



Phase I/II Geoenvironmental Assessment

Land South of Oughtonhead Lane

Hitchin

Hertfordshire SG5 2LR

CALA Homes (North Home Counties) Ltd

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Land South of Oughtonhead Lane, Hitchin

Prepared for CALA Homes (North Home Counties) Ltd.
1 Falcon Gate
Shire Park
Welwyn Garden City
Hertfordshire AL7 1TW

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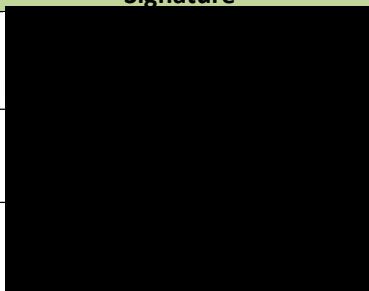
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Prepared by Green Earth Management Company Limited
Suite 3, Broomfield Park
Coggeshall Road
Earls Colne
Essex CO6 2JX

	Name	Signature	Date
Author:	C. Unsworth		12 th March 2021
Reviewer:	D. Robson		12 th March 2021
Authorised by:	D. Robson		12 th March 2021

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EXECUTIVE SUMMARY

Executive Summary	
Project Details	Green Earth Management Company Limited (GEMCO) was commissioned by CALA Homes (North Home Counties) Ltd (the Client) to undertake a Phase I/II Geoenvironmental Investigation (the Report) at a parcel of land to the south of Oughtonhead Lane, Hitchin (the Site).
Proposed Development	It is understood that the proposal is to redevelop of the Site to a residential end use of approximately forty (40 no.) dwellings plus gardens, associated infrastructure and parking.
Site/Surrounding Area Description	The Site was a roughly square shaped parcel of patchy rough grassland, with areas stripped of topsoil in the south and an area of 1.8 Ha. The surrounding area comprised residential properties to the southeast (newly constructed), east and north beyond Oughtonhead lane, with cricket pitches to the west and south
Geology, Hydrology and Hydrogeology	Superficial: Glaciofluvial Deposits - Secondary 'A' Aquifer; Gault Formation (in the north) - Unproductive stratum; Bedrock: West Melbury Marly Chalk Formation - Principal Aquifer. • Geological hazards: no significant risks have been identified on-site. • The Site is located within a Total Catchment – Zone III SPZ and the Great Ouse surface water DWSZ; • No surface waters are present on-site or in surrounding area; • The Site is within a Flood Zone 1, however some small areas in the north and east of the site have a low risk (1000-year return) of surface water flooding.
Site History	Historical map data shows that the Site has been an open parcel of grass/agricultural land since at least 1881 before being used as a site compound/storage area for an adjacent development c.2018-2020. The surrounding area has historically been agricultural land to the west and residential to the north, south and east. Several gravel pits have been located in the vicinity of the Site over the years, which have since been restored to use as sports facilities and residential developments have occurred in the immediate vicinity over the years as Hitchin has expanded.
Environmental Database Searches	• No significant active environmental permits, pollution incidents, registry entries or active landfill sites were identified at the Site; • The Site and surrounding area are within both the Great Ouse (surface water) and Anglian Chalk (Groundwater) NVZs; • The soil chemistry report indicates that the Site is in an area with potentially naturally elevated Arsenic (15-25 mg/kg), Chromium (60-90 mg/kg in the north, 40-60 mg/kg in the south) and Nickel (30-45 mg/kg); • The Site is not within an AQMA, nor a Radon protection area; • The Site is within a low risk UXO area.
Preliminary Conceptual Site Model	The Tier 1 Preliminary Risk Assessment (PRA)/Conceptual Site Model (CSM) concluded that the contamination risk was generally low, however precautionary moderate/low risk to human health, controlled waters, buried services and ecological receptors were identified on-site due to soils or gas generation resulting from the recent use as a site compound

Executive Summary	
Fieldwork	The scope of works for the investigation undertaken on 12th – 13th January 2021, based on the practices set out in BS5930 and BS10175, comprised: • One (1 no.) day of dynamic (window) sampling with in-situ Standard Penetration Testing (SPT) and Dynamic Probe testing; • Installation of three (3 no.) gas/groundwater monitoring standpipes, with one (1no.) return visit to measure ground gas and groundwater levels; • One (1 no.) day of trial pitting, with CBR testing by Clegg Hammer; and • BRE 365 Infiltration testing at three (3no.) locations.
Ground Conditions	The ground conditions may be summarised as a surface layer of topsoil (or localised made ground) overlying variable glaciofluvial cohesive and granular superficial soils and locally encountered chalk Bedrock. Cohesive/fine deposits were the predominant stratum and were generally described as firm slightly sandy to sandy, slightly gravelly clay. The granular soil was variable but most commonly comprised slightly clayey fine and medium (occasionally coarse) occasionally gravelly sand. Made Ground, encountered mostly in the south of the Site, comprised a reworked gravelly clay, where the gravel was flint and anthropogenic materials such as brick, plastics and ceramic. No groundwater was encountered during the investigation.
Revised Conceptual Site Model	• Provided made ground/contaminated soils are removed or used in non-residential areas, the site is considered to pose a minimal risk to sensitive receptors including human health. • No significant ground gas risk has been identified. • No plausible pollutant linkages have been identified and the site is considered to be suitable for the proposed development • A watching brief/discovery strategy should be put in place during the developmental works.
Contamination Conditions and Risk Assessment	It is considered that the site is likely suitable for the proposed development subject to the following recommendations: • The made ground in the south of the Site and topsoil in the area of TP101 would not currently be suitable for use in residential areas of the proposed development without appropriate treatment. This is based on the physical/chemical contamination identified; • The aforementioned soils would however be suitable for use in non-residential areas/public open space or under hardstanding; • No significant gas generation has been identified. No gas protection measures are therefore considered necessary; • The relevant service providers must be consulted with respect the required specification for underground services at the Site; and • A discovery strategy should be put in place during the development works. Should any evidence of unexpected or exceptional contamination be encountered then the works should be stopped, the relevant authorities should be informed, and further investigation should be undertaken to determine the extent and severity of the contamination. Any required remediation actions should then be agreed with and implemented to the satisfaction of the regulatory authorities and building warranty provider.

Executive Summary	
Geotechnical Assessment and Recommendations	For engineering design purposes, based on the assumptions and the geotechnical assessment presented in Section 7, which should be read in full, it is recommended that: • Excavations should be achievable using conventional earthmoving plant and equipment; • Shallow excavations in natural soils and trenches should remain stable without support in the short term. Trench support or battering back of the sides may be necessary if manual entry is required or if excavations will be left open for prolonged periods. Construction plant and stockpiles of materials must not be permitted near open excavations; • It is considered unlikely that shallow excavations will encounter significant groundwater; • It is currently considered that no particular measures are required in relation to desiccation risk; • Due to the soil variability, it is recommended that foundation design is based on firm cohesive soils with an undrained shear strength of 60kPa and a Presumed Bearing Capacity of 125kPa is adopted for foundations up to 1m wide; • Due the presence of granular and cohesive soils it is recommended that strip foundations are lightly reinforced to control differential settlements. Foundation depths should be based on a Low VCP; • It is recommended that slabs are suspended, however ground bearing may be permissible if required; • It is recommended that the preliminary design of hardstanding is based on a CBR value of 3%; • In-situ CBR tests are recommended to confirm the design assumptions for CBR values or possibly increase the CBR value; and • The Design Sulphate Class is DS-1 and the ACEC Class is AC-1.
	<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 potential 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
MTBE	Methyl tertiary butyl ether

Acronyms and Abbreviations	
Acronym/Abbreviation	Definition
NGR	National grid reference
NHBC	National House Building Council
NRA	National Rivers Authority (now the Environment Agency)
PACM	Potentially asbestos containing material
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
UXB	Unexploded Bomb
VOC (TVOC)	Volatile Organic Compounds (Total VOC)
WHO	World Health Organisation
WQS	Water Quality Standards
WS	Window Sample

1 INTRODUCTION

1.1. Project Details

Green Earth Management Company Limited (GEMCO) was commissioned by CALA Homes (North Home Counties) Ltd (the Client) to undertake a Phase I/II Geoenvironmental Investigation (the Report) at a parcel of land to the south of Oughtonhead Lane, Hitchin (the Site). A site location plan is presented as Figure 1.

The Report was required to support the Client's development proposal, as outlined at Section 1.2.

1.2. Proposed Development

It is understood that the proposal is to redevelop of the Site to a residential end use of approximately forty (40 no.) dwellings plus gardens, associated infrastructure and parking. A proposed development layout plan has been provided by the Client and is presented at Figure 2.

1.3. Objectives

The objectives of this geoenvironmental investigation are to:

- Carry out a review of the environmental setting of the Site and surrounding area in order to determine any potentially significant pollutant linkages relative to sensitive receptors identified;
- Undertake a Tier 1 Preliminary Risk Assessment of contamination risks to human health and the environment and provision of a preliminary Conceptual Site Model (CSM), detailing potential pollutant linkages;
- Undertake an intrusive site investigation to assess the ground/environmental conditions, based in part on any issues raised by the Tier 1 Preliminary Risk Assessment (PRA);
- Undertake a preliminary geotechnical appraisal of the ground engineering conditions;
- Undertake a Tier 2 Generic Quantitative Risk Assessment (GQRA) of contamination risks to health, safety and the environment and provide a revised CSM based on the investigation findings
- Undertake all works in accordance with relevant statutory and local guidance as appropriate; and
- Produce a report for use by the Client and provide recommendations for further works if necessary.

1.4. Scope of Work

The scope of work for the geoenvironmental investigation has included the following:

- A desk-based review of available information obtained from the Envirocheck report (R.1; included in Appendix 3), and other available sources of information;
- A Site walkover survey, undertaken during the site investigation works;
- One (1 no.) day of dynamic (window) sampling with in-situ Standard Penetration Testing (SPT) and Dynamic Probe testing;
- Installation of three (3 no.) combined gas and groundwater monitoring standpipes, with one (1no.) return visit to measure ground gas and groundwater levels;
- One (1 no.) day of trial pitting, with CBR testing by Clegg Hammer;
- BRE 365 Infiltration testing at three (3no.) locations; and
- Collection and laboratory testing of representative samples for geotechnical and chemical analysis.

All works would be undertaken in accordance with current UK environmental legislation and guidance as outlined in Section 1.5. The terms of the agreed scope of work are outlined in Section 1.6.

1.5. Methodology

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 2020, 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 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.

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.9) 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.10) and BS8576:2013, 'Guidance on investigations for ground gas - Permanent gases and Volatile Organic Compounds (VOCs)' (R.11), CL:AIRE, Research Bulletin RB17, A Pragmatic Approach to Ground Gas Risk Assessment (R.12), NHBC guidance (R.13), equipment manufacturer manuals (R.14) and Health and Safety Executive (HSE) EH40/2005 Workplace Exposure Limits (R.15).

Infiltration testing was undertaken in accordance with methodologies outlined in BRE Digest 365 Soakaway Design (2016) (R.16).

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

1.6. Terms of Reference

This report (herein referred to as the "Report"), has been prepared for CALA Homes (North Home Counties) Ltd (herein referred to as the "Client"), for the purposes agreed and in general accordance with the terms and conditions set out in proposal reference '1873 201127 GEMCO CH V2' dated 27th November 2020 and the Agreement between Green Earth Management Co Ltd (the "Consultant") and the Client. The works were commissioned by email instruction from the client to GEMCO on 11th December 2020.

1.7. 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

2.1.1. Site Location

The Site was a parcel of land to the south of Oughtonhead Lane, centred upon the British National Grid (BNG) reference (TL) 517550, 229630, in Hitchin, Hertfordshire SG5 2QY (approx. postcode), as shown at Figure 1. Access was through removed palisade fencing via a newly constructed development to the south.

2.1.2. Site Description

GEMCO undertook a site inspection during the site works in January 2021. The layout of the Site as encountered during the investigation is illustrated at Figure 3, with photographs presented at Appendix 2.

The Site was found to comprise a roughly square shaped parcel of land, measuring roughly 120 x 140 m with an area of 1.8 Ha. The site was covered by patchy rough grass softstanding and brambles, with areas stripped of topsoil in the south. Small and medium bushes and trees were present around the site boundary. No structures were present.

The site was littered with waste materials such as plastic, brick and concrete, some of which appeared to be entrained into the near surface soils. This was especially visible in the south of the site, where the topsoil appeared to have been stripped and the subsoil graded after site clearance/restoration works.

No significant features or sources of contamination were identified.

2.1.3. Surrounding Area

The surrounding area comprised residential properties to the southeast (newly constructed), east and north beyond Oughtonhead lane, with cricket pitches to the west and south. The wider surrounding area appeared to comprise agricultural fields to the west and the town of Hitchin roughly 500m to the east.

2.1.4. Topography

The topography of the Site appeared to be generally flat, with no significant relief. Based on satellite imagery, the site slopes gently from approx. 87 mAOD in the south down to approx. 83 mAOD in the north over a distance of roughly 120 metres. The topography was similar in the surrounding area.

2.2. Published Geology

The geological setting has been derived from the Envirocheck Report (Appendix 3), British Geological Survey (BGS) online records and 1:50,000 geological map, Sheet 221, Hitchin.

The Site is underlain by superficial deposits of Mid-Pleistocene Glaciofluvial Deposits (Sand & Gravel), which are a combination of granular and cohesive deposits laid down in meltwater channels during glacial periods. Bedrock is shown to comprise the West Melbury Chalk Formation, with the Gault Clay (Mudstone) formation shown to be present beneath the northern part of the site.

The BGS online database was searched for geological records at the Site and immediately surrounding area. Such records may be able to give an indication of ground conditions which could be expected at the Site.

One (1no.) record was present within 500m of the Site and accessible in the database, however the borehole is not located within the same stratum as that which underlies the Site, so its relevance is limited. The log (BGS ID. 528091) may be summarised as Sand & Gravel overlying Middle Chalk and Lower Chalk, terminating at 9.29m (converted from feet/inches). No depths other than the termination depth are provided. The resting water level was recorded at the base of the borehole (9.29 mbgl).

2.2.1. Geological Hazards

The BGS online databases have found the following potential geological hazards on the Site (Table 2.1). Ground Stability Data Maps from which the data has been obtained, and illustrate the locations of such hazards relative to the Site, are provided at Appendix 3.

Table 2.1. Geological Hazards	
Geological Hazard	Hazard Potential
Collapsible Ground	Very Low
Compressible Ground	No Hazard
Ground Dissolution	No Hazard
Ground Stability - Landslides	Very Low
Ground Stability - Running Sand	Very Low
Shrink-Swell Clay	No Hazard

2.2.2. Mining Records

The Site is in an area unlikely to be affected by coal mining - No coal mining hazard has been identified and no non-coal mining activities are located within 1km of the Site.

There are three (3no.) BGS Recorded Mineral site entries within the search area, all of which are no longer active. The closest entry was a sand & gravel pit 71 m to the northwest, with the next nearest 327m south.

2.2.3. Radon

The Site is in a lower probability radon area where less than 1% of homes are estimated to be at or above the action level. No radon protective measures are necessary in the construction of new dwellings.

2.3. Hydrogeological Setting

The superficial Glaciofluvial deposits are designated as a Secondary 'A' Aquifer, whilst the West Melbury Marly Chalk Formation bedrock is a Principal Aquifer. The Gault Formation in the north of the site is an unproductive stratum. The groundwater vulnerability is classified as High.

The Site is located within a Total Catchment – Zone III Source Protection Zone (SPZ) and the Great Ouse surface water Drinking Water Safeguard Zone (DWSZ).

The Site is however not located within a groundwater DWSZ or Drinking Water Protected Area (DWPA).

The BGS Groundwater Flooding Susceptibility finds that the Site is in an area of limited potential for groundwater flooding to occur.

2.4. Hydrological Setting

No surface waters were identified on-site nor in the immediate surrounding area during the site walkover. The nearest surface water to the site, as identified by the Envirocheck report, is 484m to the northeast. No further specific information on the nature of the feature is provided.

There are no OS Water Network Line entries within 650m of the Site. The Rivers Oughton and Hiz are located some 1.1km to the north and east, respectively.

The EA Flood Map for Planning Service (R.17) finds that the site is entirely Flood Zone 1 (low risk), and no flooding risk has been highlighted by the Envirocheck report within 600m. Additionally, no flood defences are located on-site nor are present in the surrounding area. The 1:10,000 scale site sensitivity surface water map maps (Appendix 3) show some small areas in the north and east of the site have a low risk (1000-year return) of surface water flooding.

2.5. Site History

The purpose of determining the Site's history is to identify the past uses of the Site, the potential for historic sources of contamination, changes in landform, previous site structures and construction/demolition works and their potential impact on the geology, hydrogeology and hydrology. The Site's history will assist in the design of future site investigations by identifying features that warrant a more detailed assessment.

A summary derived from a review of historical maps is presented below in Table 2.2:

Table 2.2. Historical Map Summary			
Maps Dated	On/ Off Site	Description	Potential Contamination Sources
1881 (1:528); 1881 (1:2,500); 1884, 1887 ¹ (1:10,560)	On-site	The Site appears to be grassland/an agricultural field.	Agricultural Activities.
	Off-site	The Site is surrounded by fields of presumed agricultural use on all sides. Buildings labelled 'Union Workhouse' are present ~100m to the east. Other presumed residential buildings of Hitchin are present neighbouring the Site to the east. An iron foundry is present ~200m to the southeast and a gravel pit is ~200m to the south.	Agricultural Activities; Quarrying Activities
1898 (1:2,500); 1899, 1901 ¹ (1:10,560)	On-site	<i>No significant changes visible</i>	<i>No additional sources</i>
	Off-site	Gravel pit to the south no longer shown. Two gravel pits now shown <100m to the west. Further development/residential buildings at Hitchin	Quarrying Activities (incl infilling ground); Construction & Demolition Activities
1923 (1:2,500); 1925 (1:10,560)	On-site	<i>No significant changes visible</i>	<i>No additional sources</i>
	Off-site	Minor developments at Hitchin. One of the gravel pits to the west no longer shown whilst another has expanded and now labelled "old gravel pits". Neighbouring site now an orchard. Chalkdell Nursery is to the north	Quarrying Activities (incl infilling ground); Construction & Demolition Activities; Horticultural Activities

Table 2.2. Historical Map Summary			
Maps Dated	On/ Off Site	Description	Potential Contamination Sources
1932 (1:2,500)	On-site	<i>No significant changes visible</i>	<i>No additional sources</i>
	Off-site	Minor developments in Hitchin	<i>No additional sources</i>
1946 ¹ , 1938-1947 ¹ (1:10,560)	On-site	<i>No significant changes visible</i>	<i>No additional sources</i>
	Off-site	Minor developments in Hitchin	<i>No additional sources</i>
1950 ¹ (1:10,560) ¹	On-site	<i>No significant changes visible</i>	<i>No additional sources</i>
	Off-site	Minor developments in Hitchin	<i>No additional sources</i>
1964 (1:1,250); 1960, 1969 ¹ (1:10,000)	On-site	<i>No significant changes visible</i>	<i>No additional sources</i>
	Off-site	Further developments at Hitchin, including the Lister hospital ~200m to the northeast. Neighbouring site to the east now allotments.	<i>No additional sources</i>
1970-1977 (1:1,250); 1976 ¹ (1:10,000);	On-site	<i>No significant changes visible</i>	<i>No additional sources</i>
	Off-site	Caravan Park constructed to the immediate east. Nursery to the north redeveloped to residential housing. Further developments in Hitchin.	Construction & Demolition Activities;
1981 (1:2,500); 1984 ¹ (1:1,250); 1982-1983 (1:10,000)	On-site	<i>No significant changes visible</i>	<i>No additional sources</i>
	Off-site	Significant residential development in Hitchin within 500m to the north and southeast. Old gravel pits no longer present to the west. Land to the south now has a sports/cricket ground present.	Construction & Demolition Activities (incl. infilling ground).
1992/1993/ 1994/1995 ¹ (1:1,250); 1992 ¹ (1:10,000)	On-site	<i>No significant changes visible</i>	<i>No additional sources</i>
	Off-site	Minor developments in Hitchin	<i>No additional sources</i>
1999 ² (1:2,500); 1999, (1:10,000)	On-site	<i>No significant changes visible</i>	<i>No additional sources</i>
	Off-site	Minor developments in Hitchin. Cricket pitch now shown to the west.	<i>No additional sources</i>
2006 (1:10,000)	On-site	<i>No significant changes visible</i>	<i>No additional sources</i>
	Off-site	Minor developments in Hitchin.	<i>No additional sources</i>
2020 (1:10,000)	On-site	<i>No significant changes visible</i>	<i>No additional sources</i>
	Off-site	Minor developments in Hitchin. Housing development to the southeast.	Construction & Demolition Activities
1 – Partial Map (site may not be shown); 2 – Aerial Photograph			

3 ENVIRONMENTAL SEARCHES

3.1. Environmental Search Data

The following sections have been produced following a review of the Landmark 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

The Envirocheck has identified the following noteworthy entries:

- Twelve (12 no.) pollution incidents to controlled waters have occurred in the surrounding area. The nearest was 231m northeast of the site and occurred in 1994 - a minor incident caused by a blocked sewer. The next nearest entry was >500m from the Site;

No other significant permits, pollution incidents or registers were identified. The above are generally not considered to present a significant risk to the Site or the proposed development.

3.3. Historical Landfill and Other Waste Sites

No active or historical landfill sites, waste transfer facilities or treatment sites have been identified on-site or in the surrounding 1km search area.

Four (4 no.) infilled land (non-water) entries have been noted, as three (3 no.) of these are within 100m of the Site at 28m west, 36m northwest and 94m west. The fourth entry is 395m to the northeast. All are unknown filled ground (pit/quarry) from 1992.

3.4. Current Industrial Land Use Data

There no current or historical on-site trade directory entries located at the Site. The following industrial land uses/trade directories and points of interest have been identified in the surrounding area:

- One hundred (100 no.) Trade Directory entries, of which twenty-one (21 no.) are active. The closest entry (and also the closest active entry) is 112 m to the north (a firefighting equipment distributor). The next closest active entry is 337 m to the northeast, and the nearest inactive entry was 266 m to the northeast (a paint removers). The majority of the entries are related to businesses in Hitchin;
- One (1 no.) active fuel station entry, located 342m northeast of the Site; and
- One (1 no.) Manufacturing and Production point of interest within 500m of the Site, which relates to a tank.

The above are generally not considered to present a significant risk to the Site or the proposed development.

3.5. Environmentally Sensitive Areas

The Site and surrounding area are within both the Great Ouse (surface water) and Anglian Chalk (Groundwater) Nitrate Vulnerable Zones (NVZs).

The Site and surrounding area also both within the North Hertfordshire Adopted Green Belt, adopted from 1996. The green belt appears to have been 'unadopted' in 2017, with no further details are provided.

The nearest Environmentally Sensitive Area entry identified by the Envirocheck report is 254m to the northwest, related to the Oughtonhead Lane Geological Site of Special Scientific Interest (SSSI), which was designated in 1989. This is not considered to be significant in the context of the proposed development.

No further significant sensitive land uses/areas have been identified.

3.5.1. BGS Estimated Soil Chemistry

The soil chemistry report/BGS estimated soil chemistry included in the Envirocheck indicates that the Site is in an area with potentially naturally elevated Arsenic (15-25 mg/kg), Chromium (60-90 mg/kg in the north, 40-60 mg/kg in the south) and Nickel (30-45 mg/kg).

The distribution of soil with potentially elevated determinands is illustrated on the 1:10,000 Estimated Soil Geochemistry maps in the Envirocheck report at Appendix 3.

3.6. Air Quality Management Areas

On the basis of data Air Quality Management Area (AQMA) maps available on the Defra website (R.18), the Site is not located within an AQMA.

3.7. Unexploded Ordnance (UXO) Survey

The UXB risk map procured from Zetica Ltd (Appendix 4) shows the Site is in a low UXO risk area.

3.8. Local Authority Correspondence

North Hertfordshire District Council were contacted in February 2021 regarding any historical contaminated land records which may be relevant to the proposed development.

No response has been received at the time of writing.

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 the current work is to undertake a Tier 1 Preliminary Risk Assessment, followed by a Tier 2 Generic Quantitative Risk Assessment based upon the findings of the intrusive site investigation.

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** - One or more 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 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. Contamination Sources

According to the historical map data, the Site appears to have been an open parcel of grass/agricultural land since the earliest available mapping in 1881 to present, however, based on satellite imagery and evidence during the Site walkover, it was used as a site compound/storage area for an adjacent development c.2018-2020.

The surrounding area has historically been agricultural land to the west and residential to the north, south and east (Hitchin). Several gravel pits have been located in the vicinity of the Site over the years, which have since been restored to use as sports facilities (cricket pitches). Several residential developments have occurred in the immediate vicinity over the years as Hitchin has expanded, with the most significant being the large redevelopment in the early 1980s to the north and the recent development to the southeast.

During the walkover the Site was broadly an open parcel of patchy rough grass-covered land with brambles and areas in the south stripped of topsoil. No structures were present. The Site was littered with waste plastics and the surface-level soil appeared to comprise reworked/graded made ground with visible fragments of anthropogenic material such as concrete and brick entrained throughout. This is likely a result of the restoration of the Site following the removal of the compound for the neighbouring development.

The above notwithstanding, no significant contaminative features such as fuel residues or potentially asbestos containing materials were encountered.

All potential contaminants have been summarised in Table 4.1:

Table 4.1. Potential Sources of Contamination		
Potential Source	Potential Contaminants	Probability
On/Off-site		
A. Agricultural Activities	Agrichemicals, fuel and oil hydrocarbons, heavy metals, asbestos, buried organic/inorganic wastes, ground gas	Low
B. Construction & Demolition Activities (incl site use as site compound and land restoration/ made- or infilled-ground)	Heavy metals, fuel and oil hydrocarbons, asbestos, ground gas, inorganic compounds	Moderate/Low
Off-site		
C. Off-Site Quarrying and Land Restoration/Infilling of Ground	Heavy metals, metalloids, fuel and oil hydrocarbons, ground gas, asbestos, buried organic/inorganic wastes	Low

4.3. Migration Pathways

The following potential migration pathways have been identified with regard to the site setting and the current development proposals (Section 1.2):

1. Direct contact with soils; ingestion of soil, or soil dust; Inhalation of dust or asbestos fibres; Ingestion of contaminated vegetable produce;
2. Leaching of contaminants; infiltration/movement to/in groundwater; runoff to surface waters;
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.

4.4. Receptors

The following sensitive receptors have been identified:

- Human Health (Future Site Users, Site Neighbours/General Public and Construction Workers);
- Controlled Waters: Secondary 'A' and Principal Aquifers;
- Future building(s) and building materials;
- Buried services; and
- Ecological receptors.

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/Off-Site				
PPL A. Agricultural Activities (Agrichemicals, fuel and oil hydrocarbons, heavy metals, asbestos, buried organic/inorganic wastes, ground gas)	1. Direct contact with soils; Ingestion of soil, or soil dust; Inhalation of dust, or asbestos fibres, Ingestion of contaminated vegetable produce	a. Future Site Users	PPL A-1-a Low	Contamination associated with farming unlikely to be present in concentrations which may affect future site users, however some (albeit low) potential for buried materials or residues of fuel and pesticides/ herbicides
		b. Site Neighbours/ General Public	PPL A-1-b Low	As above; contamination unlikely to be present in concentrations likely to migrate to neighbouring properties at significant levels
		c. Construction Workers	PPL A-1-c Very Low	Provided appropriate controls and PPE are used
	2. Leaching of contaminants; Infiltration to groundwater; Movement within the groundwater; Runoff to surface waters	a. Secondary 'A' and Principal Aquifers	PPL A-2-a Low	Potential for contamination at levels that could leach / migrate at significant levels considered to be low.
		b. Off-site Surface Waters	PPL A-2-b Very Low	As above. No surface waters present within 500m of the Site.
	3. Outdoor inhalation of ground gas and/or vapours	a. Future Site Users	PPL A-3-a Low	Low likelihood of contamination which would present a risk in an outdoor environment
		b. Site Neighbours/ General Public	PPL A-3-b Very Low	As above; potential for off-site migration at significant levels very low.
	4. Ingress of vapours/gases into buildings; Indoor inhalation of vapours/gases, or explosion	a. Future Site Users	PPL A-4-a Low	Unlikely that significant source of ground gas is present which would affect future site users.
		b. Site Neighbours/ General Public	PPL A-4-b Very Low	As above; unlikely to migrate to neighbouring properties at significant levels.
		c. Future Buildings	PPL A-4-c Low	As above; likelihood of significant explosive gases low.

Table 4.2. Preliminary Conceptual Site Model				
Source(s)	Pathway(s)	Receptor(s)	Risk ¹	Justification for Risk / Comment
		d. Construction Workers	PPL A-4-d Very Low	Provided appropriate controls and PPE are used
	5. Contact with building materials/ services; Leaching into services trenches	a. Buried Services	PPL A-5-a Low	Limited potential for contaminants that would affect services.
	6. Direct contact with soils/uptake by flora and fauna	a. Ecological Receptors	PPL A-6-a Low	Limited potential for contaminants that would affect ecological receptors.
PPL B. Construction & Demolition Activities (incl site use as site compound and land restoration/ made- or infilled-ground) (Heavy metals, fuel and oil hydrocarbons, asbestos, ground gas, inorganic compounds)	1. Direct contact with soils; Ingestion of soil, or soil dust; Inhalation of dust, or asbestos fibres, Ingestion of contaminated vegetable produce	a. Future Site Users	PPL B-1-a Moderate/ Low	Residues (fragments of brick, concrete, plastic) present in surface soils and around the Site. Unlikely to present a chemical risk. Potential for further contamination.
		b. Site Neighbours/ General Public	PPL B-1-b Low	As above; significantly migration off-site unlikely due to likely low solubility of materials.
		c. Construction Workers	PPL B-1-c Very Low	Provided appropriate controls and PPE are used.
	2. Leaching of contaminants; Infiltration to groundwater; Movement within the groundwater; Runoff to surface waters	a. Secondary 'A' and Principal Aquifers	PPL B-2-a Moderate/ Low	Materials identified unlikely to leach/migrate at significant levels into the aquifer. Potential for further contamination/residues which may present a risk.
		b. Off-site Surface Waters	PPL B-2-b Very Low	As above. No surface waters present within 500m of the Site.
	3. Outdoor inhalation of ground gas and/or vapours	a. Future Site Users	PPL B-3-a Low	Likelihood of significant contamination which would present a gas generation risk in open air is low.
		b. Site Neighbours/ General Public	PPL B-3-b Very Low	As above; potential for off-site migration at significant levels very low.

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; Indoor inhalation of vapours/gases, or explosion	a. Future Site Users	PPL A-4-a Moderate/ Low	Some potential, albeit unlikely, for residues of contamination or made ground with ground gas/vapour generation potential.
		b. Site Neighbours/ General Public	PPL A-4-b Low	As above; however unlikely to be significant enough migrate to off-site receptors at significant levels.
		c. Future Buildings	PPL A-4-c Low	As above; potential for significant explosive gases low.
		d. Construction Workers	PPL A-4-d Very Low	Provided appropriate controls and PPE are used.
	5. Contact with building materials/ services; Leaching into services trenches	a. Buried Services	PPL A-5-a Moderate/ Low	Potential for residues/contaminants that would have an effect on standard services materials.
	6. Direct contact with soils/uptake by flora and fauna	a. Ecological Receptors	PPL A-6-a Moderate/ Low	Potential for contaminants that would have a phytotoxic effect on planting.
Off-site				
PPL C. Off-Site Quarrying and Land Restoration/Infilling of Ground	1. Direct contact with soils; Ingestion of soil, or soil dust; Inhalation of dust, or asbestos fibres, Ingestion of contaminated vegetable produce	a. Future Site Users	PPL C-1-a Low	Low likelihood of infilled ground off-site which could migrate onto the site and affect future users.
		c. Construction Workers	PPL C-1-c Very Low	Provided appropriate controls and PPE are used.
	2. Leaching of contaminants; Infiltration to groundwater; Movement within the groundwater;	a. Secondary 'A' and Principal Aquifers	PPL C-2-a Low	Low potential for contamination at levels that could leach / migrate at significant levels to groundwater

Table 4.2. Preliminary Conceptual Site Model				
Source(s)	Pathway(s)	Receptor(s)	Risk ¹	Justification for Risk / Comment
(Heavy metals, metalloids, fuel and oil hydrocarbons, ground gas, asbestos, buried organic/inorganic wastes)	3. Outdoor inhalation of ground gas and/or vapours	a. Future Site Users	PPL C-3-a Low	Likelihood of significant contamination which would present a gas generation risk in open air is low.
	4. Ingress of vapours/gases into buildings; Indoor inhalation of vapours/gases, or explosion	a. Future Site Users	PPL C-4-a Low	Unlikely to cause significant gas generation which could migrate to the Site and effect human health.
		c. Future Buildings	PPL C-4-c Low	As above; potential for significant explosive gases low.
		d. Construction Workers	PPL C-4-d Very Low	Provided appropriate controls and PPE are used.
	5. Contact with building materials/services; Leaching into services trenches	a. Buried Services	PPL C-5-a Very Low	Limited potential for contaminants that would affect services.
	6. Direct contact with soils/uptake by flora and fauna	a. Ecological Receptors	PPL C-6-a Very Low	Limited potential for contaminants that would affect ecological receptors.
Notes: (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.				

5 SITE WORKS

5.1. Investigation Rationale

The intrusive investigation of this report was undertaken to inform on the contamination and geotechnical conditions. The investigation would therefore provide an assessment on the suitability of the Site for the proposed development outlined in Section 1.2 and shown in Figure 2.

When designing the investigation, reference was made to the desk study and resulting preliminary conceptual site model, presented in Table 4.2. The investigation was also designed to provide information in the areas of proposed structures for engineering and drainage design purposes.

It was considered that window sample boreholes, dynamic probe testing, trial pits, clegg hammer testing and infiltration testing would provide adequate coverage of the Site, be able to target specific contamination sources outlined in the Phase I report and fulfil both the contamination and geotechnical investigation objectives.

5.2. Site Investigation Works

5.2.1. General Considerations and Investigation Constraints

The site works were undertaken on 12th – 13th January 2021, based on the practices outlined in BS5930:2020 (R.3) and BS10175:2011+A2 2017 (R.4).

The exploratory holes locations, shown in Figure 4, were determined by a GEMCO consultant to provide a coverage of the Site, taking into account the objectives of the investigation (Section 1.3), the principles set out in the above references, DoE guidance (R.2 and R.19) and CL:AIRE guidance (R.20).

The number of locations and sampling points were considered sufficient to achieve the objectives of the work and aid in the production of this report. However, note that features or ground conditions may be present between the exploratory hole locations which were not recorded by the investigation.

Drawings 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.

Constraints experienced during the investigation were few, but included:

- Reduced daylight hours during the winter months; and
- The combination of ground conditions and recent weather made some areas of the Site, especially in the south, inaccessible/undrivable due to waterlogging and/or soft ground.

5.2.2. Window Sample Boreholes

A total of three (3no.) boreholes (WS101 – WS103) were advanced by dynamic window sampling techniques, under the supervision of GEMCO, on 12th January 2021 to depths ranging 4.00-5.45 mbgl.

In-situ Standard Penetration Testing (SPT) was undertaken in all boreholes at 1.00m intervals. The results are presented as 'N' values (relative density) on the borehole logs presented at Appendix 5.

Combined gas/groundwater monitoring wells were installed in all three (3 no.) locations upon completion. 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 5).

One (1 no.) return visit was conducted to monitor gas and groundwater levels in accordance with the agreed scope of works. The results are presented in Appendix 7 and discussed in Section 6.5 and Section 8.4.

5.2.3. Dynamic Probe Testing

Four (10 no.) dynamic probe tests (DP101-DP104) were undertaken using a window sampling rig on 12th January 2021, all to a depth of 7.0 mbgl. The dynamic probe logs are included at Appendix 5.

5.2.4. Trial Pits

Seven (7 no.) excavations (TP101-TP107) were advanced on the 12th-13th January 2021 using a wheeled mechanical excavator to depths ranging 3.00 - 3.90 mbgl. The excavations were backfilled with arisings upon completion.

5.2.5. Infiltration Testing

Three (3 no.) additional trial pits (SA101 – SA103) were undertaken in accordance with BRE 365 methodology (R.16) to understand the general viability of soils at the Site for soakaway drainage.

Excavations were made to 3.00-3.35 mbgl, targeting granular strata, before being backfilled with an infiltration test installation which comprised 20mm gravel from the base to approx. 2 mbgl, pipes for inspection and filling, and then finished to ground level with arisings.

The results are presented at Appendix 6 and Section 6.4, and discussed in Section 7.7.

5.2.6. California Bearing Ratio/Clegg Hammer Testing

CBR testing by Clegg Hammer method were undertaken in nine (9 no.) locations; pits CBR101-107 and trial pits TP104 and TP106, at depths ranging 0.60-0.75 mbgl.

The results of the testing are presented on the trial pit logs (Appendix 5).

5.2.7. Sample Collection

Representative soil samples were collected during the investigation. The sample types and depths are recorded on the geological logs in Appendix 5.

Soil samples for chemical testing were collected in sealed glass jars and stored in a cool box prior to despatch to the laboratory. Soil samples for geotechnical testing were collected in sealed plastic tubs, disturbed sample plastic bags and bulk sample plastic bags.

After collection, the samples were forwarded to an appropriate laboratory for chemical and geotechnical analysis. Samples and analytical requests were recorded on laboratory chain of custody forms.

5.3. Geotechnical Laboratory Testing

Geotechnical laboratory testing was scheduled on fifteen (15 no.) samples at Soil Property Testing Ltd.'s laboratory in Cambridgeshire for a range of properties and determinands including:

- 13 (no.) Water Content Determinations;
- 6 (no.) Atterberg Liquid and Plastic Limit (1 Point) tests; and
- 3 (no.) Particle Size Distribution (PSD) tests;

Additionally, three (3 no.) samples were selected for BRE SD1 testing at Chemtech Environmental Ltd.

The results from the geotechnical laboratory analyses are presented in Appendix 8 and discussed in Section 6 and Section 7.

5.4. Chemical Laboratory Testing

Chemical analysis was undertaken by Chemtech Environmental Ltd at their UKAS/MCERTS accredited laboratory. The chemical laboratory reports are presented at Appendix 9 and are discussed in Section 8.

Six (6 no.) soil samples collected during the investigation were scheduled for the following GEMCO chemical analysis suite, which has been based in part upon the findings of the desk study and field work observations:

- **Metal screen:** Arsenic, Barium, Beryllium, Boron (Water-Soluble), Cadmium, Chromium (III & VI), Copper, Lead, Mercury, Nickel, Selenium, Vanadium and Zinc;
- **Organic 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);
- **Inorganic screen:** Cyanide (Total), Sulphate (Total), Sulphate (Water-Soluble), Sulphide; and
- **Others:** pH, Organic Matter, Total Organic Carbon; Asbestos screen (polarised light microscopy) plus quantification upon positive identification.

One (1 no.) sample was also submitted for BS3882:2015 testing to determine the topsoil quality.

No significant water was encountered during the investigation nor was present in the boreholes during groundwater monitoring, consequently no water samples could be collected for chemical analysis.

5.4.1. Laboratory Quality Control

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 ISO 17025: 2000 specifically for the chemical testing of soil.

6 GEOLOGY AND GROUND CONDITIONS

6.1. Published Geology

BGS maps indicated superficial deposits of Glaciofluvial Deposits, with some Gault Formation in the north, overlying West Melbury Marly Chalk Formation bedrock (Section 2.2).

6.2. Strata Encountered

6.2.1. Summary

The ground conditions may be summarised as a surface layer of topsoil (or localised made ground) overlying variable cohesive and granular superficial soils, comprising glaciofluvial deposits and chalk Bedrock, which was only encountered locally.

The strata encountered during the investigation are discussed in the next sections and summarised at Table 6.1. Photographs showing the ground conditions encountered are presented at Appendix 2, with the soil logs from the works presented in Appendix 5. The geotechnical report is presented at Appendix 8:

Table 6.1. Summary of Encountered Ground Conditions.					
Hole Ref	Depth of Stratum (mbgl)				
	Topsoil	Made Ground	Cohesive	Granular	Weathered Chalk
CBR101	0.00-0.20	n/e	0.20-0.60.	n/e	n/e
CBR102	n/e	0.00-0.25	0.25-0.70.	n/e	n/e
CBR103	0.00-0.30	n/e	0.30-0.75.	n/e	n/e
CBR104	0.00-0.25	n/e	0.25-0.65.	n/e	n/e
CBR105	0.00-0.25	n/e	n/e	0.25-0.65.	n/e
CBR106	0.00-0.30	n/e	0.30-0.60.	n/e	n/e
CBR107	0.00-0.25	n/e	0.25-0.75.	n/e	n/e
TP101	0.00-0.25	n/e	3.10-3.80.	0.25-3.10	n/e
TP102	0.00-0.30	n/e	n/e	0.30-3.40.	n/e
TP103	0.00-0.35	n/e	n/e	0.35-2.80	2.80-3.50.
TP104	0.00-0.40	n/e	0.40-1.30	n/e	1.30-3.00.
TP105	0.00-0.40	n/e	0.40-3.90.	n/e	n/e
TP106	0.00-0.25	n/e	0.25-1.10 2.70-3.20.	1.10-2.70	n/e
TP107		0.00-0.20		0.20-2.50	2.50-3.05.
SA101	0.00-0.30	n/e	0.30-2.10	2.10-3.35.	n/e
SA102	0.00-0.35	n/e	0.35-1.10	1.10-3.00.	n/e
SA103	n/e	0.00-0.15	0.15-1.40	1.40-3.15.	n/e
WS101	n/e	0.00-0.80	4.50-5.45.	0.80-4.50	n/e
WS102	0.00-0.20	n/e	0.20-1.45 2.00-3.25	1.45-2.00 3.25-4.00.	n/e
WS103	0.00-0.25	n/e	0.25-5.45.	n/e	n/e

¹Made ground topsoil; n/e – no encountered. No groundwater was encountered and all excavations remained stable

6.2.2. Topsoil

Topsoil was encountered at the uppermost horizon in the majority of exploratory holes, to depths of between 0.2m and 0.4m, and was typically described as dark brown slightly gravelly sandy clayey topsoil.

It is likely that the topsoil is reworked to some degree as demonstrated by the fragments of brick and plastic encountered entrained within at TP107, which is considered a 'made ground topsoil'.

One (1 no.) BS3882 topsoil test was undertaken on a topsoil sample from WS103. The results, presented at Appendix 9, find that the soil is a clay loam with high phosphorus content. A phytotoxic issue has also been highlighted due to elevated zinc, which is discussed further at Section 8.6.

6.2.3. Made Ground

Made ground was encountered at four (4 no.) locations; WS101, CBR102, TP107 and SA103, all of which were positioned in the south/southeast of the Site in an area which appeared to have been stripped and graded following an historical usage as a site compound for the neighbouring development.

Soils at CBR102, TP107 and SA103 comprised a reworked gravelly clay, where the gravel was flint and anthropogenic materials such as brick, plastics and ceramic. Made ground soils at WS101 comprised reworked clay soils. No significant evidence of contamination e.g., hydrocarbon residues were encountered.

6.2.4. Cohesive Deposits

The Glaciofluvial deposits was made up of both cohesive and granular deposits. Cohesive/fine deposits were the predominant stratum encountered below the topsoil/made ground across the site, and was encountered in all but five (5 no.) of the excavations/boreholes completed. Where encountered the cohesive soils were generally described as firm slightly sandy to sandy, slightly gravelly clay; occasionally it was described as friable to depths of approximately 1.5m.

Ten (10 no.) water content tests were carried out along with five (5 no.) Atterberg limit tests, the results of which are summarised on the graph and table below:

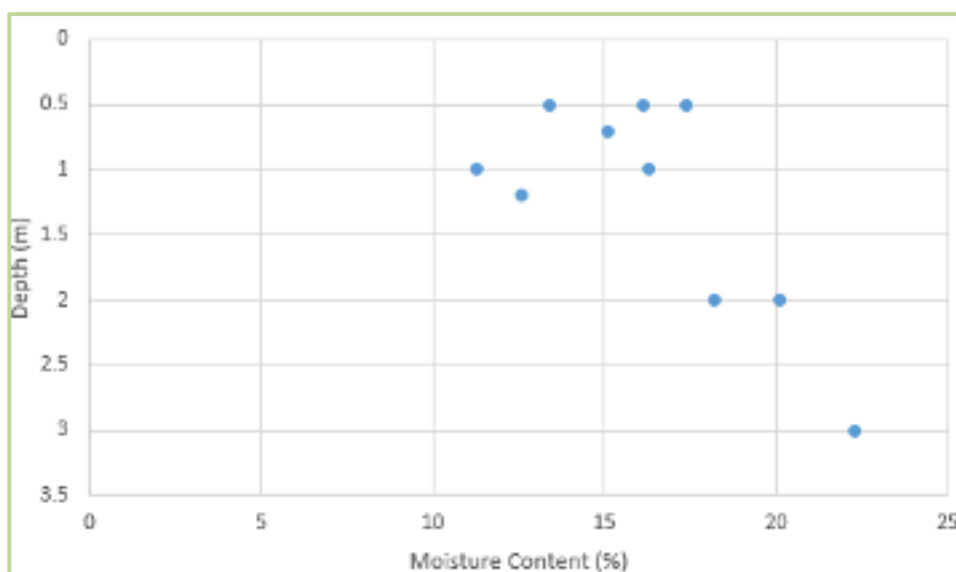


Plate 1: Summary of Water Content v Depth

Table 6.2. Moisture and Index Properties – Cohesive Soil.

Hole Ref	Depth (m)	Water Content (%)	Liquid Limit	Plastic Limit	Plasticity Index	Class	% on sieve	I'P	NHBC VCP
TP104	0.5	16.1	33	16	17	CL	27	12	Low
TP105	1.0	16.3	30	15	15	CL	13	13	Low
TP105	2.0	18.2	-	-	-	-	-	-	
TP106	0.7	15.1	33	16	17	CL	63	12	Low
WS102	0.5	13.4	-	-	-	-	-	-	
WS102	1.0	11.3	62	18	44	CH	63	16	Low
WS103	0.5	17.4	-	-	-	-	-	-	
WS103	1.2	12.6	23	15	8	CL	18	7	N.S.
WS103	2.0	20.1	-	-	-	-	-	-	
WS103	3.0	22.3	-	-	-	-	-	-	

Notes: VCP – NHBC Volume Change Potential, based on I'P – NHBC Modified Plasticity Index
% on sieve - % of sample retained on 425-micron sieve

The Water Content results ranged 11-17.5% in the upper 1.5m and 18-23% between 2 and 3m. The Plastic Limits were consistent, between 15 and 18%, generally 1% above to 3% below the Water Content.

WS102; 1.2m was anomalous with a much lower water content, however this is attributable to over 60% of the sample being retained on the 425micron sieve i.e., medium grained sand or coarser.

The Liquid Limit values were generally between 30 and 33%, with an anomalous value of 62% in WS102 at 1.2m. Plasticity Index values ranged between 8 and 44% although the modified Plasticity Index values were much more consistent at between 7 and 16%.

The clay was typically low plasticity, except WS102; 1.2m, which was classed as high plasticity. However, all were classed as Non-Shrinkable or Low Volume Change Potential; (VCP) when compared to NHBC guidance.

Seven (7 no.) Standard Penetration Tests (SPT) were carried out in cohesive soils at depths of between 1m and 5m; the recorded 'N values' ranged between 13 and 19. SPT blow count (N) values may be used to derive approximate values of mass shear strength (c) using a conversion factor (f_1) as follows:

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

The recorded plasticity index values, of approximately 20% indicate that a f_1 of approximately 5 would be appropriate. The SPT N values and equivalent mass shear strength values are summarised by depth below:

Table 6.3. SPT N value & Mass Shear Strength Relationship – Cohesive Soil.

Depth (m)	No Tests.	SPT N values			Mass Undrained Shear Strength (kPa)		
		Min	Max	Average	Min	Max	Average
1.0	2	90	95	92.5	90	95	93
2.0	1	70	70	70.0	70	70	70
3.0	1	85	85	85.0	85	85	85
4.0	1	65	65	65.0	65	65	65
5.0	2	75	75	75.0	75	75	75

The SPT N and shear strength values generally reflect the field descriptions and water content profiles, with firm and firm to stiff conditions from surface.

6.2.5. Granular Horizons

Granular glaciofluvial deposits were encountered in the majority of exploratory holes, and from surface (beneath the topsoil) in five (5 no.) locations.

There was significant variation in the description of the granular soils, the most common occurrence encountered were relatively thick horizons of low permeability slightly clayey fine and medium (occasionally coarse) sand, subordinate, relatively thin horizons of 'clean' medium to coarse grained sand or gravelly sand were also encountered.

One (1 no.) moisture and one (1 no.) Atterberg limit test was carried out on the clayey granular samples, the results, presented below, show that only 36% of the sample was retained on the 425-micron sieve, indicating that the bulk of the sample comprised fine sands; the index properties of the were comparable to the cohesive glaciofluvial soils:

Table 6.4. Moisture and Index Properties – Granular Soil.									
Hole Ref	Depth (m)	Water Content	Liquid Limit	Plastic Limit	Plasticity Index	Class	% on sieve	I'P	NHBC VCP
TP101	0.5-0.8	13.2	36	18	18	CI	36	9	N.S.
TP106	1.2	13.9	-	-	-	-	-	-	-
Notes: VCP – NHBC Volume Change Potential, based on I'P – NHBC Modified Plasticity Index % on sieve - % of sample retained on 425-micron sieve									

Seven (7 no.) SPTs were carried out in the granular fraction in WS101 and WS102, which recorded N values of ranging 13-23, indicative of medium dense conditions. A value of 63 was recorded on refusal in WS102, which could possibly be due to a cobble.

BRE 365 infiltration testing was undertaken in three (3 no.) locations within the granular soils. The results of the testing are presented at Section 6.4 and discussed at Section 7.7.

6.2.6. Dynamic Probe Test Results

Four (4 no.) Dynamic Probe tests were carried out. Due to the lateral and vertical variability of the cohesive and granular glaciofluvial deposits, detailed assessment of the DCP records is not possible. However, the blow count trends are relatively uniform, with low blow-counts of 0, 1 and 2 to depths of approximately 1m, with a general increase in blow counts of 2-5 below that depth.

The DCP records do not identify any anomalous conditions, and are considered to confirm the findings of the trial pits and windowless samples.

6.3. Contamination Observations

During the site inspection, the Site was found to be littered with waste materials such as plastic, brick and concrete, and during the investigation some of this was found entrained into the near surface soils.

No evidence of significant chemical contamination, spills/residues or potentially asbestos containing materials were encountered. None of the physical contamination noted above was encountered beyond 0.25 mbgl.

6.4. Infiltration Testing

Infiltration testing was undertaken at three (3 no.) locations during the site investigation. All tests were conducted in granular soils, terminating at depths ranging 3.00-3.35 mbgl. The results of the testing are summarised in Table 6.5 below, with the data and calculations included at Appendix 6.

Table 6.5. Infiltration Test Results.				
Hole Ref.	Test	Response Zone (m bgl)	Infiltration Rate (m/s)	Strata Summary (in response zone)
SA101	1	2.45-3.35	$7.14 \times 10^{-7*}$	2.10-3.35 m bgl <i>Slightly silty clayey SAND.</i>
	2		$6.24 \times 10^{-7*}$	
SA102	1	2.25-3.00	2.27×10^{-5}	1.90-3.00 m bgl <i>Slightly gravelly fine to coarse SAND.</i>
	2		1.72×10^{-5}	
	3		1.41×10^{-5}	
SA103	1	2.25-3.15	6.30×10^{-5}	1.90-3.15 m bgl <i>Fine to coarse SAND & fine to coarse GRAVEL and occasional cobbles of flint</i>
	2		5.40×10^{-5}	
	3		5.04×10^{-5}	
*Extrapolated infiltration rate				

As shown above, infiltration testing was successful at SA102 and SA103, where calculated infiltration rates ranged $1.41\text{--}2.27 \times 10^{-5}$ and $5.04\text{--}6.30 \times 10^{-5}$ metres per second, respectively.

Tests at SA101, in the north of the Site, were exceedingly slow and thus could not be completed during time on site. Consequently, the infiltration rates had to be extrapolated and have resulted calculated infiltration rates of $6.24 \times 10^{-7}\text{--}7.14 \times 10^{-7}$ m/s, which are much slower than those of SA102 and SA103. These values should be used with caution.

The decreased infiltration rate at SA101 is likely due to the increased fines content of soil at this location, consistent with the geological maps which indicate the Gault Formation in this area. The higher fines content would have a silting up effect on soakaways and thus inhibiting infiltration.

The ramifications of the above results are discussed at Section 7.6.

6.5. Gas and Groundwater Monitoring

6.5.1. Groundwater Observations

No groundwater strikes or seepages were encountered during the fieldwork phase.

6.5.2. Monitoring Results Summary

WS101 – WS103 were installed with monitoring standpipes upon completion for the purpose of gas and groundwater monitoring.

One (1no.) round of gas and groundwater monitoring was undertaken on 27th January 2021. The monitoring data is summarised below and presented at Appendix 7:

Table 6.6. Summary of Gas Monitoring.					
Monitoring Event Date	Borehole Ref.	Methane (%v/v)	Carbon dioxide (%v/v)	Flow (l/hr)	Atmospheric Pressure (mbar)
27/01/2021	WS101	0.0	1.0	0.1	1003
	WS102	0.0	1.7	0.0	1003
	WS103	0.0	2.2	0.2	1003

No Volatile Organic Compound (VOC), Lower Explosive Limit (LEL) Methane (CH₄), Carbon Monoxide (CO) or Hydrogen Sulphide (H₂S) was detected.

With regards to groundwater, none was recorded during the intrusive investigation and no significant water was encountered during the subsequent monitoring of the boreholes.

A small amount of water was detected at the bottom of WS102; however, the amount of water present (80mm) would suggest this is surface water percolation rather than groundwater, which was resultant of the generally wet weather conditions experienced during the siteworks.

7 GEOTECHNICAL ASSESSMENT

7.1. Introduction

It is proposed to develop the site for mixed residential purposes with a total of forty (40 no.) plots derived of detached, semi-detached and link properties.

No construction details or structural loads have been received therefore the geotechnical recommendations are based on the following assumptions:

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

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.

7.2. Groundwork

Shallow excavations will be carried out through a mixture of cohesive and granular superficial deposits. Excavations should therefore be achievable using conventional earthmoving plant and equipment.

It is likely that shallow excavations will remain stable in the short to medium term in dry conditions, however, it will likely be necessary to provide trench support or batter back the sides to a stable angle if they are required to be left open for prolonged periods or manual entry is required. The risk of excavation collapse will increase with depth of the excavation and the period over which the excavation is left open. Based on site observations it is unlikely that shallow excavations will encounter significant groundwater.

It is important to ensure that safe working conditions are maintained for site workers. 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.

7.3. Desiccation Risk

The risk of desiccation has been discussed on adjacent development plots. There are numerous methods of determining desiccation risks; none of which are conclusive.

- **Driscoll's Rule:** This rule was developed for London Clay, with the primary aim to generate further discussion/research, rather than as a definitive tool, and should therefore be used with caution, and not as a definitive guide. The rule suggests that significant desiccation has occurred if the moisture content is less than $0.4 \times LL$ (Liquid Limit).
Four of the five samples had a moisture content values above $0.4 \times LL$. The single value below $0.4 \times LL$ was from 1.2m in WS102, which had a very high sand content (63% retained on 425-micron sieve). The corrected moisture content for the fraction passing 425-micron was 30.5% therefore the result is not considered relevant.

- **Moisture content with depth:** There is a trend for the moisture content to increase with depth, which could be an indicator for desiccation. However, the generally high and variable granular content in the cohesive soils makes moisture content comparisons quite unreliable.
- **Shear Strength:** Due to the granular content it was not possible to obtain hand shear vane results. Only one borehole (WS103) recorded a full column of cohesive soil and allowed a comparison of SPT N values; this recorded values of 19, 14, 17, 13 and 15 between depths of 1m and 5m, respectively. The highest recorded values of N=19 and 17 at depths of 1m and 3m suggests that the variability is due to changes in the consistency of the soil. The Dynamic Probe tests were carried out in four locations and all recorded lower blow counts in the upper 1m, with a gradual increase with depth, which is not indicative of desiccation.

7.3.1. Discussion

At this site the superficial soils comprise glaciofluvial soils comprising a mixture of cohesive and granular soils, of varying permeability. The groundwater table is also relatively low, and has not been encountered. It therefore stands to reason that drainage paths of the soils will vary, and it is natural to expect lower moisture content values in cohesive soils which are in close proximity (laterally or vertically) to granular soils, than in cohesive soils further away from granular soils.

The risk of desiccation causing heave will be greatest in soils with a higher Volume Change Potential, and for heave to occur, it will be necessary for the moisture content to increase in the soils. It is therefore considered that the risks to the development due to desiccation is very low for the following reasons:

- The soils at the site have been classed as either non-shrinkable and Low VCP in accordance with NHBC guidance;
- The groundwater table is low;
- The reduced moisture content in the upper soils is likely to be present due to continuous subterranean drainage via granular soils rather than the impact of trees; and
- Strength profiles do not indicate any significant increase in near surface shear strength.

It is therefore considered that no particular measures are required in relation to desiccation risk, however this should be confirmed with the NHBC during detailed design.

7.4. Foundations and Ground Floor Slabs

Based on the exploratory hole records, the proposed houses will be underlain by a mixture of firm cohesive soils and medium dense granular soils, both of which are considered suitable for shallow traditional foundations.

Due to the variability of soils, both laterally and vertically, it is recommended that foundation design is based on the least favourable ground conditions i.e., firm cohesive soils with an undrained shear strength of 60kPa.

It is recommended that a Presumed Bearing Capacity of 125kPa is adopted for foundations up to 1m wide. All formations should be checked to determine that the ground conditions are as anticipated.

Due the presence of granular and cohesive soils it is recommended that strip foundations are lightly reinforced to control differential settlements. Foundation depths should be based on a Low VCP.

It is recommended that slabs are suspended, however ground bearing may be permissible if required, subject to adherence with NHBC guidance.

7.5. Pavement Design

Six (6 no.) in-situ or CBR tests were been carried out using a Clegg Hammer during the investigation. The tests were carried out at c. 0.6m on typically cohesive soils. The results varied between 3% and 6%.

Guidance on the selection of equilibrium CBR values is provided in Table 5.1 of Interim Advice Note 73/06 (2009) from the DMRB (R.21, withdrawn). Near surface soils typically comprised cohesive soils (sandy clay) with plasticity index values in the region of 20%. Equilibrium subgrade CBR values for the cohesive soils encountered on site, based on thin layered construction, are stated as 4%.

It is therefore recommended that the preliminary design of hardstanding is based on a CBR value of 3%.

Any areas of made ground or soft spots at formation level should either be removed and replaced with suitable compacted granular fill, or inspected by a competent person to assess treatment requirements.

It would be possible to improve the subgrade by incorporating geogrid reinforcement or by lime modification or stabilisation, which would reduce disposal and aggregate import costs.

In-situ CBR tests are recommended at the construction stage to confirm the design assumptions for CBR values. It is possible that CBR testing at the time of construction will allow a higher CBR value to be utilised, subject to the acceptance of adopting organisation.

If permeable pavements are proposed or if it is intended to use the road capping/subbase for surface water attenuation, it is recommended that equilibrium CBR values are adopted regardless of any higher in-situ CBR values due to the likelihood of saturation of the subgrade in the future.

7.6. Concrete Grade

Three (3 no.) samples of natural soil have been tested for BRE SD1 testing which includes pH and water-soluble sulphate analysis. The test results found pH to range from 8.5 – 8.8, while water-soluble sulphate ranged 21-104 mg/l.

The results have been compared to the BRE Special Digest 1, Concrete in aggressive ground, 2005 guidance (R.22). Based on brownfield conditions and a mobile groundwater regime, the Site is classed as follows:

Table 7.1. Concrete Grade: Protection of Buried Concrete in Natural Soils.	
Design Sulphate class	DS-1
Aggressive Chemical Environment for Concrete (ACEC) Class	AC-1

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

7.7. Surface Water Drainage

Three (3 no.) infiltration test pits (SA101-103) were undertaken during the investigation. All tests were conducted in granular soils at depths ranging 3.00-3.35 mbgl.

Tests in SA102 and SA103 were successful with calculated infiltration rates ranged $1.41\text{--}2.27 \times 10^{-5}$ and $5.04\text{--}6.30 \times 10^{-5}$ metres per second, respectively, across the three repeat tests.

SA101 failed to reach the 25% fill level during each of the testing days and as such had to have results extrapolated. The infiltration rates calculated from the data obtained from SA101 ranged $6.24 \times 10^{-7}\text{--}7.14 \times 10^{-7}$ m/s and these should be treated with caution.

The infiltration rates of SA102 and 103 indicate that the granular soils across much of the centre and south of the site are likely suitable for soakaway drainage, whereas the soils in the north in the area of SA101 are not. This is likely due to the increased fines content of soil at this location, consistent with the geological maps which indicate the Gault Formation in this area.

It is recommended that seasonal groundwater monitoring is carried out to determine variations in groundwater levels which may impact on soakaway design. Consideration should be given to the invert levels of the proposed soakaways to ensure a minimum of 1.0m 'freeboard' below the invert level. The invert level should also account for seasonal variations in the groundwater level, if present, below the site.

The results should be reviewed by a suitably qualified drainage consultant against the proposed drainage strategy.

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 DEFRA (R.2) and CIRIA (R.23) 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).

A Tier 2 initial screening 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 Conceptual Site Model (pCSM) presented at Table 4.2. The site investigation undertaken was designed in part to investigate the potential pollutant linkages identified by the desk-top study and to provide preliminary geotechnical information.

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 LCRM (R.2) and the Environmental Protection Act 1990, Part IIA (R.5). 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 complete pollutant linkage.

The pCSM did not identify any significantly likely contamination or receptor linkages; however, a recommendation was made to assess risks from the historical site usage as site compound/from construction and demolition waste. The general contamination conditions, including gas generation, would therefore be assessed as part of a wider site investigation into the ground conditions.

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 during the desk study.

The GAC and sources are presented in Appendix 10. 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.24). 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 10; e.g. GAC generated by CL:AIRE (R.25). 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.26, R.27 and R.28). 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 screening criteria outlined in Appendix 10.

DEFRA have also released C4SLs for arsenic, benzene, benzo(a)pyrene, cadmium and chromium VI (R.26, R.27 and R.28). Where a soil contaminant concentration exceeds a GAC a secondary comparison has also been made with the C4SL (Appendix 10).

The S4UL, C4SL and CL:AIRE GAC were derived using the CLEA exposure assessment model (R.29) 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 generic 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, and following the chemical analysis of water samples obtained from the Site during the works and/or during groundwater monitoring, the risk to controlled waters will be assessed with reference to various water assessment criterion such as the EA Environmental Quality Standards (EQS), Threshold Values for Groundwater (ThrVGW) and Water Quality Guidance Values (WQGV) to assess the risk of water-soluble contamination in on-site groundwater which may migrate and affect vulnerable freshwater receptors. The water assessment criteria are also outlined in Appendix 10.

The Site is within an SPZ and DWSZ, so comparison may also have been made to UK/EU Drinking Water Standards.

8.1.5. Statistical Assessment of Contaminant Distributions

Where appropriate, and the concentration of any contaminant is above the screening level or 'critical concentration', further statistical analysis of the results has been conducted in accordance with the CIEH/CL: AIRE 2020 guidance (R.20). The purpose of the statistical test is to scrutinise the respective contaminant datasets by comparing the upper confidence limits of the estimated population mean with the critical concentration (GAC).

Where the critical concentration is found to be less or equal to the upper confidence limit it can be considered with some degree of confidence that the contaminant under scrutiny is unlikely to impact the Site in a manner that will impair the intended land use.

8.2. Human Health Risk Assessment

8.2.1. Assessment Scenario

It is understood that the Site is to be redeveloped to a residential end use comprising approximately forty (40 no.) dwellings plus gardens, associated infrastructure and parking (Figure 2).

The human health risk has therefore been assessed by comparing the chemical testing results, presented at Appendix 9, to the GAC for Residential end use with Home-grown Produce (Appendix 10, RwHP).

8.2.2. Summary of Chemical Laboratory Results

Six (6 no.) soil samples were analysed for a suite of chemical contaminants as outlined at Section 5.4. Exceedances of the GAC have been identified in one (1 no.) of the samples, as summarised in Table 8.1:

Table 8.1. Summary of Chemical Exceedances – Soil.				
Sample Ref.	Determinand	Recorded Concentration (mg/kg)	RwHP GAC (mg/kg)	POS GAC (mg/kg)
TP101 E1 @ 0.00- 0.25 mbgl	Beryllium	2.2	1.7	2.2
	Lead	238	200	630
	Benzo(b)fluoranthene	3.18	2.6	7.1
	Dibenz(a,h)anthracene	0.36	0.24	0.57

Based on the exceedances presented above, the topsoil at TP101 would not be suitable for use in a residential garden; however, based on the current development proposal, this location is proposed for use as a play area and therefore would be considered Public Open Space (POS). When compared to the POS GAC, none of the concentrations exceed the criteria.

No further exceedances have been identified at the Site, and no asbestos has been detected site-wide.

8.2.3. Human Health Risk Assessment – Future Site Users

On the basis of the Site observations and laboratory analyses undertaken to date, the natural soils across the Site are unlikely to present a risk to human health, save for a small area of topsoil in the north of the Site coincident with TP101. The soil at TP101 would present a risk to human health in a residential garden but would be suitable for use in open space. Care should be taken to ensure no cross contamination of soil occurs with soil to be used in residential gardens.

No contamination has been identified in made ground soils, however they would likely be considered physically unsuitable for use in residential gardens. They may however be suitable for use under hardstanding or in non-residential areas.

8.2.4. Human Health Risk Assessment – Site Neighbours

On the basis of the Site observations and laboratory results it is considered that the contamination identified is not migrating through the Site and is therefore are unlikely to migrate off-site and affect the health of neighbours and the general public.

8.2.5. Human Health Risk Assessment – Construction Workers

On the basis of the Site observations and laboratory results the health risk to construction workers from soil at the Site is considered to be very low, provided standard PPE and working procedures are observed.

8.3. Controlled Waters Risk Assessment

The Site is underlain by a Principal Aquifer and within a Total Catchment – Zone III Source Protection Zone (SPZ) and the Great Ouse surface water Drinking Water Safeguard Zone (DWSZ). The closest surface water feature is 484m to the northeast of the Site.

In accordance with Guidance for the Safe Development of Housing on Land Affected by Contamination (R.30), the sensitivity of the Site is considered to be Moderately high (M1) with regard to groundwater. With regard to surface waters the Site sensitivity is Very Low (L2).

With the exception of marginal exceedances of residential end use criteria for Lead, Beryllium and PAH in one sample from TP101 there were no other elevated concentrations of priority pollutants. It is therefore concluded that there is no on-site source of pollution that may pose a risk to controlled waters.

Further groundwater was not encountered during the investigation, and no groundwater was present during the monitoring of installed boreholes.

On this basis, the Site is not considered to present a risk to controlled waters as no pathway is present. Additionally, no significant source of leachable contamination has been identified which would present a risk to controlled waters.

8.4. Ground Gas Risk Assessment

The ground gas risk assessment has been undertaken with reference to CIRIA C665 (R.9), BS8485:2015+A1:2019 (R.10) and BS8576:2013 (R.11), CL:AIRE RB17 (R.12) and NHBC guidance (R.13).

8.4.1. Potential Sources of Ground Gas

Prior to the investigation, the historical site usage and potential for associated infilled ground/residues of construction materials was considered the most likely, albeit a low likelihood, source with the most plausible gas/vapour generation potential and pathway.

Made ground was encountered during the investigation in the south and southeast of the Site at WS101, CBR102, TP107 and SA103. The made ground was relatively shallow, from ground level to roughly 0.20 mbgl, however a deeper reworked horizon was identified at WS101 to 0.80 mbgl. Due to the minimal depth of made ground, coupled with being the surface level soil, it was considered unlikely that significant gas could generate from the made ground. PAH contamination was identified following chemical testing at TP101; however, no free product was observed during excavation.

Total Organic Carbon (TOC) content of natural subsoil across the site ranged 0.4-0.5 % TOC (0.45 % Avg.) and ranged 0.6-3.0 (1.8% Avg.) in made ground. The highest TOC observed of 4.0 % was in topsoil at TP101.

On basis of the above, with reference to the aforementioned guidance, it was considered that the Site is unlikely to present a significant ground gas or vapour generation risk.

8.4.2. Ground Gas Monitoring Summary

After one (1no.) round of gas monitoring, carbon dioxide detected within the boreholes ranged 1.0 – 2.2% and no methane, VOC, nor significant flow was detected (Appendix 7). The ground 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 required protection measures. The methodology used to produce the GSV is outlined in the next sections.

8.4.3. Hazardous Gas Quotient

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, 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.

The calculated Hazardous Gas Quotient for each borehole and monitoring event are presented in Table 8.2:

Table 8.2. Hazardous Gas Quotients.						
Monitoring Event Date	BH Ref.	Avg. CH ₄ (%)	Avg. CO ₂ (%)	Max/(Assumed) Flow (l/hr)	CH ₄ Q _{hg} ¹	CO ₂ Q _{hg} ¹
27/01/2021	WS101	0.0	1.0	0.1	0.000	0.001
	WS102	0.0	1.7	(0.1)	0.000	0.002
	WS103	0.0	2.2	0.2	0.000	0.004

¹Rounded to 3 decimal places

As shown, the Q_{hg} calculated for CO₂ ranged 0.001 - 0.004 l/hr, with an average of 0.002 l/hr. CH₄ was not detected, therefore the Q_{hg} is <0.001 l/hr.

8.4.4. Gas Screening Value

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

In this case, the proposed development falls within the criteria of CIRIA "Situation B" (Low rise housing with ventilated underfloor void). For a limited dataset, the GSV assessment uses a reasonable worst-case scenario.

The classification criteria presented in BS8485 (R.10)/NHBC (R.13) guidance are summarised in Appendix 1.

8.4.5. Conclusion of Gas Risk Assessment

In summary, the Hazardous Gas Quotients for both carbon dioxide and methane were both negligible with no significant flow a maximum average concentration of 2.2% for carbon dioxide. No methane was detected. Additionally, in accordance with RB17 (R.12), no gas generation risk has been identified which may be associated with TOC.

On this basis, a GSV of <0.07 (CS1) would be applicable and the Site is generally considered unlikely to present a risk to human health. No specific gas protection measures are considered necessary at this stage.

8.5. Buried Services Risk Assessment

The potential risk to buried services has been assessed by comparing the soil sample results (Appendix 9) to UK Water and the Home Builders Federation water pipe selection screening criteria (R.31, Appendix 10). 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.

Traces of TPH contamination have been identified within shallow soils, however none at levels which would present a risk to buried services, based on the currently available data. Standard service materials are therefore likely suitable.

Should further TPH contamination be identified, shallower pipes may require a barrier pipe due to hydrocarbons which could affect standard service materials such as polyethylene (PE), should that soil remain at the site.

Notwithstanding, the relevant statutory undertakers should be contacted with respect to their required specifications for buried services.

8.6. Ecological Receptors Risk Assessment

The current development proposal includes gardens and areas of soft-standing for planting or landscaping. The chemical results have therefore been compared to British Standard BS3882:2015, Specification for Topsoil and Requirements for Use (R.32), presented in Appendix 10.

The majority of the soils at the Site appear to present no significant risk to ecological receptors and therefore be suitable for reuse in the development. However, based on the soil pH which ranged 8.1-8.6, two (2 no.) exceedances of the screening criteria for phytotoxic contaminant Zinc have been identified in topsoil from WS103 and TP101. Soils sourced from these areas would therefore have a detrimental effect on plant growth.

A risk to human health associated with the topsoil in the location of TP101 has previously been highlighted (Section 8.2). The soils are therefore considered unsuitable for use in a residential garden but may be suitable for use in non-residential softstanding/landscaping areas and public open space.

No exceedances of the other phytotoxic contaminants (Copper and Nickel) were identified in any of samples analysed.

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 (pCSM, Section 4.5) to produce a revised CSM (rCSM).

Based on the results of the intrusive investigation and chemical analysis, dependant on appropriate removal, treatment or reuse in non-residential areas of made ground and/or contaminated soil, the site is considered to pose a minimal risk to human health, buried services, ecological receptors, controlled waters and the proposed development. No significant ground gas risk has been identified.

No plausible pollutant linkages have been identified and the site is considered to be suitable for the proposed development.

A watching brief and discovery strategy should be put in place during the developmental works, as outlined at Section 10.8.

9 CONCLUSIONS

9.1. Summary of Site Description and Desk Study Information

9.1.1. Site Description and Development History

The Site was a roughly square shaped parcel of patchy rough grassland, with areas stripped of topsoil in the south and an area of 1.8 Ha.

The surrounding area comprised residential properties to the southeast (newly constructed), east and north beyond Oughtonhead lane, with cricket pitches to the west and south.

Historical map data shows that the Site has been an open parcel of grass/agricultural land since at least 1881 before being used as a site compound/storage area for an adjacent development c.2018-2020. The surrounding area has historically been agricultural land to the west and residential to the north, south and east. Several gravel pits have been located in the vicinity of the Site over the years, which have since been restored to use as sports facilities and residential developments have occurred in the immediate vicinity over the years as Hitchin has expanded.

9.1.2. Published Geology, Hydrogeology and Hydrology

BGS maps indicated superficial deposits of Glaciofluvial Deposits, with some Gault Formation in the north, overlying West Melbury Marly Chalk Formation bedrock. The superficial Glaciofluvial deposits are designated as a Secondary 'A' Aquifer, whilst the West Melbury Marly Chalk Formation bedrock is a Principal Aquifer. The Gault Formation in the north of the site is an unproductive stratum.

With regards to geological hazards; no significant risks have been identified on-site.

The Site is located within a Total Catchment – Zone III SPZ and the Great Ouse surface water DWSZ. The Site is however not located within a groundwater DWSZ or DWPA.

No surface waters are present on-site nor in the immediate surrounding area.

The Site is within a Flood Zone 1, no significant flooding risk has been identified on-site however some small areas in the north and east of the site have a low risk (1000-year return) of surface water flooding.

9.1.3. Environmental Searches

No significant active environmental permits, pollution incidents, registry entries or active landfill sites were identified at the Site by the Phase I report.

The Site and surrounding area are within both the Great Ouse (surface water) and Anglian Chalk (Groundwater) NVZs. No further significant sensitive land uses/areas have been identified.

The soil chemistry report indicates that the Site is in an area with potentially naturally elevated Arsenic (15-25 mg/kg), Chromium (60-90 mg/kg in the north, 40-60 mg/kg in the south) and Nickel (30-45 mg/kg).

Additionally, the Site is not within an AQMA, nor a Radon protection area and a low risk UXO area.

9.1.4. Preliminary Conceptual Site Model

The Tier 1 Preliminary Risk Assessment (PRA)/Conceptual Site Model (CSM) concluded that the contamination risk was generally low, however precautionary moderate/low risk to human health, controlled waters, buried services and ecological receptors were identified on-site due to soils or gas generation resulting from the recent use as a site compound.

9.2. Ground Conditions

The ground conditions may be summarised as a surface layer of topsoil (or localised made ground) overlying variable cohesive and granular superficial soils, comprising glaciofluvial deposits and chalk Bedrock, which was only encountered locally.

Cohesive/fine deposits were the predominant stratum encountered below the topsoil/made ground across the site. Where encountered the cohesive soils were generally described as firm slightly sandy to sandy, slightly gravelly clay. The granular soil was variable but most commonly comprised slightly clayey fine and medium (occasionally coarse) occasionally gravelly sand.

Made Ground, encountered mostly in the south of the Site, comprised a reworked gravelly clay, where the gravel was flint and anthropogenic materials such as brick, plastics and ceramic.

No groundwater was encountered during the boring/excavation of exploratory holes, nor was any encountered during monitoring of installed boreholes.

9.3. Contamination Conditions and Risk Assessment

One (1no.) of the six (6no) soil samples analysed had chemical exceedances when compared to the RwHP GAC and may therefore present a risk to human health in a residential setting, and two (2no.) samples of topsoil contained exceedances of phytotoxic chemicals.

The exceedances were noted to not exceed the human health assessment criteria for use in public open space, and therefore would be suitable for use in non-residential areas.

No significant CO₂ or CH₄ generation has been identified, nor has soil contamination been identified elsewhere at the Site.

9.4. Engineering Considerations

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

9.4.1. Groundwork

Shallow excavations will be carried out through a mixture of cohesive and granular superficial deposits. Excavations should therefore be achievable using conventional earthmoving plant and equipment.

Based on site observations it is unlikely that shallow excavations will encounter significant groundwater.

Based on the behaviour of the trial pits, relatively shallow excavations 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.

9.4.2. Desiccation Risk

It is currently considered that no particular measures are required in relation to desiccation risk, however this should be confirmed with the NHBC during detailed design.

9.4.3. Foundations and Floor Slabs

Based on the exploratory hole records, the proposed houses will be underlain by a mixture of firm cohesive soils and medium dense granular soils, both of which are considered suitable for shallow traditional foundations.

Due to the soil variability, it is recommended that foundation design is based on the least favourable ground conditions i.e., firm cohesive soils with an undrained shear strength of 60kPa and a Presumed Bearing Capacity of 125kPa is adopted for foundations up to 1m wide. All formations should be checked to determine that the ground conditions are as anticipated.

Due the presence of granular and cohesive soils it is recommended that strip foundations are lightly reinforced to control differential settlements. Foundation depths should be based on a Low VCP.

It is recommended that slabs are suspended, however ground bearing may be permissible if required.

9.4.4. Pavement Design

No in-situ CBR testing has been carried out as part of this commission. Based on near surface soils typically comprising cohesive soils (sandy clay) with plasticity index values in the region of 20%, and an equilibrium subgrade CBR value of 4%, it is recommended that the preliminary design of hardstanding is based on a CBR value of 3%.

In-situ CBR tests are recommended at the construction stage to confirm the design assumptions for CBR values. It is possible that CBR testing at the time of construction will allow a higher CBR value to be utilised.

It would be possible to improve the subgrade by incorporating geogrid reinforcement or by lime modification or stabilisation, which would reduce disposal and aggregate import costs.

9.4.5. Concrete Grade

Based on greenfield conditions and a mobile groundwater regime, the Design Sulphate/ACEC Class for concrete are Design Sulphate Class DS-1 and ACEC Class AC-1.

9.4.6. Surface Water Drainage

Infiltration testing was undertaken at three (3 no.) locations during the site investigation.

The infiltration rates of SA102 and SA103 indicate that the granular soils across much of the centre and south of the site are likely suitable for soakaway drainage, whereas the soils in the north in the area of SA101 are not. Soils in the area of SA101 appeared to have higher fines content, which would result in silting up.

Infiltration rates at SA102 and SA103 ranged $1.41\text{--}2.27 \times 10^{-5}$ and $5.04\text{--}6.30 \times 10^{-5}$ metres per second, respectively. Rates at SA101 ranged $6.24 \times 10^{-7}\text{--}7.14 \times 10^{-7}$ m/s.

10 RECOMMENDATIONS

10.1. Contamination and Remediation

On the basis of the site investigation observations, laboratory results and risk assessments from the investigation, it is considered that the site is suitable for the proposed development subject to the following recommendations:

- The made ground in the south of the Site and topsoil in the area of TP101 would not currently be suitable for use in residential areas of the proposed development without appropriate treatment. This is based on the physical/chemical contamination identified;
- The aforementioned soils would however be suitable for use in non-residential areas/public open space or under hardstanding;
- No significant gas generation has been identified. No gas protection measures are therefore considered necessary;
- The relevant service providers must be consulted with respect the required specification for underground services at the Site; and
- A discovery strategy should be put in place during the development works. Should any evidence of unexpected or exceptional contamination be encountered then the works should be stopped, the relevant authorities should be informed, and further investigation should be undertaken to determine the extent and severity of the contamination. Any required remediation actions should then be agreed with and implemented to the satisfaction of the regulatory authorities and building warranty provider.

10.2. Engineering Recommendations

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

- Excavations should be achievable using conventional earthmoving plant and equipment;
- Based on the behaviour of the trial pits, shallow excavations in natural soils and trenches should remain stable without support in the short term. Trench support or battering back of the sides to a stable angle may be necessary if manual entry is required or if excavations will be left open for prolonged periods. Construction plant and stockpiles of materials must not be permitted close to the edges of open excavations;
- Based on site observations it is unlikely that shallow excavations will encounter significant groundwater;
- It is currently considered that no particular measures are required in relation to desiccation risk;
- Due to the soil variability, it is recommended that foundation design is based on the least favourable ground conditions i.e., firm cohesive soils with an undrained shear strength of 60kPa and a Presumed Bearing Capacity of 125kPa is adopted for foundations up to 1m wide. All formations should be checked to determine that the ground conditions are as anticipated;
- Due the presence of granular and cohesive soils it is recommended that strip foundations are lightly reinforced to control differential settlements. Foundation depths should be based on a Low VCP;
- It is recommended that slabs are suspended, however ground bearing may be permissible if required;
- It is recommended that the preliminary design of hardstanding is based on a CBR value of 3%;
- In-situ CBR tests are recommended to confirm the design assumptions for CBR values. CBR testing at the time of construction may allow for a higher CBR value to be utilised. It would be possible to

improve the subgrade by incorporating geogrid reinforcement or by lime modification or stabilisation, which would reduce disposal and aggregate import costs; and

- The Design Sulphate Class is DS-1 and the ACEC Class is AC-1. Concrete below ground must comply with the requirements of Parts D to F of the Special Digest, as appropriate.

10.3.Surface Water Drainage

Based on the results of the infiltration testing and subsequent rates calculated it is considered likely that granular soils would be suitable for soakaway drainage through the centre and south of the Site, but not in the north.

The results should be reviewed by a suitably qualified drainage engineer to appraise the proposed drainage scheme accordingly.

10.4.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.33).

Based on the results of the Site investigations, naturally occurring uncontaminated soils are likely to classify as inert or non-hazardous waste. Contaminated soils may classify as non-hazardous or hazardous waste.

It is the waste producer's 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 at the subject site. The waste facility should hold the relevant waste management licence for accepting the defined grade of waste soil and have been consulted prior to consignment of the waste. The waste carrier must be holder of 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. It is the waste producers (usually the contractor) responsibility to classify waste in accordance with current legislation.

10.5.Re-use of Site Won Material

Based upon the Site investigation data, natural soils arising from works are generally likely to be suitable for re-use within the Site subject to chemical testing for re-use and any geotechnical requirements.

Made ground soils and soils from within the area of TP101 are unlikely to be either chemically or physically suitable for use in gardens without treatment due to the contamination identified which presents a risk to human health and the environment.

The soil may however be suitable for use in non-residential areas.

10.6.Imported Materials

During development works if it is necessary to import engineering fill and topsoil materials, any materials imported to site must comply with the chemical limits laid out in Appendix 10.

If site-won made ground soils are to be re-used this must be permitted in accordance with the Environmental Permitting Regulations (R.34) or the Development Industry Code of Practise on Waste (R.35).

10.7.Regulatory Liaison

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

10.8.Discovery Strategy

A discovery strategy should be put in place during the development works.

Should any evidence of unexpected or exceptional contamination be encountered then the works should be stopped, the relevant authorities should be informed, and further investigation should be undertaken to determine the extent and severity of the contamination.

Any required remediation actions should then be agreed with and implemented to the satisfaction of the regulatory authorities and building warranty provider.

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Figure 1

Site Location Plan



Site: Land South of Oughtonhead Lane	Date: Mar 2021	Legend:  Site Boundary	 Green Earth Management Co Ltd Broomfield Park Coggeshall Road Essex CO6 2JX Tel: 01245 206129 www.gemcoltd.co.uk
Address: Hitchin, Hertfordshire	Scale: Not to Scale		
Post Code: SG5 2QY	Drawing: Figure 1		
Grid Ref: (TL) 517550, 229630	Drawn by: CU		
Title: Site Location Plan	Checked by: DR		
Client: CALA Homes (North Home Counties) Ltd	Project No: 1873 R01		

Figure 2

Proposed Development Plan



Base map provided by Client—Ref:052-000-001 Drainage & Levels Strategy

Legend:

Site Boundary

Site:	Land South of Oughtonhead Lane	Date:	Mar 21
Address:	Hitchin, Hertfordshire	Scale:	Not to Scale
Post Code:	SG5 2QY	Drawing:	Figure 2
Grid Ref:	(TL) 517550, 229630	Drawn by:	CU
Title:	Proposed Development Layout Plan	Checked by:	DR
Client:	CALA Homes (North Home Counties) Ltd	Project No:	1873 R01



Green Earth Management Co
Ltd
Broomfield Park
Coggeshall Road
Essex
CO6 2JX
Tel: 01245 206129
www.gemcoltd.co.uk

Figure 3

Site Layout Plan



Base map provided by Client—Ref:17_012_010 Location Plan (1)

Site:	Land South of Oughtonhead Lane	Date:	Mar 21
Address:	Hitchin, Hertfordshire	Scale:	Not to Scale
Post Code:	SG5 2QY	Drawing:	Figure 3
Grid Ref:	(TL) 517550, 229630	Drawn by:	CU
Title:	Site Layout Plan	Checked by:	DR
Client:	CALA Homes (North Home Counties) Ltd	Project No:	1873 R01

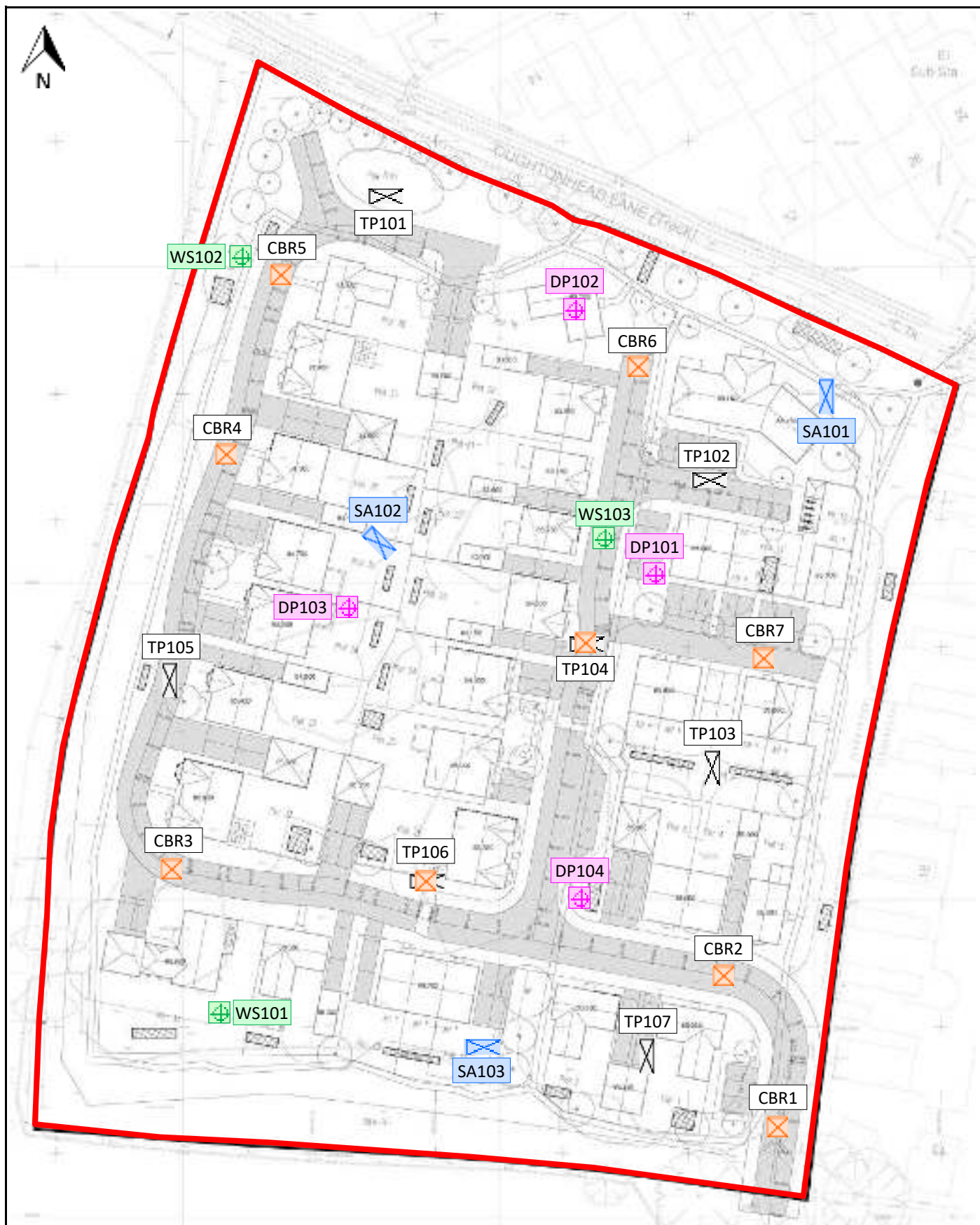
Legend:

	Site Boundary
	Softstanding—Rough grass
	Bushes/Small Trees/Brambles
	Softstanding—Stripped topsoil/MG

GEMCO
 Green Earth Management Co
 Ltd
 Broomfield Park
 Coggeshall Road
 Essex
 CO6 2JX
 Tel: 01245 206129
www.gemcoltd.co.uk

Figure 4

Exploratory Hole Location Plan



Base map provided by Client—Ref:052-000-001 Drainage & Levels Strategy

Legend:

- Site Boundary
- + Window Sample
- + Dynamic Probe
- + Infiltration Test
- X CBR (Clegg hammer) test
- X Trial Pit

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 Broomfield Park
 Coggeshall Road
 Essex
 CO6 2JX
 Tel: 01245 206129
www.gemcoltd.co.uk

Site:	Land South of Oughtonhead Lane	Date:	Mar 21
Address:	Hitchin, Hertfordshire	Scale:	Not to Scale
Post Code:	SG5 2QY	Drawing:	Figure 4
Grid Ref:	(TL) 517550, 229630	Drawn by:	CU
Title:	Exploratory Hole Plan	Checked by:	DR
Client:	CALA Homes (North Home Counties) Ltd	Project No:	1873 R01

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 concentration s 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 if 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 a 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

Ground Gas Risk Assessment: BS8485/NHBC Classification

BS8485/NHBC Classification – CIRIA Situation B.							
BS8485			NHBC				Traffic Light
CS	Risk Level	CH ₄ or CO ₂ Q _{hg} /GSV (L/hr)	Methane		Carbon Dioxide		
			Max Conc. (%v/v)	Q _{hg} /GSV (L/hr)	Max Conc. (%v/v)	Q _{hg} /GSV (L/hr)	
CS1	Very Low	<0.07 ¹					Green
CS2	Low	0.07-<0.7 ²	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 CH ₄ < 1% and CO ₂ < 5%, consider CS2 if greater; ² Flow <70 L/hr							

Appendix 2

Site Photographs

Picture 01



Picture 02



Picture 03



Picture 04



Picture 05



Picture 06



Legend

Pic 01:	Site Overview—Facing east from WS101, showing stripped area
Pic 02:	Site Overview—Facing south from WS103
Pic 03:	Site Overview—Facing south from WS102
Pic 04:	Neighbouring recent development/site access in southeast, facing south
Pic 05:	WS103 cores
Pic 06:	WS102 cores

Site:	Oughtonhead Lane, Hitchin
Title:	R01 Appendix 2 - Site Photographs
Client:	CALA Homes (North Home Counties)

Date:	Mar 2021
Project No:	1873
Page No:	1 of 2
Drawn by:	CU
Checked by:	DR
Scale:	N/A



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: TP101 excavation

Pic 08: TP101 arisings

Pic 09: Weathered chalk as encountered at TP104

Pic 10: SA101 response zone arisings

Pic 11: SA103 downhole, showing made ground in the south of the site

Pic 12: SA103 response zone arisings

Site:
Oughtonhead Lane, Hitchin

Title:
R01 Appendix 2 - Site Photographs

Client:
CALA Homes (North Home Counties)

Date: Mar 2021

Project No: 1873

Page No: 2 of 2

Drawn by: CU

Checked by: DR

Scale: N/A



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:

271111641_1_1

Customer Reference:

1873

National Grid Reference:

517550, 229630

Slice:

A

Site Area (Ha):

1.86

Search Buffer (m):

1000

Site Details:

Land South of Oughtonhead Lane

Hitchin

Herts

SG5 2QY

Client Details:

Mr C Duffield

Green Earth Management Ltd

Building 2

Broomfield Park

Coggeshall Road

Earls Colne

Essex

CO6 2JX

Report Section	Page Number
Summary	-
Agency & Hydrological	1
Waste	18
Hazardous Substances	-
Geological	19
Industrial Land Use	23
Sensitive Land Use	35
Data Currency	36
Data Suppliers	42
Useful Contacts	43

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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Report Version v53.0

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	Yes	Yes	n/a
Contaminated Land Register Entries and Notices					
Discharge Consents	pg 2				1
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 2			1	5
Local Authority Pollution Prevention and Control Enforcements					
Nearest Surface Water Feature	pg 3			Yes	
Pollution Incidents to Controlled Waters	pg 3		1		11
Prosecutions Relating to Authorised Processes					
Registered Radioactive Substances					
River Quality	pg 5				1
River Quality Biology Sampling Points					
River Quality Chemistry Sampling Points					
Substantiated Pollution Incident Register	pg 5				1
Water Abstractions	pg 5				4 (*33)
Water Industry Act Referrals	pg 14				1
Groundwater Vulnerability Map	pg 15	Yes	n/a	n/a	n/a
Groundwater Vulnerability - Soluble Rock Risk	pg 15	1	n/a	n/a	n/a
Groundwater Vulnerability - Local Information			n/a	n/a	n/a
Bedrock Aquifer Designations	pg 15	Yes	n/a	n/a	n/a
Superficial Aquifer Designations	pg 15	Yes	n/a	n/a	n/a
Source Protection Zones	pg 15	1		1	1
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 16				16

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 18	2	n/a	n/a	n/a
Local Authority Recorded Landfill Sites					
Potentially Infilled Land (Non-Water)	pg 18		3	1	
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 19	Yes	n/a	n/a	n/a
BGS Estimated Soil Chemistry	pg 19	Yes	Yes	Yes	Yes
BGS Recorded Mineral Sites	pg 21		1	2	
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 21	Yes		n/a	n/a
Potential for Collapsible Ground Stability Hazards	pg 21	Yes		n/a	n/a
Potential for Compressible Ground Stability Hazards	pg 21		Yes	n/a	n/a
Potential for Ground Dissolution Stability Hazards	pg 21		Yes	n/a	n/a
Potential for Landslide Ground Stability Hazards	pg 22	Yes		n/a	n/a
Potential for Running Sand Ground Stability Hazards	pg 22	Yes		n/a	n/a
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 22		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 23		1	19	80
Fuel Station Entries	pg 31			1	4
Points of Interest - Commercial Services	pg 31		1	5	7
Points of Interest - Education and Health					
Points of Interest - Manufacturing and Production	pg 32		1		7
Points of Interest - Public Infrastructure	pg 33			4	7
Points of Interest - Recreational and Environmental	pg 34		1		4
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 35	1			
Areas of Unadopted Green Belt	pg 35	1			
Areas of Outstanding Natural Beauty					
Environmentally Sensitive Areas					
Forest Parks					
Local Nature Reserves	pg 35				1
Marine Nature Reserves					
National Nature Reserves					
National Parks					
Nitrate Sensitive Areas					
Nitrate Vulnerable Zones	pg 35	2			
Ramsar Sites					
Sites of Special Scientific Interest	pg 35			1	
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 (N)	0	1	517546 229650
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SW (N)	0	1	517546 229634
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SW (W)	177	1	517300 229634
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13NE (NE)	214	1	517800 229800
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13NE (N)	221	1	517550 229950
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13SW (W)	227	1	517250 229600
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SW (W)	227	1	517250 229550
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A18SW (N)	268	1	517546 230000
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A18SW (N)	269	1	517500 230000
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13NW (NW)	271	1	517300 229900
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A12SE (W)	277	1	517200 229634
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A12SE (W)	277	1	517200 229550
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A14SW (E)	279	1	517900 229634
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A18SE (N)	282	1	517600 230000
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A12NE (W)	282	1	517200 229650
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A14NW (E)	328	1	517950 229650
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A14SW (E)	329	1	517950 229634
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A12NE (NW)	334	1	517200 229850
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A18SW (NW)	342	1	517300 230000
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A12SE (SW)	346	1	517150 229450
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A18SE (N)	370	1	517550 230100
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A12SE (W)	377	1	517100 229634

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A17SE (NW)	412	1	517200 230000
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A18SW (NW)	413	1	517250 230050
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A18SE (N)	427	1	517600 230150
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A12SE (SW)	433	1	517100 229350
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A14SW (E)	435	1	518050 229600
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A14NW (NE)	437	1	518000 229900
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A17SE (NW)	451	1	517150 230000
1	Discharge Consents Operator: J Sainsbury Plc T/A Sainsburys Supermarkets Ltd Property Type: SHOP INCL GARDEN CENTRE/RETAIL TRADE(NOT MOTOR VEHICLE) Location: Sainsbury'S Supermarket, Whinbush Road, Hitchin, Hertfordshire, Sg5 1pu Authority: Environment Agency, Anglian Region Catchment Area: River Hiz (Hitchin) Reference: Eprub3338aj Permit Version: 1 Effective Date: 15th May 2013 Issued Date: 15th May 2013 Revocation Date: Not Supplied Discharge Type: Trade Discharge - Process Water Discharge Environment: Land/Soakaway Receiving Water: Gw Via An Infiltration System Status: New issued under EPR 2010 Positional Accuracy: Located by supplier to within 10m	A15SW (E)	976	2	518583 229508
2	Local Authority Pollution Prevention and Controls Name: Shell Hitchin Petrol Station Location: Bedford Road, HITCHIN, Hertfordshire, SG5 2TY Authority: North Hertfordshire District Council, Environmental Health Department Permit Reference: EPA/10940/05/P2 Dated: 11th February 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	A14NW (NE)	342	3	517917 229855
3	Local Authority Pollution Prevention and Controls Name: Marshalls Of Hitchin Location: 23 Old Park Road, HITCHIN, Hertfordshire, SG5 2JS Authority: North Hertfordshire District Council, Environmental Health Department Permit Reference: Epa/10960/05/P1 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	A9NW (SE)	622	3	518110 229199
4	Local Authority Pollution Prevention and Controls Name: Texaco Location: Upper Tilehouse Street, HITCHIN, Hertfordshire, SG5 2EF Authority: North Hertfordshire District Council, Environmental Health Department Permit Reference: Not Given Dated: 25th February 1999 Process Type: Local Authority Air Pollution Control Description: PG1/14 Petrol filling station Status: Authorised Positional Accuracy: Automatically positioned to the address	A9NW (SE)	680	3	517960 228978

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
5	Local Authority Pollution Prevention and Controls Name: Bp Westmill Filling Station Location: Bedford Road, HITCHIN, Hertfordshire, SG3 2UG Authority: North Hertfordshire District Council, Environmental Health Department Permit Reference: EPA/10945/05/P1 Dated: 11th February 1999 Process Type: Local Authority Pollution Prevention and Control Description: PG1/14 Petrol filling station Status: Permitted Positional Accuracy: Automatically positioned to the address	A18NE (N)	794	3	517859 230446
6	Local Authority Pollution Prevention and Controls Name: Johnson Cleaners Uk Ltd Location: 11 Bancroft, Hitchin, Sg5 1jg Authority: North Hertfordshire District Council, Environmental Health Department Permit Reference: EPA/16806/06 Dated: 1st February 2007 Process Type: Local Authority Pollution Prevention and Control Description: PG6/46 Dry cleaning Status: Permitted Positional Accuracy: Manually positioned to the address or location	A9NE (E)	897	3	518456 229289
7	Local Authority Pollution Prevention and Controls Name: Williams Ransom & Sons Location: 104 Bancroft, HITCHIN, Hertfordshire, SG5 1LY Authority: North Hertfordshire District Council, Environmental Health Department Permit Reference: Not Given Dated: Not Supplied Process Type: Local Authority Air Pollution Control Description: PG6/25 Vegetable oil extraction and fat and oil refining Status: Authorised Positional Accuracy: Manually positioned to the address or location	A14SE (E)	955	3	518538 229384
	Nearest Surface Water Feature	A19SW (NE)	484	-	517917 230065
8	Pollution Incidents to Controlled Waters Property Type: Water Company Sewage: Foul Sewer Location: Bedford District Authority: Environment Agency, Anglian Region Pollutant: Crude Sewage Note: River Oughton Incident Date: 5th December 1994 Incident Reference: 2529 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Blocked Sewer Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A13NE (NE)	231	2	517700 229900
9	Pollution Incidents to Controlled Waters Property Type: Water Company Sewage: Water Distribution System Location: Bedford District Authority: Environment Agency, Anglian Region Pollutant: Chlorinated Water Note: River Hiz Incident Date: 14th May 1998 Incident Reference: 4180 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Mechanical Failure Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A9NW (SE)	562	2	518100 229300
10	Pollution Incidents to Controlled Waters Property Type: Road Location: Bedford District Authority: Environment Agency, Anglian Region Pollutant: Chemicals - Acid Note: River Hiz Incident Date: 3rd March 1993 Incident Reference: 1828 Catchment Area: Not Given Receiving Water: Potential Groundwater Cause of Incident: Accidental Spillage/Leakage Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A9NW (SE)	817	2	518200 229000

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
11	Pollution Incidents to Controlled Waters Property Type: Construction Location: Bedford District Authority: Environment Agency, Anglian Region Pollutant: Miscellaneous - Inert Suspended Solids Note: River Hiz Incident Date: 29th April 1998 Incident Reference: 4151 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Poor Operational Practice Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A9SW (SE)	888	2	518200 228900
12	Pollution Incidents to Controlled Waters Property Type: Domestic/Residential Location: Bedford District Authority: Environment Agency, Anglian Region Pollutant: Oils - Other Oil Note: Hiz Incident Date: 23rd November 1997 Incident Reference: 3955 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Other Cause Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A9NE (SE)	893	2	518300 229000
13	Pollution Incidents to Controlled Waters Property Type: Chemical industry Location: Bedford District Authority: Environment Agency, Anglian Region Pollutant: Chemicals - Other Organic Note: Hiz Incident Date: 24th July 1996 Incident Reference: 3312 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Accidental Spillage/Leakage Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A14SE (E)	896	2	518500 229500
14	Pollution Incidents to Controlled Waters Property Type: Not Given Location: Bedford District Authority: Environment Agency, Anglian Region Pollutant: Oils - Other Oil Note: River Hiz Incident Date: 13th December 1995 Incident Reference: 3004 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A9NE (E)	936	2	518500 229300
15	Pollution Incidents to Controlled Waters Property Type: Industrial: Other Location: Bedford District Authority: Environment Agency, Anglian Region Pollutant: Miscellaneous - Fire water / Foam Note: River Purwell Incident Date: 29th October 1997 Incident Reference: 3929 Catchment Area: Not Given Receiving Water: Not Given Cause of Incident: Fire Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A9SE (SE)	958	2	518300 228900
16	Pollution Incidents to Controlled Waters Property Type: Construction Location: Bedford District Authority: Environment Agency, Anglian Region Pollutant: Oils - Tars/Bitumen Note: River Hiz Incident Date: 14th November 1995 Incident Reference: 2973 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A9NE (SE)	974	2	518400 229000

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
17	Pollution Incidents to Controlled Waters Property Type: Not Given Location: Bedford District, HITCHIN, Hertfordshire Authority: Environment Agency, Anglian Region Pollutant: Miscellaneous - Unknown Note: River Hiz Incident Date: 19th February 1999 Incident Reference: 4458 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A15NW (E)	978	2	518600 229700
18	Pollution Incidents to Controlled Waters Property Type: Water Company Sewage: Foul Sewer Location: Bedford District Authority: Environment Agency, Anglian Region Pollutant: Crude Sewage Note: River Purwell Incident Date: 1st July 1995 Incident Reference: 2788 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Blocked Sewer Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A19NE (NE)	988	2	518300 230400
19	Pollution Incidents to Controlled Waters Property Type: Road Location: Bedford District Authority: Environment Agency, Anglian Region Pollutant: Oils - Other Oil Note: River Hiz Incident Date: 10th August 1994 Incident Reference: 2400 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Accidental Spillage/Leakage Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A15SW (E)	994	2	518600 229500
	River Quality Name: Hiz GQA Grade: River Quality C Reach: Charlton Ph Confl. R. Oughton Estimated Distance (km): 4 Flow Rate: Flow less than 0.31 cumecs Flow Type: River Year: 2000	A9NE (SE)	801	2	518348 229265
20	Substantiated Pollution Incident Register Authority: Environment Agency - Thames Region, North East Area Incident Date: 22nd August 2003 Incident Reference: 184291 Water Impact: Category 4 - No Impact Air Impact: Category 2 - Significant Incident Land Impact: Category 4 - No Impact Positional Accuracy: Located by supplier to within 10m Pollutant: Atmospheric Pollutants And Effects: Other Atmospheric Pollutant Or Effect	A12SW (W)	861	2	516619 229496
21	Water Abstractions Operator: Pilkington Farms Licence Number: 6/33/13/*G/0025 Permit Version: 100 Location: Well At Oughtonhead Farm Authority: Environment Agency, Anglian Region Abstraction: Household Water Supply: Drinking; Cooking; Sanitary; Washing; (Small Garden) 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 October 1968 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A11SE (W)	978	2	516500 229600

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
21	Water Abstractions Operator: Pilkington Farms Licence Number: 6/33/13/*G/0025 Permit Version: 100 Location: Well At Oughtonhead 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 October 1968 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A11SE (W)	978	2	516500 229600
21	Water Abstractions Operator: Pilkington Farms Licence Number: 6/33/13/*g/025 Permit Version: Not Supplied Location: Well At Oughtonhead Farm Authority: Environment Agency, Anglian Region Abstraction: Unspecified Abstraction Type: Not Supplied Source: Well And Borehole Daily Rate (m3): 1 Yearly Rate (m3): 3450 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	A11SE (W)	978	2	516500 229600
22	Water Abstractions Operator: G W Russell And Son Ltd Licence Number: 6/33/13/*s/001 Permit Version: Not Supplied Location: River Hiz Abstraction Points, ARLESEY Authority: Environment Agency, Anglian Region Abstraction: Cooling Abstraction Type: Not Supplied Source: Stream Daily Rate (m3): 98 Yearly Rate (m3): 409090 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	A15SW (E)	995	2	518600 229495
	Water Abstractions Operator: William Ransom & Son Plc Licence Number: 6/33/13/*s/055 Permit Version: Not Supplied Location: River Hiz, HITCHIN CENTRE Authority: Environment Agency, Anglian Region Abstraction: Cooling Abstraction Type: Not Supplied Source: Stream Daily Rate (m3): 48 Yearly Rate (m3): 200000 Details: 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	A9NE (SE)	1009	2	518500 229100

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: Director Of Technical Service Licence Number: 6/33/13/*i/078 Permit Version: Not Supplied Location: Tributary Of River Oughton, HITCHIN Authority: Environment Agency, Anglian Region Abstraction: Impounding Abstraction Type: Not Supplied Source: Stream Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: 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	A17SW (NW)	1026	2	516600 230200
	Water Abstractions Operator: Mr R A Peach Licence Number: 6/33/13/*s/031 Permit Version: Not Supplied Location: River Oughton, North West Of Hitchin Authority: Environment Agency, Anglian Region Abstraction: Spray Irrigation Abstraction Type: Not Supplied Source: Stream Daily Rate (m3): 7 Yearly Rate (m3): 122730 Details: 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	A17NW (NW)	1030	2	516850 230520
	Water Abstractions Operator: William Ransom & Son Plc Licence Number: 6/33/13/*s/055 Permit Version: Not Supplied Location: River Hiz, HITCHIN CENTRE Authority: Environment Agency, Anglian Region Abstraction: Cooling Abstraction Type: Not Supplied Source: Stream Daily Rate (m3): 48 Yearly Rate (m3): 200000 Details: 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	A10NW (E)	1039	2	518605 229295
	Water Abstractions Operator: Mr R A Peach Licence Number: 6/33/13/*s/071 Permit Version: Not Supplied Location: River Oughton North West Of, HITCHIN Authority: Environment Agency, Anglian Region Abstraction: Spray Irrigation Abstraction Type: Not Supplied Source: Stream Daily Rate (m3): 90 Yearly Rate (m3): 245450 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	A17SW (NW)	1044	2	516560 230160

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: Director Of Technical Service Licence Number: 6/33/13/*i/077 Permit Version: Not Supplied Location: Tributary Of River Oughton, WESTMILL Authority: Environment Agency, Anglian Region Abstraction: Impounding Abstraction Type: Not Supplied Source: Stream Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: 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 100m	A22SE (NW)	1052	2	517100 230700
	Water Abstractions Operator: William Ransom & Son Plc Licence Number: 6/33/13/*s/055 Permit Version: Not Supplied Location: River Hiz, HITCHIN CENTRE Authority: Environment Agency, Anglian Region Abstraction: Cooling Abstraction Type: Not Supplied Source: Stream Daily Rate (m3): 48 Yearly Rate (m3): 200000 Details: 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	A10NW (SE)	1064	2	518600 229195
	Water Abstractions Operator: Mr R A Peach Licence Number: 6/33/13/*s/071 Permit Version: Not Supplied Location: River Oughton North West Of, HITCHIN Authority: Environment Agency, Anglian Region Abstraction: Spray Irrigation Abstraction Type: Not Supplied Source: Stream Daily Rate (m3): 90 Yearly Rate (m3): 245450 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	A17NW (NW)	1077	2	516800 230540
	Water Abstractions Operator: R A Peach Licence Number: 6/33/13/*S/0031 Permit Version: 100 Location: River Oughton Nw Of Hitchin Authority: Environment Agency, Anglian Region Abstraction: General Agriculture: Spray Irrigation - Direct Abstraction Type: Water may be abstracted from a river or stream reach, or a row of wellpoints Source: Surface Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Status: Perpetuity Authorised Start: 01 March Authorised End: 30 September Permit Start Date: 1st October 1984 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A16SE (NW)	1096	2	516500 230150

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: William Ransom & Son Plc Licence Number: 6/33/13/*S/0055 Permit Version: 100 Location: River Hiz At Hitchin Centre Authority: Environment Agency, Anglian Region Abstraction: Other Industrial/Commercial/Public Services: Non-Evaporative Cooling Abstraction Type: Water may be abstracted from a single point Source: Surface 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 July 1991 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A9SE (SE)	1100	2	518400 228800
	Water Abstractions Operator: William Ransom & Son Plc Licence Number: 6/33/13/*s/055 Permit Version: Not Supplied Location: River Hiz, HITCHIN CENTRE Authority: Environment Agency, Anglian Region Abstraction: Cooling Abstraction Type: Not Supplied Source: Stream Daily Rate (m3): 48 Yearly Rate (m3): 200000 Details: 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	A9SE (SE)	1116	2	518500 228895
	Water Abstractions Operator: William Ransom & Son Plc Licence Number: 6/33/13/*s/055 Permit Version: Not Supplied Location: River Hiz At, Hitchin Centre Authority: Environment Agency, Anglian Region Abstraction: Cooling Abstraction Type: Not Supplied Source: Stream Daily Rate (m3): 48 Yearly Rate (m3): 200000 Details: 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	A10NW (E)	1130	2	518700 229300
	Water Abstractions Operator: William Ransom & Son Plc Licence Number: 6/33/13/*s/055 Permit Version: Not Supplied Location: River Hiz, HITCHIN CENTRE Authority: Environment Agency, Anglian Region Abstraction: Cooling Abstraction Type: Not Supplied Source: Stream Daily Rate (m3): 48 Yearly Rate (m3): 200000 Details: 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	A10NW (E)	1131	2	518700 229295

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: R F H Ward Licence Number: 6/33/13/*g/054 Permit Version: Not Supplied Location: Catchpit At, ICKLEFORD Authority: Environment Agency, Anglian Region Abstraction: Spray Irrigation Abstraction Type: Not Supplied Source: Catchpit, Catchment Tank or Collecting Tank Daily Rate (m3): 1 Yearly Rate (m3): 45460 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	A24NW (N)	1489	2	518100 231100
	Water Abstractions Operator: Environment Agency Licence Number: 6/33/13/*G/0096/R02 Permit Version: 1 Location: Bath Spring Well Authority: Environment Agency, Anglian Region Abstraction: Environmental: Remedial River/Wetland Support: Transfer Between Sources 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 April Authorised End: 31 March Permit Start Date: 1st April 2018 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A4SW (S)	1501	2	517941 228092
	Water Abstractions Operator: Environment Agency Licence Number: 6/33/13/*G/0096/R01 Permit Version: 1 Location: Bath Spring Well Authority: Environment Agency, Anglian Region Abstraction: Environmental: Remedial River/Wetland Support: Transfer Between Sources 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 April Authorised End: 31 March Permit Start Date: 11th July 2016 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A4SW (S)	1503	2	517940 228090
	Water Abstractions Operator: Environment Agency Licence Number: 6/33/13/*G/0096 Permit Version: 1 Location: Bath Spring Well Authority: Environment Agency, Anglian Region Abstraction: Environmental: Remedial River/Wetland Support: Transfer Between Sources 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: 11th July 1996 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A4SW (S)	1503	2	517940 228090

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: Erecta Properties Limited Licence Number: 6/33/13/*g/064 Permit Version: Not Supplied Location: Borehole At, HITCHIN Authority: Environment Agency, Anglian Region Abstraction: Industrial Processing (Miscellaneous) Abstraction Type: Not Supplied Source: Well And Borehole Daily Rate (m3): 65 Yearly Rate (m3): 245490 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	A15NE (E)	1519	2	519130 229870
	Water Abstractions Operator: Affinity Water Limited Licence Number: 6/33/13/*G/0009 Permit Version: 102 Location: Bore At Offley Bottom 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	A6SW (SW)	1529	2	516100 228900
	Water Abstractions Operator: Veolia Water Central Limited Licence Number: 6/33/13/*G/0009 Permit Version: 101 Location: Bore At Offley Bottom 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	A6SW (SW)	1529	2	516100 228900
	Water Abstractions Operator: Three Valleys Water Plc Licence Number: 6/33/13/*G/0009 Permit Version: 100 Location: Bore At Offley Bottom 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	A6SW (SW)	1529	2	516100 228900

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: Affinity Water Limited Licence Number: 6/33/13/*G/0011 Permit Version: 102 Location: Well,Oughton Head,Hitchin 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	A11NW (W)	1591	2	515900 229800
	Water Abstractions Operator: Veolia Water Central Limited Licence Number: 6/33/13/*G/0011 Permit Version: 101 Location: Well,Oughton Head,Hitchin 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	A11NW (W)	1591	2	515900 229800
	Water Abstractions Operator: Three Valleys Water Plc Licence Number: 6/33/13/*G/0011 Permit Version: 100 Location: Well,Oughton Head,Hitchin 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	A11NW (W)	1591	2	515900 229800
	Water Abstractions Operator: A C Burton Licence Number: 6/33/13/*g/037 Permit Version: Not Supplied Location: Borehole At, GREAT OFFLEY Authority: Environment Agency, Anglian Region Abstraction: Domestic & Agriculture Abstraction Type: Not Supplied Source: Well And Borehole Daily Rate (m3): 1 Yearly Rate (m3): 2960 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	(W)	1705	2	515780 229400

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: Affinity Water Limited Licence Number: 6/33/13/*G/0010 Permit Version: 102 Location: Well Head Charlton 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	(S)	1765	2	517800 227800
	Water Abstractions Operator: Veolia Water Central Limited Licence Number: 6/33/13/*G/0010 Permit Version: 101 Location: Well Head Charlton 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	(S)	1765	2	517800 227800
	Water Abstractions Operator: Three Valleys Water Plc Licence Number: 6/33/13/*G/0010 Permit Version: 100 Location: Well Head Charlton 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	(S)	1765	2	517800 227800
	Water Abstractions Operator: Eastern Gas Licence Number: 6/33/13/*g/005 Permit Version: Not Supplied Location: Borehole South 0F Walsworth Common, ICKLEFORD Authority: Environment Agency, Anglian Region Abstraction: Industrial Processing (Miscellaneous) Abstraction Type: Not Supplied Source: Well And Borehole Daily Rate (m3): 32 Yearly Rate (m3): 218180 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	(E)	1826	2	519400 230100

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Water Abstractions Operator: D P H Parker Licence Number: 6/33/13/*G/0047 Permit Version: 100 Location: Well N Of Hambridge Way 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 February 1969 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	(N)	1951	2	517020 231620
	Water Abstractions Operator: Affinity Water Limited Licence Number: 6/33/13/*G/0008 Permit Version: 102 Location: Bore At Temple End,Hitchin 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	(S)	1984	2	517200 227600
	Water Abstractions Operator: Veolia Water Central Limited Licence Number: 6/33/13/*G/0008 Permit Version: 101 Location: Bore At Temple End,Hitchin 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	(S)	1984	2	517200 227600
	Water Abstractions Operator: Three Valleys Water Plc Licence Number: 6/33/13/*G/0008 Permit Version: 100 Location: Bore At Temple End,Hitchin 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	(S)	1984	2	517200 227600
23	Water Industry Act Referrals Name: Photodata Test Services Limited Location: PHOTODATA TEST SERVICES LIMITED, S MCCOMBIE AND CO, HITCHIN, HERTFORD, HERTFORDSHIRE, SG5 1NQ Authority: Environment Agency, Anglian Region Permit Reference: CE0621 Dated: 21st September 2009 Process Type: Permissions or amendments to discharge under the Water Industry Act 1991 Description: Processes which result in the discharge of Special Category effluents under The Trade Effluents (Prescribed Processes and Substances) Regulations Status: Application received by the EA but is not yet authorised Positional Accuracy: Automatically positioned to the address	A14SE (E)	962	2	518553 229435

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	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: Superficial: 3-10m Thickness: Superficial: High Recharge:	A13SW (N)	0	4	517546 229634
	Groundwater Vulnerability Map Combined Classification: Secondary Superficial Aquifer - High Vulnerability Combined Vulnerability: High Combined Aquifer: Unproductive Bedrock Aquifer, Productive Superficial Aquifer Pollutant Speed: Intermediate Bedrock Flow: Well Connected Fractures Dilution: <300 mm/year Baseflow Index: >70% Superficial: <90% Patchiness: Superficial: 3-10m Thickness: Superficial: High Recharge:	A13NE (N)	0	4	517556 229659
	Groundwater Vulnerability - Soluble Rock Risk Classification: Significant Risk - Problems Unlikely	A13SW (N)	0	4	517546 229634
	Bedrock Aquifer Designations Aquifer Designation: Principal Aquifer	A13SW (N)	0	4	517546 229634
	Bedrock Aquifer Designations Aquifer Designation: Unproductive Strata	A13NE (N)	0	4	517556 229659
	Superficial Aquifer Designations Aquifer Designation: Secondary Aquifer - A	A13SW (N)	0	4	517546 229634
24	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.	A13SW (N)	0	2	517546 229634
25	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.	A12SE (W)	492	2	516985 229556
26	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.	A12SW (W)	892	2	516588 229640
	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				

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Flood Defences None				
27	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 305.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A12NE (NW)	656	5	516890 229939
28	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 62.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A17SE (NW)	675	5	516932 230075
29	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 51.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A17SE (NW)	675	5	516932 230075
30	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 102.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A17SE (NW)	677	5	516957 230119
31	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 398.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A17SE (NW)	677	5	516957 230119
32	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 3.1 Watercourse Level: Underground Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A17NE (NW)	944	5	516947 230487
33	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 3.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A17NE (NW)	945	5	516948 230490
34	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 5.2 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A17NE (NW)	947	5	516949 230493
35	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 234.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A17NE (NW)	947	5	516949 230493

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
36	OS Water Network Lines Watercourse Form: Lake Watercourse Length: 17.6 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A17NE (NW)	950	5	516944 230492
37	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 164.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A17NE (NW)	959	5	516926 230491
38	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 118.4 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A3NW (S)	967	5	517400 228600
39	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 412.7 Watercourse Level: On ground surface Permanent: True Watercourse Name: River Oughton Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A17NE (NW)	968	5	516942 230514
40	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 125.3 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A17NE (NW)	983	5	517059 230604
41	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 294.5 Watercourse Level: On ground surface Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A17SW (NW)	983	5	516651 230205
42	OS Water Network Lines Watercourse Form: Inland river Watercourse Length: 259.3 Watercourse Level: Not Supplied Permanent: True Watercourse Name: Not Supplied Catchment Name: Cam Ely Ouse and South Level Primacy: 1	A3NW (S)	999	5	517511 228558

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	517546 229634
	Local Authority Landfill Coverage Name: North Hertfordshire District Council - Has supplied landfill data		0	3	517546 229634
43	Potentially Infilled Land (Non-Water) Bearing Ref: W Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1992	A13NW (W)	28	-	517465 229668
44	Potentially Infilled Land (Non-Water) Bearing Ref: NW Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1992	A13NW (NW)	36	-	517471 229720
45	Potentially Infilled Land (Non-Water) Bearing Ref: W Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1992	A13NW (W)	94	-	517394 229660
46	Potentially Infilled Land (Non-Water) Bearing Ref: NE Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1992	A14NW (NE)	395	-	517934 229924

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS 1:625,000 Solid Geology Description: Gault Formation And Upper Greensand Formation (Undifferentiated)	A13NE (N)	0	1	517561 229695
	BGS 1:625,000 Solid Geology Description: Grey Chalk Subgroup	A13SW (N)	0	1	517546 229634
	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	A13NE (N)	0	1	517556 229659
	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: 30 - 45 mg/kg	A13SW (N)	0	1	517546 229634
	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	A13SW (W)	148	1	517330 229550
	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	A13SW (W)	237	1	517236 229570
	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	A14SW (SE)	394	1	517947 229365

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 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:	A12NE (NW)	555	1	516974 229876
	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:	A8SW (S)	725	1	517280 228866
	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 40 - 60 mg/kg Concentration: Lead Concentration: <100 mg/kg Nickel 15 - 30 mg/kg Concentration:	A8SW (S)	756	1	517306 228828
	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:	A9SW (SE)	873	1	518092 228833
	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 20 - 40 mg/kg Concentration: Lead Concentration: <100 mg/kg Nickel 15 - 30 mg/kg Concentration:	A7SE (S)	876	1	517196 228728
	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 30 - 45 mg/kg Concentration:	A3NW (S)	997	1	517345 228576

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
47	BGS Recorded Mineral Sites Site Name: Oughtonhead Lane Gravel Pits Location: Hitchin, Hertfordshire Source: British Geological Survey, National Geoscience Information Service Reference: 164117 Type: Opencast Status: Ceased Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Cromerian - Ipswichian Geology: Glaciofluvial Deposits, Mid Pleistocene Commodity: Sand and Gravel Positional Accuracy: Located by supplier to within 10m	A13NW (NW)	71	1	517431 229709
48	BGS Recorded Mineral Sites Site Name: Gray'S Lane Gravel Pit Location: Hitchin, Hertfordshire Source: British Geological Survey, National Geoscience Information Service Reference: 164118 Type: Opencast Status: Ceased Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Cromerian - Ipswichian Geology: Glaciofluvial Deposits, Mid Pleistocene Commodity: Sand and Gravel Positional Accuracy: Located by supplier to within 10m	A8NW (S)	327	1	517406 229245
49	BGS Recorded Mineral Sites Site Name: Hitchin Brick Works Location: Hitchin, Hertfordshire Source: British Geological Survey, National Geoscience Information Service Reference: 165968 Type: Opencast Status: Ceased Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Anglian Geology: Lowestoft Formation Commodity: Common Clay and Shale Positional Accuracy: Located by supplier to within 10m	A19SW (NE)	478	1	517956 230023
	BGS Measured Urban Soil Chemistry No data available				
	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	A13SW (N)	0	1	517546 229634
	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SW (N)	0	1	517546 229634
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SW (N)	0	1	517546 229634
	Potential for Compressible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NW (NW)	14	1	517483 229692
	Potential for Compressible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	16	1	517462 229575
	Potential for Ground Dissolution Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SW (N)	0	1	517546 229634
	Potential for Ground Dissolution Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SW (W)	43	1	517429 229614
	Potential for Ground Dissolution Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SW (W)	148	1	517330 229550

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SW (N)	0	1	517546 229634
	Potential for Landslide Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SW (W)	148	1	517330 229550
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SW (N)	0	1	517546 229634
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SW (W)	148	1	517330 229550
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SW (N)	0	1	517546 229634
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13NE (E)	250	1	517874 229667
	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	A13SW (N)	0	1	517546 229634
	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	A13SW (N)	0	1	517546 229634

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
50	Contemporary Trade Directory Entries Name: Herts Fire Protection Location: 2, Spellbrooke, Hitchin, Hertfordshire, SG5 2NB Classification: Firefighting Equipment Status: Active Positional Accuracy: Automatically positioned to the address	A13NE (N)	112	-	517562 229832
51	Contemporary Trade Directory Entries Name: Paint Removing Location: 1rt Burymead Road, Hitchin, Hertfordshire, SG5 2JJ Classification: Paint & Varnish Stripping Status: Inactive Positional Accuracy: Manually positioned within the geographical locality	A13NE (NE)	266	-	517834 229842
52	Contemporary Trade Directory Entries Name: Morris Repair Services Location: 2, Symonds Road, Hitchin, Hertfordshire, SG5 2JL Classification: Photographic Equipment Repairs Status: Inactive Positional Accuracy: Automatically positioned to the address	A13NE (NE)	307	-	517814 229920
52	Contemporary Trade Directory Entries Name: Presentation Systems Ltd Location: 2, Symonds Road, Hitchin, Hertfordshire, SG5 2JL Classification: Photographic Equipment Repairs Status: Inactive Positional Accuracy: Automatically positioned to the address	A13NE (NE)	307	-	517814 229920
52	Contemporary Trade Directory Entries Name: Envirovision Location: 2, Symonds Road, Hitchin, Hertfordshire, SG5 2JL Classification: Bathroom Fixtures - Manufacturers Status: Inactive Positional Accuracy: Automatically positioned to the address	A13NE (NE)	307	-	517814 229920
53	Contemporary Trade Directory Entries Name: Gap Motor Parts Ltd Location: 36, Moss Way, Hitchin, Hertfordshire, SG5 2QP Classification: Filter Manufacturers & Suppliers Status: Inactive Positional Accuracy: Automatically positioned to the address	A18SW (NW)	328	-	517350 230017
54	Contemporary Trade Directory Entries Name: Kwik Fit Plus Location: 91, Bedford Road, Hitchin, SG5 2TT Classification: Tyre Dealers Status: Active Positional Accuracy: Automatically positioned to the address	A14NW (NE)	337	-	517903 229868
54	Contemporary Trade Directory Entries Name: Shell Hitchin Location: Bedford Road, Hitchin, SG5 2TY Classification: Petrol Filling Stations Status: Inactive Positional Accuracy: Automatically positioned to the address	A14NW (NE)	344	-	517927 229841
54	Contemporary Trade Directory Entries Name: Shell Service Station Location: Bedford Road, Hitchin, SG5 2TY Classification: Petrol Filling Stations Status: Active Positional Accuracy: Automatically positioned to the address	A14NW (NE)	344	-	517927 229841
54	Contemporary Trade Directory Entries Name: Shell Location: Bedford Road, Hitchin, SG5 2TY Classification: Petrol Filling Stations Status: Inactive Positional Accuracy: Automatically positioned to the address	A14NW (NE)	344	-	517927 229841
54	Contemporary Trade Directory Entries Name: Mobile Tyre Services Ltd Location: 91, Bedford Road, Hitchin, Hertfordshire, SG5 2TT Classification: Tyre Dealers Status: Inactive Positional Accuracy: Automatically positioned to the address	A14NW (NE)	350	-	517915 229874
54	Contemporary Trade Directory Entries Name: Sgs Supertyres Group Location: 91, Bedford Road, Hitchin, Hertfordshire, SG5 2TT Classification: Tyre Repairs & Retreading Status: Inactive Positional Accuracy: Automatically positioned to the address	A14NW (NE)	350	-	517915 229874

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
54	Contemporary Trade Directory Entries Name: Sts Tyre Pros Location: 91, Bedford Road, Hitchin, Hertfordshire, SG5 2TT Classification: Tyre Dealers Status: Inactive Positional Accuracy: Automatically positioned to the address	A14NW (NE)	350	-	517915 229874
54	Contemporary Trade Directory Entries Name: S T S Tyre Pros Location: 91, Bedford Road, Hitchin, Hertfordshire, SG5 2TT Classification: Tyre Dealers Status: Inactive Positional Accuracy: Automatically positioned to the address	A14NW (NE)	350	-	517915 229874
54	Contemporary Trade Directory Entries Name: Auto Service & Tuning Ltd Location: 91a Bedford Road, Hitchin, Hertfordshire, SG5 2TT Classification: Garage Services Status: Active Positional Accuracy: Manually positioned to the road within the address or location	A14NW (NE)	373	-	517938 229880
55	Contemporary Trade Directory Entries Name: Park Home Show Location: Flat 35, Chestnut Court, Bedford Road, Hitchin, Hertfordshire, SG5 2TJ Classification: Caravan Dealers & Manufacturers Status: Inactive Positional Accuracy: Automatically positioned to the address	A14NW (NE)	377	-	517895 229940
56	Contemporary Trade Directory Entries Name: Cleaners Hitchin Location: 17, West Hill, Hitchin, Hertfordshire, SG5 2HZ Classification: Carpet, Curtain & Upholstery Cleaners Status: Inactive Positional Accuracy: Automatically positioned to the address	A9NW (SE)	481	-	517972 229250
57	Contemporary Trade Directory Entries Name: Upstairs Downstairs Location: 49, Mattocke Road, Hitchin, Hertfordshire, SG5 2PB Classification: Carpet, Curtain & Upholstery Cleaners Status: Inactive Positional Accuracy: Automatically positioned to the address	A18SW (N)	481	-	517439 230207
58	Contemporary Trade Directory Entries Name: Blitz Cleaning Services Uk Ltd Location: 20, Nutleigh Grove, Hitchin, Hertfordshire, SG5 2NH Classification: Commercial Cleaning Services Status: Inactive Positional Accuracy: Automatically positioned to the address	A18SE (NE)	498	-	517779 230157
58	Contemporary Trade Directory Entries Name: Blitz Cleaning Services Ltd Location: 20, Nutleigh Grove, Hitchin, Hertfordshire, SG5 2NH Classification: Commercial Cleaning Services Status: Active Positional Accuracy: Automatically positioned to the address	A18SE (NE)	498	-	517779 230157
59	Contemporary Trade Directory Entries Name: West Hill Garage Location: 1, West Hill, Hitchin, Hertfordshire, SG5 2HZ Classification: Garage Services Status: Inactive Positional Accuracy: Automatically positioned to the address	A9NW (SE)	561	-	518080 229266
60	Contemporary Trade Directory Entries Name: Johnsons The Cleaners Location: Bedford Road, Hitchin, SG5 1HF Classification: Dry Cleaners Status: Active Positional Accuracy: Automatically positioned to the address	A14SW (SE)	607	-	518169 229344
61	Contemporary Trade Directory Entries Name: Hampden House Location: Section 1, Hampden House, Elmside Walk, Hitchin, SG5 1HB Classification: Hospitals Status: Inactive Positional Accuracy: Manually positioned to the address or location	A14SW (E)	617	-	518204 229437
62	Contemporary Trade Directory Entries Name: Marshall Of Hitchin Location: Hitchin Service Station, Old Park Road, Hitchin, Hertfordshire, SG5 2JS Classification: Car Dealers Status: Inactive Positional Accuracy: Automatically positioned to the address	A9NW (SE)	619	-	518096 229186

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
63	Contemporary Trade Directory Entries Name: P A B Motors Location: 60, Bearton Road, Hitchin, Hertfordshire, SG5 1UF Classification: Garage Services Status: Inactive Positional Accuracy: Automatically positioned to the address	A19SW (NE)	624	-	518070 230116
63	Contemporary Trade Directory Entries Name: Hitchin Blinds Location: 60, Bearton Road, Hitchin, Hertfordshire, SG5 1UF Classification: Blinds, Awnings & Canopies Status: Inactive Positional Accuracy: Automatically positioned to the address	A19SW (NE)	624	-	518070 230116
63	Contemporary Trade Directory Entries Name: Choice Vehicle Location: Bearton Rd, Hitchin, Hertfordshire, SG5 1UF Classification: Commercial Vehicle Dealers Status: Inactive Positional Accuracy: Manually positioned to the road within the address or location	A19SW (NE)	668	-	518110 230138
64	Contemporary Trade Directory Entries Name: Tilehouse Service Station Location: Upper Tilehouse Street, Hitchin, Hertfordshire, SG5 2EF Classification: Petrol Filling Stations Status: Inactive Positional Accuracy: Automatically positioned to the address	A9NW (SE)	680	-	517960 228978
64	Contemporary Trade Directory Entries Name: Memco Location: 25, Wratten Road West, Hitchin, Hertfordshire, SG5 2AX Classification: Lift Manufacturers Status: Inactive Positional Accuracy: Automatically positioned to the address	A9SW (SE)	721	-	517985 228944
65	Contemporary Trade Directory Entries Name: Vehicle Recovery Location: 55, Swinburne Avenue, Hitchin, Hertfordshire, SG5 2RA Classification: Breakdown and Recovery Status: Inactive Positional Accuracy: Automatically positioned to the address	A17NE (NW)	701	-	517188 230353
65	Contemporary Trade Directory Entries Name: Scrap Cars Wanted For Cash Location: 55, Swinburne Avenue, Hitchin, Hertfordshire, SG5 2RA Classification: Car Breakers & Dismantlers Status: Inactive Positional Accuracy: Automatically positioned to the address	A17NE (NW)	701	-	517188 230353
66	Contemporary Trade Directory Entries Name: Saward & Sons Grab Hire Location: 50, Wellingham Avenue, Hitchin, SG5 2UN Classification: Commercial Vehicle Breakdown & Recovery Services Status: Active Positional Accuracy: Automatically positioned to the address	A18NE (N)	701	-	517718 230402
67	Contemporary Trade Directory Entries Name: Tudor Processing Location: 27, Tudor Court, Hitchin, Hertfordshire, SG5 2BE Classification: Printers Status: Inactive Positional Accuracy: Automatically positioned to the address	A8SE (S)	704	-	517711 228859
68	Contemporary Trade Directory Entries Name: M S D A Ltd Location: 25, Offley Road, Hitchin, Hertfordshire, SG5 2AZ Classification: Engineers - General Status: Active Positional Accuracy: Automatically positioned to the address	A8SE (S)	722	-	517830 228869
69	Contemporary Trade Directory Entries Name: Evolution Fireplaces Location: 7, SEEBOHM CLOSE, HITCHIN, SG5 2SJ Classification: Fireplaces & Mantelpieces Status: Active Positional Accuracy: Automatically positioned to the address	A18NW (N)	730	-	517392 230452
70	Contemporary Trade Directory Entries Name: Automated Smart Homes Location: 7, Paynes Park, Hitchin, SG5 1EH Classification: Cinema Equipment Status: Inactive Positional Accuracy: Automatically positioned to the address	A9NE (SE)	758	-	518276 229213

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
70	Contemporary Trade Directory Entries Name: The Best Of Hitchin Location: 7, Paynes Park, Hitchin, Hertfordshire, SG5 1EH Classification: Joinery Manufacturers Status: Inactive Positional Accuracy: Automatically positioned to the address	A9NE (SE)	758	-	518276 229213
70	Contemporary Trade Directory Entries Name: Elliotts Cleaning Ltd Location: 7, Paynes Park, Hitchin, SG5 1EH Classification: Commercial Cleaning Services Status: Inactive Positional Accuracy: Automatically positioned to the address	A9NE (SE)	758	-	518276 229213
70	Contemporary Trade Directory Entries Name: P C B Piezotronics Location: 7, Paynes Park, Hitchin, Hertfordshire, SG5 1EH Classification: Electronic Equipment - Manufacturers & Assemblers Status: Inactive Positional Accuracy: Automatically positioned to the address	A9NE (SE)	758	-	518276 229213
70	Contemporary Trade Directory Entries Name: Stapleton'S Tyre Services Ltd Location: Paynes Park, HITCHIN, Hertfordshire, SG5 1EH Classification: Tyre Dealers Status: Inactive Positional Accuracy: Automatically positioned to the address	A9NE (SE)	759	-	518259 229180
70	Contemporary Trade Directory Entries Name: Stapleton'S Tyre & Exhaust Centre Location: Paynes Park, Hitchin, Hertfordshire, SG5 1EH Classification: Tyre Dealers Status: Inactive Positional Accuracy: Automatically positioned to the address	A9NE (SE)	759	-	518259 229180
70	Contemporary Trade Directory Entries Name: S T S Tyre Pros Location: Paynes Park, Hitchin, Hertfordshire, SG5 1EH Classification: Tyre Dealers Status: Active Positional Accuracy: Automatically positioned to the address	A9NE (SE)	759	-	518259 229180
71	Contemporary Trade Directory Entries Name: Quality Car Services Location: 3, Paynes Park, Hitchin, Hertfordshire, SG5 1EH Classification: Garage Services Status: Inactive Positional Accuracy: Automatically positioned to the address	A9NE (SE)	760	-	518295 229249
71	Contemporary Trade Directory Entries Name: Dow Agro Sciences Location: 9a Latchmore Court, Brand Street, Hitchin, SG5 1NH Classification: Chemical Manufacturers Status: Inactive Positional Accuracy: Automatically positioned to the address	A9NE (SE)	801	-	518333 229233
71	Contemporary Trade Directory Entries Name: Cannon Lane Suzuki Location: Paynes Park, Hitchin, Hertfordshire, SG5 1EH Classification: Car Dealers Status: Inactive Positional Accuracy: Automatically positioned to the address	A9NE (SE)	806	-	518330 229213
71	Contemporary Trade Directory Entries Name: Dow Agrosiences Ltd Location: Latchmore Court, Brand Street, Hitchin, Hertfordshire, SG5 1HX Classification: Chemicals & Allied Products Status: Inactive Positional Accuracy: Automatically positioned to the address	A9NE (SE)	814	-	518341 229221
72	Contemporary Trade Directory Entries Name: Ace Of Herts Gates And Railings Location: 121, Milestone Road, Hitchin, Hertfordshire, SG5 2SY Classification: Wrought Ironwork Status: Inactive Positional Accuracy: Automatically positioned to the address	A18NE (N)	774	-	517672 230489
73	Contemporary Trade Directory Entries Name: Amwell Electronic Assemblers Services Ltd Location: The Croft, Grammar School Walk, Hitchin, Hertfordshire, SG5 1JD Classification: Electronic Equipment - Manufacturers & Assemblers Status: Inactive Positional Accuracy: Manually positioned to the road within the address or location	A14SE (E)	792	-	518359 229333

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
73	Contemporary Trade Directory Entries Name: A & V Gearbox Services Location: Netherwood, Grammar School Walk, Hitchin, Hertfordshire, SG5 1JA Classification: Gearboxes Status: Active Positional Accuracy: Automatically positioned to the address	A14SE (E)	816	-	518388 229348
74	Contemporary Trade Directory Entries Name: Thug & Bored Location: 109, Coopers Yard, Paynes Park, HITCHIN, Hertfordshire, SG5 1AU Classification: Clothing & Fabrics - Manufacturers Status: Inactive Positional Accuracy: Automatically positioned to the address	A9NE (SE)	793	-	518227 229070
75	Contemporary Trade Directory Entries Name: B P Service Station Location: SERVICE STATION, BEDFORD ROAD, HITCHIN, SG5 2UG Classification: Petrol Filling Stations Status: Active Positional Accuracy: Automatically positioned to the address	A18NE (N)	794	-	517859 230446
75	Contemporary Trade Directory Entries Name: Westmill Service Station Location: Service Station, Bedford Road, Hitchin, Hertfordshire, SG5 2UG Classification: Petrol Filling Stations Status: Inactive Positional Accuracy: Automatically positioned to the address	A18NE (N)	794	-	517859 230446
76	Contemporary Trade Directory Entries Name: Chips Away Location: 10, Half Acre, Hitchin, Hertfordshire, SG5 2XL Classification: Car Body Repairs Status: Inactive Positional Accuracy: Automatically positioned to the address	A8SE (S)	799	-	517569 228755
77	Contemporary Trade Directory Entries Name: Darkest Star Location: 16a, Brand Street, Hitchin, Hertfordshire, SG5 1JE Classification: Lingerie & Hosiery Manufacturers & Wholesalers Status: Inactive Positional Accuracy: Automatically positioned to the address	A9NE (SE)	813	-	518356 229260
78	Contemporary Trade Directory Entries Name: The Charity Clothing Company Location: 78, Tilehouse Street, Hitchin, Hertfordshire, SG5 2DY Classification: Printers Textile Status: Inactive Positional Accuracy: Automatically positioned to the address	A9NW (SE)	814	-	518215 229021
78	Contemporary Trade Directory Entries Name: Links (Eu) Ltd Location: 24, Tilehouse Street, Hitchin, Hertfordshire, SG5 2DY Classification: Telecommunications Equipment & Systems Status: Inactive Positional Accuracy: Automatically positioned to the address	A9NE (SE)	857	-	518230 228973
79	Contemporary Trade Directory Entries Name: J R Scaffolding Location: 5, Swinburne Avenue, Hitchin, SG5 2RG Classification: Scaffolding & Work Platforms Status: Inactive Positional Accuracy: Automatically positioned to the address	A18NW (N)	825	-	517315 230533
79	Contemporary Trade Directory Entries Name: J R Roofing Hitchin Ltd Location: Hitchin, Hertfordshire, Sg5 2rg Classification: Scaffolding & Work Platforms Status: Active Positional Accuracy: Manually positioned within the geographical locality	A18NW (N)	838	-	517273 230535
80	Contemporary Trade Directory Entries Name: The Paint Shop Location: West Alley, Hitchin, Hertfordshire, SG5 1EG Classification: Painting & Decorating Supplies Status: Inactive Positional Accuracy: Automatically positioned to the address	A9NE (SE)	830	-	518312 229130
80	Contemporary Trade Directory Entries Name: Espadrille Location: 2, West Alley, Hitchin, Hertfordshire, SG5 1EG Classification: Tableware Status: Inactive Positional Accuracy: Automatically positioned to the address	A9NE (SE)	830	-	518312 229130

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
81	Contemporary Trade Directory Entries Name: Professional Dry Cleaners Ltd Location: 5a, Brand Street, HITCHIN, Hertfordshire, SG5 1HX Classification: Dry Cleaners Status: Active Positional Accuracy: Automatically positioned to the address	A9NE (SE)	860	-	518386 229208
81	Contemporary Trade Directory Entries Name: P & P Laboratories Ltd Location: 2, Bancroft Court, Hitchin, Hertfordshire, SG5 1LH Classification: Medical & Dental Laboratories Status: Inactive Positional Accuracy: Automatically positioned to the address	A9NE (SE)	889	-	518426 229228
82	Contemporary Trade Directory Entries Name: Shirts R Us Location: 44, Mulberry Way, Hitchin, Hertfordshire, SG5 2TB Classification: T-Shirts Status: Active Positional Accuracy: Automatically positioned to the address	A18NW (N)	868	-	517546 230599
82	Contemporary Trade Directory Entries Name: S Johnson Location: 44, Mulberry Way, Hitchin, Hertfordshire, SG5 2TB Classification: Air Conditioning & Refrigeration Contractors Status: Inactive Positional Accuracy: Automatically positioned to the address	A18NW (N)	868	-	517546 230599
83	Contemporary Trade Directory Entries Name: Quany Coat Location: Bevan House, 9-11, Bancroft Court, Hitchin, Hertfordshire, SG5 1LH Classification: Pharmaceutical Manufacturers & Distributors Status: Inactive Positional Accuracy: Automatically positioned to the address	A14SE (E)	886	-	518491 229505
84	Contemporary Trade Directory Entries Name: Hitchin Sharpening Location: 148, Bearton Road, Hitchin, SG5 1UB Classification: Tool Sharpening, Repairing & Servicing Status: Active Positional Accuracy: Automatically positioned to the address	A19SE (NE)	892	-	518409 230101
85	Contemporary Trade Directory Entries Name: B E K A Location: Old Charlton Road, Hitchin, Hertfordshire, SG5 2DA Classification: Industrial Instrument & Apparatus Manufacturers Status: Inactive Positional Accuracy: Manually positioned within the geographical locality	A9SE (SE)	894	-	518228 228919
86	Contemporary Trade Directory Entries Name: Johnsons (Uk) Location: 11, Bancroft, Hitchin, Hertfordshire, SG5 1JQ Classification: Dry Cleaners Status: Inactive Positional Accuracy: Automatically positioned to the address	A9NE (E)	897	-	518456 229289
86	Contemporary Trade Directory Entries Name: Supasnaps Location: 11, Bancroft, Hitchin, Hertfordshire, SG5 1JQ Classification: Photographic Processors Status: Inactive Positional Accuracy: Manually positioned to the address or location	A9NE (E)	897	-	518456 229289
87	Contemporary Trade Directory Entries Name: Arriva Location: Fishponds Road, Hitchin, Hertfordshire, SG5 1NP Classification: Bus & Coach Operators & Stations Status: Inactive Positional Accuracy: Automatically positioned to the address	A14NE (E)	898	-	518521 229688
88	Contemporary Trade Directory Entries Name: Heaven Beauty Location: 28b, Bancroft, Hitchin, Hertfordshire, SG5 1LA Classification: Electrolysis Status: Inactive Positional Accuracy: Automatically positioned to the address	A14SE (E)	921	-	518511 229429
88	Contemporary Trade Directory Entries Name: Heaven Beauty Location: 28b, Bancroft, Hitchin, Hertfordshire, SG5 1LA Classification: Electrolysis Status: Inactive Positional Accuracy: Automatically positioned to the address	A14SE (E)	921	-	518511 229429

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
88	Contemporary Trade Directory Entries Name: J-Clean Services Ltd Location: Suite 9, 30, Bancroft, Hitchin, SG5 1LE Classification: Carpet, Curtain & Upholstery Cleaners Status: Active Positional Accuracy: Automatically positioned to the address	A14SE (E)	927	-	518523 229462
89	Contemporary Trade Directory Entries Name: I C G Location: 35, Bancroft, Hitchin, Hertfordshire, SG5 1LA Classification: Air Conditioning & Refrigeration Contractors Status: Inactive Positional Accuracy: Automatically positioned to the address	A14SE (E)	924	-	518531 229512
89	Contemporary Trade Directory Entries Name: Cleaning Tokens Ltd Location: 43-44, Bancroft, Hitchin, Hertfordshire, SG5 1LA Classification: Dry Cleaners Status: Inactive Positional Accuracy: Automatically positioned to the address	A14SE (E)	924	-	518538 229555
89	Contemporary Trade Directory Entries Name: High Visibility Clothes Cleaning Location: 43-44, Bancroft, Hitchin, Hertfordshire, SG5 1LA Classification: Dry Cleaners Status: Inactive Positional Accuracy: Automatically positioned to the address	A14SE (E)	924	-	518538 229555
89	Contemporary Trade Directory Entries Name: Intelligent Comfort Group Ltd Location: 35, Bancroft, Hitchin, Hertfordshire, SG5 1LA Classification: Air Conditioning Equipment & Systems Status: Inactive Positional Accuracy: Automatically positioned to the address	A14SE (E)	924	-	518531 229512
89	Contemporary Trade Directory Entries Name: Drives International Ltd Location: 38-40, Bancroft, Hitchin, Hertfordshire, SG5 1LA Classification: Automation Systems & Equipment Status: Inactive Positional Accuracy: Automatically positioned to the address	A14SE (E)	925	-	518534 229526
89	Contemporary Trade Directory Entries Name: House Keepers Of Hitchin Ltd Location: 45-46, Bancroft, Hitchin, Hertfordshire, SG5 1LA Classification: Cleaning Services - Domestic Status: Inactive Positional Accuracy: Automatically positioned to the address	A14SE (E)	928	-	518543 229565
89	Contemporary Trade Directory Entries Name: The Print Mill Location: 85, Bancroft, Hitchin, Hertfordshire, SG5 1NQ Classification: Printers Status: Inactive Positional Accuracy: Automatically positioned to the address	A15SW (E)	955	-	518566 229529
90	Contemporary Trade Directory Entries Name: Medusa Communication & Marketing Ltd Location: Regal Chambers, 51, Bancroft, Hitchin, Hertfordshire, SG5 1LL Classification: Distribution Services Status: Inactive Positional Accuracy: Automatically positioned to the address	A14SE (E)	932	-	518553 229622
91	Contemporary Trade Directory Entries Name: Red Art Location: 15a, Churchyard, Hitchin, SG5 1HR Classification: Printers Status: Active Positional Accuracy: Automatically positioned to the address	A9NE (SE)	934	-	518455 229180
92	Contemporary Trade Directory Entries Name: Stag Cleaning Services Location: 31, Bucklersbury, Hitchin, Hertfordshire, SG5 1BG Classification: Cleaning Services - Domestic Status: Inactive Positional Accuracy: Manually positioned to the address or location	A9NE (SE)	942	-	518344 228978
92	Contemporary Trade Directory Entries Name: Hitchin Shaver Centre Location: 30, Bucklersbury, Hitchin, Hertfordshire, SG5 1BG Classification: Electrical goods - servicing & repairs Status: Inactive Positional Accuracy: Automatically positioned to the address	A9NE (SE)	947	-	518345 228970

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
92	Contemporary Trade Directory Entries Name: I G V Compaxo Location: A, 30, Bucklersbury, Hitchin, Hertfordshire, SG5 1BG Classification: Meat - Wholesale Status: Inactive Positional Accuracy: Automatically positioned to the address	A9NE (SE)	947	-	518345 228970
93	Contemporary Trade Directory Entries Name: Magnet Location: 98-100, Hermitage Road, Hitchin, SG5 1DG Classification: Kitchen Furniture Manufacturers Status: Active Positional Accuracy: Automatically positioned to the address	A9NE (E)	945	-	518510 229303
93	Contemporary Trade Directory Entries Name: E M A S Ltd Location: 109, Bancroft, Hitchin, Hertfordshire, SG5 1NB Classification: Pharmaceutical Manufacturers & Distributors Status: Inactive Positional Accuracy: Automatically positioned to the address	A14SE (E)	955	-	518531 229346
94	Contemporary Trade Directory Entries Name: Photo Finish Location: 24-25, Market Place, Hitchin, Hertfordshire, SG5 1DT Classification: Photographic Processors Status: Inactive Positional Accuracy: Automatically positioned to the address	A9NE (SE)	946	-	518382 229024
94	Contemporary Trade Directory Entries Name: Gilroy Interiors Location: 16-17, Market Place, Hitchin, SG5 1DS Classification: Blinds, Awnings & Canopies Status: Inactive Positional Accuracy: Automatically positioned to the address	A9NE (SE)	979	-	518424 229028
95	Contemporary Trade Directory Entries Name: Laura Designer Products Ltd Location: 5, Market Place, Hitchin, Hertfordshire, SG5 1DR Classification: Perfume Suppliers Status: Inactive Positional Accuracy: Automatically positioned to the address	A9NE (SE)	950	-	518420 229076
96	Contemporary Trade Directory Entries Name: Secure Installations Location: 12, Tilehouse Street, Hitchin, Hertfordshire, SG5 2DU Classification: Safes & Vaults - Suppliers & Installers Status: Inactive Positional Accuracy: Automatically positioned to the address	A9SE (SE)	955	-	518305 228910
97	Contemporary Trade Directory Entries Name: Bright & Beautiful Location: Suite 910 Enterprise House, Hitchin, Hertfordshire, SG5 1NQ Classification: Cleaning Services - Domestic Status: Inactive Positional Accuracy: Manually positioned within the geographical locality	A14SE (E)	958	-	518560 229484
97	Contemporary Trade Directory Entries Name: Scrap Car Now Today Cash Hitchin Location: Bancroft, Hitchin, Hertfordshire, sg5 1nq Classification: Car Breakers & Dismantlers Status: Inactive Positional Accuracy: Manually positioned within the geographical locality	A15SW (E)	962	-	518565 229490
97	Contemporary Trade Directory Entries Name: Clearprint Location: 93a, Bancroft, Hitchin, Hertfordshire, SG5 1NQ Classification: Printers Status: Inactive Positional Accuracy: Automatically positioned to the address	A15SW (E)	962	-	518565 229490
98	Contemporary Trade Directory Entries Name: Henley Of Hitchin Location: 64, Bancroft, Hitchin, Hertfordshire, SG5 1LL Classification: Car Dealers Status: Inactive Positional Accuracy: Automatically positioned to the address	A15NW (E)	962	-	518584 229712
98	Contemporary Trade Directory Entries Name: Mastervans Location: 1-2, Bunyan Road, Hitchin, SG5 1NL Classification: Commercial Vehicle Dealers Status: Active Positional Accuracy: Automatically positioned to the address	A15NW (E)	968	-	518590 229729

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
98	Contemporary Trade Directory Entries Name: Master Car Location: Bunyan Road, Hitchin, Hertfordshire, SG5 1NL Classification: Car Dealers - Used Status: Inactive Positional Accuracy: Automatically positioned to the address	A15NW (E)	968	-	518589 229729
98	Contemporary Trade Directory Entries Name: Mastercars Sports & Prestige Location: 1, Bunyan Road, Hitchin, Hertfordshire, SG5 1NL Classification: Car Dealers - Used Status: Active Positional Accuracy: Automatically positioned to the address	A15NW (E)	972	-	518593 229731
99	Contemporary Trade Directory Entries Name: C K L Technical Services Location: 22, Brampton Park Road, Hitchin, Hertfordshire, SG5 1XE Classification: Automation Systems & Equipment Status: Inactive Positional Accuracy: Automatically positioned to the address	A19SE (NE)	972	-	518412 230247
100	Contemporary Trade Directory Entries Name: Richard Smith Furniture Restoration Location: 40, Old Hale Way, Hitchin, Hertfordshire, SG5 1XJ Classification: Furniture - Repairing & Restoring Status: Active Positional Accuracy: Automatically positioned to the address	A19NE (NE)	983	-	518313 230380
101	Fuel Station Entries Name: Shell Hitchin Location: Bedford Road , , Hitchin, Hertfordshire, SG5 2TY Brand: SHELL Premises Type: Petrol Station Status: Open Positional Accuracy: Manually positioned to the address or location	A14NW (NE)	342	-	517917 229855
102	Fuel Station Entries Name: Marshall Of Hitchin Location: 23, Old Park Road , , Hitchin, Hertfordshire, SG5 2JT Brand: ESSO Premises Type: Not Applicable Status: Obsolete Positional Accuracy: Manually positioned to the address or location	A9NW (SE)	622	-	518110 229199
103	Fuel Station Entries Name: Malthurst Tilehouse Location: Upper Tilehouse Street Wratten Road West, , Hitchin, Hertfordshire, SG5 2EF Brand: Texaco Premises Type: Not Applicable Status: Obsolete Positional Accuracy: Automatically positioned to the address	A9NW (SE)	680	-	517960 228978
104	Fuel Station Entries Name: Peter Fish Car Sales Location: Paynes Park , , Hitchin, Hertfordshire, SG5 1EH Brand: Obsolete Premises Type: Not Applicable Status: Obsolete Positional Accuracy: Manually positioned to the address or location	A9NE (SE)	792	-	518285 229159
105	Fuel Station Entries Name: Westmill Filling Station Location: Bedford Road , , Hitchin, Hertfordshire, SG5 2UG Brand: BP Premises Type: Petrol Station Status: Open Positional Accuracy: Automatically positioned to the address	A18NE (N)	794	-	517859 230446
106	Points of Interest - Commercial Services Name: Dent Removal Specialist Location: 11 Talbot Street, Hitchin, SG5 2QU Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A13NE (E)	134	7	517751 229643
107	Points of Interest - Commercial Services Name: Shell Hitchin Location: Bedford Road, Hitchin, SG5 2TY Category: Personal, Consumer and other Services Class Code: Vehicle Cleaning Services Positional Accuracy: Positioned to address or location	A14NW (NE)	330	7	517921 229822

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
107	Points of Interest - Commercial Services Name: Kwik-Fit (GB) Limited Location: 91 Bedford Road, Hitchin, SG5 2TT Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A14NW (NE)	337	7	517903 229868
107	Points of Interest - Commercial Services Name: Car Wash Location: Bedford Road, Hitchin, SG5 2TY Category: Personal, Consumer and other Services Class Code: Vehicle Cleaning Services Positional Accuracy: Positioned to address or location	A14NW (NE)	342	7	517917 229855
107	Points of Interest - Commercial Services Name: Shell Car Wash Location: Bedford Road, Hitchin, SG5 2TY Category: Personal, Consumer and other Services Class Code: Vehicle Cleaning Services Positional Accuracy: Positioned to address or location	A14NW (NE)	343	7	517926 229841
107	Points of Interest - Commercial Services Name: Auto Service & Tuning Ltd Location: 91 Bedford Road, Hitchin, SG5 2TT Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A14NW (NE)	349	7	517914 229873
108	Points of Interest - Commercial Services Name: Scrap Cars Wanted for Cash Location: 55 Swinburne Avenue, Hitchin, SG5 2RA Category: Recycling Services Class Code: Scrap Metal Merchants Positional Accuracy: Positioned to address or location	A17NE (NW)	700	7	517188 230352
109	Points of Interest - Commercial Services Name: Ace of Herts Gates and Railings Location: 121 Milestone Road, Hitchin, SG5 2SY Category: Construction Services Class Code: Metalworkers Including Blacksmiths Positional Accuracy: Positioned to address or location	A18NE (N)	774	7	517672 230489
110	Points of Interest - Commercial Services Name: Westmill Filling Station Location: Service Station, Bedford Road, Hitchin, SG5 2UG Category: Personal, Consumer and other Services Class Code: Vehicle Cleaning Services Positional Accuracy: Positioned to address or location	A18NE (N)	794	7	517858 230446
110	Points of Interest - Commercial Services Name: B P Car Wash Location: Service Station, Bedford Road, Hitchin, SG5 2UG Category: Personal, Consumer and other Services Class Code: Vehicle Cleaning Services Positional Accuracy: Positioned to address or location	A18NE (N)	794	7	517859 230446
110	Points of Interest - Commercial Services Name: Car Wash Location: Service Station, Bedford Road, Hitchin, SG5 2UG Category: Personal, Consumer and other Services Class Code: Vehicle Cleaning Services Positional Accuracy: Positioned to address or location	A18NE (N)	794	7	517859 230446
111	Points of Interest - Commercial Services Name: Chipsaway Ltd Location: 10 Half Acre, Hitchin, SG5 2XL Category: Repair and Servicing Class Code: Vehicle Repair, Testing and Servicing Positional Accuracy: Positioned to address or location	A8SE (S)	799	7	517569 228755
112	Points of Interest - Commercial Services Name: Esprit Europa Location: 45 Bancroft, Hitchin, SG5 1LA Category: Transport, Storage and Delivery Class Code: Distribution and Haulage Positional Accuracy: Positioned to address or location	A14SE (E)	928	7	518543 229565
113	Points of Interest - Manufacturing and Production Name: Tank Location: SG5 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to an adjacent address or location	A13NE (NE)	182	7	517789 229753

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
114	Points of Interest - Manufacturing and Production Name: Eastway Enterprise Centre Ltd Location: 7 Paynes Park, Hitchin, SG5 1EH Category: Industrial Features Class Code: Business Parks and Industrial Estates Positional Accuracy: Positioned to address or location	A9NE (SE)	758	7	518276 229213
114	Points of Interest - Manufacturing and Production Name: Eastway Enterprise Centre Ltd Location: 7 Paynes Park, Hitchin, SG5 1EH Category: Industrial Features Class Code: Business Parks and Industrial Estates Positional Accuracy: Positioned to address or location	A9NE (SE)	758	7	518276 229213
114	Points of Interest - Manufacturing and Production Name: Eastway Enterprise Centre Location: 7 Paynes Park, Hitchin, SG5 1EH Category: Industrial Features Class Code: Business Parks and Industrial Estates Positional Accuracy: Positioned to address or location	A9NE (SE)	762	7	518279 229211
115	Points of Interest - Manufacturing and Production Name: Works Location: Not Supplied Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A9NE (SE)	861	7	518314 229074
116	Points of Interest - Manufacturing and Production Name: Tank Location: SG5 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to address or location	A14SE (E)	864	7	518444 229377
116	Points of Interest - Manufacturing and Production Name: Tank Location: SG5 Category: Industrial Features Class Code: Tanks (Generic) Positional Accuracy: Positioned to an adjacent address or location	A9NE (E)	886	7	518447 229300
117	Points of Interest - Manufacturing and Production Name: Works Location: Not Supplied Category: Industrial Features Class Code: Unspecified Works Or Factories Positional Accuracy: Positioned to an adjacent address or location	A9SE (SE)	983	7	518319 228884
118	Points of Interest - Public Infrastructure Name: Shell Hitchin Location: Bedford Road, Hitchin, Hertfordshire, SG5 2TY Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A14NW (NE)	341	7	517916 229855
118	Points of Interest - Public Infrastructure Name: Shell Hitchin Location: Bedford Road, Hitchin, SG5 2TY Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A14NW (NE)	342	7	517917 229854
118	Points of Interest - Public Infrastructure Name: Shell Hitchin Location: Bedford Road, Hitchin, SG5 2TY Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A14NW (NE)	342	7	517917 229855
118	Points of Interest - Public Infrastructure Name: Shell Service Station Location: Bedford Road, Hitchin, SG5 2TY Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A14NW (NE)	343	7	517918 229854
119	Points of Interest - Public Infrastructure Name: Marshall of Hitchin Location: 23 Old Park Road, Hitchin, SG5 2JT Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A9NW (SE)	622	7	518110 229199

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
119	Points of Interest - Public Infrastructure Name: Miller Motor Group (Hitchin) Location: 23 Old Park Road, Hitchin, Hertfordshire, SG5 2JT Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A9NW (SE)	623	7	518100 229183
120	Points of Interest - Public Infrastructure Name: BP Service Station Location: Service Station, Bedford Road, Hitchin, SG5 2UG Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A18NE (N)	794	7	517858 230446
120	Points of Interest - Public Infrastructure Name: Westmill Service Station Location: Service Station, Bedford Road, Hitchin, SG5 2UG Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A18NE (N)	794	7	517858 230446
120	Points of Interest - Public Infrastructure Name: Westmill Filling Station Location: Service Station, Bedford Road, Hitchin, SG5 2UG Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A18NE (N)	794	7	517859 230446
120	Points of Interest - Public Infrastructure Name: Westmill Filling Station Location: Service Station, Bedford Road, Hitchin, SG5 2UG Category: Road And Rail Class Code: Petrol and Fuel Stations Positional Accuracy: Positioned to address or location	A18NE (N)	794	7	517859 230446
121	Points of Interest - Public Infrastructure Name: Bus Depot Location: SG5 Category: Public Transport, Stations and Infrastructure Class Code: Bus and Coach Stations, Depots and Companies Positional Accuracy: Positioned to an adjacent address or location	A14NE (E)	894	7	518516 229703
122	Points of Interest - Recreational and Environmental Name: Play Area Location: SG5 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A13NE (NE)	200	7	517744 229839
123	Points of Interest - Recreational and Environmental Name: Play Area Location: SG5 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A18SW (N)	522	7	517421 230246
124	Points of Interest - Recreational and Environmental Name: Play Area Location: SG5 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A9NW (SE)	627	7	518066 229135
125	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	A18NE (N)	823	7	517770 230513
126	Points of Interest - Recreational and Environmental Name: Play Area Location: SG5 Category: Recreational Class Code: Playgrounds Positional Accuracy: Positioned to an adjacent address or location	A19NW (NE)	947	7	518155 230464

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
127	Areas of Adopted Green Belt Authority: North Hertfordshire District Council Plan Name: North Hertfordshire District Local Plan Status: Adopted Plan Date: 30th April 1996	A13SW (N)	0	8	517546 229634
128	Areas of Unadopted Green Belt Authority: North Hertfordshire District Council Plan Name: North Hertfordshire Local Plan Status: Submission Draft Plan Date: 11th April 2017	A13NW (W)	0	8	517489 229654
129	Local Nature Reserves Name: Oughtonhead Common Multiple Area: Y Area (m2): 173489.6 Source: Natural England Designation Date: 1st January 2001	A12NE (NW)	543	9	516990 229883
130	Nitrate Vulnerable Zones Name: Anglian Chalk Description: Groundwater Source: Environment Agency, Head Office	A13SW (N)	0	4	517546 229634
131	Nitrate Vulnerable Zones Name: Great Ouse Nvz Description: Surface Water Source: Environment Agency, Head Office	A13SW (N)	0	4	517546 229634
132	Sites of Special Scientific Interest Name: Oughtonhead Lane Multiple Areas: N Total Area (m2): 9811.33 Source: Natural England Reference: 1001948 Designation Details: Geological Conservation Review Designation Date: 1st January 1989 Date Type: Notified Designation Details: Site Of Special Scientific Interest Designation Date: 1st January 1989 Date Type: Notified	A13NW (NW)	254	9	517273 229815

Agency & Hydrological	Version	Update Cycle
Contaminated Land Register Entries and Notices Central Bedfordshire Council - Environmental Health Department Mid Bedfordshire District Council (now part of Central Bedfordshire Council) - Environmental Health Department Environment Agency - Head Office North Hertfordshire District Council - Environmental Health Department	January 2020 July 2008 June 2020 October 2014	Annually Not Applicable Annually Annual Rolling Update
Discharge Consents Environment Agency - Anglian Region Environment Agency - Thames Region	October 2020 October 2020	Quarterly Quarterly
Enforcement and Prohibition Notices Environment Agency - Anglian Region Environment Agency - Thames Region	March 2013 March 2013	Annual Rolling Update Annual Rolling Update
Integrated Pollution Controls Environment Agency - Anglian Region Environment Agency - Thames Region	October 2008 October 2008	Variable Variable
Integrated Pollution Prevention And Control Environment Agency - Anglian Region Environment Agency - South East Region - North East Thames Area Environment Agency - Thames Region	October 2020 October 2020 October 2020	Quarterly Quarterly Quarterly
Local Authority Integrated Pollution Prevention And Control 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	December 2008 November 2014 September 2014	Not Applicable Variable Variable
Local Authority Pollution Prevention and Controls 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	December 2008 November 2014 September 2014	Not Applicable Annually Annual Rolling Update
Local Authority Pollution Prevention and Control Enforcements 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	December 2008 November 2014 September 2014	Not Applicable Variable Variable
Nearest Surface Water Feature Ordnance Survey	October 2020	
Pollution Incidents to Controlled Waters Environment Agency - Anglian Region Environment Agency - Thames Region	September 1999 September 1999	Not Applicable Not Applicable
Prosecutions Relating to Authorised Processes Environment Agency - Anglian Region Environment Agency - Thames Region	March 2013 March 2013	Annual Rolling Update Annual Rolling Update
Prosecutions Relating to Controlled Waters Environment Agency - Anglian Region Environment Agency - Thames Region	March 2013 March 2013	Annual Rolling Update Annual Rolling Update
Registered Radioactive Substances Environment Agency - Anglian Region Environment Agency - Thames Region	June 2016 June 2016	
River Quality Environment Agency - Head Office	November 2001	Not Applicable
River Quality Biology Sampling Points Environment Agency - Head Office	July 2012	Annually
River Quality Chemistry Sampling Points Environment Agency - Head Office	July 2012	Annually

Agency & Hydrological	Version	Update Cycle
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 2020 October 2020 October 2020	Quarterly Quarterly Quarterly
Water Abstractions Environment Agency - Anglian Region Environment Agency - Thames Region	October 2020 October 2020	Quarterly Quarterly
Water Industry Act Referrals Environment Agency - Anglian Region Environment Agency - Thames Region	October 2017 October 2017	Quarterly Quarterly
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	Annually
Superficial Aquifer Designations Environment Agency - Head Office	January 2018	Annually
Source Protection Zones Environment Agency - Head Office	October 2019	Quarterly
Extreme Flooding from Rivers or Sea without Defences Environment Agency - Head Office	September 2020	Quarterly
Flooding from Rivers or Sea without Defences Environment Agency - Head Office	September 2020	Quarterly
Areas Benefiting from Flood Defences Environment Agency - Head Office	September 2020	Quarterly
Flood Water Storage Areas Environment Agency - Head Office	September 2020	Quarterly
Flood Defences Environment Agency - Head Office	September 2020	Quarterly
OS Water Network Lines Ordnance Survey	September 2020	Quarterly
Surface Water 1 in 30 year Flood Extent Environment Agency - Head Office	October 2013	Annually
Surface Water 1 in 100 year Flood Extent Environment Agency - Head Office	October 2013	Annually
Surface Water 1 in 1000 year Flood Extent Environment Agency - Head Office	October 2013	Annually
Surface Water Suitability Environment Agency - Head Office	October 2013	Annually
BGS Groundwater Flooding Susceptibility British Geological Survey - National Geoscience Information Service	May 2013	Annually

Waste	Version	Update Cycle
BGS Recorded Landfill Sites British Geological Survey - National Geoscience Information Service	June 1996	Not Applicable
Historical Landfill Sites Environment Agency - Head Office	October 2019	Quarterly
Integrated Pollution Control Registered Waste Sites Environment Agency - Anglian Region Environment Agency - Thames Region	October 2008 October 2008	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	October 2020 October 2020 October 2020	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	October 2020 October 2020 October 2020	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	May 2000 May 2000 May 2000 May 2000	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	May 2000 May 2000 May 2000 May 2000	Not Applicable Not Applicable Not Applicable Not Applicable
Potentially Infilled Land (Non-Water) Landmark Information Group Limited	December 1999	Not Applicable
Potentially Infilled Land (Water) Landmark Information Group Limited	December 1999	Not Applicable
Registered Landfill Sites Environment Agency - Anglian Region - Central Area Environment Agency - Thames Region - North East Area	March 2003 March 2003	Not Applicable Not Applicable
Registered Waste Transfer Sites Environment Agency - Anglian Region - Central Area Environment Agency - Thames Region - North East Area	March 2003 March 2003	Not Applicable Not Applicable
Registered Waste Treatment or Disposal Sites Environment Agency - Thames Region - North East Area Environment Agency - Anglian Region - Central Area	June 2015 March 2003	Not Applicable Not Applicable

Hazardous Substances	Version	Update Cycle
Control of Major Accident Hazards Sites (COMAH) Health and Safety Executive	April 2018	Bi-Annually
Explosive Sites Health and Safety Executive	March 2017	Annually
Notification of Installations Handling Hazardous Substances (NIHHS) Health and Safety Executive	November 2000	Not Applicable
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) Mid Bedfordshire District Council (now part of Central Bedfordshire Council)	February 2016 February 2016 February 2016 July 2008 May 2008	Variable Variable Variable Annual Rolling Update Not Applicable
Planning Hazardous Substance Consents 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) Mid Bedfordshire District Council (now part of Central Bedfordshire Council)	February 2016 February 2016 February 2016 July 2008 May 2008	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	Not Applicable
BGS Estimated Soil Chemistry British Geological Survey - National Geoscience Information Service	October 2015	Annually
BGS Recorded Mineral Sites British Geological Survey - National Geoscience Information Service	November 2020	Bi-Annually
CBSCB Compensation District Cheshire Brine Subsidence Compensation Board (CBSCB)	August 2011	Not Applicable
Coal Mining Affected Areas The Coal Authority - Property Searches	March 2014	Annual Rolling Update
Mining Instability Ove Arup & Partners	October 2000	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	Annually
Potential for Compressible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	Annually
Potential for Ground Dissolution Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	Annually
Potential for Landslide Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	Annually
Potential for Running Sand Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	Annually
Potential for Shrinking or Swelling Clay Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	Annually
Radon Potential - Radon Affected Areas British Geological Survey - National Geoscience Information Service	July 2011	Annually
Radon Potential - Radon Protection Measures British Geological Survey - National Geoscience Information Service	July 2011	Annually

Industrial Land Use	Version	Update Cycle
Contemporary Trade Directory Entries Thomson Directories	October 2020	Quarterly
Fuel Station Entries Catalist Ltd - Experian	September 2020	Quarterly
Gas Pipelines National Grid	September 2020	
Points of Interest - Commercial Services PointX	December 2020	Quarterly
Points of Interest - Education and Health PointX	December 2020	Quarterly
Points of Interest - Manufacturing and Production PointX	December 2020	Quarterly
Points of Interest - Public Infrastructure PointX	December 2020	Quarterly
Points of Interest - Recreational and Environmental PointX	December 2020	Quarterly
Underground Electrical Cables National Grid	August 2020	

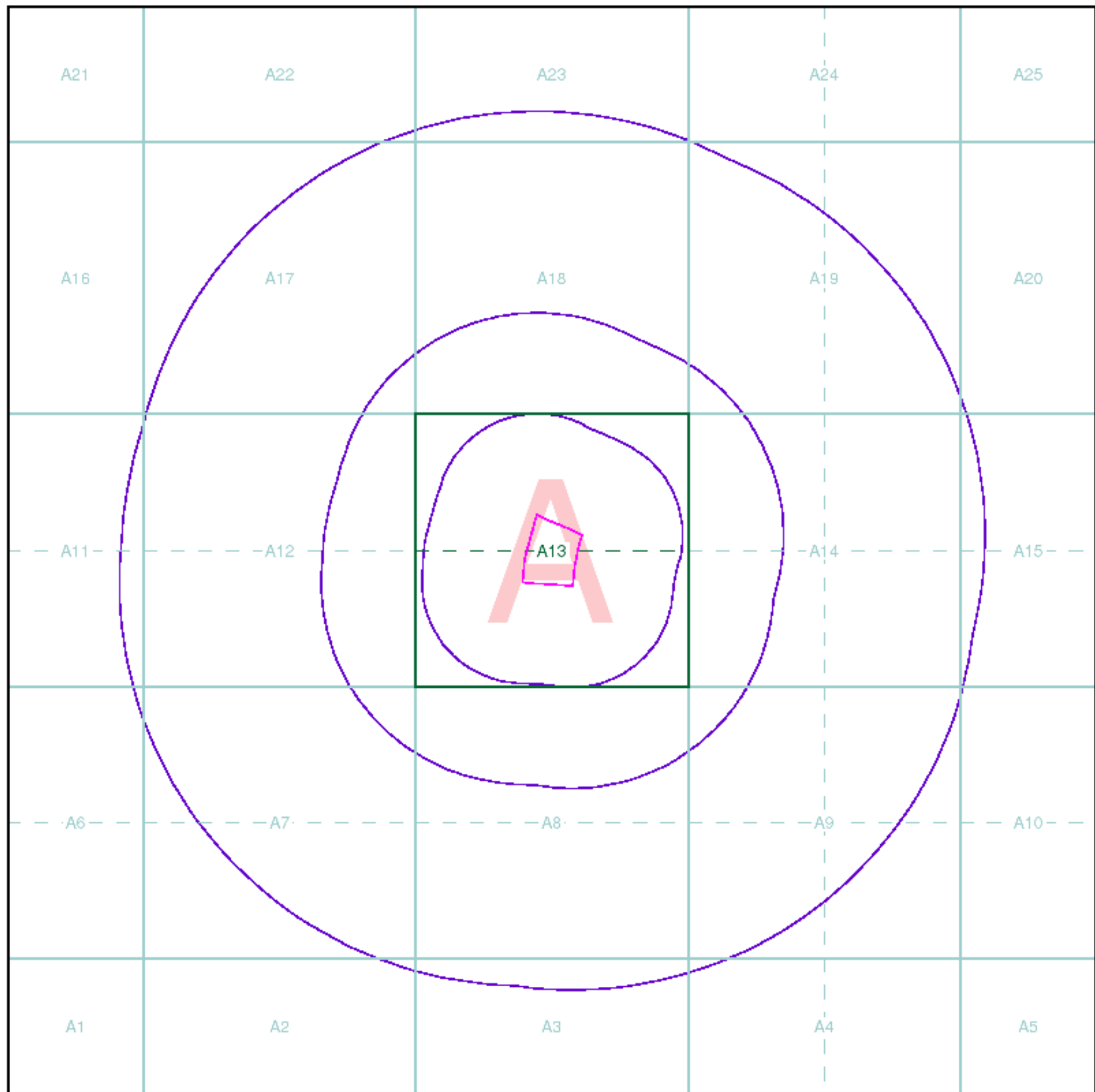
Sensitive Land Use	Version	Update Cycle
Ancient Woodland Natural England	April 2020	Bi-Annually
Areas of Adopted Green Belt Mid Bedfordshire District Council (now part of Central Bedfordshire Council) - Environmental Health Department North Hertfordshire District Council Central Bedfordshire Council - Planning Department	June 2020 June 2020 May 2011	As notified As notified As notified
Areas of Unadopted Green Belt Mid Bedfordshire District Council (now part of Central Bedfordshire Council) - Environmental Health Department North Hertfordshire District Council Central Bedfordshire Council - Planning Department	June 2020 June 2020 May 2011	As notified As notified As notified
Areas of Outstanding Natural Beauty Natural England	June 2019	Bi-Annually
Environmentally Sensitive Areas Natural England	January 2017	
Forest Parks Forestry Commission	April 1997	Not Applicable
Local Nature Reserves Natural England	April 2020	Bi-Annually
Marine Nature Reserves Natural England	July 2019	Bi-Annually
National Nature Reserves Natural England	July 2019	Bi-Annually
National Parks Natural England	April 2017	Bi-Annually
Nitrate Sensitive Areas Natural England	April 2016	Not Applicable
Nitrate Vulnerable Zones Environment Agency - Head Office Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	December 2017 October 2015	Bi-Annually
Ramsar Sites Natural England	August 2020	Bi-Annually
Sites of Special Scientific Interest Natural England	May 2020	Bi-Annually
Special Areas of Conservation Natural England	July 2020	Bi-Annually
Special Protection Areas Natural England	September 2020	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	
Centre for Ecology and Hydrology	
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	Environment Agency - National Customer Contact Centre (NCCC) PO Box 544, Templeborough, Rotherham, S60 1BY	Telephone: 03708 506 506 Email: enquiries@environment-agency.gov.uk
3	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
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	North Hertfordshire District Council Council Offices, Gernon Road, Letchworth, Hertfordshire, SG6 3JF	Telephone: 01462 474000 Fax: 01462 474558 Website: www.north-herts.gov.uk
9	Natural England County Hall, Spetchley Road, Worcester, WR5 2NP	Telephone: 0300 060 3900 Email: enquiries@naturalengland.org.uk Website: www.naturalengland.org.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 Duffield, Green Earth Management Ltd, Building 2, Broomfield Park, Coggeshall Road, Earls Colne, Essex, CO6 2JX

Order Details

Order Number: 271111641_1_1
Customer Ref: 1873
National Grid Reference: 517550, 229630
Site Area (Ha): 1.86
Search Buffer (m): 1000

Site Details

Land South of Oughtonhead Lane, Hitchin, Herts, SG5 2QY

Full Terms and Conditions can be found on the following link:
<http://www.landmarkinfo.co.uk/Terms/Show/515>



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



Industrial Land Use Map

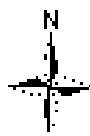
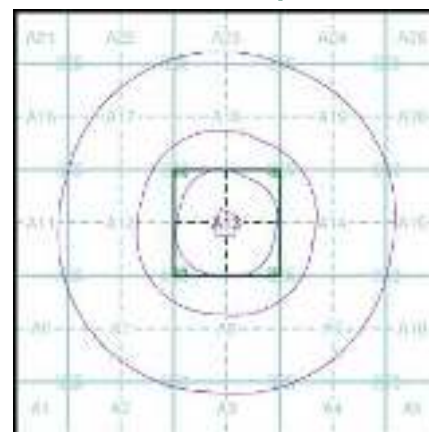
General

- Aqueduct
- Specified Boundary
- Boundary Reference Point
- Brick
- Map IC

Industrial Land Use

- Landmark - Trade - Retail - Pub -
- Landmark - Pub -
- Gas Pipeline
- Point of Interest - Commercial Services
- Point of Interest - Education and Health
- Point of Interest - Manufacturing and Production
- Point of Interest - Public Infrastructure
- Point of Interest - Recreational and Environmental
- Underground Electrical Cables

Industrial Land Use Map - Slice A



Order Details

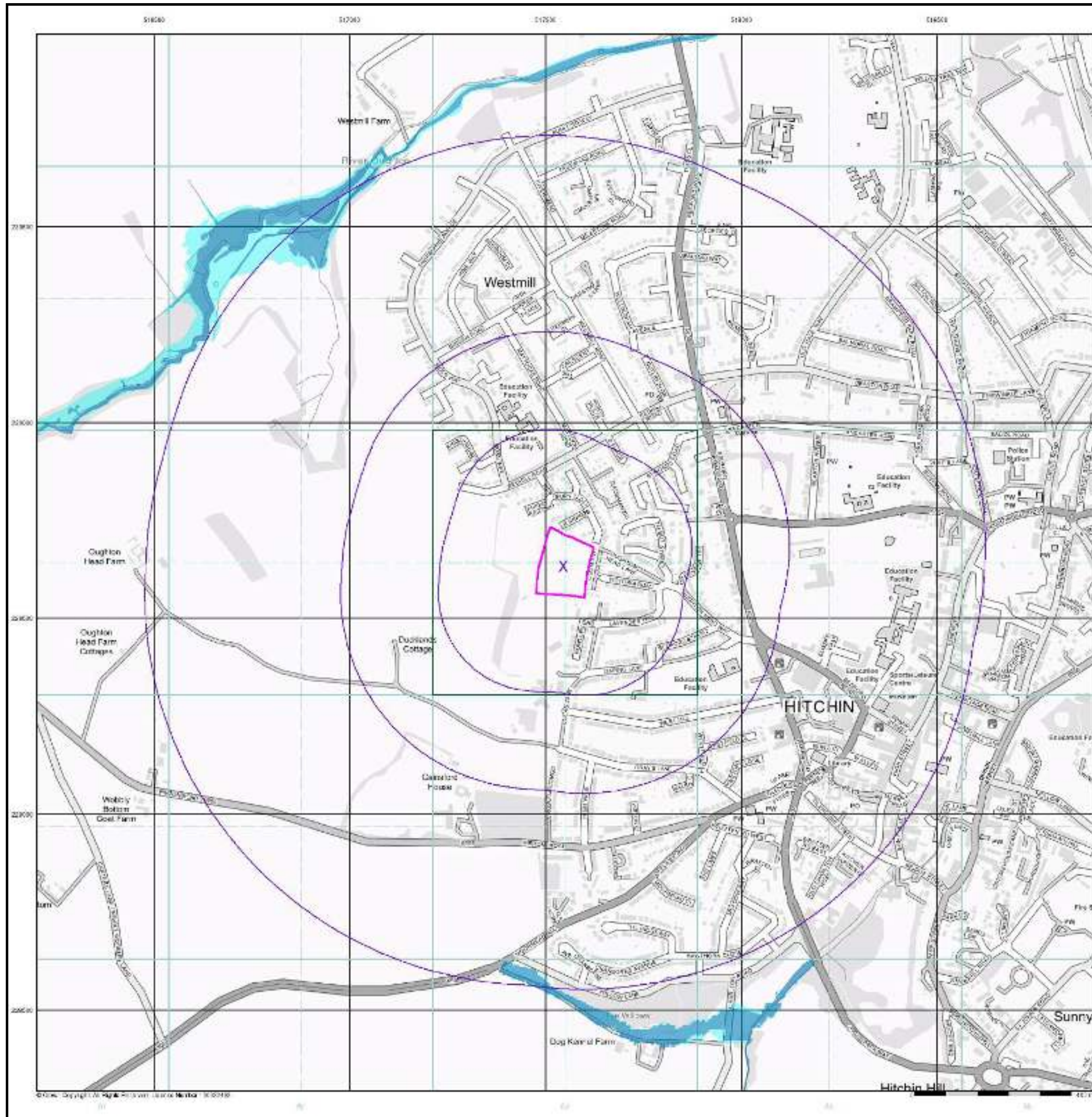
Order Number: 271111641_1_1
 Customer Ref: 1873
 National Grid Reference: 517550, 229630
 Slice: A
 Site Area (Ha): 1.86
 Search Buffer (m): 1000

Site Details

Land South of Oughtonhead Lane, Hitchin, Herts, SG5 2QY



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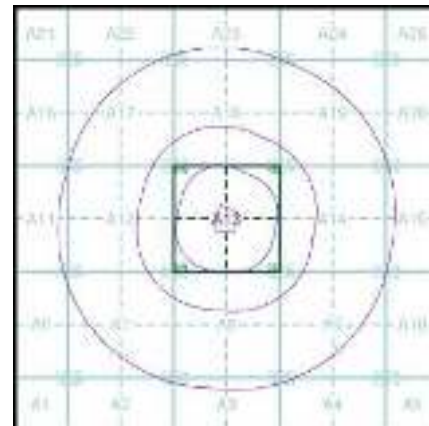
General

- X Study Site
- Search Buffer
- X Flood Extent

Agency and Hydrological (Flood)

- Flood Extent (Flood Extent with Defences (2006))
- Flood Extent (Flood Extent without Defences (2006))
- Area Benefiting from Flood Defences
- Flood Extent (Flood Extent)
- Flood Extent

Flood Map - Slice A



Order Details

Order Number: 271111641_1_1
 Customer Ref: 1873
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 Site Area (Ha): 1.86
 Search Buffer (m): 1000

Site Details

Land South of Oughtonhead Lane, Hitchin, Herts, SG5 2QY



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General

- Study Area
- Search Buffer
- X Borehole Location
- Map ID
- | Boundary of Local Authority

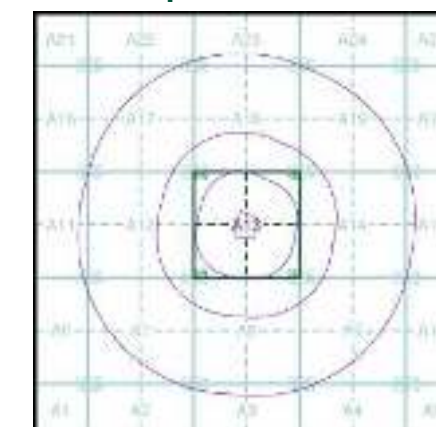
Agency and Hydrological (Boreholes)

- Borehole (Public)
- Borehole (Private)
- Borehole (Public)
- Confined
- Other

For Borehole information please refer to the Borehole .csv file which accompanied this slice.

A copy of the BGS Borehole Ordering Form is available to download from the Support section of www.envirocheck.co.uk.

Borehole Map - Slice A



Order Details

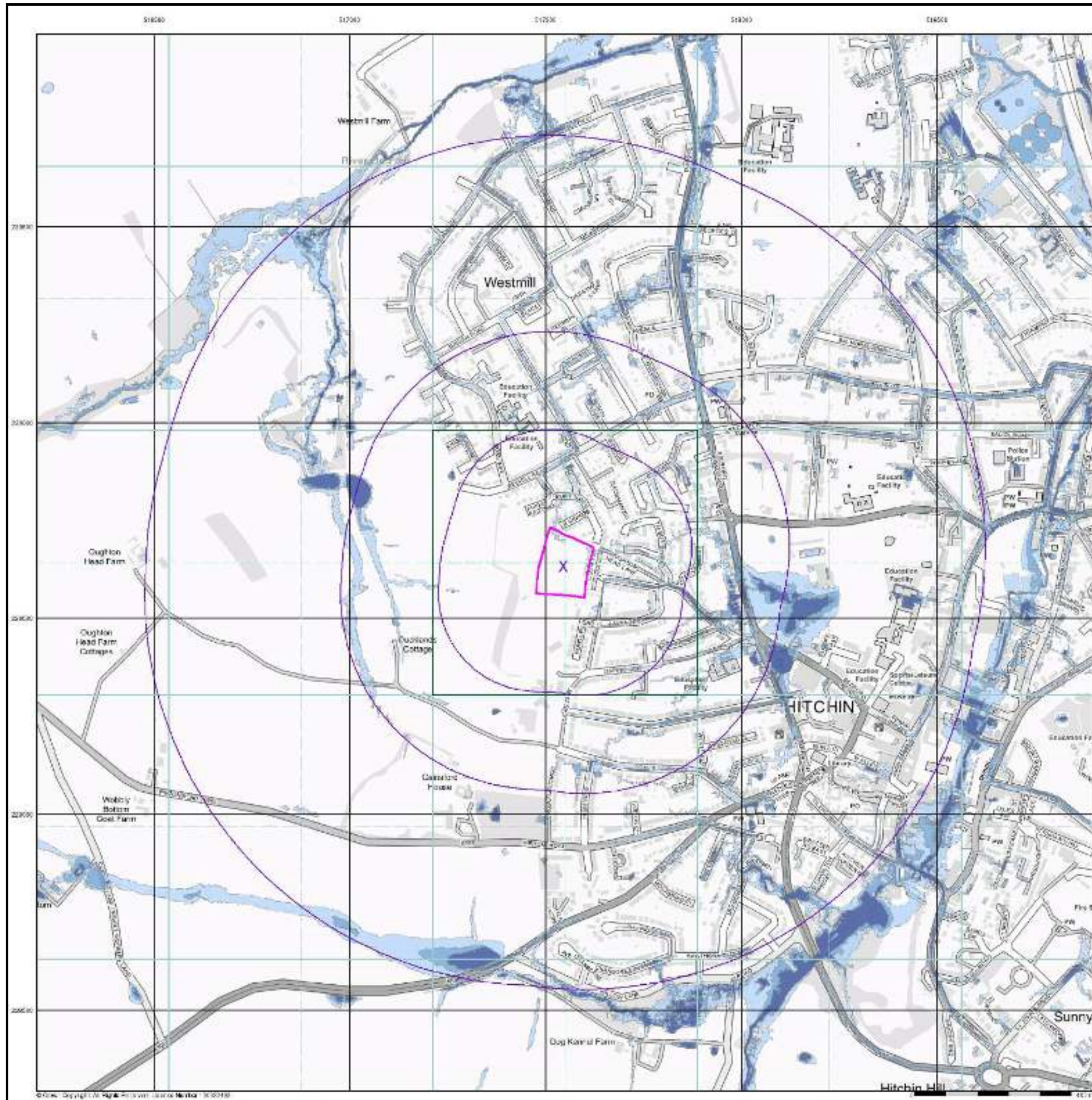
Order Number: 271111641_1_1
 Customer Ref: 1873
 National Grid Reference: 517550, 229630
 Slice: A
 Site Area (Ha): 1.86
 Search Buffer (m): 1000

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General

- X Study Location
- Search Buffer
- X Flood Risk Assessment Point

Risk of Flooding from Surface Water

- High - 50 Year Return Period
- Medium - 100 Year Return Period
- Low - 100 Year Return Period

Suitability

- Very Low Suitability
- Low Suitability
- Medium Suitability
- High Suitability
- Very High Suitability
- Excellent

E/NRW Suitability Map - Slice A



Order Details

Order Number: 27111641_1_1
 Customer Ref: 1873
 National Grid Reference: 517550, 229630
 Slice: A
 Site Area (Ha): 1.86
 Search Buffer (m): 1000

Site Details

Land South of Oughtonhead Lane, Hitchin, Herts, SG5 2QY



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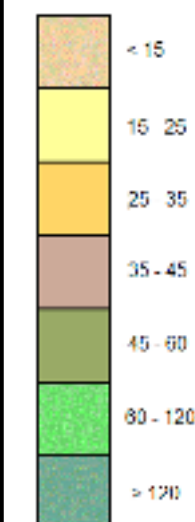


General

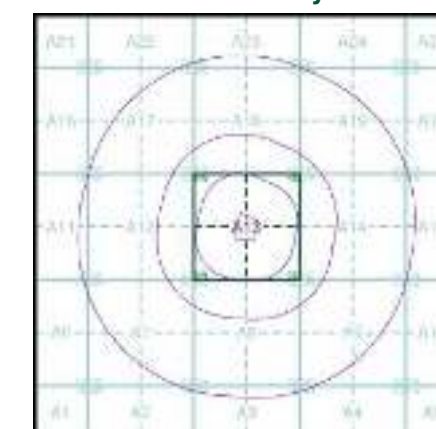
Specified Site Specific Buffer(s) Hatched/Excluded Area

Estimated Soil Chemistry Arsenic

Arsenic Concentrations mg/kg



Estimated Soil Chemistry Arsenic - Slice A



Order Details

Order Details: 271111641_1_1
Customer Ref: 1873
National Grid Reference: 517550, 229630
Slice: A
Site Area (Ha): 1.86
Search Buffer (m): 1000

Site Details

Land South of Oughtonhead Lane, Hitchin, Herts, SG5 2QY



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Fax: 0844 844 9951
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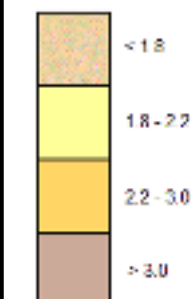


General

Specified Site Specified Buffer(s) Delineation Features Field

Estimated Soil Chemistry Cadmium

Cadmium Concentrations mg/kg



Estimated Soil Chemistry Cadmium - Slice A



Order Details

Order Details: 271111641_1_1
Customer Ref: 1873
National Grid Reference: 517550, 229630
Slice: A
Site Area (Ha): 1.86
Search Buffer (m): 1000

Site Details

Land South of Oughtonhead Lane, Hitchin, Herts, SG5 2QY



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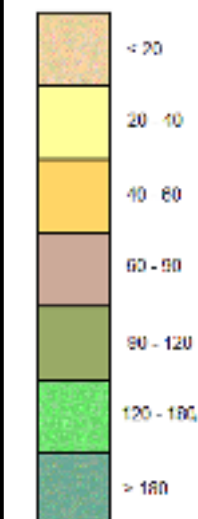


General

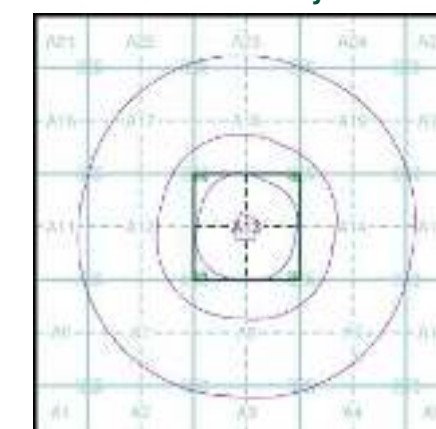
X Specified Site
 X Specified Buffering
 X Existing Infrastructure Point

Estimated Soil Chemistry Chromium

Chromium Concentrations mg/kg



Estimated Soil Chemistry Chromium - Slice A



Order Details

Order Details: 271111641_1_1
 Customer Ref: 1873
 National Grid Reference: 517550, 229630
 Slice: A
 Site Area (Ha): 1.86
 Search Buffer (m): 1000

Site Details

Land South of Oughtonhead Lane, Hitchin, Herts, SG5 2QY

Landmark
 INFORMATION GROUP

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

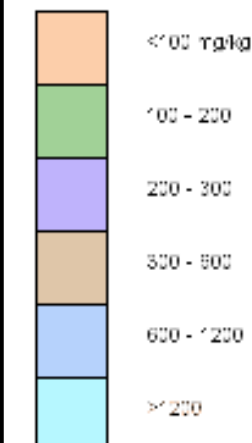


General

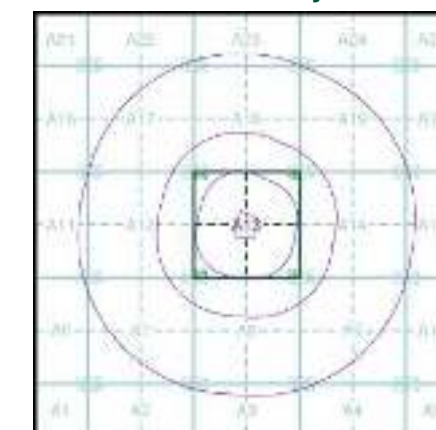
X Specified Site
 X Specified Parameter
 X Estimated Soil Chemistry Lead

Estimated Soil Chemistry Lead

Lead Concentrations mg/kg



Estimated Soil Chemistry Lead - Slice A



Order Details

Order Details: 271111641_1_1
 Customer Ref: 1873
 National Grid Reference: 517550, 229630
 Slice: A
 Site Area (Ha): 1.86
 Search Buffer (m): 1000

Site Details

Land South of Oughtonhead Lane, Hitchin, Herts, SG5 2QY



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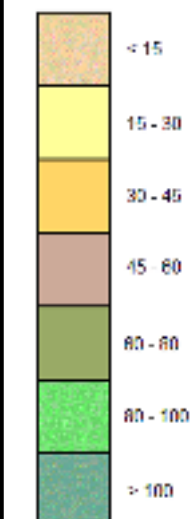


General

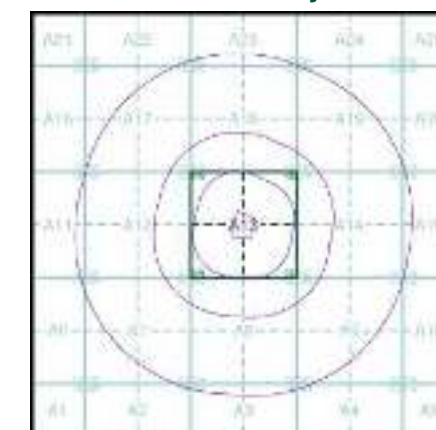
Specified Site Specified Boundary Designated Features Field

Estimated Soil Chemistry Nickel

Nickel Concentrations mg/kg



Estimated Soil Chemistry Nickel - Slice A



Order Details

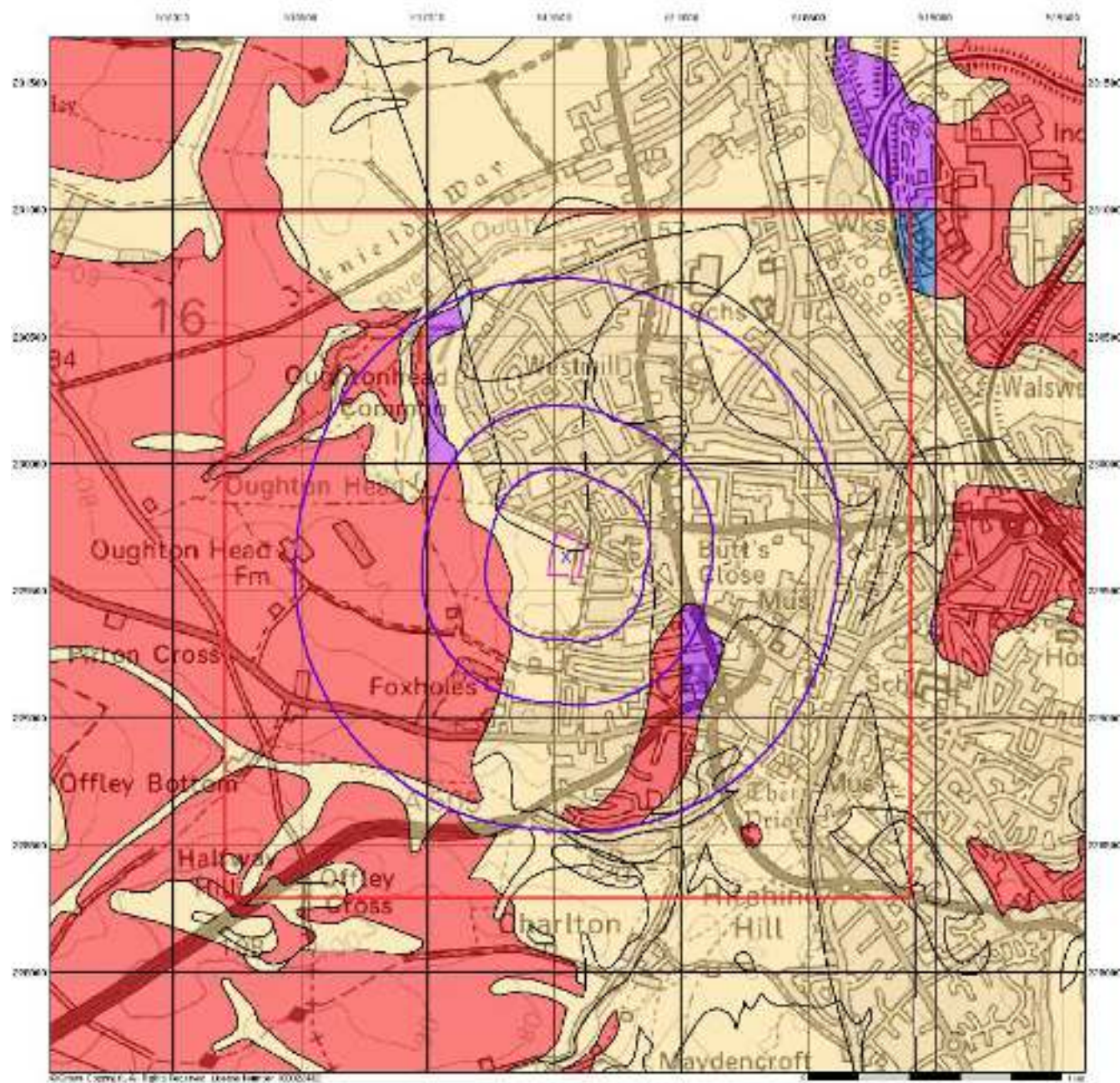
Order Details: 271111641_1_1
 Customer Ref: 1873
 National Grid Reference: 517550, 229630
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 Search Buffer (m): 1000

Site Details

Land South of Oughtonhead Lane, Hitchin, Herts, SG5 2QY



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Groundwater Vulnerability

General

Search Buffer
 Boundary
 Watercourse

Agency and Hydrological

Bedrock Aquifers

- High Vulnerability Permeable Aquifer
- High Vulnerability Permeable Aquifer
- Medium Vulnerability Permeable Aquifer
- Low Vulnerability Permeable Aquifer
- Low Vulnerability Permeable Aquifer
- Low Vulnerability Permeable Aquifer
- Low Vulnerability Permeable Aquifer
- Low Vulnerability Permeable Aquifer

Superficial Aquifers

- High Vulnerability Permeable Aquifer
- Medium Vulnerability Permeable Aquifer
- Low Vulnerability Permeable Aquifer
- Low Vulnerability Permeable Aquifer
- Low Vulnerability Permeable Aquifer
- Low Vulnerability Permeable Aquifer
- Low Vulnerability Permeable Aquifer
- Low Vulnerability Permeable Aquifer

Unproductive Aquifer

Boundary

Site Sensitivity Context Map - Slice A



Order Details

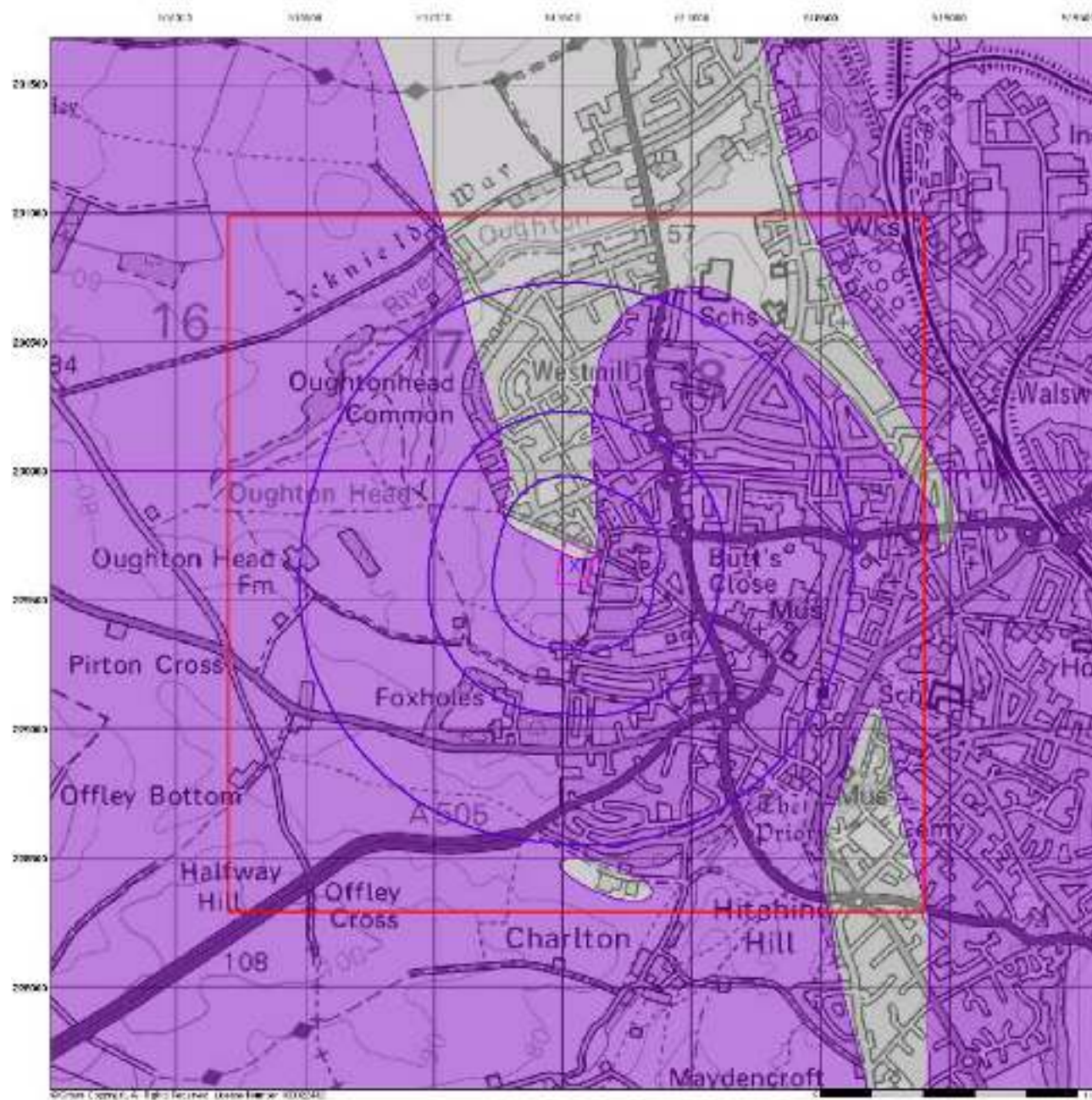
Order Number: 27111641_1_1
 Customer Ref: 1873
 National Grid Reference: 517550, 229630
 Slice: A
 Site Area (Ha): 1.86
 Search Buffer (m): 1000

Site Details

Land South of Oughtonhead Lane, Hitchin, Herts, SG5 2QY



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



Bedrock Aquifer Designation

SHIHUI

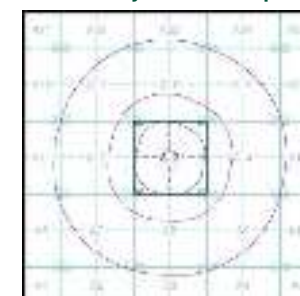
 7 = 66
 2076, 2077
 1010100000100

Agency and Hydrological

Stacked Choice

-  Entrance Application
-  Secondary School
-  Secondary School
-  Secondary School
-  Entrance Test Score
-  University
-  University

Site Sensitivity Context Map - Slice A



Order Details

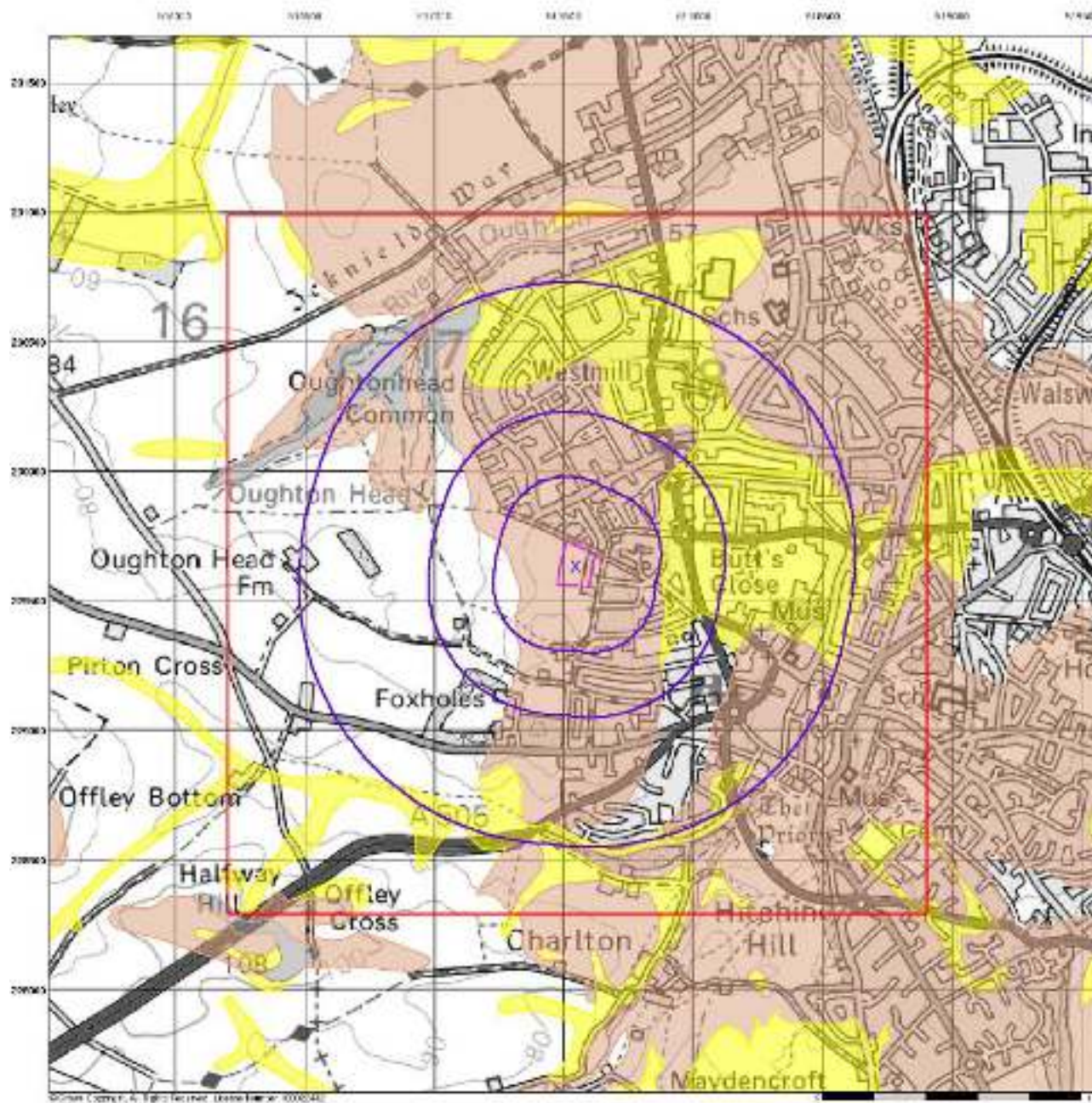
Order Number:	271111641_1_1
Customer Ref:	1873
National Grid Reference:	517550, 229630
Slice:	A
Site Area (Ha):	1.86
Search Buffer (m):	1000

Site Details

Land South of Oughtonhead Lane, Hitchin, Herts. SG5 2QY

Landmark
A SPENCER HUGHES COMPANY

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



Superficial Aquifer Designation

General

Search Buffer Designation Implementation

Agency and Hydrological

Geological Classes

- Primary Aquifer
- Secondary Aquifer
- Secondary Aquifer
- Secondary Aquifer
- Unconsolidated Aquifer
- Unconsolidated
- Unconsolidated Aquifer

Site Sensitivity Context Map - Slice A



Order Details

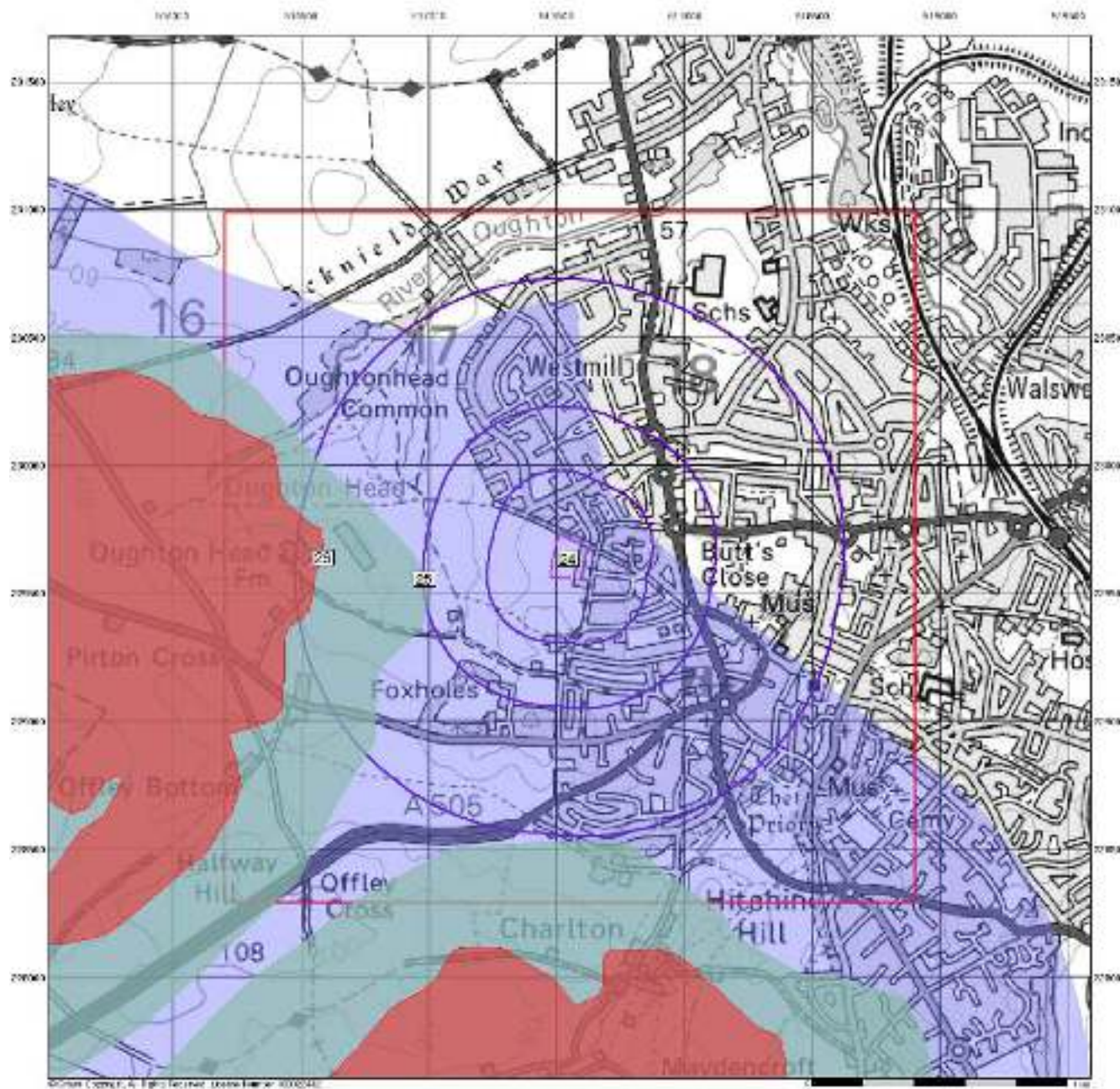
Order Number: 27111641_1_1
 Customer Ref: 1873
 National Grid Reference: 517550, 229630
 Slice: A
 Site Area (Ha): 1.86
 Search Buffer (m): 1000

Site Details

Land South of Oughtonhead Lane, Hitchin, Herts, SG5 2QY



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



Source Protection Zones

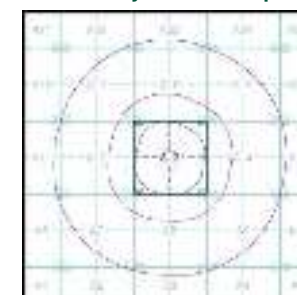
Ground

Catchment
 SPZ
 Groundwater Protection Zone

Agency and Hydrological

Flood Risk
 Flood Risk (Flood Risk Assessment)
 Flood Risk (Flood Risk Assessment)
 Flood Risk (Flood Risk Assessment)
 Flood Risk (Flood Risk Assessment)
 Flood Risk (Flood Risk Assessment)
 Flood Risk (Flood Risk Assessment)

Site Sensitivity Context Map - Slice A



Order Details

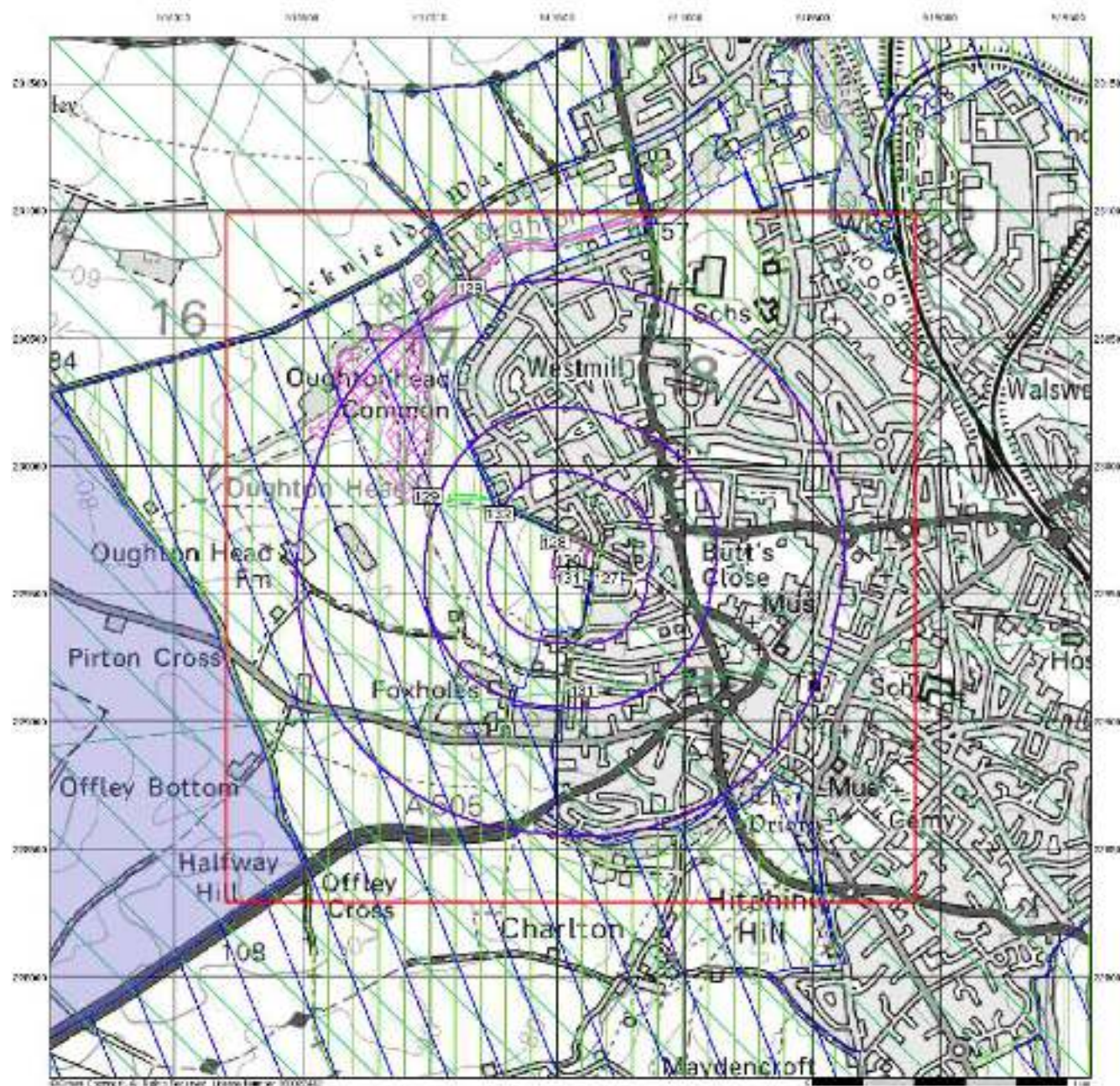
Order Number: 27111641_1_1
 Customer Ref: 1873
 National Grid Reference: 517550, 229630
 Slice: A
 Site Area (Ha): 1.86
 Search Buffer (m): 1000

Site Details

Land South of Oughtonhead Lane, Hitchin, Herts, SG5 2QY

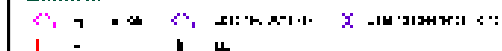


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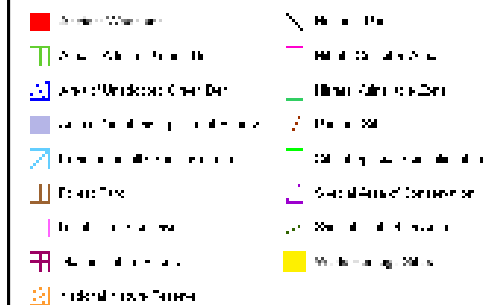


Sensitive Land Uses

СНИНІ



Simulation Loop Count



Site Sensitivity Context Map - Slice A



Order Details

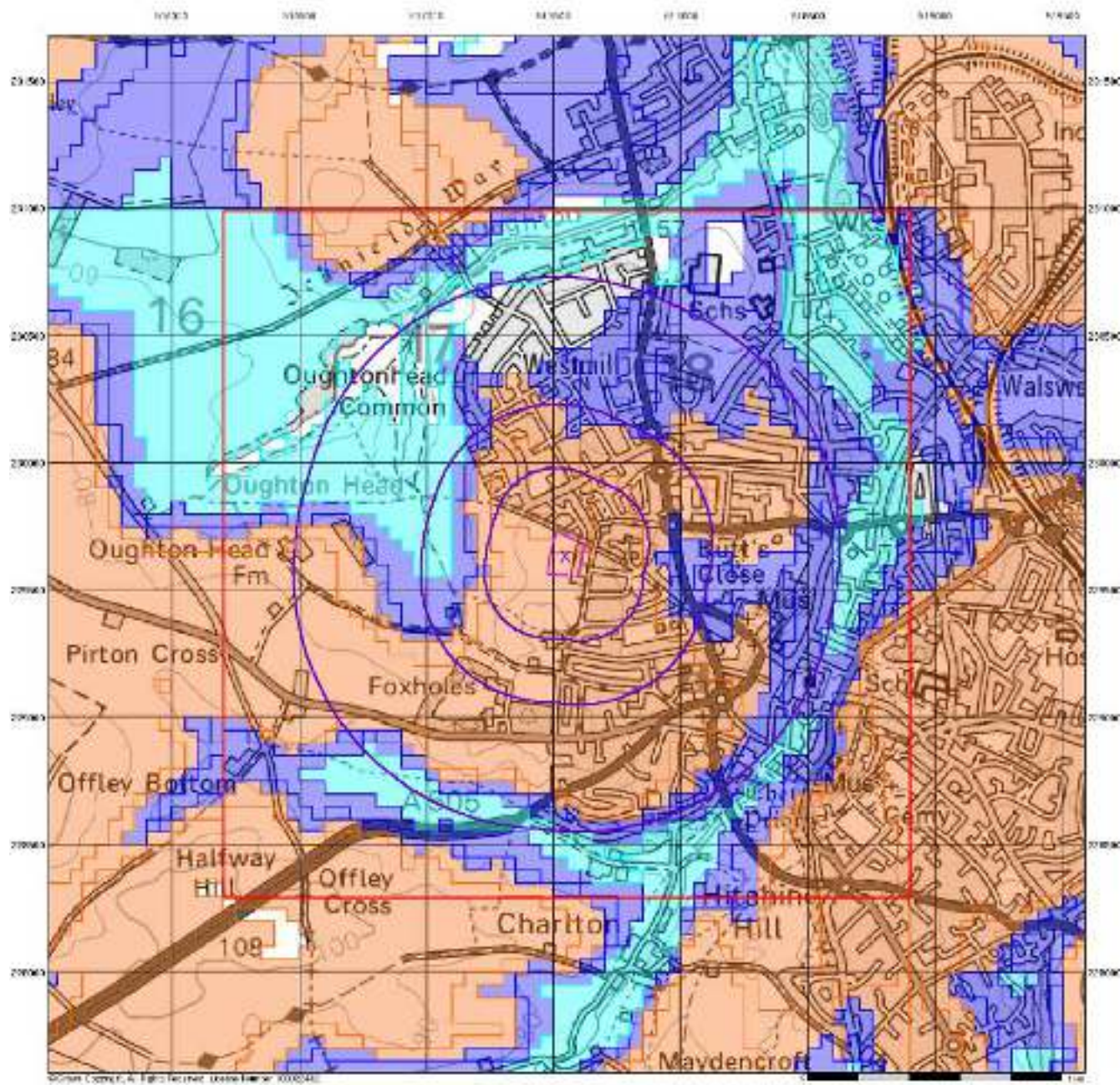
Order Number:	271111641_1_1
Customer Ref:	1873
National Grid Reference:	517550, 229630
Slice:	A
Site Area (Ha):	1.86
Search Buffer (m):	1000

Site Details

Land South of Oughtonhead Lane, Hitchin, Herts. SG5 2QY



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



BGS Flood GFS Data

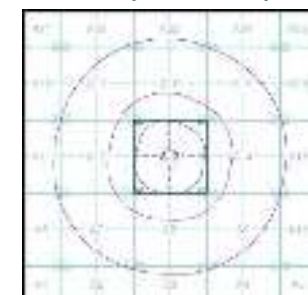
General

- General Site
- General Flood Risk
- General Flood Risk

Agency and Hydrological (Flood)

- Limited Potential for Groundwater Flooding in Coastal
- Potential for Groundwater Flooding of Property Situated Below Ground Level
- Potential for Groundwater Flooding in Coastal Subsoil

Site Sensitivity Context Map - Slice A



Order Details

Order Number: 27111641_1_1
 Customer Ref: 1873
 National Grid Reference: 517550, 229630
 Slice: A
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Site Details

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Geology 1:50,000 Maps Legends

Artificial Ground and Landslip

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	MGR	Made Ground (Undivided)	Artificial Deposit	Not Supplied - Holocene
	WGR	Worked Ground (Undivided)	Void	Not Supplied - Holocene
	WMGR	Infilled Ground	Artificial Deposit	Not Supplied - Holocene

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
		Faults		

Superficial Geology

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	ALV	Alluvium	Clay, Silt, Sand and Gravel	Not Supplied - Holocene
	LOFT	Lowestoft Formation	Diamicton	Not Supplied - Anglian
	ODT	Oadby Member	Diamicton	Not Supplied - Anglian
	GFDMP	Glaciofluvial Deposits, Mid Pleistocene	Sand and Gravel	Not Supplied - Cromerian
	GLLMP	Glaciolacustrine Deposits, Mid Pleistocene	Clay and Silt	Not Supplied - Cromerian
	PEAT	Peat	Peat	Not Supplied - Quaternary
	HEAD	Head	Clay, Silt, Sand and Gravel	Not Supplied - Quaternary
	RTDU	River Terrace Deposits (Undifferentiated)	Sand and Gravel	Not Supplied - Quaternary

Bedrock and Faults

Map Colour	Lex Code	Rock Name	Rock Type	Min and Max Age
	WMCH	West Melbury Marly Chalk Formation	Chalk	Not Supplied - Cenomanian
	ZZCH	Zig Zag Chalk Formation	Chalk	Not Supplied - Cenomanian
	MR	Melbourn Rock Member	Chalk	Not Supplied - Cenomanian
	HNCK	Holywell Nodular Chalk Formation and New Pit Chalk Formation (Undifferentiated)	Chalk	Not Supplied - Cenomanian
	TTST	Totternhoe Stone Member	Chalk	Not Supplied - Cenomanian
	GLT	Gault Formation	Mudstone	Not Supplied - Albian



Geology 1:50,000 Maps

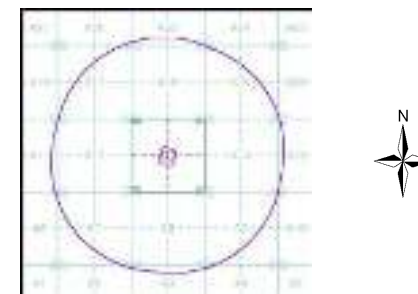
This report contains geological map extracts taken from the BGS Digital Geological map of Great Britain at 1:50,000 scale and is designed for users carrying out preliminary site assessments who require geological maps for the area around the site. This mapping may be more up to date than previously published paper maps.

The various geological layers - artificial and landslip deposits, superficial geology and solid (bedrock) geology are displayed in separate maps, but superimposed on the final 'Combined Surface Geology' map. All map legends feature on this page. Not all layers have complete nationwide coverage, so availability of data for relevant map sheets is indicated below.

Geology 1:50,000 Maps Coverage

Map ID:	1
Map Sheet No:	221
Map Name:	Hitchin
Map Date:	1995
Bedrock Geology:	Available
Superficial Geology:	Available
Artificial Geology:	Available
Faults:	Not Supplied
Landslip:	Available
Rock Segments:	Not Supplied

Geology 1:50,000 Maps - Slice A



Order Details:

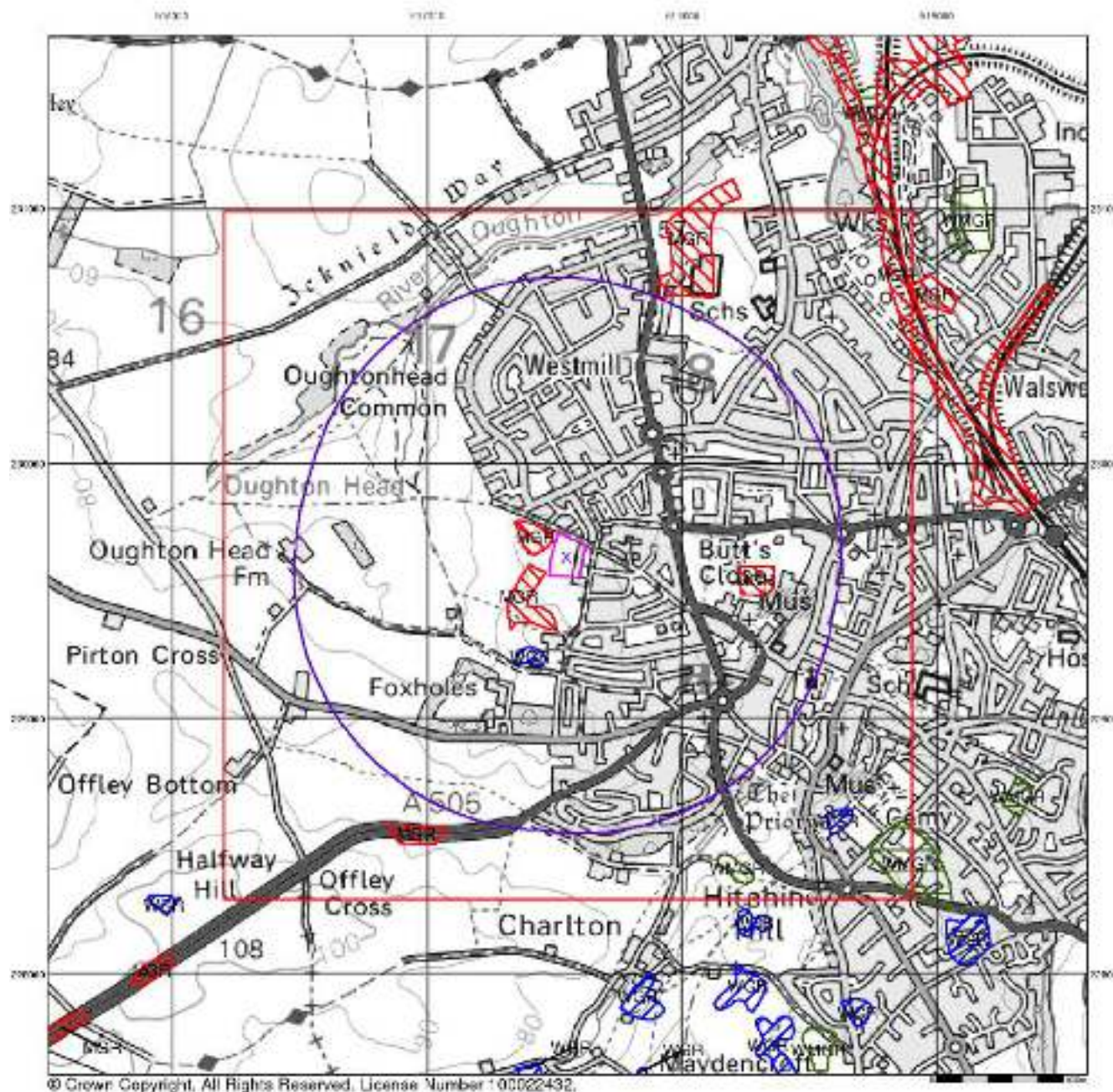
Order Number:	27111641_1_1
Customer Reference:	1873
National Grid Reference:	517550, 229630
Slice:	A
Site Area (Ha):	1.86
Search Buffer (m):	1000

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Artificial Ground and Landslip

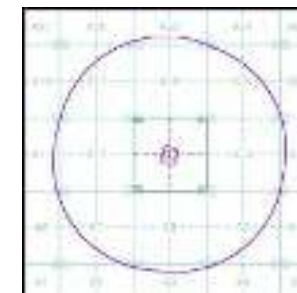
Artificial ground is a term used by BGS for those areas where the ground surface has been significantly modified by human activity. Information about previously developed ground is especially important, as it is often associated with potentially contaminated material, unpredictable engineering conditions and unstable ground.

Artificial ground includes:

- Made ground - man-made deposits such as embankments and spoil heaps on the natural ground surface.
- Worked ground - areas where the ground has been cut away such as quarries and road cuttings.
- Infilled ground - areas where the ground has been cut away then wholly or partially backfilled.
- Landscaped ground - areas where the surface has been reshaped.
- Disturbed ground - areas of ill-defined shallow or near surface mineral workings where it is impracticable to map made and worked ground separately.

Mass movement (landslip) deposits on BGS geological maps are primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground. The dataset also includes foundered strata, where the ground has collapsed due to subsidence.

Artificial Ground and Landslip Map - Slice A



Order Details:

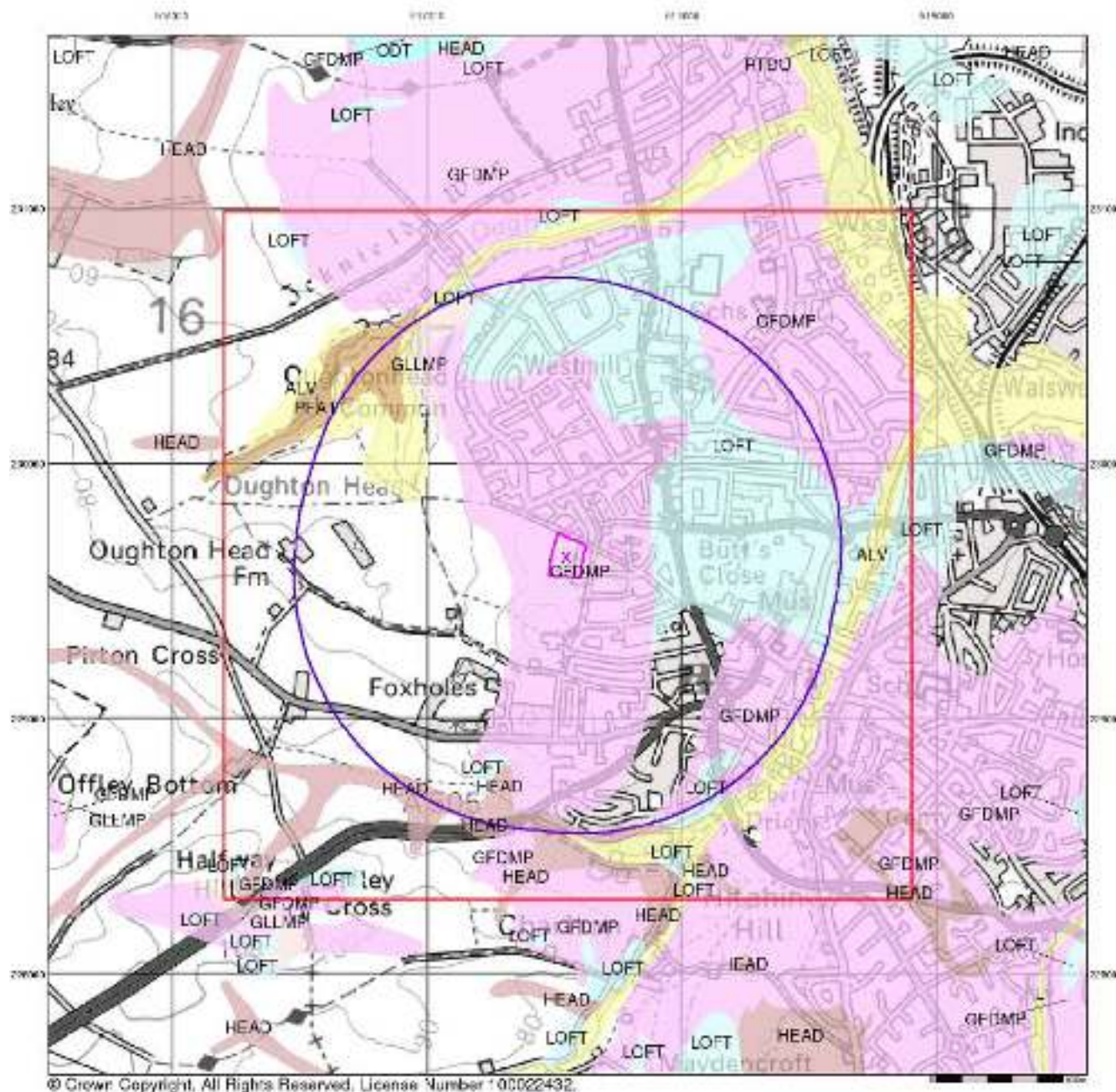
Order Number: 27111641_1_1
 Customer Reference: 1873
 National Grid Reference: 517550, 229630
 Slice: A
 Site Area (Ha): 1.86
 Search Buffer (m): 1000

Site Details:

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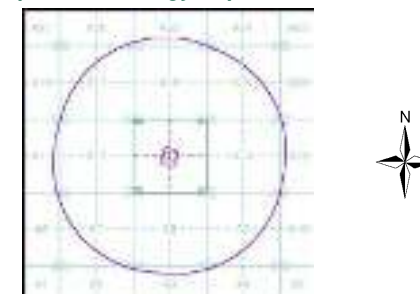
Superficial Geology

Superficial Deposits are the youngest geological deposits formed during the most recent period of geological time, the Quaternary, which extends back about 1.8 million years from the present.

They rest on older deposits or rocks referred to as Bedrock. This dataset contains Superficial deposits that are of natural origin and 'in place'. Other superficial strata may be held in the Mass Movement dataset where they have been moved, or in the Artificial Ground dataset where they are of man-made origin.

Most of these Superficial deposits are unconsolidated sediments such as gravel, sand, silt and clay, and onshore they form relatively thin, often discontinuous patches or larger spreads.

Superficial Geology Map - Slice A



Order Details:

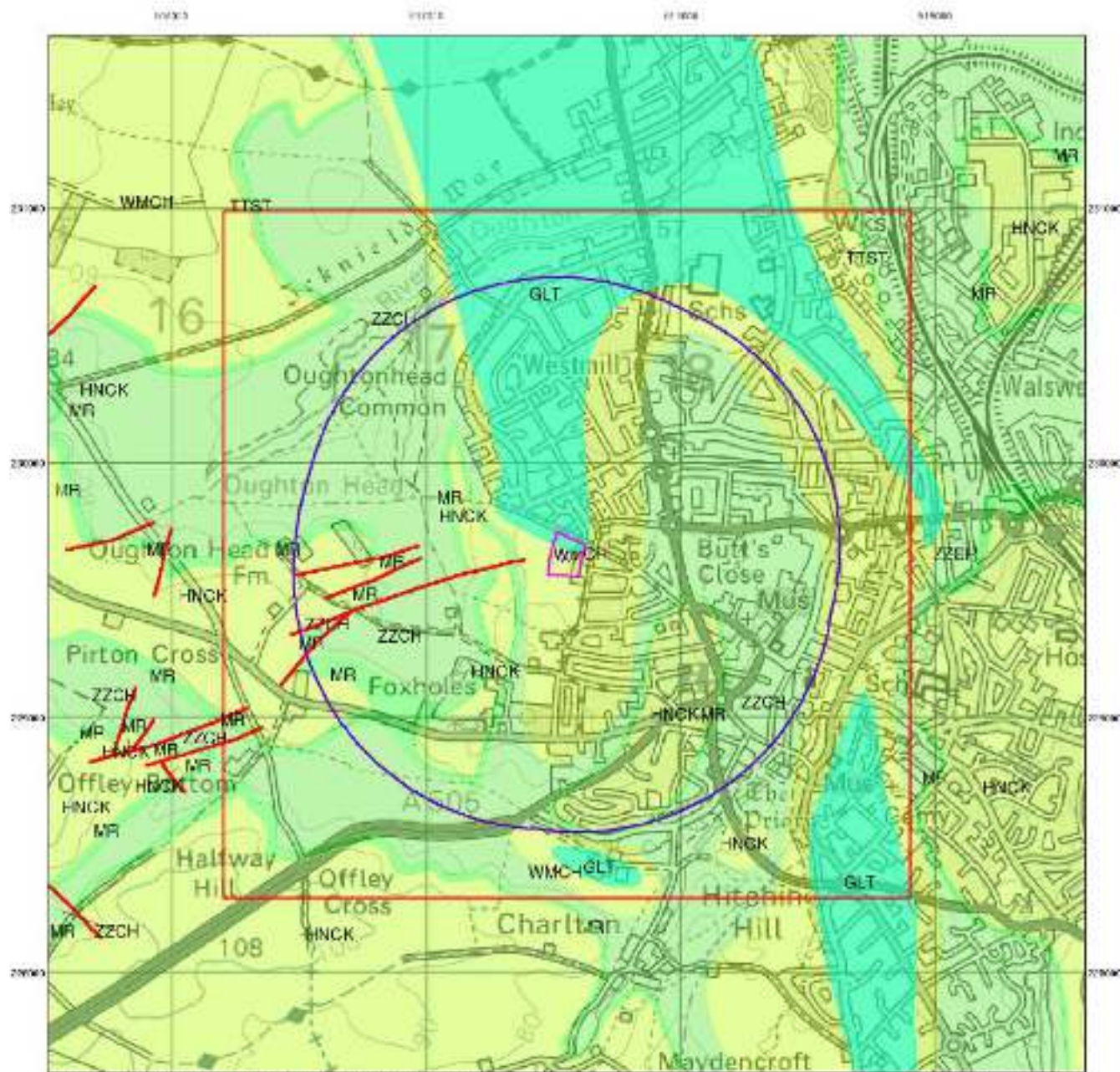
Order Number: 27111641_1_1
 Customer Reference: 1873
 National Grid Reference: 517550, 229630
 Slice: A
 Site Area (Ha): 1.86
 Search Buffer (m): 1000

Site Details:

Land South of Oughtonhead Lane, Hitchin, Herts, SG5 2QY



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 Web: www.envirocheck.co.uk



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Bedrock and Faults

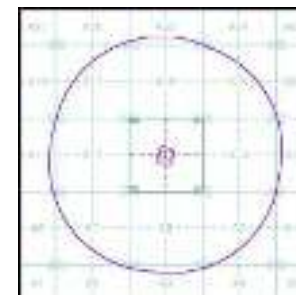
Bedrock geology is a term used for the main mass of rocks forming the Earth and are present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

The bedrock has formed over vast lengths of geological time ranging from ancient and highly altered rocks of the Proterozoic, some 2500 million years ago, or older, up to the relatively young Pliocene, 1.8 million years ago.

The bedrock geology includes many lithologies, often classified into three types based on origin: igneous, metamorphic and sedimentary.

The BGS Faults and Rock Segments dataset includes geological faults (e.g. normal, thrust), and thin beds mapped as lines (e.g. coal seam, gypsum bed). Some of these are linked to other particular 1:50,000 Geology datasets, for example, coal seams are part of the bedrock sequence, most faults and mineral veins primarily affect the bedrock but cut across the strata and post date its deposition.

Bedrock and Faults Map - Slice A



Order Details:

Order Number: 27111641_1_1
Customer Reference: 1873
National Grid Reference: 517550, 229630
Slice: A
Site Area (Ha): 1.86
Search Buffer (m): 1000

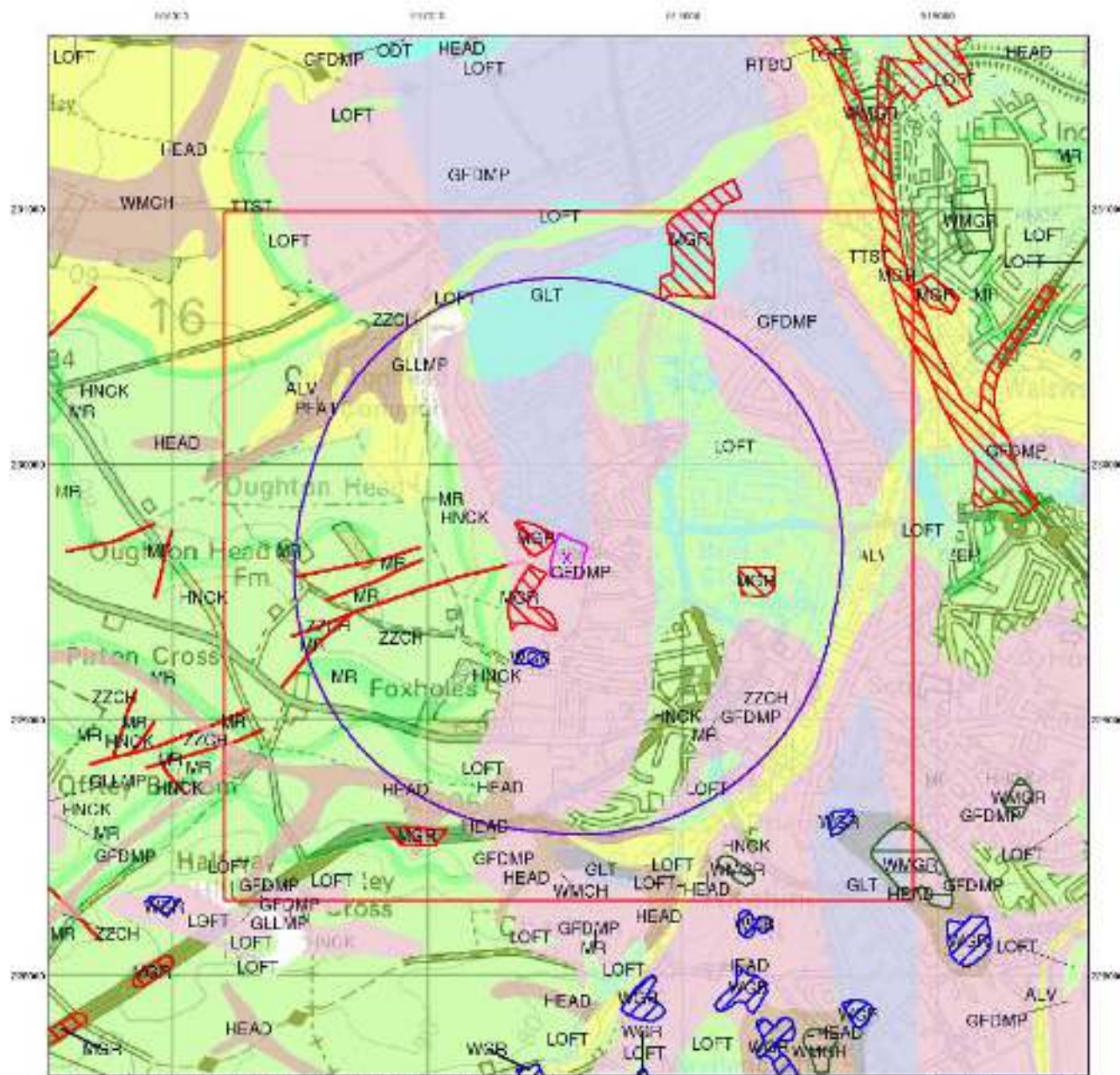
Site Details:

Land South of Oughtonhead Lane, Hitchin, Herts, SG5 2QY



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v15.0 05-Jan-2021



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Combined Surface Geology

The Combined Surface Geology map combines all the previous maps into one combined geological overview of your site.

Please consult the legends to the previous maps to interpret the Combined "Surface Geology" map.

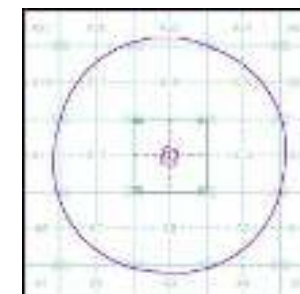
Additional Information

More information on 1:50,000 Geological mapping and explanations of rock classifications can be found on the BGS website. Using the LEX Codes in this report, further descriptions of rock types can be obtained by interrogating the 'BGS Lexicon of Named Rock Units'. This database can be accessed by following the 'Information and Data' link on the BGS website.

Contact

British Geological Survey
Kingsley Dunham Centre
Keyworth
Nottingham
NG12 5GG
Telephone: 0115 936 3143
Fax: 0115 936 3276
email: enquiries@bgs.ac.uk
website: www.bgs.ac.uk

Combined Geology Map - Slice A



Order Details:

Order Number: 27111641_1_1
Customer Reference: 1873
National Grid Reference: 517550, 229630
Slice: A
Site Area (Ha): 1.86
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v15.0 05-Jan-2021



Envirocheck[®] Report:

Mining and Ground Stability Datasheet

Order Details:

Order Number:

271111641_1_1

Customer Reference:

1873

National Grid Reference:

517550, 229630

Slice:

A

Site Area (Ha):

1.86

Search Buffer (m):

1000

Site Details:

Land South of Oughtonhead Lane

Hitchin

Herts

SG5 2QY

Client Details:

Mr C Duffield

Green Earth Management Ltd

Building 2

Broomfield Park

Coggeshall Road

Earls Colne

Essex

CO6 2JX

Report Section and Details	Page Number
Summary	-
The Summary section provides an overview of the data contained within the report, detailing the number of data set features or the existence of a data set in relation to the buffer selected. For ease of reference, the report is broken down into 4 sections of data; Mining and Natural Cavities Data, Historical Land Use Information (1:2,500), Historical Land Use Information (1:10,000) and Ground Stability Data (1:50,000).	
Mining and Natural Cavities Data	1
The Mining and Natural Cavities Data section features data sets related to the existence of mining areas and their potential hazards; and details of naturally formed cavities. Data sets within this section are not plotted, with the exception of BGS Recorded Mineral Sites and Potential Mining Areas which feature on the Historical Land Use Information (1:10,000) map.	
Historical Land Use Information (1:2,500)	-
The Historical Land Use Information (1:2,500) section contains data captured from analysis carried out by Landmark of 1:1,250 and 1:2,500 scale historical Ordnance Survey mapping, identifying areas where, historically, the land uses were potentially contaminative. For the purpose of this Envirocheck module, only historical data relating to mining and ground stability has been included and plotted on the corresponding Historical Land Use Information (1:2,500) map. This section also includes the Subterranean Features data set, which details various man-made and man-used underground spaces obtained from the Subterranea Britannica society.	
Historical Land Use Information (1:10,000)	2
The Historical Land Use (1:10,000) section covers data captured from the systematic analysis carried out by Landmark of 1:10, 560 and 1:10,000 scale historical Ordnance Survey mapping dating back to the mid-19th century, identifying potentially contaminative past industrial land uses. For the purpose of this Envirocheck module, only data relating to mining and ground stability has been included and plotted on the accompanying Historical Land Use Information (1:10,000) map.	
Ground Stability Data (1:50,000)	3
The Ground Stability (1:50,000) section includes the BGS Geosure data suite, reporting features to 250m and plotted onto 3 separate maps. Also reported is brine subsidence, brine mining and salt mining data sets, of which Brine Pumping and Salt Mining Related Features are plotted, and subsidence insurance claims and insurance investigations data, which is not plotted.	
Historical Map List	4
The Historical Map List section details the historical mapping that has been analysed for your site, in relation to the Historical Land Use Information sections.	
Data Currency	5
Data Suppliers	6
Useful Contacts	7

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The brine subsidence data relating to the Droitwich area as provided in this report is derived from JPB studies and physical monitoring undertaken annually over more than 35 years. For more detailed interpretation contact enquiries@jpb.co.uk. JPB retain the copyright and intellectual rights to this data and accept no liability for any loss or damage, including in direct or consequential loss, arising from the use of this data.

The Mining Instability data was obtained on licence from Ove Arup & Partners Limited (for further information, contact mining.review@arup.com). No reproduction or further use of such Data is to be made without the prior written consent of Ove Arup & Partners Limited. The supplied Mining Instability data is derived from publicly available records and other third party sources and neither Ove Arup & Partners nor Landmark warrant the accuracy or completeness of such information or data.

Report Version v53.0

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m
Mining and Natural Cavities Data					
BGS Recorded Mineral Sites	pg 1		1	2	
Coal Mining Affected Areas			n/a	n/a	n/a
Man Made Mining Cavities					
Mining Instability			n/a	n/a	n/a
Natural Cavities					
Non Coal Mining Areas of Great Britain	pg 1	Yes		n/a	n/a
Potential Mining Areas					
Historical Land Use Information (1:2,500)					
Extractive Industries or Potential Excavations from 1855-1909 (100m)				n/a	n/a
Extractive Industries or Potential Excavations from 1893-1915 (100m)				n/a	n/a
Extractive Industries or Potential Excavations from 1906-1937 (100m)				n/a	n/a
Extractive Industries or Potential Excavations from 1924-1949 (100m)				n/a	n/a
Extractive Industries or Potential Excavations from 1950-1980 (100m)				n/a	n/a
Subterranean Features (100m)				n/a	n/a
Historical Land Use Information (1:10,000)					
Air Shafts					
Disturbed Ground					
General Quarrying					
Heap, unknown constituents					
Mineral Railway					
Mining & quarrying general					
Mining of coal & lignite					
Quarrying of sand & clay, operation of sand & gravel pits	pg 2		3		
Former Marshes					
Potentially Infilled Land (Non-Water)	pg 2		3	1	
Potentially Infilled Land (Water)					
Ground Stability Data (1:50,000)					
CBSCB Compensation District			n/a	n/a	n/a
Brine Pumping Related Features					
Brine Subsidence Solution Area					
Potential for Collapsible Ground Stability Hazards	pg 3	Yes		n/a	n/a
Potential for Compressible Ground Stability Hazards	pg 3	Yes	Yes	n/a	n/a
Potential for Ground Dissolution Stability Hazards	pg 3	Yes	Yes	n/a	n/a
Potential for Landslide Ground Stability Hazards	pg 3	Yes	Yes	n/a	n/a
Potential for Running Sand Ground Stability Hazards	pg 3	Yes	Yes	n/a	n/a
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 3	Yes	Yes	n/a	n/a
Salt Mining Related Features					



Summary

Report Version v53.0

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
1	BGS Recorded Mineral Sites Site Name: Oughtonhead Lane Gravel Pits Location: Hitchin, Hertfordshire Source: British Geological Survey, National Geoscience Information Service Reference: 164117 Type: Opencast Status: Ceased Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Cromerian - Ipswichian Geology: Glaciofluvial Deposits, Mid Pleistocene Commodity: Sand and Gravel Positional Accuracy: Located by supplier to within 10m	A13NW (NW)	71	1	517431 229709
2	BGS Recorded Mineral Sites Site Name: Gray'S Lane Gravel Pit Location: Hitchin, Hertfordshire Source: British Geological Survey, National Geoscience Information Service Reference: 164118 Type: Opencast Status: Ceased Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Cromerian - Ipswichian Geology: Glaciofluvial Deposits, Mid Pleistocene Commodity: Sand and Gravel Positional Accuracy: Located by supplier to within 10m	A8NW (S)	327	1	517406 229245
3	BGS Recorded Mineral Sites Site Name: Hitchin Brick Works Location: Hitchin, Hertfordshire Source: British Geological Survey, National Geoscience Information Service Reference: 165968 Type: Opencast Status: Ceased Operator: Unknown Operator Operator Location: Not Supplied Periodic Type: Anglian Geology: Lowestoft Formation Commodity: Common Clay and Shale Positional Accuracy: Located by supplier to within 10m	A19SW (NE)	478	1	517956 230023
	Coal Mining Affected Areas In an area which may not be affected by coal mining				
	Non Coal Mining Areas of Great Britain Risk: Rare Source: British Geological Survey, National Geoscience Information Service	A13SW (N)	0	1	517546 229634

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
4	Quarrying of sand & clay, operation of sand & gravel pits Use: Not Supplied Date of Mapping: 1899	A13NW (W)	28	-	517465 229668
5	Quarrying of sand & clay, operation of sand & gravel pits Use: Not Supplied Date of Mapping: 1899 - 1925	A13NW (NW)	36	-	517462 229690
6	Quarrying of sand & clay, operation of sand & gravel pits Use: Not Supplied Date of Mapping: 1925	A13NW (W)	94	-	517394 229660
7	Potentially Infilled Land (Non-Water) Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1992	A13NW (W)	28	-	517465 229668
8	Potentially Infilled Land (Non-Water) Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1992	A13NW (NW)	36	-	517471 229720
9	Potentially Infilled Land (Non-Water) Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1992	A13NW (W)	94	-	517394 229660
10	Potentially Infilled Land (Non-Water) Use: Unknown Filled Ground (Pit, quarry etc) Date of Mapping: 1992	A14NW (NE)	395	-	517934 229924

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	CBSCB Compensation District The site does not fall within the brine compensation area.				
	Brine Subsidence Solution Area The site does not fall within the brine subsidence solution area.				
11	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SW (N)	0	1	517546 229634
12	Potential for Compressible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NW (NW)	14	1	517483 229692
13	Potential for Compressible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SW (SW)	16	1	517462 229575
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SW (N)	0	1	517546 229634
14	Potential for Ground Dissolution Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SW (W)	43	1	517429 229614
	Potential for Ground Dissolution Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SW (N)	0	1	517546 229634
	Potential for Ground Dissolution Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SW (W)	148	1	517330 229550
15	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SW (N)	0	1	517546 229634
	Potential for Landslide Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SW (W)	148	1	517330 229550
16	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SW (N)	0	1	517546 229634
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SW (W)	148	1	517330 229550
17	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13NE (E)	250	1	517874 229667
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SW (N)	0	1	517546 229634

The following mapping has been analysed for Historical Land Use Information (1:2,500):

1:2,500	Mapsheet	Published Date
Ordnance Survey Plan	TL1729	1981

The following mapping has been analysed for Historical Land Use Information (1:10,000):

1:10,560	Mapsheet	Published Date
Hertfordshire	006_00	1884
Hertfordshire	007_00	1884
Hertfordshire	011_00	1884
Hertfordshire	012_00	1884
Bedfordshire	026_SE	1891
Bedfordshire	027_SW	1891
Bedfordshire	030_NE	1892
Hertfordshire	012_NW	1899
Hertfordshire	006_SE	1901
Hertfordshire	007_SW	1901
Bedfordshire	026_SE	1901
Bedfordshire	027_SW	1901
Bedfordshire	030_NE	1901
Hertfordshire	006_SE	1925
Hertfordshire	012_NW	1925
Bedfordshire	026_SE	1925
Bedfordshire	027_SW	1925
Bedfordshire	030_NE	1925
Hertfordshire	007_SW	1938
Bedfordshire	027_SW	1938
Hertfordshire	011_NE	1946
Bedfordshire	030_NE	1946
Bedfordshire	026_SE	1947
Hertfordshire	012_NW	1950
Ordnance Survey Plan	TL12NE	1960
Ordnance Survey Plan	TL13SE	1960
1:10,000	Mapsheet	Published Date
Ordnance Survey Plan	TL13SE	1983
Ordnance Survey Plan	TL12NE	1992

Mining and Cavities Data	Version	Update Cycle
BGS Recorded Mineral Sites British Geological Survey - National Geoscience Information Service	November 2020	Bi-Annually
Coal Mining Affected Areas The Coal Authority - Property Searches	March 2014	Annual Rolling Update
Man Made Mining Cavities Stantec UK Ltd	November 2020	Bi-Annually
Mining Instability Ove Arup & Partners	October 2000	Not Applicable
Natural Cavities Stantec UK Ltd	November 2020	Bi-Annually
Non Coal Mining Areas of Great Britain British Geological Survey - National Geoscience Information Service	May 2015	Not Applicable
Historical Land Use Information (1:2,500)	Version	Update Cycle
Subterranean Features Landmark Information Group Limited	February 2020	Bi-Annually
Ground Stability Data (1:50,000)	Version	Update Cycle
CBSCB Compensation District Cheshire Brine Subsidence Compensation Board (CBSCB)	August 2011	Not Applicable
Potential for Collapsible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	April 2020	Annually
Potential for Compressible Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	Annually
Potential for Ground Dissolution Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	Annually
Potential for Landslide Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	Annually
Potential for Running Sand Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	Annually
Potential for Shrinking or Swelling Clay Ground Stability Hazards British Geological Survey - National Geoscience Information Service	January 2019	Annually
Brine Subsidence Solution Area Johnson Poole & Bloomer	December 2020	Annual Rolling Update

A selection of organisations who provide data within this report

Data Supplier	Data Supplier Logo
Ordnance Survey	
British Geological Survey	
The Coal Authority	
Ove Arup	
Stantec UK Ltd	
Wardell Armstrong	
Johnson Poole & Bloomer	

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
-	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



Historical Land Use Information (1:2,500)

General

Specified site Specified boundary Drawing to scale Map of

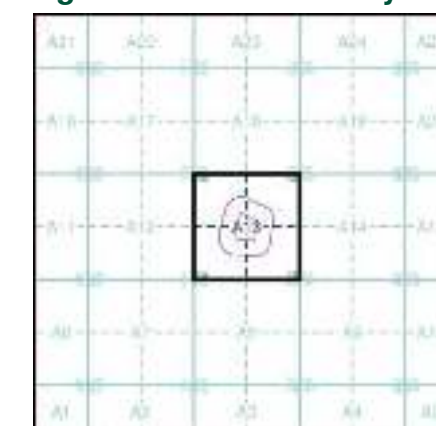
Potentially Contaminative Industrial Uses (Extractive Industries Activity)

	Point	Line	Polygon
Extractive Industries Activity - by year 1850 - 1870	▲	—	■
Extractive Industries Activity - by year 1870 - 1910	▲	—	■
Extractive Industries Activity - by year 1910 - 1930	▲	—	■
Extractive Industries Activity - by year 1930 - 1950	▲	—	■
Extractive Industries Activity - by year 1950 - 1970	▲	—	■

Subterranean Features

	Point	Line	Polygon
Subterranean features	▼	---	■

Mining and Ground Stability - Segment A13



Order Details

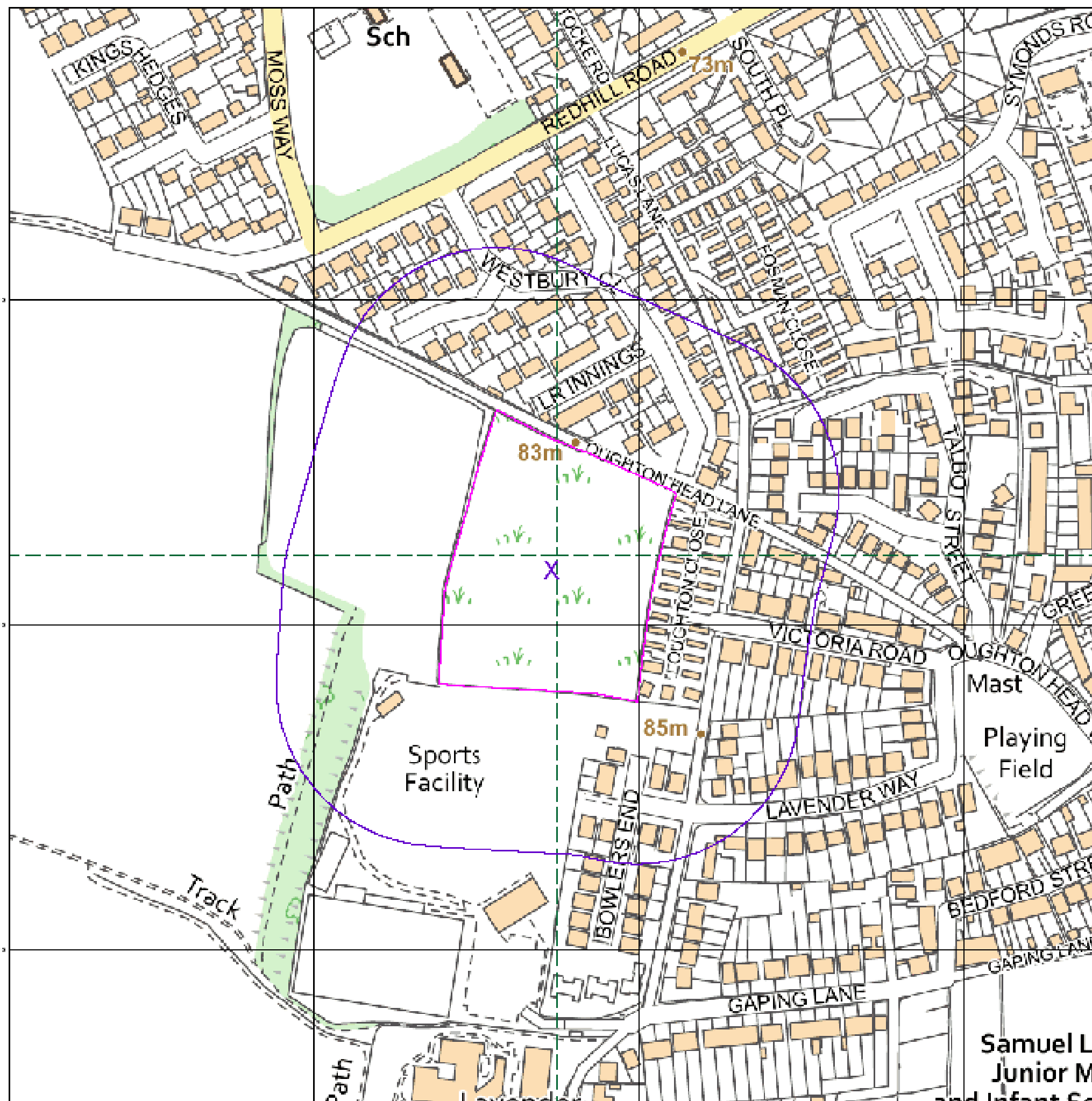
Order Number: 271111641_1_1
Customer Ref: 1873
National Grid Reference: 517550, 229630
Slice: A
Site Area (Ha): 1.86
Plot Buffer (m): 100

Site Details

Land South of Oughtonhead Lane, Hitchin, Herts, SG5 2QY



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





Historical Land Use Information (1:10,000)

General

Search Buffer
 Search Buffer (m)
 Search Buffer (m)
 Search Buffer (m)

Potentially Contaminative Industrial Uses (Past Land Uses - Mining)

	Point	Line	Polygon
Asbestos			
Coal Mining			
Crushing			
Extraction			
Processing			
Refining			
Storage			
Transportation			
Waste Management			

Historical Land Use

	Point	Line	Polygon
Buildings - Industrial and Commercial			
Buildings - Industrial and Residential			
Buildings - Residential			

Mining Data

Mining Data
 Mining Data

Mining and Ground Stability - Slice A



Order Details

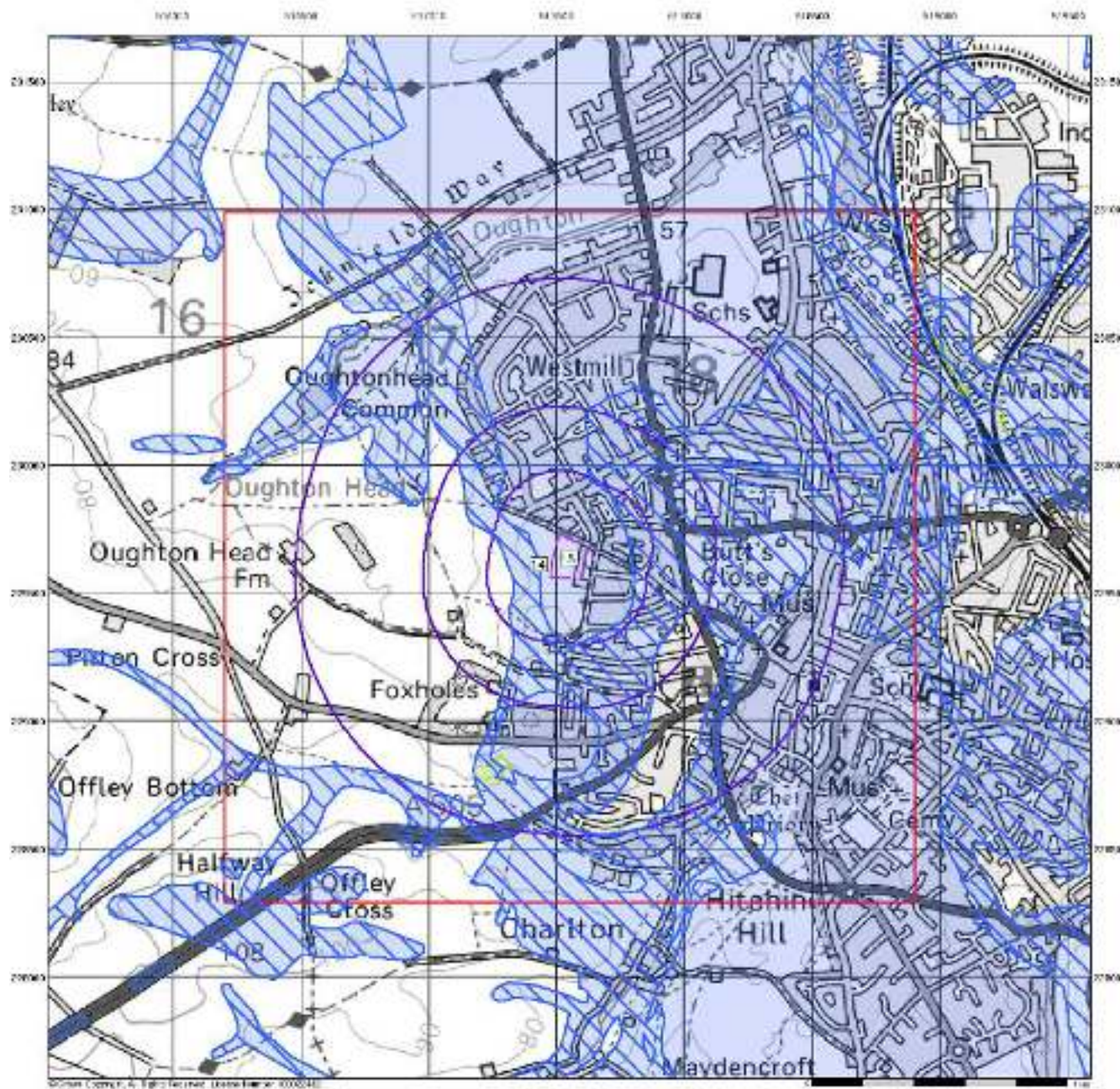
Order Number: 271111641_1_1
 Customer Ref: 1873
 National Grid Reference: 517550, 229630
 Slice: A
 Site Area (Ha): 1.86
 Search Buffer (m): 1000

Site Details

Land South of Oughtonhead Lane, Hitchin, Herts, SG5 2QY



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



Ground Stability Data (1:50,000)

General

Potential for Landslide Ground Stability Hazards
 Potential for Ground Dissolution Stability Hazards

Potential for Landslide Ground Stability Hazards

High
 Moderate
 Low
 Very Low

Potential for Ground Dissolution Stability Hazards

High
 Moderate
 Low
 Very Low

Mining and Ground Stability - Slice A



Order Details

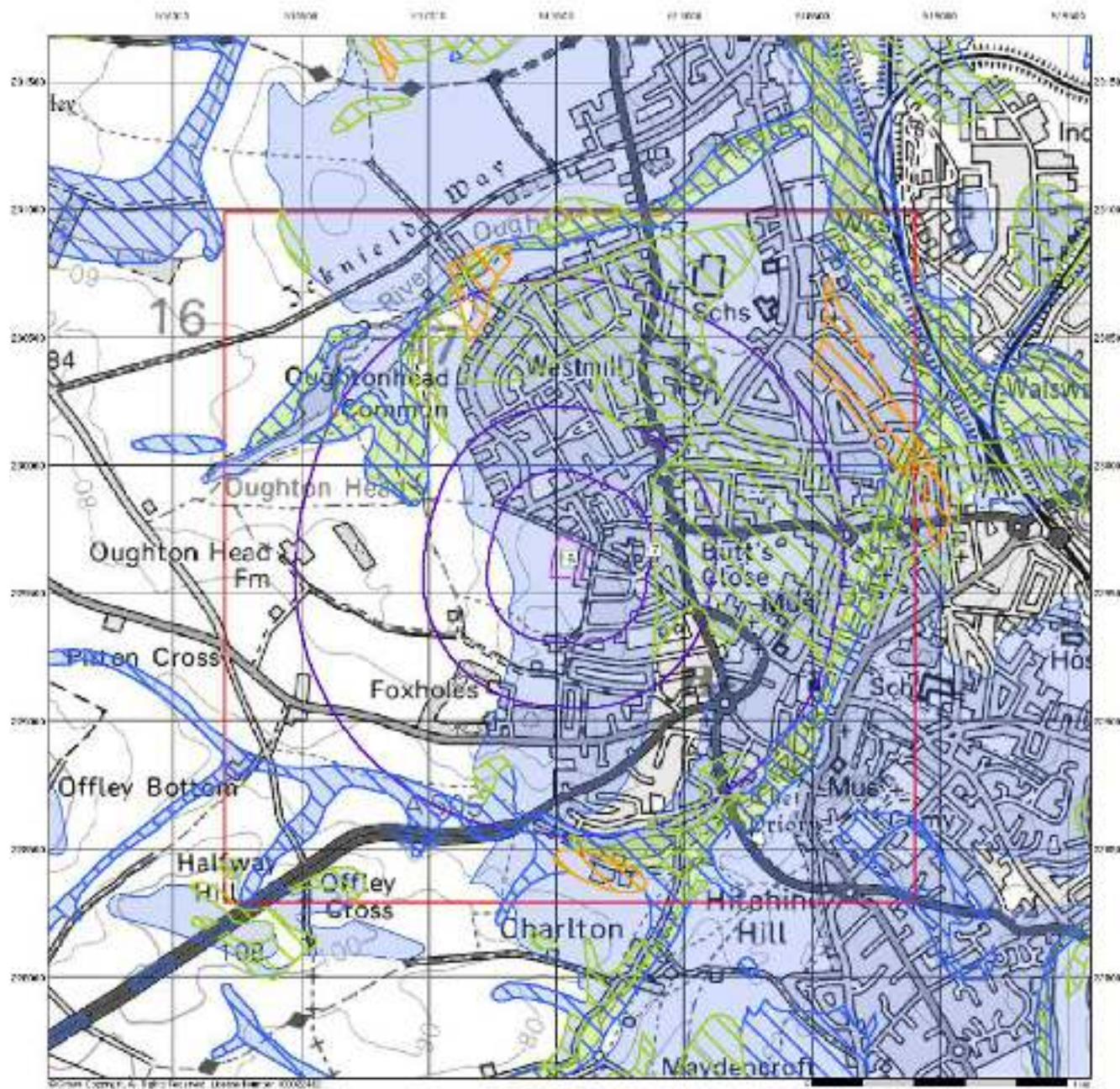
Order Number: 27111641_1
 Customer Ref: 1873
 National Grid Reference: 517550, 229630
 Slice: A
 Site Area (Ha): 1.86
 Search Buffer (m): 1000

Site Details

Land South of Oughtonhead Lane, Hitchin, Herts, SG5 2QY



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 Web: www.envirocheck.co.uk



Ground Stability Data (1:50,000)

General

OUGHTONHEAD COMMON
 OUGHTONHEAD LANE
 OUGHTONHEAD RIVER

Potential for Running Sand Ground Stability Hazards

1:1
 1:4-1:6
 1:8
 1:10-1:12

Potential for Shrinking or Swelling Clay Ground Stability Hazards

1:1
 1:4-1:6
 1:8
 1:10-1:12

Mining and Ground Stability - Slice A



Order Details

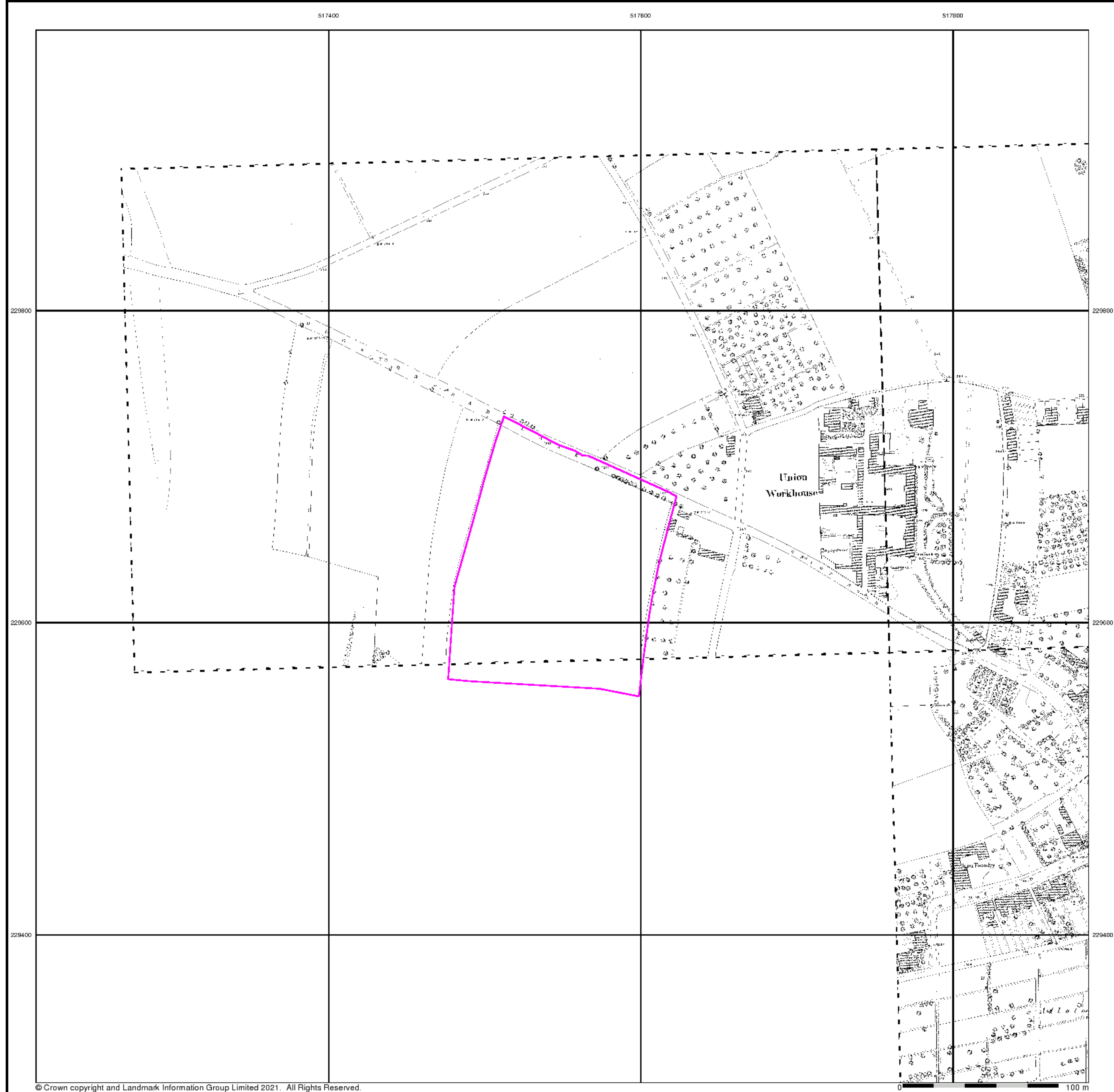
Order Number: 27111641_1
 Customer Ref: 1873
 National Grid Reference: 517550, 229630
 Slice: A
 Site Area (Ha): 1.86
 Search Buffer (m): 1000

Site Details

Land South of Oughtonhead Lane, Hitchin, Herts, SG5 2QY



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Hertfordshire

Published 1881

Source map scale - 1:528

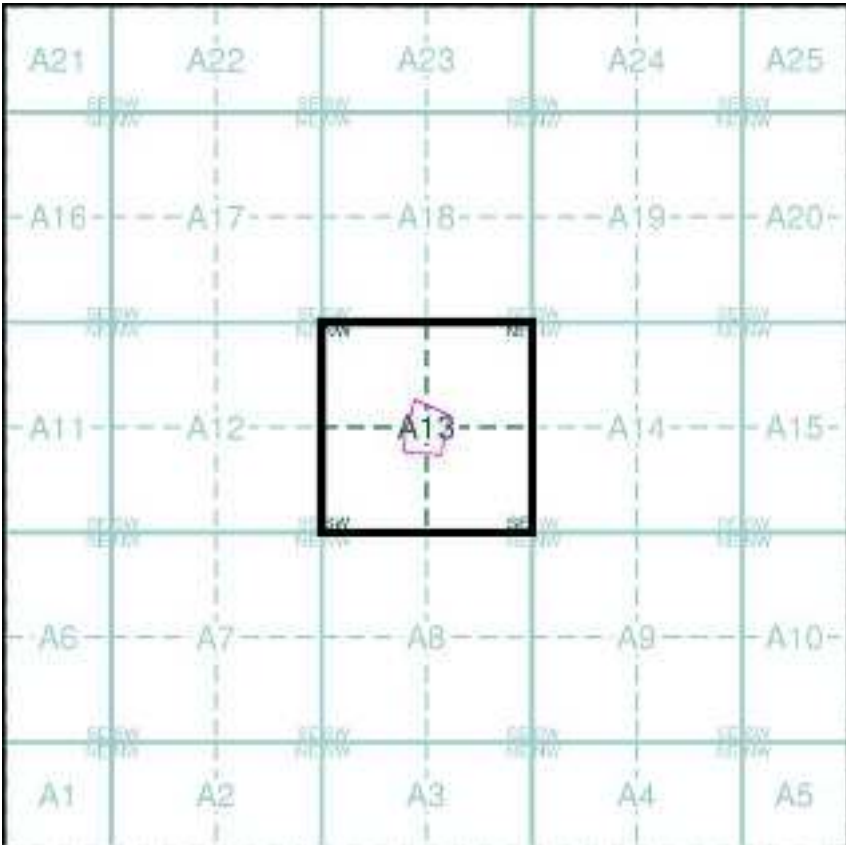
The 1:528 scale Ordnance Survey mapping was adopted in 1850 as an alternative to the 1:1056 scale, that had been deemed to be inadequate for sanitary planning, which had come very much to the fore following the passing of the Public Health Act of 1948. Around 29 towns in England and Wales were surveyed at this scale, the bulk of which were undertaken between 1850 and 1855. These were predominantly towns that were outside the areas being surveyed at 1:10,560 or 1:2500 scale. As well as showing the details characteristic of the later 1:500 plans, they show features of sanitary interest such as privies, taps, cow houses, cess pits, brew and bake houses and cart sheds and stables.

Please note: Due to the partial coverage of Historical Town Plans, it is possible that not all segments within an order will contain mapping. Only the segments that have Town Plan coverage will be generated.

Map Name(s) and Date(s)

000_00_001	000_00_002
1881	1881
1:528	1:528
	000_00_005
	1881
	1:528

Historical Town Plan - Segment A13



Order Details

Order Number: 271111641_1_1
Customer Ref: 1873
National Grid Reference: 517550, 229630
Slice: A
Site Area (Ha): 1.86
Search Buffer (m): 0

Site Details

Land South of Oughtonhead Lane, Hitchin, Herts, SG5 2QY



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Ordinance Survey Plan, Additional SIMs and Supply of Unpublished Survey Information

	Grassy		Gravelly		Gully Pt.
	Clay Pt.		Shrubs		Tennis Leap
	Stacking Masonry				Flat Rock
	Marsh		Heets		Osters
	Rough Pasture		Lunze		Wood
	Meadow		Freshwater		Orchard
	Fence		Bridgeway		Stepping Stones
	Drainage		Waterfall		Ditch
	Ingr. Station		Altitude at Ingr. Station		
	Band-Hack		Surface road		
	Arched bridge over water		Antiquities (site of)		
	Culling		Embankment		
	Railway crossing Road		Level Crossing		Road crossing Railway
	Railway crossing Over or Canal		Road over single main		Road over River or Canal
-----	County Boundary (Geographical)				
- - - - -	County & Civil Parish Boundary				
+ + + + +	Administrative County & Civil Parish Boundary				
o o o o o	County Borough Boundary (England)				
o o o o o	County Borough Boundary (Scotland)				
A.P. B.R.	Boundary Between Town	B.C.B.	Poley Call Box		
B.A.	Bye Road	E	Point		
S.P.	Electricity Pole	S.P.	Signal Post		
F.B.	Foot Bridge	S.	Stream		
F.P.	Foot Path	S.S.	Spring		
G.P.	Grade Above Level	S.W.	Telephone Call Box		
N.D.	No Name	T.	Trench		
M.F.M.	Mountain Fossil Point	W.	Well		

	Invasive Clinging Climber Plant Clim. IV		Acute Quaternary Climb Plant Clim. Pt
	Rocks		Foothills
	CRR		Slopes
	Roofed Building		Ice
	Roofed Building		Glassed Roof Building
	Sloping Highway		Archway
	Non-Coniferous Trees (not surveyed)		Coniferous Trees (not surveyed)
	Cypress Tree		Sage
	Cypress Tree		Sage
	Cypress Tree		Sage
	Cypress Tree		Sage
	Cypress Tree		Sage
	Cypress Tree		Sage
	Cypress Tree		Sage
	Cypress Tree		Sage
	Cypress Tree		Sage
	Cypress Tree		Sage
	Cypress Tree		Sage
	Cypress Tree		Sage
	Cypress Tree		Sage
	Cypress Tree		Sage
	Cypress Tree		Sage
	Cypress Tree		Sage
	Cypress Tree		Sage

[illegible]

Mapping Type	Scale	Date	Pg
Hertfordshire	1:2,500	1881	2
Hertfordshire	1:2,500	1898	3
Hertfordshire	1:2,500	1923	4
Hertfordshire	1:2,500	1932	5
Ordnance Survey Plan	1:1,250	1964	6
Ordnance Survey Plan	1:1,250	1970 - 1977	7
Ordnance Survey Plan	1:2,500	1981	8
Additional SIMs	1:2,500	1981	9
Additional SIMs	1:1,250	1984	10
Large-Scale National Grid Data	1:1,250	1992	11
Large-Scale National Grid Data	1:1,250	1993	12
Large-Scale National Grid Data	1:1,250	1994	13
Large-Scale National Grid Data	1:1,250	1994	14
Large-Scale National Grid Data	1:1,250	1995	15
Historical Aerial Photography	1:2,500	1999	16

Order Number: 271111641_1_1
Customer Ref: 1873
National Grid Reference: 517550, 229630
Slice: A
Site Area (Ha): 1.86
Search Buffer (m): 100

Land South of Oughtonhead Lane, Hitchin, Herts, SG5 2QY



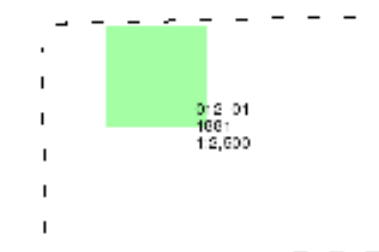
Hertfordshire

Published 1881

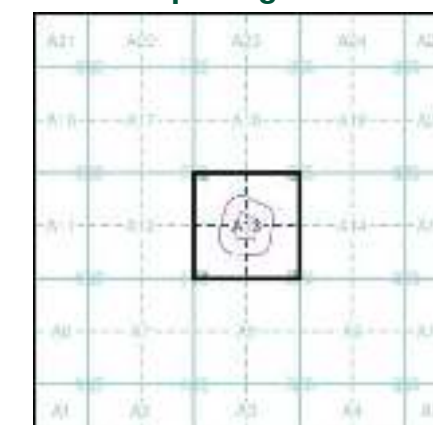
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

Order Number: 271111641_1_1
Customer Ref: 1873
National Grid Reference: 517550, 229630
Slice: A
Site Area (Ha): 1.86
Search Buffer (m): 100

Site Details

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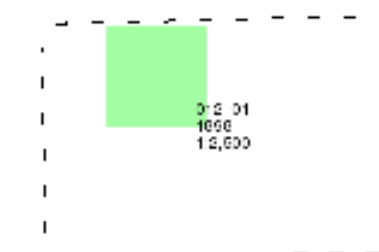
Hertfordshire

Published 1898

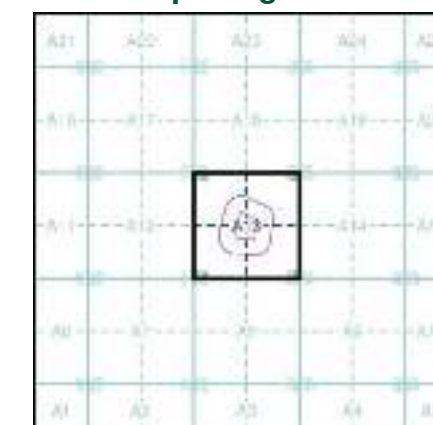
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

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Historical Map - Segment A13



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Slice: A
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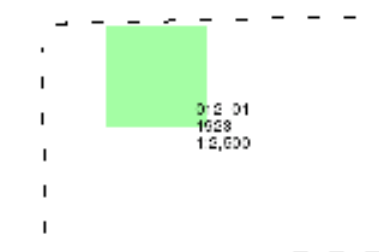
Hertfordshire

Published 1923

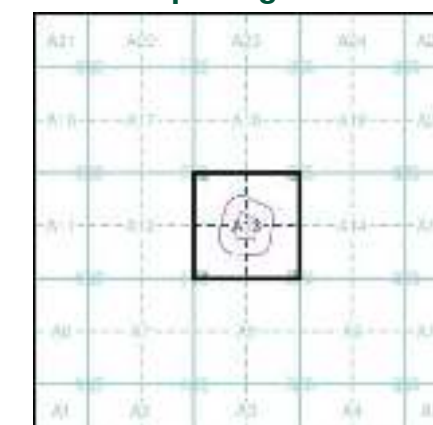
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A13



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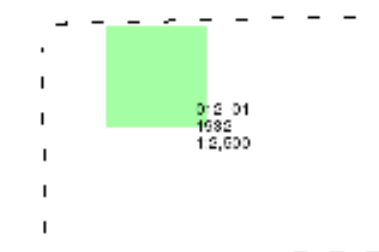
Hertfordshire

Published 1932

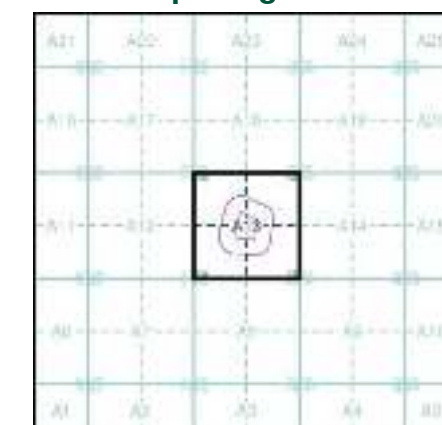
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

Order Number: 271111641_1_1
Customer Ref: 1873
National Grid Reference: 517550, 229630
Slice: A
Site Area (Ha): 1.86
Search Buffer (m): 100

Site Details

Land South of Oughtonhead Lane, Hitchin, Herts, SG5 2QY



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Fax: 0844 844 9951
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Ordnance Survey Plan

Published 1964

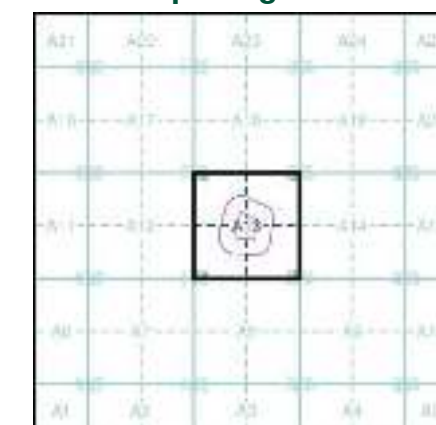
Source map scale - 1:1,250

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

Order Number: 271111641_1_1
Customer Ref: 1873
National Grid Reference: 517550, 229630
Slice: A
Site Area (Ha): 1.86
Search Buffer (m): 100

Site Details

Land South of Oughtonhead Lane, Hitchin, Herts, SG5 2QY



Tel: 0844 844 9952
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Ordnance Survey Plan

Published 1970 - 1977

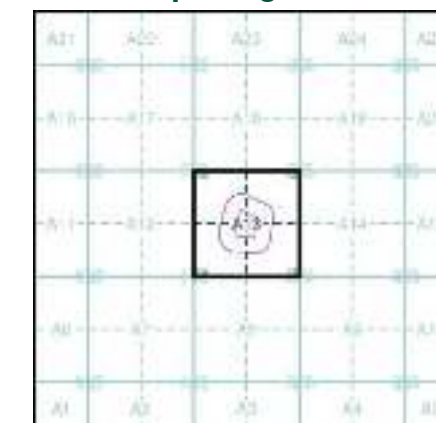
Source map scale - 1:1,250

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)

TL 1728NW 1970 1:1,250	TL 1729NE 1973 1:1,250
	TL 1729E 1977 1:1,250

Historical Map - Segment A13



Order Details

Order Number: 271111641_1_1
Customer Ref: 1873
National Grid Reference: 517550, 229630
Slice: A
Site Area (Ha): 1.86
Search Buffer (m): 100

Site Details

Land South of Oughtonhead Lane, Hitchin, Herts, SG5 2QY



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



Ordnance Survey Plan

Published 1981

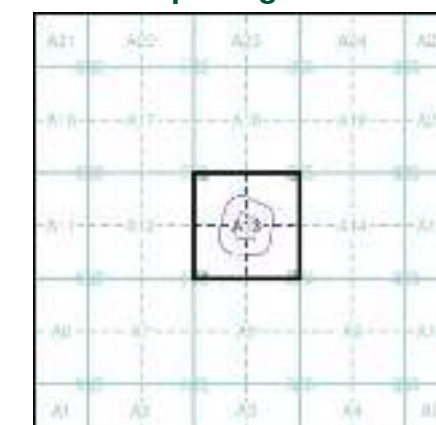
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

Order Number: 271111641_1_1
Customer Ref: 1873
National Grid Reference: 517550, 229630
Slice: A
Site Area (Ha): 1.86
Search Buffer (m): 100

Site Details

Land South of Oughtonhead Lane, Hitchin, Herts, SG5 2QY



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Additional SIMs

Published 1981

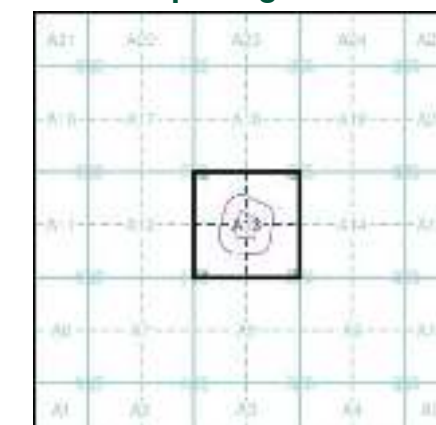
Source map scale - 1:2,500

The SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

Order Number: 271111641_1_1
Customer Ref: 1873
National Grid Reference: 517550, 229630
Slice: A
Site Area (Ha): 1.86
Search Buffer (m): 100

Site Details

Land South of Oughtonhead Lane, Hitchin, Herts, SG5 2QY



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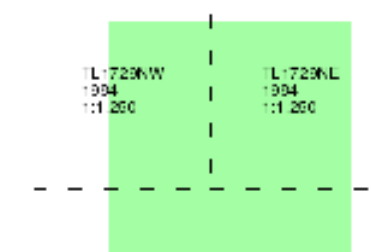
Additional SIMs

Published 1984

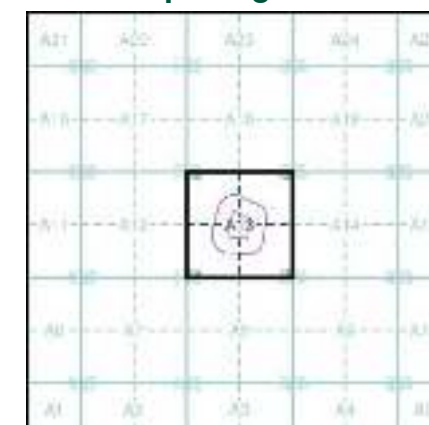
Source map scale - 1:1,250

The SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') are further, minor editions of mapping which were produced and published in between the main editions as an area was updated. They date from 1947 to 1994, and contain detailed information on buildings, roads and land-use. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

Order Number: 271111641_1_1
Customer Ref: 1873
National Grid Reference: 517550, 229630
Slice: A
Site Area (Ha): 1.86
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Site Details

Land South of Oughtonhead Lane, Hitchin, Herts, SG5 2QY



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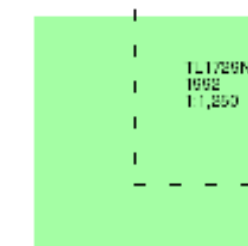
Large-Scale National Grid Data

Published 1992

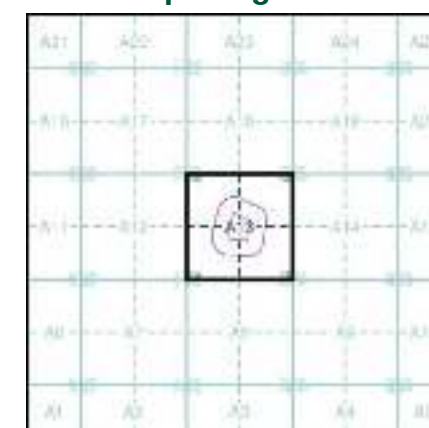
Source map scale - 1:1,250

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

Order Number: 271111641_1_1
Customer Ref: 1873
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Site Area (Ha): 1.86
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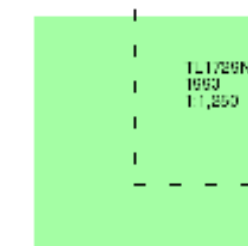
Large-Scale National Grid Data

Published 1993

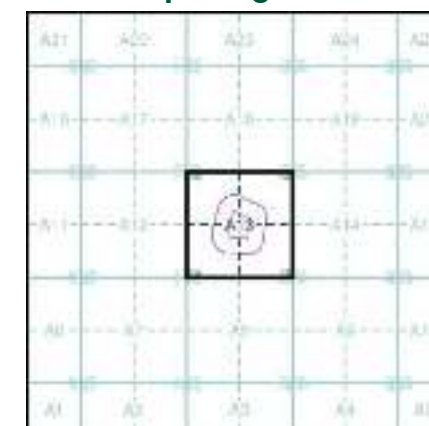
Source map scale - 1:1,250

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

Order Number: 271111641_1_1
Customer Ref: 1873
National Grid Reference: 517550, 229630
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Site Area (Ha): 1.86
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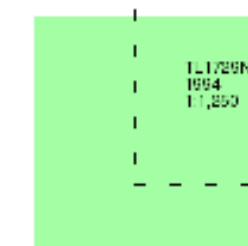
Large-Scale National Grid Data

Published 1994

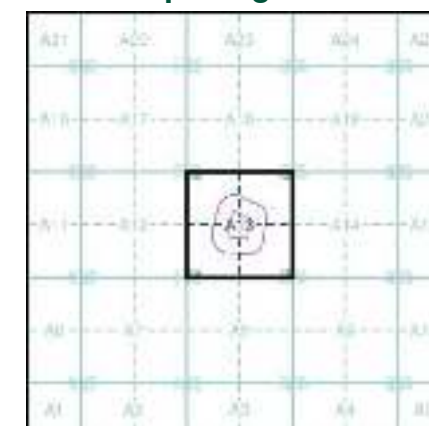
Source map scale - 1:1,250

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

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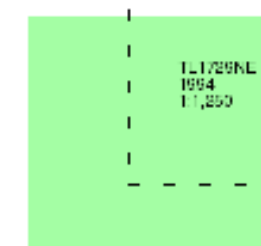
Large-Scale National Grid Data

Published 1994

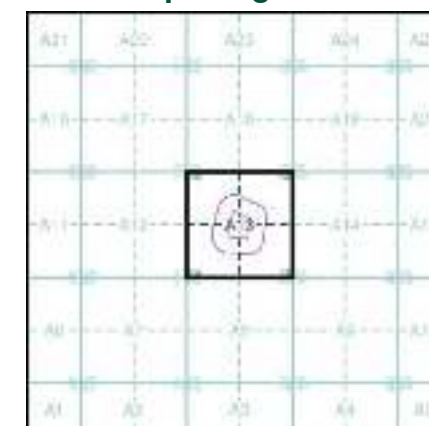
Source map scale - 1:1,250

'Large Scale National Grid Data' superseded SIM cards (Ordnance Survey's 'Survey of Information on Microfilm') in 1992, and continued to be produced until 1999. These maps were the fore-runners of digital mapping and so provide detailed information on houses and roads, but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

Order Number: 271111641_1_1
Customer Ref: 1873
National Grid Reference: 517550, 229630
Slice: A
Site Area (Ha): 1.86
Search Buffer (m): 100

Site Details

Land South of Oughtonhead Lane, Hitchin, Herts, SG5 2QY



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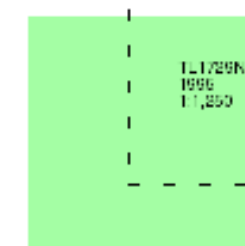
Large-Scale National Grid Data

Published 1995

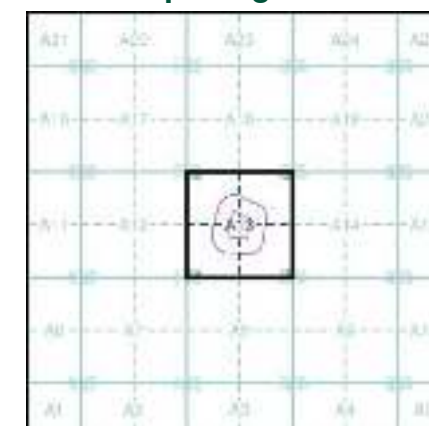
Source map scale - 1:1,250

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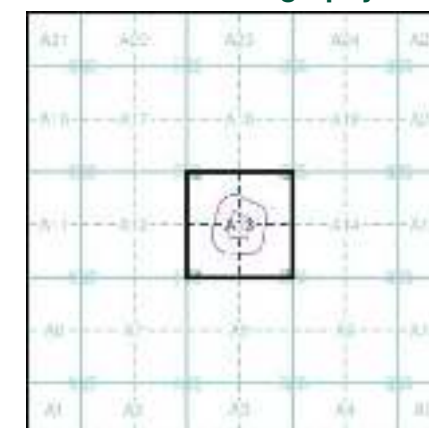


Historical Aerial Photography

Published 1999

This aerial photography was produced by Getmapping, these vertical aerial photographs provide a seamless, full colour survey of the whole of Great Britain

Historical Aerial Photography - Segment A13



Order Details

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Historical Mapping Legends

Ordnance Survey County Series 1:10,560

	Gravel Pt		Sand Pt		Other Pts
	Clay		Shingle		Orchard
	Cobble		Roads		Marsh
	Mixed Wood		Deciduous		Coniferous
	Large		Rough Pasture		
	Arrow denotes flow of water		Instrumental Station		
	Site of Antiquity		Bench Mark		
	Pump, Quilt, Tree, Signal Post		Well, Spring, Boundary Post		
	285		Surface Level		
	Scale bar		Instrumental Contour		
	Main Road		Minor Roads		
	Bridges		Railway Road		
	Road over Railway		Railway over River		
	Tunnels over Road		Tunnel Crossing		
	Road over River or Canal		Road over Stream		
	Tunnel over Stream				
	County Boundary (Geographical)				
	County & Civil Parish Boundary				
	Administrative County & Civil Parish Boundary				
	County Borough Boundary (England)				
	County Borough Boundary (Scotland)				
	Local District Boundary				
	Civil Parish Boundary				

Ordnance Survey Plan 1:10,000

	Chalk Pt. Clay Pt. or Quartz		Gravel Pt
	Sand Pt		Jagged Pt or Quartz
	Refuse or Slag Heap		Lakes, Loch or Pond
	Dune		Boulders
	Coniferous Trees		Non-Coniferous Trees
	Orchard		Scrub
	Bracken		Rough Grassland
	Hedge		Roads
	Sailings		
	Maunder		Glasshouse
	Sailing Masonry		Fyke
	Electricity Transmission Line		
	Culvert		Standard Gauge Multiple Track
	Standard Gauge Single Track		Siding, Turnout or Mineral Line
	Narrow Gauge		
	Geographical County		
	Administrative County, County Borough or County of City		
	Civil Parish, Borough, Urban or Rural District, Borough or Town Council		
	Sanitary Region, County Council, or Sanitary Authority		
	Civil Parish		
	Boundary Point on Stone		Public Well
	Public Well		Public House
	Public House		Signal Post
	Signal Post		Spring
	Spring		Telephone Call Box
	Telephone Call Box		Telephone Call Post
	Telephone Call Post		Well

1:10,000 Raster Mapping

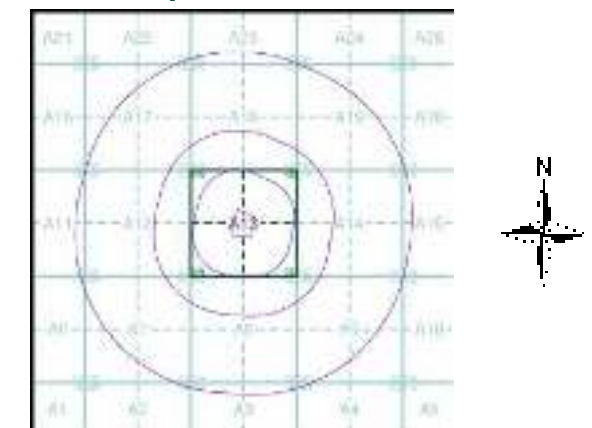
	Gravel Pt		Refuse or Slag Heap
	Rock		Rock Scattered
	Boulders		Jagged Pt (Scattered)
	Shingle		Mud
	Sand		Sand Pt
	Gravel		Top of Cliff
	General Contour		Background Contour
	Overhead Contour		Narrow Gauge Railway
	Multiple Track		Single Track Railway
	County Boundary (England)		Civil Parish or Community Boundary
	District, Urban or Rural District Boundary		Constituency Boundary
	Area of Woodland		Non-Coniferous Trees
	Non-Coniferous Trees		Coniferous Trees
	Pasture Tree		Scrub or Gorse
	Orchard		Rough Grassland
	Rough Grassland		Marsh
	Marsh		Marsh, Salt Marsh or Reeds
	Water Feature		Flow Lines
	Mean High Water (Spring)		Mean Low Water (Spring)
	Telephone Line (where shown)		Electricity Transmission or Line (where shown)
	Bench Mark (where shown)		Triangulation Station
	Point Feature (e.g. Quilt Post or Mile Stone)		Pylon, Mast, Stack or Lighting Tower
	Site of Antiquity		Glasshouse
	General Building		Important Building



Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Hertfordshire	1:10,560	1884	2
Bedfordshire	1:10,560	1887	3
Hertfordshire	1:10,560	1899	4
Bedfordshire	1:10,560	1901	5
Bedfordshire	1:10,560	1925	6
Hertfordshire	1:10,560	1925	7
Bedfordshire	1:10,560	1925	8
Bedfordshire	1:10,560	1938 - 1947	9
Hertfordshire	1:10,560	1946	10
Bedfordshire	1:10,560	1950	11
Hertfordshire	1:10,560	1950	12
Ordnance Survey Plan	1:10,000	1960	13
Ordnance Survey Plan	1:10,000	1969	14
Ordnance Survey Plan	1:10,000	1976	15
Ordnance Survey Plan	1:10,000	1982 - 1983	16
Ordnance Survey Plan	1:10,000	1992	17
10K Raster Mapping	1:10,000	1999	18
10K Raster Mapping	1:10,000	2006	19
VectorMap Local	1:10,000	2020	20

Historical Map - Slice A



Order Details

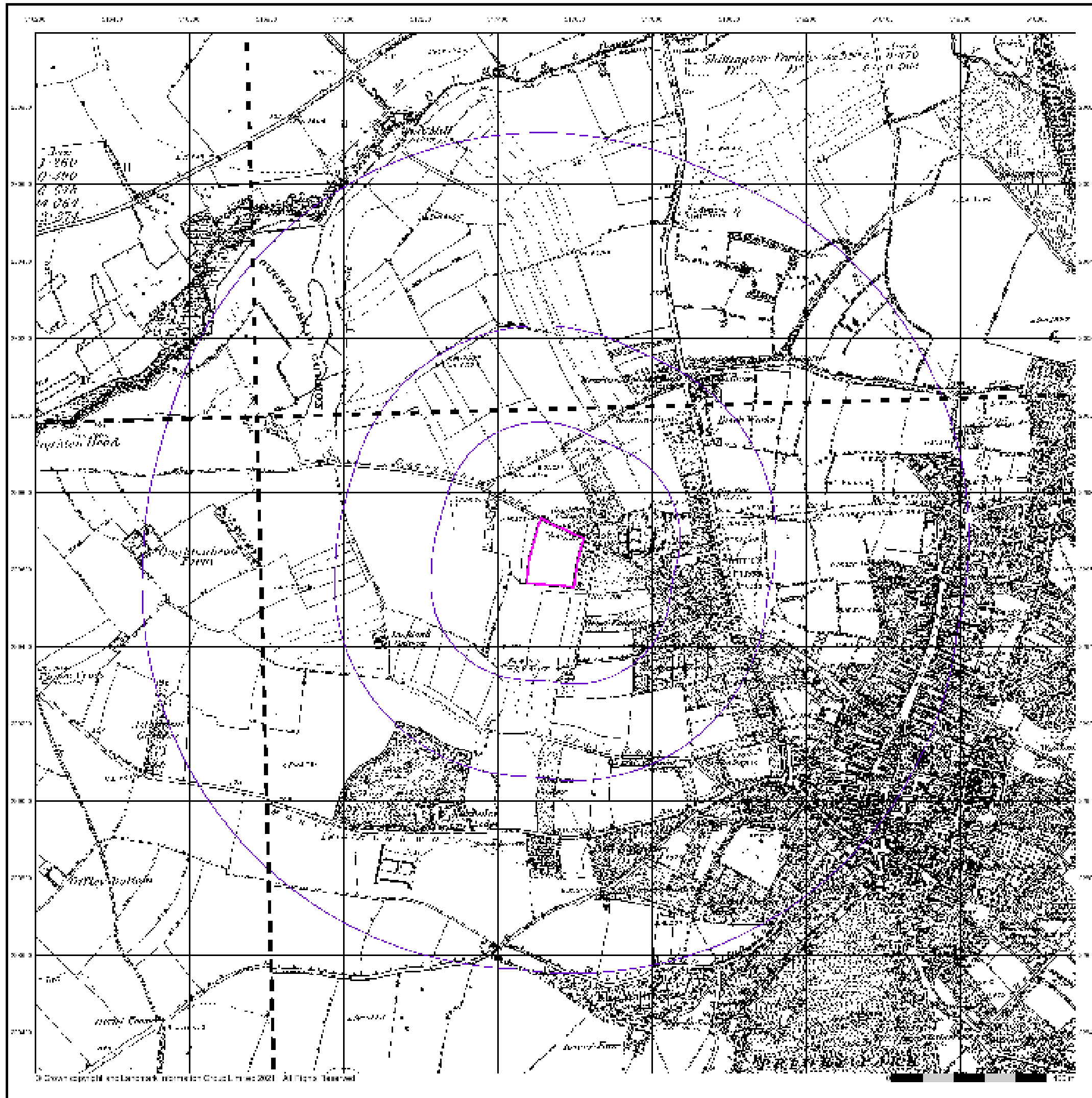
Order Number: 271111641_1_1
 Customer Ref: 1873
 National Grid Reference: 517550, 229630
 Slice: A
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 Search Buffer (m): 1000

Site Details

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Hertfordshire

Published 1884

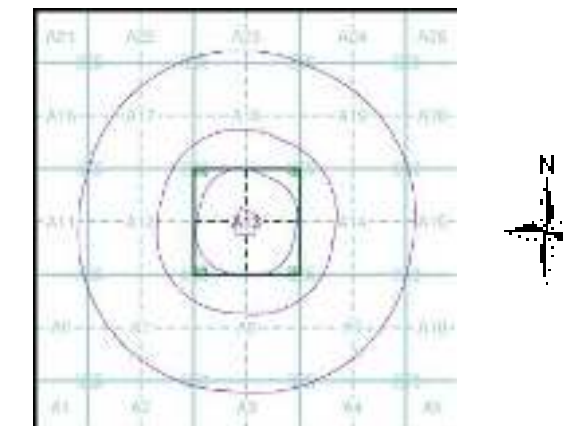
Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)

00800 1884 1:10,560	01700 1884 1:10,560
01100 1884 1:10,560	01200 1884 1:10,560

Historical Map - Slice A



Order Details

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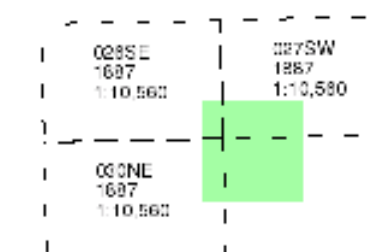
Bedfordshire

Published 1887

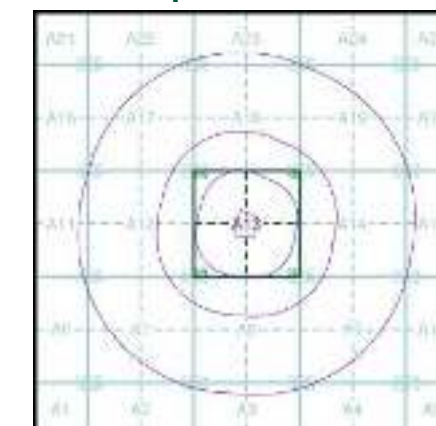
Source map scale - 1:10,560

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Map Name(s) and Date(s)



Historical Map - Slice A



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Hertfordshire

Published 1899

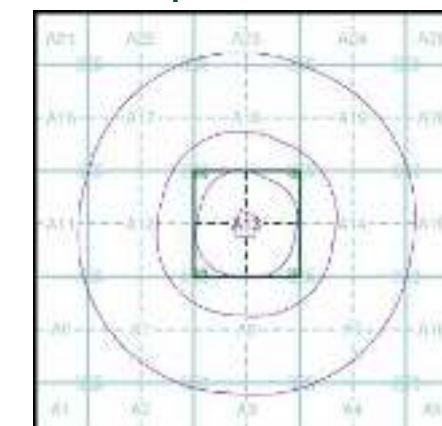
Source map scale - 1:10,560

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Map Name(s) and Date(s)

008SE 1899 1:10,560	017SW 1899 1:10,560
011NE 1899 1:10,560	012NW 1899 1:10,560

Historical Map - Slice A



Order Details

Order Number: 271111641_1_1
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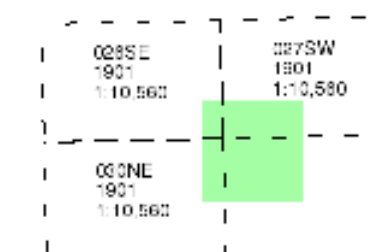
Bedfordshire

Published 1901

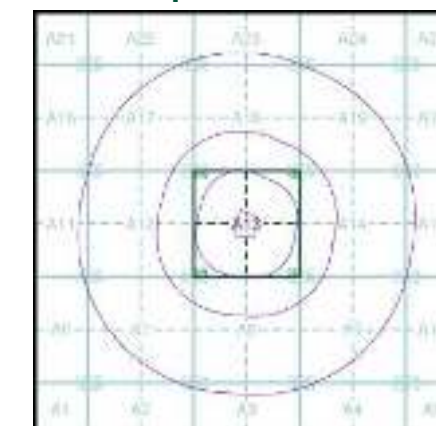
Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

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Historical Map - Slice A



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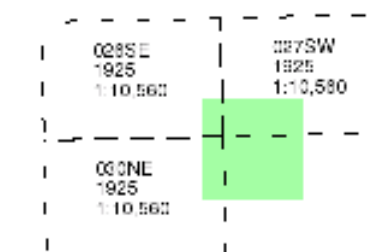
Bedfordshire

Published 1925

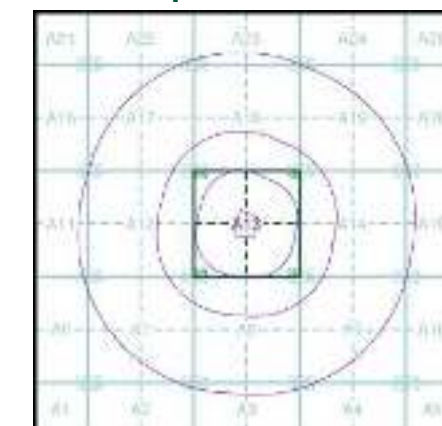
Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

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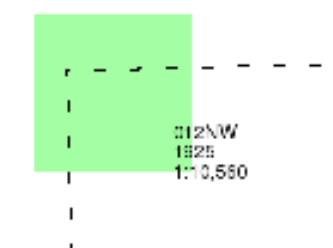
Hertfordshire

Published 1925

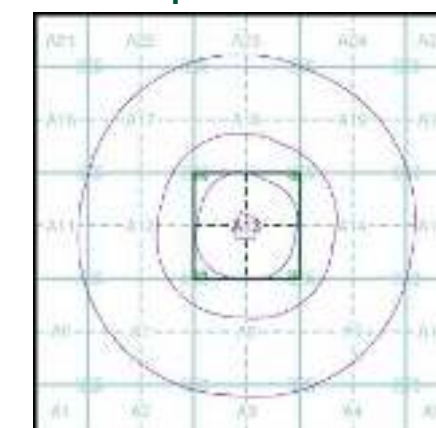
Source map scale - 1:10,560

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Historical Map - Slice A



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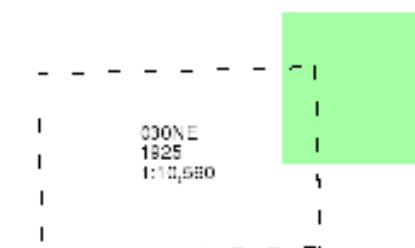
Bedfordshire

Published 1925

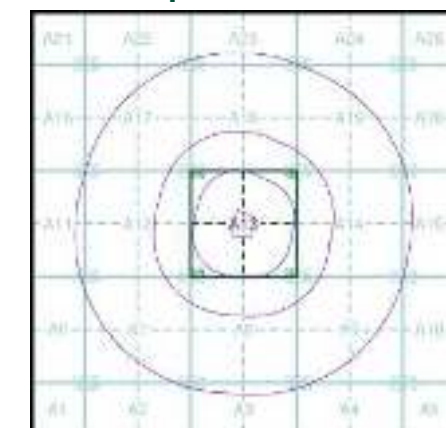
Source map scale - 1:10,560

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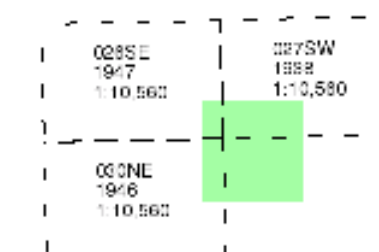
Bedfordshire

Published 1938 - 1947

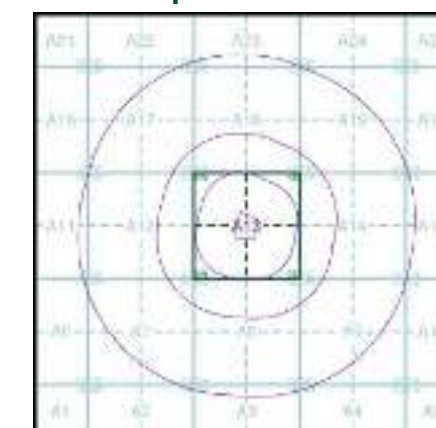
Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

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Historical Map - Slice A



Order Details

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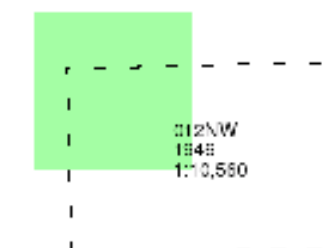
Hertfordshire

Published 1946

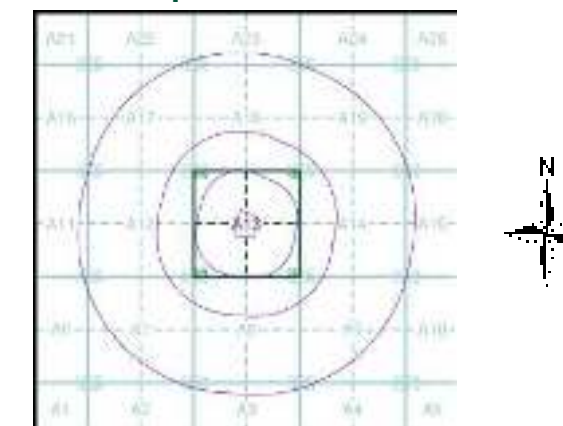
Source map scale - 1:10,560

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Historical Map - Slice A



Order Details

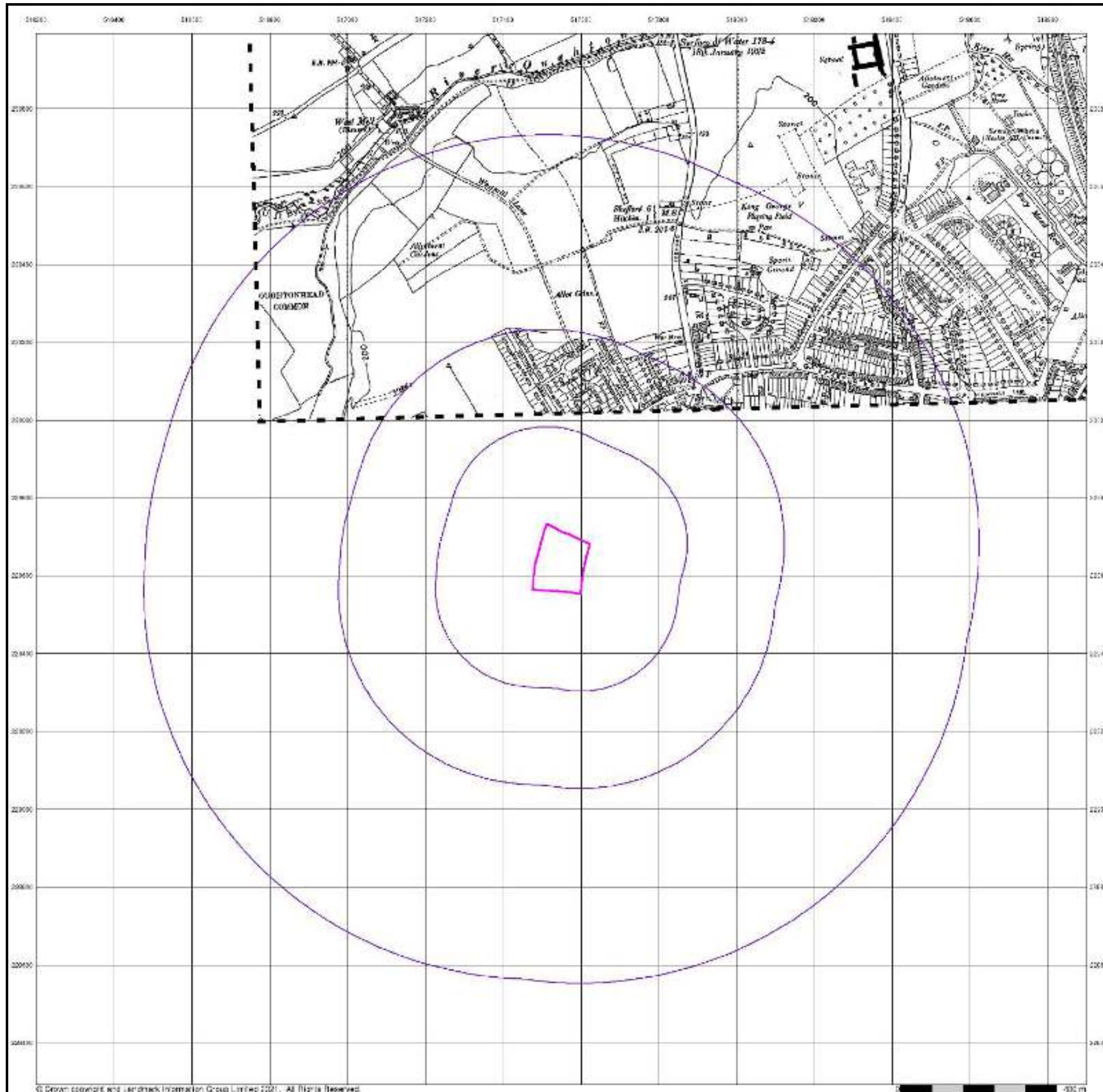
Order Number: 271111641_1_1
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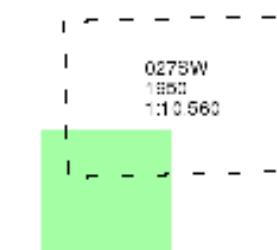
Bedfordshire

Published 1950

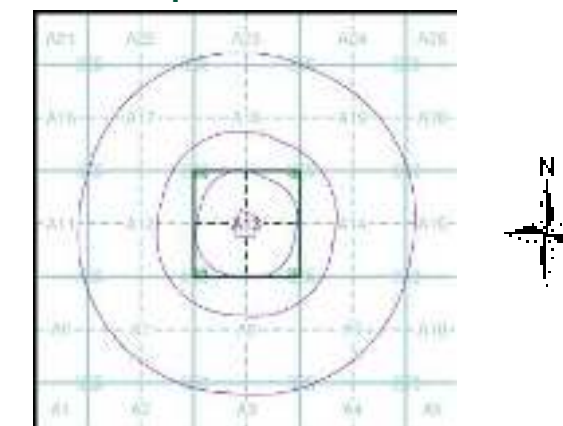
Source map scale - 1:10,560

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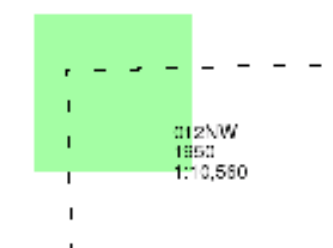
Hertfordshire

Published 1950

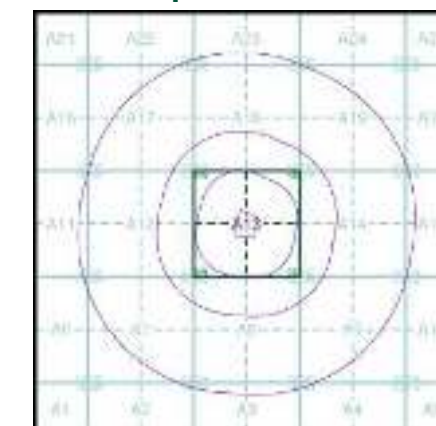
Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

Order Number: 271111641_1_1
Customer Ref: 1873
National Grid Reference: 517550, 229630
Slice: A
Site Area (Ha): 1.86
Search Buffer (m): 1000

Site Details

Land South of Oughtonhead Lane, Hitchin, Herts, SG5 2QY



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



Ordnance Survey Plan

Published 1960

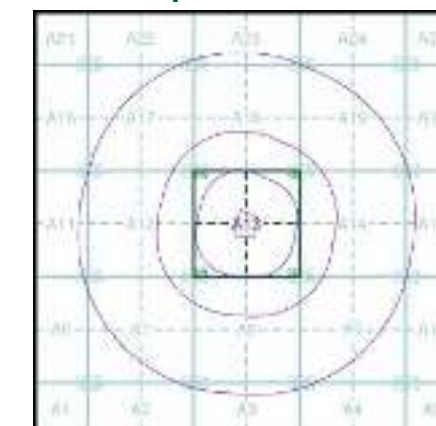
Source map scale - 1:10,000

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)

TL13SE |
1960 |
1:10,560
TL12NE |
1960 |
1:10,560 |
--- |

Historical Map - Slice A



Order Details

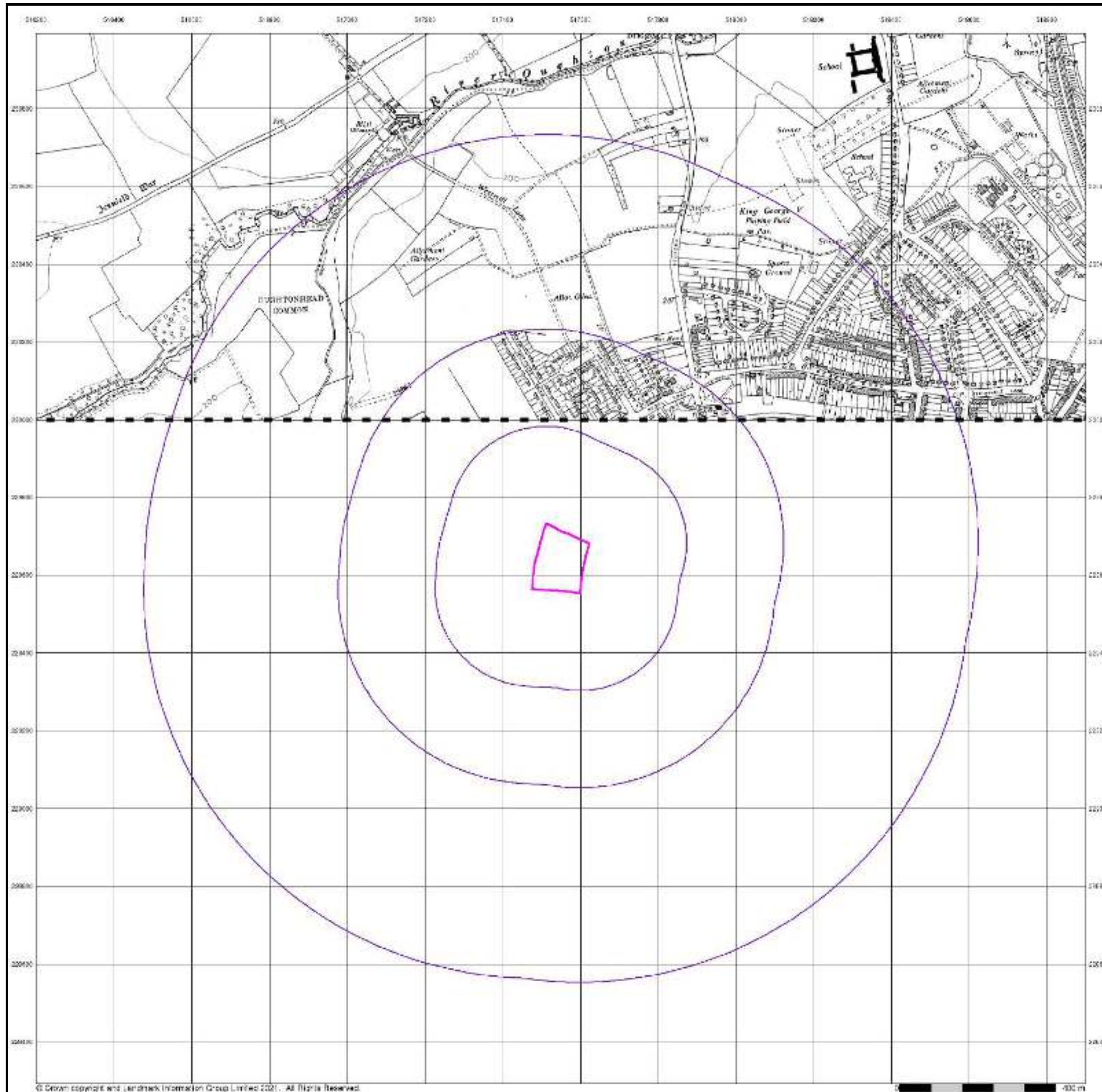
Order Number: 271111641_1_1
Customer Ref: 1873
National Grid Reference: 517550, 229630
Slice: A
Site Area (Ha): 1.86
Search Buffer (m): 1000

Site Details

Land South of Oughtonhead Lane, Hitchin, Herts, SG5 2QY



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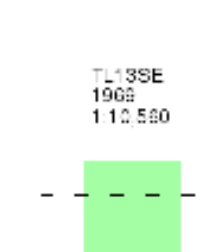
Ordnance Survey Plan

Published 1969

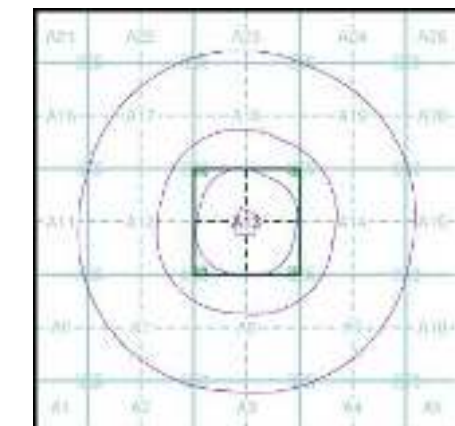
Source map scale - 1:10,000

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

Order Number: 271111641_1_1
Customer Ref: 1873
National Grid Reference: 517550, 229630
Slice: A
Site Area (Ha): 1.86
Search Buffer (m): 1000

Site Details

Land South of Oughtonhead Lane, Hitchin, Herts, SG5 2QY



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



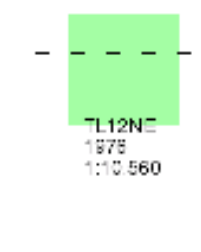
Ordnance Survey Plan

Published 1976

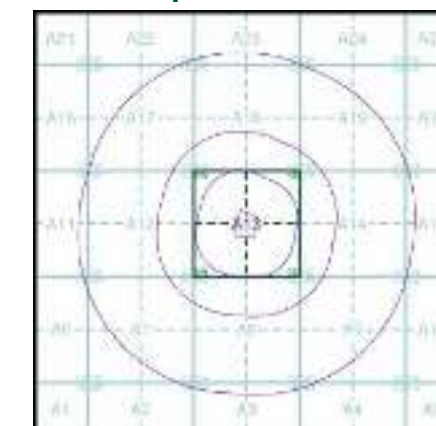
Source map scale - 1:10,000

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

Order Number: 271111641_1_1
Customer Ref: 1873
National Grid Reference: 517550, 229630
Slice: A
Site Area (Ha): 1.86
Search Buffer (m): 1000

Site Details

Land South of Oughtonhead Lane, Hitchin, Herts, SG5 2QY



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Fax: 0844 844 9951
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Ordnance Survey Plan

Published 1982 - 1983

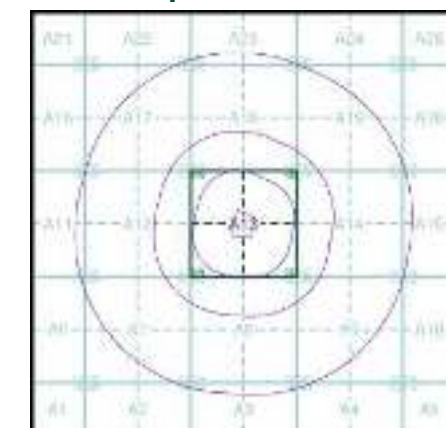
Source map scale - 1:10,000

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)

TL13SE
1983
1:10,000
TL12NE
1982
1:10,000

Historical Map - Slice A



Order Details

Order Number: 271111641_1_1
Customer Ref: 1873
National Grid Reference: 517550, 229630
Slice: A
Site Area (Ha): 1.86
Search Buffer (m): 1000

Site Details

Land South of Oughtonhead Lane, Hitchin, Herts, SG5 2QY



Tel: 0844 844 9952
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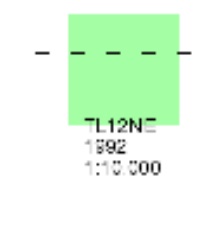
Ordnance Survey Plan

Published 1992

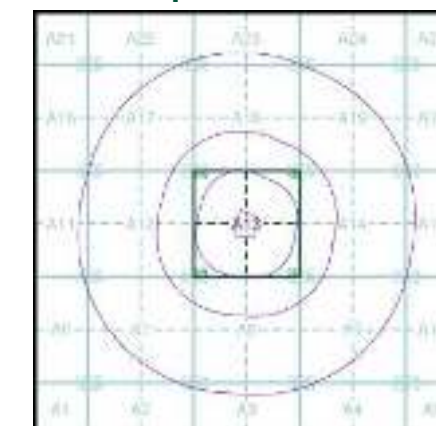
Source map scale - 1:10,000

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940's, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

Order Number: 271111641_1_1
Customer Ref: 1873
National Grid Reference: 517550, 229630
Slice: A
Site Area (Ha): 1.86
Search Buffer (m): 1000

Site Details

Land South of Oughtonhead Lane, Hitchin, Herts, SG5 2QY



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



10k Raster Mapping

Published 1999

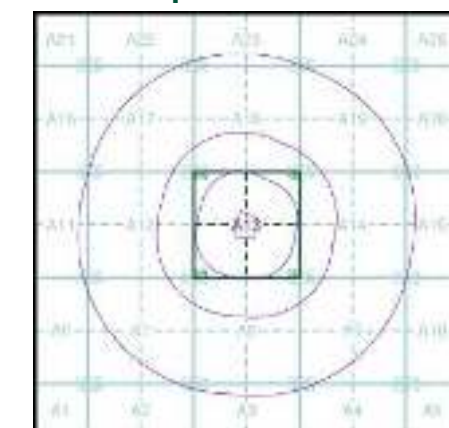
Source map scale - 1:10,000

The historical maps shown were produced from the Ordnance Survey's 1:10,000 colour raster mapping. These maps are derived from Landplan which replaced the old 1:10,000 maps originally published in 1970. The data is highly detailed showing buildings, fences and field boundaries as well as all roads, tracks and paths. Road names are also included together with the relevant road number and classification. Boundary information depiction includes county, unitary authority, district, civil parish and constituency.

Map Name(s) and Date(s)

TL13SE |
1999 |
1:10,000
TL12NE |
1999 |
1:10,000 |
--- |

Historical Map - Slice A



Order Details

Order Number: 271111641_1_1
Customer Ref: 1873
National Grid Reference: 517550, 229630
Slice: A
Site Area (Ha): 1.86
Search Buffer (m): 1000

Site Details

Land South of Oughtonhead Lane, Hitchin, Herts, SG5 2QY

Landmark
INFORMATION GROUP

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



10k Raster Mapping

Published 2006

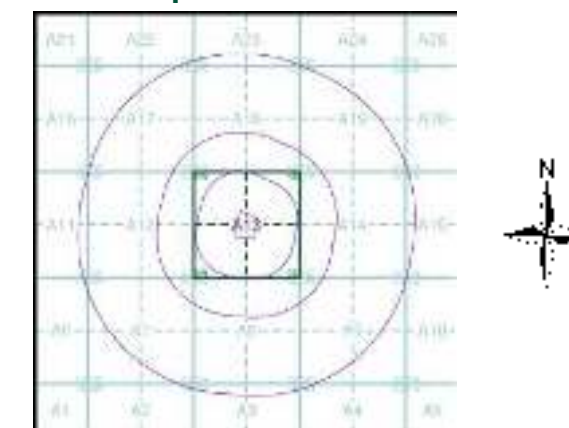
Source map scale - 1:10,000

The historical maps shown were produced from the Ordnance Survey's 1:10,000 colour raster mapping. These maps are derived from Landplan which replaced the old 1:10,000 maps originally published in 1970. The data is highly detailed showing buildings, fences and field boundaries as well as all roads, tracks and paths. Road names are also included together with the relevant road number and classification. Boundary information depiction includes county, unitary authority, district, civil parish and constituency.

Map Name(s) and Date(s)

TL13SE |
2006 |
1:10,000 |
TL12NE |
2006 |
1:10,000 |

Historical Map - Slice A



Order Details

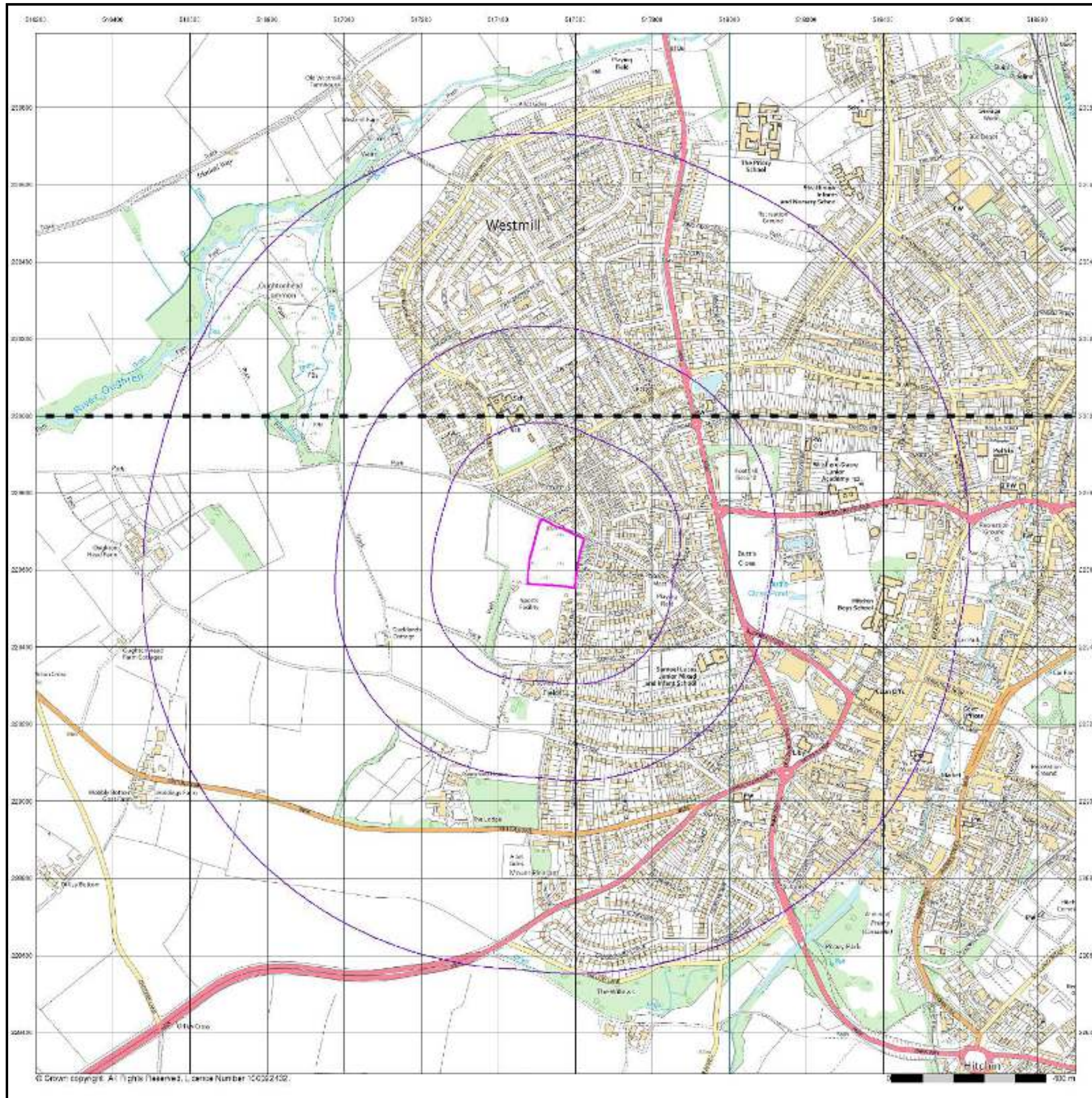
Order Number: 271111641_1_1
Customer Ref: 1873
National Grid Reference: 517550, 229630
Slice: A
Site Area (Ha): 1.86
Search Buffer (m): 1000

Site Details

Land South of Oughtonhead Lane, Hitchin, Herts, SG5 2QY

Landmark
INFORMATION GROUP

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



VectorMap Local

Published 2020

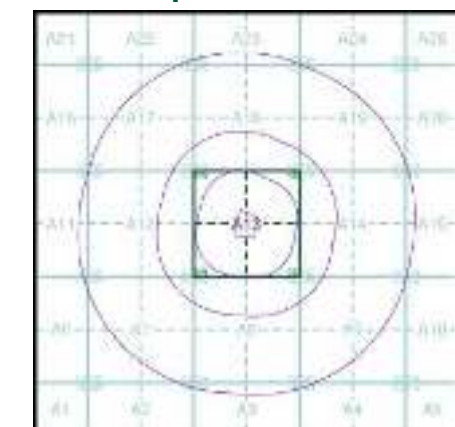
Source map scale - 1:10,000

VectorMap Local (Raster) is Ordnance Survey's highest detailed 'backdrop' mapping product. These maps are produced from OS's VectorMap Local, a simple vector dataset at a nominal scale of 1:10,000, covering the whole of Great Britain, that has been designed for creating graphical mapping. OS VectorMap Local is derived from large-scale information surveyed at 1:1250 scale (covering major towns and cities), 1:2500 scale (smaller towns, villages and developed rural areas), and 1:10 000 scale (mountain, moorland and river estuary areas).

Map Name(s) and Date(s)

TL:1SE
2020
Variable
TL:2NE
2020
Variable

Historical Map - Slice A



Order Details

Order Number: 271111641_1_1
Customer Ref: 1873
National Grid Reference: 517550, 229630
Slice: A
Site Area (Ha): 1.86
Search Buffer (m): 1000

Site Details

Land South of Oughtonhead Lane, Hitchin, Herts, SG5 2QY



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

Appendix 4

Zetica UXB Risk Map

UNEXPLODED BOMB RISK MAP



SITE LOCATION

Map Centre: 517497,229602



LEGEND

- High:** Areas indicated as having a bombing density of 50 bombs per 1000acre or higher.
- Moderate:** Areas indicated as having a bombing density of 15 to 49 bombs per 1000acre.
- Low:** Areas indicated as having 15 bombs per 1000acre or less.

- military**
- industry**
- UXO find**
- transport**
- dock**
- Luftwaffe targets**
- utilities**
- Bombing decoy**
- other**

How to use your Unexploded Bomb (UXB) risk map?

The map indicates the potential for Unexploded Bombs (UXB) to be present as a result of World War Two (WWII) bombing.

You can incorporate the map into your preliminary risk assessment* for potential Unexploded Ordnance (UXO) for a site. Using this map, you can make an informed decision as to whether more in-depth detailed risk assessment* is necessary.

What do I do if my site is in a moderate or high risk area?

Generally, we recommend that a detailed UXO desk study and risk assessment is undertaken for sites in a moderate or high UXB risk area.

Similarly, if your site is near to a designated Luftwaffe target or bombing decoy then additional detailed research is recommended.

More often than not, this further detailed research will conclude that the potential for a significant UXO hazard to be present on your site is actually low.

Never plan site work or undertake a risk assessment using these maps alone. More detail is required, particularly where there may be a source of UXO from other military operations which are not reflected on these maps.

If my site is in a low risk area, do I need to do anything?

If both the map and other research confirms that there is a low potential for UXO to be present on your site then, subject to your own comfort and risk tolerance, works can proceed with no special precautions.

A low risk really means that there is no greater probability of encountering UXO than anywhere else in the UK.

If you are unsure whether other sources of UXO may be present, you can ask for one of our **pre-desk study assessments (PDSA)**

If I have any questions, who do I contact?

tel: **+44 (0) 1993 886682**

email: **uxo@zetica.com**

web: **www.zeticauxo.com**

The information in this UXB risk map is derived from a number of sources and should be used in conjunction with the accompanying notes on our website: (<https://zeticauxo.com/downloads-and-resources/risk-maps/>)

Zetica cannot guarantee the accuracy or completeness of the information or data used and cannot accept any liability for any use of the maps. These maps can be used as part of a technical report or similar publication, subject to acknowledgment. The copyright remains with Zetica Ltd.

It is important to note that this map is not a UXO risk assessment and should not be reported as such when reproduced.

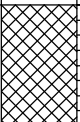
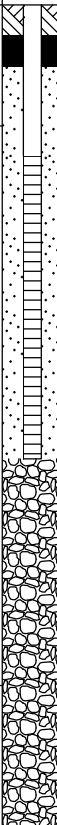
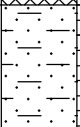
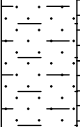
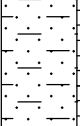
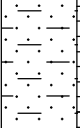
*Preliminary and detailed UXO risk assessments are advocated as good practice by industry guidance such as CIRIA C681 'Unexploded Ordnance (UXO), a guide for the construction industry'.

Appendix 5

Exploratory Hole Logs

BOREHOLE LOG

Project Land South of Oughtonhead Lane, Hitchin				BOREHOLE No WS101	
Job No 1873	Date 12-01-21	Ground Level (m)	Co-Ordinates () E 517,634.0 N 229,583.0		
Contractor KL Sampling Ltd				Sheet 1 of 1	

SAMPLES & TESTS			STRATA					Geology	Instrument/ Backfill
Depth	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION		
0.30	E1	N14				(0.80)	MADE GROUND (Soft brown slightly sandy slightly gravelly clay). [REWORKED CLAY]		
0.50	D1					0.80			
0.80	E2						Medium dense light yellowish brown mottled white slightly clayey fine and medium SAND.		
1.00	D2						Pockets of medium and coarse sand at 3.60 to 3.65 mbgl and 3.80 to 4.10 mbgl.		
1.20	E3								
1.20		N20							
1.50	D3								
2.00	D4								
2.00		N22				(3.70)			
2.80	D5								
3.00									
3.30	D6	N13							
4.00									
4.50	D7					4.50	Firm greyish brown slightly sandy CLAY.		
4.50		N15				(0.95)			
5.00						5.45	END OF BOREHOLE AT 5.45 MBGL		

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Dia. mm	Water Dpt	From	To	Hours	From	To	
											No Groundwater Encountered. Coordinates taken with hand-held GPS.
All dimensions in metres Scale 1:50			Client CALA Homes			Method/ Plant Used Premier 110 WS Rig			Logged By C.D.		

AGS3 UK BH 1873_OUGHTONHEAD LN, HITCHIN GPJ GINT STD AGS 3 1.GDT 11/3/21

BOREHOLE LOG

Project Land South of Oughtonhead Lane, Hitchin				BOREHOLE No WS102	
Job No 1873	Date 12-01-21	Ground Level (m)	Co-Ordinates () E 517,508.0 N 229,687.0		
Contractor KL Sampling Ltd				Sheet 1 of 1	

SAMPLES & TESTS			STRATA					Geology	Instrument/ Backfill
Depth	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thickness)	DESCRIPTION		
0.10	E1	N18				0.20	Dark brown slightly gravelly slightly sandy clayey TOPSOIL with fine rootlets.		
0.40	E2					(1.25)	Stiff friable brown slightly sandy gravelly CLAY. Gravel is fine and medium chert and occasional chalk. Chert band at 1.40 mbgl recovered as fine to coarse angular gravel of chert.		
0.50	D1								
0.80	E3								
1.00	D2					1.45	Medium dense orangish brown medium and coarse SAND.		
1.20		N19				1.80	Brown mottled white gravelly SAND. Gravel is fine and medium subangular to rounded chert and chalk.		
1.50	D3					2.00			
2.00	D4					(1.25)	Stiff slightly sandy slightly gravelly CLAY. Gravel is fine rounded to subangular chert and chalk.		
2.50	D5	N23				3.25	Dense, becoming very dense with depth, light greyish brown fine and medium SAND with occasional fine and medium gravel of chert and chalk.		
3.00	D6					(0.75)			
3.50	D7	N63				4.00	BOREHOLE REFUSED AT 4.00 MBGL		
4.00									

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water Dpt	From	To	Hours	From	To	
											No Groundwater Encountered. Coordinates taken with hand-held GPS. Refusal at 4.00 mbgl. Assumed on gravel or cobble.
All dimensions in metres Scale 1:50			Client CALA Homes			Method/ Plant Used Premier 110 WS Rig			Logged By C.D.		

BOREHOLE LOG

Project Land South of Oughtonhead Lane, Hitchin				BOREHOLE No WS103	
Job No 1873	Date 12-01-21	Ground Level (m)	Co-Ordinates () E 517,514.0 N 229,585.0		
Contractor KL Sampling Ltd				Sheet 1 of 1	

SAMPLES & TESTS			STRATA					Geology	Instrument/ Backfill
Depth	Type No	Test Result	Water	Reduced Level	Legend	Depth (Thickness)	DESCRIPTION		
0.00-0.25	E1					0.25	Dark brown slightly gravelly slightly sandy clayey TOPSOIL with fine rootlets.		
0.30-0.50	E2						Firm, stiff in parts, friable light brown slightly fine sandy slightly gravelly CLAY. Gravel is angular to subrounded fine and medium chert and chalk.		
0.50	D1					(1.35)	Pocket of orangish brown fine and medium sand from 1.50-1.60 mbgl.		
1.20	D2	N19				1.60			
1.20									
1.60	D3						Firm, stiff in parts, friable light brown slightly gravelly sandy CLAY. Gravel is fine and medium angular to subrounded chert and chalk.		
2.00	D4	N14					Pocket of medium dense light brown mottled white slightly gravelly clayey sand at 3.25-3.55 mbgl.		
2.00									
2.50	D5								
3.00	D6	N17							
3.00									
3.25	D7					(3.85)			
3.55	D8								
4.00	D9	N13							
4.00									
4.50	D10								
5.00		N15							
						5.45	END OF BOREHOLE AT 5.45 MBGL		

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Dia. mm	Water Dpt	From	To	Hours	From	To	
											No Groundwater Encountered. Coordinates taken with hand-held GPS.
All dimensions in metres Scale 1:50			Client CALA Homes			Method/ Plant Used Premier 110 WS Rig			Logged By C.D.		

AGS3 UK BH 1873_OUGHTONHEAD LN, HITCHIN.GPJ GINT STD.AGS.3 1.GDT 11/3/21

DYNAMIC PROBE LOG

Project Land South of Oughtonhead Lane, Hitchin				PROBE No DP101
Job No 1873	Date 12-01-21	Ground Level (m)	Co-Ordinates () E 517,585.0 N 229,657.0	
Contractor KL Sampling Ltd				Sheet 1 of 1

Depth (m)	Readings (blows/100mm)	Diagram (N100 Values)						Torque (Nm)	Remarks
		5	10	15	20	25	30		
1	1 1 2 1								
2	2 2 2 3								
3	6 6 5 5								
4	4 4 3 4								
5	5 6 6 5								
6	5 5 6 6								
7	7 7 8 7								
8	6 5 5 4								
9	8 8 8 7								
10	8 7 5 5								
11	6 5 4 3								
12	4 4 6 5								
13	5 6 6 5								
14	5 4 4 4								

Hammer Wt (kg)	63.5		GENERAL REMARKS
Hammer Drop (mm)	750		
Cone Dia (mm)	20		
Cone Type	Sacrificial		
Damper	None		
All dimensions in metres Scale 1:50	Client CALA Homes	Method/ Plant Used Premier WS Rig	Logged By Driller

AGS3 DYNAMIC PROBE 1873 OUGHTONHEAD LN, HITCHIN.GPJ GINT STD AGS 3.1.GDT 12/2/21

DYNAMIC PROBE LOG

Project Land South of Oughtonhead Lane, Hitchin				PROBE No DP102
Job No 1873	Date 12-01-21	Ground Level (m)	Co-Ordinates () E 517,563.0 N 229,698.0	
Contractor KL Sampling Ltd				Sheet 1 of 1

Depth (m)	Readings (blows/100mm)	Diagram (N100 Values)						Torque (Nm)	Remarks
		5	10	15	20	25	30		
1	1 1 1 2 1								
	1 0 1 0 1								
	2 2 2 2 3								
	3 2 3 3 4								
2	5 5 4 4 5								
	4 4 6 6 6								
3	6 6 6 7 6								
	5 4 4 3 4								
4	4 4 4 5 4								
	4 4 4 4 4								
5	4 5 6 5 6								
	5 5 5 5 5								
6	6 8 9 9 9								
	22 50								
7									

Hammer Wt (kg)	63.5		GENERAL REMARKS
Hammer Drop (mm)	750		
Cone Dia (mm)	20		
Cone Type	Sacrificial		
Damper	None		
All dimensions in metres Scale 1:50	Client CALA Homes	Method/ Plant Used Premier WS Rig	Logged By Driller

AGS3 DYNAMIC PROBE 1873 OUGHTONHEAD LN, HITCHIN.GPJ GINT STD AGS 3.1.GDT 12/2/21

DYNAMIC PROBE LOG

Project Land South of Oughtonhead Lane, Hitchin				PROBE No DP103
Job No 1873	Date 12-01-21	Ground Level (m)	Co-Ordinates () E 517,509.0 N 229,643.0	
Contractor KL Sampling Ltd				Sheet 1 of 1

[illegible]

Hammer Wt (kg)	63.5		GENERAL REMARKS
Hammer Drop (mm)	750		
Cone Dia (mm)	20		
Cone Type	Sacrificial		
Damper	None		
All dimensions in metres Scale 1:50	Client CALA Homes	Method/ Plant Used Premier WS Rig	Logged By Driller

AGS3 DYNAMIC PROBE 1873 OUGHTONHEAD LN, HITCHIN.GPJ GINT STD AGS 3 1.GDT 12/2/21

DYNAMIC PROBE LOG

Project Land South of Oughtonhead Lane, Hitchin				PROBE No DP104
Job No 1873	Date 12-01-21	Ground Level (m)	Co-Ordinates () E 517,596.0 N 229,620.0	
Contractor KL Sampling Ltd				Sheet 1 of 1

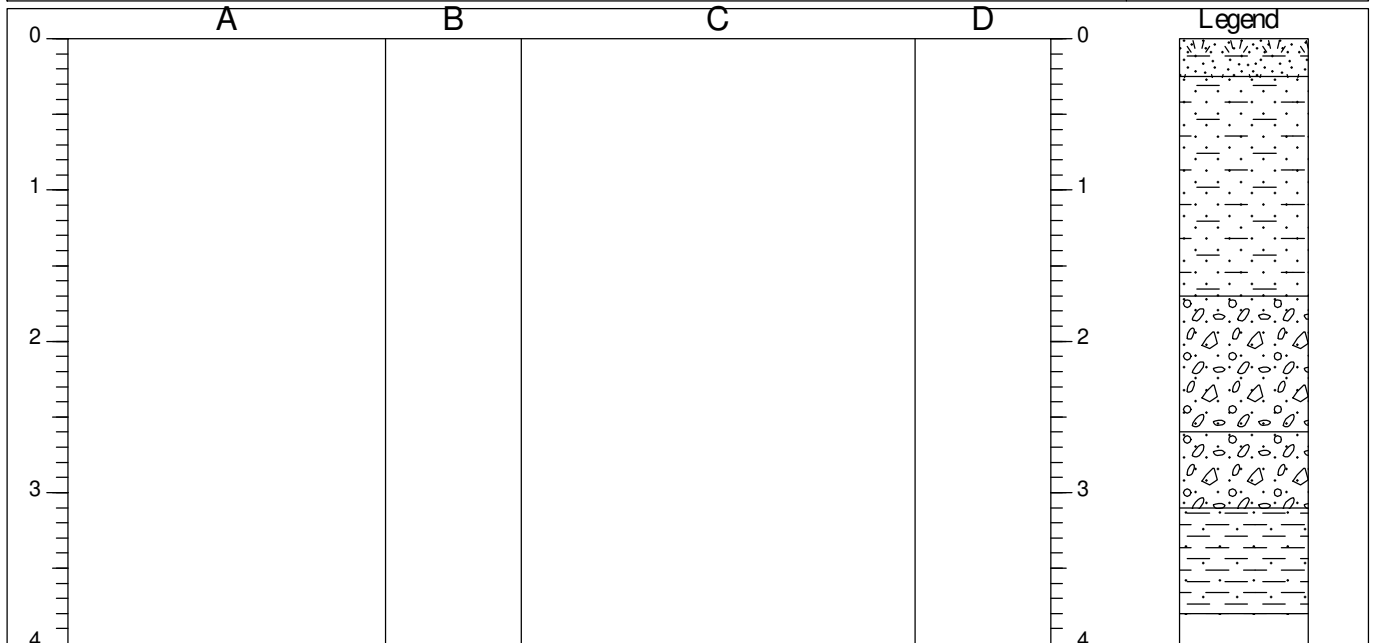
Depth (m)	Readings (blows/100mm)	Diagram (N100 Values)						Torque (Nm)	Remarks
		5	10	15	20	25	30		
1	1 1 1 1 1								
	1 1 1 1 1								
	1 2 2 3 2								
	3 3 2 2 3								
2	3 3 2 2 2								
	4 5 6 6 6								
3	4 3 2 2 3								
	3 3 4 4 3								
4	3 3 3 3 3								
	4 5 4 5 4								
5	4 5 4 4 5								
	8 8 8 11 12								
6	14 13 10 10 11								
	11 12 12 11 12								
7									

Hammer Wt (kg)	63.5		GENERAL REMARKS
Hammer Drop (mm)	750		
Cone Dia (mm)	20		
Cone Type	Sacrificial		
Damper	None		
All dimensions in metres Scale 1:50	Client CALA Homes	Method/ Plant Used Premier WS Rig	Logged By Driller

AGS3 DYNAMIC PROBE 1873 OUGHTONHEAD LN, HITCHIN.GPJ GINT STD AGS 3.1.GDT 12/2/21

TRIAL PIT LOG

Project Land South of Oughtonhead Lane, Hitchin				TRIAL PIT No TP101
Job No 1873	Date 12-01-21	Ground Level (m)	Co-Ordinates () E 517,543.0 N 229,744.0	
Contractor Wilsons of Wallington				Sheet 1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.25		Dark brown slightly gravelly slightly sandy clayey TOPSOIL with fine rootlets.	0.00-0.25	E1	
0.25-1.70		Orangish brown clayey fine and medium SAND with occasional gravel of subrounded to angular chert.	0.40-0.50 0.50-0.80	E2 D1	
1.70-2.60		Yellowish brown slightly clayey SAND & fine and medium angular to subrounded GRAVEL of chert. Decreasing fines content with depth.	1.80-2.20	B1	
2.60-3.10		Yellowish brown SAND & fine and medium angular to subrounded GRAVEL chert.	2.60-2.80	D2	
3.10-3.80		Stiff light grey fine sandy CLAY with pockets of clayey sand.	3.10-3.50	D3	
		END OF TRIAL PIT AT 3.80 MBGL			

Shoring/Support: None Stability: Stable 				GENERAL REMARKS No Groundwater Encountered. Coordinates taken with hand-held GPS.	
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All dimensions in metres Scale 1:50	Client CALA Homes	Method/ Plant Used JCB 3CX	Logged By C.D.
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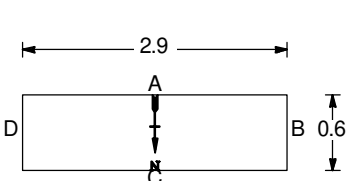
AGS3 UK TP 1873_OUGHTONHEAD LN, HITCHIN GPJ GINT STD AGS 3_1.GDT 10/3/21

TRIAL PIT LOG

Project Land South of Oughtonhead Lane, Hitchin				TRIAL PIT No TP102
Job No 1873	Date 12-01-21	Ground Level (m)	Co-Ordinates () E 517,547.0 N 229,674.0	
Contractor Wilsons of Wallington				Sheet 1 of 1

A B C D				Legend
0				0
1				1
2				2
3				3
4				4

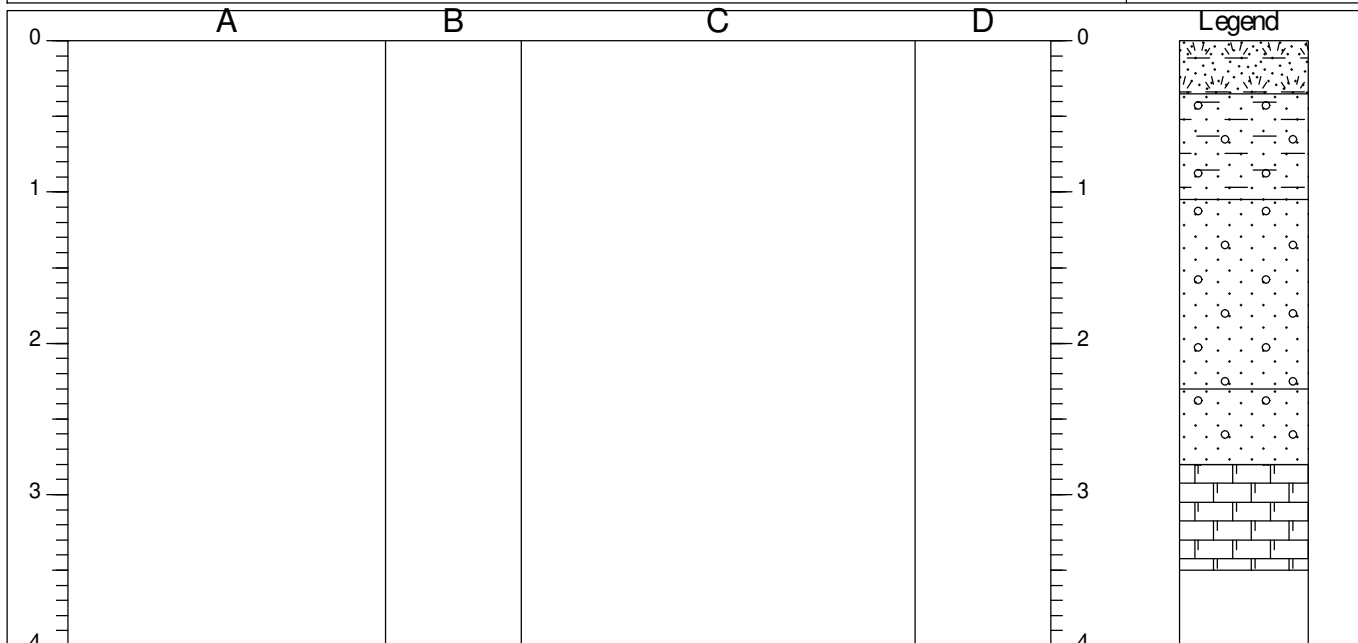
STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.30		Dark brown slightly gravelly slightly sandy clayey TOPSOIL with fine rootlets.			
0.30-1.20		Brown slightly clayey slightly gravelly fine to coarse SAND. Gravel is fine to coarse chert with occasional cobbles of chert.	0.20	E1	
			0.40	E2	
			0.80	D1	
1.20-2.80		Brownish grey slightly clayey fine to coarse SAND & fine and medium angular to subrounded GRAVEL of chert.	1.40	B2	
2.80-3.40		Light brown fine and medium SAND.	2.80	B3	
		END OF TRIAL PIT AT 3.40 MBGL	3.10	D2	

Shoring/Support: None Stability: Stable			GENERAL REMARKS	
			No Groundwater Encountered. Coordinates taken with hand-held GPS.	

All dimensions in metres Scale 1:50	Client CALA Homes	Method/ Plant Used JCB 3CX	Logged By C.D.
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TRIAL PIT LOG

Project Land South of Oughtonhead Lane, Hitchin				TRIAL PIT No TP103
Job No 1873	Date 12-01-21	Ground Level (m)	Co-Ordinates () E 517,467.0 N 229,661.0	
Contractor Wilsons of Wallington				Sheet 1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.35		Dark brown slightly gravelly slightly sandy clayey TOPSOIL with fine rootlets.			
0.35-1.05		Brown slightly clayey gravelly SAND. Gravel is fine and medium subangular to rounded chert	0.20 0.35	E1 E2	
1.05-2.30		Orangish brown gravelly fine and medium SAND. Gravel is fine to coarse subangular to rounded chert.	1.05 1.05	B1 E3	
2.30-2.80		Light greyish yellow slightly gravelly SAND. Gravel is fine angular and subrounded chert.	2.30	B2	
2.80-3.50		White fine to coarse subangular gravel of weak weathered CHALK with occasional gravel of fine and medium chert in a stiff friable light grey slightly sandy clayey matrix. (Grade Dm(VI)). Chalk gravel content increasing in frequency and becoming more coarse with depth.	2.80 3.20	D2 D3	
		END OF TRIAL PIT AT 3.50 MBGL			

Shoring/Support: None Stability: Stable 			GENERAL REMARKS No Groundwater Encountered. Coordinates taken with hand-held GPS.	
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All dimensions in metres Scale 1:50	Client CALA Homes	Method/ Plant Used JCB 3CX	Logged By C.D.
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TRIAL PIT LOG

Project Land South of Oughtonhead Lane, Hitchin				TRIAL PIT No TP104
Job No 1873	Date 13-01-21	Ground Level (m)	Co-Ordinates () E 517,555.0 N 229,637.0	
Contractor Wilsons of Wallington				Sheet 1 of 1

A		B		C		D		Legend	
0									
1									
2									
3									
4									

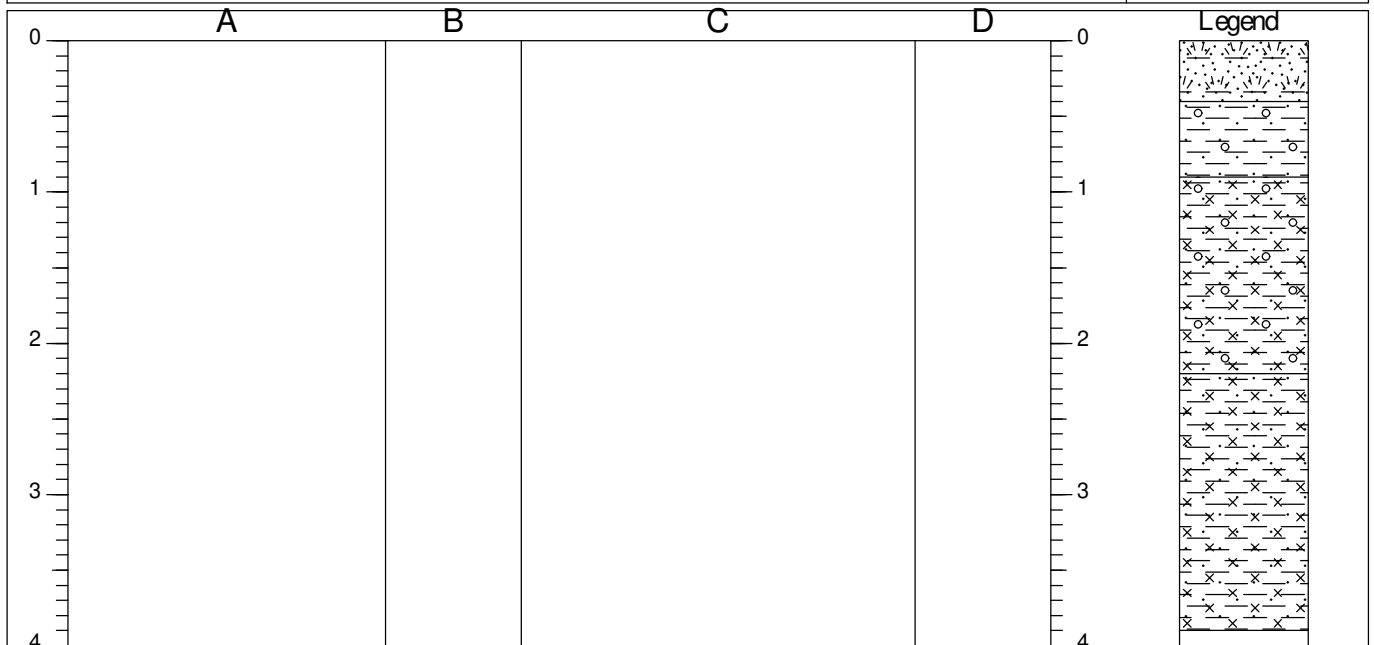
STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.40		Dark brown slightly gravelly slightly sandy clayey TOPSOIL with fine rootlets.	0.20	E1	4% CBR
0.40-1.30		Firm friable light brown slightly gravelly sandy CLAY.	0.50	D1	
			0.50	E2	
			0.80	E3	
			0.90	CH	
1.30-3.00		Light grey fine to coarse subangular gravel of weak weathered CHALK with occasional gravel to cobbles of chert in a stiff friable grey slightly sandy clayey matrix. (Grade Dm/VI).	1.30	D2	
			1.80	B1	
			2.40	B2	
			2.80	D4	
		END OF TRIAL PIT AT 3.00 MBGL	2.90	D5	

Shoring/Support: None Stability: Stable		GENERAL REMARKS No Groundwater Encountered. Coordinates taken with hand-held GPS.
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All dimensions in metres Scale 1:50	Client CALA Homes	Method/ Plant Used JCB 3CX	Logged By C.D.
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TRIAL PIT LOG

Project Land South of Oughtonhead Lane, Hitchin				TRIAL PIT No TP105
Job No 1873	Date 13-01-21	Ground Level (m)	Co-Ordinates () E 517,506.0 N 29,643.0	
Contractor Wilsons of Wallington				Sheet 1 of 2



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.40		Dark brown slightly gravelly slightly sandy clayey TOPSOIL with fine rootlets.	0.20	E1	
0.40-0.90		Firm friable orangish brown slightly gravelly sandy CLAY. Gravel is fine to coarse rounded to subangular chert.	0.40	E2	
			0.60	B1	
0.90-2.20		Friable yellowish brown slightly gravelly sandy silty CLAY.	1.00	D1	
			1.00	E3	
			1.60	B2	
2.20-3.90		Light brown fine sandy silty CLAY with occasional fine and medium gravel of chalk and rare decaying organic matter.	2.50	B3	
			3.50	D2	
			3.80	D3	

Shoring/Support: None Stability: Stable 			GENERAL REMARKS No Groundwater Encountered. Coordinates taken with hand-held GPS.	
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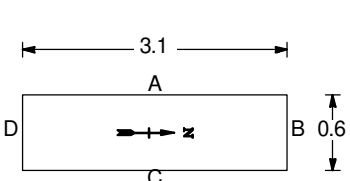
All dimensions in metres Scale 1:50	Client CALA Homes	Method/ Plant Used JCB 3CX	Logged By C.D.
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TRIAL PIT LOG

Project Land South of Oughtonhead Lane, Hitchin				TRIAL PIT No TP105
Job No 1873	Date 13-01-21	Ground Level (m)	Co-Ordinates () E 517,506.0 N 29,643.0	
Contractor Wilsons of Wallington				Sheet 2 of 2

4	A	B	C	D	4	Legend
5					5	
6					6	
7					7	
8					8	

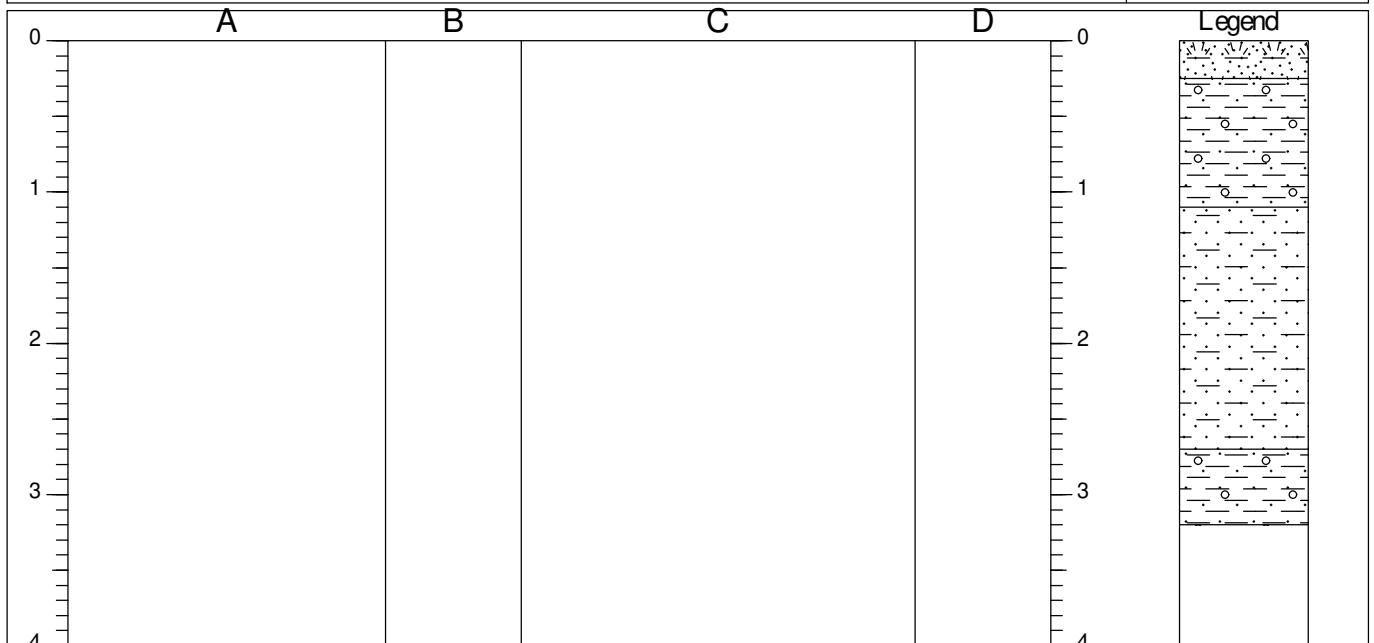
STRATA				SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests	
		END OF TRIAL PIT AT 3.90 MBGL				

Shoring/Support: None Stability: Stable 	GENERAL REMARKS No Groundwater Encountered. Coordinates taken with hand-held GPS.
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All dimensions in metres Scale 1:50	Client CALA Homes	Method/ Plant Used JCB 3CX	Logged By C.D.
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TRIAL PIT LOG

Project Land South of Oughtonhead Lane, Hitchin				TRIAL PIT No TP106
Job No 1873	Date 13-01-21	Ground Level (m)	Co-Ordinates () E 517,551.0 N 29,621.0	
Contractor Wilsons of Wallington				Sheet 1 of 1



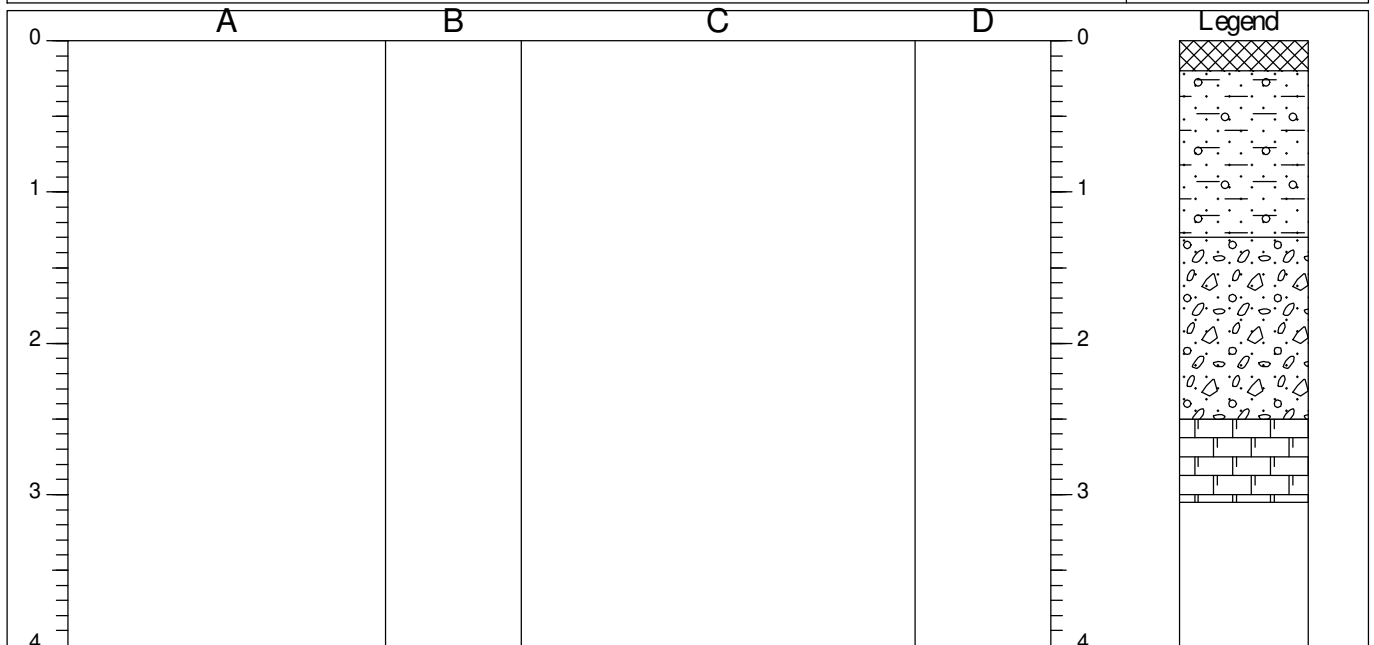
STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.25		Dark brown slightly gravelly slightly sandy clayey TOPSOIL with fine rootlets.	0.10	E1	4% CBR
0.25-1.10		Firm friable brown slightly gravelly sandy CLAY. Gravel is fine and medium chert and chalk.	0.30	E2	
			0.70	CH	
			0.70	D1	
			0.70	E3	
			1.20	B1	
1.10-2.70		Light brown clayey SAND.			
			2.20	D2	
2.70-3.20		Light brown slightly gravelly sandy CLAY. Gravel is fine and medium subangular and subrounded chert and weak weathered chalk.			
			3.00	B2	
		END OF TRIAL PIT AT 3.20 MBGL			

Shoring/Support: None Stability: Stable 			GENERAL REMARKS No Groundwater Encountered. Coordinates taken with hand-held GPS.	
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All dimensions in metres Scale 1:50	Client CALA Homes	Method/ Plant Used JCB 3CX	Logged By C.D.
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TRIAL PIT LOG

Project Land South of Oughtonhead Lane, Hitchin				TRIAL PIT No TP107
Job No 1873	Date 13-01-21	Ground Level (m)	Co-Ordinates () E 517,533.0 N 229,588.0	
Contractor Wilsons of Wallington				Sheet 1 of 1



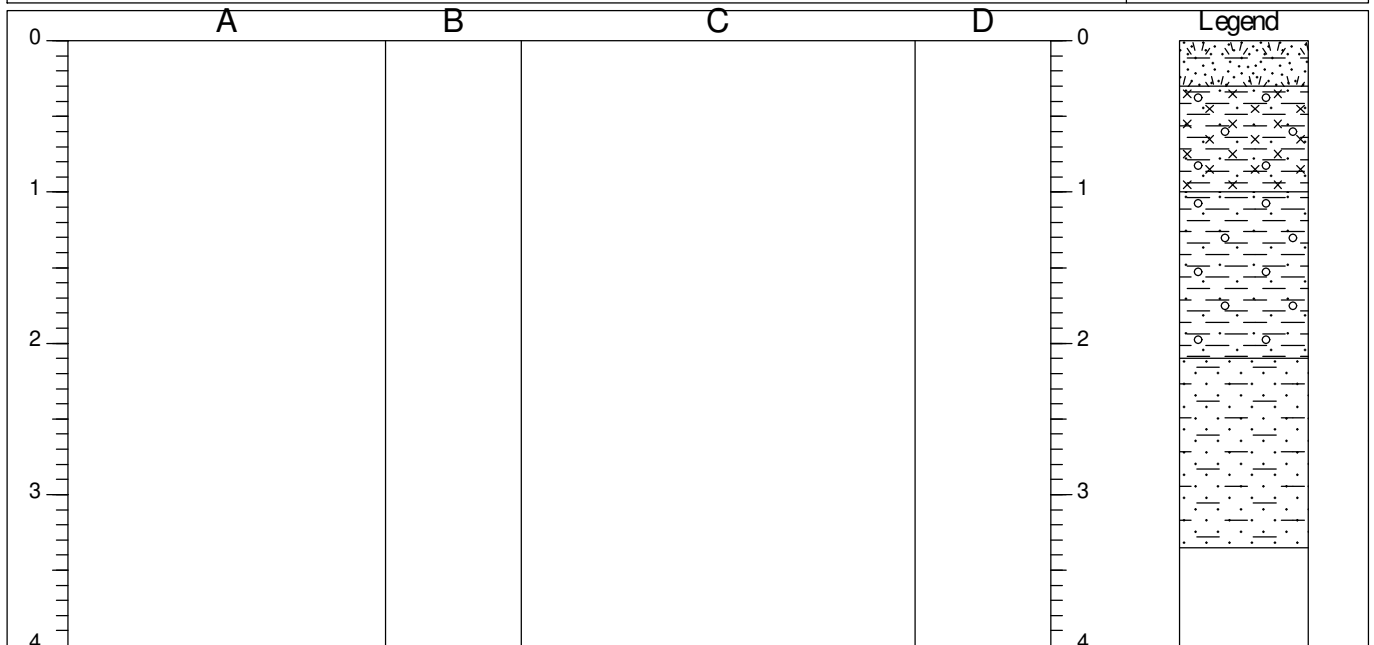
STRATA				SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests	
0.00-0.20		MADE GROUND (Dark brown slightly gravelly slightly sandy clayey topsoil. Occasional plastic, brick and ceramic). Orangish brown slightly clayey gravelly fine and medium SAND.	0.00	E1		
0.20-1.30			0.50 0.50	D1 E2		
1.30-2.50		Orangish brown medium and coarse SAND and fine to coarse GRAVEL of coarse subangular to rounded chert.	1.50 1.50	B1 E3		
			2.00	B2		
2.50-3.05		Light grey gravel of fine to coarse subangular highly weathered CHALK in a light grey silty clay matrix (Grade Dm/ VI).	2.60	B3		
		END OF TRIAL PIT AT 3.05 MBGL	2.90	D2		

Shoring/Support: None Stability: Stable 				GENERAL REMARKS	
				No Groundwater Encountered. Coordinates taken with hand-held GPS.	

All dimensions in metres Scale 1:50	Client CALA Homes	Method/ Plant Used JCB 3CX	Logged By C.D.
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TRIAL PIT LOG

Project Land South of Oughtonhead Lane, Hitchin				TRIAL PIT No SA101
Job No 1873	Date 12-01-21	Ground Level (m)	Co-Ordinates () E 517,600.0 N 229,681.0	
Contractor Wilsons of Wallington				Sheet 1 of 1



STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.30		Dark brown slightly gravelly slightly sandy clayey TOPSOIL with fine rootlets.			
0.30-1.00		Firm friable brown slightly silty slightly gravelly sandy CLAY. Gravel is fine to coarse angular to rounded flint.	0.30	E1	
			0.50	D1	
			0.60	E2	
1.00-2.10		Firm friable light greyish brown mottled orangish brown sandy gravelly CLAY. Gravel is fine and medium occasionally coarse flint and chalk.	1.00	B1	
			1.00	E3	
			1.50	D2	
2.10-3.35		Light brown slightly silty clayey SAND with occasional fine and medium gravel of flint.	2.00	B2	
			2.50	D3	
			3.00	B3	
			3.35	D4	
		END OF TRIAL PIT AT 3.35 MBGL			

Shoring/Support: None. Stability: Stable.			GENERAL REMARKS No Groundwater Encountered. Coordinates taken with hand-held GPS. Infiltration Test Response Zone: 2.45-3.35 mbgl.	

All dimensions in metres Scale 1:50	Client CALA Homes	Method/ Plant Used JCB 3CX	Logged By C.U.
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TRIAL PIT LOG

Project Land South of Oughtonhead Lane, Hitchin				TRIAL PIT No SA102
Job No 1873	Date 12-01-21	Ground Level (m)	Co-Ordinates () E 517,540.0 N 229,657.0	
Contractor Wilsons of Wallington				Sheet 1 of 1

A		B		C		D		Legend	
0								0	
1								1	
2								2	
3								3	
4								4	

STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.35		Dark brown slightly gravelly slightly sandy clayey TOPSOIL with fine rootlets.			
0.35-1.10		Firm brown slightly gravelly sandy CLAY.			
1.10-1.90		Light brown slightly clayey fine to coarse SAND & fine to coarse GRAVEL of flint.			
1.90-3.00		Light yellowish brown slightly gravelly fine to coarse SAND. Gravel is fine to coarse angular to rounded flint.			
		END OF TRIAL PIT AT 3.00 MBGL			

Shoring/Support: None. Stability: Stable.				GENERAL REMARKS	
				No Groundwater Encountered. Coordinates taken with hand-held GPS. Infiltration Test Response Zone: 2.25-3.00 mbgl.	

All dimensions in metres Scale 1:50	Client CALA Homes	Method/ Plant Used JCB 3CX	Logged By C.U.
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TRIAL PIT LOG

Project Land South of Oughtonhead Lane, Hitchin				TRIAL PIT No SA103
Job No 1873	Date 12-01-21	Ground Level (m)	Co-Ordinates () E 517,551.0 N 229,590.0	
Contractor Wilsons of Wallington				Sheet 1 of 1

A		B		C		D		Legend	
0								0	
1								1	
2								2	
3								3	
4								4	

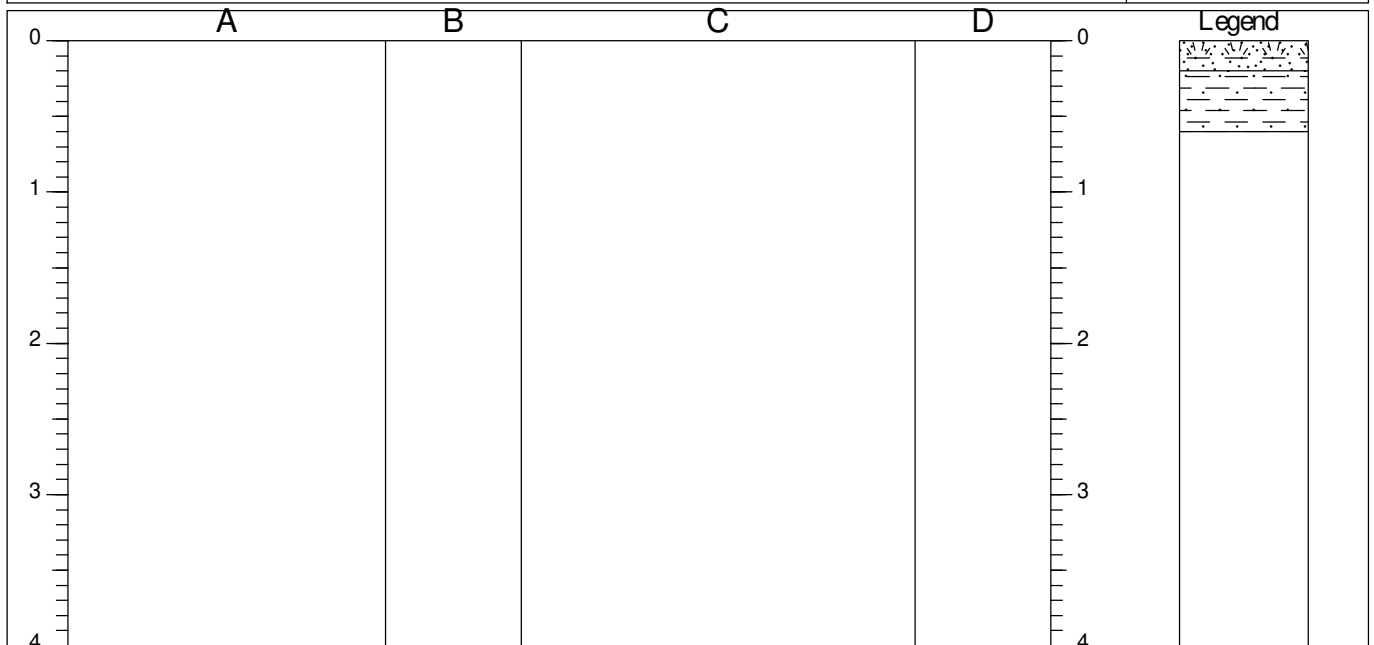
STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.15		MADE GROUND (Soft brown slightly sandy gravelly clay. Gravel is fine to coarse angular to rounded flint and fragments of brick and ceramic tile). Firm brown slightly silty sandy CLAY.			
0.15-1.40					
1.40-1.90		Light yellowish brown clayey gravelly SAND. Gravel is fine to coarse angular to rounded flint.			
1.90-3.15		Light yellowish brown fine to coarse SAND & fine to coarse GRAVEL and occasional cobbles of flint.			
		END OF TRIAL PIT AT 3.15 MBGL			

Shoring/Support: None. Stability: Stable.				GENERAL REMARKS	
				No Groundwater Encountered. Coordinates taken with hand-held GPS. Infiltration Test Response Zone: 2.25-3.15 mbgl.	

All dimensions in metres Scale 1:50	Client CALA Homes	Method/ Plant Used JCB 3CX	Logged By C.U.
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TRIAL PIT LOG

Project Land South of Oughtonhead Lane, Hitchin				TRIAL PIT No CBR101
Job No 1873	Date 12-01-21	Ground Level (m)	Co-Ordinates () E 517,579.0 N 229,582.0	
Contractor Wilsons of Wallington				Sheet 1 of 1

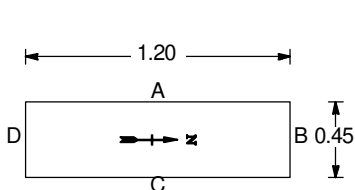


STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.20		Dark brown slightly gravelly slightly sandy clayey TOPSOIL with fine rootlets.	0.60	CH	5% CBR
0.20-0.60		Firm brown sandy CLAY with occasional fine to coarse gravel of angular flint and rare brick.			
		END OF TRIAL PIT AT 0.60 MBGL			

Shoring/Support: None. Stability: Stable.	GENERAL REMARKS No Groundwater Encountered. Coordinates taken with hand-held GPS. Clegg hammer test undertaken at base of pit.
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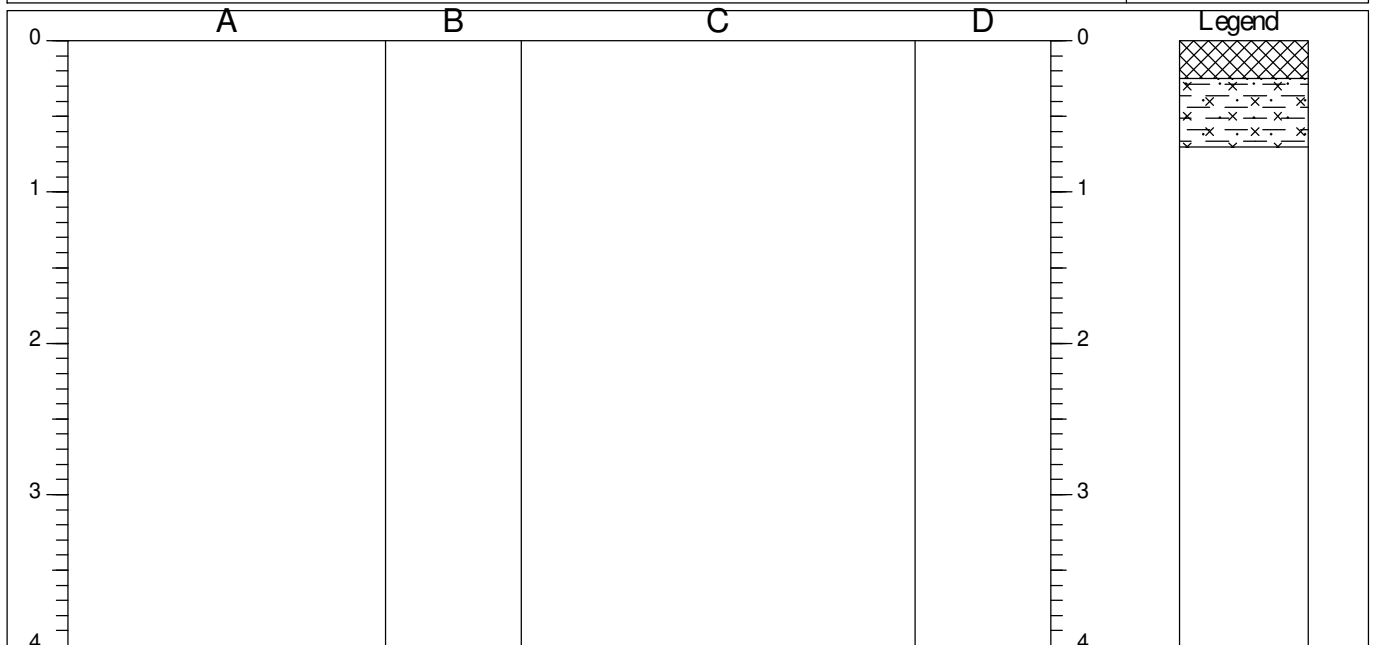
All dimensions in metres Scale 1:50	Client CALA Homes	Method/ Plant Used JCB 3CX	Logged By C.U.
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AGS3 UK TP 1873_OUGHTONHEAD LN, HITCHIN GPJ GINT STD AGS 3, 1.GDT 10/3/21



TRIAL PIT LOG

Project Land South of Oughtonhead Lane, Hitchin				TRIAL PIT No CBR102
Job No 1873	Date 12-01-21	Ground Level (m)	Co-Ordinates () E 517,587.0 N 229,611.0	
Contractor Wilsons of Wallington				Sheet 1 of 1



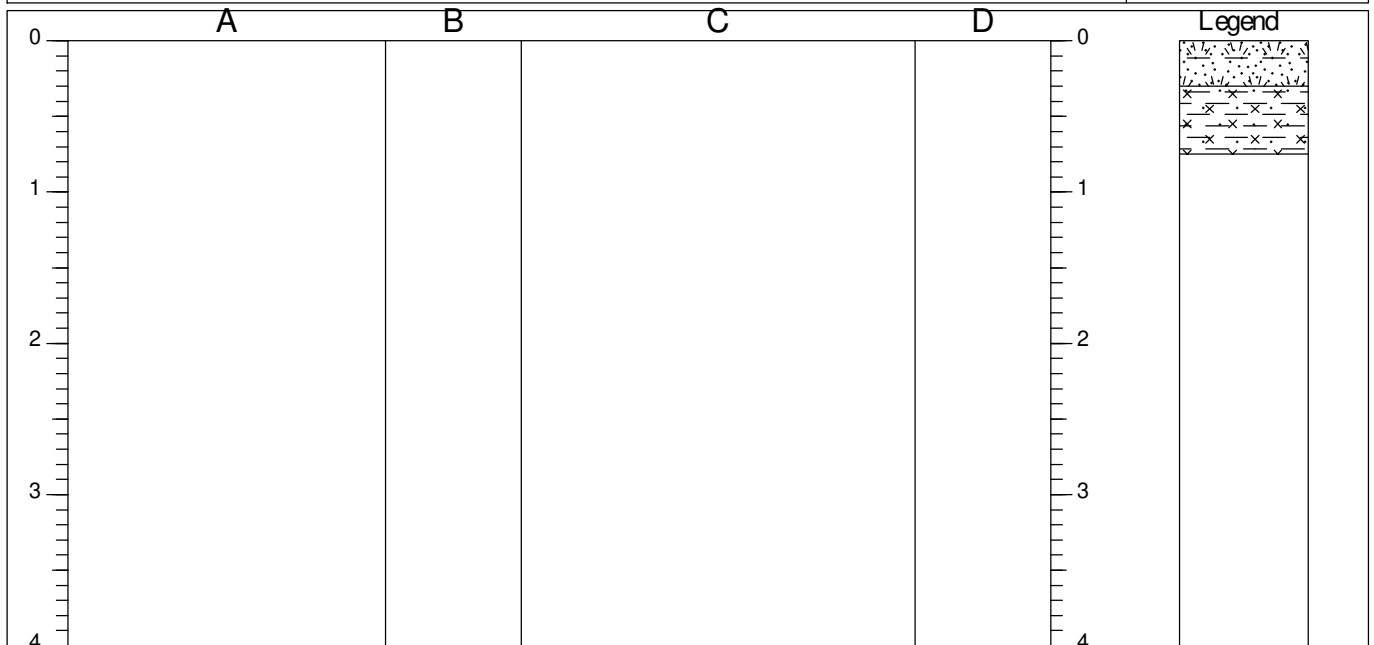
STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.25		MADE GROUND (Brown slightly gravelly sandy clay. Gravel is fine to coarse flint and brick).			
0.25-0.70		Firm brown slightly silty sandy CLAY with occasional fine to coarse gravel of flint.			
		END OF TRIAL PIT AT 0.70 MBGL	0.70	CH	6% CBR

Shoring/Support: None. Stability: Stable.	GENERAL REMARKS No Groundwater Encountered. Coordinates taken with hand-held GPS. Clegg hammer test undertaken at base of pit.
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All dimensions in metres Scale 1:50	Client CALA Homes	Method/ Plant Used JCB 3CX	Logged By C.U.
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TRIAL PIT LOG

Project Land South of Oughtonhead Lane, Hitchin				TRIAL PIT No CBR103
Job No 1873	Date 12-01-21	Ground Level (m)	Co-Ordinates () E 517,514.0 N 229,626.0	
Contractor Wilsons of Wallington				Sheet 1 of 1

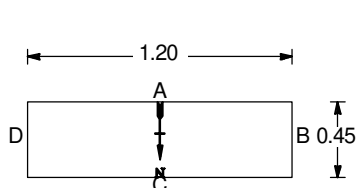


STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.30		Dark brown slightly gravelly slightly sandy clayey TOPSOIL with fine rootlets.	0.75	CH	4% CBR
0.30-0.75		Firm brown slightly silty sandy CLAY with occasional fine to coarse gravel of flint.			
		END OF TRIAL PIT AT 0.75 MBGL			

Shoring/Support: None. Stability: Stable.	GENERAL REMARKS No Groundwater Encountered. Coordinates taken with hand-held GPS. Clegg hammer test undertaken at base of pit.
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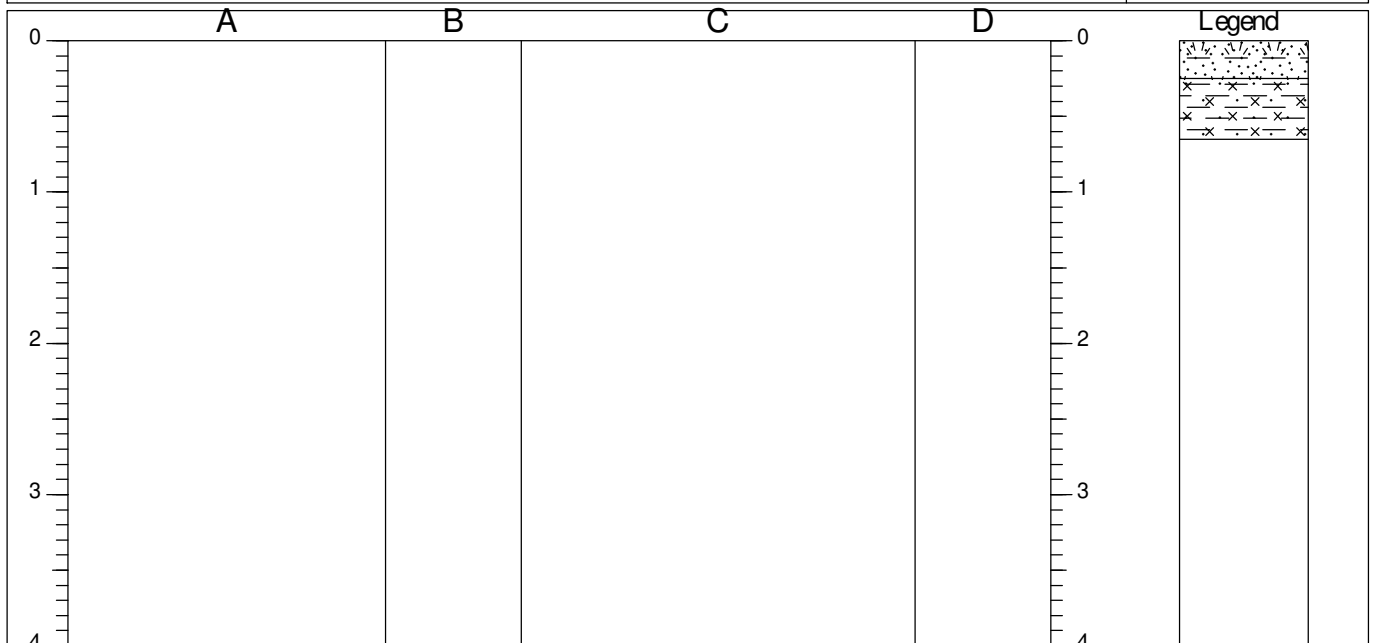
All dimensions in metres Scale 1:50	Client CALA Homes	Method/ Plant Used JCB 3CX	Logged By C.U.
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AGS3 UK TP 1873_OUGHTONHEAD LN, HITCHIN GPJ GINT STD AGS 3, 1.GDT 10/3/21



TRIAL PIT LOG

Project Land South of Oughtonhead Lane, Hitchin				TRIAL PIT No CBR104
Job No 1873	Date 12-01-21	Ground Level (m)	Co-Ordinates () E 517,519.0 N 229,664.0	
Contractor Wilsons of Wallington				Sheet 1 of 1



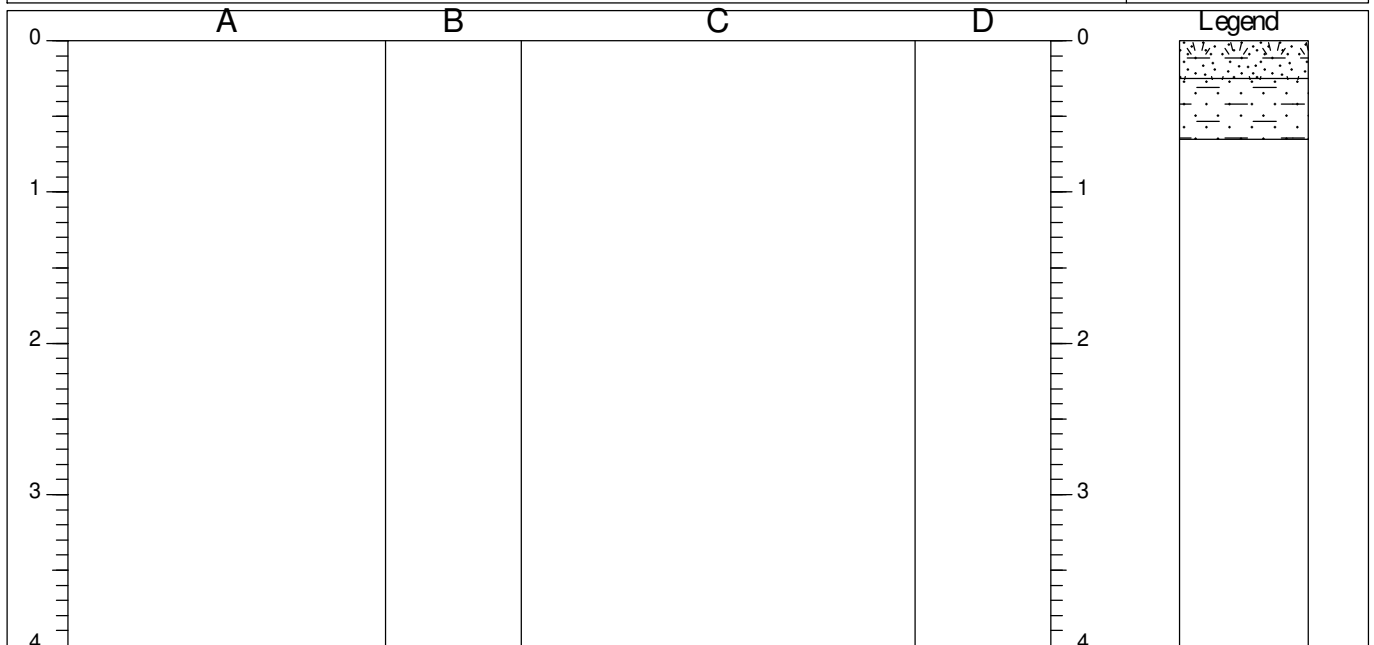
STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.25		Dark brown slightly gravelly slightly sandy clayey TOPSOIL with fine rootlets.	0.65	CH	5% CBR
0.25-0.65		Firm brown slightly silty sandy CLAY with occasional fine to coarse gravel of flint.			
		END OF TRIAL PIT AT 0.65 MBGL			

Shoring/Support: None. Stability: Stable.			GENERAL REMARKS No Groundwater Encountered. Coordinates taken with hand-held GPS. Clegg hammer test undertaken at base of pit.	

All dimensions in metres Scale 1:50	Client CALA Homes	Method/ Plant Used JCB 3CX	Logged By C.U.
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TRIAL PIT LOG

Project Land South of Oughtonhead Lane, Hitchin				TRIAL PIT No CBR105
Job No 1873	Date 12-01-21	Ground Level (m)	Co-Ordinates () E 517,522.0 N 229,694.0	
Contractor Wilsons of Wallington				Sheet 1 of 1

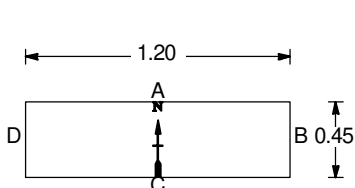


STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.25		Dark brown slightly gravelly slightly sandy clayey TOPSOIL with fine rootlets.	0.65	CH	3% CBR
0.25-0.65		Brown slightly silty clayey SAND with occasional fine to coarse gravel of flint.			
		END OF TRIAL PIT AT 0.65 MBGL			

Shoring/Support: None. Stability: Stable.	GENERAL REMARKS No Groundwater Encountered. Coordinates taken with hand-held GPS. Clegg hammer test undertaken at base of pit.
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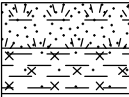
All dimensions in metres Scale 1:50	Client CALA Homes	Method/ Plant Used JCB 3CX	Logged By C.U.
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AGS3 UK TP 1873_OUGHTONHEAD LN, HITCHIN GPJ GINT STD AGS 3, 1.GDT 10/3/21

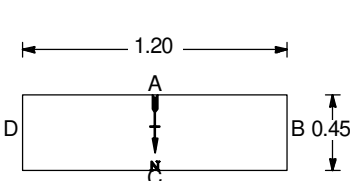


TRIAL PIT LOG

Project Land South of Oughtonhead Lane, Hitchin				TRIAL PIT No CBR106
Job No 1873	Date 12-01-21	Ground Level (m)	Co-Ordinates () E 517,569.0 N 229,694.0	
Contractor Wilsons of Wallington				Sheet 1 of 1

A		B		C		D		Legend	
0							0		
1							1		
2							2		
3							3		
4							4		

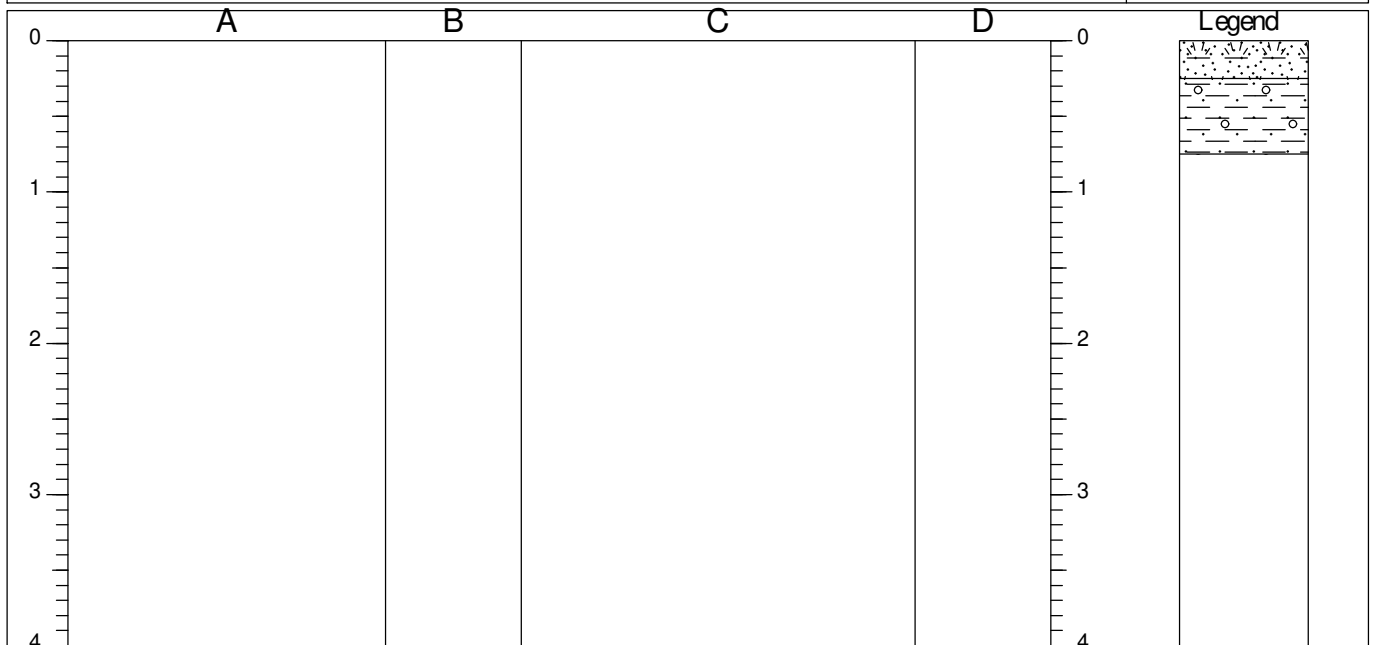
STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.30		Dark brown slightly gravelly slightly sandy clayey TOPSOIL with fine rootlets.	0.60	CH	5% CBR
0.30-0.60		Firm brown slightly silty sandy CLAY with occasional fine to coarse gravel of flint.			
		END OF TRIAL PIT AT 0.60 MBGL			

Shoring/Support: None. Stability: Stable.				GENERAL REMARKS	
				No Groundwater Encountered. Coordinates taken with hand-held GPS. Clegg hammer test undertaken at base of pit.	

All dimensions in metres Scale 1:50	Client CALA Homes	Method/ Plant Used JCB 3CX	Logged By C.U.
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TRIAL PIT LOG

Project Land South of Oughtonhead Lane, Hitchin				TRIAL PIT No CBR107
Job No 1873	Date 12-01-21	Ground Level (m)	Co-Ordinates () E 517,576.0 N 229,655.0	
Contractor Wilsons of Wallington				Sheet 1 of 1

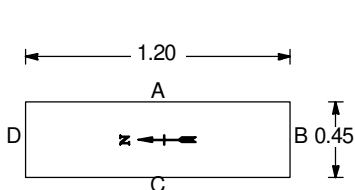


STRATA			SAMPLES & TESTS		
Depth	No	DESCRIPTION	Depth	No	Remarks/Tests
0.00-0.25		Dark brown slightly gravelly slightly sandy clayey TOPSOIL with fine rootlets.	0.75	CH	5% CBR
0.25-0.75		Firm friable brown slightly gravelly sandy CLAY. Gravel is fine to coarse flint.			
		END OF TRIAL PIT AT 0.75 MBGL			

Shoring/Support: None. Stability: Stable.	GENERAL REMARKS No Groundwater Encountered. Coordinates taken with hand-held GPS. Clegg hammer test undertaken at base of pit.
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All dimensions in metres Scale 1:50	Client CALA Homes	Method/ Plant Used JCB 3CX	Logged By C.U.
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AGS3 UK TP 1873_OUGHTONHEAD LN, HITCHIN GPJ GINT STD AGS 3, 1.GDT 10/3/21



KEY SHEET FOR EXPLORATORY HOLE LOGS

i. Introduction

The following explanatory notes define the terminologies, abbreviations and symbols pertaining to each individual column or section of the Exploratory Hole records. 'Exploratory Hole' is used as a general term in this report to comprise borehole, drill hole, and trial pit. All exploratory hole records have been produced using 'gINT®' – an integrated software environment for the storage and manipulation of subsurface data.

The primary purpose of ground investigation exploratory holes is to probe the stratified sequences of soil and/or rock. From the results of these probings no conclusion should be drawn concerning the presence of size, lithological nature and numbers per unit volume of ground of cobbles and boulders in soil types such as glacial till (boulder clay).

ii. Exploratory Hole Records

Exploratory Hole Number

The identity number used throughout the report.

Project

The ground investigation project name. Occasionally the project name may be shortened or abbreviated due to string length restraints imposed by the gINT® computer programme.

Client

Client's name responsible for funding the ground investigation project. The Client's name may be shortened or abbreviated due to string length restraints imposed by the gINT® computer programme.

Co-Ordinates (NGR)

The exploratory hole position given as either national grid co-ordinates, local grid if specified, or a reference name normally pertaining to the area of investigation. The co-ordinates are given as indicative only and may or may not be based on surveyed locations. Co-ordinates taken with hand held GPS are only as accurate as the instrument used which can be up to +/- 10m. They should not be used as fixed point for setting out purposes.

Method/Plant Used

Represents the drilling, excavation or boring method(s) or equipment used.

Ground Level (m AOD)

The ground level in metres above Ordnance Datum at the exploratory hole location from which the reduced level for each stratigraphic boundary is calculated.

Date

The date relating to the start of the exploratory hole excavation.

Sheet

The sheet number and total number of sheets for the particular record.

Checked By

Initials of the person who has carried out the technical quality check on the log.

Logged By

Initials of the engineer who has carried out the logging of the exploratory hole.

Job No

The GEMCO reference number for the project.

Contractor

The name of the contractor carrying out the drilling/excavation works.

iii. Borehole and Window/Windowless Sample Hole Records**Sample & Tests Columns**

Depth	The depth over which a sample or test is taken is shown in depth column of the exploratory hole record in a "from...to" format
Type No	Indicates the type of sample/test and number given by the driller
Test Result	Result of the test given in the applicable units

Water Column

Water Strike	Level of groundwater strike within an exploratory hole
	Denotes a water strike and is suffixed with a number, which indicates the strike order.
	The corresponding unfilled symbol is the depth the strike rose to.

Strata Column

Reduced Level	The corresponding reduced level of each soil or rock boundary in metres Ordnance Datum
Legend	A graphical representation of the materials encountered using BS 5930:2015 recommended symbols for soil and rock
Depth (Thickness)	The depth below ground level of each soil or rock boundary in metres and the thickness of each individual stratigraphic unit (given in brackets)
Description	Engineering description of each individual soil or rock type.

Descriptions follow recommendations outlined in Section 6 of BS 5930:2015 with the following implementation:

1. *Section 6 incorporates the guidance indicated in BS EN ISO 14688-1:2002+A1:2013, BS EN ISO 14688-2:2004+A1:2013 and BS EN ISO 14689-1:2003 European Standard with particular emphasis on current UK practice.*
2. *Supplementary laboratory or in-situ assessed measurements of undrained strength are provided where applicable information is available in parenthesis in accordance with clause 41: BS5930:2015 after the field strength determined consistency. The description-based measurement table indicating the quantitative undrained strength classification divisions is provided in Key Sheets Table 1.*

Key Sheets Table 1: Undrained strength classification	
Term based on measurement	Undrained strength classification definition cu (kPa)
Extremely low	<10
Very low	10-20
Low	20-40
Medium	40-75
High	75-150
Very high	150-300
Extremely high	300-600

3. Cobble and boulder content are expressed in accordance with the terms provided in EN ISO 14688-2: 2004 where visually identified in trial pit excavations, or inferred/recovered during the drilling operations. The assessment of frequency and spatial occurrence of coarse and very coarse rock material should not be considered as precise, but only an indicator or estimate of the potential conditions. It should be noted that the recovery of coarse or very coarse particles in boreholes is dependent on the limitations imposed by the casing diameter. The terminology used is outlined in Key Sheets Table 2.

Key Sheets Table 2: Very coarse fractions		
Fraction	Percent by Mass (%)	Term
Boulders	<5	Low boulder content
	5-20	Medium boulder content
	>20	High boulder content
Cobbles	<10	Low boulder content
	10-20	Medium cobble content
	>20	High cobble content

4. Where 'rock weathering classification' can be applied it is 'Approach 4' which will be used. If any other approach is used the factual text of the report will provide details of the applicable specific approach. (Ref: Figure 9, Clause 36.4.2 BS 5930:2015). An outline of the 'Approach 4' rock weathering classification scheme is provided as Key Sheets Table 3

Key Sheets Table 3: Approach 4 Classification Incorporating Material and Mass Features		
Class	Classifier	Typical characteristics
A	Unweathered	Original strength, colour, fracture spacing
B	Partially	Slightly reduced strength, slightly closer fracture spacing, weathering penetrating in from fractures, brown oxidation
C	Distinctly weathered	Further weathered, much closer fracture spacing grey reduction
D	209294	Greatly weakened, mottled, ordered lithorelics in matrix becoming weakened and disordered, bedding disturbed.
E	Residual or reworked	Matrix with occasional altered random or 'apparent' lithorelics, bedding destroyed. Classed as reworked when foreign inclusions are present as a result of transportation.

5. Rock Strength based on assessed field or measured unconfined compressive strength follows the classification scheme given in clause 36.2.1 BS5930:2015 as outlined in Key Sheets Table 4.

Key Sheets Table 4: In-field strength test

Term for use in field or based on measurement	Definition for field use	Definition on basis of Unconfined Compressive Strength measurement (MPa)	Old Classification of rock strength: Terminology (Strength Range MPa)	Old Classification of rock strength: Determination Method
Extremely weak	Can be indented by thumbnail. Gravel sized lumps crush between finger and thumb.	0.6-1.0	Very weak (<1.25)	Lumps can be crushed between fingers.
Very weak	Crumbles under firm blows with point of geological hammer. Can be peeled by a pocket knife.	1-5	Weak (1.25-5)	Lumps can be broken with heavy hand pressure.
Weak	Can be peeled by a pocket knife with difficulty. Shallow indentations made by firm blow with the point of geological hammer.	5-25	Moderately weak (5-12.50)	This slab can be broken with heavy pressure.
Medium strong	Cannot be scraped with pocket knife. Can be fractured with a single firm blow of geological hammer.	25-50	Moderately strong (12.50-50)	Rock can be broken in the hand with a hammer.
Strong	Requires more than one blow of geological hammer to fracture.	50-100	Strong (50-100)	Rock can be broken on a flat surface using a hammer.
Very strong	Requires many blows of geological hammer to fracture.	100-250	Very strong (100-200)	Rock chipped by blows with a hammer.
Extremely strong	Can only be chipped with geological hammer.	>250	Extremely strong (>200)	Rock rings when hit with a hammer.
Based on BS EN ISO 14689-1:2003 4.2.7, Table 5 (and presented at Table 25 of BS5930:2015 Table 25)			BS5930:1999 – Section 6	

Instrument/Backfill Column

A graphical representation of backfill material or instrumentation detail using graphic legends. Its placement in the column is relative to depth in metres and corresponds to the exploratory hole in scale.

Boring Progress and Water Observations Columns

This section provides information on each day's production as a daily log.

Date	Date of shift
Depth	Depth of hole at the start of the shift
Casing	Casing's depth at the start of the shift
Casing Dia.	Casing's diameter at the start of the shift
Water Depth	Water level within the borehole at the start and end of shift

Chiselling Columns

Indicates where hard strata occurred and breaking out was required to advance the borehole.

From	The depth commenced
To	The depth finished
Hours	The time spent for breaking out

Water Added Columns

Indicates the depth range where water was added to the borehole facilitate boring or to prevent stress relief disturbance 'blowing/boiling' in granular soils.

From	Depth in metres from where water was added
To	Depth in metres to where water was added

General Remarks

Any remarks believed to be relevant to the exploratory hole, e.g. groundwater strike.

iv. Trial Pit/Trench Records

The pit/trench records follow the same format as the borehole and window/windowless sample hole records for the Samples & Tests, Water and Strata columns. In addition to these there are also the following:

Plan

A schematic plan view of the pit showing its excavated dimensions together with its orientation, given as a compass bearing to magnetic north.

Groundwater

Notes on water bearing horizons.

Stability

The engineer's comments outlining the stability of the sides during pit excavation.

General Remarks

The engineer's comments of any other information relevant to construction of the pit.

Additional Information

An indication if a sketch and/or photographs accompanies the record.

v. Drillhole Records and Rotary Continuation

Run Details Columns

Depth	Each drill run is highlighted by a horizontal line with the top and bottom depths shown in metres. Core diameter (C Dia.) is presented also within each run
TCR (SCR) RQD	Information provided on the total core recovery, solid core recovery and rock quality designation. Refer to Abbreviations for further details
Fracture Index	Information given relating to the fracture index of the rock

Strata Columns

As the strata columns for borehole and window/windowless sample hole records except for description which is as follows:

Discontinuities detail	Information on core discontinuities, localized variations in weathering, lithology, strength and structure follows recommendations outlined in Section 6 BS 5930:2015 Clause 36.4.3.
Main	Engineering description of each individual soil or rock type follows recommendations outlined in Section 6 of BS 5930:2015

Instrument/Backfill Column

A graphical representation of backfill material or instrumentation detail using graphic legends. Its placement in the column is relative to depth in metres and corresponds to the exploratory hole in scale.

Drilling Progress and Water Observations Column

Date	Date of shift
Depth	Depth of hole at the start of the shift
Casing	Casing's depth at the start of the shift
Water Strike	Depth at which water was encountered
Water Standing	Depth at which water in the hole levelled off
Water Remarks	Any remarks believed to be relevant to the water e.g. Artesian

Standard Penetration Test

Depth	The depth commenced
Type	Type of standard penetration test (SPT)
Result	Result of SPT

Flush

From	The depth commenced
To	The depth finished
Type	Details of the type of flush used: A = Air; F = Foam; W = Water; and Pol = Polymer
Returns	An indication of the percentage of the returned flush material

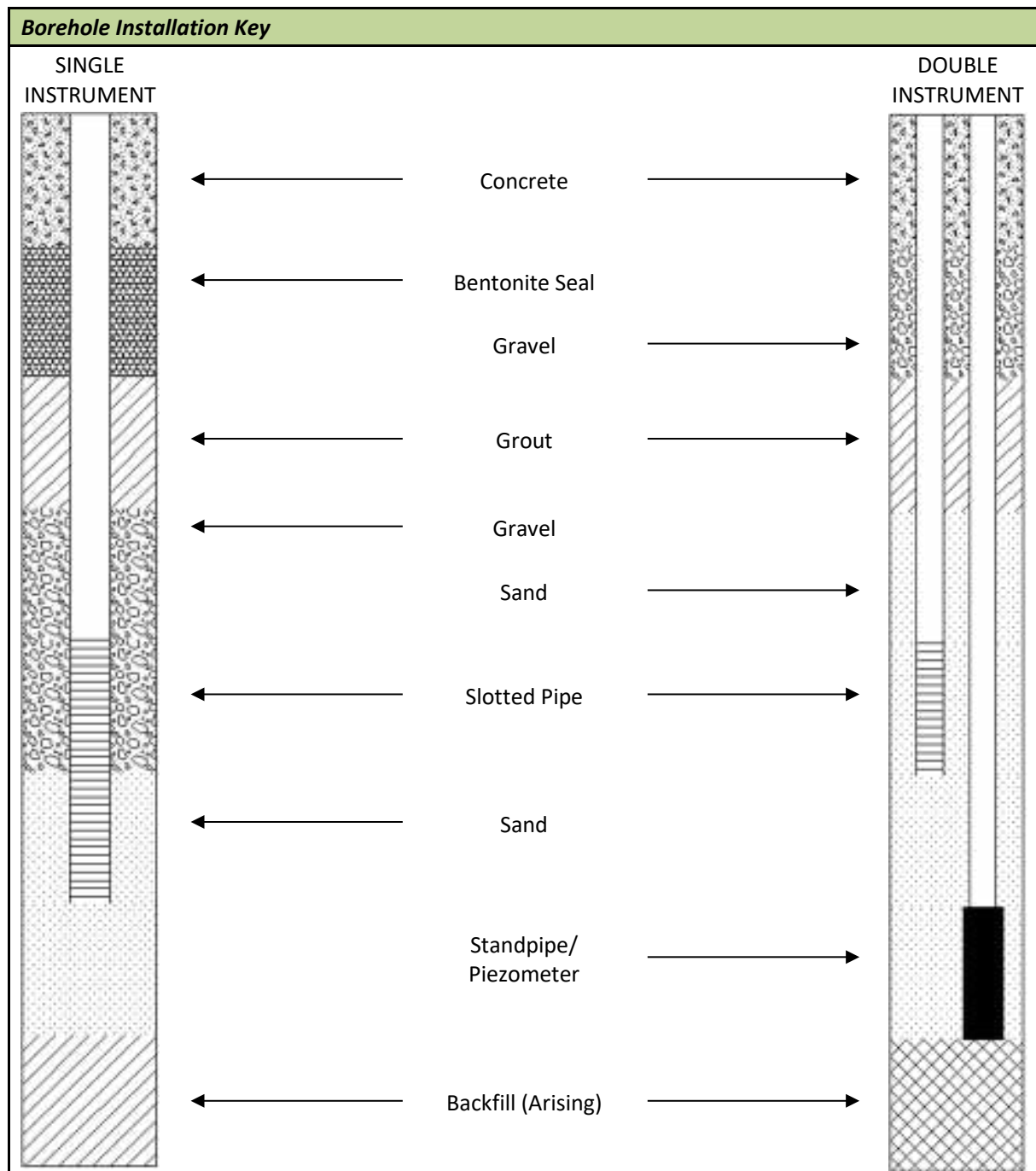
General Remarks

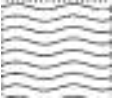
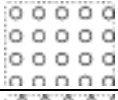
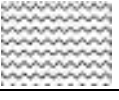
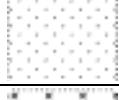
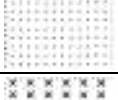
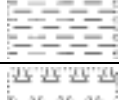
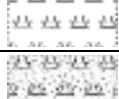
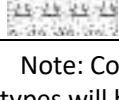
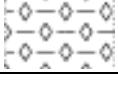
Any remarks believed to be relevant to the exploratory hole

vi. Abbreviations

Samples	
B	Bulk disturbed sample.
D	Small disturbed sample.
ES	Environmental soil sample.
EW	Environmental water sample.
G	Gas sample.
LB	Large bulk disturbed sample.
P	Piston sample.
P*	An attempted but failed undisturbed piston sample.
U	Undisturbed sample.
U*	An attempted but failed general purpose undisturbed sample.
W	Water sample.
In-Situ Tests	
CBR	California Bearing Ratio mould sample or test.
FID	Flame ionisation detector test.
HSV	In-situ hand shear vane.
HP	Hand penetrometer test.
K (C)	Constant head permeability test.
K (F)	Falling head permeability test.
K (P)	Packer permeability test.
K (R)	Rising head permeability test.
PT	Pressure meter test.
PID	Photo ionisation detector test.
S	Standard Penetration Test (SPT) using the split barrel sampler (shoe). The corresponding uncorrected 'N' value is given in the test result column with more detailed information provided in the In-Situ Testing Enclosures where applicable. Testing has been conducted in accordance with BS EN ISO 22476-3: 2005+A1:2011.
C	Denotes SPT test using a solid cone in preference to the split barrel sampler (usually in coarse granular soil) with all other reporting requirements as outlined above for the split barrel sampler.
S*/C*	Denotes where full penetration has not been achieved during the SPT test. In such cases the penetration per blow is recorded in the test result column.
SV	In-situ down-the-hole shear vane test. The remoulded shear strength is given in brackets.
Rock Quality and Core Recovery	
TCR	Total Core Recovery - the length of the recovered core expressed as a percentage of the length of core run.
SCR	Solid Core Recovery - the sum length of all core pieces that are recovered with at least one full diameter, expressed as a percentage of the length of core run.
RQD	Rock Quality Designation - The sum length of all core pieces that are 100mm or longer (measured along the centre of the core), expressed as a percentage of the length of core run.
FI	Fracture Index - The number of fractures per 1000mm length of solid core.
NI	Non-intact - The material recovered in a non-intact state.
NR	No recovery from the core run.

vii. Symbols



Graphical Log Key							
Soils		Sedimentary Rock		Metamorphic Rock		Igneous Rock	
	Made Ground		Chalk		Coarse Grained		Coarse Grained
	Cobbles and Boulders		Limestone		Medium Grained		Medium Grained
	Gravel		Conglomerate		Fine Grained		Fine Grained
	Sand		Breccia				
	Silt		Sandstone				
	Clay		Siltstone				
	Peat		Mudstone				
	Topsoil		Shale				
Note: Composite soil types will be signified by combined symbols e.g.			Coal				
	Silty Sand		Pyroclastic (Volcanic Ash)				
			Gypsum				

viii. Cross Sections

Symbols on Cross Sections

— · — · — · — · — · — Top of Capping Layer

————— Top of Landfill (Bottom landfill layer where applicable)

----- Groundwater Level

Appendix 6

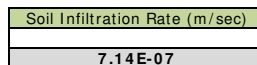
Infiltration Testing Results and Calculations

Trial Pit Dimensions (m)			
Top Length:	1.80	Top Width:	0.45
Bottom Length:	1.80	Bottom Width:	0.45
Effective Depth:	0.90	50% Eff Depth	0.45

Trial Pit Depth at Soakaway Test:	3.35	m	Stick-up:	0.00	m
Water Level in Pit at Start of Test:	Dry	m			
Gravel Used	Yes				
Adjustment Factor for Gravel	0.35				

calc a_{s50} m ²	2.835
calc V_{p75-25} mins	0.128
calc t_{p75-25} mins	1050.000

Water level 75	0.675
Water level 25	0.225
V_{p75-25}	0.450



Extrapolated Data	Calculated Field	Data Entry Required	Value Taken from graph at 25 and 75%
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F	Soil Infiltration Rate = $\frac{V_{p75-25}}{a_{s50} \cdot t_{p75-25}}$
V_{p75-25}	Effective volume of water in the pit between 75% and 25 % effective depth
a_{s50}	Internal surface area of pit up to 50% effective depth and including base area
t_{p75-25}	Time for water to fall from 75% to 25% effective depth

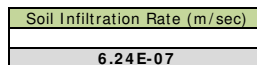
Remarks
1. Test undertaken in general accordance with BRE Digest 365.
2. Trial pit was backfilled with 20mm aggregate.
3. Stability was good with no collapse.

Trial Pit Dimensions (m)			
Top Length:	1.80	Top Width:	0.45
Bottom Length:	1.80	Bottom Width:	0.45
Effective Depth:	0.92	50% Eff Depth	0.46

Trial Pit Depth at Soakaway Test:	3.35	m	Stick-up:	0.00	m
Water Level in Pit at Start of Test:	Dry	m			
Gravel Used	Yes				
Adjustment Factor for Gravel	0.35				

calc a_{s50} m ²	2.880
calc V_{p75-25} mins	0.130
calc t_{p75-25} mins	1210.000

Water level 75	0.690
Water level 25	0.230
V_{p75-25}	0.460



Extrapolated Data	Calculated Field	Data Entry Required	Value Taken from graph at 25 and 75%
-------------------	------------------	---------------------	--------------------------------------

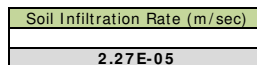
Remarks
1. Test undertaken in general accordance with BRE Digest 365.
2. Trial pit was backfilled with 20mm aggregate.
3. Stability was good with no collapse.

Trial Pit Dimensions (m)			
Top Length:	1.90	Top Width:	0.45
Bottom Length:	1.90	Bottom Width:	0.45
Effective Depth:	0.75	50% Eff Depth	0.38

Trial Pit Depth at Soakaway Test:	3.00	m	Stick-up:	0.00	m
Water Level in Pit at Start of Test:	Dry	m			
Gravel Used	Yes				
Adjustment Factor for Gravel	0.35				

calc a_{s50} m ²	2.618
calc V_{p75-25} mins	0.112
calc t_{p75-25} mins	31.500

Water level 75	0.563
Water level 25	0.188
V_{p75-25}	0.375



Extrapolated Data	Calculated Field	Data Entry Required	Value Taken from graph at 25 and 75%
-------------------	------------------	---------------------	--------------------------------------

F	Soil Infiltration Rate = $\frac{V_{p75-25}}{a_{s50} \cdot t_{p75-25}}$
V_{p75-25}	Effective volume of water in the pit between 75% and 25 % effective depth
a_{s50}	Internal surface area of pit up to 50% effective depth and including base area
t_{p75-25}	Time for water to fall from 75% to 25% effective depth

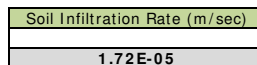
Remarks
1. Test undertaken in general accordance with BRE Digest 365.
2. Trial pit was backfilled with 20mm aggregate.
3. Stability was good with no collapse.

Trial Pit Dimensions (m)			
Top Length:	1.90	Top Width:	0.45
Bottom Length:	1.90	Bottom Width:	0.45
Effective Depth:	0.75	50% Eff Depth	0.38

Trial Pit Depth at Soakaway Test:	3.00	m	Stick-up:	0.00	m
Water Level in Pit at Start of Test:	Dry	m			
Gravel Used	Yes				
Adjustment Factor for Gravel	0.35				

calc a_{s50} m ²	2.618
calc V_{p75-25} mins	0.112
calc t_{p75-25} mins	41.500

Water level 75	0.563
Water level 25	0.188
V_{p75-25}	0.375



Extrapolated Data	Calculated Field	Data Entry Required	Value Taken from graph at 25 and 75%
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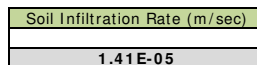
Remarks
1. Test undertaken in general accordance with BRE Digest 365.
2. Trial pit was backfilled with 20mm aggregate.
3. Stability was good with no collapse.

Trial Pit Dimensions (m)			
Top Length:	1.90	Top Width:	0.45
Bottom Length:	1.90	Bottom Width:	0.45
Effective Depth:	0.75	50% Eff Depth	0.38

Trial Pit Depth at Soakaway Test:	3.00	m	Stick-up:	0.00	m
Water Level in Pit at Start of Test:	Dry	m			
Gravel Used	Yes				
Adjustment Factor for Gravel	0.35				

calc a_{s50} m ²	2.618
calc V_{p75-25} mins	0.112
calc t_{p75-25} mins	50.500

Water level 75	0.563
Water level 25	0.188
V_{p75-25}	0.375



Extrapolated Data	Calculated Field	Data Entry Required	Value Taken from graph at 25 and 75%
-------------------	------------------	---------------------	--------------------------------------

F	Soil Infiltration Rate = $\frac{V_{p75-25}}{a_{s50} \cdot t_{p75-25}}$
V_{p75-25}	Effective volume of water in the pit between 75% and 25 % effective depth
a_{s50}	Internal surface area of pit up to 50% effective depth and including base area
t_{p75-25}	Time for water to fall from 75% to 25% effective depth

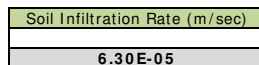
Remarks
1. Test undertaken in general accordance with BRE Digest 365.
2. Trial pit was backfilled with 20mm aggregate.
3. Stability was good with no collapse.

Trial Pit Dimensions (m)			
Top Length:	1.90	Top Width:	0.45
Bottom Length:	1.90	Bottom Width:	0.45
Effective Depth:	0.90	50% Eff Depth	0.45

Trial Pit Depth at Soakaway Test:	3.15	m	Stick-up:	0.00	m
Water Level in Pit at Start of Test:	Dry	m			
Gravel Used	Yes				
Adjustment Factor for Gravel	0.35				

calc a_{s50} m ²	2.970
calc V_{p75-25} mins	0.135
calc t_{p75-25} mins	12.000

Water level 75	0.675
Water level 25	0.225
V_{p75-25}	0.450



Extrapolated Data	Calculated Field	Data Entry Required	Value Taken from graph at 25 and 75%
-------------------	------------------	---------------------	--------------------------------------

F	Soil Infiltration Rate = $\frac{V_{p75-25}}{a_{s50} \cdot t_{p75-25}}$
V_{p75-25}	Effective volume of water in the pit between 75% and 25 % effective depth
a_{s50}	Internal surface area of pit up to 50% effective depth and including base area
t_{p75-25}	Time for water to fall from 75% to 25% effective depth

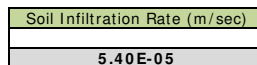
Remarks
1. Test undertaken in general accordance with BRE Digest 365.
2. Trial pit was backfilled with 20mm aggregate.
3. Stability was good with no collapse.

Trial Pit Dimensions (m)			
Top Length:	1.90	Top Width:	0.45
Bottom Length:	1.90	Bottom Width:	0.45
Effective Depth:	0.90	50% Eff Depth	0.45

Trial Pit Depth at Soakaway Test:	3.15	m	Stick-up:	0.00	m
Water Level in Pit at Start of Test:	Dry	m			
Gravel Used	Yes				
Adjustment Factor for Gravel	0.35				

calc a_{s50} m ²	2.970
calc V_{p75-25} mins	0.135
calc t_{p75-25} mins	14.000

Water level 75	0.675
Water level 25	0.225
V_{p75-25}	0.450



Extrapolated Data	Calculated Field	Data Entry Required	Value Taken from graph at 25 and 75%
-------------------	------------------	---------------------	--------------------------------------

F	Soil Infiltration Rate = $\frac{V_{p75-25}}{a_{s50} \cdot t_{p75-25}}$
V_{p75-25}	Effective volume of water in the pit between 75% and 25 % effective depth
a_{s50}	Internal surface area of pit up to 50% effective depth and including base area
t_{p75-25}	Time for water to fall from 75% to 25% effective depth

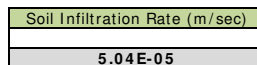
Remarks
1. Test undertaken in general accordance with BRE Digest 365.
2. Trial pit was backfilled with 20mm aggregate.
3. Stability was good with no collapse.

Trial Pit Dimensions (m)			
Top Length:	1.90	Top Width:	0.45
Bottom Length:	1.90	Bottom Width:	0.45
Effective Depth:	0.90	50% Eff Depth	0.45

Trial Pit Depth at Soakaway Test:	3.15	m	Stick-up:	0.00	m
Water Level in Pit at Start of Test:	Dry	m			
Gravel Used	Yes				
Adjustment Factor for Gravel	0.35				

calc a_{s50} m ²	2.970
calc V_{p75-25} mins	0.135
calc t_{p75-25} mins	15.000

Water level 75	0.675
Water level 25	0.225
V_{p75-25}	0.450



Extrapolated Data	Calculated Field	Data Entry Required	Value Taken from graph at 25 and 75%
-------------------	------------------	---------------------	--------------------------------------

Remarks
1. Test undertaken in general accordance with BRE Digest 365.
2. Trial pit was backfilled with 20mm aggregate.
3. Stability was good with no collapse.

Appendix 7

Gas and Groundwater Monitoring Data



Well Ref.	Monitoring Event Date	CH ₄ Average (%)	CH ₄ Peak (%)	CO ₂ (%)	O ₂ (%)	LEL (%)	H ₂ S (ppm)	CO (ppm)	VOC Average (ppm)	VOC Peak (ppm)	Flow Rate (l/hr)	Atmos. Pressure (mbar)	Rel. Pressure (kPa)	Casing Height (magl)	Depth to Water (mbgl)	Depth to Base (mbgl)	Sample Taken? (Y/N)	Additional Monitoring Information	Water Temp - before purge (°C)	Water Temp - after purge (°C)	Engineer	Qhg Flow (l/hr)	QHg CH ₄	QHg CO ₂
WS101	27 January 2021	0.0	0.0	1.0	19.7	0	0	0	0.0	0.0	0.1	1003	3.60	0.30	DRY	2.99	N	Weather - overcast, dry, light breeze. Wet under foot			CD	0.1	0.000	0.001
WS102	27 January 2021	0.0	0.0	1.7	19.3	0	0	0	0.0	0.0	0.0	1003	3.60	0.46	2.84	2.92	N	Weather - overcast, dry, light breeze. Wet under foot			CD	0.1	0.000	0.002
WS103	27 January 2021	0.0	0.0	2.2	17.5	0	0	0	0.0	0.0	0.2	1004	-0.40	0.34	DRY	2.94	N	Weather - overcast, dry, light breeze. Wet under foot			CD	0.2	0.000	0.004

Appendix 8

Geotechnical Laboratory Analysis



TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD
DATE ISSUED: 05/03/2021



0998

Contract	Oughtonhead Lane, Hitchin		
Serial No.	38099_1		
Client: Green Earth Management Company Ltd Suite 3 Broomfield Park Coggeshall Road Earls Colne Essex CO6 2JX		Soil Property Testing Ltd 15, 16, 18 Halcyon Court, St Margaret's Way, Stukeley Meadows, Huntingdon, Cambridgeshire, PE29 6DG Tel: 01480 455579 Email: enquiries@soilpropertytesting.com Website: www.soilpropertytesting.com	
Samples Submitted By: Green Earth Management Company Ltd Samples Labelled: Oughtonhead Lane, Hitchin		Approved Signatories: ☒ J.C. Garner B.Eng (Hons) FGS Technical Director & Quality Manager ☐ S.P. Townend Chairman ☐ W. Johnstone Materials Lab Manager ☐ D. Sabnis Operations Manager 	
Date Received: 19/02/2021		Samples Tested Between: 19/02/2021 and 05/03/2021	
Remarks: For the attention of Alan Jones Your Reference No: 1873			
Notes: 1 All remaining samples or remnants from this contract will be disposed of after 21 days from today, unless we are notified to the contrary. 2 (a) UKAS - United Kingdom Accreditation Service. (b) Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. 3 Tests marked "NOT UKAS ACCREDITED" in this test report are not included in the UKAS Accreditation Schedule for this testing laboratory. 4 This test report may not be reproduced other than in full except with the prior written approval of the issuing laboratory.			



TEST REPORT

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0998

Contract			Oughtonhead Lane, Hitchin																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
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Bore Hole No.	Type	Sample Ref.	Top Depth	Water Content (BS EN) Liquid/Plastic Limits Wet Sieve Preparation Particle Size Distribution (BS1377)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								</



TEST REPORT

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0998

Contract		Oughtonhead Lane, Hitchin				
Serial No.		38099_1				
SUMMARY OF WATER CONTENT						
Borehole /Pit No.	Depth (m)	Type	Ref.	Water Content (%)	Description	Remarks
TP101	0.50 - 0.80	D	1	13.2	Firm yellowish brown gravelly slightly sandy silty CLAY with occasional recently active roots. Gravel is fine to coarse angular to subrounded chert.	
TP104	0.50	D	1	16.1	Firm yellowish brown slightly gravelly slightly sandy silty CLAY with occasional recently active roots. Gravel is fine to coarse angular to subrounded chert.	
TP104	2.40	B	2	21.2	Structureless friable pale yellow slightly sandy CHALK with frequent angular to subrounded chalk fragments of fine to coarse gravel size, rare black flint, and recently active roots.	
TP105	1.00	D	1	16.3	Firm brownish yellow slightly gravelly slightly sandy silty CLAY with occasional recently active roots. Gravel is fine to medium subangular to subrounded chalk.	
TP105	2.00	D	2	18.2	Firm olive yellow slightly gravelly slightly sandy silty calcareous CLAY. Gravel is fine to coarse angular to rounded chalk, and rare chert.	
TP106	0.70	D	1	15.1	Firm yellowish brown slightly gravelly slightly sandy silty CLAY with occasional recently active roots. Gravel is fine to coarse angular to subrounded chert.	
TP106	1.20	B	1	13.9	Yellowish brown slightly gravelly slightly sandy silty CLAY. Gravel is brown, black and white angular to subrounded chert, occasional white subangular to subrounded chalk, and brown angular limestone.	
WS102	0.50	D	1	13.4	Firm yellowish brown slightly gravelly slightly sandy CLAY with occasional recently active roots. Gravel is brown, black and white fine to coarse angular to subangular chert.	
WS102	1.00	D	2	11.3	Firm yellowish brown gravelly slightly sandy CLAY with occasional recently active roots. Gravel is brown, black and white fine to coarse angular to subrounded chert.	
WS103	0.50	D	1	17.4	Firm yellowish brown slightly gravelly slightly sandy CLAY with occasional recently active roots. Gravel is fine to coarse angular to subangular chert.	
WS103	1.20	D	2	12.6	Very stiff slightly friable olive yellow slightly gravelly sandy silty CLAY. Gravel is fine to coarse angular to subrounded chalk, and rare chert.	
WS103	2.00	D	4	20.1	Very stiff slightly friable olive yellow slightly gravelly slightly sandy silty CLAY. Gravel is fine to medium angular to subangular chert and chalk. Sand is fine.	
WS103	3.00	D	6	22.3	Firm brownish yellow slightly sandy silty CLAY with rare fine angular to subangular chert and chalk. Sand is fine.	
Method Of Preparation:		BS EN ISO: 17892-1: 2014				
Method of Test:		BS EN ISO: 17892-1: 2014				
Type of Sample Key:		U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter				
Comments:						
Remarks to Include:		Sample disturbance, loss of moisture, variation from test procedure, location and origin of test specimen within original sample, oven drying temperature if not 105-110C				



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DATE ISSUED: 05/03/2021



0998

Contract		Oughtonhead Lane, Hitchin												
Serial No.		38099_1												
SUMMARY OF WATER CONTENT, LIQUID LIMIT, PLASTIC LIMIT, PLASTICITY INDEX AND LIQUIDITY INDEX														
Borehole /Pit No.	Depth (m)	Type	Ref.	Water Content (%)	Liquid Limit (%)	Plastic Limit (%)	Plasti- city Index (%)	Liquid- ity Index	Sample Preparation				Description	Class
									Method	Ret'd 0.425mm (%)	Corr'd W/C <0.425mm	Curing Time (hrs)		
TP101	0.50 - 0.80	D	1	13.2	36	18	18	-0.27	Wet Sieved	51 (M)	26.9*	26	Firm yellowish brown gravelly slightly sandy silty CLAY with occasional recently active roots. Gravel is fine to coarse angular to subrounded chert.	CI
TP104	0.50	D	1	16.1	33	16	17	0.01	Wet Sieved	27 (M)	22.1*	698	Firm yellowish brown slightly gravelly slightly sandy silty CLAY with occasional recently active roots. Gravel is fine to coarse angular to subrounded chert.	CL
TP105	1.00	D	1	16.3	30	15	15	0.09	Wet Sieved	13 (M)	18.8*	24	Firm brownish yellow slightly gravelly slightly sandy silty CLAY with occasional recently active roots. Gravel is fine to medium subangular to subrounded chalk.	CL
TP106	0.70	D	1	15.1	33	16	17	-0.06	Wet Sieved	29 (M)	21.2*	26	Firm yellowish brown slightly gravelly slightly sandy silty CLAY with occasional recently active roots. Gravel is fine to coarse angular to subrounded chert.	CL
WS102	1.00	D	2	11.3	62	18	44	-0.15	Wet Sieved	63 (M)	30.5*	26	Firm yellowish brown gravelly slightly sandy CLAY with occasional recently active roots. Gravel is brown, black and white fine to coarse angular to subrounded chert.	CH
WS103	1.20	D	2	12.6	23	15	8	-0.30	Wet Sieved	18 (M)	15.4*	26	Very stiff slightly friable olive yellow slightly gravelly sandy silty CLAY. Gravel is fine to coarse angular to subrounded chalk, and rare chert.	CL
Method Of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2:1990:4.2 Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2:1990:3.2, 4.4, 5.3, 5.4 Type of Sample Key: U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter Comments: *Corrected water content assume material greater than 0.425mm is non-porous. See BS1377: Part 2: 1990 Clause 3 Note 1.														
Table Notation: Ret'd 0.425mm: (A) = Assumed, (M) = Measured														



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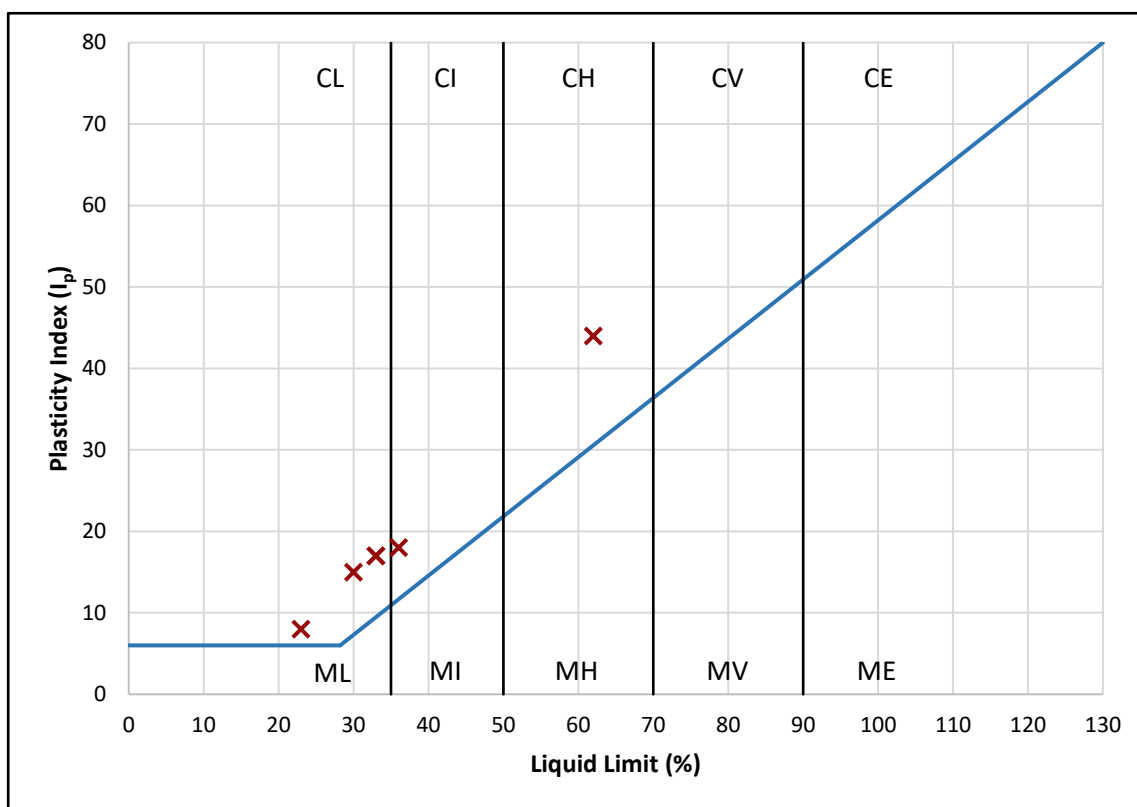


0998

Contract	Oughtonhead Lane, Hitchin
Serial No.	38099_1

PLOT OF PLASTICITY INDEX AGAINST LIQUID LIMIT USING CASAGRANDE CLASSIFICATION CHART

Plasticity				
Low	Medium	High	Very High	Extremely High



Plasticity Chart BS5930: 2015: Figure 8

High
Medium
Low

NHBC Volume Change Potential

Method of Preparation:	BS 1377: Part 2: 1990: 4.2
Method of Test:	BS1377: Part 2: 3.2, 4.4, 5.3, 5.4
Type of Sample Key:	U = Undisturbed, B = Bulk, D = Disturbed, J = Jar, W = Water, SPT = Split Spoon Sample, C = Core Cutter
Comments:	Volume Change Potential: NHBC Standards Chapter 4.2 Unmodified Plasticity Index



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DATE ISSUED: 05/03/2021



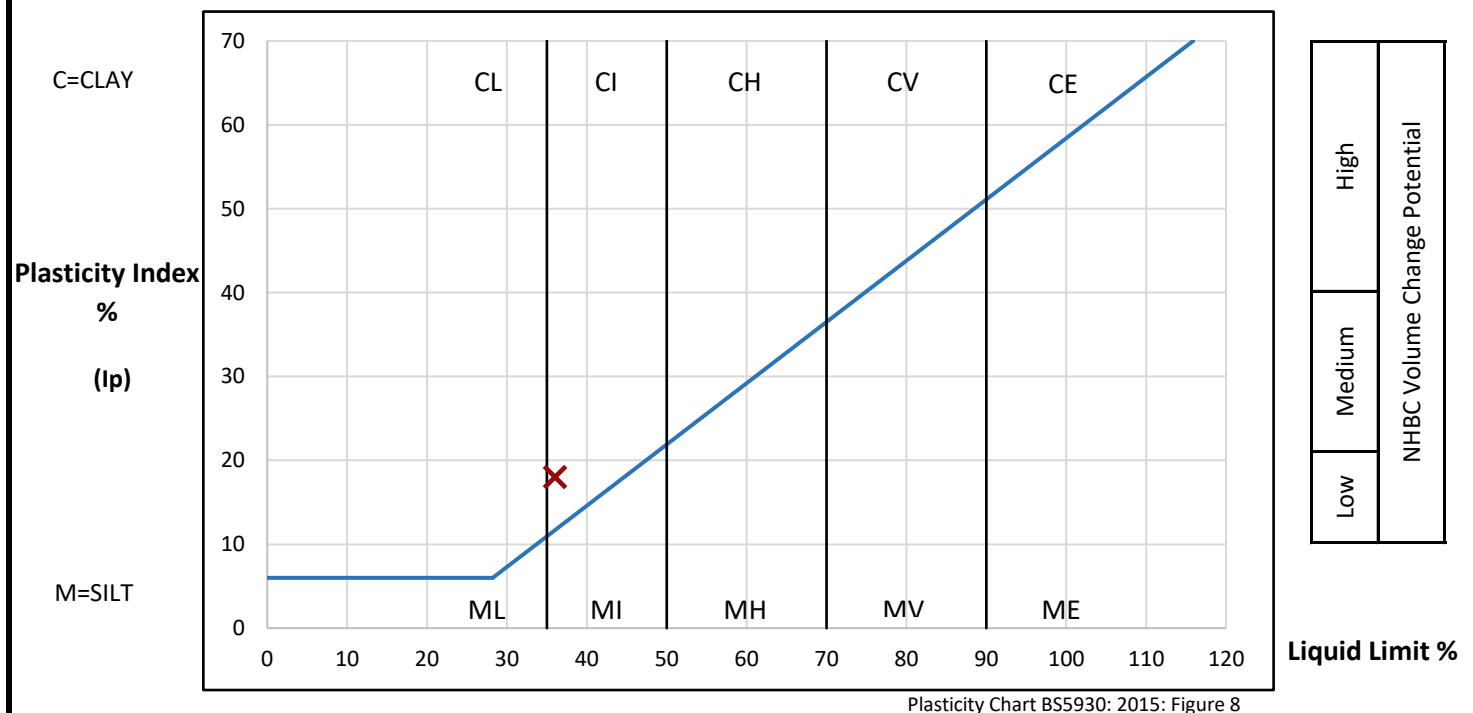
0998

Contract	Oughtonhead Lane, Hitchin
Serial No.	38099_1

DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample Type	Sample Reference	Water Content (W) %	Description	Remarks
TP101	0.50 - 0.80	D	1	13.2	Firm yellowish brown gravelly slightly sandy silty CLAY with occasional recently active roots. Gravel is fine to coarse angular to subrounded chert.	

PREPARATION			Liquid Limit	36 %	
Method of preparation		Wet sieved over 0.425mm sieve	Plastic Limit	18 %	
Sample retained 0.425mm sieve	(Measured)	51 %	Plasticity Index	18 %	
Corrected water content for material passing 0.425mm			Liquidity Index	-0.27	
Sample retained 2mm sieve	(Measured)	36 %	NHBC Modified (I'p)	9 %	
Curing time	26 hrs	Clay Content	Not analysed	Derived Activity	Not analysed



Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2

Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4

Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter

Comments: Corrected water content assume material greater than 0.425mm non-porous. See BS1377: Part2: 1990 Clause 3 Note 1
Volume Change Potential: NHBC Standards Chapter 4.2 Unmodified Plasticity Index
Note: Modified Plasticity Index I'p = Ip x (% less than 425microns/100)



TEST REPORT

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0998

Contract		Oughtonhead Lane, Hitchin								
Serial No.		38099_1								
DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX										
Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks				
		Type	Reference							
TP104	0.50	D	1	16.1	Firm yellowish brown slightly gravelly slightly sandy silty CLAY with occasional recently active roots. Gravel is fine to coarse angular to subrounded chert.					
PREPARATION					Liquid Limit	33 %				
Method of preparation					Wet sieved over 0.425mm sieve	Plastic Limit	16 %			
Sample retained 0.425mm sieve (Measured)					27 %	Plasticity Index	17 %			
Corrected water content for material passing 0.425mm					22.1 %	Liquidity Index	0.01			
Sample retained 2mm sieve (Measured)					19 %	NHBC Modified (I'p)	12 %			
Curing time			698 hrs	Clay Content	Not analysed	Derived Activity	Not analysed			
C=CLAY Plasticity Index % (Ip) M=SILT <table border="1"> <tr> <td>High</td> <td rowspan="3">NHBC Volume Change Potential</td> </tr> <tr> <td>Medium</td> </tr> <tr> <td>Low</td> </tr> </table> Liquid Limit % Plasticity Chart BS5930: 2015: Figure 8							High	NHBC Volume Change Potential	Medium	Low
High	NHBC Volume Change Potential									
Medium										
Low										
Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2 Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4 Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter Comments: Corrected water content assume material greater than 0.425mm non-porous. See BS1377: Part2: 1990 Clause 3 Note 1 Volume Change Potential: NHBC Standards Chapter 4.2 Unmodified Plasticity Index Note: Modified Plasticity Index I'p = Ip x (% less than 425microns/100)										



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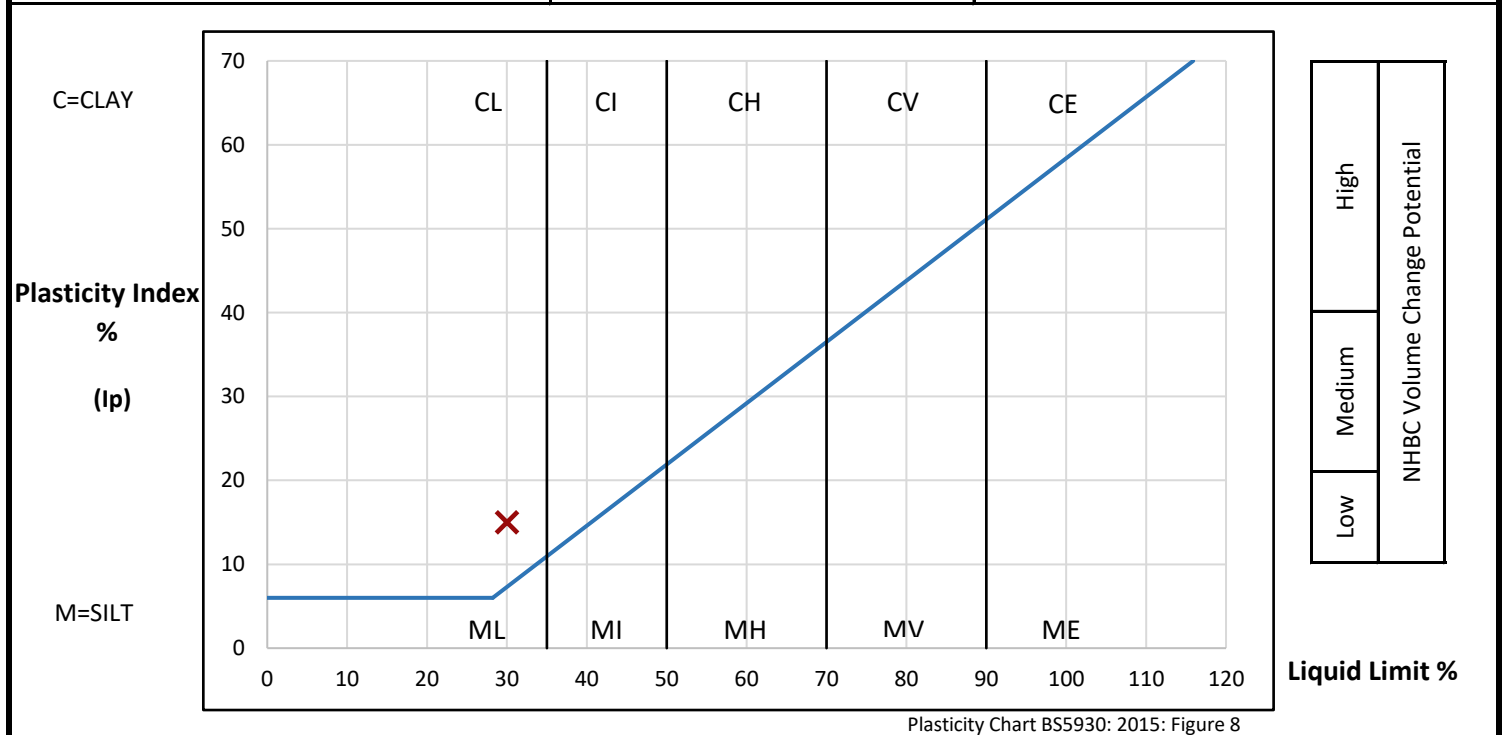
0998

Contract	Oughtonhead Lane, Hitchin
Serial No.	38099_1

DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX

Borehole / Pit No.	Depth m	Sample Type	Sample Reference	Water Content (W) %	Description	Remarks
TP105	1.00	D	1	16.3	Firm brownish yellow slightly gravelly slightly sandy silty CLAY with occasional recently active roots. Gravel is fine to medium subangular to subrounded chalk.	

PREPARATION				Liquid Limit 30 %	
Method of preparation Wet sieved over 0.425mm sieve				Plastic Limit 15 %	
Sample retained 0.425mm sieve (Measured) 13 %				Plasticity Index 15 %	
Corrected water content for material passing 0.425mm 18.8 %				Liquidity Index 0.09	
Sample retained 2mm sieve (Measured) 5 %				NHBC Modified (I'p) 13 %	
Curing time 24 hrs		Clay Content Not analysed		Derived Activity Not analysed	



Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2

Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4

Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter

Comments: Corrected water content assume material greater than 0.425mm non-porous. See BS1377: Part2: 1990 Clause 3 Note 1
Volume Change Potential: NHBC Standards Chapter 4.2 Unmodified Plasticity Index
Note: Modified Plasticity Index I'p = Ip x (% less than 425microns/100)



TEST REPORT

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0998

Contract		Oughtonhead Lane, Hitchin								
Serial No.		38099_1								
DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX										
Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks				
		Type	Reference							
TP106	0.70	D	1	15.1	Firm yellowish brown slightly gravelly slightly sandy silty CLAY with occasional recently active roots. Gravel is fine to coarse angular to subrounded chert.					
PREPARATION					Liquid Limit	33 %				
Method of preparation					Wet sieved over 0.425mm sieve	Plastic Limit	16 %			
Sample retained 0.425mm sieve (Measured)					29 %	Plasticity Index	17 %			
Corrected water content for material passing 0.425mm					21.2 %	Liquidity Index	-0.06			
Sample retained 2mm sieve (Measured)					18 %	NHBC Modified (I _p)	12 %			
Curing time				26 hrs	Clay Content	Not analysed	Derived Activity	Not analysed		
C=CLAY Plasticity Index % (I_p) M=SILT <table border="1"> <tr> <td>High</td> <td rowspan="3">NHBC Volume Change Potential</td> </tr> <tr> <td>Medium</td> </tr> <tr> <td>Low</td> </tr> </table> Liquidity Index							High	NHBC Volume Change Potential	Medium	Low
High	NHBC Volume Change Potential									
Medium										
Low										
Plasticity Chart BS5930: 2015: Figure 8										
Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2 Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4 Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter Comments: Corrected water content assume material greater than 0.425mm non-porous. See BS1377: Part2: 1990 Clause 3 Note 1 Volume Change Potential: NHBC Standards Chapter 4.2 Unmodified Plasticity Index Note: Modified Plasticity Index I _p = I _p x (% less than 425microns/100)										



TEST REPORT

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0998

Contract		Oughtonhead Lane, Hitchin					
Serial No.		38099_1					
DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX							
Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks	
		Type	Reference				
WS102	1.00	D	2	11.3	Firm yellowish brown gravelly slightly sandy CLAY with occasional recently active roots. Gravel is brown, black and white fine to coarse angular to subrounded chert.		
PREPARATION					Liquid Limit	62 %	
Method of preparation					Wet sieved over 0.425mm sieve	Plastic Limit	18 %
Sample retained 0.425mm sieve (Measured)					63 %	Plasticity Index	44 %
Corrected water content for material passing 0.425mm					30.5 %	Liquidity Index	-0.15
Sample retained 2mm sieve (Measured)					49 %	NHBC Modified (I _p)	16 %
Curing time			26 hrs	Clay Content	Not analysed	Derived Activity	Not analysed
C=CLAY Plasticity Index % (I_p) M=SILT High Medium Low NHBC Volume Change Potential Liquid Limit % Plasticity Chart BS5930: 2015: Figure 8							
Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2 Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4 Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter Comments: Corrected water content assume material greater than 0.425mm non-porous. See BS1377: Part2: 1990 Clause 3 Note 1 Volume Change Potential: NHBC Standards Chapter 4.2 Unmodified Plasticity Index Note: Modified Plasticity Index I _p = I _p x (% less than 425microns/100)							



TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD
DATE ISSUED: 05/03/2021



0998

Contract		Oughtonhead Lane, Hitchin						
Serial No.		38099_1						
DETERMINATION OF WATER CONTENT, LIQUID LIMIT AND PLASTIC LIMIT AND DERIVATION OF PLASTICITY INDEX AND LIQUIDITY INDEX								
Borehole / Pit No.	Depth m	Sample		Water Content (W) %	Description	Remarks		
		Type	Reference					
WS103	1.20	D	2	12.6	Very stiff slightly friable olive yellow slightly gravelly sandy silty CLAY. Gravel is fine to coarse angular to subrounded chalk, and rare chert.			
PREPARATION					Liquid Limit	23 %		
Method of preparation					Wet sieved over 0.425mm sieve	Plastic Limit	15 %	
Sample retained 0.425mm sieve (Measured)					18 %	Plasticity Index	8 %	
Corrected water content for material passing 0.425mm					15.4 %	Liquidity Index	-0.30	
Sample retained 2mm sieve (Measured)					10 %	NHBC Modified (I'p)	7 %	
Curing time				26 hrs	Clay Content	Not analysed	Derived Activity	Not analysed
C=CLAY Plasticity Index % (Ip) M=SILT High Medium Low NHBC Volume Change Potential								
Plasticity Chart BS5930: 2015: Figure 8								
Method of Preparation: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 4.2 Method of Test: BS EN ISO: 17892-1: 2014 & BS 1377: Part 2: 1990: 3.2, 4.4, 5.3, 5.4 Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter Comments: Corrected water content assume material greater than 0.425mm non-porous. See BS1377: Part2: 1990 Clause 3 Note 1 Volume Change Potential: NHBC Standards Chapter 4.2 Unmodified Plasticity Index Note: Modified Plasticity Index I'p = Ip x (% less than 425microns/100)								



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0998

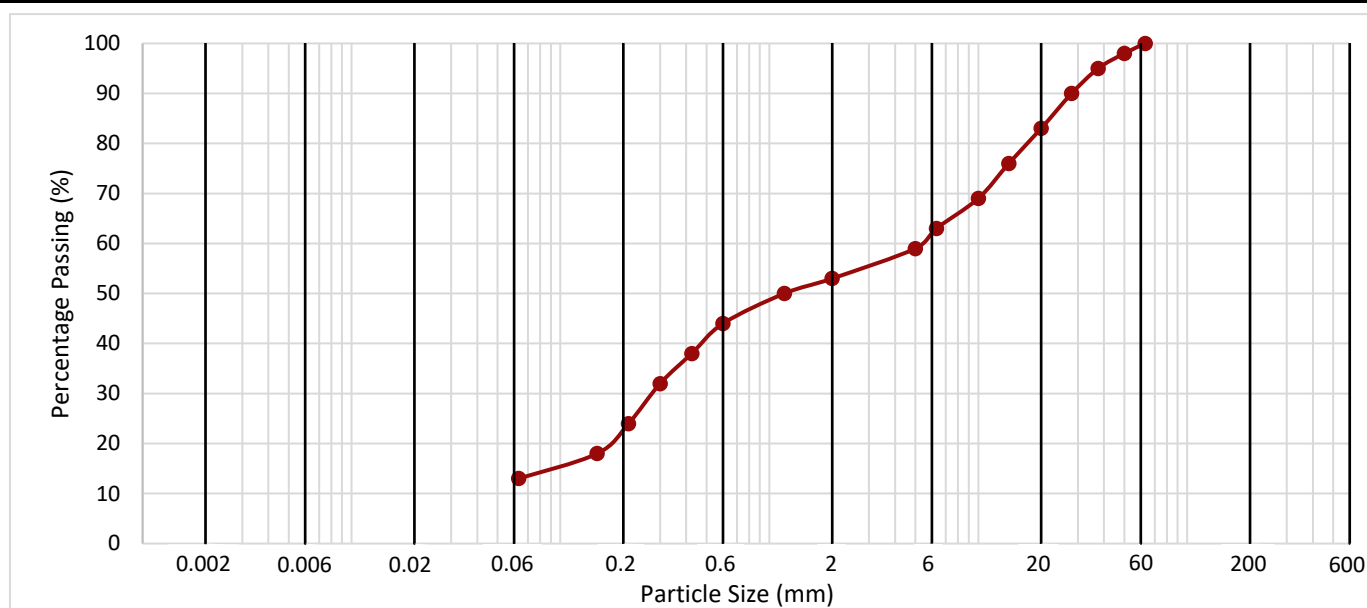
Contract	Oughtonhead Lane, Hitchin
Serial No.	38099_1

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Pit No.	Depth (m)	Sample		Description	Remarks
		Type	Reference		
TP101	1.80 - 2.20	B	1	Yellowish brown angular to subrounded limestone, occasional black and white angular to rounded chert, rare brown, dark grey and white subangular to subrounded quartzite, and orangish brown angular ironstone. very sandy clayey GRAVEL. Sand and clay are orangish brown.	

Method of Test: **Wet Sieve**

Method of Pretreatment:

Not required

CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLES	BOULDERS
	SILT			SAND			GRAVEL				

H y d r o m e t e r	Particle Size (mm)	Passing (%)	Silt by Dry Mass (%)
	0.075		
	0.150		
	0.300		
	0.600		
	1.18		
	2.00		
	4.75		
	Particle Size (mm)	Passing (%)	Clay by Dry Mass (%)
	0.075		
	0.150		
	0.300		
	0.600		
	1.18		
	2.00		
	4.75		

Sieve Size (mm)	Passing (%)	Sand By Dry Mass (%)
2.00	53	40
1.18	50	
0.600	44	
0.425	38	
0.300	32	
0.212	24	
0.150	18	
0.063	13	

Fines By Dry Mass (%)	
<0.063mm	13

Sieve Size (mm)	Passing (%)	2mm+ By Dry Mass (%)
300		47
125		
90		
63	100	
50	98	
37.5	95	
28	90	
20	83	
14	76	
10	69	
6.3	63	
5	59	

Method of Preparation: BS1377: Part 1: 2016: 8.3 & 8.4.5
 Method of test: BS1377: Part 2: 1990: 9.2
 Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
 Comments:



TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD
DATE ISSUED: 05/03/2021



0998

Contract	Oughtonhead Lane, Hitchin
Serial No.	38099_1

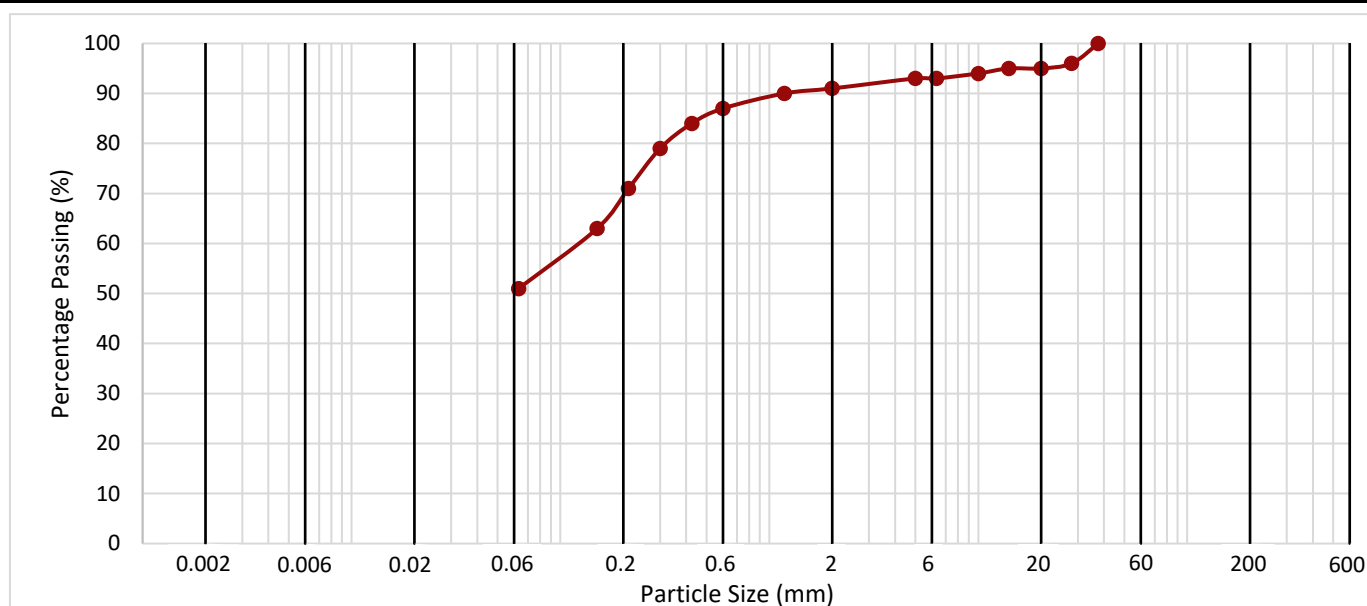
DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Pit No.	Depth (m)	Sample		Description	Remarks
		Type	Reference		
TP105	1.00	B	1	Stiff brown slightly gravelly sandy CLAY. Gravel is black, white and brown angular to rounded chert, and occasional brown angular to subangular limestone.	

Method of Test: Wet Sieve

Method of Pretreatment:

Not required



CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLES	BOULDERS
	SILT			SAND			GRAVEL				

H y d r o m e t e r	Particle Size (mm)	Passing (%)	Silt by Dry Mass (%)
	0.075		
	0.15		
	0.3		
	0.6		
	1.2		
	2.5		
	5.0		
	Particle Size (mm)	Passing (%)	Clay by Dry Mass (%)
	0.075		
	0.15		
	0.3		
	0.6		
	1.2		
	2.5		
	5.0		

Sieve Size (mm)	Passing (%)	Sand By Dry Mass (%)
2.00	91	40
1.18	90	
0.600	87	
0.425	84	
0.300	79	
0.212	71	
0.150	63	
0.063	51	

Fines By Dry Mass (%)	
<0.063mm	51

Sieve Size (mm)	Passing (%)	2mm+ By Dry Mass (%)
300		9
125		
90		
63		
50		
37.5	100	
28	96	
20	95	
14	95	
10	94	
6.3	93	
5	93	

Method of Preparation: BS1377: Part 1: 2016: 8.3 & 8.4.5
 Method of test: BS1377: Part 2: 1990: 9.2
 Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
 Comments:



TEST REPORT

ISSUED BY SOIL PROPERTY TESTING LTD
DATE ISSUED: 05/03/2021



0998

Contract	Oughtonhead Lane, Hitchin
Serial No.	38099_1

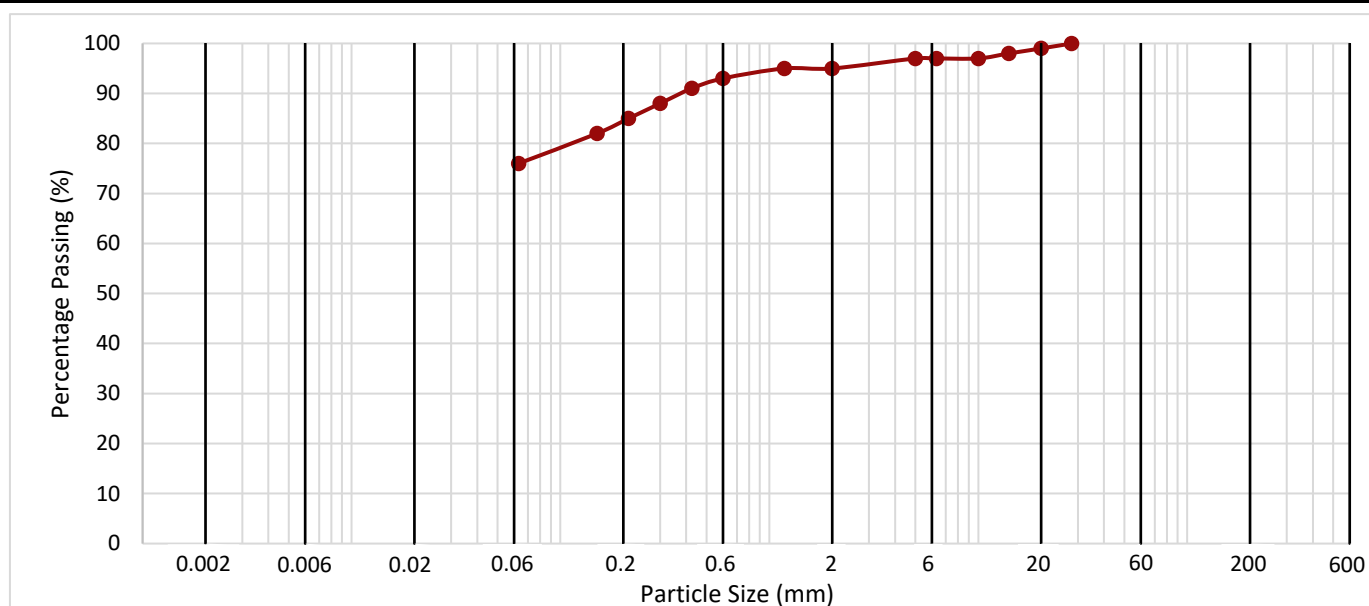
DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Borehole / Pit No.	Depth (m)	Sample		Description	Remarks
		Type	Reference		
TP106	1.20	B	1	Yellowish brown slightly gravelly slightly sandy silty CLAY. Gravel is brown, black and white angular to subrounded chert, occasional white subangular to subrounded chalk, and brown angular limestone.	

Method of Test: Wet Sieve

Method of Pretreatment:

Not required



CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLES	BOULDERS
	SILT			SAND			GRAVEL				

Hydrometer	Particle Size (mm)	Passing (%)	Silt by Dry Mass (%)
	0.075		
	0.150		
	0.300		
	0.600		
	1.06		
	2.00		
	4.75		
	Particle Size (mm)	Passing (%)	Clay by Dry Mass (%)
	0.075		
	0.150		
	0.300		
	0.600		
	1.06		
	2.00		
	4.75		

Sieve Size (mm)	Passing (%)	Sand By Dry Mass (%)
2.00	95	19
1.18	95	
0.600	93	
0.425	91	
0.300	88	
0.212	85	
0.150	82	
0.063	76	

Fines By Dry Mass (%)	
<0.063mm	76

Sieve Size (mm)	Passing (%)	2mm+ By Dry Mass (%)
300		5
125		
90		
63		
50		
37.5		
28	100	
20	99	
14	98	
10	97	
6.3	97	
5	97	

Method of Preparation: BS1377: Part 1: 2016: 8.3 & 8.4.5
 Method of test: BS1377: Part 2: 1990: 9.2
 Type of Sample Key: U=Undisturbed, B=Bulk, D=Disturbed, J=Jar, W=Water, SPT=Split Spoon Sample, C=Core Cutter
 Comments:

Appendix 9

Chemical Laboratory Analysis



2531



ANALYTICAL TEST REPORT

Contract no: 92641
Contract name: Oughtonhead Lane, Hitchin
Client reference: 1873
Clients name: GEMCO
Clients address: Suite 3 Broomfield Park
Coggeshall Road
Essex
CO6 2JX

Samples received: 18 January 2021

Analysis started: 18 January 2021

Analysis completed: 25 January 2021

Report issued: 25 January 2021

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope.
Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.
All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.
Methods, procedures and performance data are available on request.
Results reported herein relate only to the material supplied to the laboratory.
This report shall not be reproduced except in full, without prior written approval.
Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.
BTEX compounds are identified by retention time only and may include interference from co-eluting compounds.

Key: U UKAS accredited test
M MCERTS & UKAS accredited test
\$ Test carried out by an approved subcontractor
I/S Insufficient sample to carry out test
N/S Sample not suitable for testing
NAD No Asbestos Detected

Approved by:



Rachael Burton
Customer Support Squad Leader

Chemtech Environmental Limited

SAMPLE INFORMATION

MCERTS (Soils):

Soil descriptions are only intended to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions. MCERTS accreditation applies for sand, clay and loam/topsoil, or combinations of these whether these are derived from naturally occurring soils or from made ground, as long as these materials constitute the major part of the sample. Other materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

All results are reported on a dry basis. Samples dried at no more than 30°C in a drying cabinet.

Analytical results are inclusive of stones.

Lab ref	Sample id	Depth (m)	Sample description	Material removed	% Removed	% Moisture
92641-1	TP101 E1	0.00-0.25	Loam with Gravel & Roots	-	-	15.2
92641-2	TP103 E1	0.20	Sandy Loam with Gravel	-	-	14.9
92641-3	TP103 E2	0.35	Sand with Gravel	-	-	9.6
92641-4	TP107 E1	0.00	Clayey Sand with Gravel	-	-	20.5
92641-5	TP107 E3	1.50	Sand with Gravel	-	-	7.0
92641-6	WS101 E1	0.30	Clay with Gravel	-	-	12.6

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SOILS

Lab number Sample id Depth (m) Date sampled			92641-1 TP101 E1 0.00-0.25 12/01/2021	92641-2 TP103 E1 0.20 12/01/2021	92641-3 TP103 E2 0.35 12/01/2021	92641-4 TP107 E1 0.00 13/01/2021	92641-5 TP107 E3 1.50 13/01/2021	92641-6 WS101 E1 0.30 13/01/2021
Test	Method	Units						
Arsenic (total)	CE127 ^M	mg/kg As	40	62	92	52	33	37
Barium (total)	CE127 ^M	mg/kg Ba	311	177	49	185	44	91
Beryllium (total)	CE127 ^U	mg/kg Be	2.2	1.2	<1	1.4	<1	1.1
Boron (water soluble)	CE063	mg/kg B	1.4	1.0	0.5	1.2	<0.5	0.8
Cadmium (total)	CE127 ^M	mg/kg Cd	1.0	0.7	0.5	0.7	0.3	0.3
Chromium (total)	CE127 ^M	mg/kg Cr	152	131	103	133	115	109
Chromium (III)	CE208	mg/kg CrIII	152	131	103	133	115	109
Chromium (VI)	CE146	mg/kg CrVI	<1	<1	<1	<1	<1	<1
Copper (total)	CE127 ^M	mg/kg Cu	84	76	18	72	12	21
Lead (total)	CE127 ^M	mg/kg Pb	238	181	20	196	17	38
Mercury (total)	CE127 ^M	mg/kg Hg	0.9	0.8	<0.5	<0.5	<0.5	<0.5
Nickel (total)	CE127 ^M	mg/kg Ni	46	49	48	47	32	45
Selenium (total)	CE127 ^M	mg/kg Se	1.9	1.5	1.0	1.4	0.6	1.6
Vanadium (total)	CE127 ^M	mg/kg V	68	63	60	93	48	66
Zinc (total)	CE127 ^M	mg/kg Zn	308	258	198	264	119	143
pH	CE004 ^M	units	8.5	8.4	8.6	8.2	8.5	8.5
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	38	17	<10	110	74	11
Sulphate (total)	CE062	mg/kg SO ₄	750	590	161	1000	382	206
Sulphide	CE079	mg/kg S ²⁻	<10	<10	<10	<10	<10	<10
Cyanide (total)	CE077	mg/kg CN	<1	<1	<1	<1	<1	<1
Phenols (total)	CE078	mg/kg PhOH	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Total Organic Carbon (TOC)	CE197	% w/w C	4.0	2.8	0.4	3.0	0.5	0.6
Estimate of OMC (calculated from TOC)	CE197	% w/w	6.9	4.9	0.7	5.2	0.8	1.1
PAH								
Naphthalene	CE087 ^M	mg/kg	0.10	0.04	<0.02	0.07	<0.02	<0.02
Acenaphthylene	CE087 ^M	mg/kg	0.22	0.06	<0.02	0.07	<0.02	<0.02
Acenaphthene	CE087 ^M	mg/kg	0.04	<0.02	<0.02	0.04	<0.02	<0.02
Fluorene	CE087 ^U	mg/kg	0.06	<0.02	<0.02	0.04	<0.02	<0.02
Phenanthrene	CE087 ^M	mg/kg	1.05	0.28	<0.02	0.56	<0.02	0.11
Anthracene	CE087 ^U	mg/kg	0.18	0.06	<0.02	0.14	<0.02	0.02
Fluoranthene	CE087 ^M	mg/kg	3.43	0.96	<0.02	1.43	<0.02	0.26
Pyrene	CE087 ^M	mg/kg	2.93	0.84	<0.02	1.21	<0.02	0.22
Benzo(a)anthracene	CE087 ^U	mg/kg	1.82	0.51	<0.02	0.72	<0.02	0.11
Chrysene	CE087 ^M	mg/kg	2.22	0.67	<0.03	0.89	<0.03	0.15
Benzo(b)fluoranthene	CE087 ^M	mg/kg	3.18	0.91	<0.02	1.13	<0.02	0.18
Benzo(k)fluoranthene	CE087 ^M	mg/kg	1.19	0.36	<0.03	0.49	<0.03	0.06
Benzo(a)pyrene	CE087 ^U	mg/kg	2.20	0.57	<0.02	0.69	<0.02	0.11
Indeno(123cd)pyrene	CE087 ^M	mg/kg	2.20	0.63	<0.02	0.78	<0.02	0.11
Dibenz(ah)anthracene	CE087 ^M	mg/kg	0.36	0.10	<0.02	0.12	<0.02	<0.02
Benzo(ghi)perylene	CE087 ^M	mg/kg	1.82	0.50	<0.02	0.61	<0.02	0.09
PAH (total of USEPA 16)	CE087	mg/kg	23.0	6.49	<0.34	8.98	<0.34	1.43

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SOILS

Lab number			92641-1	92641-2	92641-3	92641-4	92641-5	92641-6
Sample id			TP101 E1	TP103 E1	TP103 E2	TP107 E1	TP107 E3	WS101 E1
Depth (m)			0.00-0.25	0.20	0.35	0.00	1.50	0.30
Date sampled			12/01/2021	12/01/2021	12/01/2021	13/01/2021	13/01/2021	13/01/2021
Test	Method	Units						
BTEX & TPH								
MTBE	CE192 ^U	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Benzene	CE192 ^U	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Toluene	CE192 ^U	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Ethylbenzene	CE192 ^U	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
m & p-Xylene	CE192 ^U	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
o-Xylene	CE192 ^U	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
VPH Aromatic (>EC5-EC7)	CE067	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
VPH Aromatic (>EC7-EC8)	CE067	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
VPH Aromatic (>EC8-EC10)	CE067	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
EPH Aromatic (>EC10-EC12)	CE068	mg/kg	<1	<1	<1	<1	<1	<1
EPH Aromatic (>EC12-EC16)	CE068	mg/kg	<1	<1	<1	<1	<1	<1
EPH Aromatic (>EC16-EC21)	CE068	mg/kg	9	3	<1	4	<1	<1
EPH Aromatic (>EC21-EC35)	CE068	mg/kg	14	5	<1	6	<1	<1
EPH Aromatic (>EC35-EC44)	CE068	mg/kg	3	<1	<1	<1	<1	<1
VPH Aliphatic (>C5-C6)	CE067	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
VPH Aliphatic (>C6-C8)	CE067	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
VPH Aliphatic (>C8-C10)	CE067	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
EPH Aliphatic (>C10-C12)	CE068	mg/kg	<4	5	<4	4	<4	<4
EPH Aliphatic (>C12-C16)	CE068	mg/kg	<4	13	7	13	<4	6
EPH Aliphatic (>C16-C35)	CE068	mg/kg	88	103	<4	125	<4	42
EPH Aliphatic (>C35-C44)	CE068	mg/kg	18	16	<10	27	<10	12
Subcontracted analysis								
Asbestos (qualitative)	\$	-	NAD	NAD	NAD	NAD	NAD	NAD

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METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE127	Arsenic (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg As
CE127	Barium (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Ba
CE127	Beryllium (total)	Aqua regia digest, ICP-MS	Dry	U	1	mg/kg Be
CE063	Boron (water soluble)	Hot water extract, ICP-OES	Dry		0.5	mg/kg B
CE127	Cadmium (total)	Aqua regia digest, ICP-MS	Dry	M	0.2	mg/kg Cd
CE127	Chromium (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Cr
CE208	Chromium (III)	Calculation: Cr (total) - Cr (VI)	Dry		1	mg/kg CrIII
CE146	Chromium (VI)	Acid extraction, Colorimetry	Dry		1	mg/kg CrVI
CE127	Copper (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Cu
CE127	Lead (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Pb
CE127	Mercury (total)	Aqua regia digest, ICP-MS	Dry	M	0.5	mg/kg Hg
CE127	Nickel (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg Ni
CE127	Selenium (total)	Aqua regia digest, ICP-MS	Dry	M	0.3	mg/kg Se
CE127	Vanadium (total)	Aqua regia digest, ICP-MS	Dry	M	1	mg/kg V
CE127	Zinc (total)	Aqua regia digest, ICP-MS	Dry	M	5	mg/kg Zn
CE004	pH	Based on BS 1377, pH Meter	As received	M	-	units
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		100	mg/kg SO ₄
CE079	Sulphide	Extraction, Continuous Flow Colorimetry	As received		10	mg/kg S ²⁻
CE077	Cyanide (total)	Extraction, Continuous Flow Colorimetry	As received		1	mg/kg CN
CE078	Phenols (total)	Extraction, Continuous Flow Colorimetry	As received		0.5	mg/kg PhOH
CE197	Total Organic Carbon (TOC)	Carbon Analyser	Dry		0.1	% w/w C
CE197	Estimate of OMC (calculated from TOC)	Calculation from Total Organic Carbon	Dry		0.1	% w/w
CE087	Naphthalene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Acenaphthylene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Acenaphthene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Fluorene	Solvent extraction, GC-MS	As received	U	0.02	mg/kg
CE087	Phenanthrene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Anthracene	Solvent extraction, GC-MS	As received	U	0.02	mg/kg
CE087	Fluoranthene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Pyrene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Benzo(a)anthracene	Solvent extraction, GC-MS	As received	U	0.02	mg/kg
CE087	Chrysene	Solvent extraction, GC-MS	As received	M	0.03	mg/kg
CE087	Benzo(b)fluoranthene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Benzo(k)fluoranthene	Solvent extraction, GC-MS	As received	M	0.03	mg/kg
CE087	Benzo(a)pyrene	Solvent extraction, GC-MS	As received	U	0.02	mg/kg
CE087	Indeno(123cd)pyrene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Dibenz(ah)anthracene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	Benzo(ghi)perylene	Solvent extraction, GC-MS	As received	M	0.02	mg/kg
CE087	PAH (total of USEPA 16)	Solvent extraction, GC-MS	As received		0.34	mg/kg
CE192	MTBE	Headspace GC-FID	As received	U	0.02	mg/kg
CE192	Benzene	Headspace GC-FID	As received	U	0.01	mg/kg
CE192	Toluene	Headspace GC-FID	As received	U	0.01	mg/kg
CE192	Ethylbenzene	Headspace GC-FID	As received	U	0.01	mg/kg

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METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE192	m & p-Xylene	Headspace GC-FID	As received	U	0.02	mg/kg
CE192	o-Xylene	Headspace GC-FID	As received	U	0.01	mg/kg
CE067	VPH Aromatic (>EC5-EC7)	Headspace GC-FID	As received		0.01	mg/kg
CE067	VPH Aromatic (>EC7-EC8)	Headspace GC-FID	As received		0.01	mg/kg
CE067	VPH Aromatic (>EC8-EC10)	Headspace GC-FID	As received		0.01	mg/kg
CE068	EPH Aromatic (>EC10-EC12)	Solvent extraction, GC-FID	As received		1	mg/kg
CE068	EPH Aromatic (>EC12-EC16)	Solvent extraction, GC-FID	As received		1	mg/kg
CE068	EPH Aromatic (>EC16-EC21)	Solvent extraction, GC-FID	As received		1	mg/kg
CE068	EPH Aromatic (>EC21-EC35)	Solvent extraction, GC-FID	As received		1	mg/kg
CE068	EPH Aromatic (>EC35-EC44)	Solvent extraction, GC-FID	As received		1	mg/kg
CE067	VPH Aliphatic (>C5-C6)	Headspace GC-FID	As received		0.1	mg/kg
CE067	VPH Aliphatic (>C6-C8)	Headspace GC-FID	As received		0.1	mg/kg
CE067	VPH Aliphatic (>C8-C10)	Headspace GC-FID	As received		0.1	mg/kg
CE068	EPH Aliphatic (>C10-C12)	Solvent extraction, GC-FID	As received		4	mg/kg
CE068	EPH Aliphatic (>C12-C16)	Solvent extraction, GC-FID	As received		4	mg/kg
CE068	EPH Aliphatic (>C16-C35)	Solvent extraction, GC-FID	As received		4	mg/kg
CE068	EPH Aliphatic (>C35-C44)	Solvent extraction, GC-FID	As received		10	mg/kg
\$	Asbestos (qualitative)	HSG 248, Microscopy	Dry	U	-	-

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DEVIATING SAMPLE INFORMATION

Comments

Sample deviation is determined in accordance with the UKAS note "Guidance on Deviating Samples" and based on reference standards and laboratory trials.

For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.

Chemtech Environmental Ltd cannot be held responsible for the integrity of sample(s) received if Chemtech Environmental Ltd did not undertake the sampling. Such samples may be deviating.

Key

N	No (not deviating sample)
Y	Yes (deviating sample)
NSD	Sampling date not provided
NST	Sampling time not provided (waters only)
EHT	Sample exceeded holding time(s)
IC	Sample not received in appropriate containers
HP	Headspace present in sample container
NCF	Sample not chemically fixed (where appropriate)
OR	Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
92641-1	TP101 E1	0.00-0.25	N	
92641-2	TP103 E1	0.20	N	
92641-3	TP103 E2	0.35	N	
92641-4	TP107 E1	0.00	N	
92641-5	TP107 E3	1.50	N	
92641-6	WS101 E1	0.30	N	



ANALYTICAL TEST REPORT

Contract no: 92740
Contract name: Oughtonhead Lane, Hitchin
Client reference: 1873
Clients name: GEMCO
Clients address: Suite 3 Broomfield Park
Coggeshall Road
Essex
CO6 2JX

Samples received: 22 January 2021

Analysis started: 22 January 2021

Analysis completed: 29 January 2021

Report issued: 29 January 2021

Notes: Opinions and interpretations expressed herein are outside the UKAS accreditation scope.
Unless otherwise stated, Chemtech Environmental Ltd was not responsible for sampling.
All testing carried out at Unit 6 Parkhead, Stanley, DH9 7YB, except for subcontracted testing.
Methods, procedures and performance data are available on request.
Results reported herein relate only to the material supplied to the laboratory.
This report shall not be reproduced except in full, without prior written approval.
Samples will be disposed of 6 weeks from initial receipt unless otherwise instructed.

Key: U UKAS accredited test
M MCERTS & UKAS accredited test
\$ Test carried out by an approved subcontractor
I/S Insufficient sample to carry out test
N/S Sample not suitable for testing

Approved by: 
Rachael Burton
Customer Support Squad Leader

Chemtech Environmental Limited

SAMPLE INFORMATION

MCERTS (Soils):

Soil descriptions are only intended to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions. MCERTS accreditation applies for sand, clay and loam/topsoil, or combinations of these whether these are derived from naturally occurring soils or from made ground, as long as these materials constitute the major part of the sample. Other materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

All results are reported on a dry basis. Samples dried at no more than 30°C in a drying cabinet.

Analytical results are inclusive of stones.

Lab ref	Sample id	Depth (m)	Sample description	Material removed	% Removed	% Moisture
92740-1	TP104 D2	1.30	Clayey Sand with Gravel	-	-	12.4
92740-2	TP105 B1	1.60	Clay	-	-	16.2
92740-3	TP106 D2	2.20	Clay	-	-	14.5

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SOILS

Lab number			92740-1	92740-2	92740-3
Sample id			TP104 D2	TP105 B1	TP106 D2
Depth (m)			1.30	1.60	2.20
Date sampled			12/01/2021	12/01/2021	12/01/2021
Test	Method	Units			
pH	CE004 ^M	units	8.8	8.5	8.5
Ammonia	CE144	mg/kg N	2.22	3.88	2.84
Magnesium (2:1 water soluble)	CE061	mg/l Mg	<1	1.5	1.1
Chloride (2:1 water soluble)	CE049 ^U	mg/l Cl	10	4.0	3.1
Nitrate (2:1 water soluble)	CE049 ^U	mg/l NO ₃	1.7	1.7	3.5
Sulphate (2:1 water soluble)	CE061	mg/l SO ₄	104	34	21
Sulphate (total)	CE062	mg/kg SO ₄	741	354	276
Sulphur (total)	CE119	mg/kg S	191	141	142

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METHOD DETAILS

METHOD	SOILS	METHOD SUMMARY	SAMPLE	STATUS	LOD	UNITS
CE004	pH	Based on BS 1377, pH Meter	As received	M	-	units
CE144	Ammonia	KCl extraction, Colorimetry	As received		1	mg/kg N
CE061	Magnesium (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		1	mg/l Mg
CE049	Chloride (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l Cl
CE049	Nitrate (2:1 water soluble)	Aqueous extraction, IC-COND	Dry	U	1	mg/l NO ₃
CE061	Sulphate (2:1 water soluble)	Aqueous extraction, ICP-OES	Dry		10	mg/l SO ₄
CE062	Sulphate (total)	Acid extraction, ICP-OES	Dry		100	mg/kg SO ₄
CE119	Sulphur (total)	Acid extraction, ICP-OES	Dry		100	mg/kg S

Chemtech Environmental Limited

DEVIATING SAMPLE INFORMATION

Comments

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For samples identified as deviating, test result(s) may be compromised and may not be representative of the sample at the time of sampling.

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Key

N	No (not deviating sample)
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NCF	Sample not chemically fixed (where appropriate)
OR	Other (specify)

Lab ref	Sample id	Depth (m)	Deviating	Tests (Reason for deviation)
92740-1	TP104 D2	1.30	N	
92740-2	TP105 B1	1.60	N	
92740-3	TP106 D2	2.20	N	

DECLARATION OF COMPLIANCE (BS3882:2015)



Lab ref 93004-1
Contract name Oughtonhead Lane, Hitchin
Sample ID WS103 TS1 0.00-0.20m
OS Grid reference Not supplied
Date sampled 27 January 2021

Date received 29 January 2021
Analysis started 29 January 2021
Analysis completed 05 February 2021
Report issued 05 February 2021

Test	Units	Result	Compliant with Multipurpose? (Y/N)	Compliant with specific purpose? (Y/N)				
				Acidic	Calcareous	Low Fertility	Low F Acidic	Low F Calcareous
Texture								
Clay content	% w/w	23	Y	Y	Y	Y	Y	Y
Silt content	% w/w	28	Y	Y	Y	Y	Y	Y
Sand content	% w/w	49	Y	Y	Y	Y	Y	Y
Soil texture	class	CLAY LOAM						

Stone content								
>2mm	% w/w	2	Y	Y	Y	Y	Y	Y
>20mm	% w/w	0	Y	Y	Y	Y	Y	Y
>50mm	% w/w	0	Y	Y	Y	Y	Y	Y

Mass loss on ignition								
Clay 5-20%	% w/w	-	-	-	-	-	-	-
Clay 20-35%	% w/w	10.4	-	Y	Y	Y	Y	Y
pH	pH units	8.1	Y	N	Y	Y	N	Y
Carbonate (calcareous only)	% w/w	2.7			Y			Y
Nitrogen (total)	% w/w N	0.27	Y	Y	Y			
Carbon:Nitrogen ratio	-	15.3	Y	Y	Y	Y	Y	Y
Phosphorus (extractable)	mg/l P	225	N	N	N	N	N	N
Potassium (extractable)	mg/l K	637	Y	Y	Y			
Magnesium (extractable)	mg/l Mg	139	Y	Y	Y			
Electrical conductivity	µS/cm	72	Y					

Phytotoxic contaminants (by soil pH)								
Copper (Nitric acid extract)	mg/kg Cu	103	Y	Y	Y	Y	Y	Y
Nickel (Nitric acid extract)	mg/kg Ni	41	Y	Y	Y	Y	Y	Y
Zinc (Nitric acid extract)	mg/kg Zn	313	N	N	N	N	N	N

VISIBLE CONTAMINANTS								
(air-dried soil)	% w/w	0	Y	Y	Y	Y	Y	Y
...of which plastics	% w/w	0	Y	Y	Y	Y	Y	Y
Sharps	% w/w	0	Y	Y	Y	Y	Y	Y

DECLARATION

I certify that this sample has been analysed in accordance with BS3882:2015.

Signature

Name

John Campbell

Position

Director

Unit 6 Parkhead, Greencroft Industrial Park, Stanley, County Durham, DH9 7YB
 Tel 01207 528578 Email customerservices@chemtech-env.co.uk
 Vat Reg No. 772 5703 18 Registered in England number 4284013

Appendix 10

Generic Assessment Criteria

Generic Assessment Criteria for the Assessment of Risk to Human Health					
Determinand	RwHP ¹ (mg/kg)	RwoHP ¹ (mg/kg)	POS _{resi} ¹ (mg/kg)	Commercial (mg/kg)	Source
Asbestos	ND	ND	ND	< 0.001%	
Metals and Metalloids					
Arsenic	37	40	79	640	LQM/CIEH (2015) S4UL ²
Barium	-	1300	-	22000	CL:AIRE (2010) ³
Beryllium	1.7	1.7	2.2	12	LQM/CIEH (2015) S4UL ²
Boron	290	11000	21000	240000	LQM/CIEH (2015) S4UL ²
Cadmium	11	85	120	190	LQM/CIEH (2015) S4UL ²
Chromium (III)	910	910	1500	8600	LQM/CIEH (2015) S4UL ²
Chromium (VI)	6	6	7.7	33	LQM/CIEH (2015) S4UL ²
Copper	2400	7100	12000	68000	LQM/CIEH (2015) S4UL ²
Lead	200	310	630	2300	DEFRA (2014) C4SL ⁴
Mercury - Elemental	1.2	1.2	16	58 (25.8) ^{vap}	LQM/CIEH (2015) S4UL ²
Mercury - Inorganic	40	56	120	1100	LQM/CIEH (2015) S4UL ²
Mercury - Methyl	11	15	40	320	LQM/CIEH (2015) S4UL ²
Nickel	130	180	230	980	LQM/CIEH (2015) S4UL ⁵
Selenium	250	430	1100	12000	LQM/CIEH (2015) S4UL ²
Vanadium	410	1200	2000	9000	LQM/CIEH (2015) S4UL ²
Zinc	3700	40000	81000	730000	LQM/CIEH (2015) S4UL ²
Phenol – At 1% Soil Organic Matter					
Phenol	120	440 ^{dir} (460)	440 ^{dir} (10000)	440 ^{dir} (26000)	LQM/CIEH (2015) S4UL ²
Polyaromatic Hydrocarbons (USEPA 16) – At 1% Soil Organic Matter					
Naphthalene	2.3	2.3	4900	190 (76.4) ^{sol}	LQM/CIEH (2015) S4UL ²
Acenaphthylene	170	2900 (86.1) ^{sol}	15000	83000 (86.1) ^{sol}	LQM/CIEH (2015) S4UL ²
Acenaphthene	210	3000 (57.0) ^{sol}	15000	84000 (57.0) ^{sol}	LQM/CIEH (2015) S4UL ²
Fluorene	170	2800 (30.9) ^{sol}	9900	63000 (30.9) ^{sol}	LQM/CIEH (2015) S4UL ²

Generic Assessment Criteria for the Assessment of Risk to Human Health					
Determinand	RwHP ¹ (mg/kg)	RwoHP ¹ (mg/kg)	POS _{resi} ¹ (mg/kg)	Commercial (mg/kg)	Source
Phenanthrene	95	1300 (36.0) ^{sol}	3100	22000	LQM/CIEH (2015) S4UL ²
Anthracene	2400	31000 (1.17) ^{vap}	74000	520000	LQM/CIEH (2015) S4UL ²
Fluoranthene	280	1500	3100	23000	LQM/CIEH (2015) S4UL ²
Pyrene	620	3700	7400	54000	LQM/CIEH (2015) S4UL ²
Benzo(a)anthracene	7.2	11	29	170	LQM/CIEH (2015) S4UL ²
Chrysene	15	30	57	350	LQM/CIEH (2015) S4UL ²
Benzo(b)fluoranthene	2.6	3.9	7.1	44	LQM/CIEH (2015) S4UL ²
Benzo(k)fluoranthene	77	110	190	1200	LQM/CIEH (2015) S4UL ²
Benzo(a)pyrene	2.2	3.2	5.7	35	LQM/CIEH (2015) S4UL ²
Indeno(1,2,3-cd)pyrene	27	45	82	500	LQM/CIEH (2015) S4UL ²
Di-benzo(a,h)anthracene	0.24	0.31	0.57	3.5	LQM/CIEH (2015) S4UL ²
Benzo(ghi)perylene	320	360	640	3900	LQM/CIEH (2015) S4UL ²
Coal Tar (BaP surrogate marker)	0.79	1.2	2.2	15	LQM/CIEH (2015) S4UL ²
Total Petroleum Hydrocarbons (LQM Banding) – At 1% Soil Organic Matter					
Aliphatic EC5 - EC6	42	42	570000 (304) ^{sol}	3200 (304) ^{sol}	LQM/CIEH (2015) S4UL ²
Aliphatic >EC6 - EC8	100	100	600000	7800 (144) ^{sol}	LQM/CIEH (2015) S4UL ²
Aliphatic >EC8 - EC10	27	27	13000	2000 (78) ^{sol}	LQM/CIEH (2015) S4UL ²
Aliphatic >EC10 - EC12	130 (48) ^{vap}	130 (48) ^{vap}	13000	9700 (48) ^{sol}	LQM/CIEH (2015) S4UL ²
Aliphatic >EC12 - EC16	1100 (24) ^{sol}	1100 (24) ^{sol}	13000	59000 (24) ^{sol}	LQM/CIEH (2015) S4UL ²
Aliphatic >EC16 - EC35	65000 (8.48) ^{sol}	65000 (8.48) ^{sol}	250000	1600000	LQM/CIEH (2015) S4UL ²
Aliphatic >EC35 - EC44	65000 (8.48) ^{sol}	65000 (8.48) ^{sol}	250000	1600000	LQM/CIEH (2015) S4UL ²
Aromatic >EC5 - EC7	70	370	56000	26000 (1220) ^{sol}	LQM/CIEH (2015) S4UL ²
Aromatic >EC7 - EC8	130	860	56000	56000 (869) ^{vap}	LQM/CIEH (2015) S4UL ²
Aromatic >EC8 - EC10	34	47	5000	3500 (613) ^{vap}	LQM/CIEH (2015) S4UL ²

Generic Assessment Criteria for the Assessment of Risk to Human Health					
Determinand	RwHP ¹ (mg/kg)	RwoHP ¹ (mg/kg)	POS _{resi} ¹ (mg/kg)	Commercial (mg/kg)	Source
Aromatic >EC10 - EC12	74	250	5000	16000 (364) ^{sol}	LQM/CIEH (2015) S4UL ²
Aromatic >EC12 - EC16	140	1800	5100	36000 (169) ^{sol}	LQM/CIEH (2015) S4UL ²
Aromatic >EC16 - EC21	260	1900	3800	28000	LQM/CIEH (2015) S4UL ²
Aromatic >EC21 - EC35	1100	1900	3800	28000	LQM/CIEH (2015) S4UL ²
Aromatic >EC35 - EC44	1100	1900	3800	28000	LQM/CIEH (2015) S4UL ²
Ali + Aro >EC44 - EC70	1600	1900	3800	28000	LQM/CIEH (2015) S4UL ²
BTEX + MTBE – At 1% Soil Organic Matter					
Benzene	0.087	0.38	72	27	LQM/CIEH (2015) S4UL ²
Toluene	130	880 (869) ^{vap}	56000	56000 (869) ^{vap}	LQM/CIEH (2015) S4UL ²
Ethylbenzene	47	83	24000	5700 (518) ^{vap}	LQM/CIEH (2015) S4UL ²
o-Xylene	60	88	41000	6600 (478) ^{sol}	LQM/CIEH (2015) S4UL ²
m-xylene	59	82	41000	6200 (625) ^{sol}	LQM/CIEH (2015) S4UL ²
p-xylene	56	79	41000	5900 (576) ^{sol}	LQM/CIEH (2015) S4UL ²
MTBE (Methyl tert-butyl ether)	49	73	-	7900	CL:AIRE (2010) ³
VOC – At 1% Soil Organic Matter					
Vinyl Chloride (Chloroethene)	0.00064	0.00077	3.5	0.059	LQM/CIEH (2015) S4UL ²
Chloromethane	0.0083	0.0085	-	1	CL:AIRE (2010) ³
Chloroethane	8.3	8.4	-	960	CL:AIRE (2010) ³
1,1-Dichloroethene	0.23	0.23	-	26	CL:AIRE (2010) ³
trans-1,2-Dichloroethene	0.19	0.19	-	22	CL:AIRE (2010) ³
1,1-Dichloroethane	2.4	2.5	-	280	CL:AIRE (2010) ³
cis-1,2-Dichloroethene	0.11	0.12	-	14	CL:AIRE (2010) ³
trans-1,2-Dichloroethene	0.19	0.19	-	22	CL:AIRE (2010) ³
Chloroform (trichloromethane/TCM)	0.91	1.2	2500	99	LQM/CIEH (2015) S4UL ²

Generic Assessment Criteria for the Assessment of Risk to Human Health					
Determinand	RwHP ¹ (mg/kg)	RwoHP ¹ (mg/kg)	POS _{resi} ¹ (mg/kg)	Commercial (mg/kg)	Source
1,1,1-Trichloroethane (1,1,1-TCA)	8.8	9.0	140000	660	LQM/CIEH (2015) S4UL ²
1,2-Dichloroethane (1,2-DCA)	0.0071	0.0092	29	2.9	LQM/CIEH (2015) S4UL ²
1,2-Dichloropropane	0.024	0.024	-	0.67	CL:AIRE (2010) ³
Trichloroethene (TCE)	0.016	0.017	120	3.3	LQM/CIEH (2015) S4UL ²
Bromodichloromethane	0.016	0.019	1790	1.2	CL:AIRE (2010) ³
1,1,2-Trichloroethane	0.6	0.88	-	2.1	CL:AIRE (2010) ³
Tetrachloroethene (PCE)	0.18	0.18	1400	94	LQM/CIEH (2015) S4UL ²
Chlorobenzene	0.46	0.46	11000	19	LQM/CIEH (2015) S4UL ²
1,1,1,2-Tetrachloroethane (1,1,1,2-PCA)	1.2	1.5	1400	56	LQM/CIEH (2015) S4UL ²
Styrene	8.1	35	-	110	CL:AIRE (2010) ³
Bromoform	2.8	5.2	-	3300 (626) ^{sat}	CL:AIRE (2010) ³
Isopropylbenzene	11	12	-	760	CL:AIRE (2010) ³
1,1,2,2-Tetrachloroethane (1,1,2,2-PCA)	1.6	3.9	1400	1400 (390) ^{sat}	LQM/CIEH (2015) S4UL ²
n-Propylbenzene	34	40	-	270	CL:AIRE (2010) ³
Bromobenzene	0.87	0.91	-	4100 (402) ^{sat}	CL:AIRE (2010) ³
1,2,4-Trimethylbenzene	0.35	0.41	-	97	CL:AIRE (2010) ³
1,3-Dichlorobenzene	0.40	0.44	300	42	LQM/CIEH (2015) S4UL ²
1,4-Dichlorobenzene	61	61	17000	30	LQM/CIEH (2015) S4UL ²
1,2-Dichlorobenzene	23	24	90000	4400 (224) ^{vap}	LQM/CIEH (2015) S4UL ²
Dichloromethane	0.58	2.1	-	2000 (571) ^{sol}	CL:AIRE (2010) ³
Notes: ^{sol} GAC exceed the solubility saturation limit which is presented in brackets; consideration of the CSM may be required ^{vap} GAC exceed the vapour saturation limit which is presented in brackets; consideration of the CSM may be required ^{sat} GAC exceed a soil saturation limit (not specified) which is presented in brackets; consideration of the CSM may be required ^{dir} GAC is based on tolerable direct contact concentration; long term health protection value presented in brackets (1) RwHP = Residential land use including significant production and consumption of home-grown produce; RwoHP = Residential land use without significant production and consumption of home-grown produce; POS _{resi} = Public open space in close proximity to residential properties					

Generic Assessment Criteria for the Assessment of Risk to Human Health					
Determinand	RwHP ¹ (mg/kg)	RwoHP ¹ (mg/kg)	POS _{resi} ¹ (mg/kg)	Commercial (mg/kg)	Source
(2) Nathaniel, C.P. <i>et al.</i> (2015), The LQM/CIEH S4ULs for Human Health Risk Assessment. Land Quality Press, Nottingham. Note that the LQM/CIEH S4ULs update and replace the former LQM/CIEH GAC on the basis of new toxicological and refined modelling data. The S4ULs also cover the Environment Agency SGV substances with the inclusion of updated toxicological and modelling data. (3) CL:AIRE, 'Soil Generic Assessment Criteria for Human Health Risk Assessment', 2010. (4) DEFRA (2014), 'SP1010: Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination - Policy Document Companion Document', DEFRA, December 2014; CL:AIRE Report 'SP1010 - Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination, Rev 2, September 2014; DEFRA erratum note, Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination - SP1010, Erratum (December 2014). (5) Nathaniel, C.P. <i>et al.</i> (2015), The LQM/CIEH S4ULs for Human Health Risk Assessment. Land Quality Press, Nottingham. Nickel update (August 2015).					

Category 4 Screening Levels (C4SL) ¹						
Substance	Residential (with home-grown produce) (mg/kg)	Residential (without home-grown produce) (mg/kg)	Allotments (mg/kg)	Commercial (mg/kg)	Public Open Space 1 (mg/kg)	Public Open Space 2 (mg/kg)
Arsenic	37	40	49	640	79	168
Benzene	0.87	3.3	0.18	98	140	230
Benzo(a)pyrene	5	5.3	5.7	76	10	21
Cadmium	26	149	4.9	410	220	880
Chromium VI	21	21	170	49	23	250
Lead	200	310	80	2330	630	1300
Notes: (1) The C4SLs in this table apply to the standard land uses as set out in CL:AIRE report SP1010 'Development of Category 4 Screening Levels of Assessment of Land Affected by Contamination' (2013). The values are derived using the CLEA framework for a sandy loam soil with 6% soil organic matter. Un-adjusted C4SLs should not be used where site conditions or land use scenarios differ significantly from these characteristics.						

Phytotoxic Contaminants (by Soil pH) ¹			
Contaminant (mg/kg dry soil)	Soil pH		
	< 6.0	6.0 – 7.0	> 7.0
Zinc (nitric acid extractable)	< 200	< 200	< 300
Copper (nitric acid extractable)	< 100	< 135	< 200
Nickel (nitric acid extractable)	< 60	< 75	< 110
Notes: (1) British Standard BS 3882:2015, Specification for topsoil			

UK Water and Home Builders Federation (HBF) Assessment Criteria for Buried Pipework ¹			
Test Group	Pipework Thresholds		
	PE (mg/kg)	Barrier	Metal
<i>Where preliminary risk assessment has identified the possibility for contamination</i>			
Total VOCs	0.5	Pass	Pass
Total BTEX + MTBE	0.1	Pass	Pass
Total SVOC (excluding PAH and substances marked with * below)	2	Pass	Pass
EC5 – EC10 aliphatic and aromatic hydrocarbons	2	Pass	Pass
EC10 – EC16 aliphatic and aromatic hydrocarbons	10	Pass	Pass
EC16 – EC40 aliphatic and aromatic hydrocarbons	500	Pass	Pass
Phenols* (from SVOC analysis)	2	Pass	Pass
Cresols and chlorinated phenols* (from SVOC analysis)	2	Pass	Pass
<i>Only required where a specific need has been identified</i>			
Ethers*	0.5	Pass	Pass
Nitrobenzene*	0.5	Pass	Pass
Ketones*	0.5	Pass	Pass
Aldehydes*	0.5	Pass	Pass
Amines*	Fail	Pass	Pass
Conductivity, redox and pH (corrosives)	Pass	Pass	See note (2)
Notes (1) UK Water and Home Builders Federation, 'Contaminated Land Assessment Guidance; Protocols published by agreement between UK Water and the Home Builders Federation', UK Water, January 2014 (2) Thresholds: Wrapped steel corrosive if pH <7 and conductivity > 400µS/cm; Wrapped ductile iron corrosive if pH <5, Eh not neutral and conductivity > 400µS/cm; Copper corrosive id pH <5 or >8 and Eh positive			