



Phase I/II Geoenvironmental Assessment

3-5 Newells, Letchworth Garden City

Letchworth

Hertfordshire SG6 2PH

Marfleet & Blyth c/o SPD Studio

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Prepared for SPD Studio
Unit 5 Tollgate Business Park,
Stanway, Colchester,
Essex CO3 8AB

Marfleet & Blyth
1-2 Tollgate Business Park,
Stanway, Colchester,
Essex CO3 8AB

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Prepared by Green Earth Management Company Limited
Suite 3, Broomfield Park
Coggeshall Road
Earls Colne
Essex CO6 2JX

Name		
		15 th April 2024

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EXECUTIVE SUMMARY

EXECUTIVE SUMMARY	
Project Details	Green Earth Management Company Limited (GEMCO) was commissioned by SPD Studio on behalf of Marfleet & Blyth (the Client) to undertake a Phase I/II Geoenvironmental Investigation at Newells, Letchworth Garden City which the Client intends to develop into fourteen (14no.) residential apartments.
Site Description	The Site comprised an irregular shaped parcel (area c.0.2Ha) which consisted of a (1no) residential terrace and private gardens to the rear, and eighteen (18no.) garages on concrete hardstanding.
Site History	The Site was historically agricultural land until the 1960s/1970s, when the residential property was built. The garages were added in c.1980, and the Site appears unchanged from this time to the present-day.
Geology, Hydrology and Hydrogeology	Superficial: Lowestoft Formation (Diamicton) (Secondary 'Undiff' Aquifer); Bedrock: Holywell Nodular and New Pit Chalk Formation (Principal Aquifer). SPZ I (Inner, to the east) and SPZ II (Outer, to the west). No surface waters on-site and no significant flooding risk has been identified. No significant geological hazards are identified
Environmental Database Searches	The Site is within an NVZ and an area with potentially naturally elevated Arsenic; Chromium and Nickel. No other sensitive areas nor significant environmental permits, pollution incidents, register entries or waste sites have been identified.
Preliminary Risk Assessment and Conceptual Site Model	On-Site: Site Use (Garages) (PPL A); On/Off-Site Agricultural/Allotment Activities (PPL B); and Construction & Demolition Activities (PPL C); Moderate/Low risks were identified in relation to PPL A and PPL D. Risks from PPL B were considered to be low.
Fieldwork	The Site Investigation comprised two (2no.) trial pits/infiltration tests (6 th Feb 2024) and five (5no.) window sample boreholes (7 th Feb 2024), plus one (1no.) round of gas and groundwater monitoring.
Ground Conditions	The ground conditions may be summarised as topsoil and/or made ground over firm to stiff cohesive soils (weathered or reworked soft/firm initially) consistent with Lowestoft Diamicton, overlying chalk. No groundwater was struck.
Contamination Conditions	Made ground up to 0.7m thick was encountered, however no significant evidence of contamination was noted within the soils other than a slight hydrocarbon odour at GSA101, and a piece of possibly asbestos containing pipe in the garden in the area of GWS104. No significant chemical contamination was detected within the soils at the Site. Asbestos was however detected in one (1no.) samples from the made ground in the area of the garages. No significant ground gas was detected during monitoring (<1.5% CO ₂ , no CH ₄ , flow or VOC).
Revised Risk Assessment and Conceptual Site Model	On the basis of the soils encountered and chemical testing undertaken, the made ground soil in the west of the site may present an unacceptable risk to human health, but additional testing is recommended post-demolition of structures. All other soils are considered uncontaminated and risks to the sensitive receptors identified are considered very low risk.

EXECUTIVE SUMMARY	
Contamination and Remediation Recommendations	On the basis of the Site Investigation observations, laboratory results and Risk Assessments, it is considered that the Site will be suitable for the proposed development subject to the following recommendations: • Asbestos contamination has been detected in made ground soils in the west of the site (garage hardstanding area). The soil is considered unacceptable for use in a residential development. • All other soils/sources are considered low risk at this stage; • Additional contamination testing is recommended post-demolition of structures to further assess the contamination identified (with an emphasis on asbestos) and potential for additional contamination in areas previously inaccessible to the Site Investigation; • A Remediation Method Statement (RMS) should be prepared (after any additional SI); • No significant gas generation has been identified (CS1/NHBC Green). No gas protection measures are therefore considered necessary; • The risk to buried services is considered low at this stage. The relevant service providers must be consulted with respect the required specification for underground services at the Site; • Site-won natural soils are likely to be suitable for re-use; and • A Discovery Strategy should be in place during the development works.
Geotechnical Assessment and Recommendations	Based on the geotechnical assessment presented in Section 7, which should be read in full, it is recommended that: • Shallow foundations may be adopted throughout, assuming lightly loaded structures; • Foundations may be placed within the natural firm/stiff clay at a depth of 0.9-1.25mbgl, as required if within the zone of influence of trees. No foundations should be laid in made ground; • Foundations could be extended into the underlying chalk/piled; however, further testing may be required for design purposes; • Excavations should be achievable using conventional earthmoving plant and equipment; • Shallow excavations and trenches in natural soils should remain stable without support in the short term. It will be necessary to provide trench support or batter back the sides to a stable angle if manual entry is required or if excavations will be left open for prolonged periods; • It is recommended that a Medium VCP is adopted site-wide. Due to the presence of soils with VCP, floor slabs should be suspended; • A concrete grade of DS-1 and AC-1 is recommended site-wide at this stage; and • A suitably qualified drainage engineer should be consulted regarding suitable drainage solutions for the Site.
<i>This Executive Summary only provides a summary of the site data and its assessment. It does not provide a definitive environmental assessment or engineering analysis and is for guidance purposes only. It is recommended that the reader reviews the reporting its entirety and any material referenced therein.</i>	

ACRONYMS AND ABBREVIATIONS

Acronyms and Abbreviations	
Acronym/ Abbreviation	Definition
ACM or PACM	Asbestos or Potentially Asbestos Containing Material
ADE	Average Daily Exposure
ASPT	Average Score Per Taxon
BOD	Biochemical Oxygen Demand
BGS	British Geological Survey
BH	Borehole
BS	British Standard
BTEX	Benzene, Toluene, Ethyl Benzene and Xylenes
CAT	Cable Avoidance Tool
CIRIA	Construction Industry Research and Information Association
CLEA	Contaminated Land Exposure Assessment
CLR	Contaminated Land Research Reports
DEFRA	Department of the Environment, Food and Rural Affairs (formerly the DoE and DETR)
DETR	Department of the Environment, Transport and the Regions (formerly the DoE and now DEFRA)
DO	Dissolved Oxygen
DoE	Department of the Environment (then DETR and later DEFRA)
DQRA	Detailed Quantitative Risk Assessment (Tier 2)
DWSZ	Drinking Water Safeguarding Zone
EA	Environment Agency
EPH	Extractable Petroleum Hydrocarbons
EQI	Environmental Quality Index
EQS	Environmental Quality Standards
FID	Flame Ionisation Detector
GAC	Generic Assessment Criteria
GC	Gas Chromatography
GEMCO	Green Earth Management Co Ltd
GQA	General Quality Assessment
GQRA	Generic Quantitative Risk Assessment (Tier 1)
ha	Hectare
HCV	Health Criteria Value
HHRA	Human Health Risk Assessment
HV	High Voltage
ICRCL	Interdepartmental Committee on The Redevelopment of Contaminated Land
ID	Index Dose
LEL	Lower Explosive Limit
LOD	Limit Of Detection
m	Metres
mAOD	Metres Above Ordnance Datum
mbgl	Metres Below Ground Level
MCERTS	Monitoring Certification Scheme
MDI	Mean Daily Intake

Acronyms and Abbreviations	
Acronym/ Abbreviation	Definition
MTBE	Methyl Tertiary Butyl Ether
NGR	National Grid Reference
NHBC	National House Building Council
NRA	National Rivers Authority (now the Environment Agency)
PAH	Polycyclic aromatic hydrocarbon (a.k.a. polynuclear aromatic hydrocarbon)
pH	A measure of the acidity or basicity of an aqueous solution. Defined as the negative logarithm of the concentration of hydrogen ions in a substance
PID	Photo Ionisation Detector
PPE	Personal Protective Equipment
PPL	Potential Pollution Linkage
RBCA	Risk-Based Contamination Assessment
RMS	Remediation Method Statement
RwHP	Residential [GAC] with plant uptake
RQO	River Quality Objective
S4UL	Suitable for Use Level
SGV	Soil Guideline Value
SNIFFER	Scotland and Northern Ireland Forum for Environmental Research
SPT	Standard Penetration Test
SSTL	Site-Specific Target Level
SVOC	Semi Volatile Organic Compounds
QRA	Quantitative Risk Assessment
TDI	Tolerable Daily Intake
TDSI	Tolerable Daily Soil Intake
TP	Trial Pit
TPH	Total Petroleum Hydrocarbon
TPHCWG	Total Petroleum Hydrocarbon Criteria Working Group
TOX	CLR 9 Toxicological Reports
UKAS	United Kingdom Accreditation Service
USEPA	United States Environmental Protection Agency
UXO/UXB	Unexploded Ordnance/Bombs
VOC (TVOC)	Volatile Organic Compounds (Total VOC)
WHO	World Health Organisation
WQS	Water Quality Standards
WS	Window Sample

1. INTRODUCTION

1.1. Project Details and Development Proposal

Green Earth Management Company (GEMCO) Ltd were commissioned by SPD Studio on behalf of Marfleet & Blyth (the Client) to undertake a Phase I/II Geoenvironmental Assessment at a proposed development Site at 3-5 Newells, Letchworth Garden City (shown at Figure 1).

The proposed development was understood to comprise the demolition of the existing structure and majority of the adjoining garages, and the erection of a new building comprising some fourteen (14no.) apartment dwellings, with associated amenity space and infrastructure, as shown at Figure 2. It was understood that the layout of the proposal is not finalised at this stage and the possible layout(s) shown at Figure 2 are conceptual/illustrative.

1.2. Objectives and Scope of Work

The Report/the Assessment was required to assess the suitability of the Site, with regards to contamination and geotechnics, for the proposed residential development. The scope of work undertaken to fulfil the objectives has included the following:

- Procure an Envirocheck report (R.1, presented in Appendix 3), and other available sources of information to review the environmental setting of the Site and surrounding area, in order to determine any potentially significant pollutant sources/linkages and any sensitive receptors;
- Prepare a Preliminary Risk Assessment (PRA) and Conceptual Site Model (CSM);
- Design and undertake an intrusive Site (or Ground) Investigation (SI/GI) to establish the ground conditions at the Site, with reference to the desk-study element, including chemical and geotechnical testing of representative soil samples from the Site;
- Undertake a Tier 2 Generic Quantitative Risk Assessment (GQRA) of the contamination conditions at the Site based on the findings of the intrusive investigation, including ground gas, in order to inform the remediation strategy at the Site (if required);
- Undertake a preliminary geotechnical appraisal of the ground conditions to inform the civil and structural engineering design of the development; and
- Produce of a report, including details of the above and recommendations for remediation and/or further investigation works, if needed.

The terms of the agreed scope of work are outlined in Section 1.3.

All works would be undertaken in accordance with current UK environmental legislation and guidance as outlined in Section 1.4.

1.3. Terms of Reference

This combined Phase I/II Geoenvironmental Assessment (herein referred to as the “the Report” or “the Assessment”), has been prepared for Marfleet & Blyth (herein referred to as the “Client”), for the purposes agreed and in general accordance with the terms and conditions set out in proposal reference ‘2247 240111 GEMCO SPD Quote v3’ dated 11th January 2024 and the Agreement between Green Earth Management Co Limited (the “Consultant”) and the Client.

1.4. Methodology and Guidance

The methodology of assessment applied in the production of this report is in accordance with the current industry standards and supplementary guidance as appropriate, including CLR 11/LCRM 2023, Model Procedures produced by DEFRA and the Environment Agency (EA) (R.2), British Standard (BS) Code of Practice for Ground Investigations BS5930:2015+A1:2020 (R.3) and British Standard Code of Practice for Investigation of Potentially Contaminated Sites BS10175:2011+A2:2017 (R.4). The Conceptual Site Model has been developed with reference to BS EN ISO 21365:2020, Soil quality - Conceptual Site Models for Potentially Contaminated Sites (R.5). For the purposes of this report the word 'contamination' relates to the statutory definition of contaminated land under the Environmental Protection Act 1990 (R.6), unless otherwise stated.

The works will be undertaken in accordance with the requirements of the National Planning Policy Framework (NPPF) in relation to land contamination.

The risks to groundwater are assessed, where applicable, with reference to the Water Framework Directive (R.7), the Water Supply Regulations (R.8) and EA Environmental Quality Standards (EQS), Threshold Values for Groundwater (ThrVGW) and Water Quality Guidance Values (WQGV), as appropriate, and CIEH, NHBC and EA R&D 66 Guidance (R.9).

With respect to the ground gases and vapours risk assessment, reference has been made to CIRIA C665 'Assessing risks posed by hazardous ground gases to buildings' (R.10) BS 8485:2015+A1:2019; 'Code of Practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings' (R.11) and BS8576:2013, 'Guidance on investigations for ground gas - Permanent gases and Volatile Organic Compounds (VOCs)' (R.12), CL:AIRE, Research Bulletin RB17, A Pragmatic Approach to Ground Gas Risk Assessment (R.13), NHBC 'Guidance on the evaluation of development proposals in sites where methane and carbon dioxide are present' (R.14), equipment manufacturer manuals (R.15) and Health and Safety Executive (HSE) EH40/2005 WELs (R.16). Additional weather data and guidance on pressure trends has been obtained from Weather Underground (R.17) and Met Office (R.18).

A list of references used in the production of this report are presented in Section 11.

1.5. Report Limitations and Conditions

For the work, reliance has been placed on publicly and privately available data from the sources identified; the sources are not exhaustive, and further information relevant to the Site may be available from other sources. When using the information, it has been assumed it is correct. No attempt has been made to verify the information.

In addition to the above, GEMCO note that when investigating or developing land, it is important to recognise that sub-surface conditions may vary spatially and over time. Therefore, GEMCO cannot guarantee that conditions other than those discussed in the report do not occur elsewhere on the Site. New information, revised practices, or changes in legislation may necessitate the re-interpretation of the report, completely or in part.

Further detail regarding report conditions is included as Appendix 1.

2. SITE DETAILS

2.1. Site Setting

The Site was located to the northeast of Newells and west of Pryor Way in Letchworth Garden City, Hertfordshire SG62PH, roughly centred on British National Grid (BNG) reference 523681, 232034 (Figure 1).

2.1.1. Site Description

GEMCO undertook a site walkover survey on 22nd January 2024. A selection of photographs taken during the visit are presented at Appendix 2 (locations on Figure 3), and the layout as encountered at the time of the walkover is shown at Figure 3.

At the time of the walkover, the Site comprised an irregular shaped parcel (area c.0.2Ha) which consisted of a (1no) residential terrace which included 3no. dwellings and private gardens to the rear, and eighteen (18no.) garages on concrete hardstanding to the west, with grass softstanding to the south and east.

The terrace structure appeared to be of wood and masonry construction, and was vacant and boarded up. The garages were of brick and wood construction with sheet aluminium roofs and situated on concrete hardstanding of good apparent condition. Various drains were noted in the hardstanding. The hardstanding was also noted to provide access to a neighbouring allotment plot (Woolgrove Allotments). All structures were inaccessible internally during the walkover. Anecdotally, the garages are used for general residential storage with a few used for vehicle storage.

The rear gardens were accessible from the rear alleyway. All were heavily overgrown and littered with various garden and household items, plus some demolition-type wastes (concrete, brick, tiles, paving slabs, pipes).

All structures appeared to be free of any Asbestos Containing Material (ACM), however some pieces of possibly ACM-containing pipe were encountered within the rear garden area.

2.1.2. Surrounding Area

The Site was located in a semi-urban area, surrounded by residential properties (to west, east and south) and Woolgrove Allotments to the north. Woolgrove School was situated c.100m northwest of Site. The wider area was residential to the west and south and agricultural land to the north and east.

2.1.3. Topography

The Site and immediate surrounding area appeared to be generally flat with no significant change in levels, and according to topographical information provided, is situated c.106.5mAOD (± 0.4 m). Satellite data indicates the wider area elevation slopes gently from the southeast down to the northwest.

2.2. Geological Setting

British Geological Survey (BGS) records and the Envirocheck report indicate the Site is predominantly underlain by superficial Lowestoft Formation (Diamicton), overlying Holywell Nodular/ New Pit Chalk Formation bedrock. Superficial deposits are shown to be absent in a small area in the east of the Site.

Several borehole records are shown on the BGS online database near the Site. The closest within similar geology and with a decipherable record was located around 300m east of the Site (BGS Ref: TL23SW28, R.19) encountered clay to 1.37m, overlying chalk to the base at 30.48m. No groundwater was recorded.

2.2.1. Geological Hazards and Radon

The potential of various on-site geological hazards is summarised in the table below. The locations of the hazards listed are shown on the 1:50K scale Ground Stability Maps included at Appendix 3.

Table 2.1. Geological Hazards.	
Geological Hazard	Hazard Potential
Collapsible Ground	Very Low
Compressible Ground	No hazard
Ground Dissolution	Very Low (West), No hazard (East)
Landslide	Very Low (West), No hazard (East)
Running Sand	Very Low (West), No hazard (East)
Shrinking or Swelling Clay	Low (West), No hazard (East)
© NERC	

With regards to Radon, the Site is in a lower probability radon area. No protective measures are necessary.

2.3. Hydrogeological Setting

The Lowestoft Diamicton is a Secondary 'Undifferentiated' Aquifer, whereas the chalk is a Principal Aquifer. The Site is partially within a Source Protection Zone I (SPZ I – Inner, in east) and an SPZ II - Outer (in west).

The Site is also within a Drinking Water Safeguard Zone for Surface Water (DWSZ), but is not within a Drinking Water Protected Area (DWPA).

2.4. Hydrological Setting

No surface waters were identified on-site nor in the Site vicinity during the walkover. The Envirocheck report has identified the closest surface water (an inland river) some 450m southwest of the Site.

2.4.1. Flooding

EA Flood Maps (R.20, Appendix 4) indicate that the Site within a Flood Zone 1 -Low risk. The Envirocheck report has not identified any areas at risk of surface water flooding or groundwater flooding within the Site (see EA/NRW Suitability Maps at Appendix 3).

Note the above should not be used in lieu of a Flood Risk Assessment.

2.5. Site History

The purpose of determining the site history is to identify the past uses of the site, the potential for historic on and off-site sources of contamination, changes in landform, site structures and construction and their potential impact on the geology, hydrogeology and hydrology. The site history will also assist in the design of Site Investigations by identifying features that warrant a more detailed assessment. A summary of the site history, derived from a review of historical mapping, satellite imagery, and other sources as appropriate is presented in Table 2.2:

Table 2.2. Historical Map Summary.			
Map Date	On/Off-Site	Description	Potential Contamination Sources
1880 (1:2,500);	On-site	The Site is located in the north of a larger (presumed agricultural) field.	Agricultural Activities.
1884 (1:10,560)	Off-site	The Site is bound by fields with a hedgerow to the north. A main road is situated c.750m east.	Agricultural Activities.
1898 (1:2,500);	On-site	<i>No significant changes visible.</i>	<i>No additional sources.</i>
1899 (1:10,560)	Off-site	<i>No significant changes visible.</i>	<i>No additional sources.</i>
1922 (1:2,500);	On-site	<i>No significant changes visible.</i>	<i>No additional sources.</i>
1925 (1:10,560)	Off-site	Letchworth shown c.750m northwest with residential, commercial and industrial buildings.	Construction & Demolition.
1938 (1:2,500)	On-site	<i>No significant changes visible.</i>	<i>No additional sources.</i>
	Off-site	<i>No significant changes visible.</i>	<i>No additional sources.</i>
1950 (1:10,560)	On-site	<i>No significant changes visible.</i>	<i>No additional sources.</i>
	Off-site	Further development/expansion of Letchworth, including new road c.850m southwest.	<i>No additional sources.</i>
1960 (1:10,000)	On-Site	<i>No significant changes visible.</i>	<i>No additional sources.</i>
	Off-Site	<i>No significant changes visible.</i>	<i>No additional sources.</i>
1967-1968, 1968-1973, 1969-1975 ² , 1972 ² , (1:2,500)	On-site	A building consistent with present day structure is visible on-site.	Construction & Demolition.
	Off-site	Major (primarily residential) development around the Site to south and west – consistent with present-day - and A1 highway built c.300m east.	Construction & Demolition; Allotment.
1975-1984 ² (1:2,500);	On-site	Construction of garages to west as well as pathway. Layout same as present-day.	Construction & Demolition.
1980-1982 (1:10,000)	Off-site	Further development to south and west c.500m+ from site (schools, playing fields/sports grounds), plus allotments to the north with Woolgrove school beyond (c.150m northwest).	Construction & Demolition
1993 ² (1:2,500);	On-site	<i>No significant changes visible.</i>	<i>No additional sources.</i>
1986 (1:10,000)	Off-site	Further minor developments in surrounding area.	<i>No additional sources.</i>
2000 ¹ (1:2,500)	On-site	<i>No significant changes visible.</i>	<i>No additional sources.</i>
1999 (1:10,000)	Off-site	Further minor developments in surrounding area.	<i>No additional sources.</i>
2006 (1:10,000)	On-site	<i>No significant changes visible.</i>	<i>No additional sources.</i>
	Off-site	Road network expanded c.900m southeast.	<i>No additional sources.</i>
2023 (1:10,000)	On-site	<i>No significant changes visible.</i>	<i>No additional sources.</i>
	Off-site	<i>No significant changes visible.</i>	<i>No additional sources.</i>

¹Aerial Photograph, ²Partial Map.

3. ENVIRONMENTAL SEARCHES

3.1. Environmental Search Data

The following sections have been produced following a review of the Envirocheck environmental database search report (R.1; Appendix 3) with a search buffer of 1km, unless otherwise indicated.

3.2. Environmental Permits, Pollution Incidents, and Registers

There are no records of any discharge consents within 1km of the Site.

There have been two (2no.) pollution incidents within 1km of the Site, of which one (1no.) was a Category 3 incident c.696m north of Site and the other was a Category 2 incident c.983m west of Site.

There are two (2no.) registered radioactive substances within 1km of the Site, both of which are located at Thorn Security Ltd c.800-900m northwest of the Site, with the most recent of these dated December 2003.

No other significant permits, pollution incidents or registers were identified. The above noted entries are considered generally unlikely to affect the Site.

3.3. Mining, Landfilling, and Other Waste Sites

The Site is not in an area likely to be affected by coal mining (no coal mining hazard has been identified).

One (1no.) BGS recorded mineral site has been identified within 1km of the Site; Weston Hills Chalk Pit 710m southeast of the Site (ceased operation). The chalk pit is briefly visible on historical maps (dated 1899, 1:10,560 scale) as a cutting along what becomes Roman Road.

No current or historic landfill records, areas of potentially infilled land, or other waste sites have been identified within 1km of the Site.

3.4. Current Industrial Land Use Data

There are three (3no.) active trade directory entries within 500m of the Site; a cleaning service 127m southwest, a pest/vermin control 263m south, and a commercial cleaning service 439m south. There are four (4no.) inactive trade directory entries within 500m of the Site, the closest being a cleaning service c.144m south of Site.

The above are considered unlikely to affect the Site.

3.5. Environmentally Sensitive Areas

The Site and surrounding areas are within a Nitrate Vulnerable Zones for surface water (Great Ouse NVZ) and groundwater (Anglian Chalk). The Site is also indicated as being within an area with potentially naturally elevated levels of Arsenic (15-25mg/kg), Chromium (60-90mg/kg) and Nickel (30-45mg/kg).

The land 7m to the north is shown as green belt since 1996. A submission was drafted for un-adoption in 2017, however this doesn't appear to have been accepted. No other environmentally sensitive areas have been identified.

3.6. Air Quality Management Areas

Based on the Air Quality Management Area (AQMA) maps available on the Defra website (R.21), the Site is not within an AQMA.

3.7. Unexploded Ordnance/Bombs (UXO/UXB)

A preliminary UXO risk map, procured from ZeticaUXO Ltd and presented at Appendix 5, indicates the Site is in an area identified as an industrial area, however the UXO risk has been classified as 'Low'.

3.8. Local Planning Authority Correspondence and Planning Records

GEMCO contacted the Local Planning Authority, North Herts Council (the LPA), in February 2024 regarding any records with regards to contamination, petroleum storage, or other similar or relevant records they may have in relation to the Site or immediate vicinity.

In response (shown at Appendix 6), the LPA indicated that they hold no records in relation to the Site and immediate surrounding area.

No significant planning records have been identified on the planning portal.

4. PRELIMINARY RISK ASSESSMENT AND CONCEPTUAL SITE MODEL

4.1. Introduction

In order to determine if land contamination is present, a tiered Risk Assessment process is adopted to provide a robust approach to the management of risks due to land contamination. The Risk Assessment process can be highly detailed and there are a range of factors that need to be considered in assessing risks. The adoption of a staged approach is in line with current industry legislation and guidance. There are principally three tiers applied as follows:

- Tier 1: Preliminary Risk Assessment (PRA) (generally qualitative);
- Tier 2: Generic Quantitative Risk Assessment (GQRA); and
- Tier 3: Detailed Quantitative Risk Assessment (DQRA).

The purpose of this Section is to undertake a Tier 1 Preliminary Risk Assessment.

Land is considered to be contaminated if significant **pollutant linkages**, comprising a source, pathway, and receptor are present. **Source, pathway, and receptor** can be defined as follows:

- **Source** (contaminant/pollutant) – “a substance [or range of chemically related substances] which is in or under the land and which has the potential to cause harm or pollution of controlled waters.”
- **Pathway** - Routes by which a receptor can be exposed to or affected by a contaminant.
- **Receptor** (target) – humans, living organisms, ecological systems, buildings, controlled waters.

Pollutant linkages are deemed significant (i.e., plausible) if there is a significant potential of significant harm to a sensitive receptor being exposed to a specific contaminant(s) via an identified and active pathway.

4.2. Land Use Scenario

The Site appears to have comprised agricultural land which was redeveloped to residential in the early 1970's, and is generally unchanged from this time to present. Consequently, for the purposes of the Risk Assessment and production of the CSM, the Site is considered brownfield and the proposed land use scenario residential with plant uptake in accordance with CLR 11/LCRM 2023 (R.2).

4.3. Potential Contamination Sources

At the time of the Site walkover, the Site comprised a residential structure with adjoining garages. No ACMs were identified in any of the structures; however, sections of potentially asbestos-containing pipe were noted in the rear garden area, alongside various other items of litter/demolition-type wastes. No other significant sources of contamination were identified.

The Site was historically of (presumed) agricultural use from at least the late 1800s (earliest available maps) until the 1960s/1970s, at which time the residential properties were constructed, with the garages added in the late 1970s/early 1980s. No changes to the site layout are visible from this time to the present-day.

The Site was surrounded by further agricultural land which was developed to residential to the south and west in the 1970s, with an allotment and school added to the north later in the decade. Agricultural/allotment land can present a small contamination risk sourced from the use of agrichemicals

(herbicides and pesticides), fuels and oils associated with farming equipment. There is also a potential for buried wastes/ pits containing organic and inorganic materials, however this is considered unlikely due to the lack of historical structures observed at the Site on the historical maps and the recent developments.

The potential contamination sources identified and their associated contaminants are summarised below:

Table 4.1. Potential Sources of Contamination.		
Potential Source	Plausible Potential Contaminants	Likelihood
On-Site		
PPL A. Site Use (garages)	Hydrocarbons (incl. TPH/PAHs, fuel, oil and grease), inorganic compounds, asbestos, ground gas, VOC.	Moderate/Low
On/Off-Site		
PPL B. Agricultural Activities (and off-site allotment site)	Heavy metals, hydrocarbons (incl. TPH/PAHs, fuel, oil and grease); organic and inorganic wastes, agrichemicals (fertilisers, herbicides, pesticides, poisons), pH.	Low
PPL C. Construction & Demolition Activities	Hydrocarbons (incl. TPH/PAHs, fuel, oil and grease), inorganic compounds, asbestos, ground gas, VOC.	Moderate/Low

4.4. Potential Migration Pathways and Receptors

The following potential migration pathways have been identified with regard to the site setting, environmental conditions and the current development proposals (outlined at Section 1.1).

1. Direct contact with soils; Ingestion of soil, or soil dust; Inhalation of dust or asbestos fibres;
2. Leaching of contaminants; Infiltration to groundwater; Movement within the groundwater;
3. Outdoor inhalation of ground gas and/or vapours;
4. Ingress of vapours/gases into buildings; Indoor inhalation of vapours/gases, or explosion;
5. Contact with building material/ services; Leaching of contaminants into service trenches; and
6. Direct contact with soil/uptake by flora and fauna.

The following sensitive receptors have been identified:

- Human Health (Future Site Users, Site Neighbours/General Public and Construction Workers);
- Controlled Waters: Secondary (Undifferentiated) and Principal Aquifers;
- Future building(s), building materials, and buried services; and
- Ecological Receptors (future planting).

4.5. Preliminary Conceptual Site Model

The potentially significant pollutant (source-pathway-receptor) linkages (PPL) that are applicable to the Site are summarised in Table 4.2 below:

Table 4.2. Preliminary Conceptual Site Model.				
Source(s)	Pathway(s)	Receptor(s)	Risk ¹	Justification for Risk / Comment
On-Site				
PPL A Site Use (Garages) (Hydrocarbons (incl. TPH/PAHs, fuel, oil and grease), inorganic compounds, asbestos, ground gas, VOC.)	1. Direct contact with soils; Ingestion of soil, or soil dust; Inhalation of dust, or asbestos fibres	a. Future Site Users	PPL A-1-a Moderate/Low	Potential for hydrocarbon residues. Likely to be localised, if present.
		b. Site Neighbours/ General Public	PPL A-1-b Low	Potential for residues however migration from the site is considered unlikely due to likely size of source and clay soil
		c. Construction Workers	PPL A-1-c Low	Assuming use of appropriate controls and PPE.
	2. Leaching of contaminants; Infiltration to and movement within the groundwater	a. Secondary (Undiff) & Principal Aquifers	PPL A-2-a Moderate/Low	Low likelihood of significant contamination plus limited migration based on published geology (clay soils).
	3. Outdoor inhalation of ground gas and/or vapours	a. Future Site Users	PPL A-3-a Very Low	Limited potential for significant vapour or gas generation which could affect human health outdoors.
		b. Site Neighbours/ General Public	PPL A-3-b Very Low	As above; migration unlikely.
		c. Construction Workers	PPL A-3-c Very Low	As above, assuming use of appropriate controls and PPE.
	4. Ingress of vapours/ gases into buildings; Inhalation of vapours/ gases (indoor) or explosion	a. Future Site Users	PPL A-4-a Moderate/Low	Potential for hydrocarbon residues with VOC generation potential. Likely to be localised if present.
		b. Site Neighbours/ General Public	PPL A-4-b Low	Potential for residues however migration from the site is considered unlikely due to likely size of source and clay soil
		c. Future Buildings	PPL A-4-c Low	As PPL A-4-a
		d. Construction Workers	PPL A-4-d Low	Assuming use of appropriate controls and PPE.

Table 4.2. Preliminary Conceptual Site Model.				
Source(s)	Pathway(s)	Receptor(s)	Risk ¹	Justification for Risk / Comment
	5. Contact with building materials/ services; Leaching into services trenches	a. Buried Services; Building Materials	PPL A-5-a Moderate/ Low	Potential (albeit low) for contamination which may present a risk to buried services/materials or concrete grade.
	6. Direct contact with soils/ uptake by flora and fauna	a. Ecological Receptors	PPL A-6-a Low	Some potential (low) for residues which could affect plants, however no evidence and consequences are minor.
On/Off-Site				
PPL B Agricultural Activities (and off-site allotment site) (Heavy metals, hydrocarbons (incl. TPH/PAHs, fuel, oil and grease); organic and inorganic wastes, agrichemicals (fertilisers, herbicides, pesticides, poisons), pH)	1. Direct contact with soils; Ingestion of soil, or soil dust; Inhalation of dust, or asbestos fibres	a. Future Site Users	PPL B-1-a Low	No farming practices on-site for roughly 50-years, and site developed. Likelihood of significant contamination (buried materials etc.) and migration to the Site is considered low. See Discovery Strategy.
		b. Site Neighbours/ General Public	PPL B-1-b Low	As above, plus limited migration potential due to shallow cohesive geology.
		c. Construction Workers	PPL B-1-c Very Low	As above, assuming use of appropriate controls and PPE.
	2. Leaching of contaminants; Infiltration to and movement within the groundwater	a. Secondary (Undiff) & Principal Aquifers	PPL B-2-a Low	Low likelihood of significant contamination plus limited migration based on published geology (clay soils).
	3. Outdoor inhalation of ground gas and/or vapours	a. Future Site Users	PPL B-3-a Very Low	Limited potential for significant amounts of gas generating materials with potential to affect human health outdoors.
		b. Site Neighbours/ General Public	PPL B-3-b Very Low	As above, plus migration to neighbours considered unlikely due to likely geology (cohesive soils).
		c. Construction Workers	PPL B-3-c Very Low	As PPL B-3-a and assuming appropriate PPE and standard working practices.
	4. Ingress of vapours/ gases into buildings; Inhalation of vapours/ gases (indoor) or explosion	a. Future Site Users	PPL B-4-a Low	Limited potential for organic wastes and buried material with gas generation potential. Migration likely limited by cohesive soils.
		b. Site Neighbours/ General Public	PPL B-4-b Very Low	As above, plus limited migration potential to neighbours considered due to likely geology (cohesive soils).

Table 4.2. Preliminary Conceptual Site Model.				
Source(s)	Pathway(s)	Receptor(s)	Risk ¹	Justification for Risk / Comment
		c. Future Buildings	PPL B-4-c Low	As PPL B-4-a.
		d. Construction Workers	PPL B-4-d Very Low	As PPL B-4-a and assuming appropriate PPE and standard working practices.
	5. Contact with building materials/ services; Leaching into services trenches	a. Buried Services; Building Materials	PPL B-5-a Low	Limited potential for contamination which could affect buried services.
	6. Direct contact with soils/ uptake by flora and fauna	a. Ecological Receptors	PPL B-6-a Low	Limited potential for contamination which could affect plants, however no evidence and consequences are minor.
PPL C Construction & Demolition Activities (Hydrocarbons (incl. TPH/PAHs, fuel, oil and grease), inorganic compounds, asbestos, ground gas, VOC)	1. Direct contact with soils; Ingestion of soil, or soil dust; Inhalation of dust, or asbestos fibres	a. Future Site Users	PPL C-1-a Moderate/ Low	Potential ACMs noted during walkover, with potential for further products in structures. Asbestos survey recommended in any primary structures to be demolished due to age (1960/1970s).
		b. Site Neighbours/ General Public	PPL C-1-b Low	Low migration risk due to low solubility of materials and mostly cohesive shallow geology.
		c. Construction Workers	PPL C-1-c Very Low	Assuming appropriate PPE and standard working practices.
	2. Leaching of contaminants; Infiltration to and movement within the groundwater	a. Secondary (Undiff) & Principal Aquifers	PPL C-2-a Low	Low likelihood of significant contamination plus contaminants like of limited solubility and migration limited by clay soils.
	3. Outdoor inhalation of ground gas and/or vapours	a. Future Site Users	PPL C-3-a Very Low	Limited potential for significant gas generating materials with potential to affect human health outdoors.
		b. Site Neighbours/ General Public	PPL C-3-b Very Low	As above, plus migration to neighbours considered unlikely due to likely geology (cohesive soils).
		c. Construction Workers	PPL C-3-c Very Low	Assuming the use of appropriate PPE and working practices.

Table 4.2. Preliminary Conceptual Site Model.				
Source(s)	Pathway(s)	Receptor(s)	Risk ¹	Justification for Risk / Comment
	4. Ingress of vapours/ gases into buildings; Inhalation of vapours/ gases (indoor) or explosion	a. Future Site Users	PPL C-4-a Low	Limited potential for materials with gas generation potential.
		b. Site Neighbours/ General Public	PPL C-4-b Low	As above, plus migration to neighbours considered unlikely due to likely geology (cohesive soils).
		c. Future Buildings	PPL C-4-c Low	As PPL C-4-a, plus limited potential for organic materials.
		d. Construction Workers	PPL C-4-d Very Low	As above and assuming use of appropriate PPE and working practices.
	5. Contact with building materials/ services; Leaching into services trenches	a. Buried Services; Building Materials	PPL C-5-a Low	Limited potential for contamination which could affect buried services.
	6. Direct contact with soils/ uptake by flora and fauna	a. Ecological Receptors	PPL C-6-a Low	Limited potential for contamination which could affect plants, however no evidence and consequences are minor.

¹The risk rating given in the table above is based on classification of consequence and the probability of occurrence; further details are described in Appendix 1.

5. SITE WORKS

5.1. Investigation Rationale

An intrusive Site Investigation was designed by a GEMCO consultant to provide an appraisal of the contamination conditions, with reference to the Preliminary CSM (Section 4.5), and to provide a preliminary geotechnical appraisal of the Site to inform the foundation/civil engineering strategy, as per the objectives (Section 1.2). It was considered that Window Sample boreholes and Trial Pits with Infiltration Testing would provide adequate coverage of the Site and fulfil the investigation objectives.

It was noted that the layout of the proposal had not been finalised (Section 1.1), and so the SI would aim to capture a general coverage which would be applicable to the possible layout scenarios.

The investigation is further outlined in Section 5.2.

The investigation was carried out in accordance with the methodologies and practices outlined in guidance outlined at Section 1.4, EA/DoE guidance (R.2 and R.22) and CL:AIRE guidance (R.23).

5.2. Site Investigation Works

The site works were undertaken under the supervision of GEMCO on 6th and 7th February 2024, with post-investigation monitoring undertaken the following week on 15th February 2024.

The ground conditions encountered at each of the borings/excavations completed during the GI, including groundwater observations, were logged by a GEMCO consultant. The logs, as well as the results from in-situ tests, are presented at Appendix 7.

The number and locations of the sampling points (shown at Figure 4) was considered sufficient to achieve the objectives of the work and aid in the production of this report. However, note that other features or ground conditions may be present between the exploratory hole locations which were not recorded by the investigation, and which developers should take into account during construction.

Drawings/utility plans outlining the locations of services were provided by the Client prior to the investigation; nevertheless, each location was scanned using Cable Avoidance Tools (CAT) prior to breaking ground to ensure no services would be struck, and the first 1.2m of each borehole was excavated by hand.

The locations of borings/excavations were limited to a degree due to the presence of utilities throughout the Site. In addition, accessibility to the rear of the property was limited to smaller plant.

5.2.1. Window Sample Boreholes

Five (5no.) boreholes (GWS101-GWS105) were advanced by dynamic (window) sampling techniques to 2m-5mbgl to inspect, log, and sample near-surface soils, to undertake shallow in-situ geotechnical testing (Standard Penetration Test, SPT, 1m intervals), and install gas/groundwater monitoring apparatus (see Section 5.2.3).

The installation details and results of in-situ tests (SPT N-values) are presented on the logs (Appendix 7).

5.2.2. Trial Pits and Infiltration Testing

Two (2no.) Trial Pits (GSA101-102) were excavated to depths ranging 2.50- 2.70m bgl to inspect, log, sample shallow soils, and undertake infiltration testing in accordance with BRE 365 testing methodology (R.24). The locations of the tests were specified by the Client to appraise the drainage potential of soils in the west of the Site.

Following excavation, the pits were backfilled with an infiltration test installation comprising; two (2no.) HDPE pipes extending from ground level to the trial pit base for inspection and filling, a 20mm gravel backfill approx. 1.0 m thick at the base, and topped with arisings to ground level to make the area safe.

The tests comprised the filling of the pit with water via a pumped bowser through one pipe up to the top of the gravel pack, and measuring the water level drop over time through the second pipe. Tests would be repeated up to three (3no.) times in accordance with BRE365, if possible, with repeat tests commenced if the water had drained past the 25% fill level during the proceeding test.

The results of infiltration testing are presented at Appendix 8 and discussed in Section 6.5 and Section 7.6.

5.2.3. Gas and Groundwater Monitoring

Gas and groundwater monitoring wells were installed in three (3no.) boreholes (GWS102, GWS103 and GWS104).

Wells were constructed with 63mm (external diameter) HDPE slotted and plain well screen, gravel filter pack and bentonite seal, and equipped with a bung and gas valve. The installation details are presented on the exploratory hole logs (Appendix 7).

One (1no.) return visit was scheduled to monitor gas and groundwater levels at the respective boreholes and collect water samples (if available). The gas parameters monitored included, but was not limited to, Methane (CH₄) and Carbon Dioxide (CO₂) levels, Gas Flow Rate and Atmospheric Pressure.

The data is presented at Appendix 9, summarised at Section 6.6, and discussed in Section 8.4.

5.3. Geotechnical Laboratory Testing

The following geotechnical laboratory testing was scheduled on twenty (20no.) soil samples collected:

- Twenty (20no.) Water/Moisture Content Determinations; and
- Twelve (12no.) Liquid and Plastic Limit (1 Point) tests.

The results from the geotechnical analyses are presented in Appendix 10 and discussed in Sections 6 and 7.

An additional eight (8no.) soil were tested for BRE SD1/pH and water-soluble sulphate levels for concrete grading purposes. These results are presented with the chemical reports (Appendix 11).

5.4. Chemical Laboratory Testing

Six (6no.) soil samples were scheduled for the following standard chemical analysis suite (GEMCO Suite 1a, GS1a), based on the objectives of the investigation, CSM, and observations during the field works:

- **Metals Screen:** Arsenic, Boron (water-soluble), Cadmium, Chromium (III), Copper, Lead, Mercury, Nickel, Selenium and Zinc;
- **Organics Screen:** Total Petroleum Hydrocarbons (TPH) with Criteria Working Group (CWG) banding; Benzene, Toluene, Ethylbenzene, p, m & o-Xylenes (BTEX) and MTBE; Polyaromatic Hydrocarbons (PAH); USEPA 16 Suite; Total Phenols (Monohydric);
- **Inorganics Screen:** Cyanide (Total), Sulphate (Total), Sulphate (Water-Soluble), Sulphide;
- **Others:** pH, Organic Matter, Total Organic Carbon; Asbestos screen (polarised light microscopy) plus quantification upon positive identification.

The chemical laboratory reports are presented at Appendix 11 and the results are discussed in Section 8.

5.5. Sample Collection and Laboratory Quality Control

Representative soil samples were collected during the investigation and forwarded to an appropriate laboratory for the analysis required. The sample types and depths are recorded on the geological logs in Appendix 6. Soil samples for chemical testing were collected in sealed amber glass jars and stored in a cool box. Samples for geotechnical tests were collected in sealable plastic tubs/bags. All samples and analytical scheduling were recorded on a chain of custody form.

The laboratories used are accredited laboratories by the United Kingdom Accreditation Service (UKAS). With regard to the chemical testing laboratory at least 50% of individual parameters at the time of testing, were from methods pending accreditation to the Environment Agency Monitoring Certification Scheme (MCERTS) for the range of analyses undertaken as part of this investigation.

The MCERTS performance standard for the chemical testing soil is an application of ISO17025:2000 specifically for the testing of soil.

6. GEOLOGY AND GROUND CONDITIONS

6.1. Published Geology

BGS records indicate that the Site is underlain by superficial Lowestoft Formation Diamicton overlying Chalk. A small area to the east of the Site was indicated as being absent of any superficial deposits. (Section 2.2).

6.2. Strata Encountered

6.2.1. Summary

The ground conditions may be summarised as topsoil/made ground, over cohesive soils, underlain by Chalk, consistent with the anticipated geology, as shown in the strata summary presented at Table 6.1 below:

Table 6.1. Summary of Ground Conditions.						
Hole Ref.	Depth of Stratum (mbgl)				Groundwater	Stability
	Topsoil	Made Ground	Cohesive	Chalk		
GWS101	n/e	0.00 – 0.60;	0.60 – 2.60;	2.60 – 5.45.	n/e	Stable
GWS102	0.00 – 0.30;	n/e	0.30 – 1.85;	1.85 – 5.45.	n/e	Stable
GWS103	0.00 – 0.15;	n/e	0.15 – 1.80;	1.80 – 5.45.	n/e	Stable
GWS104	0.00 – 0.25;	n/e	0.25 – 2.00;	2.00 – 5.45.	n/e	Stable
GWS105	n/e	0.00 – 0.45;	0.45 – 2.00;	2.00 – 2.45.	n/e	Stable
GSA101	n/e	0.00 – 0.70;	0.70 – 2.70.	n/e	n/e	Stable
GSA102	n/e	0.00 – 0.35;	0.35 – 2.50.	n/e	n/e	Stable
n/e = not encountered.						

Photographs showing the ground conditions encountered are presented at Appendix 2.

The ground conditions are discussed in more detail in the sections below.

6.2.2. Topsoil

Topsoil was encountered in boreholes GWS102-104, which were located in the front and rear gardens of residential terrace. Thickness ranged 0.15m – 0.3m, and was generally described as a dark brown clayey topsoil with occasionally roots and variable gravel which included brick at GWS104. The material is considered reworked.

6.2.3. Made Ground

Made ground between 0.35m - 0.70m thick was encountered from ground level in four (4no.) locations (GWS101, GWS105).

In the west of the Site (GWS101, GSA101, GSA102) the made ground comprised of a layer of reinforced concrete underlain by a sand and gravel fill/subbase, where gravel comprised flint, brick and concrete, underlain by soft/firm clay with occasional brick/concrete fragments. Fragments of timber, occasional black staining and hydrocarbon odours were noted at GSA101.

Made ground at GWS105 comprised reworked material beneath an area of garden path.

6.2.4. Cohesive Deposits

Cohesive soil was encountered beneath the made ground/topsoil in all exploratory holes, from an average depth of approximately 0.3mbgl to approximately 2mbgl (maximum 2.6mbgl). The material generally comprised a brown/ yellowish brown mottled grey slightly sandy slightly gravelly to gravelly clay, where gravel comprised chalk and flint - considered consistent with the Lowestoft Formation Diamicton. The shallower material appeared to be weathered or possibly reworked and slightly softer (see below).

Twenty-two Standard Penetration Tests (SPTs) were completed during the SI, of which five (5no.) were within cohesive soils (4no at 1.0m bgl and 1no at 2.0m bgl). The blow counts of all SPTs completed (recorded as 'N-values' on the logs at Appendix 7) are summarised below:

Table 6.2. SPT Blow Counts – All Tests.													
Test Depth (mbgl)	No. Tests	SPT Blow Count/'N' Value per Borehole											
		GWS101		GWS102		GWS103		GWS104		GWS105		Avg.	
		N	N ₆₀	N	N ₆₀	N	N ₆₀	N	N ₆₀	N	N ₆₀	N	N ₆₀
1.00-1.45	5	12	19	14	22	12	19	23	36	11	17	14	22
2.00-2.45	5	17	26	17	26	29	45	17	26	56	88	30	43
3.00-3.45	4	9	14	15	23	27	42	16	25	-	-	17	46
4.00-4.45	4	15	23	19	30	21	33	20	31	-	-	19	29
5.00-5.45	4	18	28	21	33	21	33	21	33	-	-	20	32

NOTES: Red- SPT in Cohesive Soil. Blue – SPT in chalk. Where calculation produces fractional result, number is rounded down.

As shown, the raw N-values on the logs have been converted to a normalised SPT N₆₀ value based on the energy ratio of the SPT hammer (95%, certificate at Appendix 7). The SPT N₆₀ of the cohesive soil ranged 17 to 36, indicative of firm to stiff shallow cohesive soils, analogous with the field descriptions.

Ten (10no.) natural Moisture Content (MC) determinations and four (4no.) Atterberg Limits tests were undertaken on samples of cohesive soils (Appendix 10). The Limits results are summarised below:

Table 6.3. Atterberg Liquid and Plasticity Limit Test Results- Cohesive.									
Hole Ref	Depth (mbgl)	MC (%)	LL (%)	PL (%)	PI (%)	% ret ¹	Class	NHBC	
								I'P	VCP
GWS101	1.50-1.60	15.2	46	16	30	12	CI	26	Med
GWS102	1.50-1.70	13.7	28	14	14	27	CL	10	Low
GWS104	1.10-1.30	19.5	55	18	37	10	CH	33	Med
GWS105	1.00-1.20	18.2	50	17	33	8	CI/CH	30	Med

Notes: NHBC VCP – NHBC Volume Change Potential, based on I'P – NHBC Modified Plasticity Index; ¹% retained on 0.425mm sieve.

The Liquid Limit (LL) typically ranges 46-55%, with one (1no.) outlier of 28%, and Plastic Limit (PL) ranges 14-18%, resulting in Plasticity Indices ranging 30-37% (26-33% I'P) with one (1no.) outlier of 14% (10% I'P). The outlier result is noted near the clay-chalk boundary and may represent a highly weathered chalk.

Moisture Content results ranged 13.7% to 26.2%, and ranged 4.9% below to 4.0% above the Plastic Limit. The MC test results are plotted versus sample depth in the Moisture Content Profile at Appendix 10.

Samples were typically classed as intermediate to high plasticity on the Casagrande Chart, and low or medium Volume Change Potential (VCP). The laboratory test results do not indicate any potentially desiccated soils.

The SPT N_{60} and PI (or I'P as appropriate) data may be used to derive approximate values of mass shear strength (c) using a conversion factor (f_1) as follows:

$$c = f_1 \times N_{60} \text{ (kN/m}^2\text{)}$$

The I'P of the in-situ cohesive soil ranged 14% to 33%, indicating an f_1 of 5 would be appropriate.

Table 6.4. Mass Undrained Shear Strength – All Tests.							
Depth (m)	No Tests.	SPT N_{60} -values (from Table 6.2)			Mass Undrained Shear Strength (kPa)		
		Min	Max	Avg	Min	Max	Avg
1.0	5	17	36	22	85	180	110
2.0	1	26	26	26	130	130	130

Based on the works of Stroud and Butler (1975).

The Mass Undrained Shear Strengths are indicative of typically firm (medium strength) to stiff (High strength) soils, which are consistent with the field descriptions.

6.2.5. Chalk Deposits

Chalk was encountered in window sample boreholes only beneath cohesive deposits from roughly 2.00m bgl (shallowest in the southeast from 1.8 and 1.85m bgl) to the terminus at 5.45m bgl.

The material was generally a structureless light grey/white/pale brown weathered chalk composed of a silt/clay matrix with fine to coarse gravel-sized clasts of weak low density white chalk. The matrix was firm and friable, becoming soft (putty) in places with depth contemporaneous with increases in apparent MC.

SPTs completed in the chalk recorded variable N_{60} values of generally 14 to 45, generally softening slightly with depth (see Table 6.2).

Ten (10no.) Atterberg Limit tests (and 1no. MC) were undertaken on chalk samples, as summarised below:

Table 6.5. Atterberg Liquid and Plasticity Limit and MC Test Results- Chalk.									
Hole Ref	Depth (mbgl)	MC (%)	LL (%)	PL (%)	PI (%)	% ret ¹	Class	NHBC	
								I'P	VCP
GWS101	2.70-2.90	24.8	31	23	8	15	CL/ML	7	Low
GWS101	4.20-4.40	22.6	-	-	-	-	-	-	-
GWS102	2.70-2.90	26.2	33	24	9	14	CL/ML	8	Low
GWS102	4.00-4.30	26.0	30	22	8	8	CL	7	Low
GWS103	1.80-2.00	15.1	27	20	7	6	CL	7	Low
GWS103	3.00-3.20	20.0	29	21	8	-	CL	-	Low
GWS103	4.20-4.50	21.6	29	21	8	-	CL	-	Low
GWS104	1.70-1.90	11.5	25	15	10	23	CL	8	Low
GWS104	2.20-2.40	14.6	27	19	8	6	CL	8	Low
GWS104	3.40-3.60	19.7	30	22	8	11	CL	7	Low
GWS104	4.70-5.00	20.5	29	20	9	-	CL	-	Low

Notes: NHBC VCP – NHBC Volume Change Potential, based on I'P – NHBC Modified Plasticity Index; ¹% retained on 0.425mm sieve.
 * = Moisture content corrected for material >0.425mm which is assumed non-porous.

6.3. Contamination Observations

Potential ACM (broken pipe) was identified within the rear garden of the residential units. Various other household items/materials were also noted in the gardens, but were not considered chemically significant.

Made ground was encountered at four (4no.) locations to a maximum depth of 0.70m bgl (deepest in the garage area). The material in the area of the garages included a soft grey clay fragments of timber, concrete, and brick, and was noted to have a slight hydrocarbon/organic odour (GSA101). No other significant evidence of contamination (visual or olfactory) was identified within the soils. Shallow soils are generally considered reworked to some degree on the basis of the Site being urbanised.

Soil samples were taken to appraise the general contamination conditions across the Site as well as the areas of the potential contamination noted. The results are discussed at Section 8.

6.4. Groundwater Observations

No phreatic groundwater strikes nor perched water was observed during the investigation, however some increases of apparent moisture were noted within the chalk, resulting in softer areas of putty chalk.

BGS records indicate the local groundwater level resting at some 20 mbgl (R.25).

6.5. BRE365 Infiltration Testing

Two (2no.) BRE 365 infiltration tests were undertaken to appraise the drainage potential of soils. The results, presented at Appendix 8, are summarised in the table below and discussed in Section 7.6.

Table 6.6. Summary of BRE365 Infiltration Test Results.				
Hole Ref.	Response Zone (mbgl)	Strata Summary (in response zone)	No Tests	Infiltration Rate (m/s)
GSA101	1.85 – 2.70	<i>Slightly gravelly CLAY</i>	1	N/A - test failed.
GSA102	1.60 – 2.50	<i>Slightly sandy/sandy CLAY</i>	1	N/A - test failed.

Both GSA101 and GSA102 failed to sufficiently drain within 24 hours, and were therefore abandoned.

6.6. Gas & Groundwater Monitoring

Three (3no.) boreholes (GWS102, GWS102 and GWS104) were installed with monitoring wells on completion of drilling in order to monitor gas emissions, groundwater levels.

Monitoring was undertaken on one (1no.) occasion in February 2024. A summary is presented below, based on the data presented at Appendix 9, and discussion presented at Section 8.3 and Section 8.4:

Table 6.7. Summary of Gas and Groundwater Monitoring Data.							
Well Ref.	Response Zone (mbgl)	CH ₄ (% v/v)	CO ₂ (% v/v)	Flow (l/hr)	VOC (ppm)	Depth to Water (mbgl)	Depth to Base (mbgl)
GWS101	1.0-5.0	0.0	0.1	0.0	0.0	DRY	5.00
GWS102	1.0-5.0	0.0	0.4	0.0	0.0	DRY	4.98
GWS104	1.0-5.0	0.0	1.3	0.0	0.0	DRY	4.98
Atmospheric Pressure: 996mbar in a steady low-pressure trend, per Met Office definitions (R.18).							

7. PRELIMINARY GEOTECHNICAL ASSESSMENT

7.1. Introduction

It is proposed to develop the Site for a residential development comprising fourteen (14no.) apartment dwellings with associated infrastructure (Figure 2).

No construction details or loadings have been received at this stage. The geotechnical appraisal is based on the following assumptions:

- The proposed residential development will not exceed two storeys and will be of traditional load bearing masonry walls or timber frame construction; and
- The development will be at or near grade, with no retaining walls or earthworks envisioned.

The comments and recommendations presented below should therefore be treated as preliminary and should be reviewed against these assumptions as additional development information becomes available.

The Site is generally underlain by Made Ground overlying superficial weathered and unweathered Lowestoft Formation Diamicton clay soils over bedrock of the Holywell Nodular and New Pit Chalk.

The superficial Diamicton was generally encountered from between c.0.10m and 0.70m bgl. Localised areas of inferred weathered (or possibly reworked) soft becoming firm Diamicton was encountered in GWS102 and GWS105 to a maximum depth of 1.30m bgl (GWS102).

The unweathered Lowestoft Formation Diamicton (firm/stiff slightly gravelly clay) was encountered across the Site. The underlying chalk bedrock was generally encountered between c.1.80m and >2.70m bgl. There is currently no indication from database records (Appendix 3) and enquiries with the Local Authority Building Control (Appendix 6) of dissolution features/cavities within the chalk in the area.

A preliminary ground model is provided in the following table, based on the in-situ and laboratory testing undertaken. Values indicated are characteristic soil parameters and it should be noted that a generalised ground model is by its nature a simplification of the ground conditions across the Site, and care should be taken to check conditions on a plot-by-plot basis during construction:

Table 7.1. Ground Model/Geotechnical Parameters.								
Stratum	From (mbgl)	To (mbgl)	Thick (m)	γ (kN/m³)	C_u (kPa)	ϕ' (°)	E_u (MPa)	E' (MPa)
Made Ground/ Topsoil	0.5	0.5	0.5	18	-	28	-	5000
Soft to firm clay*	0.5	0.9	0.4	19	30	-	400Cu	0.8Eu
Firm to stiff clay	0.9	1.2	0.3	19	50	-	400Cu	0.8Eu
Stiff clay	1.2	2.7	1.5	19	75	-	400Cu	0.8Eu
Chalk	2.7	>5.5	>2.8	19	-	31	75	200
Groundwater Level	N/A							
*Possibly reworked								

7.2. Groundwork

Excavations will be predominantly carried out through firm to stiff cohesive deposits, including made ground/ topsoil. Therefore, all excavations should be achievable using conventional earthmoving plant.

Based on soil descriptions and in-situ testing, shallow excavations and trenches should remain stable without support within natural soils in the short to medium term. All exploratory trial pits were stable and no groundwater was encountered within the upper 5.00m. However, sidewall stability will be very much dependant on the depth and location of the hole as well as the length of time it is left open. Made ground should be considered unstable in all cases.

Site workers should not enter excavations unless an assessment of the need for ground support has been carried out by a competent person and any necessary ground support has been installed. Construction plant and stockpiles of materials must not be permitted close to the edges of open excavations.

Based on site observations, engineering logs and preliminary monitoring data, it is unlikely that shallow excavations in cohesive soils will encounter significant groundwater inflows, however perched water may be present and require dewatering. Allowance should therefore be made for surface water control.

Construction plant and stockpiles must not be permitted close to the edges of open excavations.

7.3. Foundations and Floor Slabs

Shallow foundations may be adopted, assuming typically lightly loaded residential structures, but this will be dependent on the plot-specific formation level dictated by nearby trees. From an initial review of arboriculture information for the Site, there is potential for existing trees (either retained or removed) and new planting which may influence foundation depths. A plot-by-plot evaluation of a suitable foundation solution for each structure will be required with reference to the relevant NHBC guidance.

Based on the borehole logs and developmental plans, the proposed structures will typically be underlain by cohesive soils of Low to Medium VCP, in accordance with NHBC Chapter 4.2 (R.26). It is recommended that a Medium VCP is adopted site wide.

7.3.1. Shallow Foundations

A preliminary assessment of the bearing capacity of shallow foundations has been undertaken in accordance with BS8004-1986 (R.27) (Factor of safety of 2.5), BS-EN-1997-1:2004+A1:2013 (Eurocode 7) (R.28) and National Annex to BS-EN-1997-1 for combinations 1 and 2 of Design Approach 1 (R.29).

Foundations may be placed within the natural firm clay at a minimum depth of:

- 0.90mbgl if outside the zone of influence of trees (Column B, Table 4, 4.2.7 NHBC); or
- 1.25mbgl where restricted new tree planting is proposed (Column A, Table 4, 4.2.7 NHBC); or
- As required by NHBC 4.2.13 (Tables 14 to 16) where within the zone of influence of trees.

It should be noted that existing trees or proposed tree planting within the zone of influence of the foundations will impact the required minimum foundation depth.

In all cases, foundations must be taken beyond the Topsoil/Made Ground. Noting the potential variability in soil shear strengths at shallow depths, it is recommended *in-situ* shear strength at foundation formation level is confirmed prior to construction at each plot.

In order to ensure total settlements of <25mm and deflection ratios due to differential settlements of <1/500 between walls, foundations should be designed based on a maximum bearing capacity of 100kPa from 0.90m bgl, based upon the formation level being confirmed as having a C_u of 50kN/m² or greater, and a maximum bearing capacity of 150kPa from 1.25m bgl, based upon the formation level being confirmed as having a C_u of 75kN/m² or greater.

All foundation levels should be inspected by a suitably competent person prior to the pouring of any concrete.

Should the allowable bearing capacity be insufficient for the proposed new structures, foundations could be extended into the underlying chalk, encountered from between 1.80m towards the east of the site and c.2.70m towards the west. It is estimated that an allowable bearing capacity of around 225kPa would be achievable within this material; however, further testing may be required to determine the Intact Dry Density (IDD) and Saturation Moisture Content (SMC) of the material before a definitive value can be arrived at in accordance with CIRIA C574 (R.30).

7.3.2. Piled Foundations

Should assessed minimum foundation depths be too deep for conventional foundations or the bearing capacities derived above not be sufficient for the proposed development then consideration of alternative foundation solutions such as piles may provide the required improvement in bearing capacities.

Further investigation and assessment would be required to design piles and assess any impacts to the underlying aquifer.

7.4. Pavement Design

The subgrade for paved areas and access roads will comprise of made ground and firm/stiff cohesive soils with a maximum PI of approximately 33%. No in-situ or laboratory California Bearing Ratio (CBR) testing has been carried out as part of this commission. Guidance on the selection of equilibrium CBR values is provided in *Interim Advice Note 73/06 (2009) Table 5.1* from the DMRB (R.31, recently withdrawn).

Based the above, it is recommended that design is carried out using an Estimated CBR value of 3%.

Whilst there is no general indication of desiccated soils, there is potential for desiccation in near-surface soils, especially in the summer months, which may result in in-situ CBR tests returning much higher values than the equilibrium CBR values. Care should be taken with in-situ values due to the potential for the Moisture Content of the subgrade to increase, with corresponding reduction in strength (and CBR value), which will be particularly significant if permeable paving is used. MC and PI values should be obtained and assessed at formation level contemporaneous with any in-situ CBR testing undertaken.

If required, capping and/or sub-base thicknesses may be reduced by incorporating basal geogrid reinforcement or potentially by stabilising the formation with lime and/or cement. The exposed formation should be proof rolled and inspected. Soft or loose areas indicated during proof rolling of formations should be excavated and replaced with compacted granular fill.

7.5. Concrete Grade

Thirteen (13no.) soil samples were scheduled for BRE SD1/pH and Water-Soluble Sulphate testing (WSSO₄), or testing which included pH and WSSO₄ analysis. The findings, summarised below, have been compared to BRE Special Digest 1 guidance (R.32) to provide a concrete grade, based on brownfield conditions and a mobile groundwater regime, as shown in the last two columns on the table below:

Table 7.2. Concrete Grade.					
Sample Depth	No. Samples	pH	WSSO₄ (mg/l)	DS Class¹	ACEC Class²
Made/Reworked Ground					
<0.6 mbgl	3	7.6-9.1	11-151	DS-1	AC-1
Natural Soil					
<1.00	1	8.0	18	DS-1	AC-1
1.00-2.00	4	8.1-8.2	<10-50	DS-1	AC-1
2.00-3.00	2	8.3-8.5	<10	DS-1	AC-1
>3.00	3	8.3-8.4	<10-18	DS-1	AC-1
¹ Design Sulphate Class; ² ACEC = Aggressive Chemical Environment for Concrete.					

Concrete below ground must comply with the requirements of Parts D-F of Special Digest 1, as appropriate.

7.6. Surface Water Drainage

BRE 365-compliant infiltration test were undertaken two (2no.) locations in the west of the Site (GSA101 and GSA102), as specified by the Client.

Both tests failed to drain past the 25%-level required to complete the test within a 24-hours period (Appendix 8). Tests were therefore considered to have failed, and subsequently testing was abandoned.

The results are as would be expected within cohesive material, and indicate that shallow soakaways are unlikely to be viable. The underling chalk may offer an alternative option for the discharge of water, however additional testing would be required in this regard.

The results of the testing should be forwarded to a suitably qualified drainage engineer/consultant for the purposes of drainage design.

8. GENERIC QUANTITATIVE RISK ASSESSMENT

8.1. Risk Assessment Methodology

In order to determine if the Site presents a potential risk to human health or environmental receptors and is suitable for the intended end use, a Tier 2 Generic Quantitative Risk Assessment (GQRA) has been undertaken in accordance with EA LCRM (R.2) and CIRIA (R.33) guidance. For a site to present a risk and have the potential to cause harm there must be a complete pollution linkage (source-pathway-receptor).

An initial Tier 2 Risk Assessment assesses the conditions at the Site against a set of Generic Assessment Criteria (GAC) to determine if there is a potential for risk to occur. If such a potential is identified at Tier 2, then a Tier 3 assessment would be required which would include site-specific data and assessment.

8.1.1. Conceptual Site Model

The potential source-pathway-receptor pollution linkages identified for the Site are based on the desk study and preliminary CSM (Section 4.5). The SI undertaken was designed in part to investigate the Potential Pollutant Linkages (PPLs) identified and appraise the general contamination levels at the Site.

8.1.2. Significant Pollution Linkage

The significance of pollution linkages is assessed using a risk-based approach, using procedures in accordance with relevant guidance, including EA LCRM (R.2) and the Environmental Protection Act 1990, Part IIA (R.6). The guidance purports the use of the source-pathway-target, pollutant linkage methodology and for a potential risk to occur there must be a discernible and complete pollutant linkage.

8.1.3. Human Health Generic Assessment Criteria

The GAC used in the production of this Tier 2 GQRA have been determined by reference to current industry standards and other published guidance for a number of priority pollutants identified by the GEMCO desk study (Section 4). The GAC and sources are presented in Appendix 12.

The primary source of GACs utilised is the Land Quality Management (LQM)/Chartered Institute of Environmental Health (CIEH) 'S4UL' (suitable for use levels) GAC (R.34). These represent a precautionary estimate of 'minimal risk' or 'no risk' to human health for a set of generic land uses. In the absence of an S4UL, other guidance has been used as stated in the table presented in Appendix 12; e.g. GAC generated by CL:AIRE (R.35). Of note is the Tier 2 screening criteria utilised for lead; in the absence of any authoritative 'minimal risk'/'no risk' GAC the DEFRA Category 4 Screening Levels (C4SL) for lead have been used (R.36, R.37 and R.38). These represent 'low risk' rather than 'minimal risk' or 'no risk'. In August 2015 revised S4UL for nickel were published by LQM/CIEH. These have been incorporated into the criteria (Appendix 12).

DEFRA have also released C4SLs for arsenic, benzene, benzo(a)pyrene, cadmium and chromium VI (R.36, R.37 and R.38). Where a soil contaminant concentration exceeds a GAC, a secondary comparison has also been made with the C4SL (Appendix 12).

The S4UL, C4SL and CL:AIRE GAC were derived using the CLEA exposure assessment model (R.39) and are derived for the most sensitive receptors within standard (generic) land-use scenarios (e.g., a 0 to 6-year-old female child for a residential scenario).

The S4ULs update older LQM/CIEH GAC and the EA Soil Guidance Values (SGVs) on the basis of a revised review of the available toxicological data and refined exposure modelling criteria. The CL:AIRE GAC were derived using the older, more conservative, standard CLEA modelling parameters.

The GAC utilised are scientifically based screening criteria that can simplify the assessment of human health risks arising from long-term on-site exposure to chemical contamination in soil by rapidly screening out low risks. Importantly however, exceedance of a GAC does not automatically indicate a significant risk; rather, it indicates that further assessment is required in light of detailed consideration of the exposure pathways (specific land use scenario etc.) and contaminant species present to determine the likelihood of a contamination linkage being realised. Equally, care must be taken to ensure the exposure modelling assumptions utilised to derive the S4UL/C4SL or other GAC are appropriate to the situation being assessed.

Also note that the GAC described above do not specifically consider acute risks, or risks to construction workers or risks from occupational exposure arising from activities in the work place.

8.1.4. Controlled Waters Assessment Criteria

Where appropriate, the risk to controlled waters will be assessed with reference to various water assessment criterion and guidance as outlined at Section 1.4. The Site is partially within a SPZ, so reference may be made to UK/EU Drinking Water Standards.

8.1.5. Statistical Assessment of Contaminant Distributions

Where the concentration of any contaminant is above the screening level or 'critical concentration', further statistical analysis of the results may be conducted in accordance with CIEH/CL:AIRE guidance (R.23).

The purpose of the statistical test is to scrutinise the dataset by comparing the upper confidence limits of the soil population mean with the critical concentration for the contaminant. Where the critical concentration is less or equal to the upper confidence limit it can be considered with a degree of confidence that the contaminant under scrutiny is unlikely to significantly impact the Site.

8.2. Human Health Risk Assessment

8.2.1. Assessment Scenario

It was understood that the Site is to be redeveloped to residential apartments with shared amenity space (i.e. no private gardens) (Figure2). The human health risk has therefore been assessed by comparing the chemical testing results to the GAC for Residential Public Open Space (Appendix 12, POS_{RESI}).

8.2.2. Summary of Chemical Laboratory Results

Six (6no.) soil samples were analysed for chemical determinands (outlined at Section 5.4) based on the site history, CSM and on-site observations. The samples scheduled included a variety of soils including topsoil, made ground and natural soils, plus any locations where potential contamination was identified.

The chemical laboratory results are presented in Appendix 11.

No exceedances of the assessment criteria were identified for chemical contamination. Asbestos was however detected (bundles of chrysotile fibres, 0.002%) at 0.30m bgl within GWS101. No asbestos was detected in the soil at GWS104, where a piece of potentially asbestos-containing pipe was noted.

8.2.3. Human Health Risk Assessment – Future Site Users

Based on the findings, the soils in the garden area are unlikely to present a significant risk to human health.

The soils beneath the hardstanding in the west of the Site have detected asbestos, and are therefore considered unsuitable for use within areas of softstanding in the proposed development.

The detection appears to be a one-off and localised to an area of the Site which is likely to be beneath structures/hardstanding within the current proposal, and would therefore be unlikely to present a risk to human health, however it is considered reasonably likely that further asbestos is present (noting the piece of possible ACM pipe found in the garden).

In order to minimise the risks to human health and potential for cross contamination with 'clean' soils elsewhere on-site, additional Site Investigation with emphasis on sampling of the soils for asbestos would be prudent post-demolition of the existing structure(s) plus any hardstanding to determine the full extent of contamination and potential risks to human health.

8.2.4. Human Health Risk Assessment – Site Neighbours/General Public

No contamination has been identified which would present a significant risk to site neighbours/the general public. The risk to off-site human health is therefore considered to be negligible at this stage.

8.2.5. Human Health Risk Assessment – Construction Workers

No significant contamination has been identified at this stage which would present a significant risk to construction workers, based on the assumption that standard PPE and hygiene facilities/standards are provided and maintained. This includes the localised detection of asbestos and asbestos products.

Workers should be made aware of the potential for encountering additional/undiscovered gross contamination and briefed on the Discovery Strategy in place (Section 10.6) should anything be uncovered.

Any significant asbestos finds, for example, will require removal from a specialist remediation contractor.

8.3. Controlled Waters Risk Assessment

No groundwater strikes were encountered during the SI. Local BGS records indicate a natural resting water level at >20m bgl. No water was observed during the subsequent monitoring visit.

No significant mobile/soluble contamination has been identified. The Site is therefore not considered to present a risk to controlled waters at this stage.

8.4. Ground Gas Risk Assessment

The ground gas risk assessment has been undertaken with reference to guidance outlined at Section 1.4.

8.4.1. Potential Sources of Ground Gas/Vapour

The Preliminary CSM identified the garages (plus any associated made ground) as a potential source of ground gas. Gas monitoring was therefore included within the scope of the SI to provide an appraisal of this source, as well as the general ground gas regime at the Site.

The SI encountered generally minimal levels of contamination. Made ground which contained some organic/degradable material was encountered, however it was relatively thin and shallow. Chalk was also encountered, which can be a source of carbon dioxide emission in certain conditions.

8.4.2. Ground Gas Monitoring Summary

One (1no.) round of post-investigation gas monitoring was undertaken in February 2024, which detected no methane (CH₄) nor Volatile Organic Compounds (VOC), and low levels of carbon dioxide (CO₂) (up to 1.3% v/v). Gas flow was negligible (0.0 l/hr).

The results are considered representative of the ground conditions encountered by the investigation.

The gas data collected has been used to adopt a Gas Screening Value (GSV) and subsequently classify the potential risk to the proposed development and outline any requirement for Gas Protection Measures (GPMs). The methodology used to produce the GSV is outlined in the next sections.

8.4.3. Hazardous Gas Quotient and Gas Screening Value

To derive a GSV, the Hazardous Gas Quotient (Q_{hg}) must first be calculated using the data for hazardous gases CH₄ and CO₂ at each borehole per monitoring event, as outlined in BS8485 (R.11), using the equation:

$$Q_{hg} = q \left(\frac{C_{hg}}{100} \right) = GSV$$

Where: q is the measured flow rate in litres per hour; and
 C_{hg} is the measured hazardous gas concentration.

Based on the gas monitoring results (Appendix 9), the calculated Q_{hg} for each borehole and each monitoring event ranged 0.000 - 0.001 l/hr for CO₂ and was <0.001 l/hr for CH₄ as no CH₄ was detected.

A GSV is adopted based on the calculated gas quotient to classify the Site, with reference to the CSM, to establish any necessity for gas protection measures using the BS8485:2015+A1:2019 Characteristic Situation (CS) (R.11) and NHBC traffic light assessment criteria (R.14). The GSVs may also be used to zone the Site if a site-wide protection measure can be reasonably avoided or would be considered unnecessary.

For a limited dataset, the GSV assessment uses a reasonable worst-case scenario.

In accordance with CIRIA (R.10) and the NHBC, developments may be broadly separated into the following “situations” based on the type of development and foundation for the purposes of gas risk assessment:

Table 8.1. CIRIA Situations for Gas Risk Assessment.	
Situation	Development Type
Situation A	Any development other than Situation B, e.g., factories, shops, commercial, warehouses, schools, cinemas, sports centres, stadiums, high rise housing, housing with basements, etc.
Situation B	Low rise building with minimum ventilated under floor void (min 150 mm).

In this case, the proposed development falls within the criteria of CIRIA “Situation B”.

The classification criteria presented in BS8485/NHBC guidance are summarised in the table below:

Table 8.2. BS8485/NHBC Classification – CIRIA Situation B.							
BS8485			NHBC				
CS	Risk Level	CH4 or CO2 Qhg/GSV (L/hr)	Methane		Carbon Dioxide		Traffic Light
			Max Conc. (%v/v)	Qhg/GSV (L/hr)	Max Conc. (%v/v)	Qhg/GSV (L/hr)	
CS1	Very Low	<0.071					Green
CS2	Low	0.07-<0.72	1	0.16	5	0.78	
CS3	Moderate	0.7-<3.5					
CS4	Moderate/High	3.5-<15	5	0.63	10	1.56	Amber 1
CS5	High	15-<70	20	1.56	30	3.13	Amber 2
CS6	Very High	>70					
Notes: ¹ Typically CH4 < 1% and CO2 < 5%, consider CS2 if greater; ² Flow <70 L/hr							

Notes: ¹Typically CH4 < 1% and CO2 < 5%, consider CS2 if greater; ²Flow <70 L/hr

8.4.4. Gas Risk Assessment – Conclusion

In summary, the worst-case Hazardous Gas Quotient for carbon dioxide was 0.001, based on a maximum average concentration of 1.3%, with no methane or significant flow detected

On this basis and in accordance with the guidance as summarised at Table 8.2, a GSV of <0.07 (CS1) is applicable and the Site is allocated CS1, or “Green” on the NHBC traffic light system (very low risk).

Gas Protection Measures are not considered necessary for the proposed development.

8.5. Buried Services Risk Assessment

The potential risk to buried services has been assessed by comparing the soil sample chemical test results to UK Water Industry Research (UKWIR) and UK Water and the Home Builders Federation (HBF) screening criteria for the selection of water supply pipe materials (R.40 and R.41, Appendix 12). Water supply infrastructure is considered the most sensitive receptor with respect to buried services and therefore this approach is considered protective of other service types.

No exceedances of the screening criteria have been identified. It is therefore considered that soils at the Site present a low risk to buried services and no specific materials would be required.

The relevant service providers/statutory undertakers must still be consulted with respect to their required specifications for underground services and the Site.

8.6. Ecological Receptors Risk Assessment – Risk to Plants

The current development proposal includes areas of communal softstanding (POS), with minimal planting.

Certain chemicals may have a detrimental (phytotoxic) effect on plant growth and should be considered when determining areas for future landscaping. The chemical results have been compared to British Standard BS3882:2015 (R.42, presented in Appendix 12) as a screen for potential phytotoxic risks to plants.

No exceedances of the Screening Criteria have been identified and so the soils are therefore considered unlikely to pose a risk to future plants.

8.7. Revised Conceptual Site Model

The results of the Site Investigation and subsequent Risk Assessment have been considered against the preliminary Conceptual Site Model (Section 4.5) to produce a revised CSM.

Based on the data obtained to date, the made ground in the area of the garages is considered to present a moderate to low risk to human health due to the presence of asbestos.

All other risks are considered negligible and have been dismissed within the revised Risk Assessment/CSM

Table 8.3. Revised Conceptual Site Model.

Public Risk Method: Conceptual Site Model				
Source(s)	Pathway(s)	Receptor(s)	Risk ¹	Justification for Risk / Comment
On-site				
PPL A Made Ground (Asbestos-containing made ground under hardstanding in the area of garages in the west of the Site) (Particularly asbestos, but also potential organic materials and hydrocarbons)	1. Direct contact with soils; Ingestion of soil, or soil dust; Ingestion of contaminated vegetable produce; Inhalation of dust, or asbestos fibres.	a. Future Site Users	PPL A-1-a Moderate/ Low	Localised, singular detection of asbestos in made ground beneath the hardstanding. Area likely to comprise structures/hardstanding in the proposed development, however the hardstanding is likely to be removed during the development process. Additional sampling is therefore recommended in the garages area (and beneath any structures demolished) post-demolition to determine the extent of contamination and minimise the risk of cross-contamination with clean soil. The likelihood of encountering further contamination is considered to be reasonable based on the findings of the SI.
		b. Site Neighbours/ General Public	PPL A-1-b Very Low	No significant contamination or pathway to off-site human health receptors identified. Dust suppression is recommended during remediation/groundworks where appropriate.
		c. Construction Workers	PPL A-1-c Low	No significant contamination identified at this stage which would present a risk to construction workers (including asbestos) on the assumption that workers are provided (and use) standard PPE and hygiene facilities. Workers should be briefed on the potential for additional gross contamination discovery and the Discovery Strategy. Additional discovery of gross contamination (e.g. asbestos) may require a specialist contractor.
¹ The risk rating given in the table above is based on classification of consequence and the probability of occurrence; further details are described in Appendix 1.				

9. CONCLUSIONS

9.1. Summary of Site Description and Desk Study Information

9.1.1. Site Description and Development History

The Site comprised an irregular shaped parcel (area c.0.2Ha) which consisted of a (1no) residential terrace and private gardens to the rear, and eighteen (18no.) garages on concrete hardstanding.

The Site was historically agricultural land until the 1960s/1970s, when the residential property was built. The garages were added in c.1980, and the Site appears unchanged from this time to the present-day.

9.1.2. Published Geology, Hydrogeology and Hydrology

BGS records indicated superficial deposits of Lowestoft Formation Diamicton (Secondary 'Undifferentiated' Aquifer) overlying Holywell Nodular and New Pit Chalk bedrock (Principal Aquifer). A small area to the east of the Site was indicated as being absent of any superficial deposits. No significant geological hazards have been identified.

The Site is partially within a SPZ I and SPZ II. No surface waters are on-site or in the vicinity.

9.1.3. Environmental Searches

No significant environmental permits, pollution incidents or register entries or waste sites have been identified within the vicinity of the Site which are considered likely to present a risk to the Site.

With regards to sensitive areas, the Site is within NVZs for both surface and ground water, as well as an area with potentially naturally elevated Arsenic, Chromium, and Nickel.

9.1.4. Preliminary Risk Assessment and Conceptual Site Model

The preliminary Conceptual Site Model identified the following potential sources of contamination:

On-Site: Site Use (Garages) (PPL A);

On/Off-Site: Agricultural/Allotment Activities (PPL B); and Construction & Demolition Activities (PPL C).

Moderate/Low risks were identified in relation to PPL A and PPL D. Risks from PPL B were considered to be low.

9.2. Ground Conditions

The ground conditions may be summarised as topsoil and/or made ground over firm to stiff cohesive soils (weathered or reworked soft/firm initially) consistent with Lowestoft Diamicton, overlying structureless chalk. No groundwater was encountered.

Made ground up to 0.7m thick was encountered, however no significant evidence of contamination was noted within the soils other than a slight hydrocarbon odour at GSA101, and a piece of possibly asbestos containing pipe in the garden in the area of GWS104.

9.3. Engineering Considerations

For engineering design purposes, the preliminary geotechnical assessment presented in Section 7 should be read in full. The comments and recommendations should be treated as preliminary and should be reviewed as additional development information becomes available.

Proposed structures will typically be underlain by intermediate/high plasticity, high-strength cohesive soils of Low/Medium VCP. A Medium VCP should be adopted site-wide and floor slabs are suspended.

Shallow foundations may be adopted, assuming typically lightly loaded residential structures, but this will be dependent on the formation level dictated by nearby trees. Generally, it is considered likely that footings may be placed at 0.9-1.25m bgl. No foundations should be laid in made ground.

Should the allowable bearing capacity be insufficient for the proposed structure(s), foundations could be extended into the underlying chalk; however, further testing may be required. Piled foundations may also be considered. Further investigation would be required to design piles.

Excavations will be predominantly carried out through cohesive soil, which should be achievable using conventional machinery. Shallow excavations in natural soil will likely be stable without support in the short term, but may require support if manual entry is required or if excavations will be left open. Groundwater inflows are unlikely, however perched water may be present and require dewatering.

It is recommended that pavement design is carried out using a CBR value of 3%, and the Design Sulphate/ACEC Class for concrete is DS-1 and AC-1.

Infiltration testing indicate that the cohesive soils were abandoned due to poor infiltration. The deeper discharge to the chalk may be viable, subject to appropriate testing. A suitably qualified drainage engineer should be consulted regarding suitable drainage solutions for the Site.

9.4. Contamination Conditions and Risk Assessment

No significant chemical contamination was detected within the soils at the Site. Asbestos was however detected in one (1no.) samples from the made ground in the area of the garages, and a piece of possible asbestos was noted in the rear garden area. Other household items in the rear gardens are not considered to present a contamination risk.

No significant ground gas was detected by the post-investigation monitoring (<1% carbon dioxide, no methane, flow, nor VOC), and therefore no gas protection measures are considered to be necessary.

On the basis of the soils encountered and chemical testing undertaken, the made ground soil in the west of the site may present an unacceptable risk to human health, but additional testing is recommended post-demolition of structures to determine the full extent of the contamination. At this stage the contamination appears to be localised, but the SI/testing scope was somewhat restricted due to the structures present, and further asbestos discovery is considered plausible.

The risks to all other sensitive receptors from all other sources/PPLs are considered to be negligible. Construction workers are unlikely to require anything more than standard PPE and washing facilities.

A Discovery Strategy should also be implemented.

10. RECOMMENDATIONS

10.1. Contamination and Remediation

On the basis of the Site Investigation observations, laboratory results and Risk Assessments, it is considered that the Site will be suitable for the proposed development subject to the following recommendations:

- Asbestos contamination has been detected in made ground soils in the west of the site (garage hardstanding area). The soil is considered unacceptable for use in a residential development.
- All other soils are considered low risk/suitable at this stage;
- Additional contamination testing is recommended to further appraise the ground/contamination conditions after the demolition of structures to further assess the contamination identified (with an emphasis on asbestos) and potential for additional contamination in areas previously inaccessible to the Site Investigation;
- A Remediation Method Statement (RMS) should be prepared detailing how the contamination should be appropriately remediated. This is recommended for after any additional SI;
- No significant gas generation has been identified (CS1/NHBC Green). No gas protection measures are therefore considered necessary;
- The risk to buried services is considered low at this stage. The relevant service providers must be consulted with respect the required specification for underground services at the Site;
- Site-won natural soils are likely to be suitable for re-use (Section 10.4); and
- A Discovery Strategy should be put in place during the development works (see Section 10.6).

10.2. Engineering Recommendations

For engineering design purposes, based on the assumptions and the preliminary geotechnical assessment presented in Section 7, which should be read in full, it is recommended that:

- Shallow foundations may be adopted throughout, assuming lightly loaded structures;
- Foundations may be placed within the natural firm/stiff clay at a depth of 0.9-1.25mbgl, as required if within the zone of influence of trees. No foundations should be laid in made ground;
- Foundations could be extended into the underlying chalk/piled; however, further testing may be required for design purposes;
- Excavations should be achievable using conventional earthmoving plant and equipment;
- Shallow excavations and trenches in natural soils should remain stable without support in the short term. It will be necessary to provide trench support or batter back the sides to a stable angle if manual entry is required or if excavations will be left open for prolonged periods;
- It is recommended that a Medium VCP is adopted site-wide. Due to the presence of soils with VCP, floor slabs should be suspended;
- A concrete grade of DS-1 and AC-1 is recommended site-wide at this stage; and
- A suitably qualified drainage engineer should be consulted regarding suitable drainage solutions for the Site.

10.3. Waste Disposal of Surplus Soils

Should materials on-site require disposal off-site, it will be necessary to determine the waste classification in accordance with current legislation (R.43). Based on the results of the Site investigations, naturally occurring soils are considered uncontaminated and are likely to classify as inert or non-hazardous, whereas made ground may classify as non-hazardous or hazardous waste. It is the waste producer's (usually the contractor) responsibility to classify their waste.

If waste is deemed to be hazardous or inert, a Waste Acceptance Criteria (WAC) test may be required prior to disposal off-site to confirm suitability of the material for disposal. The waste facility should hold a relevant Waste Management Licence for accepting the defined grade of waste soil and have been consulted prior to waste consignment. The carrier must hold a current Registered Carriers Licence (issued by the EA). Any made ground with significant wood content (for example) should be segregated and the wood or other deleterious materials separated prior to disposal of the soil fraction. All wastes must be handled in accordance with the Waste (England & Wales) Regulations 2011 (R.44) and Duty of Care Regulations (R.45).

10.4. Re-use of Site Won Material

Site-won natural soils arising from groundworks are likely to be suitable for re-use within the site subject to appropriate Risk Assessments, environmental permitting and any geotechnical requirements. Made ground is unlikely to be suitable for reuse within residential gardens.

If site-won soils are to be re-used this must be permitted in accordance with the Environmental Permitting Regulations (R.46) or the Development Industry Code of Practice on Waste (R.47). Other materials may be recoverable and reusable/recyclable within the development, for example concrete/hardcore, and wood/timber.

10.5. Imported Materials

If during the development works it is necessary to import soil (e.g., engineering fill or topsoil for gardens) or other materials these must comply with the chemical limits presented at Appendix 12.

10.6. Discovery Strategy

A Discovery Strategy should be in place during construction works to account for the possibility of currently unidentified, undiscovered or otherwise unexpected or exceptional contamination. This is considered reasonably plausible based on the SI and site observations made, particularly beneath the structures and hardstanding in the west of the Site on the basis of the asbestos detected.

Such strategy must include a watching brief for any evidence (visual or olfactory) of contamination, maintained throughout the development works. If evidence of unexpected materials is identified work in the vicinity of the suspected contamination should be halted, pending inspection and, if required, further investigation and sampling of any suspect materials by a representative of GEMCO or other qualified environmental consultant at the earliest possible convenience. The Local Authority should also be informed. Any remediation measures required should be agreed with and implemented to the satisfaction of the Local Authority and Building Warranty Provider.

10.7. Regulatory Liaison

A copy of this report should be forwarded to the LPA for their comment and approval to the content.

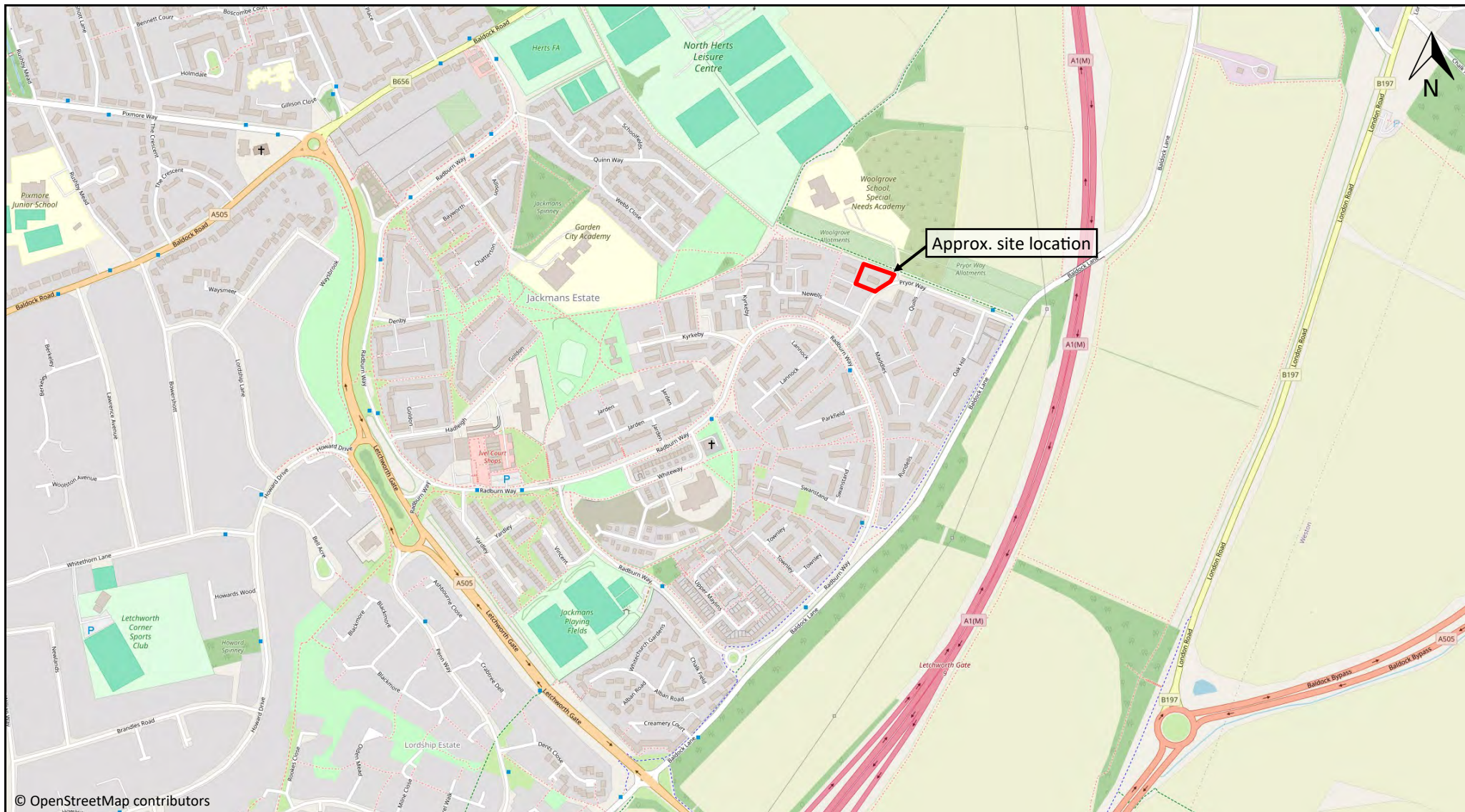
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Figure 1

Site Location Plan



Site:	3-5 Newells	Date:	April 2024	Legend:  Approx. Site Boundary	 REMEDIATION SPECIALISTS Green Earth Management Co Ltd Broomfield Park Coggeshall Road Essex CO6 2JX Tel: 01245 206129 www.gemcoltd.co.uk
Address:	Letchworth Garden City, Herts	Scale:	Not to Scale		
Post Code:	SG6 2PH	Drawing:	Figure 1		
Grid Ref:	523681, 232034	Drawn by:	SCS		
Title:	Site Location Plan	Checked by:	CU		
Client:	Marfleet & Blyth / SPD Studio	Project No:	2247 R01 Issue 1		

Figure 2

Proposed Development Plan

05 CONCEPT DESIGN

ILLUSTRATIVE SITE LAYOUT

Amount

- Creation of an attractive high-quality residential development, consisting of 14 apartments;
- 6no. 1bed/2person apartments (51 sq.m)
- 8no. 2bed/4person apartments (70 sq.m)

Layout + Appearance

- Establishes clear, legible and permeable layout to enhance the character of the site and sit comfortably within surrounding context
- Orientation of the design ensures adequate levels of daylight + privacy
- High-quality material palette which respects the local character, while being robust, easily maintainable and will age gracefully

Accessibility + Parking

- Parking court (with under-croft) to provide policy-compliant parking provision to serve new development
- Secure cycle store to serve new development, located within easy access for residents

Amenity

- Create a landscape-led development, incorporating attractive soft landscaping to private and public areas
- Opportunity to replace concrete hard-standing with high quality permeable block paving and soft landscaping as part of a sustainable surface water drainage strategy.

KEY:

- 2B APARTMENT
- 1B APARTMENT
- COMMUNAL GROUND SOURCE HEAT PUMP
- REFUSE STORE
- BIKE STORE



PARKING

EXISTING: 18

PROPOSED: 25

NEWELLS

Site entrance

Residents
Parking (12)

Residents
Parking (5)

Residents
Parking (8)

PRYOR WAY

Rev. Amendment Date

SPDSTUDIO
SUSTAINABLE . PLANNING . DESIGN



RESIDENTIAL DEVELOPMENT

PROP WIDER PARKING ALLOCATION PLAN

SETTLE GROUP

NEWELLS,
LETCWORTH, GARDEN CITY,
SG6 2PH

MB018.202.00 1:500 @ A3 28.07.2023

WWW.SP D - STUDIO.CO.UK

PROPOSED WIDER PARKING ALLOCATION PLAN

Figure 3

Site Layout Plan



Drawing adapted from TS21-040-2 1-100@A0

Site: 3-5 Newells	Date: April 2024	Legend: Approx. Site Boundary Structures Hardstanding Overgrowth Rough Grass Bushes/small trees	
Address: Letchworth Garden City, Herts	Scale: Not to Scale		
Post Code: SG6 2PH	Drawing: Figure 3	 Green Earth Management Co Ltd Broomfield Park Coggeshall Road Essex CO6 2JX Tel: 01245 206129 www.gemcoltd.co.uk	
Grid Ref: 523681, 232034	Drawn by: SCS		
Title: Site Layout Plan	Checked by: CU		
Client: Marfleet & Blyth / SPD Studio	Project No: 2247 R01 Issue 1		

Figure 4

Exploratory Hole Location Plan



Drawing adapted from TS21-040-2 1-100@A0

Site:	3-5 Newells	Date:	April 2024	Legend: Approx. Site Boundary Structures Footprint of possible development option Window Sample borehole Infiltration Test pit	 Green Earth Management Co Ltd Broomfield Park Coggeshall Road Essex CO6 2JX Tel: 01245 206129 www.gemcoltd.co.uk
Address:	Letchworth Garden City, Herts	Scale:	Not to Scale		
Post Code:	SG6 2PH	Drawing:	Figure 4		
Grid Ref:	523681, 232034	Drawn by:	SCS		
Title:	Exploratory Hole Location Plan	Checked by:	CU		
Client:	Marfleet & Blyth / SPD Studio	Project No:	2247 R01 Issue 1		

Appendix 1

Report Conditions

Geo-Environmental Site Investigation

This report is produced solely for the benefits of the named Client and no liability is accepted for any reliance placed on it by any other party unless specifically agreed in writing otherwise.

The report refers, within the limitations of the stated, to the condition of the Site at the time of the inspections. No warranty is given as to the possibility of the future changes of the Site.

The report is based on a visual site inspection, reference to accessible referenced historical records, the physical investigation as detailed, information supplied by those parties referenced in the text, and preliminary discussions with local and statutory authorities. Some of the opinions are based on unconfirmed data and information and are presented as the best that can be obtained without further extensive research. The test results available can only be regarded as a limited but likely representative sample assessed against current guidelines. The impact of our assessment on other aspects of the development requires evaluation by other involved parties.

GEMCO takes no responsibility for conditions that have not been revealed by the borings, or which occur below or between the borings. The possibility of the presence of contaminants, perhaps in higher concentrations, elsewhere on site cannot be discounted. Whilst every effort has been made to interpret the conditions between investigation locations, such information is only indicative and liability cannot be accepted for its accuracy.

Groundwater and ground gas readings taken are those pertaining to the period of the investigation only. It should be noted that groundwater levels may be subject to tidal, seasonal and diurnal changes, whilst ground gas emission rates are affected by atmospheric pressure and groundwater levels.

With reference to ground contamination, whilst the findings detailed within this report reflect our best assessment, because there are no exact UK definitions of these matters, being subject to risk analysis, we are unable to give categorical assurances that they will be accepted by authorities or funds without question as such bodies have unpublished, more stringent objectives. The report is prepared and written for the purposed uses stated in the report and should not be used in a different context without reference to GEMCO in time, improved practises or amended legislation may necessitate a re-assessment.

The report is limited to the geotechnical and environmental aspects specifically reported on, and is necessarily restricted and no liability is accepted for any other aspect especially concerning gradual or sudden pollution incidents. The opinions expressed cannot be absolute due to the limitations of time and resources imposed by the agreed brief, the nature of the geology and possibility of unrecorded previous use and abuse of the Site and adjacent sites. The report concentrates on the Site as defined in the report and provides an opinion on surrounding sites. If migrating pollution or contamination (past or present) exists, further research will be required before the effects can be better determined.

Risk Assessment and Risk Rating

Classification of Consequence		
Classification	Definition	Examples
Severe	Short term (acute) risk to human health likely to result in 'significant harm;' as defined by the Environmental Protection Act 1990, Part IIA. Short term risk if pollution (note: Water Resources Act does not contain provision for consideration of the significance of pollution) of sensitive water resource. A short-term risk to a particular ecosystem, or organism forming part of such an ecosystem. (Note: the definition of ecological systems with the DEFRA Contaminated Land Statutory Guidance 2012)	High concentrations of cyanide on the surface of an informal recreation area. Major spillage of contaminants from site to a controlled water. Explosion, causing building collapse (can also equate to short term human health risk if buildings are occupied).
Medium	Chronic damage to human health ('significant harm as defined DEFRA Contaminated Land Statutory Guidance 2012) Pollution of sensitive water resources. A significant change in a particular ecosystem, or organism forming part of such ecosystem. (Note: the definition of ecological systems with the DEFRA Contaminated Land Statutory Guidance 2012)	Concentration of contaminant from the Site exceeds the generic or site-specific assessment criteria. Leaching of contaminants from a site to a principal or secondary aquifer. Death of species within a designated nature reserve.
Mild	Pollution of non-sensitive water resources. Significant damage to buildings, structures, and crops. ('Significant harm' as defined in DEFRA Contaminated Land Statutory Guidance 2012 and EPA 1990 Part IIA. Damage to sensitive buildings/structures or the environment.	Pollution of non-classified groundwater. Damage to building, rendering it unsafe to occupy (e.g., foundation damage resulting in instability).
Minor	Harm, although not necessarily significant harm, which may result in a financial loss or expenditure to resolve. Non-permanent health effects to human health (easily prevented by means such as personal protective clothing etc.). Easily repairable effects of damage to buildings/structures	The presence of contaminants at such concentration is that protective equipment is required during the Site works. The loss of plants in landscaping scheme. Discolouration of concrete.

Classification of Probability	
Classification	Definition
High Likelihood	There is a pollution linkage and an event which would either appear very likely in the short term and almost inevitable over the long term, or, there is evidence at the receptor of harm or pollution.
Likely	There is a pollution linkage and all the elements are present in the right place which means that it is probable that an event will occur. Circumstances are such that an event is not inevitable, but possible in the short term and likely to occur over the long term.
Low Likelihood	There is pollution linkage and circumstances are possible under which an event could occur. However, it is by no means certain that even over a longer period such event would take place and is less likely in the shorter term.
Unlikely	There is a pollution linkage but circumstances are such that it is improbable that an event would occur even in the very long term.

		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

Risk classification framework taken from CIRIA C552, Section 6

Appendix 2

Site Photographs

Picture 01



Picture 02



Picture 03



Picture 04



Picture 05



Picture 06



Legend

Pic 01: 3-5 Newells - south elevation, facing north.

Pic 02: Garages in west, facing northeast. Also showing access to allotments.

Pic 03: Materials in one of the garages.

Pic 04: Rear access to gardens of 3-5 Newells.

Pic 05: View of gardens of 3-5 Newells.

Pic 06: View of gardens of 3-5 Newells.

Site:

3-5 Newells, Letchworth

Title:

Appendix 2 - Site Photographs

Client:

Marfleet & Blyth / SPD Studio

Date:

Apr 2024

Project No:

2247 R01

Issue:

Issue 1

Page No:

1 of 3

Drawn by:

SCS

Checked by:

CU



Green Earth Management Company Ltd
Suite 3, Broomfield Park,
Coggeshall Road,
Earls Colne,
Essex CO6 2JX
Tel: 01245 206 129
www.gemcoltd.co.uk

Picture 07



Picture 08



Picture 09



Picture 10



Picture 11



Picture 12



Legend

Pic 07: View of gardens of 3-5 Newells.

Pic 08: View from northeast, facing southwest.

Pic 09: GSA101.

Pic 10: GSA101 and arisings.

Pic 11: GSA102.

Pic 12: GSA102 and arisings.

Site:

3-5 Newells, Letchworth

Title:

Appendix 2 - Site Photographs

Client:

Marfleet & Blyth / SPD Studio

Date: Apr 2024

Project No: 2247 R01

Issue: Issue 1

Page No: 2 of 3

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Green Earth Management Company Ltd
Suite 3, Broomfield Park,
Coggeshall Road,
Earls Colne,
Essex CO6 2JX
Tel: 01245 206 129
www.gemcoltd.co.uk

Picture 13



Picture 14



Picture 15



Picture 16



Picture 17



Picture 18



Legend

Pic 13: GWS101 cores.

Pic 14: GWS102 cores.

Pic 15: GWS103 cores.

Pic 16: GWS104 cores.

Pic 17: GWS105 cores.

Pic 18: Pipe piece encountered at rear garden of 3-5 Newells in area of GWS104.

Site:

3-5 Newells, Letchworth

Title:

Appendix 2 - Site Photographs

Client:

Marfleet & Blyth / SPD Studio

Date: Apr 2024

Project No: 2247 R01

Issue: Issue 1

Page No: 3 of 3

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Green Earth Management Company Ltd
Suite 3, Broomfield Park,
Coggeshall Road,
Earls Colne,
Essex CO6 2JX
Tel: 01245 206 129
www.gemcoltd.co.uk

Appendix 3

Landmark Envirocheck Report

Envirocheck[®] Report:

Datasheet

Order Details:

Order Number:

332045544_1_1

Customer Reference:

2247

National Grid Reference:

523670, 232030

Slice:

A

Site Area (Ha):

0.19

Search Buffer (m):

1000

Site Details:

Newells

LETCHWORTH GARDEN CITY

SG6 2PH

Client Details:

Mr C Unsworth

Green Earth Management Ltd

Building 2

Broomfield Park

Coggeshall Road

Earls Colne

Essex

CO6 2JX

Report Section	Page Number
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Agency & Hydrological	1
Waste	7
Hazardous Substances	-
Geological	8
Industrial Land Use	11
Sensitive Land Use	19
Data Currency	20
Data Suppliers	27
Useful Contacts	28

Introduction

The Environment Act 1995 has made site sensitivity a key issue, as the legislation pays as much attention to the pathways by which contamination could spread, and to the vulnerable targets of contamination, as it does the potential sources of contamination. For this reason, Landmark's Site Sensitivity maps and Datasheet(s) place great emphasis on statutory data provided by the Environment Agency/Natural Resources Wales and the Scottish Environment Protection Agency; it also incorporates data from Natural England (and the Scottish and Welsh equivalents) and Local Authorities; and highlights hydrogeological features required by environmental and geotechnical consultants. It does not include any information concerning past uses of land. The datasheet is produced by querying the Landmark database to a distance defined by the client from a site boundary provided by the client. In this datasheet the National Grid References (NGRs) are rounded to the nearest 10m in accordance with Landmark's agreements with a number of Data Suppliers.

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Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Agency & Hydrological					
BGS Groundwater Flooding Susceptibility	pg 1	Yes			n/a
Contaminated Land Register Entries and Notices					
Discharge Consents					
Prosecutions Relating to Controlled Waters			n/a	n/a	n/a
Enforcement and Prohibition Notices					
Integrated Pollution Controls					
Integrated Pollution Prevention And Control					
Local Authority Integrated Pollution Prevention And Control					
Local Authority Pollution Prevention and Controls	pg 1				4
Local Authority Pollution Prevention and Control Enforcements					
Nearest Surface Water Feature	pg 1			Yes	
Pollution Incidents to Controlled Waters	pg 1				2
Prosecutions Relating to Authorised Processes					
Registered Radioactive Substances	pg 2				2
River Quality					
River Quality Biology Sampling Points					
River Quality Chemistry Sampling Points					
Substantiated Pollution Incident Register					
Water Abstractions	pg 2				10 (*4)
Water Industry Act Referrals					
Groundwater Vulnerability Map	pg 5	Yes	n/a	n/a	n/a
Groundwater Vulnerability - Soluble Rock Risk	pg 6	1	n/a	n/a	n/a
Groundwater Vulnerability - Local Information			n/a	n/a	n/a
Bedrock Aquifer Designations	pg 6	Yes	n/a	n/a	n/a
Superficial Aquifer Designations	pg 6	Yes	n/a	n/a	n/a
Source Protection Zones	pg 6	3			
Extreme Flooding from Rivers or Sea without Defences				n/a	n/a
Flooding from Rivers or Sea without Defences				n/a	n/a
Areas Benefiting from Flood Defences				n/a	n/a
Flood Water Storage Areas				n/a	n/a
Flood Defences				n/a	n/a
OS Water Network Lines	pg 6			1	1

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Waste					
BGS Recorded Landfill Sites					
Historical Landfill Sites					
Integrated Pollution Control Registered Waste Sites					
Licensed Waste Management Facilities (Landfill Boundaries)					
Licensed Waste Management Facilities (Locations)					
Local Authority Landfill Coverage	pg 7	2	n/a	n/a	n/a
Local Authority Recorded Landfill Sites					
Potentially Infilled Land (Non-Water)					
Potentially Infilled Land (Water)					
Registered Landfill Sites					
Registered Waste Transfer Sites					
Registered Waste Treatment or Disposal Sites					
Hazardous Substances					
Control of Major Accident Hazards Sites (COMAH)					
Explosive Sites					
Notification of Installations Handling Hazardous Substances (NIHHS)					
Planning Hazardous Substance Consents					
Planning Hazardous Substance Enforcements					

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Geological					
BGS 1:625,000 Solid Geology	pg 8	Yes	n/a	n/a	n/a
BGS Estimated Soil Chemistry	pg 8	Yes	Yes	Yes	Yes
BGS Recorded Mineral Sites	pg 9				1
BGS Urban Soil Chemistry					
BGS Urban Soil Chemistry Averages					
CBSCB Compensation District			n/a	n/a	n/a
Coal Mining Affected Areas			n/a	n/a	n/a
Mining Instability			n/a	n/a	n/a
Man-Made Mining Cavities					
Natural Cavities					
Non Coal Mining Areas of Great Britain	pg 10	Yes		n/a	n/a
Potential for Collapsible Ground Stability Hazards	pg 10	Yes		n/a	n/a
Potential for Compressible Ground Stability Hazards				n/a	n/a
Potential for Ground Dissolution Stability Hazards	pg 10	Yes		n/a	n/a
Potential for Landslide Ground Stability Hazards	pg 10	Yes		n/a	n/a
Potential for Running Sand Ground Stability Hazards	pg 10	Yes		n/a	n/a
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 10	Yes		n/a	n/a
Radon Potential - Radon Affected Areas			n/a	n/a	n/a
Radon Potential - Radon Protection Measures			n/a	n/a	n/a
Industrial Land Use					
Contemporary Trade Directory Entries	pg 11		4	3	46
Fuel Station Entries	pg 15				2
Points of Interest - Commercial Services	pg 16			1	3
Points of Interest - Education and Health					
Points of Interest - Manufacturing and Production	pg 16			1	8
Points of Interest - Public Infrastructure	pg 17				13
Points of Interest - Recreational and Environmental	pg 18				9
Gas Pipelines					
Underground Electrical Cables					

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Sensitive Land Use					
Ancient Woodland					
Areas of Adopted Green Belt	pg 19		1		
Areas of Unadopted Green Belt	pg 19		1		
Areas of Outstanding Natural Beauty					
Environmentally Sensitive Areas					
Forest Parks					
Local Nature Reserves					
Marine Nature Reserves					
National Nature Reserves					
National Parks					
Nitrate Sensitive Areas					
Nitrate Vulnerable Zones	pg 19	2			
Ramsar Sites					
Sites of Special Scientific Interest					
Special Areas of Conservation					
Special Protection Areas					
World Heritage Sites					

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13NW (SE)	0	1	523674 232029
1	Local Authority Pollution Prevention and Controls Name: Mfg Jackmans Location: Motor Fuel Ltd, Baldock Road, Letchworth, Hertfordshire, SG6 2ej Authority: North Hertfordshire District Council, Environmental Health Department Permit Reference: EPA/00152/04/P3 Dated: 27th February 2009 Process Type: Local Authority Pollution Prevention and Control Description: PG1/14 Petrol filling station Status: Permitted Positional Accuracy: Manually positioned to the address or location	A17SE (NW)	725	2	523005 232375
1	Local Authority Pollution Prevention and Controls Name: Bp Jackmans Connect Service Station Location: Baldock Road, LETCHWORTH, Hertfordshire, SG6 2EJ Authority: North Hertfordshire District Council, Environmental Health Department Permit Reference: EPA/00152/04/P2 Dated: 26th March 1999 Process Type: Local Authority Pollution Prevention and Control Description: PG1/14 Petrol filling station Status: Permitted Positional Accuracy: Manually positioned to the address or location	A17SW (NW)	746	2	522985 232383
2	Local Authority Pollution Prevention and Controls Name: Rosengrens UK Location: Building One, Avenue 1, LETCHWORTH, Hertfordshire, SG6 2HB Authority: North Hertfordshire District Council, Environmental Health Department Permit Reference: Not Given Dated: Not Supplied Process Type: Local Authority Air Pollution Control Description: PG6/10 Coating manufacturing Status: Authorised Positional Accuracy: Automatically positioned to the address	A17NE (NW)	862	2	523191 232779
3	Local Authority Pollution Prevention and Controls Name: Rontec Location: Letchworth Gate, LETCHWORTH, Hertfordshire, SG6 2AZ Authority: North Hertfordshire District Council, Environmental Health Department Permit Reference: EPA/10943/05/P3 Dated: 11th January 2016 Process Type: Local Authority Pollution Prevention and Control Description: PG1/14 Petrol filling station Status: Permitted Positional Accuracy: Automatically positioned to the address	A7NW (W)	932	2	522783 231668
	Nearest Surface Water Feature	A8NW (SW)	451	-	523416 231630
4	Pollution Incidents to Controlled Waters Property Type: Not Given Location: Kelvedon District Authority: Environment Agency, Anglian Region Pollutant: Unknown Note: Stour Estuary Incident Date: 1st October 1992 Incident Reference: 1452 Catchment Area: Not Given Receiving Water: Estuary Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A18SW (N)	696	3	523400 232700
5	Pollution Incidents to Controlled Waters Property Type: Road Location: Bedford District Authority: Environment Agency, Anglian Region Pollutant: Organic Wastes: Milk Note: Pix Brook Incident Date: 11th July 1993 Incident Reference: 1965 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Other Cause Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A12NW (W)	983	3	522700 232300

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
6	Registered Radioactive Substances Name: Thorn Security Ltd Location: Tyco Electronic Product Group, Dunhams Lane, LETCHWORTH, Hertfordshire, SG6 1XS Authority: Environment Agency, Anglian Region Permit Reference: AZ8463 Dated: 19th November 1997 Process Type: Authorisation under S13 RSA for the disposal of Radioactive waste (was RSA60 S7) Description: Authorisation under RSA Status: Authorisation superseded by a substantial or non substantial variation Positional Accuracy: Unknown	A17SE (NW)	784	3	523205 232695
7	Registered Radioactive Substances Name: Thorn Security Ltd Location: Dunhams Lane, Letchworth Garden City, Hertfordshire, SG6 1BE Authority: Environment Agency, Anglian Region Permit Reference: Bw3575 Dated: 1st December 2003 Process Type: Authorisation under S13 RSA for the disposal of Radioactive waste (was RSA60 S7) Description: Minor variation to authorisation under RSA Status: Application has been authorised and any conditions apply to the operator Positional Accuracy: Automatically positioned to the address	A17NE (NW)	911	3	523101 232776
8	Water Abstractions Operator: Affinity Water Limited Licence Number: 6/33/14/*G/0010 Permit Version: 102 Location: Baldock Road, Letchworth Authority: Environment Agency, Anglian Region Abstraction: Public Water Supply: Potable Water Supply - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 14th November 2012 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A17SE (NW)	653	3	523300 232600
8	Water Abstractions Operator: Veolia Water Central Limited Licence Number: 6/33/14/*G/0010 Permit Version: 101 Location: Baldock Road, Letchworth Authority: Environment Agency, Anglian Region Abstraction: Public Water Supply: Potable Water Supply - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 20th July 2009 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A17SE (NW)	653	3	523300 232600
8	Water Abstractions Operator: Three Valleys Water Plc Licence Number: 6/33/14/*G/0010 Permit Version: 100 Location: Baldock Road, Letchworth Authority: Environment Agency, Anglian Region Abstraction: Public Water Supply: Potable Water Supply - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st March 1994 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A17SE (NW)	653	3	523300 232600

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
9	Water Abstractions Operator: Affinity Water Limited Licence Number: 6/33/14/*G/0010 Permit Version: 102 Location: Bowring, Letchworth Authority: Environment Agency, Anglian Region Abstraction: Public Water Supply: Potable Water Supply - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 14th November 2012 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A19SW (NE)	678	3	524200 232500
9	Water Abstractions Operator: Veolia Water Central Limited Licence Number: 6/33/14/*G/0010 Permit Version: 101 Location: Bowring, Letchworth Authority: Environment Agency, Anglian Region Abstraction: Public Water Supply: Potable Water Supply - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 20th July 2009 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A19SW (NE)	678	3	524200 232500
9	Water Abstractions Operator: Three Valleys Water Plc Licence Number: 6/33/14/*G/0010 Permit Version: 100 Location: Bowring, Letchworth Authority: Environment Agency, Anglian Region Abstraction: Public Water Supply: Potable Water Supply - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: C Chalk 2; Status: Perpetuity Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st March 1994 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A19SW (NE)	678	3	524200 232500
10	Water Abstractions Operator: Affinity Water Limited Licence Number: 6/33/14/*G/0010 Permit Version: 102 Location: Fuller, Letchworth Authority: Environment Agency, Anglian Region Abstraction: Public Water Supply: Potable Water Supply - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 14th November 2012 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A19SW (NE)	697	3	524300 232400

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
10	Water Abstractions Operator: Veolia Water Central Limited Licence Number: 6/33/14/*G/0010 Permit Version: 101 Location: Fuller, Letchworth Authority: Environment Agency, Anglian Region Abstraction: Public Water Supply: Potable Water Supply - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Not Supplied Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 20th July 2009 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A19SW (NE)	697	3	524300 232400
10	Water Abstractions Operator: Three Valleys Water Plc Licence Number: 6/33/14/*G/0010 Permit Version: 100 Location: Fuller, Letchworth Authority: Environment Agency, Anglian Region Abstraction: Public Water Supply: Potable Water Supply - Direct Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: C Chalk 2; Status: Perpetuity Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st March 1994 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A19SW (NE)	697	3	524300 232400
10	Water Abstractions Operator: Three Valleys Water Plc Licence Number: 6/33/14/*g/010 Permit Version: Not Supplied Location: Fuller, LETCHWORTH Authority: Environment Agency, Anglian Region Abstraction: Public Water Supply Abstraction Type: Not Supplied Source: Well And Borehole Daily Rate (m3): 2904 Yearly Rate (m3): 7956000 Details: C Chalk 2; Status: Perpetuity Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A19SW (NE)	697	3	524300 232400
	Water Abstractions Operator: Mr D Richardson Licence Number: 6/33/14/*s/018 Permit Version: Not Supplied Location: River Ivel North Of, STOTFOLD Authority: Environment Agency, Anglian Region Abstraction: Spray Irrigation Abstraction Type: Not Supplied Source: Stream Daily Rate (m3): 2 Yearly Rate (m3): 72700 Details: Status: Revoked Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A22SW (NW)	1528	3	522840 233345

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: Mr D Richardson Licence Number: 6/33/14/*s/018 Permit Version: Not Supplied Location: River Ivel North Of, STOTFOLD Authority: Environment Agency, Anglian Region Abstraction: Agriculture (General) Abstraction Type: Not Supplied Source: Stream Daily Rate (m3): 0 Yearly Rate (m3): 72700 Details: Status: Revoked Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A22SW (NW)	1532	3	522840 233350
	Water Abstractions Operator: Mr J Duncan Licence Number: 6/33/14/*g/042 Permit Version: Not Supplied Location: Borehole At, BALDOCK Authority: Environment Agency, Anglian Region Abstraction: Industrial Processing (Miscellaneous) Abstraction Type: Not Supplied Source: Well And Borehole Daily Rate (m3): 227 Yearly Rate (m3): 818180 Details: C Chalk 2; Status: Revoked Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A24NE (NE)	1632	3	524600 233400
	Water Abstractions Operator: Trustees Of The Weston Settlement Licence Number: 6/33/13/*G/0027 Permit Version: 100 Location: Well At Lannock Manor Farm Authority: Environment Agency, Anglian Region Abstraction: General Farming And Domestic Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: C Chalk 2; Status: Perpetuity Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st December 1967 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(SE)	1988	3	524700 230300
	Groundwater Vulnerability Map Combined Classification: Secondary Superficial Aquifer - High Vulnerability Combined Vulnerability: High Combined Aquifer: Productive Bedrock Aquifer, Productive Superficial Aquifer Pollutant Speed: Intermediate Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: >70% Superficial: <90% Patchiness: 3-10m Superficial Thickness: Low Superficial Recharge:	A13NW (SE)	0	4	523674 232029

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Groundwater Vulnerability Map Combined Principle Bedrock Aquifer - High Vulnerability Classification: High Combined Vulnerability: Productive Bedrock Aquifer, No Superficial Aquifer Pollutant Speed: Intermediate Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: >70% Superficial: <90% Patchiness: 3-10m Superficial Thickness: Low Superficial Recharge:	A13SE (E)	0	4	523692 232024
	Groundwater Vulnerability - Soluble Rock Risk Classification: Significant Risk - Problems Unlikely	A13NW (SE)	0	4	523674 232029
	Bedrock Aquifer Designations Aquifer Designation: Principal Aquifer	A13NW (SE)	0	4	523674 232029
	Superficial Aquifer Designations Aquifer Designation: Secondary Aquifer - Undifferentiated	A13NW (SE)	0	4	523674 232029
11	Source Protection Zones Name: Not Supplied Source: Environment Agency, Head Office Reference: Not Supplied Type: Zone II (Outer Protection Zone): Either 25% of the source area or a 400 day travel time whichever is greater.	A13NW (SE)	0	3	523674 232029
12	Source Protection Zones Name: Not Supplied Source: Environment Agency, Head Office Reference: Not Supplied Type: Zone I (Inner Protection Zone): Travel time of 50 days or less to the groundwater source.	A13NW (SE)	0	3	523674 232029
13	Source Protection Zones Name: Not Supplied Source: Environment Agency, Head Office Reference: Not Supplied Type: Zone III (Total Catchment): The total area needed to support the discharge from the protected groundwater source.	A13NW (SE)	0	3	523674 232029
	Extreme Flooding from Rivers or Sea without Defences None				
	Flooding from Rivers or Sea without Defences None				
	Areas Benefiting from Flood Defences None				
	Flood Water Storage Areas None				
	Flood Defences None				
14	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 51.9 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 2	A8NW (SW)	451	5	523415 231629
15	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 348.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A9SE (SE)	993	5	524393 231312

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Local Authority Landfill Coverage Name: Hertfordshire County Council - Has supplied landfill data		0	6	523674 232029
	Local Authority Landfill Coverage Name: North Hertfordshire District Council - Has supplied landfill data		0	2	523674 232029

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS 1:625,000 Solid Geology Description: White Chalk Subgroup	A13NW (SE)	0	1	523674 232029
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 40 - 60 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A13SE (E)	0	1	523692 232024
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 30 - 45 mg/kg	A13NW (SE)	0	1	523674 232029
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 40 - 60 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A13SW (S)	57	1	523650 231950
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 40 - 60 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 30 - 45 mg/kg	A13NE (E)	293	1	524000 232029
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 30 - 45 mg/kg	A18SE (N)	411	1	523711 232462
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 20 - 40 mg/kg Lead Concentration: <100 mg/kg Nickel Concentration: 15 - 30 mg/kg	A19SW (NE)	495	1	524067 232374

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic: 15 - 25 mg/kg Concentration: Cadmium: <1.8 mg/kg Concentration: Chromium: 60 - 90 mg/kg Concentration: Lead Concentration: <100 mg/kg Nickel: 30 - 45 mg/kg Concentration:	A12NE (W)	551	1	523114 232178
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic: 15 - 25 mg/kg Concentration: Cadmium: <1.8 mg/kg Concentration: Chromium: 40 - 60 mg/kg Concentration: Lead Concentration: <100 mg/kg Nickel: 15 - 30 mg/kg Concentration:	A7NE (SW)	603	1	523237 231575
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic: 15 - 25 mg/kg Concentration: Cadmium: <1.8 mg/kg Concentration: Chromium: 60 - 90 mg/kg Concentration: Lead Concentration: <100 mg/kg Nickel: 30 - 45 mg/kg Concentration:	A7NE (SW)	720	1	523144 231502
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic: 15 - 25 mg/kg Concentration: Cadmium: <1.8 mg/kg Concentration: Chromium: 40 - 60 mg/kg Concentration: Lead Concentration: <100 mg/kg Nickel: 15 - 30 mg/kg Concentration:	A12NW (W)	870	1	522776 232040
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic: <15 mg/kg Concentration: Cadmium: <1.8 mg/kg Concentration: Chromium: 60 - 90 mg/kg Concentration: Lead Concentration: <100 mg/kg Nickel: 15 - 30 mg/kg Concentration:	A9NE (SE)	930	1	524525 231592
16	BGS Recorded Mineral Sites Site Name: Weston Hills Chalk Pit Location: Baldock, Hertfordshire Source: British Geological Survey, National Geoscience Information Service Reference: 165894 Type: Opencast Status: Ceased Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Cretaceous Geology: White Chalk Subgroup Commodity: Chalk Positional Accuracy: Located by supplier to within 10m	A9NW (SE)	710	1	524321 231678
	BGS Measured Urban Soil Chemistry No data available				

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Urban Soil Chemistry Averages No data available				
	Coal Mining Affected Areas In an area that might not be affected by coal mining				
	Non Coal Mining Areas of Great Britain Risk: Rare Source: British Geological Survey, National Geoscience Information Service	A13NW (SE)	0	1	523674 232029
	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NW (SE)	0	1	523674 232029
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NW (SE)	0	1	523674 232029
	Potential for Ground Dissolution Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (E)	0	1	523692 232024
	Potential for Ground Dissolution Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NW (SE)	0	1	523674 232029
	Potential for Landslide Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (E)	0	1	523692 232024
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NW (SE)	0	1	523674 232029
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (E)	0	1	523692 232024
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NW (SE)	0	1	523674 232029
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13NW (SE)	0	1	523674 232029
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SE (E)	0	1	523692 232024
	Radon Potential - Radon Affected Areas Affected Area: The property is in a Lower probability radon area (less than 1% of homes are estimated to be at or above the Action Level). Source: British Geological Survey, National Geoscience Information Service	A13NW (SE)	0	1	523674 232029
	Radon Potential - Radon Protection Measures Protection Measure: No radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service	A13NW (SE)	0	1	523674 232029

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
17	Contemporary Trade Directory Entries Name: Tidy Homes Cleaning Location: 87, Lannock, Letchworth Garden City, Hertfordshire, SG6 2QD Classification: Cleaning Services - Domestic Status: Active Positional Accuracy: Automatically positioned to the address	A13SW (SW)	127	-	523612 231890
18	Contemporary Trade Directory Entries Name: Little Maids Location: 69, Maddles, Letchworth, Hertfordshire, SG6 2QZ Classification: Cleaning Services - Domestic Status: Inactive Positional Accuracy: Automatically positioned to the address	A13SE (S)	144	-	523724 231868
19	Contemporary Trade Directory Entries Name: Godfrey Haulage Location: 24, Lannock, Letchworth Garden City, Hertfordshire, SG6 2PX Classification: Road Haulage Services Status: Inactive Positional Accuracy: Automatically positioned to the address	A13SW (SW)	210	-	523508 231860
20	Contemporary Trade Directory Entries Name: Allmove Location: 42, Parkfield, Letchworth, Hertfordshire, SG6 2QQ Classification: Waste Disposal Services Status: Inactive Positional Accuracy: Automatically positioned to the address	A13SW (S)	237	-	523630 231768
21	Contemporary Trade Directory Entries Name: Michelle Location: 49, Oakhill, Letchworth Garden City, Hertfordshire, SG6 2RG Classification: Commercial Cleaning Services Status: Inactive Positional Accuracy: Automatically positioned to the address	A13SE (SE)	259	-	523784 231768
22	Contemporary Trade Directory Entries Name: Mids Pest Control Ltd Location: 38, Rundells, Letchworth Garden City, SG6 2SQ Classification: Pest & Vermin Control Status: Active Positional Accuracy: Automatically positioned to the address	A13SE (S)	263	-	523717 231743
23	Contemporary Trade Directory Entries Name: Sofitsti Clean Location: 38, Townley, Letchworth Garden City, Hertfordshire, SG6 2RU Classification: Commercial Cleaning Services Status: Active Positional Accuracy: Automatically positioned to the address	A8NW (S)	439	-	523504 231596
24	Contemporary Trade Directory Entries Name: The Mattress Doctor Location: 40, Upper Maylins, Letchworth Garden City, Hertfordshire, SG6 2SA Classification: Cleaning Services - Domestic Status: Inactive Positional Accuracy: Automatically positioned to the address	A8NW (SW)	525	-	523457 231523
25	Contemporary Trade Directory Entries Name: Macprint Location: 20, Allison, Letchworth, Hertfordshire, SG6 2JR Classification: Printers Status: Inactive Positional Accuracy: Automatically positioned to the address	A12NE (W)	603	-	523068 232202
26	Contemporary Trade Directory Entries Name: Mark & David China Repairs Location: 8, Chatterton, Letchworth Garden City, Hertfordshire, SG6 2JU Classification: China & Glassware Manufacturers & Repairs Status: Inactive Positional Accuracy: Automatically positioned to the address	A12NW (W)	669	-	522977 232067
27	Contemporary Trade Directory Entries Name: The Seba Shop Location: 8, Ivel Court, Letchworth Garden City, SG6 2NH Classification: Domestic Appliances - Servicing, Repairs & Parts Status: Inactive Positional Accuracy: Automatically positioned to the address	A12SE (SW)	676	-	523034 231733
27	Contemporary Trade Directory Entries Name: Wayne Armstrong (Boxing) Ltd Location: 6 Ivel Ct, Letchworth Garden City, Hertfordshire, SG6 2NH Classification: Sports Equipment Manufacturers & Distributors Status: Inactive Positional Accuracy: Manually positioned to the address or location	A12SE (SW)	683	-	523035 231715

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
28	Contemporary Trade Directory Entries Name: Jackmans Service Station Location: Jackmans Service Station, Baldock Road, Letchworth Garden City, SG6 2EJ Classification: Petrol Filling Stations Status: Inactive Positional Accuracy: Automatically positioned to the address	A17SE (NW)	725	-	523004 232372
28	Contemporary Trade Directory Entries Name: M R H Service Station Location: Jackmans Service Station, Baldock Road, Letchworth Garden City, SG6 2EJ Classification: Petrol Filling Stations Status: Inactive Positional Accuracy: Automatically positioned to the address	A17SE (NW)	725	-	523004 232372
28	Contemporary Trade Directory Entries Name: B P Petrol Station Location: Jackmans Service Station, Baldock Road, Letchworth Garden City, SG6 2EJ Classification: Petrol Filling Stations Status: Active Positional Accuracy: Automatically positioned to the address	A17SE (NW)	725	-	523004 232372
28	Contemporary Trade Directory Entries Name: B P Service Station Location: Baldock Road, Letchworth Garden City, Hertfordshire, SG6 2EJ Classification: Petrol Filling Stations Status: Inactive Positional Accuracy: Manually positioned to the address or location	A17SE (NW)	726	-	523003 232374
28	Contemporary Trade Directory Entries Name: B P Service Station Location: Baldock Road, Letchworth Garden City, Hertfordshire, SG6 2EJ Classification: Petrol Filling Stations Status: Inactive Positional Accuracy: Manually positioned to the address or location	A17SE (NW)	726	-	523003 232374
28	Contemporary Trade Directory Entries Name: B P Service Station Location: Baldock Road, Letchworth Garden City, Hertfordshire, SG6 2EJ Classification: Petrol Filling Stations Status: Active Positional Accuracy: Manually positioned to the address or location	A17SE (NW)	726	-	523003 232374
29	Contemporary Trade Directory Entries Name: European Tyre Enterprise Ltd Location: Etel House, Avenue One, Letchworth Garden City, SG6 2HU Classification: Tyre Dealers Status: Active Positional Accuracy: Automatically positioned to the address	A17NE (NW)	765	-	523279 232719
29	Contemporary Trade Directory Entries Name: Kwik Fit Gb Ltd Location: ETEL HOUSE, AVENUE ONE, LETCHWORTH GARDEN CITY, SG6 2HU Classification: Tyre Dealers Status: Active Positional Accuracy: Automatically positioned to the address	A17NE (NW)	765	-	523279 232719
29	Contemporary Trade Directory Entries Name: Gelpack Excelsior Ltd Location: Venture House, Fifth Avenue, Letchworth Garden City, Hertfordshire, SG6 2HW Classification: Packaging & Wrapping Equipment & Supplies Status: Inactive Positional Accuracy: Automatically positioned to the address	A17NE (NW)	798	-	523286 232760
29	Contemporary Trade Directory Entries Name: Rep Design (Uk) Ltd Location: Suite 12, Venture House, Fifth Avenue, Letchworth, Hertfordshire, SG6 2HW Classification: Electronic Component Manufacturers & Distributors Status: Inactive Positional Accuracy: Automatically positioned to the address	A17NE (NW)	798	-	523286 232760
29	Contemporary Trade Directory Entries Name: Alfex (Uk) Ltd Location: Venture House, Fifth Avenue, Letchworth Garden City, Hertfordshire, SG6 2HW Classification: Adhesives, Glues & Sealants Status: Inactive Positional Accuracy: Automatically positioned to the address	A17NE (NW)	798	-	523286 232760

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
29	Contemporary Trade Directory Entries Name: C E S Tf Software Location: Suite 12, Venture House, Fifth Avenue, Letchworth Garden City, Hertfordshire, SG6 2HW Classification: Cash Registers & Check-Out Equipment Status: Inactive Positional Accuracy: Automatically positioned to the address	A17NE (NW)	798	-	523286 232760
29	Contemporary Trade Directory Entries Name: Transparent Engineering Ltd Location: Suite 15, Venture House, Fifth Avenue, Letchworth Garden City, Hertfordshire, SG6 2HW Classification: Electrical Engineers Status: Inactive Positional Accuracy: Automatically positioned to the address	A17NE (NW)	798	-	523286 232760
29	Contemporary Trade Directory Entries Name: Nagels Location: office 9,Venture House,Fifth Av, Letchworth Garden City, Hertfordshire, SG6 2HW Classification: Printers Status: Inactive Positional Accuracy: Manually positioned to the address or location	A17NE (NW)	799	-	523285 232760
30	Contemporary Trade Directory Entries Name: P R G Powerhouse Location: Avenue Two, Letchworth Garden City, Hertfordshire, SG6 2HN Classification: Electrical Goods Sales, Manufacturers & Wholesalers Status: Inactive Positional Accuracy: Automatically positioned to the address	A18NW (N)	813	-	523419 232830
31	Contemporary Trade Directory Entries Name: Bridger T D Ltd Location: Avenue One, Letchworth Garden City, Hertfordshire, SG6 2WP Classification: Paper & Cardboard Manufacturers Status: Inactive Positional Accuracy: Manually positioned to the road within the address or location	A17NE (NW)	842	-	523222 232774
31	Contemporary Trade Directory Entries Name: Elan Pharma Ltd Location: Elan Ho,Avenue One, Letchworth, Hertfordshire, SG6 2HU Classification: Pharmaceutical Manufacturers & Distributors Status: Inactive Positional Accuracy: Manually positioned to the road within the address or location	A17NE (NW)	842	-	523222 232774
31	Contemporary Trade Directory Entries Name: M S A Print Finishing Ltd Location: Unit 8, Business Centre West, Avenue One, Letchworth Garden City, SG6 2HB Classification: Print Finishers Status: Active Positional Accuracy: Automatically positioned to the address	A17NE (NW)	851	-	523186 232762
31	Contemporary Trade Directory Entries Name: Industrial Electronic Repairs Ltd Location: Unit 10-11, Business Centre West, Avenue One, Letchworth Garden City, SG6 2HB Classification: Electronic Engineers Status: Active Positional Accuracy: Automatically positioned to the address	A17NE (NW)	865	-	523191 232783
31	Contemporary Trade Directory Entries Name: Truck King Location: Unit 1, Business Centre West, Avenue One, Letchworth Garden City, Hertfordshire, SG6 2HB Classification: Radio Communication Equipment Status: Inactive Positional Accuracy: Automatically positioned to the address	A17NE (NW)	866	-	523191 232784
31	Contemporary Trade Directory Entries Name: Rion Designs Ltd Location: Unit 21, Business Centre West, Avenue One, Letchworth Garden City, Hertfordshire, SG6 2HB Classification: Control Panels Status: Active Positional Accuracy: Automatically positioned to the address	A17NE (NW)	866	-	523191 232784

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
31	Contemporary Trade Directory Entries Name: Digital Imagin Location: Unit 5a,Business Centre West,Avenue One, Letchworth Garden City, Hertfordshire, SG6 2HB Classification: Printers Status: Inactive Positional Accuracy: Manually positioned to the address or location	A17NE (NW)	866	-	523190 232783
31	Contemporary Trade Directory Entries Name: Score On Ltd Location: Unit 14, Business Centre West, Avenue One, Letchworth Garden City, Hertfordshire, SG6 2HB Classification: Printers Status: Inactive Positional Accuracy: Automatically positioned to the address	A17NE (NW)	866	-	523191 232784
31	Contemporary Trade Directory Entries Name: Lions Healthcare Location: Business Centre West, Avenue One, Letchworth Garden City, SG6 2HB Classification: Chemists' & Pharmacists' Suppliers & Wholesalers Status: Active Positional Accuracy: Automatically positioned to the address	A17NE (NW)	866	-	523191 232784
31	Contemporary Trade Directory Entries Name: Howard Digital Ltd Location: Unit 5, Business Centre West, Avenue One, Letchworth Garden City, SG6 2HB Classification: Printers Status: Inactive Positional Accuracy: Automatically positioned to the address	A17NE (NW)	866	-	523191 232784
31	Contemporary Trade Directory Entries Name: Anchor Europe Location: Room B & C, Business Centre West, Letchworth Business Centre, Avenue One, Letchworth, Hertfordshire, SG6 2HB Classification: Packaging Materials Manufacturers & Suppliers Status: Inactive Positional Accuracy: Automatically positioned to the address	A17NE (NW)	866	-	523191 232784
31	Contemporary Trade Directory Entries Name: Molly Maid Location: Business Centre West, Avenue One, Letchworth Garden City, Hertfordshire, SG6 2HB Classification: Cleaning Services - Domestic Status: Inactive Positional Accuracy: Automatically positioned to the address	A17NE (NW)	866	-	523191 232784
31	Contemporary Trade Directory Entries Name: Minuteman Press Location: Unit 7, Business Centre West, Avenue One, Letchworth Garden City, Hertfordshire, SG6 2HB Classification: Printers Status: Inactive Positional Accuracy: Automatically positioned to the address	A17NE (NW)	866	-	523191 232784
31	Contemporary Trade Directory Entries Name: Jetpoint Location: 1-2 Business Centre West,Letchworth Business Centre,Avenue O, Letchworth Garden City, Hertfordshire, SG6 2HB Classification: Printers Status: Inactive Positional Accuracy: Manually positioned to the address or location	A17NE (NW)	867	-	523190 232784
31	Contemporary Trade Directory Entries Name: Datataker Ltd Location: Unit 26, Business Centre West, Letchworth Business Centre, Avenue One, Letchworth, Hertfordshire, SG6 2HB Classification: Scientific Apparatus & Instruments - Manufacturers Status: Inactive Positional Accuracy: Automatically positioned in the proximity of the address	A17NE (NW)	895	-	523190 232817
31	Contemporary Trade Directory Entries Name: Kite Packaging Location: Avenue One, Letchworth Garden City, Hertfordshire, SG6 2HB Classification: Boxes & Cartons Status: Inactive Positional Accuracy: Manually positioned within the geographical locality	A17NE (NW)	896	-	523163 232801

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
32	Contemporary Trade Directory Entries Name: Sub Contract Services Ltd Location: Unit 6, Fifth Avenue, Letchworth Garden City, SG6 2TS Classification: Printed Circuit Services Status: Inactive Positional Accuracy: Automatically positioned to the address	A17NE (NW)	845	-	523272 232806
32	Contemporary Trade Directory Entries Name: Brightwater Location: Unit 2, The Business Centre East, Avenue One, Letchworth Garden City, Hertfordshire, SG6 2HB Classification: Engineers - General Status: Inactive Positional Accuracy: Manually positioned to the address or location	A17NE (NW)	864	-	523252 232816
32	Contemporary Trade Directory Entries Name: Thomson Unicmarine Location: Unit 6-9, Fifth Avenue, Letchworth Garden City, Hertfordshire, SG6 2TS Classification: Laboratories Status: Inactive Positional Accuracy: Automatically positioned to the address	A17NE (NW)	867	-	523278 232833
33	Contemporary Trade Directory Entries Name: Green Planet Rubbish Clearing Location: 18, Creamery Court, Letchworth Garden City, Hertfordshire, SG6 2UA Classification: Waste Disposal Services Status: Inactive Positional Accuracy: Automatically positioned to the address	A7SE (SW)	846	-	523335 231226
34	Contemporary Trade Directory Entries Name: Bp Service Station Location: Baldock Rd, Letchworth Garden City, Hertfordshire, SG6 2EJ Classification: Petrol Filling Stations Status: Inactive Positional Accuracy: Manually positioned to the road within the address or location	A12NW (W)	861	-	522840 232336
35	Contemporary Trade Directory Entries Name: Desco Europe Location: Unit 2a Dunhams Lane, Letchworth Garden City, SG6 1BE Classification: Manufacturers Status: Inactive Positional Accuracy: Manually positioned to the address or location	A17NE (NW)	914	-	523099 232778
36	Contemporary Trade Directory Entries Name: Esso Location: Letchworth Gate, Letchworth Garden City, Hertfordshire, SG6 2AZ Classification: Petrol Filling Stations Status: Active Positional Accuracy: Manually positioned to the address or location	A7NW (W)	932	-	522783 231668
36	Contemporary Trade Directory Entries Name: Shell Letchworth Gate Location: Letchworth Gate, Letchworth Garden City, Hertfordshire, SG6 2AZ Classification: Petrol Filling Stations Status: Inactive Positional Accuracy: Automatically positioned to the address	A7NW (W)	932	-	522783 231668
37	Contemporary Trade Directory Entries Name: Kite Packaging Location: Avenue One, Letchworth Garden City, SG6 2HB Classification: Packaging Materials Manufacturers & Suppliers Status: Active Positional Accuracy: Automatically positioned to the address	A17NE (NW)	952	-	523170 232872
38	Contemporary Trade Directory Entries Name: Alpha Building & Property Services Location: 44, Blackmore, Letchworth Garden City, Hertfordshire, SG6 2SZ Classification: Concrete & Mortar Ready Mixed Status: Inactive Positional Accuracy: Automatically positioned to the address	A7NW (SW)	986	-	522895 231380
39	Fuel Station Entries Name: Mfg Jackmans Location: Baldock Road Radburn Way, , Letchworth Garden City, Hertfordshire, SG6 2EJ Brand: Bp Premises Type: Petrol Station Status: Open Positional Accuracy: Manually positioned to the address or location	A17SE (NW)	726	-	523003 232374

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
40	Fuel Station Entries Name: Rss Letchworth Location: Letchworth Gate , , Letchworth Garden City, Hertfordshire, SG6 2AZ Brand: Esso Premises Type: Petrol Station Status: Open Positional Accuracy: Automatically positioned to the address	A7NW (W)	932	-	522783 231668
41	Points of Interest - Commercial Services Name: Mids Pest Control Ltd Location: 38 Rundells, Letchworth Garden City, SG6 2SQ Category: Contract Services Class Code: Pest and Vermin Control Positional Accuracy: Positioned to address or location	A13SE (S)	263	7	523717 231743
42	Points of Interest - Commercial Services Name: Kwik-Fit (GB) Limited Location: Etel House, Avenue One, Letchworth Garden City, SG6 2HU Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A17NE (NW)	765	7	523279 232719
43	Points of Interest - Commercial Services Name: Rss Letchworth Location: Letchworth Gate, Letchworth Garden City, SG6 2AZ Category: Personal, Consumer and other Services Class Code: Vehicle Cleaning Services Positional Accuracy: Positioned to address or location	A7NW (W)	932	7	522783 231668
43	Points of Interest - Commercial Services Name: Car Wash Location: Letchworth Gate, Letchworth Garden City, SG6 2AZ Category: Personal, Consumer and other Services Class Code: Vehicle Cleaning Services Positional Accuracy: Positioned to address or location	A7NW (W)	932	7	522783 231668
44	Points of Interest - Manufacturing and Production Name: Tank Location: SG6 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to an adjacent address or location	A8NW (SW)	452	7	523362 231667
45	Points of Interest - Manufacturing and Production Name: Business Centre East Location: SG6 Category: Industrial Features Class Code: Business Parks and Industrial Estates Positional Accuracy: Positioned to an adjacent address or location	A17NE (NW)	842	7	523278 232805
45	Points of Interest - Manufacturing and Production Name: Business Centre East Location: SG6 Category: Industrial Features Class Code: Business Parks and Industrial Estates Positional Accuracy: Positioned to an adjacent address or location	A17NE (NW)	846	7	523271 232806
46	Points of Interest - Manufacturing and Production Name: Business Centre West Location: SG6 Category: Industrial Features Class Code: Business Parks and Industrial Estates Positional Accuracy: Positioned to an adjacent address or location	A17NE (NW)	874	7	523164 232775
46	Points of Interest - Manufacturing and Production Name: Business Centre West Location: SG6 Category: Industrial Features Class Code: Business Parks and Industrial Estates Positional Accuracy: Positioned to an adjacent address or location	A17NE (NW)	879	7	523151 232773
47	Points of Interest - Manufacturing and Production Name: Catsitters Location: 217 Weston Way, Baldock, SG7 6JG Category: Farming Class Code: Livestock Farming Positional Accuracy: Positioned to address or location	A19SE (NE)	940	7	524494 232549
48	Points of Interest - Manufacturing and Production Name: Power Station Location: SG6 Category: Industrial Features Class Code: Energy Production Positional Accuracy: Positioned to an adjacent address or location	A18NE (N)	957	7	523731 233008

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
49	Points of Interest - Manufacturing and Production Name: Factory Location: SG6 Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to address or location	A17NE (NW)	967	7	523131 232865
49	Points of Interest - Manufacturing and Production Name: Factory Location: Not Supplied Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A17NE (NW)	970	7	523124 232864
50	Points of Interest - Public Infrastructure Name: Jackmans Service Station Location: Baldock, Road, Letchworth Garden City, SG6 2EJ Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A17SE (NW)	725	7	523004 232372
50	Points of Interest - Public Infrastructure Name: BP Petrol Station Location: Jackmans Service Station, Baldock Road, Letchworth Garden City, SG6 2EJ Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A17SE (NW)	725	7	523004 232372
50	Points of Interest - Public Infrastructure Name: BP Service Station Location: Baldock Road, Letchworth Garden City, SG6 2EJ Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A17SE (NW)	726	7	523003 232374
50	Points of Interest - Public Infrastructure Name: BP Connect Location: Baldock Road, Letchworth Garden City, SG6 2EJ Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A17SE (NW)	726	7	523003 232374
50	Points of Interest - Public Infrastructure Name: Jackmans Connect Location: Baldock Road, Radburn Way, Letchworth Garden City, Hertfordshire, SG6 2EJ Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A17SE (NW)	726	7	523003 232374
50	Points of Interest - Public Infrastructure Name: M R H Service Station Location: Baldock Road, Letchworth Garden City, SG6 2EJ Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A17SE (NW)	727	7	523002 232373
50	Points of Interest - Public Infrastructure Name: Jackmans Connect Location: Garage, Baldock Road, Letchworth Garden City, Hertfordshire, SG6 2E Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A17SW (NW)	746	7	522984 232380
51	Points of Interest - Public Infrastructure Name: Green Planet Rubbish Clearing Location: 18 Creamery Court, Letchworth Garden City, SG6 2UA Category: Infrastructure and Facilities Class Code: Waste Storage, Processing and Disposal Positional Accuracy: Positioned to address or location	A7SE (SW)	846	7	523335 231226
51	Points of Interest - Public Infrastructure Name: Green Planet Rubbish Clearing Location: 18 Creamery Court, Letchworth Garden City, SG6 2UA Category: Infrastructure and Facilities Class Code: Waste Storage, Processing and Disposal Positional Accuracy: Positioned to address or location	A7SE (SW)	846	7	523335 231226
52	Points of Interest - Public Infrastructure Name: Esso Location: Lethchworth Gate, Letchworth Garden City, SG6 2AZ Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A7NW (W)	931	7	522784 231670

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
52	Points of Interest - Public Infrastructure Name: Shell Letchworth Gate Location: Letchworth Gate, Letchworth Garden City, SG6 2AZ Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A7NW (W)	932	7	522783 231668
52	Points of Interest - Public Infrastructure Name: Shell Letchworth Location: Letchworth Gate, Letchworth Garden City, SG6 2AZ Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A7NW (W)	932	7	522783 231668
52	Points of Interest - Public Infrastructure Name: Shell Letchworth Location: Letchworth Gate, Letchworth Garden City, Hertfordshire, SG6 2AZ Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A7NW (W)	932	7	522783 231668
53	Points of Interest - Recreational and Environmental Name: Playground Location: Not Supplied Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A12SE (W)	504	7	523162 231882
53	Points of Interest - Recreational and Environmental Name: Playground Location: Jarden, SG6 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A12SE (W)	504	7	523162 231882
53	Points of Interest - Recreational and Environmental Name: Play Area Location: SG6 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A12SE (W)	530	7	523150 231833
54	Points of Interest - Recreational and Environmental Name: Playground Location: Alban Road, SG6 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to address or location	A7NE (SW)	739	7	523240 231400
54	Points of Interest - Recreational and Environmental Name: Playground Location: Not Supplied Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A7NE (SW)	741	7	523240 231398
55	Points of Interest - Recreational and Environmental Name: Skatepark Location: SG6 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A17NE (NW)	921	7	523026 232725
56	Points of Interest - Recreational and Environmental Name: Play Area Location: SG6 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A17NW (NW)	953	7	522987 232733
56	Points of Interest - Recreational and Environmental Name: Playground Location: Not Supplied Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A17SW (NW)	957	7	522911 232655
56	Points of Interest - Recreational and Environmental Name: Playground Location: Not Supplied Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A17NW (NW)	979	7	522928 232708

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
57	Areas of Adopted Green Belt Authority: North Hertfordshire District Council Plan Name: North Hertfordshire District Local Plan Status: Adopted Plan Date: 30th April 1996	A13NE (N)	7	9	523682 232054
58	Areas of Unadopted Green Belt Authority: North Hertfordshire District Council Plan Name: North Hertfordshire Local Plan Status: Submission Draft Plan Date: 11th April 2017	A13NE (N)	7	9	523682 232054
59	Nitrate Vulnerable Zones Name: Anglian Chalk Description: Groundwater Source: Environment Agency, Head Office	A13NW (SE)	0	4	523674 232029
60	Nitrate Vulnerable Zones Name: Great Ouse Nvz Description: Surface Water Source: Environment Agency, Head Office	A13NW (SE)	0	4	523674 232029

Agency & Hydrological	Version	Update Cycle
Contaminated Land Register Entries and Notices Mid Bedfordshire District Council (now part of Central Bedfordshire Council) - Environmental Health Department Environment Agency - Head Office North Hertfordshire District Council - Environmental Health Department Stevenage Borough Council - Environmental Health Department Central Bedfordshire Council - Environmental Health Department	July 2008 November 2023 October 2017 October 2017 October 2017	Annually Annual Rolling Update Annual Rolling Update Annually
Discharge Consents Environment Agency - Anglian Region Environment Agency - Thames Region	October 2023 October 2023	Quarterly Quarterly
Enforcement and Prohibition Notices Environment Agency - Anglian Region Environment Agency - Thames Region	March 2013 March 2013	
Integrated Pollution Controls Environment Agency - Anglian Region Environment Agency - Thames Region	January 2009 January 2009	
Integrated Pollution Prevention And Control Environment Agency - Anglian Region Environment Agency - South East Region - North East Thames Area Environment Agency - Thames Region	January 2023 January 2023 January 2023	Quarterly Quarterly Quarterly
Local Authority Integrated Pollution Prevention And Control Stevenage Borough Council - Environmental Health Department Mid Bedfordshire District Council (now part of Central Bedfordshire Council) - Environmental Health Department Central Bedfordshire Council - Environmental Health Department North Hertfordshire District Council - Environmental Health Department	April 2015 December 2008 November 2014 September 2014	Variable Not Applicable Variable Variable
Local Authority Pollution Prevention and Controls Stevenage Borough Council - Environmental Health Department Mid Bedfordshire District Council (now part of Central Bedfordshire Council) - Environmental Health Department North Hertfordshire District Council - Environmental Health Department Central Bedfordshire Council - Environmental Health Department	April 2015 December 2008 December 2020 November 2014	Annual Rolling Update Not Applicable Annual Rolling Update Annually
Local Authority Pollution Prevention and Control Enforcements Stevenage Borough Council - Environmental Health Department Mid Bedfordshire District Council (now part of Central Bedfordshire Council) - Environmental Health Department Central Bedfordshire Council - Environmental Health Department North Hertfordshire District Council - Environmental Health Department	April 2015 December 2008 November 2014 September 2014	Variable Not Applicable Variable Variable
Nearest Surface Water Feature Ordnance Survey	November 2023	
Pollution Incidents to Controlled Waters Environment Agency - Anglian Region Environment Agency - Thames Region	September 1999 September 1999	
Prosecutions Relating to Authorised Processes Environment Agency - Anglian Region Environment Agency - Thames Region	July 2015 July 2015	
Prosecutions Relating to Controlled Waters Environment Agency - Anglian Region Environment Agency - Thames Region	March 2013 March 2013	
Registered Radioactive Substances Environment Agency - Anglian Region Environment Agency - Thames Region Environment Agency - Head Office	June 2016 June 2016 May 2023	As notified As notified Quarterly

Agency & Hydrological	Version	Update Cycle
River Quality Environment Agency - Head Office	November 2001	Not Applicable
River Quality Biology Sampling Points Environment Agency - Head Office	April 2012	
River Quality Chemistry Sampling Points Environment Agency - Head Office	April 2012	
Substantiated Pollution Incident Register Environment Agency - Anglian Region - Central Area Environment Agency - South East Region - North East Thames Area Environment Agency - Thames Region - North East Area	October 2023 October 2023 October 2023	Quarterly Quarterly Quarterly
Water Abstractions Environment Agency - Anglian Region Environment Agency - Thames Region	October 2023 October 2023	Quarterly Quarterly
Water Industry Act Referrals Environment Agency - Anglian Region Environment Agency - Thames Region	October 2017 October 2017	
Groundwater Vulnerability Map Environment Agency - Head Office	June 2018	As notified
Groundwater Vulnerability - Soluble Rock Risk Environment Agency - Head Office	June 2018	As notified
Bedrock Aquifer Designations Environment Agency - Head Office	January 2018	As notified
Superficial Aquifer Designations Environment Agency - Head Office	January 2018	As notified
Source Protection Zones Environment Agency - Head Office	September 2022	Bi-Annually
Extreme Flooding from Rivers or Sea without Defences Environment Agency - Head Office	December 2023	Quarterly
Flooding from Rivers or Sea without Defences Environment Agency - Head Office	December 2023	Quarterly
Areas Benefiting from Flood Defences Environment Agency - Head Office	February 2023	Quarterly
Flood Water Storage Areas Environment Agency - Head Office	January 2024	Quarterly
Flood Defences Environment Agency - Head Office	August 2022	Quarterly
OS Water Network Lines Ordnance Survey	October 2023	Quarterly
Surface Water 1 in 30 year Flood Extent Environment Agency - Head Office	May 2018	Annually
Surface Water 1 in 100 year Flood Extent Environment Agency - Head Office	May 2018	Annually
Surface Water 1 in 1000 year Flood Extent Environment Agency - Head Office	May 2018	Annually
Surface Water Suitability Environment Agency - Head Office	February 2016	Annually
BGS Groundwater Flooding Susceptibility British Geological Survey - National Geoscience Information Service	May 2013	As notified

Waste	Version	Update Cycle
BGS Recorded Landfill Sites British Geological Survey - National Geoscience Information Service	November 2002	As notified
Historical Landfill Sites Environment Agency - Head Office	July 2023	Quarterly
Integrated Pollution Control Registered Waste Sites Environment Agency - Anglian Region Environment Agency - Thames Region	January 2009 January 2009	Not Applicable Not Applicable
Licensed Waste Management Facilities (Landfill Boundaries) Environment Agency - Anglian Region - Central Area Environment Agency - South East Region - North East Thames Area Environment Agency - Thames Region - North East Area	July 2023 July 2023 July 2023	Quarterly Quarterly Quarterly
Licensed Waste Management Facilities (Locations) Environment Agency - Anglian Region - Central Area Environment Agency - South East Region - North East Thames Area Environment Agency - Thames Region - North East Area	January 2023 January 2023 January 2023	Quarterly Quarterly Quarterly
Local Authority Landfill Coverage Bedfordshire County Council (now part of Central Bedfordshire Council) Hertfordshire County Council - Spatial Planning and Economy Unit Mid Bedfordshire District Council (now part of Central Bedfordshire Council) - Environmental Health Department North Hertfordshire District Council - Environmental Health Department Stevenage Borough Council - Environmental Health Department	February 2003 February 2003 February 2003 February 2003 February 2003	Not Applicable Not Applicable Not Applicable Not Applicable Not Applicable
Local Authority Recorded Landfill Sites Bedfordshire County Council (now part of Central Bedfordshire Council) Hertfordshire County Council - Spatial Planning and Economy Unit Mid Bedfordshire District Council (now part of Central Bedfordshire Council) - Environmental Health Department North Hertfordshire District Council - Environmental Health Department Stevenage Borough Council - Environmental Health Department	October 2018 October 2018 October 2018 October 2018 October 2018	
Potentially Infilled Land (Non-Water) Landmark Information Group Limited	December 1999	
Potentially Infilled Land (Water) Landmark Information Group Limited	December 1999	
Registered Landfill Sites Environment Agency - Anglian Region - Central Area Environment Agency - Thames Region - North East Area	March 2006 March 2006	Not Applicable Not Applicable
Registered Waste Transfer Sites Environment Agency - Anglian Region - Central Area Environment Agency - Thames Region - North East Area	April 2018 April 2018	
Registered Waste Treatment or Disposal Sites Environment Agency - Anglian Region - Central Area Environment Agency - Thames Region - North East Area	June 2015 June 2015	

Hazardous Substances	Version	Update Cycle
Control of Major Accident Hazards Sites (COMAH) Health and Safety Executive	March 2023	Bi-Annually
Explosive Sites Health and Safety Executive	March 2017	
Notification of Installations Handling Hazardous Substances (NIHHS) Health and Safety Executive	August 2001	
Planning Hazardous Substance Enforcements Central Bedfordshire Council - Planning Department Hertfordshire County Council - Spatial Planning and Economy Unit North Hertfordshire District Council Bedfordshire County Council (now part of Central Bedfordshire Council) Stevenage Borough Council Mid Bedfordshire District Council (now part of Central Bedfordshire Council)	February 2016 February 2016 February 2016 July 2008 June 2023 May 2008	Variable Variable Variable Annual Rolling Update Variable Not Applicable
Planning Hazardous Substance Consents Central Bedfordshire Council - Planning Department Hertfordshire County Council - Spatial Planning and Economy Unit North Hertfordshire District Council Stevenage Borough Council Bedfordshire County Council (now part of Central Bedfordshire Council) Mid Bedfordshire District Council (now part of Central Bedfordshire Council)	February 2016 February 2016 February 2016 February 2016 July 2008 May 2008	Variable Variable Variable Variable Annual Rolling Update Not Applicable

Geological	Version	Update Cycle
BGS 1:625,000 Solid Geology British Geological Survey - National Geoscience Information Service	January 2009	As notified
BGS Estimated Soil Chemistry British Geological Survey - National Geoscience Information Service	December 2015	As notified
BGS Recorded Mineral Sites British Geological Survey - National Geoscience Information Service	June 2023	Bi-Annually
CBSCB Compensation District Cheshire Brine Subsidence Compensation Board (CBSCB) Cheshire Brine Subsidence Compensation Board (CBSCB)	August 2011 November 2020	As notified
Coal Mining Affected Areas The Coal Authority - Property Searches	February 2023	Annual Rolling Update
Mining Instability Ove Arup & Partners	June 1998	Not Applicable
Non Coal Mining Areas of Great Britain British Geological Survey - National Geoscience Information Service	May 2015	Not Applicable
Potential for Collapsible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	April 2020	As notified
Potential for Compressible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Ground Dissolution Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Landslide Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Running Sand Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
Potential for Shrinking or Swelling Clay Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	As notified
Radon Potential - Radon Affected Areas British Geological Survey - National Geoscience Information Service	October 2023	Annually
Radon Potential - Radon Protection Measures British Geological Survey - National Geoscience Information Service	October 2023	Annually

Industrial Land Use	Version	Update Cycle
Contemporary Trade Directory Entries Thomson Directories	October 2023	Quarterly
Fuel Station Entries Catalist Ltd - Experian	November 2023	Quarterly
Gas Pipelines National Grid	October 2021	Bi-Annually
Points of Interest - Commercial Services PointX	December 2023	Quarterly
Points of Interest - Education and Health PointX	December 2023	Quarterly
Points of Interest - Manufacturing and Production PointX	December 2023	Quarterly
Points of Interest - Public Infrastructure PointX	December 2023	Quarterly
Points of Interest - Recreational and Environmental PointX	December 2023	Quarterly
Underground Electrical Cables National Grid	February 2023	Bi-Annually

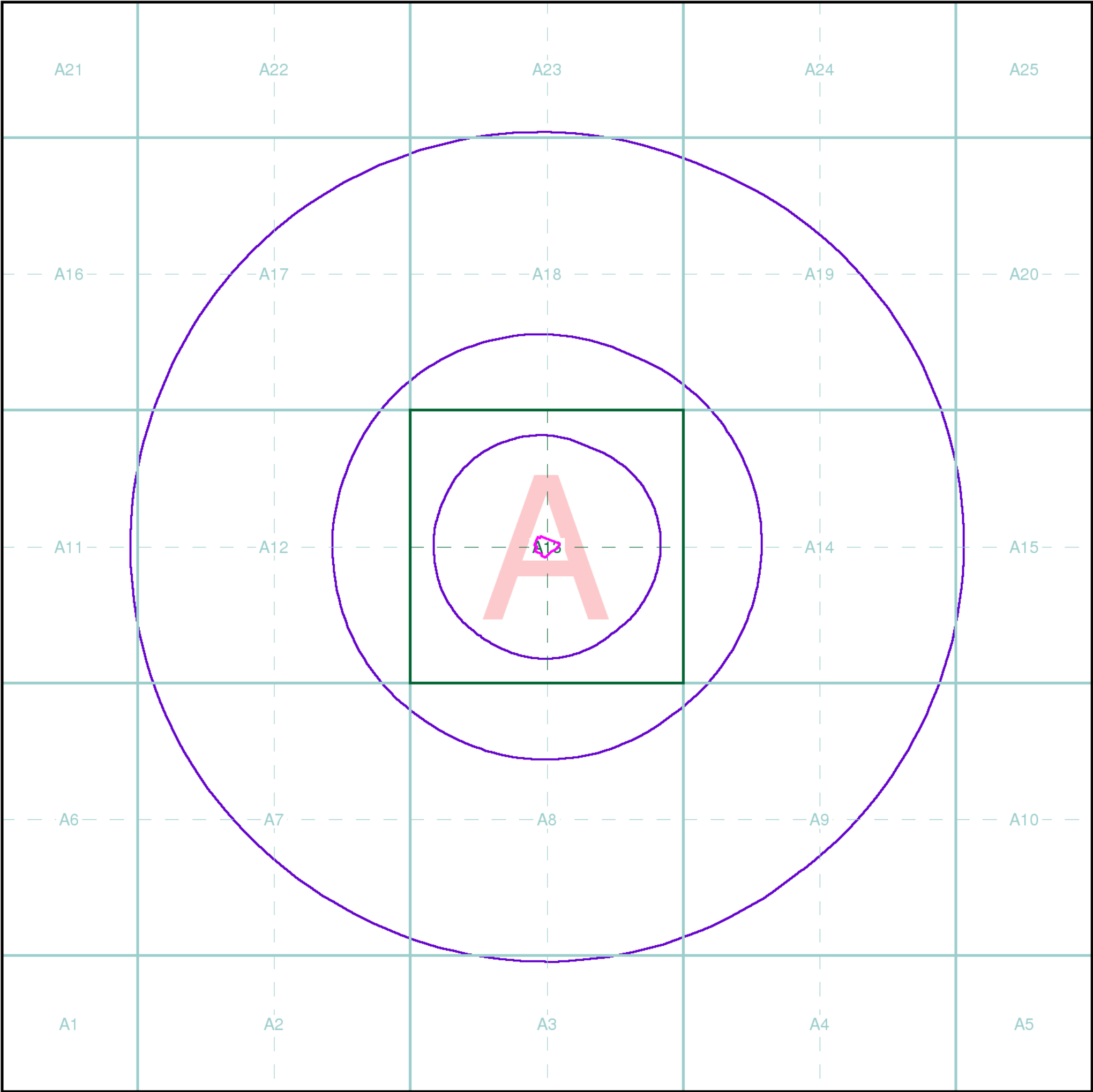
Sensitive Land Use	Version	Update Cycle
Ancient Woodland Natural England	October 2023	Bi-Annually
Areas of Adopted Green Belt Mid Bedfordshire District Council (now part of Central Bedfordshire Council) - Environmental Health Department North Hertfordshire District Council Stevenage Borough Council Central Bedfordshire Council - Planning Department	August 2023 August 2023 August 2023 May 2011	Quarterly Quarterly Quarterly As notified
Areas of Unadopted Green Belt Mid Bedfordshire District Council (now part of Central Bedfordshire Council) - Environmental Health Department North Hertfordshire District Council Stevenage Borough Council Central Bedfordshire Council - Planning Department	August 2023 August 2023 August 2023 May 2011	Quarterly Quarterly Quarterly As notified
Areas of Outstanding Natural Beauty Natural England	November 2023	Bi-Annually
Environmentally Sensitive Areas Natural England	August 2023	
Forest Parks Forestry Commission	May 2023	Not Applicable
Local Nature Reserves Natural England	August 2023	Bi-Annually
Marine Nature Reserves Natural England	October 2023	Bi-Annually
National Nature Reserves Natural England	August 2023	Bi-Annually
National Parks Natural England	February 2018	Bi-Annually
Nitrate Sensitive Areas Natural England	April 2023	Not Applicable
Nitrate Vulnerable Zones Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA) Environment Agency - Head Office	April 2016 March 2023	Bi-Annually
Ramsar Sites Natural England	October 2023	Bi-Annually
Sites of Special Scientific Interest Natural England	November 2023	Bi-Annually
Special Areas of Conservation Natural England	October 2023	Bi-Annually
Special Protection Areas Natural England	October 2023	Bi-Annually

A selection of organisations who provide data within this report

Data Supplier	Data Supplier Logo
Ordnance Survey	
Environment Agency	
Scottish Environment Protection Agency	
The Coal Authority	
British Geological Survey	 British Geological Survey NATURAL ENVIRONMENT RESEARCH COUNCIL
Centre for Ecology and Hydrology	 Centre for Ecology & Hydrology NATURAL ENVIRONMENT RESEARCH COUNCIL
Natural Resources Wales	
Scottish Natural Heritage	
Natural England	
Public Health England	
Ove Arup	
Stantec UK Ltd	

Contact	Name and Address	Contact Details
1	British Geological Survey - Enquiry Service British Geological Survey, Environmental Science Centre, Keyworth, Nottingham, Nottinghamshire, NG12 5GG	Telephone: 0115 936 3143 Fax: 0115 936 3276 Email: enquiries@bgs.ac.uk Website: www.bgs.ac.uk
2	North Hertfordshire District Council - Environmental Health Department Council Offices, Gernon Road, Letchworth, Hertfordshire, SG6 3JF	Telephone: 01462 474000 Fax: 01462 474559 Website: www.north-herts.gov.uk
3	Environment Agency - National Customer Contact Centre (NCCC) PO Box 544, Templeborough, Rotherham, S60 1BY	Telephone: 03708 506 506 Email: enquiries@environment-agency.gov.uk
4	Environment Agency - Head Office Rio House, Waterside Drive, Aztec West, Almondsbury, Bristol, Avon, BS32 4UD	Telephone: 01454 624400 Fax: 01454 624409
5	Ordnance Survey Adanac Drive, Southampton, Hampshire, SO16 0AS	Telephone: 03456 05 05 05 Email: customerservices@ordnancesurvey.co.uk Website: www.ordnancesurvey.gov.uk
6	Hertfordshire County Council - Spatial Planning and Economy Unit County Hall, Hertford, Hertfordshire, SG13 8DN	Telephone: 01992 556266 Fax: 01992 556015 Email: spatialplanning@hertfordshire.gov.uk Website: www.hertsdirect.org
7	PointX 7 Abbey Court, Eagle Way, Sowton, Exeter, Devon, EX2 7HY	Website: www.pointx.co.uk
8	Natural England County Hall, Spetchley Road, Worcester, WR5 2NP	Telephone: 0300 060 3900 Email: enquiries@naturalengland.org.uk Website: www.naturalengland.org.uk
9	North Hertfordshire District Council Council Offices, Gernon Road, Letchworth, Hertfordshire, SG6 3JF	Telephone: 01462 474000 Fax: 01462 474558 Website: www.north-herts.gov.uk
-	Public Health England - Radon Survey, Centre for Radiation, Chemical and Environmental Hazards Chilton, Didcot, Oxfordshire, OX11 0RQ	Telephone: 01235 822622 Fax: 01235 833891 Email: radon@phe.gov.uk Website: www.ukradon.org
-	Landmark Information Group Limited Imperium, Imperial Way, Reading, Berkshire, RG2 0TD	Telephone: 0844 844 9952 Fax: 0844 844 9951 Email: customerservices@landmarkinfo.co.uk Website: www.landmarkinfo.co.uk

Please note that the Environment Agency / Natural Resources Wales / SEPA have a charging policy in place for enquiries.



Index Map

For ease of identification, your site and buffer have been split into Slices, Segments and Quadrants. These are illustrated on the Index Map opposite and explained further below.

Slice
Each slice represents a 1:10,000 plot area (2.7km x 2.7km) for your site and buffer. A large site and buffer may be made up of several slices (represented by a red outline), that are referenced by letters of the alphabet, starting from the bottom left corner of the slice "grid". This grid does not relate to National Grid lines but is designed to give best fit over the site and buffer.

Segment
A segment represents a 1:2,500 plot area. Segments that have plot files associated with them are shown in dark green, others in light blue. These are numbered from the bottom left hand corner within each slice.

Quadrant
A quadrant is a quarter of a segment. These are labelled as NW, NE, SW, SE and are referenced in the datasheet to allow features to be quickly located on plots. Therefore a feature that has a quadrant reference of A7NW will be in Slice A, Segment 7 and the NW Quadrant.

A selection of organisations who provide data within this report:



Envirocheck reports are compiled from 136 different sources of data.

Client Details

Mr C Unsworth, Green Earth Management Ltd, Building 2, Broomfield Park, Coggeshall Road, Earls Colne, Essex, CO6 2JX

Order Details

Order Number: 332045544_1_1
Customer Ref: 2247
National Grid Reference: 523670, 232030
Site Area (Ha): 0.19
Search Buffer (m): 1000

Site Details

Newells, LETCHWORTH GARDEN CITY, SG6 2PH

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Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk