



For: NEXUS ST.MARKS CHURCH LTD

TERM Engineering Ref: 1064/1

Date: July 2025

Brook Hey Drive, Knowsley

Phase 1 Geo-Environmental Investigation

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1.0 INTRODUCTION

This Phase 1 geo-environmental ground investigation and report has been prepared by TERM Engineering for NEXUS ST.MARKS CHURCH LTD. This Phase 1 Geo-environmental Investigation Report is to be used for submission to the Local Authority as part of the planning application for a single residential dwelling as shown on the drawings in Appendix 6.

A previous intrusive site investigation has been carried out on part of the proposed site, including chemical testing of soil samples. Results from this SI are included in this report.

2.0 BRIEF

The site area is shown on the site plans contained in Appendix 1. The investigation was to include the following:

- a) Assess the probable ground conditions and contaminated land conditions on and below the site based on existing and detailed historic on-site and relevant off-site activities.
- b) Identify probable contaminants/sources of contamination that may be present at the site using current contaminated land guidance and develop a conceptual site model for potential human health and controlled waters receptors.
- c) Undertake a Preliminary Risk Assessment – which will determine the requirement for further environmental (contaminated land) investigation and assessment.
- d) Design based on the anticipated ground conditions, appropriate geotechnical site investigation works, and discuss potential development issues i.e., subsurface features – obstructions, compressible ground, faulting, mineral extraction, mining, and land instability.

A summary of the information/data sources is detailed in Section 5.2.

3.0 LIMITATIONS OF INVESTIGATION WORK AND REPORT

Desk Study References

For the work, reliance has been placed on publicly available data obtained from the sources identified. The information is not necessarily exhaustive and further information relevant to the site may be available from other sources. When using the information, it has been assumed that it is correct. No attempt has been made to verify this information. New information, revised practices or changes in legislation may necessitate the re-interpretation of the report, in whole or in part.

The desk study has been produced using historical Ordnance Survey maps and environmental maps available at the time the report has been produced. The environmental information used was the current information available at the time of writing but there is no absolute guarantee of accuracy.

Historical Ordnance Survey maps do not provide a comprehensive description of a site history. They provide details of the site from a date prior to the publication of the map (i.e. a snapshot in time). The period between map editions can be substantial (i.e. several decades). Not all map series are available for every date range in many areas of the UK and therefore there will be gaps in this mapped record for some sites. Potentially contaminative land uses could have been present and removed during such periods and may therefore not form a part of this particular record. In addition, there will be potentially contaminative land uses which are not identified on the map records such as small scale storage / use of hazardous materials, illegal / unlicensed waste disposal activities etc.

Different map series identify different features utilising different symbols which can result in features that remain on site being removed from maps. Some features are also not mapped for security reasons i.e. airfields and other military installations. These areas are mostly shown as blank areas on historical maps.

Extent of Contamination Studies

This report is strictly limited to the nature of contamination contained within the ground and groundwater at the site. The report does not cover environmental aspects such as air or noise pollution and ground vibrations and the like. In addition, ecological matters relating to wildlife, flora and fauna have not been investigated as part of this report. In particular, the site has not been inspected for the presence or otherwise of invasive species e.g. Japanese Knotweed. It is recommended that the Client appoints a specialist in this subject to carry out a detailed inspection / survey of the site if its presence is suspected.

Site sensitivity assessments have been made based on available information at the time of writing and are ultimately for the decision of the regulatory authorities.

The conclusions and recommendations sections of the report provide an overview and guidance only and should not be specifically relied upon without considering the context of the report in full. The conclusions resulting from this study are not necessarily indicative of future conditions or operating practices at or adjacent to the site.

4.0 THIRD PARTIES

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5.0 SCOPE OF INVESTIGATION WORK

5.1 Walkover Survey

The site was visited on 24th March 2025 during warm and dry weather conditions. The objectives of the site walkover were, where applicable :

- to identify and assess visual and olfactory evidence of contamination e.g. staining of concrete/soils, odours, presence of gas protection measures etc;
- to identify locations of potential sources of contamination and assess their conditions i.e. tank location, presence/condition of secondary containment/bunds, location of fill points, and process areas;
- to identify surrounding land uses and any potentially contaminating activities;
- to identify/verify the presence of potential receptors (on- and off-site) which may be affected by identified sources;
- to assess site access and potential investigation locations and constraints; and
- to assess any visual subsurface geotechnical features/anomalies e.g. foundations, made ground, subsidence etc. Photographs were taken of the site during the walkover survey and these photographs are contained in Appendix 2.

5.2 Documentation

The following documents were obtained and examined during the desk study :

- a) An aerial photograph of the site dated 1947
- b) Historical Ordnance Survey maps obtained from [Map Finder - with Outlines - National Library of Scotland \(nls.uk\)](https://www.nls.uk). These maps are contained in Appendix 3. The maps were published as follows:

Date of Publication
1917
1925
1956
1962
1966

- c) A site investigation report for part of the site carried out by Earth Environmental and Geotechnical Ltd in September 2020 which included 6 window samples.

- Environmental Permits, Incidents and Registers map;
- Landfill and other Waste Sites map;
- Current Land Use map;
- Hydrogeology and Hydrology maps;
- Environment Agency flood maps;
- Designated Environmentally Sensitive Sites map;

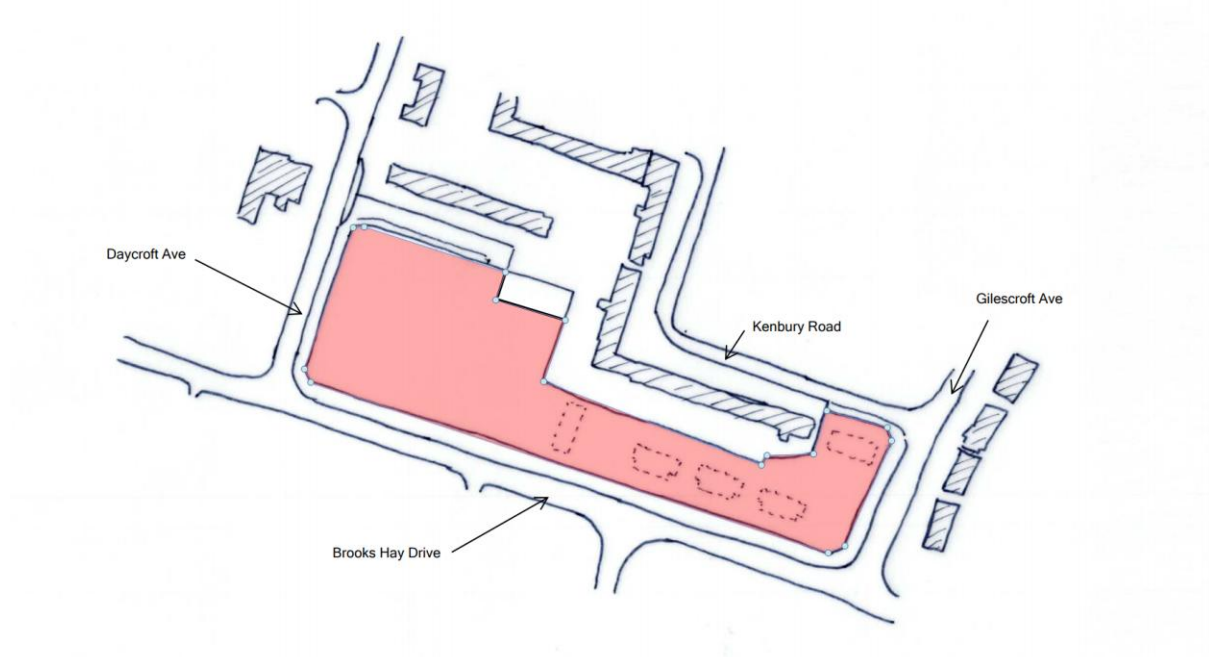
- Geological maps;
- Ground Workings map;
- Mining, Extraction & Natural Cavities map;
- Natural Ground Subsidence maps;
- Borehole Records map;
- Railways and Tunnels map.

The Indicative Atlas of Radon in England and Wales published by the British Geological and the Health Protection Agency was examined to assess the probable presence or otherwise of radon gas in the ground.

6.0 FINDINGS

6.1 Description of the Site

The approximately 6550 m² is located on the North side of Brook Hey Drive, Knowsley. It is bounded by Brook Hey Drive to the South, Gilescoft Avenue to the East, Deycroft Avenue to the West and Daycroft Walk and Kenbury Road to the North. It was formally occupied by the St Marks Church on the West of the site, which has been demolished. On the East side of the site there are 5 partially constructed residential buildings. The location is shown on the site location plans in Appendix 1.



6.2 Walkover Survey

The site is generally flat. There are areas of concrete hardstanding in the location of the former church on the Western end of the site. No external hardstanding appears to have been completed for the 5 partially constructed buildings to the East of the site.

During the walkover survey, no visual or olfactory evidence of contamination was noted.

Photographs taken during the walkover survey, together with a plan indicating the location and direction of the photographs are contained in Appendix 2.

6.3 Site History

The site development history has been researched by reference to historical maps and aerial photographs. The historical maps are included in Appendix 3 to this report.

The off-site and on-site history are summarised together below. The off-site history has been limited to a 100m radius from the site. Images of pertinent times in the site's history are also included below.

Dates	On-Site history	Off-Site History
1849	The site forms part of the farmland associated with a farm building to the North. There is an open watercourse to the South, in the current location of Brook Hay Drive, flowing to the West. The Railway line to the North has been constructed	There is an open watercourse to the South, in the current location of Brook Hey Drive, flowing to the West. The Railway line to the North has been constructed. A Water Works (identified as a pumping station as part of the St Helens Corporation Water Works on later maps) is shown around 500m West of the site.
1928	The site remains unchanged. The Farm to the North is identified as Jarret's Farm	The local area remains unchanged
1956	The site remains unchanged	The large industrial estate around 500m to the East of the site is shown under construction. This is shown in an aerial photo dated 1947 as well.
1962	The site and surrounding areas are shown developed with terraced housing and St Mark's Church.	The surrounding streets have been laid out and developed as they currently are. The watercourse to the south of the site has been culverted and Brook Hey Drive constructed
1966	The site remains unchanged	The site remains unchanged

6.3.1 Archaeology

Historic England does not note the site as being of any special archaeological interest.

6.4 Mining

There are no areas of coal or non-coal mining, gypsum extraction, brine extraction, tin mining or clay mining within 1km of the site.

The closest area of historical mining is 487m to the South of the site dated 1907 and 1928

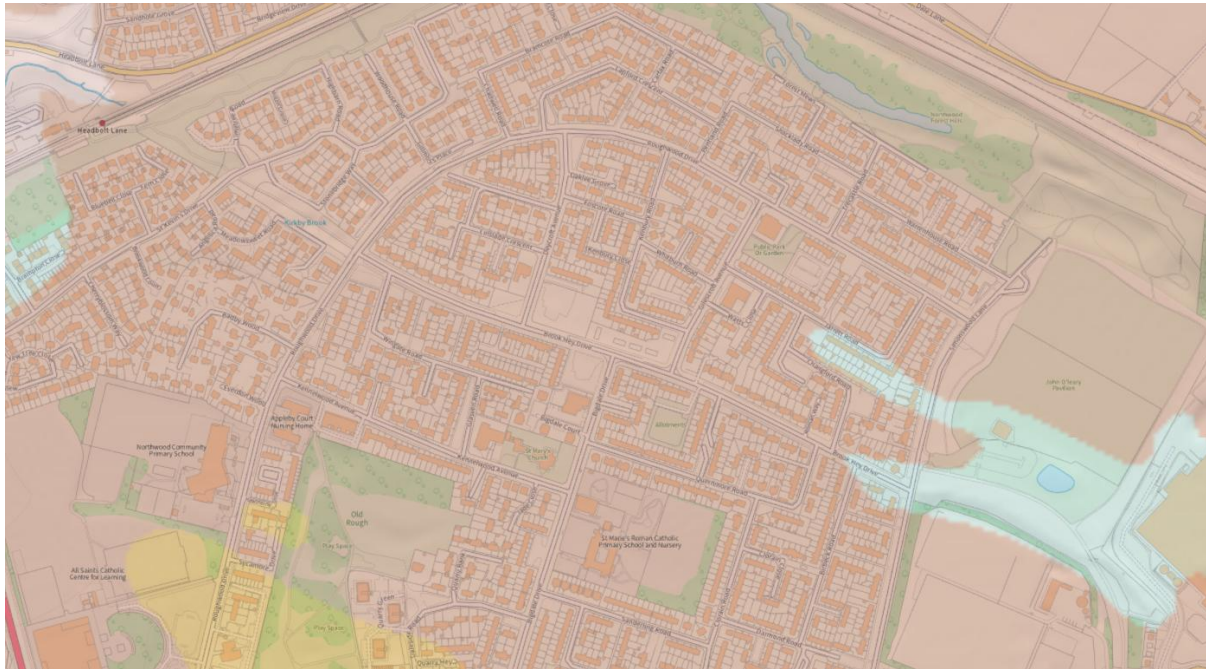
There are no mining or natural cavities identified within 1 km of the site

No underground tunnels are identified within 250m of the site.

6.5 Geology

6.5.1 BGS Geological Map

Geological information available from the British Geological Society (BGS) indicates the local geology will consist of made ground overlying sands, overlying sandstone bedrock. The closest borehole log to the site suggests the sandstone will be around 10m below ground level.



6.5.2 Site investigation

A site investigation comprising 6 No. 6m deep window samples was carried out on the Eastern end of the site, and it was found that there were varying layers of made ground, sands, and peat overlaying a layer of Clay. See the location plan and table below.



Locations of window samples carried out in 2020

Table 3: Summary of Ground Conditions Encountered

Hole	Depth to Stratum (m bgl)				GROUNDWATER (m bgl)
	MADE GROUND	SAND	PEAT	CLAY	
WS01	GL-1.30	1.30-1.95	1.95-2.05	2.05-6.00+	-
WS02	GL-3.50	-	-	3.50-5.00+	-
WS03	GL-1.20	1.20-1.90 2.00-2.30 3.00-4.70	1.90-2.00	2.30-3.00 4.70-5.00+	-
WS04	GL-1.50	-	-	1.50-5.00+	-
WS05	GL-1.50	-	-	1.50-6.00+	-
WS06	GL-0.80	0.80-2.40 2.70-2.90	2.40-2.70	2.90-5.00+	-

No ground water was encountered in any of the window samples during the investigation. The environmental chemistry of the ground was investigated by specialist chemical analysis of samples from the site investigation.

6.5.3 Geohazards

The potential for any issues relating to Ground Stability is regarded as negligible.

6.5.4 Soil Chemistry

The environmental chemistry of the ground was investigated by specialist chemical analysis of samples from the site investigation. The results are discussed below.

To assess the risk of soil contamination to construction and ground workers during development, guidelines from the HSE Document 'Protection of workers and the general public during development of contaminated land'(1991) were used. The document assesses soil contamination test results and classifies the site as being uncontaminated or contaminated with varying degrees of contamination from 'slight' to 'unusually heavy'. The guideline values and laboratory test results are summarised in the following table:

Contaminant	Typical Values* for:					Test Results	Class
	Uncontaminated Soils	Slight Contamination	Contaminated	Heavy Contamination	Unusually Heavy Contamination		
	Class A	Class B	Class C	Class D	Class E		
pH (alkaline)	7 - 8	8 - 9	9 - 10	10 - 12	12	7.9 - 8.1	A - B
Arsenic	0 - 30	30 - 50	50 - 100	100 - 500	500	<2 - 8	A
Cadmium	0 - 1	1 - 3	3 - 10	10 - 50	50	< 0.2 - 0.3	A
Chromium	0 - 100	100 - 200	200 - 500	500 - 2500	2500	5 - 11	A
Copper	0 - 100	100 - 200	200 - 500	500 - 2500	2500	13 - 33	A
Lead	0 - 500	500 - 1000	1000 - 2000	2000 - 1%	1.0%	11 - 29	A
Mercury	0 - 1	1 - 3	3 - 10	10 - 50	50	< 1	A
Nickel	0 - 20	20 - 50	50 - 200	200 - 1000	1000	4 - 8	A
Zinc	0 - 250	250 - 500	500 - 1000	1000 - 5000	5000	23 - 219	A
Boron	0 - 2	2 - 5	5 - 50	50 - 250	250	< 1	A
Selenium	0 - 1	1 - 3	3 - 10	10 - 50	50	< 3	A
Barium	0-500	500-1000	1000-2000	2000-1.0%	1.0%	25 - 321	A
Beryllium	0 - 5	5 - 10	10 - 20	20 - 50	50	< 0.5	A
Vanadium	0 - 100	100 - 200	200 - 500	500 - 2500	2500	4 - 12	A
Sulphate	0 - 2000	2000 - 5000	5000 - 1%	1% - 5%	5.05%	<200 - 5637	A - C
Sulphide	0 - 10	10 - 20	20 - 100	100 - 500	500	< 5	A
Cyanide (free)	0 - 1	1 - 5	5 - 50	50 - 100	100	< 2	A
Phenol	0 - 2	2 - 5	5 - 50	50 - 250	250	< 2	A

Based on the results above it is considered that the risk from contamination to groundworkers and members of the public during development is low.

A Human Health Soil Assessment for future site users was carried out based on the proposed development type. The following table compares the results of contamination analyses to residential types of end development as specified by Defra/LQM/CIEH. As part of the contamination assessment, the chemical results obtained by EEG have been screened against accepted compliance criteria, namely:

- Defra C4SL Health Criteria Values (March 2014), where available; and
- Tier 1 assessment values - based on LQM/CIEH Sutable 4 Use Levels(2015) (S4ULs).

Table 11: Soil Results Comparison with C4SL/S4UL Values

Determinand	C4SL/S4UL Levels Residential (mg/kg)	WS01 0.45m	WS02 2.00m	WS03 1.00m	WS05 0.85m	WS06 0.50m	No of Exceedances
Metals							
Arsenic	37	8	5	5	5	< 2	0
Beryllium	1.7	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	0
Boron	290	< 1	< 1	< 1	< 1	< 1	0
Cadmium	22	< 0.2	< 0.2	0.2	0.3	< 0.2	0
Chromium	910	10	9	6	11	5	0
Chromium VI	21	< 2	< 2	< 2	< 2	< 2	0
Copper	2400	15	15	16	33	13	0
Lead	200	29	17	20	28	11	0
Mercury	1.2	< 1	< 1	< 1	< 1	< 1	0
Nickel	180	6	8	5	7	4	0
Selenium	250	< 3	< 3	< 3	< 3	< 3	0
Vanadium	410	12	10	7	7	4	0
Zinc	3700	219	25	58	58	23	0
Polycyclic Aromatic Hydrocarbons							
Naphthalene	2.3	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0
Acenaphthylene	210	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0
Acenaphthene	170	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0
Fluorene	170	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0
Phenanthrene	95	< 0.1	< 0.1	< 0.1	0.13	< 0.1	0
Anthracene	2400	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0
Fluoranthene	280	0.21	< 0.1	0.17	0.2	0.12	0
Pyrene	620	0.22	< 0.1	0.19	0.19	0.13	0
Benzo(a)anthracene	7.2	0.17	< 0.1	< 0.1	< 0.1	< 0.1	0
Chrysene	15	0.13	< 0.1	< 0.1	< 0.1	< 0.1	0
Benzo(a)pyrene	5	0.34	< 0.1	< 0.1	< 0.1	< 0.1	0
Benzo(b)fluoranthene	2.6	0.33	< 0.1	< 0.1	< 0.1	< 0.1	0
Benzo(k)fluoranthene	77	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0
Indeno(1,2,3-cd)pyrene	27	0.19	< 0.1	< 0.1	< 0.1	< 0.1	0
Dibenz(a,h)anthracene	0.24	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0
Benzo(ghi)perylene	320	0.21	< 0.1	< 0.1	< 0.1	< 0.1	0
Phenols							
Phenol	280	< 2	< 2	< 2	< 2	< 2	0
Concentrations in red are above the assessment criteria based on Residential End Use with Plant Uptake.							

None of the above samples exceeded the screening criteria for a Residential End Use with Plant Uptake, and so the risk from contamination to future site users is determined to be Low.

Soil Waste Assessment: 5 samples tested classified as Non-Hazardous. However, in WS05 Asbestos was encountered. An Asbestos Management Plan was required as sample WS05 is Hazardous (0.274% Asbestos), and the ground is classified as Hazardous Waste. Further testing will be required to determine if the asbestos has been removed from the site, or determine the extent of asbestos on the site if not.

6.6 Hydrology and Hydrogeology

Environmental data relevant to the site and its immediate surrounding area has been obtained from sources available in the public domain. The site is shown as being in an area of very low risk for flooding from Rivers and the Sea, Reservoirs, and surface water flooding.

There are no recorded surface water features on the site. To the South of the Site, the former surface watercourse runs within a concrete culvert and now forms part of the surface water drainage system to the surrounding area.

6.7 Hazardous Installations, Landfill and Waste

The following information relating to hazardous installations, landfill and waste obtained from published information and the walkover survey can be summarised as follows:

Data Type	Details
Environment Agency Recorded Landfill Sites	The closest landfill site record is 800m Northeast of the site at Simonswood Industrial Estate
EA Landfill Data Record	There is 1 EA landfill data record, 855m East of the site at Marl Road, Kirkby
EA Licensed waste sites	There are 31 licensed waste sites within 1.5km of the site, the closest being a <25000 tonnes treatment of waste to produce soil site, 889m North of the site
Potentially infilled land	There are 20 records of historically infilled land within 500m of the site, the closest being a pond 155m North of the site
Industrial Land Use	There are 4 records of potential contaminative industrial sites within 250m of the site, the closest being an electricity substation 19m to the South. The closest historical tank was 281m Northwest, dated 1962. The closest petrol site is 492m south of the site.

Environmental permits, incidents and registers within 500m of the siter are summarised below

Historic IPC Authorisations	None
Part A (1) and IPPC Authorised Activities	None
Red List Discharge Consents	None
List 1 Dangerous Substances Inventory Sites	None
List 2 Dangerous Substances Inventory Sites	None
Part A (2) and Part B Activities and Enforcements	None
Category 3 or 4 Radioactive Substance Authorisations	None
Licensed Discharge Consents	None
Water Industry Referrals	None
Planning Hazardous Substance Consents and Enforcements	None
Dangerous or Hazardous (COMAH and NIHHS) Sites	None
National Incidents Recording System (Pollution Incidents), List 2	2
National Incidents Recording System (Pollution Incidents), List 1	None
Sites Determined as Contaminated Land under Part 2A EPA1990	None

The NIRS List 2 records are for

- i) 22 Oct 2002, 491m southeast of the site, unidentified oil pollutant had a minor water impact
- ii) 01 Nov 2002, 492m southeast of the site, unidentified oil pollutant had a minor water and land impact

6.8 Radon

The Indicative Atlas of Radon in England and Wales produced by the Health Protection Agency and British Geological Survey indicates that the site lies within an low probability area of less than 1% of homes above the action level. The building regulations do not require any radon protection measures to be included in the design of the new building.

6.9 UXO

Bomb risk maps suggest that there is a Low Risk of Unexploded Ordnance (UXO) Threat, therefore a detailed assessment is not required.

7.0 CONCLUSIONS

7.1 General

The site is situated in an area historically used as farmland, which has over the last 70 years been converted to an area of suburban housing. Historically, there have been residential terraced houses and a church on the site. These have since been removed. 5 sets of semi-detached houses have been partially constructed on the Eastern end of the site. These are open to the elements, and one has been severely damaged by fire.

7.2 Geotechnical and Geology

The anticipated ground conditions in the eastern site section are:

TOP SOIL: a build-up of decaying organic matter as a result of the site being left overgrown with vegetation underlain by:

ALLUVIUM and MADE GROUND comprising clay, sand, silt and gravel, underlain by;

CLAY a layer of impermeable clay, the top level of which ranges from 1.5 to 5m below ground level, underlain by

- SANDSTONE bedrock

Potential geotechnical hazards based on the expected ground conditions that may require further consideration at the site are outlined below:

Factors	Remarks	Considerations	Risks
Top Soil/Alluvium	BGS records show a significant thickness of alluvium.	The foundations of the new building will need to take the underlying bearing strata into account in the design. Given the age and size of the surrounding housing stock, this is unlikely to be a significant issue.	LOW
Utility Infrastructure	Underground utility infrastructure may exist beneath the site. Relating to the unfished development or historic development of the site.	Underground utility infrastructure, which may be live, may have easements, restricting access for subsurface investigations and other engineering works. Diverting such infrastructure can be costly, and some, such as main sewers, cannot be diverted and instead impose development constraints	LOW

7.3 Contaminated Land Legislative Framework

Environmental risks are assessed in accordance with Contaminated Land (England) (Amendment) Regulations (2012), Part IIA of the Environmental Protection Act 1990, and Environmental Protection Act 1990: Part 2A Contaminated Land Statutory Guidance, DEFRA (2012). Part IIA provides a statutory definition of contaminated land. To fall within this definition, it is necessary that, as a result of the condition of the land, substances may be present on or under the land such that:

- (a) Significant harm is being caused or there is a significant possibility of such harm being caused; or
- (b) Significant pollution of controlled waters is being caused, or there is a significant possibility of such pollution being caused.

Risk from contamination is assessed by consideration of possible linkages between contaminant sources and potential receptors that could be harmed or polluted and the potential pathways between them – known as the Contaminant Linkage. For a risk of pollution or environmental harm to occur as a result of ground contamination, all of the following elements must be present:

- A source - a substance that is capable of causing pollution or harm;
- A receptor - something which could be adversely affected by the contaminant; and
- A pathway - a route by which the contaminant can reach the receptor.

If one of these elements is absent, there can be no significant risk. If all are present, then the magnitude of the risk is a function of the magnitude and mobility of the source, the sensitivity of the receptor, and the nature of the migration pathway.

The Environment Agency Contaminated Land Report CLR 11 Model Procedures for the Management of Land Contamination provides the technical framework for structured decision making about land contaminations. CLR 11 advocates a phased approach to risk assessment comprising:

- Preliminary Risk Assessment (PRA) - desk study and qualitative assessment;
- Generic Quantitative Risk Assessment (GQRA) - assessment of contaminant concentrations against generic assessment criteria; and Integra Consulting Phase 1 Geo-Environmental Investigation Page 44 April 2018
- Detailed Quantitative Risk Assessment (DQRA) - detailed site-specific risk assessment and development of site-specific assessment criteria.

Each of these phases follows the same basic steps but adds site-specific details and further certainty into the assessment as the stages progress. The basic steps are:

- Hazard Identification and hazard assessment- development or refinement of the source-pathway-receptor conceptual model, and identification of potential pollutant linkages;
- Risk Estimation- qualitative risk estimation predicting magnitude and probability of potential consequences that may arise as a result of a hazard; and
- Risk Evaluation- deciding whether a risk is unacceptable.

The key to the classification is that the designation of risk is based upon the consideration of both:

- (a) the magnitude of the potential consequence (i.e. severity) [takes into account both the potential severity of the hazard and the sensitivity of the receptor]; and
- (b) the magnitude of probability (i.e. likelihood) [takes into account both the presence of the hazard and receptor and the integrity of the pathway].

Generic Quantitative Risk Assessment (GQRA) will utilise generic assessment criteria (GAC) for the purposes of screening allowable concentrations in comparison to the measured site concentrations. The GAC are defined based on the critical receptors identified at the site. Receptors are considered in relation to:

- Human health receptors (e.g. site users) via measured solid concentrations; and
- The water environment (e.g. groundwater and surface water) via measured leachate / water concentrations.

Additional receptors may be relevant depending on the site e.g. flora/fauna, water supply pipes, and buried concrete.

The GAC adopted for the assessment of soils in relation to Human Health is based on published Soil Guideline Values (SGV) in 2009 for those compounds for which published criteria are available for varying scenarios (residential, commercial, allotment). In the absence of SGVs the following GAC defining documents are adopted - LQM/CIEH S4ULs (2015), CL:AIRE Soil GAC for Human Health Assessment (2010), and Category 4 Screening Levels (C4SL's) (2014).

GACs for waters must be selected to assess potential risks to the identified environmental receptors. There are numerous UK and European guidelines for waters based on the site situation and different receptors. GACs utilised include - The River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2009 (Part 7:Groundwater Threshold Values), UK Drinking Water Standards (2000), Environmental Quality Standards, World Health Organisation concentrations, Environment Agency guidance concentrations and United States Environmental Protection Agency – Region 9 GACs.

7.4 Sources of Contamination and Probable Contaminants

On the basis of the reviewed information, no potential contaminative sources have been identified.

7.5 Conceptual Model for Human Health Risk Assessment

On the basis of the potential determinands, a conceptual model in the form of a linkage table for the purposes of a preliminary risk assessment for human health receptors from these determinands has been established:

Determinands	Pathway	Receptor	Comment	Risk
pH Sulphate Sulphur Sulphide	Direct contact with building fabric and chemical attack on concrete	Building structure and building fabric	Concrete structures in contact with the ground should be designed with a sulphate-resisting concrete mix.	VERY LOW

7.6 Conceptual Model for Ground Gas Risk Assessment

On the basis of the above specified Potential Contaminative Activities, a conceptual model in the form of a linkage table for the purposes of a preliminary risk assessment for ground gas has been established:

Source	Ground Gas	Pathways	Receptors	Comment	Risk
alluvium	Methane Carbon Dioxide Hydrogen Sulphide	Migration, ingress and accumulation Inhalation	Human occupants Building and Structures Site Workers	Unlikely to be a ground gas source. However, isolated organic pockets may be present but ground gas generation is anticipated to be low.	LOW

7.7 Conceptual Model For Controlled Waters Risk Assessment

The alluvium deposits on the site are typically slowly permeable.

On the basis of these identified groundwater regimes, and on the basis of the above specified Potential Contaminative Activities and the associated determinands, a conceptual model in the form of a linkage table for the purposes of a preliminary risk assessment for controlled waters receptors from these determinands has been established:

Sources of Contamination	Pathway	Receptor	Comment	Risk
Metals Semi-metals Inorganics TPH PAHs PCBs pH Sulphate	Migration through ground vertically into aquifer groundwater	Principal Aquifer	Although aquifer groundwater has not been encountered on site, there remains the possibility that it can be found . This is a highly sensitive receptor. Low likelihood of mobile contaminants migrating downwards to the aquifer due to the underlying surface clay deposits, which means it is far more likely that most of the mobile contaminants have been washed out (see below). Also, the proposed development and the increase in drainage will reduce infiltration	LOW
Metals Semi-metals Inorganics TPH PAHs PCBs pH Sulphate	Overland flow Migration through ground laterally	Surface water courses/ponds	Surface water potentially washes out mobile contaminants. This will have been occurring for a significant time and it is unlikely that any contaminants but the most refractory will remain. The proposed development will increase hardstanding and drainage and therefore decrease infiltration and runoff.	LOW

7.8 Preliminary Risk Assessment Summary

Human Health

On the basis of the site's, no specific contaminative sources have been identified. On the basis of the human health conceptual model, a very low risk to end-users, construction workers and the general public has been identified from the likely chemical contaminants and their volatile fractions naturally occurring in the underlying soils.

Ground Gas

Naturally occurring ground gas has been determined to be a Low Risk to the potential receptors

Controlled Waters

The depth of the Principal Aquifer within the sandstone bedrock on-site is unknown, however, this is a highly sensitive receptor. The conceptual site model has identified a low risk to this receptor.

8.0 RECOMMENDATIONS

8.1 As a result of the risks identified, a Phase 2 intrusive environmental ground investigation is required as noted below

- i) Further window samples should be carried out on the Western end of the site, to confirm that the ground conditions and chemical composition of the ground is similar to those encountered on the Eastern end of the site.
- ii) Further window samples should be carried out around the location of WS05 to determine the extent of any remaining buried asbestos in the ground

8.2 The site has been designated a low risk of UXO

8.3 It should be noted that, if any visual or olfactory evidence of contamination is encountered during remediation or construction work, then the Local Authority Environmental Health Officer and Environment Agency should be contacted immediately in order to agree on any necessary remediation measures.

Prepared by Tom Roberts

Issued July 2025

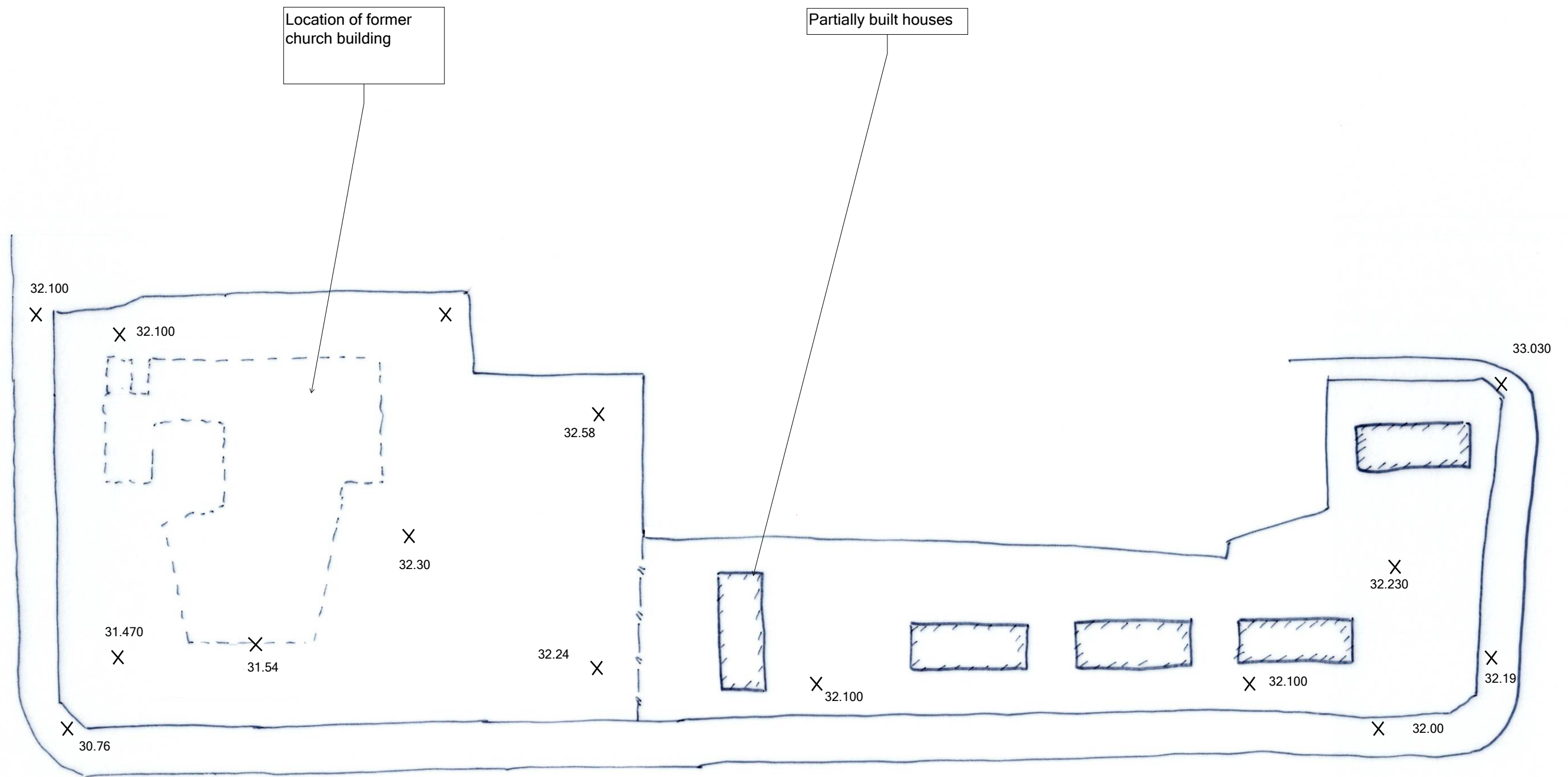
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APPENDIX 1 SITE LOCATION PLANS



Existing Site levels

APPENDIX 2 WALKOVER SURVEY PHOTOGRAPHS AND PHOTOGRAPH LOCATION PLAN

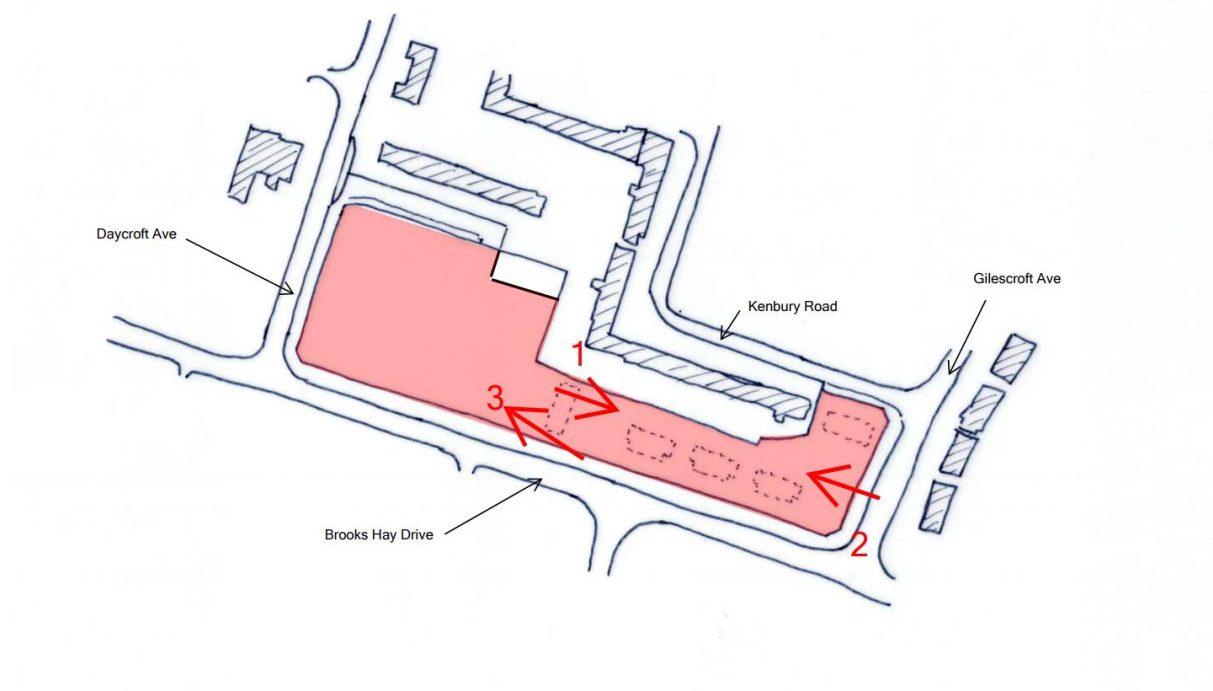


Photo 1



Photo 2

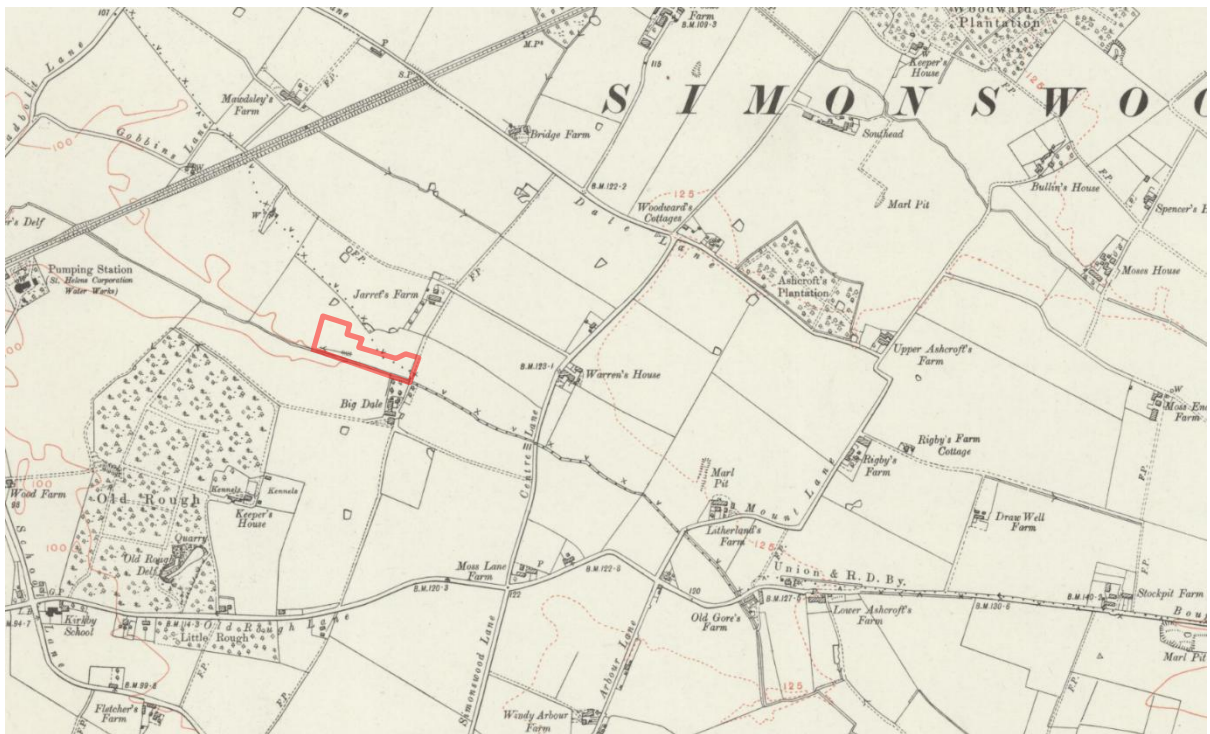


Photo 3

APPENDIX 3 HISTORICAL ORDNANCE SURVEY MAPS AND AERIAL PHOTOGRAPHS



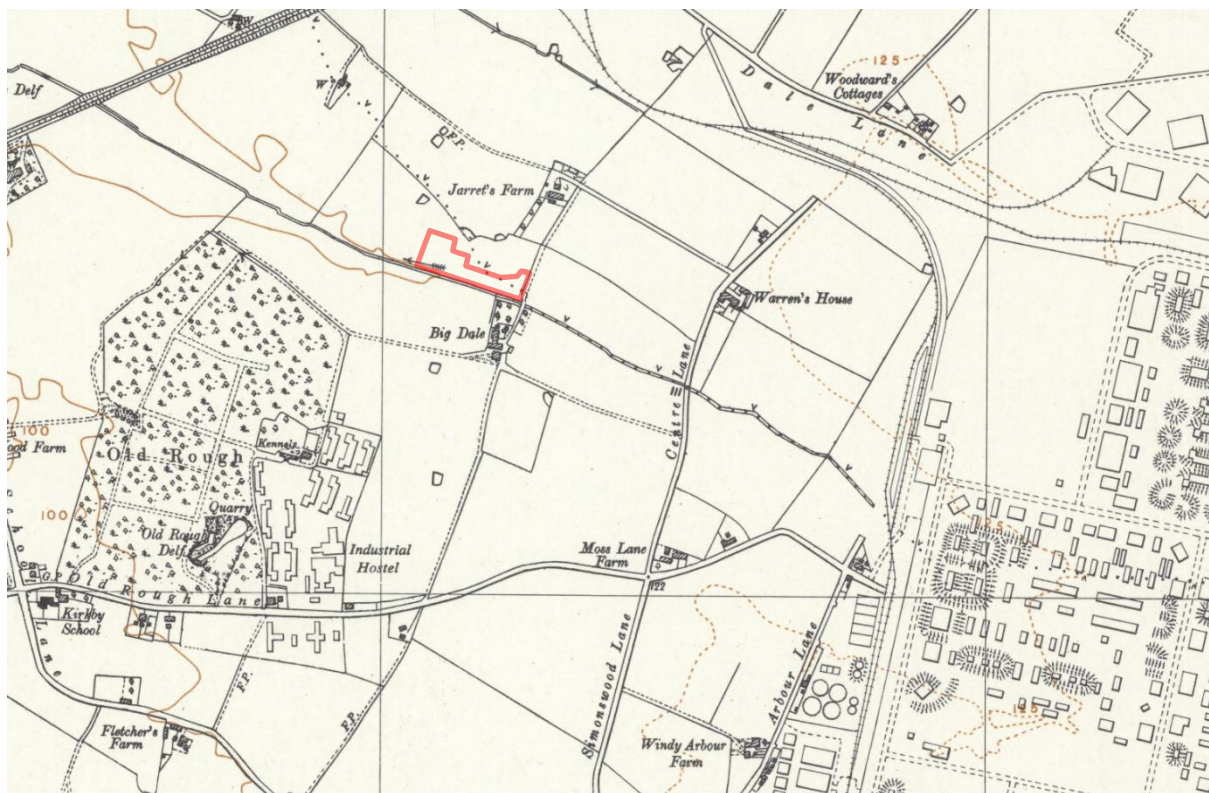
1917



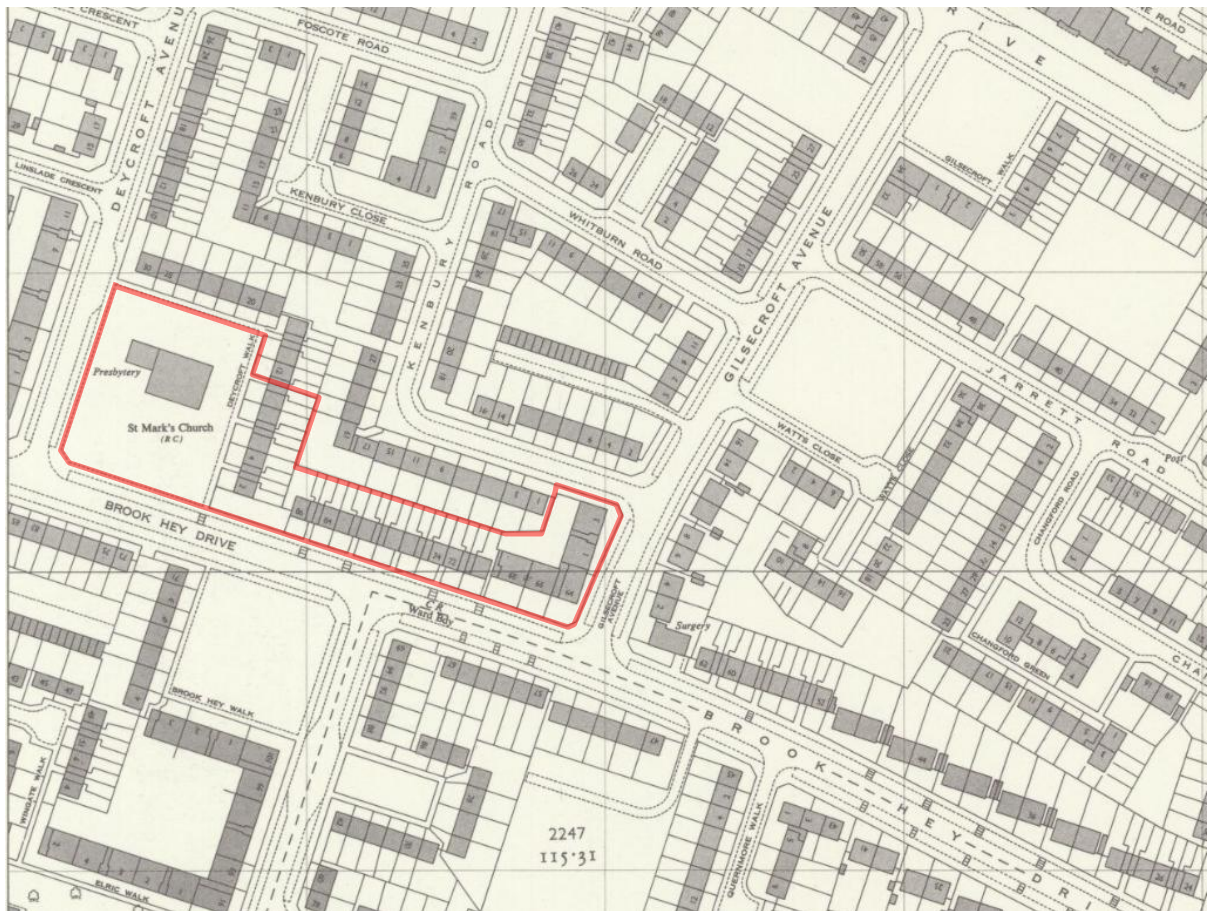
1928



1947



1956



1962



1966



Current arial view

APPENDIX 4 EXTRACTS FOR PREVIOUS SITE INVESTIGATIONS



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DETS Report No: 20-10086

Site Reference: Brook Hey Drive

Project / Job Ref: A3677

Order No: A3677

Sample Receipt Date: 03/09/2020

Sample Scheduled Date: 03/09/2020

Report Issue Number: 1

Reporting Date: 11/09/2020

Authorised by:

A handwritten signature in black ink, appearing to read "Kevin Old".

Kevin Old
General Manager

Dates of laboratory activities for each tested analyte are available upon request.

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Soil Analysis Certificate						
DETS Report No: 20-10086	Date Sampled	28/08/20	28/08/20	28/08/20	28/08/20	28/08/20
Earth Environmental & Geotechnical Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Brook Hey Drive	TP / BH No	WS01	WS02	WS03	WS05	WS06
Project / Job Ref: A3677	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: A3677	Depth (m)	0.45	2.00	1.00	0.85	0.50
Reporting Date: 11/09/2020	DETS Sample No	496286	496287	496288	496289	496290

Determinand	Unit	RL	Accreditation					
Asbestos Screen ^(S)	N/a	N/a	ISO17025	Not Detected	Not Detected	Not Detected	Detected	Not Detected
Sample Matrix ^(S)	Material Type	N/a	NONE				bundles of Amosite fibres	
Asbestos Type ^(S)	PLM Result	N/a	ISO17025				Amosite	
pH	pH Units	N/a	MCERTS	8.1	7.9	7.9	8.0	7.9
Total Cyanide	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2	< 2
Complex Cyanide	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2	< 2
Free Cyanide	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2	< 2
Total Sulphate as SO ₄	mg/kg	< 200	NONE	5637	593	664	425	< 200
Total Sulphate as SO ₄	%	< 0.02	NONE	0.56	0.06	0.07	0.04	0.02
W/S Sulphate as SO ₄ (2:1)	mg/l	< 10	MCERTS	1510	84	31	51	11
W/S Sulphate as SO ₄ (2:1)	g/l	< 0.01	MCERTS	1.51	0.08	0.03	0.05	0.01
Sulphide	mg/kg	< 5	NONE	< 5	< 5	< 5	< 5	< 5
Organic Matter	%	< 0.1	MCERTS	0.8	2.6	1	2.3	1.6
Arsenic (As)	mg/kg	< 2	MCERTS	8	5	5	5	< 2
Barium (Ba)	mg/kg	< 2.5	MCERTS	321	59	38	57	25
Beryllium (Be)	mg/kg	< 0.5	MCERTS	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
W/S Boron	mg/kg	< 1	NONE	< 1	< 1	< 1	< 1	< 1
Cadmium (Cd)	mg/kg	< 0.2	MCERTS	< 0.2	< 0.2	0.2	0.3	< 0.2
Chromium (Cr)	mg/kg	< 2	MCERTS	10	9	6	11	5
Chromium (hexavalent)	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2	< 2
Copper (Cu)	mg/kg	< 4	MCERTS	15	15	16	33	13
Lead (Pb)	mg/kg	< 3	MCERTS	29	17	20	28	11
Mercury (Hg)	mg/kg	< 1	MCERTS	< 1	< 1	< 1	< 1	< 1
Nickel (Ni)	mg/kg	< 3	MCERTS	6	8	5	7	4
Selenium (Se)	mg/kg	< 2	MCERTS	< 3	< 3	< 3	< 3	< 3
Vanadium (V)	mg/kg	< 1	MCERTS	12	10	7	7	4
Zinc (Zn)	mg/kg	< 3	MCERTS	219	25	58	58	23
Total Phenols (monohydric)	mg/kg	< 2	NONE	< 2	< 2	< 2	< 2	< 2
EPH (C10 - C40)	mg/kg	< 6	MCERTS	85	12	7	17	17

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Samples Descriptions page describes if the test is performed on the dried or as-received portion
 Subcontracted analysis (S)



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Soil Analysis Certificate - Speciated PAHs						
DETS Report No: 20-10086	Date Sampled	28/08/20	28/08/20	28/08/20	28/08/20	28/08/20
Earth Environmental & Geotechnical Ltd	Time Sampled	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Site Reference: Brook Hey Drive	TP / BH No	WS01	WS02	WS03	WS05	WS06
Project / Job Ref: A3677	Additional Refs	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Order No: A3677	Depth (m)	0.45	2.00	1.00	0.85	0.50
Reporting Date: 11/09/2020	DETS Sample No	496286	496287	496288	496289	496290

Determinand	Unit	RL	Accreditation					
Naphthalene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluorene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Phenanthrene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	0.13	< 0.1
Anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluoranthene	mg/kg	< 0.1	MCERTS	0.21	< 0.1	0.17	0.20	0.12
Pyrene	mg/kg	< 0.1	MCERTS	0.22	< 0.1	0.19	0.19	0.13
Benzo(a)anthracene	mg/kg	< 0.1	MCERTS	0.17	< 0.1	< 0.1	< 0.1	< 0.1
Chrysene	mg/kg	< 0.1	MCERTS	0.13	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(b)fluoranthene	mg/kg	< 0.1	MCERTS	0.33	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(k)fluoranthene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(a)pyrene	mg/kg	< 0.1	MCERTS	0.34	< 0.1	< 0.1	< 0.1	< 0.1
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.1	MCERTS	0.19	< 0.1	< 0.1	< 0.1	< 0.1
Dibenz(a,h)anthracene	mg/kg	< 0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Benzo(ghi)perylene	mg/kg	< 0.1	MCERTS	0.21	< 0.1	< 0.1	< 0.1	< 0.1
Total EPA-16 PAHs	mg/kg	< 1.6	MCERTS	1.8	< 1.6	< 1.6	< 1.6	< 1.6



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Maidstone
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Soil Analysis Certificate - Sample Descriptions

DETS Report No: 20-10086	
Earth Environmental & Geotechnical Ltd	
Site Reference: Brook Hey Drive	
Project / Job Ref: A3677	
Order No: A3677	
Reporting Date: 11/09/2020	

DETS Sample No	TP / BH No	Additional Refs	Depth (m)	Moisture Content (%)	Sample Matrix Description
496286	WS01	None Supplied	0.45	10.1	Brown sandy gravel with stones and concrete
496287	WS02	None Supplied	2.00	11.4	Black loamy sand with stones
496288	WS03	None Supplied	1.00	9.8	Black loamy sand with stones
496289	WS05	None Supplied	0.85	9.2	Black loamy sand with stones
496290	WS06	None Supplied	0.50	8.6	Black loamy sand

Moisture content is part of procedure E003 & is not an accredited test

Insufficient Sample ^{u/s}

Unsuitable Sample ^{u/s}



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Soil Analysis Certificate - Methodology & Miscellaneous Information

DETS Report No: 20-10086

Earth Environmental & Geotechnical Ltd

Site Reference: Brook Hey Drive

Project / Job Ref: A3677

Order No: A3677

Reporting Date: 11/09/2020

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Soil	D	Boron - Water Soluble	Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES	E012
Soil	AR	BTEX	Determination of BTEX by headspace GC-MS	E001
Soil	D	Cations	Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E002
Soil	D	Chloride - Water Soluble (2:1)	Determination of chloride by extraction with water & analysed by ion chromatography	E009
Soil	AR	Chromium - Hexavalent	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphencylcarbazine followed by colorimetry	E016
Soil	AR	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E015
Soil	D	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through extraction with cyclohexane	E011
Soil	AR	Diesel Range Organics (C10 - C24)	Determination of hexane/acetone extractable hydrocarbons by GC-FID	E004
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of saturated calcium sulphate followed by electrometric measurement	E022
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of water followed by electrometric measurement	E023
Soil	D	Elemental Sulphur	Determination of elemental sulphur by solvent extraction followed by GC-MS	E020
Soil	AR	EPH (C10 - C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH Product ID	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E004
Soil	D	Fluoride - Water Soluble	Determination of Fluoride by extraction with water & analysed by ion chromatography	E009
Soil	D	FOC (Fraction Organic Carbon)	Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	D	Loss on Ignition @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	E019
Soil	D	Magnesium - Water Soluble	Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025
Soil	D	Metals	Determination of metals by aqua-regia digestion followed by ICP-OES	E002
Soil	AR	Mineral Oil (C10 - C40)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	Moisture Content	Moisture content; determined gravimetrically	E003
Soil	D	Nitrate - Water Soluble (2:1)	Determination of nitrate by extraction with water & analysed by ion chromatography	E009
Soil	D	Organic Matter	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	PAH - Speciated (EPA 16)	Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the use of surrogate and internal standards	E005
Soil	AR	PCB - 7 Congeners	Determination of PCB by extraction with acetone and hexane followed by GC-MS	E008
Soil	D	Petroleum Ether Extract (PEE)	Gravimetrically determined through extraction with petroleum ether	E011
Soil	AR	pH	Determination of pH by addition of water followed by electrometric measurement	E007
Soil	AR	Phenols - Total (monohydric)	Determination of phenols by distillation followed by colorimetry	E021
Soil	D	Phosphate - Water Soluble (2:1)	Determination of phosphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Total	Determination of total sulphate by extraction with 10% HCl followed by ICP-OES	E013
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of sulphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO4) - Water Soluble (2:1)	Determination of water soluble sulphate by extraction with water followed by ICP-OES	E014
Soil	AR	Sulphide	Determination of sulphide by distillation followed by colorimetry	E018
Soil	D	Sulphur - Total	Determination of total sulphur by extraction with aqua-regia followed by ICP-OES	E024
Soil	AR	SVOC	Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS	E006
Soil	AR	Thiocyanate (as SCN)	Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry	E017
Soil	D	Toluene Extractable Matter (TEM)	Gravimetrically determined through extraction with toluene	E011
Soil	D	Total Organic Carbon (TOC)	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C35. C5 to C8 by headspace GC-MS	E004
Soil	AR	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C44. C5 to C8 by headspace GC-MS	E004
Soil	AR	VOCs	Determination of volatile organic compounds by headspace GC-MS	E001
Soil	AR	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E001

D Dried
AR As Received



Shauna McLoughlin
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DETS Report No: 20-10847

Site Reference: Brook Hey Drive

Project / Job Ref: A3677 DETS Ref: 20-10086

Order No: A3677/SM

Sample Receipt Date: 18/09/2020

Sample Scheduled Date: 18/09/2020

Report Issue Number: 1

Reporting Date: 24/09/2020

Authorised by:

Kevin Old
General Manager

Dates of laboratory activities for each tested analyte are available upon request.

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Soil Analysis Certificate						
DETS Report No: 20-10847	Date Sampled	28/08/20				
Earth Environmental & Geotechnical Ltd	Time Sampled	None Supplied				
Site Reference: Brook Hey Drive	TP / BH No	WS05				
Project / Job Ref: A3677 DETS Ref: 20-10086	Additional Refs	None Supplied				
Order No: A3677/SM	Depth (m)	0.85				
Reporting Date: 24/09/2020	DETS Sample No	499715				

Determinand	Unit	RL	Accreditation				
Asbestos Quantification ^(S)	%	< 0.001	ISO17025	0.274			

Analytical results are expressed on a dry weight basis where samples are assisted-dried at less than 30°C. The Samples Descriptions page describes if the test is performed on the dried or as-received portion
Subcontracted analysis (S)



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Soil Analysis Certificate - Methodology & Miscellaneous Information

DETS Report No: 20-10847

Earth Environmental & Geotechnical Ltd

Site Reference: Brook Hey Drive

Project / Job Ref: A3677 DETS Ref: 20-10086

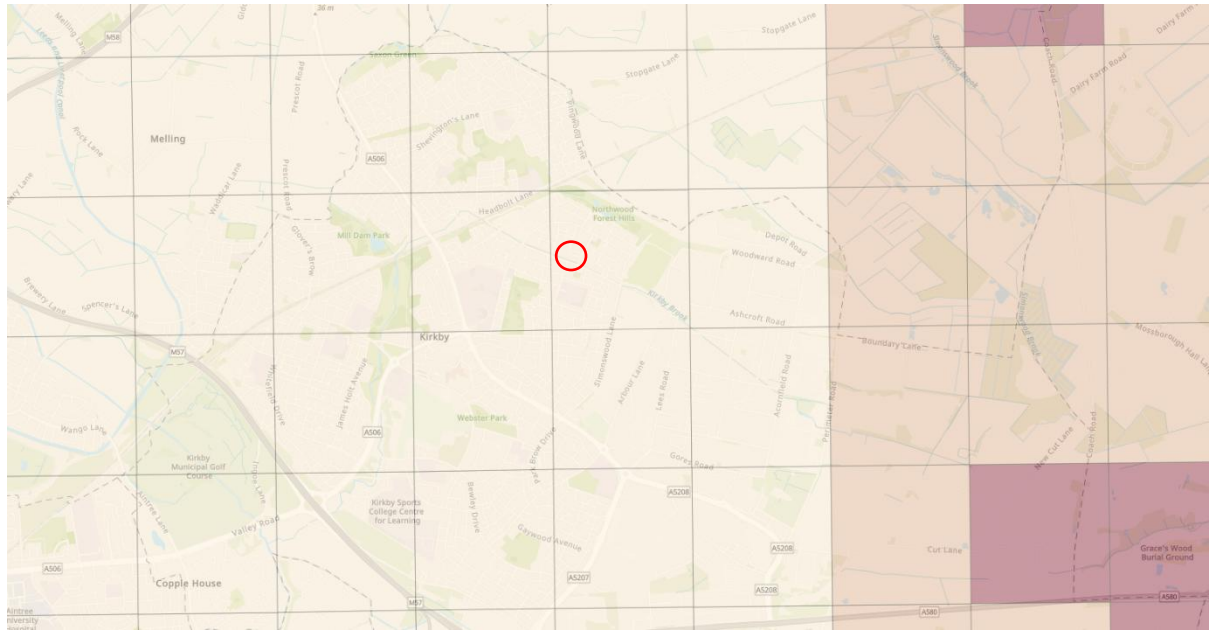
Order No: A3677/SM

Reporting Date: 24/09/2020

Matrix	Analysed On	Determinand	Brief Method Description	Method No
Soil	D	Boron - Water Soluble	Determination of water soluble boron in soil by 2:1 hot water extract followed by ICP-OES	E012
Soil	AR	BTEX	Determination of BTEX by headspace GC-MS	E001
Soil	D	Cations	Determination of cations in soil by aqua-regia digestion followed by ICP-OES	E002
Soil	D	Chloride - Water Soluble (2:1)	Determination of chloride by extraction with water & analysed by ion chromatography	E009
Soil	AR	Chromium - Hexavalent	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphénylcarbazine followed by colorimetry	E016
Soil	AR	Cyanide - Complex	Determination of complex cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Free	Determination of free cyanide by distillation followed by colorimetry	E015
Soil	AR	Cyanide - Total	Determination of total cyanide by distillation followed by colorimetry	E015
Soil	D	Cyclohexane Extractable Matter (CEM)	Gravimetrically determined through extraction with cyclohexane	E011
Soil	AR	Diesel Range Organics (C10 - C24)	Determination of hexane/acetone extractable hydrocarbons by GC-FID	E004
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of saturated calcium sulphate followed by electrometric measurement	E022
Soil	AR	Electrical Conductivity	Determination of electrical conductivity by addition of water followed by electrometric measurement	E023
Soil	D	Elemental Sulphur	Determination of elemental sulphur by solvent extraction followed by GC-MS	E020
Soil	AR	EPH (C10 - C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH Product ID	Determination of acetone/hexane extractable hydrocarbons by GC-FID	E004
Soil	AR	EPH TEXAS (C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C40)	Determination of acetone/hexane extractable hydrocarbons by GC-FID for C8 to C40. C6 to C8 by headspace GC-MS	E004
Soil	D	Fluoride - Water Soluble	Determination of Fluoride by extraction with water & analysed by ion chromatography	E009
Soil	D	FOC (Fraction Organic Carbon)	Determination of fraction of organic carbon by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	D	Loss on Ignition @ 450°C	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	E019
Soil	D	Magnesium - Water Soluble	Determination of water soluble magnesium by extraction with water followed by ICP-OES	E025
Soil	D	Metals	Determination of metals by aqua-regia digestion followed by ICP-OES	E002
Soil	AR	Mineral Oil (C10 - C40)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge	E004
Soil	AR	Moisture Content	Moisture content; determined gravimetrically	E003
Soil	D	Nitrate - Water Soluble (2:1)	Determination of nitrate by extraction with water & analysed by ion chromatography	E009
Soil	D	Organic Matter	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	PAH - Speciated (EPA 16)	Determination of PAH compounds by extraction in acetone and hexane followed by GC-MS with the use of surrogate and internal standards	E005
Soil	AR	PCB - 7 Congeners	Determination of PCB by extraction with acetone and hexane followed by GC-MS	E008
Soil	D	Petroleum Ether Extract (PEE)	Gravimetrically determined through extraction with petroleum ether	E011
Soil	AR	pH	Determination of pH by addition of water followed by electrometric measurement	E007
Soil	AR	Phenols - Total (monohydric)	Determination of phenols by distillation followed by colorimetry	E021
Soil	D	Phosphate - Water Soluble (2:1)	Determination of phosphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO ₄) - Total	Determination of total sulphate by extraction with 10% HCl followed by ICP-OES	E013
Soil	D	Sulphate (as SO ₄) - Water Soluble (2:1)	Determination of sulphate by extraction with water & analysed by ion chromatography	E009
Soil	D	Sulphate (as SO ₄) - Water Soluble (2:1)	Determination of water soluble sulphate by extraction with water followed by ICP-OES	E014
Soil	AR	Sulphide	Determination of sulphide by distillation followed by colorimetry	E018
Soil	D	Sulphur - Total	Determination of total sulphur by extraction with aqua-regia followed by ICP-OES	E024
Soil	AR	SVOC	Determination of semi-volatile organic compounds by extraction in acetone and hexane followed by GC-MS	E006
Soil	AR	Thiocyanate (as SCN)	Determination of thiocyanate by extraction in caustic soda followed by acidification followed by addition of ferric nitrate followed by colorimetry	E017
Soil	D	Toluene Extractable Matter (TEM)	Gravimetrically determined through extraction with toluene	E011
Soil	D	Total Organic Carbon (TOC)	Determination of organic matter by oxidising with potassium dichromate followed by titration with iron (II) sulphate	E010
Soil	AR	TPH CWG (ali: C5- C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C34, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C35. C5 to C8 by headspace GC-MS	E004
Soil	AR	TPH LQM (ali: C5-C6, C6-C8, C8-C10, C10-C12, C12-C16, C16-C35, C35-C44, aro: C5-C7, C7-C8, C8-C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C44)	Determination of hexane/acetone extractable hydrocarbons by GC-FID fractionating with SPE cartridge for C8 to C44. C5 to C8 by headspace GC-MS	E004
Soil	AR	VOCs	Determination of volatile organic compounds by headspace GC-MS	E001
Soil	AR	VPH (C6-C8 & C8-C10)	Determination of hydrocarbons C6-C8 by headspace GC-MS & C8-C10 by GC-FID	E001

D Dried
AR As Received

APPENDIX 5 EXTRACTS OF RADON ATLAS FOR ENGLAND AND WALES AND BRE211 (2015)



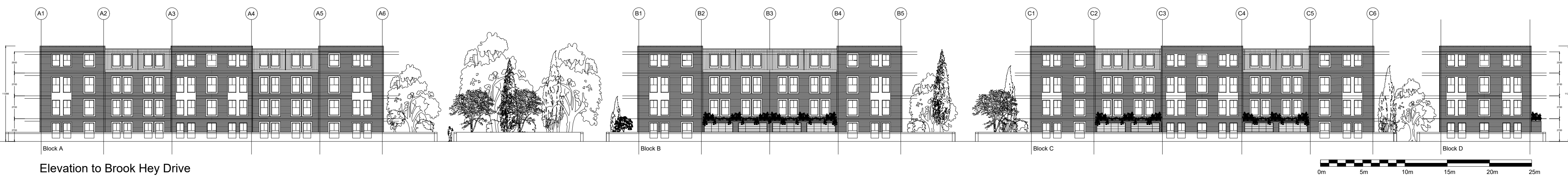
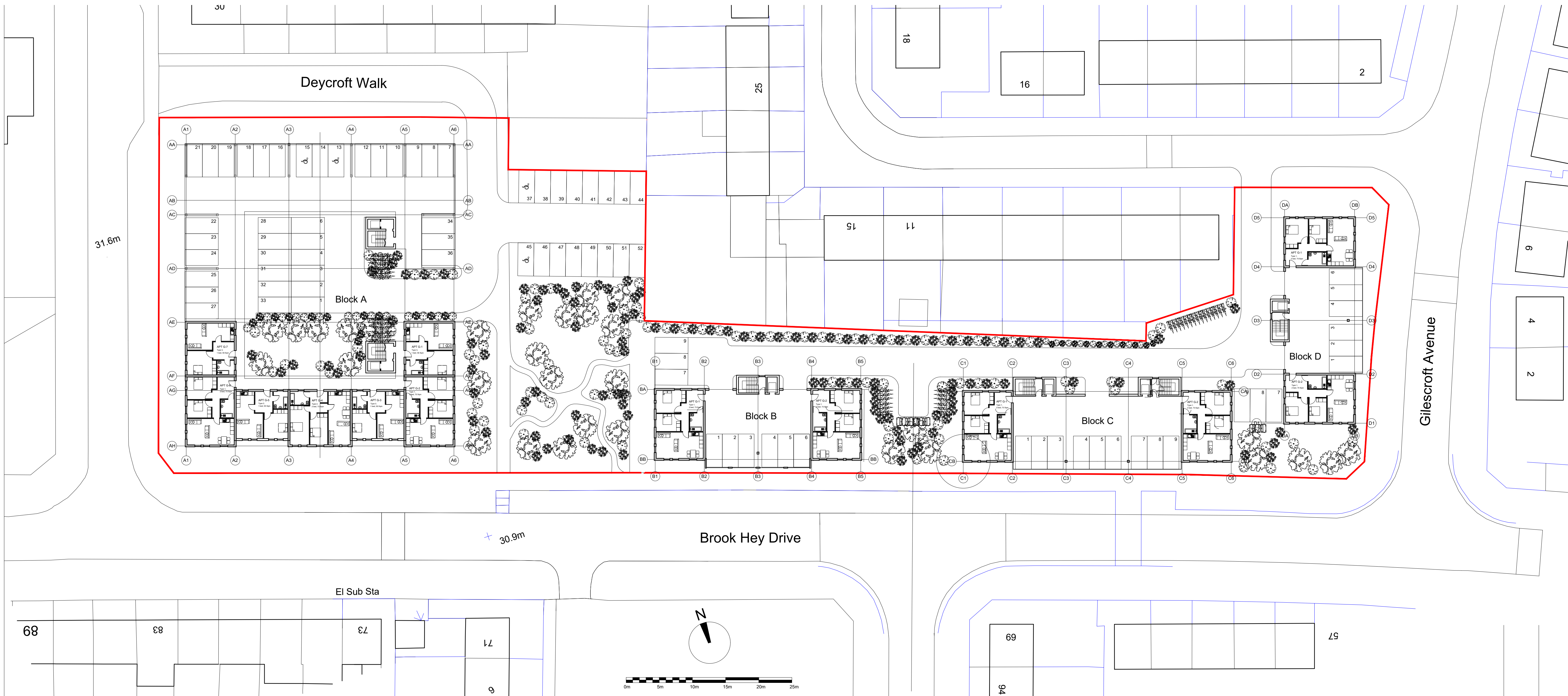
APPENDIX 6 PROPOSED DEVELOPMENT PLAN

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Notes:



- 27/06/25 Originated

Ref Date Notes
REVISIONS

DRAWING NUMBER
593-P-01

DRAWING STATUS
Planning Application

SCALE
1:300 @ A1

DRAWING TITLE
Site plan

JOB TITLE
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Kirkby, Liverpool

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