Hyatt Place
27 Uxbridge Road
Hayes
UB4 0JN

Basement Impact Assessment Report

FF Propco 2 Limited

September 2022

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Rev 4

Ground investigation | Geotechnical consultancy | Contaminated land assessment

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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 Basement Impact Assessment (BIA) carried out by Geotechnical and Environmental Associates Limited (GEA) on the instructions of Stockdale LLP, on behalf of FF Propco 2 Limited, with respect to the redevelopment of the site through the refurbishment and extension of the existing hotel building on the site, which will include the construction of a new 5.5 m deep basement beneath the north-western part of the site.

The purpose of the report has been to provide an assessment of any impact of the basement on the local hydrology, hydrogeology or surrounding structures. This has been carried out through a review of a previous desk study and site investigation by Constructive Evaluation Limited (report ref: 12.7302, dated November 2012) and a further desk study by Jomas Associates Ltd (report ref. P4235J2506/CLP, dated March 2022).

Desk Study Findings

The previous desk studies indicate that the site was first developed with residential housing in the late 1800s, and that brick fields, ponds and various works buildings were all located in close proximity to the site. The site was redeveloped with the existing hotel building in the mid-1900s, at which time a garage, potentially operating as a filling station, was also present on the north-western part of the site. The garage remained present until some time between 2002 and 2012. However, it is not known if any fuel tanks were present as part of this previous usage, and if present, whether these structures were decommissioned and / or removed as part of this previous re-development.

On the basis of the findings of the desk study research there is considered to be a number of plausible pollutant linkages that could present a LOW to MODERATE risk to potential receptors, which was subsequently downgraded to LOW by Constructive Evaluation Limited based on the finding of their investigation.

A preliminary UXO risk assessment has indicated that the site did not suffer any damage during World War II and that is has a low potential for the presence of unexploded ordnance.

Ground conditions

The British Geological Survey (BGS) map of the area indicates that the site is likely to be underlain by Langley Silt over Lynch Hill Gravel, which in turn is underlain by the London Clay Formation.

This was generally confirmed by the previous investigation of the site, in that, beneath a moderate thickness of made ground, Langley Silt was found to be underlain by River Terrace Deposits, which in turn was underlain by the London Clay to the maximum depth investigated, of 16.0 m.

Groundwater has been encountered within the Lynch Hill Gravel and is expected to be present at a depth of about 4.5 m.

Development Issues

Excavations for the proposed basement structure will require temporary support to maintain stability and to prevent any excessive ground movements. Groundwater inflows should be expected within the excavation and as such, groundwater control / exclusion measures are likely to be required as part of the proposed construction sequence. Formation level for the proposed basement is likely to be within the London Clay, which should provide an eminently suitable bearing stratum for spread foundations, provided that groundwater inflows can be adequately controlled. Alternatively, consideration could be given to the adoption of piled foundations, extending to depth within the London Clay.

Whilst the previous investigation did not identify the presence of any significant contamination there is a potential for further areas of contamination to be present within the made ground beneath parts of the site not covered by the investigation and it is recommended that a watching brief is maintained during any groundworks for the proposed new foundations and that if any suspicious soils are encountered that they are inspected by a geo-environmental engineer and further assessment may be required. Further investigation is also likely to be required on the north-western part of the site, to confirm the presence / absence of any potential tanks beneath this part of the site.

Basement Impact Assessment

It has been concluded that the majority of the impacts identified can be mitigated by appropriate design and standard construction practice. Groundwater is likely to be present within the basement excavation and will still be able to flow around the basement following construction. As the new basement does not close a pathway, it is considered that the groundwater will follow a pathway around the proposed structure and will not build up significantly behind it. The basement should not, therefore, have any noticeable effect on groundwater flow.

1.0 Introduction

Geotechnical and Environmental Associates Limited (GEA) has been commissioned by Stockdale LLP on behalf of FF Propco 2 Limited, to carry out a basement impact assessment (BIA) for the proposed development of this site at Hyatt Place, 27 Uxbridge Road, Hayes, UB4 0JN, within the London Borough of Hillingdon.

In the absence of a specific BIA procedures in Hillingdon, the Camden framework for assessing the effects of basements has been adopted as it is widely known and is considered to provide a robust approach to the issues of concern.

The site has been the subject of a previous desk study and site investigation by Constructive Evaluation Limited (report ref: 12.7302, dated November 2012) and a further desk study by Jomas Associates Ltd (report ref. P4235J2506/CLP, dated March 2022). Records of this work have been provided to GEA and the information from these reports has been used to assist with the completion of this assessment.

1.1 Proposed Development

It is understood that the proposed redevelopment of the site will include the construction of a new six-storey to twelve-storey structure around the central portion of the existing building, demolition of the existing two-storey wings on the southern and northern part of the site, and formation of a new 5.5 m deep basement area beneath the north-western part of the new structure, which will link with the existing basement beneath the northern part of the existing hotel building.

Further site investigation is proposed to provide additional information to assist with the finalisation of the design proposals, which will be undertaken once suitable access becomes available.

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 check records of data on groundwater, surface water and other publicly available environmental data;
- to provide an assessment of the risk of encountering unexploded ordnance (UXO) beneath the site; and
- to provide an assessment of the impact of the proposed development on groundwater, surface water and land stability in support of a planning application.

1.3 Scope of Work

In order to meet the above objectives, an assessment was carried out, comprising, in summary, the following activities:

- a review of readily available geology maps; and
- a review of the previous desk study and site investigation carried out by Constructive Evaluation Limited and the desk study by Jomas Associates Ltd;
- commissioning of a Preliminary UXO Risk Assessment by 1st Line Defence, a specialist in the field; and
- provision of a report presenting and interpreting the above data, together with our advice and recommendations with respect to the proposed development.

1.3.1 Basement Impact Assessment (BIA)

The work carried out also includes information required for a Hydrological and Hydrogeological Assessment and Land Stability Assessment (also referred to as Slope Stability Assessment), which form part of the BIA procedure specified in the London Borough of Camden (LBC) Planning Guidance: Basements[1] and their Guidance for Subterranean Development[2] prepared by Arup.

1 London Borough of Camden Planning Guidance (2018) *Basements*

2 Ove Arup & Partners (2010) *Camden geological, hydrogeological and hydrological study. Guidance for Subterranean Development.* For London Borough of Camden November 2010

The aim of this work is to provide information on the groundwater conditions specific to this site and land stability, to assess whether the development will affect the stability of neighbouring properties and whether any identified impacts can be appropriately mitigated.

1.4 Limitations

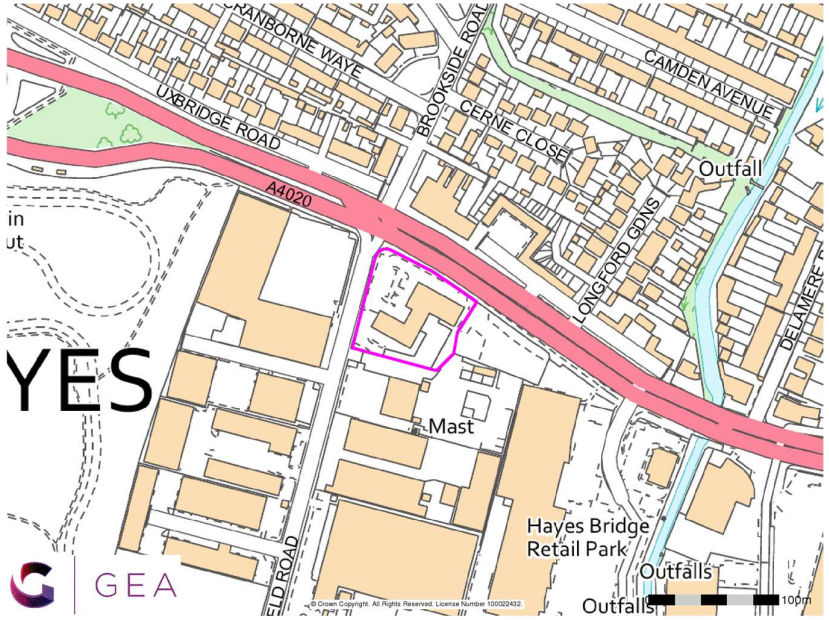
The conclusions and recommendations made in this report are limited to those that can be made on the basis of the research carried out. The results of the work should be viewed in the context of the range of data sources consulted, the number of locations where the ground was sampled and the number of soil, gas or ground water samples tested. No liability can be accepted for information in other data sources or conditions not revealed by the sampling or testing. Any comments made on the basis of information obtained from the client or third parties are given in good faith on the assumption that the information is accurate; no independent validation of such information has been made by GEA.

2.0 The Site

2.1 Site Description

The site is located in London Borough of Hillingdon, approximately 1500 m to the northwest of Southall railway station and 400 m to the east of the A312. It fronts onto Uxbridge Road to the north and Springfield Road to the west to the south and is bounded to the south by a large commercial unit and yard operated by Scottish and Southern Energy (SSE) and to the east by a former scaffolding yard.

The site may be additionally located by National Grid Reference 511420, 180718 and is shown on the map extract below.

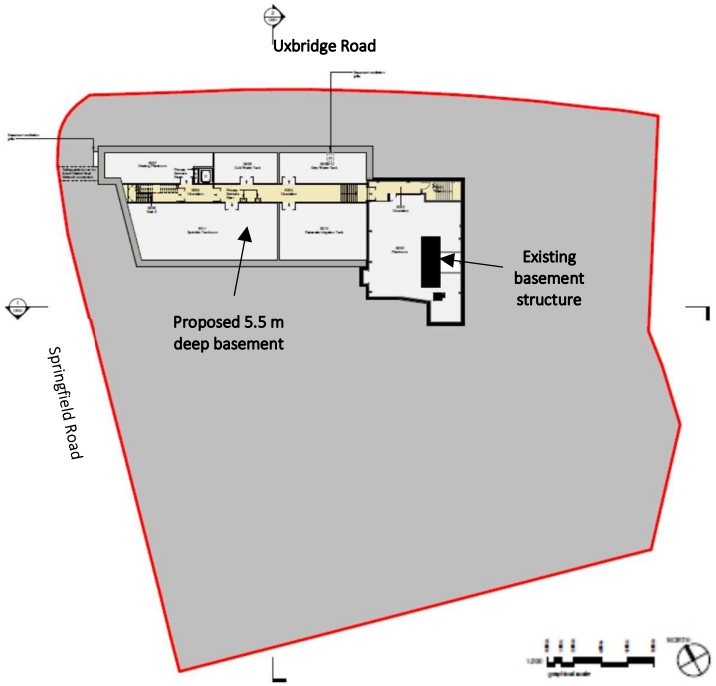


The site is irregular in shape, measuring approximately 80 m east-west by 85 m north-south, and is occupied by a two-storey to twelve-storey hotel building with car parking and an existing basement plant room beneath the northern part of the existing building.

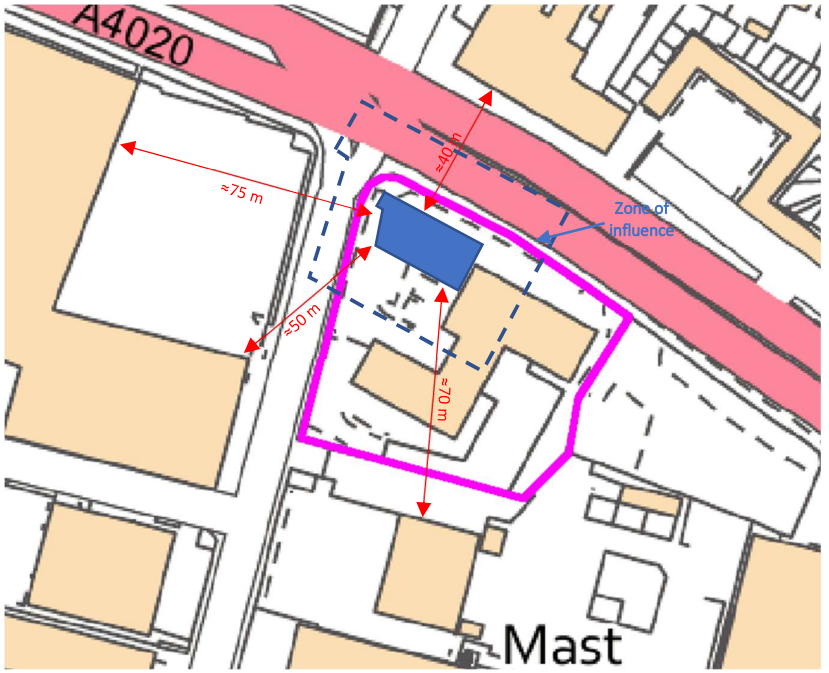
The surface is essentially level and is almost entirely covered by the existing building and areas of external hardstanding, with the exception of limited amounts of aesthetic planting around the perimeter of the site and within the car parking area, including a number of small trees up to 5 m in height.

2.1.1 Proposed Basement

It is understood from the information provided, that the new basement will be constructed on the north-western part of the site, as shown on the drawing extract below



The new basement is therefore located at some distance from any nearby structures, as shown on the drawing extract below, with the nearest building being in excess of 40 m away, and therefore outside the likely zone of influence of the proposed excavations of approximately 22 m, based on four times the retained height of 5.5 m.



The proposed basement is also set back from the site boundary by in-excess of 5.0 m, such that it is not within the immediate vicinity of any services present beneath the adjoining roadways.

2.2 Previous Desk Study Findings

2.2.1 Site History

The previous desk studies indicate that the site was first developed between 1865 and 1896, when a series of four semi-detached houses were constructed on the north-eastern part of the site. The Union Canal was situated 374 m to the east, with a brick field 400 m to the southeast and 500 m to the east.

By 1913, further residential properties had been established on the northern part of the site, with a brick works 50 m to the southwest, which included kilns and ground workings approximately 70 m to 90 m to the south and southwest. A number of ponds were present in excess of 100 m to the northeast and south, all of which were subsequently infilled.

At some time between 1914 and 1935 more houses were built on the southwestern part of the site, with a tyre factory present 100 m to the southeast. By 1938 to 1940, a cardboard cases factory, metal works and a bakery had been established 40 m to the west, 100 m to the south and 175 m to the south respectively.

Between 1940 and 1974, further works were established in the area around the site, whilst the site was redeveloped with the existing hotel building and a garage in the north-western part of the site.

The garage was enlarged in the 1990s and remained on the site until some time between 2002 and 2012, when it was demolished and replaced with an existing area of car parking.

2.2.2 Other Information

The previous reports indicate the presence of a single recorded landfill site within 500 m, located 120 m to the west. Areas of potentially infilled surface workings include the former ponds 110 m to the east, 175 m to the northeast and 250 m to the southeast, as well as the former brickfields immediately to the south and west.

There are two pollution incidents recorded within 250 m of the site, 23 m to the northwest and 231 m to the east. However, these are both listed as minor events with no or very little impact.

The nearest active / former fuel station is listed as being present 241 m to the west of the site. However, there is a Part B permit for the unloading of petrol into storage for the site.

There are 31 current industrial data records within 250 m of the site, including a vehicle servicing centre, a container storage depot and a water pumping station, 13 m, 47 m and 48 m to the southeast, warehouses 64 m to the west and 91 m to the southwest, electrical sub-stations 67 m to the north and 75 m to the southwest, a business centre 107 m to the west and unspecified works 108 m to the south.

Reference to records compiled by the Health Protection Agency (formerly the National Radiological Protection Board) indicates that the site falls within an area where less than 1% of homes are affected by radon emissions and therefore radon protective measures will not be necessary.

2.2.3 Preliminary Risk Assessment

On the basis of the desk study research there is considered to be a number of plausible pollutant linkages that could present LOW to MODERATE risks to potential end receptors.

2.3 London Fire Brigade Enquiry

As recommended in the previous assessments, an environmental enquiry was made by GEA to the Petroleum Group of the London Fire Brigade (LFB), to establish if there is any information relating to historic fuel tanks on the site. The search has revealed that there are no records of any underground fuel storage tanks, and a copy of the report (ref 26/085556/PC, dated June 2022) is included in the appendix.

The search is not completely exhaustive and does not completely rule out the possibility of tanks having been present. However, it does suggest that the former garage present on the north-western part of the site may be associated with maintenance and repairs, or vehicle sales, rather than comprising a fuel station, although further work is likely to be required to confirm the presence / absence of any tanks beneath this part of the site.

2.4 Preliminary UXO Risk Assessment

A Preliminary UXO Risk Assessment has been completed by 1st Line Defence (report ref PA15842-00, dated May 2022), and the report is included in the appendix. The risk assessment has been carried out in accordance with the guidelines provided by CIRIA[3], 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.

The report indicates that, during World War II (WWII), the site was located within the Urban District of Hayes and Harlington, which sustained a low to moderate bomb density. The site

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

does not appear to have been directly affected by bombing and is not labelled as significantly damaged on available damage mapping. It is considered likely that the site would have been subject to regular levels of access and post-raid checks for signs of UXO and therefore a minimal risk of encountering unexploded ordnance has been identified for the site and no further action is recommend in this respect.

3.0 Ground Conditions

3.1 Geology

The British Geological Survey (BGS) map of the area indicates that the site is likely to be underlain by Langley Silt over Lynch Hill Gravel, which in turn is underlain by the London Clay Formation.

According to the British Geological Society (BGS) Memoir, the Langley Silt comprises a mixture of massively bedded silt and clays, whilst the underlying Kempton Park Gravel typically comprises sand and gravel, with local lenses of silt and clay. The London Clay typically consists of homogenous, slightly calcareous silty clay to very silty clay, with some beds of clayey silt grading to silty fine-grained sand.

A previous GEA investigation, carried out approximately 150 m to the east-southeast of the site, encountered a relatively significant thickness of made ground, underlain by Alluvium, Langley Silt and Lynch Hill Gravel, over the London Clay Formation. The made ground extended to depths of between 0.60 m (28.48 m OD) and 2.20 m (27.10 m OD), the Alluvium extended to depths of 1.70 m (27.38 m OD) and 3.00 m (26.30 m OD) and generally comprised soft grey silty clay with fine gravel, rootlets and an organic odour. The Langley Silt extended to depths of 2.00 m (27.06 m OD) and 2.90 m (26.54 m OD) and generally comprised soft becoming firm light brown gravelly clayey sandy silt. Medium dense brown sandy gravel of the Lynch Hill Gravel was encountered to depths of between 2.50 m (26.56 m OD) and 3.60 m (25.84 m OD), whereupon the London Clay was encountered and was proved to the maximum depth investigated, of 25.00 m (4.21 m OD).

A search of the BGS database has revealed records of a historical borehole drilled on the site which, beneath a moderate thickness of made ground, encountered firm brown sandy clay of the Langley Silt to a depth of 1.8 m, which was underlain by sand and gravel of the Lynch Hill Gravel to a depth of 5.00 m. Below this, soft to firm brown silty sandy clay with gravel extended to a depth of 6.70 m and was underlain by stiff blue fissured clay of the London Clay to the full depth of the borehole, of 10.85 m.

Further information on the BGS database for the wider area suggests that the London Clay is likely to extend to a depth of around 55 m, below which a downward sequence of the Lambeth Group, Thanet Sand and White Chalk is expected to be present, with the top of the Chalk likely to be encountered at a depth of about 75 m.

3.2 Hydrology and Hydrogeology

The Langley Silt and underlying London Clay Formation are both classified as Unproductive Strata, which refers to rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow.

The Lynch Hill Gravel is classified as a Principal Aquifer, which refers to strategically important rock units that have high permeability and water storage capable of supporting public water supplies and providing baseflow to watercourses. The permeability of the River Terrace Gravel will be via pore space and is expected to range between approximately 1×10^{-4} m/s and 1×10^{-6} m/s. Groundwater is therefore able to flow freely through this stratum and is not typically subject to significant seasonal fluctuations.

Published data for the permeability of the London Clay indicates the horizontal permeability to generally range between 1×10^{-11} m/s and 1×10^{-9} m/s, with an even lower vertical permeability.

The nearest natural water feature is Yeading Brook, which is located approximately 185 m to the east of the site and flows in a southerly direction.

Groundwater is likely to be present near the boundary between the relatively high permeability River Terrace Gravel and the relatively low permeability London Clay and in this respect, the previous GEA investigation to the east-southeast encountered groundwater at depths of 2.1 m and 3.0 m, whilst the previous BGS borehole on the site recorded a groundwater seepage at a depth of about 6.5 m.

The site is not located within a Groundwater Source Protection Zone and there are no groundwater abstractions within the vicinity of the site.

The site is not within an area shown by the Environment Agency to be at risk from flooding from rivers or the sea, nor is it identified as being at risk from groundwater flooding. However, online flood maps on the Gov.uk website show a potential risk of surface water flooding, such that consideration should be given to the completion of a Flood Risk Assessment (FRA), which should be undertaken by a suitably qualified engineer / specialist.

The site is almost entirely covered by the existing building and hardstanding and therefore infiltration of rainwater into the ground beneath the site is limited such that the majority of surface runoff is likely to drain into combined sewers in the road.

3.3 Previous Investigation

The previous ground investigation by Constructive Evaluation Limited comprised the following activities:

- three cable percussion boreholes, advanced to a depth of 16.0 m, to allow investigation of the underlying soils with respect to bearing capacity and contamination;
- standard penetration tests (SPT) undertaken at regular intervals in each borehole, to provide quantitative data on the strength of the soils;
- installation of gas and groundwater monitoring standpipes within each of the boreholes, and three subsequent monitoring visits;
- four machine-dug trial pits to a maximum depth of 2.5 m, to confirm the near surface soil conditions and obtain additional samples for contamination testing.; and
- five in-situ California Bearing Ratio (CBRs) tests.

A selection of the samples recovered from the boreholes and trial pits were submitted to a soil mechanics laboratory for a programme of geotechnical testing and an analytical laboratory for a programme of contamination testing; the Constructive Evaluation Limited report should be referred to for full details of the techniques and methods and standards adopted for the investigation and laboratory analysis.

3.3.1 Summary of Ground Conditions

The investigation generally encountered the expected ground conditions, in that beneath a moderate thickness of made ground, Langley Silt was found to be underlain by River Terrace Deposits, which in turn was underlain by the London Clay to the maximum depth investigated, of 16.0 m.

The made ground was encountered below a surface covering of tarmac hardstanding depths of between 0.5 m and 1.1 m, and below which, Langley Silt, comprising light brown sandy gravelly clay, was encountered in two of the boreholes to depths of between 1.2 m and 1.4 m.

The underlying Lynch Hill Gravel generally comprise medium dense to very dense brown sandy gravel, which was encountered to depths of between 4.4 m to 4.7 m. Below this, very

stiff to very stiff fissured dark brown becoming dark grey silty clay of the London Clay was encountered and proved to the maximum depth of the investigation, of 16.0 m.

Visual and olfactory signs of contamination, in the form of a dark grey discoloration and a hydrocarbon odour, were recorded within the Lynch Hill Gravel at a depth of 4.5 m in Borehole No 2. A hydrocarbon odour was also noted in the made ground at a depth of 0.77 m in Trial Pit No 3.

3.3.2 Summary of Gas & Groundwater Conditions

Groundwater was not encountered within any of the shallow trial pits or boreholes during drilling.

Standpipes were installed into each of the boreholes and were monitored on three occasions, with the results of the monitoring shown in the table below.

Date	Borehole No	Depth to water (m)
22/10/2012	1	4.55
	2	4.74
	3	4.45
29/10/2012	1	4.55
	2	4.77
	3	4.45
05/11/2012	1	Dry
	2	4.75
	3	4.44

Gas monitoring was also undertaken and did not indicate the presence of any methane or other nuisance gasses, such as carbon monoxide or hydrogen sulphide, with relatively low levels of carbon dioxide (CO_2) recorded. However, slightly anaerobic conditions were present within one of the boreholes, where a CO_2 concentration of 5.9% and depleted oxygen was recorded during the third and final monitoring visit.

Based on these results, the site was classified as Characteristic Situation 2 and as having a low risk. However, due to the nature of the proposed development, which will include undercroft parking and a full waterproofed basement construction, no protection measures were deemed necessary.

3.3.3 Contamination Testing

Contamination testing was undertaken on a total of nine samples of the made ground and did not record any concentrations in excess of the commercial screening values adopted. Additionally, all the samples tested were also found to be free of asbestos.

Groundwater analysis of samples recovered from each of the boreholes during the three monitoring, generally recorded low concentrations of potential contaminants below the adopted screening values, with the exception to marginally elevated concentrations of TPH and PAH in the borehole location where visual and olfactory evidence of contamination had been previously observed. However, due to the nature of the aquifer and distance to any potential receptors, these concentrations were not considered to present an unacceptable risk.

3.3.4 Revised Conceptual Model

Based on the findings of their investigation, Constructive Evaluation Limited concluded that there was a NEGLIGIBLE to LOW risk to end users and controlled water, with a LOW risk to site workers and buried services. However, further investigation was recommended in the subsequent desk study undertaken by Jomas to corroborate these findings and fully characterize the site.

4.0 Basement Screening Assessment

The relevant screening and scoping questions from the widely known Camden guidance have been adopted as a means of assessing the potential impacts from the proposed basement construction, as detailed below. Some of the questions have been removed as they are specific to the Camden area.

4.1 Subterranean (Groundwater) Flow Screening Assessment

Question	Response for Hyatt Place
1a. Is the site located directly above an aquifer?	*Yes. The Lynch Hill Gravel is present beneath the site at a relatively shallow depth.*
1b. Will the proposed basement extend beneath the water table surface?	*Yes. The proposed basement is expected to extend to a depth of 5.5 m below ground level, whilst groundwater is expected to be present towards the base of the underlying Lynch Hill Gravel at a depth of about 4.5 m.*
2. Is the site within 100 m of a watercourse, well (used/ disused) or potential spring line?	No. The nearest surface water feature is located approximately 185 m to the east of the site.
3. Will the proposed basement development result in a change in the proportion of hard surfaced / paved areas?	No. The proposed basement excavation will extend beneath the existing car park and will not therefore result in any change in the proportion of hard surfaced / paved areas.
4. As part of the site drainage, will more surface water (e.g., rainfall and run-off) than at present be discharged to the ground (e.g., via soakaways and/or SUDS)?	No. It is unlikely that there will be any increase in discharge of surface water run-off to the ground.
5. Is the lowest point of the proposed excavation (allowing for any drainage and foundation space under the basement floor) close to or lower than, the mean water level in any local pond or spring line?	No. There are no local ponds or spring lines in the vicinity of the site.

The above assessment has identified the following potential issues that need to be assessed.

Q1a The site is underlain by the Lynch Hill Gravel.
Q1b The basement will extend beneath the water table.

4.2 Land Stability Screening Assessment

Question	Response for Hyatt Place
1. Does the existing site include slopes, natural or manmade, greater than 7°?	No. Information provided by the client indicates that the site is essentially level.
2. Will the proposed re-profiling of landscaping at the site change slopes at the property boundary to more than 7°?	No. The proposed development is not understood to introduce any new slopes with angles greater than 7°.
3. Does the development neighbour land, including railway cuttings and the like, with a slope greater than 7°?	No. The neighbouring properties are similarly flat.
4. Is the site within a wider hillside setting in which the general slope is greater than 7°?	No. The surrounding land is similarly flat.
5. Is the London Clay the shallowest strata at the site?	No. The site is underlain by soils of the Langley Silt over the Lynch Hill Gravel
6. Will any trees be felled as part of the proposed development and / or are any works proposed within any tree protection zones where trees are to be retained?	No. It is not thought that any trees will be felled as part of the proposed development.
7. Is there a history of seasonal shrink-swell subsidence in the local area and / or evidence of such effects at the site?	No. The presence of the Lynch Hill Gravel over any potentially shrinkable soils would inhibit the effects of seasonal shrinking or swelling.
8. Is the site within 100 m of a watercourse or potential spring line?	No. The nearest surface water feature is located approximately 185 m to the east of the site.
9. Is the site within an area of previously worked ground?	No. Whilst the BGS geological map an area indicates that an area of previously worked ground may extended onto the southern part of the site, no evidence of this was encountered during the previous site investigation.
10a. Is the site within an aquifer?	*Yes. The Lynch Hill Gravel is present beneath the site at a relatively shallow depth.*
10b. Will the proposed basement extend beneath the water table such that dewatering may be required during construction?	*Yes. The proposed basement is expected to extend to a depth of 5.5 m below ground level, whilst groundwater is expected to be present towards the*

Question	Response for Hyatt Place
	base of the underlying Lynch Hill Gravel at a depth of about 4.5 m.
12. Is the site within 5 m of a highway or pedestrian right of way?	No. Whilst the site is bounded by Uxbridge Road and Springfield Road, the proposed basement is set back form these boundaries and is not therefore located within 5 m of a highway or pedestrian right-of-way.
13. Will the proposed basement significantly increase the differential depth of foundations relative to neighbouring properties?	No. There are no neighbouring properties within the zone of influence of the proposed basement.
14. Is the site over (or within the exclusion zone of) any tunnels, e.g., railway lines?	No.

The above assessment has identified the following potential issues that need to be assessed:

Q10a The site is underlain by the Lynch Hill Gravel.
Q10b The proposed basement will extend beneath the water table.

4.3 Surface Flow and Flooding Screening Assessment

Question	Response for Hyatt Place
1. As part of the proposed site drainage, will surface water flows (e.g., volume of rainfall and peak run-off) be materially changed from the existing route?	No. There will not be an increase in impermeable area across the ground surface above the proposed plant room, so the surface water flow regime will be unchanged.
2. Will the proposed basement development result in a change in the proportion of hard surfaced / paved areas?	No. There will not be an increase in impermeable area across the ground surface above the basement.
3. Will the proposed basement development result in changes to the profile of the inflows (instantaneous and long term) of surface water being received by adjacent properties or downstream watercourses?	No. There will not be an increase in impermeable area across the ground surface above the proposed plant room, so the surface water flow regime will be unchanged.
4. Will the proposed basement result in changes to the quality of surface water being received by adjacent properties or downstream watercourses?	No. The proposed basement is very unlikely to result in any changes to the quality of surface water being received by adjacent properties or downstream watercourses as the surface water drainage regime will be unchanged and the land uses will remain the same.
5. Is the site in an area identified to have surface water flood risk, or is otherwise at risk of flooding, for example because the proposed basement is below the static water level of nearby surface water feature?	*Yes. Environment Agency online flood maps show that parts of the site are at a low to moderate risk of surface water flooding.* *The basement may extend below the local water table, although statutory requirements with regards to waterproofing and tanking of the basement will reduce any associated risk to acceptable levels.* *A positive pumped device and non-return valve should be installed in the basement in order to further protect the site from sewer flooding.*

The above assessment has identified the following potential issues that need to be assessed:

Q5 There is a risk of flooding from surface water across the site.

5.0 Basement Scoping Assessment

The purpose of scoping is to assess in more detail the factors to be investigated in the impact assessment. Potential impacts are assessed for each of the identified potential impact factors.

5.1 Potential Impacts

The following potential impacts have been identified by the screening process.

Screening Issue	Potential Impact
The site is located above a Secondary 'A' Aquifer as designated by the EA.	The basement may extend into the underlying aquifer and thus affect the groundwater flow regime.
The water table in the gravel was found to be at a depth of about 4.5 m during a previous investigation, such that the proposed 5.5 m deep basement will extend beneath the water table.	
The site is at risk from surface water flooding	The proposed development must ensure that the flood risk is not increased.

6.0 Basement Impact Assessment

Knowledge of the site conditions and proposed development has been used below to review the potential impacts identified by the screening, to assess the likelihood of them occurring and the scope for reasonable engineering mitigation.

The site is directly underlain by the Lynch Hill Gravel, which is classified as a Secondary (A) Aquifer and the proposed basement will extend beneath the water table.

The proposals include the construction of a new 5.5 m deep basement beneath the north-western part of the site, such that groundwater is likely to be encountered within the lower parts of the proposed basement excavation, although further investigation and groundwater monitoring should be carried out to confirm this.

The interface between the Lynch Hill Gravel and the essentially impermeable London Clay below was found at a depth of around 4.4 m to 4.7 m, such that the new basement will therefore provide a cut-off to groundwater flows by keying into the London Clay, although it will not act as a barrier to flows by filling space laterally.

As the proposed basement will not occupy the entire site, groundwater will still be permitted to flow freely within the Lynch Hill Gravel around the proposed basement development. In view of the permeability of the surrounding gravel, the basement construction is unlikely to have an impact on the overall groundwater level.

Groundwater protection measures are likely to be required during construction and all excavations should be designed to control the entry of groundwater and should account for any additional water loading in the permanent design. Water entering the excavation needs to be dewatered through sump pumping or other suitable techniques. Providing the relevant standards and best practice is adhered to and appropriate mitigation measure are put in place, no major issues should be encountered.

In order to comply with statutory requirements, the proposed basement should be fully water-proofed against perched ort groundwater inflows and the advice in BS8102:2009[4] should be followed in this respect.

4 BS8102 (2009) *Code of practice for protection of below ground structures against water from the ground*

The site is at risk from surface water flooding.

A potential flood risk has been identified for the site and a separate FRA should be undertaken to fully assess these potential risks and outline any mitigation measure that will be required.

It is possible that the basement will be constructed within perched groundwater and the recommendations outlined in the BIA with regards to waterproofing and tanking of the basement will reduce the risk to acceptable levels.

A positive pumped device and non-return valve should also be installed in the basement in order to further protect the site from sewer flooding

7.0 CONCLUSIONS

It is understood that it is proposed to construct a new basement beneath the north-western part of the site, which will extend to a depth of approximately 5.5 m beneath existing ground level.

7.1 Construction Considerations

Formation level for the proposed basement is likely to be within the London Clay, which should provide an eminently suitable bearing stratum for spread foundations, provided that groundwater inflows can be adequately controlled. Alternatively, consideration could be given to the adoption of piled foundations, extending to depth within the London Clay, although further investigation is likely to be required in this respect to provide sufficient information for pile design.

Excavations for the proposed basement structure will require temporary support to maintain stability and to prevent any excessive ground movements. Groundwater inflows should be expected within the excavation and as such, groundwater control / exclusion measures are likely to be required as part of the proposed construction sequence.

Inflows of groundwater into shallow excavations are not generally anticipated, although seepages may be encountered from perched water tables, particularly in the vicinity of existing foundations. However, any such inflows should be suitably controlled by sump pumping.

The design of basement support in the temporary and permanent conditions needs to take account of the need to maintain the stability of the excavation and nearby structures, namely the existing hotel building, and to protect against groundwater inflows.

It is understood that consideration is being given to the construction of the proposed basement within an open cut excavation, which should be feasible where sufficient space is available. However, this is unlikely to be feasible along the northern and western elevations of the proposed basement structure, due to the limited amount of space available between the proposed basement excavation and the boundary of the site with Uxbridge Road and Springfield Road, respectively.

In situ retaining walls can then be constructed within the excavation and the area behind the walls backfilled on completion. Suitable angles for the battered sides of the excavation are expected to be approximately 30° for the made ground and underlying Langley Silt and Lynch Hill Gravel. Care should be taken to protect the sides of any unsupported cut slopes during periods of rainfall and any run-off from construction operations until the retaining walls have been installed. Movement of plant at the top of any open cut should be prevented and daily inspections of the cut faces should be carried out to check stability.

Alternatively, consideration could be given to the adoption of a bored piled, which would have the advantage of being incorporated into the permanent works and may be able to provide support for structural loads. In this respect it should be possible to adopt a contiguous bored pile wall, with the use of localised grouting and / or pumping, if necessary, in order to deal with localised perched water inflows. However, a contiguous bored piled wall would have the disadvantage of reducing usable space in the basement, and in this respect a secant wall may be preferable, as it could overcome the requirement for any secondary groundwater protection in the permanent works and maximise the basement area.

The ground movements associated with the basement excavation will depend on the method of excavation and support and the overall stiffness of the basement structure in the temporary condition. Thus, a suitable amount of propping will be required to provide the necessary rigidity. In this respect the timing of the provision of support to the wall will have an important effect on movements.

Once suitable access is available, it is proposed to carry out additional intrusive investigations, to supplement the previous works completed by Constructive Evaluation Limited and provide additional information to assist with the finalisation of the design proposals for the proposed development.

7.2 Basement Impact Assessment

A Basement Impact Assessment has been carried out following the information and guidance published by the London Boroughs of Hillingdon and Camden. A number of potential impacts were identified as a result of the screening exercise. However, it has been concluded that all potential impacts can be mitigated by appropriate design and standard construction practice.

Standard safe working practices and measures that will be adopted to construct the basement mean that the proposed development is unlikely to result in any specific groundwater or land or slope stability issues.

8.0 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.

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 ground conditions based on the discrete points at which the ground was sampled, but the ground conditions should be subject to review as the work proceeds to ensure that any variations from the Ground Model are properly assessed by a suitably qualified person.

Once access is available, further investigation and monitoring is proposed to confirm groundwater levels and to establish any seasonal fluctuations.

The previous investigation did not identify the presence of any significant contamination and as the majority of the made ground is likely to be removed from the site through the excavation of the proposed basement and large areas are covered by hardstanding, remedial measures should not be required. However, as with any previously developed site, there is a potential for further areas of contamination to be present within the made ground beneath parts of the site not covered by the investigation it is recommended that a watching brief is maintained during any groundworks for the proposed new foundations and that if any suspicious soils are encountered that they are inspected by a geo-environmental engineer and further assessment may be required.

Further investigation is also likely to be required on the north-western part of the site, to confirm the presence / absence of any potential tanks beneath this part of the and may therefore have the potential to impact upon the proposed basement construction. In this respect, non-destructive geophysical techniques would be recommended in the first instance to try and identify the presence of any potential buried features, before consideration is given to any intrusive investigation works.

Once the design proposals for the proposed basement construction have been progressed, a ground movement analysis may be required to confirm the conclusions of this assessment and to provide information to assist with the finalisation of the designs.

A potential flood risk has been identified for the site and a separate FRA should be undertaken to fully assess these potential risks and outline any mitigation measure that will be required.

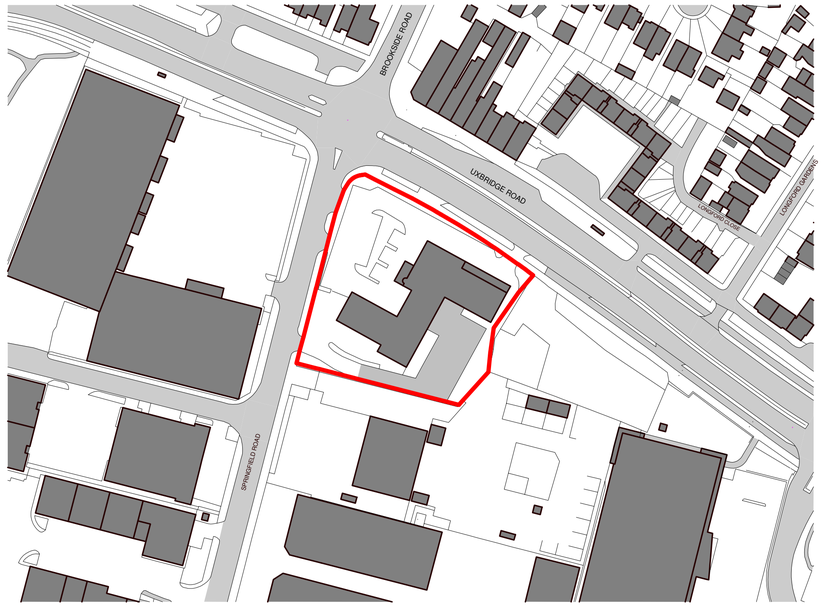
These areas of doubt should be drawn to the attention of prospective contractors and further investigation will be required or sufficient contingency should be provided to cover the outstanding risk.

Appendix

Existing Plans & Development Proposals

UXO Preliminary Risk Assessment

LFB Petroleum Environmental Search



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- All proposed landscaping is indicative
- All internal floorplate drawings are indicative only
- **EXISTING BUILDING DISCLAIMER:** This is a project with an existing building, hence all Designs are based on available surveys. All proposals to be reviewed on site prior to construction to ensure suitability of design in relation to existing conditions.

Key:

- Site boundary
- Road
- Existing Building

revision	date	by	appr	description

Key Plan

1:1250 graphical scale 0.00m 6.25m 12.50m 25.00m 37.50m 50.00m

NORTH

Client
Infinite

Project Name
Infinite Hayes

Project Address
27 Uxbridge Rd
Hayes, UB4 0JN

Design Stage
Planning

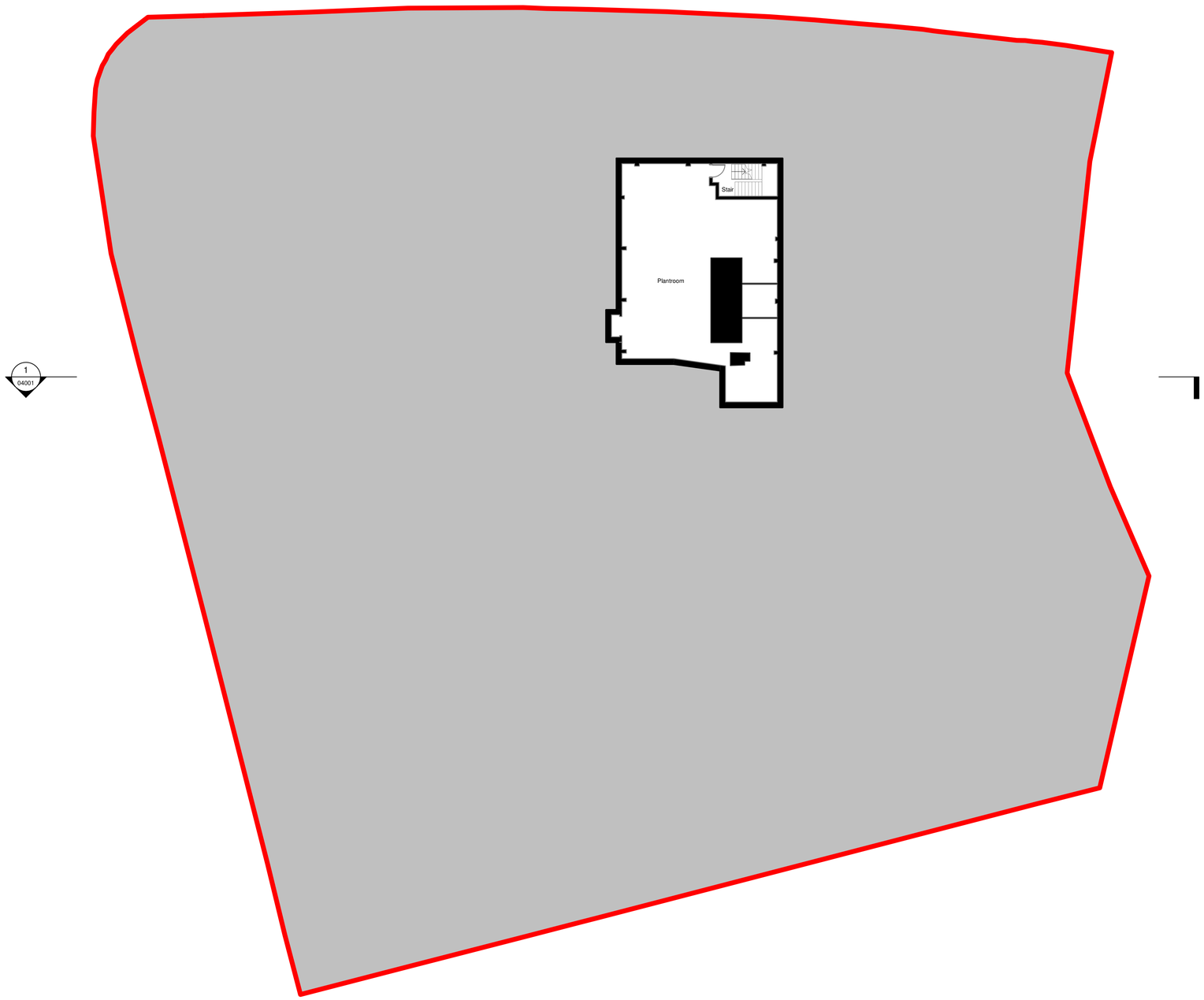
Drawing Title
Site Location Plan

Scale	Sheet Size	Date
1 : 1250	A1	13/09/22
1 : 2500	A3	

Drawn	Checked	Approved
JPB	CW	SG

Revision Suitability Code

Drawing No.
INF - HAP - ZZZ - L00 - DR - A - 00001



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revision	date	by	appr	description

Key Plan

1:200 graphical scale 0.00m 1.00m 2.00m 4.00m 6.00m 8.00m

NORTH

Client
Infinite

Project Name
Infinite Hayes

Project Address
27 Uxbridge Rd
Hayes, UB4 0JN

Design Stage
Planning

Drawing Title
Existing Basement Floor Plan

Scale	Sheet Size	Date
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1 : 400	A3	

Drawn	Checked	Approved
JPB	CW	SG

Revision Suitability Code

Drawing No.
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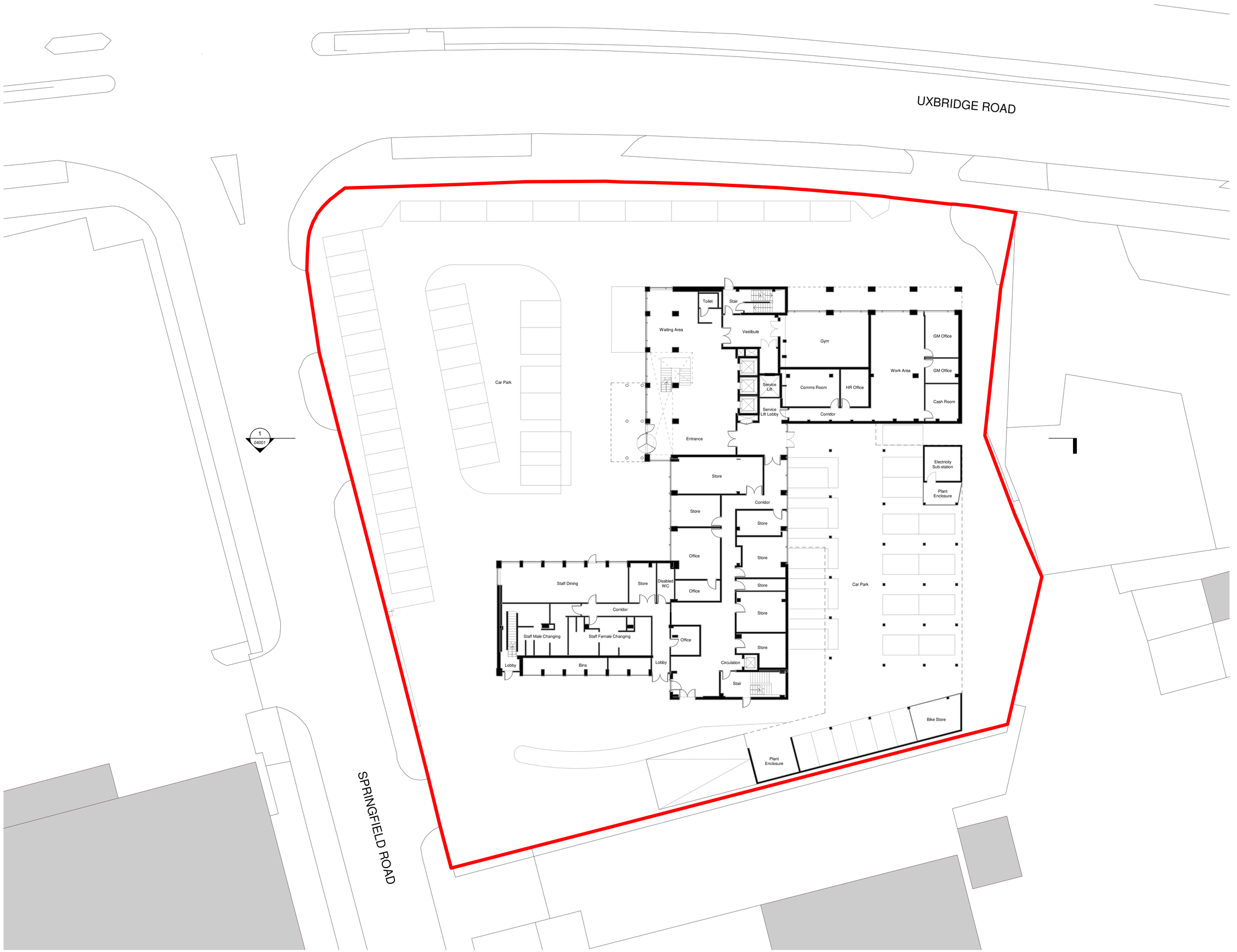

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revision	date	by	appr	description

Key Plan

1:200 graphical scale 0.00m 1.00m 2.00m 4.00m 6.00m 8.00m

NORTH

Client
Infinite

Project Name
Infinite Hayes

Project Address
27 Uxbridge Rd
Hayes, UB4 0JN

Design Stage
Planning

Drawing Title
Existing Ground Floor Plan

Scale	Sheet Size	Date
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Drawn	Checked	Approved
JPB	CW	SG

Revision Suitability Code

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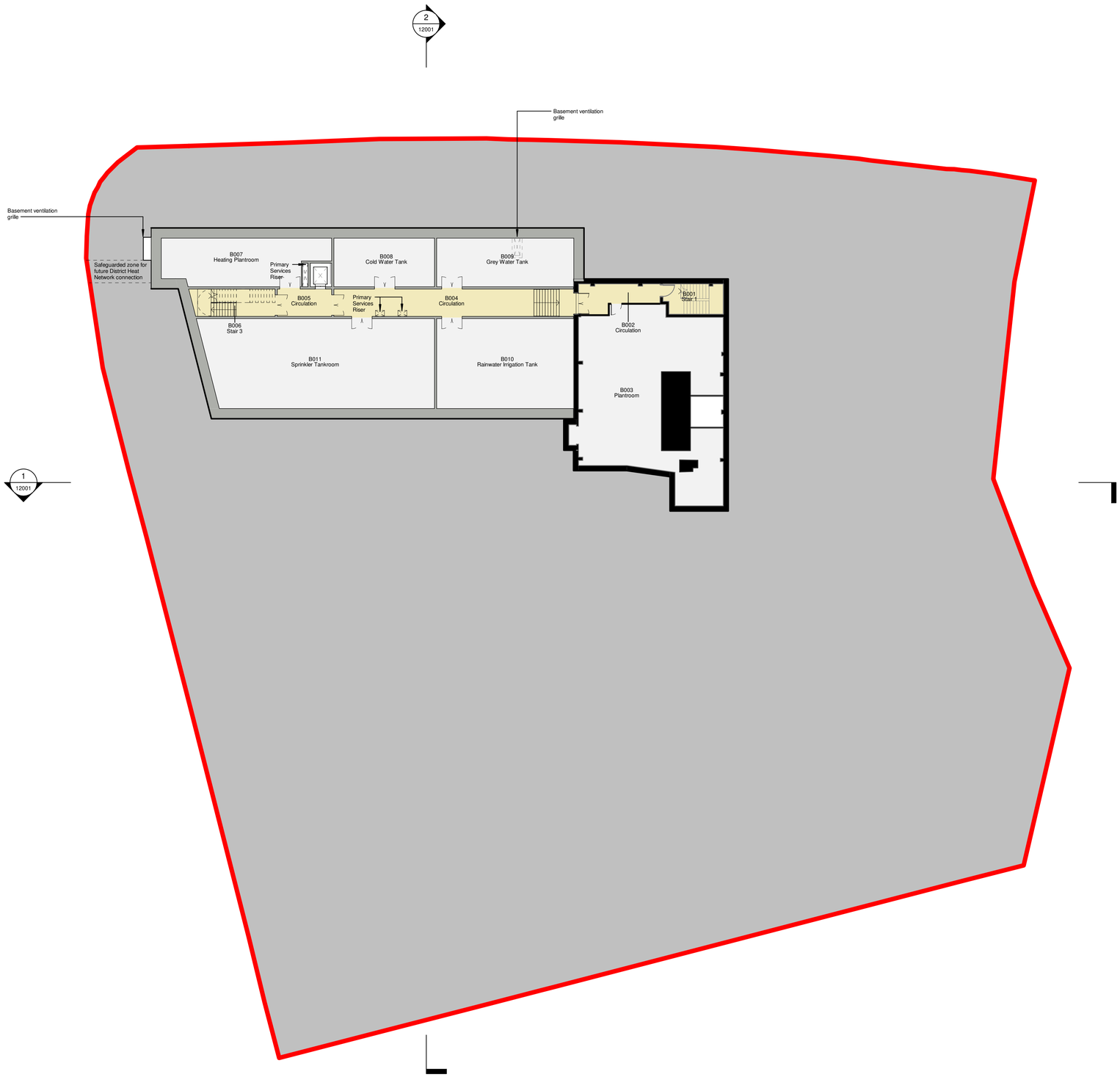

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Key:

- Incubator
- Amenity
- Circulation
- External Amenity
- Walkway
- Services/Plant
- Room - Accessible
- Room - Medium
- Room - Standard
- Room - Small
- Room - Existing Medium
- Room - Existing Large
- Room - Central Small
- Public Realm Extent
- Existing accommodation to be refurbished

revision	date	by	appr	description

Key Plan

1:200 graphical scale 0.00m 1.00m 2.00m 4.00m 6.00m 8.00m

NORTH

Client
Infinite

Project Name
Infinite Hayes

Project Address
27 Uxbridge Rd
Hayes, UB4 0JN

Design Stage
Planning

Drawing Title
Proposed Basement Floor Plan

Scale	Sheet Size	Date
1 : 200	A1	13/09/22
1 : 400	A3	

Drawn	Checked	Approved
JPB	CW	SG

Revision Suitability Code

Drawing No.
INF - HAP - ZZZ - B01 - DR - A - 10001

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revision	date	by	appr	description

Key Plan

1:200 graphical scale 0.00m 1.00m 2.00m 4.00m 6.00m 8.00m

NORTH

Client
Infinite

Project Name
Infinite Hayes

Project Address
27 Uxbridge Rd
Hayes, UB4 0JN

Design Stage
Planning

Drawing Title
Proposed Ground Floor Plan

Scale	Sheet Size	Date
1 : 200	A1	13/09/22
1 : 400	A3	

Drawn	Checked	Approved
JPB	CW	SG

Revision Suitability Code

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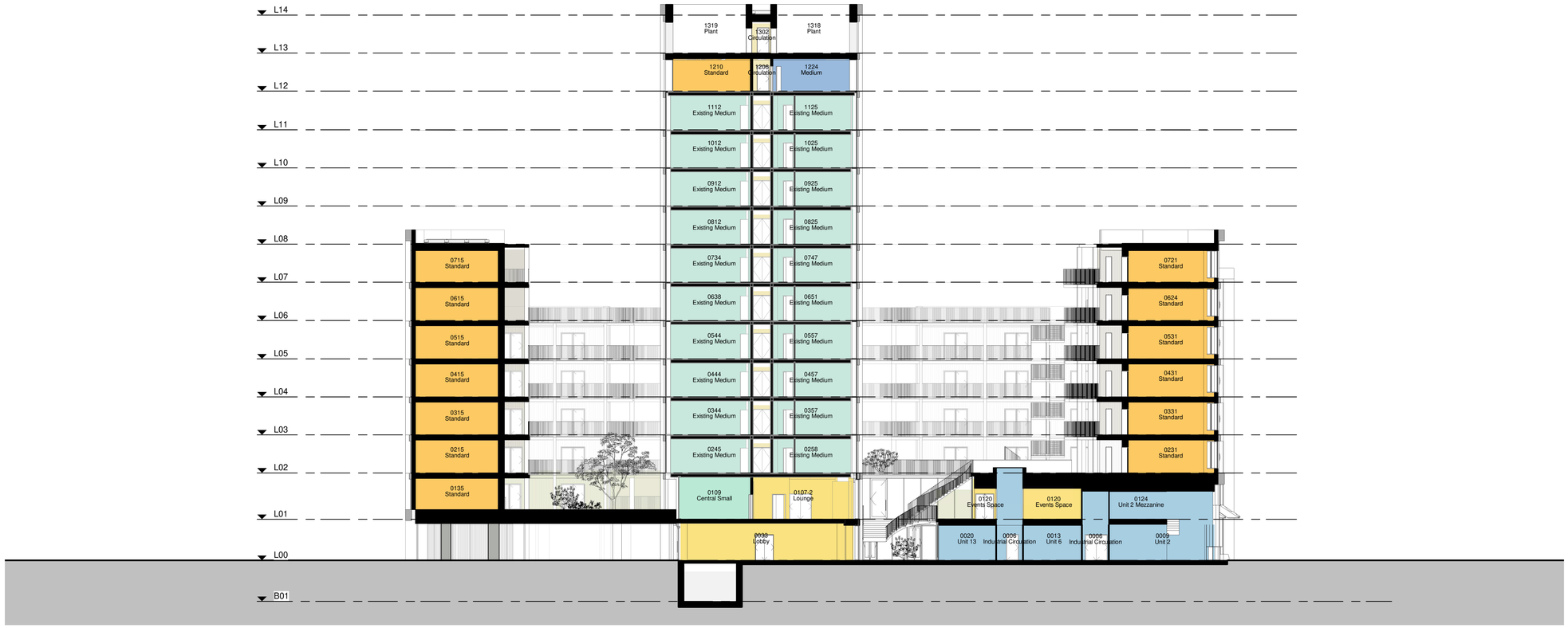
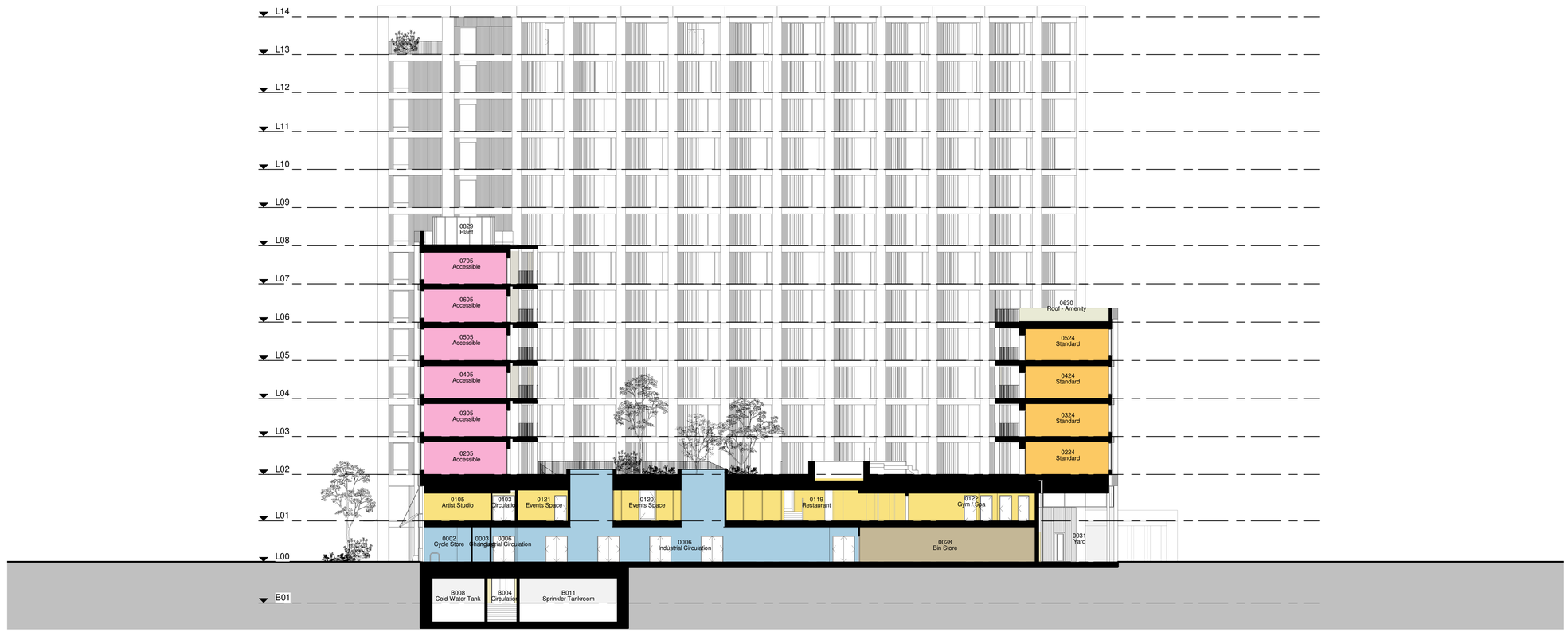


1 Proposed Section AA

1 : 200



2 Proposed Section BB

1 : 200

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Key:

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- Circulation
- External Amenity
- Walkway
- Services/Plant
- Room - Accessible
- Room - Medium
- Room - Standard
- Room - Small
- Room - Existing Medium
- Room - Existing Large
- Room - Central Small
- Public Realm Extent
- Existing accommodation to be refurbished

revision	date	by	appr	description

Key Plan

1:200 graphical scale 0.00m 1.00m 2.00m 4.00m 6.00m 8.00m

Client: Infinite

Project Name: Infinite Hayes

Project Address: 27 Uxbridge Rd Hayes, UB4 0JN

Design Stage: Planning

Drawing Title: Proposed Section AA + BB

Scale	Sheet Size	Date
1 : 200	A1	13/09/22
1 : 400	A3	

Drawn	Checked	Approved
JPB	CW	SG

Revision | Suitability Code

Drawing No.: INF - HAP - ZZZ - ZZ - DR - A - 12001

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Preliminary UXO Risk Assessment

Client	GEA Ltd
Project	Hyatt Place, Haynes
Site Address	Hyatt Place, 27 Uxbridge Rd, Hayes UB4 0JN
Report Reference	PA15842-00
Date	31/05/22
Originator	AL

Assessment Objective

This preliminary risk assessment is a qualitative screening exercise to assess the likely potential of encountering unexploded ordnance (UXO) at the Hyatt Place, Haynes 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.

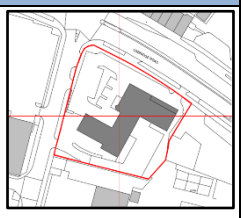
Background

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.

Risk Assessment Considerations	
Site location and description/current use	The site is located in the London Borough of Hillingdon.  Recent aerial imagery shows the site comprises a multi-storey hotel and hard-standing car park. It is bordered to the north by Uxbridge Road (A4020), to the east by hard-standing open ground, to the south by a driveway, and to the west by Springfield Road. The site is approximately centred on the OS grid reference: **TQ 11400 80713.**
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, entrapments 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. Although a number of factories were located in the local vicinity (i.e. R. Woolf and Co. Rubber Ltd and the Brookside Brick Works), there is no evidence that any of these were involved in munition production. The closest Heavy Anti-Aircraft (HAA) battery was situated approximately 1.95km north-west of the site. The range of a fired projectile can be up to 15km. The risk of Anti-Aircraft projectiles is homogenous to the risk from German aerial delivered ordnance.
What was the pre- and post-WWII history of the site?	Pre-war OS mapping, dated 1938, shows the site comprised residential properties and a driveway. It was bordered to the north by *Uxbridge Road*, east by additional properties including the *Wagon & Horses Public House* and a *Works* (identified anecdotally as R. Woolf and Co Rubber Ltd), south by more residential properties and west by *Springfield Road* and the *Brookside Brick Works*. Post-war OS mapping, dated 1960, shows no significant changes either on-site or in the northern, eastern, or western vicinities. Much of the area to the south had been developed since the previous mapping edition.
Was the area subject to bombing during WWII?	During WWII, the site was situated in the Urban District of Hayes & Harlington. According to official Home Office bombing statistics, this borough was subject to an overall low-moderate density of bombing, with an average of 40.1 items of ordnance recorded per 1,000 acres. This consisted of 189 high explosive bombs, two parachute mines, eight oil bombs, six V-1 flying bombs, and six V-2 long range rockets totalling 207 incidents across 5,160 acres. No incidents were recorded either on or in the immediate vicinity of the site within London Bomb Census Mapping. The nearest incident according to this source was located approximately 325m south-west of the site. An in-house geo-data set additionally records an abandoned UXB approximately 300m to the south.
Is there any evidence of bomb damage on/close to the site?	No major signs of damage such as cratering or clearance were evident when examining available post-war aerial imagery dated 1947. This corroborates with Middlesex County Council (MCC) War damage mapping which records no damage either on or bordering the site.

To what degree would the site have been subject to access?	During WWII, the site was occupied by undamaged residential properties and an associated driveway within a largely developed, urban environment. As such, the site is considered to have been subject to regular levels of access and observation from residents and locals. Evidence of UXO is more likely to be noticed and recorded within areas of frequent access.
To what degree has the site been developed post-WWII?	Development on the site includes the removal of residential properties and building of commercial properties - namely a multi-storey hotel and a hard-standing car park.
What is the nature and extent of the intrusive works proposed?	Information provided by the client indicates that the scope of proposed works comprises the construction of a new eight - nine storey block around the perimeter of the site. The existing hotel building including the basement level plant room will be retained. The proposed development will add commercial floor space to the existing hotel use and a new swimming pool on the ground level, which will include a new substructure.

Summary and Conclusions

During WWII, the site was situated in the Urban District of Hayes & Harlington. According to official Home Office bombing statistics, this borough was subject to an overall low-moderate density of bombing, with an average of 40.1 items of ordnance recorded per 1,000 acres.

London Bomb Census Mapping records no bombing on or bordering the site with the closest confirmed incident having been located approximately 400m to the south-west. An in-house geo-data set additionally records an abandoned UXB approximately 300m to the south. Both of these incidents are considered too far from the site to be of concern. This lack of local bombing corroborates with evidence presented within both available 1947 post-war imagery and MCC War Damage mapping wherein no major damage was recorded on or bordering the site.

The site is considered to have been subject to regular levels of access and observation throughout the war owing to its residential and industrial composition and location within an undamaged urban environment. Evidence of UXO is more likely to be noticed and recorded within areas of frequent access.

Recommendations

Given the findings of this preliminary report, the risk from UXO is not considered to be higher than the 'background risk' of finding UXO in this borough. Whilst it would be possible to conduct a Detailed UXO Risk Assessment for this site, it is not anticipated that any further findings would significantly alter the risk of encountering unexploded ordnance within the site. It is therefore recommended that **no further action** is taken.

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. Furthermore, we would recommend that ground personnel are always made aware of the potential for encountering UXO, what to look out for and what to do in the unlikely event that a suspect item is encountered, and that a UXO Risk Management Plan is put together for the proposed works. We would be happy to provide a template and guidance for this – contact us on 01992 245020. Should the scope of works change or additional works be proposed, 1st Line Defence should be contacted to re-evaluate the risk.

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Minicom 020 7960 3629
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Date 13 June 2022
Our Ref 26/085556/PC
Your Ref J22159

Mr Matthew Penfold
GEA Ltd
Widbury Farm
Widbury Hill
Ware
Hertfordshire
SG12 7GE

Dear Mr Penfold

THE ENVIRONMENTAL INFORMATION REGULATIONS 2004 - ENVIRONMENTAL ENQUIRY

Premises: HYATT PLACE, 27 UXBRIDGE ROAD, HAYES, UB4 0JN

The London Fire Commissioner (the Commissioner) is the fire and rescue authority for London. The Commissioner is responsible for enforcing the Petroleum (Consolidation) Regulations 2014 in London.

As requested, a search has been made for information on the above site. A thorough search of current and historical files and databases has revealed no petroleum tank information for the site.

Please note that this report is restricted to matters currently known by the Commissioner. Although we hold extremely comprehensive records, it is possible that we do not hold any records whatsoever for some solid-filled and very old tanks. This will be for one of the following reasons:-

1. The records held by the Commissioner were passed to it from the Greater London Council in 1986. In 1965 the Greater London Council inherited petroleum related records from the London County Council and the outer London Boroughs / Councils. Some of the outer London records were incomplete.

2. For premises where petroleum tanks have been either removed or permanently made safe, the Commissioner's records have (in a minority of cases) been destroyed; and for these cases the Commissioner does not hold any records that indicate that there was ever a 'petroleum' interest at the premises.

As you are aware, a fee is levied for the provision of this information and payment should be made in accordance with the invoice, which will be sent under separate cover.

Any queries regarding this letter should be addressed to the Petroleum Group Admin Manager. If you are dissatisfied in any way with the response given, please ask to speak to the Team Leader quoting our reference.

Yours sincerely

Pp Philip Cater

for Assistant Commissioner (Fire Safety)
Directorate of Operations
petroleum@london-fire.gov.uk

Reply to Petroleum Section
Direct **T** 0208 555 1200 Ext 30859

ENVIRONMENTAL ENQUIRY DETAIL FORM

Premises:
HYATT PLACE, 27 UXBRIDGE ROAD, HAYES, UB4 0JN
Our Reference:
26/085556

Current licence / Petroleum Storage Certificate in force?
YES ☐ NO ☒
Date last licence(s)/storage certificate(s) issued:
N/A

Known leaks or spills at this site:
N/A

Comments:
The Authority holds no record of petroleum storage tanks on this site.

Signed:	*Philip Cater*
Name:	Philip Cater
Position:	Administrative Assistant
Date:	13 June 2022

Geotechnical &
Environmental
Associates

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