Haringey 6th Form College
White Hart Lane
N17 8HR

Ground Investigation

for Haringey Sixth Form College

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This report is intended as a Ground Investigation Report (GIR) as defined in BS EN1997-2, unless specifically noted otherwise. The report is not a Geotechnical Design Report (GDR) as defined in EN1997-2 and recommendations made within this report are for guidance only.

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Executive summary

This executive summary contains an overview of the key findings and conclusions. No reliance should be placed on any part of the executive summary until the whole of the report has been read. Other sections of the report may contain information that puts into context the findings that are summarised in the executive summary.

Brief

This report describes the findings of a site investigation carried out by Geotechnical and Environmental Associates Limited (GEA) on the instructions of Orbis Limited, on behalf of Haringey Sixth Form College, with respect to the redevelopment of the site including the expansion of the current facilities at the College. This expansion work is scheduled to comprise internal refurbishment, as well as the extension of the existing structure to the south of the main building, and will require the demolition of the Amphitheatre located to the east of the main entrance to the college.

The purpose of the investigation has been to research the history of the site with respect to possible contaminative uses, to determine the ground conditions and to provide an indication of the presence of contamination.

A desk study (ref MGS64173-PRA, dated August 2025) and a geotechnical ground investigation (ref MGS64173-Geotechnical, dated October 2025) have previously been produced by Murphy Geospatial, and are referred to as appropriate.

Previous Desk Study Findings

The Murphy report findings are summarised below, but it has not been possible to verify the information as the historical maps referred to were not made available to GEA. The earliest map studied, dated 1867, shows the site to be undeveloped land divided into individual paddocks that likely formed part of the Brunswick Nursery that lay to the south. The land was immediately surrounded by open fields to the north and southwest as well as residential properties to the west. By 1895 the site had been developed with St Katherine's College and an educational facility has remained on the site since then. The 1936 maps show three furniture manufactories, located about 103 m to the northwest, 138 m to the east and 266 m to the northeast. However, by 1936 these are no longer referred to as furniture manufactories and unspecified works remain in these locations to present (at the time of this report). By 1967 the college was referred to as the College of All Saints. By 2003 the site had been further developed and was home to Middlesex University. It was not until 2007 that Haringey Sixth Form College was founded and remains on the site.

Previous Ground Investigation Findings

The previous investigation identified made ground extending to depths of up to 1.7 m, underlain by the Taplow Gravel Member to depths of between 4.5 m and 4.6 m, which generally comprised firm to stiff clay with flint and chert gravels, over clayey sandy gravel. The London Clay Formation was encountered below the Taplow Gravel and extended to the maximum depth investigated of 5.0 m below ground level. Groundwater was encountered locally within the made ground and superficial deposits.

Ground conditions

GEA investigated the southeastern side of the site where boreholes were advanced to a maximum depth of 3.0 m. Made ground was encountered to a maximum depth of 1.00 m where proved, and consisted of an initial layer of topsoil to a depth of 0.50 m, over orange-brown sandy clay with occasional fine to medium fragments of red brick and gravel, together with occasional rounded fragments of flint and chert. The underlying Taplow Gravel Member comprised firm orange-brown sandy clay with fine to medium subrounded to rounded flint and chert gravel, increasing in stifness and becoming silty with depth, grading to stiff orange-brown silty clay containing occasional flint and chert gravel with orange weathering streaks. No groundwater was encountered during drilling

The encountered strata were generally consistent with the anticipated geological sequence, and previous findings of Murphy Geospatial.

Chrysotile asbestos was detected as asbestos cement, with a quantification of <0.001%. No other concentrations of contaminants were recorded to be elevated in the made ground.

Recommendations

As the site will be covered by the proposed building and new areas of hardstanding, the pathway between any residual made ground and the end users of the site will be eliminated and no further remedial measures will be required to protect end users. General good construction practice should also be adopted during groundworks, including implementation of dust suppression measures to prevent fugitive emissions and protect adjacent site users. It will be necessary to maintain good site hygiene, use of appropriate personal protective equipment, and briefing of site personnel regarding the potential for isolated asbestos cement fragments within the made ground. A watching brief will need to be maintained under a discovery strategy, particularly for suspected asbestos containing material, and the chosen contractor should be suitably experienced and qualified to prepare a plan of work with respect to the asbestos contamination.

Part 1: Investigation Report

This section of the report details the objectives of the investigation, the work that has been carried out to meet these objectives and the results of the investigation. Interpretation of the findings is presented in Part 2.

1.0 Introduction

Geotechnical and Environmental Associates Limited (GEA) has been instructed by Orbis Limited, on behalf of Haringey 6th Form, to carry out a ground investigation at Haringey 6th Form College, White Hart Lane, N17 8HR.

Geotechnical recommendations did not form part of the project brief.

A desk study (ref MGS64173-PRA, dated August 2025) and separate geotechnical investigation (ref MGS64173-Geotechnical, dated October 2025) have been carried out by Murphy Geospatial, and the findings are referred to as appropriate.

1.1 Proposed Development

It is understood that the proposed works for the site will comprise the demolition of the Amphitheatre and an extension to the existing college building to include flexible shared spaces, teaching rooms and office accommodation for the staff due to the increase in students. The proposed extension building will be approximately 0.11 Ha.

This report is specific to the proposed development and the advice herein should be reviewed if the development proposals are amended.

1.2 Purpose of Work

The principal technical objectives of the work carried out were as follows:

- to review the previous desk study report;
- to provide an assessment of the risk of encountering unexploded ordnance (UXO);
- to determine the ground conditions;
- to provide an indication of the degree of soil contamination present; and
- to assess the risk that any such contamination may pose to the proposed development, its users or the wider environment.

1.3 Scope of Work

In the light of the previous desk study and investigation carried out by Murphy Geospatial, an intrusive ground investigation was carried out which comprised, in summary, the following activities:

- commissioning and review of a Preliminary UXO Risk Assessment;
- four opendrive sampler boreholes advanced to a depth of up to 3.00 m;
- testing of selected soil samples for contamination purposes; and
- provision of a report presenting and interpreting the above data, together with our advice and recommendations with respect to the proposed development.

This report includes a contaminated land assessment which has been undertaken by a suitably qualified and competent professional in accordance with the methodology presented by the Environment Agency in their Land contamination risk assessment (LCRM)[1] Updated 12 June 2025. This involves identifying, making decisions on, and taking appropriate action to deal with, land contamination in a way that is consistent with government policies and legislation within the United Kingdom. Risk management is divided into three stages; Risk Assessment, Options Appraisal and Remediation, and each stage comprises three tiers. The Risk Assessment stage includes preliminary risk assessment (PRA), generic quantitative risk assessment (GQRA) and detailed quantitative risk assessment (DQRA) and this report includes the GQRA.

[1] https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm

2.0 The Site

The site is located in the Tottenham area of London Borough of Haringey in North London, 250 m from White Hart Lane station. White Hart Lane forms the southern site boundary and to the north is Academia Way. Residential properties and a Gospel Centre located off Queen Street form the western site boundary whilst to the east is an apartment block, Lorenco House as well as buildings related to the Causeway Irish Housing Association and Haringey Shed Inclusive Theatre. The entrance to the subject site is located off White Hart Lane, with the site centred at the approximate National Grid Reference TQ335914.

The area of the investigation is located in the south of the college complex and comprises a tarmac covered triangular area measuring approximately 35 m x 35 m with immature trees bordering along the western boundary and mature London planes to the south. There are a number of buried services on utility drawings, and prior to the ground investigation a trench had been excavated in the south of the site exposing two electricity cables. It was also noted that the Amphitheatre had been demolished, with the rubble remaining. The ground level sloped up towards the north in this area by approximately 0.5 m.

Murphey Geospatial has confirmed that Haringey 6th Form College has been constructed over a series of levels with several sets of shallow staircases and ramps located around the site. To the north and south of the main building, the Ordnance Survey undertaken by Murphey Geospatial suggests that these areas are located at about 16 m AOD. However to the west the general topography rises to 19 m AOD and drops to 13 m AOD to the east. Around the perimeter of the college complex are several trees in various stages of maturity. There are also areas of soft landscaping around the site that contain various bushes, plants, etc.

2.1 Previous Desk Study Findings

The Murphy Geospatial report findings are summarised below, but it has not been possible to verify the information as the historical maps referred to were not made available to GEA.

The earliest map studied, dated 1867, shows the site to be undeveloped land divided into individual paddocks that likely formed part of the Brunswick Nursery that lay to the south. The land was immediately surrounded by open fields to the north and southwest as well as residential properties to the west. By 1895 the site had been developed with St Katherine's College and an educational facility has remained on the site since then. The 1936 maps show three furniture manufactories, located about 103 m to the northwest, 138 m to the east and 266 m to the northeast. However, by 1936 these are no longer referred to as furniture manufactories and unspecified works remain in these locations to present (at the time of this report). By 1967 the college was referred to as the College of All Saints. By 2003 the site had been further developed and was home to Middlesex University. It was not until 2007 that Haringey Sixth Form College was founded and remains on the site.

Historically, the surrounding area was more industrial in character than the site itself. Murphey Geospatial has identified features recorded within approximately 500 m of the site including a brewery to the east, brick fields and a clay mill to the south, railway sidings and associated goods depots to the east, furniture manufactories, engineering and printing works, a distillery, gravel pits, brick kilns, commercial and industrial premises, tanks, garages, electricity substations and areas of ground workings. It is not clear their exact whereabouts due to the fact the maps were not made available to GEA and therefore it is not possible to confirm the extent of their impact on the contaminative history of the site. The progressive expansion of White Hart Lane Station and surrounding residential and commercial development led to the urbanisation of the area during the late nineteenth and twentieth centuries. Despite these off-site industrial activities, the site itself has remained in educational use for over 130 years.

2.2 Geology, Hydrology and Hydrogeology

Published British Geological Survey (BGS) mapping indicates that the northwestern parts of the site are underlain by the Enfield Silt Member, with the southeastern parts of the site underlain by the Taplow Gravel Member. These are in turn underlain by the London Clay Formation.

According to the BGS lexicon, the Taplow Gravel comprises sand and gravel, locally with lenses of silt, clay or peat, and the Enfield Silt Member varies from silt to clay, commonly yellow-brown. The underlying London Clay Formation comprises a relatively homogenous slightly calcareous silty clay to very silty clay, with some beds of clayey silt grading to silty fine-grained sand.

Both the Enfield Silt Member and the London Clay Formation are classified as comprise Unproductive Strata, whereas the Taplow Gravel is classified as a Secondary 'A' Aquifer, which refers to permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers.

Mapping and environmental data reviewed as part of the desk study indicate that the nearest surface water feature is the Moselle Brook, located approximately 114 m to 150 m south and south-east of the site. The site lies within the Moselle Brook Water Framework Directive catchment. Environmental database records, located by Murphey Geospatial also identify a number of licensed groundwater abstraction points within the surrounding area, with the nearest Source Protection Zone located approximately 431 m to the south-east of the site.

2.2 Preliminary UXO Risk Assessment

A Preliminary UXO Risk Assessment has been completed by 1st Line Defence (report ref PA16685b-00, dated 11th September 2026), and the report is included in the appendix. The risk assessment has been carried out in accordance with the guidelines provided by CIRIA[2], which state that the likelihood of encountering and detonating UXO below a site should be assessed along with establishing the consequences that may arise. The first phase comprises a preliminary risk assessment, which should be undertaken at an early stage of the development planning. If such an assessment identifies a high level of risk then a detailed risk assessment should be carried out by a UXO specialist, which will identify an appropriate course of action with regard to risk mitigation.

This report summarises that During WWII the site was situated within the Municipal Borough of Tottenham with an overall high density of bombing according to official Home Office bombing statistics, with an average of 103.9 items of ordnance recorded per 1,000 acres. London Bomb Census mapping records no bomb strikes on site. The nearest bomb is plotted approximately 80 m north-east of the site boundary on the evening of Saturday 12th January 1941. This is corroborated by Tottenham bomb plot mapping which records the nearest bomb strike in the same location. Given that the site was predominantly occupied by a road within an urbanised area of London, access to the site is anticipated to have been frequent with high levels of observation. Items of UXO are more likely to have been spotted, recorded, and dealt with in areas that were frequently accessed.
Given these findings, the report concluded that undertaking further study in the form of a Detailed UXO Risk Assessment would not significantly alter the findings of low/minimal risk from UXO at this site. Therefore, no further research is recommended by the report.

2.3 Previous Ground Investigation

A geotechnical investigation comprising trial pits, boreholes, dynamic probing and laboratory testing was undertaken by Murphy Geospatial to assess the ground conditions beneath the site. The details of their findings are summarised below.

The investigation encountered made ground across the site to depths generally ranging from approximately 1.15 m to 1.65 m. The made ground was predominantly recorded as comprising firm to stiff sandy gravelly clay containing varying proportions of flint, brick, concrete, clinker, plastic, metal, ceramic and other anthropogenic materials. Locally, cobbles and boulders of brick and concrete were present.

Beneath the made ground, deposits of the Taplow Gravel Member were recorded at all locations where sufficient penetration was achieved. The upper part of these deposits was generally recorded as comprising firm to stiff sandy clay with occasional gravel of flint and chert, extending to depths of between approximately 3.6 m and 4.2 m. At some locations this material transitioned into a clayey sandy gravel comprising predominantly flint and chert, extending to depths of approximately 4.5 m to 4.6 m.

Beneath the Taplow Gravel, the London Clay Formation was encountered at depths of approximately 4.2 m to 4.6 m, which was recorded as weathered in WS03, and proved to the maximum explored depth of 5.0 m. It generally comprised stiff to very stiff brown and grey clay with occasional orange-brown mottling and contained frequent selenite crystals.

Groundwater was recorded within WS01, to the North of the site, at approximately 1.32 m within the Made ground, and within WS03, located nearby GEA's site area, at approximately 3.6 m within the Taplow Gravel Member.

2.4 Preliminary Contamination Risk Assessment

Part IIA of the Environmental Protection Act 1990, which was inserted into that Act by Section 57 of the Environment Act 1995, provides the main regulatory regime for the identification and remediation of contaminated land. The determination of contaminated sites is based on a "suitable for use" approach which involves managing the risks posed by contaminated land by making risk-based decisions. This risk assessment is carried out on the basis of a source-pathway-receptor approach.

2 CIRIA C681 (2009) *Unexploded ordnance (UXO) A guide for the construction industry*

2.4.1 Source

The previous desk study findings indicate that the site does not have a potentially contaminative history, having remained in educational use since the construction of St Katherine's College in the late nineteenth century.

The Murphy desk study listed a number of potentially contaminative off-site historical land uses including extensive railway infrastructure comprising railway sidings, railway buildings and a railway station located between approximately 44 m and 153 m east to southeast of the site. Other nearby industrial and commercial land uses included a brewery, furniture manufactory, waterproof factory, industrial estate and various unspecified works. Additional historical features comprise nurseries (179 m), a brick field (235 m) and a cemetery (173 m from the site).

The historical railway and industrial land uses represent the principal potential sources of contamination. Associated contaminants may include petroleum hydrocarbons, PAHs, heavy metals, asbestos, solvents and other industrial chemicals. The former nursery areas may have contributed pesticide and fertiliser residues, while the historical brick field may be associated with ash, clinker and made ground.

In view of the age and distance of the brickfield, it does not represent a source of landfill gas. No other sources of landfill gas have been identified in the vicinity.

2.4.2 Receptor

The proposed redevelopment of the building for educational purposes will result in the end users representing moderate sensitivity receptors. The principal human receptors comprise current and future college students, teaching staff, visitors and site maintenance personnel. Buried services are likely to come into contact with any contaminants present within the soils through which they pass and site workers are potential receptors during construction or maintenance works. The underlying Secondary 'A' Aquifer is a sensitive receptor, as are adjacent sites and the principal aquifer at depth.

2.4.3 Pathway

Potential pathways are limited by the generally low permeability nature of the underlying strata. The southeastern part of the site is underlain by the Taplow Gravel Member, which may allow limited infiltration and lateral migration of contaminants within groundwater. However, the underlying London Clay Formation is of negligible to very low permeability and acts as an effective barrier to deeper contaminant migration. Extensive building footprints, hardstanding and paved surfaces across the developed site further reduce the potential for infiltration of surface contaminants into the ground.

Within the site, end users will be isolated from direct contact with any contaminants present within the made ground by the presence of the buildings and the extent of the hardstanding. Buried services may be exposed to any contaminants present within the soil through direct contact and site workers will come into contact with the soils during construction works. There is thus considered to be a low potential for a contaminant pathway to be present between any potential contaminant source and a target for the particular contaminant.

2.4.4 Preliminary Risk Appraisal

On the basis of the above it is considered that there is a LOW risk of there being a significant contaminant linkage at this site that could result in a requirement for any remediation work.

A requirement for gas monitoring or protection is not envisaged.

3.0 Exploratory Work

In order to meet the objectives described in Section 1.2, a total of two boreholes was advanced using an open-drive percussive sampler to a depth of 3.00 m. These boreholes were supplemented by a hand excavated pit to collect additional soil samples. Environmental samples were recovered from the boreholes. Two further boreholes (BH3 and BH3A) were terminated early at 0.70 m and 1.00 m respectively due to the abundance of services in the area. The locations of the boreholes were limited by the presence of buried services including electricity cables in the south and east, along with a gas main in the northwest.

All fieldwork was supervised by engineers from GEA. A selection of samples recovered from the boreholes were submitted to a laboratory for contamination testing; the results of the analysis are to follow.

The Borehole records are appended, together with a site plan indicating the exploratory positions.

3.1 Sampling Strategy

The boreholes were positioned by GEA to avoid buried services.

A total of six samples of the made ground has been tested for the presence of contamination. The analytical suite of testing was selected to identify a range of typical industrial contaminants for the purposes of general coverage. The analytical suite for the soil included a range of metals, speciation of total petroleum hydrocarbons (TPH), polycyclic aromatic hydrocarbons (PAH), total cyanide and monohydric phenols. Selected samples were also screened for the presence of asbestos. The analyses were carried out at an MCERTs accredited laboratory with the majority of the testing suite accredited to MCERTS standards. A summary of the MCERTs accreditation and test methods are included with the attached results, and further details are available upon request.

4.0 Ground Conditions

The boreholes have confirmed the expected ground conditions in that, below a moderate thickness of made ground, the Taplow Gravel member is present.

4.1 Made Ground

The surfacing comprised tarmac underlain by concrete, which extended to a depth of approximately 0.20 m. The underlying made ground comprised topsoil to a depth of 0.50 m, which was in turn underlain by orange-brown sandy clay with occasional fine to medium fragments of red brick and gravel, together with occasional rounded fragments of flint and chert, which extended to depths of between at least 0.70 m and 1.00 m depth, though the full thickness was not proved at all of the exploratory locations.

No visual or olfactory evidence of contamination was observed in the made ground.

4.2 Taplow Gravel Member

This stratum was proved to the maximum depth investigated of 3.00 m, and initially comprised firm orange-brown sandy clay with fine to medium subrounded to rounded flint and chert gravel. With depth, the deposit increased in stiffness and became silty, grading to a stiff orange-brown silty clay, with occasional flint and chert gravel, and orange weathering streaks.

Occasional roots and partial desiccation were also recorded in Borehole No 2.

No evidence of ground contamination was observed within this stratum.

4.3 Groundwater

Groundwater was not encountered in either of the boreholes carried out by GEA.

The ground investigation by Murphy Geospatial recorded groundwater in two exploratory locations: within made ground at 1.32 m in WS01/TP01 to the North of the site and within the superficial Taplow Gravel Member at 3.6 m in WS03/TP03, in the southern area of the site. All other exploratory holes remained dry during the period of observation.

The groundwater levels recorded should not be considered representative equilibrium levels due to the short duration that the exploratory holes remained open, and groundwater levels may vary seasonally and over time.

4.4 Soil Contamination

A range of samples from the made ground have been selected for contamination testing, and the results are discussed below.

4.4.1 Generic Quantitative Risk Assessment

The use of a risk-based approach has been adopted to provide an initial screening of the test results to assess the need for subsequent site-specific risk assessments. Contaminants of concern are those that have values in excess of generic human health risk-based guideline values, which are either the CLEA[3] Soil Guideline Values where available, the Suitable 4 Use Values[4] (S4UL) produced by LQM/CIEH calculated using the CLEA UK Version 1.07[5] software, or the DEFRA Category 4 Screening values[6], assuming a residential without plant uptake end use. The key generic assumptions for this end use are as follows:

- that groundwater will not be a critical risk receptor;
- that the critical receptor for human health will be a young female aged 0 to 6 years old;
- that the exposure duration will be six years;
- that the critical exposure pathways will be indoor dust ingestion, skin contact with indoor dust, and inhalation of indoor and outdoor dust and vapours; and
- that the building type equates to a terraced house.

It is considered that these assumptions are acceptable for this generic assessment of this site, with the exception of the risk to groundwater. The tables of generic screening values derived by GEA and an explanation of how each value has been derived are included in the Appendix.

Where contaminant concentrations are measured at concentrations below the generic screening value it is considered that they pose an acceptable level of risk and thus further consideration of these contaminant concentrations is not required. However, where concentrations are measured in excess of these generic screening values there is considered to be a potential that they could pose an unacceptable risk and thus further action will be required which could include;

- additional testing to zone the extent of the contaminated material and thus reduce the uncertainty with regard to its potential risk;
- site specific risk assessment to refine the assessment criteria and allow an assessment to be made as to whether the concentration present would pose an unacceptable risk at this site; or
- soil remediation or risk management to mitigate the risk posed by the contaminant to a degree that it poses an acceptable risk.

Chrysotile asbestos was detected as asbestos cement in one of the samples tested, at a concentration of <0.001%. No other concentrations of contaminants are elevated above the guideline values for a residential without plant uptake end use.

3 *Updated Technical Background to the CLEA Model (Science Report SC050021/SR3) Jan 2009* and Soil Guideline Value reports for specific contaminants; all DEFRA and Environment Agency.

4 *The LQM/CIEH S4Uls for Human Health Risk Assessment* S4UL3065 November 2014

5 Contaminated Land Exposure Assessment (CL|EA) Software Version 1.071 Environment Agency 2015

6 CL:AIRE (2013) *Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination* Final Project Report SP1010 and DEFRA (2014) *Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination* Policy Companion Document SP1010

Part 2: Design Basis Report

This section of the report provides an interpretation of the findings detailed in Part 1, in the form of a ground model, and then provides advice and recommendations with respect to the proposed development.

5.0 Ground Model

It is proposed to expand the current facilities at Haringey 6th Form College as a means to allow for the increasing number of enrolled students. This expansion work is scheduled to comprise internal refurbishment, as well as the extension of the existing structure in areas mainly to the south of the main building.

The desk study has found that the site has not had a potentially contaminative history as the site was occupied by paddocks that likely formed part of the adjacent Brunswick Nursery and was then redeveloped with the construction of St Katherine's College, establishing an educational use that has remained continuous to the present day. The site subsequently became the College of All Saints, later Middlesex University, and has operated as Haringey Sixth Form College since 2007. On the basis of the fieldwork, the ground conditions can be characterised as follows:

- Below the existing tarmac and concrete hardstanding, made ground was encountered to a depth of maximum depth of 1.00 m where proved, and was underlain by the Taplow Gravel;
- the made ground initially comprises a layer of topsoil to a depth of 0.50 m;
- below the topsoil, the made ground comprises orange-brown clay with occasional fine to medium fragments of red brick and gravel, together with occasional rounded fragments of flint and chert to a depth of 1.00 m;
- the Taplow Gravel Member comprises firm, orange-brown, sandy clay with fine to medium subrounded to rounded flint and chert gravel, increasing in stiffness and becoming silty with depth, grading to stiff orange-brown silty clay containing occasional flint and chert with orange weathering streaks;
- occasional roots and partial desiccation were locally recorded in the Taplow Gravel;
- groundwater was not encountered during the GEA intrusive ground investigation;
- a previous investigation undertaken by Murphy Geospatial recorded groundwater within the Made ground at approximately 1.32 m bgl in WS01/TP01 and within the Taplow Gravel Member at approximately 3.6 m bgl in WS03/TP03, whilst all other exploratory locations remained dry during the monitoring period; and
- chrysotile asbestos was detected as asbestos cement, at a concentration of <0.001% in one of the samples tested. No other concentrations of contaminants are elevated.

6.0 Recommendations

6.1 Contamination Risk Assessment

The site does not have a contaminative history and based on the preliminary risk assessment the overall risk to sensitive receptors was assessed to be low. Asbestos has been detected in the made ground, although no other elevated concentrations of contaminants have been recorded.

Asbestos is only a risk to humans if the asbestos fibres become airborne. Given the positive identification of asbestos within one of the samples of made ground, including of cement, it can be assumed that some of the made ground contains a degree of asbestos. Quantification testing revealed the maximum concentration of asbestos found by this investigation is 0.001% but it may be present at higher concentrations elsewhere in the affected part of the site.

According to the HSE, there is now significant monitoring evidence available within the ground investigation and remediation industry to suggest that significant visible quantities of bound ACMs will need to be present to give rise to exposures above 0.01 f/ml, equivalent to one tenth of the control limit, unless they are being subject to highly energetic processes (e.g. crushing, power screening and grading of demolition waste and made ground or soil).

Contractors should be made aware of the presence of asbestos in the soil and appropriate measures taken to prevent exposure and / or fugitive emissions of fibres. Consideration will also need to be given to the protection of end users in any soft landscaped areas and of adjacent site users during the construction process. The asbestos is not in a soluble state and does not, therefore, pose a risk to groundwater or buried services. The risks are further assessed below.

General good construction practice should also be adopted during groundworks, including implementation of dust suppression measures where necessary to prevent fugitive emissions and protect adjacent site users.

6.1.1 End Users and Adjacent Site Users

As the site will be covered by the proposed building and new areas of hardstanding, the pathway between any residual made ground and the end users of the site will be eliminated and no further remedial measures will be required to protect end users.

6.1.2 Site Workers

Site workers should be made aware of the possible presence of contamination, and a programme of working should be identified to protect workers handling any soil. The method of site working should be in accordance with guidelines set out by HSE[7] and CIRIA[8] and the requirements of the Local Authority Environmental Health Officer.

It will be necessary to maintain good site hygiene, use of appropriate personal protective equipment, and briefing of site personnel regarding the potential for isolated asbestos cement fragments within the made ground.

A watching brief should be maintained during demolition and groundworks, and any previously unidentified contamination should be investigated further. The chosen contractor should be suitably experienced and qualified to prepare a plan of work with respect to the asbestos contamination.

7 HSE (1992) HS(G)66 *Protection of workers and the general public during the development of contaminated land* HMSO

8 CIRIA (1996) *A guide for safe working on contaminated sites* Report 132, Construction Industry Research and Information Association

6.2 Waste Disposal

Under the Waste Framework Directive, waste is classified as being either Hazardous or Non-Hazardous and landfills receiving waste are classified as accepting hazardous or non-hazardous wastes or the non-hazardous sub-category of inert waste in accordance with the Waste Directive. Waste classification is a staged process, and this investigation represents the preliminary sampling exercise of that process. Once the extent and location of the waste that is to be removed has been defined, further sampling and testing may be necessary. The results from this ground investigation should be used to help define the sampling plan for such further testing, which could include WAC leaching tests where the totals analysis indicates the soil to be a hazardous waste or inert waste from a contaminated site. It should however be noted that the Environment Agency guidance WM3[9] states that landfill WAC analysis, specifically leaching test results, must not be used for waste classification purposes.

Any spoil arising from excavations or landscaping works, which is not to be re-used in accordance with the CL:AIRE[10] guidance, will need to be disposed of to a licensed tip. Waste going to landfill is subject to landfill tax at either the current standard rate of £130.75 per tonne (about £240.00 per m^3) or at the lower rate of £8.65 per tonne (roughly £16.00 per m^3). However, the classifications for tax purposes and disposal purposes differ and currently all made ground and topsoil is taxable at the 'standard' rate and only naturally occurring soil and stones, which are accurately described as such in terms of the 2011 Order, would qualify for the 'lower rate' of landfill tax.

Based on the technical guidance provided by the EA it is considered likely that the soils encountered during this ground investigation, as represented by the chemical analyses carried out, would be generally classified as follows.

Soil Type	Waste Classification (Waste Code)	WAC Testing Required Prior to Landfill Disposal?	Current applicable rate of Landfill Tax
Made ground	Non-hazardous (17 05 04)	No	£130.75/tonne (Standard rate)
Natural soil	Inert non-hazardous (17 05 04)	Should not be required but confirm with receiving landfill	£8.65 / tonne (Reduced rate for uncontaminated naturally occurring rocks and soils)

Under the requirements of the Waste Directive all waste needs to be pre-treated prior to disposal. The pre-treatment process must be physical, thermal, chemical or biological, including sorting. It must change the characteristics of the waste in order to reduce its volume, hazardous nature, facilitate handling or enhance recovery. The waste producer can carry out the treatment but they will need to provide documentation to prove that this has been carried out. Alternatively, the treatment can be carried out by an approved contractor. The Environment Agency has issued a position paper[11] which states that in certain circumstances, segregation at source may be considered as pre-treatment and thus excavated material may not have to be treated prior to landfilling if the soils can be segregated onsite prior to excavation by sufficiently characterising the soils in situ prior to excavation.

WM3 calculations have declared the made ground non-hazardous however labs detected fragments of ACM as asbestos cement and therefore the waste is immediately classified as Mixed Waste and hazardous unless separated.

The above opinion with regard to the classification of the excavated soils is provided for guidance only and should be confirmed by the receiving landfill once the soils to be discarded have been identified. The local waste regulation department of the Environment Agency (EA) should be contacted to obtain details of tips that are licensed to accept the soil represented by the test results. The tips will be able to provide costs for disposing of this material but may require further testing.

9 Environment Agency 2015. *Guidance on the classification and assessment of waste.* Technical Guidance WM3 First Edition

10 CL:AIRE March 2011. *The Definition of Waste: Development Industry Code of Practice* Version 2

11 Environment Agency 23 Oct 2007 *Regulatory Position Statement Treating non-hazardous waste for landfill - Enforcing the new requirement*

7.0 Outstanding Risks & Issues

This section of the report aims to highlight areas where further work is required as a result of limitations on the scope of this investigation, or where issues have been identified by this investigation that warrant further consideration. The scope of risks and issues discussed in this section is by no means exhaustive but covers the main areas where additional work may be required.

7.1 Site-Specific Risks

This investigation has identified the presence of contamination and there may be a requirement for a separate remediation proposals report to be prepared to comply with planning requirements. The remediation will need to be supervised and verified by a geoenvironmental engineer and a completion or validation report will also probably be required to support the planning application.

If during ground works any visual or olfactory evidence of contamination is identified it is recommended that further investigation be carried out and that the risk assessment is reviewed.

These areas of doubt should be drawn to the attention of prospective contractors and further investigation will be required or sufficient contingency should be provided to cover the outstanding risk.

7.2 General Risks

The ground is a heterogeneous natural material and variations will inevitably arise between the locations at which it is investigated. This report provides an assessment of the general ground conditions based on the discrete points at which the ground was sampled, but there may be ground conditions (including soil, rock, gas and groundwater) elsewhere on site that have not been revealed by this investigation and therefore could not have been taken into account in this report. The ground conditions should be subject to review as the development proceeds to ensure that any variations from the Ground Model are properly assessed by a suitably qualified person.

The comments made regarding gas and groundwater are based on observations made during the period the work has been carried out. Conditions may vary as a result of seasonal or other effects.

Where any conclusions and recommendations contained in this report have been based upon information provided by others, it has been assumed that all relevant information has been provided by those parties and that such information is accurate. Any such information has not been independently verified by GEA, unless otherwise stated in the report. GEA accepts no liability for any inaccurate conclusions, assumptions or actions taken resulting from any inaccurate information supplied to GEA from others.

Appendix

a. Field Work

Site Plan
Borehole Records

b. Lab Testing

Chemical Test Results
Generic Risk Based Screening Values

c. Desk Study

UXO Preliminary Risk Assessment

appendix a

Field Work

Site Plan
Borehole Records

appendix a

GEA

GEA

Geotechnical & Environmental Associates

www.gea-ltd.co.uk

Site Plan

Site	Haringey 6th Form College, White Hart Lane, London N17 8HR
Client	Haringey Sixth Form College
Engineer	Orbis Limited

Job Number J26278

Sheet 1 / 1



Borehole Log

BH1

Sheet 1 of 1

Hole Type	Easting	Northing	Ground Level (m)	Scale
BH				1:50

Project Name	Project No.	Start Date	End Date
Haringey 6th Form	J26278	2026-09-15	2026-09-15

Client
Haringey 6th Form College

Consultant
Orbis Limited

Contractor

Inst/ Backfill	Water Levels	Samples and Tests: Depth (m)	Samples and Tests: Type/ Ref	Samples and Tests: Results	Level (m)	Depth (thickness) (m)	Strata: Legend	Strata: Description
						(0.20)		MADE GROUND (Concrete)
						0.20		
		0.35	ES			(0.30)		TOPSOIL (Dark brown clayey gravelly fine to medium sand with fine to medium subangualr to subrounded flint gravel)
						0.50		
		0.75	ES			(0.50)		MADE GROUND (Orange clay, occasional fine to medium fragmnents of redbrick and gravels, occasional rounded fragments of flint and chert)
						1.00		Firm, orange-brown, sandy CLAY with fine to medium subrounded to rounded flint and chert gravel
		1.50	D			(2.00)		
						3.00		*End of Borehole at 3.00m*

Remarks
Groundwater not encountered. Terminated on completion. Backfilled with arisings.

Method, Plant, Stability, Dimensions
0.00 - 3.00m BH Opendrive terrier rig

Logger
FS

Borehole Log

BH2

Sheet 1 of 1

Hole Type	Easting	Northing	Ground Level (m)	Scale
BH				1:50

Project Name	Project No.	Start Date	End Date
Haringey 6th Form	J26278	2026-09-15	2026-09-15

Client
Haringey 6th Form College

Consultant
Orbis Limited

Contractor

Inst/ Backfill	Water Levels	Samples and Tests: Depth (m)	Samples and Tests: Type/ Ref	Samples and Tests: Results	Level (m)	Depth (thickness) (m)	Strata: Legend	Strata: Description
						(0.20) 0.20		MADE GROUND (Concrete)
		0.40	ES			(0.30) 0.50		TOPSOIL (Dark brown clayey gravelly fine to medium sand with fine to medium subangualr to subrounded flint gravel)
		0.80	ES			(0.50) 1.00		MADE GROUND (Dark brown, sandy clay with abundant red brick and occasional flint and chert)
		2.20	D			(1.20) 2.20		Firm, brown, silty CLAY with occasional gravels, flint and chert. Partial dessication of soil (tree roots locally)
						(0.80) 3.00		Stiff, orange-brown, silty CLAY with flint and chert and orange streaks (weathering)
								End of Borehole at 3.00m

Remarks
Groundwater not encountered. Terminated on completion. Backfilled with arisings.

Method, Plant, Stability, Dimensions
0.00 - 3.00m BH Opendrive terrier rig

Logger
FS

Borehole Log

BH3

Sheet 1 of 1

Hole Type	Easting	Northing	Ground Level (m)	Scale
BH				1:50

Project Name	Project No.	Start Date	End Date
Haringey 6th Form	J26278	2026-09-15	2026-09-15

Client
Haringey 6th Form College

Consultant
Orbis Limited

Contractor

Inst/ Backfill	Water Levels	Samples and Tests: Depth (m)	Samples and Tests: Type/ Ref	Samples and Tests: Results	Level (m)	Depth (thickness) (m)	Strata: Legend	Strata: Description
						(0.70)		MADE GROUND (Brownish grey sandy gravel with brick fragments and concrete rubble)
						0.70		*End of Borehole at 0.70m*

Remarks
Groundwater not encountered. Terminated due to concrete slab at 0.7 m. Backfilled with arisings.

Method, Plant, Stability, Dimensions
0.00 - 0.70m BH Opendrive terrier rig

Logger
FS

Borehole Log

BH3A

Sheet 1 of 1

Hole Type	Easting	Northing	Ground Level (m)	Scale
BH				1:50

Project Name	Project No.	Start Date	End Date
Haringey 6th Form	J26278	2026-09-15	2026-09-15

Client
Haringey 6th Form College

Consultant
Orbis Limited

Contractor

Inst/ Backfill	Water Levels	Samples and Tests: Depth (m)	Samples and Tests: Type/ Ref	Samples and Tests: Results	Level (m)	Depth (thickness) (m)	Strata: Legend	Strata: Description
		0.15	ES			(0.15) 0.15		MADE GROUND (Concrete)
		0.55	ES			(0.70)		MADE GROUND (Dark brown, sandy clay with abundant gravels, occasional red rick and flint and chert)
						0.85		*End of Borehole at 0.85m*

0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0 6.5 7.0 7.5 8.0 8.5 9.0 9.5 10.0

Remarks
Groundwater not encountered. Terminated at 0.85 m due to meeting hard ground (suspected pipeworks below). Backfilled with arisings.

Method, Plant, Stability, Dimensions
0.00 - 0.85m BH Opendrive terrier rig

Logger
FS

appendix b

Lab Testing

Chemical Test Results
Generic Risk Based Screening Values

Geotechnical & Environmental Associates
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e: info-i2analytical@normecgroup.com

Analytical Report Number : 26-056470

Project / Site name:	Haringey 6th Form	**Samples received on:**	12/10/2026
Your job number:	J26278	**Samples instructed on/ Analysis started on:**	12/10/2026
Your order number:		**Analysis completed by:**	22/10/2026
Report Issue Number:	1	**Report issued on:**	22/10/2026
Samples Analysed:	6 soil samples		

Signed:

Anna Goc
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
air	- once the analysis is complete

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

Retention period for records and reports is minimum 6 years from the date of issue of the final report.
Some records may be kept for longer according to other legal/best practice requirements.

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.

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The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 26-056470
Project / Site name: Haringey 6th Form

Lab Sample Number				1079222	1079223	1079224	1079225	1079226
Sample Reference				BH1	BH1	BH2	BH2	BH3A
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix				N/A	N/A	N/A	N/A	N/A
Depth (m)				0.35	0.75	0.80	0.40	0.20
Date Sampled				08/10/2026	08/10/2026	08/10/2026	08/10/2026	08/10/2026
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status					
Mass of stone >10mm	%	0.1	NONE	33.7	9.7	< 0.1	16.5	32.9
Moisture Content	%	0.01	NONE	7.6	12	15	7.4	6.2
Total mass of sample received	kg	0.1	NONE	0.9	0.9	0.9	1	1
Asbestos								
Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	CAD	CAD	CAD	CAD	CAD
Analysis completed	N/A	N/A	N/A	20/10/2026	20/10/2026	20/10/2026	20/10/2026	20/10/2026
Actinolite detected	Type	N/A	ISO 17025	Not-detected	-	-	-	-
Amosite detected	Type	N/A	ISO 17025	Not-detected	-	-	-	-
Anthophyllite detected	Type	N/A	ISO 17025	Not-detected	-	-	-	-
Chrysotile detected	Type	N/A	ISO 17025	Detected	-	-	-	-
Crocidolite detected	Type	N/A	ISO 17025	Not-detected	-	-	-	-
Tremolite detected	Type	N/A	ISO 17025	Not-detected	-	-	-	-
Asbestos % by hand picking/weighing	%	0.001	ISO 17025	< 0.001	-	-	-	-
Asbestos Containing Material Types Detected (ACM)	Type	N/A	ISO 17025	Asbestos Cement	-	-	-	-
General Inorganics								
pH (L099)	pH Units	N/A	MCERTS	10.1	7.6	7.7	9	8.5
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Sulphate as SO_4	mg/kg	50	MCERTS	3500	520	910	2900	1800
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	850	100	490	1100	350
Water Soluble SO_4 16hr extraction (2:1 Leachate Equivalent	g/l	0.00125	MCERTS	0.423	0.0522	0.245	0.551	0.174
Water Soluble SO_4 16hr extraction (2:1 Leachate Equivalent	mg/l	1.25	MCERTS	423	52.2	245	551	174
Sulphide	mg/kg	1	MCERTS	13	1.5	< 1.0	14	< 1.0
Water Soluble Chloride (2:1)	mg/kg	1	MCERTS	100	1.7	16	37	8.5
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	1.6	1.5	1.4	1.6	2.1
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

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Analytical Report Number: 26-056470
Project / Site name: Haringey 6th Form

Lab Sample Number				1079222	1079223	1079224	1079225	1079226
Sample Reference				BH1	BH1	BH2	BH2	BH3A
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix				N/A	N/A	N/A	N/A	N/A
Depth (m)				0.35	0.75	0.80	0.40	0.20
Date Sampled				08/10/2026	08/10/2026	08/10/2026	08/10/2026	08/10/2026
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Test Limit of detection	Test Accreditation Status					
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	0.12	0.07	0.21	0.14	0.25
Acenaphthylene	mg/kg	0.05	MCERTS	0.12	< 0.05	0.06	0.2	1
Acenaphthene	mg/kg	0.05	MCERTS	0.23	< 0.05	0.21	0.11	0.33
Fluorene	mg/kg	0.05	MCERTS	0.31	< 0.05	0.14	0.12	0.43
Phenanthrene	mg/kg	0.05	MCERTS	3.3	0.21	1.8	1.5	9.2
Anthracene	mg/kg	0.05	MCERTS	0.8	< 0.05	0.41	0.47	2.7
Fluoranthene	mg/kg	0.05	MCERTS	4.5	0.43	2.9	4.3	19
Pyrene	mg/kg	0.05	MCERTS	3.8	0.42	2.6	4	16
Benzo(a)anthracene	mg/kg	0.05	MCERTS	2.3	0.29	1.5	2.5	9.7
Chrysene	mg/kg	0.05	MCERTS	2	0.31	1.5	2.5	8.8
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	2.6	0.42	1.7	3.8	12
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	1.3	0.14	0.78	1.2	4
Benzo(a)pyrene	mg/kg	0.05	MCERTS	2.1	0.33	1.5	3.1	9.8
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	1.1	0.19	0.77	1.6	5.1
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.28	0.06	0.2	0.4	0.96
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	1.3	0.24	0.96	2.1	5.9
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	26	3.12	17.2	27.9	105
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	14	18	15	15	15
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.3	< 0.2	< 0.2	0.9	1
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	23	28	27	26	27
Copper (aqua regia extractable)	mg/kg	1	MCERTS	60	51	59	70	75
Lead (aqua regia extractable)	mg/kg	1	MCERTS	140	290	210	220	190
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	0.5	0.5	0.4	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	19	24	24	22	24
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	110	89	130	230	210
Petroleum Hydrocarbons								
TPH (>EC8 - EC10) $_{HS_1D_TOTAL}$	mg/kg	0.02	MCERTS	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
TPH (>EC10 - EC12) $_{EH_CU_1D_TOTAL}$	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH (>EC10 - EC35) $_{EH_CU_1D_TOTAL}$	mg/kg	10	NONE	100	< 10	12	120	170
TPH (>EC12 - EC16) $_{EH_CU_1D_TOTAL}$	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	5.9	5.4
TPH (>EC16 - EC21) $_{EH_CU_1D_TOTAL}$	mg/kg	10	MCERTS	19	< 10	< 10	23	43
TPH (>EC21 - EC35) $_{EH_CU_1D_TOTAL}$	mg/kg	10	MCERTS	79	< 10	< 10	90	120
TPH Total >EC8 - EC35 $_{EH_CU+HS_1D_TOTAL}$	mg/kg	10	NONE	100	< 10	12	120	170
TPH (EC10 - EC40) $_{EH_CU_1D_TOTAL}$	mg/kg	10	MCERTS	170	< 10	12	170	250

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 26-056470
Project / Site name: Haringey 6th Form

Lab Sample Number				1079227
Sample Reference				BH3A
Sample Number				None Supplied
Water Matrix				N/A
Depth (m)				0.50
Date Sampled				08/10/2026
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**	
Mass of stone >10mm	%	0.1	NONE	27.4
Moisture Content	%	0.01	NONE	7.9
Total mass of sample received	kg	0.1	NONE	0.9

Asbestos

Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	CAD
Analysis completed	N/A	N/A	N/A	20/10/2026
Actinolite detected	Type	N/A	ISO 17025	-
Amosite detected	Type	N/A	ISO 17025	-
Anthophyllite detected	Type	N/A	ISO 17025	-
Chrysotile detected	Type	N/A	ISO 17025	-
Crocidolite detected	Type	N/A	ISO 17025	-
Tremolite detected	Type	N/A	ISO 17025	-
Asbestos % by hand picking/weighing	%	0.001	ISO 17025	-
Asbestos Containing Material Types Detected (ACM)	Type	N/A	ISO 17025	-

General Inorganics

pH (L099)	pH Units	N/A	MCERTS	8.2
Total Cyanide	mg/kg	1	MCERTS	< 1.0
Total Sulphate as SO_4	mg/kg	50	MCERTS	1400
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	640
Water Soluble SO_4 16hr extraction (2:1 Leachate Equivalent	g/l	0.00125	MCERTS	0.322
Water Soluble SO_4 16hr extraction (2:1 Leachate Equivalent	mg/l	1.25	MCERTS	322
Sulphide	mg/kg	1	MCERTS	3.9
Water Soluble Chloride (2:1)	mg/kg	1	MCERTS	7.1
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.9

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0

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Analytical Report Number: 26-056470
Project / Site name: Haringey 6th Form

Lab Sample Number				1079227
Sample Reference				BH3A
Sample Number				None Supplied
Water Matrix				N/A
Depth (m)				0.50
Date Sampled				08/10/2026
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**	
Speciated PAHs				
Naphthalene	mg/kg	0.05	MCERTS	0.07
Acenaphthylene	mg/kg	0.05	MCERTS	0.17
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	1
Anthracene	mg/kg	0.05	MCERTS	0.26
Fluoranthene	mg/kg	0.05	MCERTS	3.6
Pyrene	mg/kg	0.05	MCERTS	3.5
Benzo(a)anthracene	mg/kg	0.05	MCERTS	2.1
Chrysene	mg/kg	0.05	MCERTS	2.3
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	2.5
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	1.5
Benzo(a)pyrene	mg/kg	0.05	MCERTS	2.5
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	1.3
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.34
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	1.6
Total PAH				
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	22.8
Heavy Metals / Metalloids				
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	15
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	22
Copper (aqua regia extractable)	mg/kg	1	MCERTS	47
Lead (aqua regia extractable)	mg/kg	1	MCERTS	230
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.4
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	21
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	140
Petroleum Hydrocarbons				
TPH (>EC8 - EC10) $_{HS_1D_TOTAL}$	mg/kg	0.02	MCERTS	< 0.02
TPH (>EC10 - EC12) $_{EH_CU_1D_TOTAL}$	mg/kg	2	MCERTS	< 2.0
TPH (>EC10 - EC35) $_{EH_CU_1D_TOTAL}$	mg/kg	10	NONE	39
TPH (>EC12 - EC16) $_{EH_CU_1D_TOTAL}$	mg/kg	4	MCERTS	< 4.0
TPH (>EC16 - EC21) $_{EH_CU_1D_TOTAL}$	mg/kg	10	MCERTS	11
TPH (>EC21 - EC35) $_{EH_CU_1D_TOTAL}$	mg/kg	10	MCERTS	29
TPH Total >EC8 - EC35 $_{EH_CU+HS_1D_TOTAL}$	mg/kg	10	NONE	39
TPH (EC10 - EC40) $_{EH_CU_1D_TOTAL}$	mg/kg	10	MCERTS	59

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

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The results included within the report are representative of the samples submitted for analysis.

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Analytical Report Number: **26-056470**
Project / Site name: **Haringey 6th Form**
Your Order No:

Certificate of Analysis - Asbestos Quantification

Methods:

Qualitative Analysis

The samples were analysed qualitatively for asbestos by polarising light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative Analysis

The analysis was carried out using our documented in-house method A006 based on HSE Contract Research Report No: 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies et al, 1996) and HSG 248. Our method includes initial examination of the entire representative sample, then fractionation and detailed analysis of each fraction, with quantification by hand picking and weighing.

The limit of detection (reporting limit) of this method is 0.001 %.

The method has been validated using samples of at least 100 g, results for samples smaller than this should be interpreted with caution.

Both Qualitative and Quantitative Analyses are UKAS accredited.

Sample Number	Sample ID	Sample Depth (m)	Sample Weight (g)	Asbestos Containing Material Types Detected (ACM)	PLM Results	Asbestos by hand picking/weighing (%)	Total % Asbestos in Sample	Analysis completed	Analyst ID
1079222	BH1	0.35	204	Asbestos Cement	**Chrysotile**	< 0.001	**< 0.001**	20/10/2026	CAD

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.

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The results included within the report are representative of the samples submitted for analysis.

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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 *
1079222	BH1	None Supplied	0.35	Brown loam and sand with stones and brick
1079223	BH1	None Supplied	0.75	Brown clay and sand with stones and gravel
1079224	BH2	None Supplied	0.8	Brown clay and sand with gravel
1079225	BH2	None Supplied	0.4	Brown loam and sand with stones and gravel
1079226	BH3A	None Supplied	0.2	Brown loam and sand with stones and gravel
1079227	BH3A	None Supplied	0.5	Brown loam and sand with stones and brick

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Project / Site name: Haringey 6th Form

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)
Final Sewage Effluent (FSE) Landfill Leachate (LL)

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 dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Asbestos Quantification - Gravimetric	Asbestos quantification by gravimetric method - in house method based on references	HSE Report No: 83/1996, HSG 248 (2021), HSG 264 (2012) & SCA Blue Book (draft)	A006B	D	ISO 17025
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	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
Moisture Content (Wet Weight)	Moisture content (% wet weight), determined gravimetrically (up to 30°C)	In-house-procedure based on BS EN 12880:2000	L019B	W	NONE
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.	L019B	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	L038B	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES	In-house method	L038B	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Sulphate, water soluble, in soil (16hr extraction)	In-house method	L038B	D	MCERTS
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
Total petroleum hydrocarbons by GC-FID in soil	Determination of total petroleum hydrocarbons in soil by GC-FID	In-house method	L076B	D	MCERTS
Total petroleum hydrocarbons by GC-FID/GC-MS HS in soil (Summed Bands)	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS (Summed Bands).	Calculation	L076B/L088-PL	D/W	NONE
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080-PL	W	MCERTS
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	L080-PL	W	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	L080-PL	W	MCERTS
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser	In-house method	L082B	D	MCERTS

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Analytical Report Number : 26-056470
Project / Site name: Haringey 6th Form

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)
Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Total petroleum hydrocarbons by HS-GC-MS in soil	Determination of total petroleum hydrocarbons in soil by HS-GC/MS	In-house method	L088-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
Soil Descriptions	Textural classification	In-house method	L019B	W	NONE

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL' or 'B' 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.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Where coal tar is reported as "indicative/not indicative", PAH source attribution has been assessed using the ratio of parent PAHs to alkylated PAHs to indicate a likely pyrogenic (coal tar–related) or petrogenic (bitumen-related) origin. This assessment is independent of total residue and/or benzo(a)pyrene concentrations and is provided for indicative purposes only; it represents a single line of evidence and does not, in isolation, constitute confirmation or classification as hazardous under WM3 guidance.

Quality control parameter failure associated with individual result applies to calculated sum of individuals.
The result for sum should be interpreted with caution

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GEA

Geotechnical & Environmental Associates

www.gea-ltd.co.uk

Generic Risk-Based Soil Screening Values

Site	Haringey 6th Form College, White Hart Lane, London N17 8HR
Client	Haringey Sixth Form College
Engineer	Orbis Limited

Job Number J26278

Sheet 1 / 1

Proposed End Use Residential without plant uptake

Soil Organic Matter content % 1.0

Contaminant	Screening Value mg/kg	Data Source
Metals		
Arsenic	40	C4SL
Cadmium	150	C4SL
Chromium (III)	910	S4UL
Chromium (VI)	21	C4SL
Copper	7,100	S4UL
Lead	310	C4SL
Elemental Mercury	1.2	S4UL
Inorganic Mercury	300	C4SL
Nickel	180	S4UL
Selenium	430	S4UL
Zinc	40,000	S4UL
Anions		
Soluble Sulphate	500 mg/l	Structures
Sulphide	50	Structures
Chloride	400	Structures
Others		
Organic Carbon (%)	6	Methanogenic potential
Total Cyanide	140	WRAS
Total Mono Phenols	310	SGV
PAH		
Naphthalene	15.00	C4SL
Acenaphthylene	2,900	S4UL
Acenaphthene	3,000	S4UL
Fluorene	2,800	S4UL
Phenanthrene	1,300	S4UL
Anthracene	31,000	S4UL
Fluoranthene	1,500	S4UL
Pyrene	3,700	S4UL
Benzo(a)anthracene	11.0	S4UL
Chrysene	30	S4UL
Benzo(b)fluoranthene	3.9	S4UL
Benzo(k)fluoranthene	110.0	S4UL
Benzo(a)pyrene	4.65	C4SL
Indeno(1 2 3 cd)pyrene	45.0	S4UL
Dibenz(a h)anthracene	0.32	S4UL
Benzo (g h i)perylene	360	S4UL

Contaminant	Screening Value mg/kg	Data Source
Hydrocarbons		
Banded TPH (8-10)	72	Calc1
Banded TPH (10-12)	385	Calc1
Banded TPH (12-16)	2769	Calc1
Banded TPH (16-21)	2923	Calc1
Banded TPH (21-35)	2923	Calc1
Benzene	0.89	C4SL
Toluene	120	SGV
Ethyl Benzene	65	SGV
Xylene	42	SGV
Aliphatic C5-C6	42	S4UL
Aliphatic C6-C8	100	S4UL
Aliphatic C8-C10	27	S4UL
Aliphatic C10-C12	130	S4UL
Aliphatic C12-C16	1100	S4UL
Aliphatic C16-C35	65,000	S4UL
Aromatic C6-C7	See Benzene	S4UL
Aromatic C7-C8	See Toluene	S4UL
Aromatic C8-C10	47	S4UL
Aromatic C10-C12	250	S4UL
Aromatic C12-C16	1800	S4UL
Aromatic C16-C21	1900	S4UL
Aromatic C21-C35	1900	S4UL
PRO (C_5 –C_{10})	337	Calc2
DRO (C_{12} –C_{28})	69,800	Calc2
Lube Oil (C_{28} –C_{44})	66,900	Calc2
TPH	**500**	Trigger to consider speciated testing
Chlorinated Solvents		
1,1,1 trichloroethane (TCA)	9	S4UL
tetrachloroethane (PCA)	1.5	S4UL
tetrachloroethene (PCE)	0.32	C4SL
trichloroethene (TCE)	0.0097	C4SL
1,2-dichloroethane (DCA)	0.16	C4SL
vinyl chloride (Chloroethene)	0.015	C4SL
tetrachloromethane (Carbon tetra	0.026	S4UL
trichloromethane (Chloroform)	1.2	S4UL
cis1-2 dichloroethene (DCE)	0.5	C4SL

Notes

Concentrations measured below these screening values may be considered to represent 'uncontaminated conditions' which pose a 'LOW' risk to human health. Concentrations measured in excess of these values indicate a potential risk which require further, site specific risk assessment.

C4SL - Defra Category 4 Screening value based on Low Level of Toxicological Risk

SGV - Soil Guideline Value, derived from the CLEA model and published by Environment Agency 2009 - where not superseded by C4SL

S4UL - LQM/CIEH Suitable for use Level (2015) Reproduced with permission Publication No S4UL3848

Calc1 - sum of thresholds for Ali & Aro fractions - assuming a 35% Aro:65% Ali ratio as is commonly encountered in the soil

Calc2 - sum of nearest available carbon range specified including BTEX for PRO fraction

appendix c

Desk Study

UXO Preliminary Risk Assessment

appendix c



Preliminary Unexploded Ordnance (UXO) Risk Assessment

Project Name	Haringey Sixth Form College
Client	GEA Ltd
Site Address	Haringey Sixth Form College, White Hart Lane, London, N17 8HR
Report Reference	PA16685b-00
Date	11th September 2026
Author	GP
Quality Assurance	AT

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Assessment Objective

This preliminary unexploded ordnance (UXO) risk assessment is a qualitative screening exercise to assess the likely potential of encountering UXO at the Haringey Sixth Form College site. The assessment involves the consideration of the basic factors that affect the potential for UXO to be present at a site as outlined in Stage One of the UXO risk management process.

Background

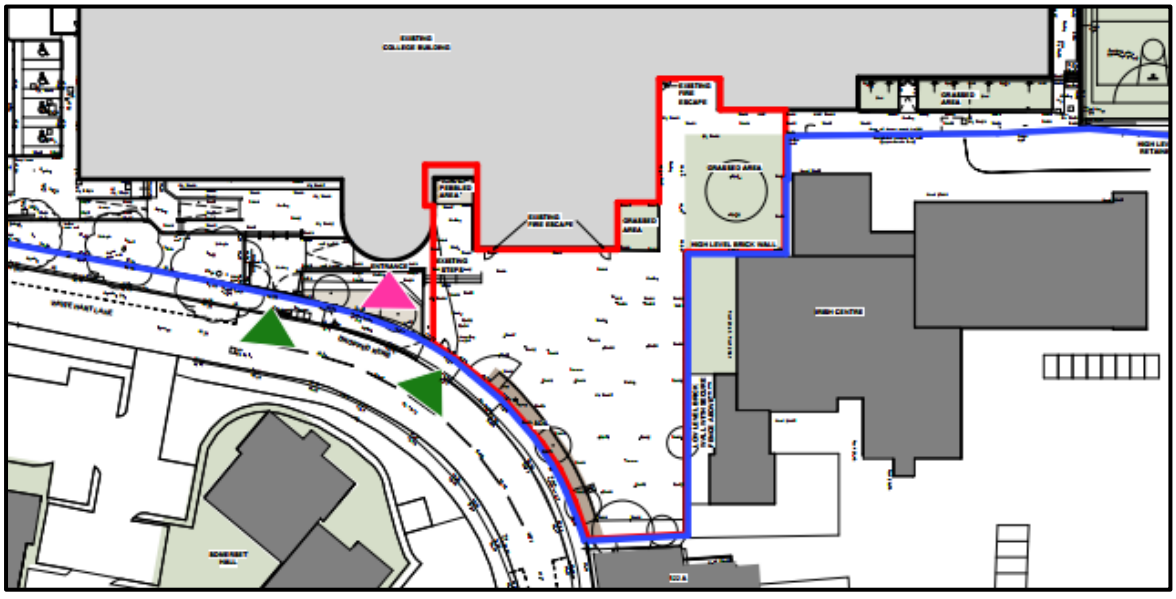
This assessment uses the sources of information available in-house to 1st Line Defence Ltd to enable the placement of a development site in context with events that may have led to the presence of German air-delivered or Allied military UXO. The report will identify any immediate necessity for risk mitigation or additional research in the form of a Detailed UXO Risk Assessment. It makes use of 1st Line Defence's extensive historical archives, library and unique geo-databases, as well as internet resources, and is researched and compiled by UXO specialists and graduate researchers.

The assessment directly follows CIRIA C681 guidelines "Unexploded Ordnance, a Guide for the Construction Industry". The document will therefore assess the following factors:

- Basic Site Data
- Previous Military Use
- Indicators of potential aerial delivered UXO threat
- Consideration of any Mitigating Factors
- Extent of Proposed Intrusive Works
- Any requirement for Further Work

It should be noted that the vast majority of construction sites in the UK will have a low or negligible risk of encountering UXO and should be able to be screened out at this preliminary stage. The report is meant as a common sense 'first step' in the UXO risk management process. The content of the report and conclusions drawn are based on basic, preliminary research using the information available to 1st Line Defence at the time this report was produced. It should be noted that the only way to entirely negate risk from UXO to a project would be to support the works proposed with appropriate UXO risk mitigation measures. It is rarely possible to state that there is absolutely 'no' risk from UXO to a project.

Site Boundary



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Risk Assessment Considerations	
Site location and description/current use	The site is located in the London Borough of Haringey. Recent aerial imagery shows the site to comprise hardstanding and vegetation. The site is bordered to the north by Haringey Sixth Form College, to the east and south by neighbouring buildings, and to the west by White hart Lane and hardstanding. The site is approximately centred on the OS grid reference: **TQ 33547 91482.**
Are there any indicators of current/historical military activity on/close to the site?	In-house records do not indicate that the site footprint had any former military use. No features such as WWII defensive positions, encampments or firing ranges are recorded to have been located at or in the immediate vicinity of the site. In addition, no information of ordnance being stored, produced, or disposed of within the proposed site boundary could be found. The closest recorded Heavy Anti-Aircraft (HAA) battery was situated approximately 2.3km north of the site boundary. The range of a HAA battery could be up to 15km. The conditions under which unexploded anti-aircraft ordnance may have fallen within the proposed site are analogous to that of aerially delivered Luftwaffe bombs.
What was the pre- and post-WWII history of the site?	Pre-WWII OS historical mapping dated 1935-36 shows the site to be occupied and bordered by *College Park Road* and open ground within *St Katherine's College* and a nearby *Allotment Gardens*. The site is bordered by open ground and roadways. Post-WWII OS historical mapping dated 1956-61 shows structural development on site including the construction of buildings associated with St Katherines College towards the north, and the construction of a residential building towards the south.
Was the area subject to bombing during WWII?	During WWII the site was situated within the Municipal Borough of Tottenham with an overall high density of bombing according to official Home Office bombing statistics. This consisted of 283 high explosives, 4 parachute mines, 18 oil bombs, five V-1 "Flying" rockets, and three Long-Range Rockets; totalling 313 items of ordnance across 3,013 acres, or an average of 103.9 items of ordnance recorded per 1,000 acres. London Bomb Census mapping records no bomb strikes on site. The nearest bomb is plotted approximately 80m north-east of the site boundary on the evening of Saturday 12th January 1941. This is corroborated by Tottenham bomb plot mapping which records the nearest bomb strike in the same location.
Is there any evidence of bomb damage on/close to the site?	Given the lack of bombing on site, it is not thought likely the site sustained bomb damage.
To what degree would the site have been subject to access?	Given that the site was predominantly occupied by a road within an urbanised area of London, access to the site is anticipated to have been frequent with high levels of observation. Items of UXO are more likely to have been spotted, recorded, and dealt with in areas that were frequently accessed.
To what degree has the site been developed post-WWII?	Recent aerial imagery indicates that the road on site has since been cleared and replaced with hardstanding.

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What is the nature and extent of the intrusive works proposed?	The exact details of proposed works were not known at the time of this report being written.

Summary and Conclusions

During WWII the site was situated within the Municipal Borough of Tottenham with an overall high density of bombing according to official Home Office bombing statistics, with an average of 103.9 items of ordnance recorded per 1,000 acres.

London Bomb Census mapping records no bomb strikes on site. The nearest bomb is plotted approximately 80m north-east of the site boundary on the evening of Saturday 12th January 1941. This is corroborated by Tottenham bomb plot mapping which records the nearest bomb strike in the same location.

Given that the site was predominantly occupied by a road within an urbanised area of London, access to the site is anticipated to have been frequent with high levels of observation. Items of UXO are more likely to have been spotted, recorded, and dealt with in areas that were frequently accessed.

Recommendations

Given the findings of this preliminary report, It is not considered likely that undertaking further study in the form of a Detailed UXO Risk Assessment would significantly alter the findings of low/minimal risk from UXO at this site. Therefore, **no further research** is recommended.

However, because the risk of encountering UXO can never be entirely discounted, the following actions are recommended as a precaution:

- All ground operatives to be made aware of potential UXO risk, what to look out for, and what to do in the event that they encounter a suspect item. Utilise UXO Tool Box Talk attached with this report as a minimum, or contact 1st Line Defence to arrange a Site Specific UXO Safety and Awareness Briefing.
- Compile a UXO Risk Management Plan for the site. Similar to a Fire Risk Assessment, this document should outline site emergency response procedures, means of raising alarm, key contact details etc. Contact 1st Line Defence for a free template and guidance document.

If the client has any anecdotal or empirical evidence of UXO risk on site, please contact 1st Line Defence.

It should be noted that although the risk from unexploded ordnance on this site has been assessed as low/minimal, this does not mean there is 'no' risk of encountering UXO. This preliminary report has been undertaken with due diligence, and all reasonable care has been taken to access and analyse relevant historical information. By necessity, when dealing with historical evidence, and when making assessments of UXO risk, various assumptions have to be made which we have discussed and justified within this report. Our reports take a common-sense and practical approach to the assessment of UXO risk, and we strive to be reasonable and pragmatic in our conclusions. As referenced, it would be possible to undertake further research into this site, but based on the evidence to hand, this is not deemed strictly necessary, and no reasonably justifiable requirement for proactive on-site mitigation has been identified.

It should however be stressed that if any suspect items are encountered during the proposed works, 1st Line Defence should be contacted for advice/assistance, and to re-assess the risk as necessary. Should the scope of works change or additional works be proposed, 1st Line Defence should be contacted to re-evaluate the risk.

This report has been prepared by 1st Line Defence Limited with all reasonable care and skill. The report contains historical data and information from third party sources. 1st Line Defence Limited has sought to verify the accuracy and comprehensiveness of this information where possible but cannot be held accountable for any inherent errors. Furthermore, whilst every reasonable effort has been made to locate and access all relevant historical information, 1st Line Defence cannot be held responsible for any changes to risk level or mitigation recommendations resulting from documentation or other information which may come to light at a later date.

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Front cover image credit: London County Council Bomb Damage Mapping (London Metropolitan Archives)

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