



Geo-Environmental Report

Purbrook Park School Lane, Waterloooville, PO7 5PD
for:

Persimmon Homes South Coast



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Project:	Purbrook Park School Lane, Waterloooville, PO7 5PD
For:	Persimmon Homes South Coast.
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Executive Summary

Proposed Development

The site is to be re-developed for residential use.

Investigation

Site investigation, desk study and a monitoring visit were undertaken by Enzygo Ltd. in July 2015.

Ground Conditions

Ground Conditions comprise topsoil like Made Ground over a mixture of sand, clay and silt.

Contamination

No contamination was identified from the desk study or ground investigation.

Foundations

Spread foundations should be suitable.

Pavement Design

An equilibrium CBR range of 15% is recommended. Soils are considered to be frost susceptible.

Buried Concrete

It is recommended that Class AC-1s conditions of Special Digest 1 are used for shallow soils.

Drainage

Soakaway drainage is not recommended.

Ground Gas and Radon

No radon risk risks have been identified at the site. Elevated Carbon Dioxide has been measured but with no flow rate and the risk has been assessed dismissed using a source, pathway receptor approach in accordance with CIRIA C665.

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1.0 INTRODUCTION

Background

- 1.1 Enzygo Limited has been commissioned by Persimmon Homes South Coast to prepare a Geo-Environmental Report for a site at Purbrook Park School Lane, Waterloooville, PO7 5PD.

Proposed Development

- 1.2 Hill Residential Ltd is seeking to re-develop the site for residential use comprising domestic houses and gardens with associated infrastructure.
- 1.3 The proposed development is shown on an Indicative Layout Drawing. This has been incorporated in to the Site Plan presented as Drawing CRM.1033.019.GE.D.001.

Objectives

- 1.4 The objectives of the study are to:
- Review historical plans, geology, hydrogeology, site sensitivity, mining records and contaminated land information in order to complete a Desk Study. A Groundsure Report has been obtained which is included in Appendix A;
 - 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

- 1.5 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 issues 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.

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

2.0 SITE SETTING

Site Description

Item	Description
Site Address	Purbrook Park School Lane, Waterloooville, PO7 5PD
National Grid Reference	468278,107799
Site Area	0.7 Ha

Current Site Description

- 2.1 The following site description has been compiled from the site inspection undertaken by Enzygo staff, together with current maps, aerial photographs and a topographical survey.
- 2.2 At the time of the ground investigation the site comprises open land vegetated with rough grass. Ground was noted to be un-even. Satellite images available on site show that the site had previously been used as a car park during construction of an adjoining development.
- 2.3 The site is bounded to the north, east and west by residential properties.
- 2.4 To the south is Stakes Road and residential properties beyond.
- 2.5 The site is separated from Stakes Road by mature hedge and gates.

Surrounding Area

- 2.6 The surrounding land uses are summarised as follows:

Direction	Land Use
South	Stakes Road with residential use beyond.
East	Residential use.
West	Residential use.
North	Residential use.

- 2.7 No sources of potential contamination were noted 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		
Historical Land Use		
Map Edition	On Site	Off Site
1868	Field.	Stakes Road 0m S. Fields 0m N, W, E & 10m S. Farm 100m S. House 60m N. Ponds 120m SW & 200m NE.
1897	No change.	School 150m NE.
1908	No change.	Buildings 100m NE.
1932	No change.	Residential development 10m S, 20m W & 140m NE. Greenhouses 70m NW.
1937	Sports Ground.	No change.
1952	No change.	No change.
1954	No change.	Playing Field 0m E. Earthworks 0m NE & around the playing field. Factory 200m NE.
1960	No change.	Pond 120m SW no longer shown.
1973	No change.	No change.
1976	No change.	No change.
1983	No change.	Factory 200m NE now houses. Pond 200m NE infilled and developed.
1993	No change.	No change.
1995	No change.	Farm 100m S developed for residential.
2002	No change.	No change.
2010	No change.	No change.
2014	No change.	No change.

- 3.2 The earthworks shown to the north east of the site appears to be associated with land re-grading to form the sports field. As such it is not considered a significant risk.
- 3.3 No risks to the site are identified from the historical maps.

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	None Present	Not Applicable	Not Applicable
Solid	Wittering Formation	Sand, Silt And Clay	Secondary A

- 4.2 There are no records of Made Ground below the site or within 500m.
- 4.3 There are no records of landslips within 500m of the site.
- 4.4 BGS borehole records close to the site confirm the presence of fine sand and silt.
- 4.5 Records of background soil chemistry show no exceedances of residential values.

Groundwater

- 4.6 The recorded permeability of the solid geology is low to high reflecting the mixed lithology.
- 4.7 The GroundSure Report shows the site not to be within a Source Protection Zone.
- 4.8 There are no groundwater abstraction licenses within 1km of the site.
- 4.9 BGS records show that the site is at limited risk of groundwater flooding.

Coal Mining

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

Non Coal Mining

- 4.11 No other mining activity has been identified within 1000m of the site.

Natural Cavities

- 4.12 No natural cavities or solution features are identified within 1000m of the site.

Ground Workings

- 4.13 No ground workings are identified within 250m of the site other than those assessed from historical maps.

Hydrology

- 4.14 There are no water courses on or within 250m of the site. The nearest water course is an unnamed river 401m south west which is designated as a Primary River.
- 4.15 There are no surface water abstractions within 1km of the site.
- 4.16 Environment Agency records show that the site is not within a Flood Zone.

Radon Risk Potential

- 4.17 The Groundsure GeoInsight Report indicates that the site is not within a Radon Affected Area. No radon protective measures are necessary in the construction of new dwellings.

Natural Hazards Finding

- 4.18 BGS information presented within the Groundsure Geoinsight report identifies the following:

Hazard	Risk Designation (Groundsure)
Coal Mining.	None Identified.
Collapsible Ground.	Very Low.
Compressible Ground.	Negligible.
Ground Dissolution.	Negligible.
Landslide.	Very Low.
Running Sand.	Very Low.
Swelling / Shrinking Clay.	Moderate.

- 4.19 A moderate risk of clay heave is identified associated with clay soils. No other geotechnical risks are identified.

Sensitive Land Uses

- 4.20 There are no sites of special interest on or surrounding the site.
- 4.21 English Heritage has not identified any listed buildings or scheduled ancient monuments on or close to the site. No sensitive geology has been identified at the site.

Environmental Sensitivity

4.22 Overall the site is currently considered to be of **low/moderate** sensitivity due to the following:

- The underlying stratum is classified as a Secondary A Aquifer;
- Not located within a Source Protection Zone;
- No surface water-courses on or near to the site;
- field; and
- No sensitive ecology is noted adjacent to or on the site.

4.23 The proposed end use of the site is **residential** and as such future sensitivity will be high for end users.

Industrial Land Uses

4.24 There are no industrial uses within 250m of the site other than electrical sub-stations, which are not considered to pose a risk.

4.25 The Groundsure EnviroInsight Report indicates that there are no fuel stations within 500m of the site.

4.26 There are no high pressure oil/gas pipelines within 500m of the site.

4.27 No new potential contamination risks are identified on or adjacent to the site from the register of industrial activities.

5.0 CONSULTATIONS

Regulatory Database

- 5.1 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.	0	0	Not Applicable.
Registered radioactive substances.	0	0	Not Applicable.
Enforcements, prohibitions or prosecutions.	0	0	Not Applicable.
Pollution Incidents.	0	4	Category 3 (minor) impact to water. Nearest is located 309m NW and not considered a risk.
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.	0	0	Not Applicable.

- 5.2 No risks are identified from the regulatory database.

Landfill Sites and Waste Treatment Sites

- 5.3 There are no operational landfill sites within 500m of the site.
- 5.4 There is one historic landfill within 500m of the site. This is located 390m south west and no details are available. Given the distance from the site this is not considered a significant risk.
- 5.5 There are no waste treatment facilities within 500m of the site.
- 5.6 There are no significant risks from waste activities.

6.0 PRELIMINARY CONCEPTUAL MODEL

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 PPE will address risk.
			Site users.	Negligible.	No source identified.
Asbestos, Hydrocarbon and metals.	Current and historic uses.	Ingestion dermal and Inhalation.	Construction Workers.	Dismissed.	No source identified.
			Site users.		
Hydrocarbon and metals.	Potential migration from off-site source.	Ingestion dermal and Inhalation.	Construction Workers.	Dismissed.	No significant off site sources identified.
			Site users.		
Ground Gas.	Historic Landfill.	Inhalation & Explosive.	Construction Workers.	Dismissed.	No source identified.
			Site users.		
	Potential Made Ground.	Inhalation & Explosive.	Construction Workers.	Dismissed.	No significant source identified.
			Site users.		
Groundwater					
Hydrocarbon and metals.	Potential spillage on site	Vertical Migration.	Groundwater	Negligible.	No source identified.
Surface Water					
Hydrocarbon and metals.	Potential spillage on site	Horizontal Migration.	River Network	Dismissed.	No receptor.
Environmental Receptors					
On site contaminants		Ingestion dermal and inhalation.	Ecology.	Dismissed.	No sensitive ecology designation.
		Direct.	Archaeology.	Dismissed.	None present.
		Direct.	Geology.	Dismissed.	No sensitive receptor present.
		Phytotoxic.	Woodland.	Dismissed.	None present.
		Phytotoxic.	Crops.	Dismissed.	No source identified.
		Ingestion dermal and inhalation.	Livestock.	Dismissed.	No source identified.
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 There is a negligible risk associated with potential unforeseen contamination such as inclusions within soils.

7.0 SITE INVESTIGATION

General

- 7.1 A ground investigation was undertaken based on the proposed development layout and findings of the desk study. The locations of the exploratory are shown on Drawing CRM.1033.019.GE.D.001.

Site Works

- 7.2 The site investigation works were undertaken between 6th and 8th July 2015 and comprised trial pits, soakaway tests and window sampler holes.
- 7.3 Generally trial pits were located within garden areas away from proposed structures to avoid creating soft spots and window sampler holes were located below proposed buildings.
- 7.4 The investigation works are summarised in the table below:

Rational	Exploratory Holes	Notes
Pavement design.	SA1 to SA3.	Within area of road.
Foundation design.	WS1 to WS5.	Adjacent to or below proposed houses.
General coverage.	WS1 to WS5 & TP1 to TP7.	Across the site.
Contamination assessment.	TP1 to TP7.	Chemical samples from proposed garden areas.
Waste Assessment	TP7 & WS3.	WAC Analysis.
Monitoring.	WS1, WS2 & WS5.	Installations.
Soil Infiltration.	SA1 to SA3.	Soakaways.

- 7.5 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.
- 7.6 Generally samples were collected from Made Ground, which may contain potential inclusions of contaminating materials and also materials displaying evidence of potential contamination.
- 7.7 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.

Monitoring

- 7.8 Return visits to monitor groundwater levels from installations was undertaken and during these visits ground gas was also measured.

Laboratory Testing

- 7.9 Samples for geotechnical testing were sent to the laboratories of GSSL, which is NAMAS accredited, for the following analysis:
- California Bearing Ratio(CBR) tests undertaken on re-compacted samples
 - Atterberg Limits Determinations;
 - Particle Size Distribution; and
 - Soluble sulphate and pH.
- 7.10 Samples for chemical analysis were sent to the laboratories of 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), asbestos screen and two stage WAC tests.

8.0 GROUND AND GROUNDWATER CONDITIONS

Summary of Ground and Groundwater Conditions

8.1 The investigations undertaken identify the following strata:

Strata	Summary Description	Thickness (m)
Made Ground.	Brown gravelly silt with fragments of glass, brick, wood, limestone and flint.	0.4 to 0.7
Wittering Formation.	Medium dense orange brown gravelly SAND and sandy SILT varying to sandy gravelly CLAY.	>3.3
Groundwater	Not encountered	N/A

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 noted across the site comprising brown gravelly silt with fragments of glass, brick, wood, limestone and flint.

8.4 It is considered that this material represents poor quality topsoil which has been mixed with hardcore material used to form the contractor's car park to the adjacent residential development.

Wittering Formation

8.5 Wittering Formation was encountered below the Made Ground and was noted to comprise a mixture of soils consisting of medium dense orange brown gravelly sand and sandy silt varying to sandy gravelly clay.

Visual and Olfactory Evidence of Contamination

8.6 Visual or olfactory evidence of contamination was encountered during the site works.

Soil Strength

8.7 SPT results for the Wittering Formation increase from 10 at 1m bgl to over 30 at 3m bgl confirming the soils to comprise medium dense sand and firm to stiff clay.

Groundwater

- 8.8 Groundwater was not encountered during the site investigation. The depth to groundwater measured from installations during monitoring visits are summarised on the table below:

Exploratory Hole	Site Works	Depth m(bgl)	
		20-7-15	29-7-15
WS1	Dry	2.78	2.79
WS2	Dry	1.84	1.84
WS5	Dry	1.80	1.81

Soil Infiltration

- 8.8 BRE 365 soakaway tests were undertaken at three locations (SA1 to SA3) within areas of proposed hardstanding. Tests were undertaken in accordance with the principles of BRE 365 although only one test cycles was possible per pit and the results were extrapolated using a negative exponential line to predict the time to 75% soakage.
- 8.9 Soakaway sheets are included in Appendix B and the results are summarised in the table below:

Soakaway	Depth (m bgl)	Test No	Soil Infiltration Rate	Notes
SA1	2	Test 1	N/A	In-sufficient soakage.
SA2	2	Test 1	$6.2 \text{ E}^{-6} \text{ m/s}$	Extrapolated.
SA3	2	Test 1	$4.5 \text{ E}^{-6} \text{ m/s}$	Extrapolated.

Ground Gas

- 8.10 Ground gas was monitored during the return visit to monitor groundwater levels.

8.11 Results of the gas monitoring is 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 (%)
20/7/15							
WS1	1005	<0.1	<0.1	<0.0001	5.2	<0.0052	16.3
WS2	1005	<0.1	<0.1	<0.0001	4.0	<0.004	16.2
WS5	1005	<0.1	<0.1	<0.0001	1.7	<0.0017	19.2
29/7/15							
WS1	1005	<0.1	<0.1	<0.0001	3.7	<0.0037	16.6
WS2	1005	<0.1	<0.1	<0.0001	1.5	<0.0015	18.5
WS5	1005	<0.1	<0.1	<0.0001	1.9	<0.0019	18.1

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. The LQM/CIEH S4ULs values are used and summary tables of the reference values are 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.
- 9.5 The soil quality shows no exceedances of the reference values for residential use with plant uptake.
- 9.6 No asbestos fibres were detected.

Controlled Waters

- 9.7 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.
- 9.8 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.

- 9.9 Risk to surface waters has been dismissed within the Initial Conceptual Model and no new risks have been identified.
- 9.10 The risk to groundwater is dismissed due to the absence of mobile contaminants identified on site and the low permeability of the soils identified from the soakaway tests.

Ground Gas

- 9.11 Following the guidance provided in Section 3 of 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.
- 9.12 This approach is further supported by supplementary guidance given in RB17, published by CL:AIRE which confirms that gas monitoring is not generally required on sites where Made Ground is less than 5m thick and with low organic matter content or on natural soils such as alluvial clays and Chalk as the ground gas sources are not considered significant. The supplementary guidance given in RB17 also takes account of the current requirements for sealing of floor slabs and substructures to meet air tightness requirements under Part L of the Building Regulations which were not considered in CIRIA C665. The advice given in RB17 is consistent with CIRIA C665 and the Local Authority Guide to Ground Gas published by CIEH.
- 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. Soils encountered on site did not include significant discrete putrescible materials and as such there is not considered to be a viable significant risk from ground gas.

- 9.16 Gas monitoring was undertaken during return visits to monitor groundwater levels. Ground gas has not recorded significant elevated concentrations of Methane and no detectable gas flow rates have been measured. Elevated concentration of Carbon Dioxide was recorded which exceeds the 5% threshold at which consideration should be given to the use of minimal gas protection measures.
- 9.17 When assessing the risk consideration is given to the physical properties of the gas within a source-pathway receptor model. Gas source is identified but as it is heavier than air and there is no measurable flow there is no credible mechanism by which it can enter an above ground structure and accumulate to a hazardous concentration. By applying a pollutant linkage it can be seen that the gas flux values measured fall into Characteristics Situation 1. This supports the assessment and findings of the desk study and ground investigation.
- 9.18 It is becoming increasingly common for Local authorities to require gas protection measures where Carbon Dioxide concentrations exceed 5%, even though this is not required in CIRIA C665. Therefore it is recommended that the report is provided to the Local Planning Authority and if they require use of gas protection measures it is proposed that minimal measures are used comprising jointing of a 1200g DPM, sealing of service entry points and taping to the cavity tray.

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 below:

Source	Location	Exposure Pathway	Potential Receptor	Probability of Exposure	Details
On-site					
Asbestos, Hydrocarbon and metals.	Unforeseen Contamination.	Ingestion dermal and inhalation.	Construction Workers.	Dismissed.	Normal PPE will address risk.
			Site users.	Negligible	No source identified.
Asbestos, Hydrocarbon and metals.	On site materials.	Ingestion dermal and inhalation.	Construction Workers.	Dismissed.	Below GAC.
			Site users.		
Asbestos, Hydrocarbon and metals.	Current and historic uses.	Ingestion dermal and inhalation.	Construction Workers.	Dismissed.	No source identified.
			Site users.		
Hydrocarbon and metals.	Potential migration from off-site source.	Ingestion dermal and inhalation.	Construction Workers.	Dismissed.	No significant off site sources identified.
			Site users.		
Ground Gas.	Historic Landfill.	Inhalation & Explosive.	Construction Workers.	Dismissed.	No source identified.
			Site users.		
	Potential Made Ground.	Inhalation & Explosive.	Construction Workers.	Dismissed.	No significant source identified and no elevated gas flux measured.
			Site users.		
Groundwater					
Hydrocarbon and metals.	Potential spillage on site	Vertical Migration.	Groundwater	Dismissed.	No source identified.
Surface Water					
Hydrocarbon and metals.	Potential spillage on site	Horizontal Migration.	River Network	Dismissed.	No receptor.
Environmental Receptors					
On site contaminants		Ingestion dermal and inhalation.	Ecology.	Dismissed.	No sensitive ecology designation.
		Direct.	Archaeology.	Dismissed.	None present.
		Direct.	Geology.	Dismissed.	No sensitive receptor present.
		Phytotoxic.	Woodland.	Dismissed.	None present.
		Phytotoxic.	Crops.	Dismissed.	No source identified.
		Ingestion dermal and inhalation.	Livestock.	Dismissed.	No source identified.
Building Services					
On site contaminants		Direct.	Historic Buildings.	Dismissed.	None present.
		Direct.	Proposed Buildings.	Dismissed.	No source identified.
		Permeate into pipework.	Water Pipes.	Negligible.	Requirements of water authority to be followed.

Remediation

- 9.20 No remediation is proposed. It is however, likely that imported topsoil may be required to soft landscape areas due to the poor quality of the existing soils.
- 9.21 If contamination is encountered during construction works an Environmental Consultant will be available on a 'call out' basis to undertake an assessment of risk. If 'unforeseen contamination' is encountered this will be discussed with the Local Planning Authority and remedial measures agreed prior to implementation. A validation report will be prepared should any remediation of unforeseen contamination be required in accordance with the NPPF.

Waste Classification

- 9.22 Two part WAC test has been undertaken across the site, the results of which are included in Appendix C. These show no exceedances above the inert threshold values for leachable extracts. TPH was measured in Trial Pit TP3 above the inert threshold. As such it is recommended that this material is removed off site separately as it is likely to be classified as Hazardous Waste. The remaining soils should be classified as Inert Waste.
- 9.23 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.

10.0 GEOTECHNICAL ASSESSMENT

Proposed Development

- 10.1 The proposed development comprises two storey residential houses. Structural loadings are not known but assumed to be 50 kN/m wall run.
- 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 topsoil like Made Ground over a mixture of sand, clay and silt.
- 10.4 Groundwater was not encountered during the site investigation but was identified at depths of between 1.8m and 2.8m bgl during monitoring.

Site Preparation

- 10.5 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
 - Tree root balls and soils with significant organic material should be grubbed out and replaced with appropriate compacted materials.

Foundations

- 10.6 It is considered that conventional strip foundations should be suitable assuming an allowable bearing capacity of 100kN/m². Foundations should extend at least 150mm in to the natural soils.
- 10.7 A layer of soft material was encountered at around 1m depth bgl and the soils are noted to be very variable. As such it is recommended that a minimum foundation depth of 1.5m bgl is used. An assessment of likely settlements has been undertaken and these are estimated to be less than 25mm for 2 storey structures.
- 10.8 Foundations may need to be deepened in accordance with NHBC requirements for building near trees. Foundations should be designed assuming soils of low shrinkage potential.

- 10.9 Given the variability of the soils it is recommended that foundations are reinforced to avoid cracking should they straddle both clay and sand soils.

Ground Floor Slab

- 10.10 Ground bearing floor slabs may be used following removal of the poor quality topsoil/Made Ground and any soft materials, however it is recommended plate load tests are undertaken to determine suitable modulus of subgrade reaction to allow design of the slabs. Alternatively suspended floor slabs may be used.

Pavement Construction

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

- Laboratory CBR tests undertaken on re-compacted soil samples;
- Description of the materials encountered in the exploratory holes; and
- Guidance given in HD25/94.

- 10.12 Based on the above it is considered that an equilibrium CBR of 15% is recommended.

- 10.13 It is recommended that the sub-formation is proof rolled with any soft materials being excavated and replaced with suitable compacted capping.

- 10.14 Soils are considered to be frost susceptible.

Drainage

- 10.15 Soakaway drainage is not recommended.

- 10.16 Chemical results should be provided to the water authority to confirm the design of potable water supply pipes.

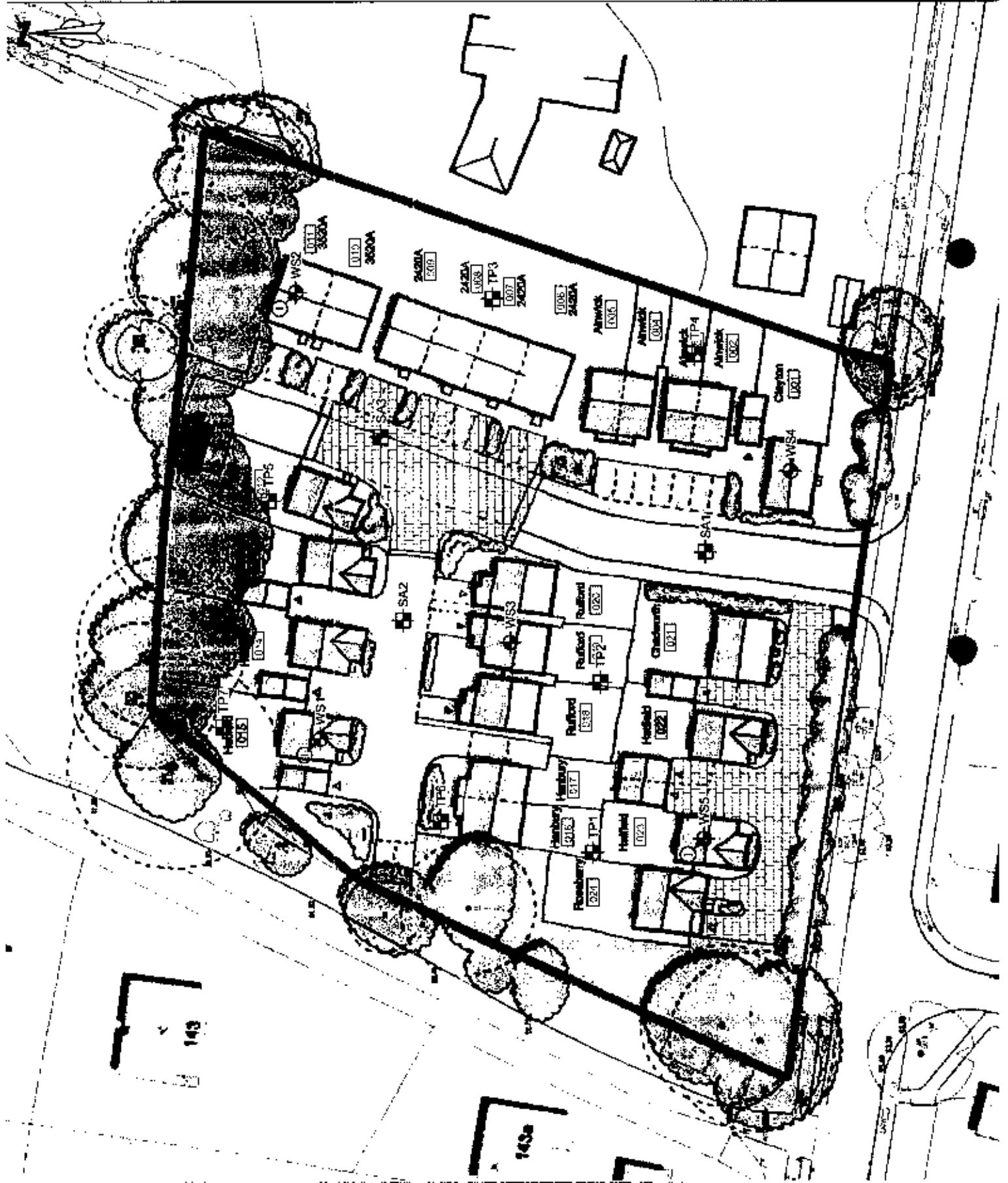
Buried Concrete

- 10.17 Results of the sulphate testing indicate that shallow soils have soluble sulphate concentrations of less than 0.5 g/l consistent with DS1 Conditions and as such buried concrete can be designed to Class AC1-s.

Excavation

- 10.18 Site observations indicated that excavations should be feasible in the near surface. Where access is required the excavations should be designed in accordance with CIRIA RR97.
- 10.19 Based on site observations it is considered that shallow excavations are unlikely to encounter significant groundwater impact.

Key



31211 Business Centre, Worthing Rd, Southampton, SO9 2JH		CLIENT:		Persimmon Homes Ltd	
SCALE:		1:400@A3		PROJECT REF: CRM.1033.019	
DRAWN:		MG		DATE: July 2015	
		CHECKED:		SR	
		PROJECT: Putbrook Park School Lane			
		SITE:		Site Plan	
				PROJECT NO: CRM.1033.019.GE.D.001	

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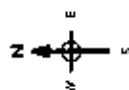
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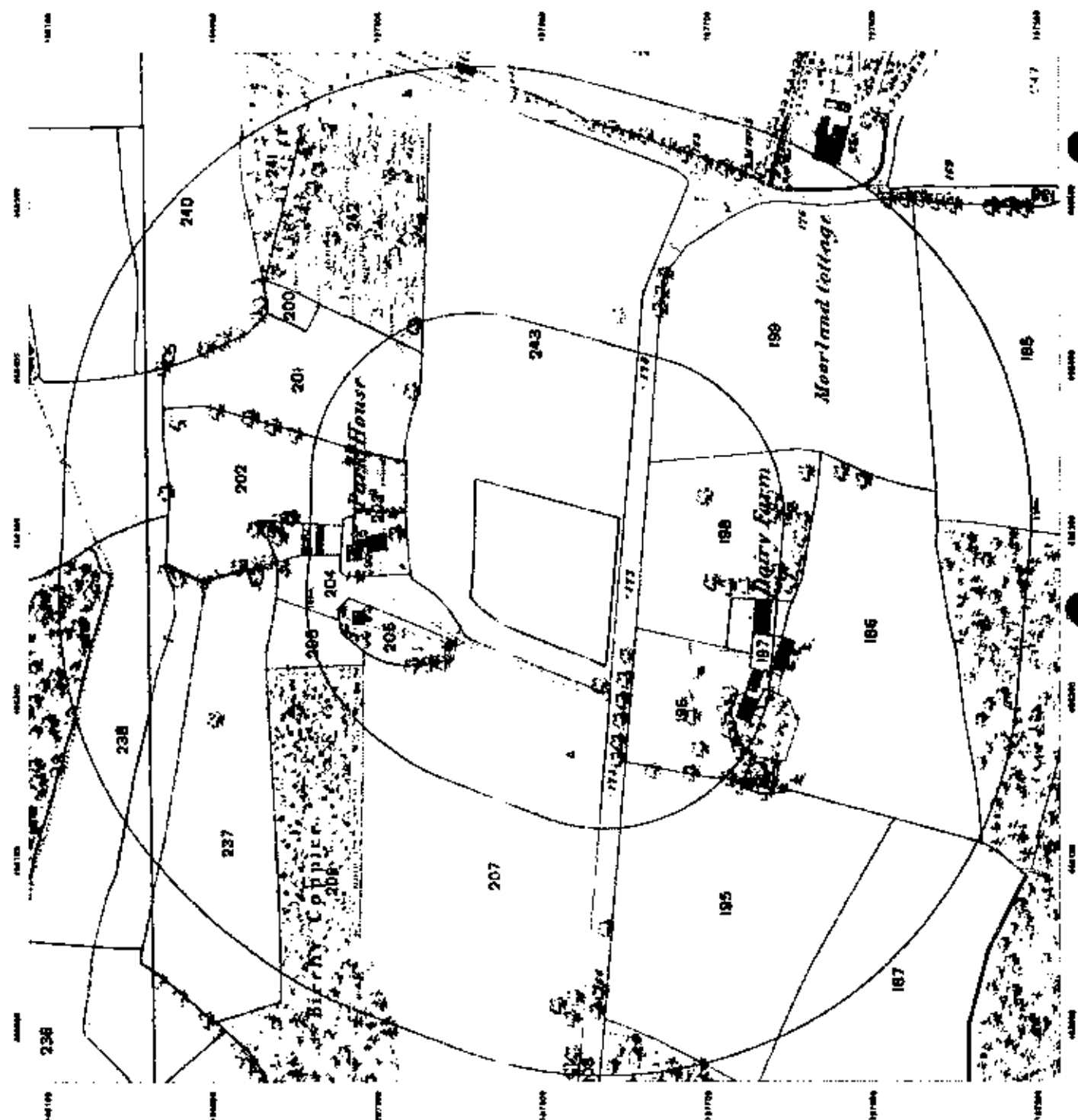


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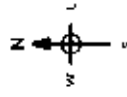
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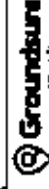


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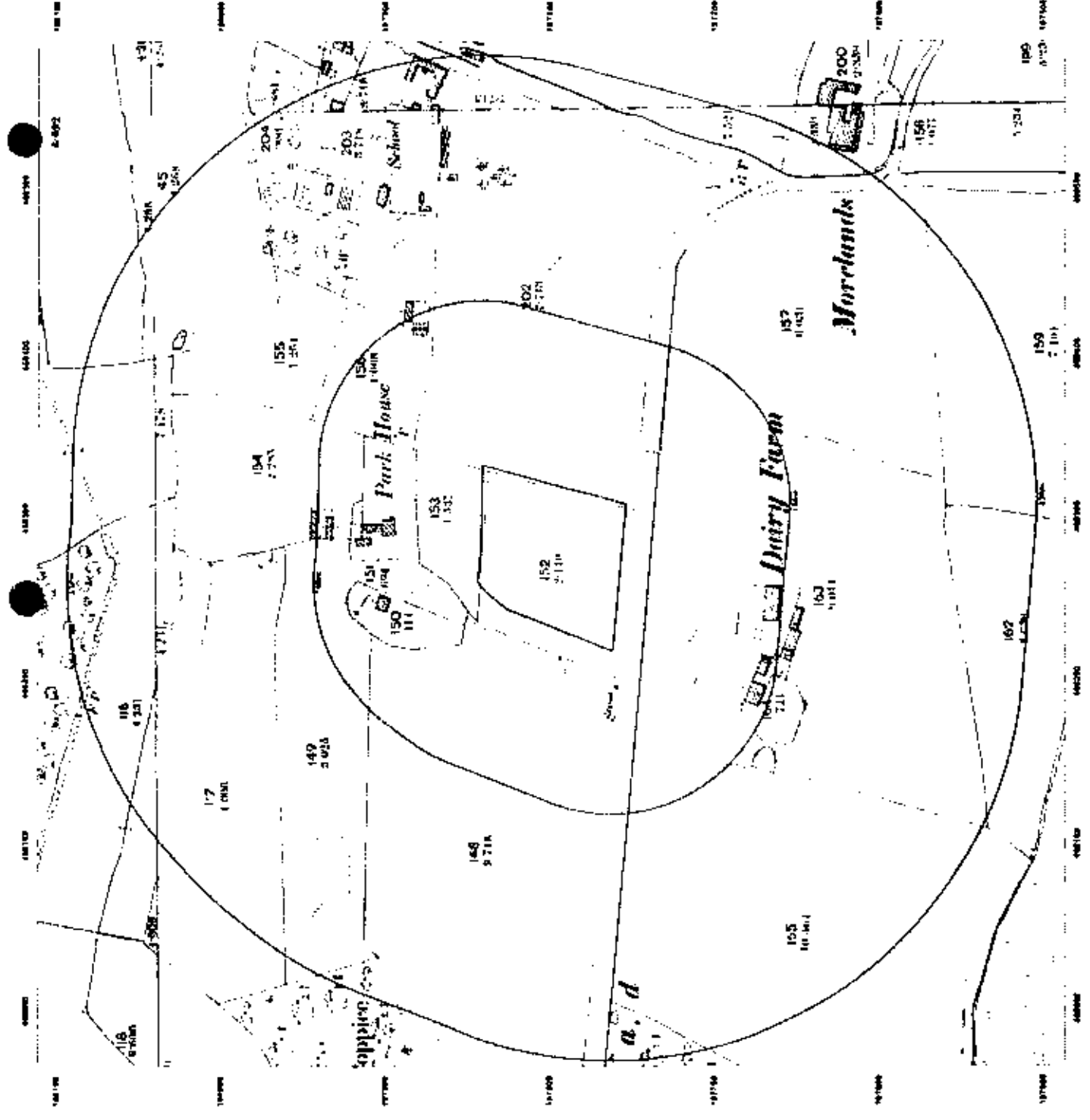


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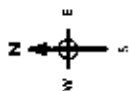
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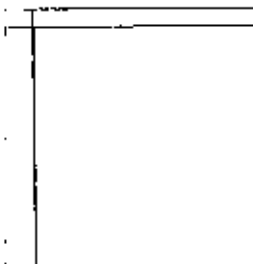


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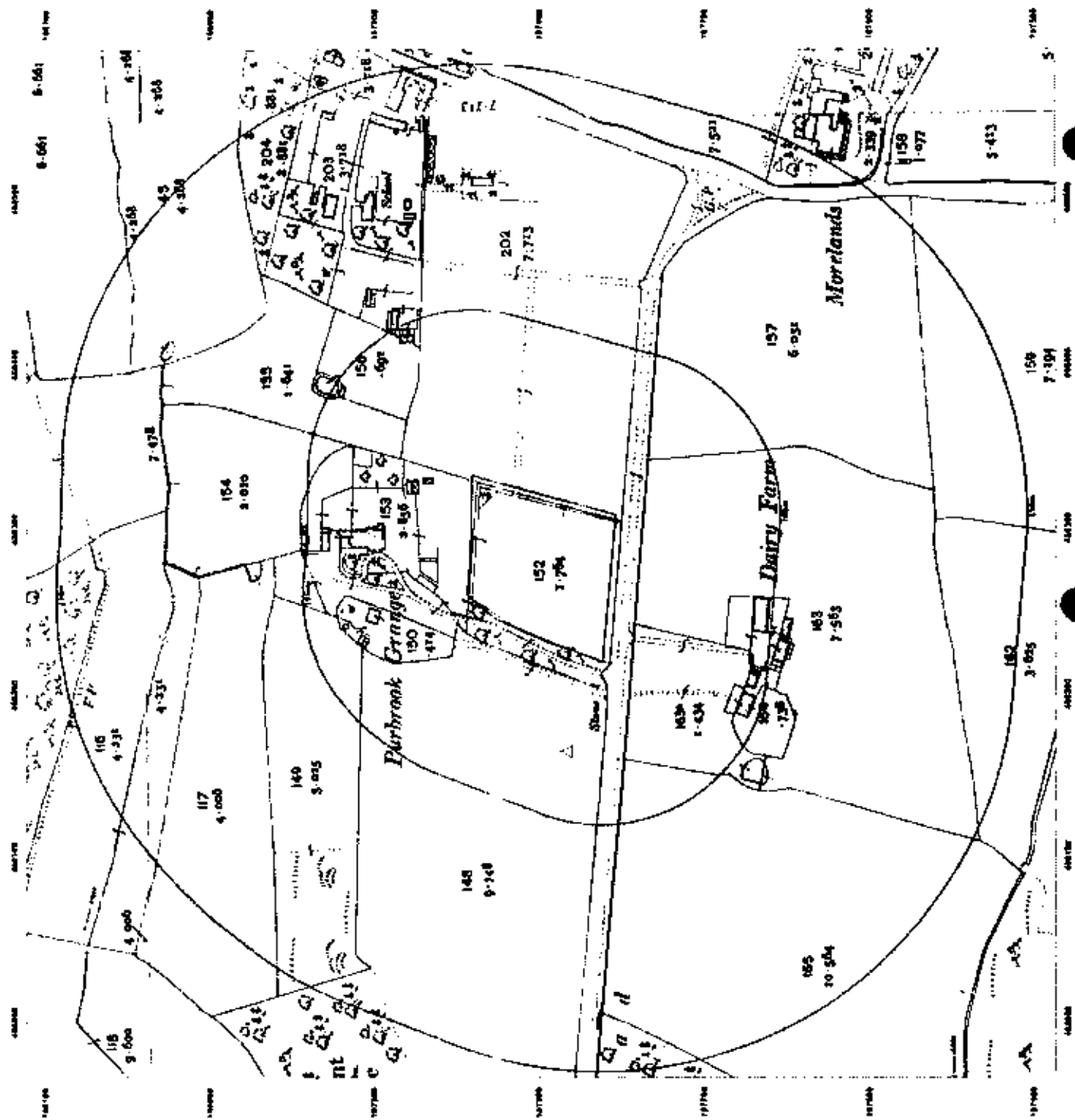


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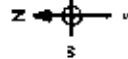
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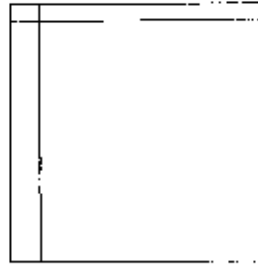
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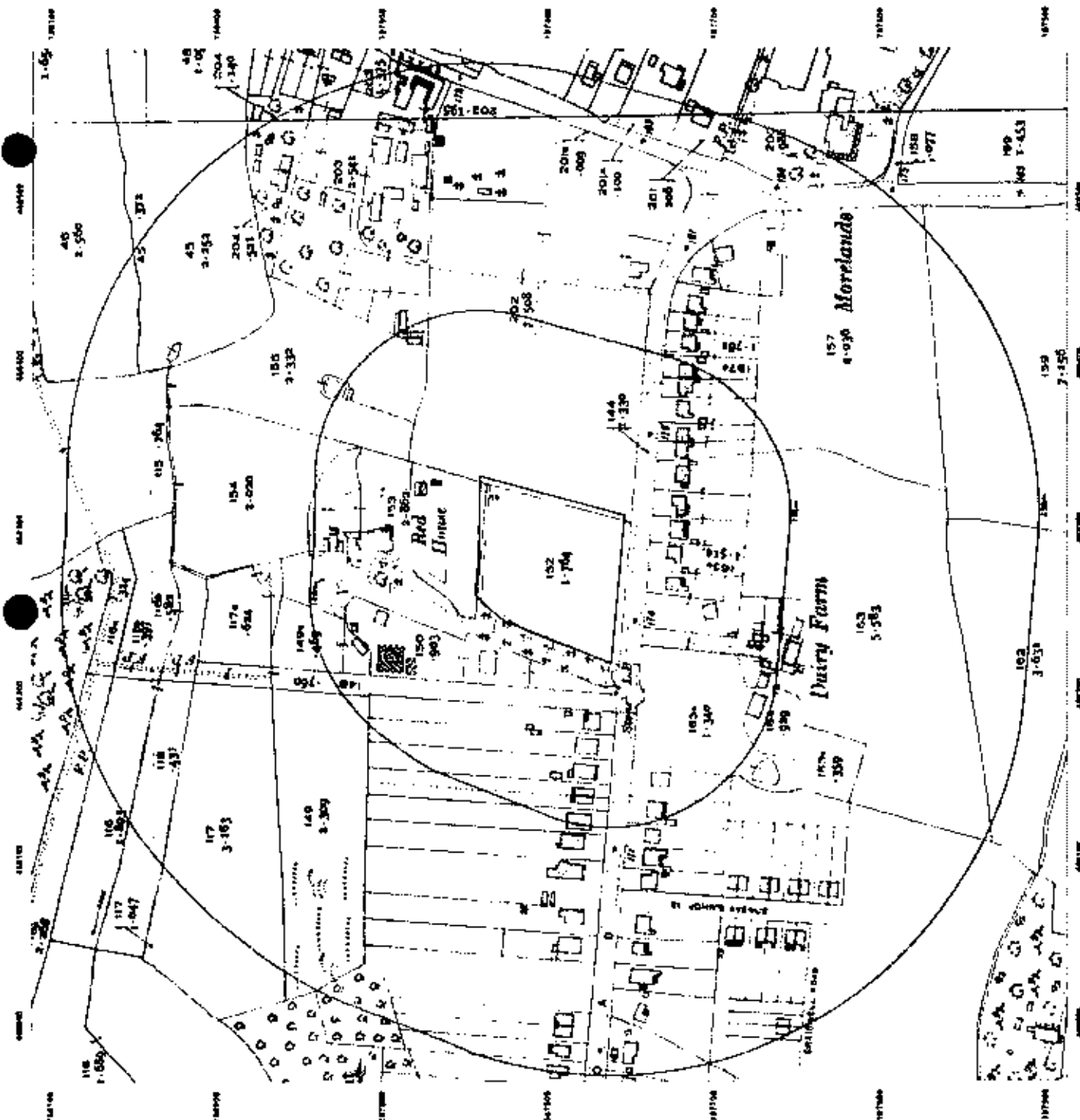
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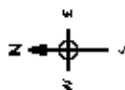
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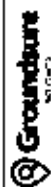


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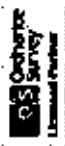
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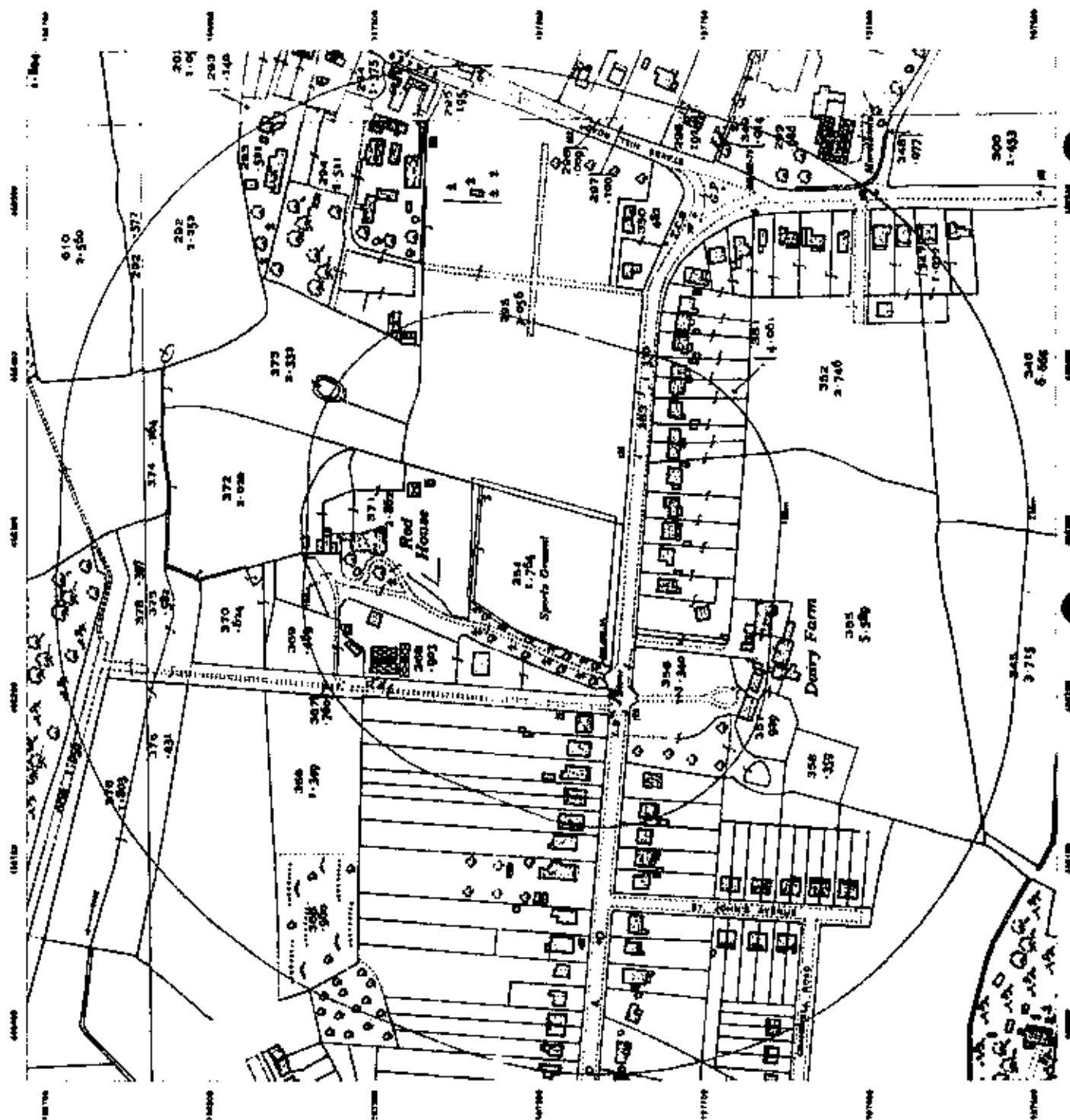
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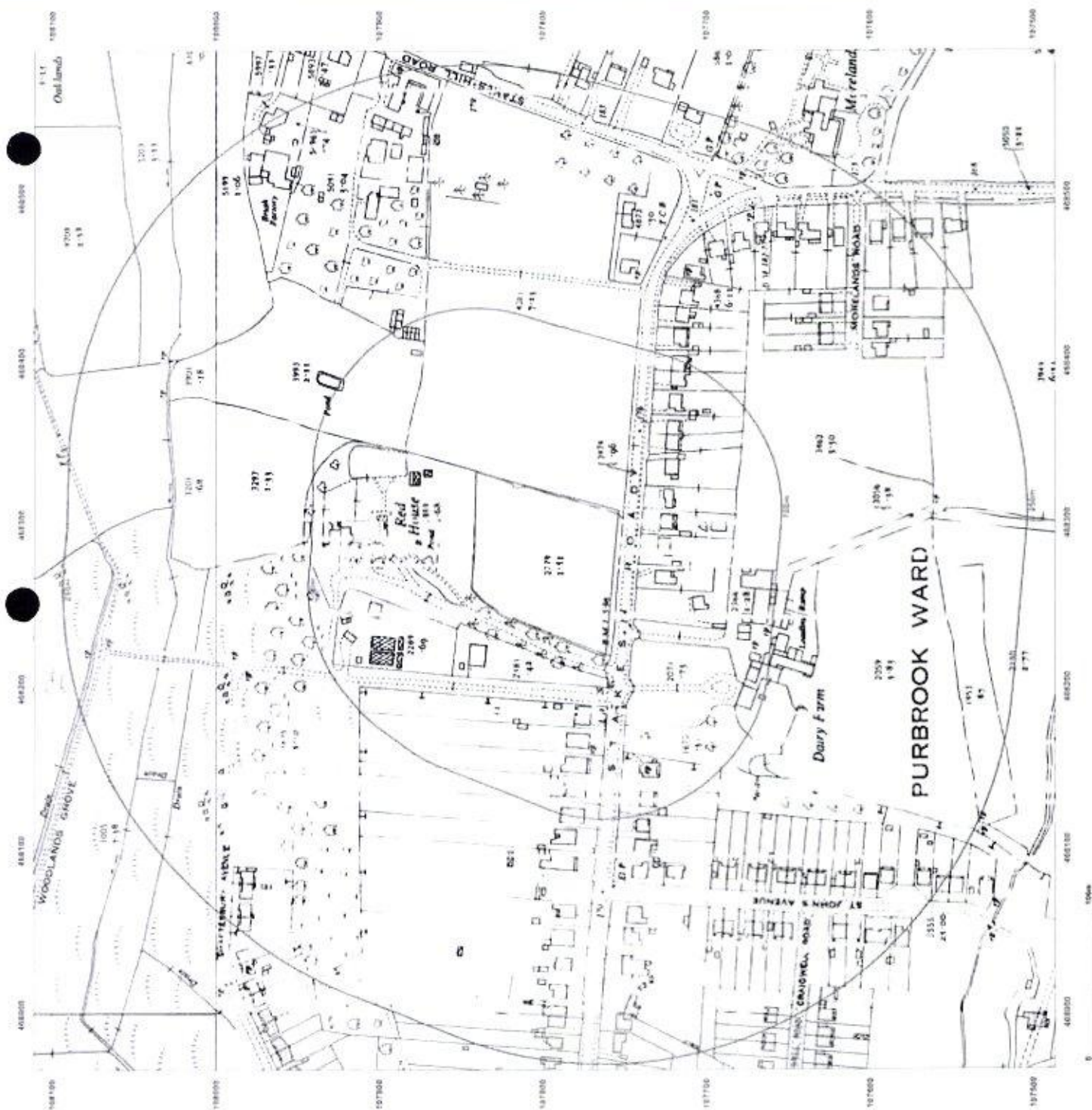
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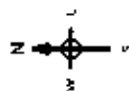
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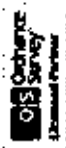
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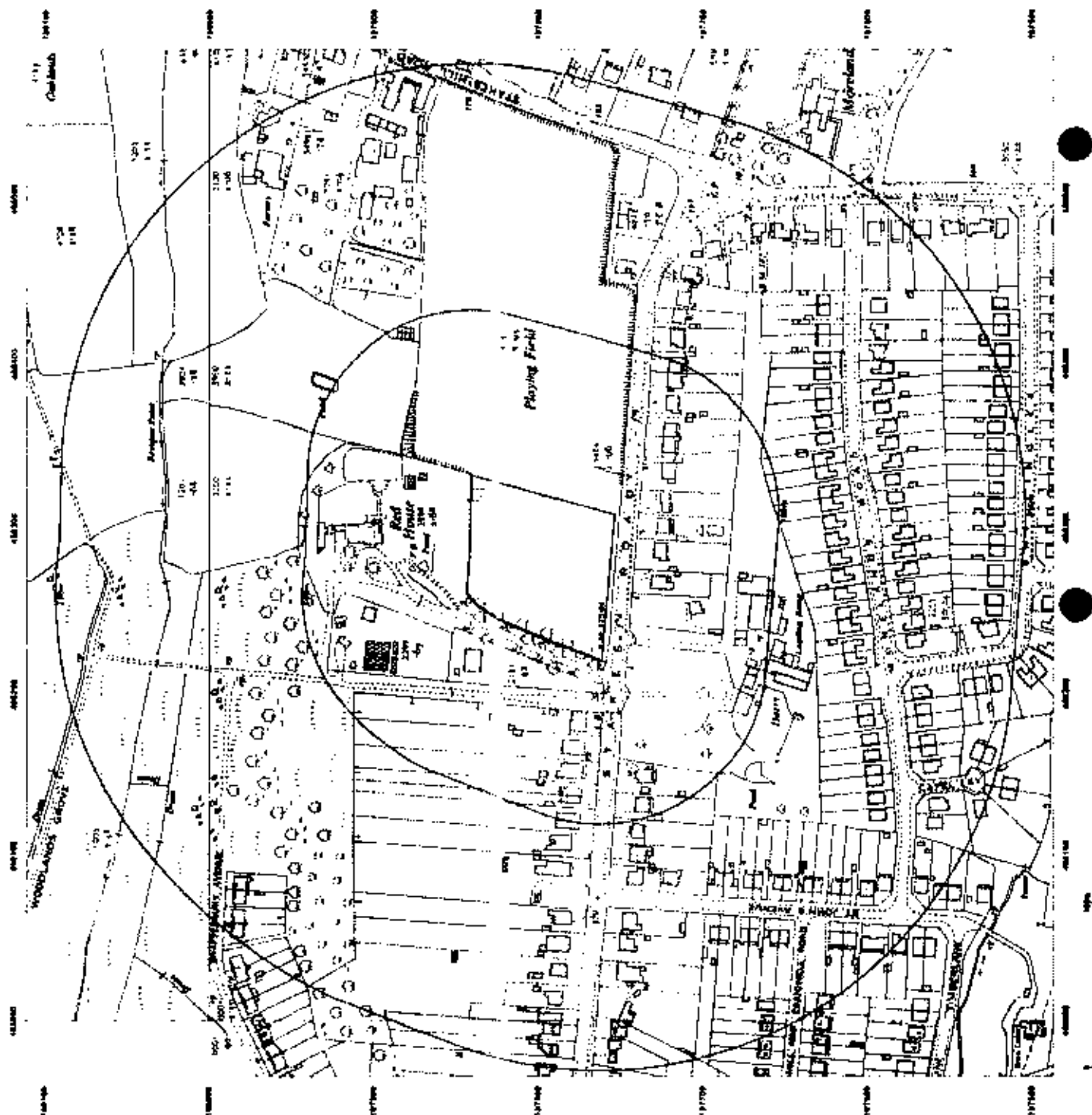


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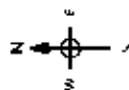
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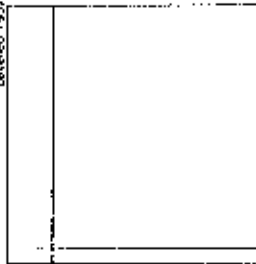
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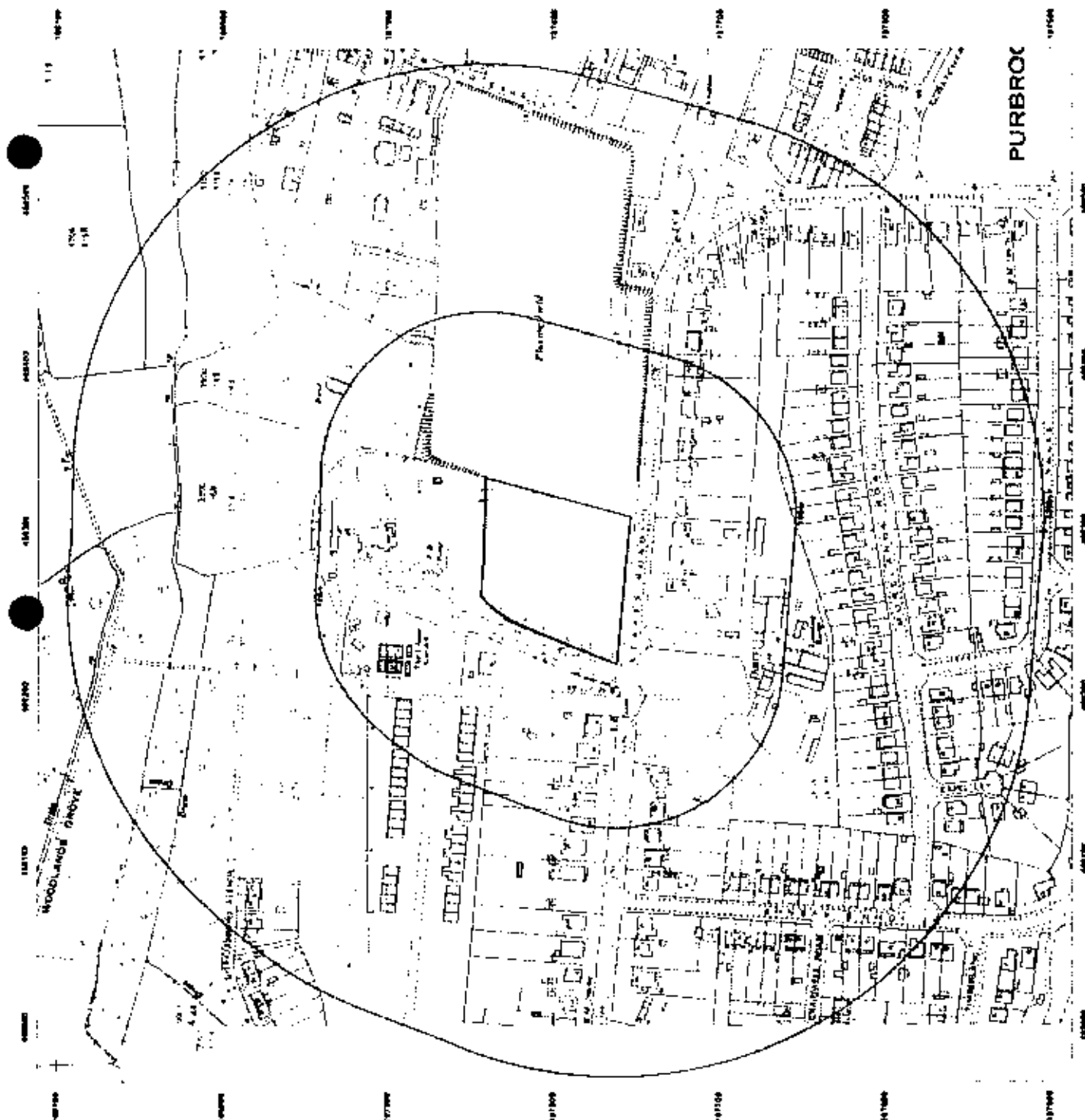
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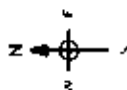
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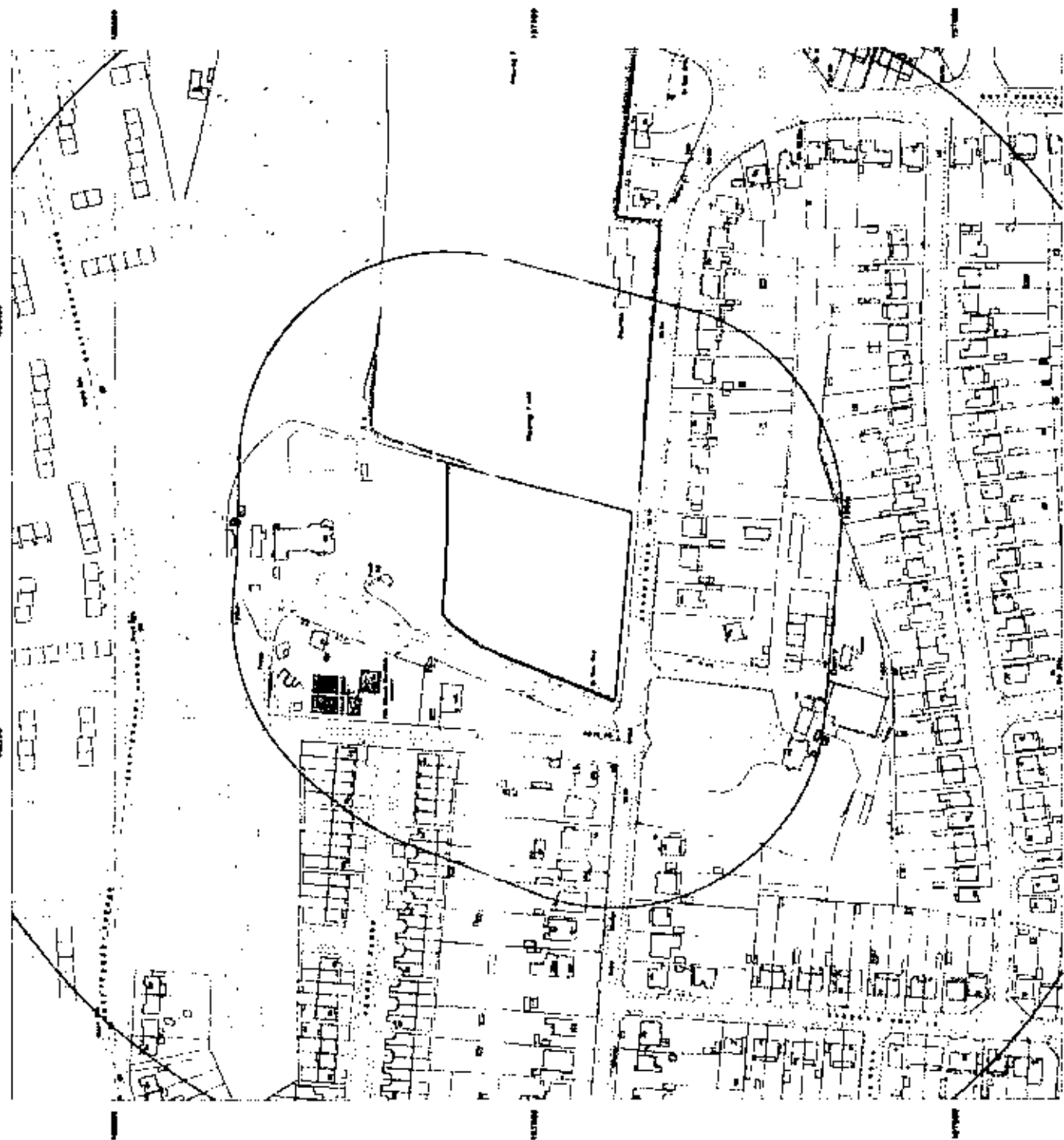
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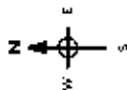
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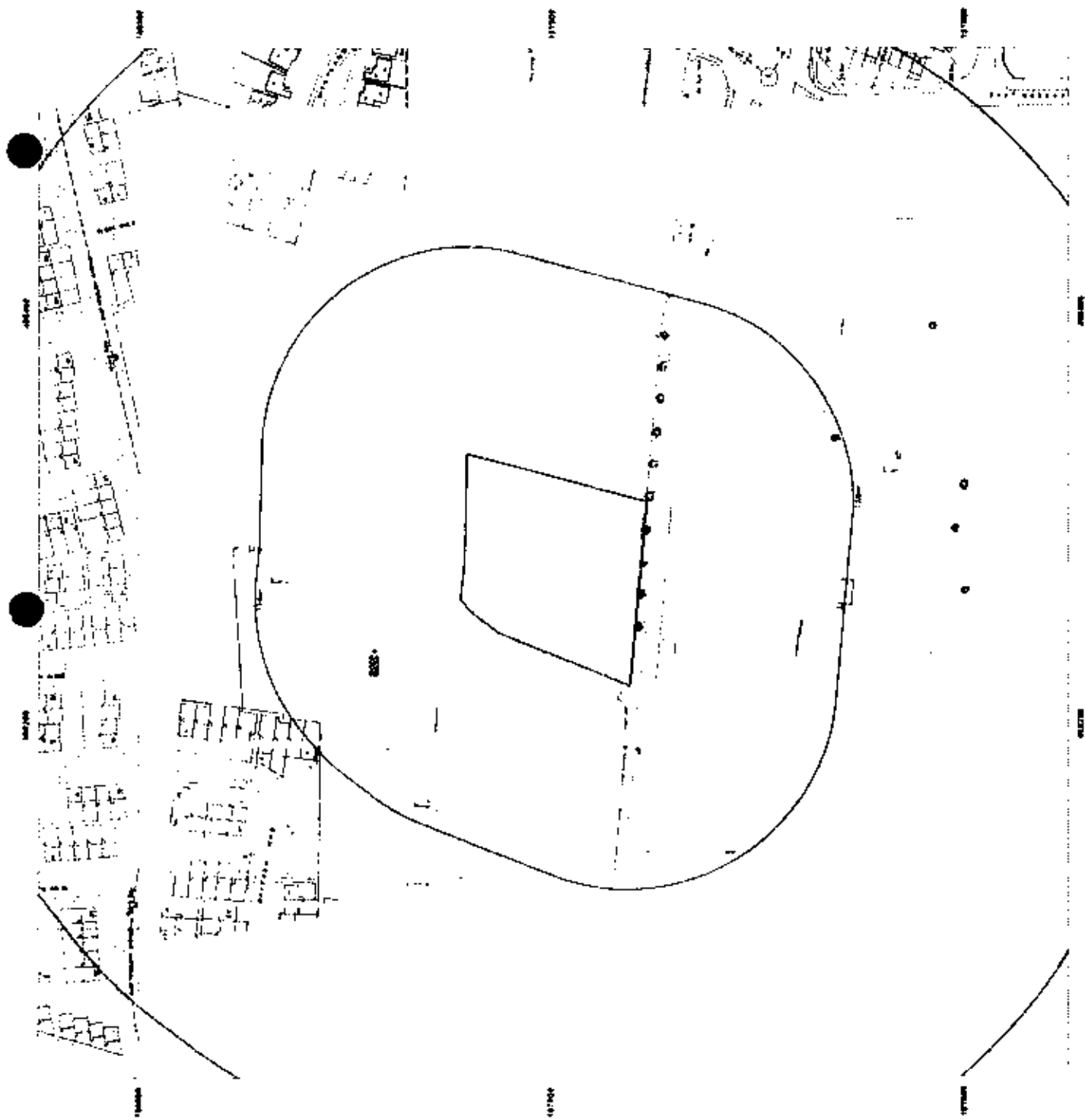


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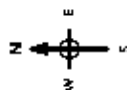
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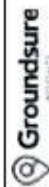
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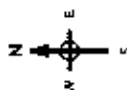
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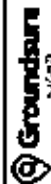
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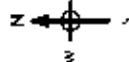
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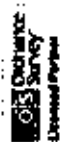
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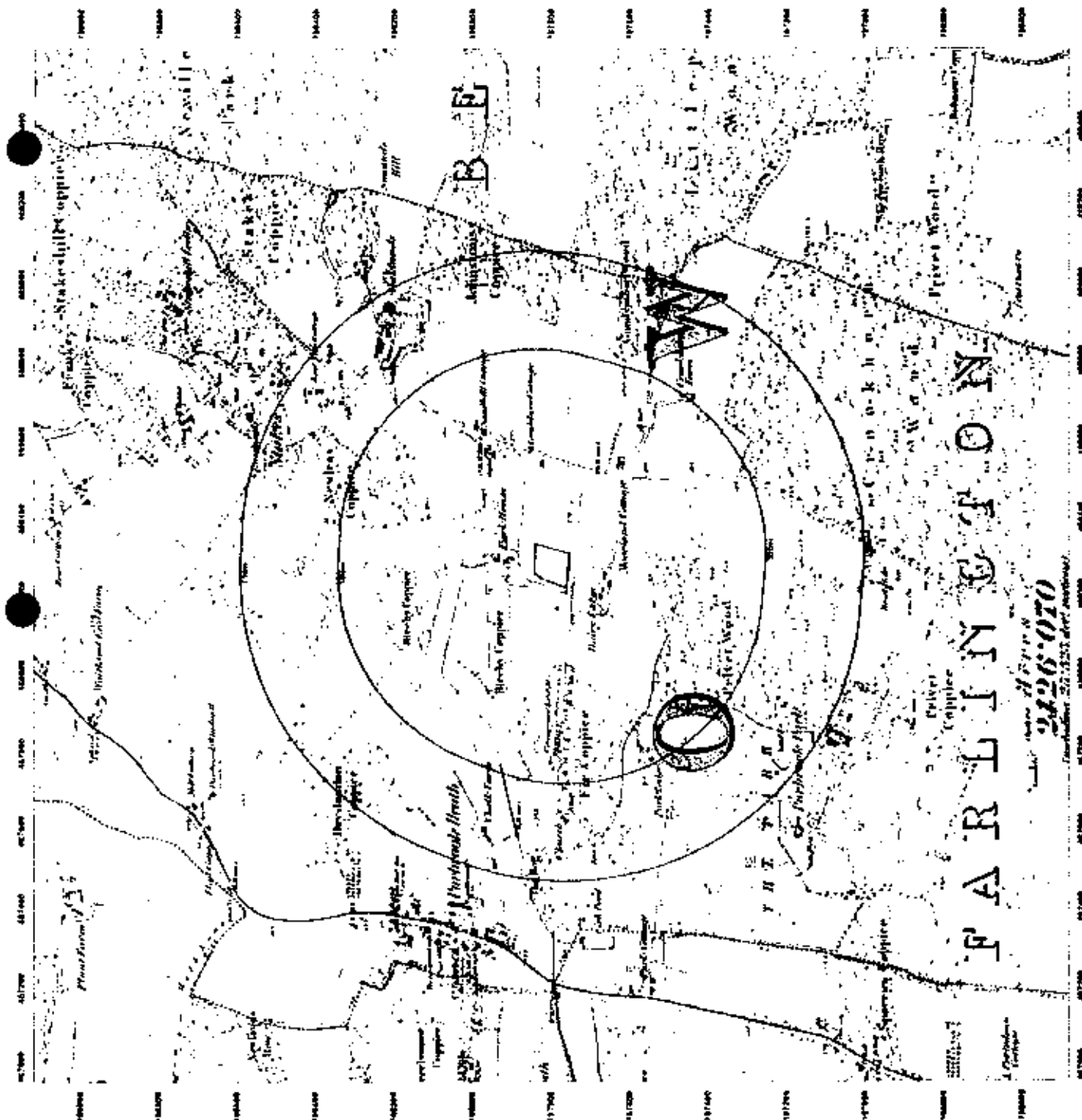
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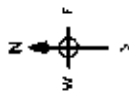
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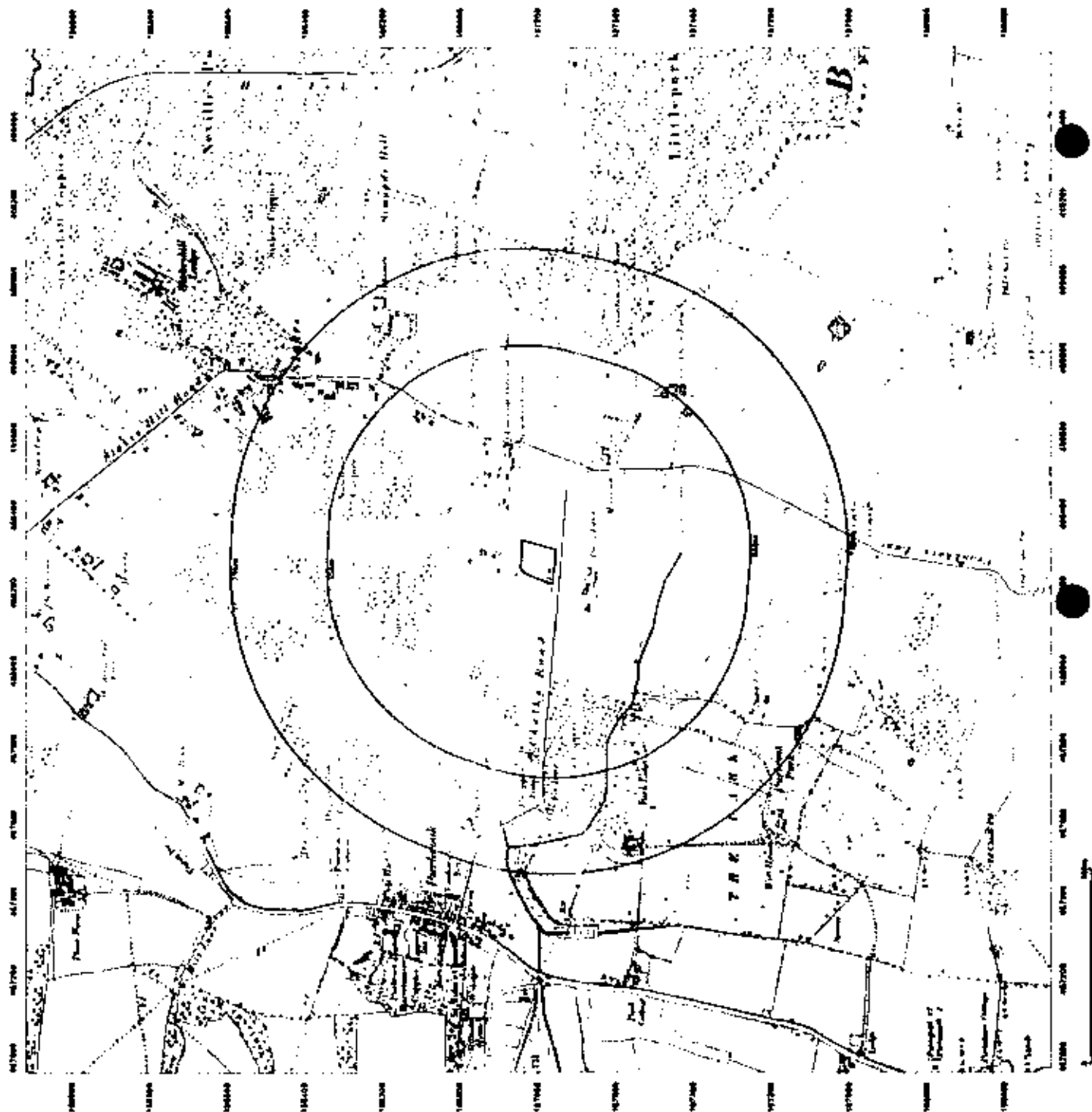


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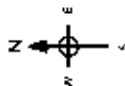
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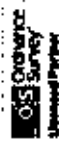
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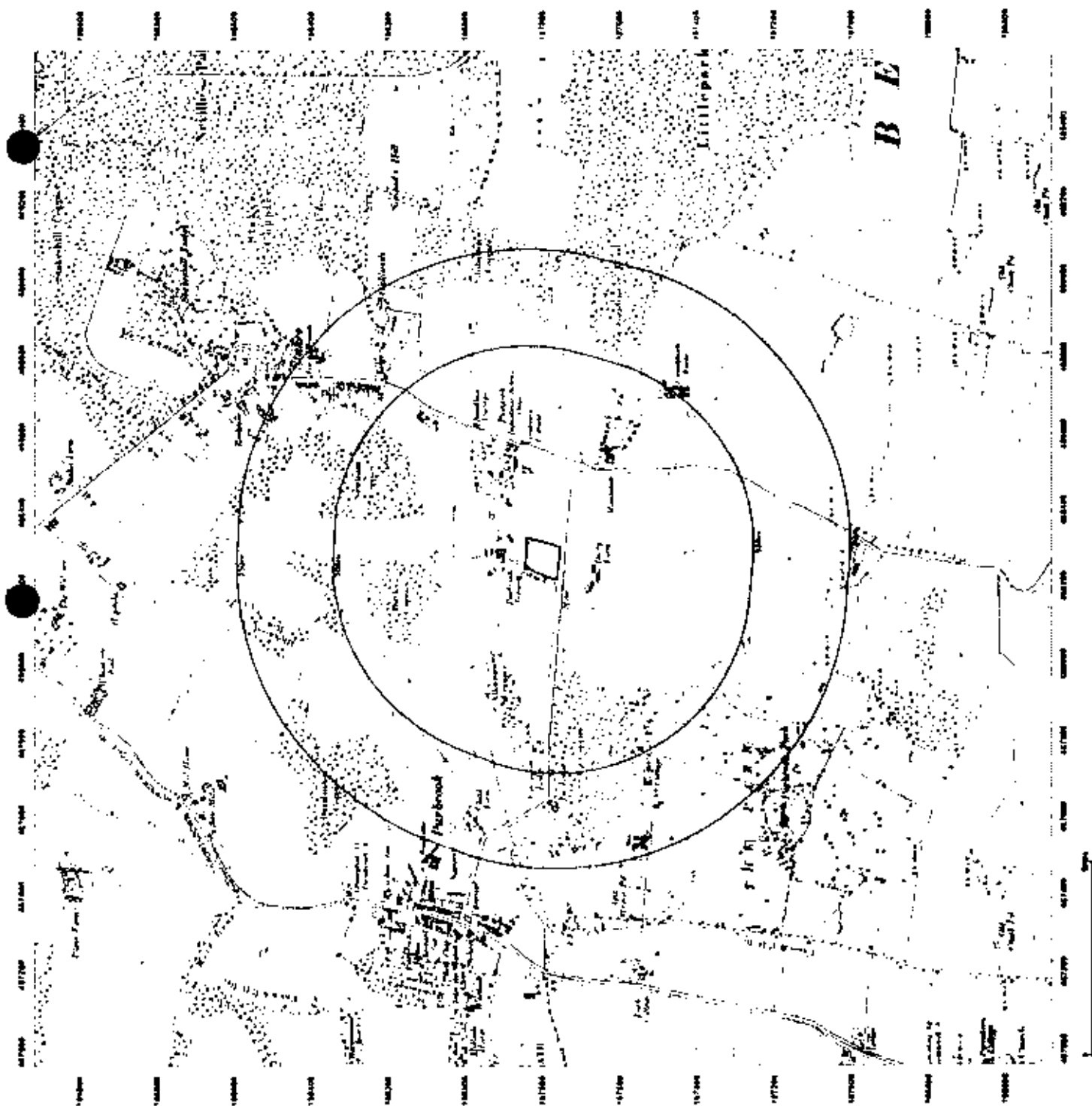


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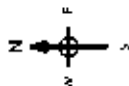
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Map Name: County Series

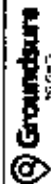
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Scale: 1:10,560

Printed at: 1:10,560



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Revised 1900
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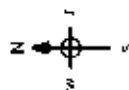
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Grid Ref: 468278, 107739

Map Name: County Series

Map date: 1938

Scale: 1:10,560

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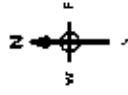
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Grid Ref: 468278, 107799

Map Name: Provisional
Map date: 1963
Scale: 1:10,560
Printed at: 1:10,560



Surveyed 1965
Revised 1967
Edition N/A
Copyright 1963
Levelled N/A

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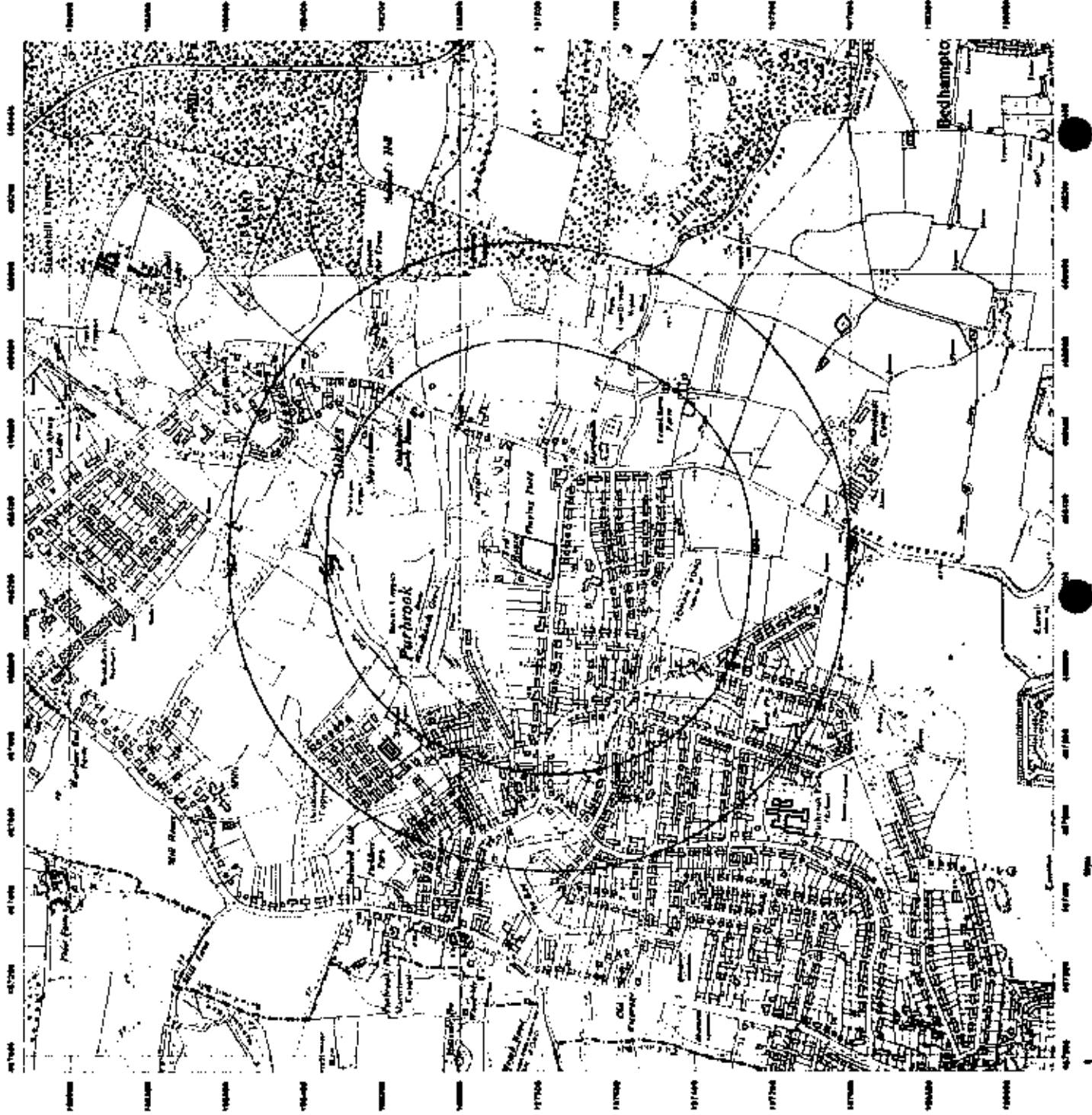
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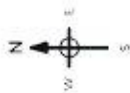
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Grid Ref: 468278, 107799

Map Name: National Grid

Map date: 1980

Scale: 1:10,000

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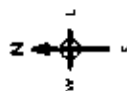
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Report Ref: EMS-314833_424440
Grid Ref: 468278, 107799

Map Name: National Grid

Map date: 1991

Scale: 1:10,000

Printed at: 1:10,000



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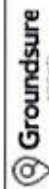
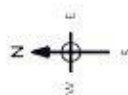
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Map Name: 1:10,000 Raster

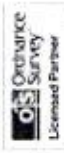
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Scale: 1:10,000

Printed at: 1:10,000



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Site Details:

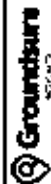
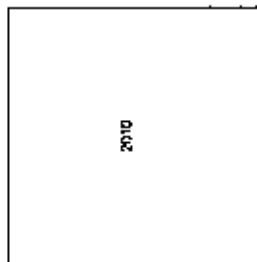
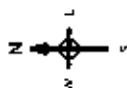
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Grid Ref: 468278, 107799

Map Name: National Grid

Map date: 2010

Scale: 1:10,000

Printed at: 1:10,000



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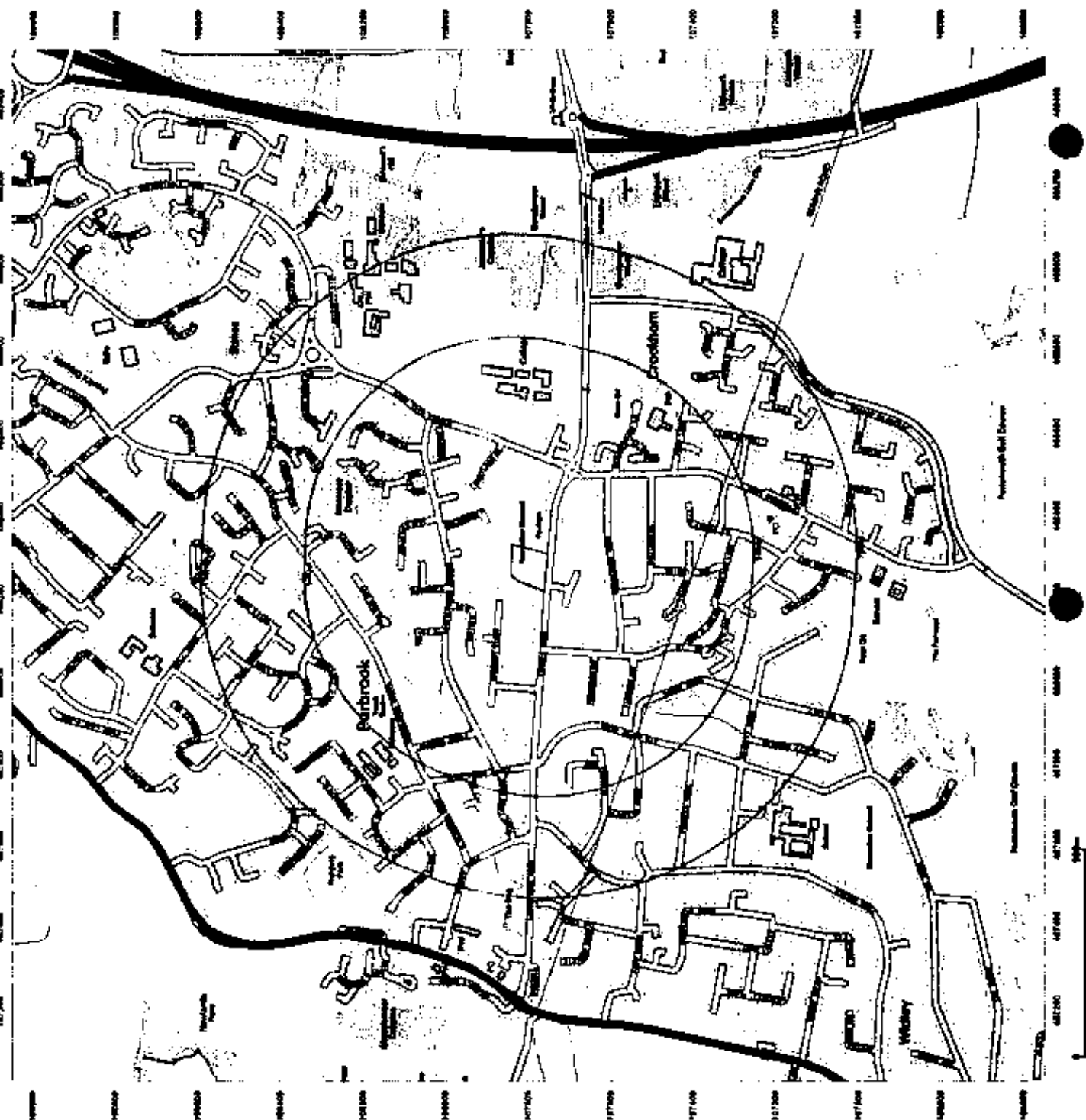


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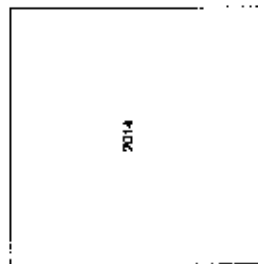
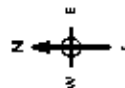
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Map Name: National Grid

Map date: 2014

Scale: 1:10,000

Printed at: 1:10,000



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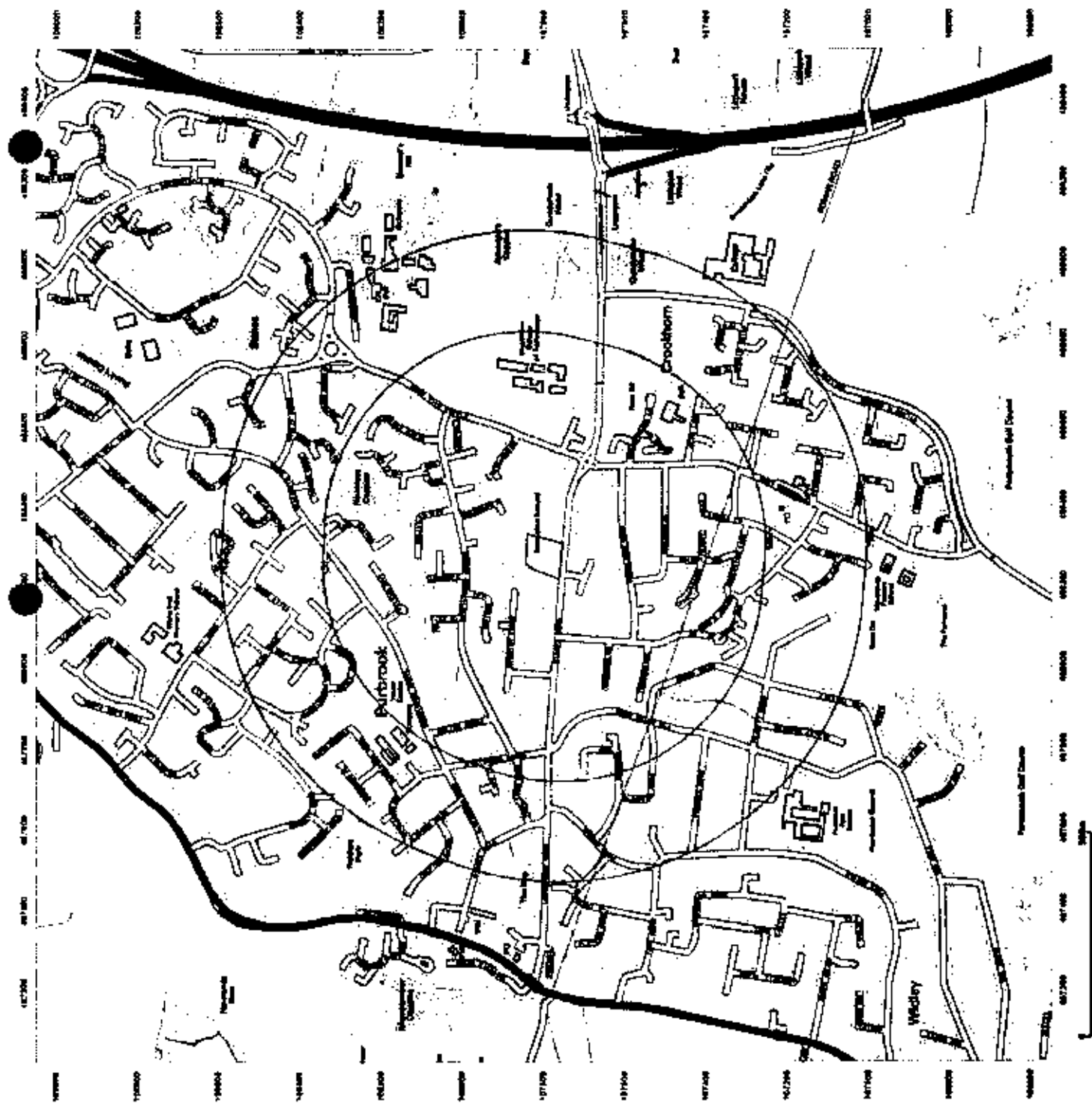


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Groundsure Geoinsight

Address: ,
Date: 15 Jul 2015
Reference: EMS-314833_424441
Client: EmapSite



Aerial Photograph Capture date: 20-Aug-2013
Grid Reference: 468278,107799
Site Size: 0.72ha

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Overview of Findings

The Groundsure Geosight 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?	No
	1.1.2 Are there any records relating to permeability of artificial ground within the study site* boundary?	No
1.2 Superficial Geology and Landslips	1.2.1 Is there any Superficial Ground/Drift Geology present beneath the study site?	No
	1.2.2 Are there any records relating to permeability of superficial geology within the study site boundary?	No
	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 not in a Radon Affected Area, as less than 1% 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?	No 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	0	7	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	7

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
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	0	0	0	0	1
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	Moderate
4.2 Landslides	Very Low
4.3 Ground Dissolution of Soluble Rocks	Negligible
4.4 Compressible Deposits	Negligible
4.5 Collapsible Deposits	Very Low
4.6 Running Sand	Very Low

Section 5: Borehole Records

	On-site	0-50m	51-250
5 BGS Recorded Boreholes	0	0	8

Section 6: Estimated Background Soil Chemistry

	On-site	0-50m	51-250
6 Records of Background Soil Chemistry	1	0	12

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

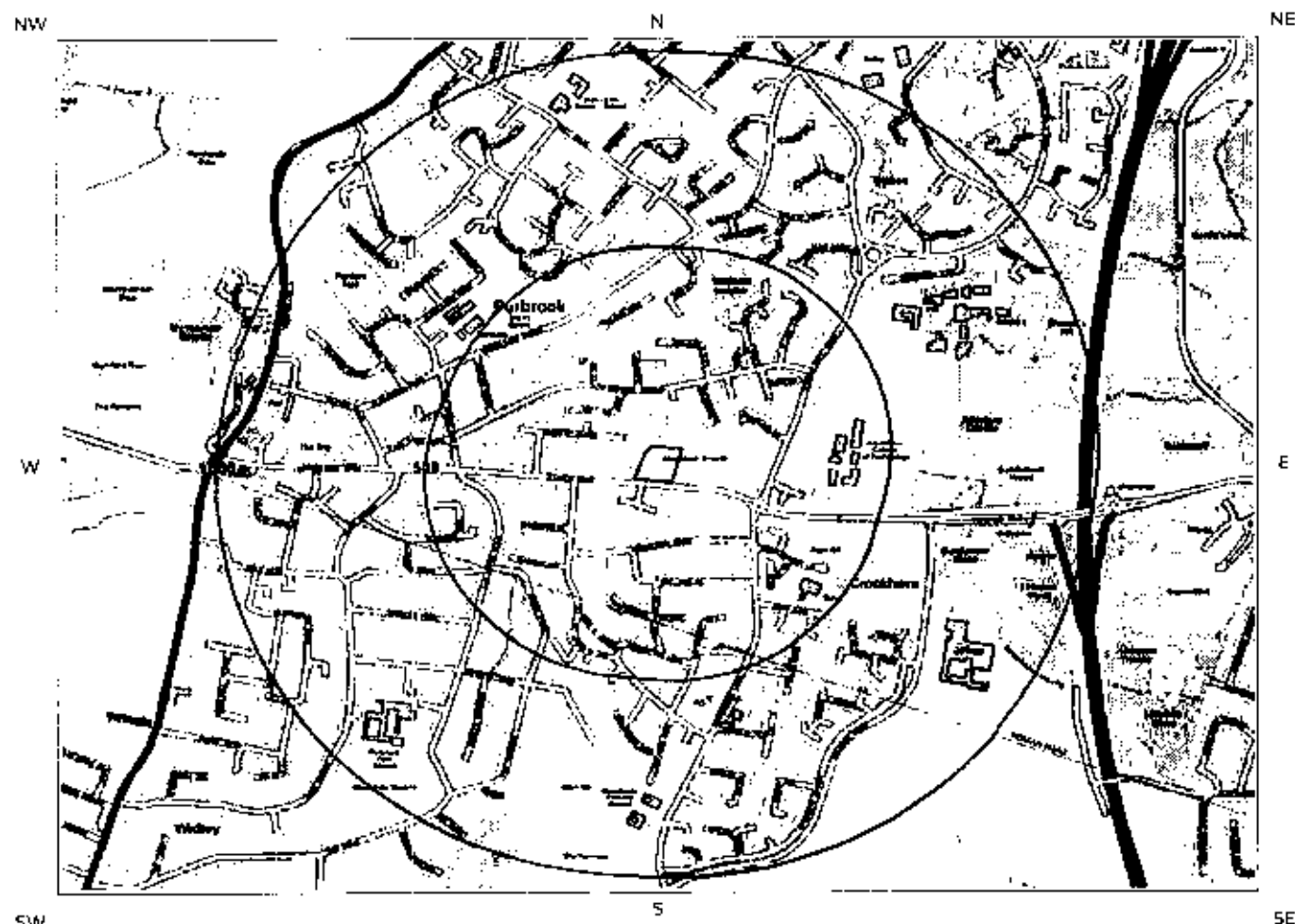
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1 Geology

1.1 Artificial Ground Map



Artificial Ground Legend



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	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? No

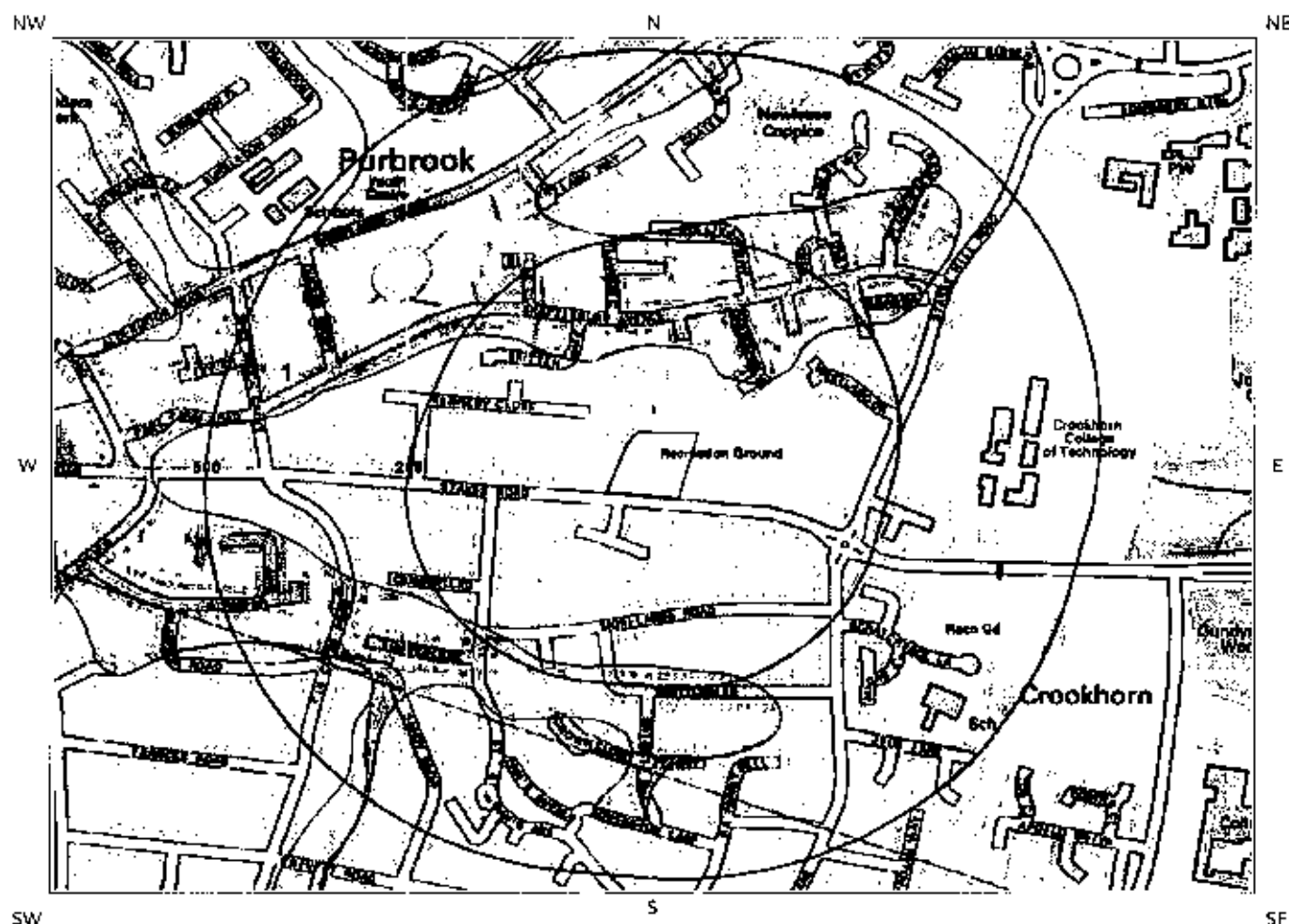
Database searched and no data found.

1.1.2 Permeability of Artificial Ground

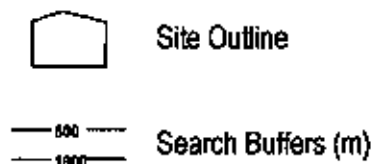
Are there any records relating to permeability of artificial ground within the study site boundary? No

Database searched and no data found.

1.2 Superficial Deposits and Landslips Map



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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	80.0	NE	HEAD	HEAD	CLAY, SILT, SAND AND GRAVEL [UNLITHIFIED DEPOSITS CODING SCHEME]

1.2.2 Permeability of Superficial Ground

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

Database searched and no data found.

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.

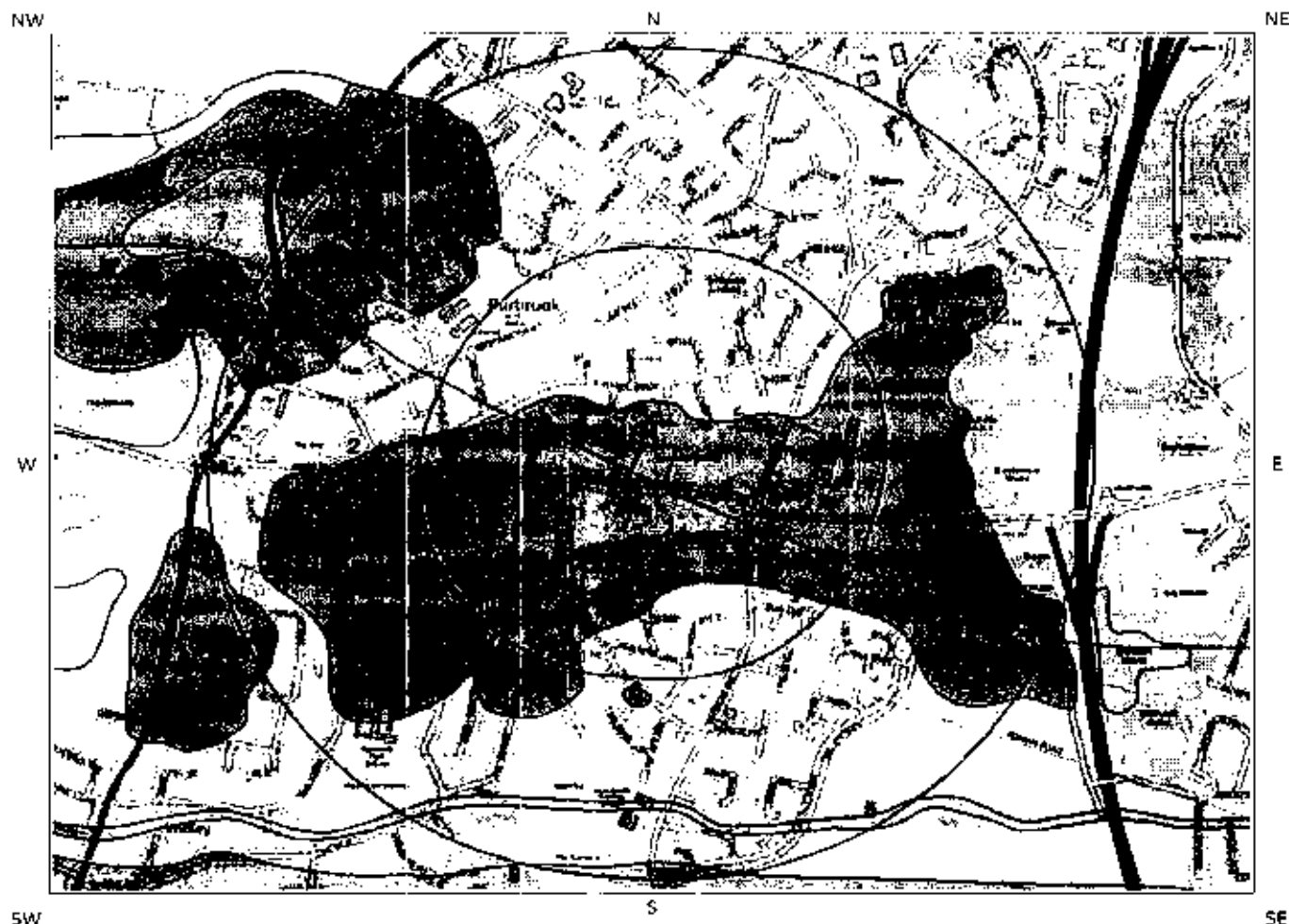
1.2.4 Landslip Permeability

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



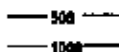
Bedrock and Faults Legend



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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	WTT-SSCL	Wittering Formation - Sand, Silt And Clay	Lutetian / Ypresian
2	80.0	NE	LC-CLSISA	London Clay Formation - Clay, Silt And Sand	No Details

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	Intergranular	High	Low

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
9	0.0	On Site	FOLD_AXIS	Axial plane trace of major syncline

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

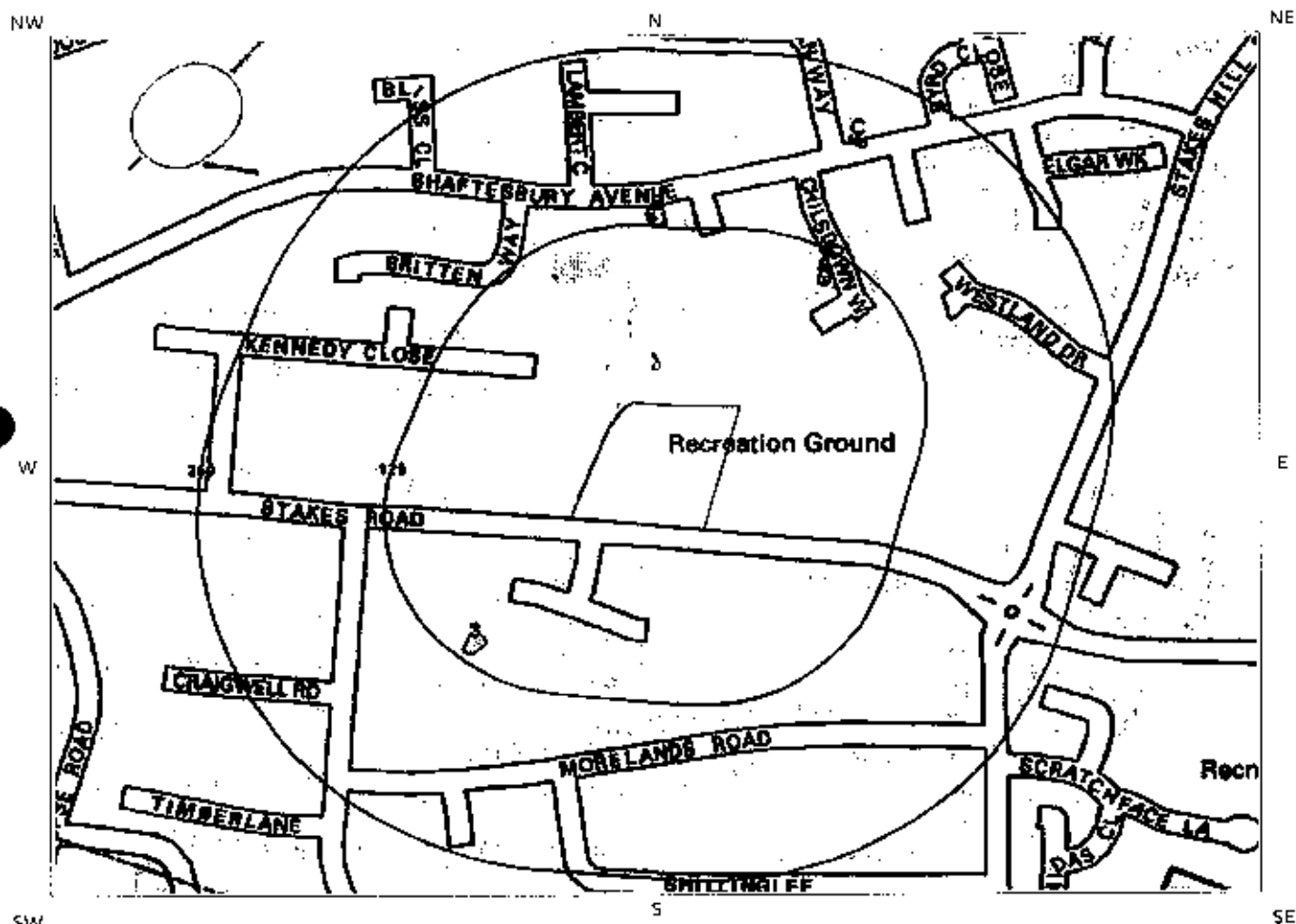
1.4.1 Radon Affected Areas

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 not in a Radon Affected Area, as less than 1% 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? No radon protective measures are necessary

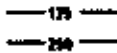
2 Ground Workings Map



Ground Workings Legend



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-  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	101.0	NE	468389 107931	Pond	1938
2A	101.0	NE	468389 107931	Pond	1930
3	103.0	SW	468154 107673	Pond	1938
4B	126.0	N	468277 107976	Pond	1938
5B	126.0	N	468277 107976	Pond	1930
6C	200.0	NE	468412 108028	Pond	1930
7C	200.0	NE	468412 108028	Pond	1938

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

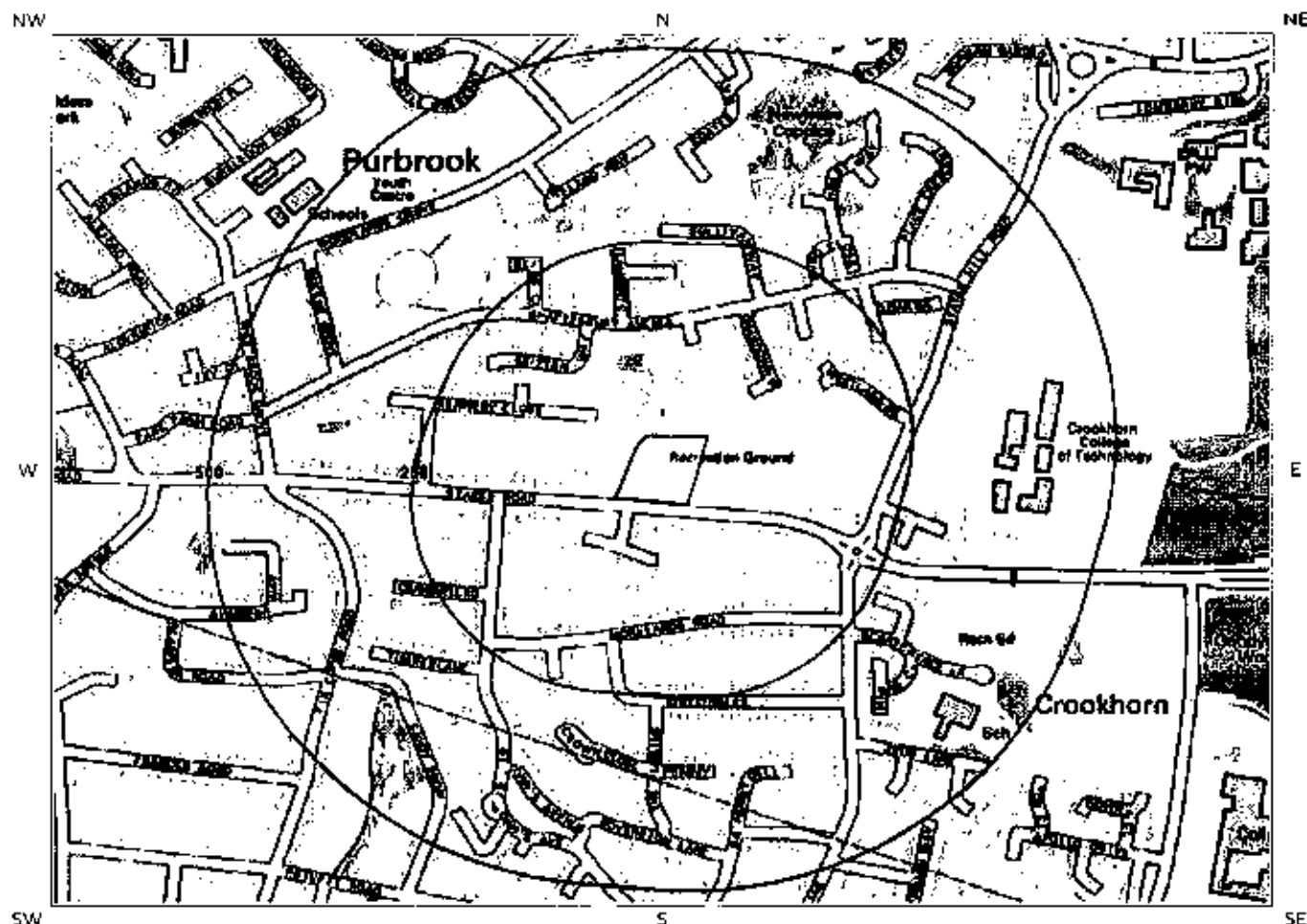
This dataset is derived from the BGS BRITPITS database covering active; inactive mines; quarries; oil wells; gas wells and mineral wharves; and rail deposits throughout the British Isles.

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	613.0	SW	467908 107234	Sand	Purbrook Park Sand Pits	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	659.0	S	468018 107135	Clay & Shale	Purbrook Brick & Tile Works	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	662.0	S	468100 107111	Clay & Shale	Purbrook Brick & Tile Works	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	810.0	W	467434 107562	Sand & Gravel	The Park Gravel Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	842.0	S	468227 106916	Clay & Shale	Crookhorn Lane Brick Kiln	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	859.0	SW	467510 107278	Sand	Purbrook Park Sand Pits	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	939.0	SW	467454 107218	Sand	Purbrook Park Sand Pits	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased

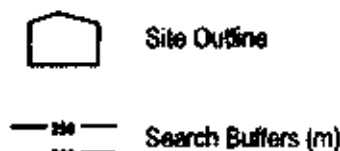
3 Mining, Extraction & Natural Cavities Map



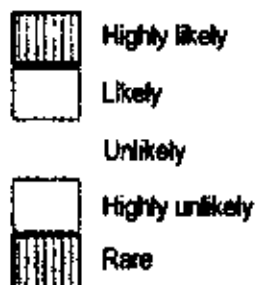
Mining, Extraction and
Natural Cavities Legend



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Ordnance Survey license 100035207.



Non-Coal Mining



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
Not shown	955.0	S	Not available	Chalk	Rare and localised small scale mining may have occurred.

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.

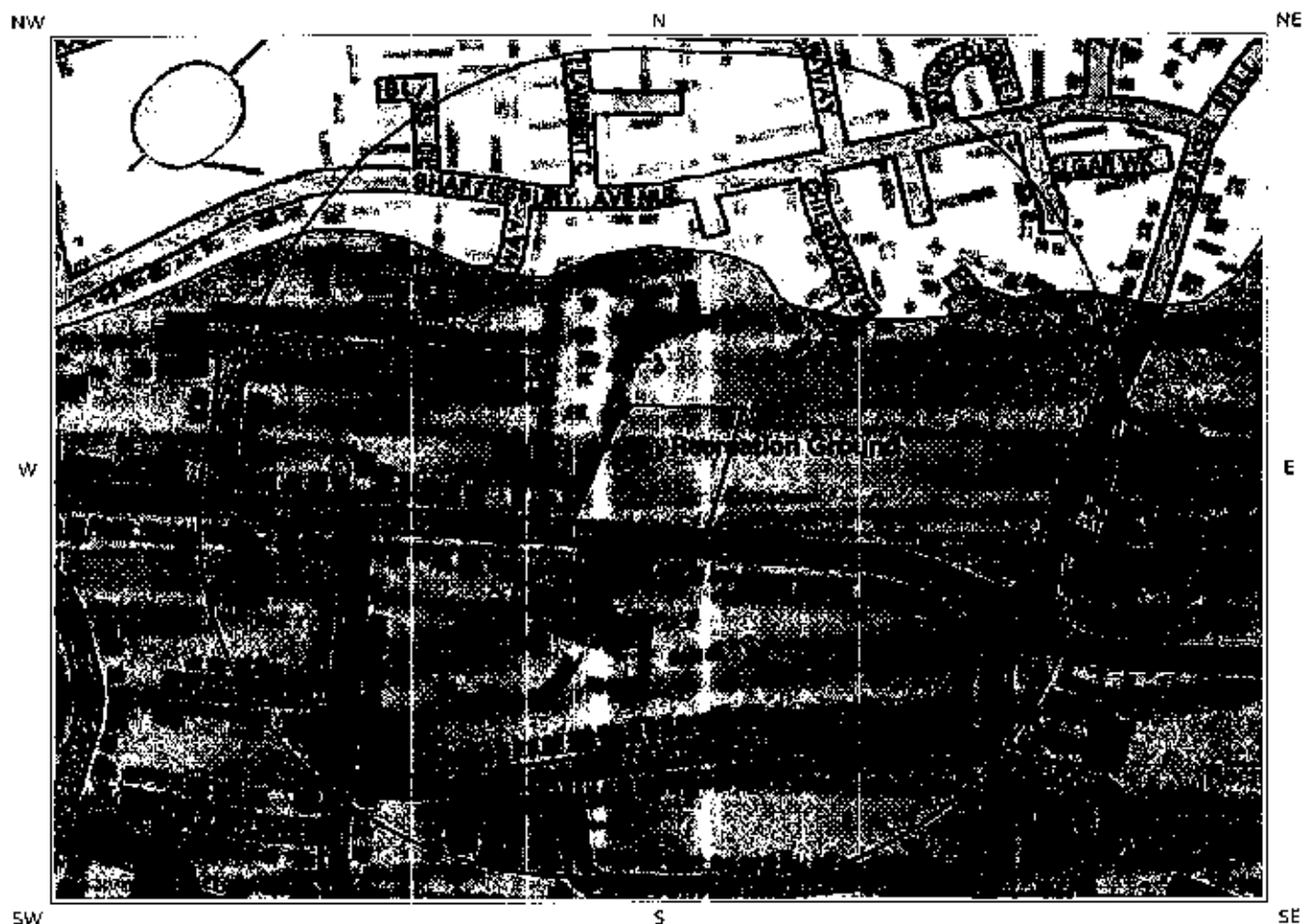
Are there any Clay Mining areas within 1000m of the study site boundary?

No

Database searched and no data found.

4 Natural Ground Subsidence

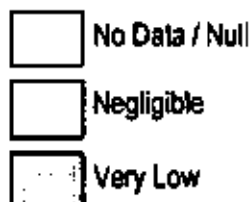
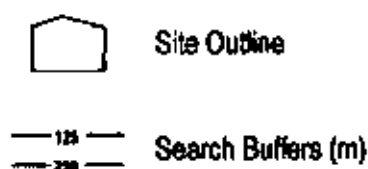
4.1 Shrink-Swell Clay Map



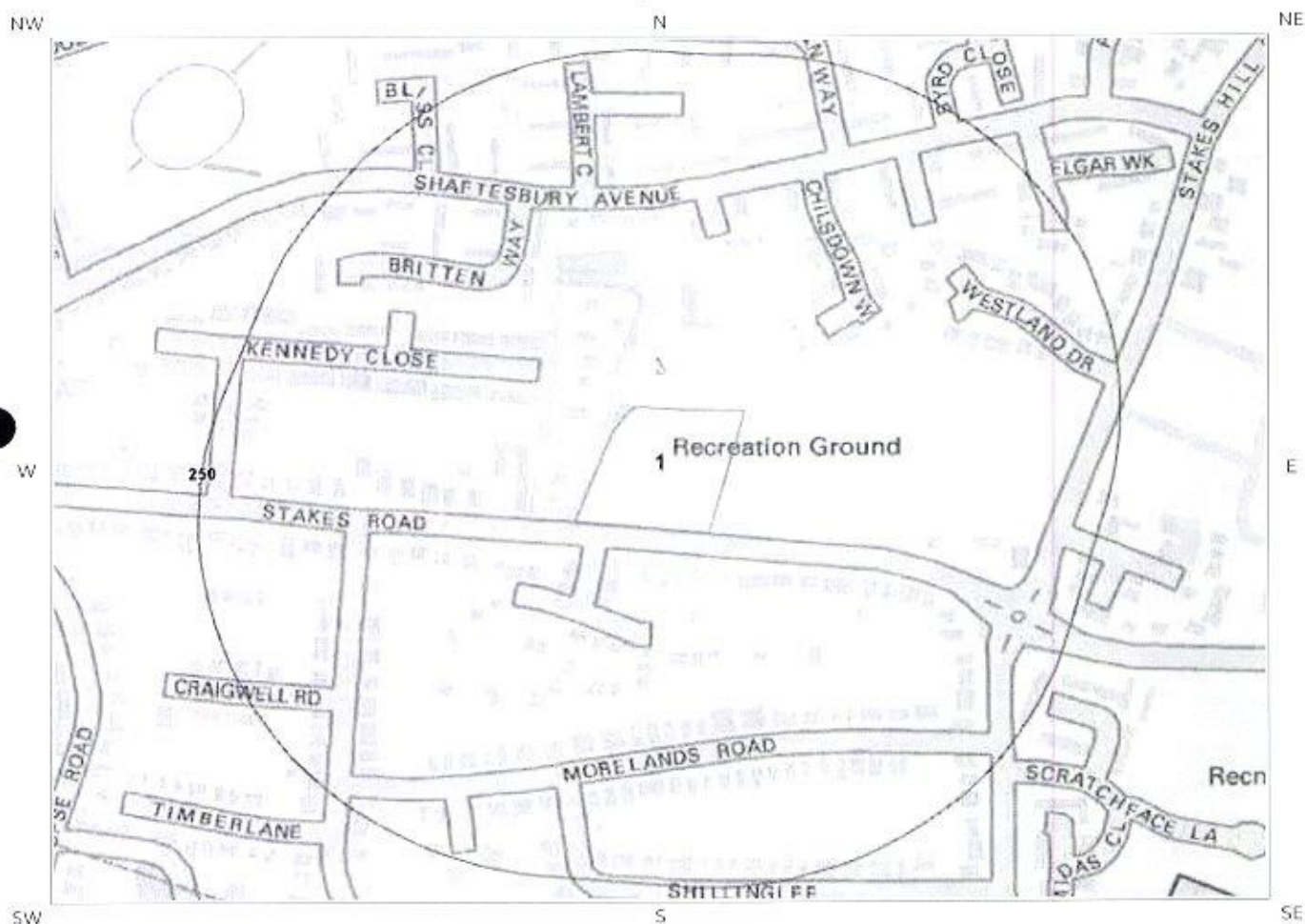
Shrink Swell Clay Legend



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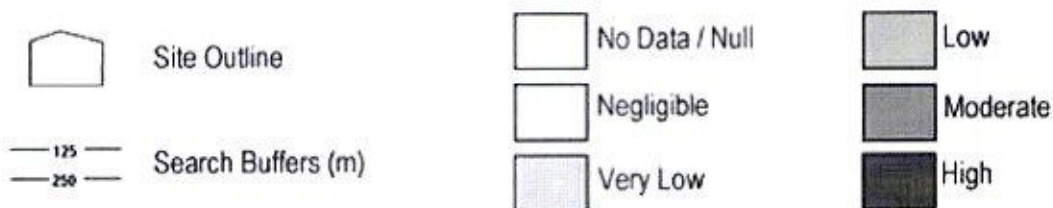
4.2 Landslides Map



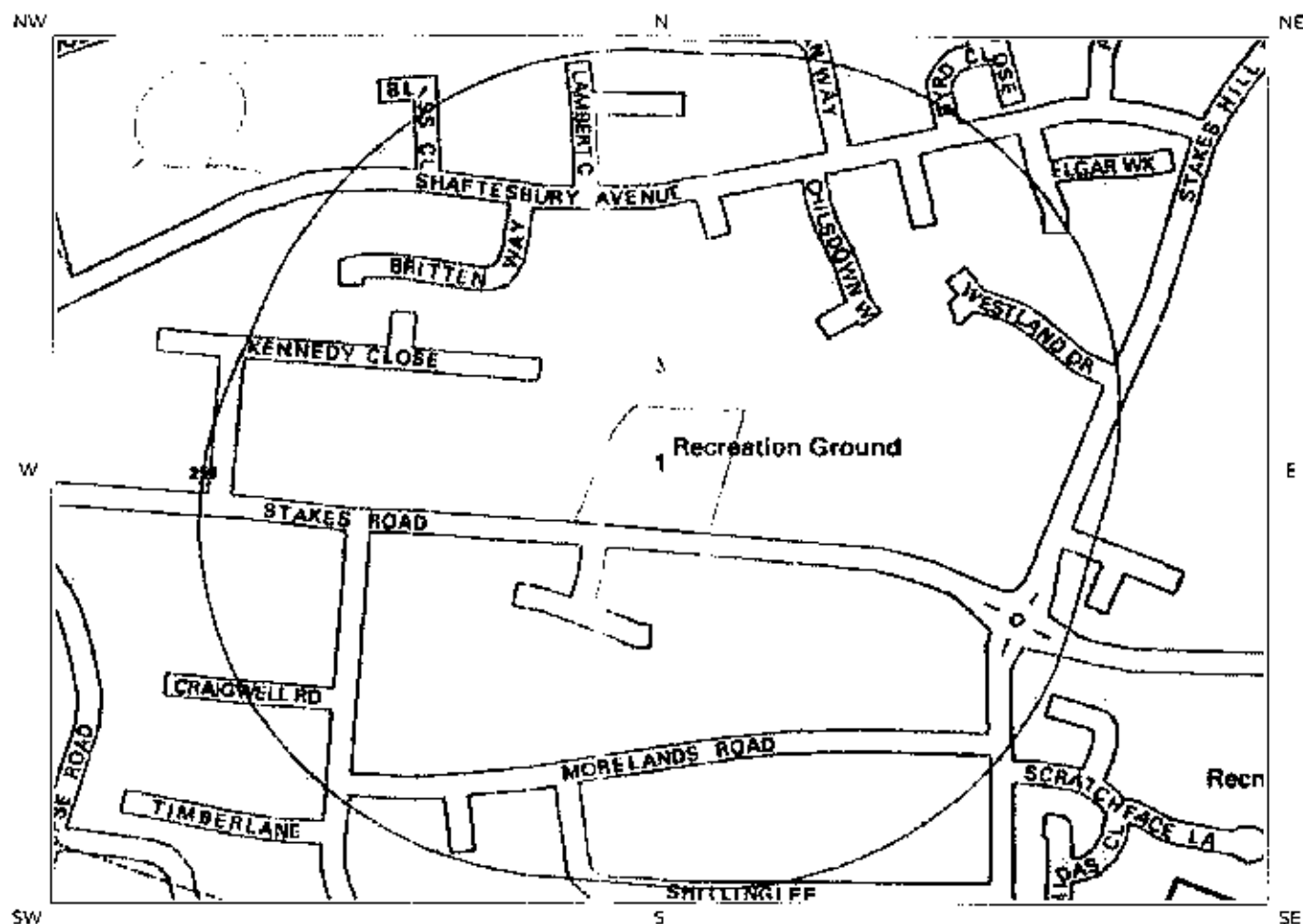
Landslides Legend



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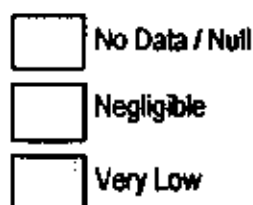
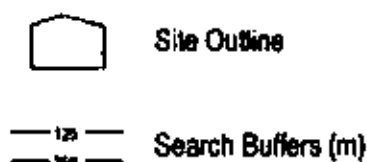
4.3 Ground Dissolution Soluble Rocks Map



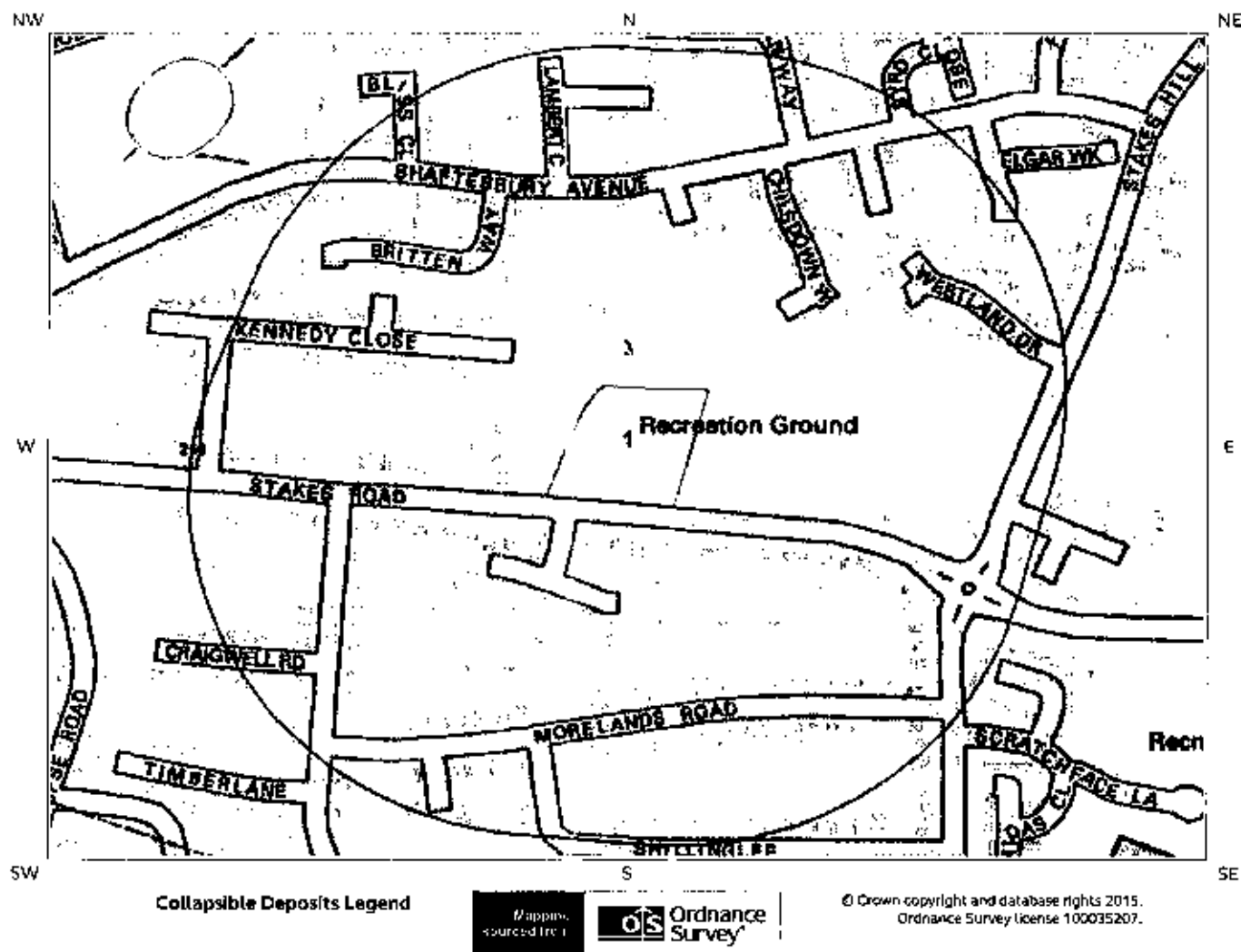
Ground Dissolution
Soluble Rocks Legend



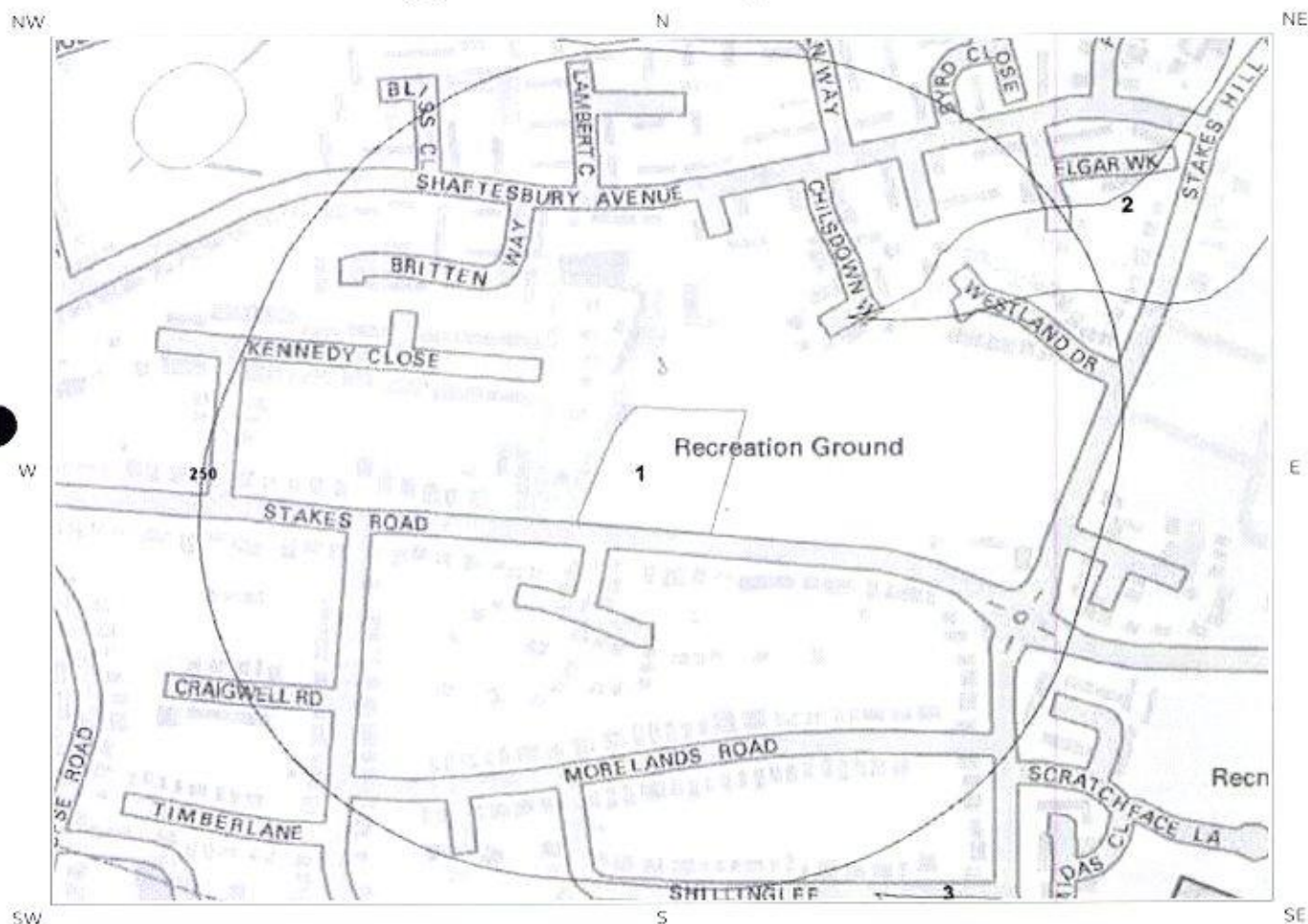
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4.5 Collapsible Deposits Map



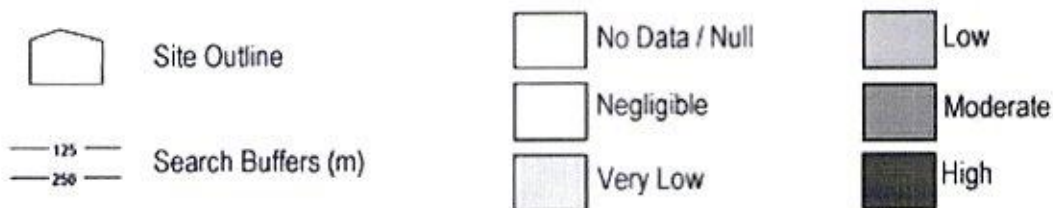
4.6 Running Sand Map



Running Sand Legend



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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	Moderate	Ground conditions predominantly high plasticity. Do not plant or remove trees or shrubs near to buildings without expert advice about their effect and management. 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 probable increase in construction cost to reduce potential shrink-swell problems. For existing property, there is a probable increase in insurance risk 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	Negligible	Soluble rocks are present, but unlikely to cause problems except under exceptional conditions. No special actions required to avoid problems due to soluble rocks. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with soluble rocks.

* 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 ground identified. No special actions required to avoid problems due to compressible ground. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with compressible ground.

4.5 Collapsible Deposits

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

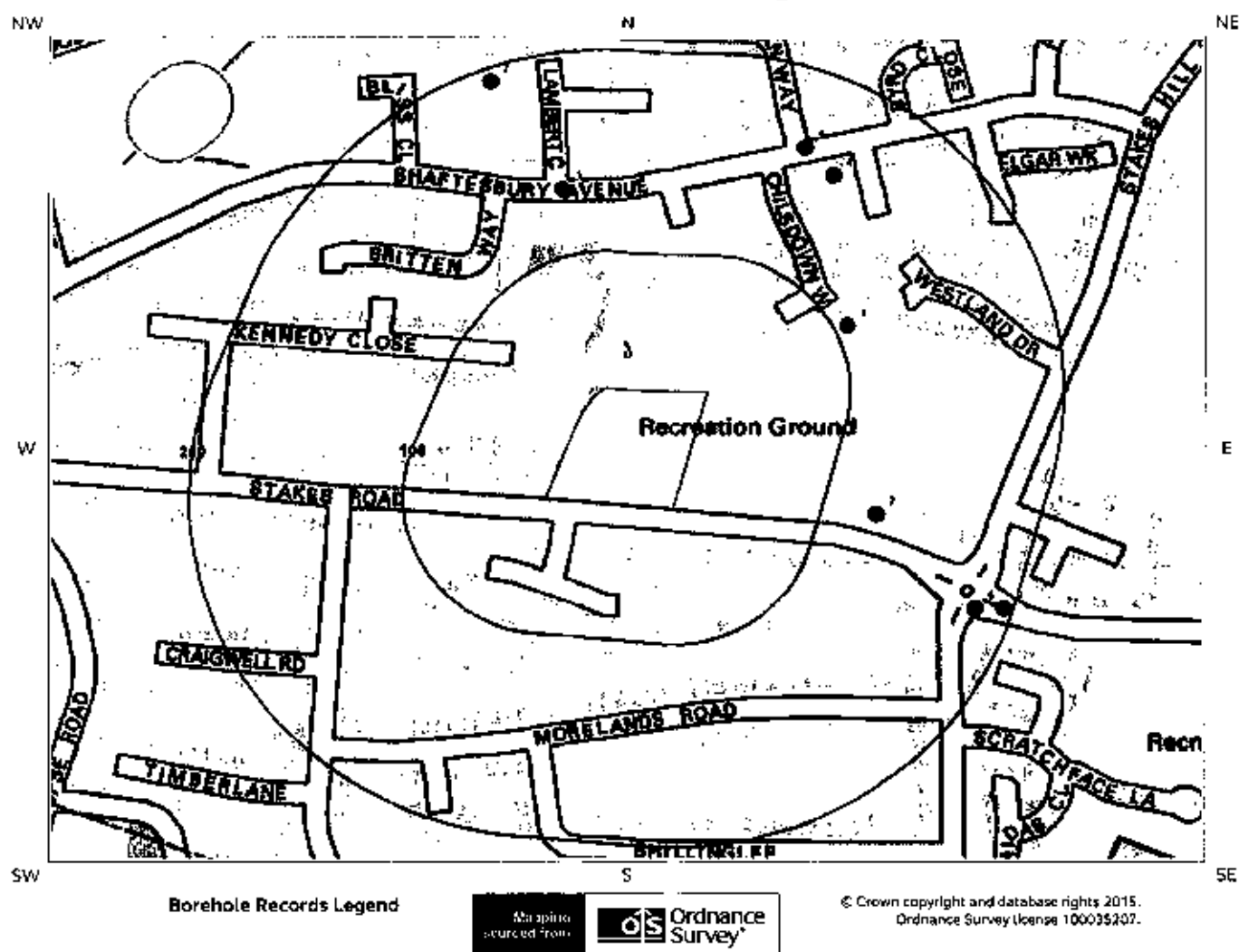
ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Deposits with potential to collapse when loaded and saturated are unlikely to be present. No special ground investigation required or increased construction costs or increased financial risk due to potential problems with collapsible deposits.

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.

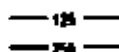
5 Borehole Records Map



Site Outline



Borehole Locations



Search Buffers (m)

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:

8

ID	Distance (m)	Direction	NGR	BGS Reference	Drilled Length	Borehole Name
1	110.0	NE	468430 107890	SU60NE105	12.19	CROOKHORN SEWER INVEST BH5
2	138.0	E	468450 107750	SU60NE104	12.19	CROOKHORN SEWER INVEST BH4
3	149.0	N	468230 107990	SU60NE143	3.04	PURBROOK NEIGHBOURHOOD UNIT 71
4	182.0	NE	468420 108000	SU60NE106	4.57	CROOKHORN SEWER INVEST BH6
5	191.0	N	468400 108020	SU60NE142	3.04	PURBROOK NEIGHBOURHOOD UNIT 70
6	225.0	E	468520 107680	SU60NE103	13.71	CROOKHORN SEWER INVEST BH3
7	240.0	N	468180 108070	SU60NE139	3.04	PURBROOK NEIGHBOURHOOD UNIT 67
8	244.0	E	468540 107680	SU60NE95	4.57	PURBROOKWAY EXTENSION BH1

The borehole records are available using the hyperlinks below: Please note that if the donor of the borehole record has requested the information be held as commercial-in-confidence, the additional data will be held separately by the BGS and a formal request must be made for its release.

- #1: scans.bgs.ac.uk/sobi_scans/boreholes/420046
- #2: scans.bgs.ac.uk/sobi_scans/boreholes/420045
- #3: scans.bgs.ac.uk/sobi_scans/boreholes/420084
- #4: scans.bgs.ac.uk/sobi_scans/boreholes/420047
- #5: scans.bgs.ac.uk/sobi_scans/boreholes/420083
- #6: scans.bgs.ac.uk/sobi_scans/boreholes/420044
- #7: scans.bgs.ac.uk/sobi_scans/boreholes/420080
- #8: scans.bgs.ac.uk/sobi_scans/boreholes/420036

6 Estimated Background Soil Chemistry

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

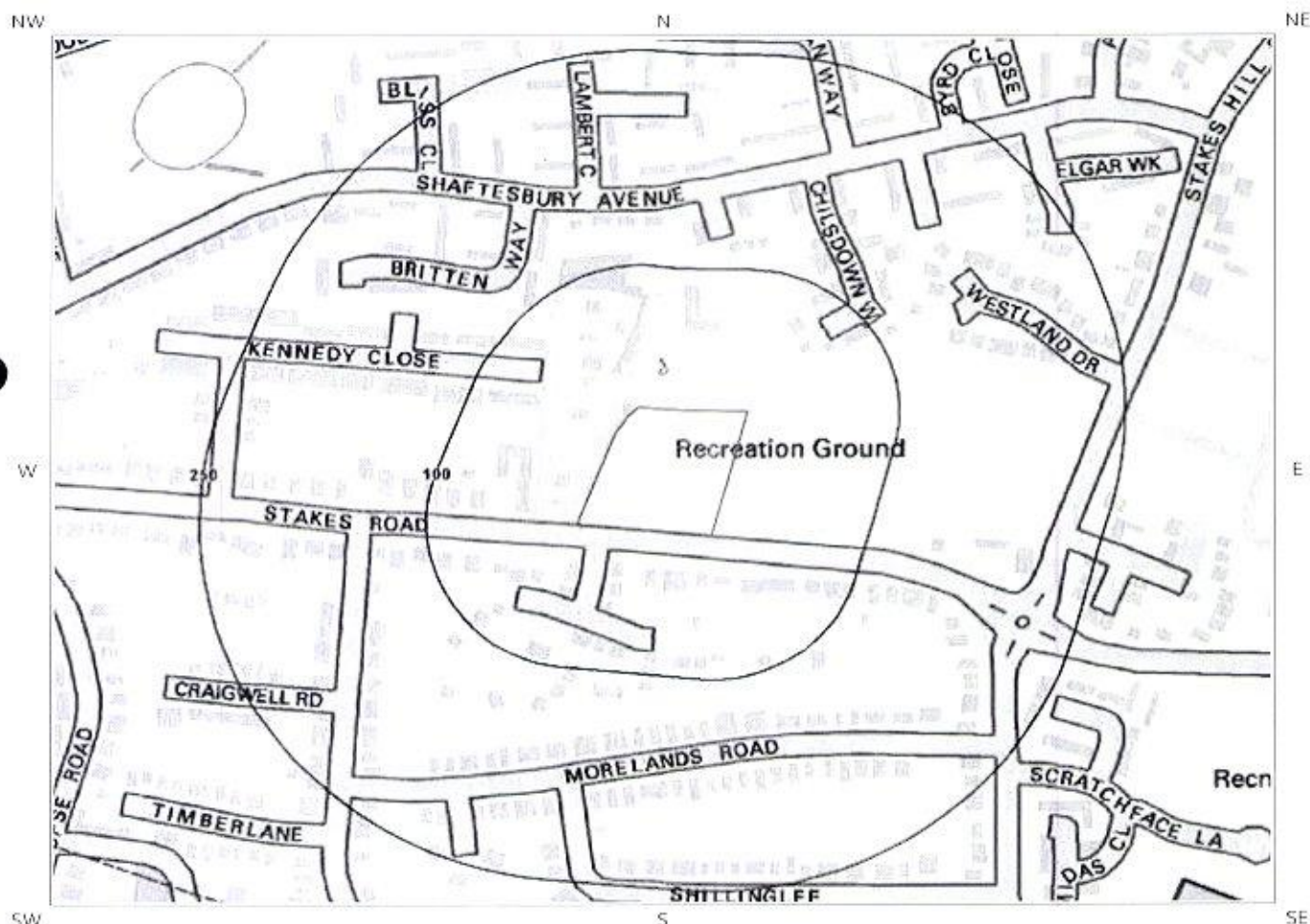
13

For further information on how this data is calculated and limitations upon its use, please see the Groundsure Geosight 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	<100 mg/kg
80.0	NE	Sediment	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
93.0	NE	Sediment	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
156.0	N	Sediment	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
156.0	N	Sediment	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
168.0	E	Sediment	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
183.0	NE	Sediment	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
215.0	NE	Sediment	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
219.0	W	Sediment	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
219.0	W	Sediment	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
223.0	S	Sediment	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
231.0	NE	Sediment	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
231.0	NE	Sediment	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 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

Mapping
sourced from

OS Ordnance
Survey

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	Site Outline		Underground or Partially Underground Railway / Subway System		Railway Track (OpenStreetMap)
	Search Buffers (m)		Railway Tunnel (OS Mapping)		High Speed 2
	Abandoned or Dismantled Railway (OpenStreetMap)		Railway Track (OS Mapping)		Crossrail 1
			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 1.

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 1 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 1 Report.

The route data has been digitised from publicly available maps by Groundsure. The route as provided relates to the Crossrail 1 project only, and does not include any details of the Crossrail 2 project, as final details of the route for Crossrail 2 are still under consultation.

Contact Details

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sales@emapsite.com

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 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

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Website: www.jpb.co.uk

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SO16 0AS
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Website: <http://www.ordnancesurvey.co.uk/>
Getmapping PLC
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Hampshire RG27 8NW
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Website: <http://www1.getmapping.com/>

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British Geological Survey
NATURAL ENVIRONMENT RESEARCH COUNCIL



British Gypsum
SAINT-GOBAIN



The Coal Authority



Public Health England

**JOHNSON
POOLE &
BLOOMER**
CONSULTANTS



Mapping
sourced from



Ordnance Survey



getmapping®

pba
peterbrett

Contact Details

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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 Enviroinsight

Address:
Date: 15 Jul 2015
Reference: EMS-314833_424442
Client: EmapSite

NW

N

NE



W

E

SW

S

SE

Aerial Photograph Capture date: 20-Aug-2013
Grid Reference: 468278,107799
Site Size: 0.72ha

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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: Historical Industrial Sites	On-site	0-50	51-250	251-500
1.1 Potentially Contaminative Uses identified from 1:10,000 scale mapping	0	0	5	19
1.2 Additional Information – Historical Tank Database	0	0	4	0
1.3 Additional Information – Historical Energy Features Database	4	0	23	29
1.4 Additional Information – Historical Petrol and Fuel Site Database	0	0	0	0
1.5 Additional Information – Historical Garage and Motor Vehicle Repair Database	0	0	0	0
1.6 Potentially Infilled Land	0	0	7	24

Section 2: Environmental Permits, Incidents and Registers	On-site	0-50m	51-250	251-500
2.1 Industrial Sites Holding Environmental Permits and/or Authorisations				
2.1.1 Records of historic IPC Authorisations	0	0	0	0
2.1.2 Records of Part A(1) and IPPC Authorised Activities	0	0	0	0
2.1.3 Records of Red List Discharge Consents	0	0	0	0
2.1.4 Records of List 1 Dangerous Substances Inventory sites	0	0	0	0
2.1.5 Records of List 2 Dangerous Substances Inventory sites	0	0	0	0
2.1.6 Records of Part A(2) and Part B Activities and Enforcements	0	0	0	0
2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations	0	0	0	0
2.1.8 Records of Licensed Discharge Consents	0	0	0	0
2.1.9 Records of Water Industry Referrals	0	0	0	0
2.1.10 Records of Planning Hazardous Substance Consents and Enforcements within 500m of the study site	0	0	0	0
2.2 Records of COMAH and NIHHS sites	0	0	0	0
2.3 Environment Agency Recorded Pollution Incidents				
2.3.1 National Incidents Recording System, List 2	0	0	0	4
2.3.2 National Incidents Recording System, List 1	0	0	0	0
2.4 Sites Determined as Contaminated Land under Part 2A EPA 1990	0	0	0	0

Section 3: Landfill and Other Waste Sites

	On-site	0-50m	51-250	251-500	501-1000	1000-5000
3.1 Landfill Sites						
3.1.1 Environment Agency Registered Landfill Sites	0	0	0	0	0	Not searched
3.1.2 Environment Agency Historic Landfill Sites	0	0	0	1	2	1
3.1.3 BGS/DoE Landfill Site Survey	0	0	0	0	0	0
3.1.4 Records of Landfills in Local Authority and Historical Mapping Records	0	0	0	0	0	0
3.2 Landfill and Other Waste Sites Findings						
3.2.1 Operational and Non-Operational Waste Treatment, Transfer and Disposal Sites	0	0	0	0	Not searched	Not searched
3.2.2 Environment Agency Licensed Waste Sites	0	0	0	0	0	4

Section 4: Current Land Use

	On-site	0-50m	51-250	251-500
4.1 Current Industrial Sites Data	0	1	6	Not searched
4.2 Records of Petrol and Fuel Sites	0	0	0	0
4.3 National Grid Underground Electricity Cables	0	0	0	0
4.4 National Grid Gas Transmission Pipelines	0	0	0	0

Section 5: Geology

5.1 Are there any records of Artificial Ground and Made Ground present beneath the study site?	No
5.2 Are there any records of Superficial Ground and Drift Geology present beneath the study site?	None
5.3 For records of Bedrock and Solid Geology beneath the study site see the detailed findings section.	

Section 6: Hydrogeology and Hydrology

	On-site	0-50m	51-250	251-500	501-1000	1000-2000
6.1 Are there any records of Strata Classification in the Superficial Geology within 500m of the study site?				Yes		
6.2 Are there any records of Strata Classification in the Bedrock Geology within 500m of the study site?				Yes		
6.3 Groundwater Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	0
6.4 Surface Water Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	0
6.5 Potable Water Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	0
6.6 Source Protection Zones (within 500m of the study site)	0	0	0	0	Not searched	Not searched
6.7 Source Protection Zones within Confined Aquifer	1	0	0	0	Not searched	Not searched
6.8 Groundwater Vulnerability and Soil Leaching Potential (within 500m of the study site)	1	0	0	1	Not searched	Not searched
	On-site	0-50m	51-250	251-500	501-1000	1000-1500

Section 6: Hydrogeology and Hydrology

0-500m

6.9 Is there any Environment Agency information on river quality within 1500m of the study site?	No	No	No	No	No	No
6.10 Detailed River Network entries within 500m of the site	0	0	0	2	Not searched	Not searched
6.11 Surface water features within 250m of the study site	No	No	No	Not searched	Not searched	Not searched

Section 7: Flooding

7.1 Are there any Environment Agency Zone 2 floodplains within 250m of the study site?	No
7.2 Are there any Environment Agency Zone 3 floodplains within 250m of the study site	No
7.3 What is the Risk of flooding from Rivers and the Sea (RoFRaS) rating for the study site?	Very Low
7.4 Are there any Flood Defences within 250m of the study site?	No
7.5 Are there any areas benefiting from Flood Defences within 250m of the study site?	No
7.6 Are there any areas used for Flood Storage within 250m of the study site?	No
7.7 What is the maximum BGS Groundwater Flooding susceptibility within 50m of the study site?	Limited potential
7.8 What is the BGS confidence rating for the Groundwater Flooding susceptibility areas?	Low

Section 8: Designated Environmentally Sensitive Sites

	On-site	0-50m	51-250	251-500	501-1000	1000-2000
8.1 Records of Sites of Special Scientific Interest (SSSI)	0	0	0	0	0	0
8.2 Records of National Nature Reserves (NNR)	0	0	0	0	0	0
8.3 Records of Special Areas of Conservation (SAC)	0	0	0	0	0	0
8.4 Records of Special Protection Areas (SPA)	0	0	0	0	0	0
8.5 Records of Ramsar sites	0	0	0	0	0	0
8.6 Records of Ancient Woodlands	0	0	0	1	7	16
8.7 Records of Local Nature Reserves (LNR)	0	0	0	0	0	0
8.8 Records of World Heritage Sites	0	0	0	0	0	0
8.9 Records of Environmentally Sensitive Areas	0	0	0	0	0	0
8.10 Records of Areas of Outstanding Natural Beauty (AONB)	0	0	0	0	0	0

Section 8: Designated Environmentally Sensitive Sites

	On-site	0-50m	51-250	251-500	501-1000	1000-2000
8.11 Records of National Parks	0	0	0	0	0	0
8.12 Records of Nitrate Sensitive Areas	0	0	0	0	0	0
8.13 Records of Nitrate Vulnerable Zones	1	0	0	0	0	2
8.14 Records of Green Belt land	0	0	0	0	0	0

Section 9: Natural Hazards

9.1 What is the maximum risk of natural ground subsidence?

Moderate

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

Moderate

9.1.2 What is the maximum Landslides hazard rating identified on the study site?

Very Low

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

Negligible

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

Negligible

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

Very Low

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

Very Low

9.2 Radon

9.2.1 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 not in a Radon Affected Area, as less than 1% of properties are above the Action Level.

9.2.2 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?

No radon protective measures are necessary.

Section 10: Mining

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

No

10.2 Are there any Non-Coal Mining areas within 50m of the study site boundary?

No

10.3 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. Historical Industrial Sites

Provides information on past land uses that may pose a risk to the study site in terms of potential contamination from activities or processes. Potentially Infilled Land features are also included. This search is conducted using radii of up to 500m.

2. 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.

3. 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.

4. 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 gas pipelines and underground electricity transmission lines.

5. Geology

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

6. 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.

7. Flooding

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

8. 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.

9. 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 and radon..

10. Mining

Provides information on areas of coal and non-coal mining and brine affected areas.

11. 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.

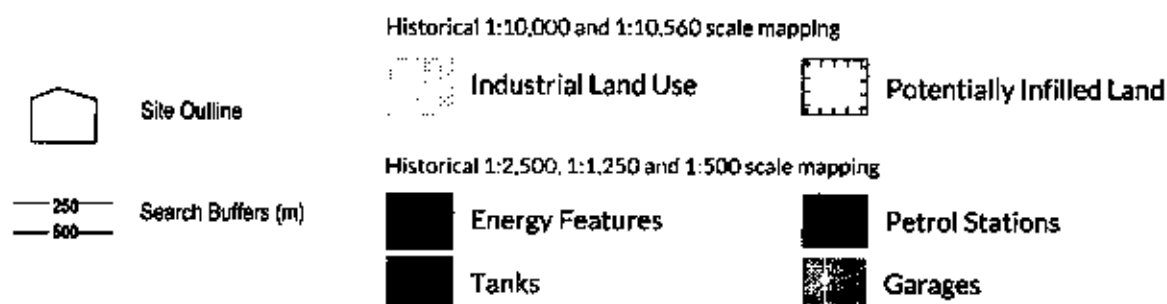
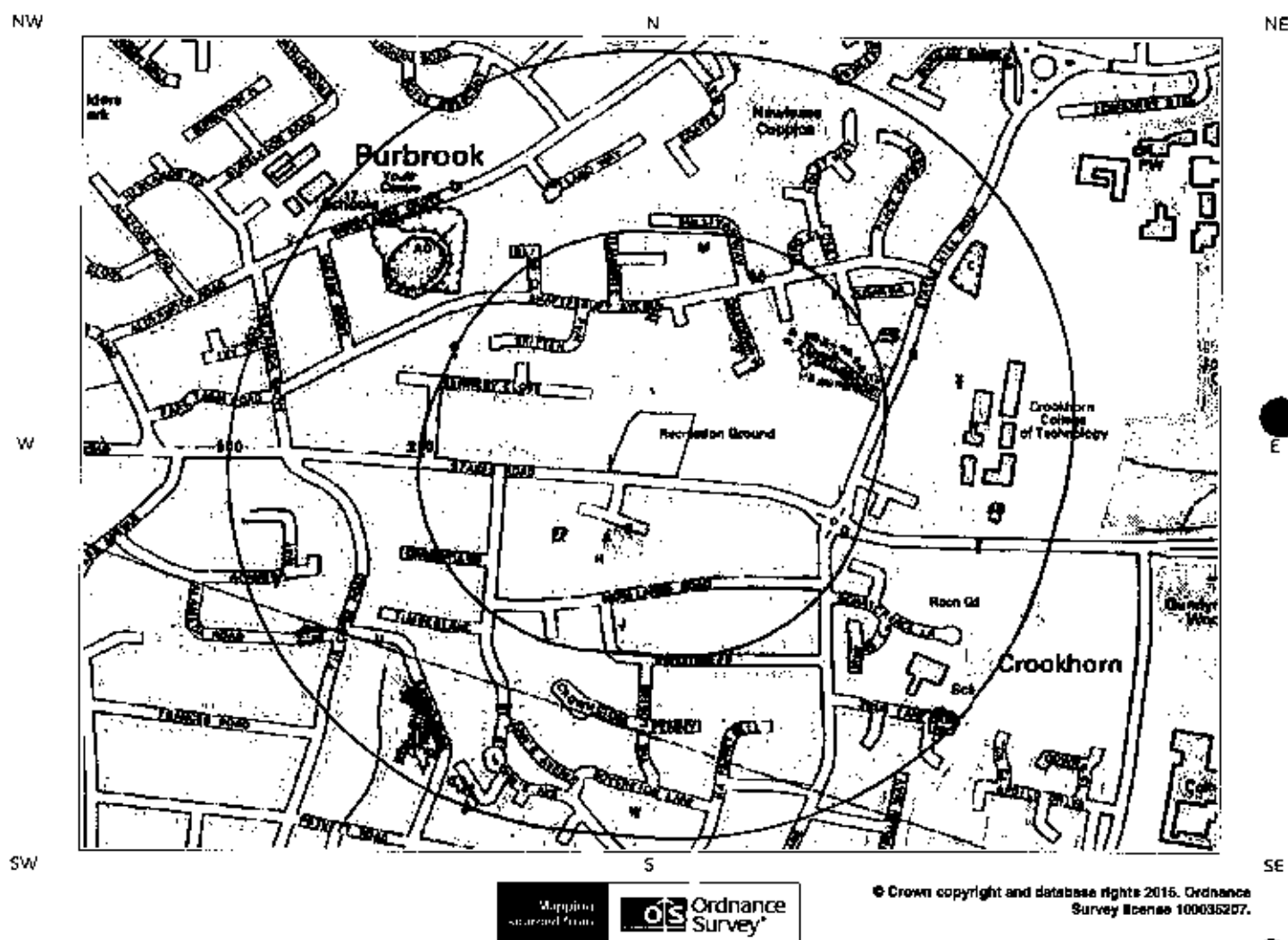
Note: Maps

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. Historical Land Use



1. Historical Industrial Sites

1.1 Potentially Contaminative Uses identified from 1:10,000 scale Mapping

The systematic analysis of data extracted from standard 1:10,560 and 1:10,000 scale historical maps provides the following information:

Records of sites with a potentially contaminative past land use within 500m of the search boundary: 24

ID	Distance [m]	Direction	Use	Date
1B	69	S	Dairy Farm	1930
2A	77	S	Dairy	1980
3A	77	S	Dairy	1991
4B	91	S	Dairy Farm	1898
5	138	E	Unspecified Factory	1963
6AB	257	NE	Sand Pit	1866
7AC	287	NW	Unspecified Pit	1980
8	287	NW	Unspecified Pit	1991
9C	382	NE	Unspecified Heap	1991
10C	382	NE	Unspecified Heap	1980
11D	390	SW	Sand Pit	1938
12D	390	SW	Sand Pit	1930
13D	390	SW	Refuse Heap	1930
14E	399	SW	Unspecified Disused Pit	1991
15E	399	SW	Unspecified Disused Pit	1980
16E	400	SW	Unspecified Ground Workings	1963
17	422	NW	Nursery	1963
18E	427	SW	Refuse Heap	1930
19E	431	SW	Sand Pit	1938
20E	431	SW	Sand Pit	1930
21F	436	SW	Refuse Heap	1930
22F	438	SW	Sand Pit	1930
23G	483	W	Pumping Station	1930
24G	495	W	Pumping Station	1930

1.2 Additional Information – Historical Tank Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical tanks within 500m of the search boundary: 4

ID	Distance (m)	Direction	Use	Date
25A	110	S	Tanks	1973

26H	126	S	Tanks	1973
27H	127	S	Tanks	1986
28H	127	S	Tanks	1989

1.3 Additional Information – Historical Energy Features Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical energy features within 500m of the search boundary:

56

ID	Distance (m)	Direction	Use	Date
29I	0	On Site	Electricity Substation	1989
30I	0	On Site	Electricity Substation	1986
31I	0	On Site	Electricity Substation	1995
32I	0	On Site	Electricity Substation	1973
33J	210	S	Electricity Substation	1973
34J	210	S	Electricity Substation	1989
35J	210	S	Electricity Substation	1986
36J	211	S	Electricity Substation	1995
37K	212	E	Electricity Substation	1989
38K	212	E	Electricity Substation	1981
39L	212	E	Electricity Substation	1989
40L	212	E	Electricity Substation	1981
41L	212	E	Gas Governor	1993
42L	212	E	Electricity Substation	1973
43K	212	E	Electricity Substation	1993
44M	223	N	Electricity Substation	1976
45M	224	N	Electricity Substation	1987
46M	224	N	Electricity Substation	1990
47N	232	E	Electricity Substation	1973
48N	232	E	Electricity Substation	1989
49N	232	E	Electricity Substation	1981
50N	232	E	Electricity Substation	1993
51P	239	NE	Electricity Substation	1993
52O	243	W	Electricity Substation	1986
53O	243	W	Electricity Substation	1989
54O	249	NW	Electricity Substation	1995
55O	249	NW	Electricity Substation	1973
56Q	261	NE	Electricity Substation	1993
57P	262	NE	Electricity Substation	1981
58Q	262	NE	Electricity Substation	1989
59Q	262	NE	Electricity Substation	1988
60Q	262	NE	Electricity Substation	1983
61R	294	E	Electricity Substation	1989
62R	294	E	Electricity Substation	1981
63R	295	E	Electricity Substation	1973

64R	295	E	Electricity Substation	1993
65S	327	N	Electricity Substation	1987
66S	327	N	Electricity Substation	1990
67T	345	E	Electricity Substations	1981
68T	345	E	Electricity Substations	1989
69T	345	E	Electricity Substations	1973
70T	346	E	Electricity Substations	1993
71U	380	SW	Electricity Substation	1974
72U	381	SW	Electricity Substation	1989
73U	381	SW	Electricity Substation	1978
74U	381	SW	Electricity Substation	1993
75	389	NW	Electricity Substation	1983
76V	463	W	Electricity Substation	1993
77V	463	W	Electricity Substation	1974
78V	464	W	Electricity Substation	1978
79V	464	W	Electricity Substation	1989
80W	466	S	Electricity Substation	1973
81W	468	S	Electricity Substation	1993
82X	474	N	Electricity Substation	1987
83X	474	N	Electricity Substation	1990
84X	474	N	Electricity Substation	1976

1.4 Additional Information – Historical Petrol and Fuel Site Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical petrol stations and fuel sites within 500m of the search boundary:

0

Database searched and no data found.

1.5 Additional Information – Historical Garage and Motor Vehicle Repair Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical garage and motor vehicle repair sites within 500m of the search boundary:

0

Database searched and no data found.

1.6 Potentially Infilled Land

Records of Potentially Infilled Features from 1:10,000 scale mapping within 500m of the study site:

31

The following Historical Potentially Infilled Features derived from the Historical Mapping information is provided by Groundsure:

ID	Distance(m)	Direction	Use	Date
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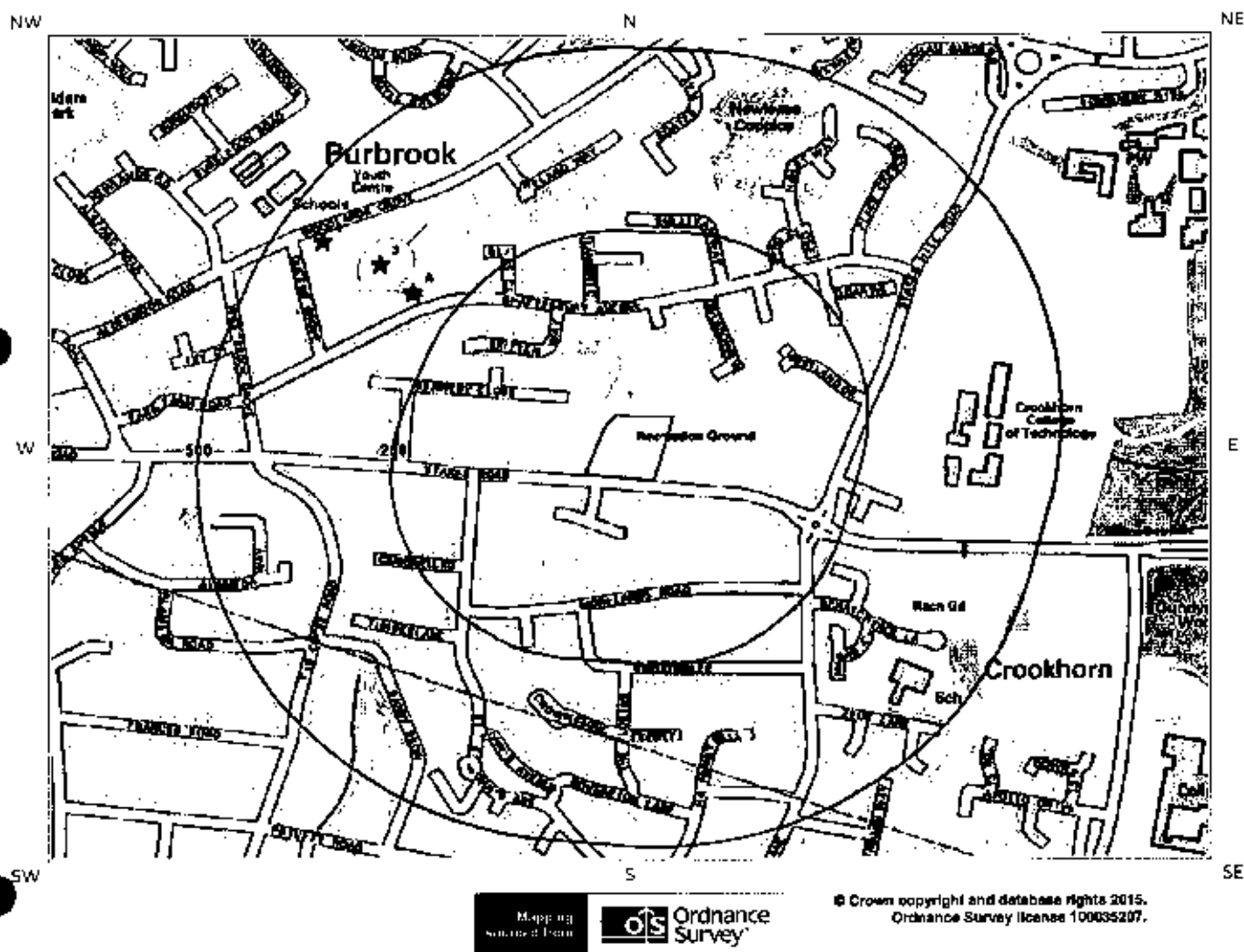
**Groundsure**

LOCATION INTELLIGENCE

emapsite™

85Y	101	NE	Pond	1930
86Y	101	NE	Pond	1938
87	103	SW	Pond	1938
88Z	126	N	Pond	1930
89Z	126	N	Pond	1938
90AA	200	NE	Pond	1930
91AA	200	NE	Pond	1938
92AB	257	NE	Sand Pit	1866
93AC	287	NW	Unspecified Pit	1980
94AC	287	NW	Unspecified Pit	1991
95AC	325	NW	Pond	1991
96AC	325	NW	Pond	1980
97C	382	NE	Unspecified Heap	1980
98C	382	NE	Unspecified Heap	1991
99D	390	SW	Sand Pit	1938
100D	390	SW	Sand Pit	1930
101D	390	SW	Refuse Heap	1930
102E	399	SW	Unspecified Disused Pit	1980
103E	399	SW	Unspecified Disused Pit	1991
104E	400	SW	Unspecified Ground Workings	1963
105AD	414	E	Pool	1980
106AD	414	E	Pool	1991
107E	427	SW	Refuse Heap	1930
108E	431	SW	Sand Pit	1938
109E	431	SW	Sand Pit	1930
110F	436	SW	Refuse Heap	1930
111F	438	SW	Sand Pit	1930
112	465	SW	Pond	1963
113AE	469	SE	Pond	1963
114AE	476	SE	Pond	1930
115AE	476	SE	Pond	1938

2. Environmental Permits, Incidents and Registers Map



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

2. Environmental Permits, Incidents and Registers

2.1 Industrial Sites Holding Licences and/or Authorisations

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

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

0

Database searched and no data found.

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

0

Database searched and no data found.

2.1.3 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.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations:

0

Database searched and no data found.

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

0

Database searched and no data found.

2.1.9 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.

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

0

Database searched and no data found.

2.2 Dangerous or Hazardous Sites

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

0

Database searched and no data found.

2.3 Environment Agency Recorded Pollution Incidents

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

4

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

ID	Distance (m)	Direction	NGR	Details	
1A	309	NW	467996 108011	Incident Date: 21-Jun-2001 Incident Identification: 10632 Pollutant: Other Pollutant Pollutant Description: Other	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
2A	309	NW	467996 108011	Incident Date: 21-Jun-2001 Incident Identification: 10632 Pollutant: Other Pollutant Pollutant Description: Other	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
3	365	NW	467954 108048	Incident Date: 10-Oct-2003 Incident Identification: 195449 Pollutant: Oils and Fuel Pollutant Description: Unidentified Oil	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
4	443	NW	467880 108079	Incident Date: 17-Jan-2012 Incident Identification: 955065 Pollutant: Sewage Materials Pollutant Description: Crude Sewage	Water Impact: Category 2 (Significant) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)

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

0

Database searched and no data found.

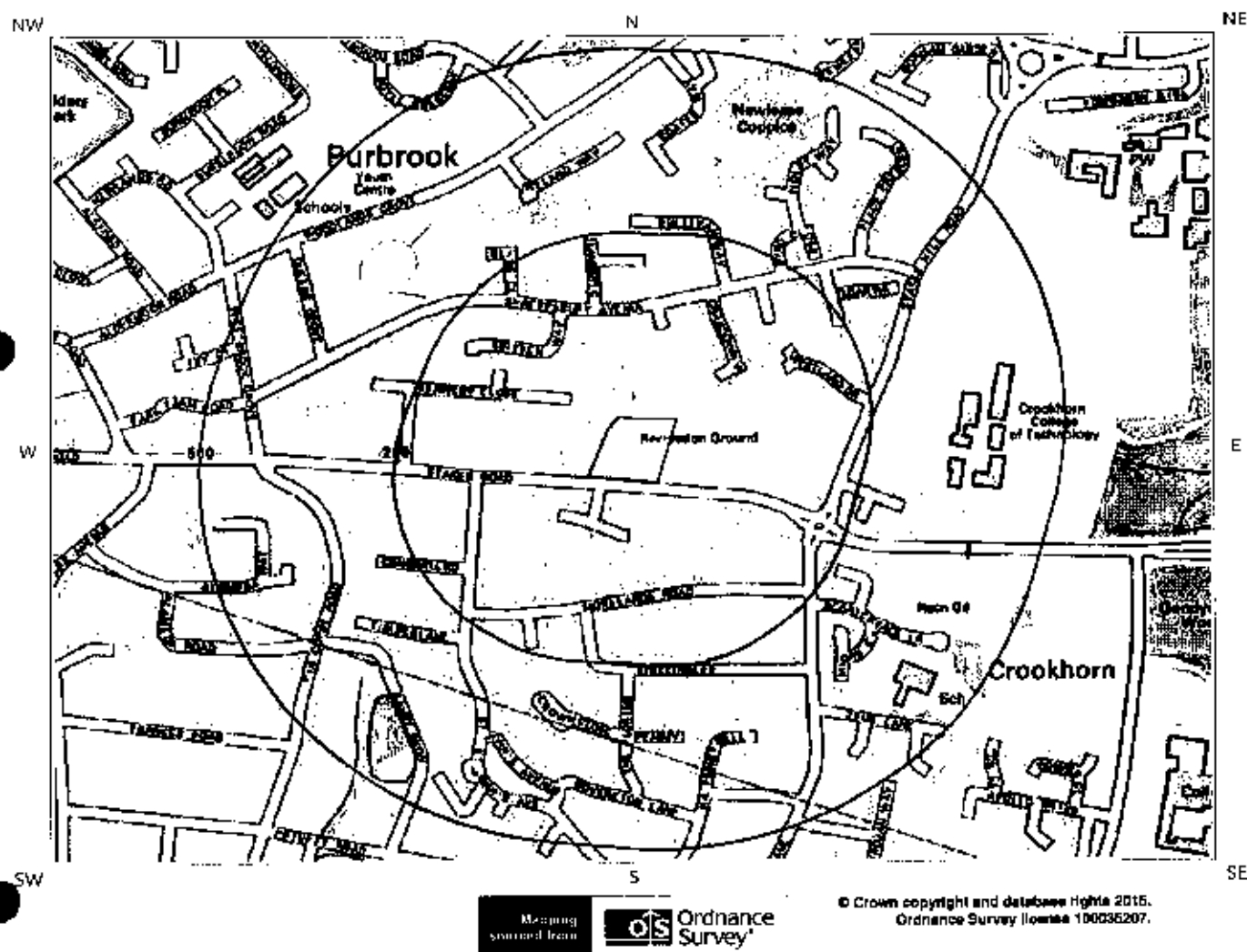
2.4 Sites Determined as Contaminated Land under Part 2A EPA 1990

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.

3. Landfill and Other Waste Sites Map



3. Landfill and Other Waste Sites

3.1 Landfill Sites

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

0

Database searched and no data found.

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

4

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
1	390	SW	467900 107400	Site Address: Disused Sand Pit A, Sandy Brow, Waterlooville, Hampshire Waste Licence: - Site Reference: FHA7, HAV 2 Waste Type: Waste unknown Environmental Permitting Regulations (Waste) Reference: - Licence Issue: - Licence Surrendered: - Licence Hold Address: - Operator: - First Recorded: - Last Recorded: -
2	597	SW	467900 107200	Site Address: Disused Sand Pit B, Sandy Brow, Waterlooville, Hampshire Waste Licence: - Site Reference: FHA8, HAV 2 Waste Type: Waste unknown Environmental Permitting Regulations (Waste) Reference: - Licence Issue: - Licence Surrendered: - Licence Hold Address: - Operator: - First Recorded: - Last Recorded: -
3	741	NW	467500 108200	Site Address: Fielders Park, Purbrook Waste Licence: - Site Reference: FHA13 Waste Type: Household Environmental Permitting Regulations (Waste) Reference: - Licence Issue: - Licence Surrendered: - Licence Hold Address: - Operator: - First Recorded: - Last Recorded: -
Not shown	1335	N	468700 109100	Site Address: Old Council Depot, South Of Cemetery, Hulbert Road, Waterlooville Waste Licence: - Site Reference: FHA11 Waste Type: Household Environmental Permitting Regulations (Waste) Reference: - Licence Issue: - Licence Surrendered: - Licence Hold Address: - Operator: - First Recorded: - Last Recorded: -

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

0

Database searched and no data found.

3.1.4 Records of Landfills from Local Authority and Historical Mapping Records within 1500m of the study site:

0

Database searched and no data found.

3.2 Other Waste Sites

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

0

Database searched and no data found.

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

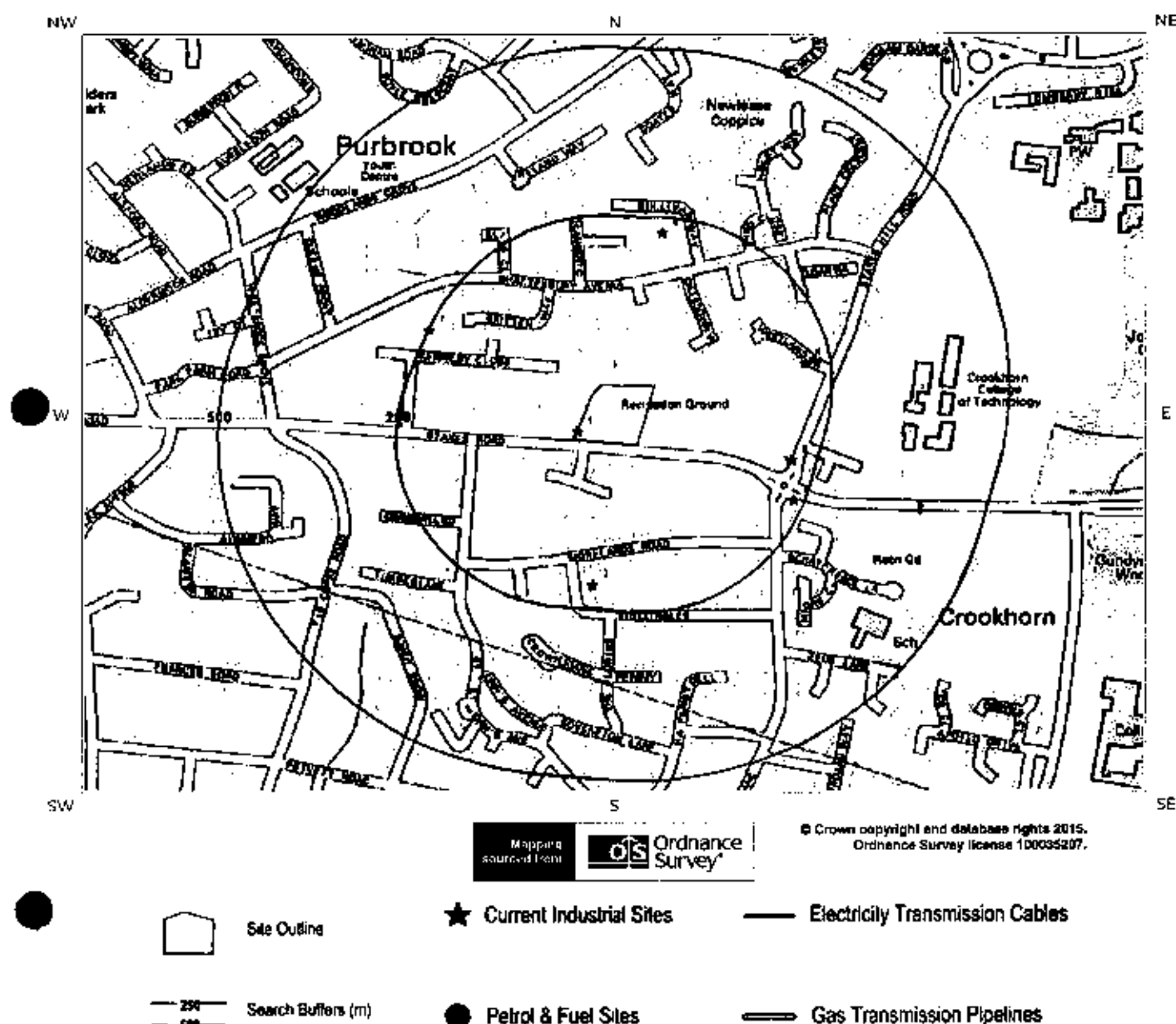
4

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
Not shown	1371	S	468700 106440	Site Address: Farlington Redoubt, Portsdown Hill Road, Portsmouth, Hampshire, PO6 1BW Type: Physical Treatment Facility Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: LIF001 EPR reference: EA/EPR/DP3295HN/V002 Operator: Lift & Shift Skip Hire Ltd Waste Management licence No: 10226 Annual Tonnage: 80000.0 Issue Date: 08/04/2002 Effective Date: - Modified: 30/10/2009 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: Farlington Redoubt Correspondence Address: -, -
Not shown	1371	S	468700 106440	Site Address: Farlington Redoubt, Portsdown Hill Road, Portsmouth, Hampshire, PO6 1BW Type: Household, Commercial & Industrial Waste T Stn Size: >= 25000 tonnes < 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: LIF001 EPR reference: - Operator: Lift & Shift Skip Hire Ltd Waste Management licence No: 10226 Annual Tonnage: 50000.0 Issue Date: 08/04/2002 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Farlington Redoubt Correspondence Address: -, Farlington Redoubt, Portsdown Hill Road, Portsmouth, Hampshire, PO6 1BW

ID	Distance (m)	Direction	NGR	Details	
Not shown	1371	S	468700 106440	Site Address: Farlington Redoubt, Portsdown Hill Road, Portsmouth, Hampshire, PO6 1BW Type: Physical Treatment Facility Size: >= 25000 tonnes < 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: LIF001 EPR reference: - Operator: Lift & Shift Skip Hire Ltd Waste Management licence No: 10226 Annual Tonnage: 50000.0	Issue Date: 08/04/2002 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Farlington Redoubt Correspondence Address: -, Farlington Redoubt, Portsdown Hill Road, Portsmouth, Hampshire, PO6 1BW
Not shown	1371	S	468700 106440	Site Address: Farlington Redoubt, Portsdown Hill Road, Portsmouth, Hampshire, PO6 1BW Type: Physical Treatment Facility Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: LIF001 EPR reference: EA/EPR/DP3295HN/V004 Operator: L & S Waste Management Limited Waste Management licence No: 10226 Annual Tonnage: 80000.0	Issue Date: 08/04/2002 Effective Date: - Modified: 18/03/2015 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: Farlington Redoubt Correspondence Address: -, -

4. Current Land Use Map



4. Current Land Uses

4.1 Current Industrial Data

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

7

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

ID	Distance (m)	Direction	Company	NGR	Address	Activity	Category
1	1	W	Electricity Sub Station	468223 107775	PO7	Electrical Features	Infrastructure and Facilities
2	214	S	Electricity Sub Station	468245 107545	PO7	Electrical Features	Infrastructure and Facilities
3	214	E	Gas Governor Station	468524 107732	PO7	Gas Features	Infrastructure and Facilities
4	215	E	Electricity Sub Station	468544 107874	PO7	Electrical Features	Infrastructure and Facilities
5	227	N	Electricity Sub Station	468343 108068	PO7	Electrical Features	Infrastructure and Facilities
6	235	E	Electricity Sub Station	468528 107670	PO7	Electrical Features	Infrastructure and Facilities
7	249	NW	Electricity Sub Station	468015 107924	PO7	Electrical Features	Infrastructure and Facilities

4.2 Petrol and Fuel Sites

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

0

Database searched and no data found.

4.3 National Grid High Voltage Underground Electricity Transmission Cables

This dataset identifies the high voltage electricity transmission lines running between generating power plants and electricity substations. The dataset does not include the electricity distribution network (smaller, lower voltage cables distributing power from substations to the local user network). This information has been extracted from databases held by National Grid and is provided for information only with no guarantee as to its completeness or accuracy. National Grid do not offer any warranty as to the accuracy of the available data and are excluded from any liability for any such inaccuracies or errors.

Records of National Grid high voltage underground electricity transmission cables within 500m of the study site:

0

Database searched and no data found.

4.4 National Grid High Pressure Gas Transmission Pipelines

This dataset identifies high-pressure, large diameter pipelines which carry gas between gas terminals, power stations, compressors and storage facilities. The dataset does not include the Local Transmission System (LTS) which supplies gas directly into homes and businesses. This information has been extracted from databases held by National Grid and is provided for information only with no guarantee as to its completeness or accuracy. National Grid do not offer any warranty as to the accuracy of the available data and are excluded from any liability for any such inaccuracies or errors.

Records of National Grid high pressure gas transmission pipelines within 500m of the study site: 0

Database searched and no data found.

5. Geology

5.1 Artificial Ground and Made Ground

Database searched and no data found.

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

5.2 Superficial Ground and Drift Geology

Database searched and no data found.

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

5.3 Bedrock and Solid Geology

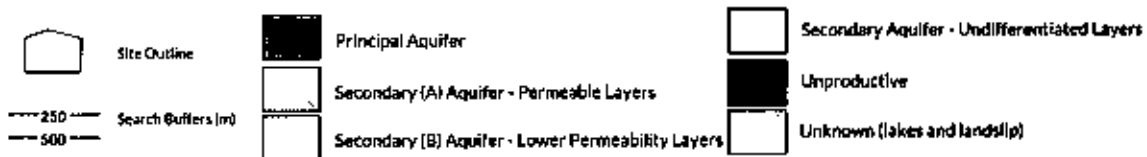
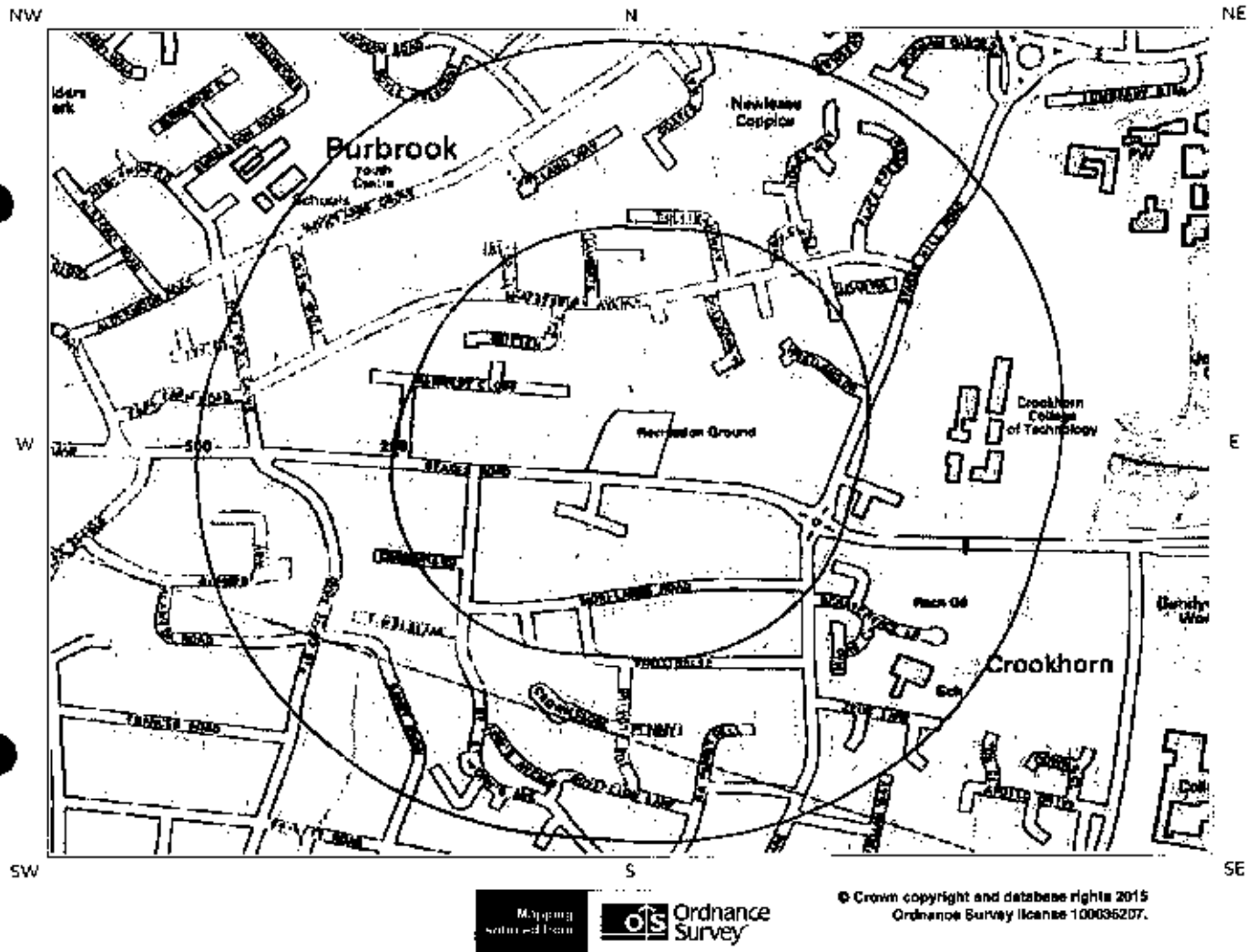
The database has been searched on site, including a 50m buffer.

Lex Code	Description	Rock Type
WTT-SSCL	WITTING FORMATION	SAND, SILT AND CLAY

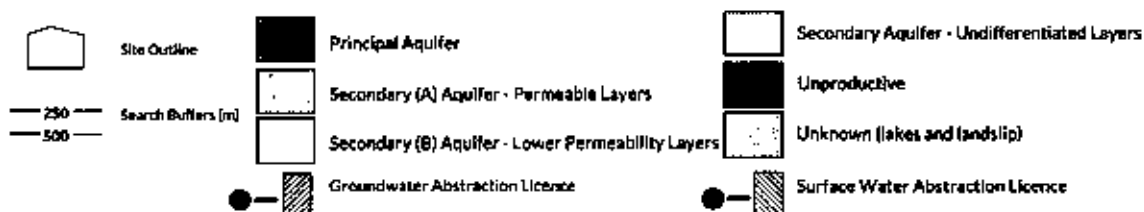
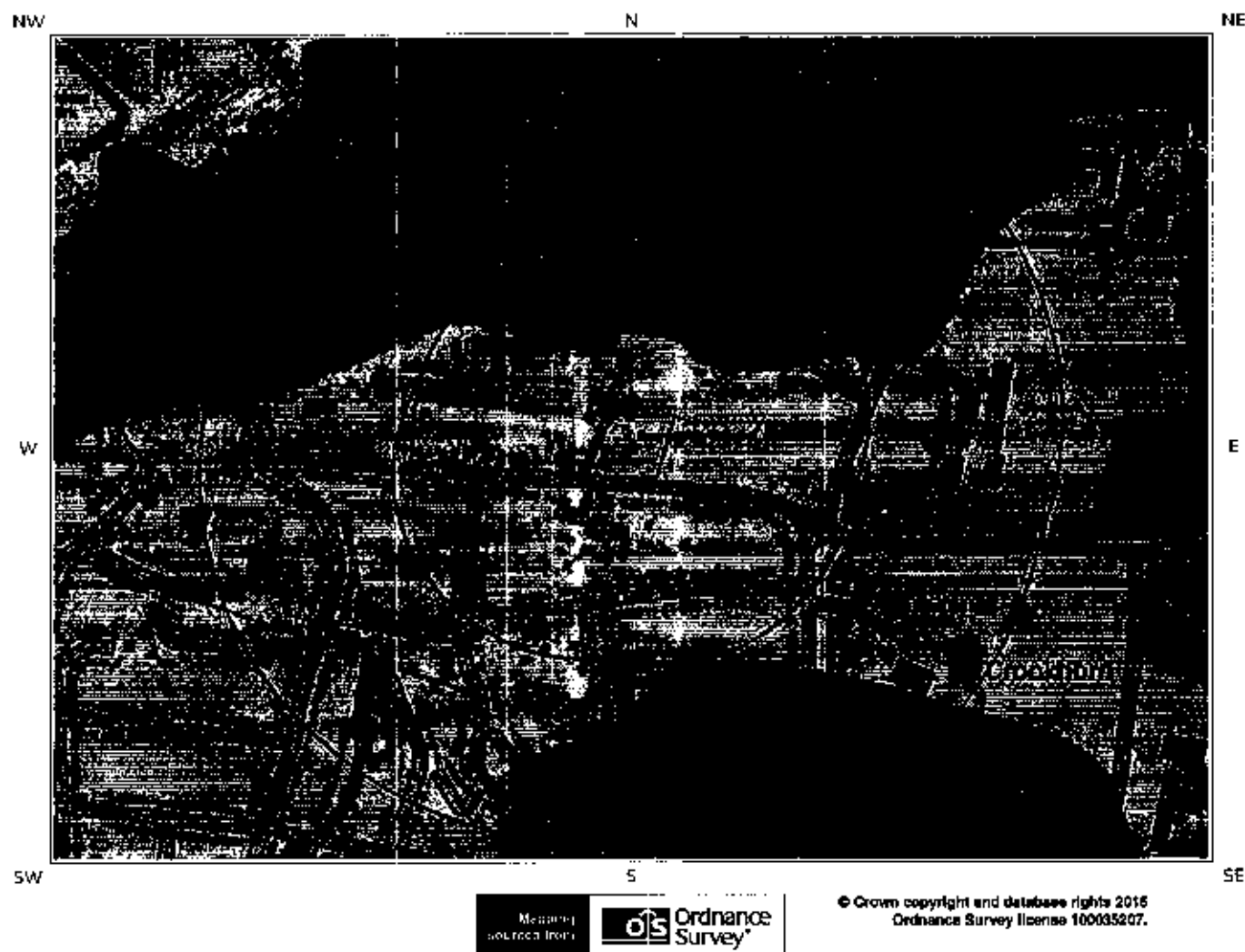
(Derived from the BGS 1:50,000 Digital Geological Map of Great Britain)

6 Hydrogeology and Hydrology

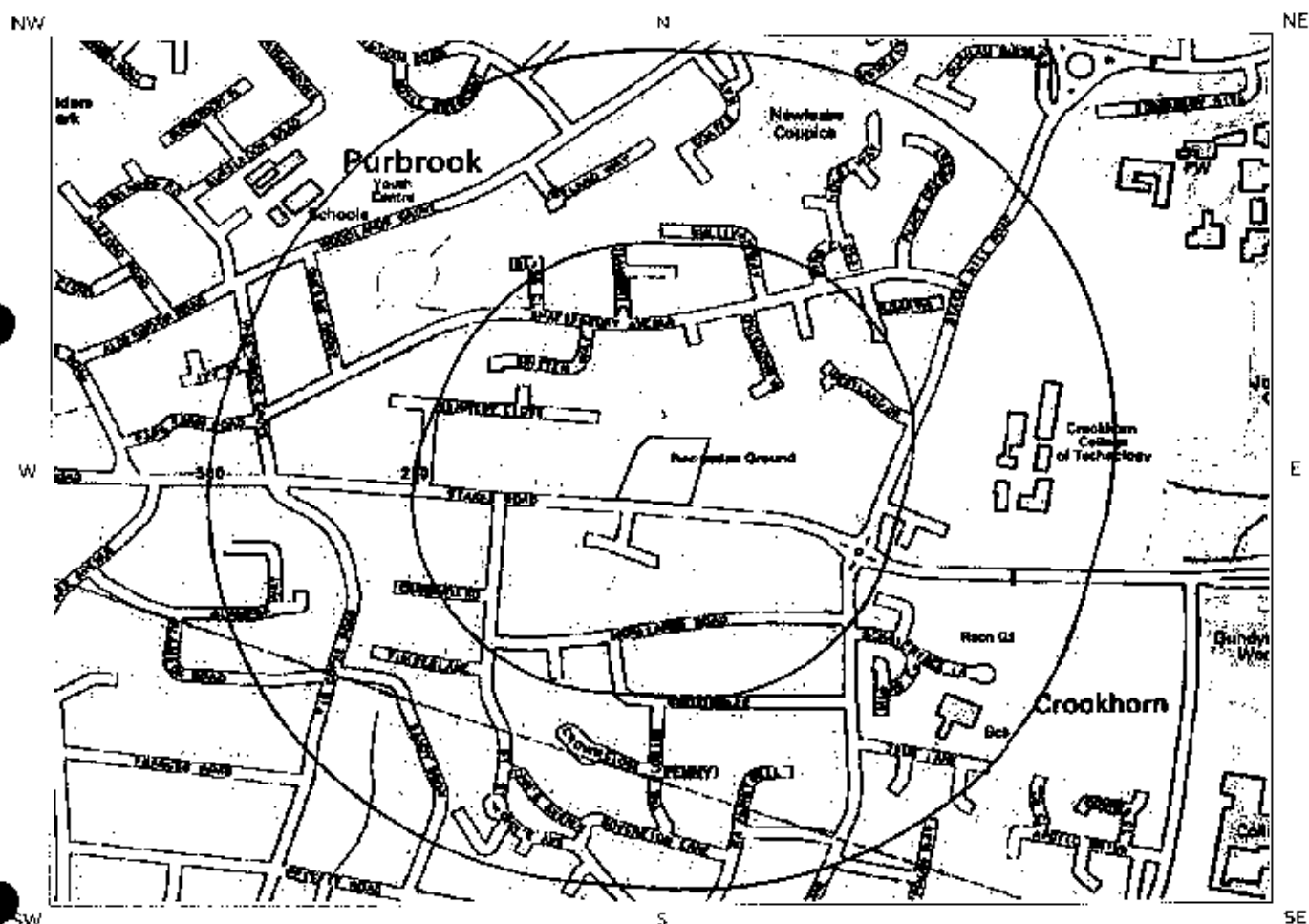
6a. Aquifer Within Superficial Geology



6b. Aquifer Within Bedrock Geology and Abstraction Licenses



6c. Hydrogeology – Source Protection Zones and Potable Water Abstraction Licences

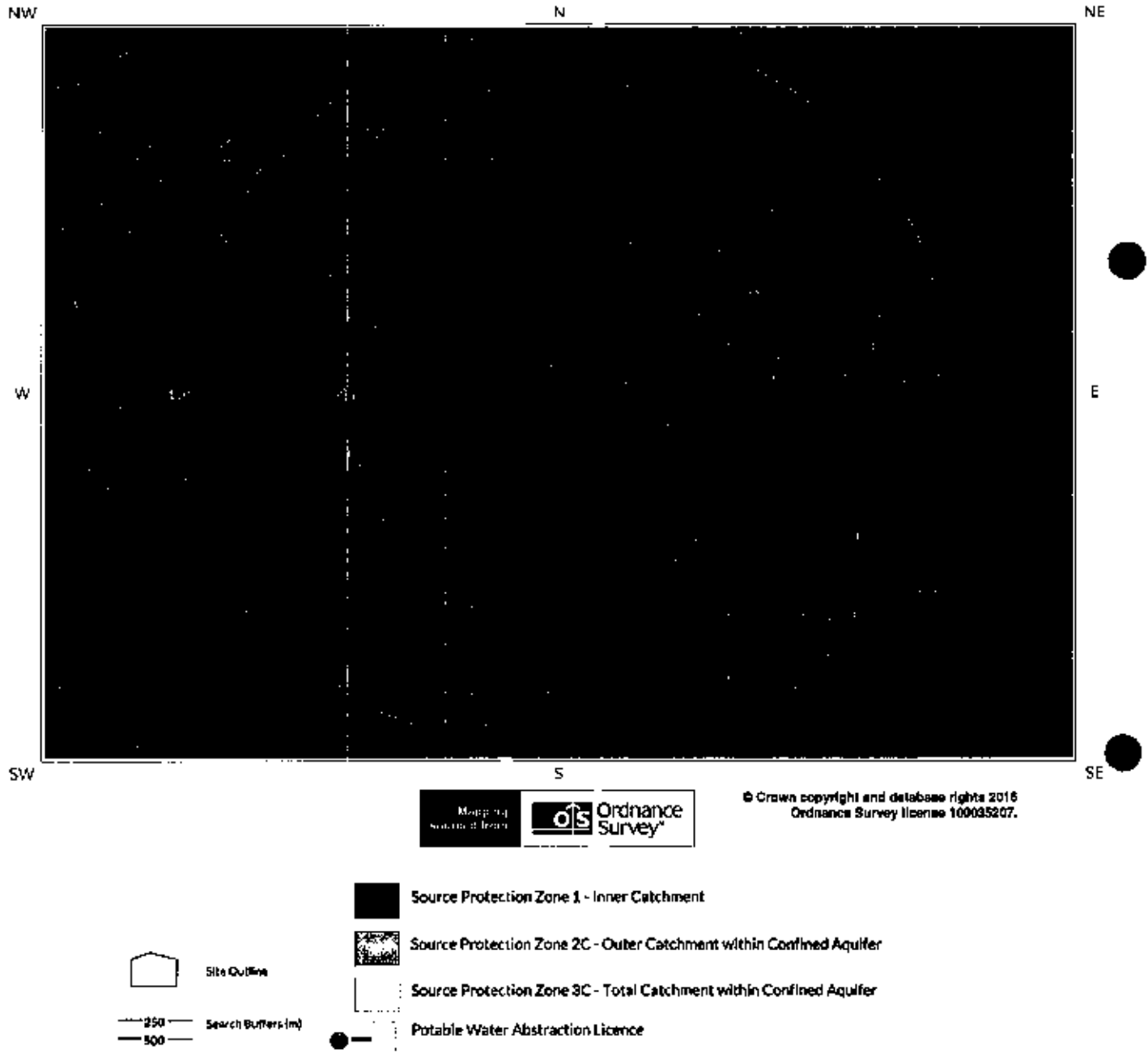


Mapping sourced from
Ordnance Survey

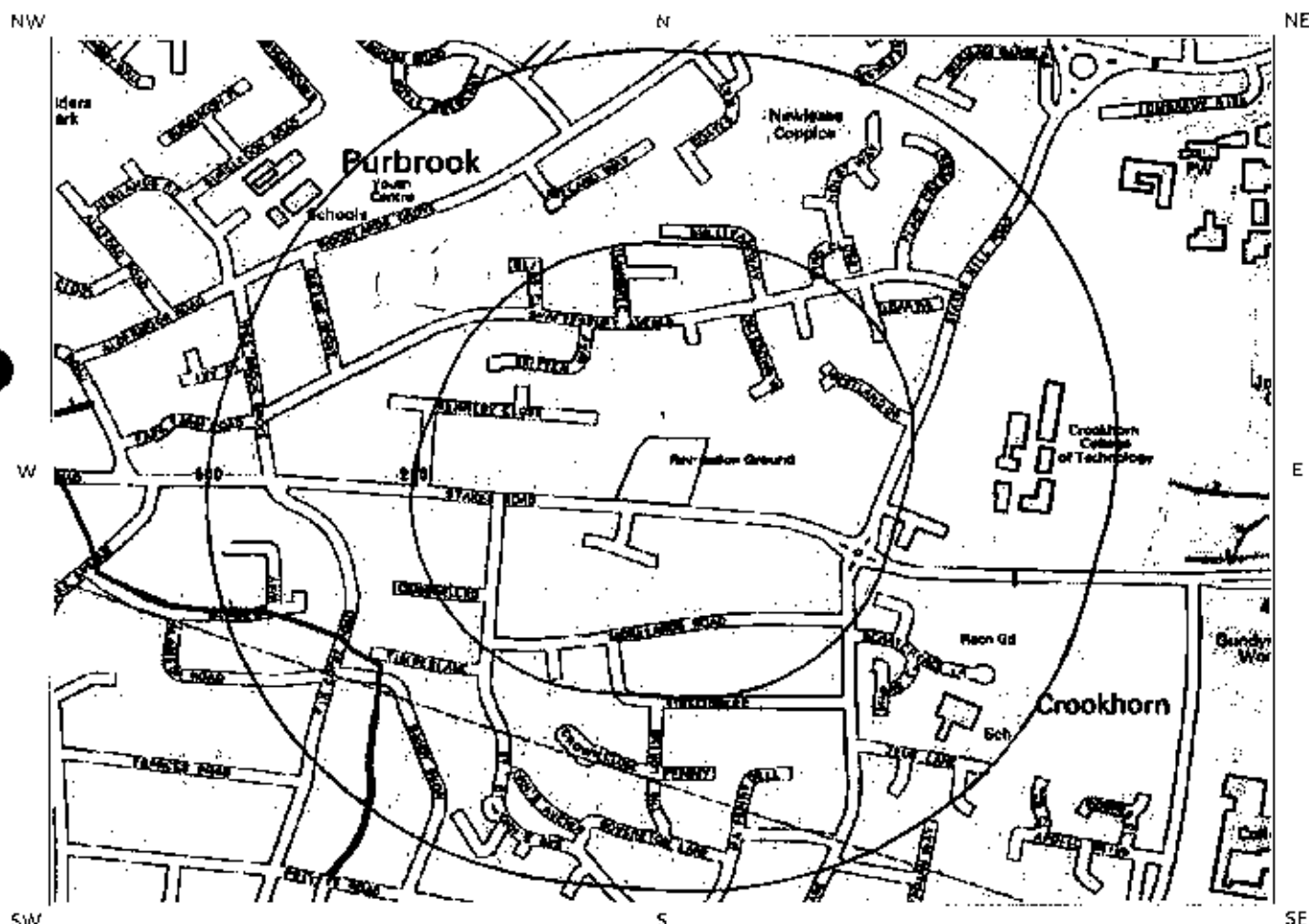
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- Site Outline
- 250 Search Buffers (m)
- 500 Search Buffers (m)
- Source Protection Zone 1 - Inner Catchment
- Source Protection Zone 2 - Outer Catchment
- Source Protection Zone 3 - Total Catchment
- Source Protection Zone 4 - Zone of Special Interest
- Potable Water Abstraction Licence

6d. Hydrogeology – Source Protection Zones within confined aquifer

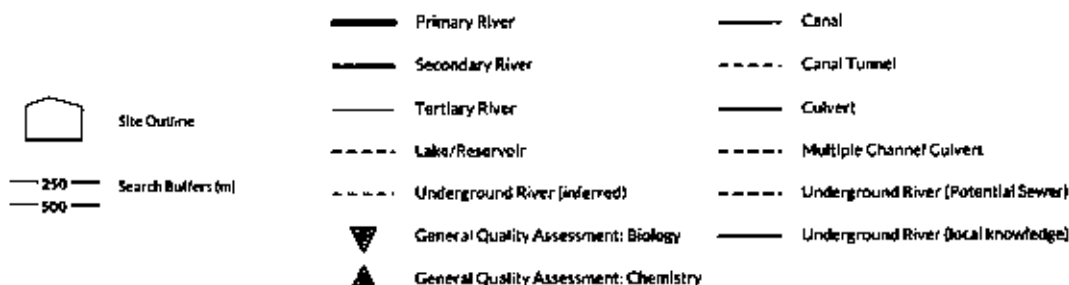


6e. Hydrology – Detailed River Network and River Quality



Mapping sourced from **Ordnance Survey**

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6. Hydrogeology and Hydrology

6.1 Aquifer within Superficial Deposits

Are there records of strata classification within the superficial 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 Superficial Geology Map (6a):

ID	Distance (m)	Direction	Designation	Description
1	80	NE	Secondary (undifferentiated)	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type

6.2 Aquifer within Bedrock Deposits

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 (6b):

ID	Distance (m)	Direction	Designation	Description
1	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
7	80	NE	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow

6.3 Groundwater Abstraction Licences

Are there any Groundwater Abstraction Licences within 2000m of the study site? **No**

Database searched and no data found.

6.4 Surface Water Abstraction Licences

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

No

Database searched and no data found.

6.5 Potable Water Abstraction Licences

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

No

Database searched and no data found.

6.6 Source Protection Zones

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

No

Database searched and no data found.

6.7 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(6d):

ID	Distance	Direction	Type	Description
1	0	On Site	1c	Inner catchment within confined aquifer

6.8 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.
325	E	Minor Aquifer/Low Leaching Potential	L	Soils in which pollutants are unlikely to penetrate the soil layer because either water movement is largely horizontal, or they have the ability to attenuate diffuse pollutants.

6.9 River Quality

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

No

6.9.1 Biological Quality:

Database searched and no data found.

6.9.2 Chemical Quality:

Database searched and no data found.

6.10 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 (6e):

ID	Distance (m)	Direction	Details
1	359	SW	River Name: - Welsh River Name: - Alternative Name: - River Type: Culvert Main River Status: Currently Undefined
2	401	SW	River Name: - Welsh River Name: - Alternative Name: - River Type: Primary River Main River Status: Currently Undefined

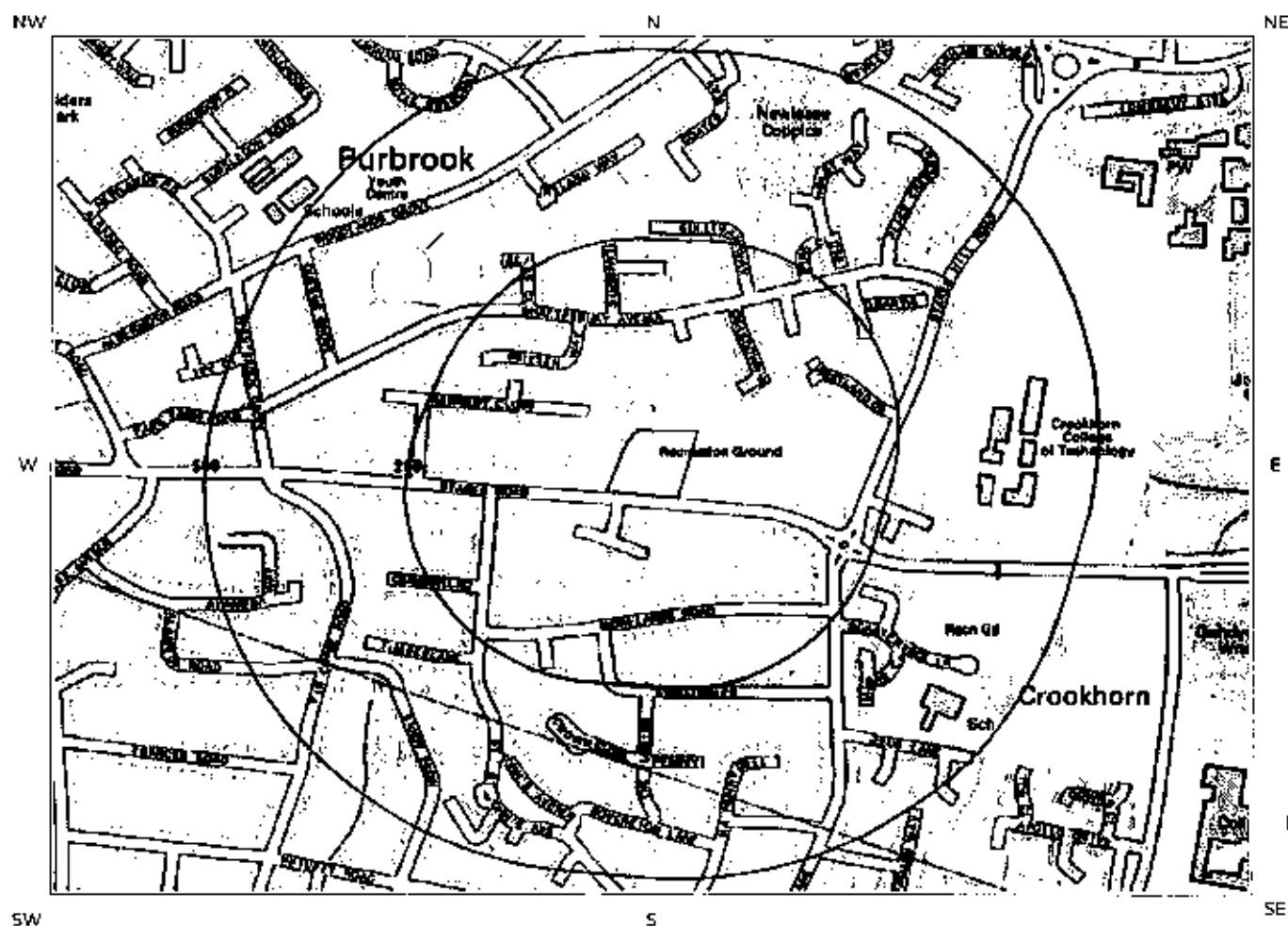
6.11 Surface Water Features

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

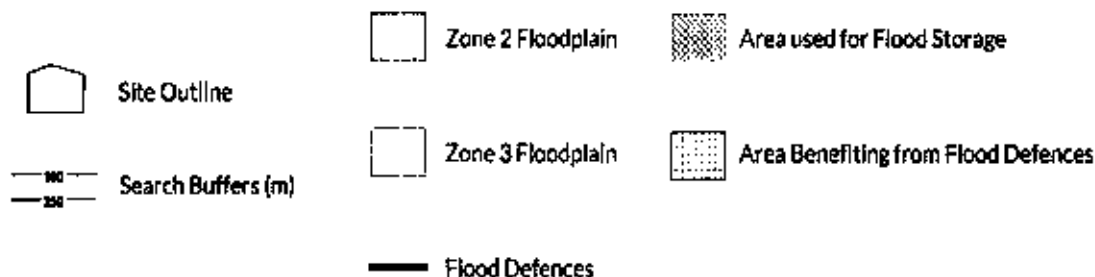
No

Database searched and no data found.

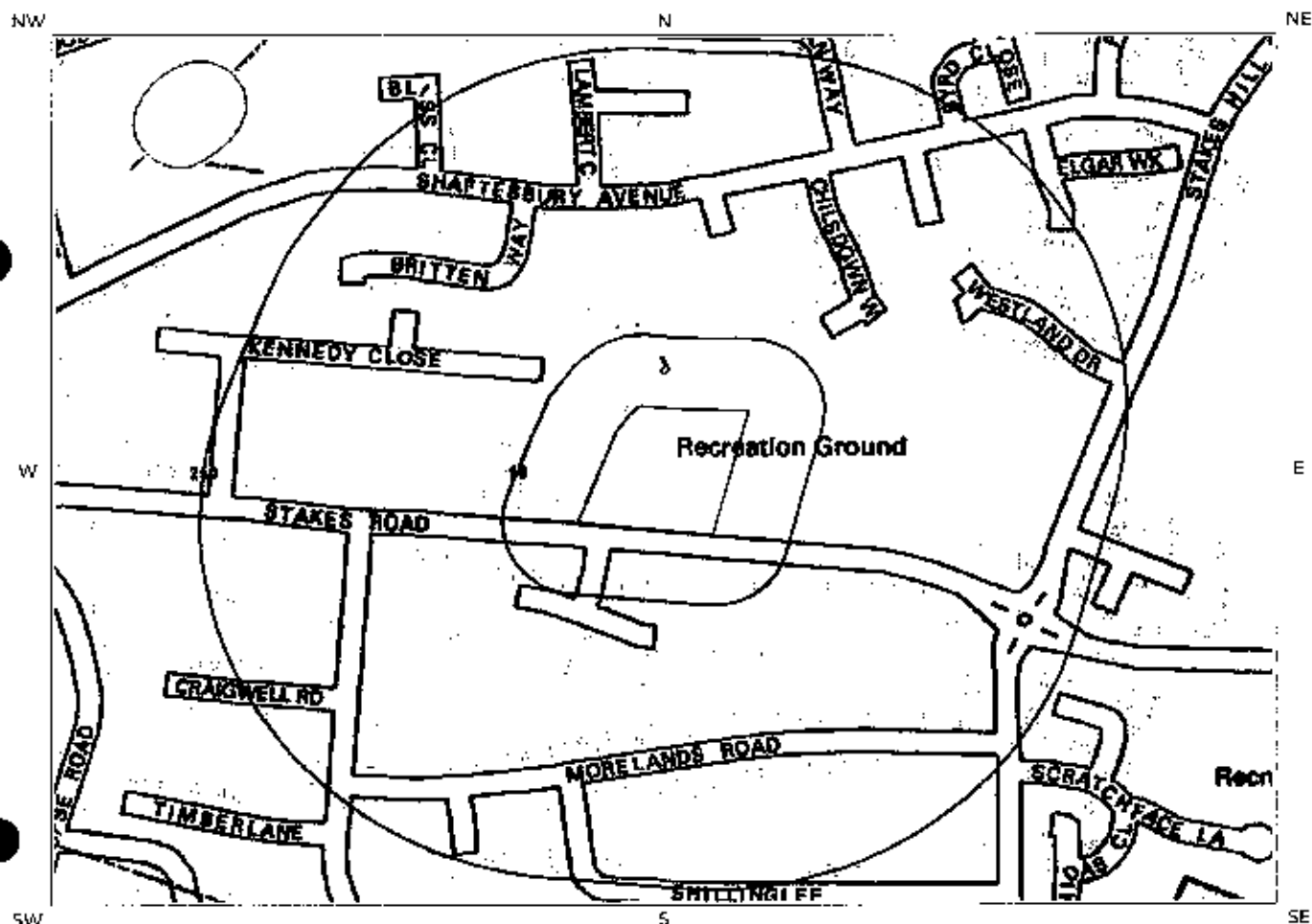
7a. Environment Agency Flood Map for Planning (from rivers and the sea)



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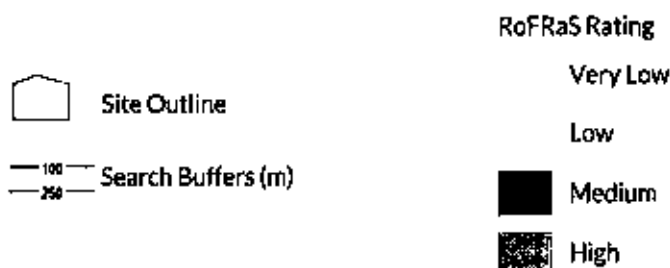


7b. Environment Agency Risk of Flooding from Rivers and the Sea (RoFRaS) Map



Mapping sourced from **Ordnance Survey**

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7 Flooding

7.1 River and Coastal Zone 2 Flooding

Is the site within 250m of an Environment Agency Zone 2 floodplain? No

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 7a – Flood Map for Planning:

Database searched and no data found.

7.2 River and Coastal Zone 3 Flooding

Is the site within 250m of an Environment Agency Zone 3 floodplain? No

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 7a – Flood Map for Planning.

Database searched and no data found.

7.3 Risk of Flooding from Rivers and the Sea (RoFRaS) Flood Rating

What is the highest risk of flooding onsite? Very Low

The Environment Agency RoFRaS database provides an indication of river and coastal flood risk at a national level on a 50m grid with the flood rating at the centre of the grid calculated and given above. The data considers the probability that the flood defences will overtop or breach by considering their location, type, condition and standard of protection.

RoFRaS data for the study site indicates the property is in an area with a Very Low (less than 1 in 1000) chance of flooding in any given year.

7.4 Flood Defences

Are there any Flood Defences within 250m of the study site? No

Database searched and no data found.

7.5 Areas benefiting from Flood Defences

Are there any areas benefiting from Flood Defences within 250m of the study site? No

7.6 Areas benefiting from Flood Storage

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

No

7.7 Groundwater Flooding Susceptibility Areas

7.7.1 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).

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

Limited potential

Where limited potential for groundwater flooding to occur is indicated, this means that although given the geological conditions there may be a groundwater flooding hazard, unless other relevant information, e.g. records of previous flooding, suggests groundwater flooding has occurred before in this area, you need take no further action in relation to groundwater flooding hazard.

7.8 Groundwater Flooding Confidence Areas

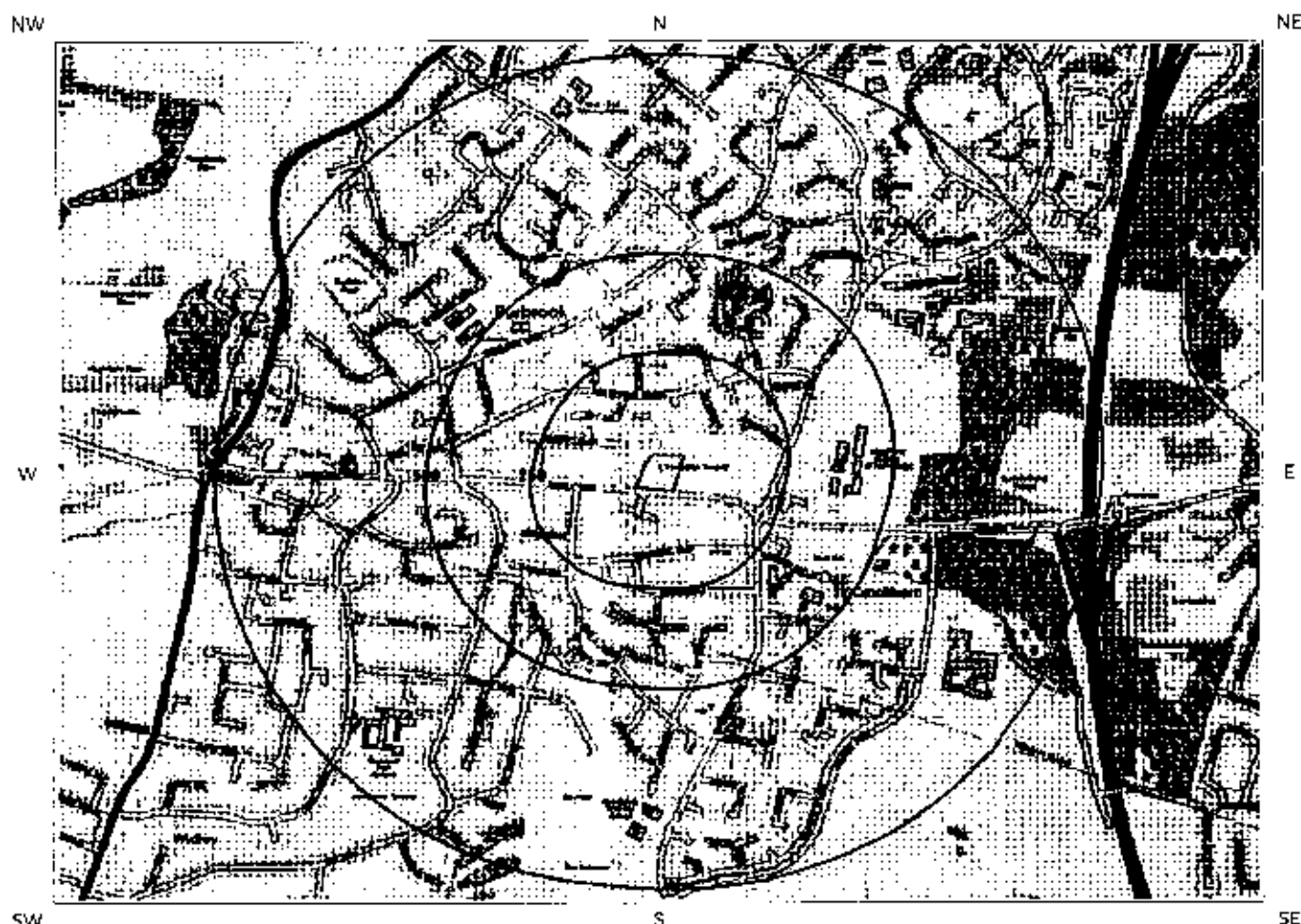
What is the British Geological Survey confidence rating in this result?

Low

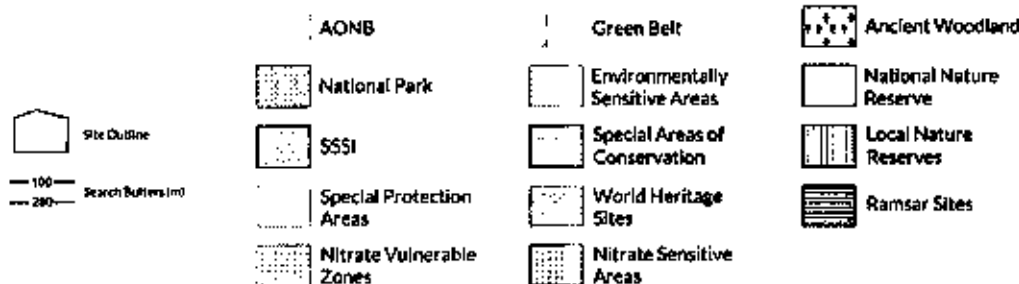
Notes: Groundwater flooding is defined as the emergence of groundwater at the ground surface or the rising of groundwater into man-made ground under conditions where the normal range of groundwater levels is exceeded.

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.

8. Designated Environmentally Sensitive Sites Map



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8. Designated Environmentally Sensitive Sites

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

Yes

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

24

The following records of Designated Ancient Woodland provided by Natural England/Natural Resources Wales are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	Ancient Woodland Name	Data Source
4	304	N	UNKNOWN	Ancient and Semi-Natural Woodland
5	503	E	UNKNOWN	Ancient and Semi-Natural Woodland
6	553	E	UNKNOWN	Ancient and Semi-Natural Woodland
7	641	E	UNKNOWN	Ancient Replanted Woodland
8	692	E	UNKNOWN	Ancient and Semi-Natural Woodland
9	725	E	UNKNOWN	Ancient Replanted Woodland
10	942	S	UNKNOWN	Ancient and Semi-Natural Woodland
11	968	S	UNKNOWN	Ancient and Semi-Natural Woodland
12	1024	W	UNKNOWN	Ancient and Semi-Natural Woodland
13	1069	S	UNKNOWN	Ancient and Semi-Natural Woodland
14	1120	E	UNKNOWN	Ancient and Semi-Natural Woodland
15	1219	SE	UNKNOWN	Ancient Replanted Woodland
16	1241	E	UNKNOWN	Ancient Replanted Woodland
17	1270	E	UNKNOWN	Ancient and Semi-Natural Woodland
18	1285	E	UNKNOWN	Ancient and Semi-Natural Woodland
19	1291	E	UNKNOWN	Ancient and Semi-Natural Woodland
20	1319	NE	UNKNOWN	Ancient and Semi-Natural Woodland
21	1339	NW	UNKNOWN	Ancient and Semi-Natural Woodland
22	1506	NW	UNKNOWN	Ancient and Semi-Natural Woodland
Not shown	1514	E	UNKNOWN	Ancient and Semi-Natural Woodland
24	1567	NE	UNKNOWN	Ancient and Semi-Natural Woodland
Not shown	1591	E	UNKNOWN	Ancient and Semi-Natural Woodland
Not shown	1723	E	UNKNOWN	Ancient and Semi-Natural Woodland
Not shown	1794	W	UNKNOWN	Ancient and Semi-Natural Woodland

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

8.13 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
1	0	On Site	Existing	DEFRA
Not shown	1624	SW	Existing	DEFRA
Not shown	1668	E	Existing	DEFRA

8.14 Records of Green Belt land within 2000m of the study site:

0

Database searched and no data found.

9. Natural Hazards Findings

9.1 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 Geolnsight, available from our website. The following information has been found:

9.1.1 Shrink Swell

What is the maximum Shrink-Swell* 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
Ground conditions predominantly high plasticity. Do not plant or remove trees or shrubs near to buildings without expert advice about their effect and management. 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 probable increase in construction cost to reduce potential shrink-swell problems. For existing property, there is a probable increase in insurance risk during droughts or where vegetation with high moisture demands is present.

9.1.2 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.

9.1.3 Soluble Rocks

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

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

Hazard
Soluble rocks are present, but unlikely to cause problems except under exceptional conditions. No special actions required to avoid problems due to soluble rocks. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with soluble rocks.

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

9.1.4 Compressible Ground

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

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

Hazard
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.

9.1.5 Collapsible Rocks

What is the maximum Collapsible 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
Deposits with potential to collapse when loaded and saturated are unlikely to be present. No special ground investigation required or increased construction costs or increased financial risk due to potential problems with collapsible deposits.

9.1.6 Running Sand

What is the maximum Running Sand* 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
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.

9.2 Radon

9.2.1 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 not in a Radon Affected Area, as less than 1% of properties are above the Action Level.**

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

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? **No radon protective measures are necessary.**

10. Mining

10.1 Coal Mining

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

No

Database searched and no data found.

10.2 Non-Coal Mining

Are there any Non-Coal Mining areas within 50m of the study site boundary?

No

Database searched and no data found.

10.3 Brine Affected Areas

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

No

Guidance: No Guidance Required.

Contact Details

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sales@emapsite.com

emapsite™

British Geological Survey Enquiries
Kingsley Dunham Centre
Keyworth, Nottingham NG12 5GG
Tel: 0115 936 3143.
Fax: 0115 936 3276.
Email:
Web: www.bgs.ac.uk

BGS Geological Hazards Reports and general geological enquiries:
enquiries@bgs.ac.uk

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
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133-155 Waterloo Road, London, SE1 8UG
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Email: enquiries@phe.gov.uk
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200 Lichfield Lane
Mansfield
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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: <http://www.havant.gov.uk/>
Address: Civic Centre, Civic Centre Road, Havant, Hampshire, PO9

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



Public Health England



The Coal Authority





Groundsure

LOCATION INTELLIGENCE

emapsite™

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, Natural England who retain the Copyright and Intellectual Property Rights for the data.

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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 6% 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 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 Purbrook Park School Playing Field, Waterlooville PO7 5PD				WS1
Job No CRM.1033.019	Dates Start 06-07-15 Finish 06-07-15	Ground Level (m)	Co-Ordinates	
Client Persimmon Homes				Sheet 1 of 1

Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
		0.10	ES					(MADE GROUND) (Firm) greyish brown gravelly silt with occasional rootlets, glass and wood fragments. Gravel is fine to coarse, angular and rounded of mixed lithologies including flint, limestone, sandstone, brick and concrete.	0
					0.30			Orangish yellow mottled orange SAND. Sand is fine.	
					0.90			(Soft) dark greyish brown gravelly SILT with occasional rootlets. Gravel is medium, rounded to subrounded flint.	1
		1.00 - 1.45 1.00	SPT D	C 9	1.20			Orangish yellow slightly clayey SAND	
									
									
		2.00 - 2.45 2.00	SPT D	C 13	2.00			Yellowish orange slightly sandy GRAVEL. Gravel is medium, rounded to subrounded flint.	2
					2.10			Medium dense greyish yellow slightly clayey and gravelly SAND. Gravel is medium, rounded to subrounded flint.	
									
		2.90 - 3.34 2.90	SPT D	C>50	2.90			Very dense greyish yellow slightly clayey and gravelly SAND. Gravel is medium, rounded to subrounded flint. refused at 3.34mbgl.	3
					3.34			Borehole completed at 3.34m.	
					[4.00]				4

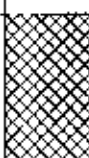
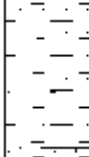
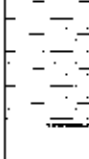
General Remarks

EQUIPMENT: Archway Dart Window Sampling Tracked Rig.
METHOD: Dynamic sampled 0.00m-3.00mbgl.
CASING: Not used.
GROUNDWATER: Groundwater not encountered.
BACKFILL: On completion, a slotted pipe (50mm diameter) was installed to 2.90m, granular response zone (2.90m-1.00m), bentonite seal 1.00m-0.00m, 0.50m (50mm) pipe above ground level.

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)
All dimensions in metres Scale 1:25				Logged By TP

Site Purbrook Park School Playing Field, Waterloooville PO7 5PD				WS2
Job No CRM.1033.019	Dates Start 06-07-15 Finish 06-07-15	Ground Level (m)	Co-Ordinates	

Client Persimmon Homes	Sheet 1 of 1
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Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
		0.10	ES					(MADE GROUND) (Soft) greyish brown gravelly silt. Gravel is fine to coarse, angular and rounded flint, limestone, brick and concrete.	0
					0.50				
		1.00 - 1.45	SPT	C9	1.00			Yellow mottled light orange and grey SAND. Sand is fine.	
		1.00	D		1.50			Firm, low strength dark brown slightly gravelly SILT. Gravel is fine to coarse, angular and rounded flint and chert.	1
		2.00 - 2.44	SPT	C>50	2.00			Light orange yellow slightly clayey SAND. Sand is fine.	
		2.00	D		2.44			Very dense light orange yellow slightly clayey SAND. Sand is fine. Refused at 2.44mbgl.	2
								Borehole completed at 2.44m.	
					(4.00)				3
									4

General Remarks

EQUIPMENT: Archway Dart Window Sampling Tracked Rig.
METHOD: Dynamic sampled 0.00m-2.00mbgl.
CASING: Not used.
GROUNDWATER: Groundwater not encountered.
BACKFILL: On completion, a slotted pipe (50mm diameter) was installed to 2.00m, granular response zone (2.00m-1.00m), bentonite seal 1.00m-0.00m, 0.50m (50mm) pipe above ground level.

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)
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All dimensions in metres Scale 1:25	Logged By TP
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Site Purbrook Park School Playing Field, Waterlooville PO7 5PD				WS3
Job No CRM.1033.019	Dates Start 06-07-15 Finish 06-07-15	Ground Level (m)	Co-Ordinates	
Client Persimmon Homes				Sheet 1 of 1

Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
		0.10	ES		0.20			(MADE GROUND) (Firm) greyish brown gravelly silt with occasional rootlets and polystyrene fragments. Gravel is fine to coarse, angular and rounded of mixed lithologies including flint, chert, sandstone, brick and concrete.	0
								Orangish brown mottled orange laminated SAND. Sand is fine.	
		1.00 - 1.45	SPT	C 16	0.90			(Soft) dark brown slightly gravelly SILT. Gravel is fine to coarse, angular and rounded flint.	1
		1.00	D		1.10			Medium dense light orange yellow SAND. Sand fine	
					1.50			Orangish yellow sandy GRAVEL. Gravel is medium, angular and rounded chert and flint.	
		2.00 - 2.45	SPT	C 42	2.00			Dense light orange yellow SAND. Sand is fine.	2
		2.00	D						
		3.00 - 3.43	SPT	C>50	3.00			Dense to very dense light orange yellow SAND. Sand is fine. refused at 3.43mbgl.	3
		3.00	D		3.43			Borehole completed at 3.43m.	
					{4.00}				4

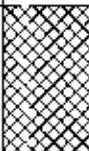
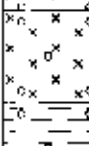
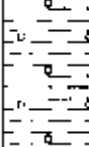
General Remarks

EQUIPMENT: Archway Dart Window Sampling Tracked Rig.
METHOD: Dynamic sampled 0.00m-3.00mbgl.
CASING: Not used.
GROUNDWATER: Groundwater not encountered.
BACKFILL: On completion, the borehole was backfilled with arisings.

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)
All dimensions in metres Scale 1:25				
				Logged By TP

Site Purbrook Park School Playing Field, Waterlooville PO7 5PD				WS4
Job No CRM.1033.019	Dates Start 06-07-15 Finish 06-07-15	Ground Level (m)	Co-Ordinates	

Client Persimmon Homes	Sheet 1 of 1
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Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
		0.10	ES					(MADE GROUND) (Firm) greyish brown gravelly silt with occasional rootlets, and metal fragments. Gravel is fine to coarse, angular and rounded of mixed lithologies including flint, chert, sandstone, brick and concrete.	0
					0.50				
		1.00 - 1.45	SPT	C 11	1.00			Light orange yellow slightly gravelly SAND. Gravel is medium, rounded to subrounded flint.	
		1.00	D						
					1.30			Soft dark greyish brown slightly gravelly SILT. Gravel is medium, rounded to subrounded flint.	1
								1.00 - 1.45 Firm, medium strength.	
								Orange brown slightly gravelly CLAY. Gravel is fine to medium, rounded to subrounded flint.	
		2.00 - 2.45	SPT	C 32	2.20				2
		2.00	D					2.00 - 2.45 Dense.	
								Laminated light yellow mottled orange SAND.	
		3.00 - 3.45	SPT	C>50	3.00				3
		3.00	D					Dense to very dense light yellow mottled orange laminated SAND. Refused at 3.45mbgl.	
					3.45				
					(4.00)			Borehole completed at 3.45m.	4

General Remarks

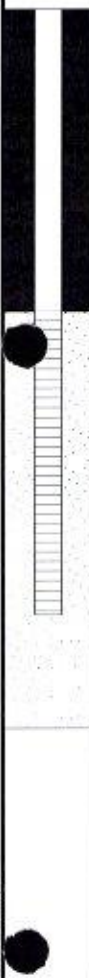
EQUIPMENT: Archway Dart Window Sampling Tracked Rig.
METHOD: Dynamic sampled 0.00m-3.00mbgl.
CASING: Not used.
GROUNDWATER: Groundwater not encountered.
BACKFILL: On completion, the borehole was backfilled with arisings.

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)
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All dimensions in metres
Scale 1:25

Logged By
TP

Site Purbrook Park School Playing Field, Waterlooville PO7 5PD				WS5
Job No CRM.1033.019	Dates Start 06-07-15 Finish 06-07-15	Ground Level (m)	Co-Ordinates	
Client Persimmon Homes				Sheet 1 of 1

Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
		0.10	ES					(MADE GROUND) Firm greyish brown gravelly silt with occasional rootlets and wood fragments. Gravel is fine to coarse, angular and rounded of mixed lithologies including flint, limestone, sandstone, bricks and concrete.	0
					0.50			Orangish yellow mottled orange laminated SAND. Sand is fine.	
		1.00 - 1.45 1.00	SPT D	C 24	1.00			1.00 - 1.45 Medium dense. Light greyish yellow mottled orange laminated SAND. Sand is fine.	1
		2.00 - 2.38 2.00	SPT D	C>50	2.00			Very dense light greyish yellow mottled orange laminated SAND. Sand is fine. Refused at 2.375mbgl.	2
					2.38			Borehole completed at 2.38m.	
					(4.00)				4

General Remarks

EQUIPMENT: Archway Dart Window Sampling Tracked Rig.
METHOD: Dynamic sampled 0.00m-2.00mbgl.
CASING: Not used.
GROUNDWATER: Groundwater not encountered.
BACKFILL: On completion, a slotted pipe (50mm diameter) was installed to 2.00m, granular response zone (2.00m-1.00m), bentonite seal 1.00m-0.00m, 0.50m (50mm) pipe above ground level.

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)
All dimensions in metres Scale 1:25				
				Logged By TP

Site Purbrook Park School Playing Field, Waterlooville PO7 5PD				TP1
Job No CRM.1033.019	Dates Start 07-07-16 Finish 07-07-16	Ground Level (m)	Co-Ordinates	
Client Persimmon Homes				Sheet 1 of 1

Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
	Depth (m)	No/Type	Results					
	0.10	ES					(MADE GROUND) (Firm) Greyish brown gravelly silt with occasional rootlets and plastic fragments. Gravel is fine to coarse, angular and rounded of mixed lithologies including flint, limestone, sandstone, brick and concrete.	0
				0.50				
	1.00	D					Light yellow orange mottled orange laminated SAND. Sand is fine.	1
				1.50				
	2.00	D					Greyish yellow SAND. Sand is fine.	2
	3.00	D		3.00			Trial Pit completed at 3.00m.	3
				(4.00)				4

General Remarks Dimensions: xx3.00 Trial pit excavated by JCB 3CX. Trial pit sides remained vertical and stable. Groundwater not encountered. On completion, the trial pit was backfilled with materials arisings.			
All dimensions in metres Scale 1:25			Logged By TP

Site Purbrook Park School Playing Field, Waterlooville PO7 5PD				TP2
Job No CRM.1033.019	Dates Start 07-07-16 Finish 07-07-16	Ground Level (m)	Co-Ordinates	
Client Persimmon Homes				Sheet 1 of 1

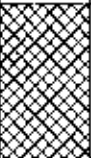
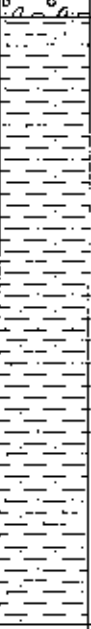
Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
	Depth (m)	No/Type	Results					
	0.10	ES					(MADE GROUND) (Firm) greyish brown gravelly silt with occasional rootlets and plastic fragments. Gravel is fine to coarse, angular to rounded of mixed lithologies including flint, limestone, sandstone, brick and concrete.	0
				0.50				
	1.00	D					Light yellow orange mottled orange slightly gravelly laminated SAND. Sand is fine. Gravel is medium, rounded flint and chert.	1
				1.50				
	2.00	D					Greyish yellow mottled orange occasionally clayey and gravelly laminated SAND. Sand is fine. Gravel is medium, rounded flint and chert.	2
	3.00	D						3
				3.50				
				(4.00)			Trial Pit completed at 3.50m.	4

General Remarks

Dimensions: xx3.50
Trial pit excavated by JCB 3CX.
Trial pit sides remained vertical and stable.
Groundwater not encountered.
On completion, the trial pit was backfilled with materials arisings.

Site Purbrook Park School Playing Field, Waterlooville PO7 5PD				TP3
Job No CRM.1033.019	Dates Start 07-07-16 Finish 07-07-16	Ground Level (m)	Co-Ordinates	

Client Persimmon Homes	Sheet 1 of 1
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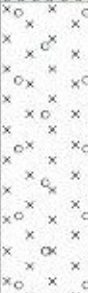
Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
	Depth (m)	No/Type	Results					
	0.10	ES					(MADE GROUND) (Firm) greyish brown gravelly silt with occasional rootlets and plastic fragments. Gravel is fine to coarse, angular and rounded of mixed lithologies including flint, limestone, sandstone, brick and concrete.	0
				0.50			Orangish yellow SAND. Sand is fine.	
				0.75			Orangish yellow slightly sandy GRAVEL. Sand is fine. Gravel is medium, rounded flint.	
	1.00	D		1.00			(Soft) greyish brown sandy CLAY. Sand is fine.	1
	2.00	D						2
	3.00	D		3.00				3
				(4.00)			Trial Pit completed at 3.00m.	4

General Remarks

Dimensions: xx3.00
Trial pit excavated by JCB 3CX.
Trial pit sides remained vertical and stable.
Groundwater not encountered.
On completion, the trial pit was backfilled with materials arisings.

All dimensions in metres Scale 1:25	Logged By TP
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Site Purbrook Park School Playing Field, Waterlooville PO7 5PD				TP4
Job No CRM.1033.019	Dates Start 07-07-16 Finish 07-07-16	Ground Level (m)	Co-Ordinates	
Client Persimmon Homes				Sheet 1 of 1

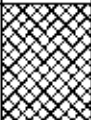
Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
	Depth (m)	No/Type	Results					
	0.10	ES					(MADE GROUND) (Firm) greyish brown gravelly silt with occasional rootlets and plastic fragments. Gravel is fine to coarse, angular and rounded of mixed lithologies including flint, limestone, sandstone, brick and concrete.	0
				0.50			(Soft) dark brown black occasionally gravelly SILT. Gravel is medium, rounded to subrounded flint.	
	1.00	D						1
				1.50				
	2.00	D					(Soft) light brownish orange slightly sandy CLAY. Sand is fine.	2
				2.50				
	3.00	D					Yellowish orangish and greyish yellow SAND. Sand is fine.	3
				3.50				
				(4.00)			Trial Pit completed at 3.50m.	4

General Remarks

Dimensions: xx3.50
Trial pit excavated by JCB 3CX.
Trial pit sides remained vertical and stable.
Groundwater not encountered.
On completion, the trial pit was backfilled with materials arisings.

Site Purbrook Park School Playing Field, Waterlooville PO7 5PD				TP5
Job No CRM.1033.019	Dates Start 07-07-16 Finish 07-07-16	Ground Level (m)	Co-Ordinates	

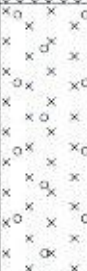
Client Persimmon Homes	Sheet 1 of 1
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Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAOD)	Legend	Stratum Description	
	Depth (m)	No	Type	Results				
	0.10		ES				(MADE GROUND) (Firm) greyish brown gravelly silt with occasional rootlets and plastic fragments. Gravel is fine to coarse, angular and rounded of mixed lithologies including flint, limestone, sandstone, brick and concrete.	0
							(Soft) dark brown slightly gravelly SILT. Gravel is medium, rounded to subrounded flint and chert.	
							Orangish yellow slightly gravelly SAND. Sand fine. Gravel is medium, rounded to subrounded flint and chert.	
	1.00		D					1
							Dark blackish brown slightly silty and sandy GRAVEL. Gravel is medium, rounded to subrounded flint and chert.	
							Light greyish yellow SAND. Sand is fine.	
	2.00		D					2
								
	3.00		D					3
								
				3.50			Trial Pit completed at 3.50m.	
				(4.00)				4

General Remarks Dimensions: xx3.50 Trial pit excavated by JCB 3CX. Trial pit sides remained vertical and stable. Groundwater not encountered. On completion, the trial pit was backfilled with materials arisings.	
---	--

All dimensions in metres Scale 1:25	Logged By TP
--	-----------------

Site Purbrook Park School Playing Field, Waterlooville PO7 5PD				TP6
Job No CRM.1033.019	Dates Start 07-07-16 Finish 07-07-16	Ground Level (m)	Co-Ordinates	
Client Persimmon Homes				Sheet 1 of 1

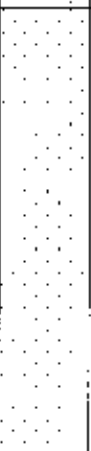
Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
	Depth (m)	No/Type	Results					
	0.10	ES					(MADE GROUND) (Firm) greyish brown gravelly silt with occasional rootlets and plastic fragments. Gravel is fine to coarse, angular and rounded of mixed lithologies including flint, limestone, sandstone, brick and concrete.	0
	1.00	D		0.60 1.50			(Soft) dark brown slightly gravelly SILT. Gravel medium, rounded to subrounded flint and chert.	1
	2.00	D		2.40			Orangish yellow slightly gravelly SAND. Sand is fine. Gravel is medium, rounded to subrounded flint and chert.	2
				2.80			Dark blackish brown slightly silty and sandy GRAVEL. Gravel is medium, rounded to subrounded flint and chert.	
	3.00	D		3.50			Light greyish yellow SAND. Sand is fine.	3
				{4.00}			Trial Pit completed at 3.50m.	4

General Remarks

Dimensions: xx3.50
Trial pit excavated by JCB 3CX.
Trial pit sides remained vertical and stable.
Groundwater not encountered.
On completion, the trial pit was backfilled with materials arisings.

Site Purbrook Park School Playing Field, Waterlooville PO7 5PD				TP7
Job No CRM.1033.019	Dates Start 07-07-16 Finish 07-07-16	Ground Level (m)	Co-Ordinates	

Client Persimmon Homes	Sheet 1 of 1
---------------------------	-----------------

Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAOD)	Legend	Stratum Description	
	Depth (m)	No/Type	Results					
	0.10	ES					(MADE GROUND) (Firm) greyish brown gravelly silt with occasional rootlets and plastic fragments. Gravel is fine to coarse, angular and rounded of mixed lithologies including flint, limestone, sandstone, brick, and concrete.	0
				0.30			(Soft) dark brown slightly gravelly SILT. Gravel is medium, rounded to subrounded flint and chert.	
	1.00	D		1.00			Orangish yellow slightly gravelly SAND. Sand is fine, Gravel medium, rounded to subrounded flint and chert.	1
	2.00	D		2.00			Light greyish yellow SAND. Sand is fine.	2
	3.00	D						
				3.50				
				(4.00)			Trial Pit completed at 3.50m.	3
								4

General Remarks	
Dimensions: xx3.50 Trial pit excavated by JCB 3CX. Trial pit sides remained vertical and stable. Groundwater not encountered. On completion, the trial pit was backfilled with materials arisings.	

All dimensions in metres Scale 1:25	Logged By TP
--	-----------------

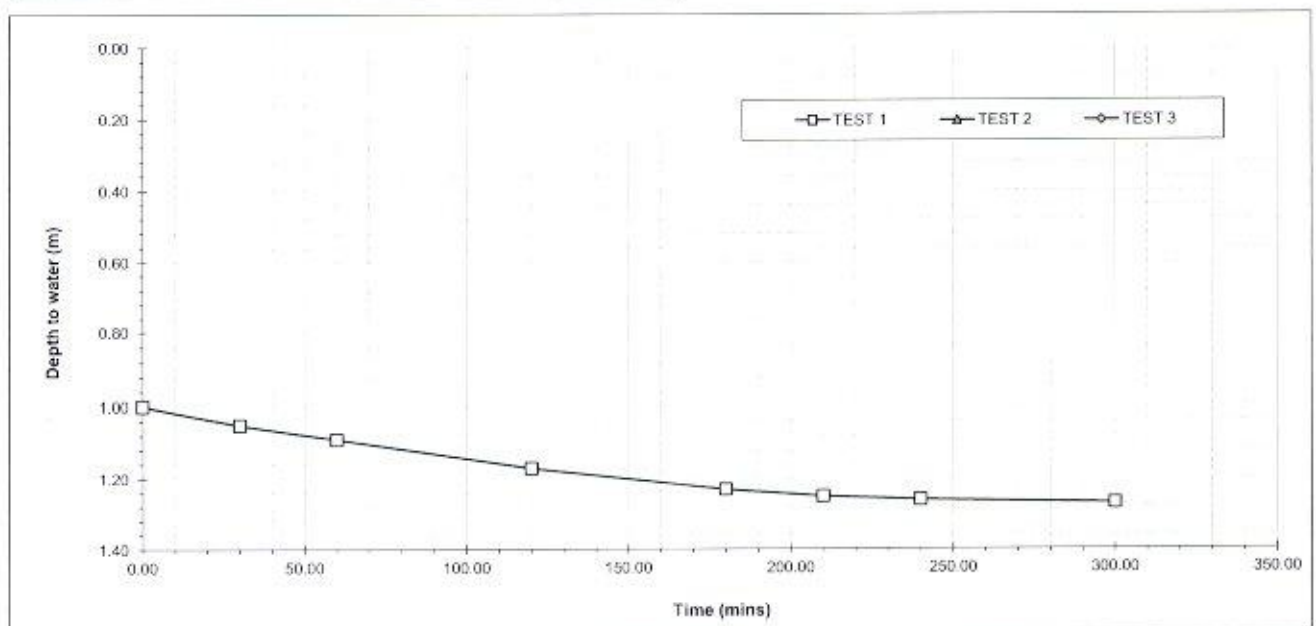
Soakaway Number.....	SA1	
Length.....	2.10	m
Width.....	0.45	m
Depth.....	2.00	m
Groundwater Level.....	Dry	m

SOIL INFILTRATION RATE TEST

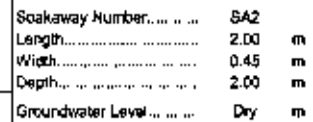
See B.R.E. Digest 365, 1991, Soakaway Design.

Remarks -		TEST 1		TEST 2		TEST 3	
		Time(min)	Depth to Water (m)	Time(min)	Depth to Water (m)	Time(min)	Depth to Water (m)
		0.0	1.00	0.0	0.00	0.0	0.00
		30.0	1.05	0.0	0.00	0.0	0.00
		60.0	1.09	0.0	0.00	0.0	0.00
		120.0	1.17	0.0	0.00	0.0	0.00
		180.0	1.23	0.0	0.00	0.0	0.00
		210.0	1.25	0.0	0.00	0.0	0.00
		240.0	1.26	0.0	0.00	0.0	0.00
		300.0	1.27	0.0	0.00	0.0	0.00
		0.0	0.00	0.0	0.00	0.0	0.00
		0.0	0.00	0.0	0.00	0.0	0.00
		0.0	0.00	0.0	0.00	0.0	0.00
		0.0	0.00	0.0	0.00	0.0	0.00
		0.0	0.00	0.0	0.00	0.0	0.00
		0.0	0.00	0.0	0.00	0.0	0.00
		0.0	0.00	0.0	0.00	0.0	0.00
		0.0	0.00	0.0	0.00	0.0	0.00
		0.0	0.00	0.0	0.00	0.0	0.00
		0.0	0.00	0.0	0.00	0.0	0.00
		0.0	0.00	0.0	0.00	0.0	0.00
		0.0	0.00	0.0	0.00	0.0	0.00
		0.0	0.00	0.0	0.00	0.0	0.00
		0.0	0.00	0.0	0.00	0.0	0.00
		0.0	0.00	0.0	0.00	0.0	0.00
Effective Storage Depth	m		1.00		2.00		2.00
75% Effective Storage Depth	m		0.75		1.50		1.50
(i.e. depth below GL)	m		1.25		0.50		0.50
25% Effective Storage Depth	m		0.25		0.50		0.50
(i.e. depth below GL)	m		1.75		1.50		1.50
Effective Storage Depth 75%-25%	m		0.50		1.00		1.00
Time to fall to 75% effective depth	mins						
Time to fall to 25% effective depth	mins						
V (75%-25%)	m3		0.47		0.95		0.95
a (50%)	m2		3.50		6.05		6.05
t (75%-25%)	mins		0.00		0.00		0.00
SOIL INFILTRATION RATE	m/s		#DIV/0!		#DIV/0!		#DIV/0!

DESIGN SOIL INFILTRATION RATE, f	#DIV/0!	m/s
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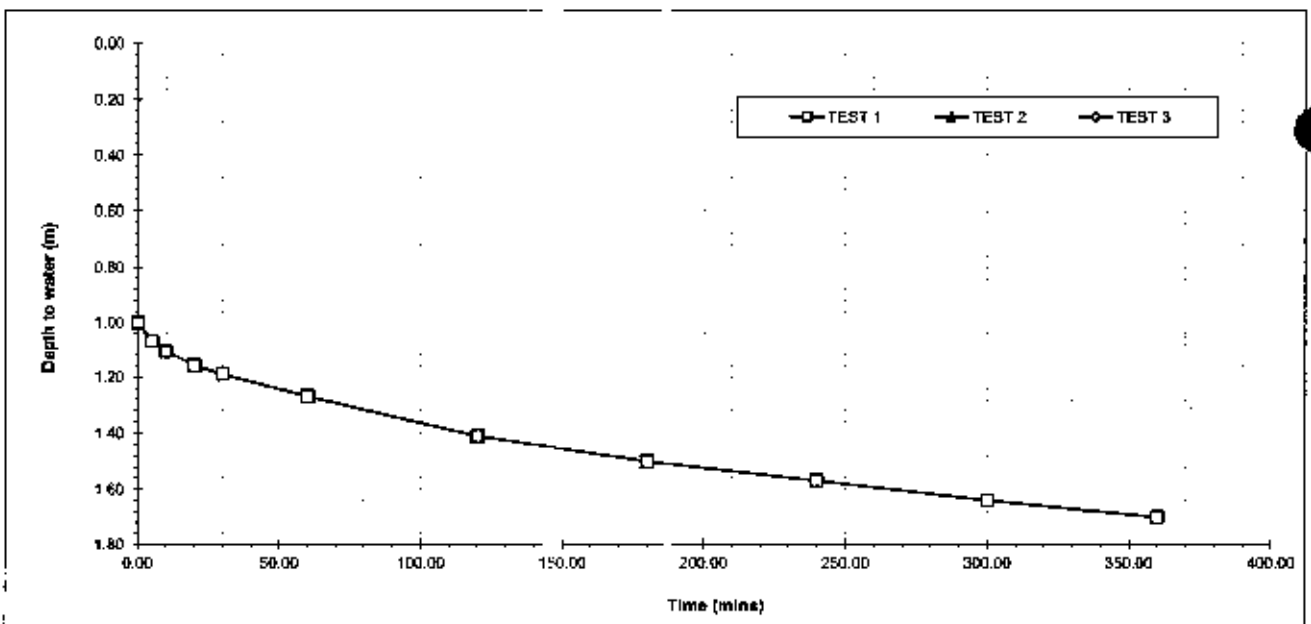


Compiled By:	Date:	Checked By:	Date:	Approved By:	Date:
M. Ward	21.04.15	R.Hamilton	21.04.15	S Rhodes	21.04.15



See B.R.E. Digest 365, 1991, Soakaway Design.

DESIGN SOIL INFILTRATION RATE, f	#DIV/0!	m/s
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Compiled By:	Date:	Checked By:	Date:	Approved By:	Date:
M. Ward	21.04.15	R. Hamilton	21.04.15	S. Rhodes	21.04.15

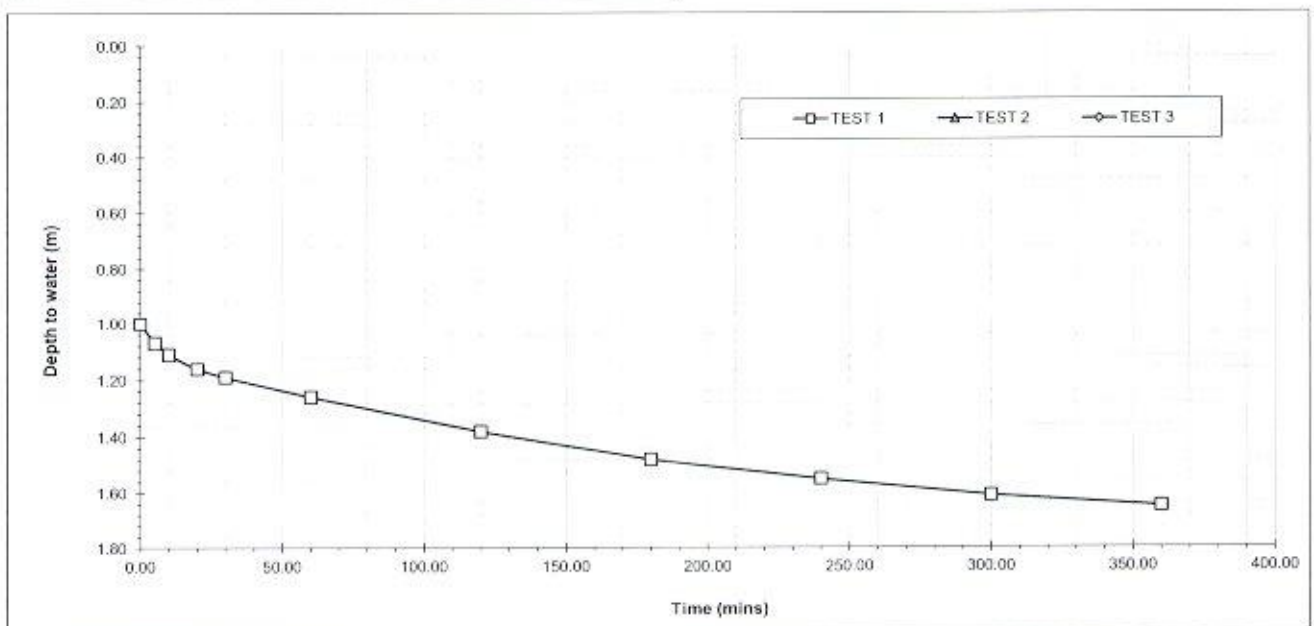
Soakaway Number.....	SA3	
Length.....	2.10	m
Width.....	0.45	m
Depth.....	2.00	m
Groundwater Level.....	Dry	m

SOIL INFILTRATION RATE TEST

See B.R.E. Digest 365, 1991, Soakaway Design.

Remarks -		TEST 1		TEST 2		TEST 3	
		Time(min)	Depth to Water (m)	Time(min)	Depth to Water (m)	Time(min)	Depth to Water (m)
		0.0	1.00	0.0	0.00	0.0	0.00
		5.0	1.07	0.0	0.00	0.0	0.00
		10.0	1.11	0.0	0.00	0.0	0.00
		20.0	1.16	0.0	0.00	0.0	0.00
		30.0	1.19	0.0	0.00	0.0	0.00
		60.0	1.26	0.0	0.00	0.0	0.00
		120.0	1.38	0.0	0.00	0.0	0.00
		180.0	1.48	0.0	0.00	0.0	0.00
		240.0	1.55	0.0	0.00	0.0	0.00
		300.0	1.61	0.0	0.00	0.0	0.00
		360.0	1.65	0.0	0.00	0.0	0.00
		0.0	0.00	0.0	0.00	0.0	0.00
		0.0	0.00	0.0	0.00	0.0	0.00
		0.0	0.00	0.0	0.00	0.0	0.00
		0.0	0.00	0.0	0.00	0.0	0.00
		0.0	0.00	0.0	0.00	0.0	0.00
		0.0	0.00	0.0	0.00	0.0	0.00
Effective Storage Depth	m		1.00		2.00		2.00
75% Effective Storage Depth	m		0.75		1.50		1.50
(i.e. depth below GL)	m		1.25		0.50		0.50
25% Effective Storage Depth	m		0.25		0.50		0.50
(i.e. depth below GL)	m		1.75		1.50		1.50
Effective Storage Depth 75%-25%	m		0.50		1.00		1.00
Time to fall to 75% effective depth	mins		54.00				
Time to fall to 25% effective depth	mins		550.00				
V (75%-25%)	m3		0.47		0.95		0.95
a (50%)	m2		3.50		6.05		6.05
t (75%-25%)	mins		496.00		0.00		0.00
SOIL INFILTRATION RATE	m/s		4.54E-06		#DIV/0!		#DIV/0!

DESIGN SOIL INFILTRATION RATE, f	#DIV/0!	m/s
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Compiled By:	Date:	Checked By:	Date:	Approved By:	Date:
M. Ward	21.04.15	R.Hamilton	21.04.15	S.Rhodes	21.04.15
					

APPENDIX C – CHEMICAL TESTING

Results Summary

Report No.: 15-02918

ELAB Reference	33837	33840	33841	33842	33843	33844
Customer Reference						
Sample ID						
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Location	WS3	TP1	TP2	TP3	TP4	TP5
Sample Depth (m)	0.10	0.10	0.10	0.10	0.10	0.10
Sampling Date	06/07/2015	07/07/2015	07/07/2015	07/07/2015	07/07/2015	07/07/2015

Determinand	Codes	Units	LOD						
Metals									
Arsenic	M	mg/kg	1	n/t	4.4	4.5	4.2	4.6	4.6
Cadmium	M	mg/kg	0.5	n/t	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Chromium	M	mg/kg	5	n/t	21.1	14.6	12.1	15.0	18.5
Copper	M	mg/kg	5	n/t	41.2	20.3	13.4	10.7	25.1
Lead	M	mg/kg	5	n/t	40.3	54.4	35.0	31.5	32.9
Mercury	M	mg/kg	0.5	n/t	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Nickel	M	mg/kg	5	n/t	5.2	5.6	< 5.0	< 5.0	5.9
Selenium	M	mg/kg	1	n/t	< 1.0	< 1.0	< 1.0	1.1	< 1.0
Zinc	M	mg/kg	45	n/t	< 45.0	55.3	< 45.0	< 45.0	83.8
Inorganics									
Hexavalent Chromium	N	mg/kg	0.8	n/t	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8
Total Cyanide	M	mg/kg	1	n/t	1.1	< 1.0	< 1.0	1.1	< 1.0
Miscellaneous									
Acid Neutralisation Capacity	N	mol/kg	0.1	< 0.1	n/t	n/t	n/t	n/t	n/t
Loss On Ignition (450°C)	M	%	0.01	2.35	n/t	n/t	n/t	n/t	n/t
Moisture Content	N	%	0.1	n/t	10.0	10.0	7.1	12.0	13.0
pH	M	units	0.1	8.0	9.5	9.2	7.9	6.6	9.0
Stones Content	N	%	0.1	n/t	18.4	26.6	25.4	1.5	17.8
Total Organic Carbon	N	%	0.01	0.99	0.61	0.77	1.0	2.6	0.84
Organics									
>C8-C10 BCB	N	mg/kg	1	n/t	f < 1.0	f < 1.0	f < 1.0	f < 1.0	f < 1.0
>C10-C12 BCB	N	mg/kg	1	n/t	f < 1.0	f < 1.0	f < 1.0	f < 1.0	f < 1.0
>C12-C16 BCB	N	mg/kg	1	n/t	f < 1.0	f < 1.0	f < 1.0	f < 1.0	f 1.3
>C16-C21 BCB	N	mg/kg	1	n/t	f 2.2	f < 1.0	f 9.8	f < 1.0	f 2.6
>C21-C35 BCB	N	mg/kg	1	n/t	f 35.1	f 19.9	f 411	f < 1.0	f 43.0
>C35-C40 BCB	N	mg/kg	1	n/t	f 14.3	f 6.8	f 123	f < 1.0	f 14.8
Total (>C8-C40) BCB	N	mg/kg	1	n/t	f 51.5	f 26.7	f 543	f < 1.0	f 61.7
Phenols									
Phenol	M	mg/kg	1	n/t	< 1	< 1	< 1	< 1	< 1
M,P-Cresol	N	mg/kg	1	n/t	< 1	< 1	< 1	< 1	< 1
O-Cresol	N	mg/kg	1	n/t	< 1	< 1	< 1	< 1	< 1
3,4-Dimethylphenol	N	mg/kg	1	n/t	< 1	< 1	< 1	< 1	< 1
2,3-Dimethylphenol	M	mg/kg	1	n/t	< 1	< 1	< 1	< 1	< 1
Trimethylphenol	M	mg/kg	1	n/t	< 1	< 1	< 1	< 1	< 1
Total Monohydric Phenols	N	mg/kg	5	n/t	< 5	< 5	< 5	< 5	< 5
Polyaromatic hydrocarbons									
Naphthalene	M	mg/kg	0.1	n/t	< 0.1	0.1	< 0.1	< 0.1	< 0.1
Acenaphthylene	M	mg/kg	0.1	n/t	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Acenaphthene	M	mg/kg	0.1	n/t	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Fluorene	M	mg/kg	0.1	n/t	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Phenanthrene	M	mg/kg	0.1	n/t	0.2	0.9	< 0.1	< 0.1	0.1
Anthracene	M	mg/kg	0.1	n/t	< 0.1	0.3	< 0.1	< 0.1	< 0.1
Fluoranthene	M	mg/kg	0.1	n/t	0.5	1.3	0.2	< 0.1	0.4
Pyrene	M	mg/kg	0.1	n/t	0.6	1.1	0.2	< 0.1	0.5
Benzo (a) anthracene	M	mg/kg	0.1	n/t	0.3	0.7	0.2	< 0.1	0.2
Chrysene	M	mg/kg	0.1	n/t	0.6	0.9	0.2	0.1	0.5
Benzo (b) fluoranthene	M	mg/kg	0.1	n/t	0.4	0.9	0.1	< 0.1	0.2
Benzo (k) fluoranthene	M	mg/kg	0.1	n/t	0.7	1.0	0.1	0.2	0.2
Benzo (a) pyrene	M	mg/kg	0.1	n/t	0.4	0.8	0.2	< 0.1	0.3
Indeno (1,2,3-cd) pyrene	M	mg/kg	0.1	n/t	0.4	0.7	0.3	0.2	0.7
Dibenzo(a,h)anthracene	M	mg/kg	0.1	n/t	0.1	< 0.1	< 0.1	< 0.1	0.2

Tests marked N are not UKAS accredited.

Results Summary

2683

Report No.: 15-02918

ELAB Reference	33837	33840	33841	33842	33843	33844
Customer Reference						
Sample ID						
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Location	WS3	TP1	TP2	TP3	TP4	TP5
Sample Depth (m)	0.10	0.10	0.10	0.10	0.10	0.10
Sampling Date	06/07/2015	07/07/2015	07/07/2015	07/07/2015	07/07/2015	07/07/2015
Determinand	Codes	Units	LOD			
Benzo(ghi)perylene	M	mg/kg	0.1	n/t	0.4	0.6
Total PAH(16)	M	mg/kg	0.4	n/t	4.8	9.5
Total PAH (Including Coronene)	N	mg/kg	2	2	n/t	n/t
BTEX						
Total BTEX	M	mg/kg	0.01	f < 0.01	n/t	n/t
Total Petroleum Hydrocarbons						
Mineral Oil	U	mg/kg	5	f 10	n/t	n/t
PCB (ICES 7 congeners)						
PCB (Total of 7 Congeners)	M	mg/kg	0.03	< 0.03	n/t	n/t

Results Summary

Report No.: 15-02918

ELAB Reference	33845	33846
Customer Reference		
Sample ID		
Sample Type	SOIL	SOIL
Sample Location	TP6	TP7
Sample Depth (m)	0.10	0.10
Sampling Date	07/07/2015	07/07/2015

Determinand	Codes	Units	LOD		
Metals					
Arsenic	M	mg/kg	1	5.9	5.1
Cadmium	M	mg/kg	0.5	< 0.5	< 0.5
Chromium	M	mg/kg	5	13.2	12.3
Copper	M	mg/kg	5	14.4	134
Lead	M	mg/kg	5	40.7	64.0
Mercury	M	mg/kg	0.5	< 0.5	< 0.5
Nickel	M	mg/kg	5	< 5.0	< 5.0
Selenium	M	mg/kg	1	< 1.0	< 1.0
Zinc	M	mg/kg	45	< 45.0	52.0
Inorganics					
Hexavalent Chromium	N	mg/kg	0.8	< 0.8	< 0.8
Total Cyanide	M	mg/kg	1	1.9	n/t
Miscellaneous					
Acid Neutralisation Capacity	N	mol/kg	0.1	n/t	< 0.1
Loss On Ignition (450°C)	M	%	0.01	n/t	4.42
Moisture Content	N	%	0.1	11.1	8.0
pH	M	units	0.1	6.9	6.7
Stones Content	N	%	0.1	12.2	3.1
Total Organic Carbon	N	%	0.01	2.5	1.8
Organics					
>C8-C10 BCB	N	mg/kg	1	f < 1.0	n/t
>C10-C12 BCB	N	mg/kg	1	f < 1.0	n/t
>C12-C16 BCB	N	mg/kg	1	f < 1.0	n/t
>C16-C21 BCB	N	mg/kg	1	f < 1.0	n/t
>C21-C35 BCB	N	mg/kg	1	f 5.2	n/t
>C35-C40 BCB	N	mg/kg	1	f < 1.0	n/t
Total (>C8-C40) BCB	N	mg/kg	1	f 5.2	n/t
Phenols					
Phenol	M	mg/kg	1	< 1	n/t
M,P-Cresol	N	mg/kg	1	< 1	n/t
O-Cresol	N	mg/kg	1	< 1	n/t
3,4-Dimethylphenol	N	mg/kg	1	< 1	n/t
2,3-Dimethylphenol	M	mg/kg	1	< 1	n/t
Trimethylphenol	M	mg/kg	1	< 1	n/t
Total Monohydric Phenols	N	mg/kg	5	< 5	n/t
Polyaromatic hydrocarbons					
Naphthalene	M	mg/kg	0.1	< 0.1	n/t
Acenaphthylene	M	mg/kg	0.1	< 0.1	n/t
Acenaphthene	M	mg/kg	0.1	< 0.1	n/t
Fluorene	M	mg/kg	0.1	< 0.1	n/t
Phenanthrene	M	mg/kg	0.1	1.0	n/t
Anthracene	M	mg/kg	0.1	0.2	n/t
Fluoranthene	M	mg/kg	0.1	1.9	n/t
Pyrene	M	mg/kg	0.1	1.6	n/t
Benzo (a) anthracene	M	mg/kg	0.1	0.9	n/t
Chrysene	M	mg/kg	0.1	1.3	n/t
Benzo (b) fluoranthene	M	mg/kg	0.1	1.0	n/t
Benzo (k) fluoranthene	M	mg/kg	0.1	1.5	n/t
Benzo (a) pyrene	M	mg/kg	0.1	1.1	n/t
Indeno (1,2,3-cd) pyrene	M	mg/kg	0.1	0.8	n/t
Dibenzo(a,h)anthracene	M	mg/kg	0.1	0.2	n/t

Tests marked N are not UKAS accredited.

Results Summary

2683

Report No.: 15-02918

ELAB Reference	33845	33846
Customer Reference		
Sample ID		
Sample Type	SOIL	SOIL
Sample Location	TP6	TP7
Sample Depth (m)	0.10	0.10
Sampling Date	07/07/2015	07/07/2015

Determinand	Codes	Units	LOD		
Benzo(ghi)perylene	M	mg/kg	0.7	0.9	n/t
Total PAH(16)	M	mg/kg	0.4	12.6	n/t
Total PAH (Including Coronene)	N	mg/kg	2	n/t	4
BTEX					
Total BTEX	M	mg/kg	0.01	n/t	f < 0.01
Total Petroleum Hydrocarbons					
Mineral Oil	U	mg/kg	5	n/t	f < 5
PCB (ICES 7 congeners)					
PCB (Total of 7 Congeners)	M	mg/kg	0.03	n/t	< 0.03

Results Summary

Report No.: 15-02918

WAC Analysis

Elab Ref:	33846					Landfill Waste Acceptance Criteria Limits		
Sample Date:	07/07/2015					Inert Waste Landfill	Stable Non-reactive Hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID:	TP7							
Depth:	0.1							
Site:	Purbeck School Lane / CRM.1033.019							
Determinand		Code	Units					
Total Organic Carbon		N	%		1.80	3	5	6
Loss on Ignition		M	%		4.4	--	--	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		4.0	100	--	--
pH		M			6.7	--	>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	0.011	< 0.005	< 0.05	20	100	300
Cadmium		N	< 0.001	< 0.001	< 0.01	0.04	1	5
Chromium		N	0.017	0.011	0.11	0.5	10	70
Copper		N	0.011	0.006	0.07	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	0.003	0.001	< 0.05	0.4	10	40
Lead		N	0.008	0.003	< 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	0.012	0.007	0.07	4	50	200
Chloride		N	< 5	< 5	< 50	800	15000	25000
Fluoride		N	< 1	< 1	< 10	10	150	500
Sulphate		N	5.000	2.000	24.30	1000	20000	50000
Total Dissolved Solids		N	190.000	< 10	220.00	4000	60000	100000
Phenol Index		N	< 0.01	< 0.01	< 0.10	1	-	-
Dissolved Organic Carbon		N	25.400	21.200	217.00	500	800	1000

Leach Test Information

Eluent Volume (ml)		N	205	1400				
pH		N	7.8	8.1				
Conductivity (uS/cm)		N	183	60				
Temperature (°C)		N	20	19				
Solid Information								
Dry mass of test portion (g)			177					
Moisture (%)			7.6					

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

2683

Report No.: 15-02918

WAC Analysis

Elab Ref:	33837					Landfill Waste Acceptance Criteria Limits		
Sample Date:	06/07/2015					Inert Waste Landfill	Stable Non-reactive Hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID:	WS3							
Depth:	0.1							
Site:	Purbeck School Lane / CRM.1033.019							
Determinand		Code	Units					
Total Organic Carbon		N	%		0.99	3	5	6
Loss on Ignition		M	%		2.4	--	--	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		10	500	--	--
Total (of 17) PAHs		N	mg/kg		2.0	100	--	—
pH		M			8.0	--	>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	< 0.005	< 0.005	< 0.05	0.5	2	25
Barium		N	0.020	0.010	0.12	20	100	300
Cadmium		N	< 0.001	< 0.001	< 0.01	0.04	1	5
Chromium		N	0.023	0.008	0.10	0.5	10	70
Copper		N	0.016	0.007	0.08	2	50	100
Mercury		N	< 0.005	< 0.005	< 0.01	0.01	0.2	2
Molybdenum		N	0.008	< 0.005	< 0.05	0.5	10	30
Nickel		N	0.002	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	0.007	0.006	0.06	4	50	200
Chloride		N	7.000	< 5	< 50	800	15000	25000
Fluoride		N	< 1	< 1	< 10	10	150	500
Sulphate		N	72.000	8.000	187.00	1000	20000	50000
Total Dissolved Solids		N	320.000	150.000	1720.00	4000	60000	100000
Phenol Index		N	< 0.01	< 0.01	< 0.10	1	-	-
Dissolved Organic Carbon		N	40.900	21.900	243.00	500	800	1000
Leach Test Information								
Eluent Volume (ml)		N	230	1390				
pH		N	7.9	8.3				
Conductivity (uS/cm)		N	380	157				
Temperature (°C)		N	20	19				
Solid Information								
Dry mass of test portion (g)			176					
Moisture (%)			6.5					

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



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Results Summary

Report No.: 15-02918

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
33840	0.10	TP1	Silty loam	No asbestos detected
33841	0.10	TP2	Silty loam	No asbestos detected
33842	0.10	TP3	Silty loam	No asbestos detected
33843	0.10	TP4	Silty loam	No asbestos detected
33844	0.10	TP5	Silty loam	No asbestos detected
33845	0.10	TP6	Silty loam	No asbestos detected

Method Summary

Report No.: 15-02918

Parameter	Codes	Analysis Undertaken On	Date Tested	Method Number	Technique
Soil					
Hexavalent chromium	N	As submitted sample	17/07/2015	110	Colorimetry
Aqua regia extractable metals	M	Air dried sample	17/07/2015	118	ICPMS
Phenols in solids	M	As submitted sample	17/07/2015	121	HPLC
Polyaromatic hydrocarbons (GC-FID)	M	As submitted sample	17/07/2015	133	GC-FID
Total cyanide	M	As submitted sample	20/07/2015	204	Colorimetry
Basic carbon banding in soil	N	As submitted sample	17/07/2015	218	GC-FID
Asbestos identification	U	As submitted sample	17/07/2015	PMAN	Microscopy
Leachate					
Arsenic*		17/07/2015	101	ICPMS	
Cadmium*		17/07/2015	101	ICPMS	
Chromium*		17/07/2015	101	ICPMS	
Lead*		17/07/2015	101	ICPMS	
Nickel*		17/07/2015	101	ICPMS	
Copper*		17/07/2015	101	ICPMS	
Zinc*		17/07/2015	101	ICPMS	
Mercury*		17/07/2015	101	ICPMS	
Selenium*		17/07/2015	101	ICPMS	
Antimony		17/07/2015	101	ICPMS	
Barium*		17/07/2015	101	ICPMS	
Molybdenum*		17/07/2015	101	ICPMS	
pH Value*		17/07/2015	113	c	
Electrical Conductivity*		17/07/2015	136	Probe	
Dissolved Organic Carbon		17/07/2015	102	analyser	
Chloride*		17/07/2015	131	Chromatogr	
Fluoride*		17/07/2015	131	Chromatogr	
Sulphate*		17/07/2015	131	Chromatogr	
Total Dissolved Solids		17/07/2015	144	Gravimetric	
Phenol Index		17/07/2015	121	HPLC	
WAC Solids analysis					
pH Value**	dried	17/07/2015	113	c	
Total Organic Carbon	dried	17/07/2015	210	IR	
Loss on Ignition**	dried	17/07/2015	129	Gravimetric	
Acid Neutralization Capacity to pH 7	dried	17/07/2015	NEN 737	c	
Total BTEX**	submit	17/07/2015	181	GCMS	
Mineral Oil**	submit	17/07/2015	117	GC/FID	
Total PCBs (7 congeners)	dried	17/07/2015	120	GCMS	
Total PAH (17)**	submit	17/07/2015	133	GC/FID	

Tests marked N are not UKAS accredited

Report Information

Report No.: 15-02918

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
*	UKAS 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"

Soil sample results are expressed on an air dried basis

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

PCB congener results may include any coeluting PCBs

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

Human Health Assessment Reference Values

Determinant	Units	GAC Value Residential					
		With Plant Uptake			Without Plant Uptake		
Arsenic	mg/kg	37			40		
Cadmium	mg/kg	11			85		
Chromium	mg/kg	910			910		
Chromium VI	mg/kg	6			6		
Lead	mg/kg	200			310		
Mercury	mg/kg	40			56		
Nickel	mg/kg	180			180		
Selenium	mg/kg	250			430		
Copper	mg/kg	2400			7100		
Zinc	mg/kg	3700			40000		
Cyanide	mg/kg	791			800		
SOM	%	1	2.5	6	1	2.5	6
Phenol	mg/kg	120	200	380	440	690	1200
Napthalene	mg/kg	2.3	5.6	13	2.3	5.6	13
Acenaphthylene	mg/kg	170	420	920	2900	4600	6000
Acenaphthene	mg/kg	210	510	1100	3000	4700	6000
Flourene	mg/kg	170	400	860	2800	3800	4500
Phenanthrene	mg/kg	95	220	440	1300	1500	1500
Anthracene	mg/kg	2400	5400	11000	31000	35000	37000
Fluoranthene	mg/kg	280	560	890	1500	1600	1600
Pyrene	mg/kg	620	1200	2000	3700	3800	3800
Benzo(a)Anthracene	mg/kg	7.2	11	13	11	14	15
Chrysene	mg/kg	15	22	27	30	31	32
Benzo(b)Flouranthene	mg/kg	2.6	3.3	3.7	3.9	4.0	4.0
Benzo(k)Flouranthene	mg/kg	77	93	100	110	110	110
Benzo(a)Pyrene	mg/kg	2.2	2.7	3.0	3.2	3.2	3.2
Indeno(123-cd)Pyrene	mg/kg	27	36	41	45	46	46
Dibenzo(a,b)Anthracene	mg/kg	0.24	0.28	0.3	0.31	0.32	0.32
Benzo(ghi)Perylene	mg/kg	320	340	350	360	360	360
TPH C ₅ -C ₆ Aliphatic	mg/kg	42	78	160	42	78	160
TPH C ₆ -C ₈ Aliphatic	mg/kg	100	230	530	100	230	530
TPH C ₈ -C ₁₀ Aliphatic	mg/kg	27	65	150	27	65	150
TPH C ₁₀ -C ₁₂ Aliphatic	mg/kg	130	330	760	130	330	770
TPH C ₁₂ -C ₁₄ Aliphatic	mg/kg	1100	2400	4300	1100	2400	4400
TPH C ₁₄ -C ₁₆ Aliphatic	mg/kg	65000	92000	110000	65000	92000	110000
TPH C ₁₆ -C ₁₈ Aliphatic	mg/kg	65000	92000	110000	65000	92000	110000
TPH C ₅ -C ₇ Aromatic	mg/kg	70	140	300	370	690	1400
TPH C ₇ -C ₈ Aromatic	mg/kg	130	290	660	860	1800	3900
TPH C ₈ -C ₁₀ Aromatic	mg/kg	34	83	190	47	110	270
TPH C ₁₀ -C ₁₂ Aromatic	mg/kg	74	180	380	250	590	1200
TPH C ₁₂ -C ₁₄ Aromatic	mg/kg	140	330	660	1800	2300	2500
TPH C ₁₄ -C ₁₆ Aromatic	mg/kg	260	540	930	1900	1900	1900
TPH C ₁₆ -C ₁₈ Aromatic	mg/kg	1100	1500	1700	1900	1900	1900
TPH C ₁₈ -C ₂₀ Aromatic	mg/kg	1100	1500	1700	1900	1900	1900
Benzene	mg/kg	0.087	0.17	0.37	0.38	0.70	1.4
Toluene	mg/kg	130	290	660	860	1900	3900
Ethylbenzene	mg/kg	47	110	260	83	190	440
Xylene	mg/kg	56	130	310	79	180	430

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Determinant	Units	GAC Value					
		Residential POS			Commercial		
Arsenic	mg/kg	79			640		
Cadmium	mg/kg	120			190		
Chromium	mg/kg	1500			8600		
Chromium VI	mg/kg	7.7			33		
Lead	mg/kg	630			2330		
Mercury	mg/kg	120			1100		
Nickel	mg/kg	230			980		
Selenium	mg/kg	1100			12000		
Copper	mg/kg	12000			68000		
Zinc	mg/kg	81000			730000		
Cyanide	mg/kg	N/A			16200		
SOM	%	1	2.5	6	1	2.5	6
Phenol	mg/kg	440	690	1300	440	690	1300
Napthalene	mg/kg	4900	4900	4900	190	460	1100
Acenaphtylene	mg/kg	15000	15000	15000	83000	97000	100000
Acenaphthene	mg/kg	15000	15000	15000	84000	97000	100000
Flourene	mg/kg	9900	9900	9900	63000	68000	71000
Phenanthrene	mg/kg	3100	3100	3100	22000	22000	23000
Anthracene	mg/kg	74000	74000	74000	520000	540000	540000
Fluoranthene	mg/kg	3100	3100	3100	23000	23000	23000
Pyrene	mg/kg	7400	7400	7400	54000	54000	54000
Benzo(a)Anthracene	mg/kg	29	29	29	170	170	180
Chrysene	mg/kg	57	57	57	350	350	350
Benzo(b)Flouranthene	mg/kg	7.1	7.2	7.2	44	44	45
Benzo(k)Flouranthene	mg/kg	190	190	190	1200	1200	1200
Benzo(a)Pyrene	mg/kg	5.7	5.7	5.7	35	35	36
Indeno[123-cd]Pyrene	mg/kg	82	82	82	500	510	510
Dibenzo(a,h)Anthracene	mg/kg	0.57	0.57	0.58	3.5	3.6	3.6
Benzo(ghi)Perylene	mg/kg	640	640	640	3900	4000	4000
TPH C ₁ -C ₆ Aliphatic	mg/kg	570000	590000	600000	3200	5900	12000
TPH C ₇ -C ₈ Aliphatic	mg/kg	600000	610000	620000	7800	17000	40000
TPH C ₉ -C ₁₀ Aliphatic	mg/kg	13000	13000	13000	2000	4800	11000
TPH C ₁₁ -C ₁₂ Aliphatic	mg/kg	13000	13000	13000	9700	23000	47000
TPH C ₁₃ -C ₁₄ Aliphatic	mg/kg	13000	13000	13000	59000	82000	90000
TPH C ₁₅ -C ₃₅ Aliphatic	mg/kg	250000	250000	250000	1600000	1700000	1800000
TPH C ₁₆ -C ₃₄ Aliphatic	mg/kg	250000	250000	250000	1600000	1700000	1800000
TPH C ₇ -C ₇ Aromatic	mg/kg	56000	56000	56000	26000	46000	86000
TPH C ₇ -C ₈ Aromatic	mg/kg	56000	56000	56000	56000	110000	180000
TPH C ₉ -C ₁₀ Aromatic	mg/kg	5000	5000	5000	3500	8100	17000
TPH C ₁₁ -C ₁₂ Aromatic	mg/kg	5000	5000	5000	16000	28000	34000
TPH C ₁₃ -C ₁₅ Aromatic	mg/kg	5100	5100	5000	36000	37000	38000
TPH C ₁₆ -C ₂₂ Aromatic	mg/kg	3800	3800	3800	28000	28000	28000
TPH C ₂₄ -C ₃₅ Aromatic	mg/kg	3800	3800	3800	28000	28000	28000
TPH C ₂₅ -C ₃₄ Aromatic	mg/kg	3800	3800	3800	28000	28000	28000
Benzene	mg/kg	72	72	73	27	47	90
Toluene	mg/kg	56000	56000	56000	56000	110000	180000
Ethylbenzene	mg/kg	24000	24000	25000	5700	13000	27000
Xylene	mg/kg	41000	42000	43000	5900	14000	30000

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Determinant	Units	GAC Value					
		Park POS			Allotments		
Arsenic	mg/kg	170			43		
Cadmium	mg/kg	532			1.9		
Chromium	mg/kg	33000			18000		
Chromium VI	mg/kg	220			1.8		
Lead	mg/kg	1300			80		
Mercury	mg/kg	240			19		
Nickel	mg/kg	3400			230		
Selenium	mg/kg	1800			88		
Copper	mg/kg	44000			520		
Zinc	mg/kg	170000			620		
Cyanide	mg/kg						
SOM	%	1	2.5	6	1	2.5	6
Phenol	mg/kg	440	690	1300	23	42	83
Naphthalene	mg/kg	1200	1900	3000	4.1	10	24
Acenaphthylene	mg/kg	29000	30000	30000	28	69	160
Acenaphthene	mg/kg	29000	30000	30000	34	85	200
Fluorene	mg/kg	20000	20000	20000	27	67	160
Phenanthrene	mg/kg	6200	6200	6300	15	38	90
Anthracene	mg/kg	150000	150000	150000	380	950	2200
Fluoranthene	mg/kg	6300	6300	6400	52	130	290
Pyrene	mg/kg	15000	15000	15000	110	270	620
Benzo(a)Anthracene	mg/kg	49	56	62	2.9	6.5	13
Chrysene	mg/kg	93	110	120	4.1	9.4	19
Benzo(b)Flouranthene	mg/kg	13	15	16	0.99	2.1	3.9
Benzo(k)Flouranthene	mg/kg	370	410	440	37	75	130
Benzo(a)Pyrene	mg/kg	11	12	13	0.97	2.0	3.5
Indeno(123-cd)Pyrene	mg/kg	150	170	180	9.5	21	39
Dibenzo(a,h)Anthracene	mg/kg	1.1	1.3	1.4	0.14	0.27	0.43
Benzo(ghi)Perylene	mg/kg	1400	1500	1600	290	470	640
TPH C ₇ -C ₈ Aliphatic	mg/kg	95000	130000	180000	730	1700	3900
TPH C ₉ -C ₁₀ Aliphatic	mg/kg	150000	220000	320000	2300	5600	13000
TPH C ₁₁ -C ₁₂ Aliphatic	mg/kg	14000	18000	21000	320	770	1700
TPH C ₁₃ -C ₁₄ Aliphatic	mg/kg	21000	23000	24000	2200	4400	7300
TPH C ₁₅ -C ₁₆ Aliphatic	mg/kg	25000	25000	26000	11000	13000	13000
TPH C ₁₇ -C ₁₈ Aliphatic	mg/kg	450000	480000	490000	260000	270000	270000
TPH C ₁₉ -C ₂₀ Aliphatic	mg/kg	450000	480000	490000	260000	270000	270000
TPH C ₇ -C ₉ Aromatic	mg/kg	76000	84000	92000	13	27	57
TPH C ₇ -C ₉ Aromatic	mg/kg	87000	95000	100000	22	51	120
TPH C ₉ -C ₁₀ Aromatic	mg/kg	7200	8500	9300	8.6	21	51
TPH C ₁₁ -C ₁₂ Aromatic	mg/kg	9200	9700	10000	13	31	74
TPH C ₁₃ -C ₁₄ Aromatic	mg/kg	10000	10000	10000	23	57	130
TPH C ₁₅ -C ₁₆ Aromatic	mg/kg	7600	7700	7800	46	110	260
TPH C ₁₇ -C ₁₈ Aromatic	mg/kg	7800	7800	7900	370	820	1600
TPH C ₁₉ -C ₂₀ Aromatic	mg/kg	7800	7800	7900	370	820	1600
Benzene	mg/kg	90	100	110	0.017	0.034	0.075
Toluene	mg/kg	87000	95000	100000	22	51	120
Ethylbenzene	mg/kg	17000	22000	27000	16	39	91
Xylene	mg/kg	17000	23000	31000	28	67	160

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Controlled Waters Assessment Reference Values

Determinant	Unit	EQS Freshwater						Uk DWS	WHO
Hardness	mg/l	0-50	50-100	100-150	150-200	200-250	>250		
Arsenic	ug/l	50						10	10
Boron	ug/l	2000						1000	0.3
Cadmium	ug/l	5						5	3
Chromium	ug/l	2	10	10	20	20	20	50	50
Lead	ug/l	4	10	10	20	20	20	10	10
Mercury	ug/l	1						1	1
Selenium	ug/l							10	10
Copper	ug/l	0.5	3	3	3	8	12	20000	2000
Nickel	ug/l	8	20	20	40	40	40	20	70
Zinc	ug/l	8	15	15	50	50	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							
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 ₃₅ 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



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Summary of laboratory soil descriptions

Contract Ref: Purbrook School Lane CRM.1033.019

Report Ref. No: GS-CRM.019

Client ID	Depth (m)	Description of Sample
SA1	0.50	Brown slightly gravelly slightly silty clayey SAND
SA2	0.50	Brown slightly silty SAND
SA3	0.50	Brown gravelly silty clayey SAND
WS1	1.00	Stiff dark grey very sandy silty CLAY
WS2	1.00	Brown slightly silty SAND
WS3	1.00	Brown slightly silty SAND
WS3	2.00	Slightly silty very gravelly SAND
WS5	1.00	Yellowish brown slightly silty SAND
WS5	2.00	Silty SAND
WS5	2.00	Silty SAND

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 material(s).

Approved Signatory:

Date Reported: 27/07/15



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Chemical properties of Soil Water Soluble Sulphate & Ph Value. BS 1377:1990: Part 3 cl.3-9.

Contract Ref: Purbrook School Lane CRM.1033.019

Report Ref. No: GS-CRM.019

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)	
WS1	1.00	100	<0.1	0.1	7.8
WS3	1.00	100	<0.1	0.1	7.8
WS3	2.00	100	<0.1	0.1	8.0
WS5	1.00	100	<0.1	0.1	8.0

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Determination of Moisture Content & Atterberg Limits

Contract Ref:

Purbrook School Lane CRM.1033.019

Report Ref. No: GS-CRM.019

Sample Preparation:

Specimens taken from their natural State

Client ID	Depth (m)	Moisture Content %	Liquid Limit %	Plastic Limit %	Plasticity Index %	% Passing 425µm test sieve	Remarks
WS1	1.00	25	44	25	19	79	Intermediate Plasticity
WS3	1.00	16	29		NON-PLASTIC		-
WS5	1.00	17	26		NON-PLASTIC		-

Certification:-

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Approved Signatory:

Date Reported: 27/07/15



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Determination of California Bearing Ratio BS 1377: Part 4:1990

Contract Ref:

Purbrook School Lane CRM.1033.019

Report Ref. No: GS-CRM.019

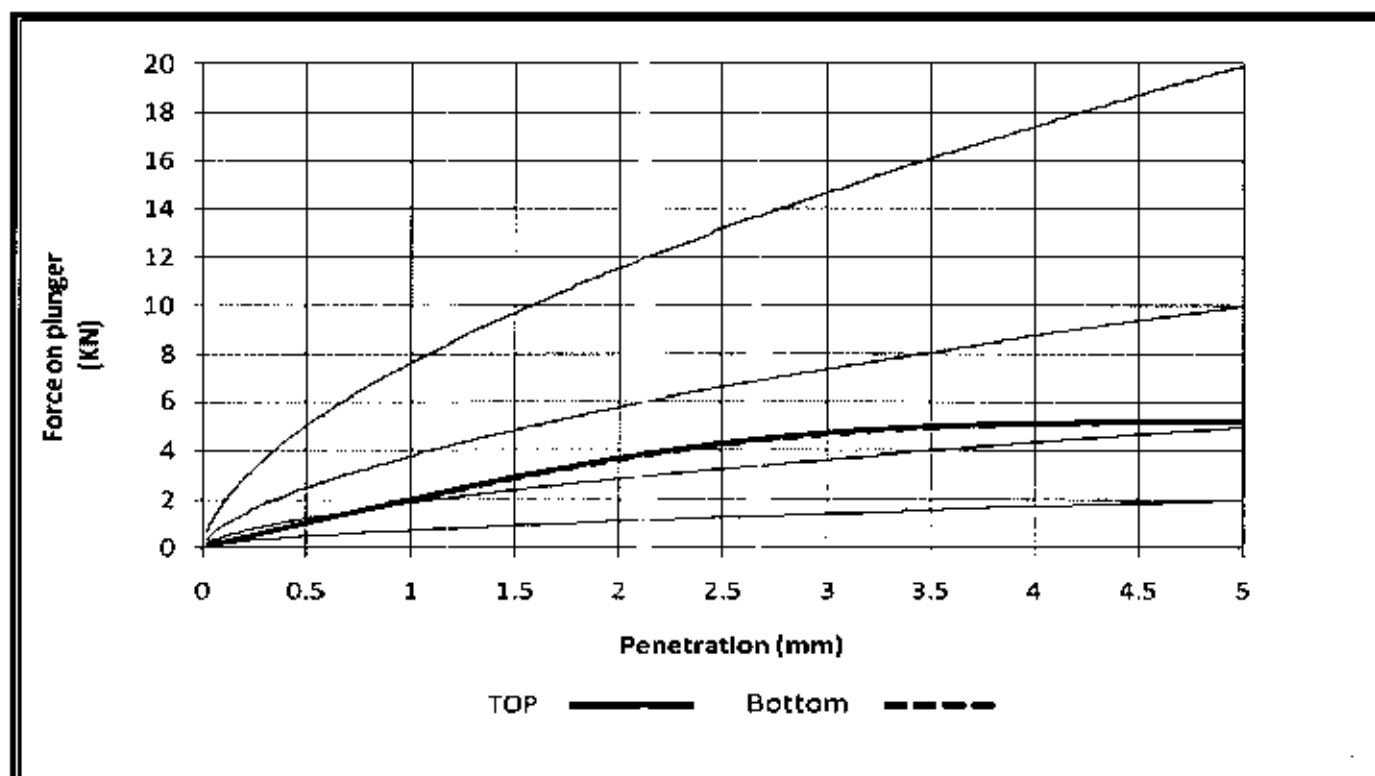
Sample description:

Brown slightly gravelly slightly silty clayey SAND

Client Sample ID:

SA1 @ 0.50m

INITIAL SAMPLE CONDITIONS		TEST CONDITIONS		Method of compaction:	
Moisture Content %:	21.0	Surcharge Kg:	13	Final Moisture Content %	21.0
Bulk Density (measured) Mg/m ³ :	1.96	Soaking Time hrs:	-	Sample Top	21.0
Dry Density (measured) Mg/m ³ :	1.79	Swelling mm:	-	Sample Bottom	21.0
Percentage retained on 20mm BS test sieve:	-	Remarks: Tested in accordance with BS1377: 1990 Part 4 Sample preparation method: 2.5kg rammer			



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: 27/07/15



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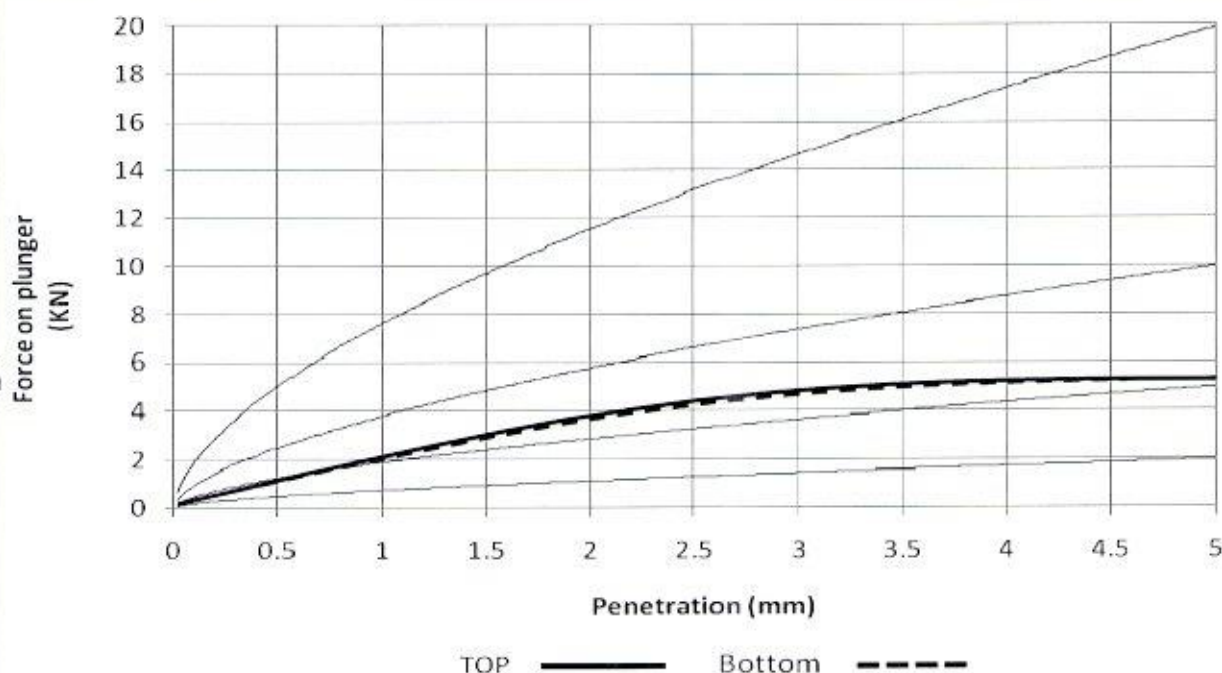
E: info@geosynthetics-lab.com W: www.geosynthetics-lab.com

Determination of California Bearing Ratio BS 1377: Part 4:1990

Contract Ref: Purbrook School Lane CRM.1033.019
Sample description: Brown slightly silty SAND
Client Sample ID: SA2 @ 0.50m

Report Ref. No: GS-CRM.019

INITIAL SAMPLE CONDITIONS		TEST CONDITIONS		Method of compaction:	
Moisture Content %:	16.0	Surcharge Kg:	13	Final Moisture Content %	Calculated CBR Value %
Bulk Density (measured) Mg/m ³ :	1.97	Soaking Time hrs:	-	Sample Top	16.0
Dry Density (measured) Mg/m ³ :	1.83	Swelling mm:	-	Sample Bottom	16.0
Percentage retained on 20mm BS test sieve:	-	Remarks: Tested in accordance with BS1377: 1990 Part 4 Sample preparation method 2.5kg rammer			



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: 27/07/15



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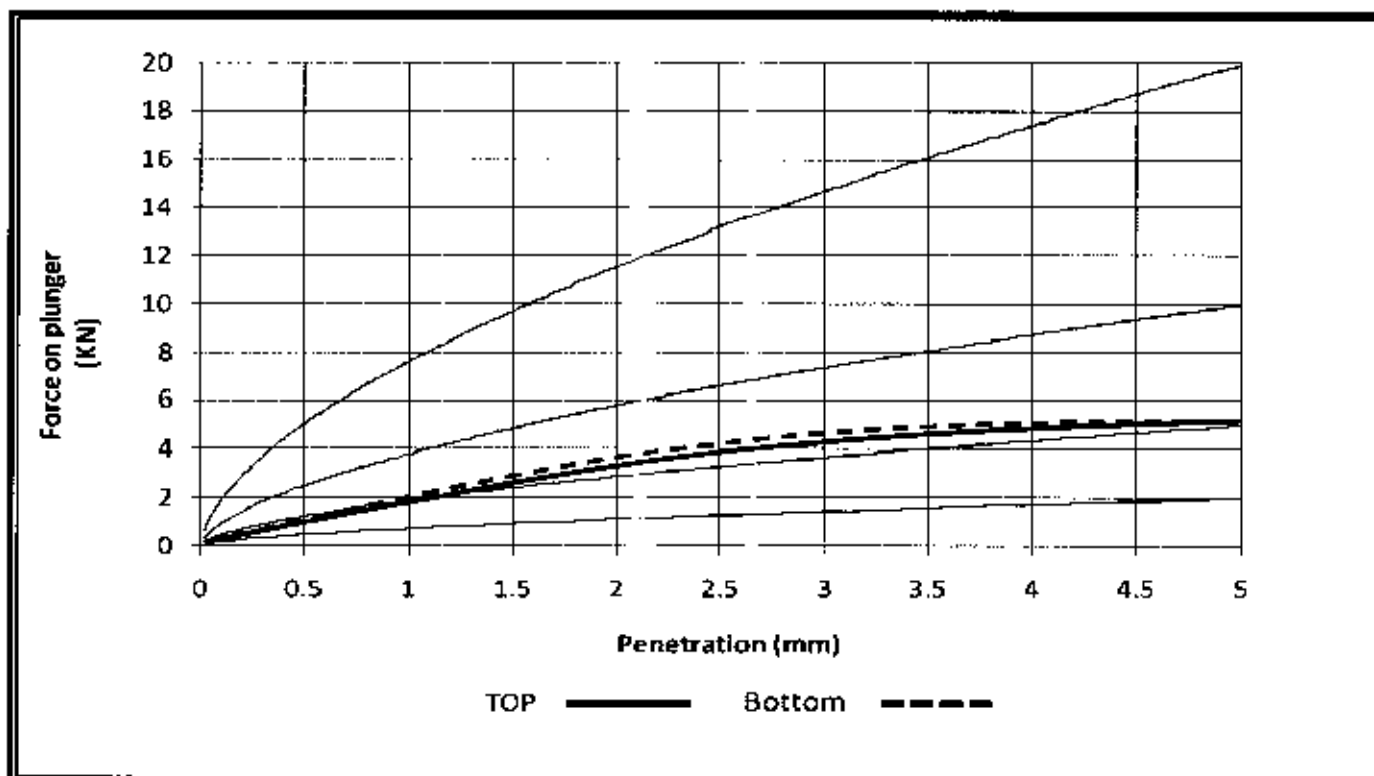
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Determination of California Bearing Ratio BS 1377: Part 4:1990

Contract Ref: Purbrook School Lane CRM.1033.019
Sample description: Brown gravelly silty clayey SAND
Client Sample ID: SA3 @ 0.50m

Report Ref. No: GS-CRM.019

INITIAL SAMPLE CONDITIONS		TEST CONDITIONS		Method of compaction:		2.5kg rammer
Moisture Content %:	18.0	Surcharge Kg:	13	Final Moisture Content %		Calculated CBR Value %
Bulk Density (measured) Mg/m ³ :	1.96	Soaking Time hrs:	-	Sample Top	18.0	CBR @ 2.5mm = 30.2 CBR @ 5.0mm = 26.2
Dry Density (measured) Mg/m ³ :	1.81	Swelling mm:	-	Sample Bottom	18.0	CBR @ 2.5mm = 31.2 CBR @ 5.0mm = 25.2
Percentage retained on 20mm BS test sieve:	-	Remarks: Tested in accordance with BS1377: 1990 Part 4 Sample preparation method: 2.5kg rammer				



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: 27/07/15



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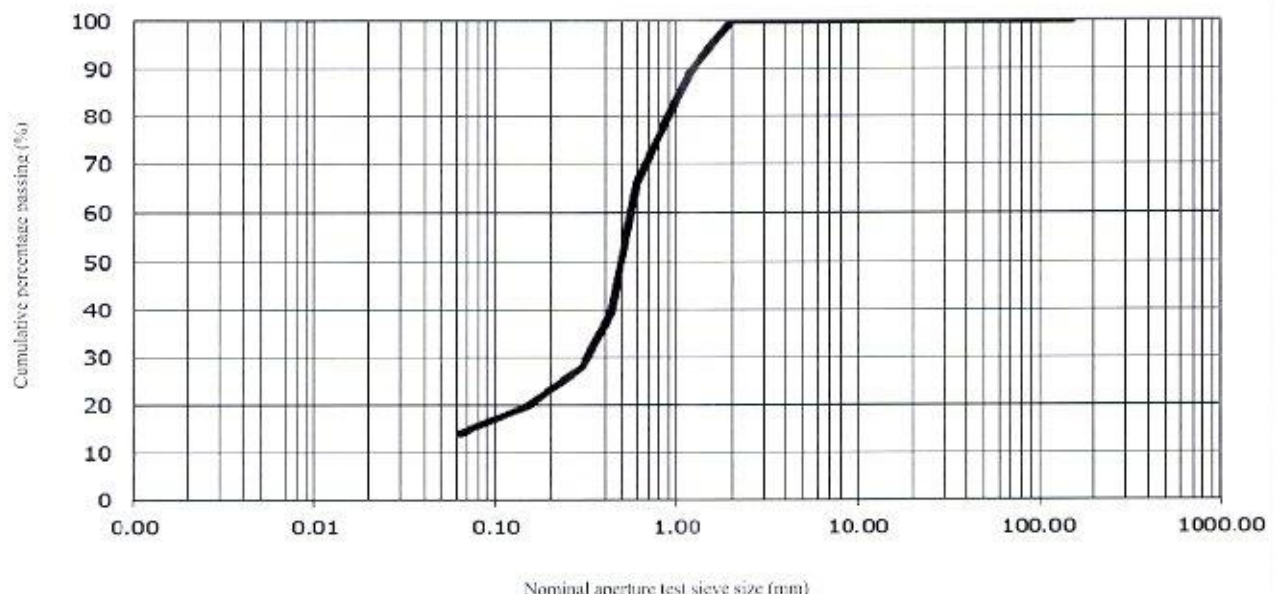
Determination of Particle Size Distribution (Dry Sieving)

Report Ref. No: GS-CRM.019

GSSL Sample ID: A1
Client ID: WS2 @ 1.00m
Client: Enzygo Ltd
Site: Purbrook School Lane CRM.1033.019
Date Sampled: N/A
Sampled from: -
Material Specification: N/A
Sample Description: Brown slightly silty SAND
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	100
40	100
37.5	100
28	100
20	100
14	100
10	100
6.3	100
5	100
3.35	100
2	100
1.18	89
0.6	66
0.425	39
0.3	28
0.15	20
0.063	14

Soil Fraction	Total Percentage
COBBLES	-
GRAVEL	-
SAND	86
SILT / CLAY	14



Sample Preparation: In accordance with BS 1377-1 & 2:1990

Certification:-

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Approved Signatory:

Date Reported: 27/07/15



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Determination of Particle Size Distribution (Dry Sieving)

Report Ref. No: GS-CRM.019

GSSL Sample ID: A2
Client ID: WS3 @ 2.00m

Client: Enzygo Ltd
Site: Purbrook School Lane CRM.1033.019

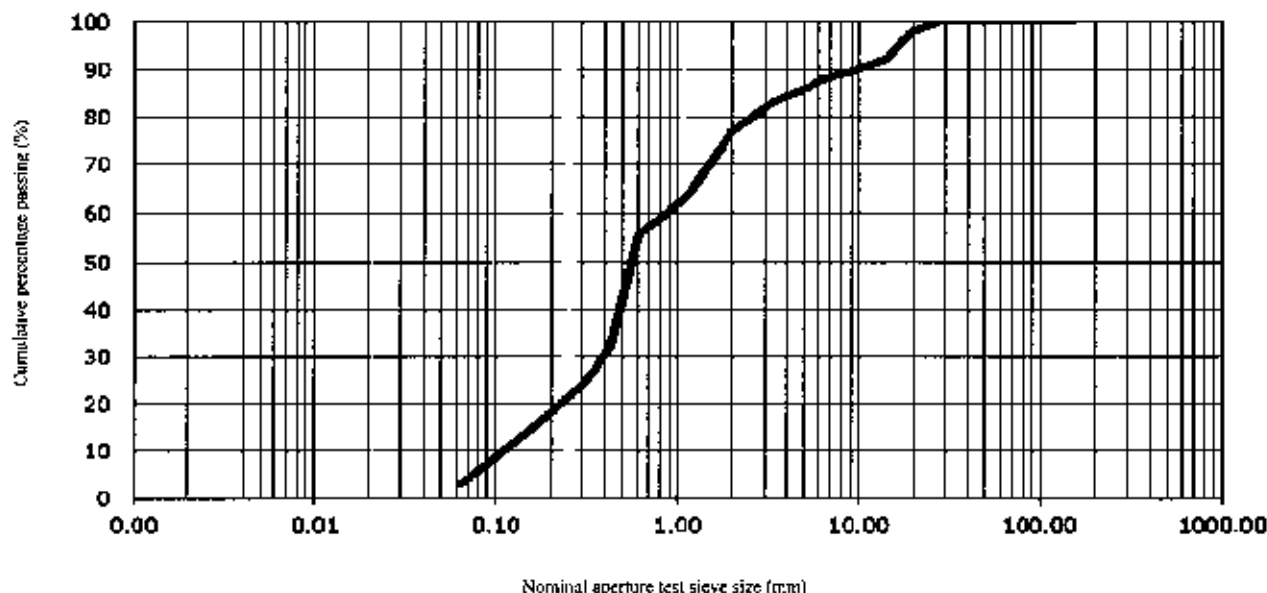
Date Sampled: N/A
Sampled from: -

Material Specification: N/A
Sample Description: Slightly silty very gravelly SAND
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	100
40	100
37.5	100
28	100
20	98
14	92
10	90
6.3	88
5	86
3.35	83
2	77
1.18	64
0.6	55
0.425	32
0.3	24
0.15	14
0.063	3

Soil Fraction	Total Percentage
COBBLES	-
GRAVEL	23
SAND	74
SILT / CLAY	3



Sample Preparation: In accordance with BS 1377-1 & 2:1990

Certification:-

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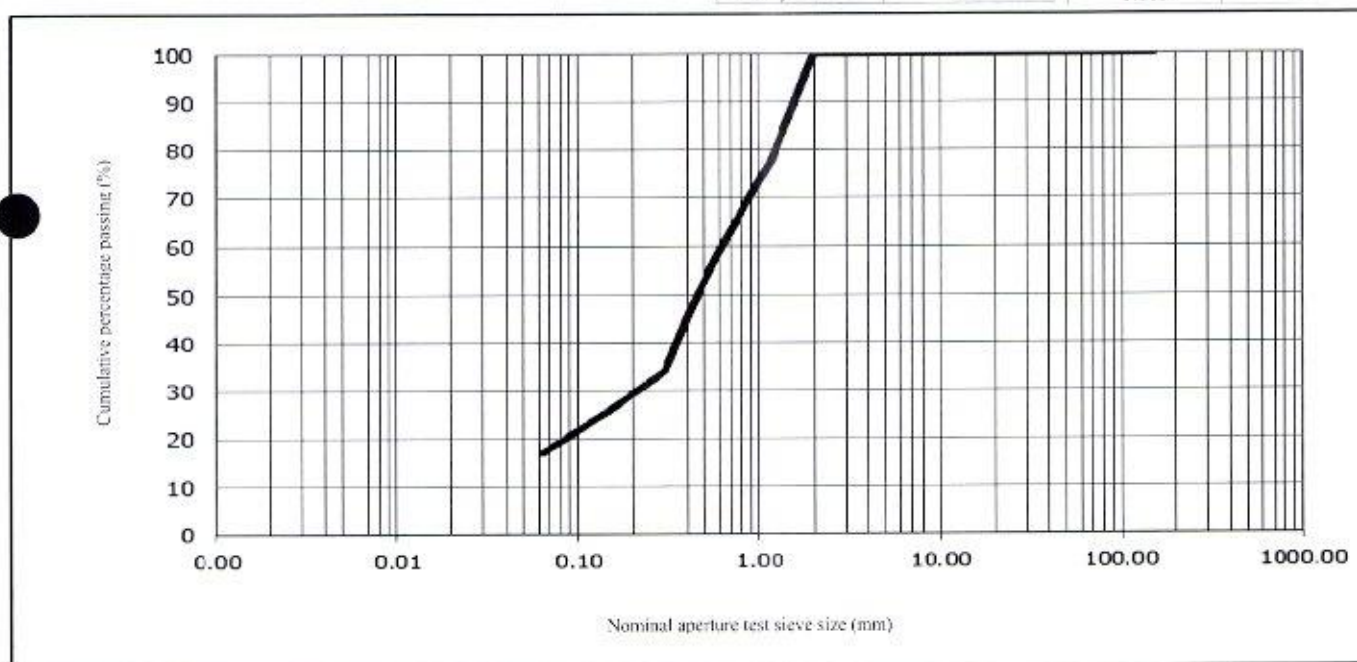
Determination of Particle Size Distribution (Dry Sieving)

Report Ref. No: GS-CRM.019

GSSL Sample ID: A3
Client ID: WS5 @ 2.00m
Client: Enzygo Ltd
Site: Purbrook School Lane CRM.1033.019
Date Sampled: N/A
Sampled from: -
Material Specification: N/A
Sample Description: Silty SAND
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	100
40	100
37.5	100
28	100
20	100
14	100
10	100
6.3	100
5	100
3.35	100
2	100
1.18	78
0.6	59
0.425	48
0.3	34
0.15	26
0.063	17

Soil Fraction	Total Percentage
COBBLES	-
GRAVEL	-
SAND	83
SILT / CLAY	17



Sample Preparation: In accordance with BS 1377-1 & 2:1990

Certification:-

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