
Pyrene	mg/kg	0.05	MCERTS	< 0.05	0.50	0.96		
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	0.52	0.47		
Chrysene	mg/kg	0.05	MCERTS	< 0.05	0.34	0.59		
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	0.52	0.60		
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	0.18	0.30		
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	0.37	0.40		
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	0.20	< 0.05		
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	0.24	< 0.05		
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	3.91	4.34		
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	11	15	13		
Boron (water soluble)	mg/kg	0.2	MCERTS	3.1	3.8	2.9		
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2		
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	49	37	55		
Copper (aqua regia extractable)	mg/kg	1	MCERTS	38	60	44		
Lead (aqua regia extractable)	mg/kg	1	MCERTS	97	320	140		
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.6	1.2	0.6		
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	40	28	53		
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	84	100	100		

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Lab Sample Number				1544041	1544042	1544043		
Sample Reference				BH03/2	BH04/1	BH04/2		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				0.80	0.30	0.90		
Date Sampled				22/06/2020	22/06/2020	22/06/2020		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics & Oxygenates								
Benzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Toluene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
p & m-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
o-xylene	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001		
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001		
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001		
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0		
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0	< 8.0		
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	< 8.0	100		
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10	110		

TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001		
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001		
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	< 0.001		
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0		
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	< 10	< 10		
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	18	57		
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	28	64		

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* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1544036	BH01/1	None Supplied	0.25	Brown clay with gravel and brick.
1544037	BH01/2	None Supplied	0.50	Brown clay with gravel and brick.
1544038	BH02/1	None Supplied	0.20	Brown clay with gravel and vegetation.
1544039	BH02/2	None Supplied	0.80	Brown clay with gravel and brick.
1544040	BH03/1	None Supplied	0.55	Brown clay and sand with gravel.
1544041	BH03/2	None Supplied	0.80	Brown clay with gravel.
1544042	BH04/1	None Supplied	0.30	Brown clay and sand with gravel and brick.
1544043	BH04/2	None Supplied	0.90	Brown clay with gravel.

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Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L088/76-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

12.6 Appendix 6 – Adopted Generic Assessment Criteria

12.6.1 GAC for Commercial Land Use Scenario

Contaminant	Value (mg/kg)	Source
Arsenic	640	Category 4 Screening Levels - Commercial
Cadmium	190	LQM SULs - Commercial
Chromium	8600	LQM SULs - Commercial
Chromium - Hexavalent	33	Category 4 Screening Levels - Commercial
Copper	68000	LQM SULs - Commercial
Lead	2330	LQM SULs - Commercial
Mercury	1100	LQM SULs - Commercial
Nickel	980	LQM SULs - Commercial
Selenium	12000	LQM SULs - Commercial
Zinc	730000	LQM SULs - Commercial
Toluene	56000	LQM SULs - Commercial (1% Organic Matter)
Benzene	90	Category 4 Screening Levels - Commercial
Ethylbenzene	5700	LQM SULs - Commercial (1% Organic Matter)
m,p xylenes	5900	LQM SULs - Commercial (1% Organic Matter)
Naphthalene-d8	190	LQM SULs - Commercial (1% Organic Matter)
Acenaphthylene	83000	LQM SULs - Commercial (1% Organic Matter)
Acenaphthene	84000	LQM SULs - Commercial (1% Organic Matter)
Fluorene	63000	LQM SULs - Commercial (1% Organic Matter)
Phenanthrene	22000	LQM SULs - Commercial (1% Organic Matter)
Anthracene	520000	LQM SULs - Commercial (1% Organic Matter)
Fluoranthene	23000	LQM SULs - Commercial (1% Organic Matter)
Pyrene	54000	LQM SULs - Commercial (1% Organic Matter)
Benzo(a)anthracene	170	LQM SULs - Commercial (1% Organic Matter)
Chrysene	350	LQM SULs - Commercial (1% Organic Matter)
Benzo (b) fluoranthene	44	LQM SULs - Commercial (1% Organic Matter)
Benzo(k)fluoranthene	1200	LQM SULs - Commercial (1% Organic Matter)

Contaminant	Value (mg/kg)	Source
Benzo(a)pyrene	35	LQM SULs - Commercial (1% Organic Matter)
Dibenz-a-h-anthracene	3.5	LQM SULs - Commercial (1% Organic Matter)
Indeno(1,2,3-cd)pyrene	500	LQM SULs - Commercial (1% Organic Matter)
Benzo (g,h,i) perylene	3900	LQM SULs - Commercial (1% Organic Matter)
Phenols, Total Detected 5 speciated	440	LQM SULs - Commercial (1% Organic Matter)
Aliphatics >C5-6	3200	LQM SULs - Commercial (1% Organic Matter)
Aliphatics >C6-8	7800	LQM SULs - Commercial (1% Organic Matter)
Aliphatics >C8-10	2000	LQM SULs - Commercial (1% Organic Matter)
Aliphatics >C10-12	9700	LQM SULs - Commercial (1% Organic Matter)
Aliphatics >C12-16	59000	LQM SULs - Commercial (1% Organic Matter)
Aliphatics >C16-C35	1600000	LQM SULs - Commercial (1% Organic Matter)
Aliphatics >C21-35	28000	LQM SULs - Commercial (1% Organic Matter)
Aliphatics >C35-44	1600000	LQM SULs - Commercial (1% Organic Matter)
Aromatics >C5-7	27	LQM SULs - Commercial (1% Organic Matter)
Aromatics >C8-10	3500	LQM SULs - Commercial (1% Organic Matter)
Aromatics >C10-12	16000	LQM SULs - Commercial (1% Organic Matter)
Aromatics >C12-16	36000	LQM SULs - Commercial (1% Organic Matter)
Aromatics >C16-21	28000	LQM SULs - Commercial (1% Organic Matter)
Aromatics >C35-44	28000	LQM SULs - Commercial (1% Organic Matter)

12.6.2 GAC for Residential (without homegrown produce)

Contaminant	Concentration (mg/kg)	GAC Literature Source
Arsenic	40	Category 4 Screening Levels - Residential (without homegrown produce)
Cadmium	85	LQM SULs - RWOPU
Chromium	910	LQM SULs - RWOPU
Chromium - Hexavalent	6	LQM SULs - RWOPU
Copper	7100	LQM SULs - RWOPU
Lead	310	LQM SULs - RWOPU
Mercury	56	LQM SULs - RWOPU
Nickel	180	LQM SULs - RWOPU
Selenium	430	LQM SULs - RWOPU
Zinc	40000	LQM SULs - RWOPU
Toluene	860	LQM SULs - RWOPU (1% OM)
Benzene	1.4	Category 4 Screening Levels - Residential (without homegrown produce)
Ethylbenzene	83	LQM SULs - RWOPU (1% OM)
m,p xylenes	79	LQM SULs - RWOPU (1% OM)
Acenaphthylene	2900	LQM SULs - RWOPU (1% OM)
Acenaphthene	3000	LQM SULs - RWOPU (1% OM)
Fluorene	2800	LQM SULs - RWOPU (1% OM)
Phenanthrene	1300	LQM SULs - RWOPU (1% OM)
Anthracene	31000	LQM SULs - RWOPU (1% OM)
Fluoranthene	1500	LQM SULs - RWOPU (1% OM)
Pyrene	3700	LQM SULs - RWOPU (1% OM)
Benzo(a)anthracene	11	LQM SULs - RWOPU (1% OM)
Chrysene	30	LQM SULs - RWOPU (1% OM)
Benzo (b) fluoranthene	3.9	LQM SULs - RWOPU (1% OM)
Benzo(k)fluoranthene	110	LQM SULs - RWOPU (1% OM)
Benzo(a)pyrene	2.5	LQM SULs - RWOPU (1% OM)
Dibenz-a-h-anthracene	0.31	LQM SULs - RWOPU (1% OM)
Indeno(1,2,3-cd)pyrene	45	LQM SULs - RWOPU (1% OM)
Benzo (g,h,i) perylene	360	LQM SULs - RWOPU (1% OM)
Aliphatics >C5-6	42	LQM SULs - RWOPU (1% OM)
Aliphatics >C6-8	100	LQM SULs - RWOPU (1% OM)
Aliphatics >C8-10	27	LQM SULs - RWOPU (1% OM)
Aliphatics >C10-12	130	LQM SULs - RWOPU (1% OM)
Aliphatics >C12-16	1100	LQM SULs - RWOPU (1% OM)
Aliphatics >C16-C35	65000	LQM SULs - RWOPU (1% OM)
Aliphatics >C21-35	1900	LQM SULs - RWOPU (1% OM)

Contaminant	Concentration (mg/kg)	GAC Literature Source
Aliphatics >C35-44	65000	LQM SULs - RWOPU (1% OM)
Aromatics >C5-7	0.38	LQM SULs - RWOPU (1% OM)
Aromatics >C8-10	47	LQM SULs - RWOPU (1% OM)
Aromatics >C10-12	250	LQM SULs - RWOPU (1% OM)
Aromatics >C12-16	1800	LQM SULs - RWOPU (1% OM)
Aromatics >C16-21	1900	LQM SULs - RWOPU (1% OM)
Aromatics >C21-35	1900	LQM SULs - RWOPU (1% OM)
Aromatics >C35-44	1900	LQM SULs - RWOPU (1% OM)
Napthalene	2.3	LQM SULs - RWOPU (1% OM)
Phenol	440	LQM SULs - RWOPU (1% OM)

12.7 Appendix 8 - 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:

RISK = LIKELIHOOD × SEVERITY

The matrix given in Table 7 provides a means of calculating the overall risk; while Table 4 provides the qualitative assessment based on the risk score.

Table 3: Contamination Risk Matrix

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

Table 4: Assessment description for risk scores

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

Table 5: Risk Classification System

Risk Term	Description
Very Low to Low	The presence of an identified hazard does not give rise to the potential to cause significant harm to a designated receptor. In the event of such harm being realized, it is not likely to be Severe.
Low to Moderate	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.
Moderate	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.
High	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.
Very High	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, Tolulene, 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
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
PCL	Potentially Contaminative Land Use
PPL	Potential Pollutant Linkage
PSPPL	Potentially Significant Potential Pollutant Linkage
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

1. CLAIRE\ Chartered Institute of Environmental Health (May 2008) - Guidance on comparing soil contamination data with a critical concentration

2. Department of Environment (1994), CLR 3, Documentary Research on Industrial Sites, 3. Contaminated Land Research Report

3. Environment Agency (2005) - Model Procedures for the Management of Land Contamination

4. British Standards Institution (2011) - BS 10175 2011 Investigation of Contaminated Sites – Code of Practice

5. Department of Environment (2002) - Priority Contaminants Report, CLR8

6. Department of Environment: Contaminated Land Research Report No. 6, (1995) – Prioritisation and Categorisation Procedure for Sites which may be contaminated

7. Department of Environment, Food and Rural Affairs, Environment Agency (2002) - The Contaminated Land Exposure Assessment Model (CLEA): Technical Basis and Algorithms

8. National House-Building Council, Environment Agency, Chartered Institute of Environmental Health (2008) - Guidance for the Safe Development of Housing on Land Affected by Contamination - R&D Publication 66: 2008.