



Geo-Environmental Report

Langstone Road, Havant, PO9 1SA

for:

Simpson Associates



Contact Details:

Enzygo Ltd.
The Granary
Woodend Lane
Cromhall
Gloucestershire
GL12 8AA

tel: 01454 269237
fax: 01454 269760
email: steve.rhodes@enzygo.com
www: enzygo.com

Geo-Environmental Report

Project:	Langstone Road, Havant, PO9 1SA
For:	Simpson Associates
Ref:	CRM.413.117.GE.R.001.A
Status:	Final
Date:	October 2014
Author:	Steve Rhodes Technical Director
Reviewer:	Richard Hamilton Associate Director

Disclaimer:

This report has been produced by Enzygo Limited within the terms of the contract with the client and taking account of the resources devoted to it by agreement with the client.

We disclaim any responsibility to the client and others in respect of any matters outside the scope of the above.

This report is confidential to the client and we accept no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies on the report at their own risk.

Enzygo Limited Registered in England No. 6525159

Registered Office Stag House The Chipping Wotton-Under-Edge Gloucestershire GL12 7AD

Executive Summary

Proposed Development

A six storey hotel is proposed.

Investigation

Site works were undertaken by Enzygo Ltd. in October 2014, together with a desk study, monitoring and preliminary soil infiltration testing.

Ground Conditions

Ground conditions were noted to comprise Made Ground over River Terrace Deposits and Chalk. Shallow groundwater was encountered.

Contamination

No other evidence of contamination has been identified from the desk study or ground investigation.

Foundations

Piled foundations are recommended.

Re-use of Materials

Soils are not considered suitable for re-use as an engineered fill.

Buried Concrete

It is considered that Class AC-1s conditions of Special Digest 1 can be used.

Drainage

Soakaways are not recommended.

Gas and Radon

Basic Radon protection measures are required. Gas monitoring identifies that characteristic situation 1 applies.

TABLE OF CONTENTS

Executive Summary	i
1.0 INTRODUCTION	1
<i>Background</i>	<i>1</i>
<i>Proposed Development</i>	<i>1</i>
<i>Objectives.....</i>	<i>1</i>
<i>Risk Classification</i>	<i>1</i>
2.0 SITE SETTING	3
<i>Site Description</i>	<i>3</i>
<i>Current Site Description.....</i>	<i>3</i>
<i>Surrounding Area</i>	<i>4</i>
3.0 SITE HISTORY	5
4.0 ENVIRONMENTAL SETTING	6
<i>Ground Conditions.....</i>	<i>6</i>
<i>Groundwater</i>	<i>6</i>
<i>Mining</i>	<i>6</i>
<i>Natural Cavities.....</i>	<i>7</i>
<i>Ground workings</i>	<i>7</i>
<i>Hydrology.....</i>	<i>7</i>
<i>Radon Risk Potential</i>	<i>7</i>
<i>Natural Hazards Finding.....</i>	<i>7</i>
<i>Sensitive Land Uses.....</i>	<i>8</i>
<i>Environmental Sensitivity</i>	<i>8</i>
<i>Industrial Land Uses.....</i>	<i>8</i>
<i>Regulatory Database</i>	<i>9</i>
<i>Landfill Sites and Waste Treatment Sites</i>	<i>9</i>

<i>General</i>	10
6.0 PRELIMINARY CONCEPTUAL MODEL	11
7.0 SITE INVESTIGATION	12
<i>General</i>	12
<i>Preliminary Soakaway Test</i>	12
<i>Laboratory Testing</i>	13
8.0 GROUND AND GROUNDWATER CONDITIONS	14
<i>Summary of Ground and Groundwater Conditions</i>	14
<i>Made Ground</i>	14
<i>River Terrace Deposits</i>	14
<i>Lewes Nodular Chalk Formation</i>	15
<i>Visual and Olfactory Evidence of Contamination</i>	15
<i>Soil Strength</i>	15
<i>Groundwater</i>	15
<i>Ground Gas</i>	16
<i>Preliminary Soil Infiltration</i>	16
9.0 CONTAMINATION ASSESSMENT	17
<i>General</i>	17
<i>Human Health</i>	17
<i>Controlled Waters</i>	17
<i>Ground Gas</i>	18
<i>Revised Conceptual Model</i>	19
<i>Remediation</i>	21
<i>Waste Classification</i>	21
10.0 GEOTECHNICAL ASSESSMENT	22
<i>Proposed Development</i>	22

<i>Ground Conditions</i>	22
<i>Site Preparation</i>	22
<i>Foundations</i>	22
<i>Ground Floor Slab</i>	23
<i>Materials Re-use</i>	23
<i>Drainage</i>	24
<i>Buried Concrete</i>	24
<i>Excavation</i>	24
Drawings	25
Appendix A – Desk Study Information	26
Appendix B – Exploratory Hole Records	27
Appendix C – Chemical Testing	28
Appendix D – Geotechnical Testing	31

1.0 INTRODUCTION

Background

- 1.1 Enzygo Limited has been commissioned by Simpson Associates to prepare a Geo-Environmental Report for a proposed hotel site in Havant.

Proposed Development

- 1.2 The proposed development is shown on Drawing 3956/05 prepared by Head, Roberts & Associates. The hotel is to comprise a six storey structure with associated landscaping and infrastructure.

Objectives

- 1.3 The objectives of the study are to:
- Review historical plans, geology, hydrogeology, site sensitivity, mining records and any local authority information available in order to complete a Desk Study;
 - Review any existing site investigation information made available;
 - Undertake a targeted ground investigation;
 - Assess the implications of any potential environmental risks, liabilities and development constraints associated with the site in relation to the future use of the site and in relation to off-site receptors; and
 - Provide a factual and interpretative report relating to the desk study and site investigations. Provide a revised conceptual model and recommendations on any potential development issues and mitigation measures, where appropriate.
 - Provide geotechnical recommendations in relation to foundations and infrastructure.

Risk Classification

- 1.4 Enzygo has utilised the available information, together with our experience to assess the likely risks to development from land quality issues. Definitions of the risk terms used are provided on the following table.

Risk	Description
Negligible	No contamination risk has been identified which is likely to affect development.
Low	No significant contaminated land risks have been encountered affecting development and a low risk that remediation will be required.
Low-Moderate	There are unlikely to be significant contaminated land issue associated with the site which will adversely affect its re-development. However, minor or localised contamination may be present requiring remediation. Remediation should be possible under a discovery strategy and with a call out service.
Moderate	Some potential contaminated land risks have been encountered or identified which may affect re- development. The risks identified are unlikely to affect the entire site or preclude development. Remediation is considered feasible as part of the development process and no further investigation is considered necessary.
Moderate-High	Some potentially significant contaminated land risks have been identified at the property that requires remediation. It is recommended that a separate remedial methodology is prepared supported by a site specific risk assessment
High	Significant potential contaminated land risks have been identified and remediation is required supported by further intrusive ground investigation, risk assessment and remedial design.

- 1.5 Where adverse risks from ground instability are identified these are discussed within the report.

2.0 SITE SETTING

Site Description

Item	Description
Site Address	Langstone Road, Havant, PO9 1SA.
National Grid Reference	471561,105806
Site Area	0.56 Ha

Current Site Description

- 2.1 The following site description has been compiled from the site inspection of the proposed hotel area undertaken by Enzygo staff, together with current maps and aerial photographs.
- 2.2 At the time of the investigation the site was occupied by open land and was covered in exposed soil.
- 2.3 An access spur is present within the southwest corner of the site. To the south of the site is a Public House with the car park bordering the southern edge of the site. The access spur provided access through the adjacent Public House.
- 2.4 Dense vegetation comprising bushes and trees was present along the western, northern and north eastern areas of the site.
- 2.5 A stream is present along the western boundary of the site.
- 2.6 The northern boundary of the site is formed by an embankment to the A27 slip road located 10m north. The eastern boundary of the site is formed by Langstone Road.
- 2.7 A timber shed was noted within the south east area of the site. Which houses a sub-station. This is of recent construction and no evidence of spillage was noted.

Surrounding Area

2.8 The surrounding land uses are summarised as follows:

Direction	Land Use
North	A27 Road on embankment with employment use beyond.
East	Road with residential use beyond.
West	Stream with employment use beyond.
South	Public House.

2.9 No significant sources of contamination were identified on or adjacent to the site.

3.0 SITE HISTORY

- 3.1 A review of historical Ordnance Survey maps and information pertinent to the site and within a 250m radius is summarised below:

Potentially Contaminative Historical Land Use		
Map Edition	On Site	Surrounding Area
1869	Field with spring on western boundary.	Mill Stream 0m W. Fields 0m N, E & S. Havant Mill 80m N. Mill pond and dam 100m N. Residential properties 150m S & 100m E. Springs 150m & 200m E. Pond 200m S. Road 20m E.
1897	No change.	No change.
1909	No change.	Sewage treatment works and engine house 100m W.
1932	Spring no longer shown.	Pond 200m S no longer shown. Residential development 200m NE. Sewage treatment works extended.
1952	No change.	Road widened and re-aligned now 10m E. School 150m NE. Additional development 100m E. Havant Mill shown as disused. Springs to E no longer shown.
1959	Playing Field.	Mill Pond now rough pasture.
1968	No change.	A27 on embankment 5m N. Sewage works shown as disused. Mill and Mill pond no longer shown. Residential development 150m NE, 100m S & 20m E. Factories 100m NW.
1972	No change.	School 100m E. Sewage Treatment works 100m W redeveloped as Works with site re-grading.
1984	No change.	No change.
1987	No change.	No change.
1993	No change.	No change.
2002	Open Space.	Works 100m W shown as Langstone Technology Park. Factories 100m NW no longer shown.
2014	No change.	Superstore 100m NW.

- 3.2 There are no significant sources identified on site.
- 3.3 Sewage treatment works and works buildings are considered to be too far from the site to pose a risk and are separated from the site by a stream which will act as a barrier to potential contaminant migration from the west.
- 3.4 The infilled ponds are considered to be located too far from the site to be a significant risk.
- 3.5 No new contamination risks are identified from the historical maps. There is a potential for shallow groundwater based on the presence of a spring on site.

4.0 ENVIRONMENTAL SETTING

Ground Conditions

- 4.1 The British Geological Survey (BGS) indicates that the site is underlain by the following geological sequence:

Geological Unit	Type	Description	Aquifer Classification
Drift.	River Terrace Deposits.	Sand and Gravel	Secondary A
Solid.	Lewes Nodular Chalk Formation.	Chalk	Principal.

- 4.2 Alluvium is identified within the north west corner of the site but this only encroaches on proposed landscape areas and as such is not considered a risk to the site.
- 4.3 Made Ground is identified along the northern edge of the site associated with the A27 embankment construction. This is engineered fill and not considered a significant risk to the site.
- 4.4 There are no records of faults or landslips on the site.
- 4.5 BGS borehole records are not available close to the site.
- 4.6 Records of background soil chemistry do not show any elevated concentrations.

Groundwater

- 4.7 The recorded permeability of the drift geology is low to high reflecting the variable nature of River Terrace Deposits. The recorded permeability of the solid geology is very high consistent with fracture flow in structured Chalk. Chalk is generally weathered to a matrix dominant structureless material near surface and the permeability reduces significantly as identified in CIRIA C574.
- 4.8 The GroundSure Report shows that the site is not located within a Source Protection Zone.
- 4.9 There are no groundwater abstraction wells within 500m of the site.
- 4.10 The site is shown by the BGS as being at risk from groundwater flooding. This is consistent with evidence of a spring on site shown on the historical maps.

Mining

- 4.11 No historical or current coal mining extraction has been identified within 1000m of the site.

- 4.12 No other mining activities are identified within 1000m of the site.

Natural Cavities

- 4.13 No natural cavities are identified within 1000m of the site.

Ground workings

- 4.14 No ground workings additional to those discussed within the historical map search have been identified within 250m of the site. No new risks are identified.

Hydrology

- 4.15 There are no water courses on the site. The Mill Stream, which is a Primary River is located along the western boundary of the site.
- 4.16 There are no surface water abstractions within 2000m of the site.
- 4.17 The site is located partly within flood zones 2 and 3.

Radon Risk Potential

- 4.18 The Groundsure Report indicates that the site is located within an area between 3 and 5% of properties are above the Action Level. A Radon Report has been obtained from the BGS, a copy of which is included in Appendix A. This report confirms that Basic Radon Protection measures are required.

Natural Hazards Finding

- 4.19 BGS information presented within the Groundsure Geosight report identifies the following ground conditions:

Hazard	Risk Designation (Groundsure)
Coal Mining	No Risk identified.
Collapsible Ground	Negligible/Low.
Compressible Ground	Very Low/Moderate.
Ground Dissolution	Very Low.
Landslide	Very Low.
Running Sand	Low.
Swelling / Shrinking Clay	Low/Very Low.

- 4.20 There is a moderate risk of compressible ground associated with Alluvium which encroaches on the north western corner of the site. As this is outside the proposed development footprint it is not considered a risk. No other significant ground risks are identified.

Sensitive Land Uses

- 4.21 The site comprises open space surrounded by employment and infrastructure uses. As such it is considered to be of low sensitivity.
- 4.22 There are no ecological sensitive designations on or close to the site.
- 4.23 English Heritage has not identified any listed buildings or scheduled ancient monuments on the site.

Environmental Sensitivity

- 4.24 Overall the site is currently considered to be of **Moderate** sensitivity due to the following:
- The underlying stratum is classified as an Secondary A Aquifer over a Principal Aquifer;
 - The site is not within a Source Protection Zone and there are no groundwater abstractions within 500m of the site; and
 - A water course is present adjacent to the western boundary of the site.
- 4.25 The proposed end use of the site is for a commercial use and so the future sensitivity will be low for end users.

Industrial Land Uses.

- 4.26 Potentially contaminative industrial uses identified within 250m of the site are limited to light industrial uses and electrical features. None of the features are located close enough to the site to pose a significant risk.
- 4.27 There are two petrol filling stations within 500m of the site. These are located 301m north west and 351m north. Given the distance from the site they are not considered a significant risk.
- 4.28 There are no high pressure pipelines within 500m of the site.
- 4.29 The potential contamination risks identified on and adjacent to the site from the register of industrial activities are dismissed.

Regulatory Database

- 4.30 The following information has been obtained from a commercially available environmental database. The summary table only includes records not otherwise detailed in the report.

Environmental Permits, Incidents and Registers	0 -250m	250-500m	Details
Site determined as contaminated land	0	0	Not Applicable.
Authorised industrial processes	2	2	IPC licensed process using Halogens 142m SW. Not considered a risk given the distance. Petrol Vapour Recovery Process 344m N. Not considered a risk given the distance.
Registered radioactive substances	0	6	Disposal of radioactive waste 498m W. Not considered a risk to the site.
Enforcements, prohibitions or prosecutions	0	0	Not Applicable.
Pollution Incidents	1	2	Category 3 (Minor) impact to water from fuel. Nearest 214m E and not considered a risk to the site.
Consents issued under the Planning (Hazardous Substances) Act 1990	0	0	Not Applicable.
Control of Major Accident Hazard (COMAH)/ Notification of Installations Handling Hazardous Substances (NIHHS) sites	0	0	Not Applicable.
Records of Licensed Discharge Consents	2	3	Surface water discharge the nearest being 102m SW. No risk identified to the site.

- 4.31 No significant risks to the site have been identified.

Landfill Sites and Waste Treatment Sites

- 4.32 There are no operational or historic landfills within 500m of the site.
- 4.33 There is a waste compactor 237m west and a WEEE treatment facility 373m west of the site. Neither of these facilities are considered to pose a risk to the site
- 4.34 There are no significant risks from waste operations.

5.0 PREVIOUS INVESTIGATIONS

General

- 5.1 A ground investigation was undertaken by Southern Testing Limited in October 2012 which included three boreholes and two trial pits on this hotel site.
- 5.2 The investigation included chemical analysis of soil and a groundwater samples together with geotechnical testing.
- 5.3 Information from the Southern Testing Limited investigation is summarised below and is incorporated in to the assessment and recommendations given within Sections 9 and 10 of this report.

Ground Conditions

- 5.4 Ground conditions were noted to comprise Made Ground over soft to firm gravelly clay. Sand and Gravel deposits were encountered at depths of between 1.7m and 4.7m bgl.
- 5.5 Groundwater was encountered at depths of between 1.5m and 3.5m bgl.
- 5.6 No ground gas monitoring is reported. A BG5 Radon Report obtained by Southern Testing Limited identified that no Radon protection measures are required at the site. This contradicts the findings of the Groundsure and so a new Radon Report was obtained. This new report shows that Basic Radon Protection measures are required indicating that the site has been re-classified.

Contamination Assessment

- 5.7 Chemical analysis undertaken on soil samples measured no exceedance of the GAC values for commercial use.
- 5.8 A groundwater sample tested for Total Petroleum Hydrocarbons (TPH) recorded no exceedance above detection limit.

6.0 PRELIMINARY CONCEPTUAL MODEL

Source	Location	Exposure Pathway	Potential Receptor	Probability of Exposure	Details
Human Health					
PCB	Sub-station.	Ingestion dermal and inhalation.	Construction Workers.	Dismissed	Modern construction and no evidence of leakage.
			Site users.		
Asbestos, Hydrocarbon and metals.	Potential localised spillage on site.	Ingestion dermal and inhalation.	Construction Workers.	Dismissed.	Normal construction PPE will address risk under CDM.
			Site users.	Negligible.	No source identified and low sensitivity end use.
Hydrocarbon and metals.	Potential migration from off-site source.	Ingestion dermal and inhalation.	Construction Workers.	Dismissed.	No significant off site risks identified.
			Site users.		
Ground Gas.	Landfills	Inhalation & Explosive.	Construction Workers.	Dismissed.	No source.
			Site users.		
	Made Ground.	Inhalation & Explosive.	Construction Workers.	Dismissed.	No source of putrescible material identified.
			Site users.		
Radon	Chalk	Inhalation	Site users.	Low.	Basic Radon Protection Measures required.
Groundwater					
Hydrocarbon and metals.	On site source.	Vertical Migration.	Groundwater.	Negligible.	Sensitive receptor but no source identified.
Surface Water					
Hydrocarbon and metals.	On site source.	Horizontal Migration.	River Network.	Negligible.	Sensitive receptor but no source identified.
Environmental Receptors					
On site contaminants		Ingestion dermal and inhalation.	Ecology.	Dismissed.	No sensitive ecology designation.
		Direct.	Archaeology.	Dismissed.	None present.
		Direct.	Geology.	Dismissed.	None present.
		Phytotoxic.	Woodland.	Dismissed.	None present.
		Phytotoxic.	Crops.	Dismissed.	None present.
		Ingestion dermal and inhalation.	Livestock.	Dismissed.	None present.
Building Services					
On site contaminants		Direct.	Historic Buildings.	Dismissed.	None present.
		Direct.	Proposed Buildings.	Dismissed.	No source identified.
		Permeate into pipework.	Water Pipes.	Dismissed.	No source identified.

6.1 Primary risk is from potential Made Ground on site.

7.0 SITE INVESTIGATION

General

- 7.1 A ground investigation was undertaken based on the findings of the desk study and taking account of the proposed development layout. Site works were undertaken using window sampler boreholes (WS1 to WS5), hand pit (HP1) and a cable percussive borehole (BH1) during October 2014. The works undertaken are shown on Drawing CRM.413.117.D.001 and summarised in the table below:

Rational	Exploratory Holes	Notes
Groundwater and gas	WS1	Installation.
Foundations to Proposed Hotel	WS2 to WS4 & BH1	Below proposed building.
Site coverage	WS1 to WSS	WS4 could not be advanced due to obstructions.
Preliminary Soil Infiltration	WS1	Preliminary Soakaway.
Potential Made Ground	WSS	Adjacent to embankment fill.
Risk to end users.	HP1, WS1 & WS5	Within soft landscape areas.
Pavement design.	WS1 & WSS	CBR tests.

- 7.2 Access within the site was limited by the presence of dense vegetation along the western and northern boundaries.
- 7.3 The density of granular soils and shear strength of the cohesive soils was measured using a Standard Penetration Tests (SPT). Results are included on the logs presented in Appendix B.
- 7.4 Representative soil samples were collected for chemical and geotechnical testing. Soil samples destined for chemical analysis were collected in appropriate containers provided by the analytical laboratory. Samples were stored in cool boxes prior to dispatch to the laboratory for analysis. All samples were collected using appropriate sampling equipment that was cleaned at each sampling location.
- 7.5 Generally samples were collected from Made Ground, which may contain potential inclusions of contaminating materials and also materials displaying evidence of potential contamination.
- 7.6 In the absence of any evidence of contamination samples were collected near surface as this material is more likely to be contaminated by surface spillages and also will potentially be in contact with future residents.

Preliminary Soakaway Test

- 7.7 A preliminary soakaway test was undertaken in WS1 installation.

Laboratory Testing

- 7.8 Samples for geotechnical testing were sent to the laboratories of GSSL, which is UKAS accredited, for the following analysis:
- Atterberg Limits determinations; and
 - Soluble sulphate and pH.
- 7.9 Samples for chemical analysis were sent to the Environmental Laboratories Ltd who are NAMAS and MCERTS accredited. Samples were tested for the CLEA metal suite, pH, sulphate, cyanide, phenols, speciated Polycyclic Aromatic Hydrocarbons (PAH), organic carbon, banded Total Petroleum Hydrocarbon (TPH) and asbestos screen. Two stage WAC tests were also undertaken to assist with waste classification.

8.0 GROUND AND GROUNDWATER CONDITIONS

Summary of Ground and Groundwater Conditions

8.1 The investigations undertaken by Enzygo Ltd and RML identified the following strata:

Strata	Summary Description	Thickness (m)
Made Ground	Soft to firm light brown sandy gravelly silty clay with rootlets. Gravel comprises flint, bricks and ash.	1.0 to 1.4
River Terrace Deposits.	Soft to firm yellow brown sandy gravelly CLAY. Gravel comprises angular to sub angular flint.	0 to 2.75
	Medium dense yellow brown sandy clayey flint GRAVEL.	1.55 to >3.35
Lewes Nodular Chalk Formation.	Beige white matrix dominant CHALK with flint gravel. (Grade Dm).	0.5
	Beige white clast dominant CHALK with flint gravel. (Grade Dc)	>9.5
Groundwater	Inflow	1.2 to 1.6m bgl

8.2 Details of the ground and groundwater conditions encountered are given on the exploratory hole records included in Appendix B and are summarised in the sections below:

Made Ground

- 8.3 Made Ground was encountered across the site and was noted to comprise grass over soft brown sandy gravelly clay with frequent rootlets near surface. This is underlain by soft to firm brown sandy, gravelly clay with ash, flint gravel and fragments of brick.
- 8.4 No evidence of engineered fill associated with the A27 embankment shown on the BGS records was noted.

River Terrace Deposits

- 8.5 Natural soils were noted to comprise soft to firm yellow brown sandy gravelly clay with the gravel consisting of angular to sub angular flint. This material is considered to represent to cohesive element of the River Terrace Deposits. This material was not present in all of the exploratory holes.
- 8.6 Granular River Terrace Deposits were noted below the cohesive strata comprising yellow brown sandy clayey flint gravel. These deposits varied between loose and dense but were generally noted to be medium dense.

Lewes Nodular Chalk Formation

- 8.7 The Chalk was only encountered within the Cable Percussive borehole and was noted to be present at a depth of 5.5m below ground level (bgl). Chalk was noted to comprise a 500mm thick layer of matrix dominant Dm Chalk with flint gravel over Clast dominant Dc Chalk with flint gravel.

Visual and Olfactory Evidence of Contamination

- 8.8 No visual or olfactory evidence of contamination was encountered during the site works other than ash within the Made Ground.

Soil Strength

- 8.9 Undrained shear strength of cohesive soils have been assessed using the Standard Penetration Test (SPT) results using the correlations of Stroud and Butler. Density of granular soils have been assessed from the SPT values.
- 8.10 The cohesive River Terrace Deposits were noted to be soft to firm with undrained shear strength values of between 20kN/m² and 50kN/m². No increase in strength with depth was noted. The granular River Terrace Deposits recorded SPT values of between 6 and 32 although values were typically between 10 and 20 consistent with medium dense sand and gravels.
- 8.11 SPT values within the Chalk increased from 8 at 6m depth to 43 at 15m bgl.

Groundwater

- 8.12 Groundwater was generally encountered within the granular River Terrace Deposits with water levels rising to depths of between 1.6m and 1.2m bgl. Subsequent monitoring visits are summarised below:

Exploratory Hole	Depth m/bgl			
	Site Works	16.10-14	22.10-14	31.10-14
BH1	1.2	1.61	1.85	1.83
WS1	1.6	1.40	1.52	1.51

Ground Gas

- 8.13 Ground gas was monitored during the return visits and the results are summarised on the table below:

Exploratory Hole	Atmos pressure (Mb)	Flow (l/hr)	CH4		CO2		O2
			Concentration (%)	GSV (l/hr)	Concentration (%)	GSV (l/hr)	Concentration (%)
16.10.14							
BH1	1005	<0.1	<0.1	<0.0001	0.1	<0.0001	20.7
WS1	1005	<0.1	<0.1	<0.0001	0.5	<0.0005	20.6
22.10.14							
BH1	1029	<0.1	<0.1	<0.0001	0.1	<0.0001	20.7
WS1	1029	<0.1	<0.1	<0.0001	6.0	<0.0060	15.9
31.10.14							
BH1	1019	<0.1	<0.1	<0.0001	0.1	<0.0001	20.7
WS1	1019	<0.1	<0.1	<0.0001	6.3	<0.0063	14.2

- 8.14 Where gas concentrations exceed 1% by volume methane or 5% by volume carbon dioxide the concentrations are coloured orange. If concentrations are lower the values are coloured green. Where gas flux meets characteristic situation 1 the GSV is coloured green. The GSV is coloured yellow for Characteristic Situation 2 and red for Characteristic Situation 3 and above.

Preliminary Soil Infiltration

- 8.15 A preliminary soakaway test was undertaken within Window Sampler WS1 installation. An assessment of the likely soil infiltration has been undertaken above the groundwater level, which is summarised on the table below:

Exploratory Hole	Ground	Test No	Soil Infiltration Rate
WS1	River Terrace Deposits	Test 1	2 E ⁻⁴ m/s

9.0 CONTAMINATION ASSESSMENT

General

- 9.1 A Tier I risk assessment has been undertaken using available and current screening values for human health and where appropriate controlled waters. The risk assessment is undertaken based on the findings of the preliminary conceptual model presented in Section 6. Based on the contamination testing and Tier I assessment a revised Conceptual Model has been prepared, which is presented later in this section.
- 9.2 Where significant risks are identified remedial measures are recommended.

Human Health

- 9.3 Assessment of the risks to human health has been undertaken by comparing the soil quality data with reference values obtained from the Contaminated Land Exposure Assessment (CLEA), Soil Guideline Values (SGV) and General Acceptance Criteria (GAC) published by LQM/CIEH. A summary table of the reference values is included in Appendix C.
- 9.4 Where an exceedance is identified the risk is assessed by considering the sensitivity of the proposed development and the potential pathway. Given the limited contact time by site users it is considered that the GAC values for commercial end use is applicable for the proposed development.
- 9.5 Results of the chemical testing are included in Appendix C. In addition to the laboratory sheets there is a sheet with the results coloured. Where results are coloured green these are below the GAC. Values coloured red exceed the GAC.
- 9.6 The soil quality shows no exceedances of the reference values for commercial use. This is consistent with the findings of the Southern Testing Limited investigation.
- 9.7 No asbestos fibres were detected.

Controlled Waters

- 9.8 Where groundwater samples have been analysed the results are compared against reference values. These reference values are summarised in Appendix C and are taken from Fresh Water Environmental Quality Standards (EQS), UK Drinking Water Standards and World Health Organisation (WHO) values for Drinking Water.

- 9.9 Where the controlled waters receptor is a surface water course then the EQS are used as the primary reference value. Drinking Water Standards and WHO values are used where EQS values are not available. An assessment of likely risk is then made based on a source-pathway-receptor model. Where the receptor is potable groundwater resources the Drinking Water Standards and WHO values are used.
- 9.10 Risk to ground water and surface water are dismissed based on the absence of mobile contamination sources at the site.
- 9.11 Chemical analysis of a groundwater sample by Southern Testing Limited confirms the absence of mobile contaminants within groundwater at the site.

Ground Gas

- 9.12 Following the guidance provided in CIRIA C665 an initial assessment is undertaken to determine if there are any significant sources of potential ground gas. Such sources include landfills, organic clays and made ground incorporating putrescible materials such as rags, paper and wood. Where no significant source is identified no further assessment is necessary.
- 9.13 Where significant potential risk from ground gas has been identified from the Initial Conceptual Model and the intrusive ground investigation works ground gas monitoring is undertaken and the results of the monitoring are compared against the Gas Screening Values given in CIRIA Report 665. From this the Characteristic Situation is identified and remedial measures proposed.
- 9.14 When assessing the risk and type of remedial measures appropriate consideration is given to the likely construction of the development, the nature of the gas posing a risk and the nature of the likely source. The use of engineering judgement when determining risk from ground gas is consistent with the recommendations given in CIRIA C665.
- 9.15 No significant sources of ground gas were noted from the desk study. Made Ground was encountered on site but this did not include putrescible materials. As such there is not considered to be a significant risk from ground gas.
- 9.16 Gas monitoring was undertaken during return visits to monitor groundwater levels. Ground gas has not recorded elevated concentrations of Methane. Carbon Dioxide has been measured at concentrations above the 5% screening level. This is likely to be associated with Alluvium present to the west of the site. No detectable gas flow rates were measured.

- 9.17 When Carbon Dioxide concentration exceeds 5% CIRIA C665 recommends that consideration is given to increasing the site to Characteristics Situation 2. This assessment requires the use of professional judgement.
- 9.18 As Carbon Dioxide is heavier than air it is considered that there is no viable mechanism for the gas to potentially migrate upwards in to the proposed structure and as such the pollutant linkage is dismissed. Therefore it is considered that Characteristics Situation 1 still applies.

Revised Conceptual Model

- 9.19 The Initial Conceptual Model presented in Section 6 has been revised based on the findings of the ground investigation and the revised Conceptual Model is presented overleaf:

Source	Location	Exposure Pathway	Potential Receptor	Probability of Exposure	Details
Human Health					
Asbestos, Hydrocarbon and metals.	Unforeseen Contamination	Ingestion dermal and inhalation.	Construction Workers.	Dismissed.	Normal construction PPE will address risk under CDM.
			Site users.	Negligible.	Discovery Strategy.
PCB	Sub-station.	Ingestion dermal and inhalation.	Construction Workers.	Dismissed	Modern construction and no evidence of leakage.
			Site users.		
Asbestos, Hydrocarbon and metals.	Potential localised spillage on site.	Ingestion dermal and inhalation.	Construction Workers.	Dismissed.	No Exceedance of GAC.
			Site users.		
Hydrocarbon and metals.	Potential migration from off-site source.	Ingestion dermal and inhalation.	Construction Workers.	Dismissed.	No significant off site risks identified.
			Site users.		
Ground Gas.	Landfills	Inhalation & Explosive.	Construction Workers.	Dismissed.	No source.
			Site users.		
	Made Ground.	Inhalation & Explosive.	Construction Workers.	Dismissed.	No source of putrescible material identified. Dismissed through risk assessment.
			Site users.		
Radon	Chalk	Inhalation	Site users.	Low.	Basic Radon Protection Measures required.
Groundwater					
Hydrocarbon and metals.	On site source.	Vertical Migration.	Groundwater.	Dismissed.	No mobile source identified.
Surface Water					
Hydrocarbon and metals.	On site source.	Horizontal Migration.	River Network.	Dismissed.	No mobile source identified.
Environmental Receptors					
On site contaminants		Ingestion dermal and inhalation.	Ecology.	Dismissed.	No sensitive ecology designation.
		Direct.	Archaeology.	Dismissed.	None present.
		Direct.	Geology.	Dismissed.	None present.
		Phytotoxic.	Woodland.	Dismissed.	None present.
		Phytotoxic.	Crops.	Dismissed.	None present.
		Ingestion dermal and inhalation.	Livestock.	Dismissed.	None present.
Building Services					
On site contaminants		Direct.	Historic Buildings.	Dismissed.	None present.
		Direct.	Proposed Buildings.	Dismissed.	No source identified.
		Permeate into pipework.	Water Pipes.	Dismissed.	No source identified.

Remediation

- 9.20 A BGS Radon report obtained for the site shows that Basic Radon Protection measures are required. This are discussed in Section 10.
- 9.21 No remediation is proposed.
- 9.22 If unforeseen contamination is encountered during construction works such as localised spillage outside the areas investigated an Environmental consultant will be available on a 'call out' basis to undertake an assessment of risk. If 'unforeseen contamination' is encountered the discovery strategy will be to remove the source as it is likely to be very limited in extent and the Local Planning Authority advised.

Waste Classification

- 9.23 Two part WAC tests have been undertaken across the site, the results of which are included in Appendix C.
- 9.24 The Waste Management paper 2 has recently been updated to version 3 which states that that sites which previously could be considered 'uncontaminated land' surplus soils if they did not exceed the GAC values now requires the landfill to make an appropriate assessment of the waste classification. As such final assessment will be undertaken by the receiving landfill based on the requirements of their permit.
- 9.25 It is considered that soils should be deemed as inert.

10.0 GEOTECHNICAL ASSESSMENT

Proposed Development

- 10.1 The proposed development will comprise a six storey hotel with car parking. The structural loading is not known and is assumed to be 300kN per m run for assessment purposes. Using a typical column spacing of 8m a preliminary column loading of 2400kN is assumed.
- 10.2 It is considered that the scheme meets the criteria of Geotechnical Category 1 of Eurocode 7.

Ground Conditions

- 10.3 Ground Conditions comprise of Made Ground over River Terrace Deposits. Chalk was encountered at 5.5m depth bgl with groundwater identified at depths of between 1.4m and 1.6m bgl.

Site Preparation

- 10.4 The site should be cleared and any vegetation below areas of proposed development stripped in accordance with Series 200 of the Specification for Highway Works. This should include:
- Any redundant services should be sealed off and grubbed out and replaced with suitable compacted engineered fill; and,
 - Any buried structures and old foundations encountered on site should be excavated from below the proposed structures with the resulting void backfilled.

Foundations

- 10.5 Piled foundations are proposed based on the anticipated structural loadings.
- 10.6 A preliminary pile design has been undertaken based on the following parameters:
- The upper 2m is ignored due to the presence of Made Ground and soft to firm clay.
 - Groundwater depth of 1.5m bgl is used.
 - A global factor of safety of 2.5 has been used.

10.7 The following preliminary pile working loads have been calculated:

Depth bgl	Working Load kN		
	450mm	600mm	750mm
10m	400	650	1000
15m	750	1200	1800

10.8 Final pile design should be undertaken by a specialist contractor who can use pile test records to agree lower factors of safety and thereby generate a more cost effective pile design.

Ground Floor Slab

10.9 Suspended floor slabs are recommended. Basic Radon Protection measures are recommended at the site, in accordance with BRE 211 and Building Regulations. These should include:

- Radon proof membrane to the ground floor slab. This may also act as the Damp Proof Membrane;
- Joining of the membrane and sealing to the cavity tray; and
- Sealing of service entry points.

Pavement Construction

10.10 An assessment of the likely California Bearing Ratio (CBR) has been assessed from the following sources:

- Description of the materials encountered in the exploratory holes;
- In-situ CBR tests undertaken by Southern Testing Limited; and
- Guidance given in HD25/94 and 73/06.

10.11 Based on this it is recommended that a design CBR of 4% is used. The formation should be proof rolled and any areas of soft material excavated and removed. Soils are not considered frost susceptible.

Materials Re-use

10.12 An assessment of the shallow soils suitability for re-use has been undertaken using the following parameters:

- Laboratory CBR tests undertaken on re-compacted samples to mimic proof rolling.

- Grading analysis; and
- Description of the soils.

10.13 It is considered that Made Ground is not suitable for re-use as engineered fill.

Drainage

10.14 Soakaways are not considered feasible due to the shallow groundwater.

10.15 Chemical results should be provided to the water authority to confirm the design of potable water supply pipes. No issues are considered likely.

Buried Concrete

10.16 Results of the sulphate testing indicate that soils have soluble sulphate concentrations of less than 0.5 g/l by consistent with DS1 Conditions of BRE Special Digest 1 and as such buried concrete may be designed in accordance with ACEC Class AC-1.

Excavation

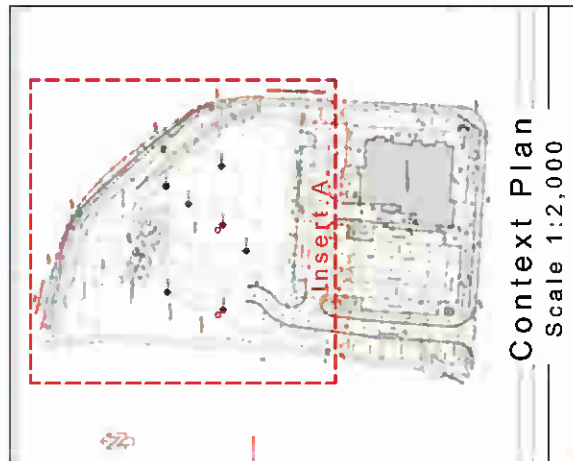
10.17 Based on the various site observations it is considered that excavations should be feasible with normal construction plant.

10.18 Groundwater is shallow and collapse of excavations below groundwater is likely. As such it is recommended that excavation depths are limited where possible.

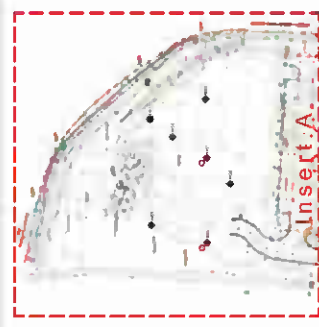
10.19 Excavations where access is required should be supported in accordance with CIRIA RR97.



- Key
- Window Sampler Locations (WS)
(WS1 - WS5)
 - Borehole Location (BH)
(BH01)
 - Hand Pit Location (HP)
(HP1)
 - Borehole Installation (I)



Context Plan
Scale 1:2,000



STEP Business Centre, Wortley Rd, Sheffield, S36 2UH

CLIENT:	Simpson Associates
PROJECT REF:	CRM.413.117
SCALE:	1:400@A3
DRAWN:	MG
CHECKED:	SR
DATE:	Oct 2014
PROJECT:	Langstone Park, Havant
TITLE:	Site Plan
FIGURE NO:	CRM.413.117.GE.D.001



**British
Geological Survey**
NATURAL ENVIRONMENT RESEARCH COUNCIL

GeoReports

**Steve Rhodes
Enzygo
The Granary
Woodend Lane
Cromhall
GL12 8AA**

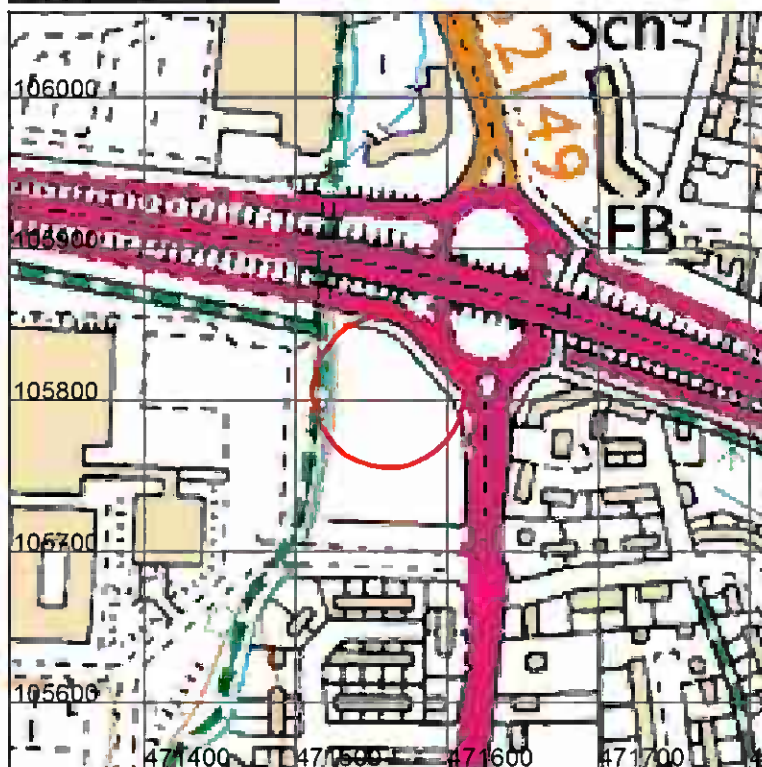
Radon Report: England and Wales

Advisory report on the requirement for radon protective measures in new buildings, conversions and extensions to existing buildings. The report also indicates whether a site is located within a radon Affected Area

Report Id: GR_210026/1

Client reference:

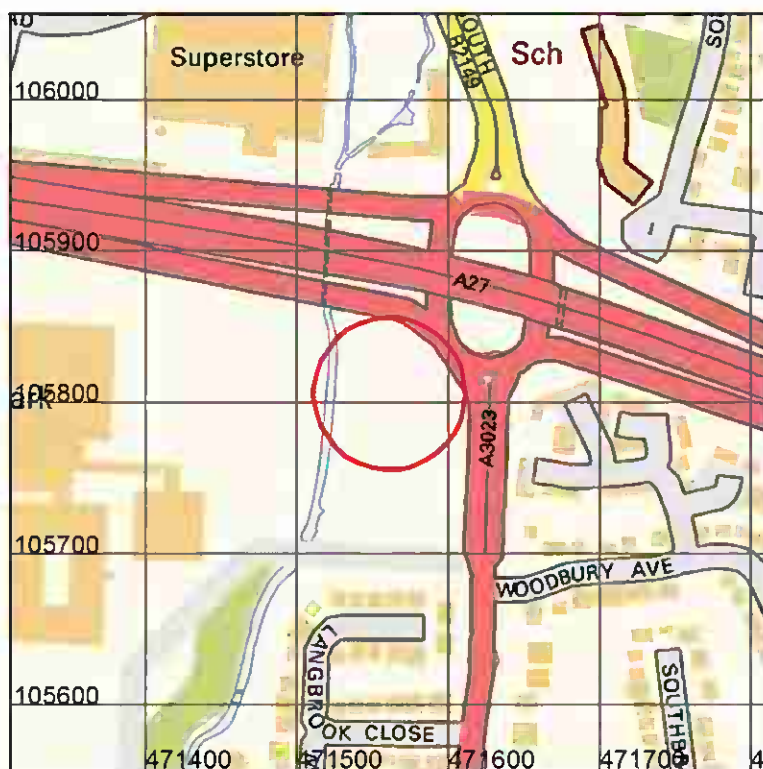
Search location



This report describes a site located at National Grid Reference 471561, 105806. Note that for sites of irregular shape, this point may lie outside the site boundary. Where the client has submitted a site plan the assessment will be based on the area given.

Search location indicated in red

This product includes mapping data licensed from Ordnance Survey.
© Crown Copyright and/or database right 2014. Licence number 100021290 EUL
Scale: 1:5 000 (1cm = 50 m)



Contains Ordnance Survey data © Crown Copyright and database right 2014
OS Street View: Scale: 1:5 000 (1cm = 50 m)



Radon Report: England and Wales

This is an advisory report on the requirement for radon protective measures in new buildings, conversions and extensions. The report also indicates whether a site is located within a radon Affected Area

Requirement for radon protective measures

The determination below follows advice in *BR211 Radon: Guidance on protective measures for new buildings (2007 edition)*, which also provides guidance on what to do if the result indicates that protective measures are required.

BASIC RADON PROTECTIVE MEASURES ARE REQUIRED FOR THE REPORT AREA.

The BGS is not able to provide advice on the technical specifications of 'basic' and 'full' radon protective measures. This information is detailed in **BRE Report BR211 Radon: guidance on protective measures for new buildings** which may be purchased from brebookshop.com. This report offers guidance on the technical solutions that are required to satisfy Building Regulations requirements.

Technical solutions to radon protection in new build and existing dwellings in radon affected areas are available on the BRE web site at:
<http://www.bre.co.uk/page.jsp?id=1626> and <http://www.bre.co.uk/radon/> and in a range of technical reports available from brebookshop.com; Tel: 01923 664262, email: bookshop@bre.co.uk.

Summary guidance is available on the web at:
<http://www.bre.co.uk/radon/protect.html>.

If you require further information or guidance, you should contact your local authority building control officer or approved inspector.



Radon in existing buildings

Is this property in a radon affected area – **YES**

The answer to the standard enquiry on house purchase known as **CON29 Standard Enquiry of Local Authority 3.13 Radon Gas: Location of the Property in a radon Affected Area** is **YES** this property is in a Radon Affected Area as defined by Public Health England (PHE).

The estimated probability of the property being above the Action Level for radon is: **3-5% (INTERMEDIATE PROBABILITY)**.

The result informs you of the estimated probability that this particular property is above the Action Level for radon. This does not necessarily mean there is a radon problem in the property. The only way to determine whether it is above or below the Action Level is to carry out a radon measurement within the existing property.

Radon Affected Areas are designated by Public Health England. They advise that radon gas should be measured in all properties within Radon Affected Areas.

If you are buying a new build property in a Radon Affected Area, you should ask the builder whether radon protective measures were incorporated in the construction of the property.

If you are buying a currently occupied property in a Radon Affected Area you should ask the present owner whether radon levels have been measured in the property. If they have, ask whether the results were above the Radon Action Level and if so whether remedial measures were installed, radon levels were retested, and the that the results of re-testing confirmed the effectiveness of the measures.

In radon affected homes, the problem of radon can usually be tackled with simple, effective and relatively inexpensive measures. These measures are comparable in cost to work such as damp-proofing and timber treatment. You can get practical advice about construction work to reduce radon levels from the Building Control Officer at your local council.

For further information, advice about radon, its health risks and details of how to order the radon test, please contact the PHE Radon Helpline on 01235 822622 or go online at www.ukradon.org or write to Radon Survey, Public Health England, Centre for Radiation, Chemical and Environmental Hazards, Chilton, Didcot, Oxon, OX11 0RQ, email: radon@hpa.org.uk. You can obtain an information pack from the PHE free Radon answerphone on 0800 614529



What is radon?

Radon is a naturally occurring radioactive gas, which is produced by the radioactive decay of radium which, in turn, is derived from the radioactive decay of uranium. Uranium is found in small quantities in all soils and rocks, although the amount varies from place to place. Radon released from rocks and soils is quickly diluted in the atmosphere. Concentrations in the open air are normally very low and do not present a hazard. Radon that enters enclosed spaces such as some buildings (particularly basements), caves, mines, and tunnels may reach high concentrations in some circumstances. The construction method and degree of ventilation will influence radon levels in individual buildings. A person's exposure to radon will also vary according to how particular buildings and spaces are used.

Inhalation of the radioactive decay products of radon gas increases the chance of developing lung cancer. If individuals are exposed to high concentrations for significant periods of time, there may be cause for concern. In order to limit the risk to individuals, the Government has adopted an Action Level for radon in homes of 200 becquerels per cubic metre (Bq m^{-3}). The Government advises householders that, where the radon level exceeds the Action Level, measures should be taken to reduce the concentration.

Radon in workplaces

The Ionising Radiation Regulations, 1999, require employers to take action when radon is present above a defined level in the workplace. Advice may be obtained from your local Health and Safety Executive Area Office or the Environmental Health Department of your local authority. The BRE publishes a guide (BR293): **Radon in the workplace**. BRE publications may be obtained from the BRE Bookshop, Tel: 01923 664262, email: bookshop@bre.co.uk website: www.brebookshop.com



Contact Details

Keyworth (KW) Office

British Geological Survey
Environmental Science Centre
Nicker Hill
Keyworth
Nottingham
NG12 5GG
Tel: 0115 9363143
Fax: 0115 9363276
Email: enquiries@bgs.ac.uk

Wallingford (WL) Office

British Geological Survey
Maclean Building
Wallingford
Oxford
OX10 8BB
Tel: 01491 838800
Fax: 01491 692345
Email: hydroenq@bgs.ac.uk

Murchison House (MH) Office

British Geological Survey
Murchison House
West Mains Road
Edinburgh
EH9 3LA
Tel: 0131 650 0207
Fax: 0131 650 0252
Email: enquiry@bgs.ac.uk



Terms and Conditions

General Terms & Conditions

This Report is supplied in accordance with the GeoReports Terms & Conditions available on the BGS website at www.bgs.ac.uk/georeports and also available from the BGS Central Enquiries Desk at the above address.

Important notes about this Report

- The data, information and related records supplied in this Report by BGS can only be indicative and should not be taken as a substitute for specialist interpretations, professional advice and/or detailed site investigations. You must seek professional advice before making technical interpretations on the basis of the materials provided.
- Geological observations and interpretations are made according to the prevailing understanding of the subject at the time. The quality of such observations and interpretations may be affected by the availability of new data, by subsequent advances in knowledge, improved methods of interpretation, and better access to sampling locations.
- Raw data may have been transcribed from analogue to digital format, or may have been acquired by means of automated measuring techniques. Although such processes are subjected to quality control to ensure reliability where possible, some raw data may have been processed without human intervention and may in consequence contain undetected errors.
- Detail, which is clearly defined and accurately depicted on large-scale maps, may be lost when small-scale maps are derived from them.
- Although samples and records are maintained with all reasonable care, there may be some deterioration in the long term.
- The most appropriate techniques for copying original records are used, but there may be some loss of detail and dimensional distortion when such records are copied.
- Data may be compiled from the disparate sources of information at BGS's disposal, including material donated to BGS by third parties, and may not originally have been subject to any verification or other quality control process.
- Data, information and related records, which have been donated to BGS, have been produced for a specific purpose, and that may affect the type and completeness of the data recorded and any interpretation. The nature and purpose of data collection, and the age of the resultant material may render it unsuitable for certain applications/uses. You must verify the suitability of the material for your intended usage.
- If a report or other output is produced for you on the basis of data you have provided to BGS, or your own data input into a BGS system, please do not rely on it as a source of information about other areas or geological features, as the report may omit important details.
- The topography shown on any map extracts is based on the latest OS mapping and is not necessarily the same as that used in the original compilation of the BGS geological map, and to which the geological linework available at that time was fitted.
- Note that for some sites, the latest available records may be quite historical in nature, and while every effort is made to place the analysis in a modern geological context, it is possible in some cases that the detailed geology at a site may differ from that described.

Copyright:

Copyright in materials derived from the British Geological Survey's work, is owned by the Natural Environment Research Council (NERC) and/ or the authority that commissioned the work. You may not copy or adapt this publication, or provide it to a third party, without first obtaining NERC's permission, but if you are a consultant purchasing this report solely for the purpose of providing advice to your own individual client you may incorporate it unaltered into your report to that client without further permission, provided you give a full acknowledgement of the source. Please contact the BGS Copyright Manager, British Geological Survey, Kingsley Dunham Centre, Keyworth, Nottingham NG12 5GG. Telephone: 0115 936 3100.

© NERC 2014 All rights reserved.

This product includes mapping data licensed from the Ordnance Survey® with the permission of the Controller of Her Majesty's Stationery Office. © Crown Copyright 2014. All rights reserved. Licence number 100021290 EUL



**Report issued by
BGS Enquiry Service**

Site Details:

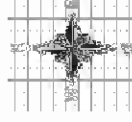
Client Ref: EMS-270724-365112
Report Ref: EMS-270724-365112
Grid Ref: 471561, 105806

Map Name: County Series

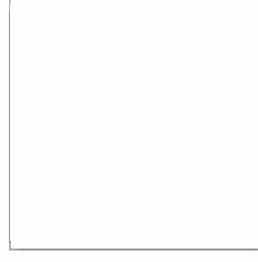
Map date: 1869

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1869
Revised 1869
Edition N/A
Copyright N/A
Levelled N/A



Produced by
GroundSure GroundSure Environmental Insight
www.groundsure.com

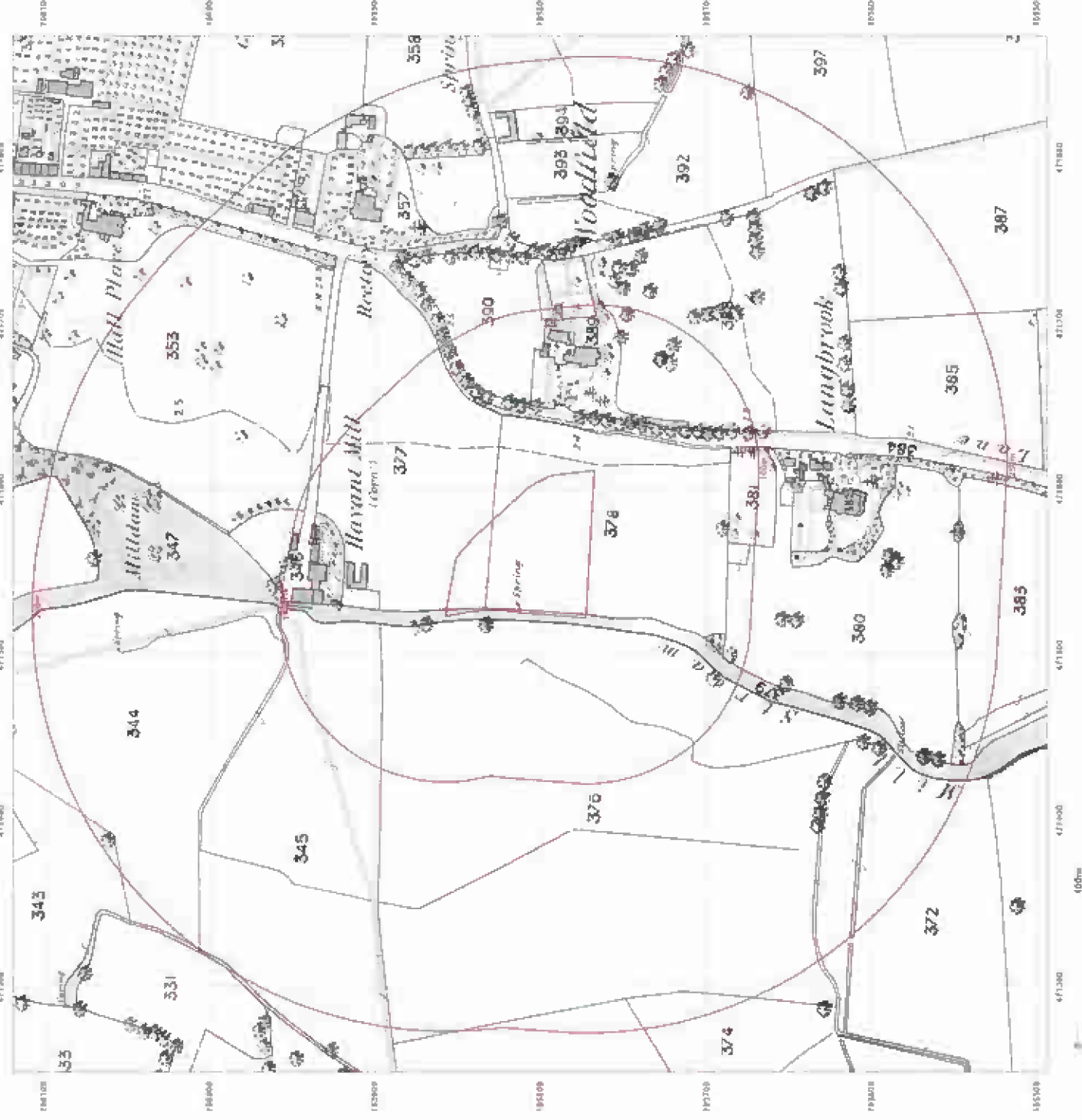


Supplied by:
www.emapsite.com
sales@emapsite.com

© Crown copyright and database rights 2013 Ordnance Survey 100035207

Production date: 07 October 2014

To view map legend click here [Legend](#)



Site Details:

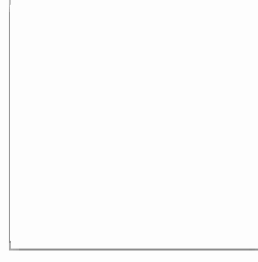
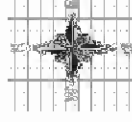
Client Ref: EMS-270724-365112
Report Ref: EMS-270724-365112
Grid Ref: 471561, 105806

Map Name: County Series

Map date: 1897

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1897
Revised 1897
Edition N/A
Copyright N/A
Levelled N/A



Produced by
GroundSure GroundSure Environmental Insight
www.groundsure.com

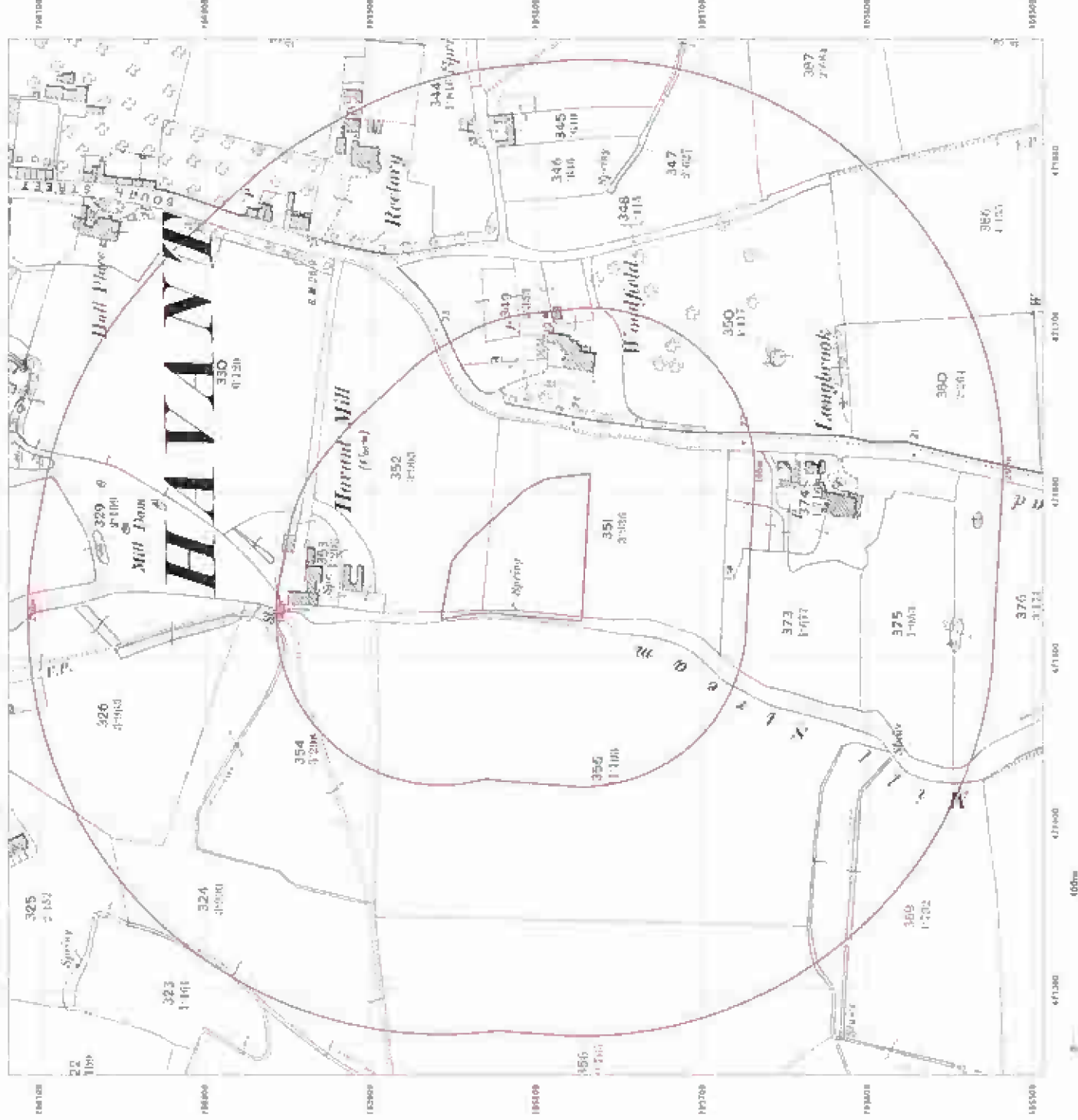


Supplied by:
www.emapsite.com
sales@emapsite.com

© Crown copyright and database rights 2013 Ordnance Survey 100035207

Production date: 07 October 2014

To view map legend click here [Legend](#)



Site Details:

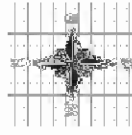
Client Ref: EMS-270724-365112
Report Ref: EMS-270724-365112
Grid Ref: 471561, 105806

Map Name: County Series

Map date: 1909

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1909
Revised 1909
Edition N/A
Copyright N/A
Levelled N/A



Produced by
GroundSure GroundSure Environmental Insight
www.groundsure.com

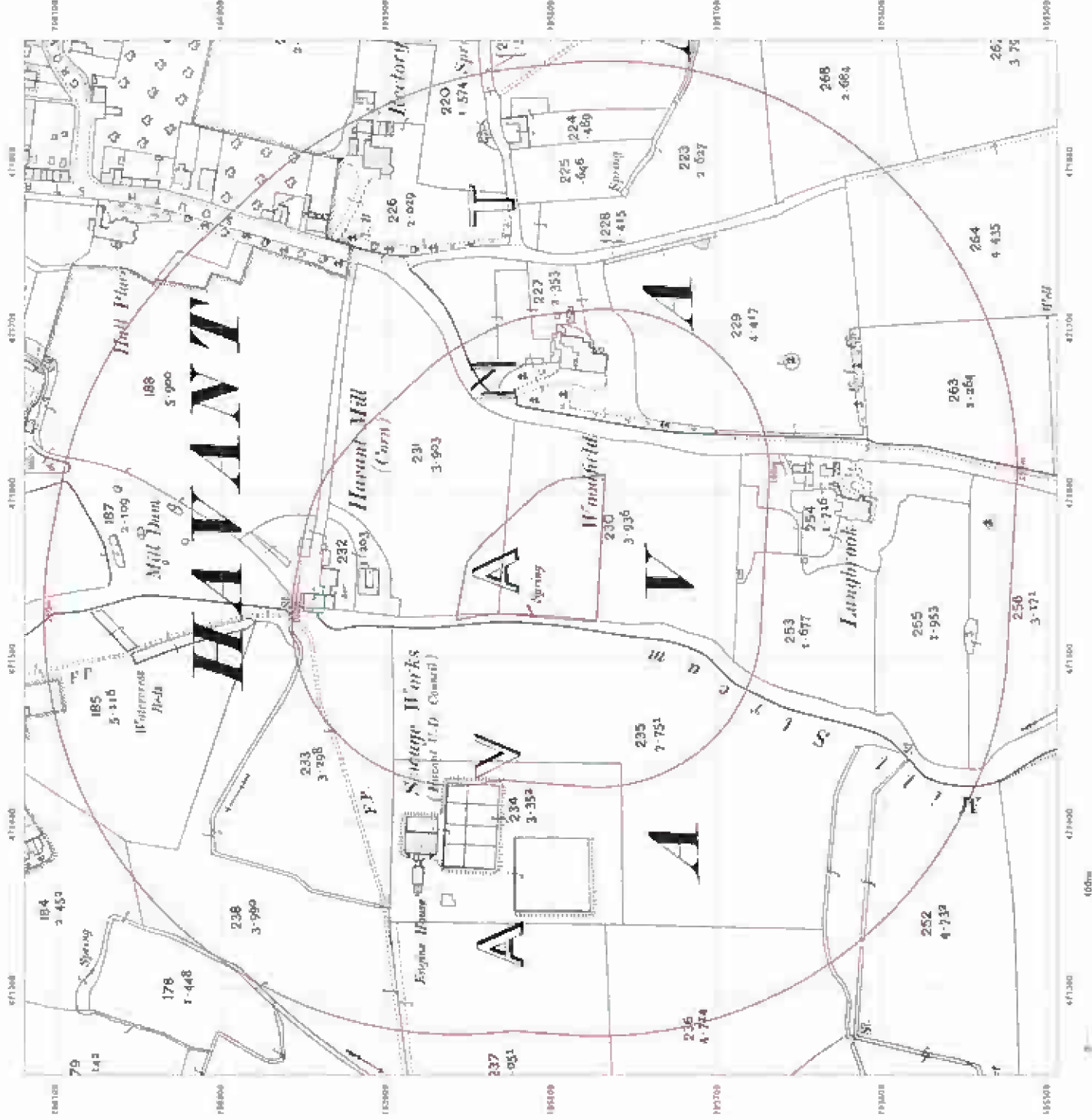


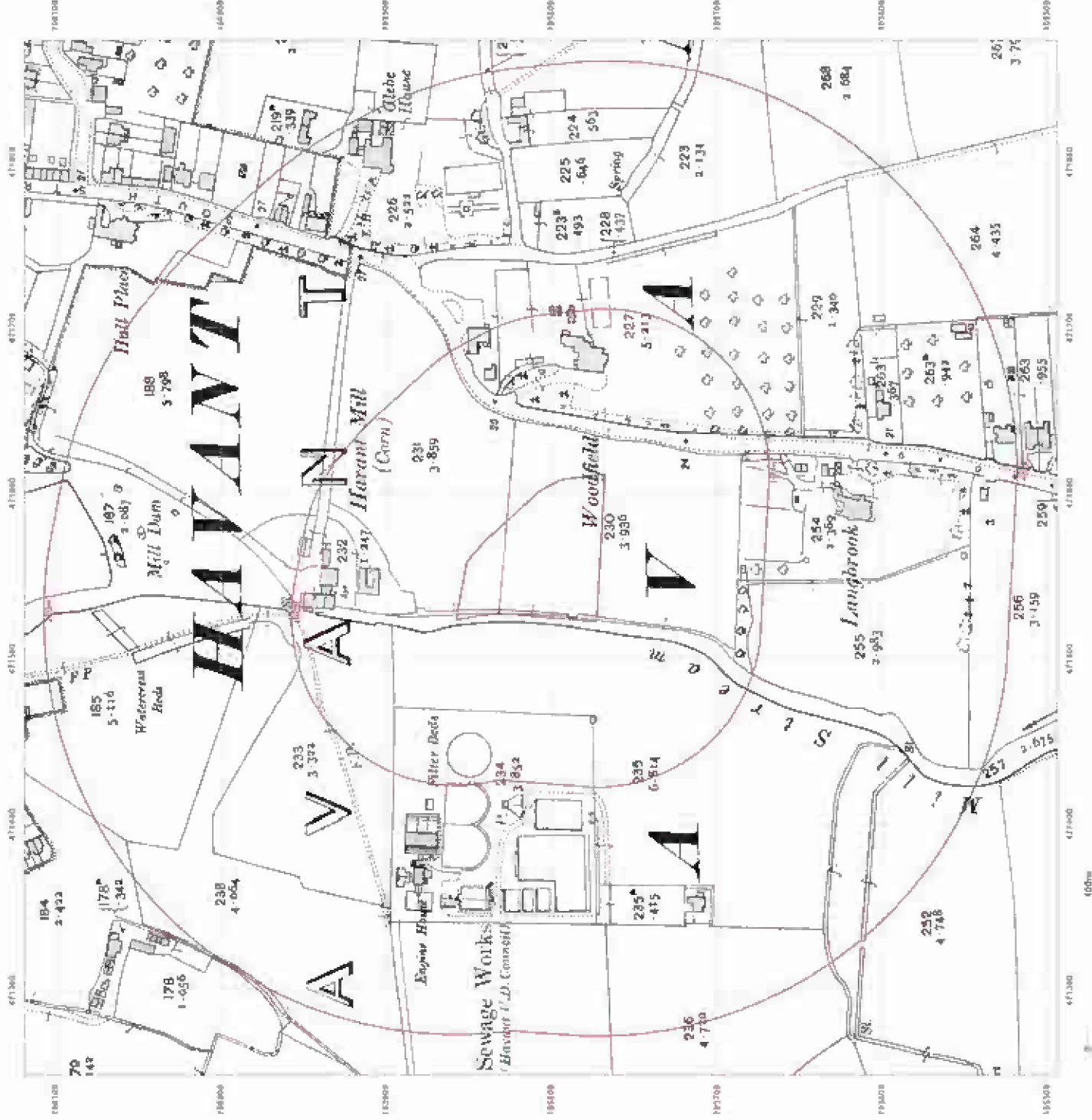
Supplied by:
www.emapsite.com
sales@emapsite.com

© Crown copyright and database rights 2013 Ordnance Survey 100035207

Production date: 07 October 2014

To view map legend click here [Legend](#)





Site Details:

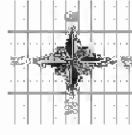
Client Ref: EMS-270724-365112
Report Ref: EMS-270724-365112
Grid Ref: 471561, 105806

Map Name: National Grid

Map date: 1952

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1952
Revised 1952
Edition N/A
Copyright N/A
Levelled 1946

Surveyed 1952
Revised 1952
Edition N/A
Copyright N/A
Levelled 1946



Produced by
GroundSure GroundSure Environmental Insight
www.groundsure.com

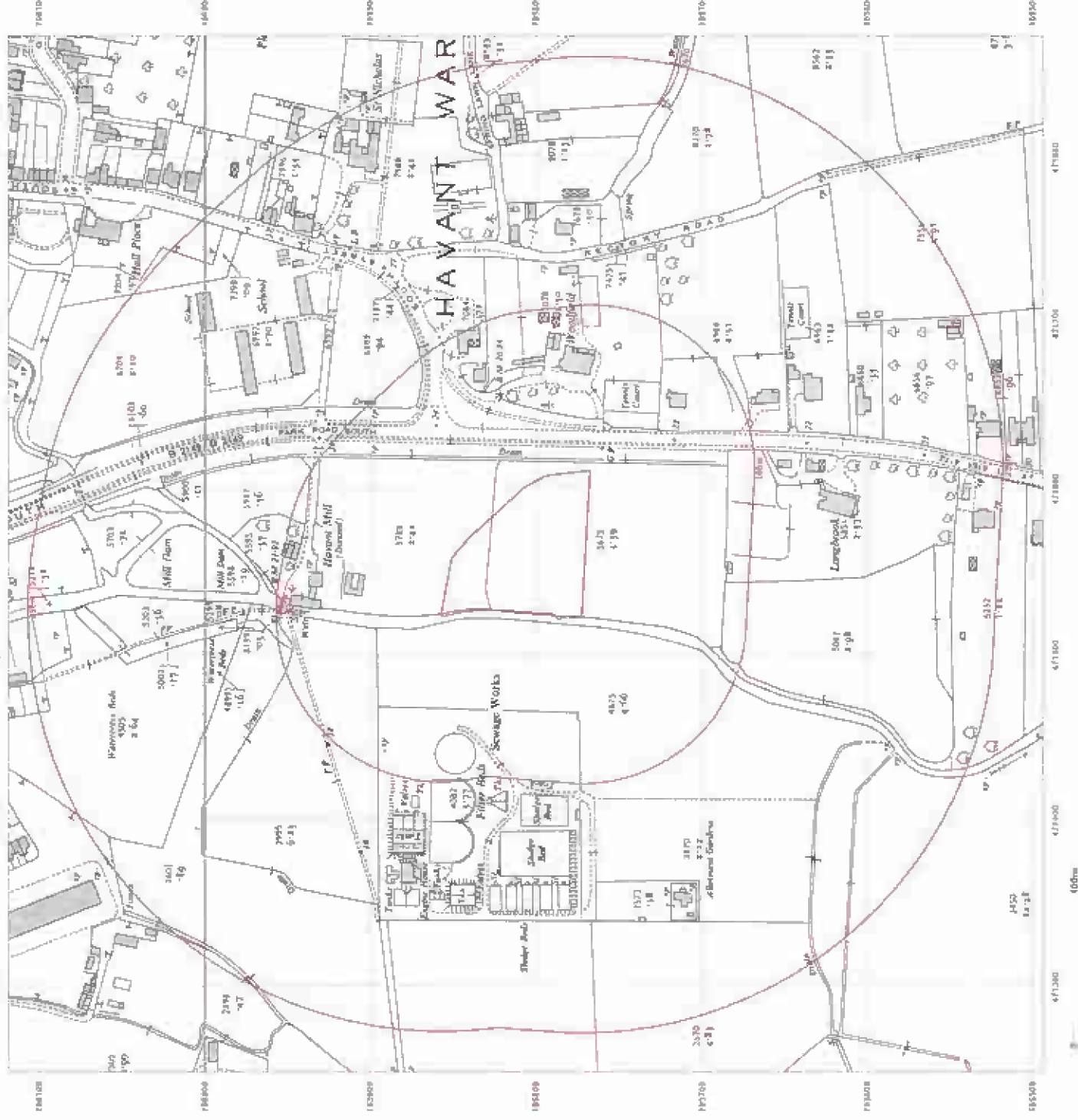


Supplied by:
www.emapsite.com
sales@emapsite.com

© Crown copyright and database rights 2013 Ordnance Survey 100035207

Production date: 07 October 2014

To view map legend click here [Legend](#)



Site Details:

Client Ref:	EMS_270724_365112
Report Ref:	EMS-270724_365112
Grid Ref:	471561, 105806

Map Name:	National Grid
Map date:	1959-1960
Scale:	1:1250
Printed at:	1:2,000



To view map legend click here

Site Details:

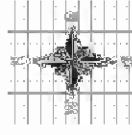
Client Ref: EMS_270724_365112
Report Ref: EMS-270724_365112
Grid Ref: 471561, 105806

Map Name: National Grid

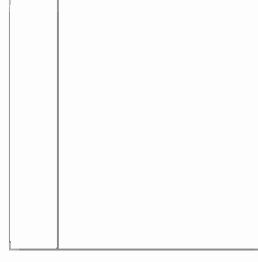
Map date: 1960

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1960
Revised 1960
Edition 1961
Copyright 1961
Levelled 1957



Produced by
GroundSure
GroundSure Inc.
www.groundsure.com

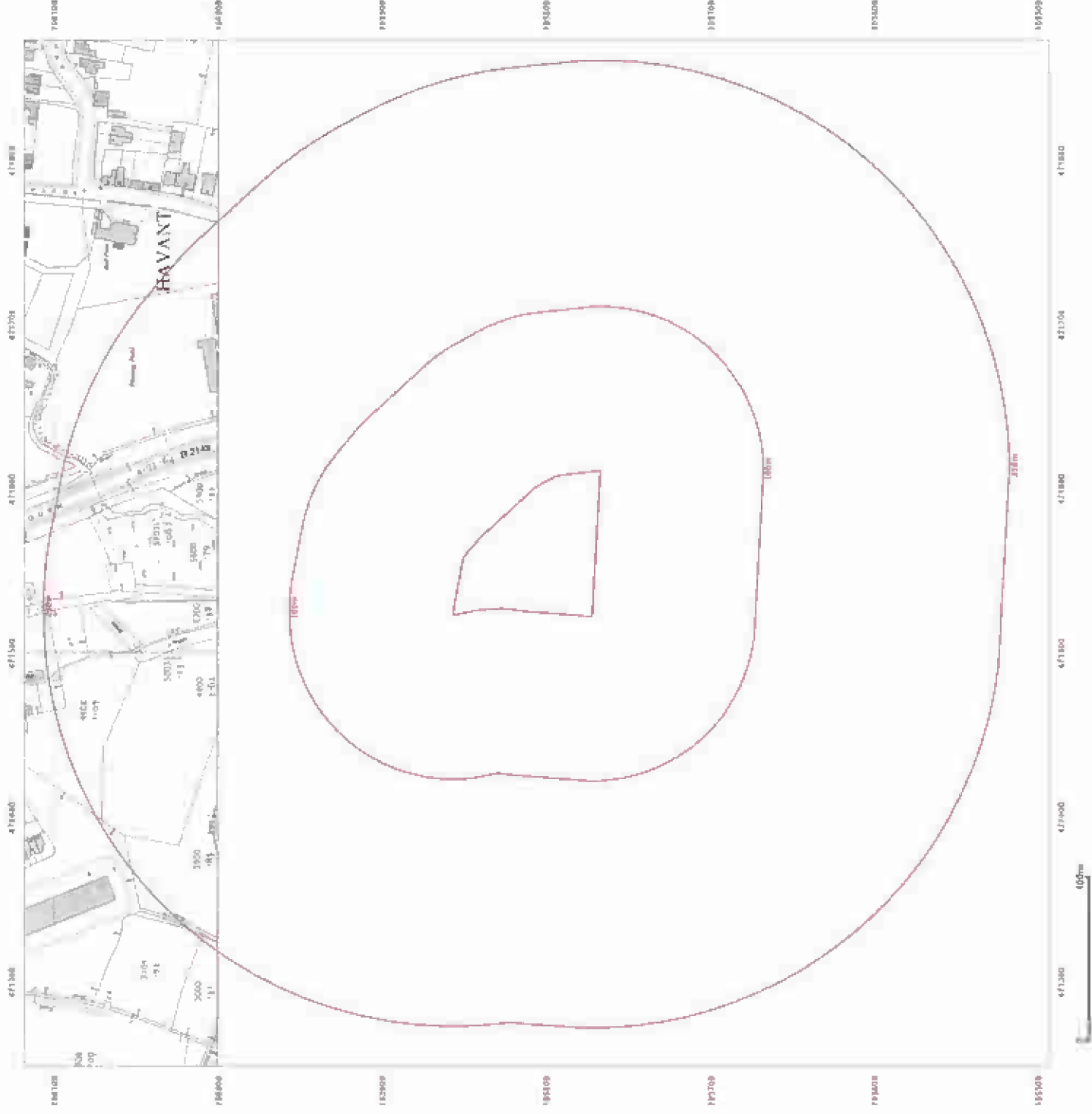


Supplied by:
www.emapsite.com
sales@emapsite.com

© Crown copyright and database rights 2013 Ordnance Survey 100035207

Production date: 07 October 2014

To view map legend [click here](#)



Site Details:

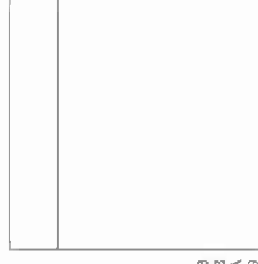
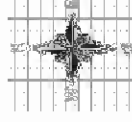
Client Ref: EMS-270724_365112
Report Ref: EMS-270724_365112
Grid Ref: 471561, 105806

Map Name: National Grid

Map date: 1988

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1988
 Revised 1988
 Edition N/A
 Copyright 1989
 Levelled 1987



Produced by
GroundSure
 GroundSure Environmental Insight
www.groundsure.com



Supplied by:
www.emapsite.com
sales@emapsite.com

© Crown copyright and database rights 2013 Ordnance Survey 100035207

Production date: 07 October 2014

To view map legend click here [Legend](#)



Site Details:

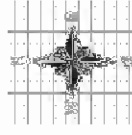
Client Ref: EMS_270724_365112
Report Ref: EMS-270724_365112
Grid Ref: 471561, 105806

Map Name: National Grid

Map date: 1965-1969

Scale: 1:1,250

Printed at: 1:2,000



Surveyed 1960
Revised 1968
Edition N/A
Copyright 1969
Levelled 1957

Surveyed 1958
Revised 1967
Edition N/A
Copyright 1968
Revised 1987



Produced by
GroundSure GroundSure Environmental Insight
www.groundsure.com



Supplied by:
www.emapsite.com
sales@emapsite.com

© Crown copyright and database rights 2013 Ordnance Survey 100035207

Production date: 07 October 2014

To view map legend [click here](#)

Site Details:

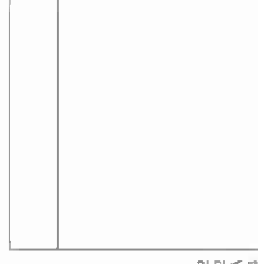
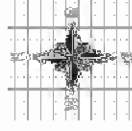
Client Ref: EMS-270724-365112
Report Ref: EMS-270724-365112
Grid Ref: 471561, 105806

Map Name: National Grid

Map date: 1972

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1972
 Revised 1972
 Edition N/A
 Copyright 1974
 Levelled 1957



Produced by
GroundSure
 GroundSure Environmental Insight
www.groundsure.com



Supplied by:
www.emapsite.com
sales@emapsite.com

© Crown copyright and database rights 2013 Ordnance Survey 100035207

Production date: 07 October 2014

To view map legend click here [Legend](#)



Site Details:

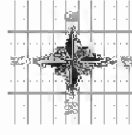
Client Ref: EMS-270724_365112
Report Ref: EMS-270724_365112
Grid Ref: 471561, 105806

Map Name: National Grid

Map date: 1973

Scale: 1:1,250

Printed at: 1:2,000

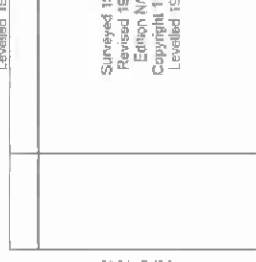


Surveyed 1960
 Revised 1972
 Edition N/A
 Copyright 1973
 Levelled 1957

Surveyed 1972
 Revised 1972
 Edition N/A
 Copyright 1973
 Levelled 1957

Surveyed 1960
 Revised 1972
 Edition N/A
 Copyright 1973
 Levelled 1957

Surveyed 1968
 Revised 1972
 Edition N/A
 Copyright 1973
 Levelled 1957



Produced by
GroundSure
 GroundSure Environmental Insight
www.groundsure.com



Supplied by:
www.emapsite.com
sales@emapsite.com

© Crown copyright and database rights 2013 Ordnance Survey 100035207

Production date: 07 October 2014

To view map legend click here [Legend](#)

Site Details:

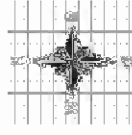
Client Ref: EMS_270724_365112
Report Ref: EMS-270724_365112
Grid Ref: 471561, 105806

Map Name: National Grid

Map date: 1981

Scale: 1:1,250

Printed at: 1:2,000



Surveyed 1957
Revised 1981
Edition N/A
Copyright 1981
Levelled 1957



Produced by
GroundSure GroundSure Environmental Insight
www.groundsure.com

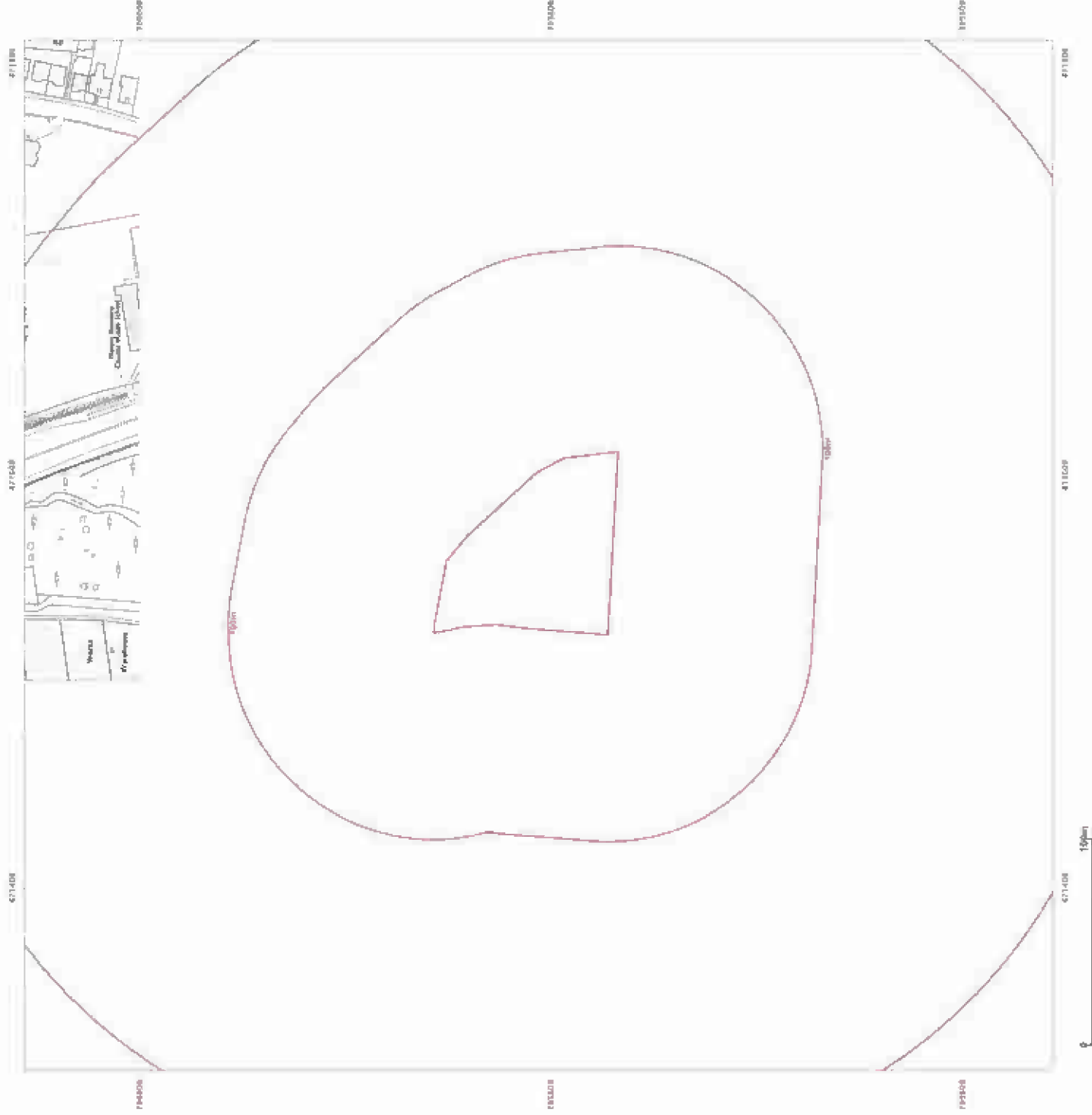


Supplied by:
www.emapsite.com
sales@emapsite.com

© Crown copyright and database rights 2013 Ordnance Survey 100035207

Production date: 07 October 2014

To view map legend [click here](#)



Site Details:

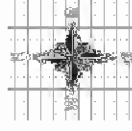
Client Ref: EMS-270724-365112
Report Ref: EMS-270724-365112
Grid Ref: 471561, 105806

Map Name: National Grid

Map date: 1984

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1957
 Revised 1984
 Edition N/A
 Copyright 1984
 Levelled 1957



Produced by
GroundSure
 GroundSure Environmental Insight
www.groundsure.com

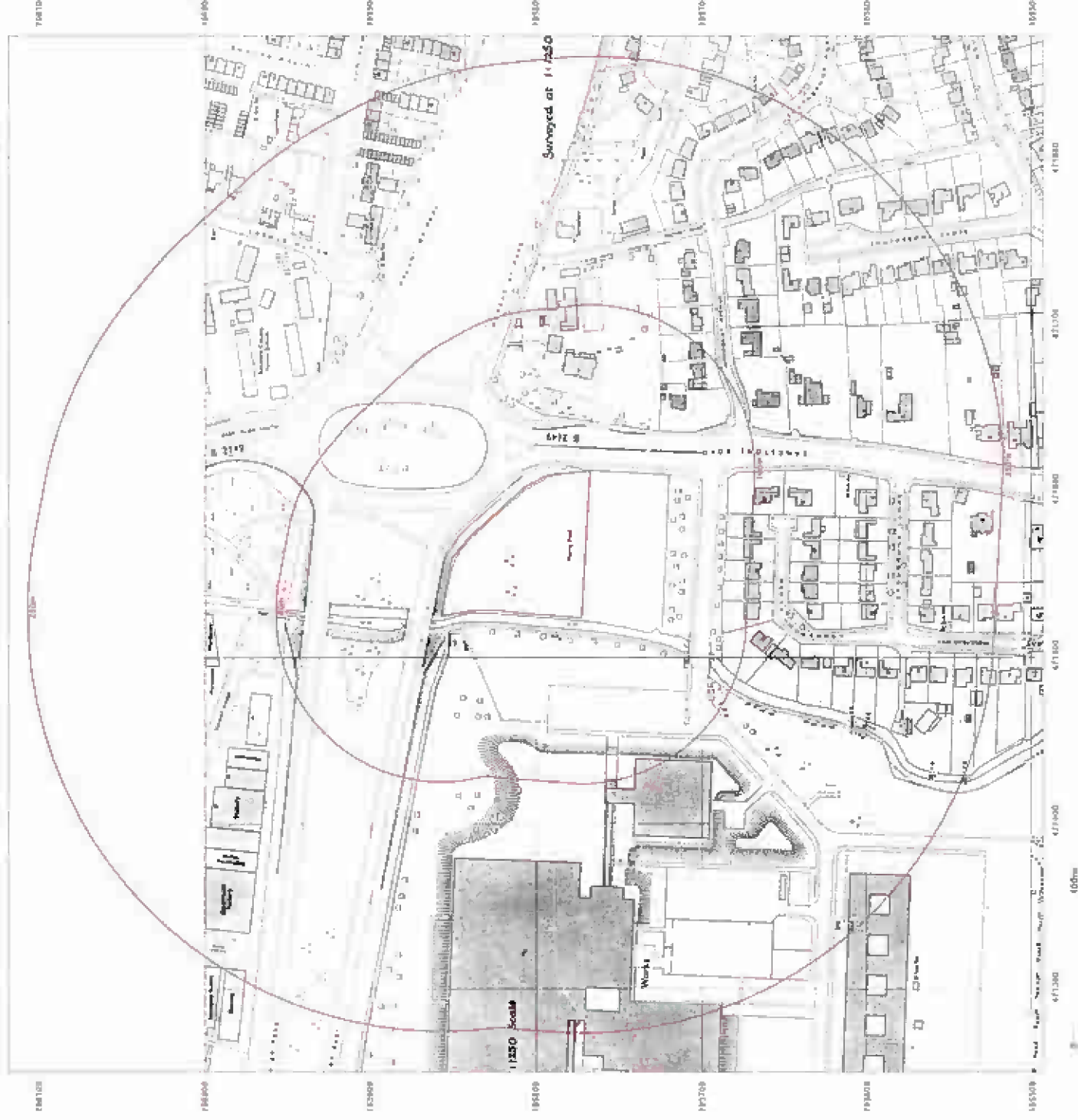


Supplied by:
www.emapsite.com
sales@emapsite.com

© Crown copyright and database rights 2013 Ordnance Survey 100035207

Production date: 07 October 2014

To view map legend click here [Legend](#)



Site Details:

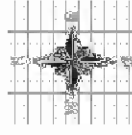
Client Ref: EMS_270724_365112
Report Ref: EMS-270724_365112
Grid Ref: 471561, 105806

Map Name: National Grid

Map date: 1982-1987

Scale: 1:1,250

Printed at: 1:2,000



Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1957
Revised 1986
Edition N/A
Copyright 1988
Levelled 1987

Surveyed 1957
Revised 1987
Edition N/A
Copyright 1987
Levelled 1957



Produced by
GroundSure GroundSure Environmental Insight
www.groundsure.com



Supplied by:
www.emapsite.com
sales@emapsite.com

© Crown copyright and database rights 2013 Ordnance Survey 100035207

Production date: 07 October 2014

To view map legend [click here](#)

Site Details:

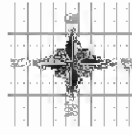
Client Ref: EMS_270724_365112
Report Ref: EMS-270724_365112
Grid Ref: 471561, 105806

Map Name: National Grid

Map date: 1987-1989

Scale: 1:1,250

Printed at: 1:2,000



Surveyed 1957
Revised 1989
Edition N/A
Copyright 1989
Levelled 1957

Surveyed 1957
Revised 1988
Edition N/A
Copyright 1988
Levelled 1957

Surveyed N/A
Revised N/A
Edition N/A
Copyright 1987
Levelled 1957



Produced by
GroundSure
GroundSure Environmental Insight
www.groundsure.com



Supplied by:
www.emapsite.com
sales@emapsite.com

© Crown copyright and database rights 2013 Ordnance Survey 100035207

Production date: 07 October 2014

To view map legend [click here](#)

Site Details:

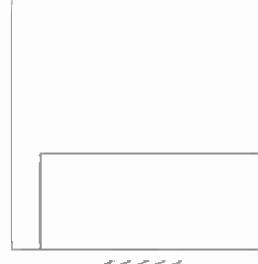
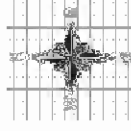
Client Ref: EMS-270724_365112
Report Ref: EMS-270724_365112
Grid Ref: 471561, 105806

Map Name: National Grid

Map date: 1990

Scale: 1:1,250

Printed at: 1:2,000



Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A



Produced by
GroundSure GroundSure Environmental Insight
www.groundsure.com



Supplied by:
www.emapsite.com
sales@emapsite.com

© Crown copyright and database rights 2013 Ordnance Survey 100035207

Production date: 07 October 2014

To view map legend click here [Legend](#)



Site Details:

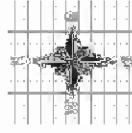
Client Ref: EMS_270724_365112
Report Ref: EMS-270724_365112
Grid Ref: 471561, 105806

Map Name: National Grid

Map date: 1988-1993

Scale: 1:1,250

Printed at: 1:2,000



Surveyed 1957
Revised 1988
Edition N/A
Copyright 1988
Levelled 1957

Surveyed N/A
Revised N/A
Edition N/A
Copyright 1993
Levelled N/A

Surveyed 1972
Revised 1989
Edition N/A
Copyright 1989
Levelled N/A



Produced by
GroundSure
GroundSure Environmental Insight
www.groundsure.com



Supplied by:
www.emapsite.com
sales@emapsite.com

© Crown copyright and database rights 2013 Ordnance Survey 100035207

Production date: 07 October 2014

[To view map legend click here](#)

Site Details:

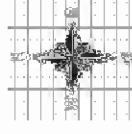
Client Ref: EMS-270724-365112
Report Ref: EMS-270724-365112
Grid Ref: 471561, 105806

Map Name: County Series

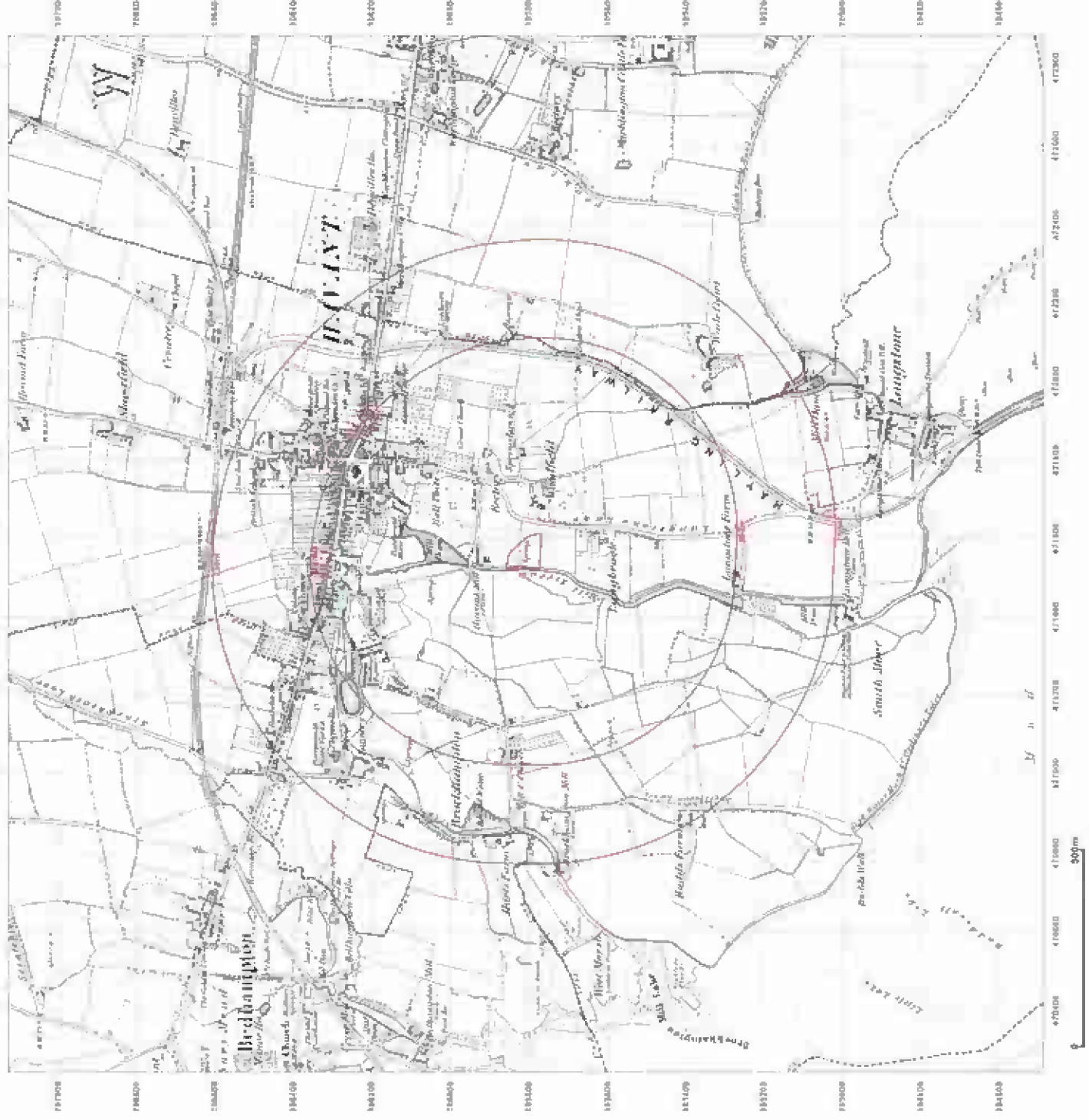
Map date: 1866

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1865
Revised 1866
Edition N/A
Copyright N/A
Levelled N/A



Produced by
GroundSure GroundSure Environmental Insight
www.groundsure.com



Supplied by:
www.emapsite.com
sales@emapsite.com

© Crown copyright and database rights 2013 Ordnance Survey 100035207

Production date: 07 October 2014

To view map legend click here [Legend](#)

Site Details:

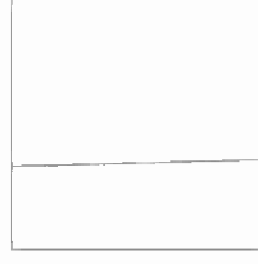
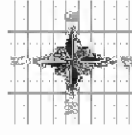
Client Ref: EMS-270724_365112
Report Ref: EMS-270724_365112
Grid Ref: 471561, 105806

Map Name: County Series

Map date: 1896

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1873
 Revised 1896
 Edition N/A
 Copyright N/A
 Levelling N/A



Produced by
GroundSure GroundSure Environmental Insight
www.groundsure.com

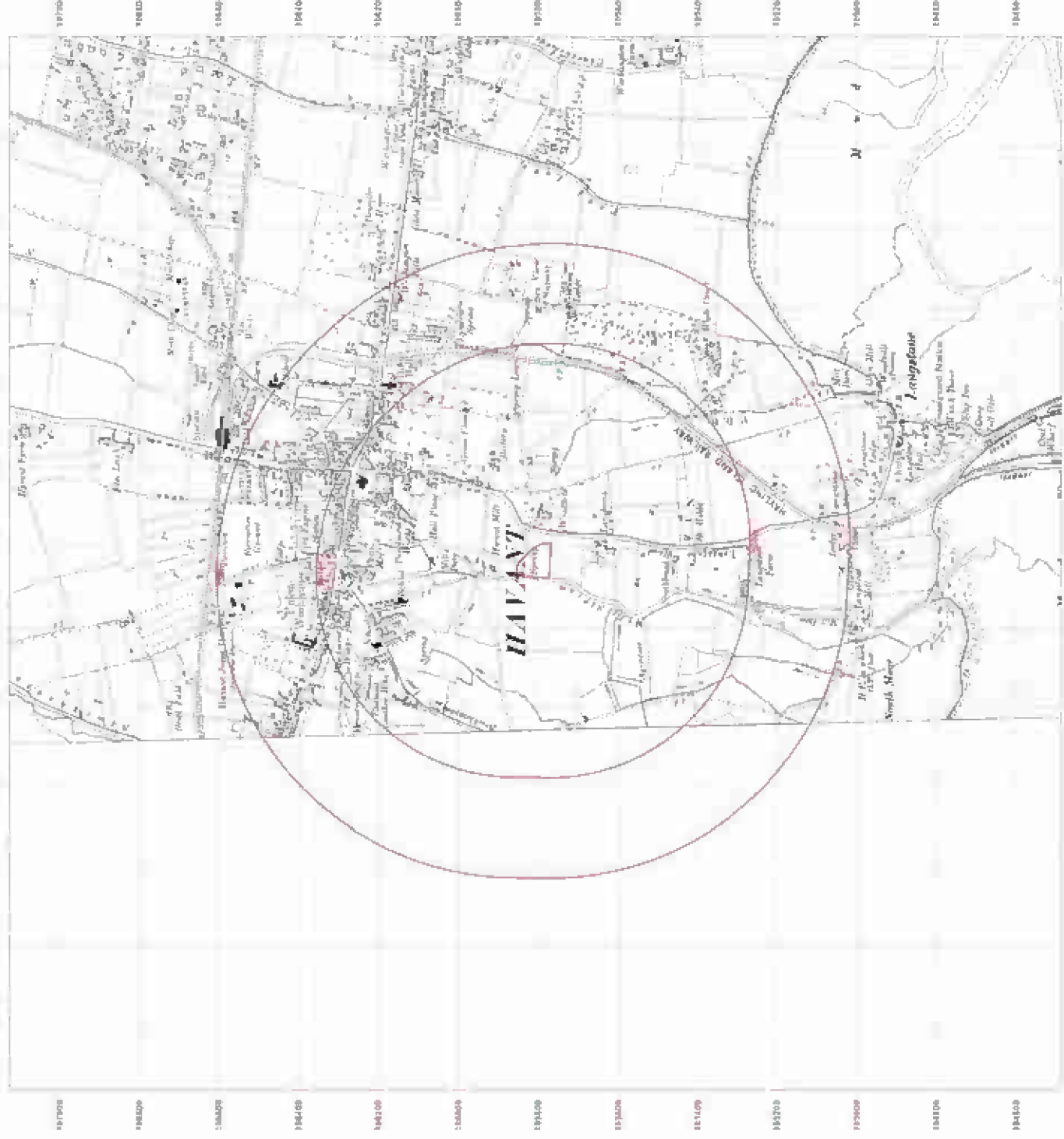


Supplied by:
www.emapsite.com
sales@emapsite.com

© Crown copyright and database rights 2013 Ordnance Survey 100035207

Production date: 07 October 2014

To view map legend click here [Legend](#)



Site Details:

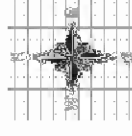
Client Ref: EMS-270724_365112
Report Ref: EMS-270724_365112
Grid Ref: 471561, 105806

Map Name: County Series

Map date: 1895-1898

Scale: 1:10,560

Printed at: 1:10,560

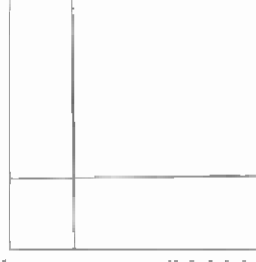


Surveyed 1897
 Revised 1895
 Edition N/A
 Copyright N/A
 Levelling N/A

Surveyed 1873
 Revised N/A
 Edition N/A
 Copyright N/A
 Levelling N/A

Surveyed 1868
 Revised 1895
 Edition N/A
 Copyright N/A
 Levelling N/A

Surveyed 1866
 Revised 1895
 Edition N/A
 Copyright N/A
 Levelling N/A



Produced by
GroundSure Environmental Insight
www.groundsure.com

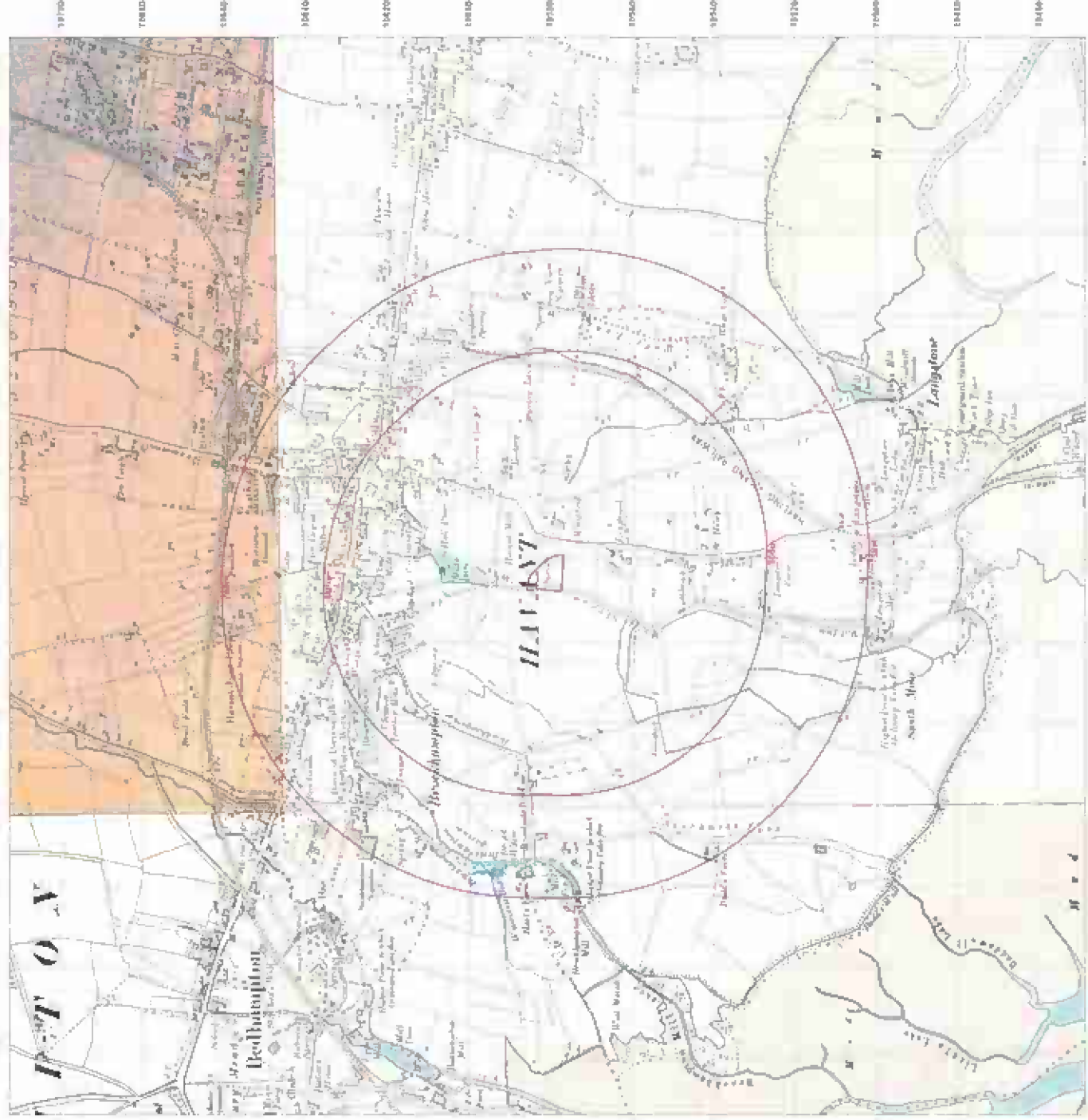


Supplied by:
www.emapsite.com
sales@emapsite.com

© Crown copyright and database rights 2013 Ordnance Survey 100035207

Production date: 07 October 2014

To view map legend click here [Legend](#)



Site Details:

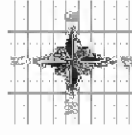
Client Ref: EMS-270724-365112
Report Ref: EMS-270724-365112
Grid Ref: 471561, 105806

Map Name: County Series

Map date: 1907

Scale: 1:10,560

Printed at: 1:10,560

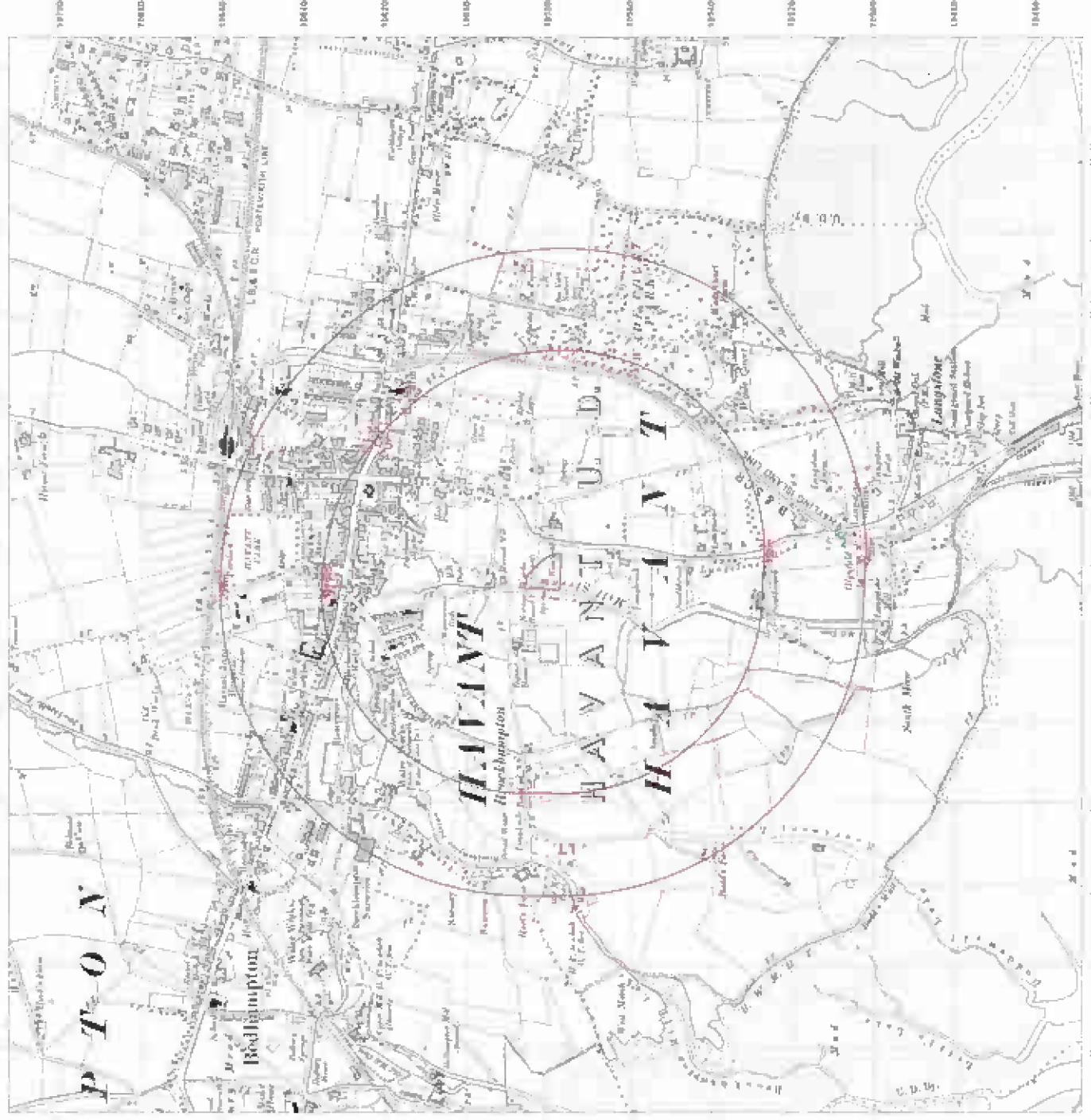


Surveyed 1859
 Revised 1907
 Edition N/A
 Copyright N/A
 Levelled N/A

Surveyed 1865
 Revised 1907
 Edition N/A
 Copyright N/A
 Levelled N/A

Surveyed 1858
 Revised 1907
 Edition N/A
 Copyright N/A
 Levelled N/A

Surveyed 1865
 Revised 1907
 Edition N/A
 Copyright N/A
 Levelled N/A



Produced by
GroundSure
 GroundSure Environmental Insight
www.groundsure.com



Supplied by:
www.emapsite.com
sales@emapsite.com

© Crown copyright and database rights 2013 Ordnance Survey 100035207

Production date: 07 October 2014

To view map legend click here [Legend](#)

Site Details:

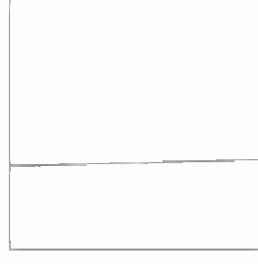
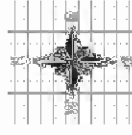
Client Ref: EMS-270724-365112
Report Ref: EMS-270724-365112
Grid Ref: 471561, 105806

Map Name: County Series

Map date: 1914

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1973
Revised 1974
Edition N/A
Copyright N/A
Landed N/A



Produced by
GroundSure Environmental Insight
www.groundsure.com

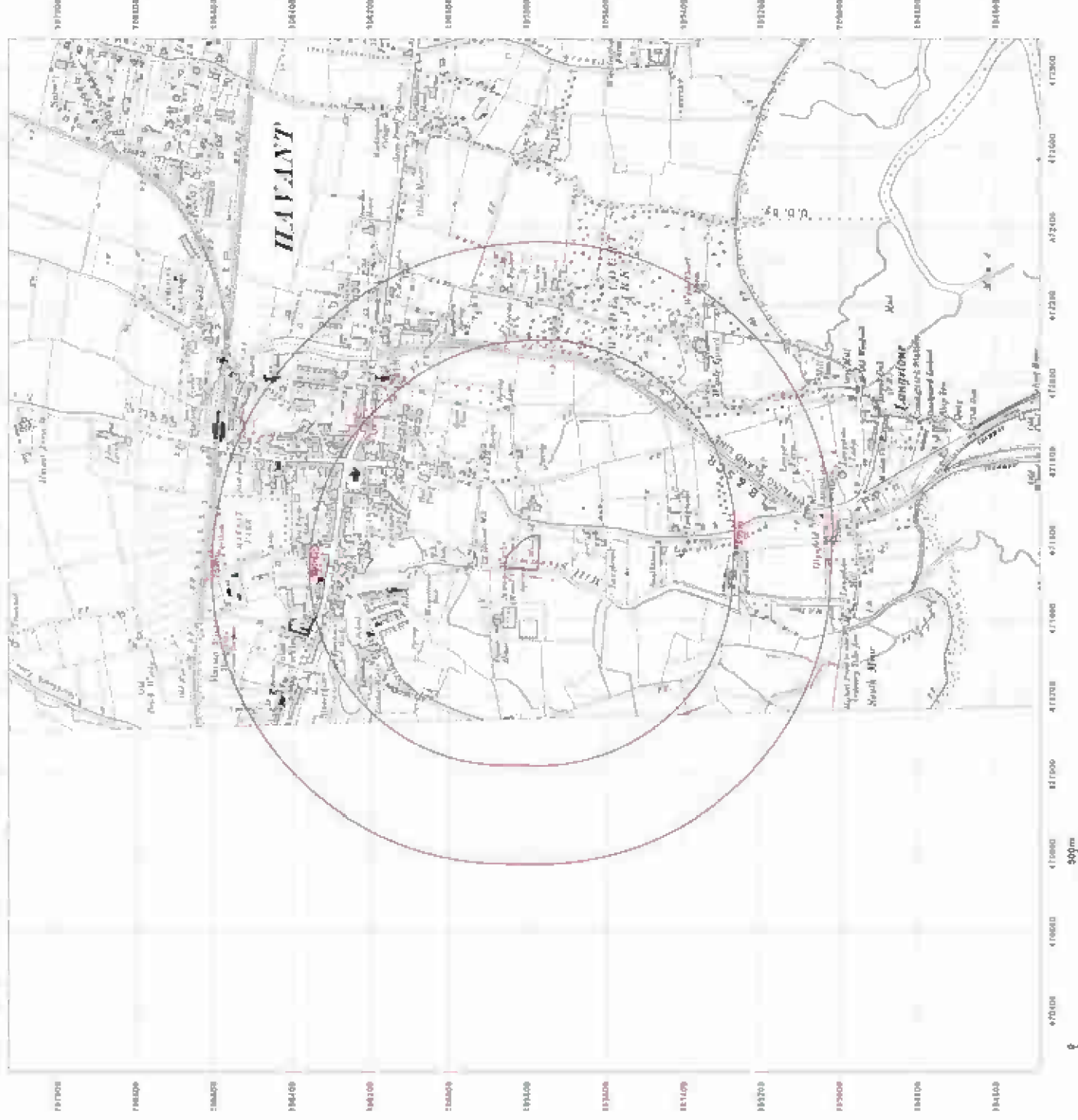


Supplied by:
www.emapsite.com
sales@emapsite.com

© Crown copyright and database rights 2013 Ordnance Survey 100035207

Production date: 07 October 2014

To view map legend click here [Legend](#)



Site Details:

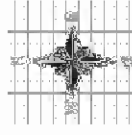
Client Ref: EMS-270724-365112
Report Ref: EMS-270724-365112
Grid Ref: 471561, 105806

Map Name: County Series

Map date: 1930-1931

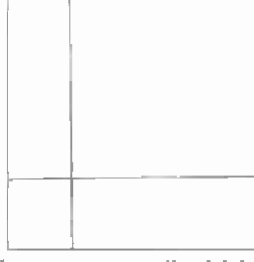
Scale: 1:10,560

Printed at: 1:10,560



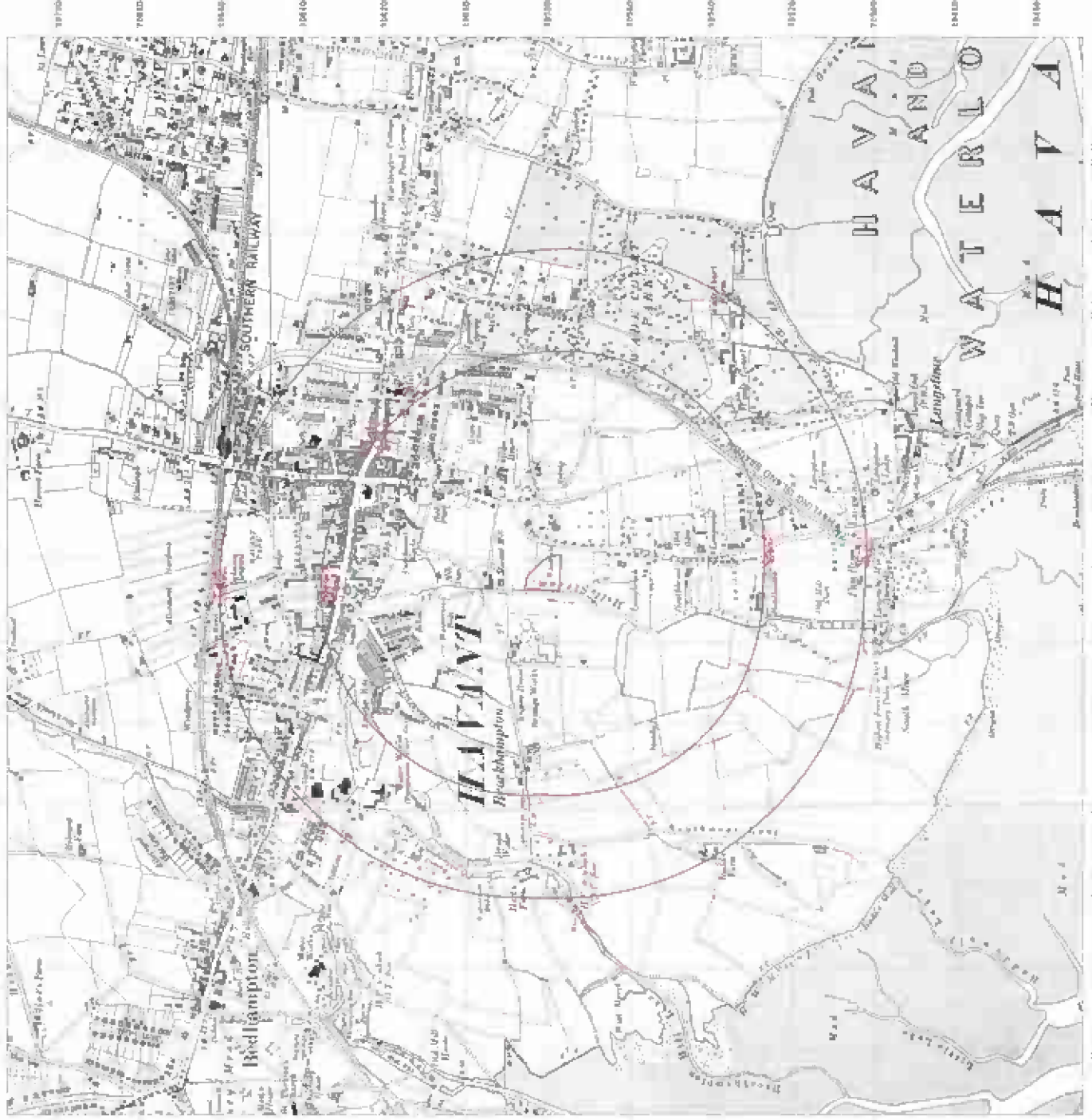
Surveyed 1859
 Revised 1930
 Edition N/A
 Copyright N/A
 Levelled N/A

Surveyed 1865
 Revised 1931
 Edition N/A
 Copyright N/A
 Levelled N/A



Surveyed 1858
 Revised 1931
 Edition N/A
 Copyright N/A
 Levelled N/A

Surveyed 1865
 Revised 1931
 Edition N/A
 Copyright N/A
 Levelled N/A



Produced by
GroundSure Environmental Insight
www.groundsure.com



Supplied by:
www.emapsite.com
sales@emapsite.com

© Crown copyright and database rights 2013 Ordnance Survey 100035207

Production date: 07 October 2014

To view map legend click here [Legend](#)

Site Details:

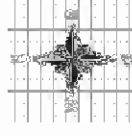
Client Ref: EMS-270724-365112
Report Ref: EMS-270724-365112
Grid Ref: 471561, 105806

Map Name: County Series

Map date: 1938-1942

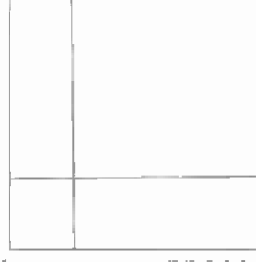
Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1859
 Revised 1938
 Edition N/A
 Copyright N/A
 Levelling N/A

Surveyed 1865
 Revised 1942
 Edition N/A
 Copyright N/A
 Levelling N/A



Surveyed 1858
 Revised 1938
 Edition N/A
 Copyright N/A
 Levelling N/A

Surveyed 1865
 Revised 1942
 Edition N/A
 Copyright N/A
 Levelling N/A



Produced by
GroundSure Environmental Insight
www.groundsure.com

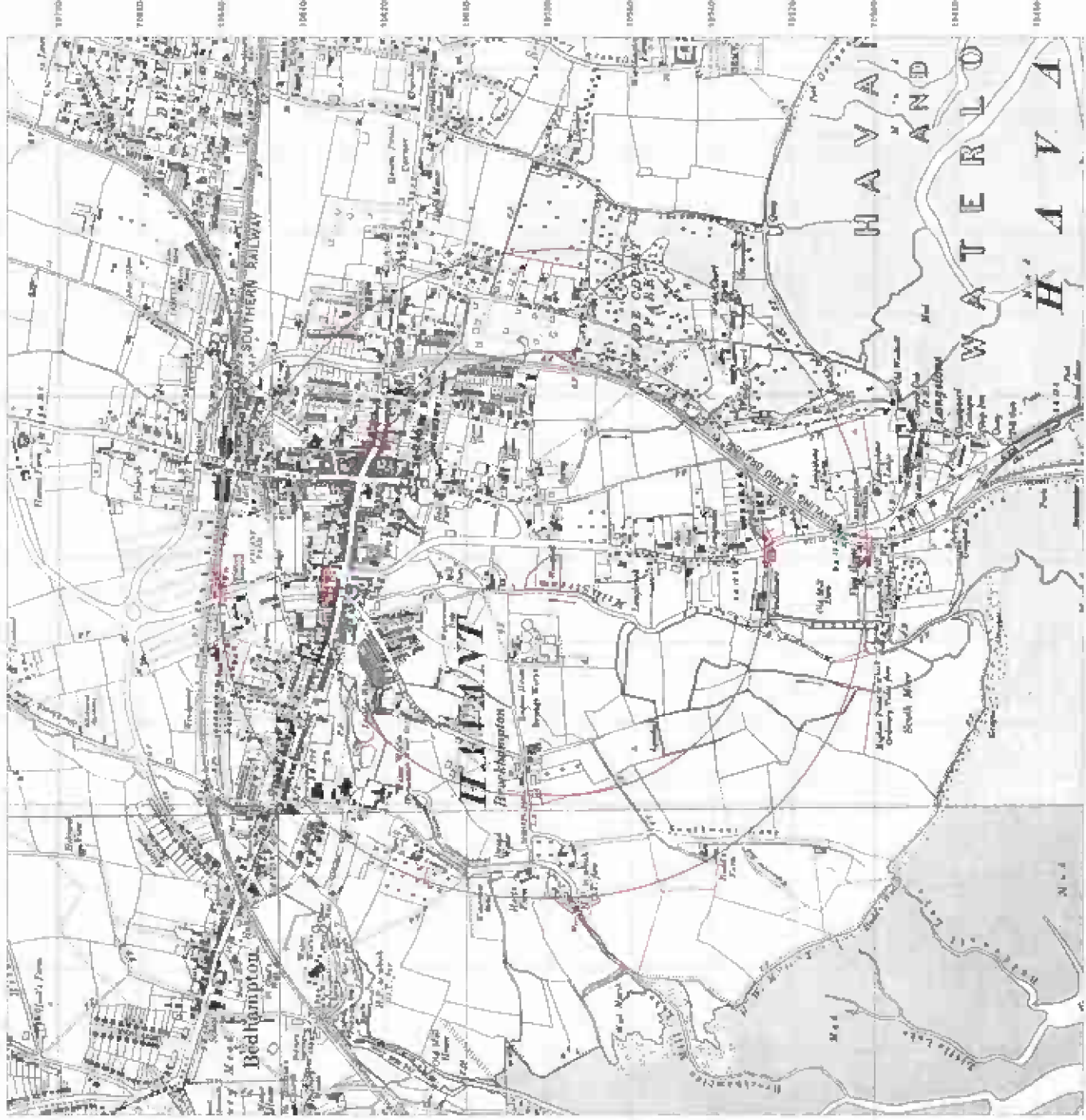


Supplied by:
www.emapsite.com
sales@emapsite.com

© Crown copyright and database rights 2013 Ordnance Survey 100035207

Production date: 07 October 2014

To view map legend click here [Legend](#)



Site Details:

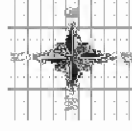
Client Ref: EMS-270724-365112
Report Ref: EMS-270724-365112
Grid Ref: 471561, 105806

Map Name: Provisional

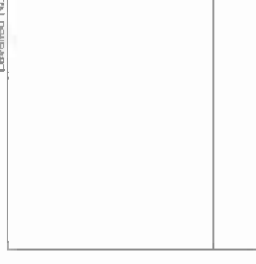
Map date: 1963

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1973
Revised 1957
Edition N/A
Copyright 1963
Levelled N/A



Produced by
GroundSure GroundSure Environmental Insight
www.groundsure.com

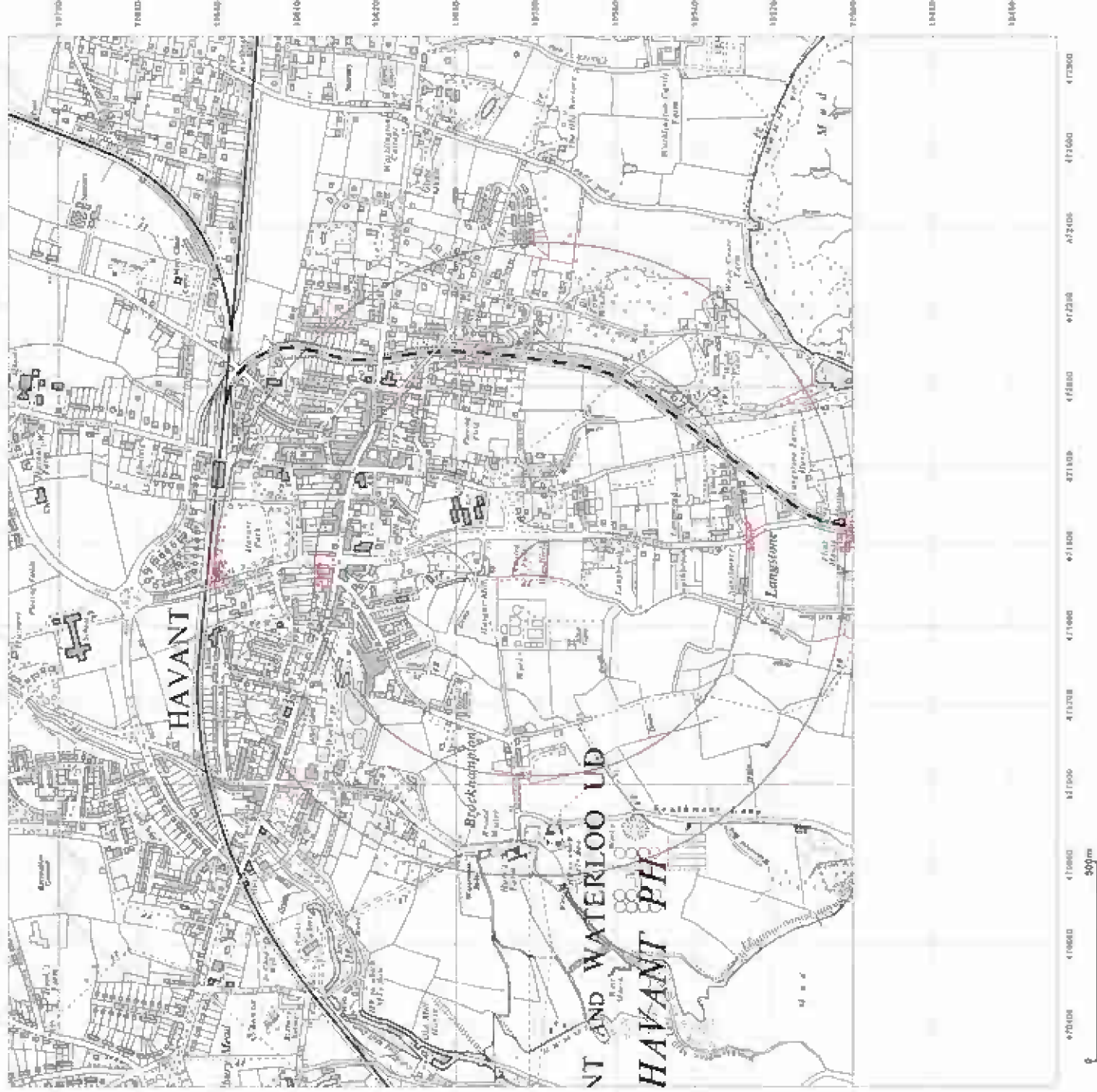


Supplied by:
www.emapsite.com
sales@emapsite.com

© Crown copyright and database rights 2013 Ordnance Survey 100035207

Production date: 07 October 2014

To view map legend click here [Legend](#)



Site Details:

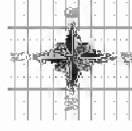
Client Ref: EMS-270724-365112
Report Ref: EMS-270724-365112
Grid Ref: 471561, 105806

Map Name: Provisional

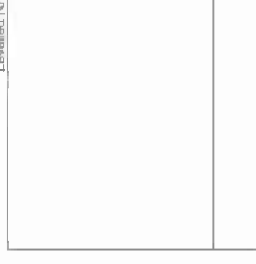
Map date: 1966

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1873
Revised 1957
Edition N/A
Copyright N/A
Levelled N/A



Produced by
GroundSure GroundSure Environmental Insight
www.groundsure.com

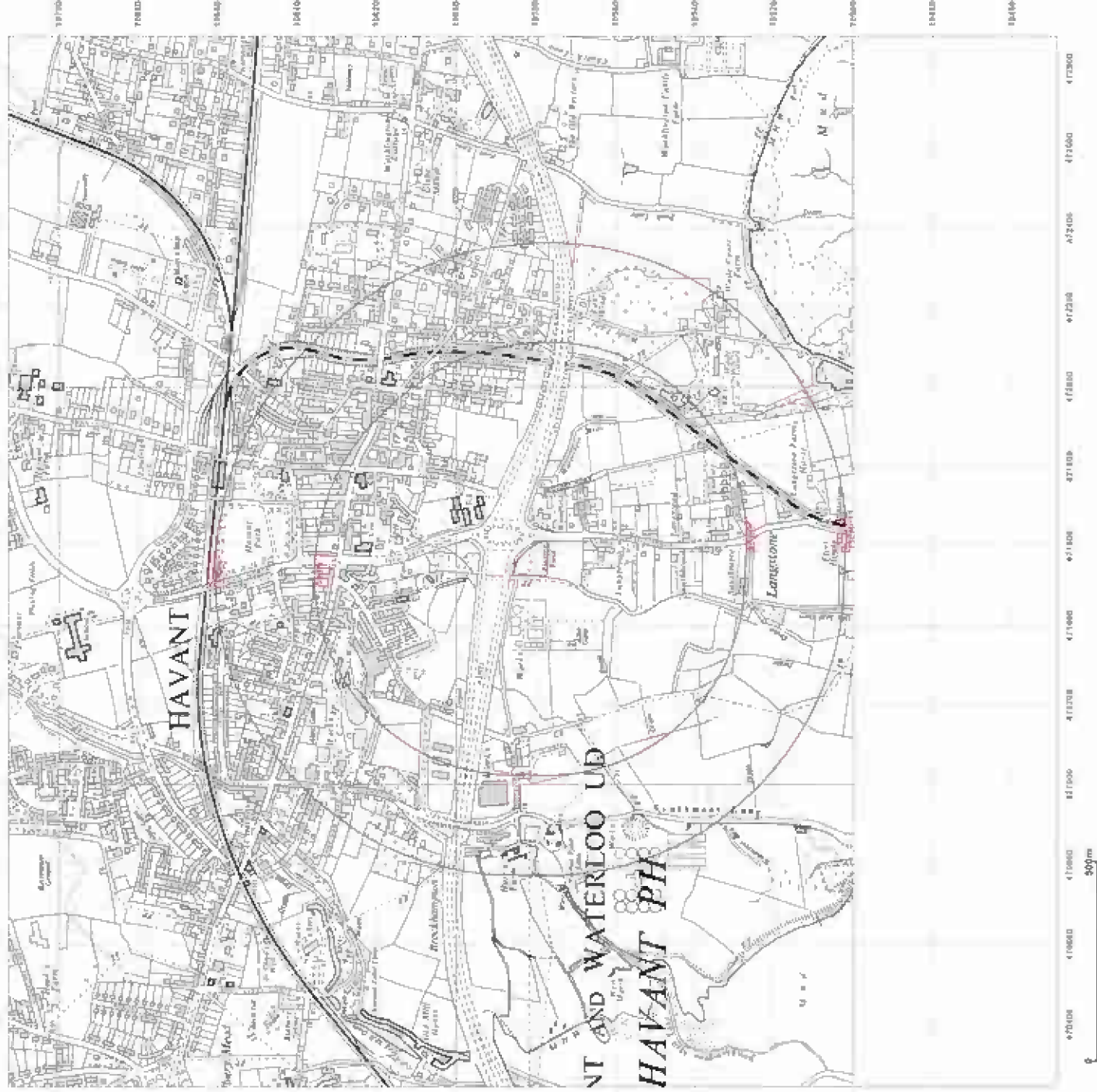


Supplied by:
www.emapsite.com
sales@emapsite.com

© Crown copyright and database rights 2013 Ordnance Survey 100035207

Production date: 07 October 2014

To view map legend click here [Legend](#)



Site Details:

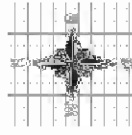
Client Ref: EMS_270724_365112
Report Ref: EMS-270724_365112
Grid Ref: 471561, 105806

Map Name: National Grid

Map date: 1970-1973

Scale: 1:10,000

Printed at: 1:10,000



Surveyed 1973
Revised 1973
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1970
Revised 1970
Edition N/A
Copyright N/A
Unaltered N/A



Produced by
GroundSure
GroundSure Environmental Insight
www.groundsure.com



Supplied by:
www.emapsite.com
sales@emapsite.com

© Crown copyright and database rights 2013 Ordnance Survey 100035207

Production date: 07 October 2014

To view map legend [click here](#) [Legend](#)



Site Details:

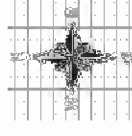
Client Ref: EMS-270724-365112
Report Ref: EMS-270724-365112
Grid Ref: 471561, 105806

Map Name: National Grid

Map date: 1991

Scale: 1:10,000

Printed at: 1:10,000



Surveyed 1989
Revised 1991
Edition N/A
Copyright N/A
Levelled N/A



Produced by
GroundSure GroundSure Environmental Insight
www.groundsure.com

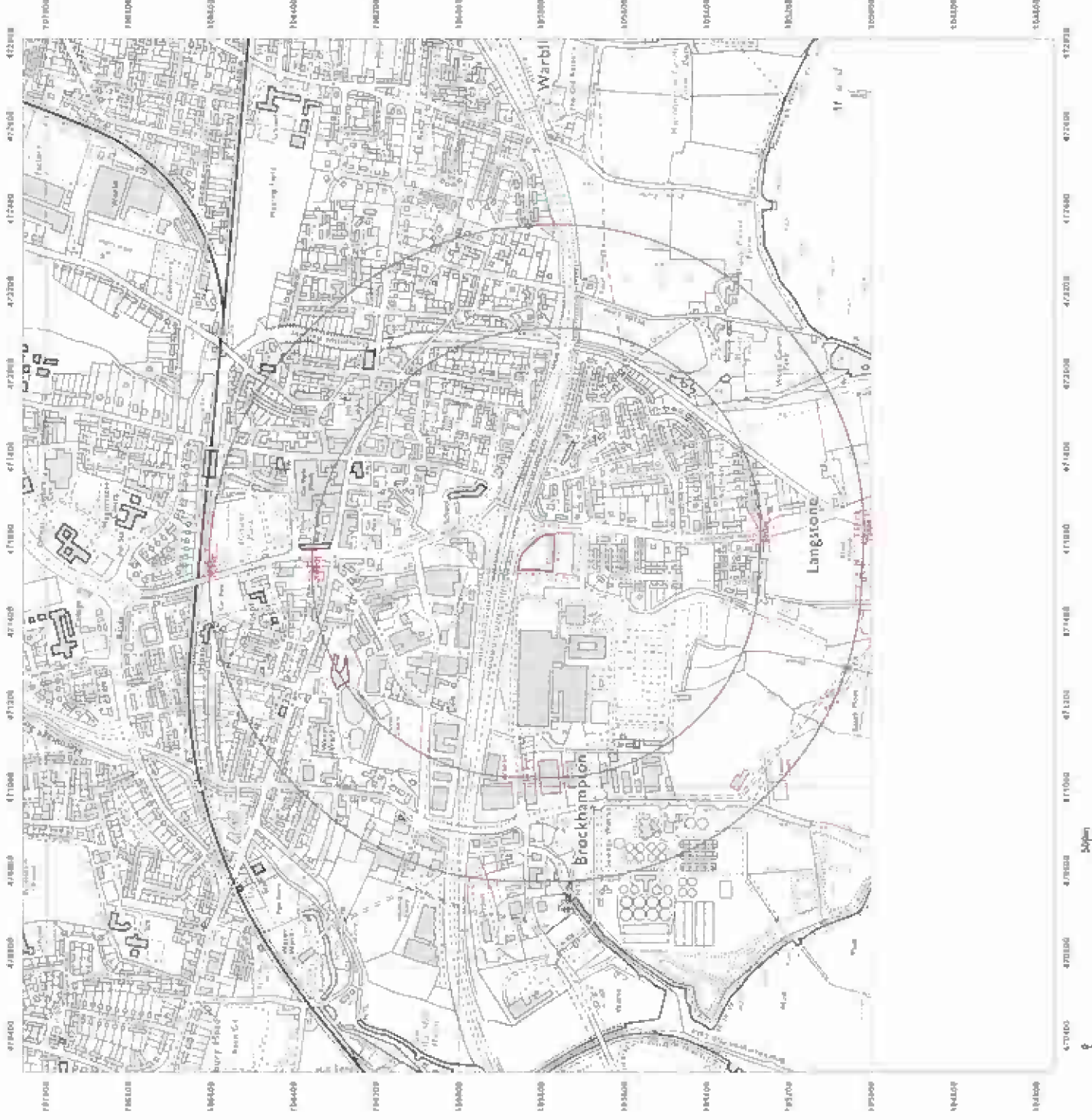


Supplied by:
www.emapsite.com
sales@emapsite.com

© Crown copyright and database rights 2013 Ordnance Survey 100035207

Production date: 07 October 2014

To view map legend click here [Legend](#)



Site Details:

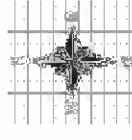
Client Ref: EMS-270724-365112
Report Ref: EMS-270724-365112
Grid Ref: 471561, 105806

Map Name: National Grid

Map date: 2010

Scale: 1:10,000

Printed at: 1:10,000



Produced by
GroundSure
GroundSure Environmental Insight
www.groundsure.com

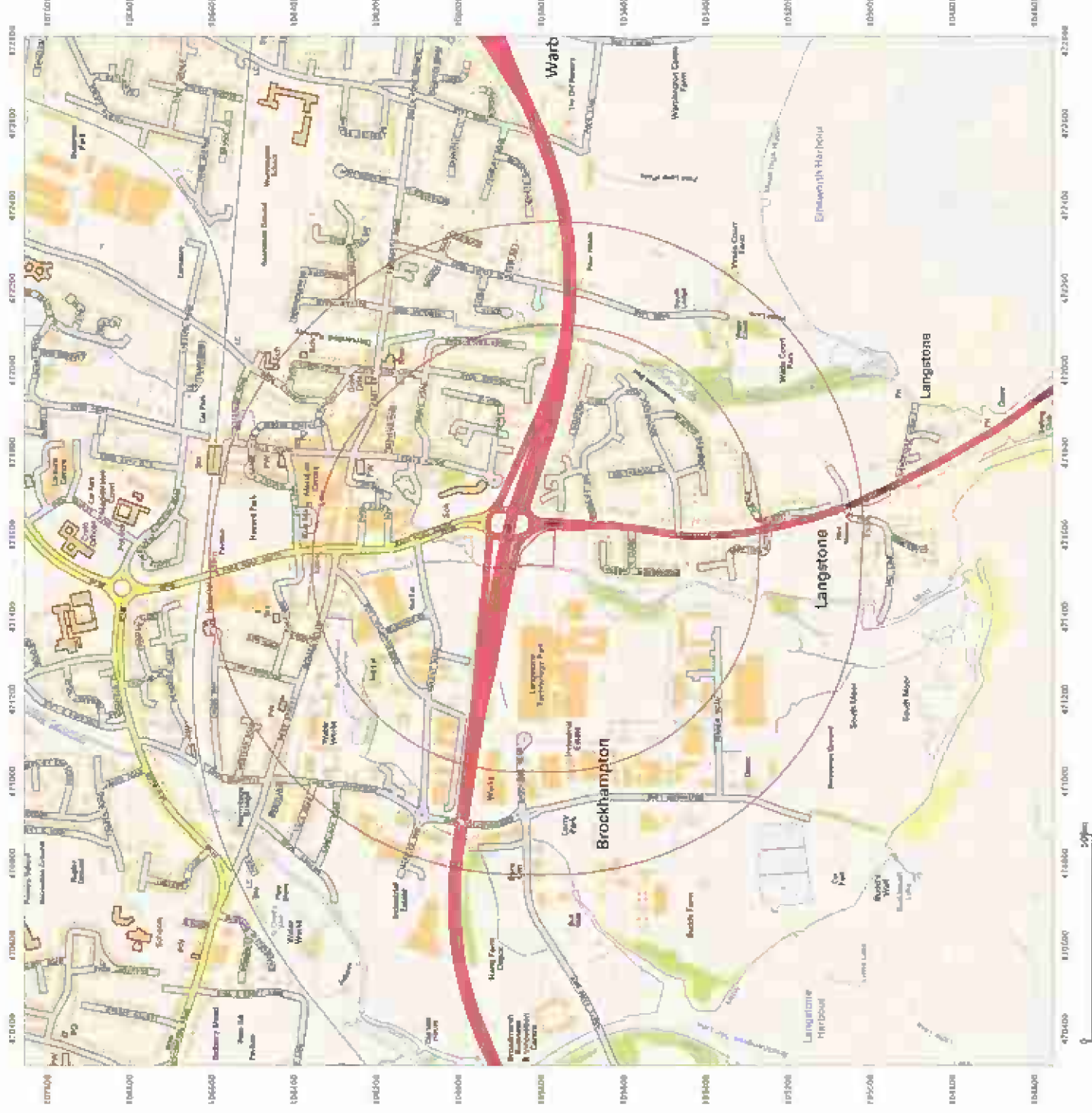


Supplied by:
www.emapsite.com
sales@emapsite.com

© Crown copyright and database rights 2013 Ordnance Survey 100035207

Production date: 07 October 2014

To view map legend click here [Legend](#)



Site Details:

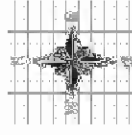
Client Ref: EMS-270724-365112
Report Ref: EMS-270724-365112
Grid Ref: 471561, 105806

Map Name: National Grid

Map date: 2014

Scale: 1:10,000

Printed at: 1:10,000



Produced by
GroundSure
GroundSure Environmental Insight
www.groundsure.com

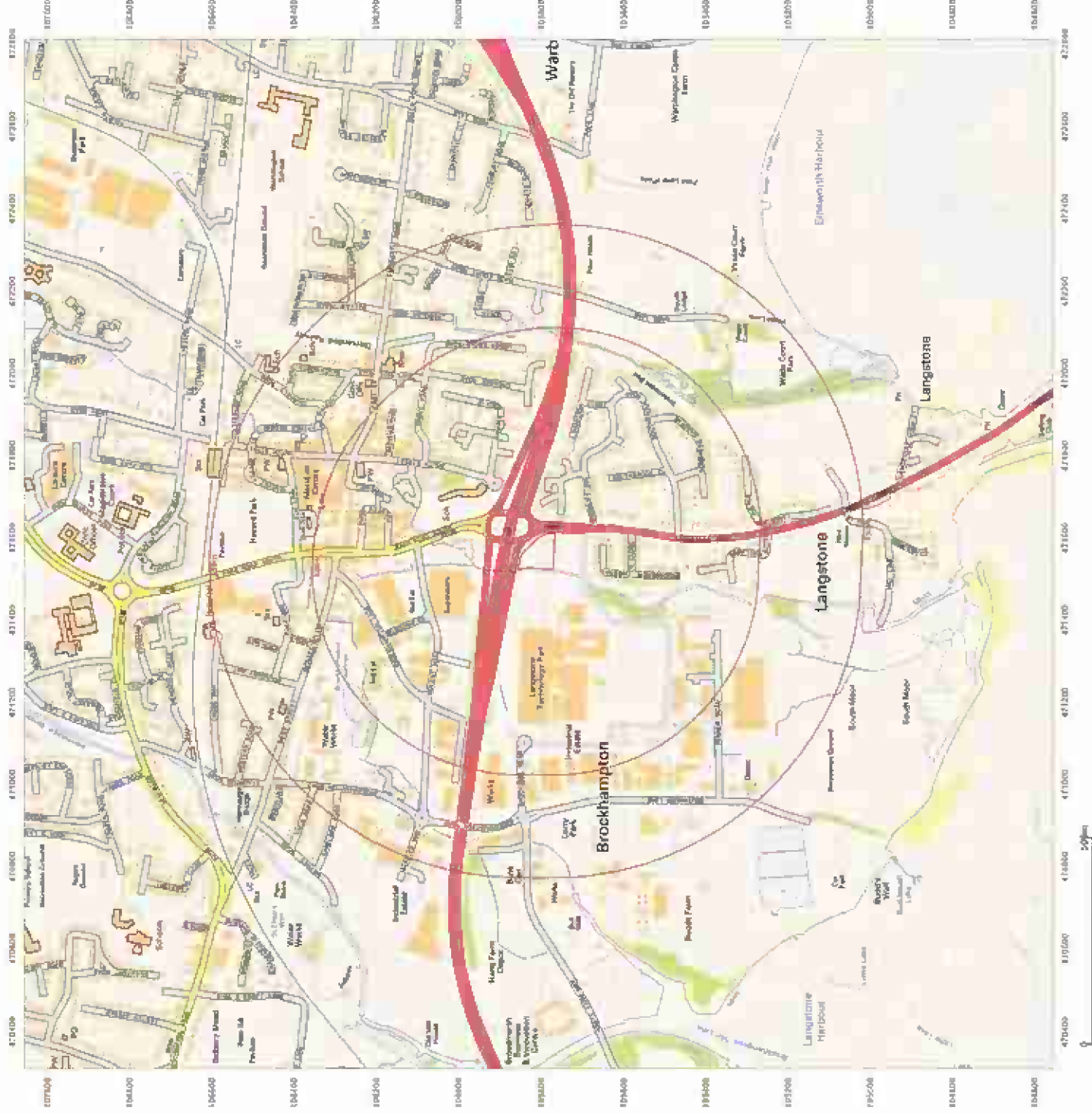


Supplied by:
www.emapsite.com
sales@emapsite.com

© Crown copyright and database rights 2013 Ordnance Survey 100035207

Production date: 07 October 2014

To view map legend click here [Legend](#)





GroundSure GeoInsight

Address: ,
Date: 7 Oct 2014
Reference: EMS-270724_365113
Client: EmapSite



Aerial Photograph Capture date: 03-May-2013
Grid Reference: 471561,105806
Site Size: 0.56ha

Contents Page

Overview of Findings.....	5
1 Geology.....	8
1.1 Artificial Ground Map.....	8
1 Geology.....	9
1.1 Artificial Ground.....	9
1.1.1 Artificial/ Made Ground.....	9
1.1.2 Permeability of Artificial Ground.....	9
1.2 Superficial Deposits and Landslips Map.....	10
1.2 Superficial Deposits and Landslips.....	11
1.2.1 Superficial Deposits/ Drift Geology.....	11
1.2.2 Permeability of Superficial Ground.....	11
1.2.3 Landslip.....	11
1.2.4 Landslip Permeability.....	11
1.3 Bedrock and Faults Map.....	12
1.3 Bedrock, Solid Geology & Faults.....	13
1.3.1 Bedrock/ Solid Geology.....	13
1.3.2 Permeability of Bedrock Ground.....	13
1.3.3 Faults.....	13
1.4 Radon Data.....	14
1.4.1 Radon Affected Areas.....	14
1.4.2 Radon Protection.....	14
2 Ground Workings Map.....	15
2 Ground Workings.....	16
2.1 Historical Surface Ground Working Features derived from Historical Mapping.....	16
2.2 Historical Underground Working Features derived from Historical Mapping.....	17
2.3 Current Ground Workings.....	17
3 Mining, Extraction & Natural Cavities Map.....	18
3 Mining, Extraction & Natural Cavities.....	19
3.1 Historical Mining.....	19
3.2 Coal Mining.....	19
3.3 Johnson Poole and Bloomer.....	19
3.4 Non-Coal Mining.....	19
3.5 Non-Coal Mining Cavities.....	20
3.6 Natural Cavities.....	21
3.7 Brine Extraction.....	21
3.8 Gypsum Extraction.....	21
3.9 Tin Mining.....	21
3.10 Clay Mining.....	21
4 Natural Ground Subsidence.....	22
4.1 Shrink-Swell Clay Map.....	22
4.2 Landslides Map.....	23
4.3 Ground Dissolution Soluble Rocks Map.....	24
4.4 Compressible Deposits Map.....	25
4.5 Collapsible Deposits Map.....	26
4.6 Running Sand Map.....	27
4 Natural Ground Subsidence.....	28
4.1 Shrink-Swell Clays.....	28
4.2 Landslides.....	28
4.3 Ground Dissolution of Soluble Rocks.....	28
4.4 Compressible Deposits.....	29
4.5 Collapsible Deposits.....	29
4.6 Running Sands.....	29
5 Borehole Records Map.....	31
5 Borehole Records.....	32

6 Estimated Background Soil Chemistry.....35

7 Railways and Tunnels Map.....36

7 Railways and Tunnels.....37

 7.1 Tunnels37

 7.2 Historical Railway and Tunnel Features37

 7.3 Historical Railways.....37

 7.4 Active Railways.....38

 7.5 Railway Projects.....38

Overview of Findings

The GroundSure GeoInsight provides high quality geo-environmental information that allows geo-environmental professionals and their clients to make informed decisions and be forewarned of potential ground instability problems that may affect the ground investigation, foundation design and possibly remediation options that could lead to possible additional costs.

The report is based on the BGS 1:50,000 Digital Geological Map of Great Britain, BGS Geosure data; BRITPITS database; Shallow Mining data and Borehole Records, Coal Authority data including brine extraction areas, PBA non-coal mining and natural cavities database, Johnson Poole and Bloomer mining data and GroundSure's unique database including historical surface ground and underground workings.

For further details on each dataset, please refer to each individual section in the report as listed. Where the database has been searched a numerical result will be recorded. Where the database has not been searched '-' will be recorded.

Section 1:Geology

1.1 Artificial Ground	1.1.1 Is there any Artificial Ground/ Made Ground present beneath the study site?	Yes
	1.1.2 Are there any records relating to permeability of artificial ground within the study site* boundary?	Yes
1.2 Superficial Geology and Landslips	1.2.1 Is there any Superficial Ground/Drift Geology present beneath the study site?	Yes
	1.2.2 Are there any records relating to permeability of superficial geology within the study site boundary?	Yes
	1.2.3 Are there any records of landslip within 500m of the study site boundary?	No
	1.2.4 Are there any records relating to permeability of landslips within the study site boundary?	No
1.3 Bedrock, Solid Geology & Faults	1.3.1 For records of Bedrock and Solid Geology beneath the study site* see the detailed findings section.	
	1.3.2 Are there any records relating to permeability of bedrock within the study site boundary?	Yes
	1.3.3 Are there any records of faults within 500m of the study site boundary?	Yes
1.4 Radon data	1.4.1 Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level?	The property is in a Radon Affected Area, as between 3 and 5% of properties are above the Action Level
	1.4.2 Is the property in an area where Radon Protection Measures are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment?	Basic radon protective measures are necessary

Section 2:Ground Workings	On-site	0-50m	51-250	251-500	501-1000
2.1 Historical Surface Ground Working Features from Small Scale Mapping	0	1	21	Not Searched	Not Searched
2.2 Historical Underground Workings from Small Scale Mapping	0	0	0	0	0
2.3 Current Ground Workings	0	0	0	0	2

Section 3:Mining, Extraction & Natural Cavities	On-site	0-50m	51-250	251-500	501-1000
3.1 Historical Mining	0	0	0	0	0

Section 3: Mining, Extraction & Natural Cavities	On-site	0-50m	51-250	251-500	501-1000
3.2 Coal Mining	0	0	0	0	0
3.3 Johnson Poole and Bloomer Mining Area	0	0	0	0	0
3.4 Non-Coal Mining	1	0	4	8	18
3.5 Non-Coal Mining Cavities	0	0	0	0	0
3.6 Natural Cavities	0	0	0	0	0
3.7 Brine Extraction	0	0	0	0	0
3.8 Gypsum Extraction	0	0	0	0	0
3.9 Tin Mining	0	0	0	0	0
3.10 Clay Mining	0	0	0	0	0

Section 4: Natural Ground Subsidence	On-site
4.1 Shrink Swell Clay	Low
4.2 Landslides	Very Low
4.3 Ground Dissolution of Soluble Rocks	Very Low
4.4 Compressible Deposits	Moderate
4.5 Collapsible Deposits	Low
4.6 Running Sand	Low

Section 5: Borehole Records	On-site	0-50m	51-250
5 BGS Recorded Boreholes	0	8	24

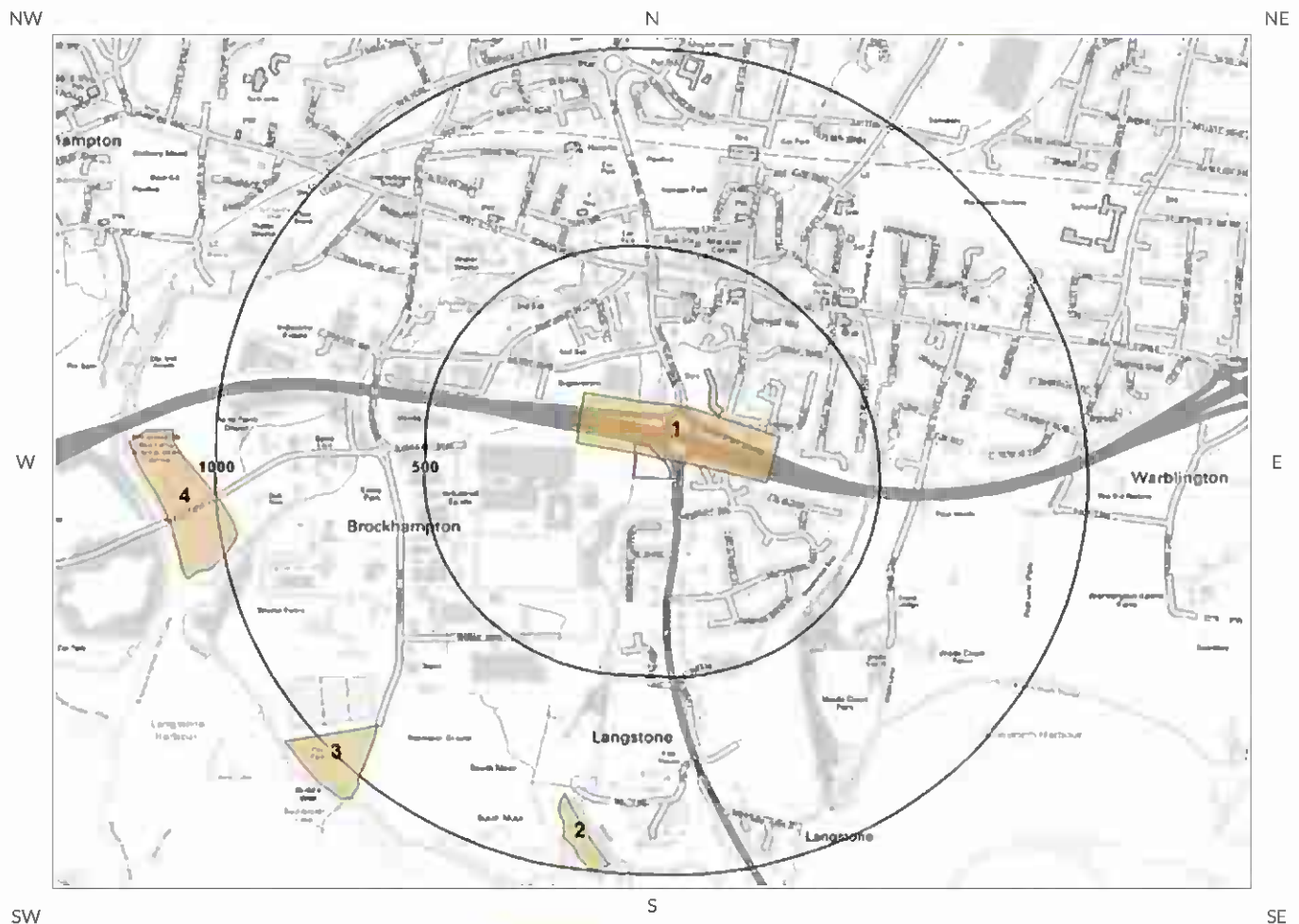
Section 6: Estimated Background Soil Chemistry	On-site	0-50m	51-250
6 Records of Background Soil Chemistry	2	0	5

Section 7: Railways and Tunnels	On-site	0-50m	51-250	251-500
7.1 Tunnels	0	0	0	Not Searched
7.2 Historical Railway and Tunnel Features	0	0	0	Not Searched
7.3 Historical Railways	0	0	0	Not Searched
7.4 Active Railways	0	0	0	Not Searched

Section 7:Railways and Tunnels	On-site	0-50m	51-250	251-500
7.5 Railway Projects	0	0	0	0

1 Geology

1.1 Artificial Ground Map

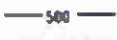


Artificial Ground Legend

Mapping
sourced from

Ordnance
Survey

© Crown copyright and database rights 2013.
Ordnance Survey license 100035207.

	Site Outline		Made Ground (undivided)		Disturbed Ground (undivided)
	Search Buffers (m)		Worked Ground (undivided)		Landscaped Ground (undivided)
			Infilled Ground		Reclaimed Ground



1 Geology

1.1 Artificial Ground

1.1.1 Artificial/ Made Ground

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No:316

Are there any records of Artificial/Made Ground within 500m of the study site boundary? Yes

ID	Distance (m)	Direction	LEX Code	Description	Rock Description
1	0.0	On Site	MGR-MGRD	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT

1.1.2 Permeability of Artificial Ground

Are there any records relating to permeability of artificial ground within the study site boundary? Yes

Distance (m)	Direction	Flow Type	Maximum Permeability	Minimum Permeability
0.0	On Site	Intergranular	Very High	Very Low

1.2 Superficial Deposits and Landslips Map



Superficial Deposits and Landslips
Legend

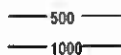
Mapping
sourced from

Ordnance
Survey

© Crown copyright and database rights 2013.
Ordnance Survey license 100035207.



Site Outline



Search Buffers (m)

1.2 Superficial Deposits and Landslips

1.2.1 Superficial Deposits/ Drift Geology

Are there any records of Superficial Deposits/ Drift Geology within 500m of the study site boundary? **Yes**

ID	Distance (m)	Direction	LEX Code	Description	Rock Description
1	0.0	On Site	RTDU-SSCL	RIVER TERRACE DEPOSITS (UNDIFFERENTIATED)	SAND, SILT AND CLAY
2	0.0	On Site	ALV-CSSG	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL
3	52.0	N	HEAD-CLGR	HEAD	CLAYEY GRAVEL
4	252.0	NW	RTDU-SSCL	RIVER TERRACE DEPOSITS (UNDIFFERENTIATED)	SAND, SILT AND CLAY
5	350.0	SW	HEAD-CLGR	HEAD	CLAYEY GRAVEL
6	390.0	SE	ALV-CSSG	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL
7	432.0	NW	ALV-CSSG	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL

1.2.2 Permeability of Superficial Ground

Are there any records relating to permeability of superficial ground within the study site boundary? **Yes**

Distance (m)	Direction	Flow Type	Maximum Permeability	Minimum Permeability
0.0	On Site	Intergranular	High	Very Low
0.0	On Site	Intergranular	High	Low

1.2.3 Landslip

Are there any records of Landslip within 500m of the study site boundary? **No**

Database searched and no data found.

This Geology shows the main components as discrete layers, these are: Artificial / Made Ground, Superficial / Drift Geology and Landslips. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

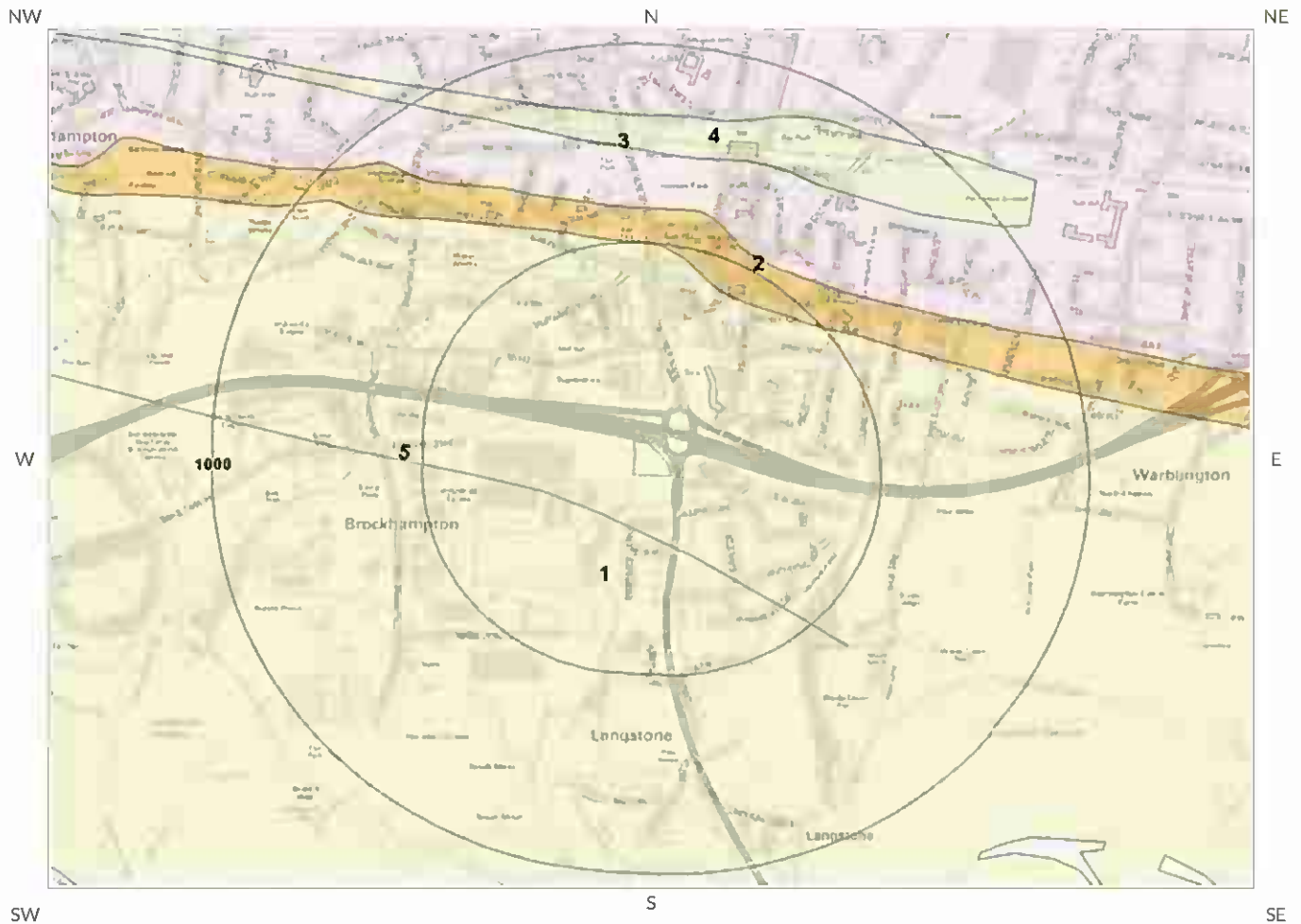
1.2.4 Landslip Permeability

Are there any records relating to permeability of landslips within the study site* boundary? **No**

Database searched and no data found.

* This includes an automatically generated 50m buffer zone around the site

1.3 Bedrock and Faults Map



Bedrock and Faults Legend

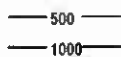
Mapping
sourced from

Ordnance
Survey

© Crown copyright and database rights 2013.
Ordnance Survey license 100035207.



Site Outline



Search Buffers (m)

1.3 Bedrock, Solid Geology & Faults

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No:316

1.3.1 Bedrock/ Solid Geology

Records of Bedrock/ Solid Geology within 500m of the study site boundary:

ID	Distance (m)	Direction	LEX Code	Description	Rock Age
1	0.0	On Site	LPCK-CHLK	Lewes Nodular Chalk Formation, Seaford Chalk Formation, Newhaven Chalk Formation, Culver Chalk Formation And Portsdown C	Campanian / Turonian
2	419.0	NE	LMBE-CLSS	Lambeth Group - Clay, Silt And Sand	Paleocene

1.3.2 Permeability of Bedrock Ground

Are there any records relating to permeability of bedrock ground within the study site boundary? Yes

Distance (m)	Direction	Flow Type	Maximum Permeability	Minimum Permeability
0.0	On Site	Fracture	Very High	Very High

1.3.3 Faults

Are there any records of Faults within 500m of the study site boundary? Yes

ID	Distance (m)	Direction	Category Description	Feature Description
5	121.0	SW	FOLD_AXIS	Axial plane trace of major anticline

The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of Great Britain at 1:50,000 scale.

This Geology shows the main components as discrete layers, these are: Bedrock/ Solid Geology and linear features such as Faults. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

* This includes an automatically generated 50m buffer zone around the site

1.4 Radon Data

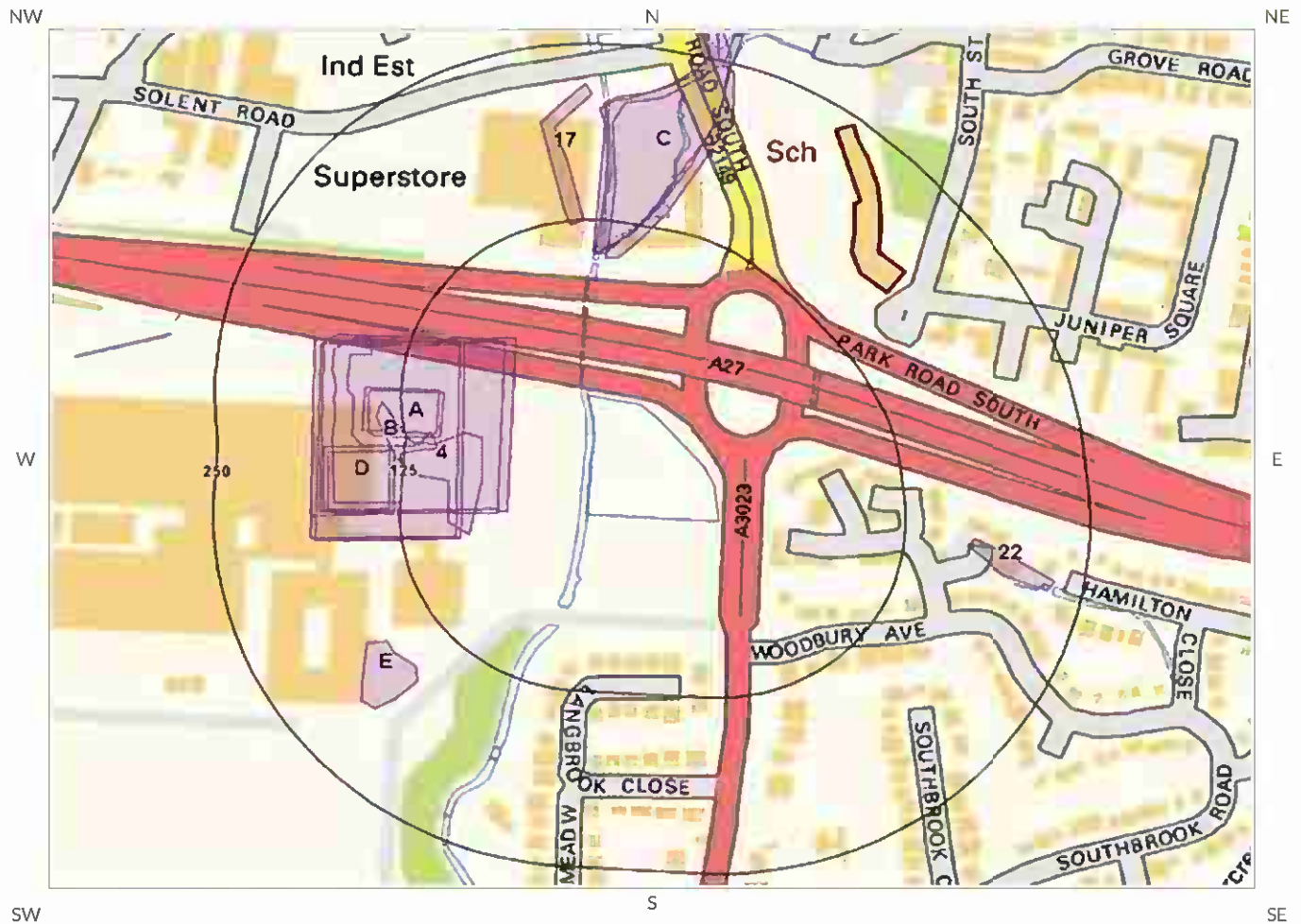
1.4.1 Radon Affected Areas

Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level? The property is in a Radon Affected Area, as between 3 and 5% of properties are above the Action Level

1.4.2 Radon Protection

Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment? Basic radon protective measures are necessary

2 Ground Workings Map



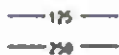
Ground Workings Legend



© Crown copyright and database rights 2013.
Ordnance Survey license 100035207.



Site Outline



Search Buffers (m)



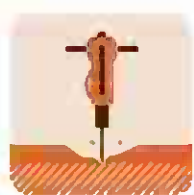
Historic Surface Ground Workings



Historic Underground Workings



Current Ground Workings



2 Ground Workings

2.1 Historical Surface Ground Working Features derived from Historical Mapping

This dataset is based on GroundSure's unique Historical Land Use Database derived from 1:10,560 and 1:10,000 scale historical mapping.

Are there any Historical Surface Ground Working Features within 250m of the study site boundary? **Yes**

The following Historical Surface Ground Working Features are provided by GroundSure:

ID	Distance (m)	Direction	NGR	Use	Date
1A	50.0	W	471409 105838	Sewage Works	1932
2A	57.0	W	471402 105835	Sewage Works	1931
3A	57.0	W	471402 105835	Sewage Works	1942
4	72.0	W	471417 105806	Unspecified Ground Workings	1973
5B	83.0	W	471391 105824	Sewage Works	1914
6B	86.0	W	471387 105827	Sewage Works	1907
7A	97.0	W	471401 105845	Ponds	1914
8C	98.0	N	471578 106023	Water Body	1896
9A	100.0	W	471398 105847	Filter Beds	1907
10C	101.0	N	471573 106048	Water Body	1942
11C	101.0	N	471573 106048	Water Body	1931
12C	101.0	N	471573 106048	Water Body	1907
13C	101.0	N	471573 106027	Water Body	1932
14C	101.0	N	471573 106027	Water Body	1896
15C	101.0	N	471573 106027	Water Body	1914
16	103.0	W	471360 105840	Ponds	1932
17	122.0	N	471506 106015	Ponds	1957
18D	129.0	W	471371 105796	Pond	1914
19D	132.0	W	471368 105799	Pond	1907
20E	157.0	SW	471390 105659	Unspecified Heap	1991
21E	157.0	SW	471390 105659	Unspecified Heap	1973

ID	Distance (m)	Direction	NGR	Use	Date
22	167.0	E	471807 105737	Pond	1991

2.2 Historical Underground Working Features derived from Historical Mapping

This data is derived from the GroundSure unique Historical Land Use Database. It contains data derived from 1:10,000 and 1:10,560 historical Ordnance Survey Mapping and includes some natural topographical features (Shake Holes for example) as well as manmade features that may have implications for ground stability. Underground and mining features have been identified from surface features such as shafts. The distance that these extend underground is not shown.

Are there any Historical Underground Working Features within 1000m of the study site boundary? No

Database searched and no data found.

2.3 Current Ground Workings

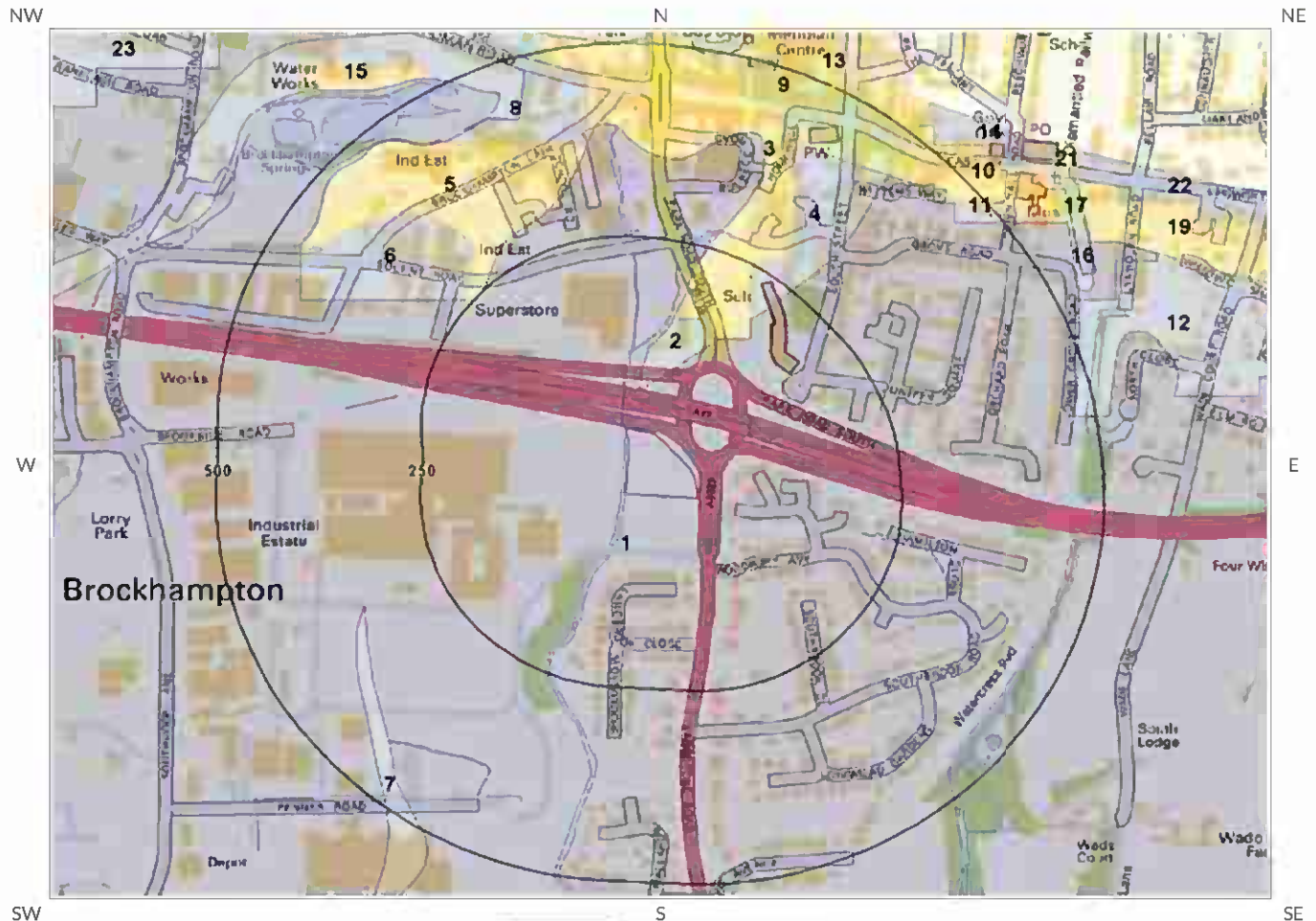
This dataset is derived from the BGS BRITPITS database covering active; inactive mines; quarries; oil wells; gas wells and mineral wharves; and rail deposits throughout the British Isles.

Are there any BGS Current Ground Workings within 1000m of the study site boundary? Yes

The following Current Ground Workings information is provided by British Geological Survey:

ID	Distance (m)	Direction	NGR	Commodity Produced	Pit Name	Type of working	Status
Not shown	900.0	N	471293 106727	Clay & Shale	Havant Park Brick Field	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	993.0	NE	472198 106610	Sand & Gravel	Havant Park Gravel Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased

3 Mining, Extraction & Natural Cavities Map



Mining, Extraction and
Natural Cavities Legend

Mapping
sourced from

Ordnance
Survey

© Crown copyright and database rights 2013.
Ordnance Survey license 100035207.

Site Outline
Search Buffers (m)
250
500

Historical Mining
Non-Coal Mining Cavities
Natural Cavities

Non-Coal Mining

Highly likely
Likely
Unlikely
Highly unlikely
Rare



3 Mining, Extraction & Natural Cavities

3.1 Historical Mining

This dataset is derived from GroundSure unique Historical Land-use Database that are indicative of mining or extraction activities.

Are there any Historical Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

3.2 Coal Mining

This dataset provides information as to whether the study site lies within a known coal mining affected area as defined by the coal authority.

Are there any Coal Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

3.3 Johnson Poole and Bloomer

This dataset provides information as to whether the study site lies within an area where JPB hold information relating to mining.

Are there any JPB Mining areas within 1000m of the study site boundary? No

The following information provided by JPB is not represented on mapping: Database searched and no data found.

3.4 Non-Coal Mining

This dataset provides information as to whether the study site lies within an area which may have been subject to non-coal historic mining.

Are there any Non-Coal Mining areas within 1000m of the study site boundary? Yes

The following non-coal mining information is provided by the BGS:

ID	Distance (m)	Direction	Name	Commodity	Assessment of likelihood
1	0.0	On Site	Not available	Chalk	Occasional minor mining may have occurred but of restricted extent.
2	52.0	N	Not available	Chalk	Rare and localised small scale mining may have occurred.
3	141.0	NE	Not available	Chalk	Small scale mining may have occurred but restricted in extent.
4	190.0	NE	Not available	Chalk	Rare and localised small scale mining may have occurred.
5	248.0	NW	Not available	Chalk	Small scale mining may have occurred but restricted in extent.
6	260.0	NW	Not available	Chalk	Rare and localised small scale mining may have occurred.

ID	Distance (m)	Direction	Name	Commodity	Assessment of likelihood
7	350.0	SW	Not available	Chalk	Rare and localised small scale mining may have occurred.
8	371.0	N	Not available	Chalk	Rare and localised small scale mining may have occurred.
9	419.0	NE	Not available	Chalk	Underground mining is known or considered likely to have occurred within or close to the area. The location extent and nature of past mining should be considered in any site investigation. Potential for difficult ground conditions should be considered.
10	441.0	NE	Not available	Chalk	Small scale mining may have occurred but restricted in extent.
11	452.0	NE	Not available	Chalk	Rare and localised small scale mining may have occurred.
12	474.0	E	Not available	Chalk	Rare and localised small scale mining may have occurred.
13	494.0	NE	Not available	Chalk	Small scale mining may have occurred but restricted in extent.
14	506.0	NE	Not available	Chalk	Rare and localised small scale mining may have occurred.
15	517.0	NW	Not available	Chalk	Small scale mining may have occurred but restricted in extent.
16	531.0	NE	Not available	Chalk	Rare and localised small scale mining may have occurred.
17	557.0	NE	Not available	Chalk	Underground mining is known or considered likely to have occurred within or close to the area. The location extent and nature of past mining should be considered in any site investigation. Potential for difficult ground conditions should be considered.
Not shown	558.0	N	Not available	Chalk	Small scale mining may have occurred but restricted in extent.
19	573.0	NE	Not available	Chalk	Small scale mining may have occurred but restricted in extent.
Not shown	578.0	N	Not available	Chalk	Rare and localised small scale mining may have occurred.
21	586.0	NE	Not available	Chalk	Small scale mining may have occurred but restricted in extent.
22	604.0	NE	Not available	Chalk	Rare and localised small scale mining may have occurred.
23	625.0	NW	Not available	Chalk	Rare and localised small scale mining may have occurred.
Not shown	768.0	S	Not available	Chalk	Occasional minor mining may have occurred but of restricted extent.
Not shown	801.0	NW	Not available	Chalk	Underground mining is known or considered likely to have occurred within or close to the area. The location extent and nature of past mining should be considered in any site investigation. Potential for difficult ground conditions should be considered.
Not shown	805.0	NW	Not available	Chalk	Small scale mining may have occurred but restricted in extent.
27	807.0	NW	Not available	Chalk	Small scale mining may have occurred but restricted in extent.
Not shown	941.0	NW	Not available	Chalk	Small scale mining may have occurred but restricted in extent.
Not shown	965.0	NW	Not available	Chalk	Underground mining is known or considered likely to have occurred within or close to the area. The location extent and nature of past mining should be considered in any site investigation. Potential for difficult ground conditions should be considered.
Not shown	971.0	NW	Not available	Chalk	Rare and localised small scale mining may have occurred.
Not shown	972.0	NW	Not available	Chalk	Small scale mining may have occurred but restricted in extent.

3.5 Non-Coal Mining Cavities

This dataset provides information from the Peter Brett Associates (PBA) mining cavities database (compiled for the national study entitled "Review of mining instability in Great Britain, 1990" PBA has also continued adding to this database) on mineral extraction by mining.

Are there any Non-Coal Mining cavities within 1000m of the study site boundary?

No

Database searched and no data found.

3.6 Natural Cavities

This dataset provides information based on Peter Brett Associates natural cavities database.

Are there any Natural Cavities within 1000m of the study site boundary? No

Database searched and no data found.

3.7 Brine Extraction

This data provides information from the Coal Authority issued on behalf of the Cheshire Brine Subsidence Compensation Board.

Are there any Brine Extraction areas within 1000m of the study site boundary? No

Database searched and no data found.

3.8 Gypsum Extraction

This dataset provides information on Gypsum extraction from British Gypsum records.

Are there any Gypsum Extraction areas within 1000m of the study site boundary? No

Database searched and no data found.

3.9 Tin Mining

This dataset provides information on tin mining areas and is derived from tin mining records. This search is based upon postcode information to a sector level.

Are there any Tin Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

3.10 Clay Mining

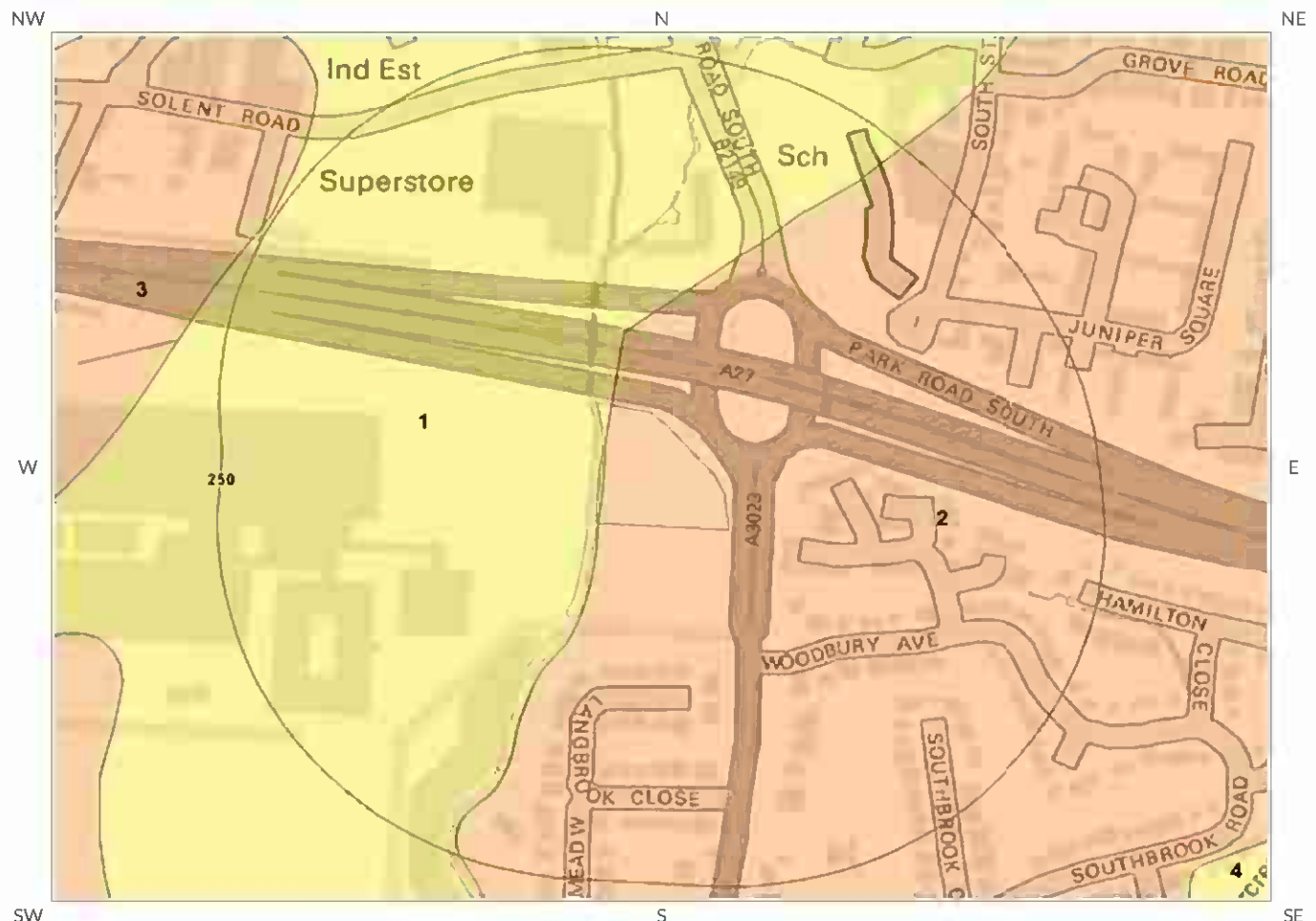
This dataset provides information on Kaolin and Ball Clay mining from relevant mining records.

Are there any Clay Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

4 Natural Ground Subsidence

4.1 Shrink-Swell Clay Map



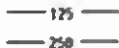
Shrink Swell Clay Legend

Mapping
sourced from

Ordnance
Survey

© Crown copyright and database rights 2013.
Ordnance Survey license 100035207.

 Site Outline

 Search Buffers (m)

 No Data / Null

 Negligible

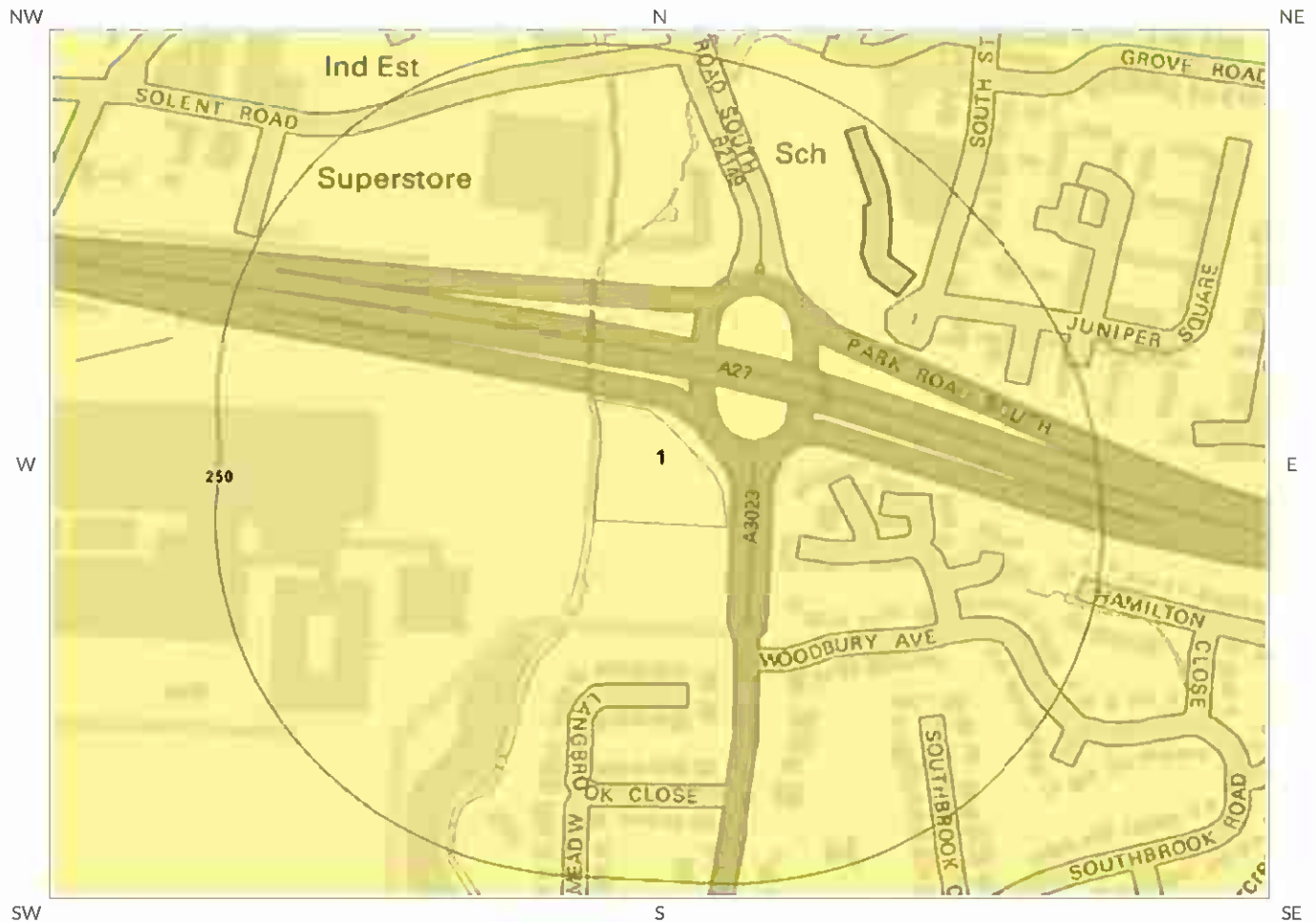
 Very Low

 Low

 Moderate

 High

4.2 Landslides Map



Landslides Legend

Mapping
sourced from

Ordnance
Survey

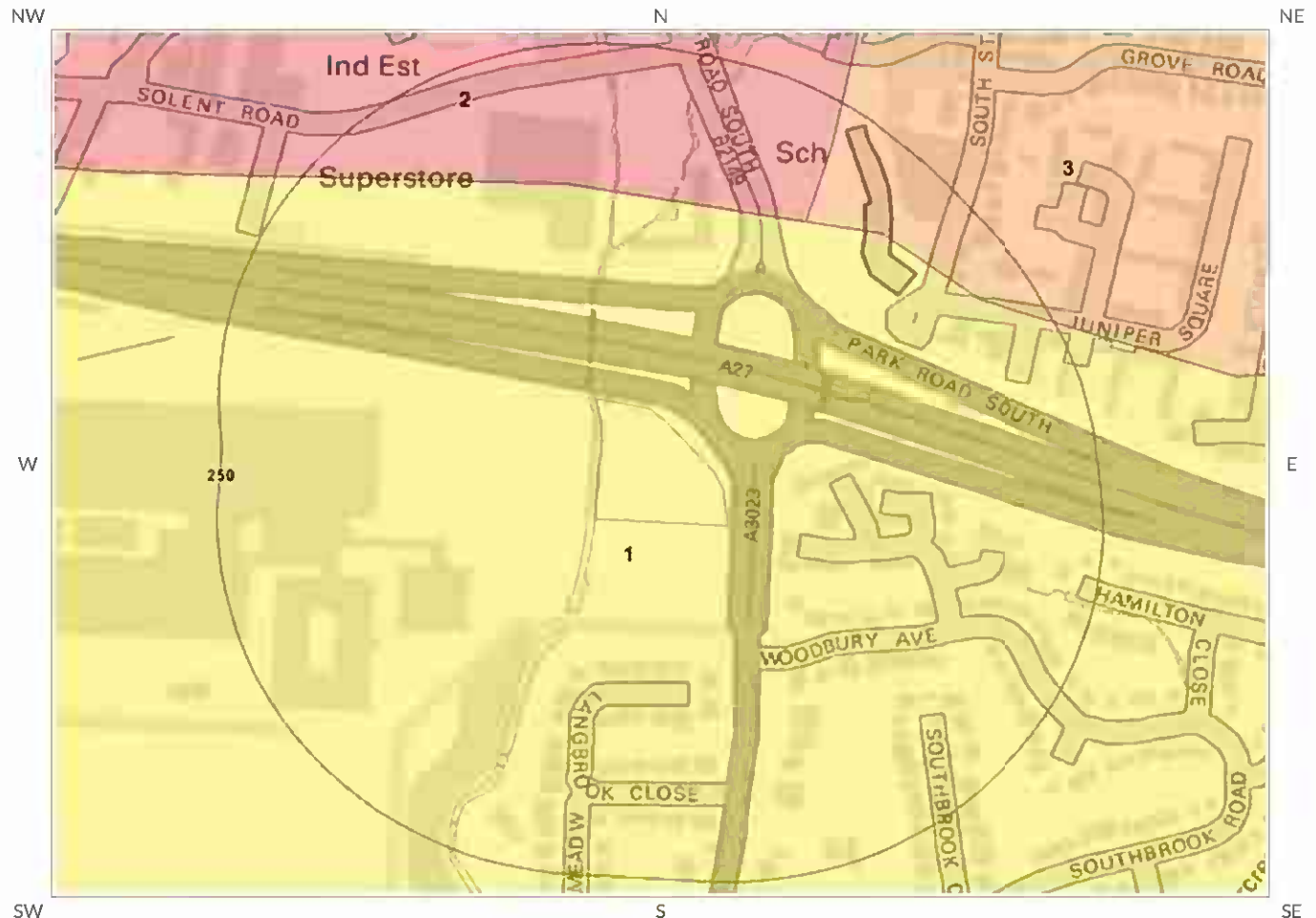
© Crown copyright and database rights 2013.
Ordnance Survey license 100035207.

Site Outline
Search Buffers (m)
175
250

No Data / Null
Negligible
Very Low

Low
Moderate
High

4.3 Ground Dissolution Soluble Rocks Map



Ground Dissolution
Soluble Rocks Legend

Mapping
sourced from

Ordnance
Survey

© Crown copyright and database rights 2013.
Ordnance Survey license 100035207.

Site Outline
Search Buffers (m)
175
250

No Data / Null
Negligible
Very Low

Low
Moderate
High

4.4 Compressible Deposits Map



Compressible Deposits Legend

Mapping
sourced from

Ordnance
Survey

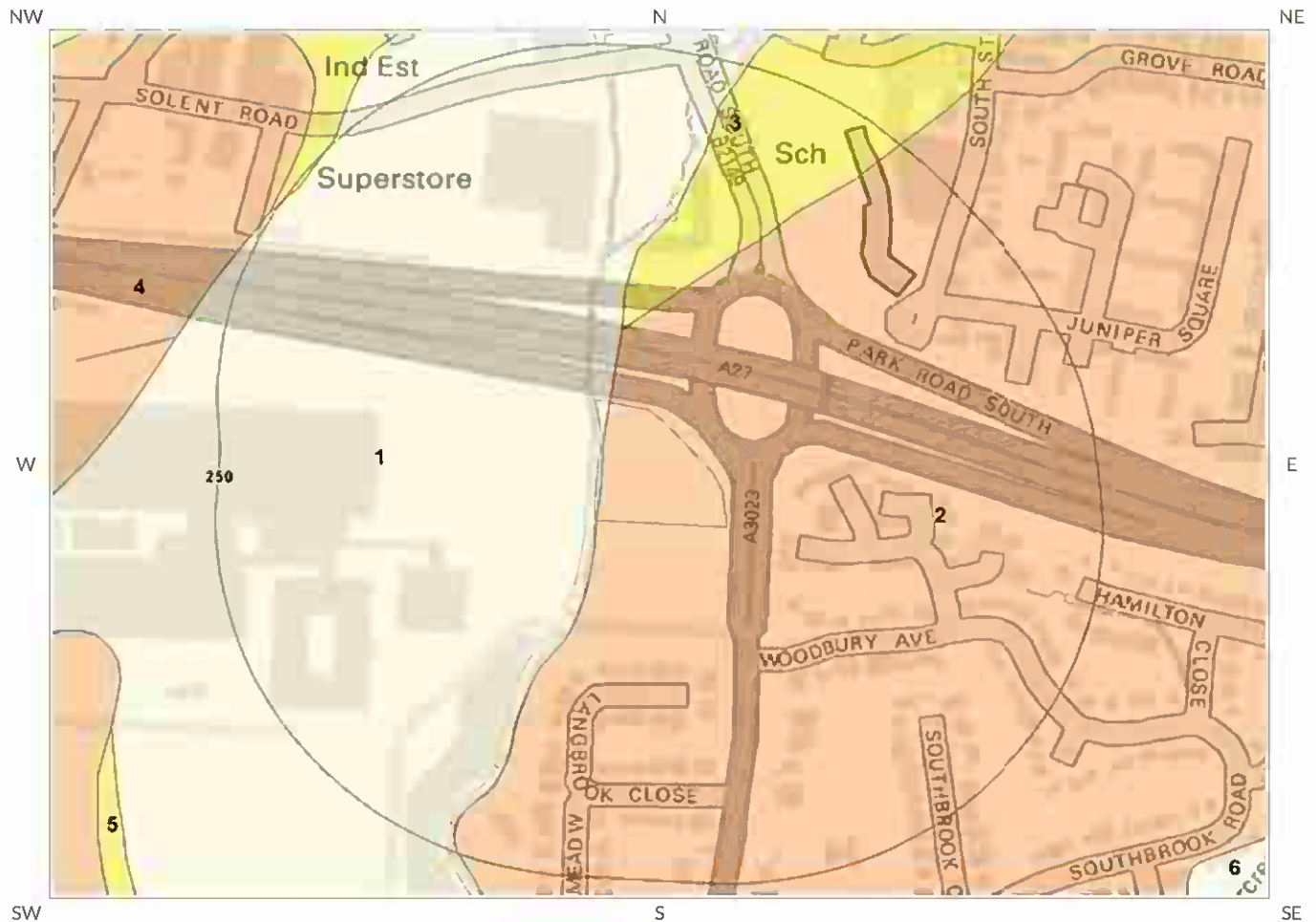
© Crown copyright and database rights 2013.
Ordnance Survey license 100035207.

Site Outline
Search Buffers (m)
175
250

No Data / Null
Negligible
Very Low

Low
Moderate
High

4.5 Collapsible Deposits Map



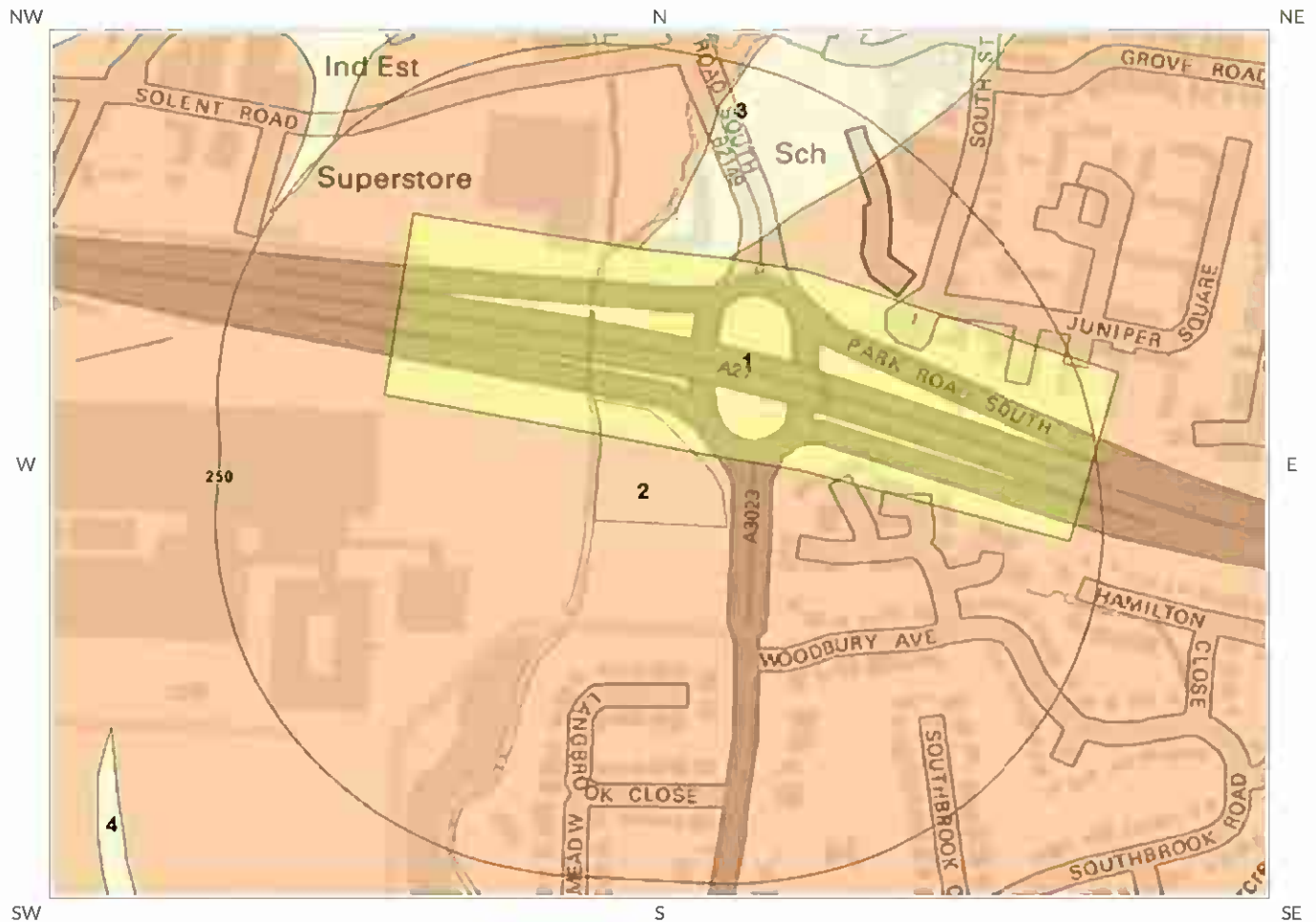
Collapsible Deposits Legend



© Crown copyright and database rights 2013.
Ordnance Survey license 100035207.



4.6 Running Sand Map



Running Sand Legend

Mapping
sourced from

Ordnance
Survey

© Crown copyright and database rights 2013.
Ordnance Survey license 100035207.

Site Outline
Search Buffers (m)
175
250

No Data / Null
Negligible
Very Low

Low
Moderate
High



4 Natural Ground Subsidence

The National Ground Subsidence rating is obtained through the 6 natural ground stability hazard datasets, which are supplied by the British Geological Survey (BGS).

The following GeoSure data represented on the mapping is derived from the BGS Digital Geological map of Great Britain at 1:50,000 scale.

What is the maximum hazard rating of natural subsidence within the study site** boundary? **Moderate**

4.1 Shrink-Swell Clays

The following Shrink Swell information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Ground conditions predominantly low plasticity. No special actions required to avoid problems due to shrink-swell clays. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with shrink-swell clays.
2	0.0	On Site	Low	Ground conditions predominantly medium plasticity. Do not plant trees with high soil moisture demands near to buildings. For new build, consideration should be given to advice published by the National House Building Council (NHBC) and the Building Research Establishment (BRE). There is a possible increase in construction cost to reduce potential shrink-swell problems. For existing property, there is a possible increase in insurance risk, especially during droughts or where vegetation with high moisture demands is present.

4.2 Landslides

The following Landslides information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Slope instability problems are unlikely to be present. No special actions required to avoid problems due to landslides. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with landslides.

4.3 Ground Dissolution of Soluble Rocks

The following Ground Dissolution information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Significant soluble rocks are present. Problems unlikely except with considerable surface or subsurface water flow. No special actions required to avoid problems due to soluble rocks. No special ground investigation required or increased construction costs are likely. An increase in financial risk due to potential problems with soluble rocks is unlikely.

* This includes an automatically generated 50m buffer zone around the site

4.4 Compressible Deposits

The following Compressible Deposits information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	No indicators for compressible deposits identified. No special actions required to avoid problems due to compressible deposits. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with compressible deposits.
2	0.0	On Site	Very Low	Very low potential for compressible deposits to be present. No special actions required to avoid problems due to compressible deposits. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with compressible deposits.
3	0.0	On Site	Moderate	Significant potential for compressibility problems. Avoid large differential loadings of ground. Do not drain or de-water ground near the property without technical advice. For new build - consider possibility of compressible ground in ground investigation, construction and building design. Consider effects of groundwater changes. Extra construction costs are likely. For existing property - possible increase in insurance risk from compressibility, especially if water conditions or loading of the ground change significantly.

4.5 Collapsible Deposits

The following Collapsible Rocks information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	No indicators for collapsible deposits identified. No actions required to avoid problems due to collapsible deposits. No special ground investigation required, or increased construction costs or increased financial risk due to potential problems with collapsible deposits.
2	0.0	On Site	Low	Slight possibility for collapsible deposit problems after major changes in loading or groundwater conditions. Normal maintenance to avoid large amounts of water entering the ground through pipe leakage or soak-aways should reduce the likelihood of problems due to collapsible deposits. For new build, assess the possibility of collapsible (loessic) deposits in ground investigation. For existing property, no significant increase in insurance risk from collapsible deposits is likely.

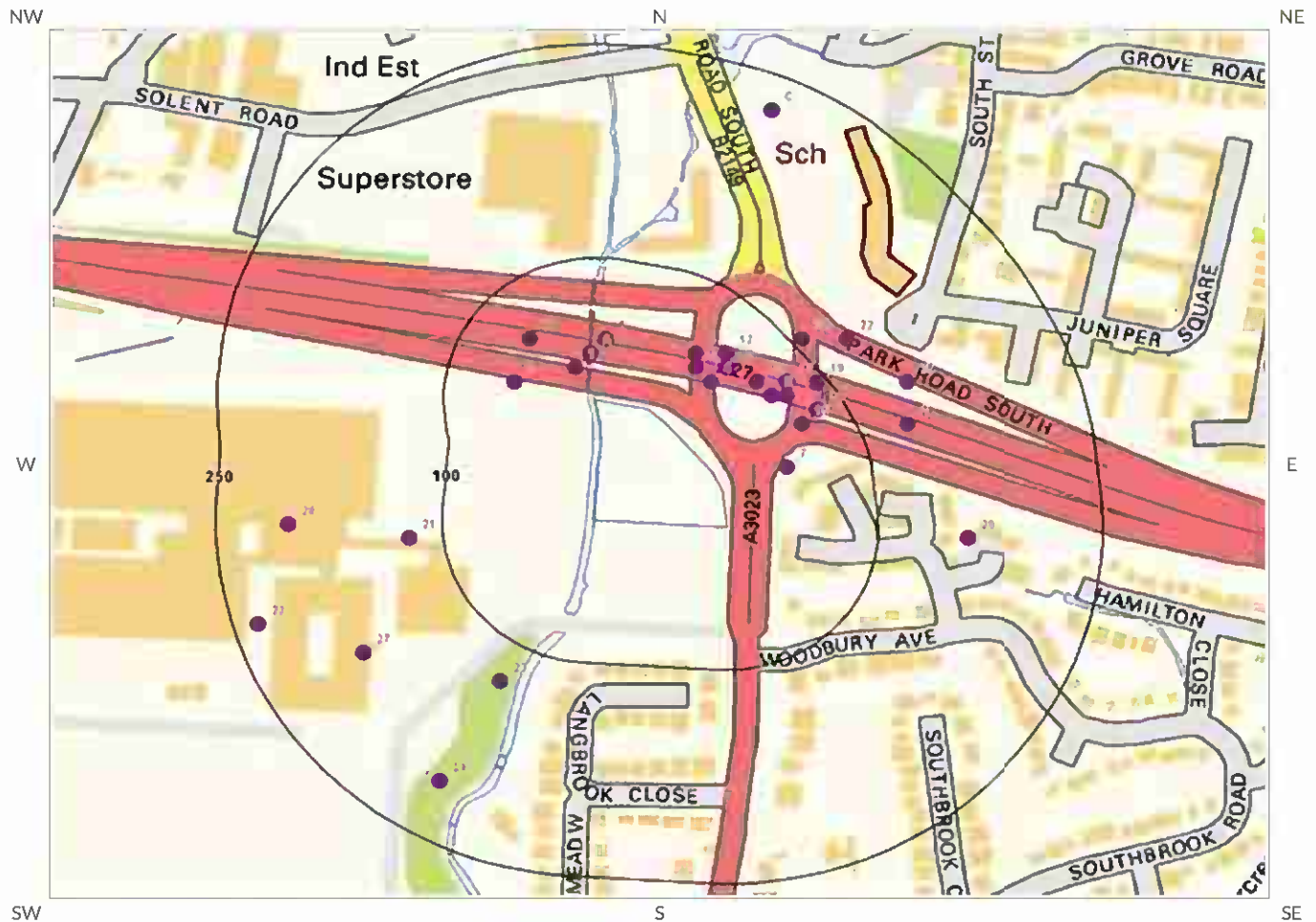
4.6 Running Sands

The following Running Sands information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Very low potential for running sand problems if water table rises or if sandy strata are exposed to water. No special actions required, to avoid problems due to running sand. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with running sand.

ID	Distance (m)	Direction	Hazard Rating	Details
2	0.0	On Site	Low	Possibility of running sand problems after major changes in ground conditions. Normal maintenance to avoid leakage of water-bearing services or water bodies (ponds, swimming pools) should reduce likelihood of problems due to running sand. For new build - consider possibility of running sand into trenches or excavations if water table is high or sandy strata are exposed to water. Avoid concentrated water inputs to site. Unlikely to be an increase in construction costs due to potential for running sand. For existing property - no significant increase in insurance risk due to running sand problems is likely.

5 Borehole Records Map



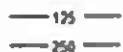
Borehole Records Legend



© Crown copyright and database rights 2013.
Ordnance Survey license 100035207.



Site Outline



Search Buffers (m)



Borehole Locations



5 Borehole Records

The systematic analysis of data extracted from the BGS Borehole Records database provides the following information.

Records of boreholes within 250m of the study site boundary:

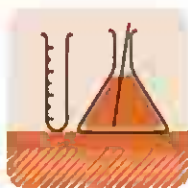
32

ID	Distance (m)	Direction	NGR	BGS Reference	Drilled Length	Borehole Name
1	26.0	NW	471510 105880	SU70NW385	-1.0	A27 LANGSTONE ROUNDAABOUT IMPROVEMENTS 1
2A	33.0	N	471520 105890	SU70NW258	9.14	HAVANT BY-PASS NO 9
3A	33.0	N	471520 105890	SU70NW253	9.14	HAVANT BY-PASS NO 8
4	42.0	NE	471600 105870	SU70NW283	16.5	A27 HAVANT BY-PASS 174
5	43.0	NE	471590 105880	SU70NW281	20.0	A27 HAVANT BY-PASS 172
6	43.0	N	471530 105900	SU70NW386	-1.0	A27 LANGSTONE ROUNDAABOUT IMPROVEMENTS 2
7	45.0	E	471650 105810	SU70NW413	-1.0	PORTSMOUTH PIPEJACKS 2
8	50.0	NE	471590 105890	SU70NW280	15.5	A27 HAVANT BY-PASS 171
9	55.0	W	471470 105870	SU70NW118	4.87	BROOKSIDE ROAD DEVELOPMENT BH20
10	56.0	NE	471610 105880	SU70NW301	4.0	A27 HAVANT BY-PASS TP290
11	61.0	NW	471480 105900	SU70NW279	7.0	A27 HAVANT BY-PASS 170
12	63.0	NE	471610 105890	SU70NW282	21.5	A27 HAVANT BY-PASS 173
13	64.0	NE	471630 105870	SU70NW102	11.0	LANGSTONE RD/HAVANT BY-PASS
14B	65.0	NE	471640 105860	SU70NW300	3.2	A27 HAVANT BY-PASS TP289
15	68.0	NE	471660 105840	SU70NW417	-1.0	PORTSMOUTH PIPEJACKS TP8
16B	72.0	NE	471650 105860	SU70NW285	21.0	A27 HAVANT BY-PASS 176
17	79.0	NE	471650 105870	SU70NW284	16.0	A27 HAVANT BY-PASS 175
18	81.0	NE	471670 105850	SU70NW287	15.0	A27 HAVANT BY-PASS 178
19	93.0	NE	471670 105870	SU70NW286	20.0	A27 HAVANT BY-PASS 177
20	106.0	NE	471660 105900	SU70NW416	-1.0	PORTSMOUTH PIPEJACKS TP7
21	123.0	W	471400 105760	SU70NW117	4.87	BROOKSIDE ROAD DEVELOPMENT BH14
22	128.0	NE	471690 105900	SU70NW414	-1.0	PORTSMOUTH PIPEJACKS 3
23	129.0	SW	471460 105660	SU70NW113	5.02	BROOKSIDE ROAD DEVELOPMENT BH10
24	130.0	E	471730 105840	SU70NW387	-1.0	A27 LANGSTONE ROUNDAABOUT IMPROVEMENTS 9
25	143.0	NE	471730 105870	SU70NW388	-1.0	A27 LANGSTONE ROUNDAABOUT IMPROVEMENTS 10
26	159.0	E	471770 105760	SU70NW53	38.1	RECTORY LANE 316/147A
27	178.0	SW	471370 105680	SU70NW112	5.79	BROOKSIDE ROAD DEVELOPMENT BH9
28	202.0	W	471320 105770	SU70NW116	6.09	BROOKSIDE ROAD DEVELOPMENT BH13

ID	Distance (m)	Direction	NGR	BGS Reference	Drilled Length	Borehole Name
29	210.0	SW	471420 105590	SU70NW108	5.2	BROOKSIDE ROAD DEVELOPMENT BH5
30C	225.0	N	471640 106060	SU70NW243	3.0	HAVANT MILL SPRINGS 5
31C	225.0	N	471640 106060	SU70NW242	7.01	HAVANT MILL SPRINGS 4
32	234.0	W	471300 105700	SU70NW111	4.57	BROOKSIDE ROAD DEVELOPMENT BH8

Additional online information is available for the following boreholes listed above:

#2A: scans.bgs.ac.uk/sobi_scans/boreholes/425640
 #3A: scans.bgs.ac.uk/sobi_scans/boreholes/425635
 #4: scans.bgs.ac.uk/sobi_scans/boreholes/15624315
 #5: scans.bgs.ac.uk/sobi_scans/boreholes/15624312
 #8: scans.bgs.ac.uk/sobi_scans/boreholes/15624311
 #9: scans.bgs.ac.uk/sobi_scans/boreholes/425500
 #10: scans.bgs.ac.uk/sobi_scans/boreholes/15624333
 #11: scans.bgs.ac.uk/sobi_scans/boreholes/15624308
 #12: scans.bgs.ac.uk/sobi_scans/boreholes/15624314
 #13: scans.bgs.ac.uk/sobi_scans/boreholes/425484
 #14B: scans.bgs.ac.uk/sobi_scans/boreholes/15624332
 #16B: scans.bgs.ac.uk/sobi_scans/boreholes/15624317
 #17: scans.bgs.ac.uk/sobi_scans/boreholes/15624316
 #18: scans.bgs.ac.uk/sobi_scans/boreholes/15624319
 #19: scans.bgs.ac.uk/sobi_scans/boreholes/15624318
 #21: scans.bgs.ac.uk/sobi_scans/boreholes/425499
 #23: scans.bgs.ac.uk/sobi_scans/boreholes/425495
 #26: scans.bgs.ac.uk/sobi_scans/boreholes/425435
 #27: scans.bgs.ac.uk/sobi_scans/boreholes/425494
 #28: scans.bgs.ac.uk/sobi_scans/boreholes/425498
 #29: scans.bgs.ac.uk/sobi_scans/boreholes/425490
 #30C: scans.bgs.ac.uk/sobi_scans/boreholes/425625
 #31C: scans.bgs.ac.uk/sobi_scans/boreholes/425624
 #32: scans.bgs.ac.uk/sobi_scans/boreholes/425493



6 Estimated Background Soil Chemistry

Records of background estimated soil chemistry within 250m of the study site boundary:

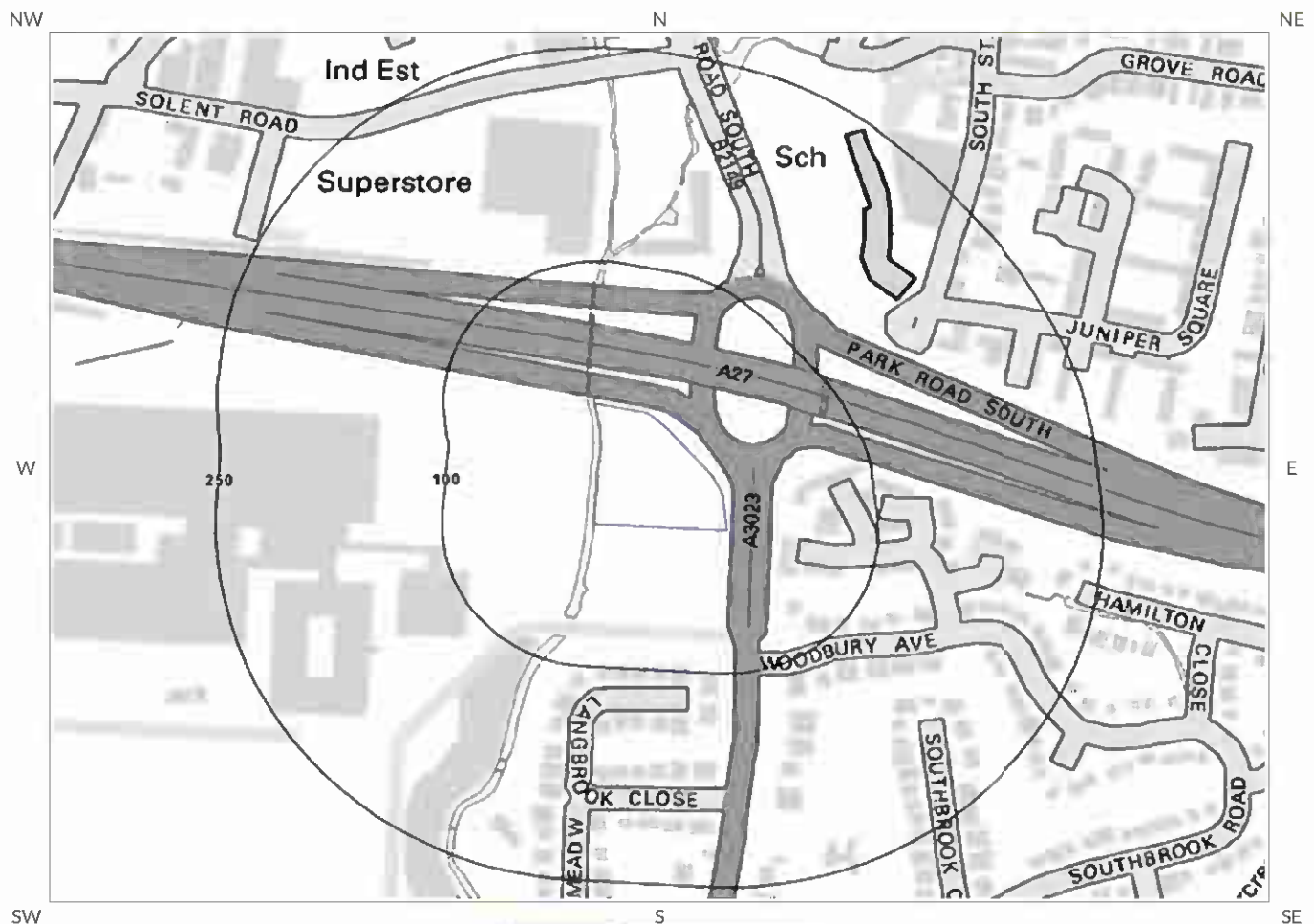
7

For further information on how this data is calculated and limitations upon its use, please see the GroundSure GeoInsight User Guide, available on request.

Distance (m)	Direction	Sample Type	Arsenic (As)	Cadmium (Cd)	Chromium (Cr)	Nickel (Ni)	Lead (Pb)
0.0	On Site	Sediment	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<150 mg/kg
0.0	On Site	Sediment	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<150 mg/kg
52.0	N	Sediment	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<150 mg/kg
143.0	N	Sediment	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<150 mg/kg
151.0	N	Sediment	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<150 mg/kg
189.0	NE	Sediment	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<150 mg/kg
249.0	NW	Sediment	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<150 mg/kg

*As this data is based upon underlying 1:50,000 scale geological information, a 50m buffer has been added to the search radius.

7 Railways and Tunnels Map



Railways and Tunnels Legend



© Crown copyright and database rights 2013.
Ordnance Survey license 100035207.
© OpenStreetMapContributors

	Site Outline		Underground or Partially Underground Railway / Subway System		Railway Track (OpenStreetMap)
	250		Railway Tunnel (OS Mapping)		High Speed 2
	500		Abandoned or Dismantled Railway (OpenStreetMap)		Crossrail
	Search Buffers (m)		Railway Track (OS Mapping)		Railway and/or Tunnel Feature from Historical Mapping



7 Railways and Tunnels

7.1 Tunnels

This data is derived from OpenStreetMap and provides information on the possible locations of underground railway systems in the UK - the London Underground, the Tyne & Wear Metro and the Glasgow Subway.

Have any underground railway lines been identified within the study site boundary? No

Have any underground railway lines been identified within 250m of the study site boundary? No

Database searched and no data found.

Any records that have been identified are represented on the Railways and Tunnels Map.

This data is derived from Ordnance Survey mapping and provides information on the possible locations of railway tunnels forming part of the UK overground railway network.

Have any other railway tunnels been identified within the site boundary? No

Have any other railway tunnels been identified within 250m of the site boundary? No

Database searched and no data found.

Any records that have been identified are represented on the Railways and Tunnels Map.

7.2 Historical Railway and Tunnel Features

This data is derived from GroundSure's unique Historical Land-use Database and contains features relating to tunnels, railway tracks or associated works that have been identified from historical Ordnance Survey mapping.

Have any historical railway or tunnel features been identified within the study site boundary? No

Have any historical railway or tunnel features been identified within 250m of the study site boundary? No

Database searched and no data found.

Any records that have been identified are represented on the Railways and Tunnels Map.

7.3 Historical Railways

This data is derived from OpenStreetMap and provides information on the possible alignments of abandoned or dismantled railway lines in proximity to the study site.

Have any historical railway lines been identified within the study site boundary? No

Have any historical railway lines been identified within 250m of the study site boundary? No

Database searched and no data found.

Note: multiple sections of the same track may be listed in the detail above

Any records that have been identified are represented on the Railways and Tunnels Map.

7.4 Active Railways

These datasets are derived from Ordnance Survey mapping and OpenStreetMap and provide information on the possible locations of active railway lines in proximity to the study site.

Have any active railway lines been identified within the study site boundary? No

Have any active railway lines been identified within 250m of the study site boundary? No

Database searched and no data found.

Note: multiple sections of the same track may be listed in the detail above
Any records that have been identified are represented on the Railways and Tunnels Map.

7.5 Railway Projects

These datasets provide information on the location of large scale railway projects High Speed 2 and Crossrail.

Is the study site within 5km of the route of the High Speed 2 rail project? No

Is the study site within 500m of the route of the Crossrail rail project? No

Further information on proximity to these routes, the project construction status and associated works can be obtained through the purchase of a GroundSure HS2 and Crossrail Report.

Contact Details



EmapSite
Telephone: 0118 9736883
sales@emapsite.com

emapsite™

British Geological Survey Enquiries

Kingsley Dunham Centre
Keyworth, Nottingham NG12 5GG
Tel: 0115 936 3143.
Fax: 0115 936 3276.
Email: enquiries@bgs.ac.uk
Web: www.bgs.ac.uk

BGS Geological Hazards Reports and general geological enquiries



British Geological Survey
NATURAL ENVIRONMENT RESEARCH COUNCIL

British Gypsum

British Gypsum Ltd
East Leake
Loughborough
Leicestershire
LE12 6HX



The Coal Authority

200 Lichfield Lane
Mansfield
Notts NG18 4RG
Tel: 0345 7626 848
DX 716176 Mansfield 5
www.coal.gov.uk



Public Health England

Public information access office
Public Health England, Wellington House
133-155 Waterloo Road, London, SE1 8UG
<https://www.gov.uk/government/organisations/public-health-england>
Email: enquiries@phe.gov.uk
Main switchboard: 020 7654 8000



Johnson Poole & Bloomer Limited

Harris and Pearson Building, Brettell Lane
Brierley Hill, West Midlands
DY5 3LH
Tel: +44 (0) 1384 262 000
Email: enquiries.gs@pb.co.uk
Website: www.jpb.co.uk



Ordnance Survey

Adanac Drive, Southampton
SO16 0AS
Tel: 08456 050505
Website: <http://www.ordnancesurvey.co.uk/>



Getmapping PLC

Virginia Villas, High Street, Hartley Witney,
Hampshire RG27 8NW
Tel: 01252 845444
Website: <http://www1.getmapping.com/>



Peter Brett Associates

Caversham Bridge House
Waterman Place
Reading
Berkshire RG1 8DN
Tel: +44 (0)118 950 0761 E-mail: reading@pba.co.uk
Website: <http://www.peterbrett.com/home>



Acknowledgements: Ordnance Survey © Crown Copyright and/or Database Right. All Rights Reserved. Licence Number [03421028]. This report has been prepared in accordance with the GroundSure Ltd standard Terms and Conditions of business for work of this nature.

Report Reference: EMS-270724_365113

Client Reference: EMS_270724_365113

Standard Terms and Conditions

1 Definitions

In these terms and conditions unless the context otherwise requires:

"Beneficiary" means the person or entity for whose benefit the Client has obtained the Services.

"Client" means the party or parties entering into a Contract with GroundSure.

"Commercial" means any building or property which is not Residential.

"Confidential Information" means the contents of this Contract and all information received from the Client as a result of, or in connection with, this Contract other than

(i) information which the Client can prove was rightfully in its possession prior to disclosure by GroundSure and

(ii) any information which is in the public domain (other than by virtue of a breach of this Contract).

"Support Services" means Support Services provided by GroundSure including, without limitation, interpreting third party and in-house environmental data, providing environmental support advice, undertaking environmental audits and assessments, Site investigation, Site monitoring and related items.

"Contract" means the contract between GroundSure and the Client for the provision of the Services, and which shall incorporate these terms and conditions, the Order, and the relevant User Guide.

"Third Party Data Provider" means any third party providing Third Party Content to GroundSure.

"Data Reports" means reports comprising factual data with no accompanying interpretation.

"Fees" has the meaning set out in clause 5.1.

"GroundSure" means GroundSure Limited, a company registered in England and Wales under number 03421028.

"GroundSure Materials" means all materials prepared by GroundSure and provided as part of the Services, including but not limited to Third Party Content, Data Reports, Mapping, and Risk Screening Reports.

"Intellectual Property" means any patent, copyright, design rights, trade or service mark, moral rights, data protection rights, know-how or trade mark in each case whether registered or not and including applications for the same or any other rights of a similar nature anywhere in the world.

"Mapping" means a map, map data or a combination of historical maps of various ages, time periods and scales.

"Order" means an electronic, written or other order form submitted by the Client requesting Services from GroundSure in respect of a specified Site.

"Ordnance Survey" means the Secretary of State for Business, Innovation and Skills, acting through Ordnance Survey, Adanac Drive, Southampton, SO16 0AS, UK.

"Order Website" means the online platform through which Orders may be placed by the Client and accepted by GroundSure.

"Report" means a Risk Screening Report or Data Report for Commercial or Residential property.

"Residential" means any building or property used as or intended to be used as a single dwelling.

"Risk Screening Report" means a risk screening report comprising factual data with an accompanying interpretation by GroundSure.

"Services" means any Report, Mapping and/or Support Services which GroundSure has agreed to provide by accepting an Order pursuant to clause 2.6.

"Site" means the area of land in respect of which the Client has requested GroundSure to provide the Services.

"Third Party Content" means data, database information or other information which is provided to GroundSure by a Third Party Data Provider.

"User Guide" means the user guide, as amended from time to time, available upon request from GroundSure and on the website (www.GroundSure.com) and forming part of this Contract.

2 Scope of Services, terms and conditions, requests for insurance and quotations

2.1 GroundSure agrees to provide the Services in accordance with the Contract.

2.2 GroundSure shall exercise reasonable skill and care in the provision of the Services.

2.3 Subject to clause 7.3 the Client acknowledges that it has not relied on any statement or representation made by or on behalf of GroundSure which is not set out and expressly agreed in writing in the Contract and all such statements and representations are hereby excluded to the fullest extent permitted by law.

2.4 The Client acknowledges that terms and conditions appearing on a Client's order form, printed stationery or other communication, or any terms or conditions implied by custom, practice or course of dealing shall be of no effect, and that this Contract shall prevail over all others in relation to the Order.

2.5 If the Client or Beneficiary requests insurance in conjunction with or as a result of the Services, GroundSure shall use reasonable endeavours to recommend such insurance, but makes no warranty that such insurance shall be available from insurers or that it will be offered on reasonable terms. Any insurance purchased by the Client or Beneficiary shall be subject solely to the terms of the policy issued by insurers and GroundSure will have no liability therefor. In addition you acknowledge and agree that GroundSure does not act as an agent or broker for any insurance providers. The Client should take (and ensure that the Beneficiary takes) independent advice to ensure that the insurance policy requested or offered is suitable for its requirements.

2.6 GroundSure's quotations or proposals are valid for a period of 30 days only unless an alternative period of time is explicitly stipulated by GroundSure. GroundSure reserves the right to withdraw any quotation or proposal at any time before an Order is accepted by GroundSure. GroundSure's acceptance of an Order

shall be binding only when made in writing and signed by GroundSure's authorised representative or when accepted through the Order Website.

3 The Client's obligations

3.1 The Client shall comply with the terms of this Contract and

(i) procure that the Beneficiary or any third party relying on the Services complies with and acts as if it is bound by the Contract and

(ii) be liable to GroundSure for the acts and omissions of the Beneficiary or any third party relying on the Services as if such acts and omissions were those of the Client.

3.2 The Client shall be solely responsible for ensuring that the Services are appropriate and suitable for its and/or the Beneficiary's needs.

3.3 The Client shall supply to GroundSure as soon as practicable and without charge all requisite information (and the Client warrants that such information is accurate, complete and appropriate), including without limitation any environmental information relating to the Site and shall give such assistance as GroundSure shall reasonably require in the provision of the Services including, without limitation, access to the Site, facilities and equipment.

3.4 Where the Client's approval or decision is required to enable GroundSure to carry out work in order to provide the Services, such approval or decision shall be given or procured in reasonable time and so as not to delay or disrupt the performance of the Services.

3.5 Save as expressly permitted by this Contract the Client shall not, and shall procure that the Beneficiary shall not, re-sell, alter, add to, or amend the GroundSure Materials, or use the GroundSure Materials in a manner for which they were not intended. The Client may make the GroundSure Materials available to a third party who is considering acquiring some or all of, or providing funding in relation to, the Site, but such third party cannot rely on the same unless expressly permitted under clause 4.

3.6 The Client is responsible for maintaining the confidentiality of its user name and password if using the Order Website and the Client acknowledges that GroundSure accepts no liability of any kind for any loss or damage suffered by the Client as a consequence of using the Order Website.

4 Reliance

4.1 The Client acknowledges that the Services provided by GroundSure consist of the presentation and analysis of Third Party Content and other content and that information obtained from a Third Party Data Provider cannot be guaranteed or warranted by GroundSure to be reliable.

4.2 In respect of Data Reports, Mapping and Risk Screening Reports, the following classes of person and no other are entitled to rely on their contents;

- (i) the Beneficiary,
- (ii) the Beneficiary's professional advisers, (iii) any person providing funding to the Beneficiary in relation to the Site (whether directly or as part of a lending syndicate),
- (iv) the first purchaser or first tenant of the Site, and
- (v) the professional advisers and lenders of the first purchaser or tenant of the Site.

4.3 In respect of Support Services, only the Client, Beneficiary and parties expressly named in a Report and no other parties are entitled to rely on its contents.

4.4 Save as set out in clauses 4.2 and 4.3 and unless otherwise expressly agreed in writing, no other person or entity of any kind is entitled to rely on any Services or Report issued or provided by GroundSure. Any party considering such Reports and Services does so at their own risk.

5 Fees and Disbursements

5.1 GroundSure shall charge and the Client shall pay fees at the rate and frequency specified in the written proposal, Order Website or Order acknowledgement form, plus (in the case of Support Services) all proper disbursements incurred by GroundSure. The Client shall in addition pay all value added tax or other tax payable on such fees and disbursements in relation to the provision of the Services (together "Fees").

5.2 The Client shall pay all outstanding Fees to GroundSure in full without deduction, counterclaim or set off within 30 days of the date of GroundSure's invoice or such other period as may be agreed in writing between GroundSure and the Client ("Payment Date"). Interest on late payments will accrue on a daily basis from the Payment Date until the date of payment (whether before or after judgment) at the rate of 8% per annum.

5.3 The Client shall be deemed to have agreed the amount of any invoice unless an objection is made in writing within 28 days of the date of the invoice. As soon as reasonably practicable after being notified of an objection, without prejudice to clause 5.2 a member of GroundSure's management team will contact the Client and the parties shall then use all reasonable endeavours to resolve the dispute within 15 days.

6 Intellectual Property and Confidentiality

6.1 Subject to

- (i) full payment of all relevant Fees and
- (ii) compliance with this Contract, the Client is granted (and is permitted to sub-licence to the Beneficiary) a royalty-free, worldwide, non-assignable and (save to the extent set out in this Contract) non-transferable licence to make use of the GroundSure Materials.

6.2 All Intellectual Property in the GroundSure Materials are and shall remain owned by GroundSure or GroundSure's licensors (including without limitation the Third Party Data Providers) the Client acknowledges, and shall procure acknowledgement by the Beneficiary of, such ownership. Nothing in this Contract purports to transfer or assign any rights to the Client or the Beneficiary in respect of such Intellectual Property.

6.3 Third Party Data Providers may enforce any breach of clauses 6.1 and 6.2 against the Client or Beneficiary.

6.4 The Client shall, and shall procure that any recipients of the GroundSure Materials shall:

- (i) not remove, suppress or modify any trade mark, copyright or other proprietary marking belonging to GroundSure or any third party from the Services;
 - (ii) use the information obtained as part of the Services in respect of the subject Site only, and shall not store or reuse any information obtained as part of the Services provided in respect of adjacent or nearby sites;
 - (iii) not create any product or report which is derived directly or indirectly from the Services (save that those acting in a professional capacity to the Beneficiary may provide advice based upon the Services);
 - (iv) not combine the Services with or incorporate such Services into any other information data or service;
 - (v) not reformat or otherwise change (whether by modification, addition or enhancement), the Services (save that those acting for the Beneficiary in a professional capacity shall not be in breach of this clause 6.4(v) where such reformatting is in the normal course of providing advice based upon the Services);
 - (vi) where a Report and/or Mapping contains material belonging to Ordnance Survey, acknowledge and agree that such content is protected by Crown Copyright and shall not use such content for any purpose outside of receiving the Services; and
 - (vii) not copy in whole or in part by any means any map prints or run-on copies containing content belonging to Ordnance Survey (other than that contained within Ordnance Survey's OS Street Map) without first being in possession of a valid Paper Map Copying Licence from Ordnance Survey.
- 6.5 Notwithstanding clause 6.4, the Client may make reasonable use of the GroundSure Materials in order to advise the Beneficiary in a professional capacity. However, GroundSure shall have no liability in respect of any advice, opinion or report given or provided to Beneficiaries by the Client.
- 6.6 The Client shall procure that any person to whom the Services are made available shall notify GroundSure of any request or requirement to disclose, publish or disseminate any information contained in the Services in accordance with the Freedom of Information Act 2000, the Environmental Information Regulations 2004 or any associated legislation or regulations in force from time to time.

7. Liability: Particular Attention Should Be Paid To This Clause

7.1 This Clause 7 sets out the entire liability of GroundSure, including any liability for the acts or omissions of its employees, agents, consultants, subcontractors and Third Party Content, in respect of:

- (i) any breach of contract, including any deliberate breach of the Contract by GroundSure or its employees, agents or subcontractors;
 - (ii) any use made of the Reports, Services, Materials or any part of them; and
 - (iii) any representation, statement or tortious act or omission (including negligence) arising under or in connection with the Contract.
- 7.2 All warranties, conditions and other terms implied by statute or common law are, to the fullest extent permitted by law, excluded from the Contract.
- 7.3 Nothing in the Contract limits or excludes the liability of the Supplier for death or personal injury resulting from negligence, or for any damage or liability incurred by the Client or Beneficiary as a result of fraud or fraudulent misrepresentation.

7.4 GroundSure shall not be liable for

- (i) loss of profits;
- (ii) loss of business;
- (iii) depletion of goodwill and/or similar losses;
- (iv) loss of anticipated savings;
- (v) loss of goods;
- (vi) loss of contract;
- (vii) loss of use;
- (viii) loss or corruption of data or information;
- (ix) business interruption;
- (x) any kind of special, indirect, consequential or pure economic loss, costs, damages, charges or expenses;
- (xi) loss or damage that arise as a result of the use of all or part of the GroundSure Materials in breach of the Contract;
- (xii) loss or damage arising as a result of any error, omission or inaccuracy in any part of the GroundSure Materials where such error, omission or inaccuracy is caused by any Third Party Content or any reasonable interpretation of Third Party Content;
- (xiii) loss or damage to a computer, software, modem, telephone or other property; and
- (xiv) loss or damage caused by a delay or loss of use of GroundSure's internet ordering service.

7.5 GroundSure's total liability in relation to or under the Contract shall be limited to £10 million for any claim or claims.

7.6 GroundSure shall procure that the Beneficiary shall be bound by limitations and exclusions of liability in favour of GroundSure which accord with those detailed in clauses 7.4 and 7.5 (subject to clause 7.3) in respect of all claims which the Beneficiary may bring against GroundSure in relation to the Services or other matters arising pursuant to the Contract.

8 GroundSure's right to suspend or terminate

8.1 If GroundSure reasonably believes that the Client or Beneficiary has not provided the information or assistance required to enable the proper provision of the Services, GroundSure shall be entitled to suspend all further performance of the Services until such time as any such deficiency has been made good.

8.2 GroundSure shall be entitled to terminate the Contract immediately on written notice in the event that:

- (i) the Client fails to pay any sum due to GroundSure within 30

days of the Payment Date; or

- (ii) the Client (being an individual) has a bankruptcy order made against him or (being a company) shall enter into liquidation whether compulsory or voluntary or have an administration order made against it or if a receiver shall be appointed over the whole or any part of its property assets or undertaking or if the Client is struck off the Register of Companies or dissolved; or
- (iii) the Client being a company is unable to pay its debts within the meaning of Section 123 of the Insolvency Act 1986 or being an individual appears unable to pay his debts within the meaning of Section 268 of the Insolvency Act 1986 or if the Client shall enter into a composition or arrangement with the Client's creditors or shall suffer distress or execution to be levied on his goods; or
- (iv) the Client or the Beneficiary breaches any term of the Contract (including, but not limited to, the obligations in clause 4) which is incapable of remedy or if remediable, is not remedied within five days of notice of the breach.

9. Client's Right to Terminate and Suspend

9.1 Subject to clause 10.1, the Client may at any time upon written notice terminate or suspend the provision of all or any of the Services.

9.2 In any event, where the Client is a consumer (and not a business) he/she hereby expressly acknowledges and agrees that:

- (i) the supply of Services under this Contract (and therefore the performance of this Contract) commences immediately upon GroundSure's acceptance of the Order; and
- (ii) the Reports and/or Mapping provided under this Contract are (a) supplied to the Client's specification(s) and in any event (b) by their nature cannot be returned.

10 Consequences of Withdrawal, Termination or Suspension

10.1 Upon termination of the Contract:

- (i) GroundSure shall take steps to bring to an end the Services in an orderly manner, vacate any Site with all reasonable speed and shall deliver to the Client and/or Beneficiary any property of the Client and/or Beneficiary in GroundSure's possession or control; and
- (ii) the Client shall pay to GroundSure all and any Fees payable in respect of the performance of the Services up to the date of termination or suspension. In respect of any Support Services provided, the Client shall also pay GroundSure any additional costs incurred in relation to the termination or suspension of the Contract.

11 Anti-Bribery

11.1 The Client warrants that it shall:

- (i) comply with all applicable laws, statutes and regulations relating to anti-bribery and anti-corruption including but not limited to the Bribery Act 2010;
- (ii) comply with such of GroundSure's anti-bribery and anti-corruption policies as are notified to the Client from time to time; and
- (iii) promptly report to GroundSure any request or demand for any undue financial or other advantage of any kind received by or on behalf of the Client in connection with the performance of this Contract.

11.2 Breach of this Clause 11 shall be deemed a material breach of this Contract.

12 General

12.1 The Mapping contained in the Services is protected by Crown copyright and must not be used for any purpose other than as part of the Services or as specifically provided in the Contract.

12.2 The Client shall be permitted to make one copy only of each Report or Mapping Order. Thereafter the Client shall be entitled to make unlimited copies of the Report or Mapping Order only in accordance with an Ordnance Survey paper map copy license available through GroundSure.

12.3 GroundSure reserves the right to amend or vary this Contract. No amendment or variation to this Contract shall be valid unless signed by an authorised representative of GroundSure.

12.4 No failure on the part of GroundSure to exercise, and no delay in exercising, any right, power or provision under this Contract shall operate as a waiver thereof.

12.5 Save as expressly provided in this Contract, no person other than the persons set out therein shall have any right under the Contract (Rights of Third Parties) Act 1999 to enforce any terms of the Contract.

12.6 The Secretary of State for Business, Innovation and Skills ("BIS") or BIS' successor body, as the case may be, acting through Ordnance Survey may enforce a breach of clause 6.4(vi) and clause 6.4(vii) of these terms and conditions against the Client in accordance with the provisions of the Contracts (Rights of Third Parties) Act 1999.

12.7 GroundSure shall not be liable to the Client if the provision of the Services is delayed or prevented by one or more of the following circumstances:

- (i) the Client or Beneficiary's failure to provide facilities, access or information;
- (ii) fire, storm, flood, tempest or epidemic;
- (iii) Acts of God or the public enemy;
- (iv) riot, civil commotion or war;
- (v) strikes, labour disputes or industrial action;
- (vi) acts or regulations of any governmental or other agency;
- (vii) suspension or delay of services at public registries by Third Party Data Providers;
- (viii) changes in law; or
- (ix) any other reason beyond GroundSure's reasonable control.

In the event that GroundSure is prevented from performing the Services (or any part thereof) in accordance with this clause 12.6 for a period of not less than 30 days then GroundSure shall be entitled to terminate this Contract immediately on written notice to the Client.

12.8 Any notice provided shall be in writing and shall be deemed to be properly

given if delivered by hand or sent by first class post, facsimile or by email to the address, facsimile number or email address of the relevant party as may have been notified by each party to the other for such purpose or in the absence of such notification the last known address.

12.9 Such notice shall be deemed to have been received on the day of delivery if delivered by hand, facsimile or email (save to the extent such day is not a working day where it shall be deemed to have been delivered on the next working day) and on the second working day after the day of posting if sent by first class post.

12.10 The Contract constitutes the entire agreement between the parties and shall supersede all previous arrangements between the parties relating to the subject matter hereof.

12.11 Each of the provisions of the Contract is severable and distinct from the others and if one or more provisions is or should become invalid, illegal or unenforceable, the validity and enforceability of the remaining provisions shall not in any way be tainted or impaired.

12.12 This Contract shall be governed by and construed in accordance with English law and any proceedings arising out of or connected with this Contract shall be subject to the exclusive jurisdiction of the English courts.

12.13 GroundSure is an executive member of the Council of Property Search Organisation (CoPSO) and has signed up to the Search Code administered by the Property Codes Compliance Board (PCCB). All Risk Screening Reports shall be supplied in accordance with the provisions of the Search Code.

12.14 If the Client or Beneficiary has a complaint about the Services, written notice should be given to the Compliance Officer at GroundSure who will respond in a timely manner.

12.15 The Client agrees that it shall, and shall procure that each Beneficiary shall, treat in confidence all Confidential Information and shall not, and shall procure that each Beneficiary shall not (i) disclose any Confidential Information to any third party other than in accordance with the terms of this Contract; and (ii) use Confidential Information for a purpose other than the exercise of its rights and obligations under this Contract. Subject to clause 6.6, nothing shall prevent the Client or any Beneficiary from disclosing Confidential Information to the extent required by law



GroundSure Envirolnsight

Address: ,
Date: 7 Oct 2014
Reference: EMS-270724_365114
Client: EmapSite

NW

N

NE

W

E



SW

S

SE

Aerial Photograph Capture date: 03-May-2013
Grid Reference: 471561,105806
Site Size: 0.56ha

Contents Page

Contents Page	3
Overview of Findings.....	5
Using this report.....	9
1. Environmental Permits, Incidents and Registers Map.....	10
1. Environmental Permits, Incidents and Registers.....	11
1.1 Industrial Sites Holding Licences and/or Authorisations.....	11
1.1.1 Records of historic IPC Authorisations within 500m of the study site:.....	11
1.1.2 Records of Part A(1) and IPPC Authorised Activities within 500m of the study site:.....	11
1.1.3 Records of Water Industry Referrals (potentially harmful discharges to the public sewer) within 500m of the study site:.....	11
1.1.4 Records of Red List Discharge Consents (potentially harmful discharges to controlled waters) within 500m of the study site:.....	11
1.1.5 Records of List 1 Dangerous Substances Inventory Sites within 500m of the study site:.....	12
1.1.6 Records of List 2 Dangerous Substance Inventory Sites within 500m of the study site:.....	12
1.1.7 Records of Part A(2) and Part B Activities and Enforcements within 500m of the study site:	12
1.1.8 Records of Category 3 or 4 Radioactive Substances Authorisations:.....	12
1.1.9 Records of Licensed Discharge Consents within 500m of the study site:.....	13
1.1.10 Records of Planning Hazardous Substance Consents and Enforcements within 500m of the study site:.....	14
1.2 Dangerous or Hazardous Sites.....	14
1.3 Environment Agency Recorded Pollution Incidents.....	14
1.3.1 Records of National Incidents Recording System, List 2 within 500m of the study site:.....	14
1.3.2 Records of National Incidents Recording System, List 1 within 500m of the study site:.....	15
1.4 Sites Determined as Contaminated Land under Part 2A EPA 1990.....	15
2. Landfill and Other Waste Sites Map.....	16
2. Landfill and Other Waste Sites.....	17
2.1 Landfill Sites.....	17
2.1.1 Records from Environment Agency landfill data within 1000m of the study site:	17
2.1.2 Records of Environment Agency historic landfill sites within 1500m of the study site:	17
2.1.3 Records of BGS/DoE non-operational landfill sites within 1500m of the study site:.....	18
2.1.4 Records of Local Authority landfill sites within 1500m of the study site:.....	18
2.2 Other Waste Sites.....	18
2.2.1 Records of waste treatment, transfer or disposal sites within 500m of the study site:	18
2.2.2 Records of Environment Agency licensed waste sites within 1500m of the study site:	19
3. Current Land Use Map.....	25
3. Current Land Uses.....	26
3.1 Current Industrial Data.....	26
3.2 Petrol and Fuel Sites.....	27
3.3 Underground High Pressure Oil and Gas Pipelines.....	27
4. Geology.....	28
4.1 Artificial Ground and Made Ground.....	28
4.2 Superficial Ground and Drift Geology	28
4.3 Bedrock and Solid Geology	28
5. Hydrogeology and Hydrology.....	29
5a. Aquifer Within Superficial Geology.....	29
5b. Aquifer Within Bedrock Geology and Abstraction Licenses.....	30
5c. Hydrogeology – Source Protection Zones and Potable Water Abstraction Licenses.....	31
5d. Hydrology Source Protection Zones within confined aquifer.....	32
5 e. Hydrology – Detailed River Network and River Quality.....	33
5. Hydrogeology and Hydrology.....	34
5.1 Aquifer within Superficial Deposits.....	34
5.2 Aquifer within Bedrock Deposits.....	34

5.3 Groundwater Abstraction Licences.....	35
5.4 Surface Water Abstraction Licences.....	35
5.5 Potable Water Abstraction Licences.....	36
5.6 Source Protection Zones.....	36
5.7 Source Protection Zones within Confined Aquifer.....	37
5.8 Groundwater Vulnerability and Soil Leaching Potential.....	38
5.9 River Quality.....	38
5.9.1 Biological Quality.....	38
5.9.2 Chemical Quality.....	39
5.10 Detailed River Network.....	40
5.11 Surface Water Features	42
6. Environment Agency Flood Map for planning (from rivers and the sea).....	43
6. Flooding.....	44
6.1 Zone 2 Flooding.....	44
6.2 Zone 3 Flooding.....	44
6.3 Flood Defences.....	45
6.4 Areas benefiting from Flood Defences.....	45
6.5 Areas benefiting from Flood Storage.....	45
6.6 Groundwater Flooding Susceptibility Areas.....	45
6.6.1 Are there any British Geological Survey groundwater flooding susceptibility areas within 50m of the boundary of the study site?	45
6.6.2 What is the highest susceptibility to groundwater flooding in the search area based on the underlying geological conditions?	46
6.7 Groundwater Flooding Confidence Areas.....	46
7. Designated Environmentally Sensitive Sites Map.....	47
7. Designated Environmentally Sensitive Sites.....	48
7.1 Records of Sites of Special Scientific Interest (SSSI) within 2000m of the study site:.....	48
7.2 Records of National Nature Reserves (NNR) within 2000m of the study site:.....	48
7.3 Records of Special Areas of Conservation (SAC) within 2000m of the study site:.....	48
7.4 Records of Special Protection Areas (SPA) within 2000m of the study site:.....	49
7.5 Records of Ramsar sites within 2000m of the study site:.....	49
7.6 Records of Ancient Woodland within 2000m of the study site:	49
7.7 Records of Local Nature Reserves (LNR) within 2000m of the study site:.....	49
7.8 Records of World Heritage Sites within 2000m of the study site:.....	50
7.9 Records of Environmentally Sensitive Areas within 2000m of the study site:	50
7.10 Records of Areas of Outstanding Natural Beauty (AONB) within 2000m of the study site:	50
7.11 Records of National Parks (NP) within 2000m of the study site:	50
7.12 Records of Nitrate Sensitive Areas within 2000m of the study site:.....	50
7.13 Records of Nitrate Vulnerable Zones within 2000m of the study site:.....	50
8. Natural Hazards Findings.....	52
8.1 Detailed BG5 GeoSure Data.....	52
8.1.1 Shrink Swell.....	52
8.1.2 Landslides.....	52
8.1.3 Soluble Rocks.....	53
8.1.4 Compressible Ground.....	53
8.1.5 Collapsible Rocks.....	53
8.1.6 Running Sand.....	54
9. Mining.....	55
9.1 Coal Mining.....	55
9.2 Shallow Mining.....	55
9.3 Brine Affected Areas	55
Contact Details.....	56
Standard Terms and Conditions.....	57

Overview of Findings

For further details on each dataset, please refer to each individual section in the main report as listed. Where the database has been searched a numerical result will be recorded. Where the database has not been searched '-' will be recorded.

Section 1: Environmental Permits, Incidents and Registers		On-site	0-50m	51-250	251-500		
1.1 Industrial Sites Holding Environmental Permits and/or Authorisations							
1.1.1	Records of historic IPC Authorisations	0	0	2	0		
1.1.2	Records of Part A(1) and IPPC Authorised Activities	0	0	0	0		
1.1.3	Records of Water Industry Referrals (potentially harmful discharges to the public sewer)	0	0	0	0		
1.1.4	Records of Red List Discharge Consents (potentially harmful discharges to controlled waters)	0	0	0	0		
1.1.5	Records of List 1 Dangerous Substances Inventory sites	0	0	0	0		
1.1.6	Records of List 2 Dangerous Substances Inventory sites	0	0	0	0		
1.1.7	Records of Part A(2) and Part B Activities and Enforcements	0	0	0	2		
1.1.8	Records of Category 3 or 4 Radioactive Substances Authorisations	0	0	0	6		
1.1.9	Records of Licensed Discharge Consents	0	0	2	3		
1.1.10	Records of Planning Hazardous Substance Consents and Enforcements	0	0	0	0		
1.2	Records of COMAH and NIHHS sites	0	0	0	0		
1.3 Environment Agency Recorded Pollution Incidents							
1.3.1	National Incidents Recording System, List 2	0	0	1	2		
1.3.2	National Incidents Recording System, List 1	0	0	0	0		
1.4	Sites Determined as Contaminated Land under Part 2A EPA 1990	0	0	0	0		
Section 2: Landfill and Other Waste Sites		On-site	0-50m	51-250	251-500	501-1000	1000-5000
2.1 Landfill Sites							
2.1.1	Environment Agency Registered Landfill Sites	0	0	0	0	1	Not searched
2.1.2	Environment Agency Historic Landfill Sites	0	0	0	0	1	1
2.1.3	BGS/DoE Landfill Site Survey	0	0	0	0	0	1
2.1.4	GroundSure Local Authority Landfill Sites Data	0	0	0	0	0	0
2.2 Landfill and Other Waste Sites Findings							
2.2.1	Operational and Non-Operational Waste Treatment, Transfer and Disposal Sites	0	0	1	0	Not searched	Not searched
2.2.2	Environment Agency Licensed Waste Sites	0	0	0	1	18	11

Section 3: Current Land Use	On-site	0-50m	51-250	251-500
3.1 Current Industrial Sites Data	0	1	12	Not searched
3.2 Records of Petrol and Fuel Sites	0	0	0	2
3.3 Underground High Pressure Oil and Gas Pipelines	0	0	0	0

Section 4: Geology	
4.1 Are there any records of Artificial Ground and Made Ground present beneath the study site?	Yes
4.2 Are there any records of Superficial Ground and Drift Geology present beneath the study site?	Yes
4.3 For records of Bedrock and Solid Geology beneath the study site see the detailed findings section.	

Section 5: Hydrogeology and Hydrology	0-500m					
5.1 Are there any records of Strata Classification in the Superficial Geology within 500m of the study site?	Yes					
5.2 Are there any records of Strata Classification in the Bedrock Geology within 500m of the study site?	Yes					
	On-site	0-50m	51-250	251-500	501-1000	1000-2000
5.3 Groundwater Abstraction Licences (within 2000m of the study site)	0	0	0	0	1	2
5.4 Surface Water Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	0
5.5 Potable Water Abstraction Licences (within 2000m of the study site)	0	0	0	0	1	2
5.6 Source Protection Zones (within 500m of the study site)	0	0	1	0	Not searched	Not searched
5.7 Source Protection Zones within Confined Aquifer	0	0	0	1	Not searched	Not searched
5.8 Groundwater Vulnerability and Soil Leaching Potential (within 500m of the study site)	1	2	1	3	Not searched	Not searched
	On-site	0-50m	51-250	251-500	501-1000	1000-1500
5.9 Is there any Environment Agency information on river quality within 1500m of the study site?	No	No	No	No	No	Yes
5.10 Detailed River Network entries within 500m of the site	0	2	3	18	Not searched	Not searched
5.11 Surface water features within 250m of the study site	Yes	No	Yes	Not searched	Not searched	Not searched

Section 6: Flooding

6.1 Are there any Environment Agency Zone 2 floodplains within 250m of the study site?	Yes
6.2 Are there any Environment Agency Zone 3 floodplains within 250m of the study site?	Yes
6.3 Are there any Flood Defences within 250m of the study site?	No
6.4 Are there any areas benefiting from Flood Defences within 250m of the study site?	No
6.5 Are there any areas used for Flood Storage within 250m of the study site?	No
6.6 What is the maximum BGS Groundwater Flooding susceptibility within 50m of the study site?	Potential at Surface
6.7 What is the BGS confidence rating for the Groundwater Flooding susceptibility areas?	High

Section 7: Designated Environmentally Sensitive Sites

	On-site	0-50m	51-250	251-500	501-1000	1000-2000
7.1 Records of Sites of Special Scientific Interest (SSSI)	0	0	0	0	2	2
7.2 Records of National Nature Reserves (NNR)	0	0	0	0	0	0
7.3 Records of Special Areas of Conservation (SAC)	0	0	0	0	1	1
7.4 Records of Special Protection Areas (SPA)	0	0	0	0	2	1
7.5 Records of Ramsar sites	0	0	0	0	2	1
7.6 Records of Ancient Woodlands	0	0	0	0	0	0
7.7 Records of Local Nature Reserves (LNR)	0	0	0	0	0	2
7.8 Records of World Heritage Sites	0	0	0	0	0	0
7.9 Records of Environmentally Sensitive Areas	0	0	0	0	0	0
7.10 Records of Areas of Outstanding Natural Beauty (AONB)	0	0	0	1	0	0
7.11 Records of National Parks	0	0	0	0	0	0
7.12 Records of Nitrate Sensitive Areas	0	0	0	0	0	0
7.13 Records of Nitrate Vulnerable Zones	1	0	0	0	0	2

Section 8: Natural Hazards

8.1 What is the maximum risk of natural ground subsidence?	Moderate
8.1.1 What is the maximum Shrink-Swell hazard rating identified on the study site?	Low
8.1.2 What is the maximum Landslides hazard rating identified on the study site?	Very Low
8.1.3 What is the maximum Soluble Rocks hazard rating identified on the study site?	Very Low
8.1.4 What is the maximum Compressible Ground hazard rating identified on the study site?	Moderate
8.1.5 What is the maximum Collapsible Rocks hazard rating identified on the study site?	Low
8.1.6 What is the maximum Running Sand hazard rating identified on the study site?	Low

Section 9: Mining

9.1 Are there any coal mining areas within 75m of the study site?	No
9.2 What is the risk of subsidence relating to shallow mining within 150m of the study site?	Negligible
9.3 Are there any brine affected areas within 75m of the study site?	No

Using this report

The following report is designed by Environmental Consultants for Environmental Professionals bringing together the most up-to-date market leading environmental data. This report is provided under and subject to the Terms & Conditions agreed between GroundSure and the Client. The document contains the following sections:

1. Environmental Permits, Incidents and Registers

Provides information on Regulated Industrial Activities and Pollution Incidents as recorded by Regulatory Authorities, and sites determined as Contaminated Land. This search is conducted using radii up to 500m.

2. Landfills and Other Waste Sites

Provides information on landfills and other waste sites that may pose a risk to the study site. This search is conducted using radii up to 1500m.

3. Current Land Uses

Provides information on current land uses that may pose a risk to the study site in terms of potential contamination from activities or processes. These searches are conducted using radii of up to 500m. This includes information on potentially contaminative industrial sites, petrol stations and fuel sites as well as high pressure underground oil and gas pipelines.

4. Geology

Provides information on artificial and superficial deposits and bedrock beneath the study site.

5. Hydrogeology and Hydrology

Provides information on productive strata within the bedrock and superficial geological layers, abstraction licenses, Source Protection Zones (SPZs) and river quality. These searches are conducted using radii of up to 2000m.

6. Flooding

Provides information on surface water flooding, flood defences, flood storage areas and groundwater flood areas. This search is conducted using radii of up to 250m.

7. Designated Environmentally Sensitive Sites

Provides information on the Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR), Special Areas of Conservation (SAC), Special Protection Areas (SPA), Ramsar sites, Local Nature Reserves (LNR), Areas of Outstanding Natural Beauty (AONB), National Parks (NP), Environmentally Sensitive Areas, Nitrate Sensitive Areas, Nitrate Vulnerable Zones and World Heritage Sites and Scheduled Ancient Woodland. These searches are conducted using radii of up to 2000m.

8. Natural Hazards

Provides information on a range of natural hazards that may pose a risk to the study site. These factors include natural ground subsidence.

9. Mining

Provides information on areas of coal and shallow mining.

10. Contacts

This section of the report provides contact points for statutory bodies and data providers that may be able to provide further information on issues raised within this report. Alternatively, GroundSure provide a free Technical Helpline (08444 159000) for further information and guidance.

Note: Maps

Only certain features are placed on the maps within the report. All features represented on maps found within this search are given an identification number. This number identifies the feature on the mapping and correlates it to the additional information provided below. This identification number precedes all other information and takes the following format -Id: 1, Id: 2, etc. Where numerous features on the same map are in such close proximity that the numbers would obscure each other a letter identifier is used instead to represent the features. (e.g. Three features which overlap may be given the identifier "A" on the map and would be identified separately as features 1A, 3A, 10A on the data tables provided).

Where a feature is reported in the data tables to a distance greater than the map area, it is noted in the data table as "Not Shown".

All distances given in this report are in Metres (m). Directions are given as compass headings such as N: North, E: East, NE: North East from the nearest point of the study site boundary.

1. Environmental Permits, Incidents and Registers Map



Environmental Permits,
Incidents and Registers Legend

Mapping
sourced from

Ordnance
Survey

© Crown copyright and database rights 2013.
Ordnance Survey license 100035207.

- | | |
|---------------------------------|--|
| ★ Recorded Pollution Incident | ▼ RAS 3 & 4 Authorisations |
| ◆ Dangerous Substances (List 1) | ▲ Part A(1) Authorised Processes and Historic IPC Authorisations |
| ◇ Dangerous Substances (List 2) | ▲ Part A(2) and Part B Authorised Processes |
| ■ Water Industry Referrals | ○ COMAH / NIHS Sites |
| ■ Licenced Discharge Consents | ■ Sites Determined as Contaminated Land |
| ■ Red List Discharge Consents | ● Hazardous Substance Consents and Enforcements |
| □ Site Outline | |
| — 250 — Search Buffers (m) | |
| — 500 — | |



1. Environmental Permits, Incidents and Registers

1.1 Industrial Sites Holding Licences and/or Authorisations

Searches of information provided by the Environment Agency and Local Authorities reveal the following information:

1.1.1 Records of historic IPC Authorisations within 500m of the study site:

2

The following IPC Authorisations are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance	Direction	NGR	Details	
19C	142.0	SW	471400 105700	Operator: Adflex Solutions Ltd (dissolved) Address: PO Box 6, Havant, Hampshire, PO9 1SA Process: Processes Involving Halogens	Permit Number: AU8741 Original Permit Number: IPCMINVAR Date Approved: 17-1-1997 Effective Date: 17-1-1997 Status: Revoked
20C	142.0	SW	471400 105700	Operator: Adflex Solutions Ltd (dissolved) Address: PO Box 6, Havant, Hampshire, PO9 1SA Process: Processes Involving Halogens	Permit Number: AP1131 Original Permit Number: IPCAPP Date Approved: 29-3-1995 Effective Date: 1-4-1995 Status: Superseded By Variation

1.1.2 Records of Part A(1) and IPPC Authorised Activities within 500m of the study site:

0

Database searched and no data found.

1.1.3 Records of Water Industry Referrals (potentially harmful discharges to the public sewer) within 500m of the study site:

0

Database searched and no data found.

1.1.4 Records of Red List Discharge Consents (potentially harmful discharges to controlled waters) within 500m of the study site:

0

Database searched and no data found.

1.1.5 Records of List 1 Dangerous Substances Inventory Sites within 500m of the study site:

0

Database searched and no data found.

1.1.6 Records of List 2 Dangerous Substance Inventory Sites within 500m of the study site:

0

Database searched and no data found.

1.1.7 Records of Part A(2) and Part B Activities and Enforcements within 500m of the study site:

2

The following Part A(2) and Part B Activities are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance	Direction	NGR	Details
11	344.0	N	471500 106200	Address: Shell Havant Park Rd, Po9 1ha Process: Petrol Vapour Recovery Process Status: Unknown Permit Type: Part B Enforcement: Data requested, not received. Date of Enforcement: Data requested, not received. Comment: Data requested, not received.
12	353.0	NW	471200 106000	Address: Tesco Solent Rd, Po9 5ah Process: Petrol Vapour Recovery Process Status: Unknown Permit Type: Part B Enforcement: Data requested, not received. Date of Enforcement: Data requested, not received. Comment: Data requested, not received.

1.1.8 Records of Category 3 or 4 Radioactive Substances Authorisations:

6

The following RAS Licence (3 or 4) records are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance	Direction	NGR	Address	Operator	Type	Permission Number	Dates	Status
21D	447.0	W	4711 00 1060 00	Apollo Fire Detectors Ltd, 6 Solvent Road, Havant, Hampshire, PO91 1JH	Apollo Fire Detectors Ltd	Disposal Of Radioactive Waste (was Rsa60 Section 6).	AC1385	Date of Approval:31/3/1991 Effective from:31/3/1991 Last date of update:2013-04-10	Revoked/cancelled

ID	Distance	Direction	NGR	Address	Operator	Type	Permission Number	Dates	Status
22D	447.0	W	4711 00 1060 00	Apollo Fire Detectors Ltd, 6 Solent Road, Havant, Hampshire, PO9 1JH	Apollo Fire Detectors Ltd	Disposal Of Radioactive Waste (was Rsa60 Section 6).	AC1369	Date of Approval:31/3/1991 Effective from:31/3/1991 Last date of update:2013-04-10	Revoked/cancelled
23E	498.0	W	4710 30 1059 30	Apollo Fire Detectors Ltd, 36 Brookside Road, Havant, PO9 1JR	Apollo Fire Detectors Ltd	Disposal Of Radioactive Waste (was Rsa60 Section 6).	AW6707	Date of Approval:10/10/1996 Effective from:14/10/1996 Last date of update:2013-04-10	Superseded By Variation
24E	498.0	W	4710 30 1059 30	Apollo Fire Detectors Ltd, 36 Brookside Road, Havant, PO9 1JR	Apollo Fire Detectors Ltd	Disposal Of Radioactive Waste (was Rsa60 Section 6).	AW6707	Date of Approval:5/6/2003 Effective from:7/7/2003 Last date of update:2013-04-10	Superseded By Variation
25E	498.0	W	4710 30 1059 30	Apollo Fire Detectors Ltd, 36 Brookside Road, Havant, PO9 1JR	Apollo Fire Detectors Ltd	Disposal Of Radioactive Waste (was Rsa60 Section 6).	AW6707	Date of Approval:4/8/2009 Effective from:1/9/2009 Last date of update:2013-01-23	Revoked/cancelled
26E	498.0	W	4710 30 1059 30	Apollo Fire Detectors Ltd, 36 Brookside Road, Havant, PO9 1JR	Apollo Fire Detectors Ltd	Disposal Of Radioactive Waste (was Rsa60 Section 6).	AW6707	Date of Approval:23/1/2001 Effective from:23/1/2001 Last date of update:2013-04-10	Superseded By Variation

1.1.9 Records of Licensed Discharge Consents within 500m of the study site:

5

The following Licensed Discharge Consents records are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance	Direction	NGR	Details
4A	102.0	SW	471480 105680	Address: Langstone Road, Langstone Road, Havant, Hampshire Effluent Type: Miscellaneous Discharges - Surface Water Permit Number: N01162 Permit Version: 1 Receiving Water: Freshwater River Status: Pre Nra Legislation Where Issue Date < 01-sep-89 (historic Only) Issue date: - Effective Date: - Revocation Date: 17/3/1995

ID	Distance	Direction	NGR	Details
5A	102.0	SW	471480 105680	Address: Langstone Road, Langstone Road, Havant, Hampshire Effluent Type: Miscellaneous Discharges - Surface Water Permit Number: N01162 Permit Version: 2 Receiving Water: Freshwater River Status: Post Nra Legislation Where Issue Date > 31-aug-89 (historic Only) Issue date: 17/3/1995 Effective Date: 17/3/1995 Revocation Date: -
6B	365.0	SW	471280 105500	Address: Office Car Park, Office Car Park, Phase 6, Langstone Road, Havant, Hampshire Effluent Type: Miscellaneous Discharges - Surface Water Permit Number: N01268 Permit Version: 1 Receiving Water: Freshwater River Status: Pre Nra Legislation Where Issue Date < 01-sep-89 (historic Only) Issue date: 13/4/1978 Effective Date: 13/4/1978 Revocation Date: 17/3/1995
7B	365.0	SW	471280 105500	Address: Office Car Park, Office Car Park, Phase 6, Langstone Road, Havant, Hampshire Effluent Type: Miscellaneous Discharges - Surface Water Permit Number: N01268 Permit Version: 2 Receiving Water: Freshwater River Status: Post Nra Legislation Where Issue Date > 31-aug-89 (historic Only) Issue date: 17/3/1995 Effective Date: 17/3/1995 Revocation Date: -
8	464.0	N	471550 106320	Address: 62-66 West Street, 62-66 West Street, Havant Hampshire Effluent Type: Miscellaneous Discharges - Surface Water Permit Number: N01171 Permit Version: 1 Receiving Water: Freshwater River Status: Lapsed Under Schedule 23 Environment Act 1995 Issue date: 4/6/1982 Effective Date: 4/6/1982 Revocation Date: 31/3/1997

1.1.10 Records of Planning Hazardous Substance Consents and Enforcements within 500m of the study site:

0

Database searched and no data found.

1.2 Dangerous or Hazardous Sites

Records of COMAH & NIHHS sites within 500m of the study site:

0

Database searched and no data found.

1.3 Environment Agency Recorded Pollution Incidents

1.3.1 Records of National Incidents Recording System, List 2 within 500m of the study site:

3

The following NIRS List 2 records are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance	Direction	NGR	Details
1	214.0	E	471820 105722	Incident Date: 11/06/2003 Incident Identification: 164901 Pollutant: Oils and Fuel Pollutant Description: Unidentified Oil Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 3 (Minor)

ID	Distance	Direction	NGR	Details	
2	311.0	N	471515 106168	Incident Date: 16/01/2002 Incident Identification: 52708 Pollutant: Inert Materials and Wastes Pollutant Description: Other Inert Material or Waste	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
3	436.0	NW	471316 106241	Incident Date: 02/05/2002 Incident Identification: 76228 Pollutant: Oils and Fuel Pollutant Description: Mixed/Waste Oils	Water Impact: Category 3 (Minor) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)

1.3.2 Records of National Incidents Recording System, List 1 within 500m of the study site:

0

Database searched and no data found.

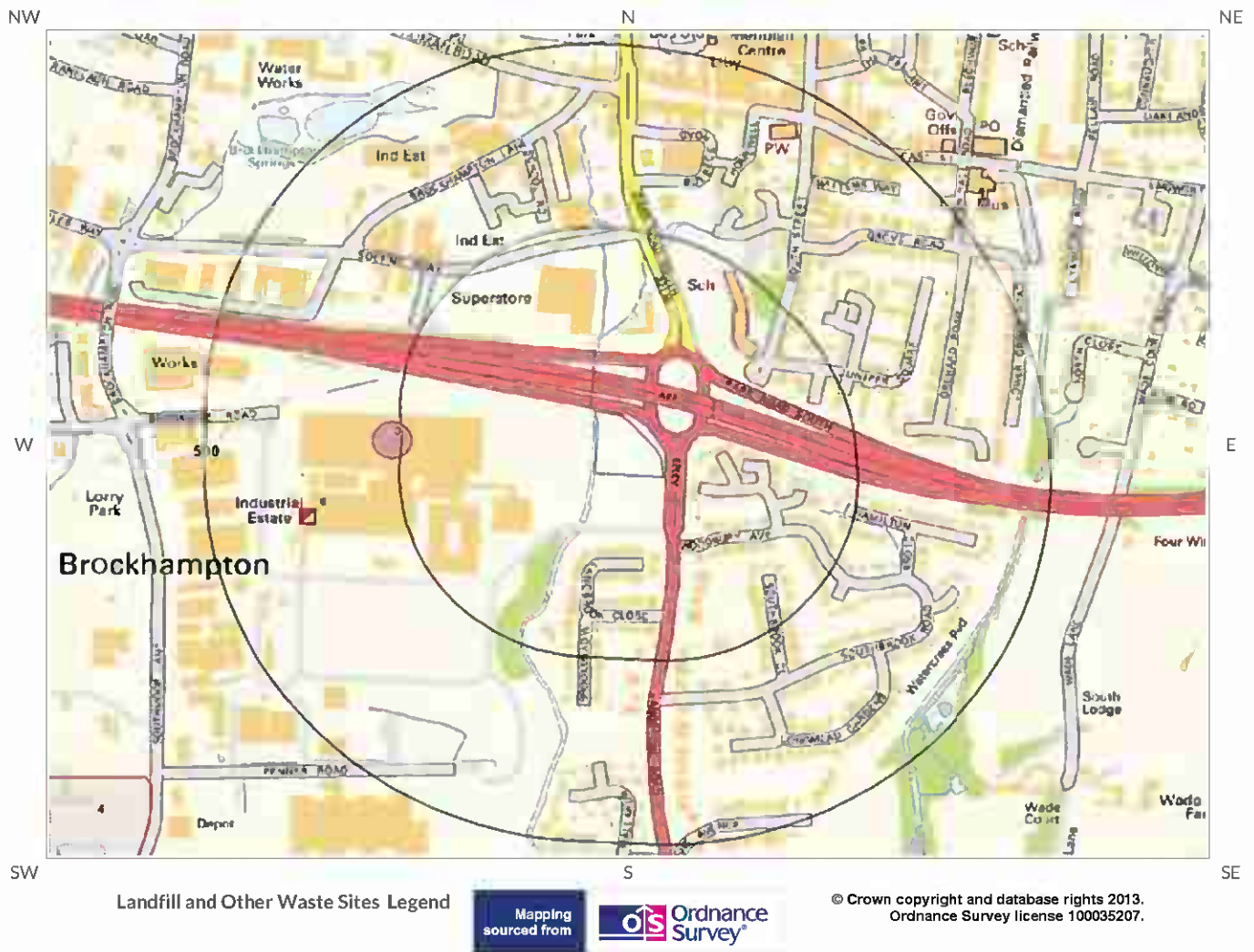
1.4 Sites Determined as Contaminated Land under Part 2A EPA 1990

How many records of sites determined as contaminated land under Section 78R of the Environmental Protection Act 1990 are there within 500m of the study site?

0

Database searched and no data found.

2. Landfill and Other Waste Sites Map





2. Landfill and Other Waste Sites

2.1 Landfill Sites

2.1.1 Records from Environment Agency landfill data within 1000m of the study site:

1

The following Environment Agency landfill records are represented as polygons on the Landfill and Other Waste Sites map:

ID	Distance (m)	Direction	NGR	Details
Not shown	940.0	NW	470600 106390	Address: Bedhampton Waterworks, Meyrick Road, Havant, Hampshire, PO9 1NN Landfill Reference: 19988.0 Environmental Permitting Regulations (Waste) Reference: POR008 Landfill Type: A5 : Landfill taking Non-Biodegradable Wastes Operator: Portsmouth Water Ltd Status: IPPC IPPC Reference: EPR Reference:

2.1.2 Records of Environment Agency historic landfill sites within 1500m of the study site:

2

The following landfill records are represented as either points or polygons on the Landfill and Other Waste Sites map:

ID	Distance (m)	Direction	NGR	Details
4	708.0	SW	470700 105200	Site Address: Land South Of Budds Farm Sewage Works, Brockhampton, Hampshire Waste Licence: - Site Reference: FHA10, HAV4 Waste Type: Household, Environmental Permitting Regulations (Waste) Reference: - Licence Issue: Licence Surrendered: Licence Hold Address: - Operator: -
Not shown	1152.0	W	470000 105500	Site Address: Harts Farm Way, Harts Farm Way, Havant Waste Licence: Yes Site Reference: FHA15, 1760/1/13/6 Waste Type: Household, Environmental Permitting Regulations (Waste) Reference: - Licence Issue: 24-Nov-1978 Licence Surrendered: Licence Hold Address: The Castle, Winchester, Hampshire Operator: -

2.1.3 Records of BGS/DoE non-operational landfill sites within 1500m of the study site:

1

The following landfill records are represented as points on the Landfill and Other Waste Sites map:

ID	Distance (m)	Direction	NGR	Details
Not shown	1432.0	W	47010 0.0 10560 0.0	Address: Storhouse Lake Tip, Havant, Hants BGS Number: 33.0 Risk: Risk not recorded Waste Type: N/A

2.1.4 Records of Local Authority landfill sites within 1500m of the study site:

0

Database searched and no data found.

2.2 Other Waste Sites

2.2.1 Records of waste treatment, transfer or disposal sites within 500m of the study site:

1

The following waste treatment, transfer or disposal sites records are represented as points on the Landfill and Other Waste Sites map:

ID	Distance (m)	Direction	NGR	Details
3	237.0	W	471262 105818	Type of Site: Waste Transfer Station Site Address: Langstone Technology Park, 2b Langstone Road, HAVANT, Hampshire, PO9 1SA Planning Application Reference: APP/11/00168 Date: 24/02/2012 Further Details: Scheme comprises Construction of Waste Compactor Housing and Consumables store. An application (ref: APP/11/00168) for detailed planning permission was submitted to Havant B.C. A detailed planning application has been submitted. Data Source: Historic Planning Application Data Type: Point

2.2.2 Records of Environment Agency licensed waste sites within 1500m of the study site:

30

The following waste treatment, transfer or disposal sites records are represented as points on the Landfill and Other Waste Sites map:

ID	Distance (m)	Direction	NGR	Details
6	373.0	W	471154 105715	Site Address: Teleplan, Langstone Road, Havant, Hampshire, PO9 1SA Type: WEEE treatment facility Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: TWE008 EPR reference: EA/EPR/AB3230HA/A001 Operator: Teleplan And White Electronics B V Waste Management licence No: 400450 Annual Tonnage: 0.0 Issue Date: 13/06/2013 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Langstone Technology Park Correspondence Address: -, -
Not shown	746.0	W	470778 105717	Site Address: Havant Lorry Park, Southmoor Lane, Havant, Hampshire, PO9 1JW Type: Household, Commercial & Industrial Waste T Stn Size: >= 25000 tonnes < 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: 000936 EPR reference: EA/EPR/AP3092HB/S002 Operator: Sita Solent Ltd Waste Management licence No: 19991 Annual Tonnage: 0.0 Issue Date: 29/09/1997 Effective Date: 31/05/2000 Modified: - Surrendered Date: 19/10/2010 Expiry Date: - Cancelled Date: - Status: Surrendered Site Name: Havant Lorry Park Correspondence Address: -, -
Not shown	746.0	W	470778 105717	Site Address: Havant Lorry Park, Southmoor Lane, Havant, Hampshire, PO9 1JW Type: Household, Commercial & Industrial Waste T Stn Size: >= 25000 tonnes < 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: 000936 EPR reference: - Operator: Sita Solent Ltd Waste Management licence No: 19991 Annual Tonnage: 0.0 Issue Date: 29/09/1997 Effective Date: 31/05/2000 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Transferred Site Name: Havant Lorry Park Correspondence Address: -, Dean Road, Yate, Bristol, South Glouceste, BS37 5ND
Not shown	864.0	W	470658 105792	Site Address: Land/ Premises At, Harts Farm Way, Havant, Hampshire, PO9 1JN Type: Household, Commercial & Industrial Waste T Stn Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: TJW005 EPR reference: EA/EPR/NP3695EU/A001 Operator: T J Waste & Recycling Ltd Waste Management licence No: 100089 Annual Tonnage: 124999.0 Issue Date: 17/09/2007 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Havant Waste Transfer Facility Correspondence Address: -, -
Not shown	864.0	W	470658 105792	Site Address: Harts Farm Way, Havant, Hampshire, PO9 1JN Type: Household, Commercial & Industrial Waste T Stn Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: TJW005 EPR reference: - Operator: T J Waste And Recycling Limited Waste Management licence No: 100089 Annual Tonnage: 0.0 Issue Date: 17/09/2007 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Havant Waste Transfer Facility Correspondence Address: -, The Pavilion, 2, Sherbourne Road, South Farnborough, Farnborough, Hampshire, GU14 6JT

ID	Distance (m)	Direction	NGR	Details
Not shown	864.0	W	470658 105792	Site Address: Harts Farm Way, Havant, Hampshire, PO9 1JN Type: Household, Commercial & Industrial Waste T Stn Size: >= 25000 tonnes < 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: DUD001 EPR reference: - Operator: Dudman Waste & Environmental Ltd Waste Management licence No: 10221 Annual Tonnage: 74884.0 Issue Date: 23/11/2000 Effective Date: 02/07/2002 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Transferred Site Name: Harts Farm Way Transfer Station Correspondence Address: -, Unit 6 Rudforf Industrial Estate, Ford, West Sussex, BN18 0BD
Not shown	864.0	W	470658 105792	Site Address: Harts Farm Way Transfer Station, Harts Farm Way, Havant, Hampshire, PO9 1JN Type: Household, Commercial & Industrial Waste T Stn Size: >= 25000 tonnes < 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: DUD004 EPR reference: EA/EPR/DP3095HH/T003 Operator: T J Waste & Recycling Ltd Waste Management licence No: 10221 Annual Tonnage: 74884.0 Issue Date: 23/11/2000 Effective Date: 11/01/2008 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Transferred Site Name: Harts Farm Way Transfer Station Correspondence Address: -, -
Not shown	864.0	W	470658 105792	Site Address: Harts Farm Way, Havant, Hampshire, PO9 1JN Type: Household, Commercial & Industrial Waste T Stn Size: >= 25000 tonnes < 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: DUD004 EPR reference: - Operator: T J Waste & Recycling Ltd. Waste Management licence No: 10221 Annual Tonnage: 74884.0 Issue Date: 23/11/2000 Effective Date: 11/01/2008 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Transferred Site Name: Harts Farm Way Transfer Station Correspondence Address: -, Charity Farm, 127, Wickham Road, Fareham, Hampshire, PO17 5BP
Not shown	866.0	W	470700 105500	Site Address: Budds Farm Wastewater Treatment Works, Budds Farm, Southmoor, Hampshire, PO9 1JW Type: Landfill Gas Engine (<3 mW) Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: SOU643 EPR reference: EA/EPR/ZP3235XJ/V002 Operator: Southern Water Services Limited Waste Management licence No: 400061 Annual Tonnage: 0.0 Issue Date: 10/04/2013 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Budds Farm Combined Heat And Power Plant Correspondence Address: -, -
Not shown	883.0	W	470700 105450	Site Address: Budds Farm Water Treatment Works, Southmoor Lane, Budds Farm, Havant, Hampshire, PO9 1JW Type: Biological Treatment Facility Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: SOU038 EPR reference: EA/EPR/AP3392HG/A001 Operator: Southern Water Services Limited Waste Management licence No: 19990 Annual Tonnage: 1200.0 Issue Date: 16/02/1996 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: W T W Correspondence Address: -, -

ID	Distance (m)	Direction	NGR	Details	
Not shown	883.0	W	470700 105450	Site Address: Southmoor Lane, Havant, Hampshire, PO9 1JW Type: Biological Treatment Facility Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: SOU038 EPR reference: - Operator: Southern Water Services Ltd Waste Management licence No: 19990 Annual Tonnage: 0.0	Issue Date: 16/02/1996 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Budds Farm Waste Water Treatment Works Correspondence Address: -, Southern House, Sparrowgrove, Otterbourne, Winchester, Hampshire, SO21 2SW
Not shown	950.0	NE	472130 106610	Site Address: 8, New Lane, Havant, Hampshire, PO9 2JH Type: Household, Commercial & Industrial Waste T Stn Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: WES001 EPR reference: EA/EPR/WP3292HL/A001 Operator: Wessex Construction And Plant Ltd Waste Management licence No: 19986 Annual Tonnage: 75000.0	Issue Date: 05/12/1991 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Expired Site Name: Transfer Station At New Lane Correspondence Address: -, -
Not shown	980.0	W	470543 105725	Site Address: Conroys Recycling Ltd, Harts Farm Way, Havant, Hants, PO9 1JN Type: Physical Treatment Facility Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: CON136 EPR reference: EA/EPR/JB3936RC/A001 Operator: Conroys Recycling Ltd Waste Management licence No: 104552 Annual Tonnage: 74999.0	Issue Date: 17/12/2012 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Harts Farm Way Correspondence Address: -, -
Not shown	984.0	W	470541 105918	Site Address: Havant Incinerator, Harts Farm Way, Havant, Hampshire Type: Household, Commercial & Industrial Waste T Stn Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: ASS002 EPR reference: EA/EPR/WP3792HZ/S002 Operator: Associated Environmental Projects (Hampshire) Ltd Waste Management licence No: 19989 Annual Tonnage: 25000.0	Issue Date: 21/06/1993 Effective Date: - Modified: - Surrendered Date: 26/11/2001 Expiry Date: - Cancelled Date: - Status: Surrendered Site Name: Recycling Storage Bays Correspondence Address: -, -
Not shown	984.0	W	470541 105918	Site Address: Havant Incinerator, Harts Farm Way, Havant, Hampshire Type: Household, Commercial & Industrial Waste T Stn Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: ASS002 EPR reference: EA/EPR/WP3792HZ/S002 Operator: Associated Environmental Projects (hampshire) Ltd Waste Management licence No: 19989 Annual Tonnage: 25000.0	Issue Date: 21/06/1993 Effective Date: - Modified: - Surrendered Date: 26/11/2001 Expiry Date: - Cancelled Date: - Status: Surrendered Site Name: Recycling Storage Bays Correspondence Address: -, -

ID	Distance (m)	Direction	NGR	Details
Not shown	992.0	NW	470680 106380	Site Address: Bedhampton Waste Works, Meyrick Road, Havant, Hampshire, PO9 1NN Type: Transfer Station taking Non-Biodegradable Wastes Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: POR022 EPR reference: EA/EPR/BP3998HK/A001 Operator: Portsmouth Water Ltd Waste Management licence No: 10279 Annual Tonnage: 23000.0 Issue Date: 29/06/2007 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Bedhampton Waste Works Correspondence Address: -, -
Not shown	992.0	NW	470680 106380	Site Address: Bedhampton Waste Works, Meyrick Road, Havant, Hampshire, PO9 1NN Type: Transfer Station taking Non-Biodegradable Wastes Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: POR022 EPR reference: EA/EPR/BP3998HK/A001 Operator: Portsmouth Water Limited Waste Management licence No: 10279 Annual Tonnage: 23000.0 Issue Date: 29/06/2007 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Bedhampton Waste Works Correspondence Address: -, -
Not shown	992.0	W	470530 105760	Site Address: Land/ Premises At, Harts Farm Way, Havant, Hampshire, PO9 1JN Type: Household, Commercial & Industrial Waste T Stn Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: HOP014 EPR reference: EA/EPR/WP3592HT/V002 Operator: Hopkins Recycling Ltd Waste Management licence No: 19983 Annual Tonnage: 24999.0 Issue Date: 29/06/1993 Effective Date: - Modified: 19/08/2004 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: H W R C Correspondence Address: -, -
Not shown	992.0	W	470530 105760	Site Address: Harts Farm Way, Havant, Hampshire, PO9 1JN Type: Household, Commercial & Industrial Waste T Stn Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: HAM003 EPR reference: - Operator: Hampshire Recycling Ltd Waste Management licence No: 19983 Annual Tonnage: 0.0 Issue Date: 04/11/1998 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: H W R C At Harts Farm Way Correspondence Address: -, Unit 10, Bridge Farm, Curbridge, Botley, Hampshire, SO30 2HB
Not shown	1005.0	W	470518 105738	Site Address: Havant H W R C, Harts Farm Way, Havant, Hampshire, PO9 1JN Type: Household Waste Amenity Site Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: HOP015 EPR reference: EA/EPR/PP3198HX/S003 Operator: Hopkins Recycling Limited Waste Management licence No: 10275 Annual Tonnage: 131100.0 Issue Date: 18/09/2006 Effective Date: - Modified: - Surrendered Date: 23/12/2013 Expiry Date: - Cancelled Date: - Status: Surrendered Site Name: Havant H W R C Correspondence Address: -, -
Not shown	1005.0	W	470518 105738	Site Address: Havant Hwrc, Harts Farm Way, Havant, Hampshire, PO9 1HR Type: Household Waste Amenity Site Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: HOP015 EPR reference: EA/EPR/PP3198HX/A001 Operator: Hopkins Recycling Ltd Waste Management licence No: 10275 Annual Tonnage: 21850.0 Issue Date: 18/09/2006 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Havant Household Waste Recycling Centre Correspondence Address: -, -

ID	Distance (m)	Direction	NGR	Details	
Not shown	1005.0	W	470518 105738	Site Address: Havant Hwrc, Harts Farm Way, Havant, Hampshire, PO9 1HR Type: Household, Commercial & Industrial Waste T Stn Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: HOP015 EPR reference: - Operator: Hopkins Recycling Ltd Waste Management licence No: 10275 Annual Tonnage: 21850.0	Issue Date: 18/09/2006 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Havant Household Waste Recycling Centre Correspondence Address: -, Ashburton Court West, The Castle, Winchester, Hampshire, SO23 8UD
Not shown	1023.0	W	470500 105850	Site Address: Havant H W R C, Harts Farm Way, Havant, Hampshire, PO9 1JN Type: Non-hazardous & hazardous HWA Site Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: HOP043 EPR reference: EA/EPR/BB3538AG/A001 Operator: Hopkins Recycling Limited Waste Management licence No: 103260 Annual Tonnage: 74999.0	Issue Date: 02/03/2012 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Havant Household Waste Recycling Centre Correspondence Address: -, -
Not shown	1024.0	W	470500 105900	Site Address: Harts Farm Way, Havant, Hampshire, PO9 1JN Type: Metal Recycling Site (mixed MRS's) Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: ONY032 EPR reference: - Operator: Onyx (hampshire) Ltd Waste Management licence No: 10229 Annual Tonnage: 320.0	Issue Date: 19/12/2002 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Harts Farm Depot Correspondence Address: -, Poles Lane, Winchester, Otterbourne, Hampshire, SO21 1EA
Not shown	1024.0	W	470500 105900	Site Address: Harts Farm Way Depot, Harts Farm Way, Havant, Hampshire, PO9 1JN Type: Metal Recycling Site (mixed MRS's) Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: HAM039 EPR reference: EA/EPR/FP3594LP/S002 Operator: Hampshire County Council Waste Management licence No: 10229 Annual Tonnage: 3200.0	Issue Date: 19/12/2002 Effective Date: 01/02/2010 Modified: - Surrendered Date: 23/09/2013 Expiry Date: - Cancelled Date: - Status: Surrendered Site Name: Harts Farm Depot Correspondence Address: -, -
Not shown	1024.0	W	470500 105900	Site Address: Harts Farm Way, Havant, Hampshire, PO9 1JN Type: Metal Recycling Site (mixed MRS's) Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: ONY032 EPR reference: - Operator: Veolia E S Hampshire Ltd Waste Management licence No: 10229 Annual Tonnage: 32.0	Issue Date: 19/12/2002 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Harts Farm Depot Correspondence Address: -, Poles Lane, Winchester, Otterbourne, Hampshire, SO21 1EA
Not shown	1051.0	NW	470600 106360	Site Address: Bedhampton Waterworks, Meyrick Road, Havant, Hampshire Type: Landfill taking Non-Biodegradable Wastes Size: >= 25000 tonnes < 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: POR008 EPR reference: - Operator: Portsmouth Water Company Ltd Waste Management licence No: 19988 Annual Tonnage: 0.0	Issue Date: 18/02/1992 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Bedhampton Waterworks Correspondence Address: -, P O Box 8, West Street, Havant, Hampshire, PO9 1LG

ID	Distance (m)	Direction	NGR	Details	
Not shown	1066.0	NW	470600 106390	Site Address: Bedhampton Waterworks, Meyrick Road, Havant, Hampshire, PO9 1NN Type: Landfill taking Non-Biodegradable Wastes Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: POR008 EPR reference: EA/EPR/WP3192HB/A001 Operator: Portsmouth Water Ltd Waste Management licence No: 19988 Annual Tonnage: 1126.0	Issue Date: 18/02/1992 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: IPPC Site Name: Bedhampton Waterworks Landfill Correspondence Address: -, -
Not shown	1066.0	NW	470600 106390	Site Address: Bedhampton Waterworks, Meyrick Road, H, Bedhampton, Hampshire, PO9 1NN Type: Inert LF Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: POR044 EPR reference: EA/EPR/NP3439PN/A001 Operator: Portsmouth Water Ltd Waste Management licence No: 210123 Annual Tonnage: 1126.0	Issue Date: 21/04/2005 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Bedhampton Landfill Correspondence Address: -, -
Not shown	1066.0	NW	470600 106390	Site Address: Bedhampton Waterworks, Meyrick Road, Havant, Hampshire, PO9 1NN Type: Inert LF Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: POR008 EPR reference: EA/EPR/NP3439SN/A001 Operator: Portsmouth Water Ltd Waste Management licence No: 19988 Annual Tonnage: 1126.0	Issue Date: 2/18/1992 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: IPPC Site Name: Bedhampton Waterworks Landfill Correspondence Address: -, P O Box 8, West Street, Havant, Hampshire, PO9 1LG

3. Current Land Use Map



Current Land Use Legend



© Crown copyright and database rights 2013.
Ordnance Survey license 100035207.



Site Outline



Search Buffers (m)



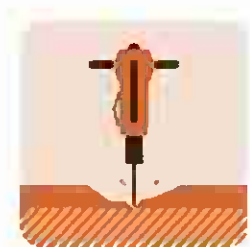
Current Industrial Sites



Petrol & Fuel Sites



Underground High Pressure Oil & Fuel Pipelines



3. Current Land Uses

3.1 Current Industrial Data

Records of potentially contaminative industrial sites within 250m of the study site:

13

The following records are represented as points on the Current Land Uses map.

ID	Distance (m)	Direction	Company	NGR	Address	Activity	Category
1	43.0	E	Gas Governor Station	471649 105806	PO9	Gas Features	Infrastructure and Facilities
2	64.0	SE	Hamilton Havant Ltd	471667 105738	7, Regents Court, Havant, PO9 1SP	Civil Engineers	Engineering Services
3	92.0	N	Electricity Sub Station	471549 105946	PO9	Electrical Features	Infrastructure and Facilities
4	104.0	N	Electricity Sub Station	471512 105960	PO9	Electrical Features	Infrastructure and Facilities
5	119.0	N	Renal Services Independent Dialysis	471573 105969	Langstone Gate, Solent Road, Havant, PO9 1TR	Medical Equipment, Supplies and Pharmaceuticals	Industrial Products
6	156.0	S	Electricity Sub Station	471611 105612	PO9	Electrical Features	Infrastructure and Facilities
7	168.0	NE	Electricity Sub Station	471745 105894	PO9	Electrical Features	Infrastructure and Facilities
8A	201.0	W	Fasset Ltd	471327 105723	Langstone Technology Park, Langstone Road, Havant, PO9 1SA	Business Parks and Industrial Estates	Industrial Features
9A	201.0	W	AET Easycars	471327 105723	Suite 6200 Langstone Technology Park 2b Langstone Road, Havant, PO9 1SA	Vehicle Hire and Rental	Hire Services
10A	201.0	W	Temple Lifts Ltd	471326 105722	Langstone Technology Park 2b, Langstone Road, Havant, PO9 1SA	Industrial Repairs and Servicing	Repair and Servicing
11	221.0	S	Electricity Sub Station	471518 105552	PO9	Electrical Features	Infrastructure and Facilities
12	239.0	N	Electricity Sub Station	471450 106085	PO9	Electrical Features	Infrastructure and Facilities
13	248.0	SE	Electricity Sub Station	471838 105667	PO9	Electrical Features	Infrastructure and Facilities

3.2 Petrol and Fuel Sites

Records of petrol or fuel sites within 500m of the study site:

2

The following petrol or fuel site records provided by Catalist are represented as points on the Current Land Use map:

ID	Distance (m)	Direction	NGR	Company	Address	LPG	Status
14	301.0	NW	471274 106026	Tesco	Tesco Havant Langstone Harbour, Solent Road, Solent Road, Havant, Hampshire, PO9 1TR	No	Open
15	351.0	N	471579 106204	Texaco	Park Road South Service Station, Park Road South, Park Road South, Bulbeck Road, Havant, Hampshire, PO9 1HA	Not Applicable	Obsolete

3.3 Underground High Pressure Oil and Gas Pipelines

Records of high pressure underground pipelines within 500m of the study site:

0

Database searched and no data found.



4. Geology

4.1 Artificial Ground and Made Ground

The database has been searched on site, including a 50m buffer.

Lex Code	Description	Rock Type
MGR-MGRD	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT

4.2 Superficial Ground and Drift Geology

The database has been searched on site, including a 50m buffer.

Lex Code	Description	Rock Type
RTDU-SSCL	RIVER TERRACE DEPOSITS (UNDIFFERENTIATED)	SAND, SILT AND CLAY
ALV-CSSG	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL

4.3 Bedrock and Solid Geology

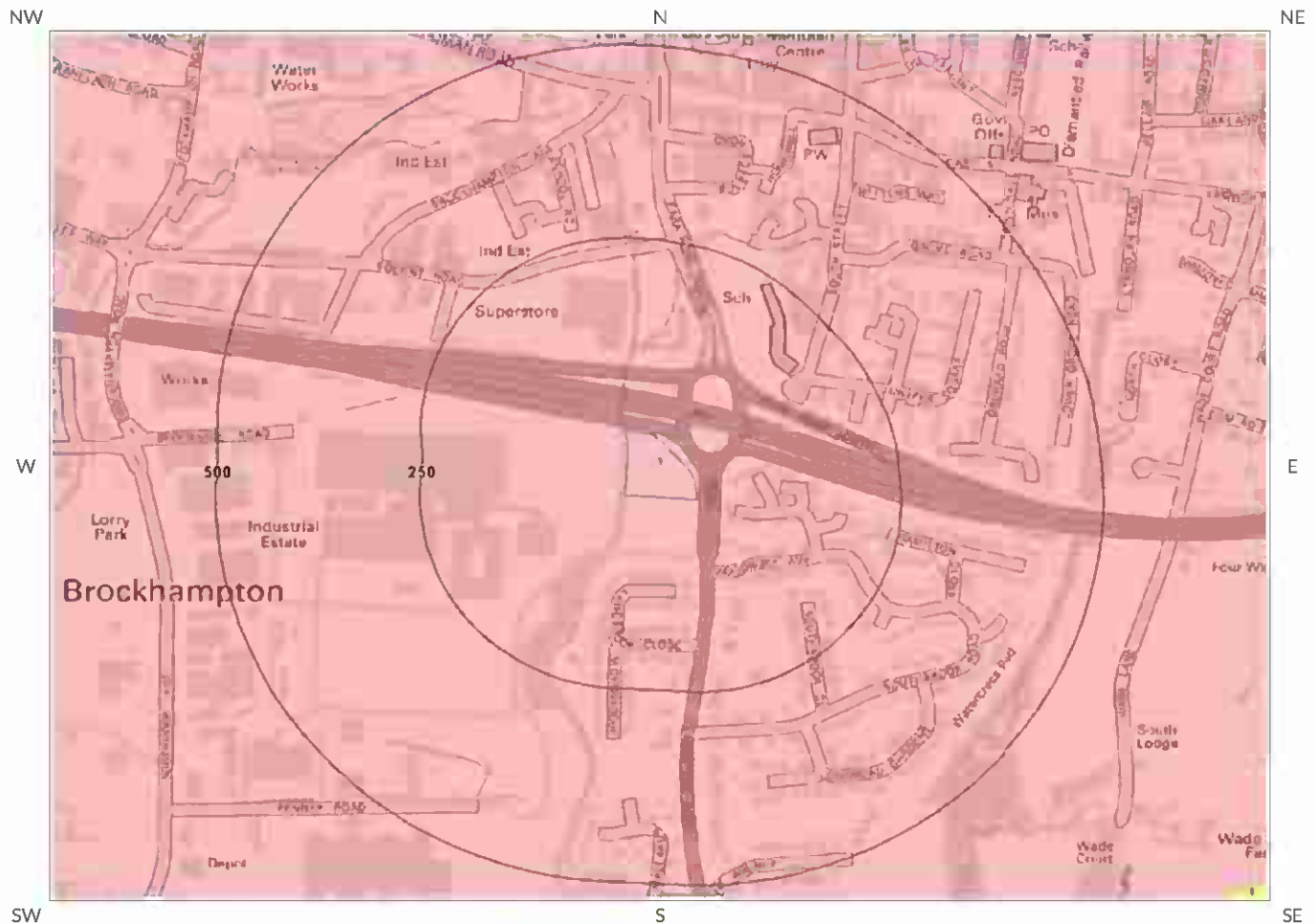
The database has been searched on site, including a 50m buffer.

Lex Code	Description	Rock Type
LPCK-CHLK	LEWES NODULAR CHALK FORMATION, SEAFORD CHALK FORMATION, NEWHAVEN CHALK FORMATION, CULVER CHALK FORMATION AND PORTSDOWN CHALK FORMATION (UNDIFFERENTIATED)	CHALK

(Derived from the BGS 1:50,000 Digital Geological Map of Great Britain)

5. Hydrogeology and Hydrology

5a. Aquifer Within Superficial Geology

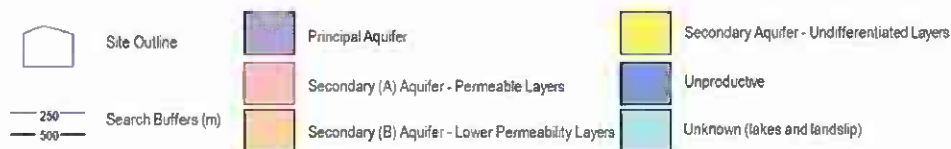


Aquifer Within Superficial Geology

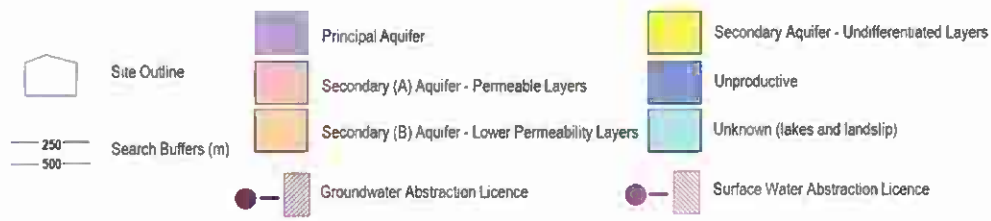
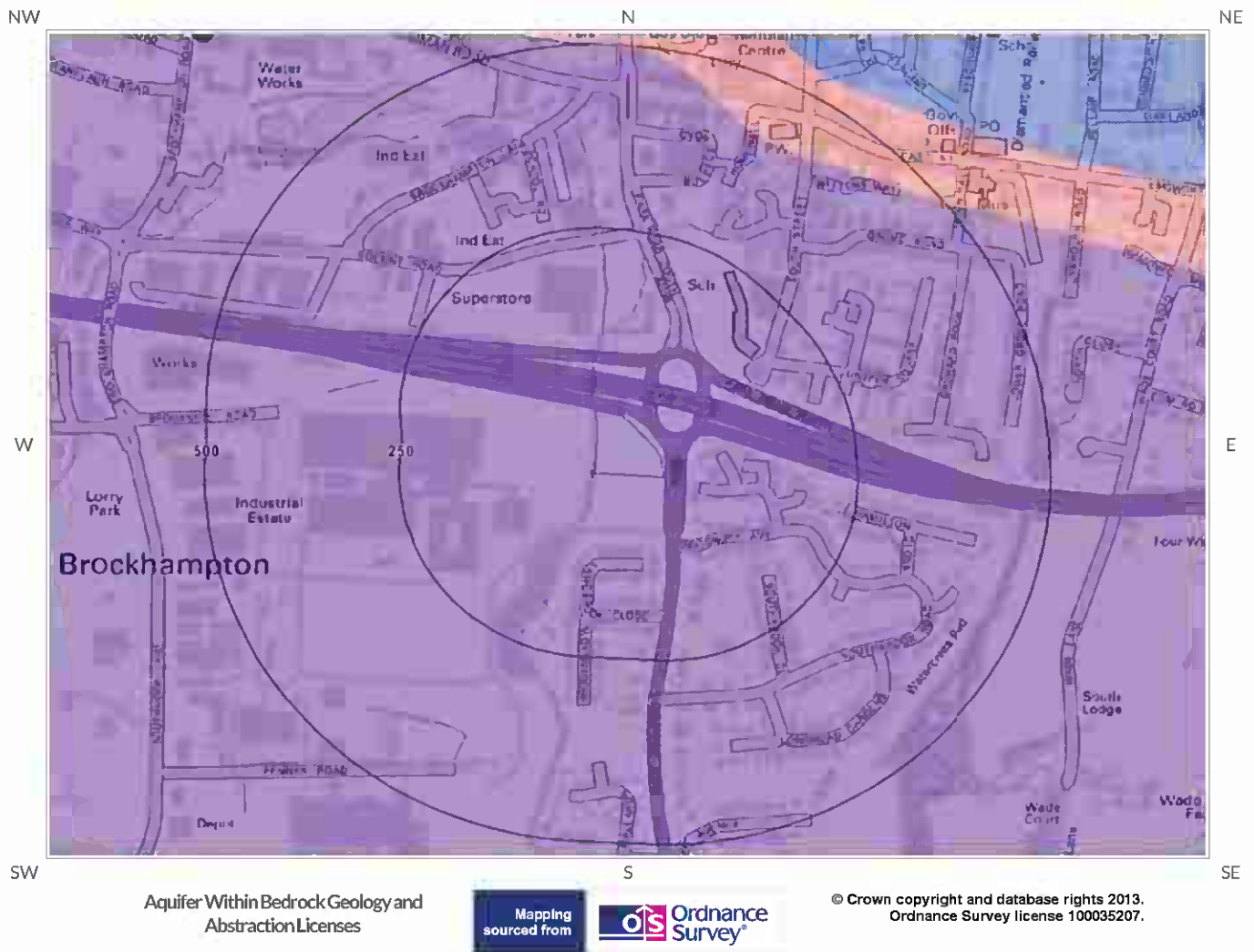
Mapping
sourced from

Ordnance
Survey

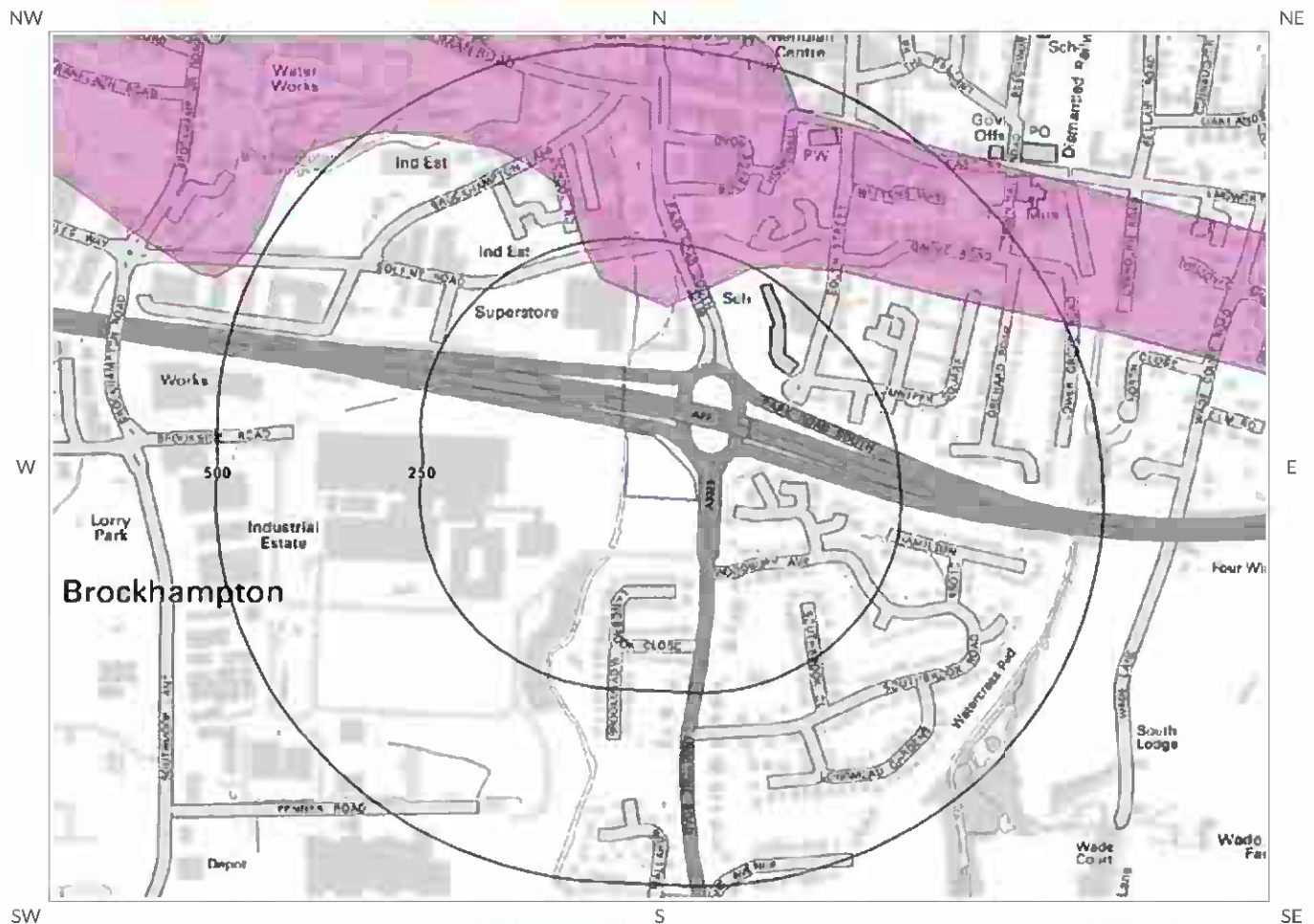
© Crown copyright and database rights 2013.
Ordnance Survey license 100035207.



5b. Aquifer Within Bedrock Geology and Abstraction Licenses



5c. Hydrogeology – Source Protection Zones and Potable Water Abstraction Licenses

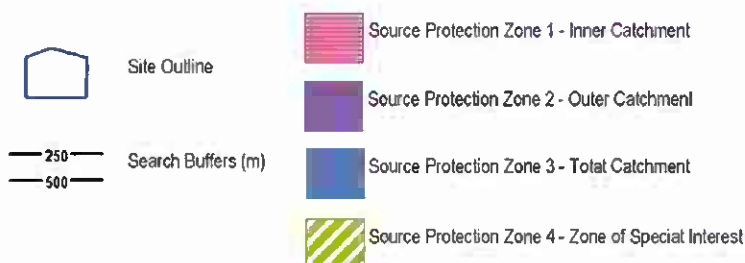


Map Legend Source Protection Zones and Potable Water Abstraction Licenses

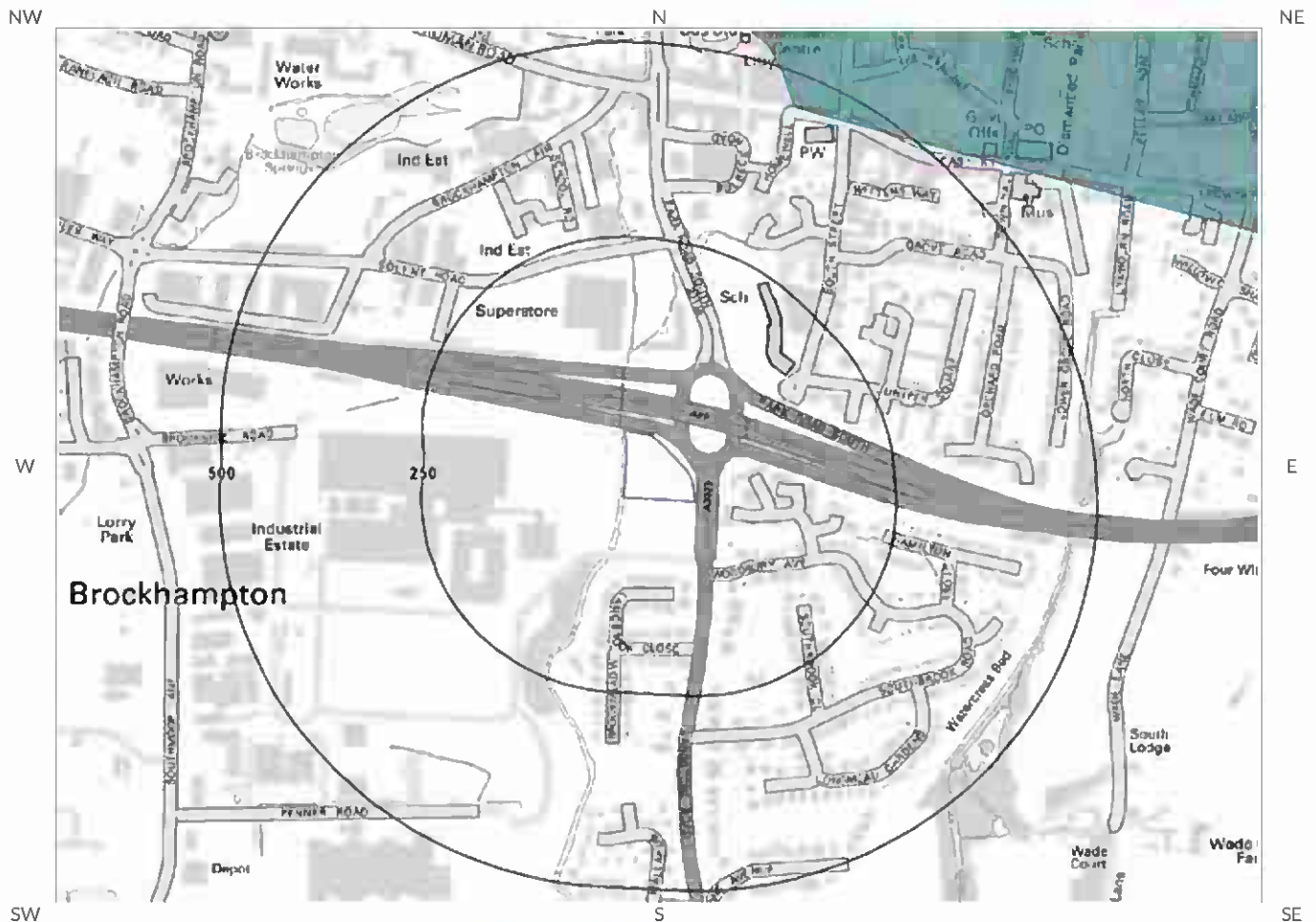
Mapping sourced from



© Crown copyright and database rights 2013. Ordnance Survey license 100035207.



5d. Hydrology Source Protection Zones within confined aquifer



Hydrology Source Protection Zones

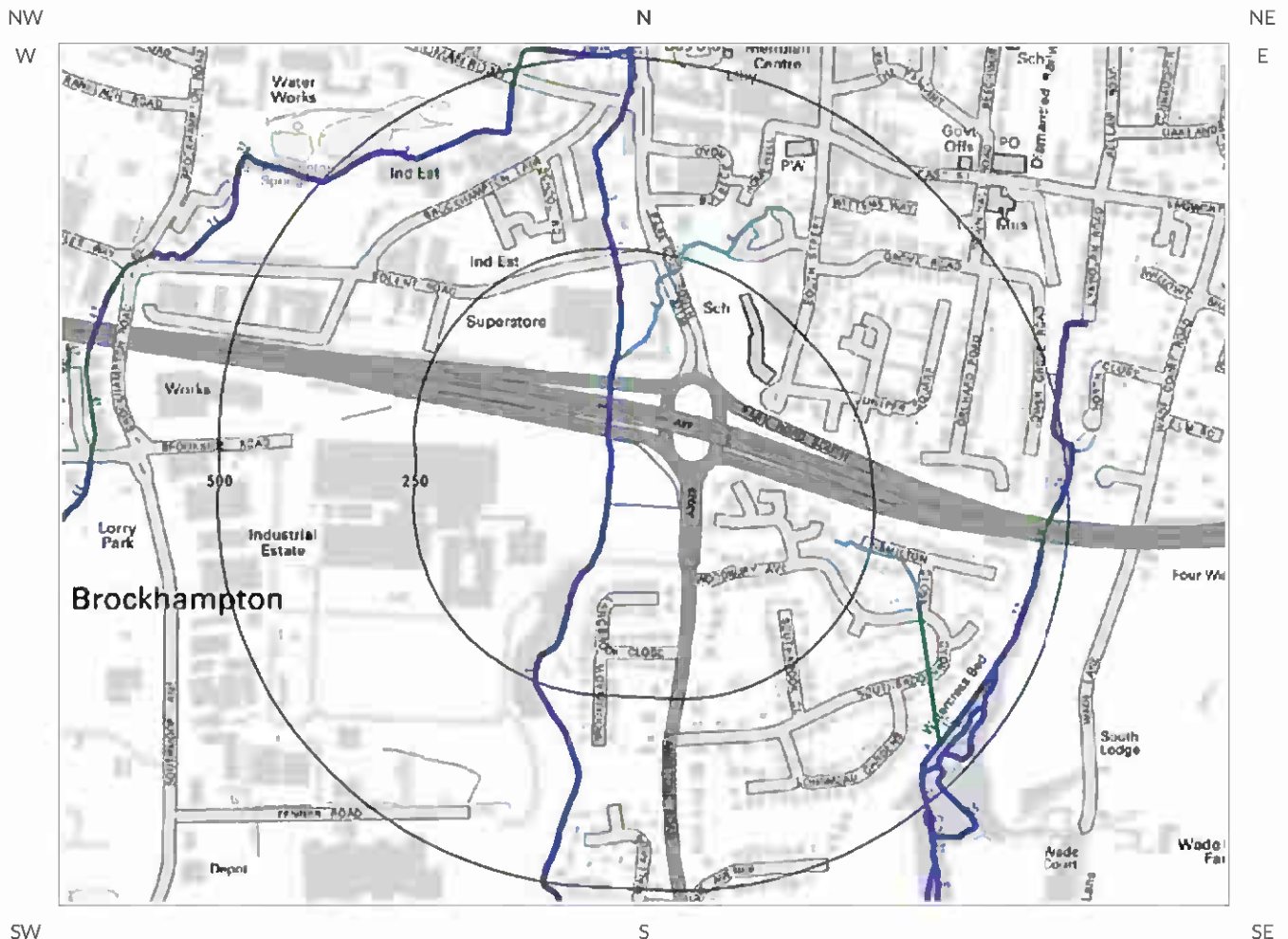
Mapping
sourced from

Ordnance
Survey

© Crown copyright and database rights 2013.
Ordnance Survey license 100035207.



5 e. Hydrology – Detailed River Network and River Quality

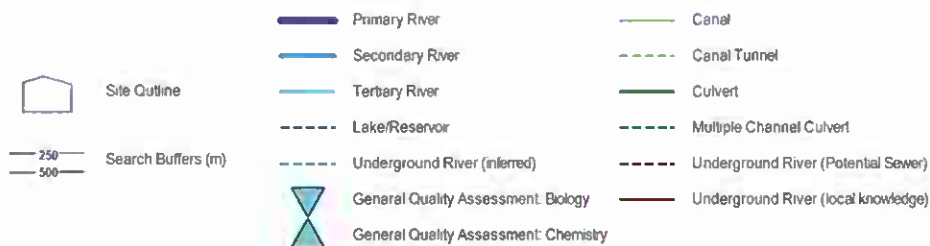


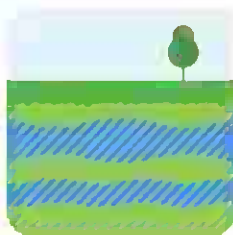
Hydrology – Detailed River Network and River Quality

Mapping sourced from

Ordnance Survey

© Crown copyright and database rights 2013. Ordnance Survey license 100035207.





5.1 Aquifer within Superficial Deposits

From 1 April 2010, the Environment Agency's Groundwater Protection Policy has been using aquifer designations consistent with the Water Framework Directive. For further details on the designation and interpretation of this information, please refer to the GroundSure Enviroinsight User Guide.

The following aquifer records are shown on the Aquifer within Superficial Geology Map (5a):

ID	Distance (m)	Direction	Designation	Description
1	0.0	On Site	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers

Are there records of strata classification within the bedrock geology at or in proximity to the property? Yes

From 1 April 2010, the Environment Agency's Groundwater Protection Policy has been using aquifer designations consistent with the Water Framework Directive. For further details on the designation and interpretation of this information, please refer to the GroundSure Enviroinsight User Guide.

The following aquifer records are shown on the Aquifer within Bedrock Geology Map (5b):

ID	Distance (m)	Direction	Designation	Description
1	0.0	On Site	Principal	Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale. Generally principal aquifers were previously major aquifers
3	419.0	NE	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers

5.3 Groundwater Abstraction Licences

Are there any Groundwater Abstraction Licences within 2000m of the study site?

Yes

The following Abstraction Licences records are represented as points, lines and regions on the Aquifer within Bedrock Geology Map (5b):

ID	Distance (m)	Direction	NGR	Details
6	718.0	NW	471020 106370	Licence No: 11/42/36.2/1 Details: Potable Water Supply - Direct Direct Source: Southern Region Groundwater Point: Bedhampton Ps Spring No 2 Data Type: Point Annual Volume (m³): 35770000 Max Daily Volume (m³): 137000 Original Application No: NPS/WR/003341 Original Start Date: - Expiry Date: - Issue No: 102 Version Start Date: 9/6/2009 Version End Date:
Not shown	1074.0	NW	470580 106370	Licence No: 11/42/36.2/1 Details: Potable Water Supply - Direct Direct Source: Southern Region Groundwater Point: Bedhampton Ps Spring No 1 Data Type: Point Annual Volume (m³): 35770000 Max Daily Volume (m³): 137000 Original Application No: NPS/WR/003341 Original Start Date: - Expiry Date: - Issue No: 102 Version Start Date: 9/6/2009 Version End Date:
Not shown	1122.0	W	470480 106270	Licence No: 11/42/36.2/1 Details: Potable Water Supply - Direct Direct Source: Southern Region Groundwater Point: Havant Ps Data Type: Point Annual Volume (m³): 35770000 Max Daily Volume (m³): 137000 Original Application No: NPS/WR/003341 Original Start Date: - Expiry Date: - Issue No: 102 Version Start Date: 9/6/2009 Version End Date:

5.4 Surface Water Abstraction Licences

Are there any Surface Water Abstraction Licences within 2000m of the study site?

No

Database searched and no data found.

5.5 Potable Water Abstraction Licences

Are there any Potable Water Abstraction Licences within 2000m of the study site?

Yes

The following Potable Water Abstraction Licences records are represented as points, lines and regions on the SPZ and Potable Water Abstraction Licences Map (5c):

ID	Distance (m)	Direction	NGR	Details	
2	718.0	NW	471020 106370	Licence No: 11/42/36.2/1 Details: Potable Water Supply - Direct Direct Source: Southern Region Groundwater Point: Bedhampton Ps Spring No 2 Data Type: Point	Annual Volume (m³): 35770000 Max Daily Volume (m³): 137000 Original Application No: NPS/WR/003341 Original Start Date: - Expiry Date: - Issue No: 102 Version Start Date: Version End Date:
Not shown	1074.0	NW	470580 106370	Licence No: 11/42/36.2/1 Details: Potable Water Supply - Direct Direct Source: Southern Region Groundwater Point: Bedhampton Ps Spring No 1 Data Type: Point	Annual Volume (m³): 35770000 Max Daily Volume (m³): 137000 Original Application No: NPS/WR/003341 Original Start Date: - Expiry Date: - Issue No: 102 Version Start Date: Version End Date:
Not shown	1122.0	W	470480 106270	Licence No: 11/42/36.2/1 Details: Potable Water Supply - Direct Direct Source: Southern Region Groundwater Point: Havant Ps Data Type: Point	Annual Volume (m³): 35770000 Max Daily Volume (m³): 137000 Original Application No: NPS/WR/003341 Original Start Date: - Expiry Date: - Issue No: 102 Version Start Date: Version End Date:

5.6 Source Protection Zones

Are there any Source Protection Zones within 500m of the study site?

Yes

The following Source Protection Zones records are represented on the SPZ and Potable Water Abstraction Map (5c):

ID	Distance (m)	Direction	Type	Description
1	168.0	N	1	Inner Catchment

5.7 Source Protection Zones within Confined Aquifer

Are there any Source Protection Zones within the Confined Aquifer within 500m of the study site?

Yes

Historically, Source Protection Zone maps have been focused on regulation of activities which occur at or near the ground surface, such as prevention of point source pollution and bacterial contamination of water supplies. Sources in confined aquifers were often considered to be protected from these surface pressures due to the presence of a low permeability confining layer (e.g. glacial till, clay). The increased interest in subsurface activities such as onshore oil and gas exploration, ground source heating and cooling requires protection zones for confined sources to be marked on SPZ maps where this has not already been done.

The following Source Protection Zones records are represented on the SPZ within Confined Aquifer and Potable Water Abstraction Map(5e):

ID	Distance	Direction	Type	Description
1	458	NE	1c	Inner catchment within confined aquifer

5.8 Groundwater Vulnerability and Soil Leaching Potential

Is there any Environment Agency information on groundwater vulnerability and soil leaching potential within 500m of the study site? Yes

Distance (m)	Direction	Classification	Soil Vulnerability Category	Description
0	On Site	Minor Aquifer/High Leaching Potential	HU	Soil information for urban areas and restored mineral workings. These soils are therefore assumed to be highly permeable in the absence of site-specific information.
34	S	Major Aquifer/High Leaching Potential	HU	Soil information for urban areas and restored mineral workings. These soils are therefore assumed to be highly permeable in the absence of site-specific information.
34	S	Major Aquifer/High Leaching Potential	H1	Soils which readily transmit liquid discharges because they are shallow or susceptible to rapid flow directly to rock, gravel or groundwater.
193	S	Major Aquifer/Intermediate Leaching Potential	I1	Soils which can possibly transmit a wide range of pollutants.
353	SE	Major Aquifer/High Leaching Potential	H1	Soils which readily transmit liquid discharges because they are shallow or susceptible to rapid flow directly to rock, gravel or groundwater.
355	E	Minor Aquifer/High Leaching Potential	H1	Soils which readily transmit liquid discharges because they are shallow or susceptible to rapid flow directly to rock, gravel or groundwater.
398	W	Major Aquifer/Intermediate Leaching Potential	I1	Soils which can possibly transmit a wide range of pollutants.

5.9 River Quality

Is there any Environment Agency information on river quality within 1500m of the study site? Yes

5.9.1 Biological Quality:

Database searched and no data found.

5.9.2 Chemical Quality:

Chemical quality data is based on the General Quality Assessment Headline Indicators scheme (GQAH). In England, each chemical sample is measured for ammonia and dissolved oxygen. In Wales, the samples are measured for biological oxygen demand (BOD), ammonia and dissolved oxygen. The results are graded from A ('Very Good') to F ('Bad').

The following Chemical Quality records are shown on the Hydrology Map (5d):

ID	Distance (m)	Direction	NGR	River Quality Grade	Chemical Quality Grade				
					2005	2006	2007	2008	2009
Not shown	1025.0	NW	471073 106778	River Name: Hermitage Stream Reach: Tidal Limit - Source End/Start of Stretch: Sample Point NGR	B	B	B	B	B
Not shown	1224.0	W	470300 105900	River Name: Hermitage Stream Reach: Tidal Limit - Source End/Start of Stretch: End of Stretch NGR	B	B	B	B	B

5.10 Detailed River Network

Are there any Detailed River Network entries within 500m of the study site?

Yes

The following Detailed River Network records are represented on the Hydrology Map (5d):

ID	Distance (m)	Direction	Details	
1	2.0	W	River Name: - Welsh River Name: - Alternative Name: -	River Type: Primary River Main River Status: Currently Undefined
2	6.0	NW	River Name: - Welsh River Name: - Alternative Name: -	River Type: Primary River Main River Status: Currently Undefined
3	105.0	N	River Name: - Welsh River Name: - Alternative Name: -	River Type: Primary River Main River Status: Currently Undefined
4	105.0	N	River Name: - Welsh River Name: - Alternative Name: -	River Type: Secondary River Main River Status: Currently Undefined
5	204.0	E	River Name: - Welsh River Name: - Alternative Name: -	River Type: Secondary River Main River Status: Currently Undefined
6	253.0	N	River Name: - Welsh River Name: - Alternative Name: -	River Type: Secondary River Main River Status: Currently Undefined
7	253.0	N	River Name: - Welsh River Name: - Alternative Name: -	River Type: Secondary River Main River Status: Currently Undefined
8	330.0	E	River Name: - Welsh River Name: - Alternative Name: -	River Type: Culvert Main River Status: Currently Undefined
9	423.0	N	River Name: - Welsh River Name: - Alternative Name: -	River Type: Primary River Main River Status: Currently Undefined
10	452.0	SE	River Name: - Welsh River Name: - Alternative Name: -	River Type: Primary River Main River Status: Currently Undefined
11 A	454.0	SE	River Name: - Welsh River Name: - Alternative Name: -	River Type: Primary River Main River Status: Currently Undefined
12	455.0	SE	River Name: - Welsh River Name: - Alternative Name: -	River Type: Primary River Main River Status: Currently Undefined
13	455.0	SE	River Name: - Welsh River Name: - Alternative Name: -	River Type: Primary River Main River Status: Currently Undefined
14 B	462.0	SE	River Name: - Welsh River Name: - Alternative Name: -	River Type: Primary River Main River Status: Currently Undefined
15	466.0	SE	River Name: - Welsh River Name: - Alternative Name: -	River Type: Primary River Main River Status: Currently Undefined
16 A	466.0	SE	River Name: - Welsh River Name: - Alternative Name: -	River Type: Primary River Main River Status: Currently Undefined
17 B	466.0	SE	River Name: - Welsh River Name: - Alternative Name: -	River Type: Primary River Main River Status: Currently Undefined
18 A	466.0	SE	River Name: - Welsh River Name: - Alternative Name: -	River Type: Primary River Main River Status: Currently Undefined
19	467.0	E	River Name: - Welsh River Name: - Alternative Name: -	River Type: Culvert Main River Status: Currently Undefined
20	474.0	SE	River Name: - Welsh River Name: - Alternative Name: -	River Type: Primary River Main River Status: Currently Undefined
21	482.0	E	River Name: - Welsh River Name: - Alternative Name: -	River Type: Primary River Main River Status: Currently Undefined

ID	Distance (m)	Direction	Details
22	484.0	N	River Name: - Welsh River Name: - Alternative Name: - River Type: Culvert Main River Status: Currently Undefined
23	490.0	E	River Name: - Welsh River Name: - Alternative Name: - River Type: Primary River Main River Status: Currently Undefined

5.11 Surface Water Features

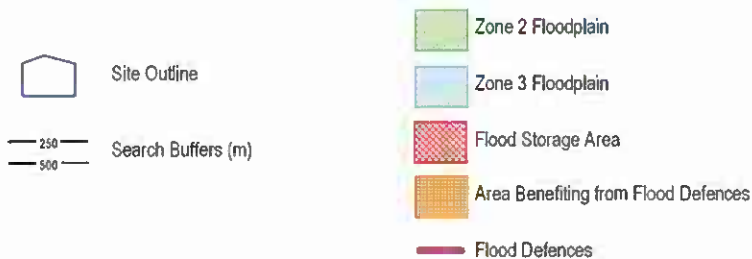
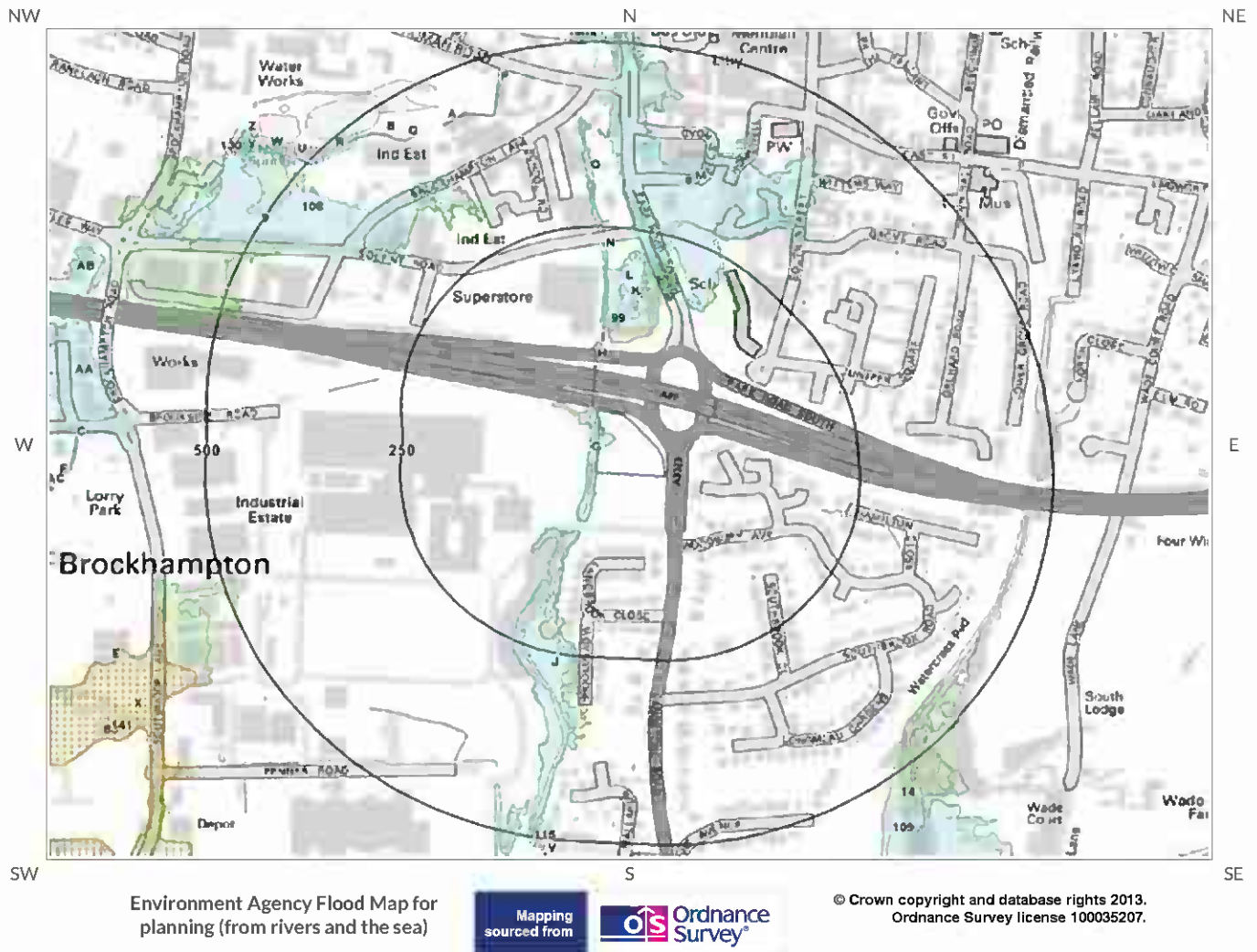
Are there any surface water features within 250m of the study site?

Yes

The following surface water records are not represented on mapping:

Distance (m)	Direction
0.0	On Site
81.0	S
97.0	N
123.0	N
161.0	N
232.0	N
243.0	N

6. Environment Agency Flood Map for planning (from rivers and the sea)





6. Flooding

6.1 Zone 2 Flooding

Environment Agency Zone 2 floodplains estimate the annual probability of flooding as between 1 in 1000 (0.1%) and 1 in 100 (1%) from rivers and between 1 in 1000 (0.1%) and 1 in 200 (0.5%) from the sea. Any relevant data is represented on Map 1 – Environment Agency Flood Map for Planning:

Is the site within 250m of an Environment Agency Zone 2 floodplain? Yes

The following floodplain records are represented as green shading on the Flood Map:

ID	Distance (m)	Direction	Update	Type
1G	0.0	On Site	10-Sep-2014	Zone 2 - (Fluvial Models)
2H	62.0	N	10-Sep-2014	Zone 2 - (Fluvial Models)
3J	81.0	S	10-Sep-2014	Zone 2 - (Fluvial Models)
4I	82.0	N	10-Sep-2014	Zone 2 - (Fluvial Models)
5K	95.0	N	10-Sep-2014	Zone 2 - (Fluvial Models)
6M	169.0	NE	10-Sep-2014	Zone 2 - (Fluvial Models)
7N	203.0	N	10-Sep-2014	Zone 2 - (Fluvial Models)
8O	243.0	N	10-Sep-2014	Zone 2 - (Fluvial Models)

6.2 Zone 3 Flooding

Zone 3 shows the extent of a river flood with a 1 in 100 (1%) or greater chance of occurring in any year or a sea flood with a 1 in 200 (0.5%) or greater chance of occurring in any year. Any relevant data is represented on Map 1 – Environment Agency Flood Map for Planning.

Is the site within 250m of an Environment Agency Zone 3 floodplain? Yes

The following floodplain records are represented as blue shading on the Flood Map:

ID	Distance (m)	Direction	Update	Type
95G	0.0	On Site	11-Sep-2014	Zone 3 - (Fluvial Models)
96H	62.0	N	11-Sep-2014	Zone 3 - (Fluvial Models)
97I	82.0	N	11-Sep-2014	Zone 3 - (Fluvial Models)
98J	82.0	S	11-Sep-2014	Zone 3 - (Fluvial Models)

ID	Distance (m)	Direction	Update	Type
99	108.0	N	11-Sep-2014	Zone 3 - (Fluvial Models)
100L	121.0	N	11-Sep-2014	Zone 3 - (Fluvial Models)
101K	130.0	N	11-Sep-2014	Zone 3 - (Fluvial Models)
102K	144.0	N	11-Sep-2014	Zone 3 - (Fluvial Models)
103L	160.0	N	11-Sep-2014	Zone 3 - (Fluvial Models)
104M	169.0	NE	11-Sep-2014	Zone 3 - (Fluvial Models)
105K	173.0	N	11-Sep-2014	Zone 3 - (Fluvial Models)
106N	204.0	N	11-Sep-2014	Zone 3 - (Fluvial Models)
107O	244.0	N	11-Sep-2014	Zone 3 - (Fluvial Models)

6.3 Flood Defences

Are there any Flood Defences within 250m of the study site?

No

Database searched and no data found.

6.4 Areas benefiting from Flood Defences

Are there any areas benefiting from Flood Defences within 250m of the study site?

No

6.5 Areas benefiting from Flood Storage

Are there any areas used for Flood Storage within 250m of the study site?

No

6.6 Groundwater Flooding Susceptibility Areas

6.6.1 Are there any British Geological Survey groundwater flooding susceptibility areas within 50m of the boundary of the study site?

Yes

Does this relate to Clearwater Flooding or Superficial Deposits Flooding?

Clearwater Flooding

Notes: Groundwater flooding may either be associated with shallow unconsolidated sedimentary aquifers which overlie unproductive aquifers (Superficial Deposits Flooding), or with unconfined aquifers (Clearwater Flooding).

6.6.2 What is the highest susceptibility to groundwater flooding in the search area based on the underlying geological conditions?

Potential at Surface

Where potential for groundwater flooding to occur at surface is indicated, this means that given the geological conditions in the area groundwater flooding hazard should be considered in all land-use planning decisions. It is recommended that other relevant information e.g. records of previous incidence of groundwater flooding, rainfall, property type, and land drainage information be investigated in order to establish relative, but not absolute, risk of groundwater flooding.

6.7 Groundwater Flooding Confidence Areas

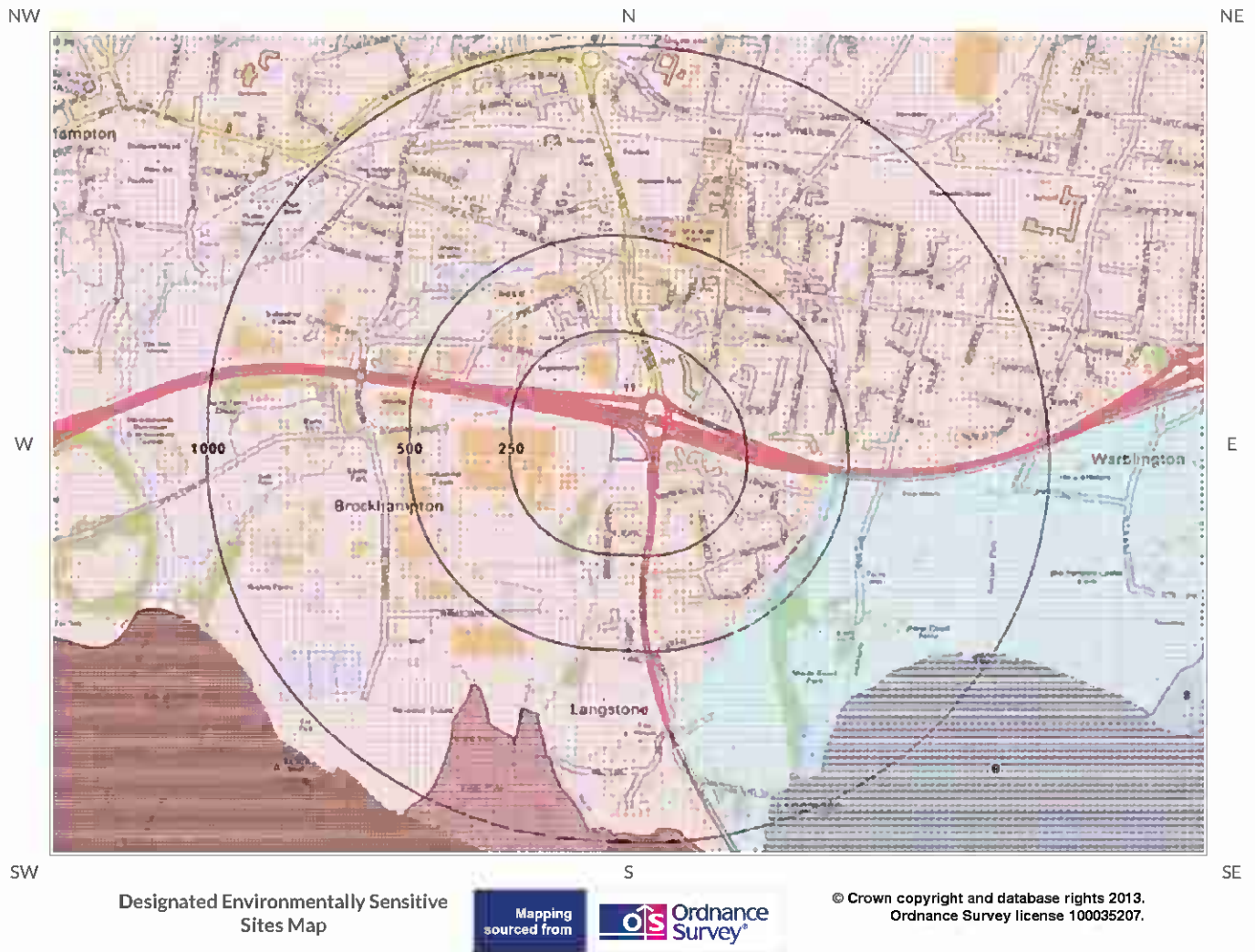
What is the British Geological Survey confidence rating in this result?

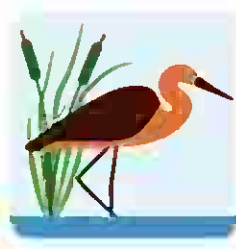
High

Notes: Groundwater flooding is defined as the emergence of groundwater at the ground surface or the rising of groundwater into man-made ground under conditions where the normal range of groundwater levels is exceeded.

The confidence rating is on a threefold scale - Low, Moderate and High. This provides a relative indication of the BGS confidence in the accuracy of the susceptibility result for groundwater flooding. This is based on the amount and precision of the information used in the assessment. In areas with a relatively lower level of confidence the susceptibility result should be treated with more caution. In other areas with higher levels of confidence the susceptibility result can be used with more confidence.

7. Designated Environmentally Sensitive Sites Map





7. Designated Environmentally Sensitive Sites

Presence of Designated Environmentally Sensitive Sites within 2000m of the study site?

Yes

7.1 Records of Sites of Special Scientific Interest (SSSI) within 2000m of the study site:

4

The following Site of Special Scientific Interest (SSSI) records provided by Natural England/Countryside Council for Wales and Scottish Natural Heritage are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	SSSI Name	Data Source
6A	683.0	SW	Langstone Harbour	Natural England
7B	799.0	SE	Chichester Harbour	Natural England
8	1379.0	SE	Warblington Meadow	Natural England
Not shown	1580.0	W	Langstone Harbour	Natural England

7.2 Records of National Nature Reserves (NNR) within 2000m of the study site:

0

Database searched and no data found.

7.3 Records of Special Areas of Conservation (SAC) within 2000m of the study site:

2

The following Special Area of Conservation (SAC) records provided by Natural England/Countryside Council for Wales and Scottish Natural Heritage are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	SAC Name	Data Source
1	799.0	SE	Solent Maritime	Natural England
Not shown	1580.0	W	Solent Maritime	Natural England

7.4 Records of Special Protection Areas (SPA) within 2000m of the study site:

3

The following Special Protection Area (SPA) records provided by Natural England/Countryside Council for Wales and Scottish Natural Heritage are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	SPA Name	Data Source
3A	683.0	SW	Chichester and Langstone Harbours	Natural England
4B	799.0	SE	Chichester and Langstone Harbours	Natural England
Not shown	1580.0	W	Chichester and Langstone Harbours	Natural England

7.5 Records of Ramsar sites within 2000m of the study site:

3

The following Ramsar site records provided by Natural England/Countryside Council for Wales and Scottish Natural Heritage are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	Ramsar Site Name	Data Source
10A	683.0	SW	Chichester and Langstone Harbours	Natural England
11B	799.0	SE	Chichester and Langstone Harbours	Natural England
Not shown	1580.0	W	Chichester and Langstone Harbours	Natural England

7.6 Records of Ancient Woodland within 2000m of the study site:

0

Database searched and no data found.

7.7 Records of Local Nature Reserves (LNR) within 2000m of the study site:

2

The following Local Nature Reserve (LNR) records provided by Natural England/Countryside Council for Wales and Scottish Natural Heritage are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	LNR Name	Data Source
Not shown	1520.0	S	West Hayling	Natural England
Not shown	1520.0	S	Hayling Billy	Natural England

7.8 Records of World Heritage Sites within 2000m of the study site:

0

Database searched and no data found.

7.9 Records of Environmentally Sensitive Areas within 2000m of the study site:

0

Database searched and no data found.

7.10 Records of Areas of Outstanding Natural Beauty (AONB) within 2000m of the study site:

1

The following Area of Outstanding Natural Beauty (AONB) records and Scottish National Scenic Area (NSA) records provided by Natural England/Countryside Council for Wales/Scottish Government are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	AONB/NSA Name	Data Source
18	446.0	SE	Chichester Harbour	Natural England

7.11 Records of National Parks (NP) within 2000m of the study site:

0

Database searched and no data found.

7.12 Records of Nitrate Sensitive Areas within 2000m of the study site:

0

Database searched and no data found.

7.13 Records of Nitrate Vulnerable Zones within 2000m of the study site:

3

The following Nitrate Vulnerable Zone records produced by DEFRA are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	NVZ Name	Data Source
15	0.0	On Site	NVZ Area	DEFRA

ID	Distance (m)	Direction	NVZ Name	Data Source
Not shown	1522.0	W	NVZ Area	DEFRA
Not shown	1603.0	S	NVZ Area	DEFRA



8. Natural Hazards Findings

8.1 Detailed BGS GeoSure Data

BGS GeoSure Data has been searched to 50m. The data is included in tabular format. If you require further information on geology and ground stability, please obtain a **GroundSure GeoInsight**, available from our [website](#). The following information has been found:

8.1.1 Shrink Swell

What is the maximum Shrink-Swell* hazard rating identified on the study site?

Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard

Ground conditions predominantly medium plasticity. Do not plant trees with high soil moisture demands near to buildings. For new build, consideration should be given to advice published by the National House Building Council (NHBC) and the Building Research Establishment (BRE). There is a possible increase in construction cost to reduce potential shrink-swell problems. For existing property, there is a possible increase in insurance risk, especially during droughts or where vegetation with high moisture demands is present.

8.1.2 Landslides

What is the maximum Landslide* hazard rating identified on the study site?

Very Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard

Slope instability problems are unlikely to be present. No special actions required to avoid problems due to landslides. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with landslides.

* This indicates an automatically generated 50m buffer and site.

8.1.3 Soluble Rocks

What is the maximum Soluble Rocks* hazard rating identified on the study site?

Very Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard

Significant soluble rocks are present. Problems unlikely except with considerable surface or subsurface water flow. No special actions required to avoid problems due to soluble rocks. No special ground investigation required or increased construction costs are likely. An increase in financial risk due to potential problems with soluble rocks is unlikely.

8.1.4 Compressible Ground

What is the maximum Compressible Ground* hazard rating identified on the study site?

Moderate

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard

Significant potential for compressibility problems. Avoid large differential loadings of ground. Do not drain or de-water ground near the property without technical advice. For new build consider possibility of compressible ground in ground investigation, construction and building design. Consider effects of groundwater changes. Extra construction costs are likely. For existing property possible increase in insurance risk from compressibility, especially if water conditions or loading of the ground change significantly.

8.1.5 Collapsible Rocks

What is the maximum Collapsible Rocks* hazard rating identified on the study site?

Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard

Slight possibility for collapsible deposit problems after major changes in loading or groundwater conditions. Normal maintenance to avoid large amounts of water entering the ground through pipe leakage or soak-aways should reduce the likelihood of problems due to collapsible deposits. For new build, assess the possibility of collapsible (loessic) deposits in ground investigation. For existing property, no significant increase in insurance risk from collapsible deposits is likely.

8.1.6 Running Sand

What is the maximum Running Sand** hazard rating identified on the study site?

Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard

Possibility of running sand problems after major changes in ground conditions. Normal maintenance to avoid leakage of water-bearing services or water bodies (ponds, swimming pools) should reduce likelihood of problems due to running sand. For new build consider possibility of running sand into trenches or excavations if water table is high or sandy strata are exposed to water. Avoid concentrated water inputs to site. Unlikely to be an increase in construction costs due to potential for running sand. For existing property no significant increase in insurance risk due to running sand problems is likely.

* This indicates an automatically generated 50m buffer and site.



9. Mining

9.1 Coal Mining

Are there any coal mining areas within 75m of the study site?

No

Database searched and no data found.

9.2 Shallow Mining

What is the subsidence hazard relating to shallow mining on-site*?

Negligible

*Please note this data is searched with a 150m buffer.

9.3 Brine Affected Areas

Are there any brine affected areas within 75m of the study site?

No

Guidance: No Guidance Required.

Contact Details

EmapSite
 Telephone: 0118 9736883
 sales@emapsite.com

emapsite™

British Geological Survey Enquiries

Kingsley Dunham Centre
 Keyworth, Nottingham NG12 5GG
 Tel: 0115 936 3143.
 Fax: 0115 936 3276.
 Email: enquiries@bgs.ac.uk
 Web: www.bgs.ac.uk

BGS Geological Hazards Reports and general geological enquiries



Environment Agency

National Customer Contact Centre, PO Box 544
 Rotherham, S60 1BY
 Tel: 08708 506 506
 Web: www.environment-agency.gov.uk
 Email: enquiries@environment-agency.gov.uk



Public Health England

Public information access office
 Public Health England, Wellington House
 133-155 Waterloo Road, London, SE1 8UG
<https://www.gov.uk/government/organisations/public-health-england>
 Email: enquiries@phe.gov.uk
 Main switchboard: 020 7654 8000



The Coal Authority

200 Lichfield Lane
 Mansfield
 Notts NG18 4RG
 Tel: 0345 7626 848
 DX 716176 Mansfield 5
www.coal.gov.uk



Ordnance Survey

Adanac Drive, Southampton
 SO16 0AS
 Tel: 08456 050505



Local Authority

Authority: Havant Borough Council
 Phone: 023 9247 4174
 Web: www.havant.gov.uk
 Address: Civic Centre Road, Havant, Hampshire, PO9 2AX

Gemapping PLC

Virginia Villas, High Street, Hartley Witney,
 Hampshire RG27 8NW
 Tel: 01252 845444



Acknowledgements: Site of Special Scientific Interest, National Nature Reserve, Ramsar Site, Special Protection Area, Special Area of Conservation data is provided by, and used with the permission of, English Nature who retain the Copyright and Intellectual Property Rights for the data. PointX © Database Right/Copyright, Thomson Directories Limited © Copyright Link Interchange Network Limited © Database Right/Copyright and Ordnance Survey © Crown Copyright and/or Database Right. All Rights Reserved. Licence Number [03421028]. This report has been prepared in accordance with the GroundSure Ltd standard Terms and Conditions of business for work of this nature.

Standard Terms and Conditions

1 Definitions

In these terms and conditions unless the context otherwise requires:

"Beneficiary" means the person or entity for whose benefit the Client has obtained the Services.

"Client" means the party or parties entering into a Contract with GroundSure.

"Commercial" means any building or property which is not Residential.

"Confidential Information" means the contents of this Contract and all information received from the Client as a result of, or in connection with, this Contract other than

- (i) information which the Client can prove was rightfully in its possession prior to disclosure by GroundSure and
- (ii) any information which is in the public domain (other than by virtue of a breach of this Contract).

"Support Services" means Support Services provided by GroundSure including, without limitation, interpreting third party and in-house environmental data, providing environmental support advice, undertaking environmental audits and assessments, Site investigation, Site monitoring and related items.

"Contract" means the contract between GroundSure and the Client for the provision of the Services, and which shall incorporate these terms and conditions, the Order, and the relevant User Guide.

"Third Party Data Provider" means any third party providing Third Party Content to GroundSure.

"Data Reports" means reports comprising factual data with no accompanying interpretation.

"Fees" has the meaning set out in clause 5.1.

"GroundSure" means GroundSure Limited, a company registered in England and Wales under number 03421028.

"GroundSure Materials" means all materials prepared by GroundSure and provided as part of the Services, including but not limited to Third Party Content, Data Reports, Mapping, and Risk Screening Reports.

"Intellectual Property" means any patent, copyright, design rights, trade or service mark, moral rights, data protection rights, know-how or trade mark in each case whether registered or not and including applications for the same or any other rights of a similar nature anywhere in the world.

"Mapping" means a map, map data or a combination of historical maps of various ages, time periods and scales.

"Order" means an electronic, written or other order form submitted by the Client requesting Services from GroundSure in respect of a specified Site.

"Ordnance Survey" means the Secretary of State for Business, Innovation and Skills, acting through Ordnance Survey, Adanac Drive, Southampton, SO16 0AS, UK.

"Order Website" means the online platform through which Orders may be placed by the Client and accepted by GroundSure.

"Report" means a Risk Screening Report or Data Report for Commercial or Residential property.

"Residential" means any building or property used as or intended to be used as a single dwelling.

"Risk Screening Report" means a risk screening report comprising factual data with an accompanying interpretation by GroundSure.

"Services" means any Report, Mapping and/or Support Services which GroundSure has agreed to provide by accepting an Order pursuant to clause 2.6.

"Site" means the area of land in respect of which the Client has requested GroundSure to provide the Services.

"Third Party Content" means data, database information or other information which is provided to GroundSure by a Third Party Data Provider.

"User Guide" means the user guide, as amended from time to time, available upon request from GroundSure and on the website (www.GroundSure.com) and forming part of this Contract.

2 Scope of Services, terms and conditions, requests for insurance and quotations

2.1 GroundSure agrees to provide the Services in accordance with the Contract.

2.2 GroundSure shall exercise reasonable skill and care in the provision of the Services.

2.3 Subject to clause 7.3 the Client acknowledges that it has not relied on any statement or representation made by or on behalf of GroundSure which is not set out and expressly agreed in writing in the Contract and all such statements and representations are hereby excluded to the fullest extent permitted by law.

2.4 The Client acknowledges that terms and conditions appearing on a Client's order form, printed stationery or other communication, or any terms or conditions

implied by custom, practice or course of dealing shall be of no effect, and that this Contract shall prevail over all others in relation to the Order.

2.5 If the Client or Beneficiary requests insurance in conjunction with or as a result of the Services, GroundSure shall use reasonable endeavours to recommend such insurance, but makes no warranty that such insurance shall be available from insurers or that it will be offered on reasonable terms. Any insurance purchased by the Client or Beneficiary shall be subject solely to the terms of the policy issued by insurers and GroundSure will have no liability therefor. In addition you acknowledge and agree that GroundSure does not act as an agent or broker for any insurance providers. The Client should take (and ensure that the Beneficiary takes) independent advice to ensure that the insurance policy requested or offered is suitable for its requirements.

2.6 GroundSure's quotations or proposals are valid for a period of 30 days only unless an alternative period of time is explicitly stipulated by GroundSure. GroundSure reserves the right to withdraw any quotation or proposal at any time before an Order is accepted by GroundSure. GroundSure's acceptance of an Order shall be binding only when made in writing and signed by GroundSure's authorised representative or when accepted through the Order Website.

3 The Client's obligations

3.1 The Client shall comply with the terms of this Contract and

- (i) procure that the Beneficiary or any third party relying on the Services complies with and acts as if it is bound by the Contract and
- (ii) be liable to GroundSure for the acts and omissions of the Beneficiary or any third party relying on the Services as if such acts and omissions were those of the Client.

3.2 The Client shall be solely responsible for ensuring that the Services are appropriate and suitable for its and/or the Beneficiary's needs.

3.3 The Client shall supply to GroundSure as soon as practicable and without charge all requisite information (and the Client warrants that such information is accurate, complete and appropriate), including without limitation any environmental information relating to the Site and shall give such assistance as GroundSure shall reasonably require in the provision of the Services including, without limitation, access to the Site, facilities and equipment.

3.4 Where the Client's approval or decision is required to enable GroundSure to carry out work in order to provide the Services, such approval or decision shall be given or procured in reasonable time and so as not to delay or disrupt the performance of the Services.

3.5 Save as expressly permitted by this Contract the Client shall not, and shall procure that the Beneficiary shall not, re-sell, alter, add to, or amend the GroundSure Materials, or use the GroundSure Materials in a manner for which they were not intended. The Client may make the GroundSure Materials available to a third party who is considering acquiring some or all of, or providing funding in relation to, the Site, but such third party cannot rely on the same unless expressly permitted under clause 4.

3.6 The Client is responsible for maintaining the confidentiality of its user name and password if using the Order Website and the Client acknowledges that GroundSure accepts no liability of any kind for any loss or damage suffered by the Client as a consequence of using the Order Website.

4 Reliance

4.1 The Client acknowledges that the Services provided by GroundSure consist of the presentation and analysis of Third Party Content and other content and that information obtained from a Third Party Data Provider cannot be guaranteed or warranted by GroundSure to be reliable.

4.2 In respect of Data Reports, Mapping and Risk Screening Reports, the following classes of person and no other are entitled to rely on their contents;

- (i) the Beneficiary,
- (ii) the Beneficiary's professional advisers, (iii) any person providing funding to the Beneficiary in relation to the Site (whether directly or as part of a lending syndicate),
- (iv) the first purchaser or first tenant of the Site, and
- (v) the professional advisers and lenders of the first purchaser or tenant of the Site.

4.3 In respect of Support Services, only the Client, Beneficiary and parties expressly named in a Report and no other parties are entitled to rely on its contents.

4.4 Save as set out in clauses 4.2 and 4.3 and unless otherwise expressly agreed in writing, no other person or entity of any kind is entitled to rely on any Services or Report issued or provided by GroundSure. Any party considering such Reports and Services does so at their own risk.

5 Fees and Disbursements

5.1 GroundSure shall charge and the Client shall pay fees at the rate and frequency specified in the written proposal, Order Website or Order acknowledgement form, plus (in the case of Support Services) all proper disbursements incurred by GroundSure. The Client shall in addition pay all value added tax or other tax payable on such fees and disbursements in relation to the provision of the Services (together "Fees").

5.2 The Client shall pay all outstanding Fees to GroundSure in full without deduction, counterclaim or set off within 30 days of the date of GroundSure's invoice or such other period as may be agreed in writing between GroundSure and the Client ("Payment Date"). Interest on late payments will accrue on a daily basis from the Payment Date until the date of payment (whether before or after judgment) at the rate of 8% per annum.

5.3 The Client shall be deemed to have agreed the amount of any invoice unless an objection is made in writing within 28 days of the date of the invoice. As soon as reasonably practicable after being notified of an objection, without prejudice to clause 5.2 a member of GroundSure's management team will contact the Client and the parties shall then use all reasonable endeavours to resolve the dispute within 15 days.

6 Intellectual Property and Confidentiality

6.1 Subject to

(i) full payment of all relevant Fees and

(ii) compliance with this Contract, the Client is granted (and is permitted to sub-licence to the Beneficiary) a royalty-free, worldwide, non-assignable and (save to the extent set out in this Contract) non-transferable licence to make use of the GroundSure Materials.

6.2 All Intellectual Property in the GroundSure Materials are and shall remain owned by GroundSure or GroundSure's licensors (including without limitation the Third Party Data Providers) the Client acknowledges, and shall procure acknowledgement by the Beneficiary of, such ownership. Nothing in this Contract purports to transfer or assign any rights to the Client or the Beneficiary in respect of such Intellectual Property.

6.3 Third Party Data Providers may enforce any breach of clauses 6.1 and 6.2 against the Client or Beneficiary.

6.4 The Client shall, and shall procure that any recipients of the GroundSure Materials shall:

(i) not remove, suppress or modify any trade mark, copyright or other proprietary marking belonging to GroundSure or any third party from the Services;

(ii) use the information obtained as part of the Services in respect of the subject Site only, and shall not store or reuse any information obtained as part of the Services provided in respect of adjacent or nearby sites;

(iii) not create any product or report which is derived directly or indirectly from the Services (save that those acting in a professional capacity to the Beneficiary may provide advice based upon the Services);

(iv) not combine the Services with or incorporate such Services into any other information data or service;

(v) not reformat or otherwise change (whether by modification, addition or enhancement), the Services (save that those acting for the Beneficiary in a professional capacity shall not be in breach of this clause 6.4(v) where such reformatting is in the normal course of providing advice based upon the Services);

(vi) where a Report and/or Mapping contains material belonging to Ordnance Survey, acknowledge and agree that such content is protected by Crown Copyright and shall not use such content for any purpose outside of receiving the Services; and

(vii) not copy in whole or in part by any means any map prints or run-on copies containing content belonging to Ordnance Survey (other than that contained within Ordnance Survey's OS Street Map) without first being in possession of a valid Paper Map Copying Licence from Ordnance Survey,

6.5 Notwithstanding clause 6.4, the Client may make reasonable use of the GroundSure Materials in order to advise the Beneficiary in a professional capacity. However, GroundSure shall have no liability in respect of any advice, opinion or report given or provided to Beneficiaries by the Client.

6.6 The Client shall procure that any person to whom the Services are made available shall notify GroundSure of any request or requirement to disclose, publish or disseminate any information contained in the Services in accordance with the Freedom of Information Act 2000, the Environmental Information Regulations 2004 or any associated legislation or regulations in force from time to time.

7.Liability: Particular Attention Should Be Paid To This Clause

7.1 This Clause 7 sets out the entire liability of GroundSure, including any liability for the acts or omissions of its employees, agents, consultants, subcontractors and Third Party Content, in respect of:

(i) any breach of contract, including any deliberate breach of the Contract by GroundSure or its employees, agents or subcontractors;

(ii) any use made of the Reports, Services, Materials or any part of them; and

(iii) any representation, statement or tortious act or omission (including negligence) arising under or in connection with the Contract.

7.2 All warranties, conditions and other terms implied by statute or common law are, to the fullest extent permitted by law, excluded from the Contract.

7.3 Nothing in the Contract limits or excludes the liability of the Supplier for death

or personal injury resulting from negligence, or for any damage or liability incurred by the Client or Beneficiary as a result of fraud or fraudulent misrepresentation.

7.4 GroundSure shall not be liable for

- (i) loss of profits;
- (ii) loss of business;
- (iii) depletion of goodwill and/or similar losses;
- (iv) loss of anticipated savings;
- (v) loss of goods;
- (vi) loss of contract;
- (vii) loss of use;
- (viii) loss or corruption of data or information;
- (ix) business interruption;
- (x) any kind of special, indirect, consequential or pure economic loss, costs, damages, charges or expenses;

(xi) loss or damage that arise as a result of the use of all or part of the GroundSure Materials in breach of the Contract;

(xii) loss or damage arising as a result of any error, omission or inaccuracy in any part of the GroundSure Materials where such error, omission or inaccuracy is caused by any Third Party Content or any reasonable interpretation of Third Party Content;

(xiii) loss or damage to a computer, software, modem, telephone or other property; and

(xiv) loss or damage caused by a delay or loss of use of GroundSure's internet ordering service.

7.5 GroundSure's total liability in relation to or under the Contract shall be limited to £10 million for any claim or claims.

7.6 GroundSure shall procure that the Beneficiary shall be bound by limitations and exclusions of liability in favour of GroundSure which accord with those detailed in clauses 7.4 and 7.5 (subject to clause 7.3) in respect of all claims which the Beneficiary may bring against GroundSure in relation to the Services or other matters arising pursuant to the Contract.

8 GroundSure's right to suspend or terminate

8.1 If GroundSure reasonably believes that the Client or Beneficiary has not provided the information or assistance required to enable the proper provision of the Services, GroundSure shall be entitled to suspend all further performance of the Services until such time as any such deficiency has been made good.

8.2 GroundSure shall be entitled to terminate the Contract immediately on written notice in the event that:

(i) the Client fails to pay any sum due to GroundSure within 30 days of the Payment Date; or

(ii) the Client (being an individual) has a bankruptcy order made against him or (being a company) shall enter into liquidation whether compulsory or voluntary or have an administration order made against it or if a receiver shall be appointed over the whole or any part of its property assets or undertaking or if the Client is struck off the Register of Companies or dissolved; or

(iii) the Client being a company is unable to pay its debts within the meaning of Section 123 of the Insolvency Act 1986 or being an individual appears unable to pay his debts within the meaning of Section 268 of the Insolvency Act 1986 or if the Client shall enter into a composition or arrangement with the Client's creditors or shall suffer distress or execution to be levied on his goods; or

(iv) the Client or the Beneficiary breaches any term of the Contract (including, but not limited to, the obligations in clause 4) which is incapable of remedy or if remediable, is not remedied within five days of notice of the breach.

9. Client's Right to Terminate and Suspend

9.1 Subject to clause 10.1, the Client may at any time upon written notice terminate or suspend the provision of all or any of the Services.

9.2 In any event, where the Client is a consumer (and not a business) he/she hereby expressly acknowledges and agrees that:

(i) the supply of Services under this Contract (and therefore the performance of this Contract) commences immediately upon GroundSure's acceptance of the Order; and

- (ii) the Reports and/or Mapping provided under this Contract are
 - (a) supplied to the Client's specification(s) and in any event
 - (b) by their nature cannot be returned.

10 Consequences of Withdrawal, Termination or Suspension

10.1 Upon termination of the Contract:

(i) GroundSure shall take steps to bring to an end the Services in an orderly manner, vacate any Site with all reasonable speed and shall deliver to the Client and/or Beneficiary any property of the Client and/or Beneficiary in

GroundSure's possession or control; and

(ii) the Client shall pay to GroundSure all and any Fees payable in respect of the performance of the Services up to the date of termination or suspension. In respect of any Support Services provided, the Client shall also pay GroundSure any additional costs incurred in relation to the termination or suspension of the Contract.

11 Anti-Bribery

11.1 The Client warrants that it shall:

(i) comply with all applicable laws, statutes and regulations relating to anti-bribery and anti-corruption including but not limited to the Bribery Act 2010;

(ii) comply with such of GroundSure's anti-bribery and anti-corruption policies as are notified to the Client from time to time; and

(iii) promptly report to GroundSure any request or demand for any undue financial or other advantage of any kind received by or on behalf of the Client in connection with the performance of this Contract.

11.2 Breach of this Clause 11 shall be deemed a material breach of this Contract.

12 General

12.1 The Mapping contained in the Services is protected by Crown copyright and must not be used for any purpose other than as part of the Services or as specifically provided in the Contract.

12.2 The Client shall be permitted to make one copy only of each Report or Mapping Order. Thereafter the Client shall be entitled to make unlimited copies of the Report or Mapping Order only in accordance with an Ordnance Survey paper map copy license available through GroundSure.

12.3 GroundSure reserves the right to amend or vary this Contract. No amendment or variation to this Contract shall be valid unless signed by an authorised representative of GroundSure.

12.4 No failure on the part of GroundSure to exercise, and no delay in exercising, any right, power or provision under this Contract shall operate as a waiver thereof.

12.5 Save as expressly provided in this Contract, no person other than the persons set out therein shall have any right under the Contract (Rights of Third Parties) Act 1999 to enforce any terms of the Contract.

12.6 The Secretary of State for Business, Innovation and Skills ("BIS") or BIS' successor body, as the case may be, acting through Ordnance Survey may enforce a breach of clause 6.4(vi) and clause 6.4(vii) of these terms and conditions against the Client in accordance with the provisions of the Contracts (Rights of Third Parties) Act 1999.

12.7 GroundSure shall not be liable to the Client if the provision of the Services is delayed or prevented by one or more of the following circumstances:

- (i) the Client or Beneficiary's failure to provide facilities, access or information;
- (ii) fire, storm, flood, tempest or epidemic;
- (iii) Acts of God or the public enemy;
- (iv) riot, civil commotion or war;
- (v) strikes, labour disputes or industrial action;
- (vi) acts or regulations of any governmental or other agency;
- (vii) suspension or delay of services at public registries by Third Party Data Providers;
- (viii) changes in law; or
- (ix) any other reason beyond GroundSure's reasonable control.

In the event that GroundSure is prevented from performing the Services (or any part thereof) in accordance with this clause 12.6 for a period of not less than 30 days then GroundSure shall be entitled to terminate this Contract immediately on written notice to the Client.

12.8 Any notice provided shall be in writing and shall be deemed to be properly given if delivered by hand or sent by first class post, facsimile or by email to the address, facsimile number or email address of the relevant party as may have been notified by each party to the other for such purpose or in the absence of such notification the last known address.

12.9 Such notice shall be deemed to have been received on the day of delivery if delivered by hand, facsimile or email (save to the extent such day is not a working day where it shall be deemed to have been delivered on the next working day) and on the second working day after the day of posting if sent by first class post.

12.10 The Contract constitutes the entire agreement between the parties and shall supersede all previous arrangements between the parties relating to the subject matter hereof.

12.11 Each of the provisions of the Contract is severable and distinct from the others and if one or more provisions is or should become invalid, illegal or unenforceable, the validity and enforceability of the remaining provisions shall not in any way be tainted or impaired.

12.12 This Contract shall be governed by and construed in accordance with English

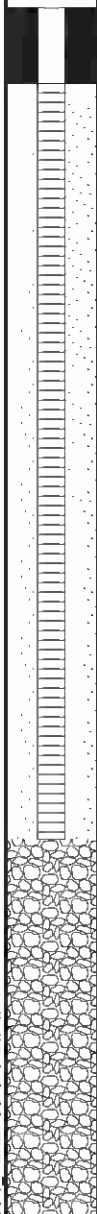
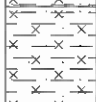
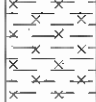
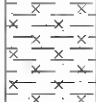
law and any proceedings arising out of or connected with this Contract shall be subject to the exclusive jurisdiction of the English courts.

12.13 GroundSure is an executive member of the Council of Property Search Organisation (CoPSO) and has signed up to the Search Code administered by the Property Codes Compliance Board (PCCB). All Risk Screening Reports shall be supplied in accordance with the provisions of the Search Code.

12.14 If the Client or Beneficiary has a complaint about the Services, written notice should be given to the Compliance Officer at GroundSure who will respond in a timely manner.

12.15 The Client agrees that it shall, and shall procure that each Beneficiary shall, treat in confidence all Confidential Information and shall not, and shall procure that each Beneficiary shall not (i) disclose any Confidential Information to any third party other than in accordance with the terms of this Contract; and (ii) use Confidential Information for a purpose other than the exercise of its rights and obligations under this Contract. Subject to clause 6.6, nothing shall prevent the Client or any Beneficiary from disclosing Confidential Information to the extent required by law. © GroundSure Limited June 2013

Site Langstone Road, Havant PO9 1SA				BH1
Job No CRM.413.117	Dates Start 13-10-14 Finish 14-10-14	Ground Level (m)	Co-Ordinates	
Client Simpson Associates				Sheet 1 of 2

Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
		0.25 0.30	ES D		0.30			Soft, friable light brown occasionally grey brown slightly sandy gravelly silty clay with frequent rootlets. Gravel is fine to coarse, angular to subangular and subrounded flint, bricks and occasional ash.	0
		1.20	D		1.20			Soft, yellow brown green grey slightly sandy gravelly silty clay with occasional black staining. Gravel is fine to medium, angular to subangular flint and occasional ash.	1
		1.50 - 1.95	SPTLS S 4		1.70			Soft, extremely low strength yellow brown green grey slightly sandy gravelly silty CLAY. Gravel is fine to medium, angular to subangular flint.	
		2.50 - 2.95	SPTLS S 6					Soft to firm, very low to medium strength green grey sandy silty CLAY.	2
		3.50 - 3.95	SPTLS S 15		3.95				3
		4.50 - 4.95	SPT C 5		4.50			Medium dense to loose, light brown mottled white sandy GRAVEL. Gravel is fine to cobbles, angular to subangular flint.	4
					5.50			Loose, beige slightly sandy clayey GRAVEL. Gravel is fine to coarse, angular to subangular flint and chalk, and cobbles of flint.	5
		6.00 - 6.45	SPTLS S 8		6.00			Beige white slightly gravelly Dm CHALK. Gravel is fine to medium, angular to subangular flint.	6
		7.50 - 7.95	SPTLS S 9					Beige white slightly gravelly Dc CHALK. Gravel is fine to medium, angular to subangular flint.	7
					{8.00}			Continued next sheet	8

General Remarks

EQUIPMENT: Pilcon Cable Percussion Rig.
METHOD: Cable percussion drilling GL-15.45mbgl, SPT/CPT at 1.00m spacing to 5.00m and 1.50m afterwards.
CASING: 6.00m of 152mm steel casing casing used.
REMARKS: Groundwater encountered at 3.80mbgl, rose to 1.20mbgl.
BACKFILL: On completion, the borehole was backfilled with arisings 15.45m-5.50mbgl. 50mm HDPE slotted pipes with geosock installed 5.50-0.50m with gravel pack around annulus. 50mm HDPE plain pipe installed from 0.50m-GL with bentonite around annulus and gas valve at the top of the installation.

Groundwater				
Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)	
13/10/04	3.80		1.20	
All dimensions in metres Scale 1:50				Logged By N.M



Enzygo Ltd
Tel: 01454 269237
Fax: 01454 269760
Web: www.enzygo.com

Site Langstone Road, Havant PO9 1SA				BH1
Job No CRM.413.117	Dates Start 13-10-14 Finish 14-10-14	Ground Level (m)	Co-Ordinates	
Client Simpson Associates				Sheet 2 of 2

Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
		9.00 - 9.45	SPTLS S 20						8
									9
									10
		10.50 - 10.95	SPTLS S 23						11
									12
		12.00 - 12.45	SPTLS S 33						13
									14
									15
		13.50 - 13.95	SPTLS S 35						16
									17
		15.00 - 15.45	SPTLS S 43						18
									19
									20
									21
									22
					15.45			Borehole completed at 15.45m.	
					{16.00}				23

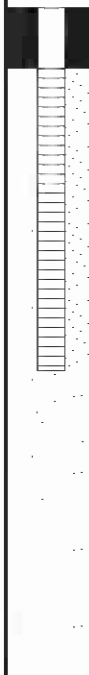
General Remarks

EQUIPMENT: Pilcon Cable Percussion Rig.
METHOD: Cable percussion drilling GL-15.45mbgl, SPT/CPT at 1.00m spacing to 5.00m and 1.50m afterwards.
CASING: 6.00m of 152mm steel casing casing used.
REMARKS: Groundwater encountered at 3.80mbgl, rose to 1.20mbgl.
BACKFILL: On completion, the borehole was backfilled with arisings 15.45m-5.50mbgl. 50mm HDPE slotted pipes with geosock installed 5.50-0.50m with gravel pack around annulus. 50mm HDPE plain pipe installed from 0.50m-GL with bentonite around annulus and gas valve at the top of the installation.

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)
All dimensions in metres Scale 1:50				Logged By N.M

1.0 ENZYGO BH LOG CRM.413.117 HAVANT.GPJ GINT STD ACS 3_1 ENZYGO.GPJ 28/10/14

Site Langstone Road, Havant PO9 1SA				WS1
Job No CRM.413.117	Dates Start 13-10-14 Finish 13-10-14	Ground Level (m)	Co-Ordinates	
Client Simpson Associates				Sheet 1 of 1

Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
		0.30	ES					Soft light brown occasionally mottled grey slightly sandy and gravelly silty clay with frequent rootlets, occasional glass fragments and rare black staining. Gravel is fine to medium angular to subrounded flint, occasional ash & rare bricks.	0
		0.50 - 1.00	B		0.50				
					0.80			Very soft light brown grey occasionally mottled yellow slightly sandy gravelly silty clay with occasional rootlets, glass fragments, and rare black staining. Gravel is fine to coarse, angular to subangular and subrounded flint, concrete, bricks, occasional chalk and rare fine ash.	1
		1.00 - 1.45	SPT	S 11	1.05				
					1.25				
		1.50	D					Soft light brown mottled grey slightly sandy gravelly silty clay with occasional rootlets. Gravel is fine to medium, angular to subangular flint, bricks, and rare ash	
		2.00 - 2.45	SPT	S 12	1.90			Soft brown grey gravelly silty clay with occasional organic residues. Gravel is fine to coarse, angular to subrounded flint, occasional bricks, and rare ash.	2
								Medium dense, white grey occasionally locally slightly peaty slightly sandy and silty clayey GRAVEL. Gravel is fine to coarse, angular to subangular flint and chalk.	
		3.00 - 3.45	SPT	S 8	2.80			Medium dense to loose, brown grey slightly sandy and silty GRAVEL. Gravel is fine to coarse, angular to subangular and subrounded flint (Poor recovery, 30%).	3
								Loose to medium dense, white beige slightly silty and sandy GRAVEL. Gravel is fine to coarse, angular to subangular and subrounded flint (Poor recovery, 30%).	
		4.00 - 4.45	SPT	S 19					4
					4.45			Borehole completed at 4.45m.	5
									6
									7
									8
					{8.00}				

General Remarks

EQUIPMENT: Archway Dart Window Sampling Tracked Rig.
METHOD: Dynamic sampled GL-4.45mbgl, SPT at 1.00m spacing.
CASING: No casing used.
REMARKS: Groundwater encountered at 1.60mbgl.
BACKFILL: On completion, the borehole collapsed to 2.40mbgl. 50mm HDPE slotted pipes with geosock installed 2.40-0.40m with gravel pack around annulus. 50mm HDPE plain pipe installed from 0.40m-GL with bentonite around annulus and gas valve at the top of the installation.

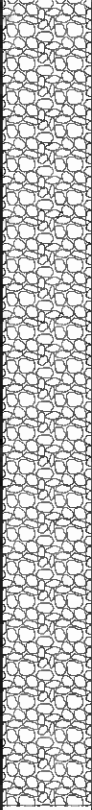
Groundwater

Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)
13/10/14	1.60		

All dimensions in metres
Scale 1:50

Logged By
N.M

Site Langstone Road, Havant PO9 1SA				WS2
Job No CRM.413.117	Dates Start 13-10-14 Finish 13-10-14	Ground Level (m)	Co-Ordinates	
Client Simpson Associates				Sheet 1 of 1

Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
		0.60	ES		0.60			Soft to firm, brown occasionally brown grey slightly sandy and gravelly silty clay with frequent rootlets, and occasional black staining. Gravel is fine to medium, angular to subangular flint and bricks.	0
		1.00 - 1.45	SPTLS S 5		0.75			Grey brown clayey silty gravel. Gravel is fine to coarse, angular to subangular flint, limestone and ash.	
		1.00	D		1.00			Firm, yellow brown slightly sandy gravelly silty clay with occasional black staining. Gravel is fine to coarse, angular to subangular flint and bricks.	1
					1.70			Firm, low strength yellow brown slightly sandy gravelly silty CLAY. Gravel is fine to medium, angular to subangular flint.	
		2.00 - 2.45	SPTLS S 8		2.00			Very soft yellow brown green grey occasionally slightly gravelly sandy silty CLAY. Gravel is fine, angular weathered flint.	2
		2.00	D					Loose, light brown sandy clayey GRAVEL. Gravel is fine to coarse, angular to subangular flint (Poor recovery 10%).	
		3.00 - 3.45	SPT	C 10	3.00			White beige slightly sandy clayey GRAVEL. Gravel is fine/medium, angular/subangular flint & chalk.	3
		4.00 - 4.45	SPT	C 11				Borehole completed at 5.35m.	4
		4.45 - 4.90	SPT	*C 18					5
		4.90 - 5.35	SPT	*C 24					6
					5.35				7
					{8.00}				8

General Remarks

EQUIPMENT: Archway Dart Window Sampling Tracked Rig.
METHOD: Dynamic sampled GL-4.45mbgl, CPT/SPT at 1.00m spacing. *Continuous CPT 4.45m-5.35mbgl.
CASING: No casing used.
REMARKS: Groundwater encountered at 2.50mbgl, rose to 1.50mbgl.
BACKFILL: On completion, the borehole was backfilled with arisings.

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)
		2.50		1.50
All dimensions in metres Scale 1:50				Logged By N.M

Site Langstone Road, Havant PO9 1SA				WS3
Job No CRM.413.117	Dates Start 13-10-14 Finish 13-10-14	Ground Level (m)	Co-Ordinates	
Client Simpson Associates				Sheet 1 of 1

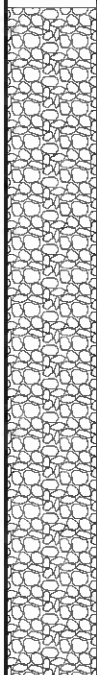
Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
					0.45			Soft, friable brown grey slightly sandy silty clay with dense rootlets and rare fine angular flint.	0
		0.60	ES		0.65			Soft, friable brown grey slightly sandy gravelly silty clay with frequent rootlets and occasional black staining. Gravel is fine to coarse, angular to subangular flint, bricks and occasional ash.	
		1.00 - 1.45	SPT D	S 9	1.00				
								Firm, yellow brown slightly sandy silty clay with rootlets and occasional black staining, and rare fine angular to subangular flint.	
					1.60			Firm, yellow brown slightly sandy gravelly silty clay with occasional rootlets and black staining. Gravel is fine to medium, angular to subangular flint.	
		2.00 - 2.45	SPT D	S 12	2.10			Firm, low strength yellow brown mottled green grey slightly sandy gravelly silty CLAY with black staining. Gravel is fine to medium, angular to subangular flint.	2
		2.00						Very soft yellow brown green grey slightly gravelly sandy silty CLAY. Gravel is fine, angular weathered flint.	
					2.90			Medium dense, light brown mottled white slightly sandy clayey GRAVEL. Gravel is fine to medium, angular to subangular flint and chalk.	3
		3.00 - 3.45	SPT	C 15				Medium dense to dense, white beige slightly sandy clayey GRAVEL. Gravel is fine to coarse, angular to subangular flint and chalk (Poor recovery, 50% core 3.00m-4.00mbgl; 10% core 4.00m-5.00mbgl).	
		4.00 - 4.45	SPT	C 32					4
		5.00 - 5.45	SPT	C 35				5	
					5.45				
							Borehole completed at 5.45m.	6	
								7	
								8	
					{8.00}				

General Remarks

EQUIPMENT: Archway Dart Window Sampling Tracked Rig.
METHOD: Dynamic sampled GL-5.45mbgl, CPT/SPT at 1.00m spacing.
CASING: No casing used.
REMARKS: Groundwater encountered at 1.40mbgl. Poor recovery from 3.00m-5.00mbgl.
BACKFILL: On completion, the borehole was backfilled with arisings.

Groundwater				
Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)	
13/10/14	1.40			
All dimensions in metres Scale 1:50				Logged By N.M

Site Langstone Road, Havant PO9 1SA				WS4
Job No CRM.413.117	Dates Start 13-10-14 Finish 13-10-14	Ground Level (m)	Co-Ordinates	
Client Simpson Associates				Sheet 1 of 1

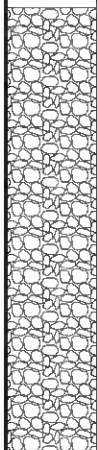
Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
		0.20	ES		0.30 0.45			Soft, friable light brown slightly sandy and gravelly silty clay with frequent rootlets. Gravel is fine to coarse, angular to subangular flint, bricks, and occasional ash.	0
		0.90 1.00 - 1.45 1.00	ES SPT D	S 8	1.00 1.40			Soft, friable brown grey slightly sandy silty clay with dense rootlets & occasional roots. Gravel is fine to medium, angular to subangular flint and bricks.	1
		2.00 - 2.45 2.00	SPT D	S 25	1.90 2.20 2.50			Soft to firm yellow brown occasional slightly gravelly slightly sandy silty clay with occasional black staining. Gravel is fine to coarse, angular to subangular flint, occasional bricks and ash.	
		3.00 - 3.45 3.00	SPT D	C 19				Firm, low strength yellow brown mottled grey green occasionally slightly gravelly slightly sandy silty CLAY with occasional rootlets and black staining. Gravel is fine to medium, angular to subangular flint.	2
								Very soft, yellow brown green grey mottled white occasionally gravelly sandy silty CLAY with occasional organic residues. Gravel is fine, angular weathered flint.	
								Very soft to soft, low strength to medium strength green grey mottled yellow and white occasionally slightly gravelly sandy silty CLAY. Gravel is fine, angular weathered flint.	3
								Medium dense, light brown slightly sandy GRAVEL. Gravel is fine to coarse, angular to subangular flint.	
		4.00 - 4.45 4.00	SPT D	C 21	3.70 4.45			Medium dense, white grey slightly sandy clayey GRAVEL with occasional bands of sand. Gravel is fine to coarse angular to subangular flint.	4
								Medium dense, white grey silty gravelly SAND. Sand is fine to medium. Gravel is fine to medium, angular to subangular flint.	
								Borehole completed at 4.45m.	5
					{8.00}				6
									7
									8

General Remarks

EQUIPMENT: Archway Dart Window Sampling Tracked Rig.
METHOD: Dynamic sampled GL-4.45mbgl, CPT/SPT at 1.00m spacing.
CASING: No casing used.
REMARKS: Groundwater encountered at 3.20mbgl, rose to 1.40mbgl. Borehole collapsed to 3.00mbgl during dynamic sampling.
BACKFILL: On completion, the borehole was backfilled with arisings.

Groundwater				
Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)	
13/10/14	3.20		1.40	
All dimensions in metres Scale 1:50				Logged By N.M

Site Langstone Road, Havant PO9 1SA				WS5
Job No CRM.413.117	Dates Start 13-10-14 Finish 13-10-14	Ground Level (m)	Co-Ordinates	
Client Simpson Associates				Sheet 1 of 1

Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
		0.30	ES		0.35			Soft to very soft, friable light brown occasionally mottled grey slightly sandy and gravelly silty clay with frequent rootlets. Gravel is fine to coarse, angular to subangular flint, occasional ash and rare bricks.	0
		0.50 - 1.00	B						
		0.80	ES		0.75			Soft brown grey slightly sandy gravelly silty clay with frequent rootlets. Gravel is fine to coarse, angular to subangular flint, bricks and limestone.	
		1.00 - 1.45	SPT	C 11	1.00 1.10			Soft, friable light brown mottled grey and orange locally slightly sandy slightly gravelly silty clay with black staining. Gravel is fine to medium, angular to subrounded flint, bricks, chalk and occasional ash.	1
					1.75			Beige brown slightly clayey slightly peaty silty GRAVEL. Gravel is fine to coarse, angular to subangular flint.	
		2.00 - 2.45	SPT	C 6	2.20			Medium dense, grey brown slightly sandy and silty GRAVEL. Gravel is fine to coarse, angular to subangular flint.	2
		2.50 - 2.95	SPT	C 9				Medium dense to loose, grey brown mottled white sandy GRAVEL. Gravel is fine to coarse, angular to subangular flint.	
					2.95			Loose, white beige slightly sandy clayey GRAVEL. Gravel is fine to coarse, angular to subangular flint, chalk, and occasional flint cobbles.	
								Borehole completed at 2.95m.	3
									4
									5
									6
									7
									8

General Remarks

EQUIPMENT: Archway Dart Window Sampling Tracked Rig.
METHOD: Dynamic sampled GL-2.95mbgl, SPT at 1.00m spacing and at 2.50m.
CASING: No casing used.
REMARKS: Groundwater encountered at 1.40mbgl, rose to 1.20mbgl.
BACKFILL: On completion, the borehole was backfilled with arisings.

Groundwater				
Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)	
13/10/14	1.40		1.20	
All dimensions in metres Scale 1:50				Logged By N.M



Enzygo Ltd
Tel: 01454 269237
Fax: 01454 269760
Web: www.enzygo.com

Site Langstone Road, Havant PO9 1SA						TP1		
Job No CRM.413.117		Dates Start 13-10-14 Finish 13-10-14		Ground Level (m)				Co-Ordinates
Client Simpson Associates						Sheet 1 of 1		
Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
	Depth (m)	No/Type	Results					
	0.15	ES		0.20			Soft to firm, friable light brown slightly sandy and gravelly silty clay with dense rootlets. Gravel is fine to coarse, angular to subangular flint, bricks, and occasional cobbles of bricks. Trial Pit completed at 0.20m.	0
								1
								2
								3
				{4.00}				4
General Remarks Dimensions: 0.32x0.29x0.20 EQUIPMENT: Manually excavated. METHOD: Hand dug. REMARKS: Groundwater not encountered BACKFILL: On completion, the trial pit was backfilled with arisings.								
All dimensions in metres Scale 1:25						Logged By N.M		

1.1 ENZYGO TP LOG CRM.413.117 HAVANT.GPJ GINT STD AGS 3_1 ENZYGO.GPJ 28/10/14

APPENDIX C – CHEMICAL TESTING



Sample Summary

Report No.: 14-00918

Elab No.	Client's Ref.	Date Sampled	Date Scheduled	Description	Deviations
6195	HP1 0.15	13/10/2014	15/10/2014	Silty loam	
6196	WS1 0.30	13/10/2014	15/10/2014	Silty loam	
6197	WS5 0.30	13/10/2014	15/10/2014	Silty loam	
6198	WS5 0.80	13/10/2014	15/10/2014	Silty loam	
6199	WS3 0.60	13/10/2014	15/10/2014	Silty loam	
6200	BH1 0.25	13/10/2014	15/10/2014	Silty loam	
6201	WS4 0.50	13/10/2014	15/10/2014	Silty clayey loam	
6202	WS2 0.65	13/10/2014	15/10/2014		
6203	WS4 0.20	13/10/2014	15/10/2014		

Results Summary

Report No.: 14-00918

ELAB Reference	6195	6196	6197	6198	6199	6200
Customer Reference						
Sample ID						
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Location	HP1	WS1	WS5	WS5	WS3	BH1
Sample Depth (m)	0.15	0.30	0.30	0.80	0.60	0.25
Sampling Date	13/10/2014	13/10/2014	13/10/2014	13/10/2014	13/10/2014	13/10/2014

Determinand	Codes	Units	LOD						
Metals									
Arsenic	M	mg/kg	1	8.7	7.4	8.4	n/t	8.2	n/t
Cadmium	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	n/t	< 0.5	n/t
Chromium	M	mg/kg	5	24.3	24.3	26.2	n/t	23.7	n/t
Copper	M	mg/kg	5	19.2	17.8	19.9	n/t	16.6	n/t
Lead	M	mg/kg	5	76.0	54.0	54.0	n/t	135	n/t
Mercury	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	n/t	< 0.5	n/t
Nickel	M	mg/kg	5	16.5	15.3	16.3	n/t	17.4	n/t
Selenium	M	mg/kg	1	1.4	< 1.0	< 1.0	n/t	< 1.0	n/t
Zinc	M	mg/kg	45	91.7	68.4	68.3	n/t	51.2	n/t
Inorganics									
Hexavalent Chromium	N	mg/kg	0.8	< 0.8	< 0.8	< 0.8	n/t	< 0.8	n/t
Total Cyanide	M	mg/kg	1	< 1.0	< 1.0	< 1.0	n/t	< 1.0	n/t
Miscellaneous									
Acid Neutralisation Capacity	N	mol/kg	0.1	n/t	n/t	n/t	n/t	n/t	< 0.1
Loss Of Ignition (450°C)	N	%	0.01	n/t	n/t	n/t	n/t	n/t	4.4
Moisture Content	N	%	0.1	55.6	37.8	33.7	n/t	26.7	n/t
pH	M	units	0.1	n/t	n/t	n/t	n/t	n/t	7.0
Stones Content	N	%	0.1	< 0.1	3.7	12.3	n/t	21.0	n/t
Total Organic Carbon	N	%	0.01	3.2	1.9	1.6	n/t	1.2	1.3

Results Summary

Report No.: 14-00918

ELAB Reference	6195	6196	6197	6198	6199	6200
Customer Reference						
Sample ID						
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Location	HP1	WS1	WS5	WS5	WS3	BH1
Sample Depth (m)	0.15	0.30	0.30	0.80	0.60	0.25
Sampling Date	13/10/2014	13/10/2014	13/10/2014	13/10/2014	13/10/2014	13/10/2014

Determinand	Codes	Units	LOD						
Organics									
>C8-C10 BCB	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	n/t
>C10-C12 BCB	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	n/t
>C12-C16 BCB	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	n/t
>C16-C21 BCB	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	n/t
>C21-C35 BCB	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	n/t
>C35-C40 BCB	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	n/t
Total (>C8-C40) BCB	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	n/t
Phenols									
Phenol	M	mg/kg	1	< 1	< 1	< 1	n/t	< 1	n/t
M,P-Cresol	N	mg/kg	1	< 1	< 1	< 1	n/t	< 1	n/t
O-Cresol	N	mg/kg	1	< 1	< 1	< 1	n/t	< 1	n/t
3,4-Dimethylphenol	N	mg/kg	1	< 1	< 1	< 1	n/t	< 1	n/t
2,3-Dimethylphenol	M	mg/kg	1	< 1	< 1	< 1	n/t	< 1	n/t
Trimethylphenol	M	mg/kg	1	< 1	< 1	< 1	n/t	< 1	n/t
Total Monohydric Phenols	N	mg/kg	5	< 5	< 5	< 5	n/t	< 5	n/t
Polyaromatic hydrocarbons									
Naphthalene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	n/t	< 0.5	n/t
Acenaphthylene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	n/t	< 0.5	n/t
Acenaphthene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	n/t	< 0.5	n/t
Fluorene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	n/t	< 0.5	n/t
Phenanthrene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	n/t	< 0.5	n/t
Anthracene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	n/t	< 0.5	n/t
Fluoranthene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	n/t	< 0.5	n/t
Pyrene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	n/t	< 0.5	n/t
Benzo (a) anthracene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	n/t	< 0.5	n/t
Chrysene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	n/t	< 0.5	n/t
Benzo (b) fluoranthene	M	mg/kg	0.5	0.7	0.6	< 0.5	n/t	< 0.5	n/t
Benzo (k) fluoranthene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	n/t	< 0.5	n/t
Benzo (a) pyrene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	n/t	< 0.5	n/t
Indeno (1,2,3-cd) pyrene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	n/t	< 0.5	n/t
Dibenzo(a,h)anthracene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	n/t	< 0.5	n/t
Benzo(ghi)perylene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	n/t	< 0.5	n/t
Total PAH(16) Speciated	M	mg/kg	2	2	3	< 2	n/t	< 2	n/t
Total PAH (Including Coronene)	N	mg/kg	2.1	n/t	n/t	n/t	n/t	n/t	< 2
BTEX									
Total BTEX	M	mg/kg	0.01	n/t	n/t	n/t	n/t	n/t	0.02
Total Petroleum Hydrocarbons									
Mineral Oil	U	mg/kg	5	n/t	n/t	n/t	n/t	n/t	< 5
PCB (ICES 7 congeners)									
PCB (Total of 7 Congeners)	M	mg/kg	0.03	n/t	n/t	n/t	n/t	n/t	< 0.03

Results Summary

Report No.: 14-00918

ELAB Reference	6201
Customer Reference	
Sample ID	
Sample Type	SOIL
Sample Location	WS4
Sample Depth (m)	0.50
Sampling Date	13/10/2014

Determinand	Codes	Units	LOD	
Metals				
Arsenic	M	mg/kg	1	n/t
Cadmium	M	mg/kg	0.5	n/t
Chromium	M	mg/kg	5	n/t
Copper	M	mg/kg	5	n/t
Lead	M	mg/kg	5	n/t
Mercury	M	mg/kg	0.5	n/t
Nickel	M	mg/kg	5	n/t
Selenium	M	mg/kg	1	n/t
Zinc	M	mg/kg	45	n/t
Inorganics				
Hexavalent Chromium	N	mg/kg	0.8	n/t
Total Cyanide	M	mg/kg	1	n/t
Miscellaneous				
Acid Neutralisation Capacity	N	mol/kg	0.1	< 0.1
Loss Of Ignition (450°C)	N	%	0.01	3.4
Moisture Content	N	%	0.1	n/t
pH	M	units	0.1	6.8
Stones Content	N	%	0.1	n/t
Total Organic Carbon	N	%	0.01	0.42

Results Summary

Report No.: 14-00918

ELAB Reference	6201
Customer Reference	
Sample ID	
Sample Type	SOIL
Sample Location	WS4
Sample Depth (m)	0.50
Sampling Date	13/10/2014

Determinand	Codes	Units	LOD	
Organics				
>C8-C10 BCB	N	mg/kg	1	n/t
>C10-C12 BCB	N	mg/kg	1	n/t
>C12-C16 BCB	N	mg/kg	1	n/t
>C16-C21 BCB	N	mg/kg	1	n/t
>C21-C35 BCB	N	mg/kg	1	n/t
>C35-C40 BCB	N	mg/kg	1	n/t
Total (>C8-C40) BCB	N	mg/kg	1	n/t
Phenols				
Phenol	M	mg/kg	1	n/t
M,P-Cresol	N	mg/kg	1	n/t
O-Cresol	N	mg/kg	1	n/t
3,4-Dimethylphenol	N	mg/kg	1	n/t
2,3-Dimethylphenol	M	mg/kg	1	n/t
Trimethylphenol	M	mg/kg	1	n/t
Total Monohydric Phenols	N	mg/kg	5	n/t
Polyaromatic hydrocarbons				
Naphthalene	M	mg/kg	0.5	n/t
Acenaphthylene	M	mg/kg	0.5	n/t
Acenaphthene	M	mg/kg	0.5	n/t
Fluorene	M	mg/kg	0.5	n/t
Phenanthrene	M	mg/kg	0.5	n/t
Anthracene	M	mg/kg	0.5	n/t
Fluoranthene	M	mg/kg	0.5	n/t
Pyrene	M	mg/kg	0.5	n/t
Benzo (a) anthracene	M	mg/kg	0.5	n/t
Chrysene	M	mg/kg	0.5	n/t
Benzo (b) fluoranthene	M	mg/kg	0.5	n/t
Benzo (k) fluoranthene	M	mg/kg	0.5	n/t
Benzo (a) pyrene	M	mg/kg	0.5	n/t
Indeno (1,2,3-cd) pyrene	M	mg/kg	0.5	n/t
Dibenzo(a,h)anthracene	M	mg/kg	0.5	n/t
Benzo(ghi)perylene	M	mg/kg	0.5	n/t
Total PAH(16) Speciated	M	mg/kg	2	n/t
Total PAH (Including Coronene)	N	mg/kg	2.1	< 2
BTEX				
Total BTEX	M	mg/kg	0.01	< 0.01
Total Petroleum Hydrocarbons				
Mineral Oil	U	mg/kg	5	< 5
PCB (ICES 7 congeners)				
PCB (Total of 7 Congeners)	M	mg/kg	0.03	< 0.03

Results Summary

Report No.: 14-00918

WAC Analysis

Elab Ref:	6201					Landfill Waste Acceptance Criteria Limits		
Sample Date:	13/10/2014					Inert Waste Landfill	Stable Non-reactive Hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID:	WS4							
Depth:	0.5							
Site:	Langstone Park, Havant							
Determinand		Code	Units					
Total Organic Carbon		N	%		0.4	3	5	6
Loss on Ignition		M	%		3.4	--	--	10
Total BTEX		M	mg/kg		< 0.01	6	--	--
Total PCBs (7 congeners)		M	mg/kg		< 0.03	1	--	--
TPH Total WAC		M	mg/kg		< 5	500	--	--
Total (of 17) PAHs		N	mg/kg		< 2	100	--	--
pH		M			6.8	--	>6	--
Acid Neutralisation Capacity		N	mol/kg		< 0.1	--	To evaluate	To evaluate

Eluate Analysis

			2:1	8:1	10:1	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg		
			mg/l	mg/l	mg/kg			
Arsenic		N	< 0.005	< 0.005	< 0.05	0.5	2	25
Barium		N	< 0.005	< 0.005	< 0.05	20	100	300
Cadmium		N	< 0.001	< 0.001	< 0.01	0.04	1	5
Chromium		N	< 0.005	< 0.005	< 0.05	0.5	10	70
Copper		N	0.011	0.009	0.09	2	50	100
Mercury		N	< 0.005	< 0.005	< 0.01	0.01	0.2	2
Molybdenum		N	< 0.005	< 0.005	< 0.05	0.5	10	30
Nickel		N	< 0.001	< 0.001	< 0.05	0.4	10	40
Lead		N	< 0.001	< 0.001	< 0.05	0.5	10	50
Antimony		N	< 0.005	< 0.005	< 0.05	0.06	0.7	5
Selenium		N	< 0.005	< 0.005	< 0.05	0.1	0.5	7
Zinc		N	< 0.005	< 0.005	< 0.05	4	50	200
Chloride		N	6.000	17.000	162.00	800	15000	25000
Fluoride		N	< 1	< 1	< 10	10	150	500
Sulphate		N	4.000	2.000	18.20	1000	20000	50000
Total Dissolved Solids		N	< 10	< 10	< 100	4000	60000	100000
Phenol Index		N	< 0.01	< 0.01	< 0.10	1	-	-
Dissolved Organic Carbon		N	10.800	8.710	88.00	500	800	1000

Leach Test Information

Eluent Volume (ml)		N	107	1400				
pH		N	7	6.1				
Conductivity (uS/cm)		N	92	107				
Temperature (°C)		N	18	18				

Solid Information

Dry mass of test portion (g)			176					
Moisture (%)			28					

Results are expressed on a dry weight basis, after correction for moisture content where applicable

Stated limits are for guidance only and ELAB cannot be held responsible for any discrepancies with current legislation

Results Summary

Report No.: 14-00918

WAC Analysis

Elab Ref:	6200					Landfill Waste Acceptance Criteria Limits		
Sample Date:	13/10/2014					Inert Waste Landfill	Stable Non-reactive Hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID:	BH1							
Depth:	0.25							
Site:	Langstone Park, Havant							
Determinand		Code	Units					
Total Organic Carbon		N	%		1.3	3	5	6
Loss on Ignition		M	%		4.4	--	--	10
Total BTEX		M	mg/kg		0.02	6	--	--
Total PCBs (7 congeners)		M	mg/kg		< 0.03	1	--	--
TPH Total WAC		M	mg/kg		< 5	500	--	--
Total (of 17) PAHs		N	mg/kg		< 2	100	--	--
pH		M			7.0	--	>6	--
Acid Neutralisation Capacity		N	mol/kg		< 0.1	--	To evaluate	To evaluate

Eluate Analysis

			2:1	8:1	10:1	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg		
			mg/l	mg/l	mg/kg			
Arsenic		N	0.006	< 0.005	< 0.05	0.5	2	25
Barium		N	0.016	< 0.005	< 0.05	20	100	300
Cadmium		N	< 0.001	< 0.001	< 0.01	0.04	1	5
Chromium		N	< 0.005	< 0.005	< 0.05	0.5	10	70
Copper		N	0.013	< 0.005	< 0.05	2	50	100
Mercury		N	< 0.005	< 0.005	< 0.01	0.01	0.2	2
Molybdenum		N	< 0.005	< 0.005	< 0.05	0.5	10	30
Nickel		N	0.005	0.001	< 0.05	0.4	10	40
Lead		N	< 0.001	< 0.001	< 0.05	0.5	10	50
Antimony		N	< 0.005	< 0.005	< 0.05	0.06	0.7	5
Selenium		N	< 0.005	< 0.005	< 0.05	0.1	0.5	7
Zinc		N	< 0.005	< 0.005	< 0.05	4	50	200
Chloride		N	8.000	< 5	< 50	800	15000	25000
Fluoride		N	< 1	< 1	< 10	10	150	500
Sulphate		N	9.000	2.000	25.20	1000	20000	50000
Total Dissolved Solids		N	300.000	110.000	1260.00	4000	60000	100000
Phenol Index		N	< 0.01	< 0.01	< 0.10	1	-	-
Dissolved Organic Carbon		N	64.800	16.200	202.00	500	800	1000

Leach Test Information

Eluent Volume (ml)		N	145	1400				
pH		N	7.5	6.8				
Conductivity (uS/cm)		N	240	73				
Temperature (°C)		N	18	18				

Solid Information

Dry mass of test portion (g)			176					
Moisture (%)			41.7					

Results are expressed on a dry weight basis, after correction for moisture content where applicable

Stated limits are for guidance only and ELAB cannot be held responsible for any discrepancies with current legislation



Unit A2, Windmill Road, Ponswood Industrial Estate, St Leonards on Sea, East Sussex, TN38 9BY

Tel: +44 (0)1424 718618, Email: info@elab-uk.co.uk, Web: www.elab-uk.co.uk

Results Summary

Report No.: 14-00918

Asbestos Qualitative Results

Analytical result only applies to the sample as submitted by the client. Any comments, opinions or interpretations (marked #) in this report are outside UKAS accreditation (Accreditation No2683). They are subjective comments only which must be verified by the client.

Elab No	Depth (m)	Clients Reference	Description of Sample Matrix #	Result
6195	0.15	HP1	Silty loam	No asbestos detected
6196	0.30	WS1	Silty loam	No asbestos detected
6197	0.30	WS5	Silty loam	No asbestos detected
6199	0.60	WS3	Silty loam	No asbestos detected

Method Summary

Report No.: 14-00918

Parameter	Analysis Undertaken On	Date Tested	Method Number	Technique
Soil				
Hexavalent chromium	As submitted sample	17/10/2014	110	Colorimetry
Aqua regia extractable metals	Air dried sample	24/10/2014	118	ICPMS
Phenols in solids	As submitted sample	17/10/2014	121	HPLC
Polyaromatic hydrocarbons (GC-FID)	As submitted sample	17/10/2014	133	GC-FID
Total cyanide	As submitted sample	20/10/2014	204	Colorimetry
Basic carbon banding in soil	As submitted sample	17/10/2014	218	GC-FID
Asbestos identification	As submitted sample	29/10/2014	PMAN	Microscopy
Leachate				
Arsenic*		29/10/2014	101	ICPMS
Cadmium*		29/10/2014	101	ICPMS
Chromium*		29/10/2014	101	ICPMS
Lead*		29/10/2014	101	ICPMS
Nickel*		29/10/2014	101	ICPMS
Copper*		29/10/2014	101	ICPMS
Zinc*		29/10/2014	101	ICPMS
Mercury*		29/10/2014	101	ICPMS
Selenium*		29/10/2014	101	ICPMS
Antimony		29/10/2014	101	ICPMS
Barium*		29/10/2014	101	ICPMS
Molybdenum*		29/10/2014	101	ICPMS
pH Value*		29/10/2014	113	Electrometric
Electrical Conductivity*		29/10/2014	136	Probe
Dissolved Organic Carbon		29/10/2014	102	TOC analyser
Chloride*		29/10/2014	131	Ion Chromatography
Fluoride*		29/10/2014	131	Ion Chromatography
Sulphate*		29/10/2014	131	Ion Chromatography
Total Dissolved Solids		29/10/2014	144	Gravimetric
Phenol index		29/10/2014	121	HPLC
WAC Solids analysis				
pH Value**	Air dried sample	29/10/2014	113	Electrometric
Total Organic Carbon	Air dried sample	29/10/2014	210	IR
Loss on Ignition**	Air dried sample	29/10/2014	129	Gravimetric
Acid Neutralization Capacity to pH 7	Air dried sample	29/10/2014	NEN 737	Electrometric
Total BTEX**	As submitted sample	29/10/2014	181	GCMS
Mineral Oil**	As submitted sample	29/10/2014	117	GCFID
Total PCBs (7 congeners)	Air dried sample	29/10/2014	120	GCMS
Total PAH (17)**	As submitted sample	29/10/2014	133	GCFID

Report Information

Report No.: 14-00918

Key

U	hold UKAS accreditation
M	hold MCERTS and UKAS accreditation
N	do not currently hold UKAS accreditation
^	MCERTS accreditation not applicable for sample matrix
S	Subcontracted to approved laboratory UKAS Accredited for the test
SM	Subcontracted to approved laboratory MCERTS/UKAS Accredited for the test
I/S	Insufficient Sample
U/S	Unsuitable sample
n/t	Not tested
<	means "less than"
>	means "greater than"

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

Deviation Codes

-
- | | |
|---|--|
| a | No date of sampling supplied |
| b | No time of sampling supplied (Waters Only) |
| c | Sample not received in appropriate containers |
| d | Sample not received in cooled condition |
| e | The container has been incorrectly filled |
| f | Sample age exceeds stability time (sampling to receipt) |
| g | Sample age exceeds stability time (sampling to analysis) |

Where a sample has a deviation code, the applicable test result may be invalid.

Sample Retention and Disposal

All soil samples will be retained for a period of one month

All water samples will be retained for 7 days following the date of the test report

Charges may apply to extended sample storage



Unit A2, Windmill Road, Ponswood Industrial Estate, St Leonards on Sea, East Sussex, TN38 9BY
Tel: +44 (0)1424 718618, Email: info@elab-uk.co.uk, Web: www.elab-uk.co.uk

Results Summary

Report No.: 14-00918

Asbestos Qualitative Results

Analytical result only applies to the sample as submitted by the client. Any comments, opinions or interpretations (marked #) in this report are outside UKAS accreditation (Accreditation No2683). They are subjective comments only which must be verified by the client.

Elab No	Depth (m)	Clients Reference	Description of Sample Matrix #	Result
6195	0.15	HP1	Silty loam	No asbestos detected
6196	0.30	WS1	Silty loam	No asbestos detected
6197	0.30	WS5	Silty loam	No asbestos detected
6199	0.60	WS3	Silty loam	No asbestos detected

Results Summary

Report No.: 14-00918

ELAB Reference	6195	6196	6197	6198	6199	6200
Customer Reference						
Sample ID						
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Location	HP1	WS1	WS5	WS5	WS3	BH1
Sample Depth (m)	0.15	0.30	0.30	0.80	0.60	0.25
Sampling Date	13/10/2014	13/10/2014	13/10/2014	13/10/2014	13/10/2014	13/10/2014

Determinand	Codes	Units	LOD						
Metals									
Arsenic	M	mg/kg	1	8.7	7.4	8.4	n/t	8.2	n/t
Cadmium	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	n/t	< 0.5	n/t
Chromium	M	mg/kg	5	24.3	24.3	26.2	n/t	23.7	n/t
Copper	M	mg/kg	5	19.2	17.8	19.9	n/t	16.6	n/t
Lead	M	mg/kg	5	76.0	54.0	54.0	n/t	135	n/t
Mercury	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	n/t	< 0.5	n/t
Nickel	M	mg/kg	5	16.5	15.3	16.3	n/t	17.4	n/t
Selenium	M	mg/kg	1	1.4	< 1.0	< 1.0	n/t	< 1.0	n/t
Zinc	M	mg/kg	45	91.7	68.4	68.3	n/t	51.2	n/t
Inorganics									
Hexavalent Chromium	N	mg/kg	0.8	< 0.8	< 0.8	< 0.8	n/t	< 0.8	n/t
Total Cyanide	M	mg/kg	1	< 1.0	< 1.0	< 1.0	n/t	< 1.0	n/t
Miscellaneous									
Acid Neutralisation Capacity	N	mol/kg	0.1	n/t	n/t	n/t	n/t	n/t	< 0.1
Loss Of Ignition (450°C)	N	%	0.01	n/t	n/t	n/t	n/t	n/t	4.4
Moisture Content	N	%	0.1	55.6	37.8	33.7	n/t	26.7	n/t
pH	M	units	0.1	n/t	n/t	n/t	n/t	n/t	7.0
Stones Content	N	%	0.1	< 0.1	3.7	12.3	n/t	21.0	n/t
Total Organic Carbon	N	%	0.01	3.2	1.9	1.6	n/t	1.2	1.3

Results Summary

Report No.: 14-00918

ELAB Reference	6195	6196	6197	6198	6199	6200
Customer Reference						
Sample ID						
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Location	HP1	WS1	WS5	WS5	WS3	BH1
Sample Depth (m)	0.15	0.30	0.30	0.80	0.60	0.25
Sampling Date	13/10/2014	13/10/2014	13/10/2014	13/10/2014	13/10/2014	13/10/2014

Determinand	Codes	Units	LOD						
Organics									
>C8-C10 BCB	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	n/t
>C10-C12 BCB	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	n/t
>C12-C16 BCB	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	n/t
>C16-C21 BCB	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	n/t
>C21-C35 BCB	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	n/t
>C35-C40 BCB	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	n/t
Total (>C8-C40) BCB	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	n/t
Phenols									
Phenol	M	mg/kg	1	< 1	< 1	< 1	n/t	< 1	n/t
M,P-Cresol	N	mg/kg	1	< 1	< 1	< 1	n/t	< 1	n/t
O-Cresol	N	mg/kg	1	< 1	< 1	< 1	n/t	< 1	n/t
3,4-Dimethylphenol	N	mg/kg	1	< 1	< 1	< 1	n/t	< 1	n/t
2,3-Dimethylphenol	M	mg/kg	1	< 1	< 1	< 1	n/t	< 1	n/t
Trimethylphenol	M	mg/kg	1	< 1	< 1	< 1	n/t	< 1	n/t
Total Monohydric Phenols	N	mg/kg	5	< 5	< 5	< 5	n/t	< 5	n/t
Polyaromatic hydrocarbons									
Naphthalene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	n/t	< 0.5	n/t
Acenaphthylene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	n/t	< 0.5	n/t
Acenaphthene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	n/t	< 0.5	n/t
Fluorene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	n/t	< 0.5	n/t
Phenanthrene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	n/t	< 0.5	n/t
Anthracene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	n/t	< 0.5	n/t
Fluoranthene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	n/t	< 0.5	n/t
Pyrene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	n/t	< 0.5	n/t
Benzo (a) anthracene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	n/t	< 0.5	n/t
Chrysene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	n/t	< 0.5	n/t
Benzo (b) fluoranthene	M	mg/kg	0.5	0.7	0.6	< 0.5	n/t	< 0.5	n/t
Benzo (k) fluoranthene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	n/t	< 0.5	n/t
Benzo (a) pyrene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	n/t	< 0.5	n/t
Indeno (1,2,3-cd) pyrene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	n/t	< 0.5	n/t
Dibenzo(a,h)anthracene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	n/t	< 0.5	n/t
Benzo(ghi)perylene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	n/t	< 0.5	n/t
Total PAH(16) Speciated	M	mg/kg	2	2	3	< 2	n/t	< 2	n/t
Total PAH (Including Coronene)	N	mg/kg	2.1	n/t	n/t	n/t	n/t	n/t	< 2
BTEX									
Total BTEX	M	mg/kg	0.01	n/t	n/t	n/t	n/t	n/t	0.02
Total Petroleum Hydrocarbons									
Mineral Oil	U	mg/kg	5	n/t	n/t	n/t	n/t	n/t	< 5
PCB (ICES 7 congeners)									
PCB (Total of 7 Congeners)	M	mg/kg	0.03	n/t	n/t	n/t	n/t	n/t	< 0.03

Results Summary

Report No.: 14-00918

ELAB Reference	6201
Customer Reference	
Sample ID	
Sample Type	SOIL
Sample Location	WS4
Sample Depth (m)	0.50
Sampling Date	13/10/2014

Determinand	Codes	Units	LOD	
Metals				
Arsenic	M	mg/kg	1	n/t
Cadmium	M	mg/kg	0.5	n/t
Chromium	M	mg/kg	5	n/t
Copper	M	mg/kg	5	n/t
Lead	M	mg/kg	5	n/t
Mercury	M	mg/kg	0.5	n/t
Nickel	M	mg/kg	5	n/t
Selenium	M	mg/kg	1	n/t
Zinc	M	mg/kg	45	n/t
Inorganics				
Hexavalent Chromium	N	mg/kg	0.8	n/t
Total Cyanide	M	mg/kg	1	n/t
Miscellaneous				
Acid Neutralisation Capacity	N	mol/kg	0.1	< 0.1
Loss Of Ignition (450°C)	N	%	0.01	3.4
Moisture Content	N	%	0.1	n/t
pH	M	units	0.1	6.8
Stones Content	N	%	0.1	n/t
Total Organic Carbon	N	%	0.01	0.42

Results Summary

Report No.: 14-00918

ELAB Reference	6201
Customer Reference	
Sample ID	
Sample Type	SOIL
Sample Location	WS4
Sample Depth (m)	0.50
Sampling Date	13/10/2014

Determinand	Codes	Units	LOD	
Organics				
>C8-C10 BCB	N	mg/kg	1	n/t
>C10-C12 BCB	N	mg/kg	1	n/t
>C12-C16 BCB	N	mg/kg	1	n/t
>C16-C21 BCB	N	mg/kg	1	n/t
>C21-C35 BCB	N	mg/kg	1	n/t
>C35-C40 BCB	N	mg/kg	1	n/t
Total (>C8-C40) BCB	N	mg/kg	1	n/t
Phenols				
Phenol	M	mg/kg	1	n/t
M,P-Cresol	N	mg/kg	1	n/t
O-Cresol	N	mg/kg	1	n/t
3,4-Dimethylphenol	N	mg/kg	1	n/t
2,3-Dimethylphenol	M	mg/kg	1	n/t
Trimethylphenol	M	mg/kg	1	n/t
Total Monohydric Phenols	N	mg/kg	5	n/t
Polyaromatic hydrocarbons				
Naphthalene	M	mg/kg	0.5	n/t
Acenaphthylene	M	mg/kg	0.5	n/t
Acenaphthene	M	mg/kg	0.5	n/t
Fluorene	M	mg/kg	0.5	n/t
Phenanthrene	M	mg/kg	0.5	n/t
Anthracene	M	mg/kg	0.5	n/t
Fluoranthene	M	mg/kg	0.5	n/t
Pyrene	M	mg/kg	0.5	n/t
Benzo (a) anthracene	M	mg/kg	0.5	n/t
Chrysene	M	mg/kg	0.5	n/t
Benzo (b) fluoranthene	M	mg/kg	0.5	n/t
Benzo (k) fluoranthene	M	mg/kg	0.5	n/t
Benzo (a) pyrene	M	mg/kg	0.5	n/t
Indeno (1,2,3-cd) pyrene	M	mg/kg	0.5	n/t
Dibenzo(a,h)anthracene	M	mg/kg	0.5	n/t
Benzo(ghi)perylene	M	mg/kg	0.5	n/t
Total PAH(16) Speciated	M	mg/kg	2	n/t
Total PAH (Including Coronene)	N	mg/kg	2.1	< 2
BTEX				
Total BTEX	M	mg/kg	0.01	< 0.01
Total Petroleum Hydrocarbons				
Mineral Oil	U	mg/kg	5	< 5
PCB (ICES 7 congeners)				
PCB (Total of 7 Congeners)	M	mg/kg	0.03	< 0.03

Human Health Assessment Reference Values

Determinant	Units	GAC Value						Primary Pathway
		Residential			Commercial			
Arsenic	mg/kg	32			640			Ingestion
Cadmium	mg/kg	10			230			Ingestion
Chromium	mg/kg	3000			30400			Ingestion
Chromium IV	mg/kg	4.3			35			Ingestion
Lead	mg/kg	450			590			Ingestion
Mercury	mg/kg	170			3600			Inhalation
Nickel	mg/kg	130			1800			Ingestion
Selenium	mg/kg	350			13000			Ingestion
Copper	mg/kg	2330			71700			Ingestion
Zinc	mg/kg	3750			665000			Ingestion
Cyanide	mg/kg	791			16200			Ingestion
Phenol	mg/kg	210			1100000			Ingestion
SOM	%	1	2.5	6	1	2.5	6	
Napthalene	mg/kg	1.5	3.7	8.7	200	480	1100	Inhalation
Acenaphtylene	mg/kg	170	400	850	84000	97000	100000	Dermal and ingestion
Acenaphthene	mg/kg	210	480	1000	85000	98000	100000	Ingestion
Flourene	mg/kg	160	380	780	64000	69000	71000	Ingestion
Phenanthrene	mg/kg	92	200	380	22000	22000	22000	Dermal and ingestion
Anthracene	mg/kg	2300	4900	9200	530000	540000	540000	Dermal and ingestion
Fluoranthene	mg/kg	260	460	670	23000	23000	23000	Dermal and ingestion
Pyrene	mg/kg	560	1000	1600	54000	54000	54000	Dermal and ingestion
Benzo(a)Anthracene	mg/kg	3.1	4.7	5.9	90	95	97	Dermal and ingestion
Chrysene	mg/kg	6	8	9.3	140	140	140	Dermal and ingestion
Benzon(b/k)Flouranthene	mg/kg	5.6	6.5	7	100	100	100	Dermal and ingestion
Benzo(a)Pyrene	mg/kg	0.83	0.94	1	14	14	14	Dermal and ingestion
Indeno(123-cd)Pyrene	mg/kg	3.2	3.9	4.2	60	61	62	Dermal and ingestion
Dibenzo(a,h)Anthracene	mg/kg	0.76	0.86	0.9	13	13	13	Dermal and ingestion
Benzo(ghi)Perylene	mg/kg	44	46	47	650	660	660	Dermal and ingestion
TPH C ₅ -C ₆ Aliphatic	mg/kg	30	55	110	3400	6200	13000	Inhalation
TPH C ₆ -C ₈ Aliphatic	mg/kg	73	160	370	8300	18000	42000	Inhalation
TPH C ₈ -C ₁₀ Aliphatic	mg/kg	19	46	110	2100	5100	12000	Inhalation
TPH C ₁₀ -C ₁₂ Aliphatic	mg/kg	93	230	540	10000	24000	49000	Inhalation
TPH C ₁₂ -C ₁₆ Aliphatic	mg/kg	740	1700	3000	61000	83000	91000	Inhalation
TPH C ₁₆ -C ₃₅ Aliphatic	mg/kg	45000	64000	76000	1600000	1800000	1800000	Inhalation
TPH C ₃₅ -C ₄₄ Aliphatic	mg/kg	45000	64000	76000	1600000	1800000	1800000	Ingestion
TPH C ₅ -C ₇ Aromatic	mg/kg	65	130	280	28000	49000	90000	Inhalation
TPH C ₇ -C ₈ Aromatic	mg/kg	120	270	611	59000	110000	190000	Inhalation
TPH C ₈ -C ₁₀ Aromatic	mg/kg	27	65	151	3700	8600	18000	Inhalation
TPH C ₁₀ -C ₁₂ Aromatic	mg/kg	69	160	346	36000	37000	37800	Ingestion
TPH C ₁₂ -C ₁₆ Aromatic	mg/kg	140	310	593	28000	28000	28000	Ingestion
TPH C ₁₆ -C ₂₁ Aromatic	mg/kg	250	480	770	28000	28000	28000	Ingestion
TPH C ₂₁ -C ₃₅ Aromatic	mg/kg	890	1100	1230	28000	28000	28000	Ingestion
TPH C ₃₅ -C ₄₄ Aromatic	mg/kg	890	1100	1230	28000	28000	28000	Ingestion
Benzene	mg/kg	0.08			95			Inhalation
Toluene	mg/kg	119			4400			Inhalation
Ethylebenzene	mg/kg	65			2800			Inhalation
Xylene	mg/kg	42			3200			Inhalation

Controlled Waters Assessment Reference Values

Determinant	Unit	EQS Freshwater	Uk DWS	WHO
Arsenic	ug/l	50	10	10
Boron	ug/l	2000	1000	0.3
Cadmium	ug/l	5	5	3
Chromium	ug/l	5 – 250	50	50
Lead	ug/l	4 – 250	25	10
Mercury	ug/l	1	1	1
Selenium	ug/l		10	10
Copper	ug/l	1 – 28	20000	2000
Nickel	ug/l	50 – 200	20	70
Zinc	ug/l	8 – 50	5000	3000
Sulphate	mg/l	400	250	250
PAH	ug/l		0.1	
Anthracene	ug/l	0.02		
Napthalene	ug/l	10		
Benzo(a)Pyrene	ug/l	0.03		0.01
Fluoranthene	ug/l	0.02		
Benzene	ug/l	30	1	10
Toluene	ug/l	50		
Ethylbenzene	ug/l	20		
Xylene	ug/l	30		
TPH	ug/l			
C ₅ – C ₆ Aliphatic	ug/l			15000
C ₆ – C ₈ Aliphatic	ug/l			15000
C ₈ – C ₁₀ Aliphatic	ug/l			300
C ₁₀ – C ₁₂ Aliphatic	ug/l			300
C ₁₂ – C ₁₆ Aliphatic	ug/l			300
C ₁₆ – C ₃₆ Aliphatic	ug/l			N/A
C ₆ – C ₇ Aromatic	ug/l			10
C ₇ – C ₈ Aromatic	ug/l	50		10
C ₈ – C ₁₀ Aromatic	ug/l	20		300
C ₁₀ – C ₁₂ Aromatic	ug/l			1000
C ₁₂ – C ₁₆ Aromatic	ug/l			1000
C ₁₆ – C ₂₁ Aromatic	ug/l			90
C ₂₁ – C ₃₅ Aromatic	ug/l			90



Geosynthetics Soil & Steel Laboratories Ltd

Colder Trading Estate, Leeds Road, Brodley, Huodersfield, West Yorkshire HD5 0RS

T: +44 (0)1484 454100 F: +44 (0)1484 454101

E: info@geosynthetics-lab.com W: www.geosynthetics-lab.com

Summary of laboratory soil descriptions

Contract Ref: Langstone Pk Havant

Report Ref. No: GS-CRM.821

Client ID	Depth (m)	Description of Sample
WS1	0.50	Stiff dark brown gravelly sandy CLAY
WS5	0.50	Stiff dark greyish gravelly sandy CLAY
BH1	0.30	Soft to firm greyish brown gravelly sandy CLAY
BH1	1.20	Very soft sandy CLAY
BH1	4.50	Silty clayey sandy GRAVEL
WS3	1.00	Very soft sandy CLAY
WS3	2.00	Soft tsandy CLAY

Certification:-

Test results reported herein do not apply to samples other than those supplied. GSSL Ltd neither accepts responsibility for nor makes claim as to the final use & purpose of the materials(s).

Approved Signature:

Date Reported: 30/10/14



Geosynthetics Soil & Steel Laboratories Ltd

Colder Trading Estate, Leeds Road, Brodley, Huoddersfield, West Yorkshire HD5 0RS

T: +44 (0)1484 454100 F: +44 (0)1484 454101

E: info@geosynthetics-lab.com W: www.geosynthetics-lab.com

Chemical properties of Soil Water Soluble Sulphate & Ph Value. BS 1377:1990: Part 3 cl.3-9.

Contract Ref: Langstone Pk Havant

Report Ref. No: GS-CRM.821

CLIENT ID	DEPTH (m)	Material passing 2mm BS Test Sieve (% dry mass of original sample)	Water Soluble Sulphate 2:1		pH Value
			Sulphate content as SO ₃ of 2:1 soil/water extract (g/l)	Sulphate content as SO ₄ of 2:1 soil/water extract (g/l)	
BH1	0.30	100	0.1	0.2	7.9
BH1	1.20	100	0.1	0.2	8.2
BH1	4.50	100	0.2	0.3	8.6

Certification:-

Test results reported herein do not apply to samples other than those supplied. GSSL Ltd neither accepts responsibility for nor makes claim as to the final use & purpose of the materials(s).

Approved Signatory:

Date Reported: 28/10/14



Geosynthetics Soil & Steel Laboratories Ltd

Colder Trading Estate, Leeds Road, Brodley, Huodersfield, West Yorkshire HD5 0RS

T: +44 (0)1484 454100 F: +44 (0)1484 454101

E: info@geosynthetics-lab.com W: www.geosynthetics-lab.com

Determination of Moisture Content & Atterberg Limits

Contract Ref:

Langstone Pk Havant

Report Ref. No: GS-CRM.821

Sample Preparation:

Specimens taken from their Wet State

Client ID	Depth (m)	Moisture Content %	Liquid Limit %	Plastic Limit %	Plasticity Index %	% Passing 425µm test sieve	Remarks
BH1	0.30	25.9	48	24	24	78	Intermediate Plasticity
BH1	1.20	27.5	54	25	29	83	High Plasticity
WS3	1.00	26.5	48	26	22	76	Intermediate Plasticity
WS3	2.00	27.2	49	25	24	79	Intermediate Plasticity

Certification:-

Test results reported herein do not apply to samples other than those supplied. GSSL Ltd neither accepts responsibility for nor makes claim as to the final use & purpose of the materials(s).

Approved Signatory:

Date Reported: 30/10/14

This Test Report may not be reproduced other than in full, except with prior written approval of GSSL LTD

Page 4 of 7



Geosynthetics Soil & Steel Laboratories Ltd

Colder Trading Estate, Leeds Road, Brodley, Huodersfield, West Yorkshire HD5 0RS

T: +44 (0)1484 454100 F: +44 (0)1484 454101

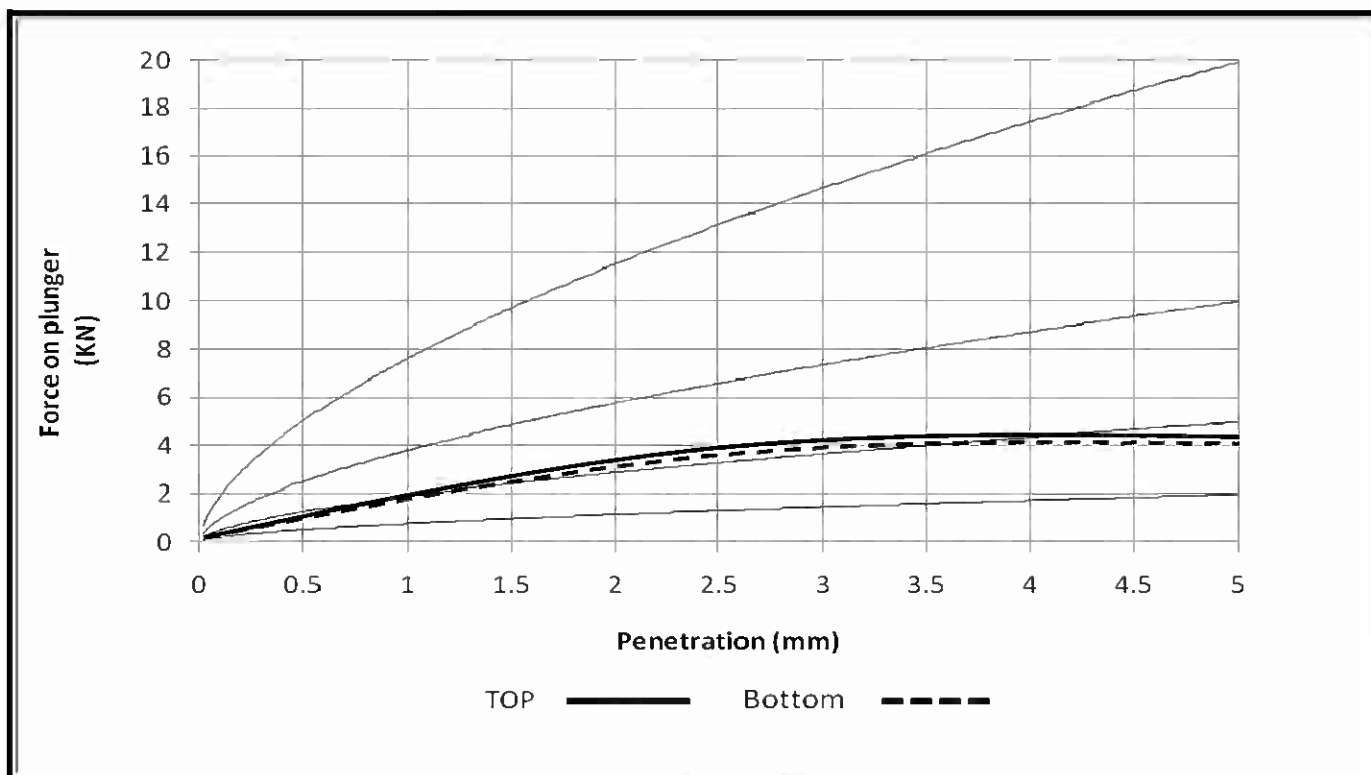
E: info@geosynthetics-lab.com W: www.geosynthetics-lab.com

Determination of California Bearing Ratio BS 1377: Part 4:1990

Contract Ref: Langstone Pk Havant
Sample description: Stiff dark brown gravelly sandy CLAY
Client Sample ID: WS1 @ 0.50m

Report Ref. No: GS-CRM.821

INITIAL SAMPLE CONDITIONS		TEST CONDITIONS		Method of compaction:	
Moisture Content %:	23.9	Surcharge Kg:	13	Final Moisture Content %	2.5kg rammer
Bulk Density (measured) Mg/m ³ :	1.98	Soaking Time hrs:	-	Sample Top	23.9
Dry Density (measured) Mg/m ³ :	1.82	Swelling mm:	-	Sample Bottom	23.9
Percentage retained on 20mm BS test sieve:	3	Remarks: Tested in accordance with BS1377: 1990 Part 4 Sample preparation method 2.5kg rammer			
				Calculated CBR Value %	
				CBR @ 2.5mm = 28.0 CBR @ 5.0mm = 22.0	
				CBR @ 2.5mm = 27.6 CBR @ 5.0mm = 20.1	



Certification:-

Sample Preparation: In accordance with BS 1377-4: 1990 : Clause 7.2.4.4. Moisture Content determined in accordance with BS 1377-2: 1990 Clause 3.2.
CBR Tested in accordance with BS 1377-4: 1990 Clause 7

Approved Signatory:

Date Reported: 30/10/14



Geosynthetics Soil & Steel Laboratories Ltd

Colder Trading Estate, Leeds Road, Brodley, Huodersfield, West Yorkshire HD5 0RS

T: +44 (0)1484 454100 F: +44 (0)1484 454101

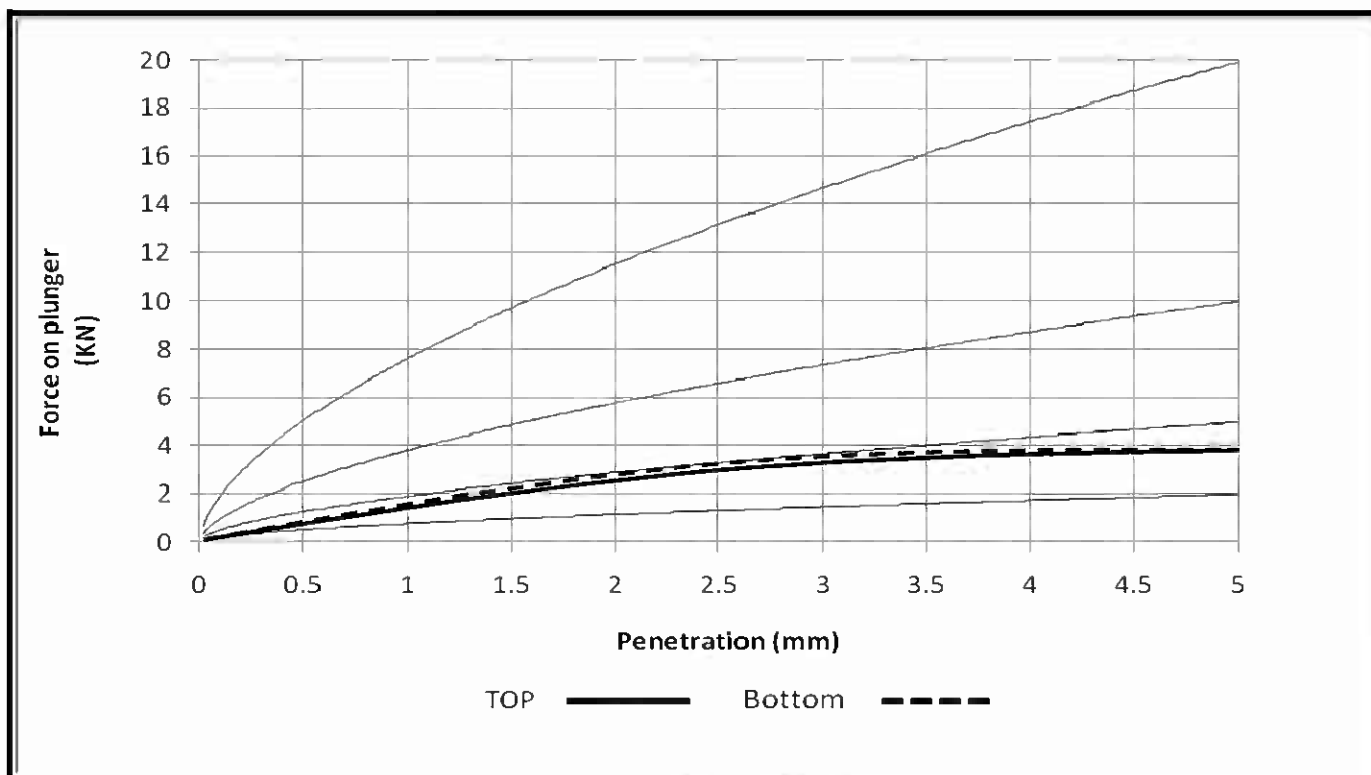
E: info@geosynthetics-lab.com W: www.geosynthetics-lab.com

Determination of California Bearing Ratio BS 1377: Part 4:1990

Contract Ref: Langstone Pk Havant
Sample description: Stiff dark greyish gravelly sandy CLAY
Client Sample ID: WS5 @ 0.50m

Report Ref. No: GS-CRM.821

INITIAL SAMPLE CONDITIONS		TEST CONDITIONS		Method of compaction:	
Moisture Content %:	24.6	Surcharge Kg:	13	Final Moisture Content %	2.5kg rammer
Bulk Density (measured) Mg/m ³ :	1.96	Soaking Time hrs:	-	Sample Top	23.9
Dry Density (measured) Mg/m ³ :	1.80	Swelling mm:	-	Sample Bottom	23.9
Percentage retained on 20mm BS test sieve:	1	Remarks: Tested in accordance with BS 1377: 1990 Part 4 Sample preparation method 2.5kg rammer			
				Calculated CBR Value %	
				CBR @ 2.5mm = 25.6	
				CBR @ 5.0mm = 18.9	
				CBR @ 2.5mm = 26.5	
				CBR @ 5.0mm = 21.1	



Certification:-

Sample Preparation: In accordance with BS 1377-4: 1990 : Clause 7.2.4.4. Moisture Content determined in accordance with BS 1377-2: 1990 Clause 3.2.
CBR Tested in accordance with BS 1377-4: 1990 Clause 7

Approved Signatory:

Date Reported: 30/10/14



Geosynthetic Soil & Steel Laboratories Ltd

Colder Trading Estate, Leeds Road, Brodley, Huodersfield, West Yorkshire HD5 0RS

T: +44 (0)1484 454100 F: +44 (0)1484 454101

E: info@geosynthetic-lab.com W: www.geosynthetic-lab.com

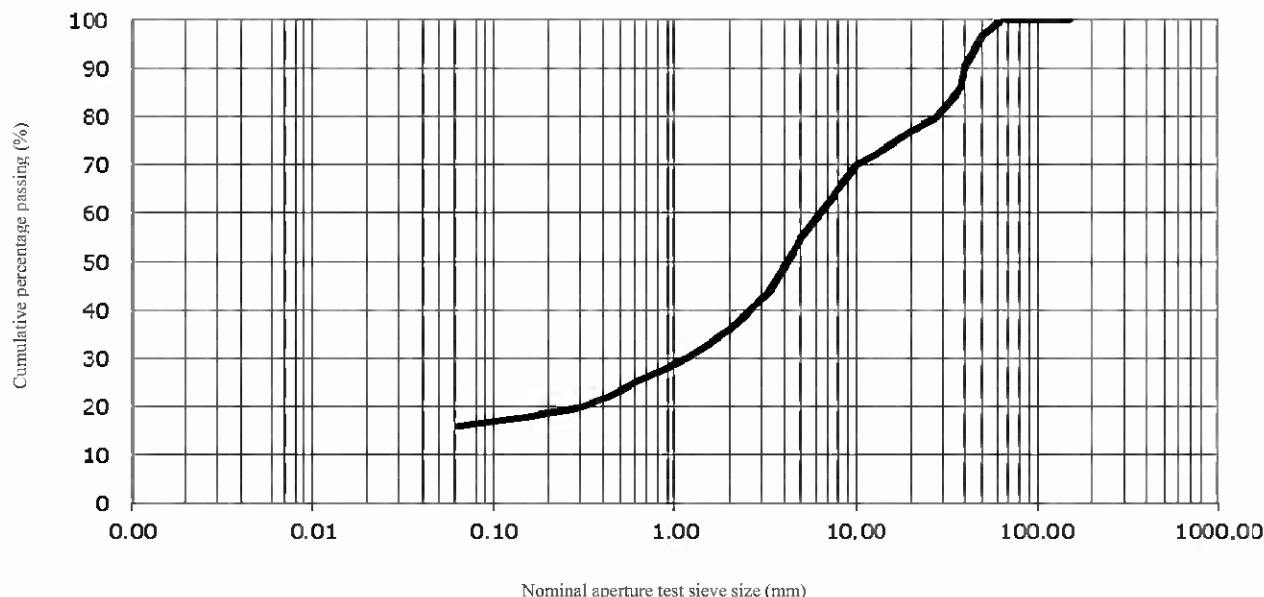
Determination of Particle Size Distribution (Dry Sieving)

Report Ref. No: GS-CRM.821

GSSL Sample ID: A1
Client ID: BH1 @ 4.50m
Client: Enzygo Ltd
Site: Langstone Pk Havant
Date Sampled: N/A
Sampled from: -
Material Specification: N/A
Sample Description: Silty clayey sandy GRAVEL
Sample Type: Disturbed
Sampled by: Client
Date Sampled: N/A
Remarks: -

BS Test Sieve (mm)	% Material Passing
125	100
90	100
75	100
63	100
50	97
40	90
37.5	86
28	80
20	77
14	73
10	70
6.3	60
5	55
3.35	44
2	36
1.18	30
0.6	25
0.425	22
0.3	20
0.15	18
0.063	16

Soil Fraction	Total Percentage
COBBLES	-
GRAVEL	64
SAND	20
SILT / CLAY	16



Sample Preparation: In accordance with BS 1377-1 & 2:1990

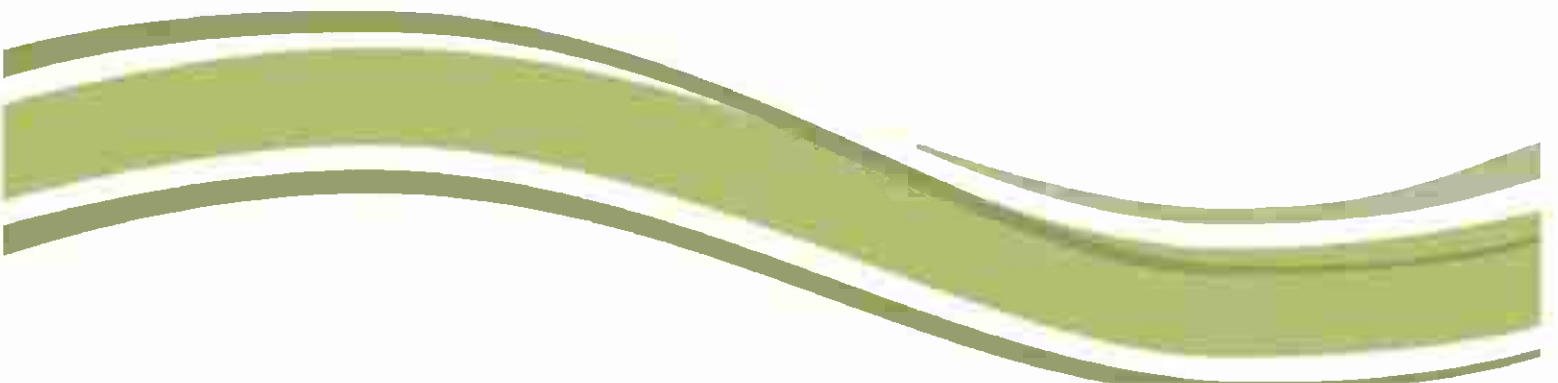
Certification:-

Test results reported herein do not apply to samples other than those supplied. GSSL Ltd neither accepts responsibility for nor makes claim as to the final use & purpose of the materials(s)

Approved Signatory:

Date Reported: 30/10/14

This Test Report may not be reproduced other than in full, except with prior written approval of GSSL LTD



Enzygo specialise in a wide range of technical services:

Property and Sites

Waste Planning

Waste Technologies and Renewables

Waste Technologies

Landscape Architecture

Environmental Co-ordination

Hydrology and Flood Risk

Waste Contract Procurement

Minerals Planning

Noise and Vibration

Permitting and Regulation

Environmental Planning

Ecology Services

Contaminated Land and Geotechnical

BRISTOL OFFICE

The Granary
Woodend Lane
Cromhall
Bristol GL12 8AA
Tel: 01454 269237
Fax: 01454 269760

kevin.parr@enzygo.com

SHEFFIELD OFFICE

STEP Business Centre
Wortley Road
Deepcar
Sheffield S36 2UH
Tel: 0114 2903677
Fax: 0114 2903688

matt.travis@enzygo.com

MONMOUTH OFFICE, WALES

Singleton Court Business Park
Wonastow Road
Monmouth
Monmouthshire NP25 5JA
Tel: 01600 714611
Fax: 01600 716744

chris.formaggia@enzygo.com

Please visit our website for more information.

enzygo.com