

Former Holloway Prison

Contamination - Remediation
Strategy





Remediation Strategy

Former Holloway Prison, London

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This document has been prepared and checked in accordance with Waterman Group's IMS (BS EN ISO 9001: 2008, BS EN ISO 14001: 2004 and BS OHSAS 18001:2007)

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Comments

- 3.3.1 Updated with design freeze information.
- 3.4.1 Updated with comments from Avison Young



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Executive Summary

Objectives	
Remediation Strategy for ground contamination to support the redevelopment of the Former Holloway Prison. The Remediation Strategy covers the approach to management, and mitigation of contamination risks at the Site.	
Mitigation Measures	
Boundary Treatment	Sealing of buried services at the Site boundary.
Treatment of Soils	Assessment of excavated soils for re-use, and treatment if necessary to ensure they meet criteria for the proposed end use
Decommissioning of Surface Drainage	Decommissioning of any redundant drainage encountered during demolition and Site stripping works.
Former Aboveground Fuel Tanks	Watching brief in place during removals of tanks to identify any hydrocarbon contamination in this area. If encountered, a method for its removal and validation of the area to be agreed.
Former Abstraction Well	An abstraction well was formerly present on-Site, investigation completed as part of earthworks to locate and decommission as required.
Unforeseen Contamination	Addendum Remediation Method Statement to be prepared if unforeseen/unchartered contamination is encountered during the works.
Materials Management	Materials Management Plan for the earthworks. Stockpile management, dust prevention, leachate management and waste classification for materials to be removed.
Management of Shallow Groundwater	Licence to be obtained from local water authority prior to discharge to foul sewer.
Imported Materials	All materials to be from a known source and appropriate for their intended use, with sampling, testing and certification to be provided.
Soft Landscaping	Imported soils for soft landscaping areas to be from a known source and appropriate for their intended use, with sampling, testing and certification to be provided. Thickness of topsoil/subsoil to be verified following placement.
Buried Services	Installation of new services in clean service corridors. Water supply pipes to be suitable for use on brownfield sites.
Construction Workers and the Public	Preparation of a Construction Environment Management Plan (CEMP) including assessment of contamination (soil, water, gas and vapour) for construction workers, the potential for asbestos containing materials and implementation of appropriate methods of work. Mitigation measures such as dust suppression and road sweeping to prevent migration of contamination off-site.
Environmental Monitoring	Noise, vibration, dust, odour and settlement monitoring during the works as required by the Construction Environmental Management Plan.
Laboratory Testing	Chemical analysis of soils and groundwater to be undertaken by UKAS and MCERTS accredited laboratories.
Statutory Approvals	Environmental Health and Building Control Departments at Islington Borough Council, the local water authority and the Environment Agency to be consulted and approvals obtained for the works.
Validation	Validation Report to be prepared and submitted to the statutory authorities for approval.

1. Introduction

1.1 Objectives

Peabody Construction Limited instructed Waterman Infrastructure & Environment Limited (“Waterman”) to prepare a Remediation Strategy for the redevelopment of the Former Holloway Prison, London (hereafter termed “the Site”).

A Site plan and Site location plan are included in Appendix A

The Remediation Strategy’s purpose is to set out the mitigation measures required to break the pollutant linkages, so post development there will be no valid pollutant linkages remaining.

This strategy follows on from the Preliminary Environmental Risk Assessment (PERA) prepared by Waterman in October 2021 (*report reference WIE16172-100-R-1.3.1-PERA*) and Generic Environmental Risk Assessment (GERA) prepared in October 2021 (*report reference WIE16172-100-R-2.4.1-RJM*).

1.2 Proposed Development

The description of the development as set out in the approved planning permission is as follows:

‘Phased comprehensive redevelopment including demolition of existing structures; site preparation and enabling works; and the construction of 985 residential homes including 60 extra care homes (Use Class C3), a Women’s Building (Use Class F.2) and flexible commercial floorspace (Use Class E) in buildings of up to 14 storeys in height; highways/access works; landscaping; pedestrian and cycle connections; publicly accessible park; car (blue badge) and cycle parking; and other associated works.’

1.2.1 Detailed Development Proposals

It is proposed to demolish all buildings on-Site, along with re-levelling works to form new development platforms. Following levelling, the Site will be redeveloped to include

- 985 residential units (Use Class C3). This includes 60 extra care homes (Use Class C3).
- 1,489 sqm (GIA) Women’s Building (Use Class F.2)
- 1,822 sqm (GIA) Commercial Floorspace (Use Class E),

New hardstanding footpaths and roads, and managed soft landscaping will be installed surrounding all buildings.

Shared soft landscaped areas will be included in the development, however these will be centrally managed as part of landscaping maintenance. The development will include private hard landscaped terraces, but will not include private soft landscaped gardens. Plant uptake and direct contact with soil in a private setting is considered not relevant as a potential contaminant linkage at the completed development.

Breakdown for the development is as follows:

Plot A

- 235 residential units. The tenures in this Plot are social rent, London Shared Ownership and market. With communal outdoor space for residents.

Plot B

- 321 residential units. The tenures in this Plot are social rent, London Shared Ownership and market. With communal outdoor space for residents.
- Commercial floorspace.

Plot C

- 155 residential units. The tenure in this Plot is social rent only. With communal outdoor space for residents.
- Women's Building.
- Commercial floorspace.

Plot D

- 183 residential units. The tenures in this Plot are London Shared Ownership and market. With communal outdoor space for residents.
- Residents' facilities including concierge (1334 sqm).

Plot E

- 91 residential units, including 60 extra care units. The tenures in this Plot are social rent and market.

Proposed development plans are included in Appendix A.

1.3 Constraints

The assessment was undertaken in accordance with the scope agreed between Waterman and Peabody Construction, as documented in Waterman's fee letter (*reference WIE16172-100-F-001.GI, dated September 2020*).

Waterman has endeavoured to assess all information provided to them, but makes no guarantees or warranties as to the accuracy or completeness of this information.

The scope of this Remediation Strategy includes an assessment of the presence of asbestos containing materials in the ground at the Site, but not within buildings or structures or below ground structures (basements, buried service ducts and the like).

The conclusions resulting from this study are not necessarily indicative of future conditions or operating practices at or adjacent to the Site.

The Remediation Strategy is based on the findings and recommendations of the PERA and GQRA completed for the Site. This assessment comprised a review of documentation and information pertaining to the Site, including previous intrusive ground investigations undertaken by others.

2. Ground Investigation

2.1 Preliminary Environmental Risk Assessment

Earliest available historical mapping information from 1852 indicates the Site as being occupied by a prison, with ancillary buildings including an infirmary, workshop, artesian well, pump, brick kiln, chapel, drying green and prison ward. Hospital blocks and an electricity sub-station were constructed in the 1940s/1950s. The prison was entirely redeveloped between 1971 and 1985, closed in 2016 and has remained vacant since.

Potentially significant pollutant linkages identified in the PERA and investigated by the ground investigation include;

- Future Site users in areas of proposed soft landscaping, and construction workers may come into direct contact with contaminants;
- Vegetation in areas of proposed soft landscaping may come into direct contact with contaminants in the Made Ground;
- A significant vapour regime is potentially present locally on-Site, subject to assessment as part of a ground investigation. Future Site users, construction workers, and on-Site structures may be at risk;
- Where buried foundations or services come into contact with contaminated ground, an unacceptable level of risk may be present;
- Groundwater within the Secondary A and Principal aquifers underlying the London Clay Formation may be exposed to contamination via the former abstraction well, see Appendix C.

2.2 Generic Quantitative Environmental Risk Assessment

The ground investigation works comprised twenty-one boreholes, twelve window sample holes, eleven trial pits and three soakaway pits.

Geological strata encountered during the investigation are set out in Table 1.

Table 1: Geological Strata Encountered

Soil Type	Depth of Top of Stratum (m bgl)	Thickness (m)	Typical Description
Made Ground	0m	0.36 to 2.6	Concrete, tarmac, brick or topsoil in soft landscaping areas over soft orange brown slightly sandy gravelly clay. Gravel is subangular to subrounded fine to coarse, mixed lithologies including fragments of brick and concrete, chert and quartzite.
London Clay Formation	0.36 to 2.6	Base not proven at 40m	Soft, dark brown clay with claystone bands. Claystone bands found between 0.2 and 0.8m thick encountered at depths between 2.0m and 28.2, bgl in boreholes BH01, BH02, BH06, BH10, BH13, BH18 and BH21.

Soil Chemical Results

Soil sample results from the Made Ground and Head Deposits were compared against assessment criteria for public open space near residences (POS_{RESI} values). In areas of proposed soft landscaping, where sample results exceeded the residential GAC they were further compared against criteria for a residential development without plant uptake (RESI values).

Seven samples identified contamination above the residential GAC. Of these, four of the samples also exceeded the public open space GAC. These exceedances are detailed in Table 2.

Table 2: Soil Laboratory Results Exceedances

Contaminant	Exploratory Holes (Depth (m))	Soil Sample Concentrations (mg/kg)	RESI Threshold Value (mg/kg)	POS _{RESI} Threshold Value (mg/kg)	POS _{RESI} Exceedances
Beryllium	BH04 (0.5)	2.3	1.7	2.2	Yes
Mercury	WS01 (1.5), WS10 (0.5)	1.7 – 1.8	310	16	No
Benzo(a)pyrene	BH02 (0.5, 1.7), TP09 (1.0), TP10 (0.7)	3.7 – 14.0	3.2	5.7	Yes

The soil laboratory results are consistent with those typical of an inner city brownfield Site.

At three investigation locations where olfactory evidence for hydrocarbon contamination was identified, additional sampling and testing for TPH was undertaken. This comprised sampling from BH03 at 1.0m and 1.7m bgl, WS01 at 2.5m bgl and WS12 at 2.0m and 3.0m bgl. The sampling recorded petroleum hydrocarbon contamination below the laboratory detection limit.

Asbestos Results

Asbestos fibres or fragments of asbestos containing material were identified in seven locations. Quantification analysis recorded asbestos between <0.001% and 0.015%.

Groundwater Results

Ground investigation works did not identify significant groundwater present within the Made Ground. During follow-up monitoring, shallow perched groundwater (0.83m bgl – 4.0m bgl) was identified in some locations screening the Made Ground, at varying depths. This water does not form a consistent water body across the Site, and has limited latera migration potential. The laboratory analysis results from the groundwater sampling is included in Appendix C.

Due to the cohesive makeup of the underlying London Clay Formation acting as an aquiclude, vertical groundwater migration is not anticipated.

A potential risk to the sensitive aquifers underlying London Clay Formation is present due to a disused abstraction well identified on the 1872 historical maps. The BGS record for this historical abstraction well identifies it as being decommissioned in June 1946 with the surrounding building demolished. Whilst the details of its decommissioning are not known it is unlikely the abstraction well remains as a preferential pathway. Notwithstanding the former location of abstraction well should be investigated as part of future earthworks. Details of the abstraction well are included in Appendix C.

Ground Gas Results

Results for Total Organic Carbon (TOC) content in soils and follow-up monitoring data confirm the Made Ground has a low ground gas generational potential. A ground gas risk to future Site users is absent and ground gas protection measures in built structures are not be required.

Vapour Results

Findings of soil headspace analysis, follow-up vapour monitoring, soil and groundwater laboratory analysis and comparison against SoBRA values identify a significant vapour regime as being absent. Vapour mitigation measures would not be required in the built development.

During redevelopment works, a watching brief should be in place to assess the presence of any unidentified hydrocarbon contamination in the location of the former fuel storage tanks on the north of the Site.

Conclusions

The following environmental conclusions were made by the GERA:

- Buildings and areas of hardstanding will break the pollutant linkage by forming a barrier between soil and future Site users, with no further mitigation required;
- The earthworks required to create a level platform across the Site will remove Made Ground in some areas and increase levels in other areas. Where the Made Ground is removed down to the underlying London Clay Formation, removal of this source would break the pollutant linkage to future receptors and further mitigation measures would not be required;
- In soft landscaping areas, a cover layer of suitable topsoil and subsoil verified as compliant with the applied GAC will be required (0.3m). Material used in the cover layer should also be demonstrated to be suitable for landscaping requirements, as detailed by the appointed landscaping contractor;
- In instances where Site won Made Ground or imported material is used to increase levels, if this material cannot be confirmed as free from contaminant concentrations above GAC, the pollutant linkage will be broken by a suitable thickness of certified clean cover material;
- The results of the soil analysis did not indicate the presence of gross hydrocarbon contamination in the location of the former fuel storage tanks on the north of the Site. However, during demolition and removal of the tanks a watching brief should be in place to assess for the presence of unchartered hydrocarbon contamination in this area. Should unchartered contamination be encountered, a method for its removal and validation of the area would be agreed.

3. Remediation Strategy

The Contractor appointed to complete the Development will undertake the construction works in accordance with the requirements set out in this document. Post-development completion a Validation Report will be prepared, providing a record of the construction works. It will be the Contractor's responsibility to provide the required information for inclusion in the Validation Report. Full details of the information required in the Validation Report are in Section 4.

3.1 Protection of Workers and the General Public

A Construction Environmental Management Plan (CEMP) for the construction works will be prepared by the Contractor. The CEMP is designed to set out the standards of construction logistics and practices that will minimise or eliminate where possible the impacts of the project on the surrounding environment.

3.1.1 Construction Workers

The health and safety of all construction workers and visitors on-Site will be managed during the development works through provision of appropriate welfare facilities, decontamination facilities, appropriate storage of fuels, chemicals, and construction materials.

The Waterman PERA and GERA detailing the Site's history, ground conditions and the potential for contaminated soils and groundwater will be provided to the Contractor. Personal protective equipment (PPE) suitable for the contaminants present on the Site and the activities being undertaken will be made available where necessary. The Contractor will complete a method statement for all demolition and construction activities, which will be appended to this report once available.

The Contractor will ensure they meet the responsibilities of the Health and Safety at Work Act 1974 and CDM Regulations 2015, and that all works are progressed carefully, in a controlled manner and in line with the approved method statements.

Asbestos has been recorded in the Made Ground, and there is the potential for further asbestos fibres and fragments containing asbestos materials (ACMs) to be encountered during construction. The Contractor will prepare and work to an asbestos risk assessment and plan of work produced in accordance with the Control of Asbestos Regulations 2012.

3.1.2 Surrounding Site Receptors

Residential premises occupy the immediate vicinity of the Site to the north, south and west. Mitigation measures will be employed to minimise airborne dust emissions or surface runoff from stockpiled materials reaching these receptors. The appointed Contractor will determine the methods for appropriate handling and storage of materials, which may include use of hoardings, damping down and covering of stockpiles where necessary. Where material is sent off-Site via highways, wheel washing facilities and road sweeping may be employed to prevent material being tracked into the road. These measures will ensure the public are protected throughout the duration of the works.

On-Site fuel storage will be adequately bunded, with drip trays and spill kits provided as necessary. Site workers will be familiar with the use of spill kits, and any leaks or spills will be recorded and reported to Site management, regardless of volume. Where possible, fuel storage tanks should be situated on hardstanding.

3.2 Buried Services

All new underground services will be situated in clean service corridors. Drinking water supply pipes used will be resistant to chemical attack, in consultation with the local water authority.

Buried foundations will be designed in accordance with the appropriate concrete classifications assessed for the Site and detailed in the separate Geotechnical Report.

3.3 Watching Brief around Former Fuel Storage Areas

Two large, steel above-ground fuel storage tanks are present in the north of the Site. During ground investigation works in this area, field observations noted minor evidence for hydrocarbons present in the shallow Made Ground. The results of the soil analysis from samples collected around these tanks did not indicate the presence of gross hydrocarbon contamination.

During demolition and removal of the tanks a watching brief should be in place to assess for the presence of unchartered hydrocarbon contamination in this area. Records of this watching brief should be included as part of the Validation Report. Should unchartered gross contamination be encountered, a method for its removal and validation of the area would be agreed according to the procedures set out in Section 3.6.

3.4 Material Management

3.4.1 Materials Management Plan

Considering the existing Site setting and proposed Development, the potential exists for re-use of excavated soils as part of levelling and re-grading works.

Where it is proposed to re-use material on-Site the Contractor will be responsible for determining the most appropriate framework through which the soils are re-used. However it is likely it would be through the CL:AIRE document The Definition of Waste Code of Practice (DoWCoP). Alternatively, a waste exemption permit could be sought from the EA.

Where the DoWCoP route is followed the Contractor will prepare a Materials Management Plan (MMP) which will collate all the relevant information to demonstrate the soils are not waste (quantities, quality, and certainty of use) and will include details of the tracking system, contingency, and verification requirements. The MMP will also state what works are due to be undertaken, how they have been assessed and who will be carrying them out. The MMP will be signed off by a Qualified Person (QP) who is not part of the design team.

Any material re-used on-Site will be confirmed free of visual and olfactory evidence of contamination, including (but not limited to) the visual presence of asbestos containing materials, bituminous materials containing coal-tar, and hydrocarbon staining and odours. Where material which is not natural in origin is re-used in the Cover Layer it must be demonstrated as meeting the chemical criteria in Appendix B, and sampled at the frequency included in Section 3.8.1.

The total volume of material re-used on-Site, types of material and location of emplacement will be documented in the Validation Report, in addition to the regime it was re-used under.

3.4.2 Management Measures

The generation of stockpiles will be minimised as far as is reasonably practical. Any stockpiles will be managed in a controlled manner, with different material types segregated and clearly labelled. Each stockpile will be identified according to assumed or confirmed categorisation, source, type and deposition date, and details of any chemical analyses.

Stockpiles will be physically separated to avoid cross contamination and temporary road access provided for placement and loading. Stockpiles of contaminated material will be positioned on impervious surfaces to prevent leachate to ground. Mitigation measures employed to mitigate the risk to the surrounding environment from fugitive emissions arising from the stockpile will be set out in the CEMP.

3.4.3 Validation of Ground Conditions

An environmental engineer will regularly attend Site during ground works, to examine arisings and confirm any visual evidence for contamination identified. The engineer will keep a photographic record of the works as excavation progresses, which will be included in the Validation Report,

3.4.4 Surplus Material

The Contractor will maximise the opportunity for the beneficial reuse of the excavated materials and will provide evidence of this. The Contractor will comply with the following hierarchy of waste management requirements:

- prevention of waste generation;
- preparing for re-use;
- reuse and/or recycle the materials within the Development Site;
- reuse and/or recycle the materials for beneficial use on other projects; and
- dispose of the materials at a suitably licensed Site.

The reuse, movement and/or treatment of soils on or off-site will be completed in accordance with the CL:AIRE DoWCoP. Where secondary aggregates are brought onto Site these will have been produced in accordance with the WRAP Quality Protocol for the production of aggregates from inert waste. Material generated from demolition works on site should also comply with the WRAP Quality Protocol.

The Contractor will ensure effective materials management and storage is practiced and that waste streams do not become mixed. All Site staff will be made aware of the materials management strategy being employed during the works.

Waste substances from the Site will be disposed of offsite, under the appropriate Duty of Care and subject to approvals/consents from the relevant Statutory bodies.

A Site Waste Management Plan (SWMP) will be produced before the commencement of the work on-Site and should be updated regularly during the Contract to reflect any changes required as a result of conditions encountered on-Site.

The Contractor will ensure excavation of soils is carried out in accordance with best practice and arisings are well segregated as to minimise potential cross-contamination.

The Contractor will carry out appropriate environmental chemistry testing to determine the waste classification of excavated soils. This will include dry soils analysis to determine if the soil displays hazardous properties due to hazardous substances and Waste Acceptance Criteria (WAC) testing to determine the most appropriate landfill type for disposal of the waste. The test regime should be agreed with the receiving landfill operator and the testing carried out by a UKAS accredited laboratory.

Should waste soil arisings be assessed to be hazardous waste requiring treatment prior to disposal, the Contractor will carry out pre-treatment of the waste soils either on-Site (under an appropriate Environmental Permit) to a methodology that is agreed with the receiving landfill operator or off-site at a permitted facility.

The Contractor will provide all appropriate measures to mitigate environmental pollution during the works, which may include wheel washing facilities, sheeting of lorries, visual inspection, road sweeping as required and dust suppression and will ensure that operations do not produce dirt or mud on the public highway.

Full records of the material quantities disposed off-site and the receiving facilities licenses will be retained by the Contractor, in addition to the consignment notes, and a summary of the waste material disposed of off-site.

3.5 Management of Shallow Groundwater

Minor volumes of groundwater are anticipated within the Made Ground sporadically across the total Site area. During ground works as part of construction some dewatering is likely to be required. The Contractor will ensure groundwater/surface water is managed throughout the works. Where groundwater/surface water is discharged off-site via the foul sewer the Contractor will undertake sufficient treatment and verification testing as required to ensure they meet the requirements of Thames Water and/or the Environment Agency (EA) prior to discharge.

Details of the agreed discharge consent, and relevant testing as required will be included in Verification Report.

3.6 Former Abstraction Well

Investigations will be carried out to attempt to locate the former groundwater abstraction well on the and to determine their status. If found the well will be decommissioned and capped off in accordance with Environment Agency guidance note “*Good practice for decommissioning redundant boreholes and wells*” (2012). Details of the abstraction well are included in Appendix C.

3.7 Watching Brief and Discovery Strategy

For the duration of the work the Contractor will maintain a watching brief and discovery strategy. The purpose of the watching brief will be twofold;

- To identify visual/olfactory evidence of gross contamination, and to ensure appropriate controls and mitigation measures are actioned.
- To assist material management, segregating material at the point of excavation by its geotechnical/chemical properties.

Where unforeseen contamination or unexpected ground conditions are encountered it shall be reported immediately, and the working methods and control measures reviewed. As required alternative methods of working will be reported to the regulatory authorities for approval.

The watching brief will include the following actions;

- The Site manager (provided by the Contractor) will have overall responsibility for delivering the watching brief and will be responsible for notifying the geo-environmental specialist.
- The Contractor will prepare inductions, risk assessments, method statements, CEMP and toolbox talks taking account of this Remediation Strategy.
- All staff should have a general asbestos in soils awareness training which will include what has previously been found on-site and what might be encountered during the works.
- The toolbox talks on-site should include a specific section on ground contamination including the findings of the ground investigation undertaken previously on-site. All staff should be aware of the possible actions to take should potential contamination be identified.

If previously unidentified contamination including gross visual or olfactory contamination is encountered the following steps should be taken;

- Works should cease in the affected area and cordoned off;
- A specialist should be consulted, who will advise on the next steps specific to the contamination encountered and prepare a method statement detailing these measures. The details of the additional remedial measures where required will be shared and agreed with the regulatory authorities prior to implementation.
- Soils should be sampled either in-situ (and left undisturbed whilst the samples are tested) or if safe to do so the soils should be excavated and stockpiled separately in an appropriate manner.

- Measures should be taken to restrict dust generation and surface water run-off;
- On receipt of the results, if deemed necessary the soils should be remediated and/or disposed off-site to a suitably licensed facility.

Where no unexpected contamination is encountered a written statement from a competent individual confirming the brief was implemented and no significant contamination was encountered will be provided.

3.8 Imported Materials

Imported materials will be sampled on Site to confirm their suitability, at the rates detailed in Section 3.8.1. It is advised testing records are provided and reviewed by the material supplier prior to importation. Chemical criteria for imported material are set out in Appendix B. Imported material in exceedance of the chemical criteria included in Appendix B will not be used.

Records will be collected detailing the total volume of imported soils for inclusion in the Validation Report.

Where imported material is from a virgin source or the material has been demonstrated to have been produced in accordance with the WRAP Quality protocol sampling and testing of the material would not be required. A visual/olfactory assessment of the material once imported onto Site would however be required.

3.8.1 Topsoil/subsoil - Soft Landscaping

New soft landscaping is proposed as part of the development, including a public park and play space at ground level, and incorporated into roof terraces. Managed soft landscaping will be installed surrounding parts of the residential buildings where housing is proposed on the ground floor. Private hard landscaped areas will be present however private soft landscaped gardens are not proposed. The ground investigation has identified the existing Made Ground as posing a risk to future human health receptors due to elevated contaminants and asbestos fibres, where future Site users are able to come into direct contact with these contaminants. A potentially complete pollutant linkage is therefore present in soft landscaping areas in which a cover layer will be required.

As part of the proposed Development there are several scenarios which will exist. These scenarios will dictate whether a minimum cover layer thickness is required.

- **Scenario A** - Where the soft landscaping is underlain directly by Made Ground a minimum cover layer of **0.3m** thick in areas of public open space will be required.
- **Scenario B** - Where the soft landscaping is underlain directly by hardstanding a minimum cover layer thickness would not be required.

Earthworks will be carried out to provide development platforms across the Site, which will remove Made Ground in some areas and increase levels in other areas.

- **Scenario C** - Where the Made Ground is removed down to the underlying natural soils the contaminant source will have been removed and a minimum cover layer thickness would not be required for contamination purposes. The landscape architect will specify the cover layer thickness to accommodate planting.
- **Scenario D** Where levels are increased with imported material should this imported material be **>0.3m** thick and comply with the threshold criteria in Appendix B a minimum cover layer thickness would not be required, due to the pollutant linkage already having been broken through pathway removal.

A summary of the scenarios and requirements is included in Table 3.

Table 3: Cover layer requirements

Scenario	Description	Cover Layer Requirement*	Validation Report Evidence
Scenario A	Soft landscaping directly underlain by Made Ground post earthworks completion.	Cover layer of 0.3m (public open space) minimum thickness	Photographic evidence demonstrating minimum thickness reached.
Scenario B	Soft landscaping directly underlain by hardstanding.	No minimum cover layer required for contamination purposes	As built plan detailing where this occurs.
Scenario C	Made Ground removed as part of earthworks. London Clay at Formation Level.	No minimum cover layer required for contamination purposes	Photographic evidence showing London Clay at Formation Level, and plan detailing formation levels post earthworks completion.
Scenario D	Levels increased with imported material >0.3m (public open space) thick which meet the Appendix B criteria post earthworks completion	No minimum cover layer required	Plan detailing formation levels post earthworks completion.

It should be noted these thicknesses relate to the cover system required to break potential contamination land linkages, thickness need to be confirmed with the landscape architect to accommodate planting. *Minimum cover layer thickness should also take landscaping requirements into account.

As required photographic evidence will be collected confirming the thickness of topsoil/subsoil. Photographs will comprise a measure stick or tape measure placed vertically against the soil profile to demonstrate a minimum of 0.3m thickness of soil has been placed.

Imported placed material from each source will be inspected by an Environmental Specialist once present on-site to verify it is free from visual and olfactory evidence of contamination and it is appropriate for use on-site.

Placed imported material should not be capable of being classified as hazardous waste. Where TPH is the cause of the hazardous waste classification further clarification of the TPH source may be undertaken to confirm whether or not the waste could be classifiable as hazardous waste.

As a conservative approach the GAC for a residential end use without Plant Uptake (Appendix B) will be used to initially assess the suitability of imported material within the Cover Layer. Concentrations above the GAC will be further assessed using;

- Land use specific GAC; or
- Pathway specific GAC.

Benzo(a)pyrene will be used as a surrogate marker in accordance with Public Health England guidance to assess PAH exceedances in material re-used.

A minimum of three samples of soil per source $>25\text{m}^3$ will be submitted for analysis to confirm its suitability. Samples shall be submitted for the chemical analysis listed in Appendix B and will comply with the listed limits. If the volume from any source exceeds 750m^3 , samples at a rate of one sample per 250m^3 over and above 750m^3 should be submitted to confirm suitability.

Where the imported material from a singular source is $<25\text{m}^3$ one sample only will be required.

Prior to use the soil will be assessed to ensure the material is; a suitable growing medium, free from obvious contamination, is not odorous, is free from Japanese Knotweed, has no obvious signs of asbestos containing material, and is free from unsuitable material.

Natural undisturbed material free of visual/olfactory evidence of contamination present within the Cover Layer will be deemed as not posing a risk to human health receptors and will not be subject to sampling, testing, and assessment against the Cover Layer criteria. Imported material used in soft landscaping areas must also meet the following requirements;

- BS3882 (2015) – Specification for topsoil and requirements for use, and BS8601 (2013) – Specification for subsoil and requirements for use; and
- Requirements of the landscape specification.

3.9 Statutory Approvals

All necessary approvals from the statutory authorities, including Islington Borough Council, the Environment Agency and local water authority will be obtained for the works undertaken.

A Validation Report will be prepared upon completion of the below-ground development works, and submitted for statutory approval. The scope of this Validation Report is set out in Section 4.

The works will be carried out and comply with all current applicable standards, codes, regulations, planning conditions, guidance notes, legislation and health and safety conditions.

4. Validation Report

The Validation Report will include the following information:

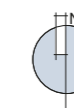
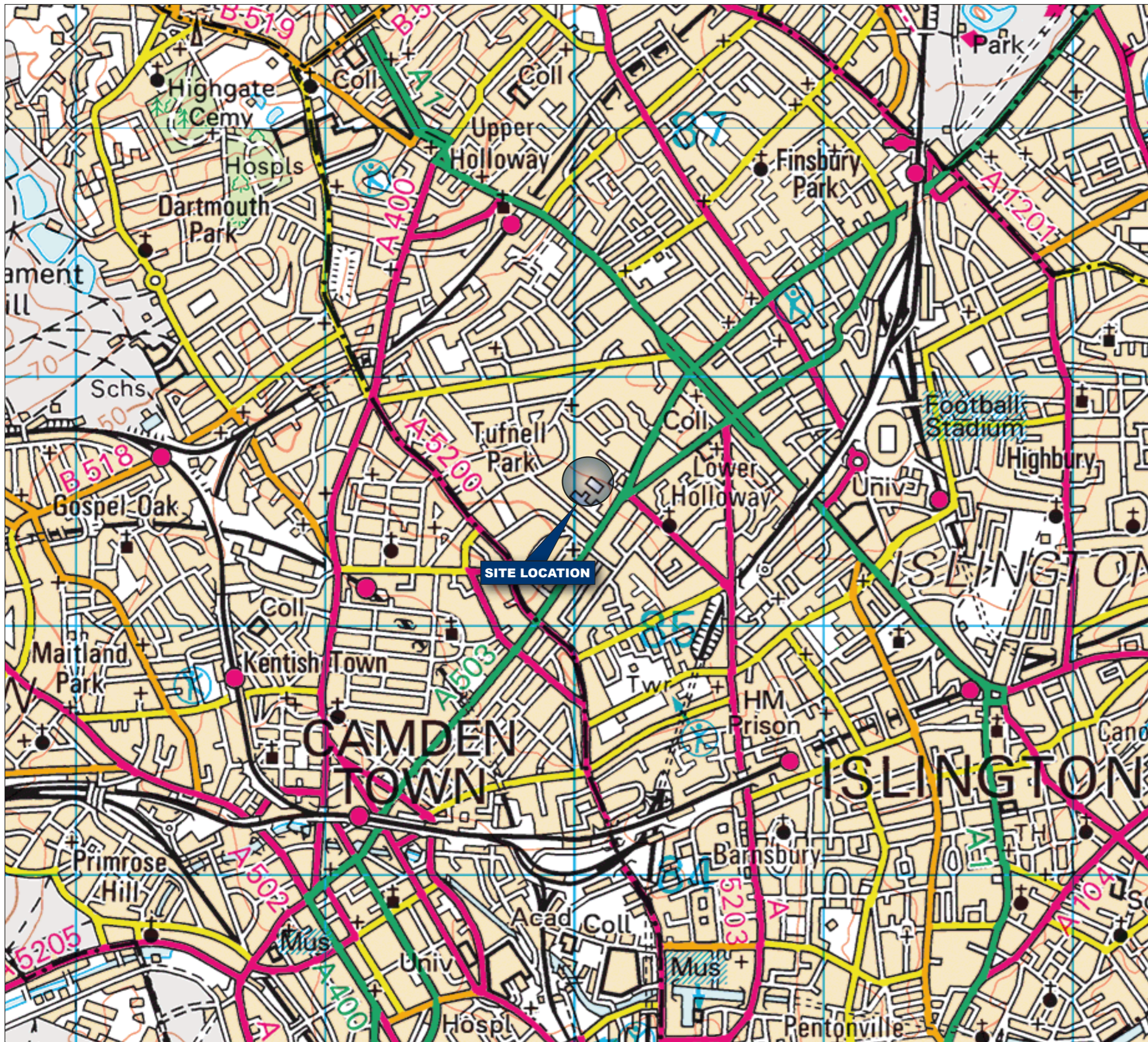
- For materials imported, re-used or exported from the Site;
 - Material type
 - Volume of material concerned;
 - Source location;
 - Details of any processes undertaken on the material, such as remediation processes or generation of secondary aggregates;
 - Records to demonstrate the material has been procured or produced in accordance with appropriate protocols;
 - Laboratory chemical test results for validation samples collected;
 - Location and details of validation samples collected;
 - Locations in which re-used or imported materials have been emplaced, including final thicknesses and total area covered; and
 - Locations where material has been exported, including volumes sent and relevant documentation. Exported material data should be separated based on the waste classification of the materials e.g. asbestos, hazardous, non-hazardous and inert; and
 - Summary of consignment notes and chain of custody documents relating to the disposal of soils, groundwater and asbestos containing materials from the Site;
- Details of any unforeseen/unchartered contamination encountered during the works;
- Records of the watching brief undertaken during removal of the fuel storage tanks.
- Records of the investigation undertaken to locate and decommission the former abstraction well.
- Photographic records of stripping works and infilling undertaken;
- As-built drawings showing levels post earthworks completion, final levels, excavated/infilled areas and other relevant details; and
- Relevant approvals from Islington Borough Council and the local water authority for the works carried out.



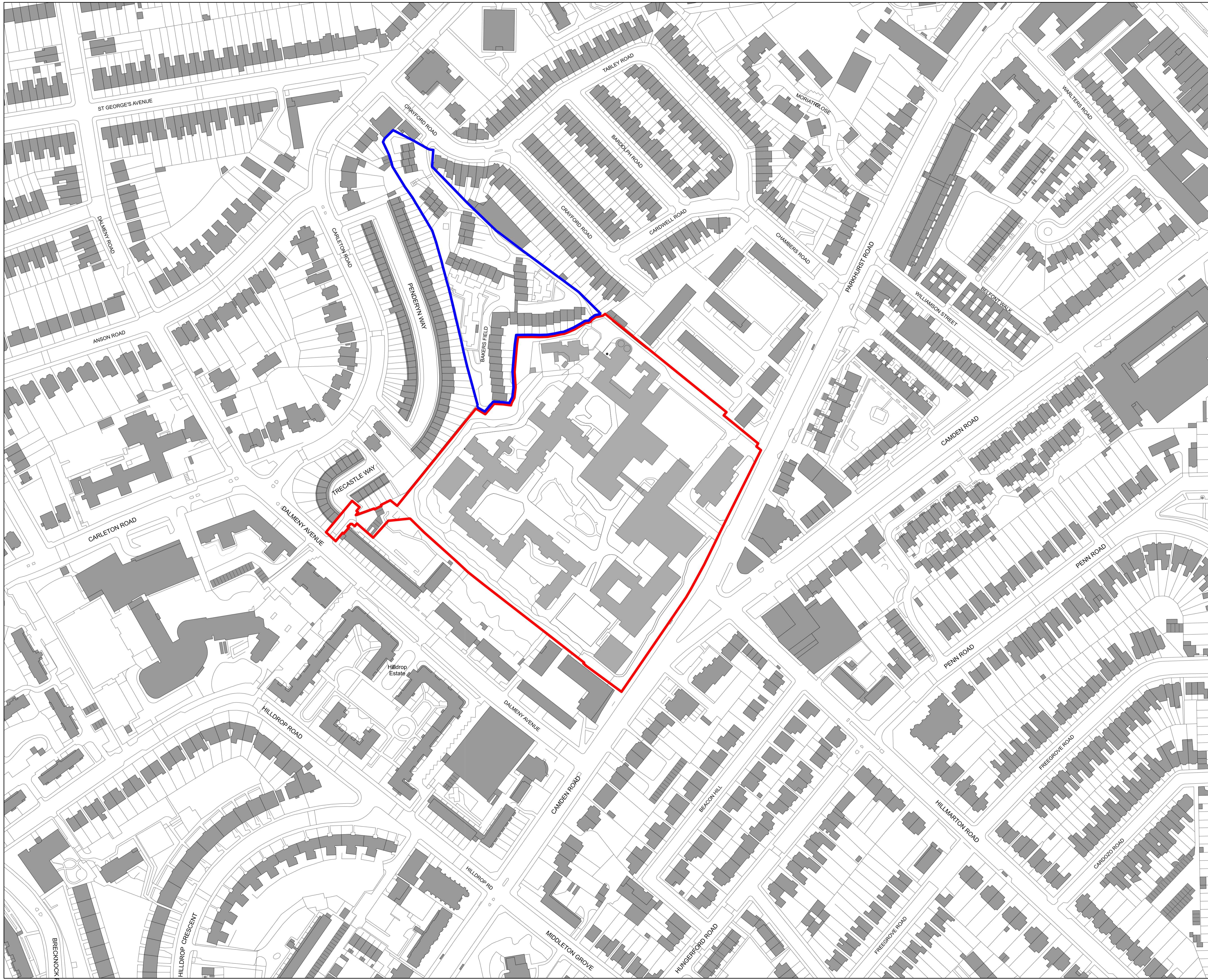
APPENDICES

A. Site Plans

- **Site Location Plan**
- **Site Plan**
- **Proposed Development Plans**
- **Conceptual Site Model**



Project Details	WIE16172-100: Holloway Prison, Parkhurst Road, London N7 0NU
Figure Title	Figure A1: Site Location Plan
Figure Ref	WIE16172-100_GR_PERA_A1A
Date	September 2019
File Location	\\s-Incs\wie\projects\wie16172\100\graphics\pera\issued figures



KEY

- Application boundary
- Land in the ownership of the applicant which is outside the application site
Peabody Freehold Title (NGL805622)

Application boundary area: 4.16 Hectares

15/10/2021 DRAFT PLANNING
 08/10/2021 INFORMATION
 01/10/2021 INFORMATION
 27/08/2021 DESIGN FREEZE 1
 26/08/2021 DRAFT FOR INFORMATION

REV	DATE
D	15/10/2021 DRAFT PLANNING
C	08/10/2021 INFORMATION
B	01/10/2021 INFORMATION
A	27/08/2021 DESIGN FREEZE 1
-	26/08/2021 DRAFT FOR INFORMATION

NOTE

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 - the accuracy of survey information provided by others or for any costs, claims, proceedings and expenses arising out of reliance on such information
 - any scaling from this drawing other than by the local planning authority solely for the purposes of the planning application to which it relates

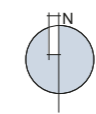
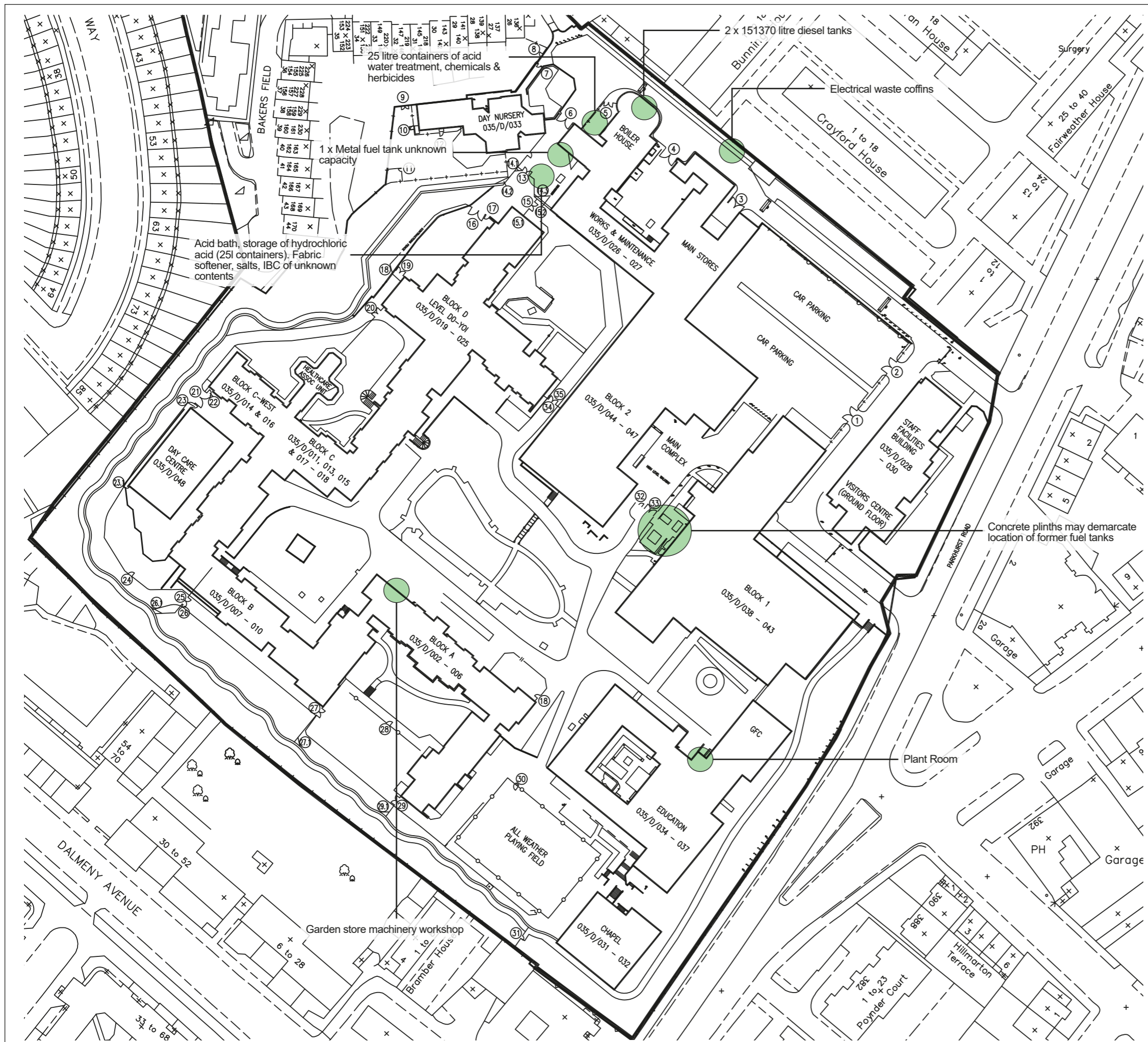
LOCATION

ALLFORD HALL MONAGHAN MORRIS
 ARCHITECTS LTD
 MORELANDS, 5-23 OLD STREET LONDON EC1V 9HL
 TEL 020 7251 5261 FAX 020 7251 5123 WEB WWW.AHMM.CO.UK

job title
PROJECT HOLLOWAY

drawing title / location
LOCATION PLAN

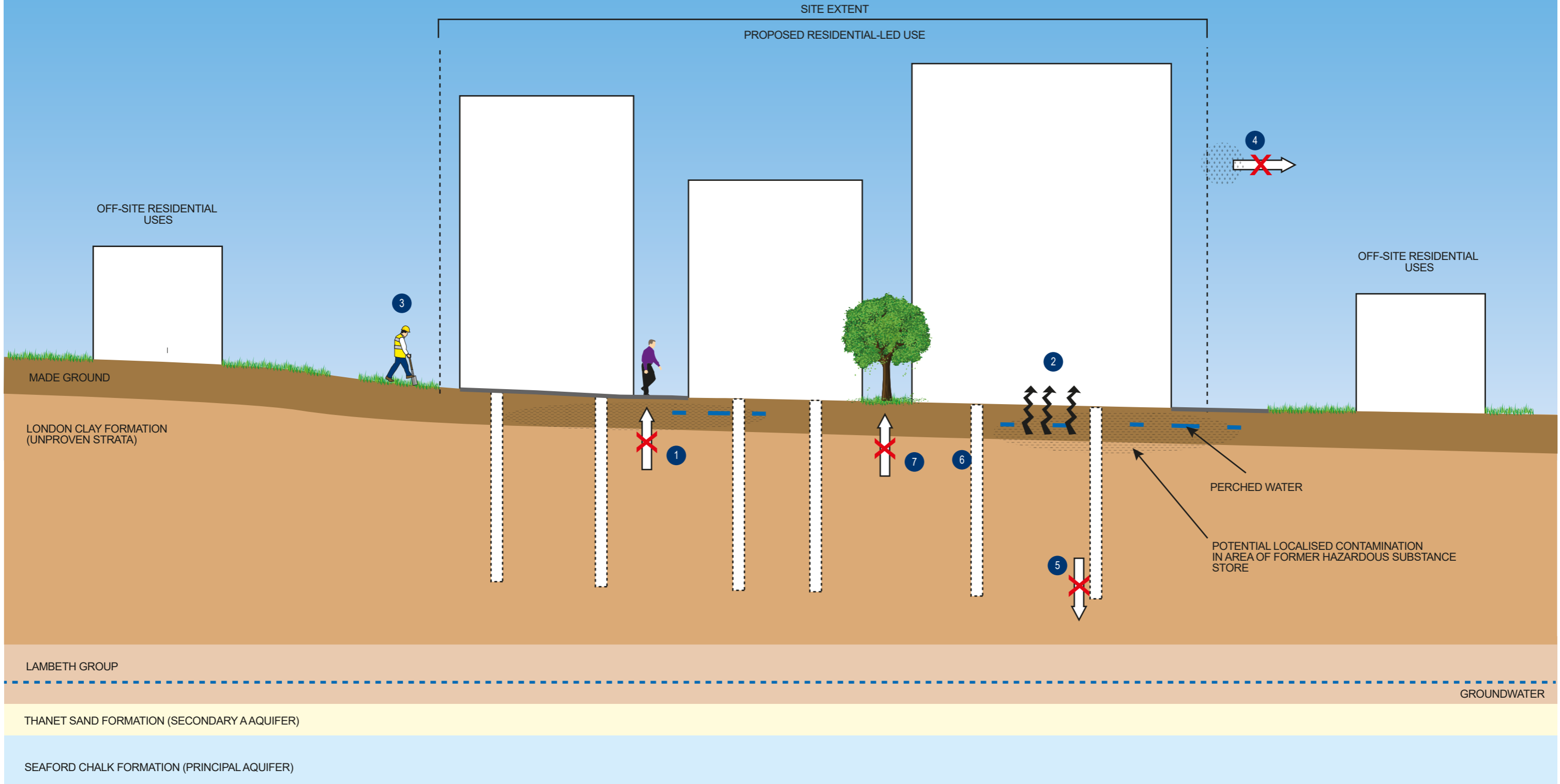
drawn by	checked	scale	status		
AC	LL	1:1250@A1; 1:2500@A3	INFORMATION		
project	zone	source	classification	drawing no.	revision
17105	0	-	(00)_001	D	



Project Details	WIE16172-100: Holloway Prison, Parkhurst Road, London N7 0NU
Figure Title	Figure A3: Site Features Plan
Figure Ref	WIE16172-100_GR_PERA_A3A
Date	September 2019
File Location	\\s-incls\wiel\projects\wie16172\100\graphics\pera\issued figures

SW

NE



- 1 Potential for localised contamination in Made Ground, shallow natural soils and groundwater. Contamination pathway to future Site users will be blocked by hardstanding, building cover and managed soft landscaping.
- 2 Potential ground gas and vapour risk from localised soil and groundwater contamination, if present. Ground investigation to confirm the requirement for ground gas/vapour monitoring and protection measures. Ground investigation to include environmental sampling and analysis, PID headspace monitoring and exploratory observations.
- 3 Construction workers will need to be provided with appropriate Personal and Respiratory Protective Equipment (PPE/RPE), adopt good hygiene Standards and undertake works in line with relevant legislation.

- 4 Contamination dust pathway blocked by Construction Environmental Management Plan (CEMP) implementation.
- 5 Potential deep groundwater contamination pathway blocked by London Clay Formation. Foundations are likely to terminate in the London Clay Formation.
- 6 The results of ground investigation should be used to determine the design specification of buried foundations and services..
- 7 topsoil used for communal soft landscaping will be confirmed as suitable for use.

Project Details	WIE16172-100: Holloway Prison, Parkhurst Road, London N7 0NU
Figure Title	Figure A4: Conceptual Site Model
Figure Ref	WIE16172-100_GR_PERA_A4A
Date	September 2019
File Location	\\s-inc\wiel\projects\wie16172\100\graphics\pera\issued figures



KEY

1 BED	CYCLE STORE
2 BED	EXTRA-CARE
3 BED	AFFORDABLE TENURE
4 BED	MARKET TENURE
WOMENS CENTER	ROOF PRIVATE TERRACE
REFUSE STORE	SITE BOUNDARY
COMMERCIAL	
MEP	
HEAT PUMPS	

0 1m 2m 5m 10m

LANDSCAPE AND PUBLIC REALM INDICATIVE. REFER TO LANDSCAPE ARCHITECT INFORMATION.

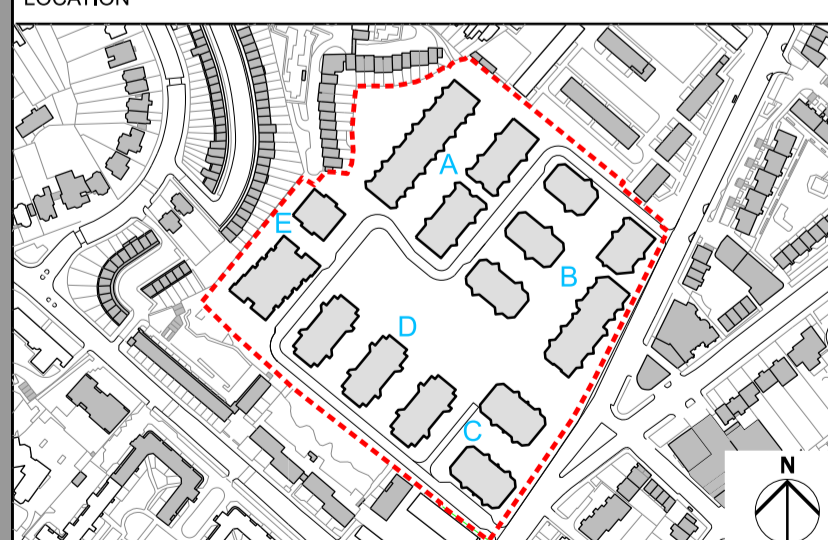
ROAD LAYOUT IS INDICATIVE AND TO BE CO-ORDINATED

REV	DATE
G	31/08/21 DESIGN FREEZE 1
F	24/08/21 INFORMATION
E	13/08/21 INFORMATION
D	02/08/21 INFORMATION
C	02/07/21 INFORMATION
B	30/06/21 INFORMATION
A	25/06/21 INFORMATION
-	10/06/21 INFORMATION

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job title
PROJECT HOLLOWAY

drawing title / location
**MASTERPLAN
UPPER GROUND FLOOR**

drawn by	checked	scale	status
AC	LL	1:500@A1; 1:1000@A3	INFORMATION

project	zone	source	classification	drawing no.	revision
17105	0	-	(00)_118	G	