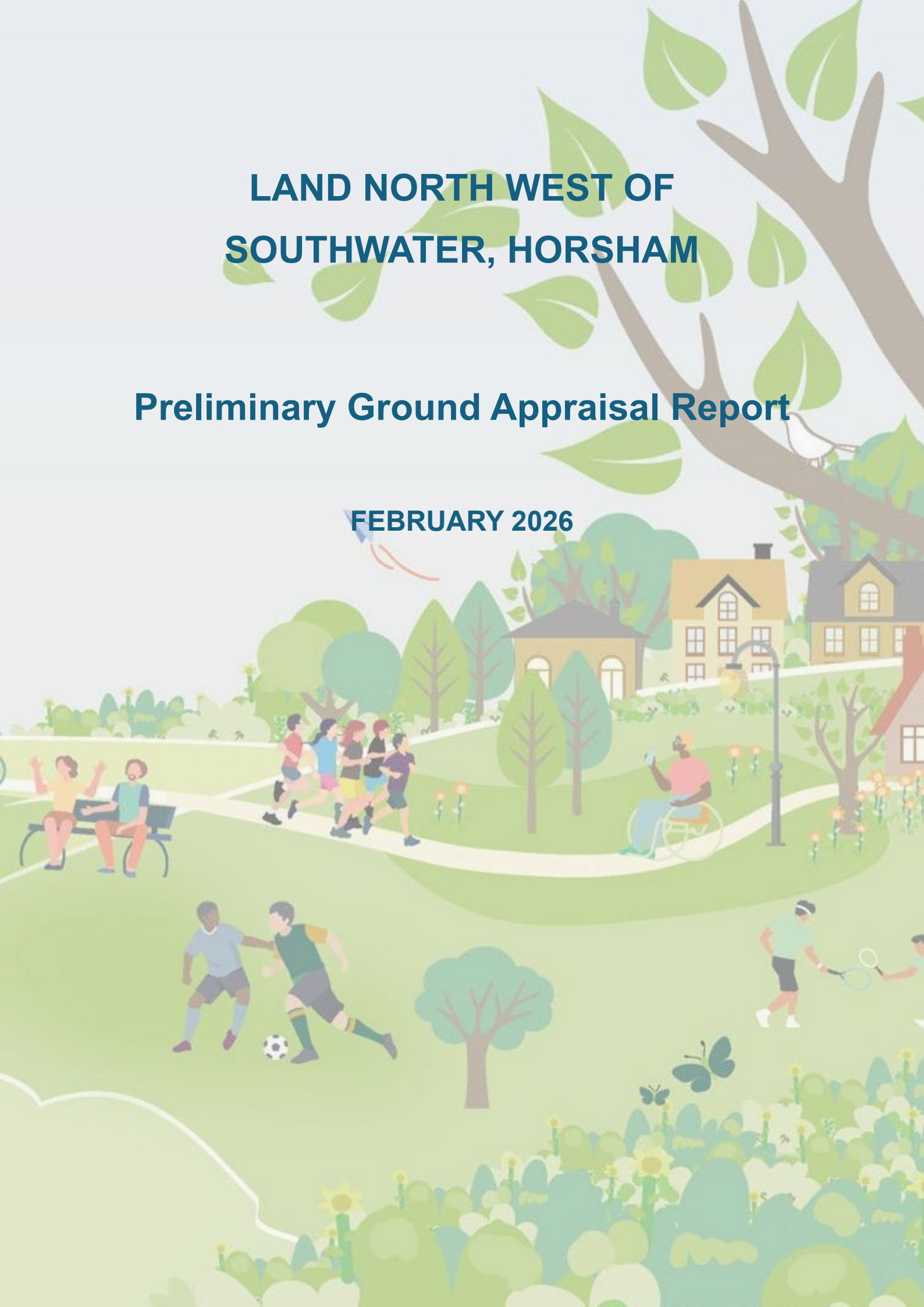
LAND NORTH WEST OF SOUTHWATER, HORSHAM

Preliminary Ground Appraisal Report

FEBRUARY 2026



Geo-Environmental

PRELIMINARY GROUND APPRAISAL REPORT

for the site at

LAND NORTH-WEST OF SOUTHWATER,

HORSHAM, WEST SUSSEX, RH13 9BH

on behalf of

BERKELEY STRATEGIC LAND LIMITED

Report:	**PRELIMINARY GROUND APPRAISAL REPORT**
Site:	**LAND NORTH WEST OF SOUTHWATER, HORSHAM, WEST SUSSEX, RH13 9BH**
Client:	**BERKELEY STRATEGIC LAND LIMITED**
Date:	**18/02/2026**
Reference:	**GE20620-PGARv6-FEB26**
Version:	**7.0**
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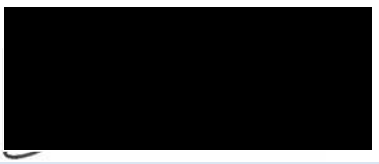
Reviewed by:	 **Glyn Evans BSc, MSc, PG Dip, FGS, MIEnvSc** **COMPANY CHAIRMAN**
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AMENDMENT RECORD

Revision ref.	Date	Reasons for amendment	Author's initials	Reviewed by	Approved by
1.0	17/06/2022	First issue	VB	KB	JT
2.0	12/07/2022	Updates from Client review	MB	GE	KB
3.0	15/07/2022	Updates from Client review	VB	MB	KB
4.0	08/09/2022	Updates from Client review	VB	MB	KB
5.0	12/01/2026	Updates to reflect revised site extent/boundary.	LL	GE	GR
6.0	18/02/2026	Updates from Client review	LL	GE	GR
7.0	20/02/2026	Updates from Client review	LL	GE	GR

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FIGURES

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EXECUTIVE SUMMARY		
Site Details	Site Address	Land North-West Southwater, Horsham
	National Grid Reference	The Main Site (Main development Area) - 515444, 127534 North Site (Land adjacent to the Christ's Hospital railway station) - 514883, 129152
	Site Area	Total area c. 141 (spilt into the Main Site – c.115.36ha and North Site – c.1.34ha)
	Form of Development	The development is understood to comprise demolition of existing buildings and the construction of residential dwellings (including affordable housing) (Use Classes C2 and C3); a mixed-use neighbourhood centre (Use Classes E and F); education facilities (Use Class F1(a)); business and employment floorspace (Use Classes B2, B8 and E(g)); redevelopment of existing agricultural buildings including construction of a building for community use (Use Class F2); improvements to public rights of way; sports pitches; gypsy and traveller pitches/plots; public open space; landscaping, and associated infrastructure" The site has been spilt into two parcels within the report for ease of reference. - The main development area. **North Site -** Land adjacent to the existing railway station at Christ's Hospital.
Encountered Conditions	Scope of works	The investigation comprised a preliminary intrusive geotechnical and geo-environmental ground investigation with laboratory testing to inform geotechnical and geo-environmental assessments for the proposed development, ahead of a more detailed investigation to support the design, drainage, and remediation strategies for the site.
	Ground Conditions	The ground conditions encountered generally comprised Topsoil and/or Made Ground over the Weald Clay Formation with Horsham Stone at depth in places. The ground investigation undertaken in 2022 initially included a wider site area. HP07, HP10, HP11, HP15, HP24, HP28, HP30, HP31 and WS15 no longer fall with the updated site boundary.
	Groundwater	During the investigation, groundwater was encountered between depths of 1.95m bgl and 3.30m bgl in five of the window sampling boreholes. Return monitoring visits were completed between May and June 2022. Groundwater was recorded between 0.74m bgl and 3.98m bgl. The water in the monitoring wells is most likely to represent accumulations of perched run-off rather than the groundwater table.

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Geotechnical Considerations	Foundations	Based on the ground and groundwater conditions encountered in the exploratory holes, traditional foundations are likely to be considered suitable for the proposed low-rise development. The exceptions are within areas located on or close to the deeper areas of infilled ground or in proximity to trees or hedges. Deeper Made Ground was identified around WS15, potentially corresponding to the former railway cutting, the dairy and road embankment, where alternative foundations such as piles with reinforced ground beams may be required. However, it is noted that WS15 now falls outside of the proposed site development boundary. The Weald Clay was of medium to high volume change potential at shallow depth. Within the zone of moisture demand of any current, proposed or recently felled trees foundation depths should be deepened in accordance with the NHBC Standards, Chapter 4.2 for high volume change soils. Where calculated foundation depths exceed 1.50m in clay strata, heave precaution measures will be required in accordance with the NHBC Standards. Where calculated foundation depths exceed 2.50m, they will be required to be designed by a structural engineer. Remote from existing trees and bushes, it is recommended that shallow foundations terminate within the medium to high strength Weald Clay Formation at a minimum depth of 1.0m below existing or final ground level whichever is the lower. Foundations should pass through any Made Ground, disturbed ground, soft or very loose soils, desiccated clay soils and terminate wholly within the Weald Clay Formation. On the basis of the information gathered from the ground investigation, a net allowable bearing capacity of 150kPa has been calculated for these soils in order to maintain settlements within tolerable limits. Foundations should be no less than 450mm in width. The clayey soils will soften rapidly if exposed to free water and foundation bases should be concreted or blinded as soon after excavation as possible.
	Floor Slabs	Given the medium to high volume change potential of the near surface natural soils, it is recommended that suspended ground floor slabs are used within the development. It is recommended that the depth of the floor void be designed in accordance with the NHBC Standards, Chapter 4.2, and be based on high volume change potential soils.

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	Excavations	Shallow excavations within any Made Ground should remain relatively stable in the short term. Longer deeper excavations within any deeper zones of Made Ground are likely to be prone to instability and should be battered back to a safe angle, or suitable shoring techniques should be adopted to provide stability. Shallow excavations within the Weald Clay Formation should remain relatively stable in the short to medium term, though some localized spalling may be anticipated. Long, deep excavations within the Weald Clay Formation are likely to be prone to instability, particularly where left open for prolonged periods, or open to wet weather conditions and should be battered back to a safe angle, or suitable shoring techniques should be adopted to provide stability. A ripper or breaker may be required to advance excavations through any more competent Horsham Stone. Ground works should always be designed in such a manner to avoid man entry into excavations. However, in the event that such works cannot be avoided or designed out, they should only be undertaken in accordance with a safe system of work, following an appropriate risk assessment and in accordance with any legislative requirements, e.g., Confined Spaces Regulations.
	Pavements	Based on the recommendations published in '*The Structural Design of Bituminous Roads*' (1984) an estimated equilibrium suction index of between 3% and 5% is likely to be suitable for pavements constructed upon the silty clays of the Weald Clay Formation under average construction conditions and a low water table.
	Soakaways	Due to the presence of relatively impermeable Weald Clay at shallow depth across the site, it is considered highly unlikely that the use of conventional shallow soakaways will work effectively on the site and some other form of surface water disposal should be sought, storage on site may also be required.
	Buried Concrete	Buried concrete for shallow foundations should be designed to Class DS-1 of BRE Special Digest 1, with an ACEC class of AC-1s.
Environmental Considerations	Human Health	The investigation targeted areas where the desk study highlighted locations where contamination may be present. No remediation was required at these points following the results of testing to date. It was considered unlikely that there is widespread contamination across the site, particularly in the development area. However, given the preliminary scope of this investigation, further hot spots of contamination may be possible on the site and a more detailed investigation, with levels of sampling and testing consistent with the recommendations of BS 5930 should be undertaken to better characterise the site. Anthrax: PHE undertook an assessment of the burn sites and have concluded that no risk remains from burn sites. An email in this respect is presented in Appendix A.
	Ground Gases	Sporadic marginally elevated carbon dioxide levels have been identified, though at this juncture it was anticipated that this is a low risk area and remediation in this respect will not be required. In line with the recommendations in BS 5930, further monitoring would be required to inform a more robust risk assessment.
	Radon	No radon protection measures are required.
	Built Environment	The results of the relevant chemical analyses indicated no exceedances which would indicate that barrier pipe is not likely to be required by the water company for the protection of the drinking water supply infrastructure. However, given the preliminary scope of this investigation, further hot spots of contamination may be possible on the site and a more detailed investigation, with levels of sampling

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		and testing consistent with the recommendations of BS5930 should be undertaken to better characterise the site. The results of this investigation must be presented to the water utility company as soon as reasonably practicable in order to confirm the pipe material.

Further Action:

- Detailed investigation across the site to provide a more robust assessment in line with BS5930.
- Further monitoring for ground gases.
- Winter monitoring for ground water levels.
- Surface water monitoring and testing to continue throughout the build and upon completion.
- Preparation of a remediation method statement and verification plan (RSVP) if required.
- A discovery strategy should remain in place during the proposed works. If abnormal conditions, or conditions differing from those reported are encountered, Geotechnical/Geo-Environmental advice must be sought as soon as practicable to determine a suitable source of action.

This Executive Summary is intended to provide a brief summary of the main findings and conclusions of the investigation. For detailed information, the reader is referred to the main report ref. GE20620/PGARv5/JAN26.

1.0 INTRODUCTION

1.1 General

Geo-Environmental Services Limited ('Geo-Environmental') was instructed by Berkeley Homes (Southern) Limited updated to Berkeley Strategic Land Limited (the Client 'Berkeley') to undertake a preliminary investigation into the geotechnical and geo-environmental factors pertaining to the planned redevelopment of the Land North-West of Southwater, Horsham, RH13 9BH herein referred to as 'Main Site' and the land at to the east of Christ's Hospital Station, Horsham, RH13 0BG herein referred to as 'North Site'. The sites' locations are presented in Figure 1.

Geo-Environmental has previously undertaken work at the site on behalf of Berkeley Homes (Southern) Limited. The works comprised a Desk Study Report (GE20620-DSRv3-MAR22) issued March 2022. It is noted that the 2022 desk study was undertaken for a wider site area and that the western edge of the area presented within the desk study no longer falls within the proposed development boundary.

1.2 Form of Development

Main Site

The report has been produced to support 'the proposed development' which comprises the demolition of existing buildings and the construction of residential dwellings (including affordable housing) (Use Classes C2 and C3); a mixed-use neighbourhood centre (Use Classes E and F); education facilities (Use Class F1(a)); business and employment floorspace (Use Classes B2, B8 and E(g)); redevelopment of existing agricultural buildings including construction of a building for community use (Use Class F2); improvements to public rights of way; sports pitches; gypsy and traveller pitches/plots; public open space; landscaping, and associated infrastructure".

The 'Main Site' referred to herein represents the main development area and 'North Site' referred to herein represents land located in proximity to the existing Christ's Hospital railway station where further car parking and associated infrastructure is proposed.

1.3 Objectives

Subject to the findings of the previously issued desk study (ref: GE20620-DSRv3-MAR22), a preliminary intrusive investigation was to be undertaken into the geotechnical and geo-environmental conditions pertaining to the site.

The data from the geotechnical investigation was to form the basis of a preliminary interpretation with respect to foundation design, concrete specification, pavement design and excavation stability.

In terms of the environmental investigation a Preliminary Risk Assessment (PRA) was undertaken as part of the desk study in accordance with LCRM, in order to identify any specific requirement for and scope of any further assessment. The objective of the risk assessments was to evaluate the risks posed to the proposed redevelopment, adjacent land uses and the wider environment, in the context of likely planning requirements, immediate liabilities under the Environmental Protection Act 1990 and risks posed to Controlled Waters under the Water Resources Act from the current status of the site and in line with the proposed redevelopment.

1.4 Standards and References

Where practicable, the ground investigation and subsequent geotechnical and environmental assessments were undertaken in accordance with the following documents and guidance.

- National Planning Policy Framework – update February 2025;

- Land Contamination Risk Management (LCRM) Environment Agency updated June 2025.
- Model Procedures for the Management of Contaminated Land, CLR11, DEFRA and Environment Agency 2004 (withdrawn).
- Environment Agency Guidance on Requirements for Land Contamination Reports, Version 1 dated July 2005.
- BS10175:2011+A1:2017 - Investigation of Potentially Contaminated Sites - Code of Practice, BSI 2013.
- BS5930: 2015+A1:2020 - Code of Practice for Site Investigations, BSI 2020.
- EN ISO 14688 Geotechnical Investigation and Testing Part 1-2002 and Part 2-2004.
- BS1377: 1990 - Soils for Civil Engineering Purposes, BSI1990.
- NHBC Standards Chapter 4.1 Land Quality - Managing Ground Conditions.
- NHBC Standards Chapter 4.2 Building Near Trees.
- CIRIA C665 – Assessing risks posed by hazardous ground gases to buildings (2007).
- NHBC Report NF94 – Hazardous ground gas - an essential guide for housebuilders (April 2023).
- BS8485:2015+A1:2019 Code of practice for the characterisation and remediation from ground gas in affected developments.
- Horsham District Planning Framework (excluding South Downs National Park) (November 2015) ("the Local Plan" or "HDPF")
- Southwater Neighbourhood Development Plan (June 2021) ("the Neighbourhood Plan" or "SNDP").
- Horsham District Local Plan 2023-2040 ('the emerging Local Plan').

1.5 Conditions

The recommendations made within this report are for preliminary purposes only. Further investigation is recommended to provide a more robust assessment of the ground parameters required for any ground contamination issues and for the buildings and infrastructure design.

This report does not purport to be a "Geotechnical Design Report" as defined in Clause 2.8 of Eurocode 7 (Geotechnical Design BS EN 1997-1:2004) and some of the data used to support this preliminary geotechnical assessment may not be fully compliant with that design code. It is considered possible that further detailed ground investigations could be required to facilitate the detailed geotechnical design process and should be carried out on a structure specific basis if necessary.

The data collected from the investigations have been used to provide an interpretation of the geotechnical and/or environmental conditions pertaining to the site. The recommendations and opinions expressed in this report are based on the data obtained. Geo-Environmental takes no responsibility for conditions that either have not been revealed in the available records, or that occur between or under points of physical investigation. Whilst every effort has been made to interpret the conditions, such information is only indicative, and liability cannot be accepted for its accuracy.

The data collected from the investigations have been used to provide an interpretation of the geotechnical and/or environmental conditions pertaining to the site. The recommendations and opinions expressed in this report are based on the data obtained. Geo-Environmental takes no responsibility for conditions that either have not been revealed in the available records, or that occur between or under points of physical investigation, or that result from updates to desk based data utilised subsequent to that presented herein and at the time of writing which may in turn alter the presented assessment. Whilst every effort has been made to interpret the conditions, such information is only indicative, and liability cannot be accepted for its accuracy.

It should be noted that in particular the concentrations and levels of mobile liquid and gaseous materials are likely to vary with time. The results obtained may therefore only be representative of the conditions at the time of sampling. The absence of asbestos noted during the site walkover or within soil samples analysed does not guarantee the absence of asbestos within buildings, within or bonded to concrete, as discrete burials, or within the soils mass elsewhere within a site. This report must not be taken as, or assumed to imply, any guarantee that a site

is free of hazardous or potentially contaminative materials.

Information contained in this report is intended for the use of the Client and Geo-Environmental can take no responsibility for the use of this information by any party for uses other than that described in this report. Geo-Environmental makes no warranty or representation whatsoever express or implied with respect to the use of this information by any third party. Geo-Environmental does not indemnify the Client or any third parties against any dispute or claim arising from any finding or other result of this investigation report or any consequential losses.

Assessment criteria or other parameters developed for the evaluation of contamination on this site are based on a number of assumptions regarding exposure and toxicology. Exposure to contaminants and levels of adverse effects may therefore vary. Whilst reasonable care and expertise has been employed in the development of such criteria, no liability is accepted in this respect. Other criteria or guidance on the development of assessment criteria may be published in the future and no liability is accepted in this respect.

This report remains the property of Geo-Environmental and the Client has no rights to, or reliance upon this document or supporting documents until such time as payment has been received in full for all invoices for works undertaken in connection with this report.

2.0 DESK STUDY REVIEW

The following sections provide a summary of the key findings of the desk study in terms of preliminary risk assessment (PRA) (ref: GE20620-DSRv3-MAR22). For further details reference should be made to the full report.

2.1 Radon

Radon maps were updated on the 1st December 2022, i.e. following the completion of the desk study. A review of the Groundsure website (accessed January 2026) indicated that the site remains within an area where less than 1% of homes are estimated to be at or above the Action Level as defined by Public Health England.

The BGS record states that no radon protective measures are necessary in the construction of the new dwellings or extensions within the site boundary where <1% of home area above the action level.

2.2 Hydrology

The flood mapping modelling was updated in April 2025, i.e. following the completion of the desk study. A review of the gov.uk website and Groundsure website (accessed January 2026) indicated that the site remained located outside an area designated as being at risk from flooding from rivers or sea without defences. A separate Flood Risk Assessment has been commissioned by Berkeley Homes and this should be referred to for a more detailed assessment on flood risk.

2.3 Geotechnical Risk Assessment

The following factors that might impact the geotechnical condition of the site were identified as part of the desk study:

Main Site (Main development site area)

Geotechnical Hazard	Probability	Engineering Implications
Lateral changes in ground conditions	Likely	Variable ground conditions posed by the differing bedrock geologies across the site may affect foundation design, construction, and zoning.
Shrinkable soils	Likely	The Horsham Stone Member is predominantly non-plastic. The Weald Clay Formation has variable volume change potential.
Significant depths of Made Ground	Likely	Sections of the site have been developed historically and site levels altered resulting in areas of deep Made Ground.
Aggressive chemical ground conditions (sulphates)	Likely	The possible presence of pyrite and gypsum within the underlying Weald Clay Formation may cause aggressive ground conditions impacting foundation/buried concrete design and construction.
Shallow Groundwater	Unlikely	The presence of shallow groundwater was considered to be unlikely, though pockets of perched run-off may be present within more permeable parts of the Weald Clay.
Potential for shallow soakaways to be unviable	Low	The anticipated cohesive nature of the Weald Clay Formation was likely to result in a low probability of soakaways working effectively.
Potential for dissolution features	Negligible	Soluble or rocks prone to dissolution are not thought to be present beneath the site.
Potential for slope stability issues	Very Low	Slope stability problems are not likely to occur.

Table 2.1 Possible Geotechnical Hazards - Main Site

North Site (Land adjacent to Christ's Hospital railway station)

Geotechnical Hazard	Probability	Engineering Implications
Lateral changes in ground conditions	Likely	Variable ground conditions posed by the differing bedrock geologies across the site may affect foundation design, construction, and zoning.
Shrinkable soils	Likely	The Horsham Stone Member is predominantly non-plastic. The Weald Clay Formation has variable volume change potential.
Significant depths of Made Ground	Unlikely (Increased to Likely locally)	The infilling of a pit (identified from the Groundsure dataset) in the south-west of the site is likely to have resulted in a localised area of deep Made Ground.
Aggressive chemical ground conditions (sulphates)	Likely	The possible presence of sulphate, pyrite and gypsum within the underlying Weald Clay Formation may cause aggressive ground conditions impacting foundation design and construction.
Shallow Groundwater	Likely	The presence of shallow groundwater is considered to be unlikely, though pockets of perched run-off may be present within more permeable parts of the Weald Clay.
Potential for shallow soakaways to be unviable	Low	The anticipated cohesive nature of the Weald Clay Formation is likely to result in a low probability of soakaways working effectively.
Potential for dissolution features	Negligible	Soluble or prone to dissolution rocks are not thought to be present beneath the site
Potential for slope stability issues	Very Low	Slope stability problems are not likely to occur.

Table 2.2 Possible Geotechnical Hazards - North Site

2.4 Preliminary Environmental Conceptual Site Model & Risk Assessment

2.4.1 Methodology

A Preliminary Risk Assessment ('PRA') and Conceptual Site Model ('CSM') have been prepared in accordance with Land Contamination Risk Management (LCRM) based on information obtained as part of the desk study. Possible risks associated with potential sources of contamination and sensitive receptors identified have been qualitatively assessed following a source-pathway-receptor (SPR) approach in accordance with current UK protocols.

A risk of harm may only exist where a plausible pollutant linkage is present, and where the quantity or concentration of a contaminant is sufficient so as to pose harm. Under the statutory definition, "Contamination" may only strictly exist where contaminants pose a risk of harm to a receptor. The risk classification has been assessed in accordance with CIRIA C552 (Rudland et al., 2001). A summary of how the risks are derived and their definitions are presented in Tables 2.3 and 2.4.

		Consequence			
		Severe	Medium	Mild	Minor
Probability	High Likelihood	Very high risk	High risk	Moderate risk	Moderate/low risk
	Likely	High risk	Moderate risk	Moderate/low risk	Low risk
	Low Likelihood	Moderate risk	Moderate/low risk	Low risk	Very low risk
	Unlikely	Moderate/low risk	Low risk	Very low risk	Very low risk

Table 2.3 Risk Ratings Matrix

Risk Rating	Definitions
Very high risk	There is a high probability that severe harm could arise to a designated receptor from an identified hazard, OR there is evidence that severe harm to a designated receptor is currently happening. This risk, if realised, is likely to result in a substantial liability. Urgent investigation (if not already undertaken) and remediation are likely to be required.
High risk	Harm is likely to arise to a designated receptor from an identified hazard Realisation of the risk is likely to present a substantial liability. Urgent investigation (if not already undertaken) is required, and remediation works may be necessary in the short term and are likely over the longer term.
Moderate risk	It is possible that harm could arise to a designated receptor from an identified hazard. However, it is either relatively unlikely that any such harm would be severe, or if any harm were to occur it is more likely that the harm would be relatively mild.
Moderate to low risk	It is possible that harm could arise to a designated receptor from an identified hazard. However, it is unlikely that any such harm would be severe, or if any harm were to occur it is probable that the harm would be relatively mild.
Low risk	It is possible that harm could arise to a designated receptor from an identified hazard, but it is likely that this harm, if realised, would at worst normally be mild.
Very low risk	There is low possibility that harm could arise to a receptor. In the event of such harm being realised, would at worst usually be minor.

Table 2.4 Risk Ratings Definition

2.4.2 Summary of Plausible Sources

Possible sources of contamination identified from the desk study are summarised in Table 2.5 and 2.6.

Main Site (Main development site area)

Source	Description	Contaminants
Made Ground, shallow soils	The general quality of Made Ground and shallow soils could be impacted by the presence of contamination.	Possible elevated concentrations of metals, metalloids, TPH and PAH compounds, and ACMs. Herbicides, pesticides, and fertilisers.
Historic Landfill/Land Raise Deposits	The material used as fill to raise levels around the Dairy, Hop Oast historic landfill and construct the embankment leading to the A24 may contain contaminants.	Possible elevated concentrations of methane, carbon dioxide, depleted oxygen. Metals, metalloids, TPH and PAH compounds and ACMs
Historic Railway Line	A historic railway line ran through the south of the site. Various contaminants are associated with the infilling of the cutting, materials used for embankments and railway operations.	Possible elevated concentrations of heavy metals, phenols, sulphates and PAHs, ash, fuel oils, ethylene glycol, lubricating oils, and greases.
Unknown Tanks	Tanks are listed on-site. The condition, size and contents are unknown.	Possible presence of PAH, TPH.
Naturally Occurring Ground Conditions	Naturally occurring compounds in the Weald Clay Formation which could damage buried concrete.	Possible elevated sulphate, pyrite, and gypsum concentrations.
Ground Gases/Vapours	Deeper areas of Made Ground may be present in some locations at the site. A risk is only considered to be present if highly organic or volatile contaminants within Made Ground of fill materials are present.	Possible presence of ground gases such as methane and carbon dioxide together with depleted oxygen, trace gases and volatile organic compounds.*

*An area of deeper Made Ground previously suspected and identified within WS15 is now noted to fall outside the site boundary.

Table 2.5 Possible Sources of Contamination – Main Site

North Site (Land adjacent to Christ's Hospital railway station)

Source	Description	Contaminants
Made Ground, shallow soils	The general quality of Made Ground and shallow soils could be impacted by the presence of contamination.	Possible elevated concentrations of metals, metalloids, TPH and PAH compounds, and ACMs. Herbicides, pesticides, and fertilisers.
Historic Deposits infilling former pit	The material used as fill the pit in the south-west of site may contain contaminants.	Possible elevated concentrations of methane, carbon dioxide, depleted oxygen. Metals, metalloids, TPH and PAH compounds and ACMs
Historic Railway Line	Various railway infrastructure is within close proximity of the site, including railway lines, sidings, good sheds. Various contaminants are associated with the running lines and operations and may have migrated onto site.	Possible elevated concentrations of heavy metals, phenols, sulphates and PAHs, ash, fuel oils, ethylene glycol, lubricating oils, greases, and ACM.
Historic Tank	A tank is shown immediately north of site. The condition, size and contents are	Possible presence of PAH, TPH.

Source	Description	Contaminants
	unknown. Contamination may have migrated onto site.	
Historic Laundry	A Laundry was present to the south of site. Drainage of waste products may have migrated onto site.	Possible Inorganic and organic contamination.
Naturally Occurring Ground Conditions	Naturally occurring compounds in the Weald Clay Formation which could damage buried concrete.	Possible elevated sulphate, pyrite, and gypsum concentrations.
Ground Gases/Vapours	Deeper areas of Made Ground may be present in some locations at the site. A risk is only considered to be present if highly organic or volatile contaminants within Made Ground of fill materials are present.	Possible presence of ground gases such as methane and carbon dioxide together with depleted oxygen, trace gases and elevated volatile organic compounds.

Table 2.6 Possible Sources of Contamination - North Site

2.4.3 Summary of Plausible Pathways

The plausible pathways are summarised in Table 2.7. These pathways are based on the proposed end use, to residential with plant uptake (considered to be the most sensitive land use). Employment uses are less sensitive and therefore residential pathways have been assessed as the most sensitive land use.

Pathway	Description
Direct Contact	Ingestion of soil particles, ingestion and bioaccumulation in vegetables/fruit, consumption of homegrown produce and inhalation of soil derived dust (including tracked back dust), dermal contact.
Inhalation	Inhalation of soil dust both inside and outside of buildings.
	Inhalation of ground gas/vapours within buildings.
Vertical & Lateral Migration	Contaminant movement both vertically through leaching/gravity and horizontally along preferential pathways, e.g., services trenches, more permeable bedded strata or with groundwater.
Shallow Groundwater	Shallow groundwater or perched water may be present within the underlying soils. Where shallow/perched water is present or infiltration (percolation of water through contaminated soils) through the site occurs, this could result in the vertical and lateral (including near surface runoff/overland flow) migration of contaminants.
Root Uptake	Uptake of soil and waterborne contaminants by plants.
Chemical Attack	Attack of buried plastics and concrete by aggressive ground conditions.
Flooding	The site is located outside an area designated as being at risk from flooding from rivers or sea without defences. The risk of surface water flooding surface water flooding was recorded within chapter 6 of the Flood Risk Assessment (2026) as a 1 in 30 year return period and 0.3m-1.0m maximum modelled depth, followed the four identified surface water features on-site on the Main Site. The North Site was recorded in the desks study as being at low risk with a negligible maximum modelled depth for a 1 in 1000 year flood event. The risk from groundwater flooding was recorded in the desk study as high to moderate in the northern half of the site and negligible in the central and southern sections of the Main Site. The North Site was recorded in the desk study as negligible based upon a 1 in 100 year return period and a 5m DTM (digital terrain model).

Table 2.7 Possible Contamination Pathways for the Main Site and North Site

2.4.4 Summary of Plausible Receptors

Potential receptors associated with the sites and its development, identified or otherwise discounted are summarised in Table 2.8.

Receptor	Description	Comments
End Users	Residents/occupants/users of the proposed development.	The proposed development is likely to include areas of private gardens and managed communal soft landscaping.
Soft Landscaping	Possible areas of planting including lawns, shrubs, trees, etc.	Planting is anticipated in private gardens, communal soft landscaping and external areas.
Built Environment	Buried concrete for foundations and plastics for potable water supply pipes may be laid in contact with contaminated soils.	Aggressive ground conditions and depths of Made Ground may be present beneath the site.
Adjacent Land Users	Sensitive land uses identified within the immediate vicinity.	Adjacent land uses surrounding both the Main Site and the North Site comprise a mix of residential, commercial, and industrial uses.
Groundwater	Controlled Waters contained within the aquifer(s) beneath the site.	The Main Site and the North Site overly a Secondary 'A' Aquifer. Neither the Main Site nor the North Site is situated within an SPZ.
Surface Water	Controlled Waters within lakes, rivers, and ponds, etc., or coastal waters.	Main Site: Surface water was identified on-site in the form of small ponds, drainage ditches and streams. North Site: No surface water features were noted to be present onsite. The closest water feature to site comprised a narrow stream running south of Sparrow Copse.
Ecological Receptors	Sensitive areas of ecological significance.	Ancient Wood land has been identified in proximity to the site but no other designations were identified on the subject site itself.

Table 2.8 Possible Receptors of Contamination for the Main Site and North Site

Site workers involved in the preparation and construction of the development have not been considered in this assessment as the principal contractor is duty bound under the current CDM Regulations to undertake their own risk assessments with respect to their employees.

Whilst the above sources and receptors have been identified, Tables 2.9 and 2.10 summarise the identified plausible pollution linkages and a qualitative assessment of the risks based on the desk study research for Sites 1 and 2 respectively:

The Main Site (Main development site area)

Potential Source/media	Potential Receptors	Potential Pathways	Likelihood	Severity	Risk and Justification
Made Ground and shallow soils	End users	Direct Contact, Inhalation	Likely	Medium	**Moderate** Future users are likely to come into contact with soils via direct contact within gardens and soft landscaping or tracked back into the building. Any imported soils must be of suitable chemical and physical quality for the proposed end use. Sampling and chemical testing required to assess the risk.
	Soft Landscaping	Root Uptake	Likely	Mild	**Moderate to Low** Soft landscaping is likely to be included within the proposed development. Any imported soils must be of suitable chemical and physical quality for the proposed end use. Sampling and chemical testing required to assess the risk.
	Adjacent land users	Direct Contact, Inhalation	Unlikely	Minor	**Very Low** Adjacent site users are unlikely to come into contact with and affected soils on site. Additionally, natural soils are not anticipated to represent a risk of harm to human health. Sampling and chemical testing required to assess the risk.
	Water supply pipes	Chemical Attack	Likely	Mild	**Moderate to Low** Water supply pipes are likely to be placed in natural soils. However, locally deeper areas of Made Ground may be present. Sampling and testing required to assess the risk where new supply pipes are required.
	Buildings and infrastructure	Chemical Attack	Likely	Minor	**Low** Foundations and utilities will be placed within natural soils. However, locally deeper areas of Made Ground or potentially aggressive soils may be present. Sampling and testing required to assess the risk.
	Groundwater	Vertical & Lateral Migration	Likely	Minor	**Low** The Horsham Stone Member beneath the site is classified as Secondary A Aquifer. However, the Weald Clay Formation

Potential Source/media	Potential Receptors	Potential Pathways	Likelihood	Severity	Risk and Justification
					which is beneath the majority of the site is classified as Unproductive Strata. The site is not located in a SPZ.
Historic Landfill/Land Raise Deposits, Infilled Railway Line and Unknown Tanks	End users	Direct Contact, Inhalation	Likely	Medium	**Moderate** Future users are likely to come into contact with soils via direct contact within private gardens and soft landscaping or tracked back into the building. Suitable topsoil may or may not be currently present at certain locations and any imported soils must be of suitable chemical and physical quality for the proposed end use. Sampling and chemical testing required to assess the risk.
	Soft Landscaping	Root Uptake	Likely	Mild	**Moderate to Low** Soft landscaping is likely to be included within the proposed development. Any imported soils must be of suitable chemical and physical quality for the proposed end use. Sampling and chemical testing required to assess the risk.
	Adjacent land users	Direct Contact, Inhalation	Unlikely	Minor	**Very Low** Adjacent site users are unlikely to come into contact with affected soils on site. Sampling and chemical testing required to assess the risk.
	Water supply pipes	Chemical Attack	Likely	Mild	**Moderate to Low** Water supply pipes are likely to be placed in natural soils. However, locally deeper areas of Made Ground may be present. Sampling and testing required to assess the risk where new supply pipes are required.
	Buildings and infrastructure	Chemical Attack	Likely	Minor	**Low** Foundations and utilities will be placed within natural soils. However, locally deeper areas of Made Ground or potentially aggressive soils may be present. Sampling and testing required to assess the risk.
	Groundwater	Vertical & Lateral Migration	Likely	Minor	**Low** The Horsham Stone Member beneath the site is classified as Secondary A Aquifer. However, the Weald Clay Formation which

Potential Source/media	Potential Receptors	Potential Pathways	Likelihood	Severity	Risk and Justification
					is beneath the majority of the site is classified as Unproductive Strata. The site is not located in a SPZ.
Naturally occurring chemical ground conditions that could affect end users or construction materials	End users	Direct Contact	Unlikely	Minor	**Very Low** No naturally occurring potential sources which could harm human health have been identified.
	Water supply pipes	Chemical Attack	Likely	Minor	**Low** Services will be placed within soils which may be an aggressive environment which may require specific pipework. Sampling and chemical testing required to assess the risk.
	Buildings and infrastructure	Chemical Attack	Likely	Mild	**Moderate to Low** The Weald Clay Formation may contain elevated concentrations of sulphate, pyrite, and gypsum. Foundations will be placed within soils which may be an aggressive environment for concrete. The concrete mix may need to be sulphate resisting. Sampling and chemical testing required to assess the risk.
Ground gases/Vapours	End Users	Inhalation	Unlikely	Medium	**Low** Future users may inhale potential ground gases produced by this source. Extensive or deep Made Ground with sufficient organic content for significant ground gas generation is not anticipated. Intrusive investigation required to identified whether organic rich Made Ground is present.
	Adjacent land users	Inhalation	Unlikely	Minor	**Very Low** Adjacent site users are unlikely to be adversely affected by ground gases originating on the site.
	Soft Landscaping	Root Uptake	Unlikely	Minor	**Very Low** Soft landscaping is not expected to be adversely affected by any ground gases.
	Buildings and infrastructure	Gas Accumulation and Potential Explosion of Flammable	Unlikely	Minor	**Very Low** Extensive putrescible material would be necessary in any Made Ground for significant ground gas production, and this is not anticipated. Ground gases are unlikely to affect integrity of

Potential Source/media	Potential Receptors	Potential Pathways	Likelihood	Severity	Risk and Justification
		Gases			building materials.

Table 2.9 Plausible Pollutant Linkages & Qualitative Risk Assessment for the Main Site

North Site (Land adjacent to Christ's Hospital railway station)

Potential Source/media	Potential Receptors	Potential Pathways	Likelihood	Severity	Risk and Justification
Made Ground and shallow soils	End users	Direct Contact, Inhalation	Unlikely	Minor	**Very Low** Future users are unlikely to come into contact with soils via direct contact, given the proposed development plans (car park). Sampling and chemical testing required to assess the risk.
	Soft Landscaping	Root Uptake	Likely	Minor	**Low** Very limited soft landscaping is likely to be included within the proposed development. Sampling and chemical testing required to assess the risk.
	Adjacent land users	Direct Contact, Inhalation	Unlikely	Minor	**Very Low** Adjacent site users are unlikely to come into contact with any affected soils on site. Sampling and chemical testing required to assess the risk.
	Water supply pipes	Chemical Attack	Unlikely	Minor	**Very Low** Water supply pipes are unlikely to be placed as part of the development as a car park. Sampling and testing required to assess the risk where new supply pipes are required.
	Buildings and infrastructure	Chemical Attack	Likely	Minor	**Low** Foundations for infrastructure and utilities will be placed within natural soils. However, locally deeper areas of Made Ground or potentially aggressive soils may be present. Sampling and testing required to assess the risk.
	Groundwater	Vertical & Lateral Migration	Likely	Minor	**Low** The Horsham Stone Member beneath the site is classified as

Potential Source/media	Potential Receptors	Potential Pathways	Likelihood	Severity	Risk and Justification
					Secondary A Aquifer. However, the Weald Clay Formation which is beneath the majority of the site is classified as Unproductive Strata. The site is not located in a SPZ.
Historic Landfill	End users	Direct Contact, Inhalation	Unlikely	Minor	**Very Low** Future users are unlikely to come into contact with soils via direct contact, given the proposed development plans (car park). Sampling and chemical testing required to assess the risk.
	Soft Landscaping	Root Uptake	Likely	Minor	**Low** Very limited soft landscaping is likely to be included within the proposed development. Sampling and chemical testing required to assess the risk.
	Adjacent land users	Direct Contact, Inhalation	Unlikely	Minor	**Very low** Adjacent site users are unlikely to come into contact with affected soils on site. Sampling and chemical testing required to assess the risk.
	Water supply pipes	Chemical Attack	Unlikely	Minor	**Very Low** Water supply pipes are unlikely to be placed as part of the development as a car park. Sampling and testing required to assess the risk where new supply pipes are required.
	Buildings and infrastructure	Chemical Attack	Likely	Minor	**Low** Foundations for infrastructure and utilities will be placed within natural soils. However, locally deeper areas of Made Ground or aggressive soils may be present. Sampling and testing required to assess the risk.
	Groundwater	Vertical & Lateral Migration	likely	Minor	**Low** The Horsham Stone Member beneath the site is classified as Secondary A Aquifer. However, the Weald Clay Formation which is beneath the majority of the site is classified as Unproductive Strata. The site is not located in a SPZ.

Potential Source/media	Potential Receptors	Potential Pathways	Likelihood	Severity	Risk and Justification
Off-site Railway Infrastructure, Tank and Historic Laundry	End users	Direct Contact, Inhalation	Unlikely	Minor	**Very Low** Future users are unlikely to come into contact with impacted soils via direct contact.
	Soft Landscaping	Root Uptake	Unlikely	Mild	**Very Low** Limited areas of soft landscaping are likely to be included within the proposed development. Off-site potential sources of contamination are unlikely to affect onsite soft landscaping. Sampling and chemical testing required to assess the risk.
	Water supply pipes	Chemical Attack	Unlikely	Minor	**Very Low** Water supply pipes are unlikely to be placed as part of the development proposals. Sampling and testing required to assess the risk where new supply pipes are required.
	Buildings and infrastructure	Chemical Attack	Unlikely	Minor	**Very Low** Foundations for infrastructure and utilities will be placed within natural soils. However, off-site sources are unlikely to affect ground conditions in this respect.
	Groundwater	Vertical & Lateral Migration	Likely	Minor	**Low** The Horsham Stone Member beneath the site is classified as Secondary A aquifer. However, the Weald Clay Formation which is beneath the majority of the site is classified as unproductive strata. Sampling and testing required to assess the risk.
Naturally occurring chemical ground conditions that could affect end users or construction materials	End users	Direct Contact	Unlikely	Minor	**Very Low** Future users are unlikely to come into contact with natural soils beneath the site. No naturally occurring chemical conditions are likely to present harm to end users
	Water supply pipes	Chemical Attack	Unlikely	Minor	**Very Low** Water supply pipes are unlikely to be placed, given the development proposals. Sampling and testing required to assess the risk where new supply pipes are required.
	Buildings and infrastructure	Chemical Attack	Likely	Mild	**Moderate to Low**

Potential Source/media	Potential Receptors	Potential Pathways	Likelihood	Severity	Risk and Justification
					The Weald Clay Formation may contain elevated concentrations of sulphate, pyrite, and gypsum. The concrete mix may need to be sulphate resisting. Sampling and chemical testing required to assess the risk.
Ground gases/Vapours	End Users	Inhalation	Unlikely	Medium	**Low** Future users may inhale potential ground gases produced by this source. Extensive or deep Made Ground with sufficient organic content for significant ground gas generation is not anticipated. Intrusive investigation required to identified whether organic rich Made Ground is present.
	Adjacent land users	Inhalation	Unlikely	Minor	**Very Low** Adjacent site users are unlikely to be adversely affected by ground gases originating on the site.
	Soft Landscaping	Root Uptake	Unlikely	Mild	**Very Low** Soft landscaping is not expected to be adversely affected by any ground gases.
	Buildings and infrastructure	Gas Accumulation and Potential Explosion of Flammable Gases	Low likelihood	Minor	**Very Low** Significant volumes of putrescible material or high concentrations of VOC's would be necessary in any Made Ground for significant ground gas production, and this is not anticipated. Ground gases are unlikely to affect integrity of building materials.

Table 2.10 Plausible Pollutant Linkages & Qualitative Risk Assessment for the North Site

3.0 INTRUSIVE INVESTIGATION

Based on the findings of the desk study, the following sections summarise the anticipated geotechnical and environmental factors likely to impact the site.

3.1 Scope of Works

In summary, the following scope of works for the intrusive investigation was agreed with the Client and Horsham District Council:

- Attendance of a specialist surveyor to undertake a buried utilities clearance survey of the proposed exploratory hole locations using radio-detection and ground penetrating radar techniques. The survey included capture of co-ordinates and levels of window samples holes using GPS surveying.
- Attendance of a Geo-Environmental Engineer supervise the intrusive investigation, undertake sampling, in-situ testing, and logging of recovered soils from exploratory holes.
- Construction of 19No. dynamic sampler boreholes using a self-propelled track mounted rig to depths of up to 4.0m bgl.
    - The Main Site: 15No. WS01 – WS15 (WS15 falls outside the January 2026 site boundary)
    - North Site: 5No. WS16 – WS20*
- Installation of 13No. groundwater and gas monitoring wells to a maximum depth of 4m to facilitate return monitoring on three occasions.
    - The Main Site: WS02, WS03, WS04, WS05, WS07, WS08, WS10, WS11, WS14, WS15 (WS15 falls outside the January 2026 site boundary)
    - North Site: WS16, WS18, WS19
- 35No. hand excavated pits.
    - The Main Site: HP01 – HP32, HP35 (HP07, HP10, HP11, HP15, HP24, HP28, HP30 and HP31 fall outside the January 2026 site boundary)
    - North Site: HP33 – HP34
- Falling head soakage testing undertaken in 5No. positions (WS03, WS04, WS07, WS11 and WS16)
- Ground gas monitoring (spot monitoring) of well installations on three occasions at weekly intervals. Wherever possible, the monitoring would target periods of low or rapidly falling atmospheric pressure.
- A range of geochemical and geotechnical testing on recovered soil samples.

*WS17 was inaccessible during the investigation.

HP32 and HP35 were completed after an additional risk assessment was undertaken in correspondence with Public Health England. It was confirmed no residual risk would remain from the historic anthrax burn site, as seen in communications attached in Appendix A.

The ground investigation undertaken in 2022 initially included a wider site area. HP07, HP10, HP11, HP15, HP24, HP28, HP30, HP31 and WS15 no longer fall with the updated site boundary (as of January 2026).

3.2 Investigation Strategy

Tables 3.1 and 3.2 summarises the strategy of the geotechnical and environmental investigation.

Geotechnical Area of Concern	Investigation	Positions
Lateral changes in ground conditions	Window sample and hand excavated trial pits located sparsely across the site, coupled with sampling and laboratory analysis.	All

Geotechnical Area of Concern	Investigation	Positions
Shrinkable soils	Window sample and hand excavated trial pits located sparsely across the site, coupled with sampling and laboratory analysis.	All
Significant depths of Made Ground	Window sample and hand excavated trial pits located sparsely across the site and targeting historic points of interest.	All
Aggressive chemical ground conditions (sulphates)	Window sample boreholes located sparsely across the site, coupled with sampling and laboratory analysis.	WS01 – WS14, WS16 - WS20
Shallow Groundwater	Monitoring wells installed	WS02, WS03, WS04, WS05, WS07, WS08, WS10, WS11, WS14, WS16, WS18, WS19
Potential for shallow soakaways to be unviable	Indicative falling head soakage testing undertaken in 5No. positions across the site.	WS03, WS04, WS07, WS11 and WS16

Table 3.1 Summary of Geotechnical Investigation Strategy

The Main Site (Main development site area)

Environmental Area of Concern	Investigation	Positions
Made Ground, shallow soils	Window sample and hand excavated trial pits located sparsely across the site, coupled with sampling and laboratory analysis.	WS01 – WS14, HP01 – HP06, HP08 – HP09, HP12 – HP14, HP16 – HP23, HP25 – HP27, HP29, HP32, and HP35
Historic Landfill/Land Raise Deposits	Window sample and hand excavated trial pits, coupled with sampling and laboratory analysis.	Dairy: WS04 – WS06 Embankment leading to the A24: HP01, HP02, WS01, WS02, WS03
Historic Railway Line	Window sample, coupled with sampling and laboratory analysis.	WS08 – WS14
Unknown Tanks	Window sample, coupled with sampling and laboratory analysis.	WS01, WS07
Naturally Occurring Ground Conditions	Window sample and hand excavated trial pits located sparsely across the site, coupled with sampling and laboratory analysis.	WS01 – WS14, HP01 – HP06, HP08 – HP09, HP12 – HP14, HP16 – HP23, HP25 – HP27, HP29, HP32, HP35
Ground Gases/Vapours	Monitoring wells installed within window sampler boreholes for return spot monitoring on three occasions.	WS02, WS03, WS04, WS05, WS07, WS08, WS10, WS11, and WS14

Table 3.5 Possible Sources of Contamination the Main Site

North Site (Land adjacent to Christ's Hospital railway station)

Environmental Area of Concern	Investigation	Positions
Made Ground, shallow soils	Window sample and hand excavated trial pits located sparsely across the site, coupled with sampling and laboratory analysis.	WS16- WS20, HP33 – HP34
Historic Deposits infilling former pit	Window sample, coupled with sampling and laboratory analysis.	WS16

Environmental Area of Concern	Investigation	Positions
Historic Railway Line	Window sample, coupled with sampling and laboratory analysis.	WS16- WS20, HP33 – HP34
Historic Tank	Hand pit, coupled with sampling and laboratory analysis.	HP34
Historic Laundry	Window sample, coupled with sampling and laboratory analysis.	WS18, WS19
Naturally Occurring Ground Conditions	Window sample and hand excavated trial pits located sparsely across the site, coupled with sampling and laboratory analysis.	WS16- WS20, HP33 – HP34
Ground Gases/Vapours	Monitoring wells installed within window sampler boreholes for return spot monitoring on three occasions.	WS16, WS18, WS19

Table 3.6 Possible Sources of Contamination - North Site

The locations of the exploratory holes are presented in Figure 2 and Figure 3.

Based on the agreed scope of works, it was possible to make a preliminary appraisal for each area of geotechnical and geo-environmental concern identified as part of the investigation.

4.0 ENCOUNTERED CONDITIONS

A factual record of the conditions encountered during the physical investigation of the site is presented in the following sections.

For further details of the encountered ground conditions, reference should be made to the exploratory hole logs presented in Appendix B, the geotechnical testing results in Appendix C, the geochemical testing results in Appendix D and the ground gas and groundwater monitoring results in Appendix E.

The physical ground investigation works were undertaken on 10th-13th and the 25th May 2022. The geotechnical and geochemical testing was undertaken by UKAS accredited laboratories.

Unless stated otherwise, all depths are reported as metres below ground level (m bgl).

4.1 Ground Conditions

Published geological records indicated that the ground conditions would comprise the Weald Clay Formation or Horsham Stone with a mantle of Topsoil or Made Ground above. The ground conditions are summarised in Table 4.1 and 4.2.

The Main Site (Main development site area)

Top (m bgl)	Base (m bgl)	Geology	Positions
0.00	0.13 - 2.40	MADE GROUND: brown slightly gravelly slightly clayey silty sand to gravelly sandy silty CLAY. Gravel is sub-angular concrete, flint, siltstone, clay pipe, concrete, and brick. Numerous rootlets to Reworked siltstone and reworked brown slightly gravelly sandy silty clay. Gravel comprised of sub-angular to angular flint. Low sub-angular flint cobble content, sandy gravel chalk crush. Gravel comprised of sub-angular to very angular chalk and flint and dark brown and orange gravelly sandy silty clay. Gravel comprises sub-angular to angular flint sandstone, glass and steel and plastic. WS04: Potentially reworked? Brown very stiff slightly gravelly silty CLAY. Gravel comprised of sub-angular to angular siltstone and fine to medium white calcareous nodules. Frequent orange staining rare roots 1-4mm Reworked? Brown fine to medium SAND.	HP01, HP02, HP06, HP12,WS01 – WS07
0.00 – 0.13	0.10-0.45	TOPSOIL: Light brown slightly gravelly SILT to clayey SILT with abundant rootlets	HP03 – HP05, HP08 – HP9, HP13 – HP14, HP16 – HP23, HP25 – HP27, HP29, WS07 – WS14
0.10 – 2.40	1.90 - >4.00	WEALD CLAY FORMATION: Stiff to very stiff brown with grey and orange mottling becoming yellowish brown slightly gravelly slightly sandy silty CLAY. Gravel comprised of sub-angular to angular sandstone and siltstone. Sandstone is dark brown ferruginous. Occasional orange and dark brown staining, Orangish brown gravelly clayey SAND. Gravel	All except HP01 & HP02

Top (m bgl)	Base (m bgl)	Geology	Positions
		comprised of sub-angular sandstone, Mottled grey and orange clayey very sandy SILT.	
0.60 – 3.80	>4.00	HORSHAM STONE: Stiff yellow and black mottled very clayey SANDSTONE to brown clay SILT / thinly bedded to laminated SILTSTONE.	HP24, WS01, WS03, WS05–WS08, WS11-WS12, WS15

Table 4.1 Summary of encountered ground conditions - Main Site

North Site (Land adjacent to Christ's Hospital railway station)

Top (m bgl)	Base (m bgl)	Geology	Positions
0.00	0.40 – 0.65	MADE GROUND: Brown slightly to very gravelly sandy silt to gravelly sand. Gravel comprised of sub-rounded to angular flint, sandstone, concrete, and brick. Frequent rootlets and rare roots 1-2mm. WS19 Made Ground underlaid with geo-mesh.	WS18 – WS20
0.00	0.10 - 0.30	TOPSOIL: Dark brown slightly gravelly sandy clayey silt. Gravel is medium sub-rounded flint. Frequent rootlets.	HP33 – HP34, WS16
0.10 – 0.65	1.95 - >4.00	WEALD CLAY FORMATION: Orangish brown slightly gravelly silty fine SAND. Gravel is composed of sub-angular to angular siltstone. Rare to occasional rootlets. Firm to stiff orangish brown slightly gravelly sandy silty CLAY. Gravel is composed of dark brown sub-angular ferruginous sandstone, siltstone, and sandstone to very stiff desiccated clayey SILT. Occasional dark brown and orange ferruginous staining on planal surfaces.	All
1.95 – 2.10	2.60 - >4.00	HORSHAM STONE: Very stiff yellowish brown thinly bedded to laminated clayey SILT / SILTSTONE to orange SAND / SANDSTONE.	WS19, WS20

Table 4.2 Summary of encountered ground conditions - North Site

For further details of the ground conditions encountered, reference should be made to the exploratory hole logs presented in Appendix B.

4.2 Groundwater

During the investigation groundwater was encountered within a number of the window sampling locations, as summarised within Table 4.2.

Three return monitoring visits were completed between May and June 2022. The groundwater monitoring is summarised in Table 4.2 below.

Site	Location	Groundwater depth (m bgl)			
		Investigation	19/05/22	31/05/22	07/06/22
The Main Site	WS01	3.30	-	-	-
	WS02	Dry	3.52	3.10	3.02
	WS03	2.10	2.07	2.09	2.08
	WS04	Dry	2.95	3.61	3.66
	WS05	Dry	1.25	1.87	1.81

Site	Location	Groundwater depth (m bgl)			
		Investigation	19/05/22	31/05/22	07/06/22
	WS07	2.26	1.07	1.12	1.06
	WS08	Dry	3.05	2.29	2.16
	WS10	1.95	0.74	*	*
	WS11	Dry	1.30	1.36	1.38
	WS13	2.60	-	-	-
	WS14	Dry	1.51	1.57	1.51
North Site	WS16	Dry	Dry	Dry	3.98
	WS18	Dry	3.28	2.84	3.43
	WS19	Dry	Dry	3.94	3.92

NOTE: '-' Not installed; * location could not be located

Table 4.2 Summary of groundwater monitoring[1]

The water recorded in the monitoring wells is most likely an accumulation of perched water seepages or surface water run-off rather than an indication of a groundwater table.

Changes in groundwater levels do occur for a number of reasons including seasonal effects and variations in drainage. Such fluctuations may only be recorded by the measurement of the groundwater level within a standpipe or piezometer.

4.3 Obstructions

Four positions (The Main Site: WS09, WS11 and WS13, North Site: WS20) refused on Horsham Stone between 2.60m and 3.20m bgl. No artificial obstructions were encountered during the investigation. The presence of obstructions elsewhere on site should not be discounted.

4.4 Ground Gases

Three ground gas monitoring visits were undertaken within the standpipes installed in WS02, WS03, WS04, WS05, WS07, WS08, WS10, WS11, WS14 within the Main Site and WS16, WS18 and WS19 in the North Site, between May and June 2022.

The Main Site (Main development site area)

During the monitoring methane concentrations were not detected. Carbon dioxide concentrations ranged between 0.0% and 6.1% with oxygen concentrations ranging between 5.2% and 21.4%. Borehole gas flow was recorded between -0.1l/hr and 1.1l/hr. A maximum VOC concentration of 9.2ppm was recorded. Atmospheric pressure was recorded at between 1006mb and 1016mb.

North Site (Land adjacent to Christ's Hospital railway station)

During the monitoring methane concentrations were not detected. Carbon dioxide concentrations ranged between 0.1% and 5.3% with oxygen concentrations ranging between 10.5% and 21.4%. Borehole gas flow was recorded as 0.1l/hr. A maximum VOC concentration of 3.7ppm was recorded. Atmospheric pressure was recorded at between 1008mb and 1017mb.

For further details reference should be made to the ground gas assessment sheet in Appendix E.[2]

[1] There are currently no monitoring results for winter groundwater monitoring on this site
[2] The gas assessment denotes that all positions were CS1 category – very low risk. However, further assessment of development parcels needed at reserved matters stage.

4.5 Geotechnical Laboratory Results

The results of geotechnical testing undertaken as part of the ground investigation are summarised in Table 4.3.

Parameter	The Main Site	North Site
	Weald Clay	Weald Clay
Natural Moisture Content (%)	15-34	22-30
Liquid Limit (%)	31-81	50-69
Plastic Limit (%)	17-31	22-28
Plasticity Indices (%)	14-50	27-41
Modified Plasticity Indices (%)	11-50	27-40
Volume Change Potential (NHBC & BRE)	Low-High	Medium
pH	7.42-7.53	7.52
Sulphate Content (mg/l)	130-170	270

Table 4.3 Summary of Geotechnical Results

For details of the geotechnical test results, reference should be made to the laboratory reports in Appendix C.

4.6 Geochemical Laboratory Results

In order to assess the general chemical quality of the strata encountered, samples of soils recovered from the exploratory holes were submitted for analysis for a range of potential contaminants selected on the basis of the findings of the desk study and supported by the joint National House Building Council (NHBC), Environment Agency (EA) and Chartered Institute of Environmental Health (CIEH) publication, '*Guidance for the Safe Development of Housing on Land Affected by Contamination*' (2008).

Soil samples were placed into plastic containers for general inorganic analysis and into amber jars for organic analysis. Samples were stored in temperature-controlled conditions from sampling until receipt at the laboratory from which time sample preparation and storage was determined by testing requirements and in line with the laboratory's protocols.

Following the removal of the locations that fall outside of the site boundary area (as of January 2026), thirty two samples of Made Ground, Topsoil and Weald Clay Formation (The Main Site: 26 samples, North Site: 8 samples) were submitted for analysis for a comprehensive suite, including heavy metals, polyaromatic hydrocarbons, total petroleum hydrocarbons and screened for the presence of asbestos. For further details reference should be made to the laboratory results in Appendix D. This was augmented with 10No. samples selected for pesticide analysis across the Main Site.

A further 29 samples of Topsoil (The Main Site: 27 samples, North Site: 1 samples) were submitted for British Standard BS3882:2015 *Specification for topsoil and requirements for use*.

5.0 ENGINEERING CONSIDERATIONS

Subsequent to intrusive investigation of the site and receipt of the laboratory results, the following interpretative assessments have been made with respect to engineering considerations.

5.1 Foundations

Based on the ground and groundwater conditions encountered in the exploratory holes, traditional foundations are likely to be considered suitable for the proposed low-rise development.

The exceptions to this are within areas located on or close to the deeper areas of infilled ground or in proximity to trees or hedges. Deeper areas of Made Ground were identified around WS15, potentially corresponding to the former railway cutting, the dairy and road embankment, where alternative foundations such as piles with reinforced ground beams may be required. (It is noted that WS15 falls outside of the updated site boundary as of January 2026)

The Weald Clay is of medium to high volume change potential at shallow depth based on testing undertaken to date. Within the zone of moisture demand of any current, proposed or recently felled trees foundation depths should be deepened in accordance with the NHBC Standards, Chapter 4.2 for high volume change soils. Where calculated foundation depths exceed 1.50m on account of trees, heave precaution measures will be required in accordance with the NHBC Standards. Where calculated foundation depths exceed 2.50m, they will be required to be designed by a structural engineer.

Remote from existing trees and bushes, it is recommended that shallow foundations terminate within the medium to high strength Weald Clay Formation at a minimum depth of 1.0m below existing or final ground level whichever is the lower. Foundations should pass through any Made Ground, disturbed ground, soft or very loose soils, desiccated clay soils and terminate wholly within the Weald Clay Formation.

On the basis of the information gathered from the ground investigation, a net allowable bearing capacity of 150kPa has been calculated for these soils in order to maintain settlements within tolerable limits. Foundations should be no less than 450mm in width.

The clayey soils will soften rapidly if exposed to free water and foundation bases should be concreted or blinded as soon after excavation as possible.

Additional investigation should be completed on a closer grid once development plans are finalised to support design and construction.

5.2 Excavations

Shallow excavation within any Made Ground should remain relatively stable in the short term. Longer deeper excavations within any deeper zones of Made Ground are likely to be prone to instability and should be battered back to a safe angle, or suitable shoring techniques should be adopted to provide stability.

Shallow excavations within the Weald Clay Formation should remain relatively stable in the short to medium term, though some localized spalling may be anticipated. Long, deep excavations within the Weald Clay Formation are likely to be prone to instability, particularly where left open for prolonged periods, or open to wet weather conditions and should be battered back to a safe angle, or suitable shoring techniques should be adopted to provide stability.

A ripper or breaker may be required to advance excavations through any more competent Horsham Stone.

Ground works should always be designed in such a manner to avoid man entry into excavations. However, in the event that such works cannot be avoided or designed out, they should only be undertaken in accordance with a safe system of work, following an appropriate risk assessment and in accordance with any legislative requirements, e.g., Confined Spaces Regulations.

5.3 Floor Slabs

Given the medium to high volume change potential of the near surface natural soils, it is recommended that suspended ground floor slabs are used within the development. It is recommended that the depth of the floor void be designed in accordance with the NHBC Standards, Chapter 4.2, and be based on high volume change potential soils.

5.4 Sub-Surface Concrete

The results of the water soluble sulphate and pH analysis undertaken on samples of the Weald Clay indicated the soil samples tested to have water soluble sulphates within design sulphate (DS) class DS-1 of BRE special digest 1. A preliminary aggressive environment for concrete (ACEC) classification of AC-1s is deemed appropriate for foundations within this stratum based on testing to date. However, Pyrite may be present in the Weald Clay as such further testing would be required to clarify the class of concrete in these soils in this respect.

The advice of this publication should be taken for the design and specification of all sub-surface concrete.

5.5 Pavements

Based on the recommendations published in '*The Structural Design of Bituminous Roads*' (1984) an estimated equilibrium suction index of between 3% and 5% is likely to be suitable for pavements constructed upon the silty clays of the Weald Clay Formation under average construction conditions and a low water table.

5.6 Soakaways

Due to the presence of relatively impermeable Weald Clay at shallow depth across the site, it is considered highly unlikely that conventional shallow soakaways will work effectively on the site and some other form of surface water disposal should be sought, on site storage may also be required.

6.0 ENVIRONMENTAL CONSIDERATIONS

A Generic Quantitative Risk Assessment (GQRA) incorporating the results of the desk study and ground investigation was undertaken in accordance with LCRM, the findings of which are presented in the following sections.

6.1 Environmental Risk Assessment

A number of plausible pollutant linkages were identified as part of the desk study, as summarised in Section 2.

6.2 Soil Contamination vs. End Users

The presence of a possible contaminant does not necessarily imply that a site or area is contaminated or that there is any unacceptable risk to human health. A Preliminary Quantitative Risk Assessment has been undertaken in accordance with LCRM, in order to evaluate any unacceptable risks posed to human health with respect to the proposed redevelopment. It should be noted that this assessment is protective of the chronic long-term effects of contaminants, which is also likely to be protective of any possible immediate acute effects.

A quantitative risk assessment has been undertaken by comparing the results of the laboratory chemical testing of shallow soils against Tier 1 screening criteria in the first instance. These criteria comprise the Atkins ATRISK soil screening values (SSVs), the Suitable for Use Levels (S4ULs) published by LQM (Copyright Land Quality Management Limited reproduced with permission; Publication Number S4UL3453. All rights reserved) and the Category 4 Screening Levels (C4SLs) published by DEFRA. Although the C4SLs were released for Part 2A use, the associated policy companion document for the C4SLs indicated that they may also be used for planning. Although the C4SLs represent a marginally higher risk level than the SSVs and S4ULs (low risk rather than minimal risk) it is considered that the risk levels remain very low. Therefore, the final C4SLs are considered to be suitable to assess soils under the planning regime.

Where the screening values have been exceeded, further statistical assessments have been undertaken on the datasets.

<u>The Main Site (Main development site area)</u>

Based on the nature of the proposed development, the most sensitive land use proposed was considered to comprise residential, the laboratory results were compared individually against screening criteria for a residential end use with home grown produce (1% SOM). This provides a conservative approach and is protective of human health. Benzo(a)pyrene has been used in the assessment as a surrogate marker for PAH contamination.

The results were all noted to be below the relevant screening criteria or laboratory detection limits for a proposed residential land use.

Additional screening and analysis was undertaken for asbestos and pesticides. No positive identifications for asbestos, or pesticide concentrations above the LOD were reported for the samples analysed.

Further detailed investigation is recommended to support detailed planning, design, and construction.

In addition, an effective discovery strategy must be implemented on site during the site clearance, demolition and construction phases.

North Site (Land adjacent to Christ's Hospital railway station)

Based on the nature of the development, i.e. proposed car parking, the laboratory results were compared individually against screening criteria for a commercial use (1% SOM). This provides a conservative approach and is protective of human health. Benzo(a)pyrene has been used in the assessment as a surrogate marker for PAH contamination.

The results were all noted to be below the relevant screening criteria or laboratory detection limits for a proposed commercial end use. Additional screening and analysis was undertaken for asbestos and pesticides. No positive identifications for asbestos, or pesticide concentrations above the LOD were reported for the samples analysed.

Further detailed investigation is recommended to support detailed planning, design, and construction. In addition, an effective discovery strategy must be implemented on site during the site clearance, demolition and construction phase.

6.3 Soil Contamination vs. Adjacent land Users

Surrounding land uses were noted to comprise primarily agricultural and residential. Concentrations indicative of mobile potentially harmful contaminants were not identified as part of the laboratory analyses in the context of the proposed end use.

However, short term risks to adjacent land users may arise in relation to the generation of soil derived dust and particles as fugitive emissions from the site during the construction phase. Therefore, it is recommended that dust suppression techniques, e.g., damping down exposed soils, are employed during the construction phases on site in order to minimise the potential for airborne migration of specific hazards and to manage potential nuisance issues for adjacent land users.

6.4 Soil Contamination vs. Soft Landscaping

Phytotoxicity Assessment

British Standard BS3882:2015 *Specification for topsoil and requirements for use* provides assessment criteria for a number of potentially phytotoxic contaminants in terms of new planting.

The results of the chemical analysis for determinands known to pose a potential phytotoxic risk to plant growth are summarised in Table 6.1, together with the respective adopted Generic Assessment Criteria (GAC) for plant growth. The compliance criteria set out in BS3882:2015 are pH dependent and thus the GAC used relate to the pH range measured on samples recovered from the site.

Table 6.1 presents a summary of the Tier 1 phytotoxicity screening assessment for naturally occurring Topsoil as encountered in the exploratory holes. This dataset excludes the results from sampling location HP35 because it comprised part of an infill material used in an historic burning pit and thus is not naturally occurring, in-situ Topsoil. The results from HP35 are considered in isolation below.

Determinand	Phytotoxicity GAC (mg/kg)			GAC Exceedances	
	pH <6.0	pH 6.0-7.0	pH >7.0	Main Site	North Site
Zinc	200	200	300	No	No
Copper	100	135	200	No	No
Nickel	60	75	110	No	No

Table 6.1 Summary of Plant Phytotoxicity Assessment

The phytotoxicity assessment of naturally occurring, in-situ Topsoil did not identify any exceedances against respective assessment criteria.

With regards to the sample from HP35[3], which is considered in isolation given that it was not a naturally occurring, in-situ Topsoil, the reported concentration of Zinc (445mg/kg) exceeded the pH dependent assessment criterion (pH6.8, GAC 200mg/kg). Whilst the reported Zinc concentration exceeded the pH dependent GAC, no signs of distress were observed in the vegetation in the vicinity of HP35. Phytotoxicity assessment is not necessarily a binary outcome (i.e., pass or fail) as some flora are more sensitive and susceptible to harm than other flora, as indicated by the lack of any discernible variation in vegetation condition at this location compared with elsewhere on the wider site. As such dependent on final design should this location be proposed for areas of soft landscaping it should be assessed further as part of any detailed investigation.

Nutrient Assessment of Topsoil

Table 6.2 summarises the results of nutrient testing undertaken on selected samples of Topsoil.

Parameter	Main Site		North Site	
	Range	Average	Result	
Mass loss on ignition (%)	4.31* – 14.2	8	7.09	
Soil pH	5.0* – 8.2	6.85	9.0	
Total Nitrogen (%)	<0.01* – 0.20	0.21	0.17	
Extractable Phosphate (mg/L)	36 – 112	59	37	
Extractable Potassium (mg/L)	45* - 482	134	98	
Extractable Magnesium (mg/L)	59 - 321	158	110	
Carbon: Nitrogen ratio	5.81 – 233*	47.92	24.47	

NOTE * see text below

Table 6.2 Summary of Nutrient Parameter Results

Comparison of the Topsoil parameters with BS3882:2015 show the results most closely conformed to multipurpose Topsoil. The parameters outside of the multipurpose Topsoil standard have been highlighted within Table 6.2. It is noted that some of the non-conformities were within the respective criteria range for low fertility and/or low fertility acidic Topsoil. In addition, the average (sample mean) parameter values were, with the exception of C:N ratio, within range for a multipurpose Topsoil.

It must be noted that naturally occurring Topsoil often does not conform to a specific single Topsoil classification as set out in BS3882 but is representative of the naturally occurring Topsoil within a site or region and thus would be supportive of local flora and fauna and represents the most sustainable soil option for Topsoil within a development on the source site. Where non-conformances arise, as highlighted in Table 6.2, these can be rebalanced through the addition of compost, manure and/or other nutrient additives such as fertilisers. Any such addition should be determined by the proposed end use and planting schemes. In addition, the requirement for, and scope of, any such re-balancing should be determined at the point in time when the Topsoil is proposed to be used, e.g., sampling from stockpiled Topsoil, as nutrient concentrations will vary both with time and due to the conditions during excavation and stockpiling.

[3] The area were HP35 is situated is an area proposed for a community orchard. Further investigation prior to implementation for this area with proposed food growing land uses.

The texture of Topsoil can be harmed by poor excavation, handling, and stockpiling. As such, a Soil Management Plan should be put in place, and this should include how Topsoil is to be handled during the various phases of construction. Measures should also be taken to avoid both compaction and to prevent it becoming waterlogged once placed.

Some rebalancing of nutrients could be required if strict compliance with BS3882:2015 was required.

6.5 Soil Contamination vs. Building Materials

Recommendations with respect to pH and sulphate in relation to buried concrete are made in Section 5.5.

The results of the relevant chemical analyses indicated no exceedances, which would indicate that barrier pipe is unlikely to be required by the water company for the protection of the drinking water supply infrastructure based on the testing undertaken to date. However, should further investigation identify further Made Ground, or contaminants of concern further assessment should be undertaken. It is recommended that the results of this investigation be presented to the water utility company as soon as reasonably practicable in order to confirm their requirements for the pipe material. A water pipe risk assessment is likely to be required by the water utility provider.

As a matter of good practice, and to maximise the protection to utilities, it is recommended that clean, granular backfill is used in service runs and that marker tapes are used for all buried services.

6.6 Ground Gases

The investigation did not encounter significant putrescible material within the shallow soils encountered on the site, however the desk study identified small, localised areas of historically infilled land, on site. Three ground gas monitoring visits were undertaken within the standpipes installed in WS02, WS03, WS04, WS05, WS07, WS08, WS10, WS11 and WS14 (WS15 falls outside of the January 2026 site boundary and as such has been removed from the dataset reported) on the Main Site and WS16, WS18 and WS19 in the North Site, between May and June 2022.

The Main Site (Main development site area)

During the monitoring, methane concentrations were not detected. Carbon dioxide concentrations ranged between 0.1% and 6.1% with oxygen concentrations ranging between 5.2% and 21.4%. Borehole gas flow was recorded between -0.1l/hr and 1.1l/hr. A maximum VOC concentration of 9.2ppm was recorded. Atmospheric pressure was recorded at between 1006mb and 1016mb.

North Site (Land adjacent to Christ's Hospital railway station)

During the monitoring methane concentrations were not detected. Carbon dioxide concentrations ranged between 0.1% and 5.3% with oxygen concentrations ranging between 10.5% and 21.4%. Borehole gas flow was recorded as 0.1l/hr. A maximum VOC concentration of 3.7ppm was recorded. Atmospheric pressure was recorded at between 1008mb and 1017mb.

The results of the ground gas monitoring have identified sporadic marginally elevated carbon dioxide concentrations at the Main Site within WS02 and during one visit at the North Site within WS19. Based on the desk study findings and the results of the monitoring, site wide remedial works for the presence of ground gases are highly unlikely, though further investigation and monitoring is warranted to further assess the elevated carbon dioxide concentrations and determine possible remediation measures if required. For further details

reference should be made to the ground gas assessment sheet in Appendix E[4].

6.7 Waste Disposal

6.7.1 Reuse of Material

In accordance with CL:AIRE Code of Practice (2011) materials are only considered waste if 'they are discarded, intended to be discarded or required to be discarded by the holder'.

The Code of Practice therefore allows soils to be reused on site where the following criteria are met:

The re-use of the soils will not present an unacceptable or increased risk to controlled waters, the environment and human health;

- The soils are suitable both in terms of chemical and geotechnical properties for the intended use without prior treatment or any further processing).
- There is required use and certainty of use, not just a possibility; and
- The volume that is absolutely necessary (and no more) is used.

In order to comply with the Code of Practice, a material management plan that confirms the above criteria are met has to be prepared. The material management plan must be reviewed by a 'Qualified Person' who then issues a declaration to CL:AIRE who manage the DOWCOP on behalf of the Environment Agency. Geo-Environmental can provide this service should it be required.

It should also be noted that an updated FAQ in relation to the DOWCOP also requires further clarification and lines of evidence with respect to stockpiled soils on site proposed to be re-used to demonstrate that these soils have not been discarded which may result in them being considered waste and that there was also a demonstrated need and certainty of use of such materials.

It should also be noted that where it is proposed to re-use soils under the DOWCOP best practice is that wherever possible materials movement should be tracked electronically via plant or site supervision/recording and for interim verification reporting throughout the works at 12-month intervals.

Where materials do not meet the required criteria, it may be possible to treat them under an environmental permit so that they may be re-used on site. In addition, where material is discarded as waste, it may still be possible to re-use the waste on site under a standard rules environmental permit or a U1 waste exemption (Subject to 2025 revisions). However, strict limits on the volumes that can be reused apply in these cases.

6.7.2 Waste Classification

The following information is provided for preliminary guidance purposes, as different facilities or operators may have differing acceptance criteria and Waste Acceptance Criteria (WAC) analysis may be required to confirm the exact classification. In addition, if the intention is to retain excess spoil/arisings on site for specific purposes, then these soils would not comprise waste, although this is subject to confirmation and relevant declaration under the Definition of Waste Code of Practice.

Where waste soil is being disposed to landfill it must first be classified as either Hazardous or Non-Hazardous. The classification is carried out in accordance with the Environment Agency's publication WM3 'Waste Classification- Guidance on the classification and assessment of waste'. Waste that is classified as Non-Hazardous

[4] The gas assessment denotes that all positions were CS1 category – very low risk. However, further assessment of development parcels needed at reserved matters stage

in accordance with WM3 may be disposed without further testing to a Non-Hazardous landfill. Alternatively, once the waste soils have been identified, Waste Acceptance Criteria (WAC) testing can be undertaken to establish whether the material can be disposed to an Inert landfill, a subgroup of Non-Hazardous landfill. It should be noted that inert wastes are typically from a consistent source that meet a number of qualifying criteria, and thus Made Ground commonly will not meet the requirements to be disposed as Inert.

The laboratory results for the near surface soils were uploaded to HazWaste Online waste soils characterisation assessment tool, to assess the results for waste classification to provide an early indication of likely classifications of potential waste soils.

The assessment indicated that all samples would be classified as non-hazardous waste and assigned the List of Waste (LoW) Code 17 05 04.

Natural uncontaminated soils of the Weald Clay Formation and Horsham Stone are likely to be suitable for disposal at an Inert landfill facility (under the respective EWC codes for naturally occurring soils).

Confirmation of the above assessments should be sought from the receiving landfill facility and further testing should be completed once specific soils have been identified for disposal.

The HazWaste Online Waste Classification Report is included as Appendix D.

Under current legislation, where wastes are to be disposed of to landfill, they may, depending on their classification, require pre-treatment. Pre-treatment shall comprise a chemical, physical (including sorting), thermal or biological process. The pre-treatment is required to change the characteristics of the waste, reduce its volume, reduce its hazardous nature, and facilitate its handling and enhance its recovery.

Other materials disposed of from site as part of the demolition or remediation process may require disposal separately. All materials containing dangerous substances e.g. tar or bitumen, asbestos, mercury, hydrocarbons and PCBs are likely to be classified as Hazardous Waste and therefore susceptible to the relevant legislative controls.

6.8 Revised Preliminary Risk Assessment Summary

Based on the results of the investigation, the preliminary risk assessments for the Main Site and the North Site have been revised as presented in Table 6.3 and 6.4 respectively.

The Main Site

Potential Source/media	Potential Receptors	Potential Pathways	Likelihood	Severity	Risk and Justification
Made Ground and shallow soils	End users	Direct Contact, Inhalation	Likely	Minor	**Low** No contaminants were identified over relevant screening criteria, however investigations to date are considered prelim based on the distribution of testing points undertaken. .
	Soft Landscaping	Root Uptake	Likely	Minor	**Low** Only one phytotoxic element was identified within testing to date with a very marginal exceedance.
	Adjacent land users	Direct Contact, Inhalation	Unlikely	Minor	**Very Low** No contaminants were identified over relevant screening criteria, however investigation to this point is minimal.
	Water supply pipes	Chemical Attack	Likely	Minor	**Low** No contaminants were identified over relevant screening criteria, however investigation to date are considered prelim based on the distribution of testing points undertaken. .
	Buildings and infrastructure	Chemical Attack	Likely	Minor	**Low** Foundations and utilities will be placed within natural soils. However, locally and deeper areas of Made Ground and/or aggressive soils may be present.
	Groundwater	Vertical & Lateral Migration	Likely	Minor	**Low** The Horsham Stone Member beneath the site is classified as Secondary A Aquifer. However, the Weald Clay Formation which is beneath the majority of the site is classified as Unproductive Strata. The site is not located in a SPZ. Mobile contamination has not been identified on site to date.
	Surface water	Vertical & Lateral Migration	Likely	Minor	Low Surface water was identified on-site in the form of small ponds, drainage ditches and streams. Testing to ascertain a baseline pre-construction will be required, during and post

Potential Source/media	Potential Receptors	Potential Pathways	Likelihood	Severity	Risk and Justification
					construction. Mobile contamination on site has not been identified to date.
Historic Landfill/Land Raise Deposits, Infilled Railway Line and Unknown Tanks	End users	Direct Contact, Inhalation	Likely	Minor	**Low** No contaminants were identified over relevant screening criteria, however investigation to this point is minimal.
	Soft Landscaping	Root Uptake	Likely	Minor	**Low** No contaminants were identified over relevant screening criteria in this area, however investigation to date are considered prelim based on the distribution of testing points undertaken. .
	Adjacent land users	Direct Contact, Inhalation	Unlikely	Minor	**Very Low** Adjacent site users are unlikely to come into contact with affected soils on site. No contaminants were identified over relevant screening criteria in this area, within investigation to date.
	Water supply pipes	Chemical Attack	Likely	Minor	**Low** No contaminants were identified over relevant screening criteria, however investigation to date are considered prelim based on the distribution of testing points undertaken. .
	Buildings and infrastructure	Chemical Attack	Likely	Minor	**Low** Foundations and utilities will be placed within natural soils. However, locally deeper areas of Made Ground and/or aggressive soils may be present.
	Groundwater	Vertical & Lateral Migration	Likely	Minor	**Low** The Horsham Stone Member beneath the site is classified as Secondary A Aquifer. However, the Weald Clay Formation which is beneath the majority of the site is classified as Unproductive Strata. Mobile contamination on site has not been identified to date.
	Surface water	Vertical & Lateral Migration	Likely	Minor	**Low** Surface water was identified on-site in the form of small ponds,

Potential Source/media	Potential Receptors	Potential Pathways	Likelihood	Severity	Risk and Justification
					drainage ditches and streams. Testing to ascertain a baseline pre-construction will be required, during and post construction. Mobile contamination on site has not been identified to date.
Naturally occurring chemical ground conditions that could affect end users or construction materials	End users	Direct Contact	Unlikely	Minor	**Very Low** Future users are unlikely to come into contact with natural soils beneath the site. No naturally occurring chemical conditions are likely to present harm to end users
	Water supply pipes	Chemical Attack	Unlikely	Minor	**Very Low** Water supply pipes are unlikely to be placed, given the development proposals and analysis to date.
	Buildings and infrastructure	Chemical Attack	Likely	Minor	**Low** The Weald Clay Formation may contain elevated concentrations of sulphate, pyrite, and gypsum. The concrete mix may need to be sulphate resisting.
Ground gases/Vapours	End Users	Inhalation	Unlikely	Minor	**Low** No significant volumes of putrescible material or high concentrations of VOCs from hydrocarbon contamination were identified, however marginally elevated carbon dioxide levels warrant further investigation.
	Adjacent land users	Inhalation	Unlikely	Minor	**Very Low** Adjacent site users are unlikely to be adversely affected by ground gases originating on the site.
	Soft Landscaping	Root Uptake	Unlikely	Minor	**Very Low** Soft landscaping is not expected to be adversely affected by any ground gases.
	Buildings and infrastructure	Gas Accumulation and Potential Explosion of Flammable Gases	Unlikely	Minor	**Very Low** Extensive putrescible material would be necessary in any Made Ground for significant ground gas production, and this is not anticipated. Ground gases are unlikely to affect integrity of building materials.

Table 6.3 Plausible Pollutant Linkages & Qualitative Risk Assessment for the Main Site

North Site

Potential Source/media	Potential Receptors	Potential Pathways	Likelihood	Severity	Risk and Justification
Made Ground and shallow soils	End users	Direct Contact, Inhalation	Unlikely	Minor	**Very Low** Future users are unlikely to come into contact with soils via direct contact, given the proposed development plans.
	Soft Landscaping	Root Uptake	Likely	Minor	**Low** Very limited soft landscaping is likely to be included within the proposed development.
	Adjacent land users	Direct Contact, Inhalation	Unlikely	Minor	**Very Low** Adjacent site users are unlikely to come into contact with any affected soils on site.
	Water supply pipes	Chemical Attack	Unlikely	Minor	**Very Low** Water supply pipes are unlikely to be placed as part of the development as a car park.
	Buildings and infrastructure	Chemical Attack	Likely	Minor	**Low** Foundations for infrastructure and utilities will be placed within natural soils. however, locally deeper areas of Made Ground may be present.
	Groundwater	Vertical & Lateral Migration	Likely	Minor	**Low** The Horsham Stone Member beneath the site is classified as Secondary A aquifer. However, the Weald Clay Formation which is beneath the majority of the site is classified as unproductive strata.
Historic Landfill	End users	Direct Contact, Inhalation	Unlikely	Minor	**Very Low** No contaminants were identified over relevant screening criteria in this area; however, investigation has been minimal.
	Soft Landscaping	Root Uptake	Likely	Minor	**Low** No contaminants were identified over relevant screening criteria in this area, however investigation to this point is

Potential Source/media	Potential Receptors	Potential Pathways	Likelihood	Severity	Risk and Justification
					minimal.
	Adjacent land users	Direct Contact, Inhalation	Unlikely	Minor	**Very low** Adjacent site users are unlikely to come into contact with affected soils on site.
	Water supply pipes	Chemical Attack	Unlikely	Minor	**Very Low** Water supply pipes are unlikely to be placed as part of the development as a car park.
	Buildings and infrastructure	Chemical Attack	Likely	Minor	**Low** Foundations for infrastructure and utilities will be placed within natural soils. however, locally deeper areas of Made Ground may be present.
	Groundwater	Vertical & Lateral Migration	likely	Minor	**Low** The Horsham Stone Member beneath the site is classified as Secondary A aquifer. However, the Weald Clay Formation which is beneath the majority of the site is classified as unproductive strata.
Off-site Railway Infrastructure, Tank and Historic Laundry	End users	Direct Contact, Inhalation	Unlikely	Minor	**Very Low** Future users are unlikely to come into contact with impacted soils via direct contact within soft landscaping.
	Soft Landscaping	Root Uptake	Unlikely	Mild	**Very Low** Limited areas of soft landscaping are likely to be included within the proposed development. Off-site potential sources of contamination are unlikely to affect soft landscaping.
	Water supply pipes	Chemical Attack	Unlikely	Minor	**Very Low** Water supply pipes are unlikely to be placed as part of the development proposals.
	Buildings and infrastructure	Chemical Attack	Unlikely	Minor	**Very Low** Foundations for infrastructure and utilities will be placed within natural soils. however, off-site sources are unlikely to affect

Potential Source/media	Potential Receptors	Potential Pathways	Likelihood	Severity	Risk and Justification
					ground conditions in this respect.
	Groundwater	Vertical & Lateral Migration	Likely	Minor	**Low** The Horsham Stone Member beneath the site is classified as Secondary A aquifer. However, the Weald Clay Formation which is beneath the majority of the site is classified as unproductive strata.
Naturally occurring chemical ground conditions that could affect end users or construction materials	End users	Direct Contact	Unlikely	Minor	**Very Low** No naturally occurring potential sources which could harm human health have been not been identified to date.
	Water supply pipes	Chemical Attack	Unlikely	Minor	**Very Low** Water supply pipes are unlikely to be placed, given the development proposals.
	Buildings and infrastructure	Chemical Attack	Likely	Minor	**Low** The Weald Clay Formation may contain elevated concentrations of sulphate, pyrite, and gypsum. The concrete mix may need to be sulphate resisting. The results of the sulphate and pH analysis undertaken on samples of the Weald Clay indicated the soil samples tested to have water soluble sulphates within design sulphate (DS) class DS-1 of BRE special digest 1. An aggressive environment for concrete (ACEC) classification of AC-1s is deemed appropriate for foundations within this stratum.
Ground gases/Vapours	End Users	Inhalation	Unlikely	Medium	**Low** No significant volumes of putrescible material or high concentrations of VOCs from hydrocarbon contamination were identified, however marginally elevated carbon dioxide levels warrant further assessment and investigation.
	Adjacent land users	Inhalation	Unlikely	Minor	**Very Low** Adjacent site users are unlikely to be adversely affected by ground gases originating on the site.
	Soft	Root Uptake	Unlikely	Mild	**Very Low**

Potential Source/media	Potential Receptors	Potential Pathways	Likelihood	Severity	Risk and Justification
	Landscaping				Soft landscaping is not expected to be adversely affected by any ground gases.
	Buildings and infrastructure	Gas Accumulation and Potential Explosion of Flammable Gases	Low likelihood	Minor	**Very Low** No significant volumes of putrescible material or high concentrations of VOCs from hydrocarbon contamination, or exceedances were identified.

Table 6.4 Plausible Pollutant Linkages & Qualitative Risk Assessment for the North Site

The PRA and CSM developed from the information gathered as part of the desk study and intrusive investigation process have identified continual plausible potential pollutant linkages that exist in relation to the proposed redevelopment of the site.

It is considered that based on the preliminary information and in lieu of further robust testing and monitoring the overall risk from potential contamination on the wider site is preliminary assessed to be 'very low' to 'low'.

7.0 DISCOVERY STRATEGY

Whilst an intrusive investigation has been undertaken on the site, it remains possible that unexpected soil conditions may be encountered during the process of construction.

Should previously undiscovered contamination or unforeseen ground conditions be encountered during construction by the ground worker's, this must be reported to the site manager immediately in order that the consultant is notified. Where deemed necessary, the consultant shall attend the site to inspect the unexpected soil conditions and provide recommendations on the further actions required, if any. Where necessary the regulatory authority must be informed. Post any additional investigation or laboratory testing the results and any proposed remedial measures must be reported to the regulatory authority for consent, before proceeding or implementing the remedial measures.

A copy of the discovery strategy must be lodged on site, and provisions made to ensure that all workers are made aware of their responsibility to observe, report, and act on any potentially suspicious, unforeseen, or contaminated soils they may encounter.

Depending on the type, nature, and extent of any such 'discovery', it may be necessary to halt works in that location until such time as the assessment has been completed. This must be reviewed on a 'discovery' specific basis and in conjunction with regulatory consultation.

As a general guide, where such unexpected conditions are encountered the following approach is recommended:

- All discoveries are to be reported to the Site Manager immediately and works at that location are to halt until further notice.
- The Site Manager is to report any such discoveries to the Client and the Consultant.
- Following notification from the Site Manager, the Consultant shall discuss the discovery with the Local Authority and if considered necessary, arrange to meet an Officer on site to view the discovery.
- The Consultant shall attend the site to record the location, extent and nature of the discovery and implement an appropriate sampling and analysis regime, taking due account of the type and nature of the discovery, known and probable land uses in that area of the site.
- Where remedial action is required, regulatory consultation and approval will be sought.
- A record will be produced by the Consultant and held on site (with copies held by the Consultant, Client, and Local Authority), detailing the discovery, assessment works undertaken, findings thereof, confirmation either of no action required or detailing the remedial action taken and validation thereof.

The process is shown below.

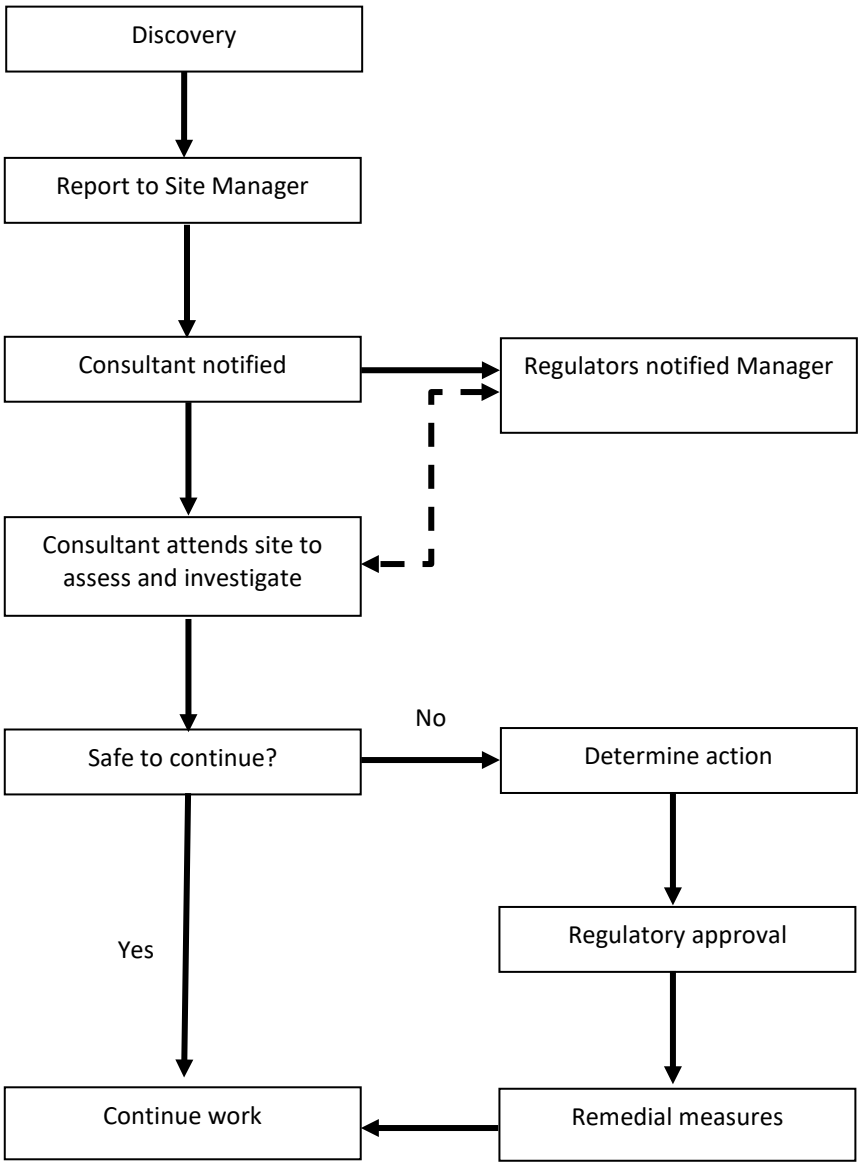


Chart 1 Discovery Strategy Flowchart

FIGURES

General Notes

The contractor is responsible for checking dimensions, tolerances and references. Any discrepancy to be verified with the Architect before proceeding with the works. Where an item is covered by drawings to different scales the larger scale drawing is to be worked to.

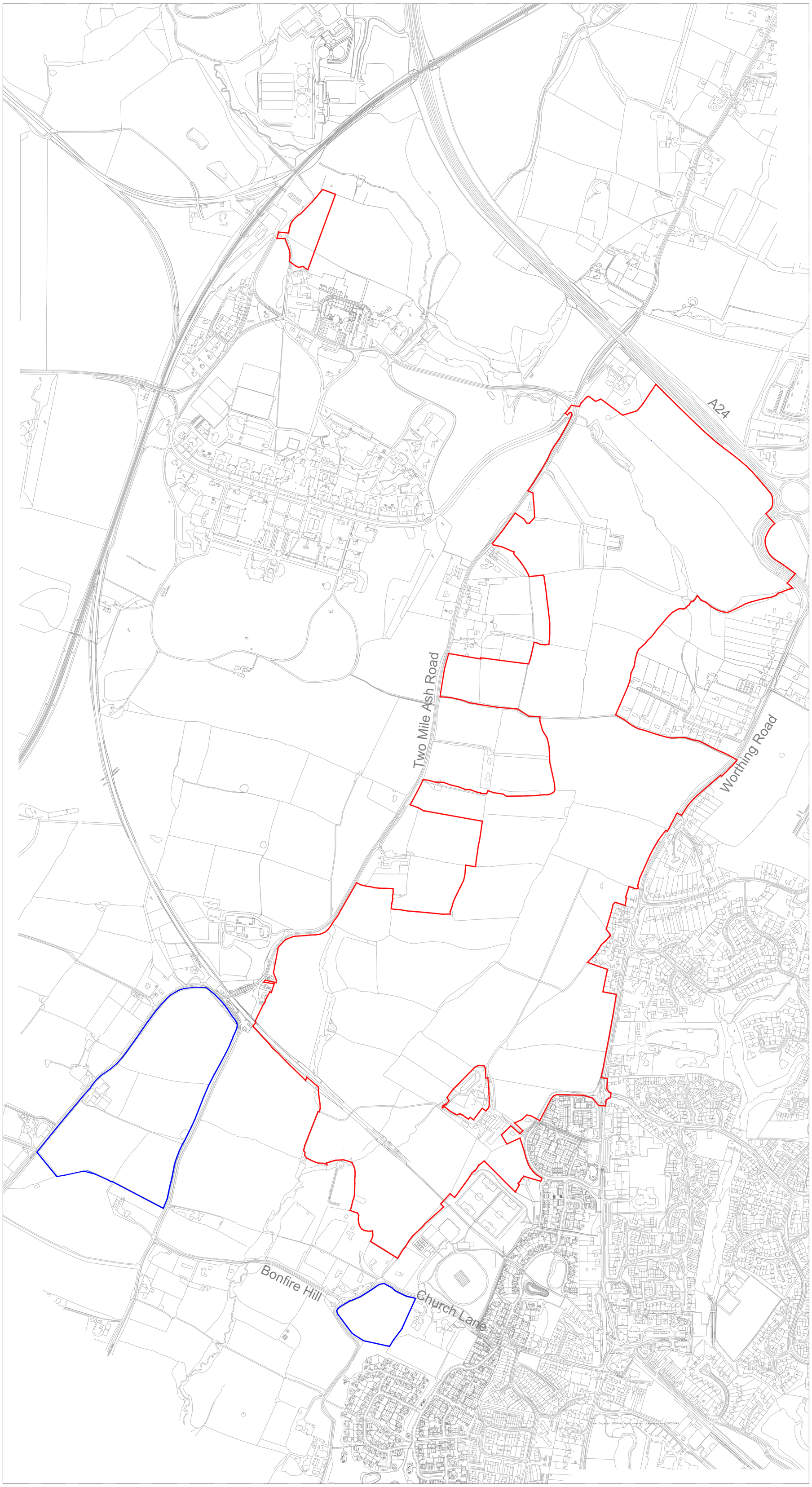
Do not scale drawing. Figured dimensions to be worked to in all cases.

CDM REGULATIONS 2015. All current drawings and specifications for the project must be read in conjunction with the Designer's Hazard and Environment Assessment Record.

Key

Proposed application boundary

Potential BNG land



REV	DATE	NOTES	INT
F	20.01.2026	Issued for Information	BF

STATUS
Planning

PROJECT TITLE
Land North West of Southwater

DRAWING TITLE / LOCATION
Site Boundary Plan

DRAWN BY	CHECKED	SCALE
BF	SK	1:5000 @ A1

PROJECT	DRAWING NUMBER	REVISION
A019	0005	F

KPK Studios Limited, London