

Report type:	Site Appraisal
Site:	Ashland Road, Sutton-in-Ashfield
Client:	David Wilson Homes – East Midlands
Ref:	GRM/P5946/F.1
Date:	December 2012

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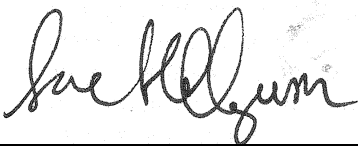
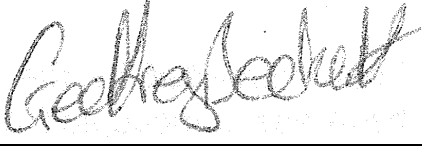

Phase I & II Site Appraisal
FOR
David Wilson Homes – East Midlands

Project Ref:
P5946

Date:
December 2012

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Site Appraisal for Ashland Road, Sutton in Ashfield

SUMMARY OF RECOMMENDATIONS

Where further assessment is required it is indicated with a "Y" in the right hand column		
Proposed Development	2-3 storey houses	
CONTAMINATION ASSESSMENT - REMEDIATION / WASTE DISPOSAL		
End Users	None.	
Site Workers	None required.	
Construction Materials	None required	
Groundwater	None required.	
Surface Water	None required.	
Waste Disposal (may include soils, asbestos, oil drums, chemical containers, etc)	Client has a duty of care to ensure that all waste is disposed appropriately to a licensed landfill. The landfill receiving the waste may request additional 'WAC' testing analysis. Waste characterisation can only be confirmed by the landfill site.	
GEOTECHNICAL ASSESSMENT – FOUNDATIONS		
Ground Treatment Required	None required.	
Main Bearing Strata	Clay / Rock.	
Nett Allowable Bearing Pressure	125 kN/m ² (Clay); >300kN/m ² (Rock).	
Tree Influence	Some.	
Volume Change Potential	Medium	
Likely Foundation Types	Strip/Trench Fill.	
Likely Foundation Depth Range	0.9m begl minimum, 2.8m begl maximum depths; average depth 1.5m begl.	
Excavation Hazards	Rock for deep drainage excavations and surface water.	
Floor Slab Types	70% in situ suspended, 30% beam and block.	
Gas Protection Requirements Radon and/or Landfill	Basic radon protection.	
GEOTECHNICAL ASSESSMENT - GENERAL		
Slope Stability Risk	Low at current gradients	
Soakaways Potential	Not suitable.	
New Access Roads	Observational CBRs 3% to 4% in clay soils.	
Buried Concrete Class	DS - 1; AC- 1s – GEN 1 to BS8500.	
Retaining Walls	Yes (proposed).	
Other Comments		

This summary is based on the full report that provides the detailed assessment of the ground risks affecting the development and how to manage them. It should not be used in isolation.

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1 INTRODUCTION

1.1 PREAMBLE

GRM Development Solutions Limited (GRM) has been appointed by David Wilson Homes East Midlands Ltd (Client) to undertake a Phase I & II Site Appraisal. The desk study and site inspection form Phase I of the assessment and allow the geotechnical and geo-environmental setting of the site to be determined and the identification of areas of particular concern that require targeted investigation. The Phase II works comprise the intrusive ground investigation, geotechnical testing and chemical analysis. The information gained from the Phase II works will be used to refine the conceptual model for the site and determine the most cost effective development solutions.

Although the desk study information was assessed prior to the intrusive investigation works, for ease of reading and efficiency, the Phase I and Phase II aspects of the appraisal are combined within this document.

This site appraisal is intended to provide information that will assist decision making by identifying and recommending solutions to ground engineering and contamination issues.

GRM Standard Limitations of Reporting are provided in Appendix A of this report.

The Client proposes to develop the site with 2-3 storey houses and associated infrastructure. The proposed end use includes gardens and soft landscaping.

1.2 OBJECTIVES OF THE SITE APPRAISAL

The principal aims of the Site Appraisal are as follows:

- a) Obtain information, from easily accessible sources, about the soil and groundwater conditions within the area of the site.
- b) Determine the possible ground related geotechnical and contamination hazards within the site boundaries that may affect the proposed development.
- c) Provide preliminary development recommendations.
- d) Provide advice on further works required for the cost-effective reduction of risks to the development and procedures likely to satisfy regulators.

Whilst every effort has been made to pre-empt the likely requirements of the Local Authority and the Environment Agency, they are likely to have specific requirements that will need to be discussed and addressed at a later date.

2 PHASE I DESK STUDY AND SITE OBSERVATIONS

2.1 INFORMATION SOURCES

In addition to the general sources of information listed in Appendix A (i) the client has supplied the following information that has been used in the assessment of the site:

- the location of the site.

2.2 SITE DESCRIPTION

2.2.1 Geographical Setting

The site is located approximately 1.6 Km west of Sutton-in-Ashfield town centre. The National Grid Reference (NGR) for the approximate centre of the site is SK 475 595. A Site Location and Boundary Plan are presented in Appendix B.

The site is presently two open fields and covers an area of approximately 9.75 hectares. The northern boundary is formed by a hedgerow separating the site from other fields, woodland and a pond. The western boundary is formed by residential properties, the southern boundary by Ashland Road West and adjacent residential properties and the eastern boundary by open fields and residential properties.

2.2.2 Site Inspection Observations

The salient observations made during a site inspection on the 22nd of October 2012 show that there is a steep, approximately 30° slope down into the site from the southern boundary. The angle of the slope decreases towards the north becoming a gentle slope by the boundary. The ground surface was waterlogged and uneven making for poor trafficability.

The boundaries of the site are formed by hedges and trees. The northern boundary comprises of immature trees including oaks. The southern boundary contains hawthorn and mature oak trees. The eastern and western boundaries contain mature deciduous trees including hawthorn, ash and willow. A north-south orientated hedge line, located approximately a third of the way across the site from the eastern boundary, contained hawthorn.

No services or structures were observed on site. A stream is present on the north western boundary of the site.

Significant Features identified during site inspection:
--

Trees bordering and present on the site – deepened foundations with cohesive strata.
--

Poor trafficability and drainage – site and construction constraints.

Steep slope – slope instability – low risk at current gradients.
--

Stream on site boundary – flood risk and receptor for contamination.
--

2.3 HISTORICAL DEVELOPMENT OF THE SITE

A review of the available historical Ordnance Survey (OS) maps gives an insight into the development of the site and can highlight potential hazards. Extracts of the maps reviewed are provided in Appendix C.

The earliest map reviewed (1879) shows the site to be open fields or farmland as part of "Siddal's Farm".

The area surrounding the site has two brick works located approximately 300m west and north east of site respectively. The map also indicates Brierley Hill colliery to be approximately 500m to the north east of the site. In 1899 work ceased at the brick works to the north east of site. There is also extensive residential development approximately 100m south west of site.

There is no change until the 1950 map where the western brick works is disused and the clay pit is potentially backfilled. The old clay pit 300m north east of site is now part of Sutton Colliery. To the south west of the site large scale residential development has occurred together with the construction of a hosiery factory.

The 1967 map shows the presence of a wall adjacent to the western boundary and the site is shown with the current field boundaries.

The 1973 map shows an overhead electricity cable crossing the western portion of the site from north to south. The stream on the north western boundary now terminates in a large pond located approximately 150m to the north east of the site. The pond is located by the spoil heaps associated with Sutton Colliery.

The 1989 map shows the pond indicted on the 1973 map to have been covered over by spoil heaps from Sutton Colliery. The spoil heaps now extend to be 50m from the sites northern boundary. A drain is shown running along the sites southern boundary.

The 2002 map shows the colliery spoil heaps to have been developed as woodland. The 2012 map does not show the drain or the electricity cables crossing the site. The map does show a new pond located approximately 50m to the north of the site, into which the stream on the north western boundary terminates.

The hazards identified are summarised in the table below.

Significant Features identified on OS Maps:
Sutton Colliery – potential subsidence from mine workings.
Stream and pond – potential receptors for contamination.
Infilled brick pits – potential source of ground gasses, risk assessed as being low.
Electricity line and drain – potential substructures and obstructions.
Drain, stream and pond – risk of flooding.
Drain, well and stream – shallow groundwater – receptor for contamination and construction hazard.
Made ground (colliery spoil) and associated with previous structures – source of contamination.
Site use as farmland – potential presence of pesticide contamination.
Adjacent Hosiery factory – potential source of contamination.

2.4 ANTICIPATED GEOLOGY

The BGS Geological Sheet for this area shows there to be no superficial deposits on site. Whilst not indicated to be present, alluvium associated with the boundary stream could impinge on the site, as could made ground associated with adjacent development, including colliery spoil.

The geology of the site area predominantly consists of solid geology of the Cadeby Formation, which generally comprises of calcareous mudstone. However a small section in the north west of the site comprises of Pennine Middle Coal Measures (mudstone, sandstone and siltstone) underlying the Cadeby Formation.

The BGS holds borehole records close to the site, copies of which are presented in Appendix E. The BGS boreholes suggest superficial deposits to approximately 1.8m depth overlying Pennine Middle Coal Measures. The borehole log confirms the strata recorded by the geological mapping as being Pennine Middle Coal Measures. Thin coal seams of uneconomic thickness were encountered at various depths.

The site is not indicated to be directly affected by faulting; the nearest indicated fault being 360m to the north east.

Significant Features identified from geological data:
--

Coal Measures strata and colliery – potential deep coal mine workings and subsidence.

Variable strata – deepened foundations.

Cohesive strata with trees – deeper foundations.
--

2.5 HYDROGEOLOGICAL INFORMATION

No detailed information regarding the depths to groundwater is available; however, the groundwater level is likely to be subject to seasonal variations.

The Environment Agency has classified the underlying strata (Cadeby Formation) as a Principal aquifer and the Pennine Middle Coal Measures as a Secondary A aquifer.

A groundwater abstraction license is recorded 98m to the west. The abstraction is described as being process water abstracted from a well. The site is not recorded to be within a Groundwater Source Protection Zone.

Significant Features identified from hydrogeological data:

Principal and Secondary A aquifer – controlled water receptors.

Groundwater Abstraction point – controlled water receptor.
--

2.6 HYDROLOGICAL INFORMATION

Local surface water features include:

- The stream located on the north western boundary which flows to the north east.
- A large pond located approximately 50m to the north of the site.

A surface water abstraction point is recorded for the stream on the north western boundary, the water being used in the adjacent Brierly Forest Park, formed through the development of the colliery spoil heaps. The site is however not indicated to be within a source protection zone.

The site is not within 250m of an indicative fluvial floodplain and the Environment Agency's Internet based flood risk maps suggest there is no risk from river flooding. A flood risk assessment is required for sites over 1ha.

Significant Features identified from hydrological data:
--

Stream and pond – controlled water receptors. Flood risk assessment required due to size of site.
--

2.7 MINING AND QUARRYING

The site is in an area likely to be affected by coal mining activity.

The Coal Authority report presented in Appendix F states that the site is within the likely zone of influence from workings in six seams of coal at depths of between 170m to 520m, last mined in 1956.

The Coal Authority report states that movement associated with these workings should have ceased. There are no recorded mine entries and the site is not located within an open cast boundary. The Coal Authority do not state that the site is in an area where unrecorded mine workings could be present. The risk from coal mining is therefore assessed as being negligible.

There is no evidence of non coal mineral extraction having taken place within 250m of the site. There is not considered to be a significant risk posed by non coal mineral extraction.

Potential Mining Hazards:

None.

2.8 ENVIRONMENTAL INFORMATION

An Environmental Report has been acquired for the site, the full report is presented in Appendix G. There are no significant features within influencing distance of the site not identified elsewhere in this report.

Significant Features identified from Environmental data:

None.

2.9 INVASIVE PLANT SPECIES/ECOLOGY

GRM is not a specialist in this topic and has not conducted such a survey; however, we will endeavour to report easily recognisable issues such as Japanese Knotweed, Giant Hogweed, badger sets etc, when seen on site. No such issues were observed during the walkover; however, a survey by an ecological specialist will be required to confirm this.

Invasive Plant Species/Ecological Hazards:
None identified.

2.10 RADON ASSESSMENT

The site has been assessed following the guidelines in 'Radon: guidance on protective measures for new dwellings'(BR211 2007). The site is within an area recorded to require BASIC radon protection measures.

Radon Hazard:
Basic Radon protection measures required.

2.11 CONTAMINANTS OF CONCERN

In addition to the general contaminants listed in Appendix A (ii), the following site specific contaminants have been identified:

- Pesticides in soil associated with long term land use as farmland.

2.12 SUMMARY OF POTENTIAL GEOTECHNICAL/GENERAL HAZARDS

Potential geotechnical/general hazards have been identified in earlier sections and are summarised below.

Potential Hazard	Potential Consequence	Action
Rutting/softened surface strata	Poor trafficability	Possible need to improve near surface strata
Variable strata	Deepened foundations	Ground investigation
Shrinkable clay/trees	Deepened foundations	Ground investigation plasticity testing/tree survey
Shallow groundwater	Unstable excavations	Ground investigation
Made ground and obstructions from previous development on and adjacent to site	Deepened foundations	Ground investigation

Potential sources, pathways and receptors are summarised in the Phase I conceptual model in Section 3.

3 PHASE I CONCEPTUAL MODEL

The conceptual model has been drafted following the current relevant guidance the principles of which are set out in Appendix A (iii).

3.1 POTENTIAL SOURCE – PATHWAY – RECEPTOR

The site comprises open fields and in general has only been used as farmland. The risk of significant contamination being present is assessed as being negligible due to the lack of significant development or previous contaminative land uses.

Potential contaminants of concern for the whole site include those listed in Section 2.11 and Appendix A (ii).

The development proposals include 2-3 storey houses with areas of hard standing (e.g. car parking) and areas of soft landscaping including domestic gardens.

The primary human health receptors are end users of the completed development and construction workers. The primary pathways of concern include dermal contact with contaminated soil and soil dust, the ingestion of contaminated soil and soil dust, ingestion of vegetables that have taken up the contamination, indoor and outdoor inhalation of ground gas and soil vapours, and migration of contamination into water supply pipes.

For controlled waters, receptors for the site include the primary and secondary A aquifers, the adjacent stream and the pond. For assessment purposes the Primary Aquifer of the Cadeby Formation is considered to be the primary receptor. The primary pathways of concern are leaching of contaminants and vertical migration to the groundwater.

For construction materials, the primary receptors are water pipes and buried concrete. The primary pathways of concern are the migration of contamination leading to degradation of pipe materials and sulphate and/or acid attack on buried concrete.

The pollutant linkage model is illustrated in detail on the following page.

3.2 PHASE I CONCEPTUAL SITE MODEL

HUMAN HEALTH			
Source	Pathway	Receptor	Solution
Potentially pesticide contamination associated with farming activities.	Indoor and outdoor inhalation of ground gas and soil vapours, the ingestion of contaminated soil and soil dust, and dermal contact with contaminated soil and soil dust.	End users and construction workers.	Soil capping or removal of contaminated soils.
Made ground from previous and adjacent development.	Indoor and outdoor inhalation of ground gas and soil vapours, the ingestion of contaminated soil and soil dust, and dermal contact with contaminated soil and soil dust.	End users and construction workers.	Soil capping or removal of contaminated soils.
Natural strata producing Radon.	Inhalation of ground gasses.	End User.	Gas protection measures.
CONTROLLED WATERS			
Potentially contaminated ground associated with pesticide use on farmland.	Leaching of contaminants and vertical migration to the groundwater.	Principal Aquifer.	Assessment of groundwater quality and, if required, subsequent risk assessment and remediation.
Made ground from previous and adjacent development.	Leaching of contaminants and vertical migration to the groundwater.	Principal Aquifer.	Assessment of groundwater quality and, if required, subsequent risk assessment and remediation.
CONSTRUCTION MATERIALS			
Elevated levels of sulphate and/or acidic ground conditions.	Direct contact.	Buried concrete.	Appropriate concrete specification.
Potential pesticide contamination associated with farming activities and made ground on site.	Migration of contamination through leaks and joints, degradation of pipe materials.	Water pipes.	Upgraded water pipes/clean backfill material.

4 PHASE II GROUND INVESTIGATION

4.1 FIELDWORK

The ground investigation has been designed in accordance with the general comments outlined in Appendix A (iv).

A total of 52 exploratory holes were undertaken, to a maximum depth of 3m begl. The exploratory hole location plan and exploratory hole logs are presented in Appendix H and Appendix I respectively.

The ground investigation fieldwork was conducted on the 22nd – 24th October 2012 with groundwater/gas monitoring visits continuing after that period.

Samples not used for testing will be stored for a month after issue of this report and then disposed of, unless the client requests in writing that they be kept.

Ten gas and water monitoring standpipes were installed during the site works, the rationale for these works are discussed fully in Section 5.

4.2 PROVEN GROUND

The following ground conditions were encountered during the investigation fieldwork:

- Topsoil
- Cadeby Formation and Pennine Middle Coal Measures (Solid Strata)

4.2.1 Topsoil

Topsoil was encountered as a slightly sandy silty clay in most holes, ranging in thickness from 0.15m to 0.3m, generally being 0.25m to 0.3m in thickness.

4.2.2 Solid Strata

In terms of geotechnical behaviour most solid strata are rocks, although some have remained as, or have become, soil (the latter as part of the weathering process). The solid strata at shallow depths beneath this site are representative of a soil (of weathered rock), becoming less weathered with depth until they are a rock. The weathered rock will have the geotechnical characteristics of a soil.

Cadeby Formation

The Cadeby formation was observed in all exploratory holes, being present beneath the topsoil. It comprised of a weathered zone to approximately 2.5m begl, being a firm clay which becomes stiff and very stiff with depth. The clay contains gravel of mudstone, sandstone and dolerite, produced through the weathering of the solid strata. At approximately 2.5m the weathered zone ends and solid (rock) strata is encountered, comprising of very weak to weak mudstones, sandstones and siltstones.

Pennine Middle Coal Measures

These deposits were encountered in only two of the exploratory holes; TP4 and TP12, both located on the north western boundary. The strata was present beneath the Cadeby Formation at depths of 1.1m and 1.5m respectively and comprised of orange brown silty sand and gravel including angular to sub-angular fine to coarse sandstone and occasional sandstone cobbles. In TP4 at 1.7m the weathered zone finished and a very weak sandstone with thin clay bands was encountered.

4.3 GROUNDWATER

Groundwater seepage was observed in some of the exploratory holes, being TP 1 - 4, 10 -12, 15, 18, 21, 23, 37, 40 – 41, and 44, at depths of between 0.25m and 3m, but generally at 2.5m at the interface between the weathered and solid strata.

The results of monitoring are reported in Appendix J. In summary standing water was recorded at depths of 0.73m begl to 2.75m begl. During the monitoring visits carried out to date, and during the ground investigation, the site suffered from standing water and poor trafficability.

The groundwater encountered during the investigation is considered to be from perched volumes at the junction of the weathered and solid strata of the Cadeby Formation or due to the presence of surface water across the site. The recorded water levels are not considered to be representative of the regional groundwater table. The groundwater in the underlying aquifer is not likely to be in hydraulic continuity with the observed groundwater.

4.4 CONTAMINATION OBSERVATIONS

No visual or olfactory evidence of potential contamination was encountered during the fieldwork and monitoring.

4.5 GROUND GAS

Ground gases are discussed in full in Section 5, in summary methane levels of up to 0.0%v/v, carbon dioxide of up to 3.4%v/v and oxygen as low as 14.9%v/v have been recorded. A maximum flow of 0l/hr was noted during the monitoring completed to date.

4.6 SUMMARY OF FIELDWORK OBSERVATIONS

The fieldwork has revealed/confirmed the following potential hazards, receptors and sources that were not identified during the desk study, but which should be included when assessing the site.

Significant Features identified during fieldwork

None.

4.7 LABORATORY ANALYSES RATIONALE

4.7.1 Chemical Laboratory Analysis

Chemical laboratory analyses were selected to provide the parameters necessary to make an initial assessment of potentially contaminated soils and/or waters, for the budgetary design of the development. The choice of contamination testing was based on the Phase I assessment, identified past uses of the site and site observations. The chemical analysis comprised:

- 10 samples for a general suite of contaminants (metals, inorganics and speciated PAH).
- 5 leachate samples for a general suite of contaminants.
- 2 water samples for a general suite of contaminants.
- 10 samples have been screened for the presence of pesticides.

pH and water soluble sulphate testing was conducted as part of the chemical analysis suite to determine how aggressive the ground and/or waters are to buried concrete.

The chemical analysis results are presented in Appendix K.

4.7.2 Geotechnical Laboratory Testing

Geotechnical soils testing has been undertaken as part of the ground investigation including the following:

- 9 Atterberg Limits (PI) classification.
- 9 water soluble sulphate testing.

Geotechnical tests were selected to provide the parameters necessary for the budgetary design of the development including foundations and infrastructure. The geotechnical test results are presented in Appendix L.

5 QUANTITATIVE RISK ASSESSMENT – HUMAN HEALTH (GROUND GAS)

The gas risk assessment methodology used by GRM is outlined in Appendix A (v).

As the proposed land use is classed as high (residential with gardens) sensitivity, 10 gas/water monitoring standpipes have been installed across the site (WS1-10). The 35mm standpipes have been installed in window sampling boreholes with response zones targeted at the natural strata.

As the gas hazard is considered to be low (limited organic clay) the monitoring programme will comprise six visits over three months. Therefore, only an initial assessment of the local gas regime has been undertaken at this stage and further visits will be required to complete the monitoring program. A separate gas addendum letter report will be issued following the completion of the full monitoring program.

The gas monitoring has been undertaken using a LMSxi Multifunction Gas Analyser. Gas monitoring is currently on-going and a complete assessment of the ground gas regime will be reported at a later date. The gas monitoring results to date, are presented in Appendix J. In summary methane levels of up to 0.0%v/v, carbon dioxide of up to 3.4%v/v and oxygen as low as 14.9%v/v have been recorded. A maximum flow rate of 0l/hr was noted during the monitoring completed to date

The results suggest that there is not a significant source of ground gas on or within influencing distance of the site.

For this site, as the development is residential and is likely to include a number of different floor types, the risk from ground gases has been assessed using both 'Situation A' and 'Situation B'.

Using a default borehole flow rate of 0.1l/hr and the maximum methane concentration of 0%v/v, a GSV of 0l/hr has been calculated for methane. Using the same borehole flow rate the maximum carbon dioxide concentration of 3.4%v/v equates to a GSV of 0.0034l/hr. Therefore, the site has been assessed as 'Characteristic Situation 1' or 'Traffic Light Green as outlined CIRIA C665.

Therefore, it is considered that gas protection measures for methane or carbon dioxide are not required for the proposed development.

It should be noted that basic radon protection is required though to protect the end user. These should comprise of a minimum 1200 gauge DPM extended across the cavities and sealed service entries. It should be noted that GRM would normally recommend a minimum 2000 gauge DPM in this situation.

6 QUANTITATIVE RISK ASSESSMENT – HUMAN HEALTH (SOIL)

6.1 INTRODUCTION

The proposed development comprises 2 to 3 storey houses.

The fieldwork has not revealed any significant potential contamination on this site, accordingly testing for pesticides has been carried out to assess the risk from the previous land use. A general suite of testing has also been used to provide parameters for the reuse of soils. Representative samples of topsoil were therefore collected for potential testing.

The rationale for the end use specific SGV/TAC used by GRM is outlined in Appendix A (vi) for this site the chemical analysis results are being compared against the TAC for residential end use with plant uptake with a Soil Organic Matter content of 6%

6.2 RISK TO END USERS

The chemical analysis results are presented in Appendix K.

6.2.1 Analysis of Soil Contamination Data

No pesticide contamination was recorded by the laboratory testing.

A hotspot of Benzo(a)pyrene was recorded in TP2 @ 0.1- 0.25m, the concentration of 1.2mg/kg slightly exceeding the threshold for residential land use with plant uptake (1mg/kg).

Due to the lack of previous contaminative land uses and made ground on site, the lack of other elevated concentrations of Benzo(a)pyrene, and the only slight exceedance, the hotspot in TP2 is considered to be very small in size, and to not pose a significant risk to the end user of the site, particularly after development has occurred. The process of development will include the stripping of the topsoil and its relaying at a later time, effectively diluting the hotspot to acceptable concentrations.

Remedial works with respect to Benzo(a)pyrene contamination are not considered to be necessary.

6.2.2 Summary of Risk to End Users

In summary the risk to end users from soil contamination is considered to be negligible.

As outlined in Section 5 there is considered to be a low risk to end users from radon.

6.3 RISK TO SITE WORKERS

The investigation has not revealed any specific risk to site workers; however, the general comments outlined in Appendix A (vii) should be considered when site specific risk assessments are completed.

7 QUANTITATIVE RISK ASSESSMENT - CONTROLLED WATERS

The methodology, rationale and guidance GRM have used to assess the risk to controlled waters is set out in Appendix A (viii).

7.1 ASSESSMENT OF THE CHEMICAL ANALYSIS RESULTS

The results of the soil leachate and groundwater testing are presented in Appendix K; these have been compared against the UKDWS values presented in Appendix M.

Recorded concentrations of almost all contaminants are below the relevant threshold; however, the following were recorded at levels in excess of the relevant UKDWS values:

- Arsenic - Recorded concentration of 47.6ug/l in the water sample taken from WS1 exceeded the UKDWS of 10ug/l.
- Copper - Recorded concentrations of 167ug/l in the water sample taken from WS1 and 34.5ug/l in the water sample taken from WS9 exceeded the UKDWS of 50ug/l.
- Nickel - Recorded concentration of 25.8ug/l in the water sample taken from WS1 exceeded the UKDWS of 20ug/l.
- Lead - Recorded concentration of 67.7ug/l in the leachate sample taken from TP21 exceeded the UKDWS of 10ug/l.

The results of the testing indicate the presence of slightly elevated concentrations of some contaminants within the perched groundwater of the site. However as these contaminants are not present in elevated concentrations within the leachate samples, and no significant sources of contamination are present on site, the contaminants within the water samples are not considered to be representative of actual site conditions.

In the absence of an on site source of contamination, the site is not considered to pose a risk to controlled waters, and no remediation is required.

7.2 SUMMARY OF RISK TO CONTROLLED WATERS

The risk to the controlled waters has been assessed as being negligible, and no remediation is required.

8 QUANTITATIVE RISK ASSESSMENT - CONSTRUCTION MATERIALS

The methodology, rationale and guidance GRM have used to assess the risk to construction materials is set out in Appendix A (ix).

8.1 WATER SUPPLY PIPES

The recorded concentrations of contaminants do not exceed the acceptable levels listed in the UKWIR documentation. The contaminant concentrations recorded are such that standard PE/PVC pipes placed in clean backfill will be suitable for the development.

The local utility should be contacted to determine its exact requirements in respect of the levels of contamination encountered.

8.2 BURIED CONCRETE

Based on the recorded water soluble sulphate and pH levels in the soils and groundwater below the site and assuming static groundwater conditions, in accordance with requirements of BRE Special Digest 1 (2005), 'Concrete in Aggressive Ground', the Design Sulphate Class for buried concrete at the site should be assumed as DS-1 and the ACEC Class as AC-1s. This equates to GEN 1 concrete for unreinforced foundations greater than 450mm in width to BS8500.

The results of the water soluble sulphate and pH testing of are presented in Appendices K and L.

9 PHASE II CONCEPTUAL MODEL

9.1 SOURCE – PATHWAY – RECEPTOR

The intrusive investigation has revealed that the natural soils across the site are not contaminated. Gas monitoring has been undertaken and no elevated concentrations have been recorded.

Development proposals are assumed to comprise residential houses and/or apartments with areas of hardstanding (e.g. car parking) and domestic gardens.

The primary human health receptors are end users of the completed development and construction workers. The pathways of concern include dermal contact with contaminated soil and soil dust, the ingestion of contaminated soil and soil dust, ingestion of vegetables that have taken up the contamination, indoor and outdoor inhalation of ground gas and soil vapours.

For controlled waters, the primary receptor for the site has been confirmed as the Primary Aquifer underlying the site. Soil leachate and groundwater test results confirm that the site does not form a source of contamination which can affect controlled waters.

The concentrations of contaminants on site are such that upgraded water pipes are not considered to be necessary. Specifications for buried concrete have been made in light of the reported pH and water soluble sulphate concentrations.

Considering the above, it is considered that the site poses a negligible risk to controlled waters and construction materials. The site poses a low risk to the end user through the presence of radon.

The pollutant linkage model is illustrated on the following page.

9.2 PHASE II CONCEPTUAL SITE MODEL

HUMAN HEALTH			
Source	Pathway	Receptor	Solution
No contamination identified.	Indoor and outdoor inhalation of ground gas and soil vapours, the ingestion of contaminated soil and soil dust, and dermal contact with contaminated soil and soil dust.	End users and construction workers.	None required.
Potentially elevated concentrations of radon.	Inhalation.	End users.	Gas protection measures.
CONTROLLED WATERS			
No contamination identified.	Leaching of contaminants and vertical migration to the groundwater.	Principal Aquifer.	None required.
CONSTRUCTION MATERIALS			
No contamination identified.	Migration of contamination through leaks and joints, degradation of pipe materials.	Water pipes.	None.
Elevated levels of sulphate and/or acidic ground conditions.	Direct contact.	Buried concrete.	Appropriate concrete specification.

10 REMEDIATION

10.1 RECOMMENDED RISK REDUCTION AND REMEDIAL MEASURES

10.1.1 Protection of End Users

Based on the recorded levels of contamination across the site remediation is not required to protect end users of the proposed residential development.

Should any material suspected of being significantly contaminated be encountered during the redevelopment of the site, GRM can be contacted to undertake additional investigation if necessary. The local Environmental Health Officer should be contacted and informed of any additional remedial work required.

10.1.2 Protection of Site Workers

The risk to site workers from the soil contamination is negligible and no remedial measures are required. The use of suitable PPE should be enforced during the ground works stage of construction.

10.1.3 Protection of Controlled Waters

The risk to controlled waters is negligible and no remedial measures are required.

10.1.4 Protection of Construction Materials

No remedial measures are anticipated for water pipes, however the local water authority should be consulted to confirm this.

There is no risk to buried concrete, and accordingly no specific protection is required.

10.2 POST REMEDIATION VALIDATION

No remediation or validation is required.

10.3 REMEDIATION METHOD STATEMENT

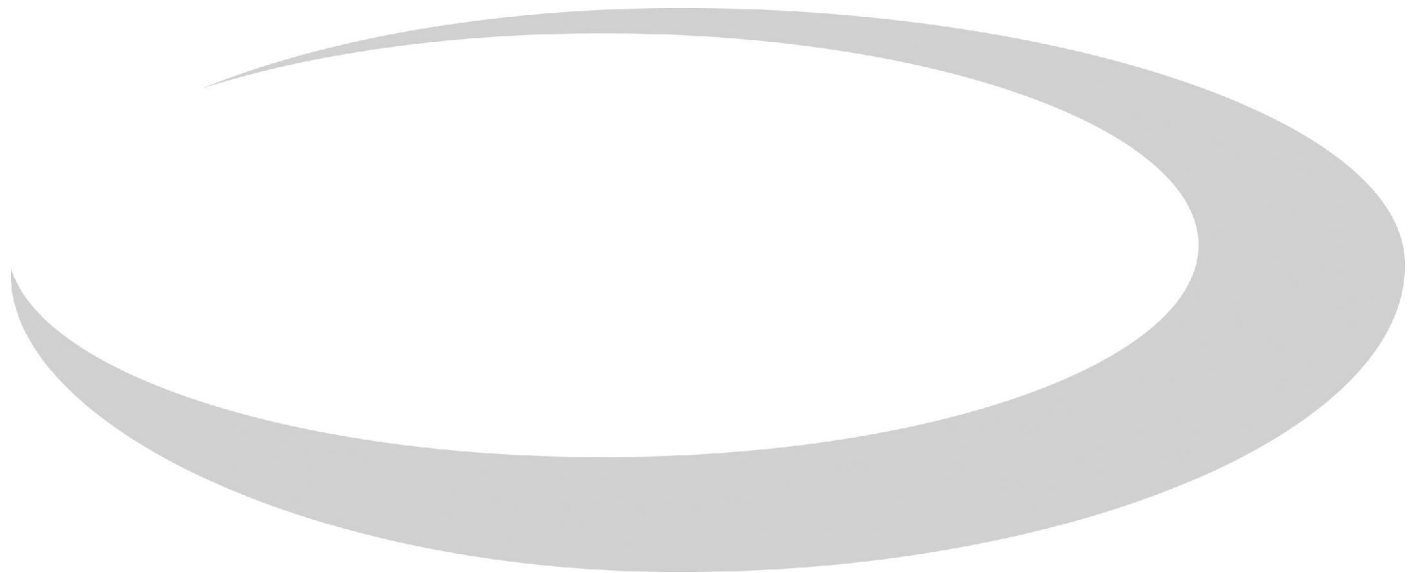
No remediation or remediation method statement is required. Following your review of this document, we would recommend that a copy of it be forwarded to the Local Authority for comment and approval, prior to commencing development of the site. The Local Authority may choose to include other consultees as part of the planning process (such as the Environment Agency).

Consultation should be undertaken at the earliest possible opportunity to avoid abortive or delayed works.

10.4 DISPOSAL AND CLASSIFICATION

Based on the chemical analysis results currently available it is considered the any material removed from site will be classed as Inert; however, this assessment will

need to be confirmed by the receiving landfill and reference should be made to the relevant notes presented in Appendix A (x).



11 GEOTECHNICAL ASSESSMENT

11.1 INTRODUCTION

Detailed development plans were not available at the time of report preparation so it has been assumed in the following assessment that the development will be in line with current planning guidance and comprise two to three storey residential housing and three to four storey apartment blocks.

In addition to the site specific comments below reference should be made to the general comments relating to the Geotechnical Assessment listed in Appendix A (xi to xvi).

11.2 ENGINEERING GROUND TREATMENT

Engineering ground treatment is not considered necessary. Although the site will prove difficult to traffic in wet weather.

11.3 EXCAVATION CONDITIONS

Excavation of the materials encountered during the ground investigation should be easily achieved using conventional hydraulic excavation techniques. A breaker may be required for deeper excavations in the less weathered mudstones and sandstone, as the machine used for trial pitting was struggling to excavate past 2.8m bgl.

From the ground investigation undertaken, it is likely that excavations will be generally stable in the short term.

It is considered unlikely that dewatering will be required for shallow short-term excavations. The observed groundwater conditions suggest that only simple dewatering techniques (e.g. sump pumping) will be needed to control water ingress.

11.4 EXISTING STRUCTURES / SUBSTRUCTURES

There are no existing structures on the site. There may be old foundations or other buried structures from the previous site use that have not been identified from this investigation.

11.5 FOUNDATIONS

Foundations must not be founded in made ground, buried topsoil or soft natural strata, all of which should be fully penetrated by all new foundations.

The shallow strata noted during the investigation are considered suitable in their current condition for the proposed structures to found on. The natural cohesive soils encountered, at anticipated foundation depths, were generally at least firm, rapidly becoming stiff with depth. It is anticipated that a nett allowable bearing pressure of at least 125kN/m² should be available for conventional strip or trench fill footings at minimum founding depth. This will allow line loads up to 56kN/m to be taken on footings 450mm wide and 75kN/m on footings 600mm wide. This should result in total

settlements of not more than 20mm, keeping differential settlements within acceptable limits.

Wider footings may be required for higher point/line loads such as at party walls etc. Should wider footings be required for higher point/line loads, GRM should be contacted for further advice.

The soils below the site are of moderate volume change potential (see Appendix L). As a result foundations will need to be designed accordance with NHBC Standards Chapter 4.2 'Building near trees'.

Heave precautions will be required where the foundations lie within the heave zone of trees as defined in NHBC Standards Chapter 4.2. Foundations should be remote from the direct action of tree roots, and should not be constructed so close to trees as to significantly damage their root systems.

It is an NHBC requirement that conventional foundations deeper than 2.5m are designed by an Engineer or a deeper foundation technique such as piling is used. Such design can not be started until a tree survey and proposed site levels are available and could involve detailed desiccation testing to prove safe foundation depths. However, at this stage it is estimated that 30% of the site will have deepened foundations due to trees.

Shallow rock will ensure foundations do not have to be deepened more than 2.8m begl.

At this stage, it is considered that deep strip or trench fill foundations 150mm into the firm Cadeby Formation clay will be suitable for the majority of the proposed development. Minimum foundation depths of 0.9m will be applicable.

Due to the presence of trees across the site, foundation depths of up to 2.8m should be expected. However, the general depth of foundations is likely to be 1.5m begl.

Once the development plan and levels have been finalised, consideration should be given to the most appropriate foundation solution, taking into account removal of old substructures, stability of the strata and proximity to boundaries/services/roads/ existing structures. However, at this stage it is considered that all plots will be trench fill.

11.6 FLOOR SLABS

From site observations, shallow strata are likely to become heavily disturbed by construction activities (especially during inclement weather). It is considered that in excess of 600mm of unsuitable material will be present below floor slabs following site preparation/regrading. Therefore suspended floor slabs will be required across all of the site.

A suspended floor system incorporating a sub-floor void, such as beam and block, will be required for all properties where the foundations lie within the heave zone of trees as defined by NHBC Standards in Chapter 4.2 or where seasonally desiccated soils are present at the time of construction.

Basic radon protection measures are required. No gas precautions for methane or carbon dioxide are currently required. GRM's gas monitoring program is still ongoing and the results of this, together with any recommendations for the use of gas precautions will be issued in an addendum letter report at the end of the monitoring period.

Given the ground conditions and the current ground gas regime, it is anticipated that 70% of plots will be cast in-situ suspended and 30% will be beam and block.

11.7 SLOPE STABILITY AND RETAINING STRUCTURES

The site slopes to the north, generally at a shallow angle, although locally moderately steep slopes are present at the southern boundary. At current gradients there is not considered to be a risk of slope instability occurring.

Grading of the site and cut and fill operations may cause instability and failure to occur.

The present gradients on site are likely to be adjusted by minor earthworks. Future ground profiles may require earth retaining structures, for which further advice may be required when more information is available.

11.8 SOAKAWAY DRAINAGE

The strata encountered during the investigation are not suitable for soakaway drainage and an alternative drainage system should be considered for the disposal of surface water.

11.9 NEW ACCESS ROADS

Site observations suggest that natural cohesive materials will have CBR values of between 3% and 4%, when suitably drained. Proof rolling and the improvement of soft spots may result in increased CBR values and the incorporation of a geotextile grid into sub-base layers may allow for reduced capping thickness.

Site observations should be confirmed by in situ or laboratory testing in accordance with the adopting Local Authority's preference.

12 FURTHER INVESTIGATION

Further investigation, to determine more accurately the effect of some of the identified hazards on the development, is recommended. This includes the following:

- A tree survey to enable a foundation design to be prepared in accordance with NHBC Standards Chapter 4.2.
- Completion of the GRM gas monitoring programme.
- A copy of this report should be submitted to the Planning Department of the Local Authority/Local Authority EHO for review, if planning conditions exist for this site. A copy should also be sent to the NHBC for their records.

13 CONCLUSIONS

This Site Appraisal has shown the site is suitable for the proposed development, assuming compliance with all the recommendations contained within this report (for abridged version see 'Summary of Recommendations' table at the beginning of the report).



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GENERAL APPRAISAL COMMENTS

i INFORMATION SOURCES

Where available the following sources have been used for the identification and assessment of potential ground hazards:

- Relevant British Standards
- British Geological Survey (BGS) Geology Map Scale 1:10,000 for local area
- British Geological Survey (BGS) Geology Map Scale 1:50,000/1:63,320
- BGS Memoir
- BGS Borehole Records
- Environment Agency Groundwater Vulnerability Maps
- Historical Ordnance Survey (OS) Maps
- Environmental Data Report
- Environment Agency Website: <http://www.environment-agency.gov.uk/>
- Guidance for the Selection of Water Supply Pipes to be used in Brownfield Sites, UKWIR, 2010.
- Coal Authority Records / Coal Mining Report
- DEFRA/Environment Agency Contaminated Land publications and DoE Industry Profiles
- BRE Guide BR211 (2007), 'Radon: Guidance on protective measures for new buildings'
- HPA-RPD-033 (2007), 'Indicative Atlas of Radon in England and Wales'
- NRPB Publication W26 (2002), 'Radon Atlas of England and Wales'
- CIRIA C665 'Assessing risks posed by hazardous ground gases to buildings'
- Other technical references used throughout this document are detailed in the text.

ii CONTAMINANTS OF CONCERN

The DoE Industry Profiles are normally used to assess likely contaminants from past land use and potential nearby industrial sources. For land uses where no profile is available, likely contaminants of concern are selected by GRM based on past experience of similar sites, a general screening suite of contaminants covered by CLEA and common contaminants from the Industry Profiles.

- | | | |
|------------|-------------------|--|
| • Arsenic | • Copper | • Water soluble sulphate |
| • Cadmium | • Nickel | • PAH (polycyclic aromatic hydrocarbons) |
| • Chromium | • Zinc | |
| • Lead | • Phenols | |
| • Mercury | • cyanide (total) | |
| • Selenium | • pH | |

Asbestos and PCBs are listed in the vast majority of profiles. PCBs are listed as the profiles expect electricity substations and switch boxes on all industrial sites. There is the potential for asbestos containing material to be mixed up with made ground, following any demolition works.

iii CONCEPTUAL MODEL METHODOLOGY

The consideration of contamination is based upon the principles of risk assessment, using the 'source-pathway-receptor' model in order to establish the presence, or potential presence, of a pollutant linkage.

To create a risk, contamination must have the potential to cause harm to susceptible targets or receptors such as humans, the water environment or the built environment. The potential for harm to occur requires three conditions to be satisfied to form a pollutant linkage:

- The presence of substances that may cause harm (SOURCE).
- The presence of a target which may be harmed (RECEPTOR).
- The existence of a plausible migration route between the source and the receptor (PATHWAY).

In the absence of a plausible pollutant linkage there is no risk. Where a potential linkage is identified in order for it not to pose a risk to the identified receptor it must be broken.

iv INTRUSIVE INVESTIGATION SAMPLING METHODOLOGY

The ground investigation (including fieldwork, sampling, monitoring and laboratory analyses) has been designed to identify and assess potential ground related problems and to allow cost effective solutions to be advised. It has been planned on the basis of the desk study, site inspection and the proposed development layout (where available). All fieldwork and soil descriptions were carried out in general accordance with relevant British Standards.

The exploratory holes have been positioned and advanced to depths to determine the general ground/groundwater/gas conditions below the site. A general grid pattern has been adopted, where possible, to provide sufficient information based on the current proposed layout scheme. Some holes have been targeted at particular hazards identified in the Phase I assessment. The resultant exploratory hole density is considered to be commensurate with the complexity of the site conditions and detail of information required for this phase of the investigation.

v GROUND GAS RISK ASSESSMENT METHODOLOGY

Gas monitoring programmes undertaken by GRM are designed to broadly comply with the recommendations outlined in CIRIA Report C665 'Assessing risks posed by hazardous ground gas to buildings' (2007).

To assess the risks posed by ground gases such as radon, carbon dioxide and methane, the relevant current guidance has been used. For radon the site has been assessed following the guidelines in 'Radon: guidance on protective measures for new dwellings (BR211: 2007)'. For methane and carbon dioxide the primary guidance document used to determine if protection measures are required is CIRIA Report C665 'Assessing risks posed by hazardous ground gases to buildings' (2007). This uses Gas Screening Values (GSVs), which are gas concentrations multiplied by borehole flow rate, along with additional limiting factors (such as maximum methane concentrations) to classify the gas regime of a site.

The guidance document includes two methods of characterising a site. The main method 'Situation A' is based on work by Wilson and Card and is used for all types of development except low rise housing that meets the assumptions of 'Situation B'. The 'Situation B' method proposed by Boyle and Witherington for the NHBC assumes all properties have pre-cast suspended floors (beam and block) with ventilated underfloor voids.

Where flow is not recorded during the monitoring a default flow rate of 0.1l/hr will be used in the assessment to produce a positive result.

vi HUMAN HEALTH RISK ASSESSMENT METHODOLOGY

Guidance contained in the Environment Agency's CLEA Report has been used to assess the risks posed to human health.

For residential developments that include domestic gardens the default Tier 1 Assessment Criteria (TAC) for 'residential land with plant uptake' are used, i.e. a female with a start age class of one and an end age class of six. All pathways are considered including the consumption of home-grown vegetables.

For residential developments that do not include domestic gardens the default Tier 1 Assessment Criteria (TAC) for 'residential land without plant uptake' are used, i.e. a female with a start age class of

one and an end age class of six. All pathways are considered except the consumption of home-grown vegetables.

For commercial/industrial developments the default Tier 1 Assessment Criteria (TAC) for 'commercial/industrial' are used, i.e. a female with a start age class of sixteen and an end age class of eighteen. All pathways are considered except the consumption of home-grown vegetables.

The TAC used by GRM include Soil Guideline Values (SGV) published by the EA, values calculated by GRM using the CLEA v1.06 risk assessment and values and chemical data developed by LQM/CIEH. The TAC used in the assessment are selected based on the lowest site specific SOM values returned as part of the chemical analysis.

Where soil chemical analysis results are found to exceed the TAC, Site-Specific Risk Assessments may be undertaken using the CLEA v1.06 risk assessment software using the age classes and pathways described above.

vii RISK TO SITE WORKERS – GENERAL COMMENTS

The risks to site workers are similar to those posed to site end users, although likely to be less severe due to the site workers' shorter exposure to the identified contamination. However, site workers (particularly groundworkers) are more likely to come into direct contact with contaminated soils due to the nature of their work. On this basis ground and construction workers should be provided with basic Personal Protective Equipment based on the site's general health and safety risk assessment, but including as a minimum safety footwear, gloves and overalls.

A site specific risk assessment should be carried out for all hazards identified within the ground investigation in accordance with current health and safety legislation. This assessment should identify any measures required to further reduce risks i.e. providing further Personal Protective Equipment, welfare facilities and if necessary preventing access to certain areas.

Demolition and dismantling of existing structures on the site must be carried out to a safe and acceptable standard, in accordance with current UK guidance and best practice. Whilst not ground related, asbestos and hazardous substances surveys should be conducted prior to any demolition.

Any unusual colours, odours and suspicious ground should be reported immediately to site management and then GRM.

Whilst this appraisal has considered the long-term effects of contamination, GRM can also help during the formulation of Health and Safety documentation, if required.

viii CONTROLLED WATERS RISK ASSESSMENT METHODOLOGY

Where the desk study and fieldwork do not reveal a potential source of contamination no leachate or groundwater testing will be performed. Where a potential source is identified the testing will comprise leachate testing on the material considered most likely to pose a risk, groundwater testing will be undertaken if water is present at shallow depth.

The UK Drinking Water Standards (UKDWS) or Environmental Quality Standards (EQS) are usually adopted for comparison with the leachate/groundwater test results. When the most sensitive receptor is considered to be the an aquifer (groundwater) UKDWS will be adopted as the Initial Tier 1 screening values. Where the most sensitive receptor is a surface water feature the EQS values will be used as Initial Tier I Screening values.

ix CONSTRUCTION MATERIALS RISK ASSESSMENT METHODOLOGY

The 'screening levels' adopted for the assessment of risk to construction materials are taken from the following documents:

- UK Water Industry Research (UKWIR) Contamination thresholds for sub-surface water pipes, for the protection of buried pipes.
- Building Research Establishment (BRE) Special Digest SD1 (2005), 'Concrete in Aggressive Ground', for the protection of buried concrete.

WASTE DISPOSAL AND SITE WASTE MANAGEMENT PLANS

Under current Waste Management Regulations, waste soil materials produced from the site will require characterisation to enable it to be disposed of correctly.

The chemical analysis results included in this report should be provided to the relevant landfill operators to establish the characterisation of the waste, confirm its suitability for landfill disposal and provide estimated costings. If material is classified as hazardous, then the site will need to be registered with the Environment Agency prior to the movement of the waste. Depending on the receiving landfill's current permit, further chemical analysis, incorporating Waste Acceptance Criteria (WAC) leachate analysis, may be required.

All materials removed from the site will be classified as 'waste' and therefore must be removed by a suitably licensed carrier of waste. This applies whether or not the waste is contaminated. All waste removed to landfill will attract Landfill Tax.

The developer/builder is likely to be classed as the waste producer and therefore, has a duty of care to ensure that all waste is disposed of appropriately. This includes ensuring the waste carrier is licensed and disposes of the waste to a suitably licensed landfill site. They are also required to keep a paper trail from 'cradle to grave' including copies of the waste disposal tickets.

Efficient materials management on site is recommended as it can lead to significant cost savings when compared to the traditional side casting or single stockpile of arisings. Likewise making the site as volume neutral as possible will reduce the costs of development.

Site Waste Management Plans allow better waste management practices, help to reduce the amount of waste produced and identify best environmental disposal options. Implementing a Site Waste Management Plan (SWMP) can reduce costs (increasing business profits) and maximise resource efficiency.

SWMPs are a legal requirement for all projects with an overall development cost of over £300k. GRM can assist in the production of SWMPs which comply with the Code of Practice and identify best environmental disposal options when dealing with waste.

GEOTECHNICAL ASSESSMENT GENERAL COMMENTS

Where finished floor levels of proposed structures have not been provided by the Client, then for the purposes of initial assessment, GRM will assume that finished levels will not vary appreciably from the existing ground levels. If the depths of any underground engineering works (i.e. sewers, pumping stations etc.) are unknown they will not be taken in to account in the assessment and it will be assumed that any such works will not compromise foundation or ground stability.

Should the development proposals or finished levels be different from these assumptions then the comments/recommendations in the Geotechnical Assessment may require revising.

It should be noted that the results of window sampling and/or cable percussive boreholes may not give a true indication of a soils actual engineering properties (i.e. stability, mass structure etc). GRM consider that that prior to development trial pitting should be undertaken to confirm the recommendations in the Geotechnical Assessment.

GEOTECHNICAL ASSESSMENT – ENGINEERING GROUND TREATMENT

Near surface soils have the potential to be disturbed by weathering and site traffic. Precautions should always be taken to avoid this, as excessive disturbance may leads to more onerous floor slab designs, road cap thickness and increased amounts of off site disposal etc.

Near surface soils may need treatment or reinforcing to allow safe movement of construction plant and labour. An assessment by the contractor should be undertaken once the type of machinery/plant needed to complete the development is known.

GEOTECHNICAL ASSESSMENT – EXCAVATIONS

Excavation instability (over-break) can result in damage to existing services or structures (e.g. foundations, roads or boundary walls/fences) both on and off-site, as well as increased foundation concrete costs. In order to minimise this, all excavations deeper than 1.2m deep (or any excavation within 1.5m of any existing structure or service) should be supported. Full support should be provided to the full depth of all near vertically sided excavations in made ground, soft and very soft clays and granular soils. A reduction to intermediate support should be acceptable within firm and stiffer natural clays.

Wherever possible, man entry into excavations should be prevented; however, where this is not possible, entry to, and time spent in, excavations should be kept to a minimum.

The build program should be tailored to reflect the impact that deep excavations through potentially unstable strata can have on adjacent properties, so that they are not undermined.

All excavations on site should be in accordance with HSE guidelines and stability should be practically maintained at all times. Reference should be made to HSE construction information sheet No. 8 (Revision 1) 'Safety in Excavations'.

Care should be taken to ensure that falls from excavation faces do not adversely affect the integrity of foundation concrete.

If contaminated water enters excavations it should be removed and transported to an appropriate treatment facility by a suitably licensed carrier before construction begins.

GEOTECHNICAL ASSESSMENT – SUBSTRUCTURES

Where practicable, existing buried construction should be fully removed; however, if this is not practicable all new foundations should be carried down to fully penetrate it and it should be broken well away from all new structures.

There may be existing structures and/or infrastructure in close proximity to the proposed development. New build foundations may be constructed next to pavements with existing underground services beneath them, or excavations may be required near existing footings associated with adjacent properties. These potential hazards need to be taken into consideration when designing foundations and the groundworker needs to be made aware of their potential impact during the redevelopment works. Foundations close to existing underground services or buildings may require alternative foundation techniques (such as piling) to protect the integrity of these structures.

The contractor for the works should carry them out in such a fashion so as to not cause excessive overbreak, concrete usage or undermine existing buildings/roads/ services that are to be retained.

GEOTECHNICAL ASSESSMENT – SOAKAWAYS

Soakaway testing in trial pits by GRM is broadly carried out in accordance with BRE 365 (1991). The testing comprises the excavation of a test pit to a suitable depth, and the placement of water into the pit. The level of water present is then monitored over time. For borehole installations, the permeability testing (falling head/rising head) is undertaken in accordance with BS5930.

If it is decided to proceed with the use of soakaway drainage, then the following general points should be noted:

- Soakaways should not be placed so that water can be discharged through potentially contaminated made ground.
- The Environment Agency may require soakaways to be sealed systems such that only roof run off falls to soakaway.
- Interceptors are likely to be required for soakaways for highway drainage. The adopting authority for the highways should be consulted at the earliest opportunity regarding the use of soakaways for highways drainage.
- Consideration of site levels and slopes should be taken into account during the design.

- The construction of all soakaways should be in accordance with the current building regulations.
- Soakaways should not be placed within 5m of a proposed building.
- Placement of soakaways needs to be considered so as to avoid ponding of water down slope.
- The base of a soakaway should not be below the highest recorded water level.
- The Environment Agency prefer 1m of dry soil to be present between the base of a soakaway and the water table to provide attenuation for contamination.

xvi GEOTECHNICAL ASSESSMENT – FOUNDATIONS

If soft or hard spots are encountered during foundation excavation then they should be replaced with suitably compacted material or the footings deepened to suitable strata, to avoid differential settlement.

If strata of differing bearing character (e.g. sand and clay) are encountered at foundation levels within the excavations for a single plot then the excavation depths should be altered as appropriate to ensure the foundations rest on a single stratum, or strata that will not induce differential settlement. Where this is impractical then GRM should be contacted to assess a reinforced concrete detail or an alternative foundation solution (e.g. piles or vibro-replacement).



NOTES ON LIMITATIONS**General**

GRM Development Solutions Limited has prepared this report solely for the use of the Client and those parties with whom a warranty agreement had been executed, or with whom an assignment had been agreed. Should any third party wish to use or rely upon the contents of the report, written approval must be sought from GRM Development Solutions Limited; a charge may be levied against such approval.

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- a) the consequences of this document being used for any purpose or project other than for which it was commissioned, and
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Phase I Environmental Audits/ Desk Studies

The work undertaken to provide the basis of this report comprised a study of available documented information from a variety of sources (including the Client), together with (where appropriate) a brief walk over inspection of the site and meetings and discussions with relevant authorities and other interested parties. The opinions given in this report have been dictated by the finite data on which they are based and are relevant only to the purpose for which the report was commissioned. The information reviewed should not be considered exhaustive and has been accepted in good faith as providing true and representative data pertaining to site conditions. Should additional information become available which may affect the opinions expressed in this report, GRM Development Solutions Limited reserves the right to review such information and as considered necessary and appropriate to modify the opinions accordingly. It should be noted that any risks identified in a Phase 1 report are perceived risks based on the information reviewed; actual risks can only be assessed following a physical investigation of the site.

Phase II Environmental Audits (Contamination Investigations)

The investigation of the site has been carried out to provide sufficient information concerning the type and degree of contamination, ground and groundwater conditions to allow a reasonable risk assessment to be made. The objectives of the investigation have been limited to establishing the risks associated with potential human targets, building materials, and controlled waters.

The amount of exploratory work and chemical testing undertaken has necessarily been restricted by the short timescale available, and the locations of exploratory holes have been restricted to the areas unoccupied by the building(s) on the site and by buried services. A more comprehensive investigation may be required if the site is to be redeveloped as, in addition to risk assessment, a number of important engineering and environmental issues need to be resolved.

For these reasons if costs have been included in relation to site remediation these must be considered as provisional only and must, in any event, be confirmed by a commercial adviser.

The exploratory holes undertaken, which investigate only a small volume of the ground in relation to the size of the site, can only provide a general indication of site conditions. Whilst exploratory testing is intended to gain an accurate representation of the site, the very nature of sampling and testing is such that it cannot ensure that all localised conditions are detected.

The risk assessment and opinions provided take in to consideration, inter alia, currently available guidance relating to acceptable contamination concentrations; no liability can be accepted for the retrospective effects of any future changes or amendments to these values.

Phase II Geo-environmental Investigations (Combined Geotechnical and Contamination Investigations)

The investigation of the site has been carried out to provide sufficient information concerning the type and degree of contamination, geotechnical characteristics, and ground and groundwater conditions to provide a reasonable assessment of the environment risks together with engineering and development implications. If costs have been included in relation to site development a commercial adviser must confirm these.

The exploratory holes undertaken, which investigate only a small volume of the ground in relation to the size of the site, can only provide a general indication of site conditions. The opinions provided and recommendations given in this report are based on the ground conditions apparent at the site for each of the exploratory holes. There may be exceptional ground conditions elsewhere on the site which have not been disclosed by this investigation and which have therefore not been taken into account in this report.

The comments made on groundwater conditions are based on observations made at the time the site work was conducted. It should be noted that groundwater levels will vary owing to seasonal, tidal and weather related effects.

The scope of the investigation was selected on the basis of the specific development proposed by the Client and may be inappropriate to another form of development or scheme.

The risk assessment and opinions provided take in to consideration, inter alia, currently available guidance relating to acceptable contamination concentrations; no liability can be accepted for the retrospective effects of any future changes or amendments to these values.



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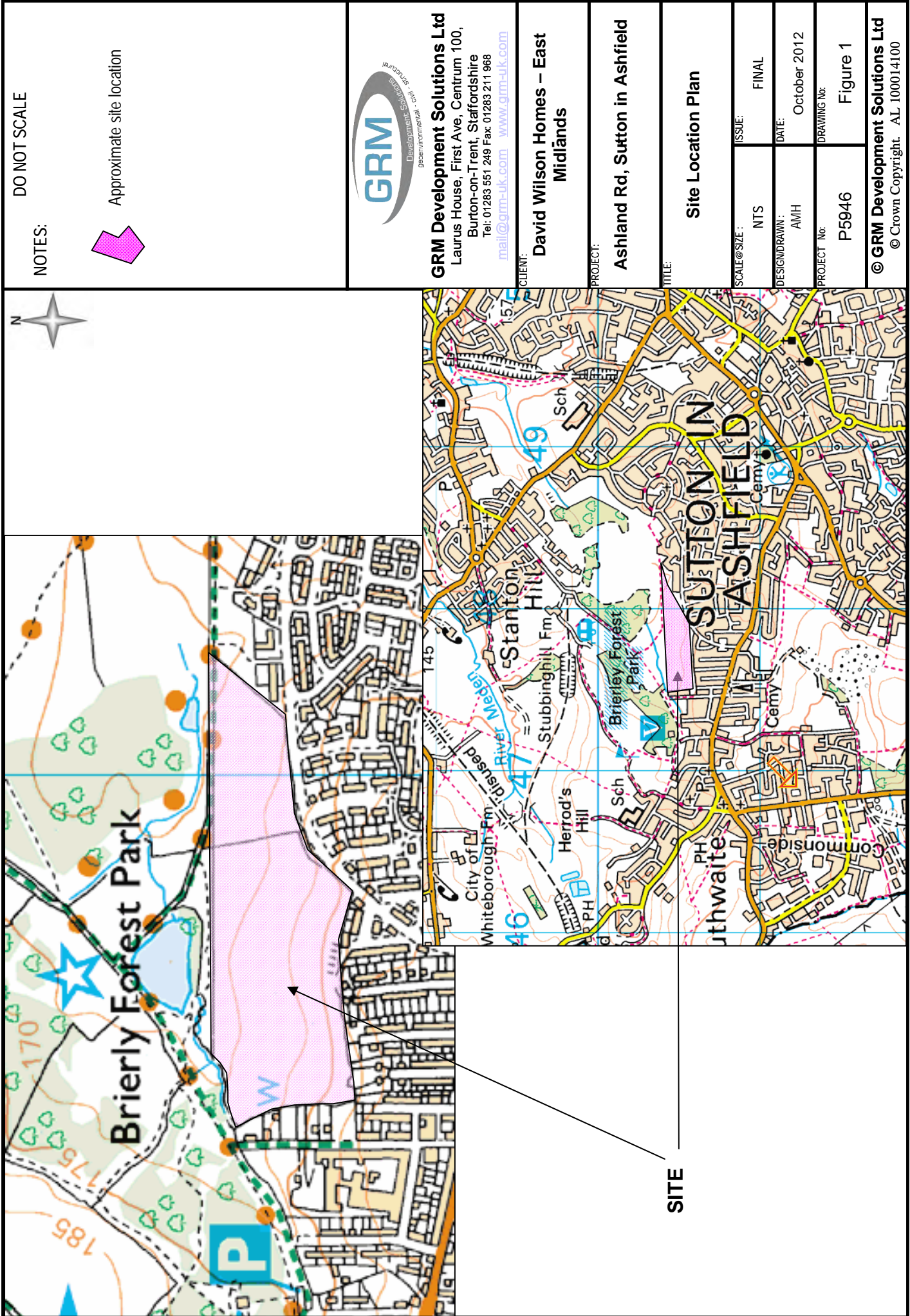
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NOTES:



Approximate site location



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CLIENT:
David Wilson Homes – East Midlands

PROJECT:
Ashland Rd, Sutton in Ashfield

TITLE:
Site Location Plan

SCALE@SIZE: NTS
 ISSUE: FINAL

DESIGN/DRAWN: AMH
 DATE: October 2012

PROJECT No: P5946
 DRAWING No: Figure 1

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SITE

DO NOT SCALE

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GRM Development Solutions Ltd
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Burton-on-Trent, Staffordshire
Tel: 01283 551 249 Fax: 01283 211 968
mail@grm-uk.com www.grm-uk.com

CLIENT:

David Wilson Homes – East Midlands

PROJECT:

Ashland Rd, Sutton in Ashfield

TITLE:

Site Boundary Plan

SCALE@SIZE:

NTS

ISSUE:

FINAL

DESIGN/DRAWN:

AMH

DATE:

October 2012

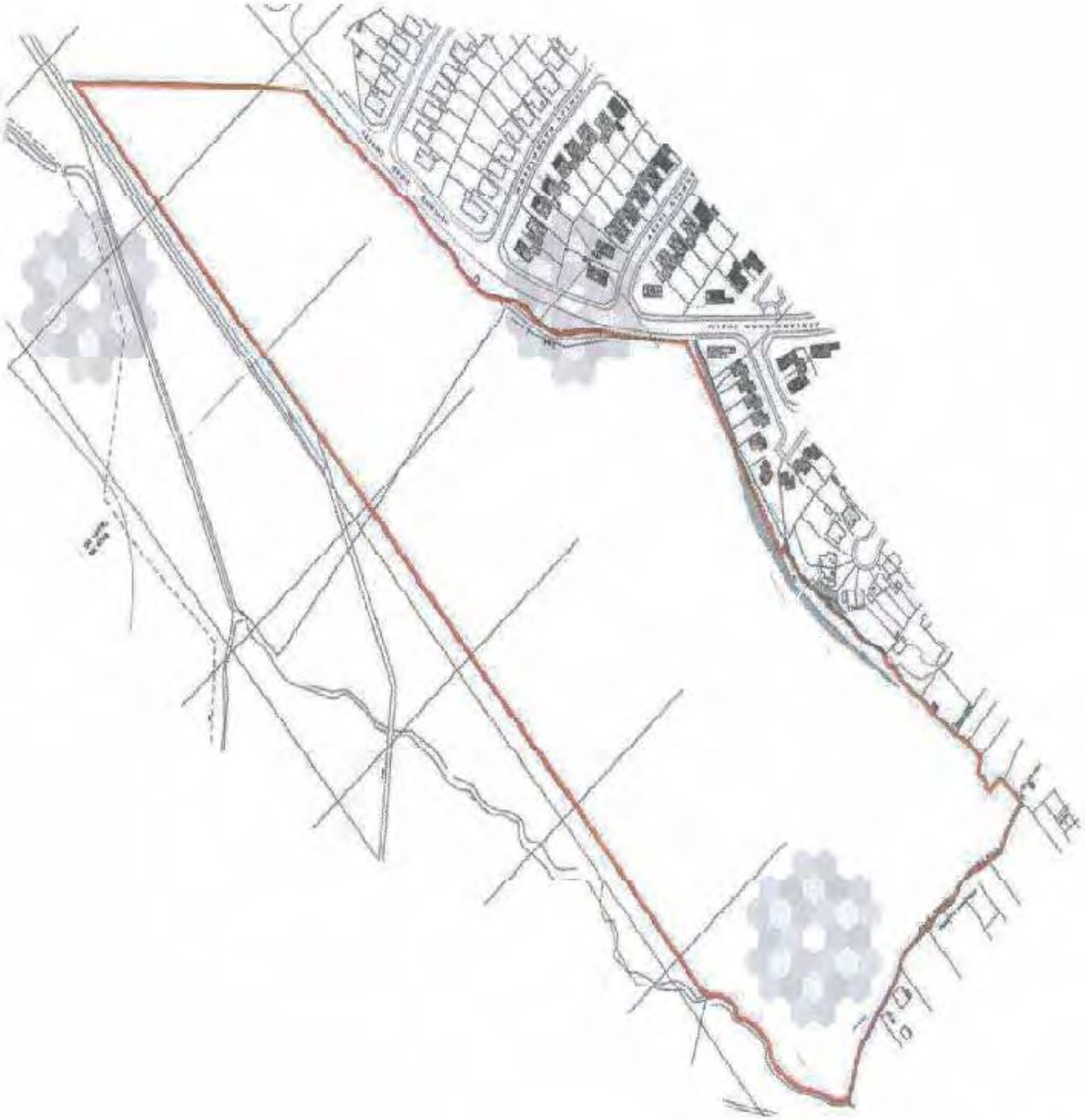
PROJECT No:

P5946

DRAWING No:

Figure 2

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- Civil and Infrastructure Services
- Structural Engineering Services
- Construction Management
- Site Services

Tel: 01283 551249

info@grm-uk.com

Fax: 01283 211968

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Site Details:
NG17 2EZ

Client Ref: EMS_182497_267992
Report Ref: EMS-182497_267992
Grid Ref: 447825, 359500

Map Name: National Grid

Map date: 2012

Scale: 1:10,000

Printed at: 1:10,000



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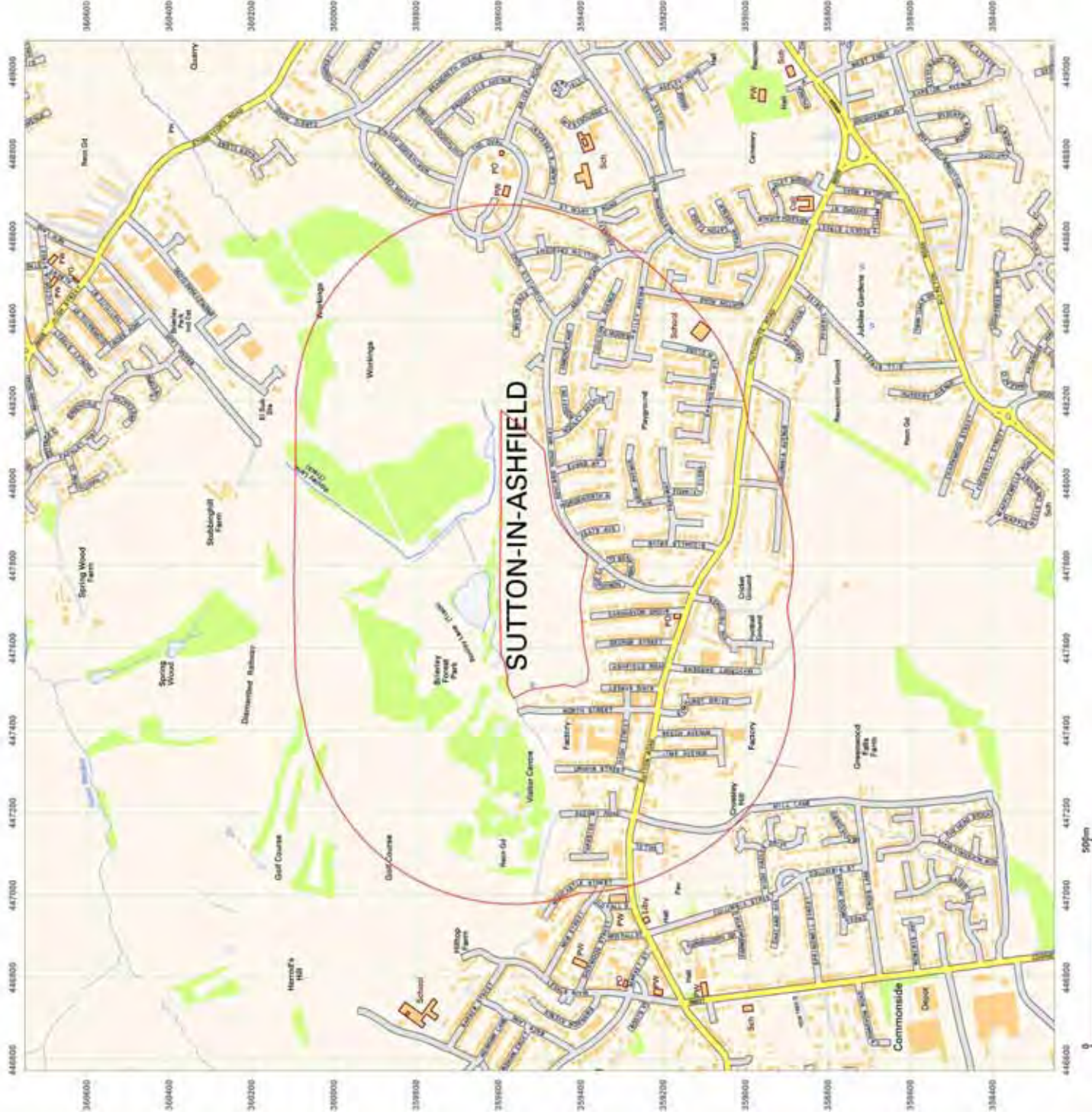


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Site Details:
NG17 2EZ

Client Ref: EMS_182497_267992
Report Ref: EMS-182497_267992
Grid Ref: 447825, 359500

Map Name: 1:10,000 Raster

Map date: 2002

Scale: 1:10,000

Printed at: 1:10,000



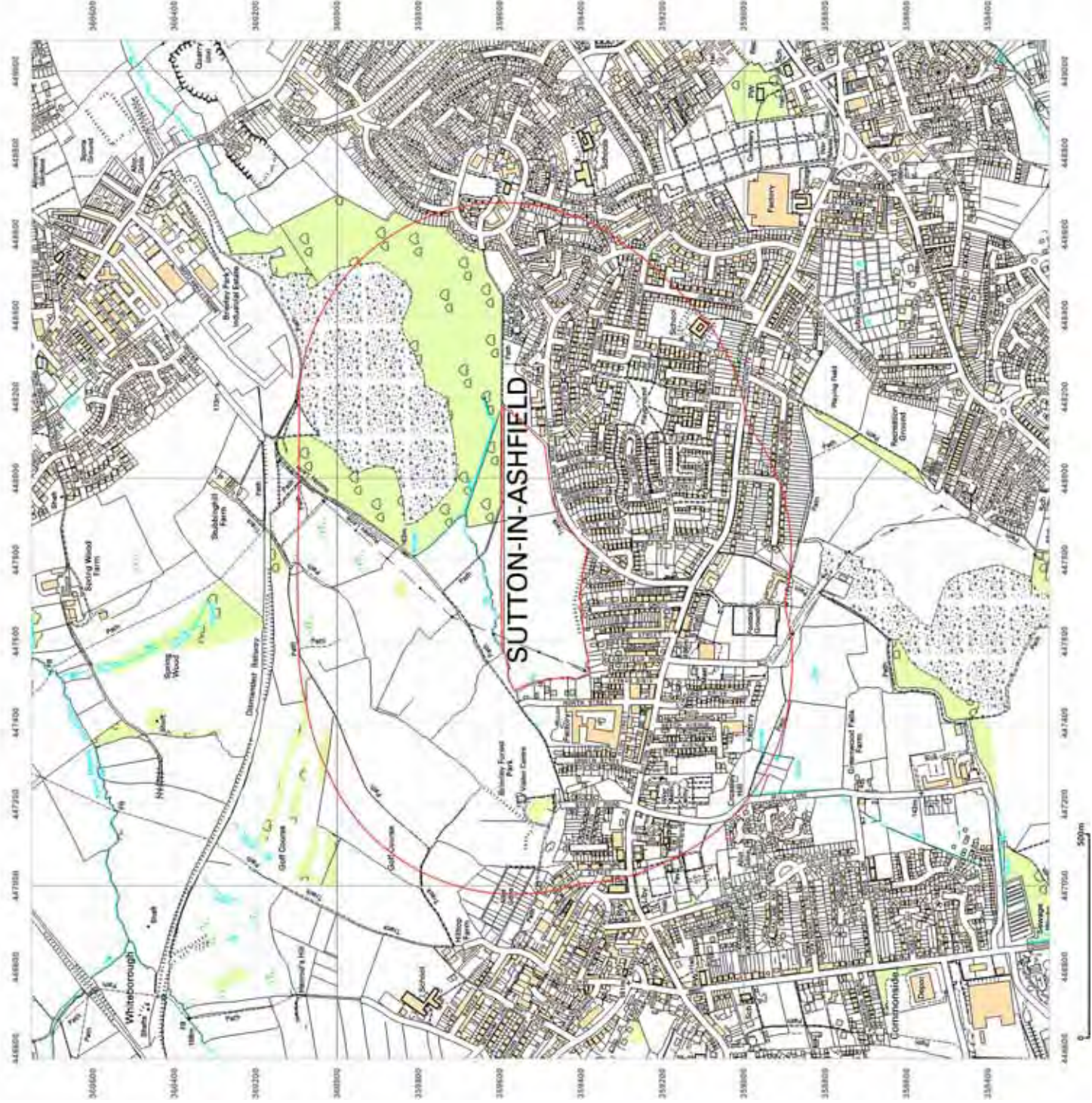
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Site Details:
NG17 2EZ

Client Ref: EMS_182497_267992
Report Ref: EMS-182497_267992
Grid Ref: 447825, 359500

Map Name: National Grid

Map date: 1992

Scale: 1:10,000

Printed at: 1:10,000



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Revised 1992
Edition N/A
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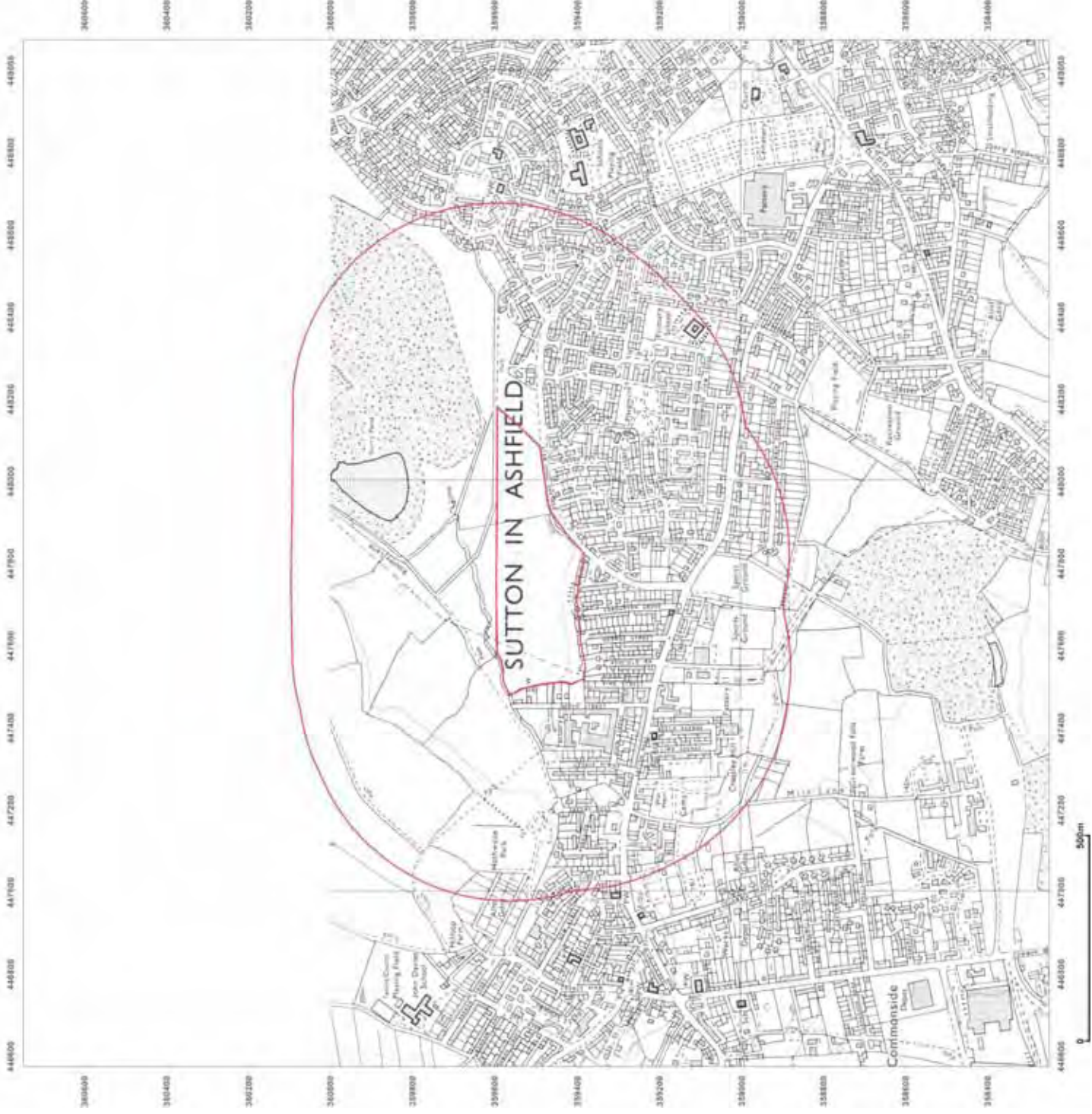


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Site Details:
NG17 2EZ

Client Ref: EMS_182497_267992
Report Ref: EMS-182497_267992
Grid Ref: 447825, 359500

Map Name: National Grid

Map date: 1985-1989

Scale: 1:10,000

Printed at: 1:10,000



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Surveyed 1984
Revised 1985
Edition N/A
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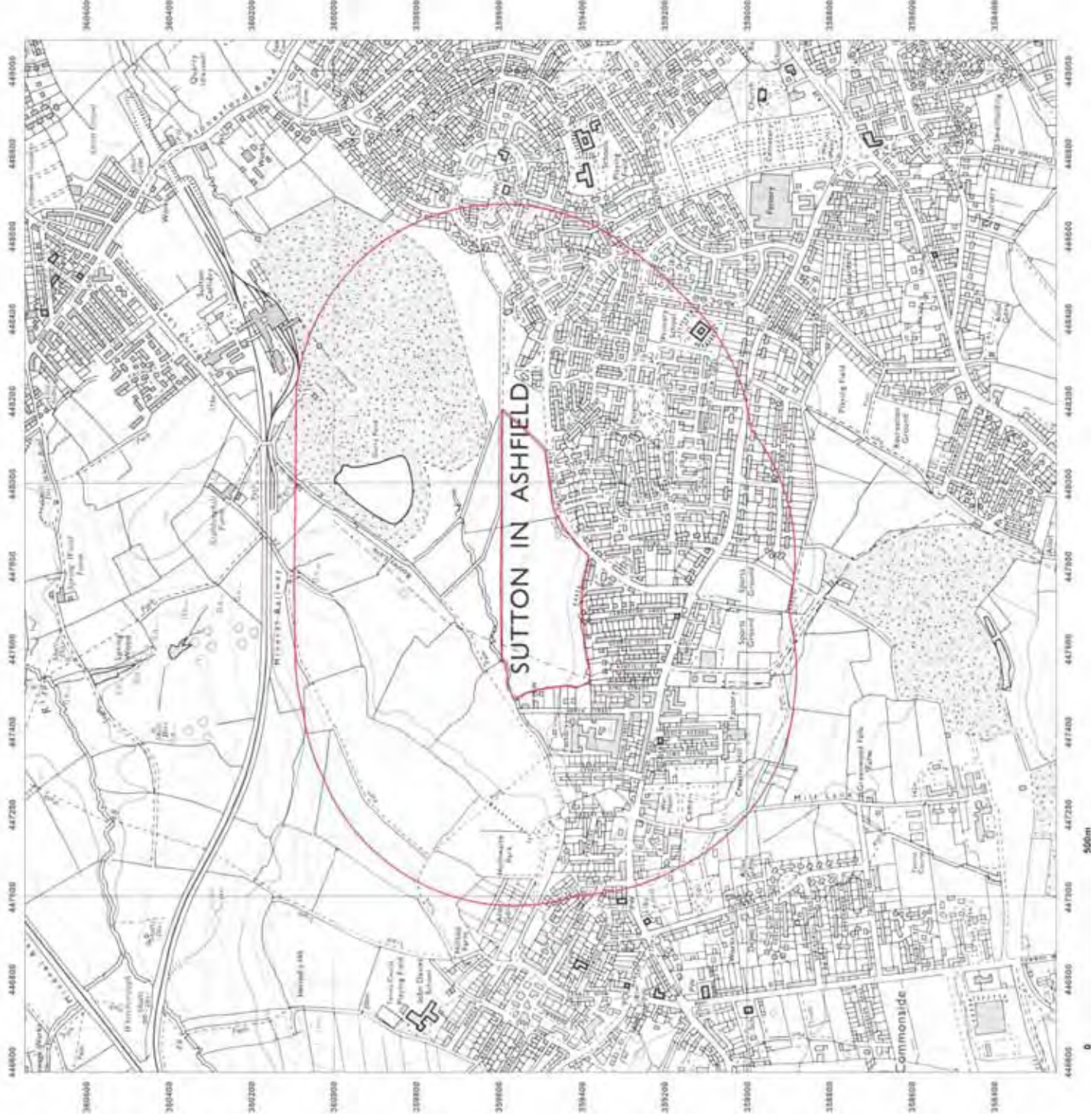
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Site Details:
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Client Ref: EMS_182497_267992
Report Ref: EMS-182497_267992
Grid Ref: 447825, 359500

Map Name: National Grid

Map date: 1971-1973

Scale: 1:10,000

Printed at: 1:10,000



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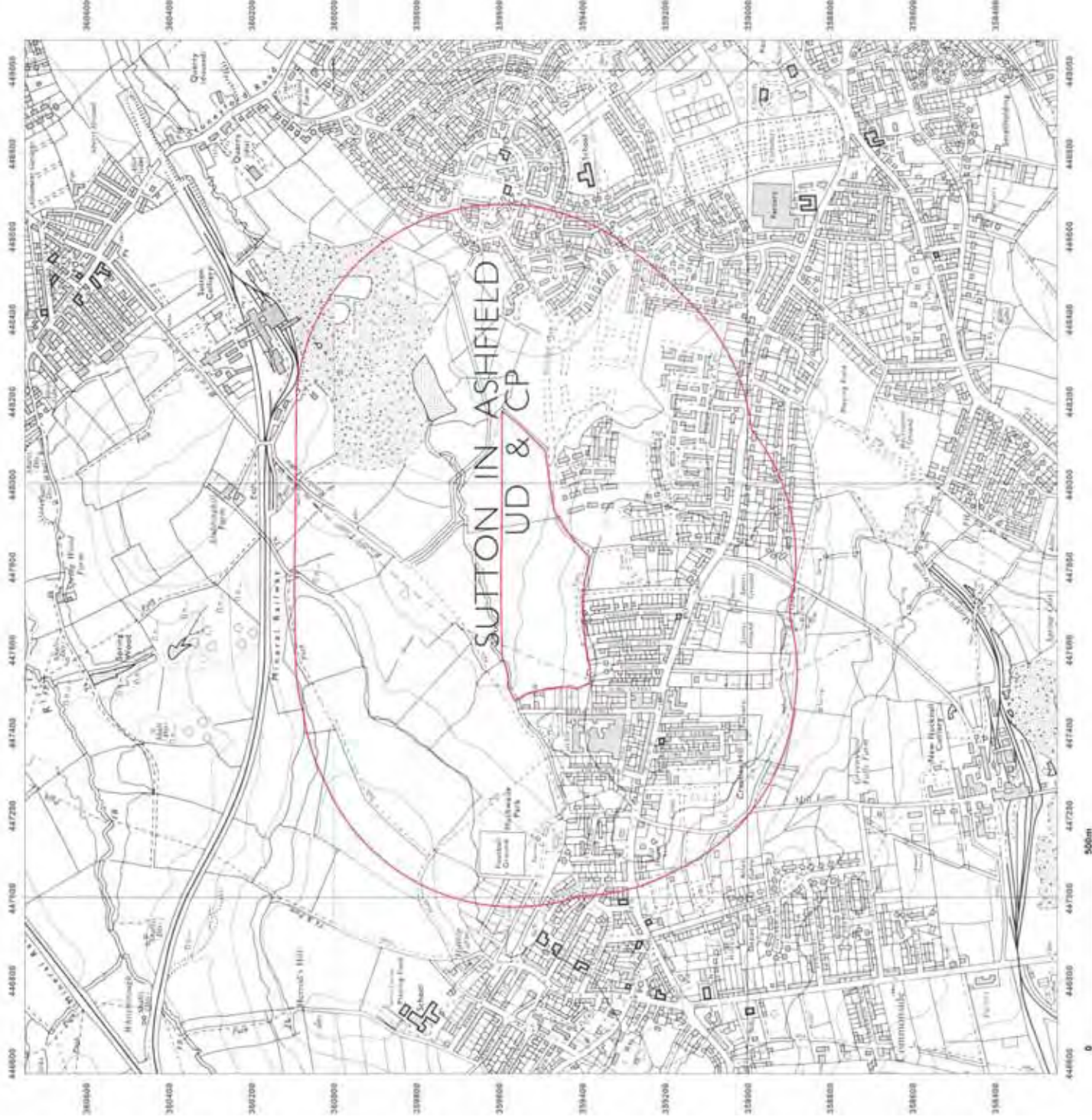
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Site Details:
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Client Ref: EMS_182497_267992
Report Ref: EMS-182497_267992
Grid Ref: 447825, 359500

Map Name: Provisional
Map date: 1966-1967
Scale: 1:10,560
Printed at: 1:10,560



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Surveyed 1967
Revised 1967
Edition N/A
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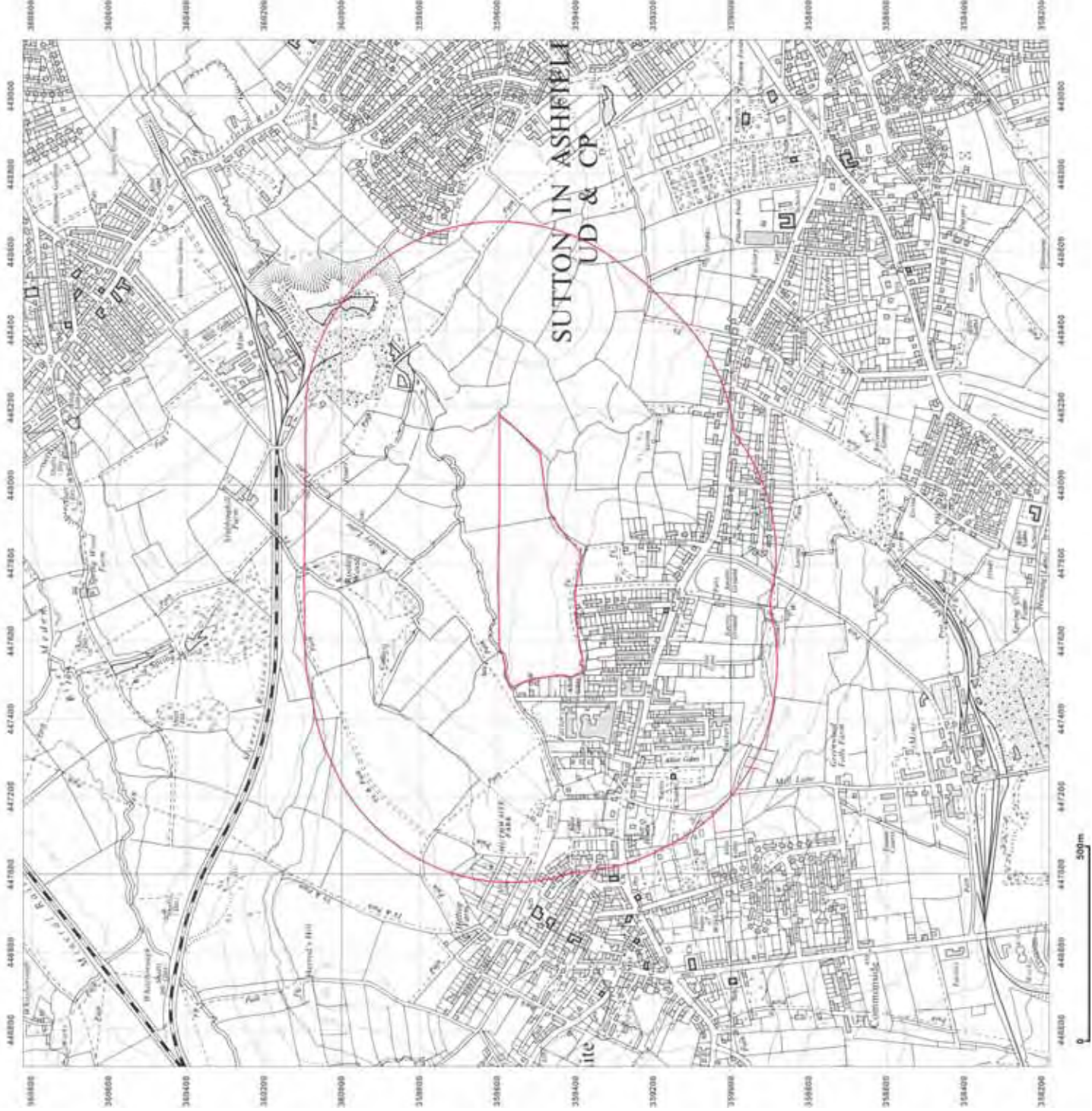
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Site Details:

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Client Ref: EMS_182497_267992
Report Ref: EMS-182497_267992
Grid Ref: 447825, 359500

Map Name: Provisional

Map date: 1950

Scale: 1:10,560

Printed at: 1:10,560



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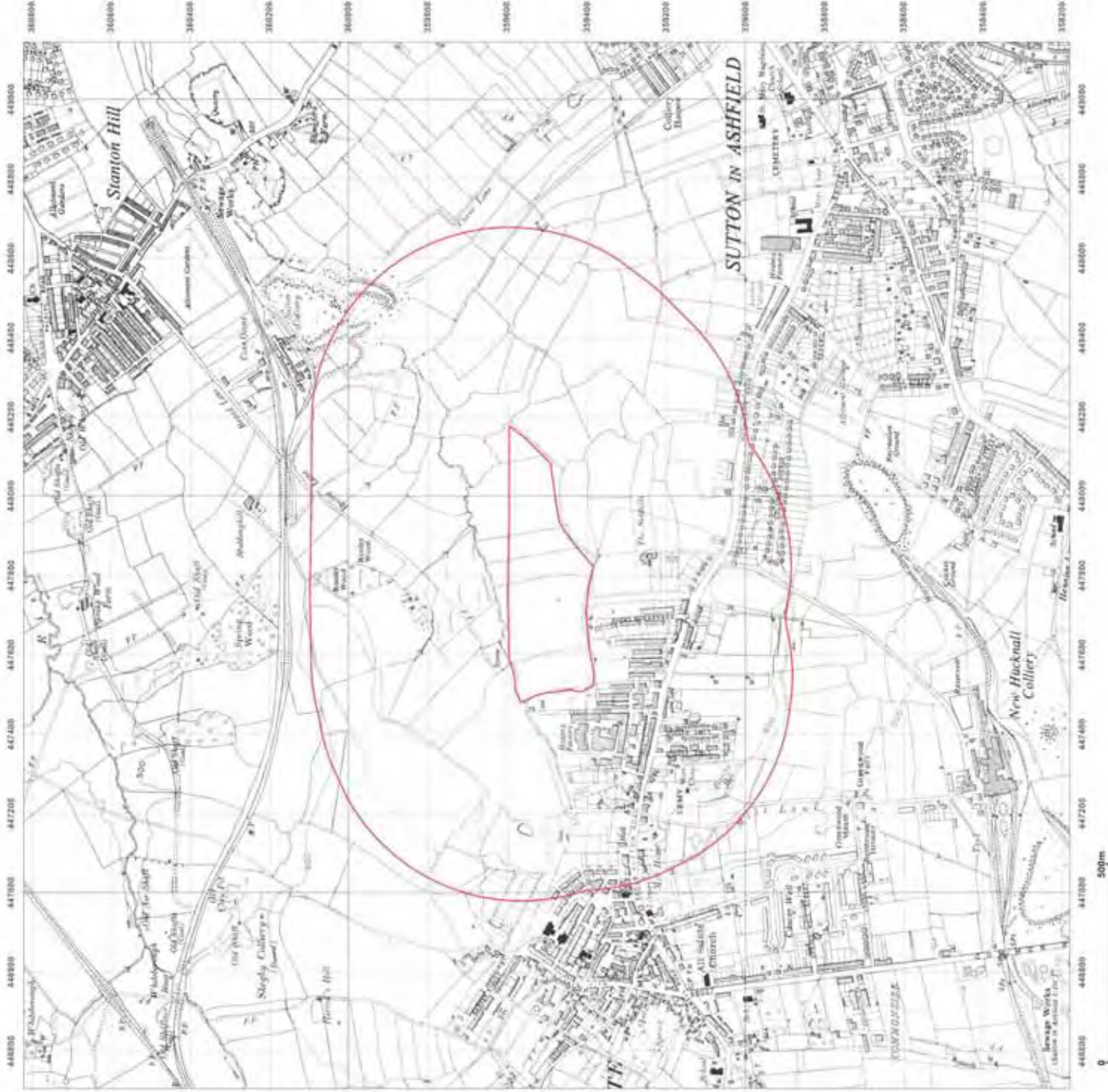


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Client Ref: EMS_182497_267992
Report Ref: EMS-182497_267992
Grid Ref: 447825, 359500

Map Name: County Series

Map date: 1938-1939

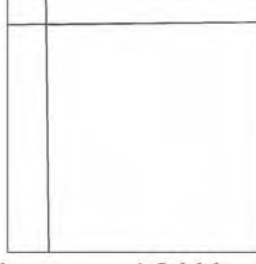
Scale: 1:10,560

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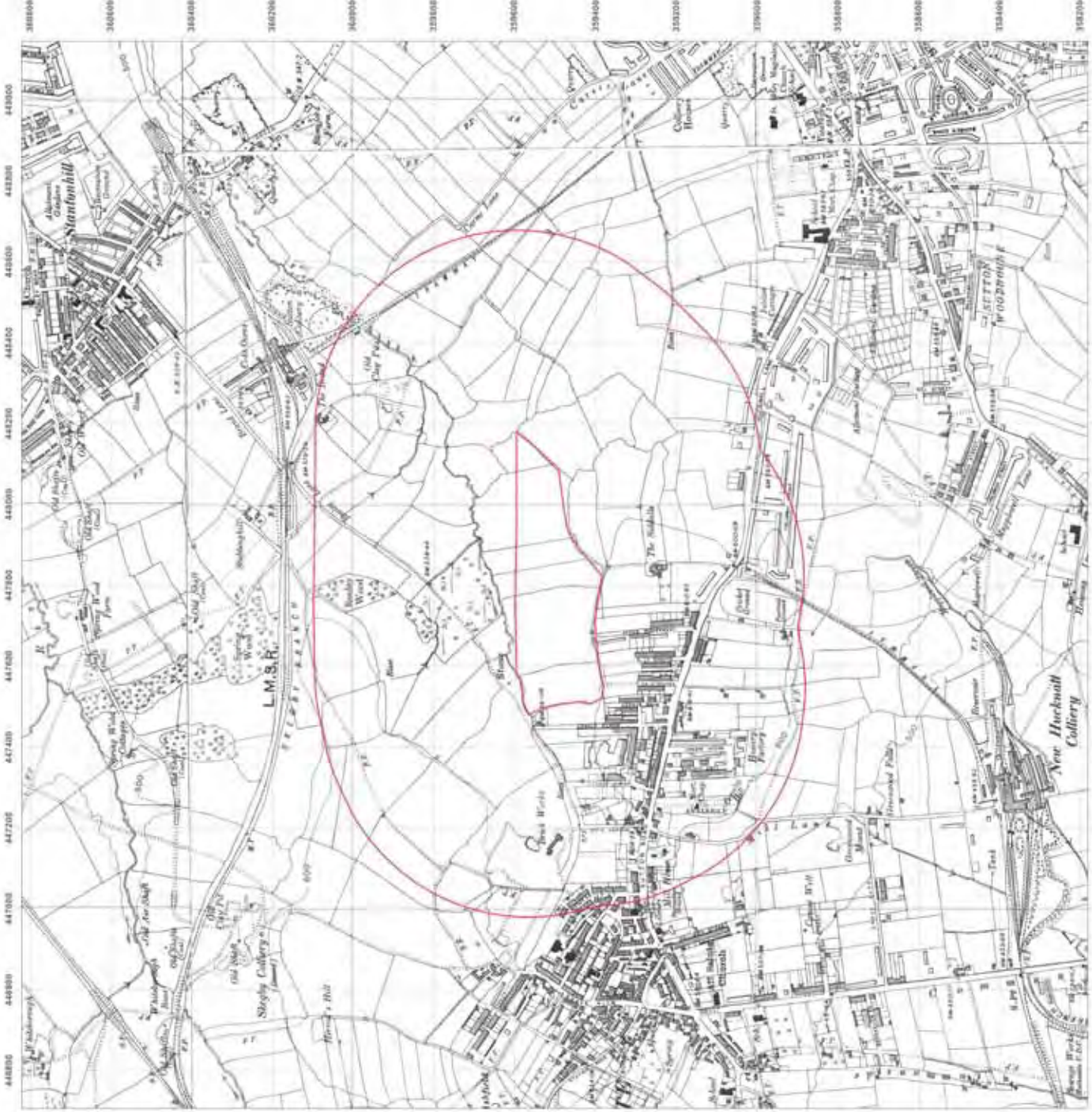


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Client Ref: EMS_182497_267992
Report Ref: EMS-182497_267992
Grid Ref: 447825, 359500

Map Name: County Series

Map date: 1921

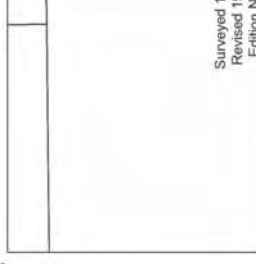
Scale: 1:10,560

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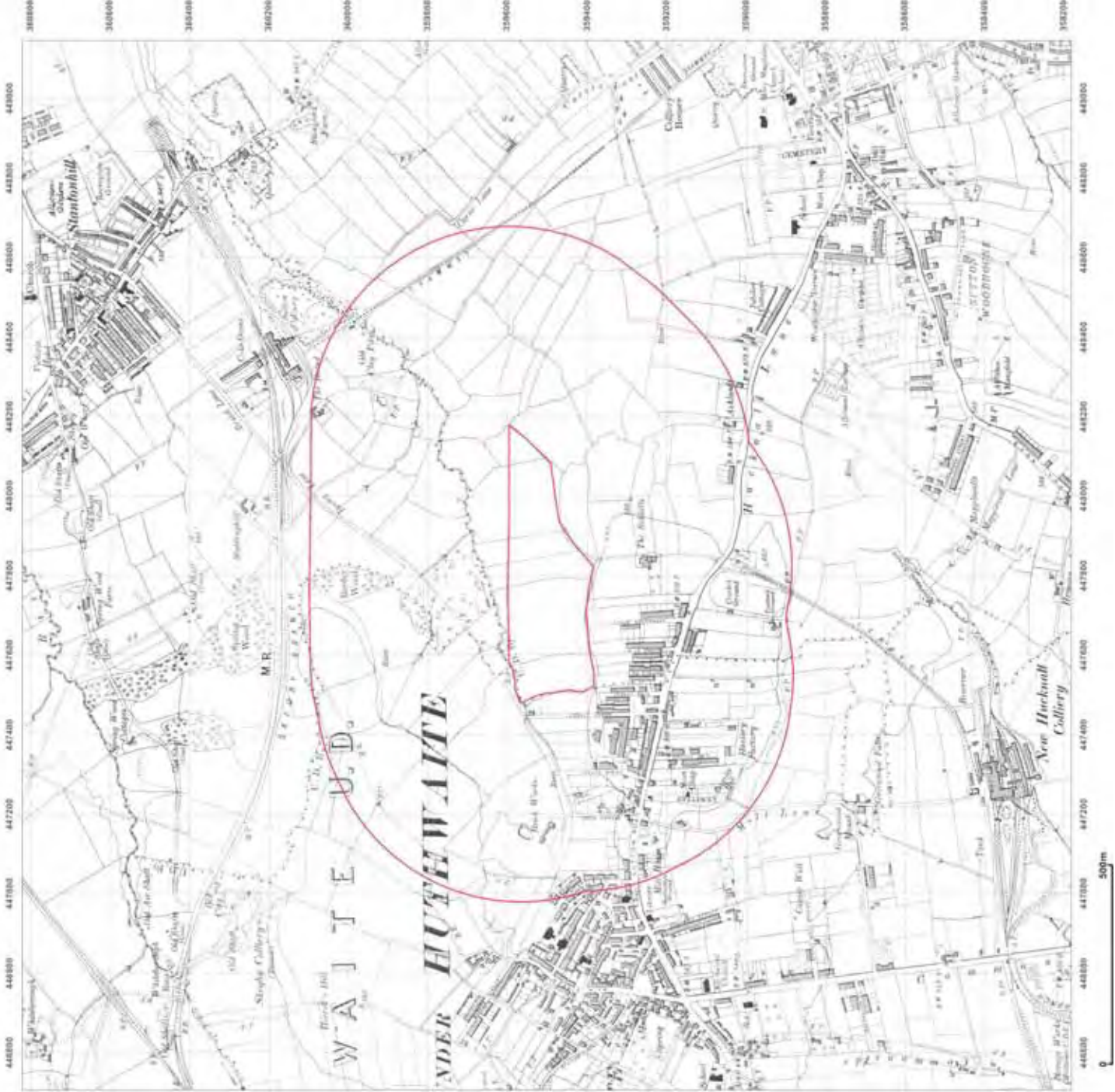


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Client Ref: EMS_182497_267992
Report Ref: EMS-182497_267992
Grid Ref: 447825, 359500

Map Name: County Series

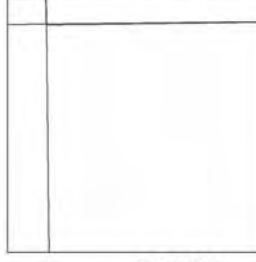
Map date: 1914

Scale: 1:10,560

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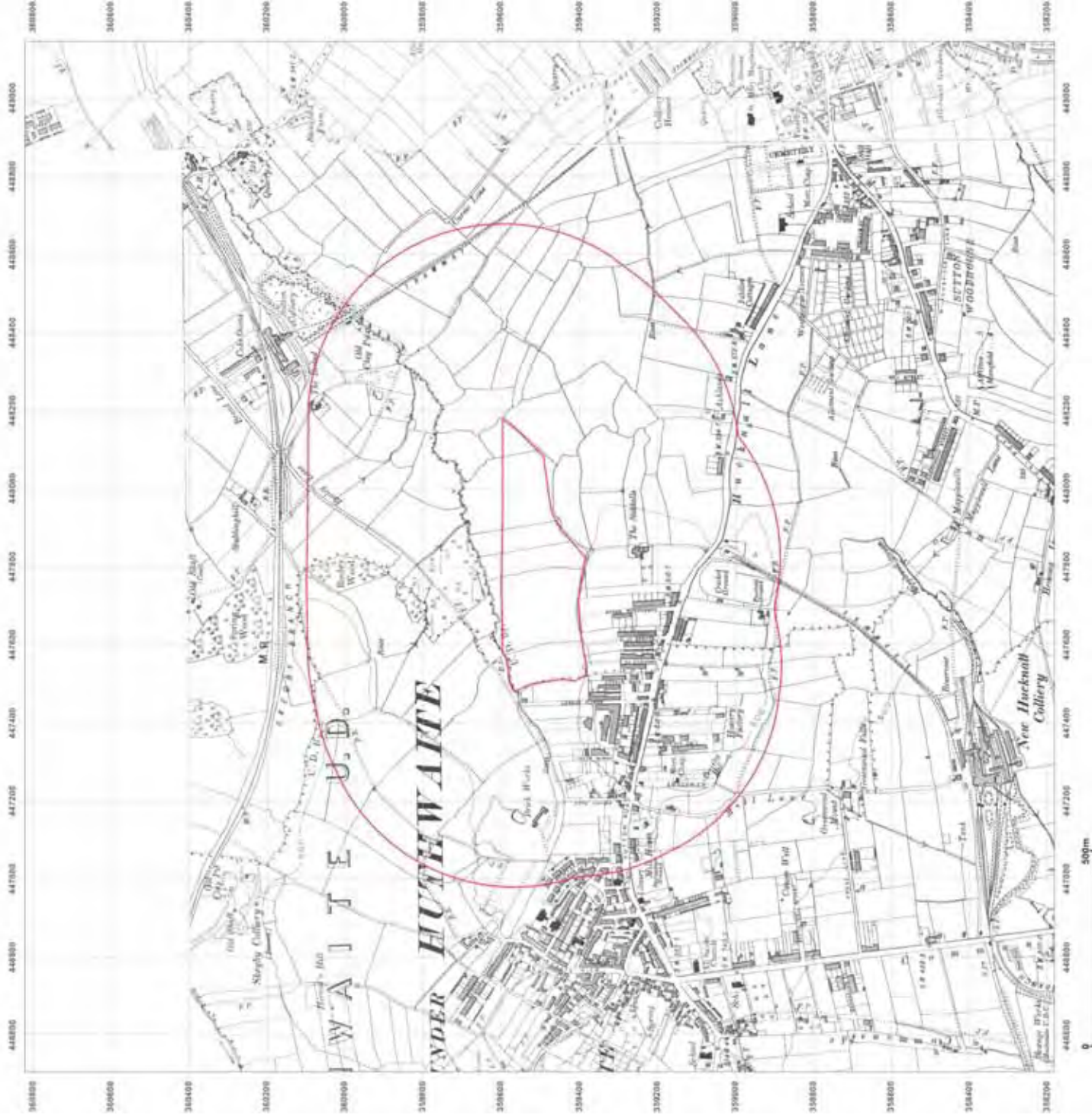


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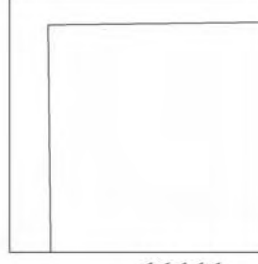
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Map Name: County Series

Map date: 1899

Scale: 1:10,560

Printed at: 1:10,560



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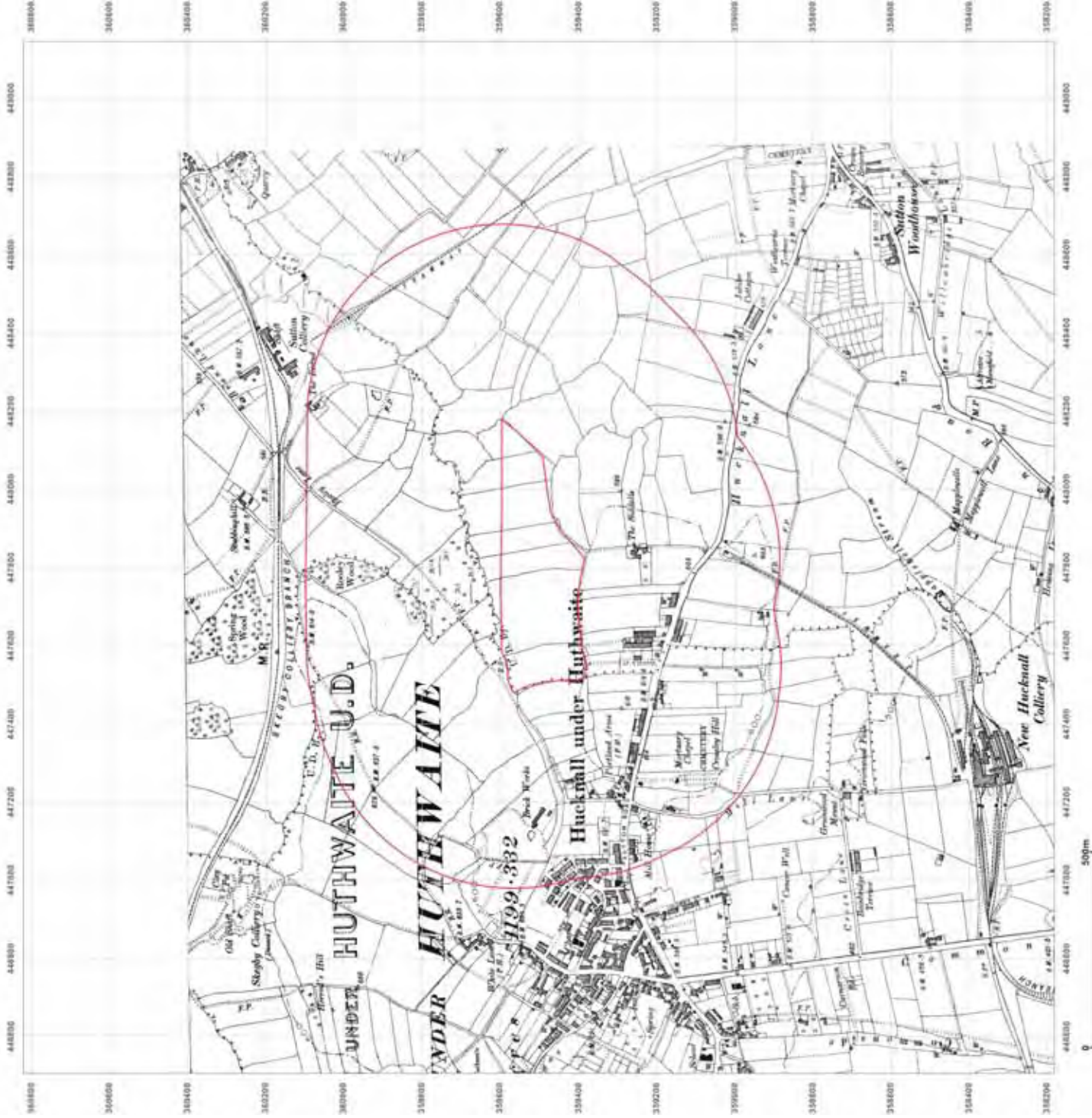
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Report Ref: EMS-182497_267992
Grid Ref: 447825, 359500

Map Name: County Series

Map date: 1897-1898

Scale: 1:10,560

Printed at: 1:10,560

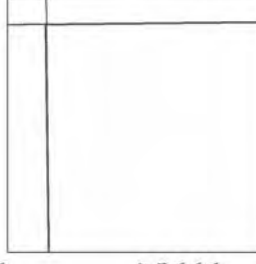


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 Edition N/A
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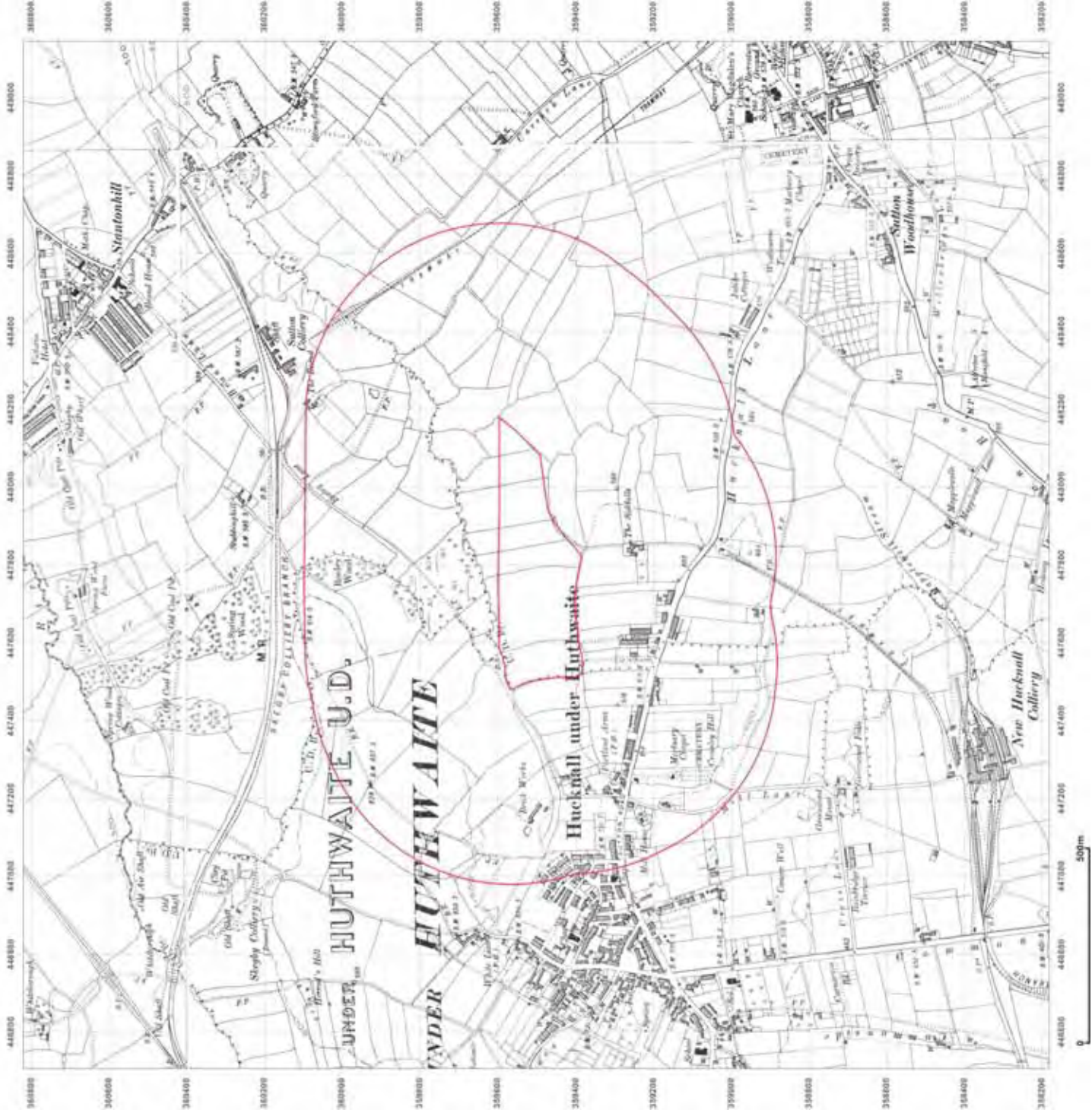


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Report Ref: EMS-182497_267992
Grid Ref: 447825, 359500

Map Name: County Series

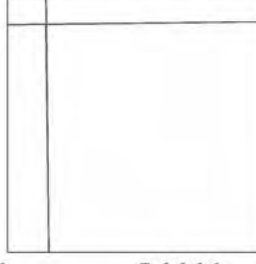
Map date: 1884-1886

Scale: 1:10,560

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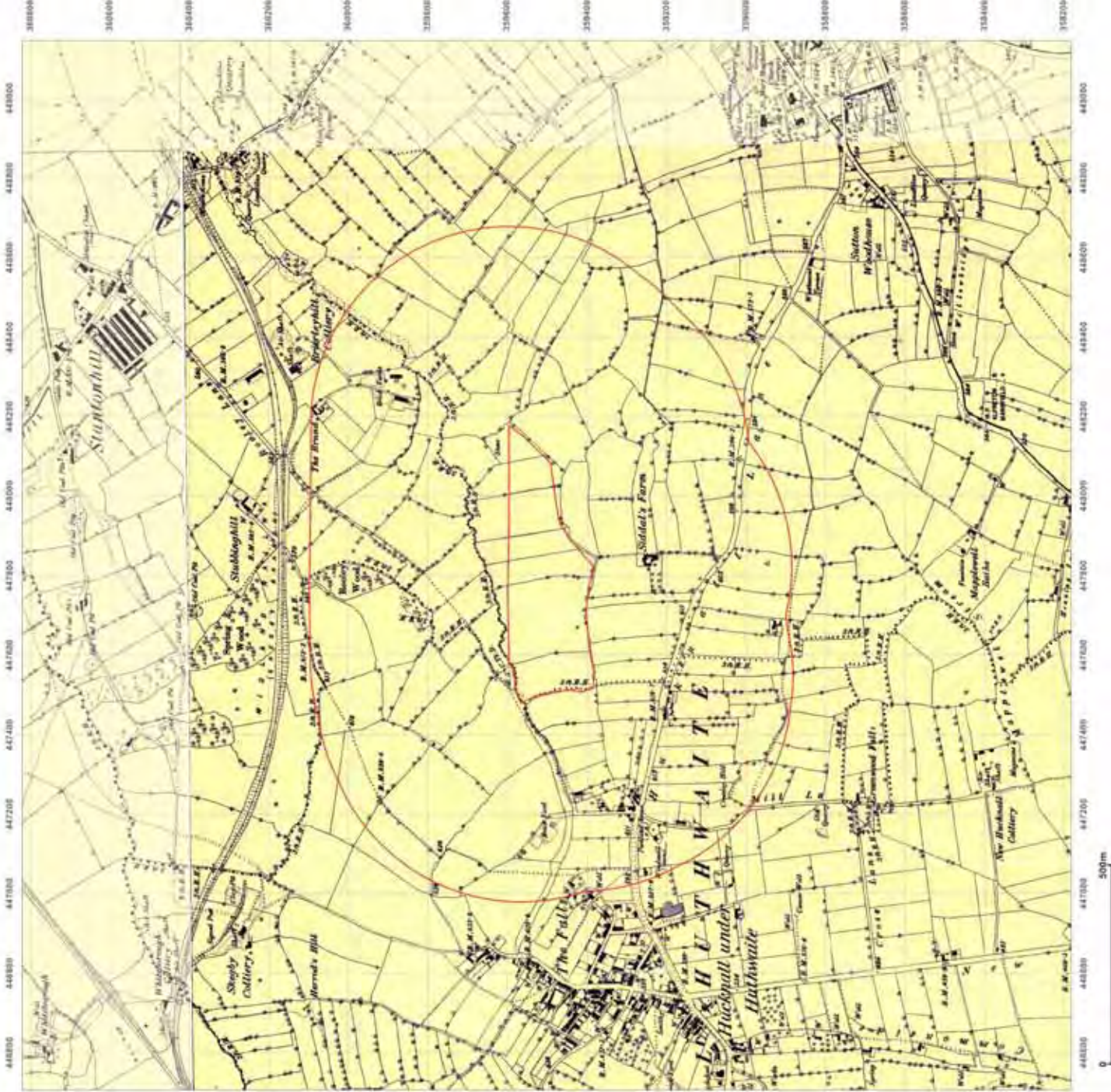


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Client Ref: EMS_182497_267992
Report Ref: EMS-182497_267992
Grid Ref: 447825, 359500

Map Name: County Series

Map date: 1877-1879

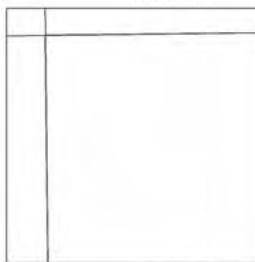
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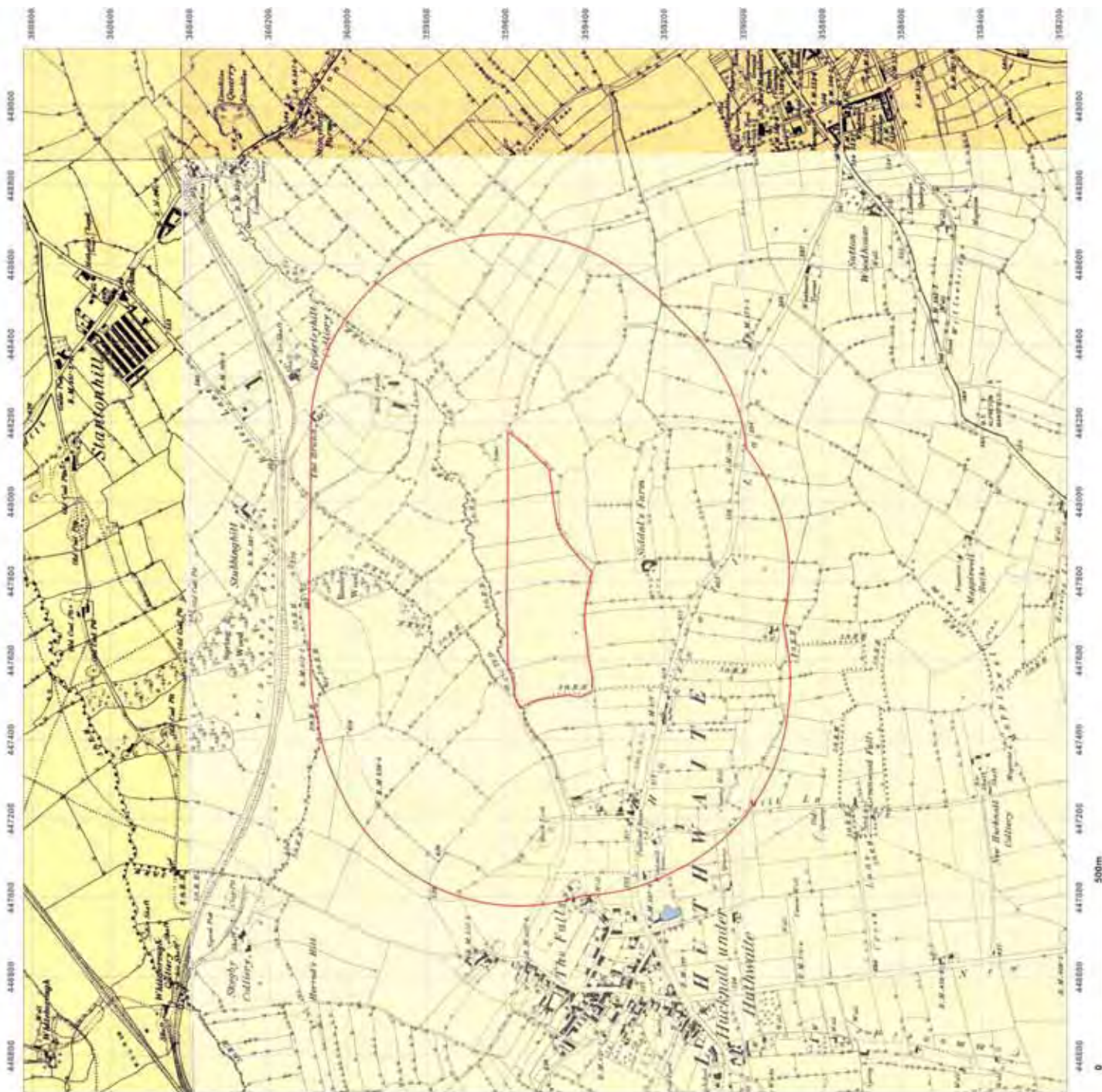
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DO NOT SCALE

NOTES:



BGS Borehole



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Laurus House, First Ave, Centrum 100,
Burton-on-Trent, Staffordshire
Tel: 01283 551 249 Fax: 01283 211 968
mail@grm-uk.com www.grm-uk.com

CLIENT:

David Wilson Homes – East Midlands

PROJECT:

Ashland Rd, Sutton in Ashfield

TITLE:

BGS Borehole Location Plan

SCALE@SIZE:

NTS

ISSUE:

FINAL

DESIGN/DRAWN:

AMH

DATE:

October 2012

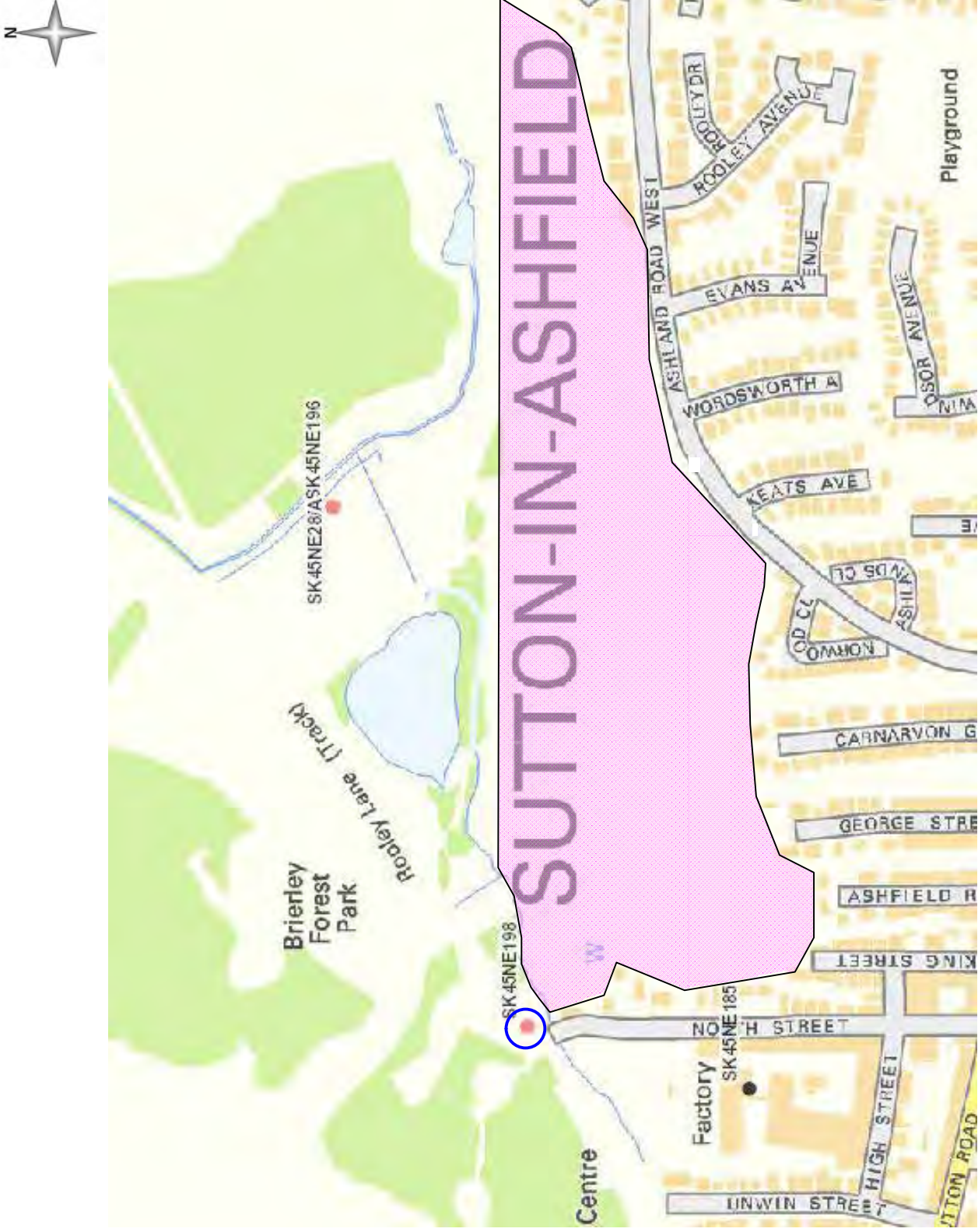
PROJECT No:

P5946

DRAWING No:

Figure 3

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6

RECORD OF WELL (SHAFT OR BORE)

PK 45/25C
1" O.S.
Grid Ref 43/47445 957

At Sutton Ct. No 2, B.H. (from surface to Top of Main Bed)
Town or Village _____ County Herts Six-inch quarter sheet 27NW
Exact site located on Water Dept 6 inch map 4745 957
in parish of _____
Level of ground surface above sea-level (O.D.) 553.4 ft. If well starts below ground surface, state how far _____ ft.
Shaft _____ ft., diameter _____ ft. Bore _____ ft. Diameter of bore: at top _____ ins.; at bottom _____ ins.
Details of permanent lining tubes (internal diameters preferred) _____

Water struck at depths of (feet) _____
Rest-level of water below top of well _____ feet. Suction at _____ feet. Yield on _____ hours' test
_____ gallons per _____ (with pump of capacity _____ g.p.h.); depressing water level to _____ feet
below top. Time of recovery _____ hrs. Amount normally pumped daily _____ g.p.h. for _____ hours.

Quality (attach copy of analysis if available) _____
Sunk by Forsley (Boremaster E. Deacon) for Mr. No 4 Area NCB Date of well Sept 1949
Information from Core examined by P.A. Allen 7 Oct. 1949 Fossil Nos. RAE 1495-1511

(For Survey use only). GEOLOGICAL CLASSIFICATION.	NATURE OF STRATA (and any additional remarks).	THICKNESS		DEPTH	
		Feet.	Inches.	Feet.	Inches.
DRIFT	Soil	1	0	1	0
	Clay	3	0	4	0
	Clay with boulders. No core. Boremaster's record.	6	0	10	0
UPPER CARBONIFEROUS	Red Marl	8	0	18	0
WESTPHALIAN	Grey red marl	10	0	28	0
	Grey marl (Rotary boring started here.)	17	6	45	6
3	Siltstone, sandy grey		9	46	3
	Mudstone, grey, with fragments of <u>muscles</u>	1	0	47	3
	Seatearth, muddy, stained red and yellowish brown	4	9	52	0
	Seatearth, muddy, stained yellowish brown, with much sphaeroidite	1	0	53	0
	Sandstone, silty, pale greenish grey, rather micaceous	1	0	54	0
	Siltstone and mudstone interbedded	1	1	55	1
	Sandstone, silty, pale greenish grey, rather micaceous	5	6	60	7
	Mudstone, silty, grey with thin <u>crinoid</u> band [thin at 69ft 8in] and some <u>plow</u> fragments	9	1	69	8
	Mudstone, rather dark grey with occasional <u>muscles</u> , & some <u>feruginous</u> spots	4	4	74	0
	Shale, fine silty, black, with <u>muscles</u> , pyritic markings, fish debris, and also markings like poorly preserved <u>stromatolites</u> in lower 12 in	3	2	77	2
	<u>CORL</u> 16in No core	1	4	78	6
	Seatearth, muddy, carbonaceous		1	78	7
	Seatearth, muddy, pale brownish grey	3	0	81	7
	Sandstone, silty, micaceous, with <u>siltstone</u>	1	0	82	7
	Siltstone, coarse, micaceous, with <u>siltstone</u>	1	8	84	3
Sandstone, with siltstone bands & laminae, and occasional <u>crinoid</u> nodules.	4	9	89	0	

GEOLOGICAL SURVEY AND MUSEUM,
SOUTH KENSINGTON,
LONDON, S.W.7.

For Survey use only

Date received	G.S.M. Office File No.	Site marked on 1" map (use symbol)
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(*11815) Wt. 29051/0.369 10,000 9/39
A. & E.W. Ltd. Cp. 636

Name and Number of Shaft or Bore given by Geological Survey:

Sutton Colliery No 2 B.H.

County North
6th Quarter Sheet
SK 45/25C

GEOLOGICAL CLASSIFICATION	DESCRIPTION	THICKNESS		DEPTH	
WESTPHALIAN 3	Siltstone, sandy, laminated, with occasional small <u>mussels</u>	7	6	89	0
	Mudstone, rather dark grey, with occasional <u>mussel fragments</u>	2	8	91	6
	Shale, fine silty, black, with fish debris	1	2	100	4
	Seatearth, sandy	1	0	101	4
	Seatearth, silty, with much sphaeroidite in basal 6 in.	2	4	103	8
	Siltstone, pale grey with sphaeroidite	2	2	105	10
	Sandstone, fine grained, with sphaeroidite	1	2	107	0
	Siltstone, coarse, grey, with sandstone bands and laminations "Slump-bedding" 108 ft to 105 ft 6 in.	4	9	111	9
	Mudstone, with thin wistone bands and lenses and one 3 in wistone band [unregular, at 102 ft 8 in], and occasional <u>mussels</u>	10	11	122	8
	Mudstone, dark grey, with wistone band [2 1/2 in, unregular, at base]	2	3	124	11
	Shale, fine silty, black with rare <u>mussels</u> 124' 11" - 125' 1" rare ? <u>Estheria</u> 125' 1" - 126' 3" <u>mussel fragments</u> 126' 3" - 126' 5" Thin wistone band with good plates at base.	1	6	126	5
	<u>COAL</u> 8 in. (<u>Bromastrea recordi</u>) One consists of a few pieces of bright coal and about 1 in of conical				
	Ironstone with <u>rotlets</u>		8	127	1
	Seatearth, muddy, and fine silty at base, grey		1 1/2	127	2 1/2
	Siltstone, coarse, with <u>rotlets</u> in top 2 ft. (strata here dips at angle of 1 in 16.)	1	9 1/2	129	0
	Mudstone, silty with wistone band [2 in at 139 ft.] containing rare small shells.	6	9	135	9
	Mudstone, grey, with thin wistone bands & occasional <u>mussels</u> .	3	3	139	0
	Mudstone, dark grey, with poorly preserved <u>mussel fragments</u> .	3	5	142	5
	Mudstone, dark grey, with poorly preserved <u>mussel fragments</u> .	4		142	9
	Mudstone, silty, grey, with siltstone and mudstone bands; and a 2 in. wistone band [at 144 ft.]	4	0	146	9
	Siltstone, grey	1	8	148	5
Mudstone, grey		5	148	10	
Siltstone, coarse, with 1 1/2 in wistone band at top; and some sandy laminae	5	3	154	1	
Siltstone, fine, grey, with occasional small <u>mussels</u>	1	0	155	1	
Mudstone, rather dark grey with some thin wistone lenses & occasional <u>mussels</u> in top half.	3	10	152	11	



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- Construction Management
- Site Services

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Fax: 01283 211968

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The Coal Authority, Property Search Services, 200 Lichfield Lane, Berry Hill, Mansfield, Nottinghamshire, NG18 4RG
 Website: www.groundstability.com Phone: 0845 762 6848 DX 716176 MANSFIELD 5

**GRM DEVELOPMENT SOLUTIONS
 LIMITED
 LAURUS HOUSE
 FIRST AVENUE
 BURTON-ON-TRENT
 STAFFORDSHIRE
 DE14 2WH**

Our reference: **51000168774001**
 Your reference: **P5946**
 Date of your enquiry: **31 October 2012**
 Date we received your enquiry: **31 October 2012**
 Date of issue: **31 October 2012**

This report is for the property described in the address below and the attached plan.

Non-Residential Coal Authority Mining Report

**FIELD OFF ASHLAND ROAD WEST, ASHLAND ROAD, SUTTON-IN-ASHFIELD,
 NOTTINGHAMSHIRE, NG17 2NP**

This report is based on and limited to the records held by, the Coal Authority, and the Cheshire Brine Subsidence Compensation Board's records, at the time we answer the search.

Coal mining	See comments below
Brine Compensation District	No

Information from the Coal Authority

Underground coal mining

Past

The property is in the likely zone of influence from workings in 6 seams of coal at 170m to 520m depth, and last worked in 1956.

Any ground movement from these coal workings should have stopped by now.

Present

The property is not in the likely zone of influence of any present underground coal workings.

Future

The property is not in an area for which the Coal Authority is determining whether to grant a licence to remove coal using underground methods.

The property is not in an area for which a licence has been granted to remove or otherwise work coal using underground methods.

The property is not in an area that is likely to be affected at the surface from any planned future workings.

However, reserves of coal exist in the local area which could be worked at some time in the future.

No notice of the risk of the land being affected by subsidence has been given under section 46 of the Coal Mining Subsidence Act 1991.

Mine entries

There are no known coal mine entries within, or within 20 metres of, the boundary of the property.

Coal mining geology

The Authority is not aware of any evidence of damage arising due to geological faults or other lines of weakness that have been affected by coal mining.

Opencast coal mining

Past

The property is not within the boundary of an opencast site from which coal has been removed by opencast methods.

Present

The property does not lie within 200 metres of the boundary of an opencast site from which coal is being removed by opencast methods.

Future

The property is not within 800 metres of the boundary of an opencast site for which the Coal Authority is determining whether to grant a licence to remove coal by opencast methods.

The property is not within 800 metres of the boundary of an opencast site for which a licence to remove coal by opencast methods has been granted.

Coal mining subsidence

The Coal Authority has not received a damage notice or claim for the subject property, or any property within 50 metres, since 31st October 1994.

There is no current Stop Notice delaying the start of remedial works or repairs to the property.

The Authority is not aware of any request having been made to carry out preventive works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991.

Mine gas

There is no record of a mine gas emission requiring action by the Coal Authority within the boundary of the property.

Hazards related to coal mining

The property has not been subject to remedial works, by or on behalf of the Authority, under its Emergency Surface Hazard Call Out procedures.

Withdrawal of support

The property is not in an area for which a notice of entitlement to withdraw support has been published.

The property is not in an area for which a notice has been given under section 41 of the Coal Industry Act 1994, revoking the entitlement to withdraw support.

Working facilities orders

The property is in an area for which the Sutton Area Order dated 1957 has been made under the provisions of the Mines (Working Facilities and Support) Acts 1923 and 1966 or any statutory modification.

Payments to owners of former copyhold land

The property is not in an area for which a relevant notice has been published under the Coal Industry Act 1975/Coal Industry Act 1994.

Information from the Cheshire Brine Subsidence Compensation Board

The property lies outside the Cheshire Brine Compensation District.

Additional Remarks

This report is prepared in accordance with the Law Society's Guidance Notes 2006, the User Guide 2006 and the Coal Authority and Cheshire Brine Board's Terms and Conditions 2006. The Coal Authority owns the copyright in this report. The information we have used to write this report is protected by our database right. All rights are reserved and unauthorised use is prohibited. If we provide a report for you, this does not mean that copyright and any other rights will pass to you. However, you can use the report for your own purposes.

Location map



Approximate position of property

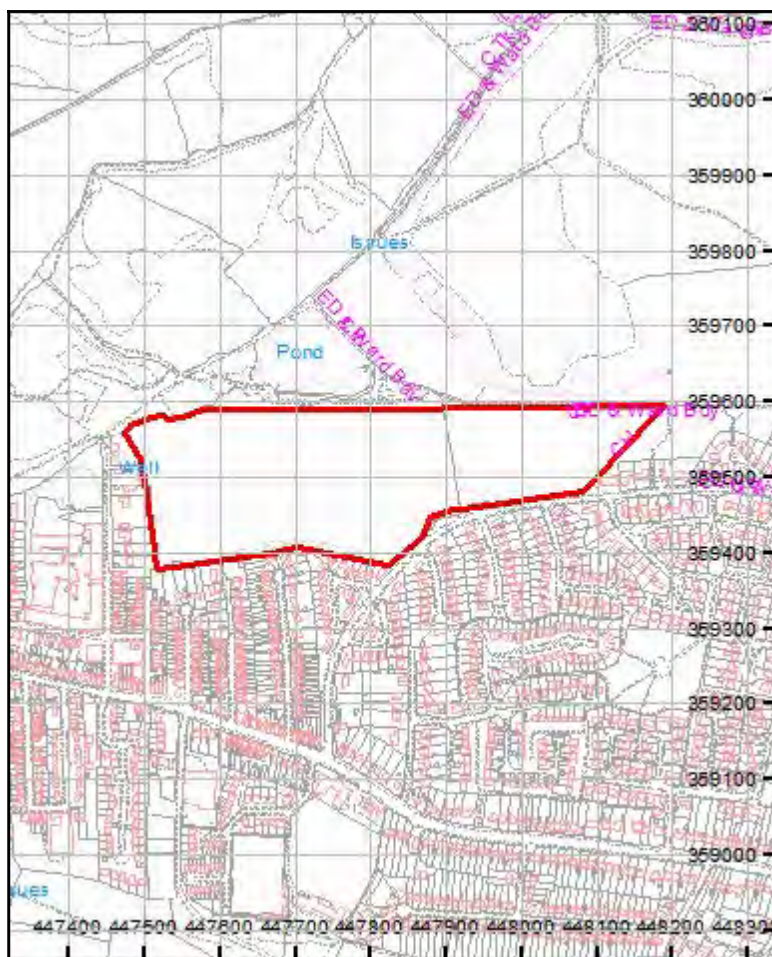


Enquiry boundary

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Key

Approximate position of enquiry boundary shown





**A
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G**

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EmapSite
Masdar House, ,
Eversley, RG27 0RP

GroundSure Reference:	EMS-182497_267994
Your Reference:	EMS_182497_267994
Report Date:	Oct 17, 2012
Report Delivery Method:	Email - pdf
Client Email:	sales@emapsite.com

GroundSure EnviroInsight

Address: NG17 2EZ

Dear Sir/Madam,

Thank you for placing your order with emapsite. Please find enclosed the GroundSure EnviroInsight as requested

If you would like further assistance regarding this report then please contact the emapsite customer services team on 0118 9736883 quoting the above report reference number.

Yours faithfully,

emapsite customer services team

Enc.
GroundSure EnviroInsight

GroundSure EnviroInsight

Address: NG17 2EZ

Date: Oct 17, 2012

GroundSure Reference: EMS-182497_267994

Your Reference: EMS_182497_267994

Client: EmapSite



Brought to you by emapsite

emapsite™

Aerial Photograph of Study Site



Site Name: NG17 2EZ
Grid Reference: 447478,359598
Size of Site: 10.49 ha

Aerial photography supplied by Getmapping PLC.
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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.

Report Section	Number of records found within (X) m of the study site boundary					
	on-site	0-50	51-250	251-500	501-1000	1000-1500
1. Environmental Permits, Incidents and Registers						
1.1 Industrial Sites Holding Environmental Permits and/or Authorisations						
Records of historic IPC Authorisations	0	0	0	0	-	-
Records of Part A(1) and IPPC Authorised Activities	0	0	0	0	-	-
Records of Water Industry Referrals (potentially harmful discharges to the public sewer)	0	0	0	0	-	-
Records of Red List Discharge Consents (potentially harmful discharges to controlled waters)	0	0	0	0	-	-
Records of List 1 Dangerous Substances Inventory sites	0	0	0	0	-	-
Records of List 2 Dangerous Substances Inventory sites	0	0	0	0	-	-
Records of Part A(2) and Part B Activities and Enforcements	0	0	2	0	-	-
Records of Category 3 or 4 Radioactive Substances Authorisations	0	0	0	0	-	-
Records of Licensed Discharge Consents	0	0	1	0	-	-
Records of Planning Hazardous Substance Consents and Enforcements	0	0	0	0		
1.2 Records of COMAH and NIHHS sites	0	0	0	0	-	-
1.3 Environment Agency Recorded Pollution Incidents						
National Incidents Recording System, List 2	0	1	0	-	-	-
National Incidents Recording System, List 1	0	0	0	-	-	-
1.4 Sites Determined as Contaminated Land under Part IIA EPA 1990	0	0	0	0	-	-
2. Landfill and Other Waste Sites						
2.1 Landfill Sites						
Environment Agency Registered Landfill Sites	0	0	0	0	1	-
Landfill Data – Operational Landfill Sites	0	0	0	0	0	-
Environment Agency Historic Landfill Sites	0	0	0	0	3	2
Landfill Data – Non-Operational Landfill Sites	0	0	0	0	1	-
BGS/DoE Landfill Site Survey	0	0	0	0	1	0
GroundSure Local Authority Landfill Sites Data	0	0	0	0	1	1
2.2 Landfill and Other Waste Sites Findings						
Operational Waste Treatment, Transfer and Disposal Sites	0	0	0	0	-	-
Non-Operational Waste Treatment, Transfer and Disposal Sites	0	0	1	0	-	-
Environment Agency Licensed Waste Sites	0	0	0	0	16	0

3. Current Land Uses	on-site	0-50	51-250	251-500	501-1000	1000-1500
3.1 Current Industrial Sites Data	0	0	9	-	-	-
3.2 Records of Petrol and Fuel Sites	0	0	1	0	-	-
3.3 Underground High Pressure Oil and Gas Pipelines	0	0	0	0	-	-

4. Geology Description

4.1 Are there any records of Artificial Ground and Made Ground present beneath the study site? * No

4.2 Are there any records of Superficial Ground and Drift Geology present beneath the study site? * Yes

4.3 For records of Bedrock and Solid Geology beneath the study site* see the detailed findings section.

Source: Scale: 1:50,000 BGS Sheet 112

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

5. Hydrogeology and Hydrology on-site 0-50 51-250 251-500 501-1000 1001-2000

5.1 Are there any records of Productive Strata in the Superficial Geology within 500m of the study site? Yes

5.2 Are there any records of Productive Strata in the Bedrock Geology within 500m of the study site? Yes

5.3 Groundwater Abstraction Licences (within 2000m of the study site). 0 0 1 0 0 0

5.4 Surface Water Abstraction Licences (within 2000m of the study site). 0 1 0 0 0 0

5.5 Potable Water Abstraction Licences (within 2000m of the study site). 0 0 0 0 0 0

5.6 Are there any Source Protection Zones within 500m of the study site? No

5.7 River Quality on-site 0-50 51-250 251-500 501-1000 1001-1500

Is there any Environment Agency information on river quality within 1500m of the study site? No No No No No Yes

5.8 Detailed River Network entries within 500m of the site 3 5 4 1 - -

5.9 Surface water features within 250m of the study site Yes Yes Yes - - -

6. Flooding

6.1 Are there any Environment Agency indicative Zone 2 floodplains within 250m of the study site? No

6.2 Are there any Environment Agency indicative Zone 3 floodplains within 250m of the study site? No

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

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

6.5 Are there any areas used for Flood Storage within 250m of the study site? No

6.6 What is the maximum BGS Groundwater Flooding susceptibility within 50m of the study site? Very High

6.7 What is the BGS confidence rating for the Groundwater Flooding susceptibility areas? Moderate

7. Designated Environmentally Sensitive Sites on-site 0-50 51-250 251-500 501-1000 1001-2000

7.1 Records of Sites of Special Scientific Interest (SSSI) 0 0 0 0 0 1

7.2 Records of National Nature Reserves (NNR) 0 0 0 0 0 0

7.1 Records of Sites of Special Scientific Interest (SSSI)	0	0	0	0	0	1
7.3 Records of Local Nature Reserves (LNR)	1	0	0	0	0	1
7.4 Records of Special Areas of Conservation (SAC)	0	0	0	0	0	0
7.5 Records of Special Protection Areas (SPA)	0	0	0	0	0	0
7.6 Records of Ramsar sites	0	0	0	0	0	0
7.7 Records of World Heritage Sites	0	0	0	0	0	0
7.8 Records of Environmentally Sensitive Areas	0	0	0	0	0	0
7.9 Records of Areas of Outstanding Natural Beauty (AONB)	0	0	0	0	0	0
7.10 Records of National Parks	0	0	0	0	0	0
7.11 Records of Nitrate Sensitive Areas	0	0	0	0	0	0
7.12 Records of Nitrate Vulnerable Zones	1	0	0	1	0	2
7.13 Records of Ancient Woodlands	0	0	0	0	0	1

8. Natural Hazards

8.1 What is the maximum risk of natural ground subsidence? Low

9. Mining

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

Using this Report

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

1. Environmental Permits, Incidents and Registers

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

2. Landfills and Other Waste Sites

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

3. Current Land Uses

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

4. Geology

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

5. Hydrogeology and Hydrology

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

6. Flooding

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

7. Designated Environmentally Sensitive Sites

Provides information on the Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR), Special Areas of Conservation (SAC), Special Protection Areas (SPA), Ramsar sites, Local Nature Reserves (LNR), Areas of Outstanding Natural Beauty (AONB), National Parks (NP), Environmentally Sensitive Areas, Nitrate Sensitive Areas, Nitrate Vulnerable Zones and World Heritage Sites. These searches are conducted using radii of up to 500m.

8. Natural Hazards

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

9. Mining

Provides information on areas of coal and shallow mining.

10. Contacts

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

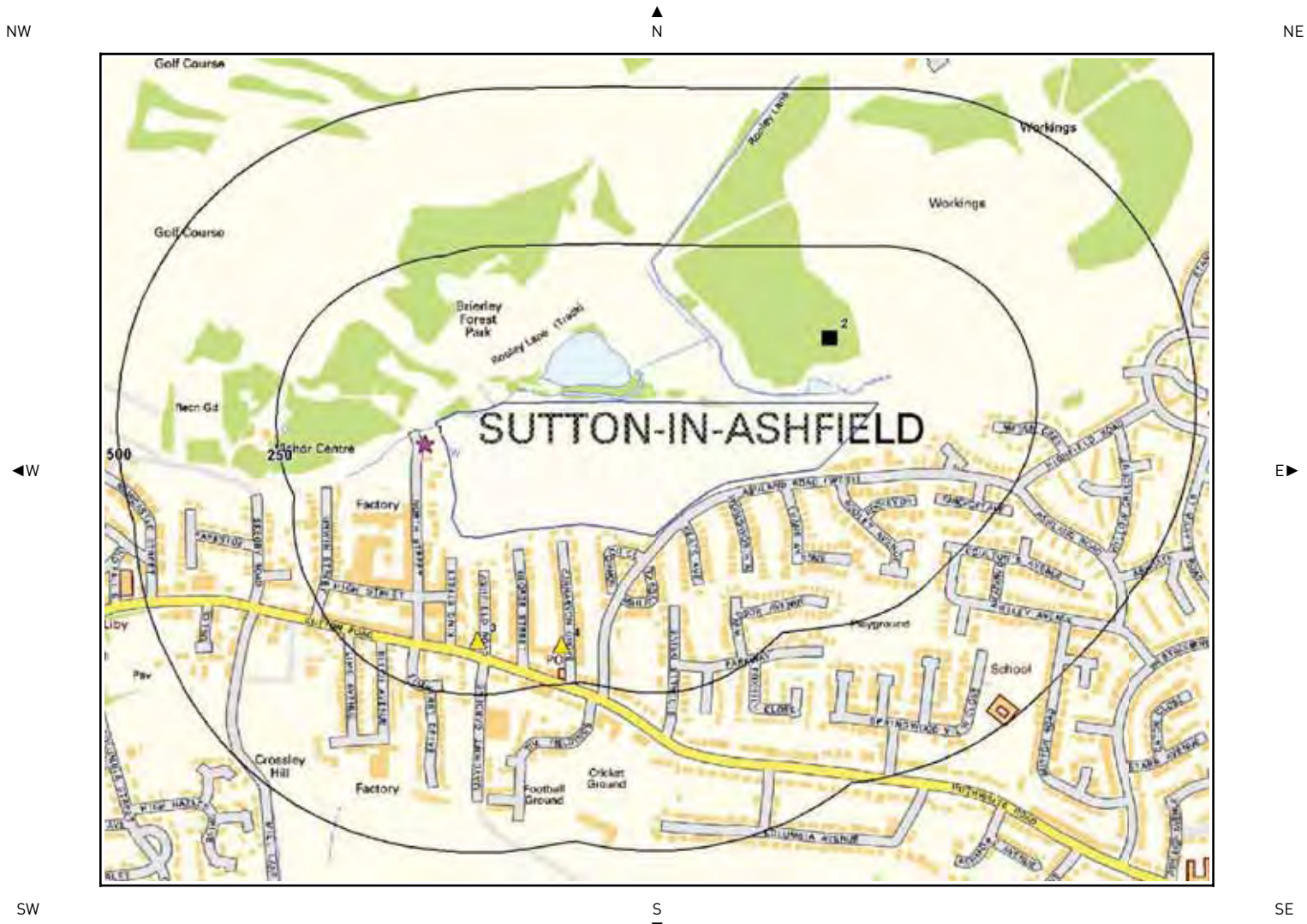
Note: Maps

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

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

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

1. Environmental Permits, Incidents and Registers Map



Authorisations, Incidents and Registers Legend



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

1.Environmental Permits, Incidents and Registers

1.1 Industrial Sites Holding Licences and/or Authorisations

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

Records of historic IPC Authorisations within 500m of the study site: 0

Database searched and no data found.

Records of Part A(1) and IPPC Authorised Activities within 500m of the study site: 0

Database searched and no data found.

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.

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.

Records of List 1 Dangerous Substances Inventory Sites within 500m of the study site: 0

Database searched and no data found.

Records of List 2 Dangerous Substance Inventory Sites within 500m of the study site: 0

Database searched and no data found.

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

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

ID	Distance	Direction	NGR	Details
3	167.0	S	447545, 359215	Address: Fishers Service Station, Motor Centre, Sutton Road, Huthwaite, Sutton-in-Ashfield, Nottingham, NG17 2NZ Process: Petroleum process Status: Current Permit Permit Type: Part B Enforcement: No Enforcements Notified Date of Enforcement: No Enforcements Notified Comment: No Enforcements Notified

4	190.0	S	447676, 359209	Address: Paul Ellis Autos, 2 Carnarvon Road, Huthwaite, Sutton-in-Ashfield, Nottingham, NG17 2HH Process: Waste Oil Burner Status: Current Permit Permit Type: Part B	Enforcement: No Enforcements Notified Date of Enforcement: No Enforcements Notified Comment: No Enforcements Notified
---	-------	---	-------------------	--	---

Records of Category 3 or 4 Radioactive Substance Licences within 500m of the study site: 0

Database searched and no data found.

Records of Licensed Discharge Consents within 500m of the study site: 1

The following Licensed Discharge Consents records are represented as points on the Authorisations, Incidents and Registers map:

ID	Distance	Direction	NGR	Details
2	105.0	N	448100, 359700	Address: Carsic Lane Housing Estate - Sws, Carsic Lane, Sutton In Ashfield, Notts Effluent Type: Miscellaneous Discharges - Surface Water Permit Number: T/71/01344/O Permit Version: 1 Receiving Water: River Meden (tributary) Status: Revoked (wra 91, S88 & Sched 10 As Amended By Env Act 1995) Issue date: 7/4/1965 Effective Date: 7/4/1965 Revocation Date: 2/4/2000

Records of Planning Hazardous Substance Consents and Enforcements within 500m of the study site: 0

Database searched and no data found.

1.2 Dangerous or Hazardous Sites

Records of COMAH & NIHHS sites within 500m of the study site: 0

Database searched and no data found.

1.3 Environment Agency Recorded Pollution Incidents

Records of National Incidents Recording System, List 2 within 250m of the study site: 1

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

ID	Distance	Direction	NGR	Details
1	30.0	SW	447462, 359531	Incident Date: 19/8/2002 Incident Identification: 101501 Pollutant: Sewage Materials Pollutant Description: Crude Sewage Water Impact: Category 4 (No Impact) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)

Records of National Incidents Recording System, List 1 within 250m of the study site: 0

Database searched and no data found.

1.4 Sites Determined as Contaminated Land under Part IIA EPA 1990

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

0

Database searched and no data found.

2. Landfill and Other Waste Sites Map

NW

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NE

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SW




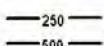









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Landfill & Other Waste Sites Legend



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- | | | | | | |
|---|--------------------|---|---------------------------------------|--|-------------------------------------|
|  | Site Outline |  | E.A. Active Landfill |  | Operational Waste Treatment Licence |
|  | Search Buffers (m) |  | E.A. Historic Landfill (Area Data) |  | Closed Waste Treatment Licence |
| | |  | E.A. Historic Landfill (Point Data) |  | REGIS Waste Licence |
| | |  | BGS / DoE Survey Landfill |  | Operational Landfill |
| | |  | Local Authority Landfill (Area Data) |  | Closed Landfill |
| | |  | Local Authority Landfill (Point Data) | | |

2. Landfill and Other Waste Sites

2.1 Landfill Sites

Records from Environment Agency landfill data within 1000m of the study site: 1

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

ID	Distance	Direction	NGR	Details
9	516.0	S	447721, 358821	<p>Address: Sutton Landfill Site, Huthwaite Road, Sutton In Ashfield, Nottinghamshire, NG17 2HB Landfill Reference: 43227.0 Regis Reference: WAS004 Landfill Type: A1 : Co-Disposal Landfill Site</p> <p>Operator: Waste Recycling Group Limited Status: Modified IPPC Reference: EPR Reference:</p>

Records of operational landfill sites sourced from Landmark within 1000m of the study site: 0

Database searched and no data found.

Records of Environment Agency historic landfill sites within 1500m of the study site: 5

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

ID	Distance	Direction	NGR	Details
11	520.0	S	447800, 358600	<p>Site Address: Charnwood Street Tip, Charnwood Street, Off Alfreton Road, Sutton, Ashfield, Nottinghamshire Waste Licence: - Site Reference: 4/77/14/45NE Waste Type: Inert, Industrial, Commercial, Household, Regis Reference: -</p> <p>Licence Issue: - Licence Surrendered: - Licence Hold Address: - Operator: -</p>
12	534.0	SW	447000, 359000	<p>Site Address: Rear of 50-56 Columbia Street, Huthwaite, Sutton In Ashfield Waste Licence: Yes Site Reference: 4/77/6/45NE Waste Type: Inert, Regis Reference: -</p> <p>Licence Issue: 27/10/1977 Licence Surrendered: 31/12/1983 Licence Hold Address: 50 Columbia Street, Huthwaite, Sutton-in-Ashfield Operator: -</p>
Not shown	749.0	S	447500, 358300	<p>Site Address: Sutton Landfill Site, Sutton Landfill and Extension into new Hucknall Colliery Site Waste Licence: Yes Site Reference: 4/82/132/45NE, 4/92/132/45NE Waste Type: Inert, Industrial, Commercial, Household, Liquid sludge, Regis Reference: -</p> <p>Licence Issue: 11/01/1983 Licence Surrendered: - Licence Hold Address: Department of Planning and Transportation, Trent Bridge House, Fox Road, West Bridgford, Notti Operator: -</p>
Not shown	1065.0	NW	446300, 360000	<p>Site Address: Woodend Farm, Off Chesterfield Road, Huthwaite Waste Licence: Yes Site Reference: 4/90/215/45NE Waste Type: Inert, Regis Reference: -</p> <p>Licence Issue: 08/04/1991 Licence Surrendered: 31/12/1991 Licence Hold Address: Wood End Farm, Chesterfield Road, Huthwaite, Sutton in Ashfield, Nottinghamshire Operator: -</p>
Not shown	1289.0	E	449500, 359500	<p>Site Address: Disused Railway Cutting, Between Preistic Road and Stoneyford Road, Sutton in Ashfield Waste Licence: Yes Site Reference: 4/83/136/45NE Waste Type: Inert, Regis Reference: -</p> <p>Licence Issue: 22/09/1983 Licence Surrendered: 28/04/1994 Licence Hold Address: Technical Services Department, 28 Station Road, Sutton in Ashfield, Nottinghamshire Operator: -</p>

Records of non-operational landfill sites sourced from Landmark within 1000m of the study site: 1

Report Reference: EMS-182497_267994

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

ID	Distance	Direction	NGR	Details	
2	508.0	SW	447100, 359100	Site Address: 50-56 Columbia Street, SUTTON IN ASHFIELD, Nottinghamshire Landfill Licence: 33AAFSAL Agency Reference: Waste Type: Inert Waste Description: Inert Landfill Known Restrictions: No known restriction on source of waste	Record Date: 01-Jun-1977 Transfer Date: Modification Date: Status: Licence lapsed/cancelled/defunct/not applicable/surrendered Category: LANDFILL Regulator: EA - Midlands Region - Lower Trent Area (Nottingham) Size: Medium (< 75,000 tonnes/year)

Records of BGS/DoE non-operational landfill sites within 1500m of the study site: 1

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

ID	Distance	Direction	NGR	Details	
Not shown	689.0	S	447900, 358700	Address: Charnwood St, Sutton-in-Ashfield, Notts BGS Number: 32.0	Risk: Risk not recorded Waste Type: N/A

Records of Local Authority landfill sites within 1500m of the study site: 2

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

ID	Distance	Direction	Site Address	Source	Data Type
Not shown	870.0	S	Refuse Tip	1995 mapping	Polygon
Not shown	1296.0	E	Refuse Tip	1972 mapping	Polygon

2.2 Other Waste Sites

Records of operational waste treatment, transfer or disposal sites within 500m of the study site: 0

Database searched and no data found.

Records of non-operational waste treatment, transfer or disposal sites within 500m of the study site: 1

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

ID	Distance	Direction	NGR	Details	
10	183.0	S	447570, 359200	Site Address: Ashfield House, Sutton Road, Huthwaite, SUTTON IN ASHFIELD, Nottinghamshire, NG17 2NY Landfill Licence: 33AAJMAL EA Reference: - Waste Type: Non-Hazardous Waste Description: - Known Restrictions: No known restriction on source of waste	Record Date: 01-Feb-1993 Transfer Date: Modification Date: Status: Site now exempt from licencing Category: SCRAPYARD Regulator: EA - Midlands Region - Lower Trent Area (Nottingham) Size: Very Small (<10,000 tonnes/year)

Records of Environment Agency licensed waste sites within 1500m of the study site: 16

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

ID	Distance	Direction	NGR	Details	
Not shown	573.0	S	447721, 358821	<p>Site Address: Sutton Landfill Site, Huthwaite Road, Sutton In Ashfield, Nottingham, Nottinghamshire</p> <p>Type: Co-Disposal Landfill Site</p> <p>Size: < 25000 tonnes</p> <p>Regis Licence Number: WAS004</p> <p>EPR reference: -</p> <p>Operator: Waste Recycling Group Ltd</p> <p>Waste Management licence No: 43227</p> <p>Annual Tonnage: 0.0</p>	<p>Issue Date: 06/01/1993</p> <p>Effective Date: -</p> <p>Modified: 20/11/1997</p> <p>Surrendered Date: -</p> <p>Expiry Date: -</p> <p>Cancelled Date: -</p> <p>Status: Issued</p> <p>Site Name: Sutton Landfill Site</p> <p>Correspondence Address: -, 3 Sidings Court, White Rose Way, Doncaster, South Yorkshire, DN4 5NU</p>
Not shown	573.0	S	447721, 358821	<p>Site Address: Sutton Landfill Site, Huthwaite Road, Sutton In Ashfield, Nottinghamshire, NG17 2HB</p> <p>Type: Co-Disposal Landfill Site</p> <p>Size: < 25000 tonnes</p> <p>Regis Licence Number: WAS004</p> <p>EPR reference: -</p> <p>Operator: Waste Recycling Group Ltd</p> <p>Waste Management licence No: 43227</p> <p>Annual Tonnage: 2080250.0</p>	<p>Issue Date: 06/01/1993</p> <p>Effective Date: -</p> <p>Modified: 20/11/1997</p> <p>Surrendered Date: -</p> <p>Expiry Date: -</p> <p>Cancelled Date: -</p> <p>Status: Issued</p> <p>Site Name: Sutton Landfill Site</p> <p>Correspondence Address: -, 3 Sidings Court, White Rose Way, Doncaster, South Yorkshire, DN4 5NU</p>
Not shown	573.0	S	447721, 358821	<p>Site Address: Sutton Landfill Site, Huthwaite Road, Sutton In Ashfield, Nottinghamshire, NG17 2HB</p> <p>Type: Co-Disposal Landfill Site</p> <p>Size: < 25000 tonnes</p> <p>Regis Licence Number: WAS004</p> <p>EPR reference: EA/EPR/AP3290LU/V008</p> <p>Operator: Waste Recycling Group Limited</p> <p>Waste Management licence No: 43227</p> <p>Annual Tonnage: 4999.0</p>	<p>Issue Date: 06/01/1993</p> <p>Effective Date: -</p> <p>Modified: 23/12/2008</p> <p>Surrendered Date: -</p> <p>Expiry Date: -</p> <p>Cancelled Date: -</p> <p>Status: Modified</p> <p>Site Name: Sutton Landfill Site</p> <p>Correspondence Address: -, -</p>
Not shown	573.0	S	447721, 358821	<p>Site Address: Sutton Landfill Site, Huthwaite Road, Sutton In Ashfield, Nottingham, Nottinghamshire</p> <p>Type: Co-Disposal Landfill Site</p> <p>Size: >= 75000 tonnes</p> <p>Regis Licence Number: WAS004</p> <p>EPR reference: -</p> <p>Operator: Waste Notts Ltd</p> <p>Waste Management licence No: 43227</p> <p>Annual Tonnage: 0.0</p>	<p>Issue Date: 06/01/1993</p> <p>Effective Date: -</p> <p>Modified: 20/11/1997</p> <p>Surrendered Date: -</p> <p>Expiry Date: -</p> <p>Cancelled Date: -</p> <p>Status: Issued</p> <p>Site Name: Sutton Landfill Site</p> <p>Correspondence Address: -, 3 Sidings Court, White Rose Way, Doncaster, South Yorkshire, DN4 5NU</p>
Not shown	573.0	S	447721, 358821	<p>Site Address: Sutton Landfill Site, Huthwaite Road, Sutton In Ashfield, Nottingham, Nottinghamshire</p> <p>Type: Co-Disposal Landfill Site</p> <p>Size: >= 75000 tonnes</p> <p>Regis Licence Number: WAS004</p> <p>EPR reference: -</p> <p>Operator: Waste Recycling Ltd</p> <p>Waste Management licence No: 43227</p> <p>Annual Tonnage: 0.0</p>	<p>Issue Date: 06/01/1993</p> <p>Effective Date: -</p> <p>Modified: 20/11/1997</p> <p>Surrendered Date: -</p> <p>Expiry Date: -</p> <p>Cancelled Date: -</p> <p>Status: Issued</p> <p>Site Name: Sutton Landfill Site</p> <p>Correspondence Address: -, 3 Sidings Court, White Rose Way, Doncaster, South Yorkshire, DN4 5NU</p>
Not shown	580.0	S	447706, 358817	<p>Site Address: Huthwaite Road, Sutton In Ashfield, Nottingham</p> <p>Type: Household, Commercial & Industrial Waste T Stn</p> <p>Size: < 25000 tonnes</p> <p>Regis Licence Number: VEO003</p> <p>EPR reference: -</p> <p>Operator: Veolia Environmental Services Plc</p> <p>Waste Management licence No: 43228</p> <p>Annual Tonnage: 0.0</p>	<p>Issue Date: 20/11/1999</p> <p>Effective Date: 01/06/2006</p> <p>Modified: 29/09/2004</p> <p>Surrendered Date: -</p> <p>Expiry Date: -</p> <p>Cancelled Date: -</p> <p>Status: Transferred</p> <p>Site Name: Sutton Household Waste Centre</p> <p>Correspondence Address: -, Lumbley Street, Sheffield, South Yorkshire, S4 7ZJ</p>
Not shown	580.0	S	447706, 358817	<p>Site Address: Sutton H W R C, Huthwaite Road, Sutton In Ashfield, Nottinghamshire, NG18 1HR</p> <p>Type: Household Waste Amenity Site</p> <p>Size: < 25000 tonnes</p> <p>Regis Licence Number: VEO003</p> <p>EPR reference: EA/EPR/UP3093CA/S003</p> <p>Operator: Veolia Environmental Services (U K) Plc</p> <p>Waste Management licence No: 43228</p> <p>Annual Tonnage: 0.0</p>	<p>Issue Date: 20/11/1999</p> <p>Effective Date: 01/06/2006</p> <p>Modified: 29/09/2004</p> <p>Surrendered Date: 19/09/2011</p> <p>Expiry Date: -</p> <p>Cancelled Date: -</p> <p>Status: Surrendered</p> <p>Site Name: Sutton Household Waste Centre</p> <p>Correspondence Address: -, -</p>

Not shown	580.0	S	447706, 358817	<p>Site Address: Sutton H W R C, Huthwaite Road, Sutton In Ashfield, Nottinghamshire, NG18 1HR</p> <p>Type: Household, Commercial & Industrial Waste T Stn</p> <p>Size: < 25000 tonnes</p> <p>Regis Licence Number: VEO003</p> <p>EPR reference: -</p> <p>Operator: Veolia Environmental Services (U K) Plc</p> <p>Waste Management licence No: 43228</p> <p>Annual Tonnage: 25000.0</p>	<p>Issue Date: 11/20/1999</p> <p>Effective Date: 6/1/2006</p> <p>Modified: 9/29/2004</p> <p>Surrendered Date: -</p> <p>Expiry Date: -</p> <p>Cancelled Date: -</p> <p>Status: Transferred</p> <p>Site Name: Sutton Household Waste Centre</p> <p>Correspondence Address: -, Lumbley Street Service Centre, Lumbley Street, Sheffield, South Yorkshire, S4 7ZJ</p>
Not shown	581.0	S	447705, 358816	<p>Site Address: Huthwaite Road, Sutton In Ashfield, Nottingham</p> <p>Type: Household, Commercial & Industrial Waste T Stn</p> <p>Size: < 25000 tonnes</p> <p>Regis Licence Number: SOU006</p> <p>EPR reference: -</p> <p>Operator: South Herts Waste Management Ltd</p> <p>Waste Management licence No: 43228</p> <p>Annual Tonnage: 0.0</p>	<p>Issue Date: 20/11/1999</p> <p>Effective Date: -</p> <p>Modified: 23/01/1996</p> <p>Surrendered Date: -</p> <p>Expiry Date: -</p> <p>Cancelled Date: -</p> <p>Status: Issued</p> <p>Site Name: Sutton Household Waste Centre</p> <p>Correspondence Address: -, 12, Barbers Road, Stratford, London, E15 2PH</p>
Not shown	909.0	NE	448600, 360400	<p>Site Address: Stanton Hill, Brierley Park Close, Brierley Park Ind Est, Sutton In Ashfield, Nottinghamshire, NG17 3FW</p> <p>Type: Household, Commercial & Industrial Waste T Stn</p> <p>Size: < 25000 tonnes</p> <p>Regis Licence Number: MIT001</p> <p>EPR reference: EA/EPR/DP3490CL/A001</p> <p>Operator: Mitchells (Of Mansfield) Ltd</p> <p>Waste Management licence No: 43706</p> <p>Annual Tonnage: 25000.0</p>	<p>Issue Date: 15/09/2006</p> <p>Effective Date: -</p> <p>Modified: -</p> <p>Surrendered Date: -</p> <p>Expiry Date: -</p> <p>Cancelled Date: -</p> <p>Status: Issued</p> <p>Site Name: Mitchells Of Mansfield Ltd</p> <p>Correspondence Address: -, -</p>
Not shown	909.0	NE	448600, 360400	<p>Site Address: Brierley Park Industrial Estate, Stanton Hill, Sutton In Ashfield, Nottingham, Nottinghamshire, NG17 3FW</p> <p>Type: -</p> <p>Size: < 25000 tonnes</p> <p>Regis Licence Number: MIT001</p> <p>EPR reference: -</p> <p>Operator: Mitchells Of Mansfield Ltd</p> <p>Waste Management licence No: 43706</p> <p>Annual Tonnage: 0.0</p>	<p>Issue Date: 15/09/2006</p> <p>Effective Date: -</p> <p>Modified: -</p> <p>Surrendered Date: -</p> <p>Expiry Date: -</p> <p>Cancelled Date: -</p> <p>Status: Issued</p> <p>Site Name: -</p> <p>Correspondence Address: -, Brierley Park Industrial Estate, Stanton Hill, Sutton In Ashfield, Nottingham, Nottinghamshire, NG17 3FW</p>
Not shown	909.0	NE	448600, 360400	<p>Site Address: Brierley Park Industrial Estate, Stanton Hill, Sutton In Ashfield, Nottingham, Nottinghamshire, NG17 3FW</p> <p>Type: Household, Commercial & Industrial Waste T Stn</p> <p>Size: < 25000 tonnes</p> <p>Regis Licence Number: MIT001</p> <p>EPR reference: -</p> <p>Operator: Mitchells Of Mansfield Ltd</p> <p>Waste Management licence No: 43706</p> <p>Annual Tonnage: 25000.0</p>	<p>Issue Date: 15/09/2006</p> <p>Effective Date: -</p> <p>Modified: -</p> <p>Surrendered Date: -</p> <p>Expiry Date: -</p> <p>Cancelled Date: -</p> <p>Status: Issued</p> <p>Site Name: Mitchells Of Mansfield Limited</p> <p>Correspondence Address: -, Brierley Park Industrial Estate, Stanton Hill, Sutton In Ashfield, Nottingham, Nottinghamshire, NG17 3FW</p>
Not shown	954.0	NE	448817, 360303	<p>Site Address: Ashfield Concrete Products, Stoneyford Road, Sutton In Ashfield, Nottingham, Nottinghamshire, NG17 2DX</p> <p>Type: Household, Commercial & Industrial Waste T Stn</p> <p>Size: Unknown</p> <p>Regis Licence Number: EAS001</p> <p>EPR reference: -</p> <p>Operator: Easymix Concrete Ltd</p> <p>Waste Management licence No: 43186</p> <p>Annual Tonnage: 0.0</p>	<p>Issue Date: 08/01/1996</p> <p>Effective Date: -</p> <p>Modified: -</p> <p>Surrendered Date: -</p> <p>Expiry Date: -</p> <p>Cancelled Date: -</p> <p>Status: Issued</p> <p>Site Name: Ashfield Concrete Products</p> <p>Correspondence Address: -, Stoneyford Road, Sutton In Ashfield, Nottingham, Nottinghamshire, NG17 2DX</p>
Not shown	955.0	NE	448818, 360303	<p>Site Address: Ashfield Concrete Products, Stoneyford Road, Sutton In Ashfield, Nottinghamshire, NG17 2DX</p> <p>Type: Household, Commercial & Industrial Waste T Stn</p> <p>Size: < 25000 tonnes</p> <p>Regis Licence Number: EAS001</p> <p>EPR reference: EA/EPR/BP3593CT/A001</p> <p>Operator: Easy Mix Concrete Ltd</p> <p>Waste Management licence No: 43186</p> <p>Annual Tonnage: 25000.0</p>	<p>Issue Date: 08/01/1996</p> <p>Effective Date: -</p> <p>Modified: -</p> <p>Surrendered Date: -</p> <p>Expiry Date: -</p> <p>Cancelled Date: -</p> <p>Status: Issued</p> <p>Site Name: Ashfield Concrete Products</p> <p>Correspondence Address: -, -</p>

Not shown	955.0	NE	448818, 360303	<p>Site Address: Ashfield Concrete Products, Stoneyford Road, Sutton In Ashfield, Nottingham, Nottinghamshire, NG17 2DX</p> <p>Type: Household, Commercial & Industrial Waste T Stn Size: < 25000 tonnes</p> <p>Regis Licence Number: EAS001 EPR reference: -</p> <p>Operator: Easymix Concrete Ltd Waste Management licence No: 43186 Annual Tonnage: 0.0</p>	<p>Issue Date: 08/01/1996 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued</p> <p>Site Name: Ashfield Concrete Products Correspondence Address: -, Stoneyford Road, Sutton In Ashfield, Nottingham, Nottinghamshire, NG17 2DX</p>
Not shown	983.0	S	447600, 358400	<p>Site Address: Huthwaite Road, Sutton In Ashfield, Nottingham, Nottinghamshire, NG17 2GZ</p> <p>Type: Landfill Gas Engine (<3 mW) Size: < 25000 tonnes</p> <p>Regis Licence Number: NOV006 EPR reference: -</p> <p>Operator: Novera Energy Generation No. 2 Limited Waste Management licence No: 220010 Annual Tonnage: 0.0</p>	<p>Issue Date: 06/10/2006 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued</p> <p>Site Name: Sutton Generation Plant Correspondence Address: -, -</p>

3. Current Land Use Map



Current Land Use Legend



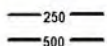
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Site Outline



Current Industrial Sites



Search Buffers (m)



Petrol & Fuel Sites



Underground High Pressure Oil & Fuel Pipelines

3. Current Land Uses

3.1 Current Industrial Data

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

9

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

ID	Distance	Direction	Company	Address	Activity	Category
1	119.0	SE	Electricity Sub Station	NG17	Electrical Features	Infrastructure and Facilities
2	126.0	S	Factory	NG17	Unspecified Works Or Factories	Industrial Features
3	148.0	W	Factory	NG17	Unspecified Works Or Factories	Industrial Features
4A	154.0	S	Fishers Service Station	Sutton Road, Huthwaite, Sutton-in-Ashfield, NG17 2NZ	Petrol and Fuel Stations	Road and Rail
5A	154.0	S	Fishers Service Station	Sutton Road, Huthwaite, Sutton-in-Ashfield, NG17 2NZ	Petrol and Fuel Stations	Road and Rail
6	182.0	W	Ian Smith	37, Unwin Street, Huthwaite, Sutton-in-Ashfield, NG17 2PH	Furniture	Consumer Products
7	184.0	S	Ben Woolley	Ashfield House, Sutton Road, Huthwaite, Sutton-in-Ashfield, NG17 2NY	Scrap Metal Merchants	Recycling Services
8	189.0	N	Spoil Heap	NG17	Waste Storage, Processing and Disposal	Infrastructure and Facilities
9	226.0	S	Total Hire & Sales	6, Sutton Road, Huthwaite, Sutton-in-Ashfield, NG17 2NW	Construction and Tool Hire	Hire Services

3.2 Petrol and Fuel Sites

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

1

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

ID	Distance	Direction	NGR	Company	Address	LPG	Status
10A	167.0	S	447532, 359216	Texaco	Fishers Service Station, Sutton Road, Sutton Road, Ashfield Road, Huthwaite, Sutton-In-Ashfield, Nottinghamshire, NG17 2NZ	No	Open

3.3 Underground High Pressure Oil and Gas Pipelines

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

0

Database searched and no data found.

4. Geology

4.1 Artificial Ground and Made Ground

Database searched and no data found.

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

4.2 Superficial Ground and Drift Geology

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

Lex Code	Description	Rock Type
HEAD-CSSG	HEAD	CLAY, SILT, SAND AND GRAVEL

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

4.3 Bedrock and Solid Geology

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

LEX Code	Description	Rock Type
CDF-DOLO	CADEBY FORMATION	DOLOSTONE
CDF-MARL	CADEBY FORMATION	CALCAREOUS MUDSTONE
PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION	MUDSTONE, SILTSTONE AND SANDSTONE

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

For more detailed geological and ground stability data please refer to the "GroundSure GeoInsight". Available from our website.

5a. Hydrogeology - Aquifer Within Superficial Geology

NW

N

NE

W

E

SW

S

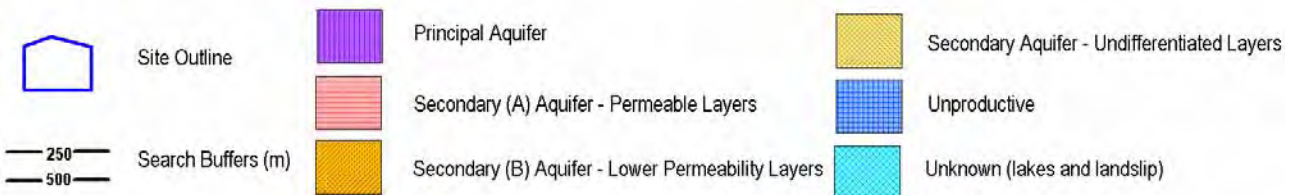
SE



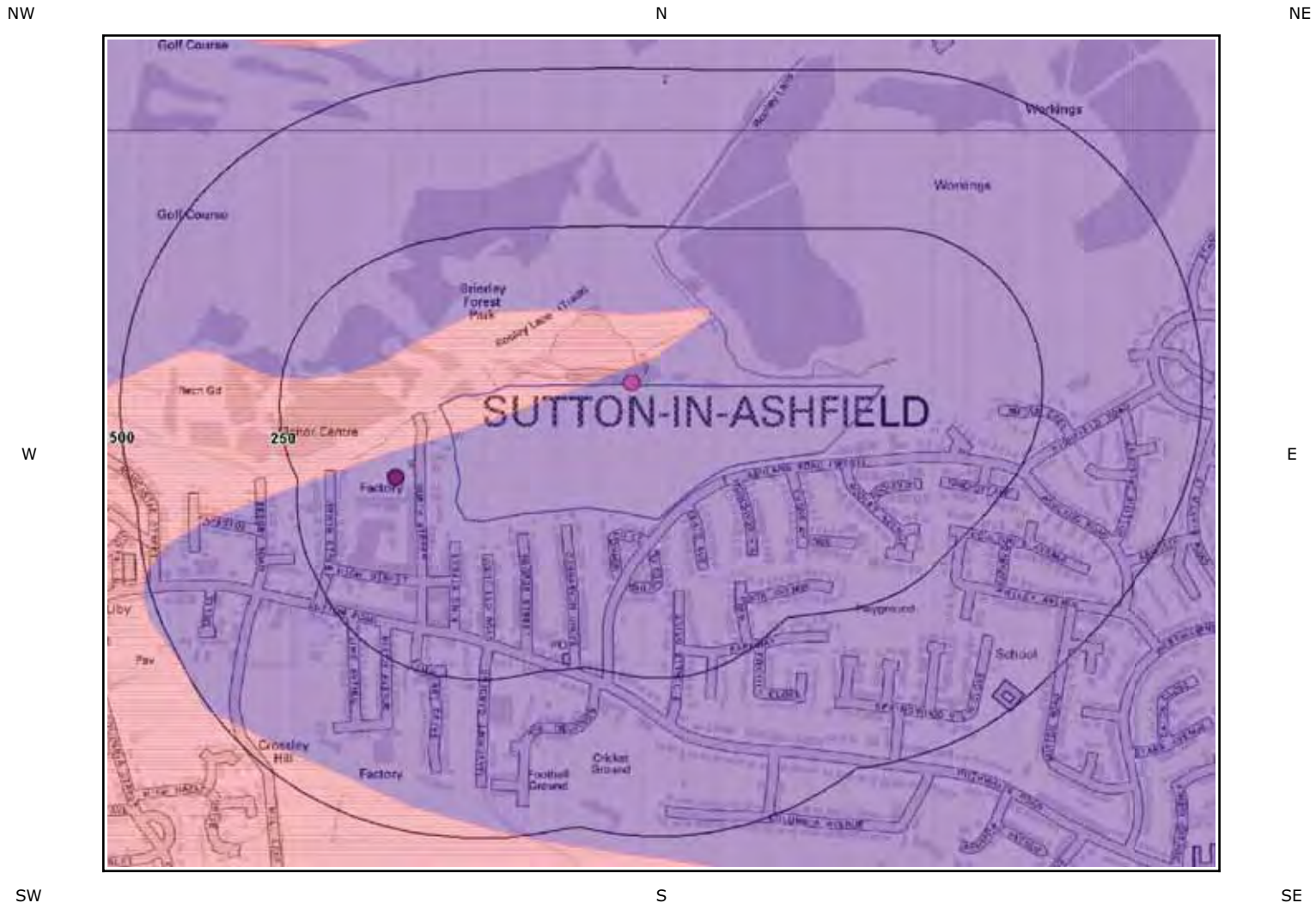
Aquifer Within Superficial Geology Legend



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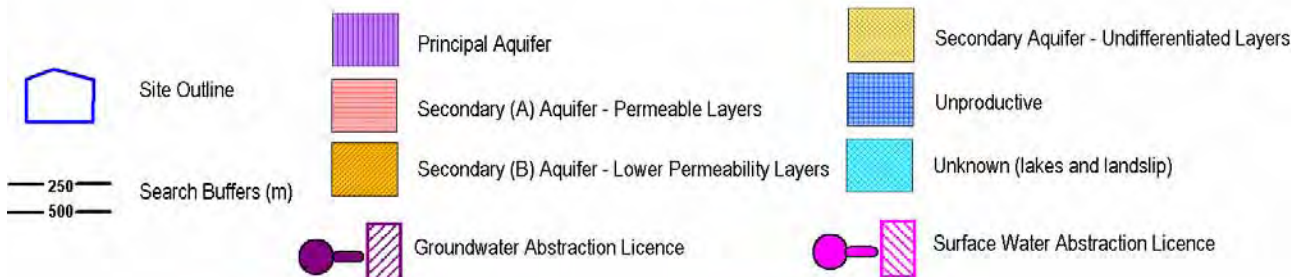
5b. Hydrogeology - Aquifer Within Bedrock Geology and Abstraction Licenses



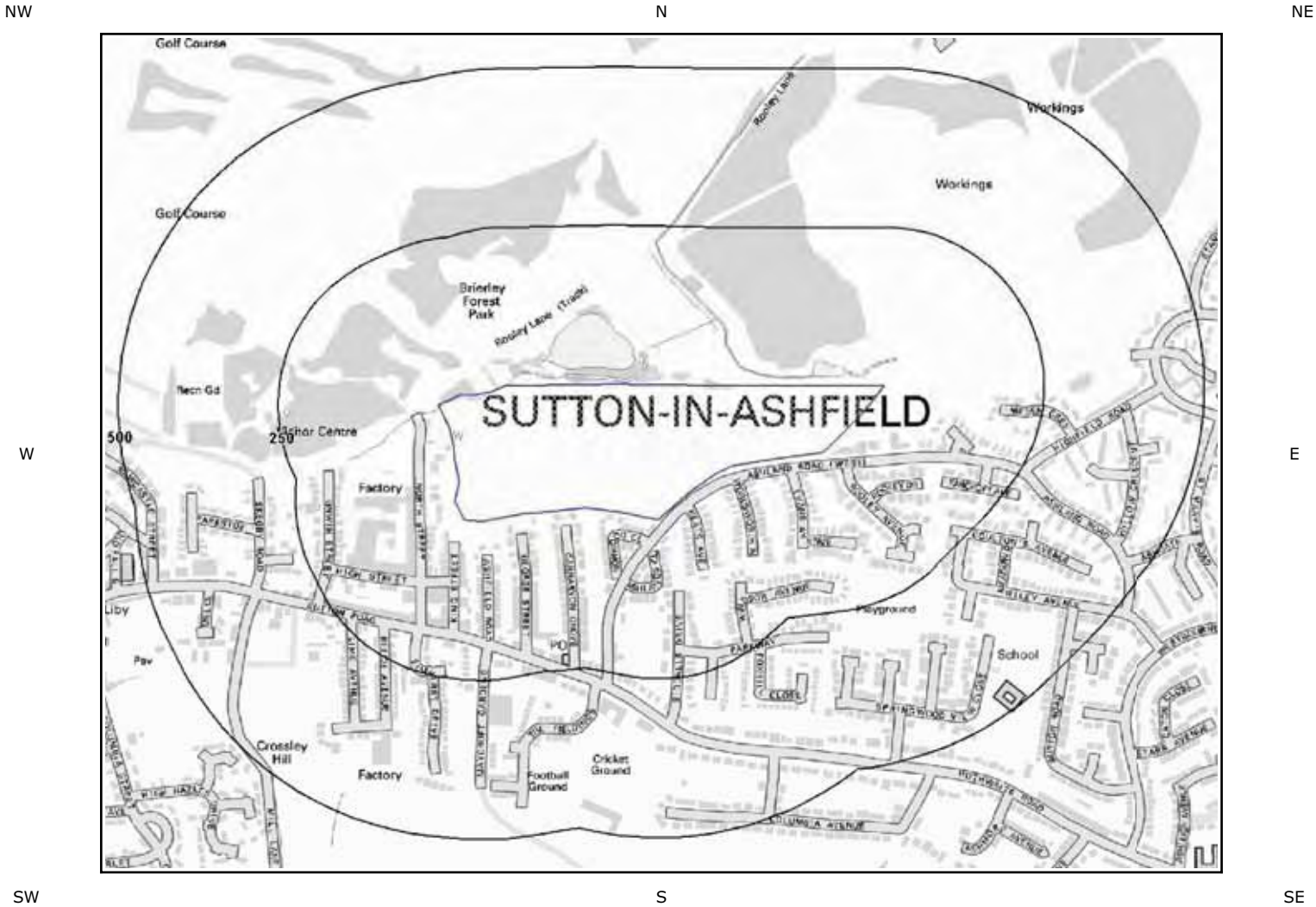
Aquifer Within Bedrock Geology Legend



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



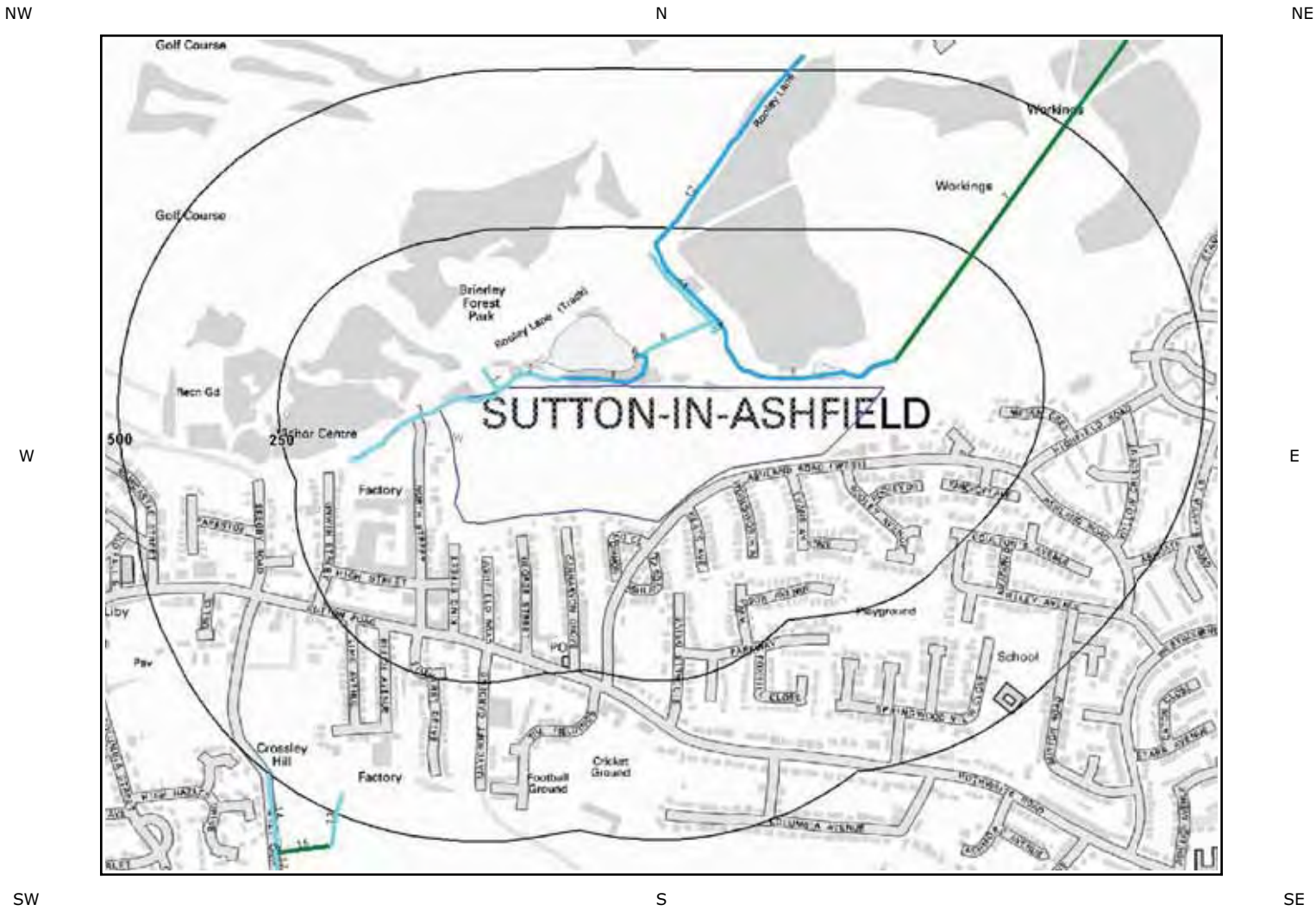
SPZ and Potable Water Abstraction Licenses Legend



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5d. Hydrology – Detailed River Network and River Quality



Hydrology Legend



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- Primary River
- Secondary River
- Tertiary River
- Canal
- Canal Tunnel
- Extended Culvert (greater than 50m)
- Site Outline
- Lake/Reservoir
- Underground River (inferred)
- D/S of High Water Mark
- D/S seaward extension
- Search Buffers (m)
- General Quality Assessment: Chemistry
- General Quality Assessment: Biology

5. Hydrogeology and Hydrology

5.1 Aquifer within Superficial Deposits

Are there records of productive strata 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 (5a):

ID	Distance [m]	Direction	Designation	Description
5	7.0	N	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
1	148.0	N	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
2	303.0	SE	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
6	419.0	SW	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
3	479.0	NE	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers

5.2 Aquifer within Bedrock Deposits

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

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

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

ID	Distance [m]	Direction	Designation	Description
1	0.0	On Site	Principal	Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale. Generally principal aquifers were previously major aquifers
3	0.0	On Site	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
2	402.0	N	Principal	Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale. Generally principal aquifers were previously major aquifers

5.3 Groundwater Abstraction Licences

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

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

ID	Distance	Direction	NGR	Details	
6	98.0	W	447410, 359450	Licence No: 03/28/71/0012 Details: Process water Direct Source: Groundwater Midlands Region Point: Sutton In Ashfield,notts - Well Data Type: Point	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 20/1/1966 Expiry Date: - Issue No: 100 Version Start Date: 16/5/1997 Version End Date:

5.4 Surface Water Abstraction Licences

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

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

ID	Distance	Direction	NGR	Details	
7	2.0	N	447780, 359600	Licence No: 03/28/71/0050 Details: Lake & Pond Throughflow Direct Source: Surface Water Midlands Region Point: Brierley Forest Park - Tributary Of River Meden Data Type: Point	Annual Volume (m ³): 250000 Max Daily Volume (m ³): 10000 Application No: - Original Start Date: 20/11/1997 Expiry Date: - Issue No: 100 Version Start Date: 1/4/1998 Version End Date:

5.5 Potable Water Abstraction Licences

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

Database searched and no data found.

5.6 Source Protection Zones

Are there any Source Protection Zones within 500m of the study site? **No**

Database searched and no data found.

5.7 River Quality

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

Report Reference: EMS-182497_267994

Biological Quality:

Biological Quality data describes water quality in terms of 83 groups of macroinvertebrates, some of which are pollution sensitive. The results are graded from A ('Very Good') to F ('Bad').

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

ID	Distance [m]	Direction	NGR	River Details	Biological Quality Grade				
					2005	2006	2007	2008	2009
Not shown	1298.0	SE	448600, 358300	River Name: Maun Reach: Sutton Woodhouse To I/I Kingsmill Res. End/Start of Stretch: Start of Stretch NGR	D	D	D	E	E

Chemical Quality:

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

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

ID	Distance [m]	Direction	NGR	River Details	Chemical Quality Grade (Headline Indicator)				
					2005	2006	2007	2008	2009
Not shown	1155.0	NW	446800, 360500	River Name: Meden R Reach: Whiteborough To A617 Br Pleasley End/Start of Stretch: Start of Stretch NGR	B	A	A	A	A
Not shown	1298.0	SE	448600, 358300	River Name: Maun R Reach: Sutton Woodhouse To I/I Kingsmill Res End/Start of Stretch: Start of Stretch NGR	A	A	A	A	A

5.8 Detailed River Network

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

Yes

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

ID	Distance	Direction	Details
1	0.0	On Site	River Name: - Water Course Name: - Welsh River Name: - Alternative Name: - River Type: Tertiary River Catchment: - Drain: NO Main River Status: Currently Undefined
2	0.0	On Site	River Name: - Water Course Name: - Welsh River Name: - Alternative Name: - River Type: Tertiary River Catchment: - Drain: NO Main River Status: Currently Undefined
3	0.0	On Site	River Name: - Water Course Name: - Welsh River Name: - Alternative Name: - River Type: Tertiary River Catchment: - Drain: NO Main River Status: Currently Undefined
4	7.0	N	River Name: - Water Course Name: - Welsh River Name: - Alternative Name: - River Type: Secondary River Catchment: - Drain: NO Main River Status: Currently Undefined
5	15.0	N	River Name: - Water Course Name: - Welsh River Name: - Alternative Name: - River Type: Secondary River Catchment: - Drain: NO Main River Status: Currently Undefined

6	46.0	N	River Name: - Water Course Name: - Welsh River Name: - Alternative Name: -	River Type: Secondary River Catchment: - Drain: NO Main River Status: Currently Undefined
7	47.0	N	River Name: - Water Course Name: - Welsh River Name: - Alternative Name: -	River Type: Extended Culvert (greater than 50m) Catchment: - Drain: NO Main River Status: Currently Undefined
8	49.0	N	River Name: - Water Course Name: - Welsh River Name: - Alternative Name: -	River Type: Tertiary River Catchment: - Drain: NO Main River Status: Currently Undefined
9A	87.0	N	River Name: - Water Course Name: - Welsh River Name: - Alternative Name: -	River Type: Tertiary River Catchment: - Drain: NO Main River Status: Currently Undefined
10A	103.0	N	River Name: - Water Course Name: - Welsh River Name: - Alternative Name: -	River Type: Tertiary River Catchment: - Drain: NO Main River Status: Currently Undefined
11	103.0	N	River Name: - Water Course Name: - Welsh River Name: - Alternative Name: -	River Type: Tertiary River Catchment: - Drain: NO Main River Status: Currently Undefined
12	107.0	N	River Name: - Water Course Name: - Welsh River Name: - Alternative Name: -	River Type: Secondary River Catchment: - Drain: NO Main River Status: Currently Undefined
13	470.0	SW	River Name: - Water Course Name: - Welsh River Name: - Alternative Name: -	River Type: Tertiary River Catchment: - Drain: NO Main River Status: Currently Undefined

5.9 Surface Water Features

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

Yes

The following surface water records are not represented on mapping:

Distance to Surface Water (m)	on-site	0-50	51-250
Surface water features within 250m of the study site	Yes	Yes	Yes

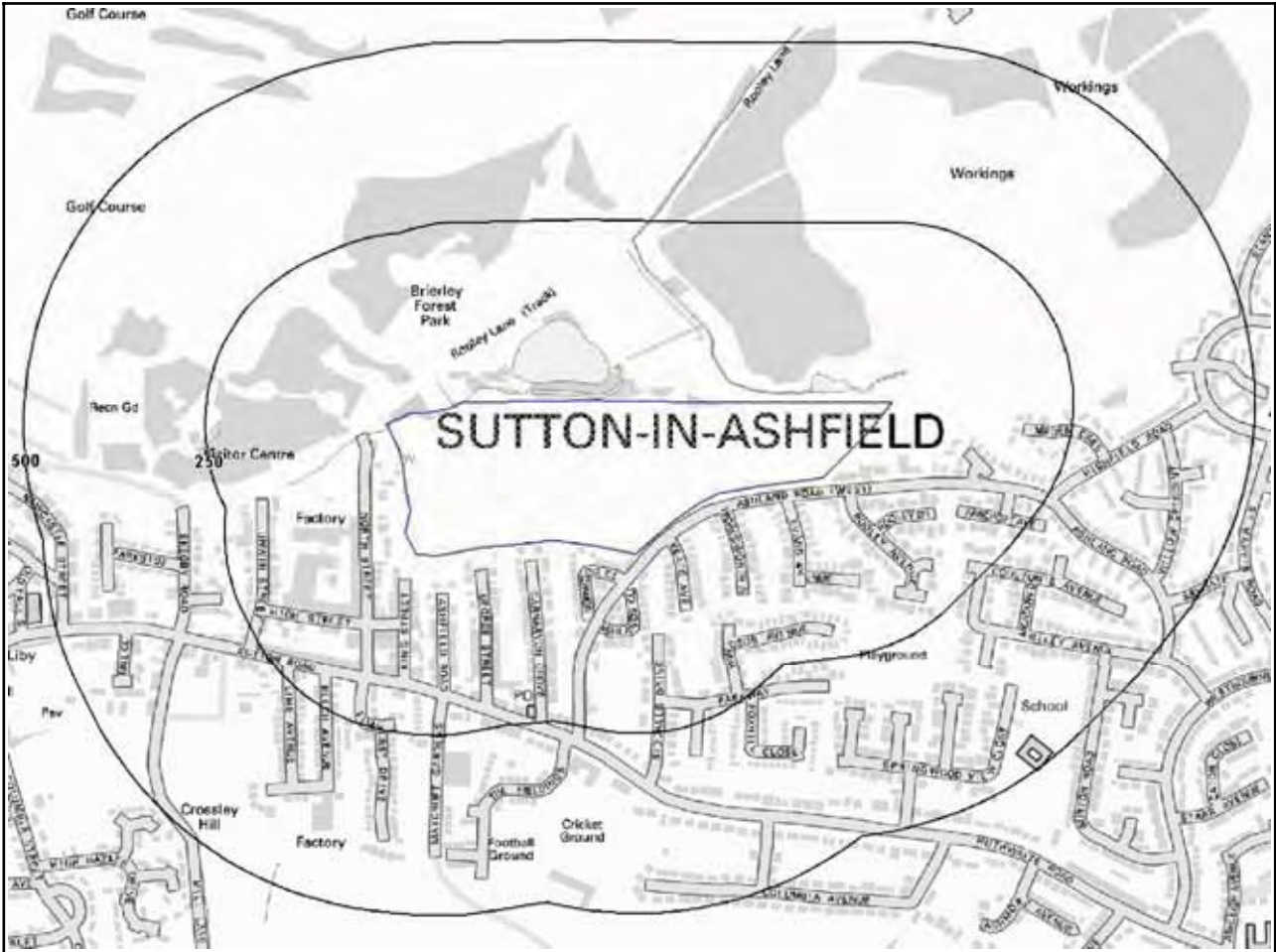
6. Environment Agency Flood Map

NW



NE

W



E

SW

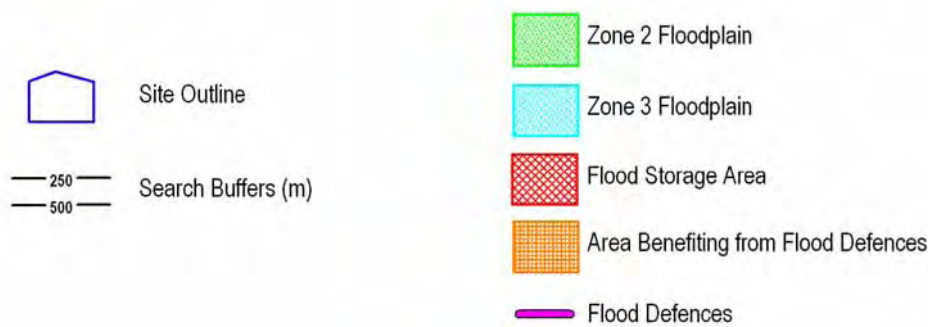


SE

Environment Agency Flood Legend



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6. Flooding

6.1 Zone 2 Flooding

Zone 2 floodplain estimates the annual probability of flooding as one in one thousand (0.1%) or greater from rivers and the sea but less than 1% from rivers or 0.5% from the sea. Alternatively, where information is available they may show the highest known flood level.

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

Database searched and no data found.

6.2 Zone 3 Flooding

Zone 3 estimates the annual probability of flooding as one in one hundred (1%) or greater from rivers and a one in two hundred (0.5%) or greater from the sea. Alternatively, where information is available they may show the highest known flood level.

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

Database searched and no data found.

6.3 Flood Defences

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

6.4 Areas benefiting from Flood Defences

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

6.5 Areas used for Flood Storage

Are there any areas used for Flood Storage within 250m of the study site? **No**

6.6 Groundwater Flooding Susceptibility Areas

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

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

6.7 Groundwater Flooding Confidence Areas

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

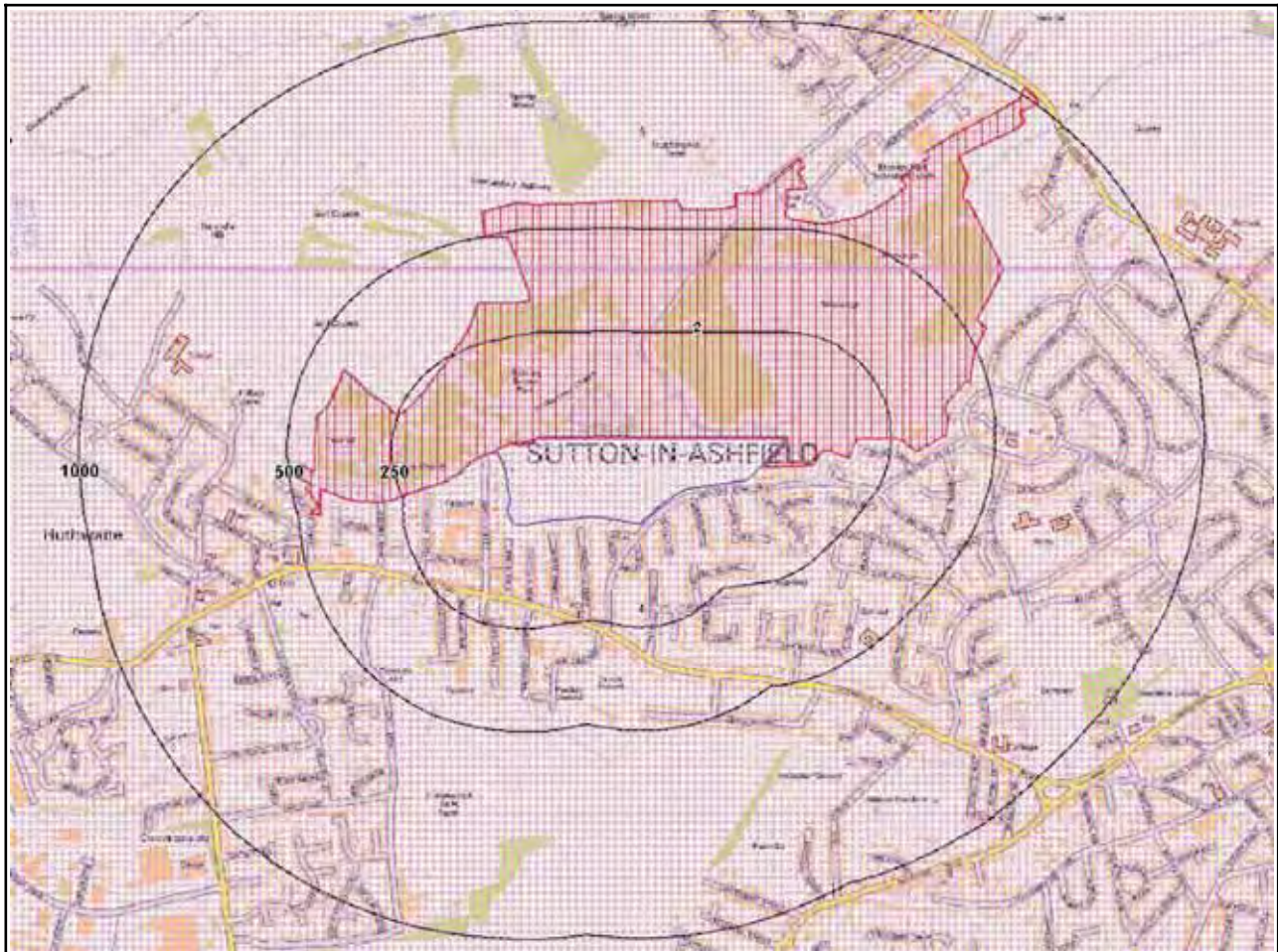
Moderate

Notes:

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

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

7. Designated Environmentally Sensitive Sites Map



Designated Environmentally Sensitive Sites Legend

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7. Designated Environmentally Sensitive Sites

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

Records of Sites of Special Scientific Interest (SSSI) within 2000m of the study site: 1

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

ID	Distance	Direction	SSSI Name	Data Source
Not shown	1976.0	N	Teversal Pastures	Natural England

Records of National Nature Reserves (NNR) within 2000m of the study site: 0

Database searched and no data found.

Records of Special Areas of Conservation (SAC) within 2000m of the study site: 0

Database searched and no data found.

Records of Special Protection Areas (SPA) within 2000m of the study site: 0

Database searched and no data found.

Records of Ramsar sites within 2000m of the study site: 0

Database searched and no data found.

Records of Local Nature Reserves (LNR) within 2000m of the study site: 2

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

ID	Distance	Direction	LNR Name	Data Source
2	0.0	On Site	Brierley Forest Park	Natural England
Not shown	1863.0	N	Teversal/pleasley Network	Natural England

Records of World Heritage Sites within 2000m of the study site: 0

Database searched and no data found.

Records of Environmentally Sensitive Areas within 2000m of the study site: 0

Database searched and no data found.

Records of Areas of Outstanding Natural Beauty (AONB) within 2000m of the study site: 0

Database searched and no data found.

Records of National Parks (NP) within 2000m of the study site: 0

Database searched and no data found.

Records of Nitrate Sensitive Areas within 2000m of the study site: 0

Database searched and no data found.

Records of Nitrate Vulnerable Zones within 2000m of the study site: 4

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

ID	Distance	Direction	NVZ Type	Data Source
4	0.0	On Site	NVZ Area	DEFRA
5	402.0	N	NVZ Area	DEFRA
Not shown	1823.0	E	NVZ Area	DEFRA
Not shown	1867.0	E	NVZ Area	DEFRA

Records of Ancient Woodland within 2000m of the study site: 1

The following Ancient Woodland records are supplied by English Nature/Scottish Natural Heritage/Countryside Council for Wales and are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance	Direction	Ancient Woodland Name	Type
Not shown	1517.0	N	UNKNOWN	Ancient and Semi-Natural Woodland

8. Natural Hazards Findings

8.1 Detailed BGS GeoSure Data

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

8.1.1 Shrink Swell

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

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

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

8.1.2 Landslides

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

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

Hazard
Possibility of slope instability problems after major changes in ground conditions. Consideration should be given to stability if changes to drainage or excavations take place. Possible increase in construction cost to reduce potential slope stability problems. Existing property no significant increase in insurance risk due to natural slope instability problems.

8.1.3 Soluble Rocks

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

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

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

8.1.4 Compressible Ground

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

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

Report Reference: EMS-182497_267994

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.

8.1.5 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.

8.1.6 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.

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

9. Mining

9.1 Coal Mining

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

The following coal mining information provided by the Coal Authority is not represented on Mapping:

Distance	Direction	Details
0.0	On Site	The study site is located within the specified search distance of an identified mining area. Further details concerning this can be obtained from the Coal Authority Helpline on 0845 762 6848.

9.2 Shallow Mining

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

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

9.3 Brine Affected Areas

Are there any brine affected areas within 75m of the study site? **No**

Database searched and no data found.

10. Contacts

EmapSite

Telephone: 0118 9736883
sales@emapsite.com



British Geological Survey (England & Wales)

Kingsley Dunham Centre
Keyworth, Nottingham NG12 5GG
Tel: 0115 936 3143. Fax: 0115 936 3276. Email:
enquiries@bgs.ac.uk
Web: www.bgs.ac.uk
BGS Geological Hazards Reports and general geological
enquiries



Environment Agency

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



Health Protection Agency

Chilton, Didcot, Oxon, OX11 0RQ
Tel: 01235 822622 www.hpa.org.uk/radiation
Radon measures and general radon information and
guidance



The Coal Authority

200 Lichfield Lane, Mansfield, Notts NG18 4RG
Tel: 0845 762 6848
DX 716176 Mansfield 5
Web: www.groundstability.com



Ordnance Survey

Romsey Road
Southampton SO16 4GU
Tel: 08456 050505



Local Authority

Authority: Ashfield District Council
Phone: 01623 450000
Web: www.ashfield-dc.gov.uk
Address: Council Offices, Urban Road, Kirkby in Ashfield,
Nottinghamshire, NG17 8DA

Get Mapping PLC

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



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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 conditions unless the context otherwise requires:

"Beneficiary" means the Client or the customer of the Client for whom the Client has procured the Services.

"Commercial" means any building which is not Residential.

"Commission" means an order for Consultancy Services submitted by a Client.

"Consultancy Services" mean consultancy services provided by GroundSure including, without limitation, carrying out interpretation of third party and in-house environmental data, provision of environmental consultancy advice, undertaking environmental audits and assessments, Site investigation, Site monitoring and related items.

"Contract" means the contract between GroundSure and the Client for the performance of the Services which arises upon GroundSure's acceptance of an Order or Commission and which shall incorporate these conditions, the relevant GroundSure User Guide, proposal by GroundSure and the content of any subsequent report, and any agreed amendments in accordance with clause 11.

"Client" means the party that submits an Order or Commission.

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

"Data Report" means reports comprising factual data with no professional interpretation in respect of the level of likely risk and/or liability available from GroundSure.

"GroundSure" means GroundSure Limited, a company registered in England and Wales under number 03421028 and whose registered office is at Greater London House, Hampstead Road, London NW1 7EJ.

"GroundSure Materials" means all materials prepared by GroundSure as a result of the provision of the Services, including but not limited to Data Reports, Mapping and Risk Screening Reports.

"Intellectual Property" means any patent, copyright, design rights, service marks, moral rights, data protection rights, know-how, trade mark or any other intellectual property rights.

"Mapping" an historical map or a combination of historical maps of various ages, time periods and scales available from GroundSure.

"Order" means an order form submitted by the Client requiring Services from GroundSure in respect of a specified Site.

"Order Website" means online platform via which Orders may be placed.

"Report" means a Risk Screening Report or Data Report for commercial or residential property available from GroundSure relating to the Site prepared in accordance with the specifications set out in the relevant User Guide.

"Residential" means any building used as or suitable for use as an individual dwelling.

"Risk Screening Report" means one of GroundSure's risk screening reports, comprising factual data with interpretation in respect of the level of likely risk and/or liability, excluding **"Consultancy Services"**.

"Services" means the provision of any Report, Mapping or Consultancy Services which GroundSure has agreed to carry out for the Client/Beneficiary on these terms and conditions in respect of the Site.

"Site" means the landsite in respect of which GroundSure provides the Services.

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

"User Guide" means the relevant current version of the user guide, available upon request from GroundSure.

2 Scope of Services

2.1 GroundSure agrees to carry out the Services in accordance with the Contract and to the extent set out therein.

2.2 GroundSure shall exercise all the reasonable skill, care and diligence to be expected of experienced environmental consultants in the performance of the Services.

2.3 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 the Contract.

2.4 Terms and conditions appearing on a Client's order form, printed stationery or other communication, including invoices, to GroundSure, its employees, servants, agents or other representatives or any terms implied by custom, practice or course of dealing shall be of no effect and these terms and conditions shall prevail over all others.

2.5 If a Client/Beneficiary requests insurance in conjunction with or as a result of the Services, GroundSure shall use reasonable endeavours to procure such insurance, but makes no warranty that such insurance shall be available from insurers or offered on reasonable terms. GroundSure does not endorse or recommend any particular insurance product, policy or insurer. Any insurance purchased shall be subject solely to the terms of the policy issued by insurers and GroundSure will have no liability therefor. The Client/Beneficiary should take independent advice to ensure that the insurance policy requested and/or offered is suitable for its requirements.

2.6 GroundSure's quotations/proposals are valid for a period of 30 days only. GroundSure reserves the right to withdraw any quotation at any time before GroundSure accepts an Order or Commission. GroundSure's acceptance of an Order or Commission shall be effective only where such acceptance is in writing and signed by GroundSure's authorised representative or where accepted via GroundSure's Order Website.

3 The Client's obligations

3.1 The Client shall ensure the Beneficiary complies with and is bound by the terms and conditions set out in the Contract and shall provide that GroundSure may in its own right enforce such terms and conditions against the Beneficiary pursuant to the Contracts (Rights of Third Parties) Act 1999. The Client shall be liable for all breaches of the Contract by the Beneficiary as if they were breaches by the Client. The Client shall be solely responsible for ensuring that the Report/Mapping ordered is appropriate and suitable for the Beneficiary's needs.

3.2 The Client shall (or shall procure that the Beneficiary shall) supply to GroundSure as soon as practicable and without charge all information necessary and accurate relevant data including any specific and/or unusual environmental information relating to the Site known to the Client/Beneficiary which may pertain to the Services and shall give such assistance as GroundSure shall reasonably require in the performance of the Services (including, without limitation, access to a Site, facilities and equipment as agreed in the Contract).

3.3 Where Client/Beneficiary approval or decision is required, such approval or decision shall be given or procured in reasonable time as not to delay or disrupt the performance of any other part of the Services.

3.4 The Client shall not and shall not knowingly permit the Beneficiary to, save as expressly permitted by these terms and conditions, re-sell, alter, add to, amend or use out of context the content of any Report, Mapping or, in respect of any Services, information given by GroundSure. For the avoidance of doubt, the Client and Beneficiary may make the Report, Mapping or GroundSure's findings available to a third party who is considering acquiring the whole or part of the Site, or providing funding in relation to the Site, but such third party cannot rely on the same unless expressly permitted under clause 4.

3.5 The Client is responsible for maintaining the confidentiality of its user name and password if using GroundSure's internet ordering service and accepts responsibility for all activity that occurs under such account and password.

4 Reliance

4.1 Upon full payment of all relevant fees and subject to the provisions of these terms and conditions, the Client and Beneficiary are granted an irrevocable royalty-free licence to access the information contained in a Report, Mapping or in a report prepared by GroundSure in respect of or arising out of Consultancy Services. The Services may only be used for the benefit of the Client and those persons listed in clauses 4.2 and 4.3.

4.2 In relation to Data Reports, Mapping and Risk Screening Reports, the Client shall be entitled to make Reports available to (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 (v) the professional advisers and lenders of the first purchaser or tenant of the Site. Accordingly GroundSure shall have the same duties and obligations to those persons in respect of the Services as it has to the Client and those persons shall have the benefit of any of the Client's rights under the Contract as if those persons were parties to the Contract. For the avoidance of doubt, the limitations of GroundSure's liability as set out in clauses 7 and 11.6 shall apply.

4.3 In relation to Consultancy Services, reliance shall be limited to the Client, Beneficiary and named parties on the Report.

4.4 Save as set out in clauses 4.2 and 4.3 and unless otherwise agreed in writing with GroundSure, any other party considering the information supplied by GroundSure as part of the Services, including (but not limited to) insurance underwriters, does so at their own risk and GroundSure has no legal obligations to such party unless otherwise agreed in writing.

4.5 The Client shall not and shall not knowingly permit any person (including the Beneficiary) who is provided with a copy of any Report, (except as permitted herein or by separate agreement with GroundSure) to: (a) remove, suppress or modify any trade mark, copyright or other proprietary marking from the Report or Mapping; (b) create any product which is derived directly or indirectly from the data contained in the Report or Mapping; (c) combine the Report or Mapping with, or incorporate the Report or Mapping into any other information data or service; or (d) re-format or otherwise change (whether by modification, addition or enhancement) data or images contained in the Report or Mapping.

4.6 Notwithstanding clause 4.5, if the Client acts in a professional capacity, it may make reasonable use of a Report and/or findings made as a result of Consultancy Services to advise Beneficiaries. However, GroundSure shall have no liability in respect of any opinion or report given to such Beneficiaries by the Client or a third party.

5 Fees and Disbursements

5.1 GroundSure shall charge the Client fees at the rate and frequency specified in the Contract together, in the case of Consultancy Services, with all proper disbursements incurred by GroundSure in performing the Services. For the avoidance of doubt, the fees payable for the Services are as set out in GroundSure's written proposal, Order Website or Order acknowledgement form. 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.

5.2 Unless GroundSure requires prepayment, the Client shall promptly pay all fees disbursements and other monies due to GroundSure in full without deduction, counterclaim or set off together with such value added tax or other tax as may be required within 30 days from the date of GroundSure's invoice or such other period as may be agreed in writing between GroundSure and the Client ("**Payment Date**"). GroundSure reserves the right to charge interest which shall accrue on a daily basis from 30 days after the date of Payment Date until the date of payment (whether before or after judgment) at the rate of five per cent per annum above the Bank of England base rate from time to time.

5.3 In the event that the Client disputes the amount payable in respect of GroundSure's invoice it shall notify GroundSure no later than 28 days after the date thereof that it is in dispute. In default of such notification the Client shall be deemed to have agreed the amount thereof. As soon as reasonably practicable following receipt of a notification in respect of any disputed invoice, a member of the management team at GroundSure shall contact the Client and the parties shall use all reasonable endeavours to resolve the dispute.

6 Intellectual Property and Confidentiality

6.1 Subject to the provisions of clause 4.1, the Client and the Beneficiary hereby acknowledge that all Intellectual Property in the Services and Content are and shall remain owned by either GroundSure or the Data Providers and nothing in these terms purports to transfer or assign any rights to the Client or the Beneficiary in respect of the Intellectual Property.

6.2 The Client shall acknowledge the ownership of the **Third Party Content** where such **Third Party Content** is incorporated or used in the Client's own documents, reports, systems or services whether or not these are supplied to a third party.

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

6.4 The Client acknowledges that the proprietary rights subsisting in copyright, database rights and any other intellectual property rights in respect of any data and information contained in any Report are and shall remain (subject to clause 11.1) the property of GroundSure and/or any third party that has supplied data or information used to create a Report, and that these conditions do not purport to grant, assign or transfer any such rights in respect thereof to a Client and/or a Beneficiary.

6.5 The Client shall (and shall procure that any recipients of the Report as permitted under clause 4.2 shall):

(i) not remove, suppress or modify any trademark, 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 data contained in 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; and
 - (v) not reformat or otherwise change (whether by modification, addition or enhancement), data contained in the Services (save that those acting in a professional capacity to the Beneficiary shall not be in breach of this clause 6.5(v) where such reformatting is in the normal course of providing advice based upon the Services), in each case of parts (iii) to (v) inclusive, whether or not such product or report is produced for commercial profit or not.
- 6.6 The Client and/or Beneficiary shall and shall procure that any party 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.
- 6.8 Save as otherwise set out in these terms and conditions, any information provided by one party ("**Disclosing Party**") to the other party ("**Receiving Party**") shall be treated as confidential and only used for the purposes of these terms and conditions, except in so far as the Receiving Party is authorised by the Disclosing Party to provide such information in whole or in part to a third party.

7 Liability

THE CLIENT'S ATTENTION IS DRAWN TO THIS PROVISION

- 7.1 Subject to the provisions of this clause 7, GroundSure shall be liable to the Beneficiary only in relation to any direct losses or damages caused by any negligent act or omission of GroundSure in preparing the GroundSure Materials and provided that the Beneficiary has used all reasonable endeavours to mitigate any such losses.
- 7.2 GroundSure shall not be liable for any other losses or damages incurred by the Beneficiary, including but not limited to:
- (i) loss of profit, revenue, business or goodwill, losses relating to business interruption, loss of anticipated savings, loss of or corruption to data or for any special, indirect or consequential loss or damage which arise out of or in connection with the GroundSure Materials or otherwise in relation to a Contract;
 - (ii) any losses or damages that arise as a result of the use of all or part of the GroundSure Materials in breach of these terms and conditions or contrary to the terms of the relevant User Guide;
 - (iii) any losses or damages that arise as a result of any error, omission or inaccuracy in any part of the GroundSure Materials where such part is based on any Third Party Content or any reasonable interpretation of Third Party Content. The Client accepts, and shall procure that any other Beneficiary shall accept, that it has no claim or recourse to any Data Provider in relation to Third Party Content; and/or
 - (iv) any loss or damage to a Client's computer, software, modem, telephone or other property caused by a delay or loss of use of GroundSure's internet ordering service.
- 7.3 GroundSure's total liability in contract, tort (including negligence or breach of statutory duty), misrepresentation, restitution or otherwise, arising in connection with the GroundSure Materials or otherwise in relation to the Contract shall be limited to £10 million in total (i) for any one claim or (ii) for a series of connected claims brought by one or more parties.
- 7.4 For the duration of the liability periods set out in clauses 7.5 and 7.6 below, GroundSure shall maintain professional indemnity insurance in respect of its liability under these terms and conditions provided such insurance is readily available at commercially viable rates. GroundSure shall produce evidence of such insurance if reasonably requested by the Client. A level of cover greater than GroundSure's current level of cover may be available upon request and agreement with the Client.
- 7.5 Any claim under the Contract in relation to Data Reports, Mapping and Risk Screening Reports, must be brought within six years from the date when the Beneficiary became aware that it may have a claim and in no event may a claim be brought twelve years or more after completion of such a Contract. For the avoidance of doubt, any claim in respect of which proceedings are notified to GroundSure in writing prior to the expiry of the time periods referred to in this clause 7.5 shall survive the expiry of those time periods provided the claim is actually commenced within six months of notification.
- 7.6 Any claim under the Contract in relation to Consultancy Services, must be brought within six years from the date the Consultancy Services were completed.
- 7.7 The Client accepts and shall procure that any other Beneficiary shall accept that it has no claim or recourse to any Data Provider or to GroundSure in respect of the acts or omissions of any Data Provider and/or any Third Party Content provided by a Data Provider.
- 7.8 Nothing in these terms and conditions:
- (i) excludes or limits the liability of GroundSure for death or personal injury caused by GroundSure's negligence, or for fraudulent misrepresentation; or
 - (ii) shall affect the statutory rights of a consumer under the applicable legislation.

8 GroundSure right to suspend or terminate

- 8.1 In the event that GroundSure reasonably believes that the Client or Beneficiary as applicable has not provided the information or assistance required to enable the proper performance of the Services, GroundSure shall be entitled on fourteen days written notice to suspend all further performance of the Services until such time as any such deficiency has been made good.
- 8.2 GroundSure may additionally terminate the Contract immediately on written notice in the event that:
- (i) the Client shall fail to pay any sum due to GroundSure within 28 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 material term of the Contract (including, but not limited to, the obligations in clause 4) incapable of remedy or if remediable, is not remedied within 14 days of notice of the breach.

9 Client's Right to Terminate and Suspend

- 9.1 Subject to clause 10.2, the Client may at any time after commencement of the Services by notice in writing to GroundSure require GroundSure to terminate or suspend immediately performance of all or any of the Services.
- 9.2 The Client waives all and any right of cancellation it may have under the Consumer Protection (Distance Selling) Regulations 2000 (as amended) in respect of the Order of a Report/Mapping. This does not affect the Beneficiary's statutory rights.

10 Consequences of Withdrawal, Termination or Suspension

- 10.1 Upon termination or any suspension of the Services, 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/Beneficiary any property of the Client/ Beneficiary in GroundSure's possession or control.
- 10.2 In the event of termination/suspension of the Contract under clauses 8 or 9, 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/suspension. In respect of any Consultancy Services provided, the Client shall also pay GroundSure any additional costs incurred in relation to the termination/suspension of the Contract.

11 General

- 11.1 The mapping contained in the Services is protected by Crown copyright and must not be used for any purpose outside the context of the Services or as specifically provided in these terms.
- 11.2 GroundSure reserves the right to amend these terms and conditions. No variation to these terms shall be valid unless signed by an authorised representative of GroundSure.
- 11.3 No failure on the part of GroundSure to exercise and no delay in exercising, any right, power or provision under these terms and conditions shall operate as a waiver thereof.
- 11.4 Save as expressly provided in clauses 4.2, 4.3, 6.3 and 11.5, 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.
- 11.5 The Secretary of State for Communities and Local Government acting through Ordnance Survey may enforce breach of clause 6.1 of these terms and conditions against the Client in accordance with the provisions of the Contracts (Rights of Third Parties) Act 1999.
- 11.6 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 Data Providers; or
 - (viii) changes in law.
- 11.7 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.
- 11.8 Such notice shall be deemed to have been received on the day of delivery if delivered by hand, facsimile or email and on the second working day after the day of posting if sent by first class post.
- 11.9 The Contract constitutes the entire contract between the parties and shall supersede all previous arrangements between the parties.
- 11.10 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.
- 11.11 These terms and conditions shall be governed by and construed in accordance with English law and any proceedings arising out of or connected with these terms and conditions shall be subject to the exclusive jurisdiction of the English courts.
- 11.12 If the Client or Beneficiary has a complaint about the Services, notice can be given in any format eg writing, phone, email to the Compliance Officer at GroundSure who will respond in a timely manner.

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EmapSite
Masdar House,
Eversley, RG27 0RP

Report Reference:	EMS- 182497_267993
Your Reference:	EMS_182497_267 993
Report Date	Oct 17, 2012
Report Delivery Method:	Email - pdf

GroundSure GeoInsight

Address: NG17 2EZ

Dear Sir/Madam,

Thank you for placing your order with GroundSure. Please find enclosed the **GroundSure GeoInsight** as requested.

If you would like further assistance regarding this report then please contact the emapsite customer services team on 0118 9736883 quoting the above report reference number.

Yours faithfully,

emapsite customer services team

Enc.
GroundSure GeoInsight

GroundSure GeoInsight

Address: NG17 2EZ

Date: Oct 17, 2012

Report Reference: EMS-182497_267993

Your Reference: EMS_182497_267993



Brought to you by emapsite

Aerial Photograph of Study Site



Site Name: NG17 2EZ
Grid Reference: 447478,359598
Size of Site: 10.49 ha

Aerial photography supplied by Getmapping PLC.
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Overview of Findings

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

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

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

Report Section	Number of records found within (X) m of the study site boundary
1. Geology	Description
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 & Landslips	
1.2.1 Is there any Superficial Ground/Drift Geology present beneath the study site?*	Yes
1.2.2 Are there any records relating to permeability of superficial geology within the study site* boundary?	Yes
1.2.3 Are there any records of landslip within 500m of the study site boundary?	No
1.2.4 Are there any records relating to permeability of landslips within the study site* boundary?	No
1.3 Bedrock, Solid Geology & Faults	
1.3.1 For records of Bedrock and Solid Geology beneath the study site* see the detailed findings section.	
1.3.2 Are there any records relating to permeability of bedrock within the study site* boundary?	Yes
1.3.3 Are there any records of faults within 500m of the study site boundary?	Yes
1.3.4 Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level?	The property is in a Radon Affected Area, as between 5 and 10% of properties are above the Action Level
1.3.5 Is the property in an area where Radon Protection Measures are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment?	Basic radon protective measures are necessary

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

Source:Scale 1:50,000 BGS Sheet No:112

2. Ground Workings	on-site	0-50	51-250	251-500	501-1000
2.1 Historical Surface Ground Working Features from Small Scale Mapping	0	2	15	-	-
2.2 Historical Underground Workings Features from Small Scale Mapping	0	0	0	5	41
2.3 Current Ground Workings	0	0	0	2	13

3. Mining, Extraction & Natural Cavities	on-site	0-50	51-250	251-500	501-1000
3.1 Historical Mining	0	0	0	5	41
3.2 Coal Mining	1	0	0	0	0
3.3 Johnson Poole and Bloomer Mining Area	0	0	0	0	0
3.4 Non-Coal Mining*	1	0	0	0	2
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

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

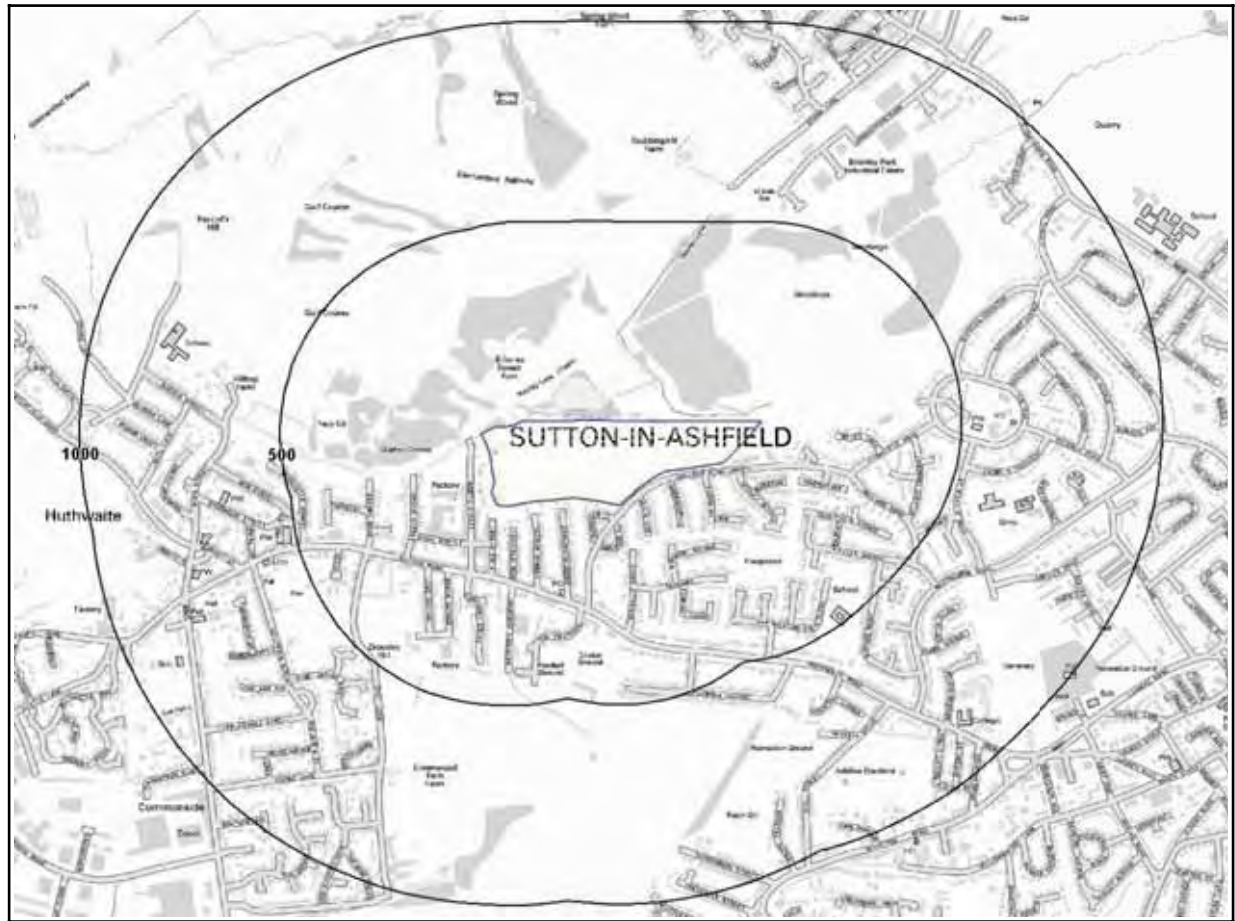
4. Natural Ground Subsidence	on-site*	0-50	51-250	251-500	501-1000
4.1 Shrink-Swell Clay	Low	-	-	-	-
4.2 Landslides	Low	-	-	-	-
4.3 Ground Dissolution of Soluble Rocks	Very Low	-	-	-	-
4.4 Compressible Deposits	Negligible	-	-	-	-
4.5 Collapsible Deposits	Very Low	-	-	-	-
4.6 Running Sand	Very Low	-	-	-	-

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

5. Borehole Records	on-site	0-50	51-250	251-500	501-1000
5.1 BGS Recorded Boreholes	0	1	3	-	-

6. Estimated Background Soil Chemistry	on-site	0-50	51-250	251-500	501-1000
6.1 Records of Background Soil Chemistry	4	2	0	-	-

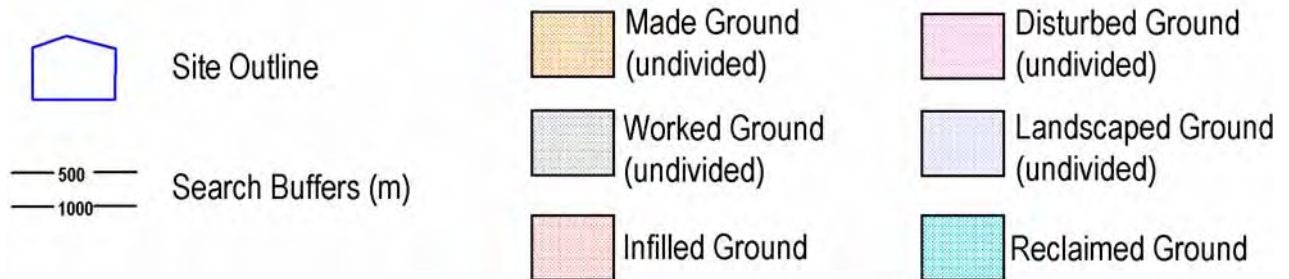
1.1 Artificial Ground Map



Artificial Ground Legend



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

1.1 Artificial Ground

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No:112

1.1.1 Artificial/Made Ground

Are there any records of Artificial/Made Ground within 500m of the study site boundary? **No**

Database searched and no data found.

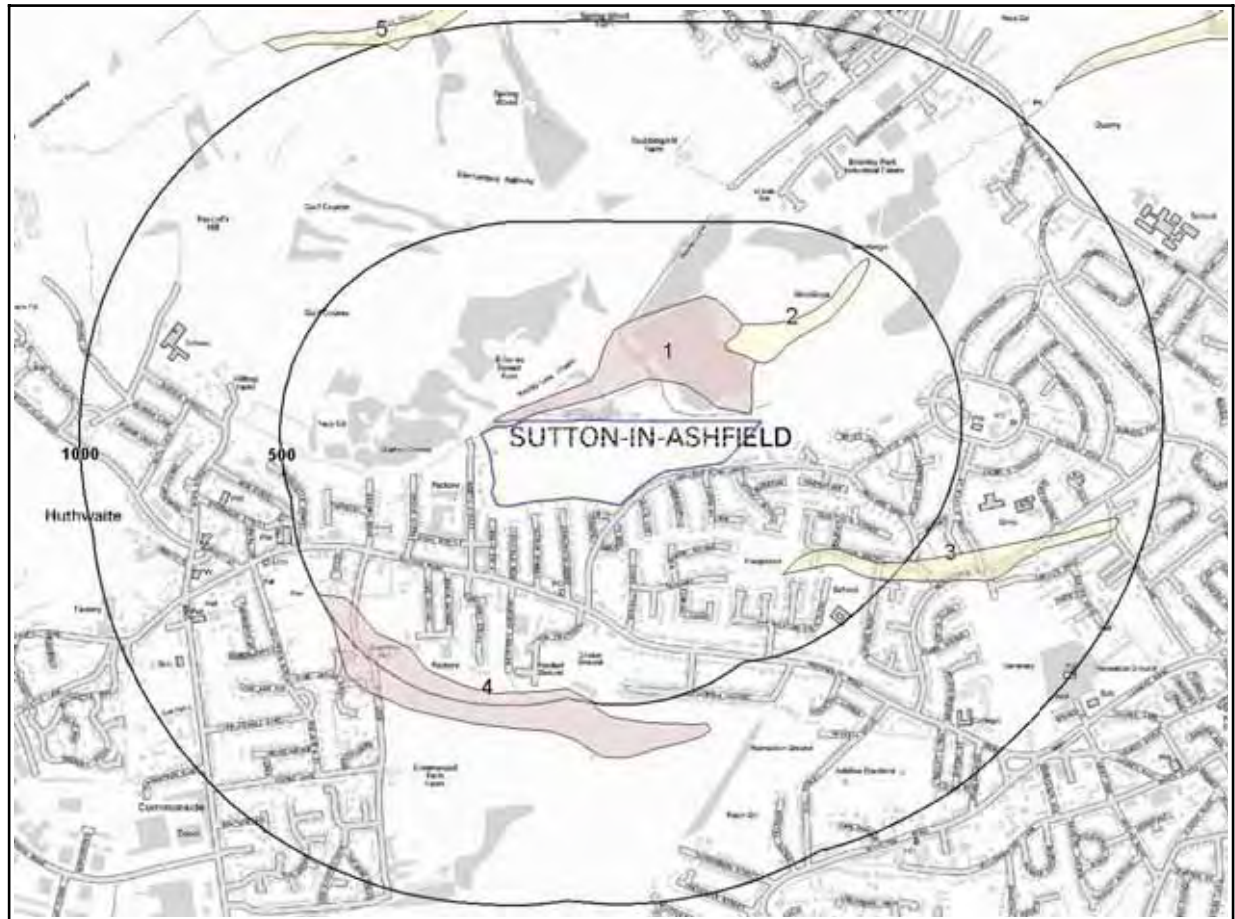
1.1.2 Permeability of Artificial Ground

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

Database searched and no data found.

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

1.2 Superficial Deposits and Landslips Map



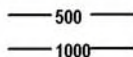
Superficial and Landslips Legend



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Site Outline



Search Buffers (m)

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

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	7.0	N	HEAD-CSSG	HEAD	CLAY, SILT, SAND AND GRAVEL
2	148.0	N	ALV-CSSG	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL
3	303.0	SE	ALV-CSSG	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL
4	419.0	SW	HEAD-CSSG	HEAD	CLAY, SILT, SAND AND GRAVEL

1.2.2 Permeability of Superficial Ground

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

Distance (m)	Direction	Flow type	Maximum Permeability	Minimum Permeability
7.0	N	Mixed	High	Very Low

1.2.3 Landslip

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

Database searched and no data found.

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: 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.

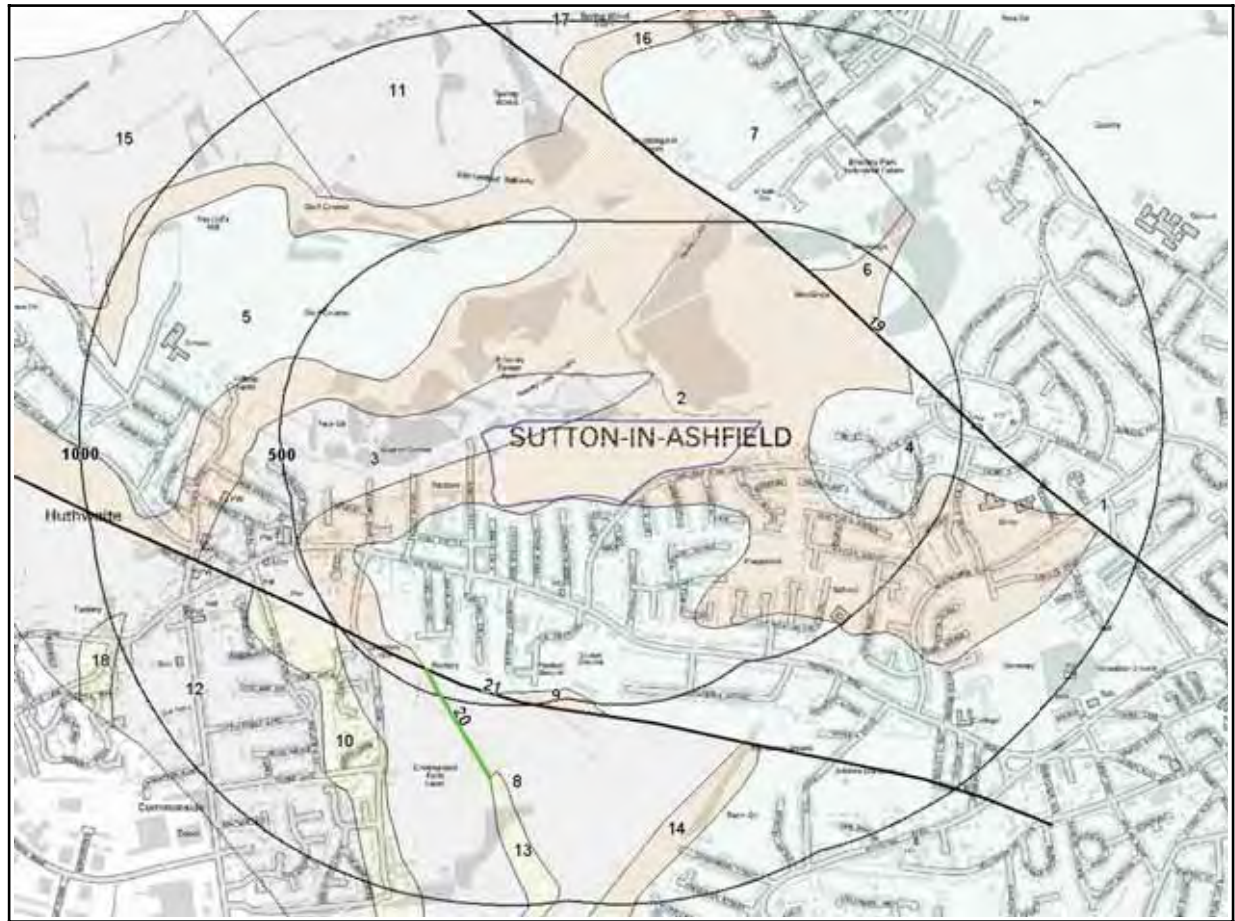
1.2.4 Landslip Permeability

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



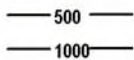
Bedrock & Faults Deposits Legend



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Site Outline



Search Buffers (m)

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

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:112

1.3.1 Bedrock/Solid Geology

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

ID	Distance (m)	Direction	LEX Code	Rock Description	Rock Age
1	0.0	On Site	CDF-DOLO	Cadeby Formation - Dolostone	Late Permian
2	0.0	On Site	CDF-MARL	Cadeby Formation - Calcareous Mudstone	Late Permian
3	0.0	On Site	PMCM-MDSS	Pennine Middle Coal Measures Formation - Mudstone, Siltstone And Sandstone	Bolsovian (westphalian C) / Duckmantian (westphalian B)
4	124.0	E	CDF-DOLO	Cadeby Formation - Dolostone	Late Permian
5	250.0	NW	CDF-DOLO	Cadeby Formation - Dolostone	Late Permian
6	356.0	NE	CDF-MARL	Cadeby Formation - Calcareous Mudstone	Late Permian
7	397.0	N	CDF-DOLO	Cadeby Formation - Dolostone	Late Permian
8	447.0	SW	PMCM-MDSS	Pennine Middle Coal Measures Formation - Mudstone, Siltstone And Sandstone	Bolsovian (westphalian C) / Duckmantian (westphalian B)
9	466.0	S	CDF-MARL	Cadeby Formation - Calcareous Mudstone	Late Permian

1.3.2 Permeability of Bedrock Ground

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

Distance (m)	Direction	Flow type	Maximum Permeability	Minimum Permeability
0.0	On Site	Fracture	Very High	High
0.0	On Site	Fracture	Low	Low
0.0	On Site	Fracture	Moderate	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
19	357.0	NE	FAULT	Normal fault, inferred
20	447.0	SW	ROCK	Coal seam, inferred
21	448.0	SW	FAULT	Normal fault, inferred

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.

1.3.4 Radon Affected Areas

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

Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level?

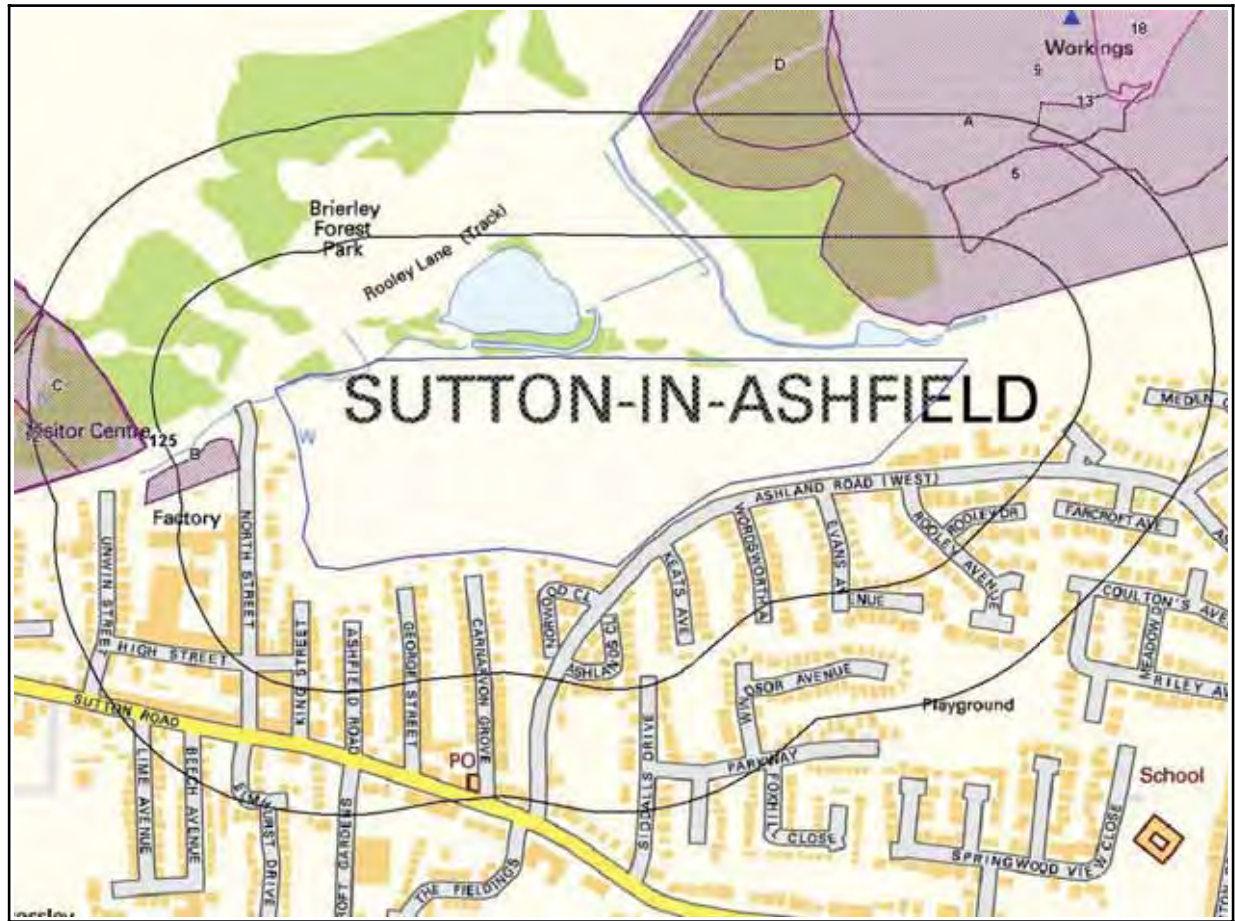
The property is in a Radon Affected Area, as between 5 and 10% of properties are above the Action Level

1.3.5 Radon Protection

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

Basic radon protective measures are necessary





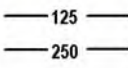
2. Ground Workings Map



Ground Workings Legend



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-  Site Outline
-  Historic Surface Ground Workings
-  Historic Underground Workings
-  Current Ground Workings
-  Search Buffers (m)

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	36.0	N	448272,359817	Refuse Heap	1992
2A	36.0	N	448272,359817	Refuse Heap	1985
3B	62.0	W	447394,359482	Unspecified Heap	1973
4B	62.0	W	447394,359482	Unspecified Heap	1967
5	109.0	N	448233,359759	Pond	1973
6C	142.0	SW	447197,359608	Brick Works	1939
7C	142.0	SW	447197,359608	Brick Works	1921
8C	144.0	SW	447196,359607	Brick Works	1914
9	174.0	N	448314,359883	Refuse Heap	1973
10	214.0	N	447985,359904	Slurry Pond	1992
D					
11	214.0	N	447985,359904	Slurry Pond	1985
D					
12	215.0	SW	447164,359573	Brick Works	1898
13	234.0	N	448301,359845	Ponds	1967
14	246.0	W	447193,359582	Unspecified Ground Workings	1985
C					
15	246.0	W	447193,359582	Unspecified Ground Workings	1973
C					
16	246.0	W	447193,359582	Unspecified Ground Workings	1992
C					
17	246.0	W	447193,359582	Unspecified Ground Workings	1967
C					

2.2 Historical Underground Workings 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? **Yes**

The following Historical Underground Working Features are provided by GroundSure:

ID	Distance (m)	Direction	NGR	Use	Date
18	305.0	NE	448408,360120	Colliery	1914
Not shown	415.0	N	448352,360136	Colliery	1950
Not shown	489.0	N	448420,360238	Colliery	1971
Not shown	489.0	N	448420,360238	Colliery	1989
Not shown	493.0	N	448373,360137	Colliery	1879

Report Reference: EMS-182497_267993

Not shown	588.0	N	448346,360160	Unspecified Shaft	1879
Not shown	612.0	N	448370,360178	Air Shaft	1879
Not shown	613.0	N	448335,360282	Unspecified Mine	1966
Not shown	648.0	N	448400,360207	Unspecified Shaft	1898
Not shown	746.0	NW	446879,360259	Disused Colliery	1950
Not shown	751.0	NW	446939,360273	Colliery	1879
Not shown	754.0	NW	446959,360308	Disused Colliery	1898
Not shown	754.0	NW	446959,360308	Disused Colliery	1914
Not shown	778.0	N	447721,360380	Old Coal Shaft	1950
Not shown	785.0	N	447715,360386	Old Coal Shaft	1914
Not shown	786.0	N	447717,360386	Old Coal Pit	1879
Not shown	787.0	N	447719,360388	Old Coal Shaft	1939
Not shown	787.0	N	447719,360388	Old Coal Shaft	1921
Not shown	788.0	NW	446959,360308	Disused Colliery	1939
Not shown	788.0	NW	446959,360308	Disused Colliery	1921
Not shown	792.0	S	447354,358541	Unspecified Mine	1967
Not shown	813.0	N	447611,360417	Old Coal Pit	1877
Not shown	813.0	N	447611,360417	Old Coal Pit	1877
Not shown	820.0	N	447619,360425	Old Coal Pit	1897
Not shown	820.0	S	447335,358414	Colliery	1950
Not shown	843.0	S	447244,358481	Colliery	1973
Not shown	857.0	N	447403,360435	Old Coal Pit	1877
Not shown	857.0	N	447403,360435	Old Coal Pit	1877
Not shown	859.0	N	447409,360440	Old Coal Shaft	1921
Not shown	859.0	N	447402,360440	Unspecified Disused Shaft	1966
Not shown	859.0	N	447402,360440	Unspecified Disused Shaft	1971
Not shown	859.0	N	447402,360440	Unspecified Disused Shaft	1989
Not shown	862.0	N	447408,360443	Old Coal Shaft	1938
Not shown	862.0	N	447408,360443	Old Coal Pit	1897
Not shown	884.0	S	447268,358362	Colliery	1914
Not shown	897.0	NW	446922,360275	Unspecified Old Shaft	1950
Not shown	898.0	S	447267,358355	Colliery	1939
Not shown	903.0	NW	446921,360281	Unspecified Old Shaft	1898
Not shown	903.0	NW	446921,360281	Unspecified Old Shaft	1914
Not shown	903.0	NW	446921,360281	Unspecified Old Shaft	1939
Not shown	903.0	NW	446921,360281	Unspecified Old Shaft	1921
Not shown	906.0	NW	446922,360282	Unspecified Shaft	1879
Not shown	964.0	N	447376,360541	Old Coal Shaft	1950
Not shown	972.0	S	447320,358351	Colliery	1879

Not shown	986.0	NW	446661,360478	Colliery	1877
Not shown	986.0	NW	446661,360478	Colliery	1877

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 Society:

ID	Distance (m)	Direction	NGR	Commodity Produced	Pit Name	Type of working	Status
64	365.0	N	4482 84,35 9944	Clay & Shale	Sutton Colliery Clay Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	366.0	W	4471 14,35 9531	Clay & Shale	Huthwaite	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	587.0	SW	4470 35,35 9055	Sandstone	Hucknall-under-Huthwaite	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	607.0	N	4483 70,36 0170	Coal, Deep	Sutton Colliery	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	688.0	SW	4471 50,35 8805	Sandstone	Greenwood Falls	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	795.0	N	4477 12,36 0392	Coal, Deep	Stubbinghill Coal Pit	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	841.0	E	4490 00,35 9420	Dolomite	Carsick Lane	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	856.0	N	4474 05,36 0432	Coal, Deep	Molyneux Colliery	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	874.0	NW	4469 97,36 0295	Clay & Shale	Skegby Colliery Brickworks	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased

Not shown	889.0	NW	4469 41,36 0273	Coal, Deep	Skegby Colliery	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	894.0	E	4490 55,35 9425	Dolomite	Carsic Lane	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	895.0	NE	4487 70,36 0265	Dolomite	Stoneyford Lane	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	922.0	NE	4489 35,36 0120	Dolomite	Stoneyford Farm	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	925.0	NE	4488 35,36 0245	Dolomite	Stonyford Lane	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	998.0	SE	4489 85,35 9010	Dolomite	St Mary Magdalen's	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 & Natural Cavities Legend



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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? **Yes**

The following Historical Mining information is provided by Groundsure :

ID	Distance (m)	Direction	NGR	Details	Date
4A	305.0	NE	448408,360 120	Colliery	1914
5A	415.0	N	448352,360 136	Colliery	1950
6B	489.0	N	448420,360 238	Colliery	1971
7B	489.0	N	448420,360 238	Colliery	1989
8	493.0	N	448373,360 137	Colliery	1879
Not shown	588.0	N	448346,360 160	Unspecified Shaft	1879
Not shown	612.0	N	448370,360 178	Air Shaft	1879
Not shown	613.0	N	448335,360 282	Unspecified Mine	1966
Not shown	648.0	N	448400,360 207	Unspecified Shaft	1898
Not shown	746.0	NW	446879,360 259	Disused Colliery	1950
Not shown	751.0	NW	446939,360 273	Colliery	1879
Not shown	754.0	NW	446959,360 308	Disused Colliery	1914
Not shown	754.0	NW	446959,360 308	Disused Colliery	1898
Not shown	778.0	N	447721,360 380	Old Coal Shaft	1950
Not shown	785.0	N	447715,360 386	Old Coal Shaft	1914
Not shown	786.0	N	447717,360 386	Old Coal Pit	1879
Not shown	787.0	N	447719,360 388	Old Coal Shaft	1939
Not shown	787.0	N	447719,360 388	Old Coal Shaft	1921
Not shown	788.0	NW	446959,360 308	Disused Colliery	1921
Not shown	788.0	NW	446959,360 308	Disused Colliery	1939
Not shown	792.0	S	447354,358 541	Unspecified Mine	1967
Not shown	813.0	N	447611,360 417	Old Coal Pit	1877
Not shown	813.0	N	447611,360 417	Old Coal Pit	1877
Not shown	820.0	N	447619,360 425	Old Coal Pit	1897
Not shown	820.0	S	447335,358 414	Colliery	1950
Not shown	843.0	S	447244,358 481	Colliery	1973
Not shown	857.0	N	447403,360 435	Old Coal Pit	1877
Not shown	857.0	N	447403,360 435	Old Coal Pit	1877
Not shown	859.0	N	447409,360 440	Old Coal Shaft	1921

Not shown	859.0	N	447402,360 440	Unspecified Disused Shaft	1966
Not shown	859.0	N	447402,360 440	Unspecified Disused Shaft	1971
Not shown	859.0	N	447402,360 440	Unspecified Disused Shaft	1989
Not shown	862.0	N	447408,360 443	Old Coal Pit	1897
Not shown	862.0	N	447408,360 443	Old Coal Shaft	1938
Not shown	884.0	S	447268,358 362	Colliery	1914
Not shown	897.0	NW	446922,360 275	Unspecified Old Shaft	1950
Not shown	898.0	S	447267,358 355	Colliery	1939
Not shown	903.0	NW	446921,360 281	Unspecified Old Shaft	1914
Not shown	903.0	NW	446921,360 281	Unspecified Old Shaft	1921
Not shown	903.0	NW	446921,360 281	Unspecified Old Shaft	1939
Not shown	903.0	NW	446921,360 281	Unspecified Old Shaft	1898
Not shown	906.0	NW	446922,360 282	Unspecified Shaft	1879
Not shown	964.0	N	447376,360 541	Old Coal Shaft	1950
Not shown	972.0	S	447320,358 351	Colliery	1879
Not shown	986.0	NW	446661,360 478	Colliery	1877
Not shown	986.0	NW	446661,360 478	Colliery	1877

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? Yes

The following Coal Mining information provided by the Coal Authority is not represented on Mapping:

Distance (m)	Direction	Details
0.0	On Site	The study site is located within the specified search distance of an identified mining area. Further details concerning this can be obtained from the Coal Authority Helpline on 0845 762 6848.

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. No results found.

3.4 Non – Coal Mining

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

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

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

ID	Distance (m)	Direction	Name	Commodity	Assessment of likelihood
1	0.0	On Site	Not available	Iron Ore (Bedded)	Highly Unlikely - Localised small scale mining may have occurred but restricted in extent.
2	581.0	N	Not available	Iron Ore (Bedded)	Highly Unlikely - Localised small scale mining may have occurred but restricted in extent.
Not shown	986.0	W	Not available	Iron Ore (Bedded)	Highly Unlikely - Localised small scale mining may have occurred but restricted in extent.

3.5 Non – Coal Mining Cavities

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

Are there any Non-Coal Mining cavities within 1000m of the study site boundary? No

Database searched and no data found.

3.6 Natural Cavities

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

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

Database searched and no data found.

3.7 Brine Extraction

This dataset provides information from the Brine Compensation Board which has been discontinued and is now covered by the Coal Authority.

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.

Report Reference: [EMS-182497_267993](#)

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. More detailed information on potential Tin Mining may be found in Section 3.4 – Non-Coal Mining Hazards.

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.

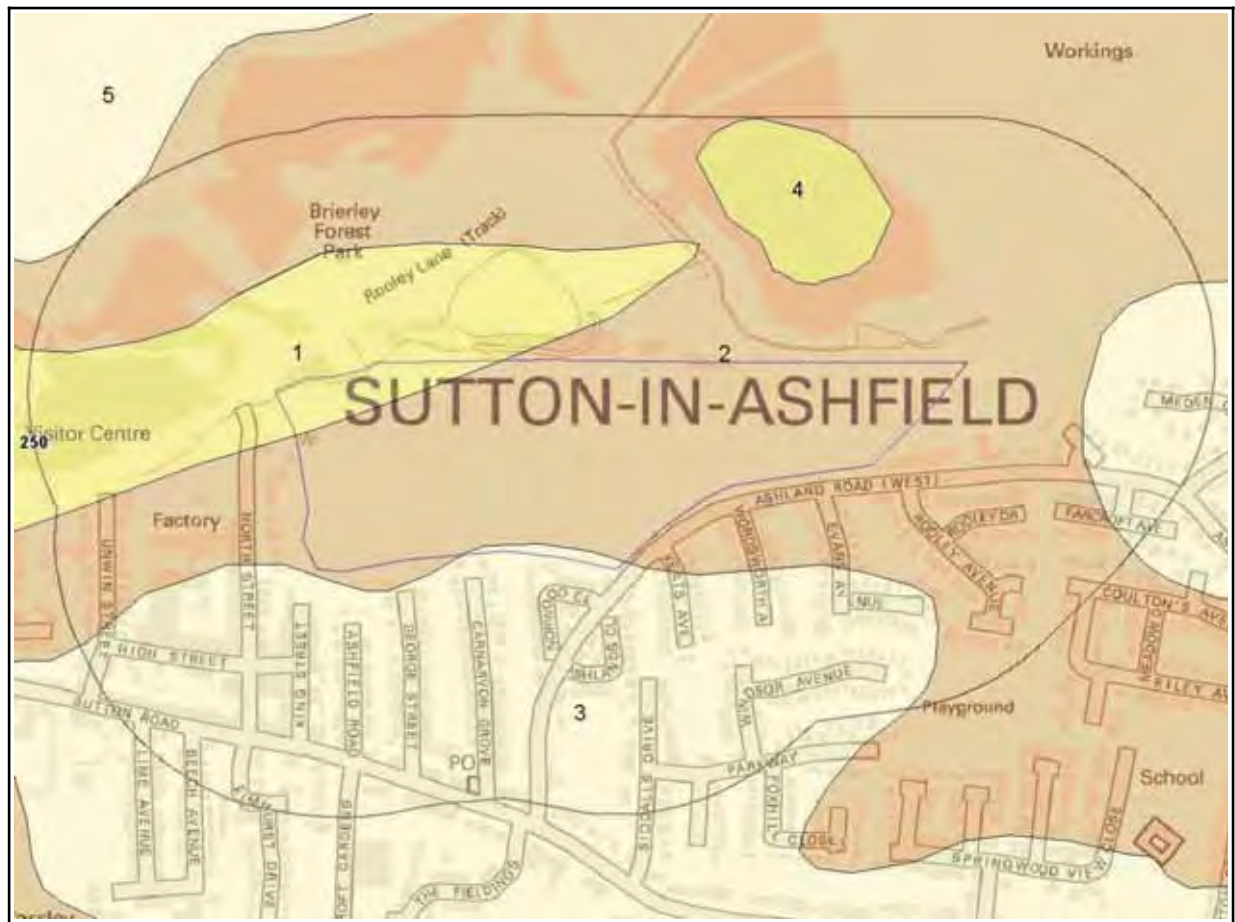
Are there any Clay Mining areas within 1000m of the study site boundary?

No

Database searched and no data found.

4. Natural Ground Subsidence

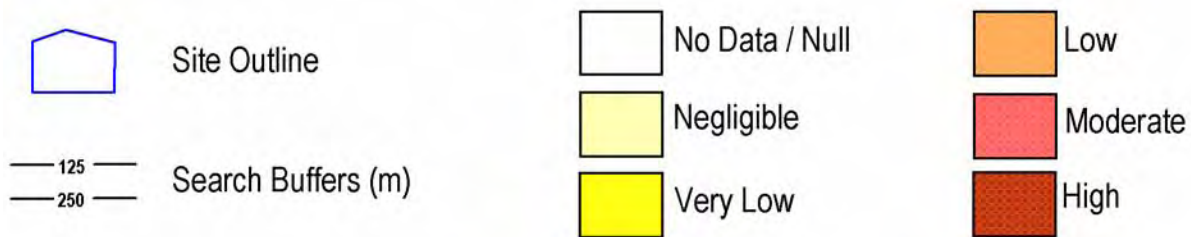
4.1 Shrink-Swell Clay Map



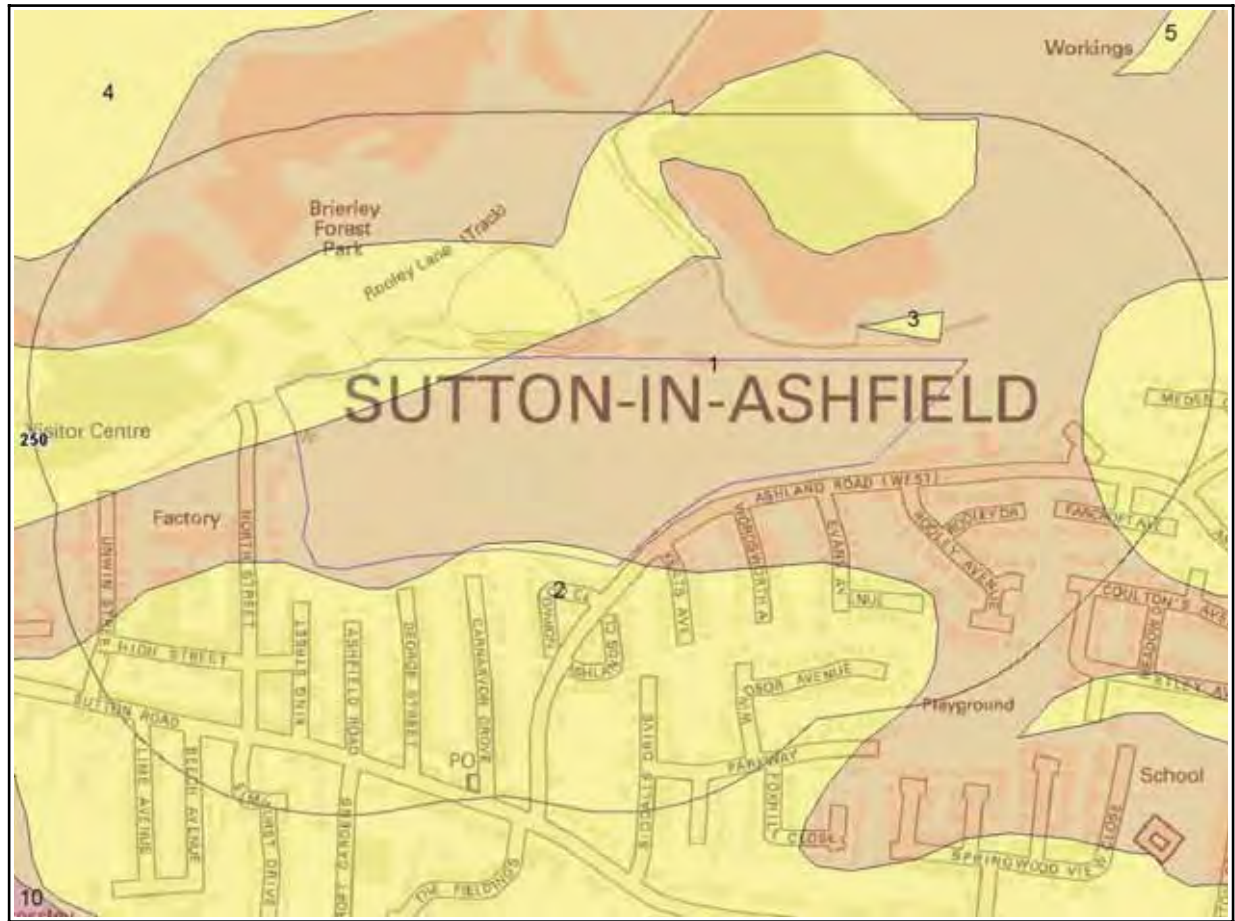
Shrink-Swell Clay Legend



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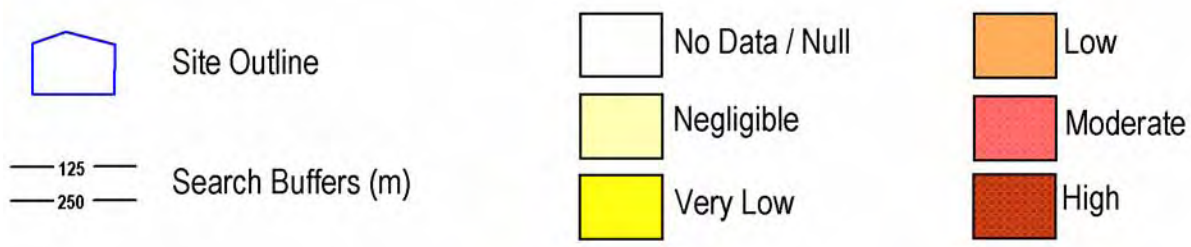
4.2 Landslides Map



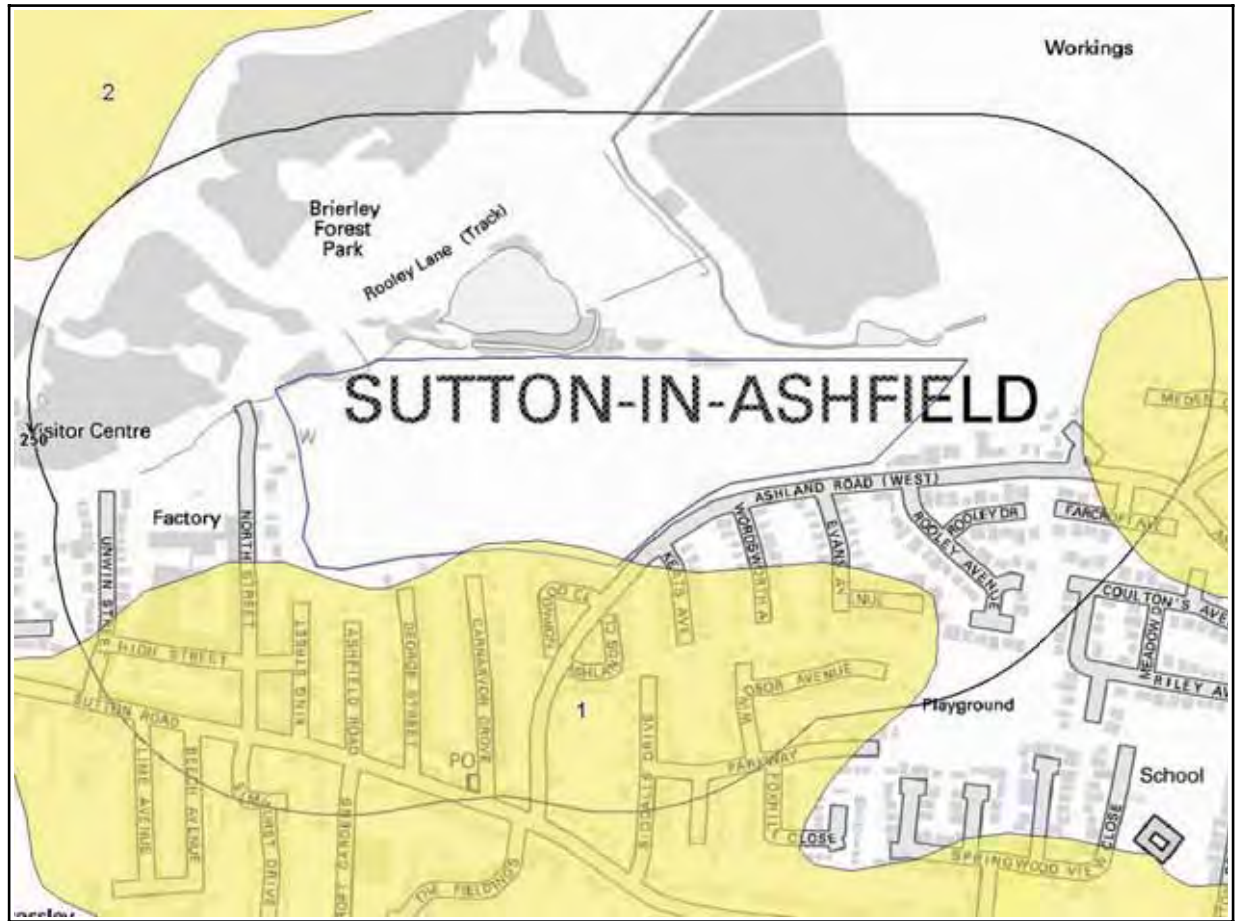
Landslides Legend



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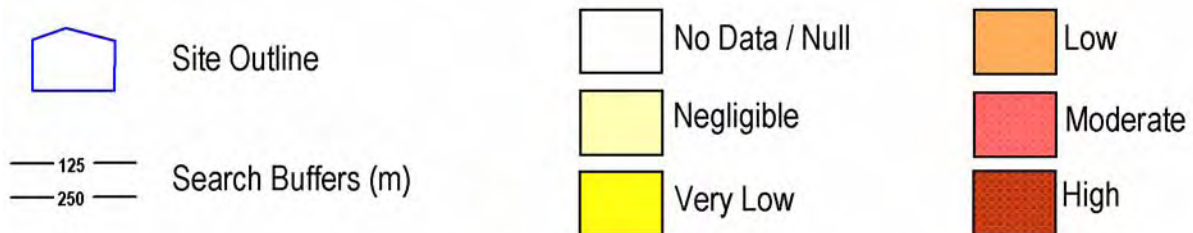
4.3 Ground Dissolution Soluble Rocks Map



Ground Dissolution Soluble Rocks Legend



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4.4 Compressible Deposits Map



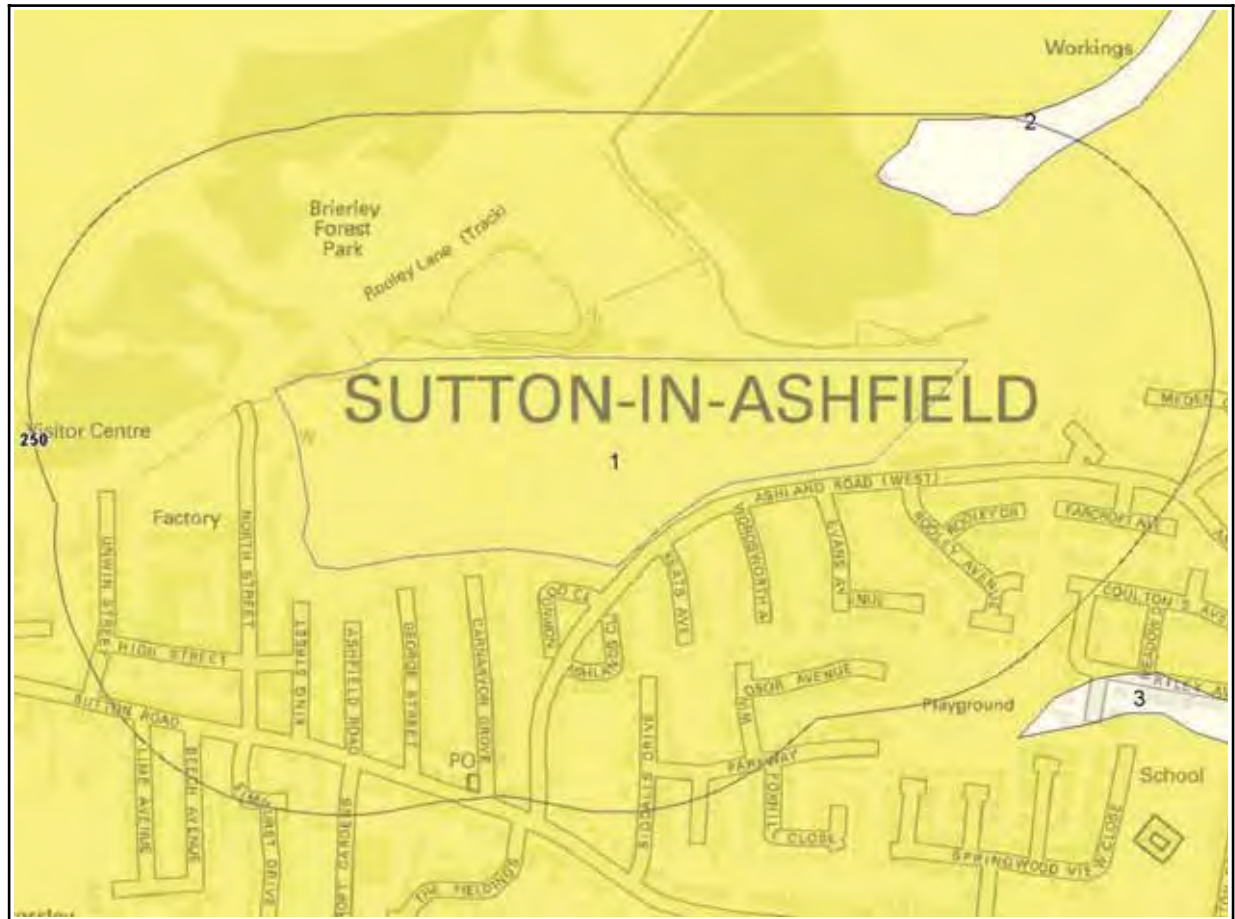
Compressible Deposits Legend



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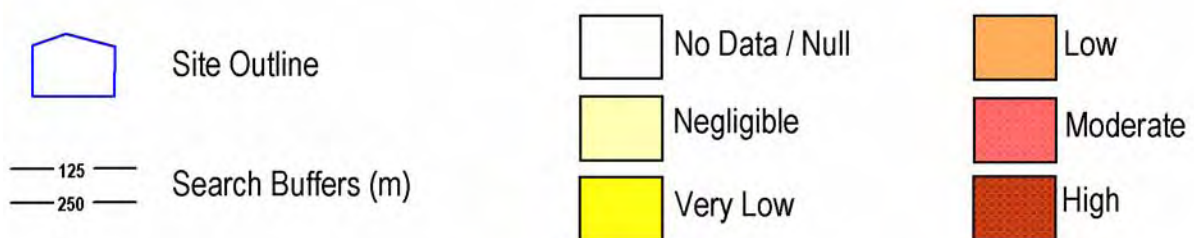
4.5 Collapsible Deposits Map



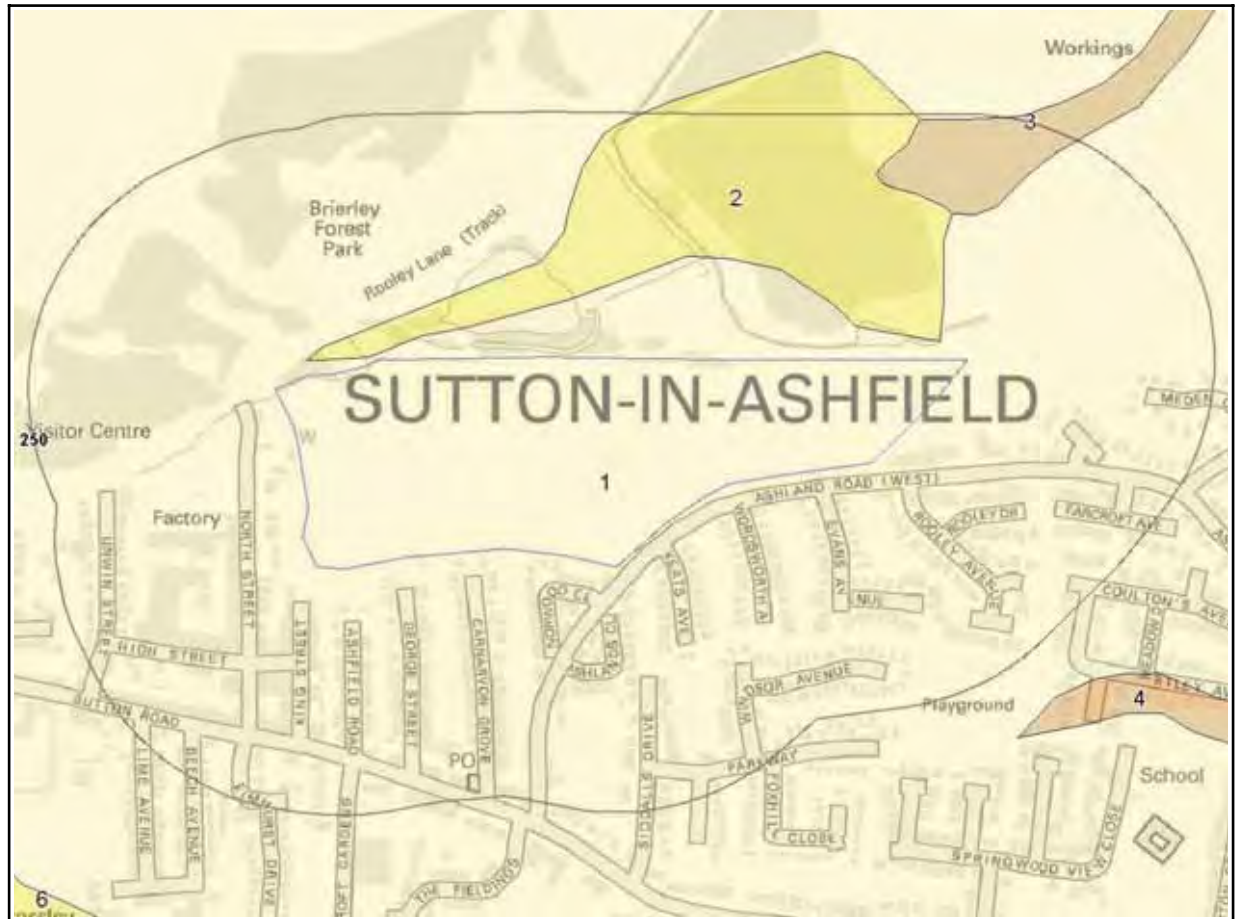
Collapsible Deposits Legend



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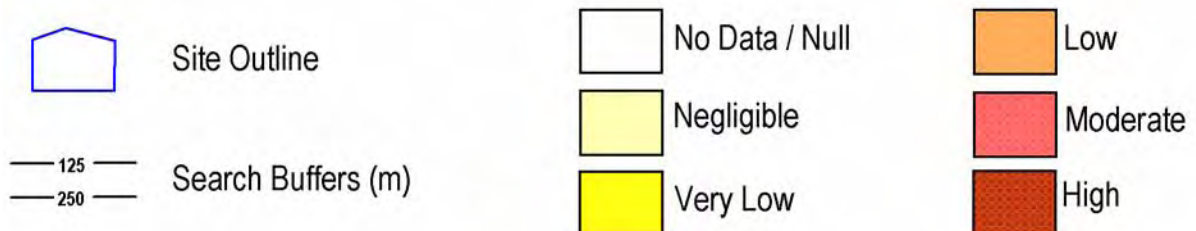
4.6 Running Sand Map



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? Low

4.1 Shrink – Swell Clays

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

ID	Distance (m) *	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Ground conditions predominantly low plasticity. No special actions required to avoid problems due to shrink-swell clays. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with shrink-swell clays.
2	0.0	On Site	Low	Ground conditions predominantly medium plasticity. Do not plant trees with high soil moisture demands near to buildings. For new build, consideration should be given to advice published by the National House Building Council (NHBC) and the Building Research Establishment (BRE). There is a possible increase in construction cost to reduce potential shrink-swell problems. For existing property, there is a possible increase in insurance risk, especially during droughts or where vegetation with high moisture demands is present.
3	0.0	On Site	Negligible	Ground conditions predominantly non-plastic. No special actions required to avoid problems due to shrink-swell clays. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with shrink-swell clays.

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	Low	Possibility of slope instability problems after major changes in ground conditions. Consideration should be given to stability if changes to drainage or excavations take place. Possible increase in construction cost to reduce potential slope stability problems. Existing property no significant increase in insurance risk due to natural slope instability problems.
2	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.
3	19.0	N	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.

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

4.3 Ground Dissolution of Soluble Rocks

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

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

4.4 Compressible Deposits

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

ID	Distance (m)*	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	No indicators for compressible deposits identified. No special actions required to avoid problems due to compressible deposits. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with compressible deposits.

4.5 Collapsible Deposits

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

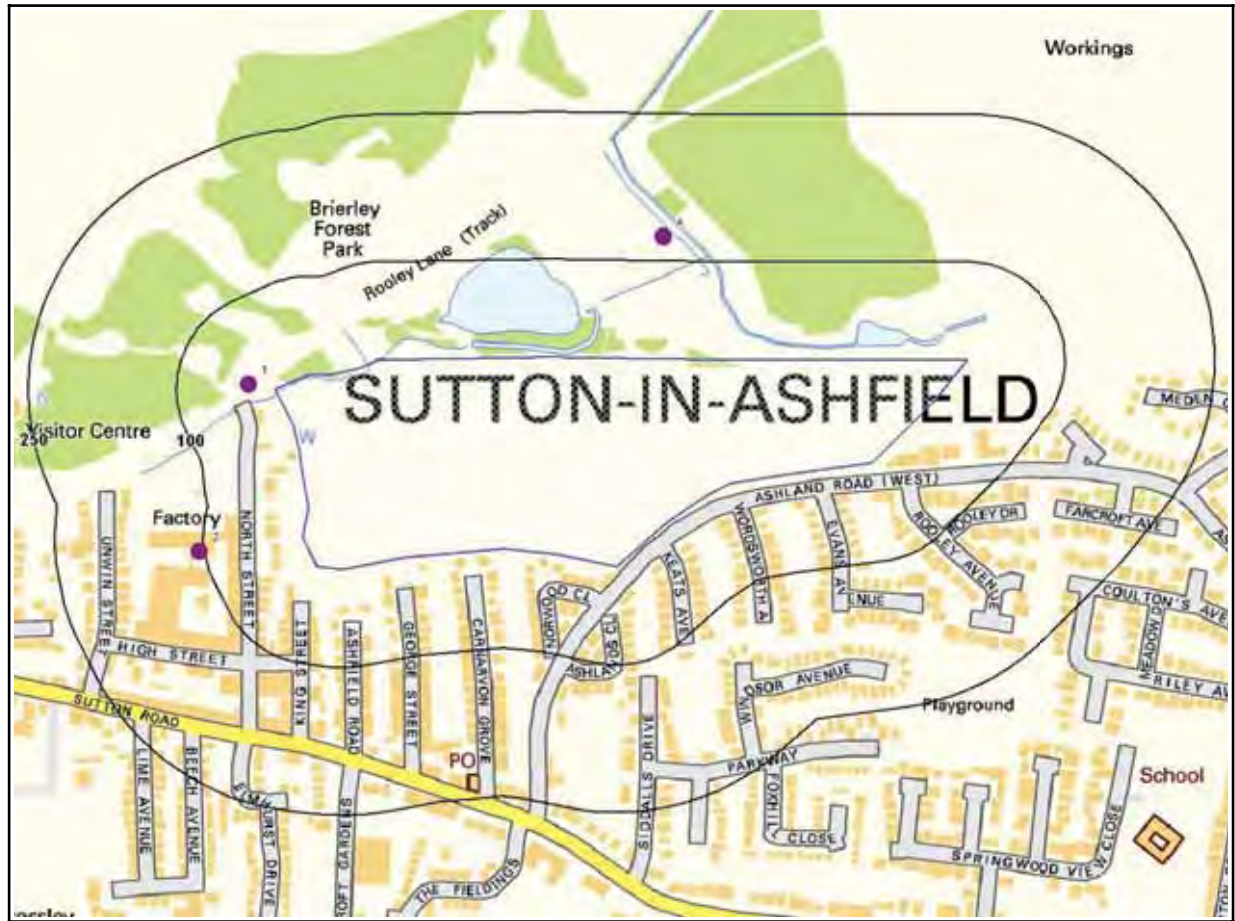
ID	Distance (m)*	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Deposits with potential to collapse when loaded and saturated are unlikely to be present. No special ground investigation required or increased construction costs or increased financial risk due to potential problems with collapsible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

4.6 Running Sands

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

ID	Distance (m)*	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	No indicators for running sand identified. 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.
2	7.0	N	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



Borehole Records Legend



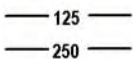
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Site Outline



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:

4

ID	Distance (m)	Direction	NGR	BGS Reference	Drilled Length (m)	Borehole Name
1	28.0	W	447450,35 9570	SK45NE198	59.44	SUTTON COLLIERY NO.2
2	106.0	W	447400,35 9400	SK45NE185	-1.0	CO-OP FACTORY
3A	123.0	N	447870,35 9719	SK45NE28/A	-1.0	SUTTON 2
4A	124.0	N	447870,35 9720	SK45NE196	383.59	SUTTON COLLIERY

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

- # 1: http://scans.bgs.ac.uk/sobi_scans/boreholes/223288
- # 2: http://scans.bgs.ac.uk/sobi_scans/boreholes/223275
- # 4A: http://scans.bgs.ac.uk/sobi_scans/boreholes/223286

6. Estimated Background Soil Chemistry

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

6

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

Estimated Geometric Mean Soil Concentrations (mg/kg)							
Distance (m)*	Direction	Sample Type	Arsenic (As)	Cadmium (Cd)	Chromium (Cr)	Nickel (Ni)	Lead (Pb)
0.0	On Site	RuralSoil	15 - 25 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<150 mg/kg
0.0	On Site	RuralSoil	15 - 25 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<150 mg/kg
0.0	On Site	RuralSoil	15 - 25 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<150 mg/kg
0.0	On Site	RuralSoil	15 - 25 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<150 mg/kg
7.0	N	RuralSoil	15 - 25 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<150 mg/kg
19.0	N	RuralSoil	15 - 25 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<150 mg/kg

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

7. Contacts

EmapSite

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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
Tel: www.british-gypsum.com



The Coal Authority

200 Lichfield Lane, Mansfield, Notts NG18 4RG
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Acknowledgements

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Standard Terms and Conditions

1 Definitions

In these conditions unless the context otherwise requires:

"**Beneficiary**" means the Client or the customer of the Client for whom the Client has procured the Services.

"**Commercial**" means any building which is not Residential.

"**Commission**" means an order for Consultancy Services submitted by a Client.

"**Consultancy Services**" mean consultancy services provided by GroundSure including, without limitation, carrying out interpretation of third party and in-house environmental data, provision of environmental consultancy advice, undertaking environmental audits and assessments, Site investigation, Site monitoring and related items.

"**Contract**" means the contract between GroundSure and the Client for the performance of the Services which arises upon GroundSure's acceptance of an Order or Commission and which shall incorporate these conditions, the relevant GroundSure User Guide, proposal by GroundSure and the content of any subsequent report, and any agreed amendments in accordance with clause 11.

"**Client**" means the party that submits an Order or Commission.

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

"**Data Report**" means reports comprising factual data with no professional interpretation in respect of the level of likely risk and/or liability available from GroundSure.

"**GroundSure**" means GroundSure Limited, a company registered in England and Wales under number 03421028 and whose registered office is at Greater London House, Hampstead Road, London NW1 7EJ.

"**GroundSure Materials**" means all materials prepared by GroundSure as a result of the provision of the Services, including but not limited to Data Reports, Mapping and Risk Screening Reports.

"**Intellectual Property**" means any patent, copyright, design rights, service marks, moral rights, data protection rights, know-how, trade mark or any other intellectual property rights.

"**Mapping**" an historical map or a combination of historical maps of various ages, time periods and scales available from GroundSure.

"**Order**" means an order form submitted by the Client requiring Services from GroundSure in respect of a specified Site.

"**Order Website**" means online platform via which Orders may be placed.

"**Report**" means a Risk Screening Report or Data Report for commercial or residential property available from GroundSure relating to the Site prepared in accordance with the specifications set out in the relevant User Guide.

"**Residential**" means any building used as or suitable for use as an individual dwelling.

"**Risk Screening Report**" means one of GroundSure's risk screening reports, comprising factual data with interpretation in respect of the level of likely risk and/or liability, excluding

"**Consultancy Services**".

"**Services**" means the provision of any Report, Mapping or Consultancy Services which GroundSure has agreed to carry out for the Client/Beneficiary on these terms and conditions in respect of the Site.

"**Site**" means the landsite in respect of which GroundSure provides the Services.

"**Third Party Content**" means any data, database or other information contained in a Report or Mapping which is provided to GroundSure by a Data Provider.

"**User Guide**" means the relevant current version of the user guide, available upon request from GroundSure.

2 Scope of Services

2.1 GroundSure agrees to carry out the Services in accordance with the Contract and to the extent set out therein.

2.2 GroundSure shall exercise all the reasonable skill, care and diligence to be expected of experienced environmental consultants in the performance of the Services.

2.3 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 the Contract.

2.4 Terms and conditions appearing on a Client's order form, printed stationery or other communication, including invoices, to GroundSure, its employees, servants, agents or other representatives or any terms implied by custom, practice or course of dealing shall be of no effect and these terms and conditions shall prevail over all others.

2.5 If a Client/Beneficiary requests insurance in conjunction with or as a result of the Services, GroundSure shall use reasonable endeavours to procure such insurance, but makes no warranty that such insurance shall be available from insurers or offered on reasonable terms. GroundSure does not endorse or recommend any particular insurance product, policy or insurer. Any insurance purchased shall be subject solely to the terms of the policy issued by insurers and GroundSure will have no liability therefor. The Client/Beneficiary should take independent advice to ensure that the insurance policy requested and/or offered is suitable for its requirements.

2.6 GroundSure's quotations/proposals are valid for a period of 30 days only. GroundSure reserves the right to withdraw any quotation at any time before GroundSure accepts an Order or Commission. GroundSure's acceptance of an Order or Commission shall be effective only where such acceptance is in writing and signed by GroundSure's authorised representative or where accepted via GroundSure's Order Website.

3 The Client's obligations

3.1 The Client shall ensure the Beneficiary complies with and is bound by the terms and conditions set out in the Contract and shall provide that Groundsure may in its own right enforce such terms and conditions against the Beneficiary pursuant to the Contracts (Rights of Third parties) Act 1999. The Client shall be liable for all breaches of the Contract by the Beneficiary as if they were breaches by the Client. The Client shall be solely responsible for ensuring that the Report/Mapping ordered is appropriate and suitable for the Beneficiary's needs.

3.2 The Client shall (or shall procure that the Beneficiary shall) supply to GroundSure as soon as practicable and without charge all information necessary and accurate relevant data including any specific and/or unusual environmental information relating to the Site known to the Client/Beneficiary which may pertain to the Services and shall give such assistance as GroundSure shall reasonably require in the performance of the Services (including, without limitation, access to a Site, facilities and equipment as agreed in the Contract).

3.3 Where Client/Beneficiary approval or decision is required, such approval or decision shall be given or procured in reasonable time as not to delay or disrupt the performance of any other part of the Services.

3.4 The Client shall not and shall not knowingly permit the Beneficiary to, save as expressly permitted by these terms and conditions, re-sell, alter, add to, amend or use out of context the content of any Report, Mapping or, in respect of any Services, information given by GroundSure. For the avoidance of doubt, the Client and Beneficiary may make the Report, Mapping or GroundSure's findings available to a third party who is considering acquiring the whole or part of the Site, or providing funding in relation to the Site, but such third party cannot rely on the same unless expressly permitted under clause 4.

3.5 The Client is responsible for maintaining the confidentiality of its user name and password if using GroundSure's internet ordering service and accepts responsibility for all activity that occurs under such account and password.

4 Reliance

4.1 Upon full payment of all relevant fees and subject to the provisions of these terms and conditions, the Client and Beneficiary are granted an irrevocable royalty-free licence to access the information contained in a Report, Mapping or in a report prepared by GroundSure in respect of or arising out of Consultancy Services. The Services may only be used for the benefit of the Client and those persons listed in clauses 4.2 and 4.3.

4.2 In relation to Data Reports, Mapping and Risk Screening Reports, the Client shall be entitled to make Reports available to (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 (v) the professional advisers and lenders of the first purchaser or tenant of the Site. Accordingly GroundSure shall have the same duties and obligations to those persons in respect of the Services as it has to the Client and those persons shall have the benefit of any of the Client's rights under the Contract as if those persons were parties to the Contract. For the avoidance of doubt, the limitations of GroundSure's liability as set out in clauses 7 and 11.6 shall apply.

4.3 In relation to Consultancy Services, reliance shall be limited to the Client, Beneficiary and named parties on the Report.

4.4 Save as set out in clauses 4.2 and 4.3 and unless otherwise agreed in writing with GroundSure, any other party considering the information supplied by GroundSure as part of the Services, including (but not limited to) insurance underwriters, does so at their own risk and GroundSure has no legal obligations to such party unless otherwise agreed in writing.

4.5 The Client shall not and shall not knowingly permit any person (including the Beneficiary) who is provided with a copy of any Report, (except as permitted herein or by separate agreement with GroundSure) to: (a) remove, suppress or modify any trade mark, copyright or other proprietary marking from the Report or Mapping; (b) create any product which is derived directly or indirectly from the data contained in the Report or Mapping; (c) combine the Report or Mapping with, or incorporate the Report or Mapping into any other information data or service; or (d) re-format or otherwise change (whether by modification, addition or enhancement) data or images contained in the Report or Mapping.

4.6 Notwithstanding clause 4.5, if the Client acts in a professional capacity, it may make reasonable use of a Report and/or findings made as a result of Consultancy Services to advise Beneficiaries. However, GroundSure shall have no liability in respect of any opinion or report given to such Beneficiaries by the Client or a third party.

5 Fees and Disbursements

5.1 GroundSure shall charge the Client fees at the rate and frequency specified in the Contract together, in the case of Consultancy Services, with all proper disbursements incurred by GroundSure in performing the Services. For the avoidance of doubt, the fees payable for the Services are as set out in GroundSure's written proposal, Order Website or Order acknowledgement form. 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.

5.2 Unless GroundSure requires prepayment, the Client shall promptly pay all fees disbursements and other monies due to GroundSure in full without deduction, counterclaim or set off together with such value added tax or other tax as may be required within 30 days from the date of GroundSure's invoice or such other period as may be agreed in writing between GroundSure and the Client ("**Payment Date**"). GroundSure reserves the right to charge interest which shall accrue on a daily basis from 30 days after the date of Payment Date until the date of payment (whether before or after judgment) at the rate of five per cent per annum above the Bank of England base rate from time to time.

5.3 In the event that the Client disputes the amount payable in respect of GroundSure's invoice it shall notify GroundSure no later than 28 days after the date thereof that it is in dispute. In default of such notification the Client shall be deemed to have agreed the amount thereof. As soon as reasonably practicable following receipt of a notification in respect of any disputed invoice, a member of the management team at GroundSure shall contact the Client and the parties shall use all reasonable endeavours to resolve the dispute.

6 Intellectual Property and Confidentiality

6.1 Subject to the provisions of clause 4.1, the Client and the Beneficiary hereby acknowledge that all Intellectual Property in the Services and Content are and shall remain owned by either GroundSure or the Data Providers and nothing in these terms purports to transfer or assign any rights to the Client or the Beneficiary in respect of the Intellectual Property.

6.2 The Client shall acknowledge the ownership of the **Third Party Content** where such **Third Party Content** is incorporated or used in the Client's own documents, reports, systems or services whether or not these are supplied to a third party.

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

6.4 The Client acknowledges that the proprietary rights subsisting in copyright, database rights and any other intellectual property rights in respect of any data and information contained in any Report are and shall remain (subject to clause 11.1) the property of GroundSure and/or any third party that has supplied data or information used to create a Report, and that these conditions do not purport to grant, assign or transfer any such rights in respect thereof to a Client and/or a Beneficiary.

6.5 The Client shall (and shall procure that any recipients of the Report as permitted under clause 4.2 shall):

- (i) not remove, suppress or modify any trademark, 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 data contained in 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; and
 - (v) not reformat or otherwise change (whether by modification, addition or enhancement), data contained in the Services (save that those acting in a professional capacity to the Beneficiary shall not be in breach of this clause 6.5(v) where such reformatting is in the normal course of providing advice based upon the Services), in each case of parts (iii) to (v) inclusive, whether or not such product or report is produced for commercial profit or not.
- 6.6 The Client and/or Beneficiary shall and shall procure that any party 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.
- 6.8 Save as otherwise set out in these terms and conditions, any information provided by one party ("**Disclosing Party**") to the other party ("**Receiving Party**") shall be treated as confidential and only used for the purposes of these terms and conditions, except in so far as the Receiving Party is authorised by the Disclosing Party to provide such information in whole or in part to a third party.

7 Liability

THE CLIENT'S ATTENTION IS DRAWN TO THIS PROVISION

- 7.1 Subject to the provisions of this clause 7, GroundSure shall be liable to the Beneficiary only in relation to any direct losses or damages caused by any negligent act or omission of GroundSure in preparing the GroundSure Materials and provided that the Beneficiary has used all reasonable endeavours to mitigate any such losses.
- 7.2 GroundSure shall not be liable for any other losses or damages incurred by the Beneficiary, including but not limited to:
- (i) loss of profit, revenue, business or goodwill, losses relating to business interruption, loss of anticipated savings, loss of or corruption to data or for any special, indirect or consequential loss or damage which arise out of or in connection with the GroundSure Materials or otherwise in relation to a Contract;
 - (ii) any losses or damages that arise as a result of the use of all or part of the GroundSure Materials in breach of these terms and conditions or contrary to the terms of the relevant User Guide;
 - (iii) any losses or damages that arise as a result of any error, omission or inaccuracy in any part of the GroundSure Materials where such part is based on any Third Party Content or any reasonable interpretation of Third Party Content. The Client accepts, and shall procure that any other Beneficiary shall accept, that it has no claim or recourse to any Data Provider in relation to Third Party Content; and/or
 - (iv) any loss or damage to a Client's computer, software, modem, telephone or other property caused by a delay or loss of use of GroundSure's internet ordering service.
- 7.3 GroundSure's total liability in contract, tort (including negligence or breach of statutory duty), misrepresentation, restitution or otherwise, arising in connection with the GroundSure Materials or otherwise in relation to the Contract shall be limited to £10 million in total (i) for any one claim or (ii) for a series of connected claims brought by one or more parties.
- 7.4 For the duration of the liability periods set out in clauses 7.5 and 7.6 below, GroundSure shall maintain professional indemnity insurance in respect of its liability under these terms and conditions provided such insurance is readily available at commercially viable rates. GroundSure shall produce evidence of such insurance if reasonably requested by the Client. A level of cover greater than GroundSure's current level of cover may be available upon request and agreement with the Client.
- 7.5 Any claim under the Contract in relation to Data Reports, Mapping and Risk Screening Reports, must be brought within six years from the date when the Beneficiary became aware that it may have a claim and in no event may a claim be brought twelve years or more after completion of such a Contract. For the avoidance of doubt, any claim in respect of which proceedings are notified to GroundSure in writing prior to the expiry of the time periods referred to in this clause 7.5 shall survive the expiry of those time periods provided the claim is actually commenced within six months of notification.
- 7.6 Any claim under the Contract in relation to Consultancy Services, must be brought within six years from the date the Consultancy Services were completed.
- 7.7 The Client accepts and shall procure that any other Beneficiary shall accept that it has no claim or recourse to any Data Provider or to GroundSure in respect of the acts or omissions of any Data Provider and/or any Third Party Content provided by a Data Provider.
- 7.8 Nothing in these terms and conditions:
- (i) excludes or limits the liability of GroundSure for death or personal injury caused by GroundSure's negligence, or for fraudulent misrepresentation; or
 - (ii) shall affect the statutory rights of a consumer under the applicable legislation.

8 GroundSure right to suspend or terminate

- 8.1 In the event that GroundSure reasonably believes that the Client or Beneficiary as applicable has not provided the information or assistance required to enable the proper performance of the Services, GroundSure shall be entitled on fourteen days written notice to suspend all further performance of the Services until such time as any such deficiency has been made good.
- 8.2 GroundSure may additionally terminate the Contract immediately on written notice in the event that:
- (i) the Client shall fail to pay any sum due to GroundSure within 28 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 material term of the Contract (including, but not limited to, the obligations in clause 4) incapable of remedy or if remediable, is not remedied within 14 days of notice of the breach.

9 Client's Right to Terminate and Suspend

- 9.1 Subject to clause 10.2, the Client may at any time after commencement of the Services by notice in writing to GroundSure require GroundSure to terminate or suspend immediately performance of all or any of the Services.
- 9.2 The Client waives all and any right of cancellation it may have under the Consumer Protection (Distance Selling) Regulations 2000 (as amended) in respect of the Order of a Report/Mapping. This does not affect the Beneficiary's statutory rights.

10 Consequences of Withdrawal, Termination or Suspension

- 10.1 Upon termination or any suspension of the Services, 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/Beneficiary any property of the Client/ Beneficiary in GroundSure's possession or control.
- 10.2 In the event of termination/suspension of the Contract under clauses 8 or 9, 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/suspension. In respect of any Consultancy Services provided, the Client shall also pay GroundSure any additional costs incurred in relation to the termination/suspension of the Contract.

11 General

- 11.1 The mapping contained in the Services is protected by Crown copyright and must not be used for any purpose outside the context of the Services or as specifically provided in these terms.
- 11.2 GroundSure reserves the right to amend these terms and conditions. No variation to these terms shall be valid unless signed by an authorised representative of GroundSure.
- 11.3 No failure on the part of GroundSure to exercise and no delay in exercising, any right, power or provision under these terms and conditions shall operate as a waiver thereof.
- 11.4 Save as expressly provided in clauses 4.2, 4.3, 6.3 and 11.5, 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.
- 11.5 The Secretary of State for Communities and Local Government acting through Ordnance Survey may enforce breach of clause 6.1 of these terms and conditions against the Client in accordance with the provisions of the Contracts (Rights of Third Parties) Act 1999.
- 11.6 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 Data Providers; or
 - (viii) changes in law.
- 11.7 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.
- 11.8 Such notice shall be deemed to have been received on the day of delivery if delivered by hand, facsimile or email and on the second working day after the day of posting if sent by first class post.
- 11.9 The Contract constitutes the entire contract between the parties and shall supersede all previous arrangements between the parties.
- 11.10 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.
- 11.11 These terms and conditions shall be governed by and construed in accordance with English law and any proceedings arising out of or connected with these terms and conditions shall be subject to the exclusive jurisdiction of the English courts.
- 11.12 If the Client or Beneficiary has a complaint about the Services, notice can be given in any format eg writing, phone, email to the Compliance Officer at GroundSure who will respond in a timely manner.

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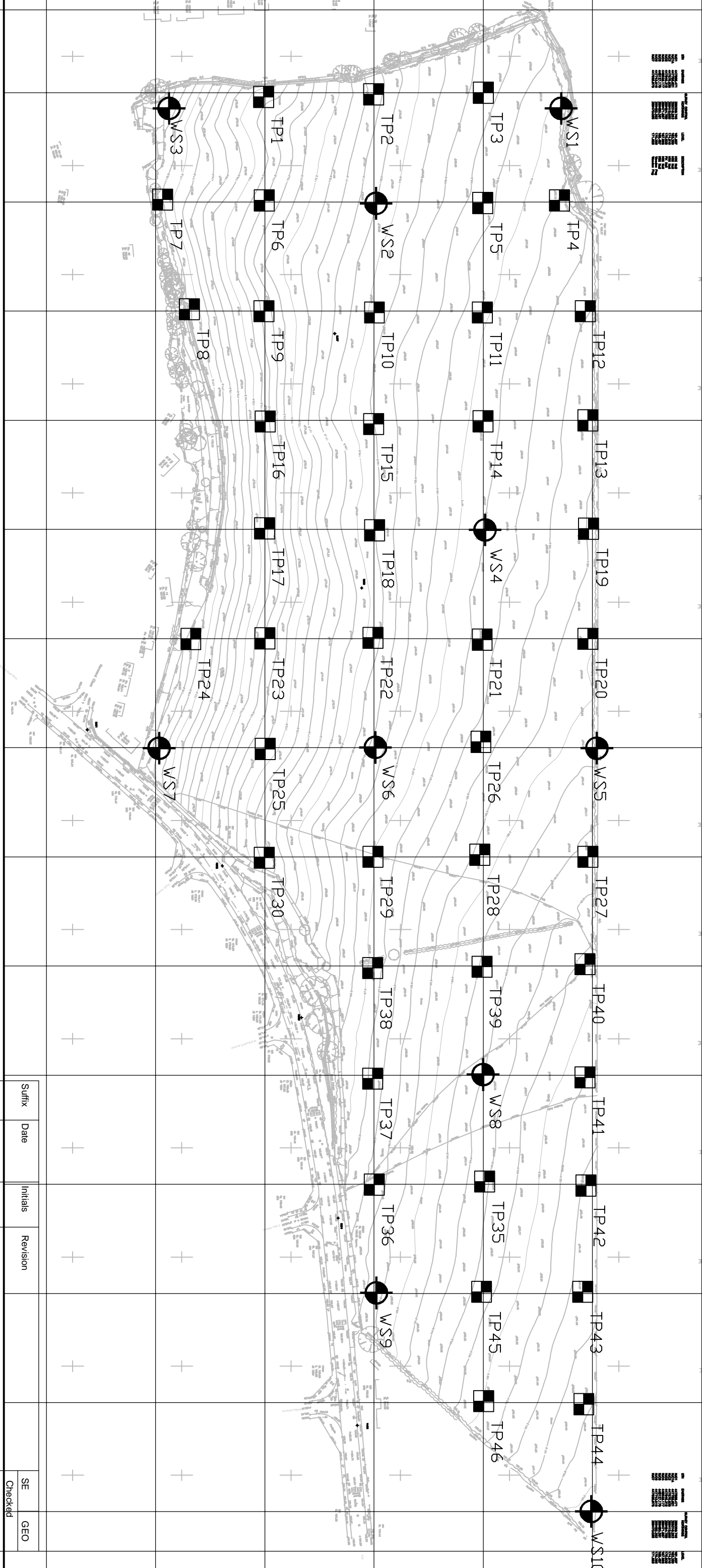
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Fax: 01283 211968

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Suffix	Date	Initials	Revision	SE	GEO
				Checked	

CLIENT
DAVID WILSON HOMES
EAST MIDLANDS

PROJECT
ASHLANDS ROAD
SUTTON-IN-ASHFIELD

TITLE
EXPLORATORY HOLE
LOCATION PLAN



Laurus House, First Avenue, Centrum 100
 Burton on Trent, Staffs, DE14 2WH
 Tel: (01283) 551249 Fax: (01283) 211968

DATE	SCALE	REF	DRAWING NO.	REVISION
16/11/2012	NTS	P5946	01	

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Trial Pit Log

Trial Pit Number
TP1

Site **Ashland Road, Sutton in Ashfield**

Ground Level mAOD
 -

Client **David Wilson Homes - East Midlands**

GRM Project ref: **P5946**

Coordinates:
 -
 -

GROUNDWATER		SAMPLES	INSITU TESTING		STRATA		STRATA RECORD		Scale: 1:25
Strike	Depth (m)	Depth/Type/Ref (m)	Depth (m)	Hand Vane Strength (kN/m ²)	Depth (m)	Level (mAOD)	Legend	Description	
		0.10-0.25/D/1 0.10-0.25/J/1			0.25	-		Grass over brown slightly sandy silty clay.(TOPSOIL)	
		0.40-0.60/D/2						Firm brown and light brown mottled grey (locally slightly sandy) silty locally very silty CLAY with occasional angular to subangular fine to coarse gravel including dolostone and sandstone.(WEATHERED CADEBY FORMATION)	
1		1.20-1.40/D/3			1.10	-		Stiff indistinctly laminated brown and grey very silty CLAY with some mudstone lithorelicts. Locally friable.(WEATHERED CADEBY FORMATION)	
		1.60-1.80/D/4			1.50	-		Stiff indistinctly laminated brown and grey very silty CLAY with mudstone bands and some mudstone lithorelicts. Friable - recovered as a gravelly clay.(WEATHERED CADEBY FORMATION)	
2		2.60-2.80/D/5			2.50	-		Extremely weak and very weak highly weathered thinly laminated to very thinly bedded grey MUDSTONE with clay bands. Recovered as a clayey gravel.(CADEBY FORMATION)	
					3.00	-		End of Trial Pit at 3.00 m	

Excavation Details	Dimensions (m)	Groundwater Observations
Date excavated: 22/10/2012 Date backfilled: 22/10/2012 Shoring: None Stability: Stable during excavation Plant: JCB-3CX Logged by: KAB	 Final Depth (m): 3.00	Slight seepage at 2.8m

General Remarks:



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Trial Pit Log

Trial Pit Number

TP2

Site **Ashland Road, Sutton in Ashfield**

Ground Level mAOD
-

Client **David Wilson Homes - East Midlands**

GRM Project ref: **P5946**

Coordinates:
-
-

GROUNDWATER		SAMPLES	INSITU TESTING		STRATA		STRATA RECORD		Scale: 1:25
Strike	Depth (m)	Depth/Type/Ref (m)	Depth (m)	Hand Vane Strength (kN/m ²)	Depth (m)	Level (mAOD)	Legend	Description	
		0.10-0.25/D/1 0.10-0.25/J/1			0.25	-		Grass over brown slightly sandy silty clay.(TOPSOIL)	
		0.40-0.60/D/2						Firm orange brown locally mottled grey (locally slightly sandy) very silty CLAY with occasional subrounded to rounded fine to coarse gravel including calcite nodules.(WEATHERED CADEBY FORMATION)	
1		1.30-1.50/D/3			1.20	-		Firm and stiff orange brown and grey very silty CLAY with occasional angular flat fine to coarse gravel including dolostone. Locally friable.(WEATHERED CADEBY FORMATION)	
		2.10-2.30/D/4			2.00	-		Stiff indistinctly laminated grey very silty CLAY with mudstone bands, occasional dolostone gravel and some mudstone lithorelicts. Friable - recovered as a gravelly clay.(WEATHERED CADEBY FORMATION)	
2		2.60-2.80/D/5			2.60	-		Extremely weak and very weak highly weathered thinly laminated to very thinly bedded grey MUDSTONE with clay bands. Recovered as a clayey gravel.(CADEBY FORMATION)	
					2.90	-		End of Trial Pit at 2.90 m	

Excavation Details	Dimensions (m)	Groundwater Observations
Date excavated: 22/10/2012 Date backfilled: 22/10/2012 Shoring: None Stability: Stable during excavation Plant: JCB-3CX Logged by: KAB	<p>Final Depth (m): 2.90</p>	Slight seepage at 2.9m

General Remarks:

Japanese knotweed observed between TP2 and TP3. Scraping at 2.9m.



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Trial Pit Log

Trial Pit Number

TP3

Site **Ashland Road, Sutton in Ashfield**

Ground Level mAOD
-

Client **David Wilson Homes - East Midlands**

GRM Project ref: **P5946**

Coordinates:
-
-

GROUNDWATER		SAMPLES	INSITU TESTING		STRATA		STRATA RECORD		Scale: 1:25
Strike	Depth (m)	Depth/Type/Ref (m)	Depth (m)	Hand Vane Strength (kN/m ²)	Depth (m)	Level (mAOD)	Legend	Description	
		0.10-0.25/D/1 0.10-0.25/J/1			0.30	-		Grass over brown slightly sandy silty clay.(TOPSOIL)	
		0.40-0.60/D/2			0.70	-		Soft and firm orange brown slightly sandy silty CLAY.(WEATHERED CADEBY FORMATION)	
1		0.80-1.00/D/3			1.40	-		Firm orange brown and grey (locally slightly sandy) very silty CLAY with occasional angular flat gravel of dolostone and mudstone lithorelicts. Locally friable.(WEATHERED CADEBY FORMATION)	
2		1.50-1.70/D/4			2.50	-		Firm and stiff (locally indistinctly laminated) light brown and grey very silty CLAY with occasional mudstone and dolostone bands and some mudstone lithorelicts. Friable - recovered as a gravelly clay.(WEATHERED CADEBY FORMATION)	
		2.50-2.70/D/5			3.10	-		Extremely weak and very weak highly weathered thinly laminated to very thinly bedded grey MUDSTONE with clay bands. Recovered as a clayey gravel.(CADEBY FORMATION)	
								<i>End of Trial Pit at 3.10 m</i>	

Excavation Details	Dimensions (m)	Groundwater Observations
Date excavated: 22/10/2012 Date backfilled: 22/10/2012 Shoring: None Stability: Stable during excavation Plant: JCB-3CX Logged by: KAB	<p>Final Depth (m): 3.10</p>	Slight seepage at 2.8m

General Remarks:

Japanese knotweed observed between TP2 and TP3.



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Trial Pit Log

Trial Pit Number

TP4

Site **Ashland Road, Sutton in Ashfield**

Ground Level mAOD
0.000

Client **David Wilson Homes - East Midlands**

GRM Project ref: **P5946**

Coordinates:
0.00E
0.00N

GROUNDWATER		SAMPLES	INSITU TESTING		STRATA		STRATA RECORD		Scale: 1:25
Strike	Depth (m)	Depth/Type/Ref (m)	Depth (m)	Hand Vane Strength (kN/m ²)	Depth (m)	Level (mAOD)	Legend	Description	
		0.10-0.25/D/1 0.10-0.25/J/1			0.25	-0.25		Grass over brown slightly sandy silty clay.(TOPSOIL)	
		0.30-0.50/D/2						Firm orange brown locally mottled grey slightly sandy silty CLAY.(WEATHERED CADEBY FORMATION)	
1		1.10-1.30/D/3			1.10	-1.10		(Medium dense) orange brown and rusty brown clayey SAND and GRAVEL including angular to subangular fine to coarse sandstone.(WEATHERED MIDDLE COAL MEASURES)	
		1.40-1.60/D/4			1.30	-1.30		(Medium dense and dense) orange brown silty SAND and GRAVEL including angular to subangular fine to coarse sandstone and occasional sandstone cobbles.(WEATHERED MIDDLE COAL MEASURES)	
2					1.70	-1.70		Very weak and weak thickly laminated to very thinly bedded grey locally red brown silty SANDSTONE with thin clay bands. Recovered as a slightly clayey sand and gravel with occasional cobbles.(MIDDLE COAL MEASURES)	
					2.50	-2.50		End of Trial Pit at 2.50 m	

Excavation Details	Dimensions (m)	Groundwater Observations
Date excavated: 22/10/2012 Date backfilled: 22/10/2012 Shoring: None Stability: Stable during excavation Plant: JCB-3CX Logged by: KAB	 Final Depth (m): 2.50	Slight seepage at 0.25m

General Remarks:

Scraping at 2.5m

Strata strengths/densities determined by observation only.



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Trial Pit Log

Trial Pit Number

TP5

Site **Ashland Road, Sutton in Ashfield**

Ground Level mAOD
-

Client **David Wilson Homes - East Midlands**

GRM Project ref: **P5946**

Coordinates:
-
-

GROUNDWATER		SAMPLES	INSITU TESTING		STRATA		STRATA RECORD		Scale: 1:25
Strike	Depth (m)	Depth/Type/Ref (m)	Depth (m)	Hand Vane Strength (kN/m ²)	Depth (m)	Level (mAOD)	Legend	Description	
		0.10-0.25/D/1 0.10-0.25/J/1			0.30			Grass over brown slightly sandy silty clay.(TOPSOIL)	
		0.60-0.80/D/2						Soft orange brown, becoming firm orange brown mottled grey (locally slightly sandy) very silty CLAY with occasional angular to subrounded fine to coarse gravel including mudstone and dolerite. Locally friable near base.(WEATHERED CADEBY FORMATION)	
1		1.30-1.50/D/3			1.20			Stiff grey locally orange brown silty CLAY with some angular flat gravel of dolostone and mudstone lithorelicts. Locally friable. Possible thin dolostone bands below 1.9m.(WEATHERED CADEBY FORMATION)	
		2.20-2.40/D/4			2.00			Stiff indistinctly laminated grey very silty CLAY with some mudstone lithorelicts. Friable.(WEATHERED CADEBY FORMATION)	
2					2.60			Stiff indistinctly laminated grey very silty CLAY with occasional mudstone bands and some mudstone lithorelicts. Friable - recovered as a gravelly clay.(WEATHERED CADEBY FORMATION)	
					2.80			Extremely weak and very weak highly weathered thinly laminated to very thinly bedded grey MUDSTONE with clay bands. Recovered as a clayey gravel.(CADEBY FORMATION)	
					3.00			End of Trial Pit at 3.00 m	

Excavation Details	Dimensions (m)	Groundwater Observations
Date excavated: 22/10/2012 Date backfilled: 22/10/2012 Shoring: None Stability: Stable during excavation Plant: JCB-3CX Logged by: KAB	<p>Final Depth (m): 3.00</p>	No groundwater observed

General Remarks:



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Trial Pit Log

Trial Pit Number

TP6

Site **Ashland Road, Sutton in Ashfield**

Ground Level mAOD
-

Client **David Wilson Homes - East Midlands**

GRM Project ref: **P5946**

Coordinates:
-
-

GROUNDWATER		SAMPLES	INSITU TESTING		STRATA		STRATA RECORD		Scale: 1:25
Strike	Depth (m)	Depth/Type/Ref (m)	Depth (m)	Hand Vane Strength (kN/m ²)	Depth (m)	Level (mAOD)	Legend	Description	
		0.10-0.25/D/1 0.10-0.25/J/1			0.25	-		Grass over brown slightly sandy silty clay.(TOPSOIL)	
		0.30-0.50/D/2						Firm orange brown locally mottled grey slightly sandy very silty CLAY with occasional angular to subangular fine to coarse gravel including dolostone.(WEATHERED CADEBY FORMATION)	
1		0.90-1.00/D/3			0.80	-		Firm and stiff becoming stiff (1.3m) grey and orange brown silty CLAY with occasional subangular to subrounded fine to coarse gravel including calcite nodules. Locally friable below 1.3m.(WEATHERED CADEBY FORMATION)	
		1.80-2.00/D/4			1.70	-		Stiff and very stiff indistinctly laminated grey silty CLAY with occasional mudstone bands and some mudstone lithorelicts. Friable - recovered as a gravelly clay.(WEATHERED CADEBY FORMATION)	
2					2.40	-		Extremely weak and very weak highly weathered thinly to thickly laminated grey MUDSTONE with clay bands. Recovered as a clayey gravel.(CADEBY FORMATION)	
					2.70	-		Stiff indistinctly laminated brown and grey very silty CLAY with mudstone bands and some mudstone lithorelicts. Friable - recovered as a gravelly clay.(CADEBY FORMATION)	
					3.10	-		End of Trial Pit at 3.10 m	

Excavation Details	Dimensions (m)	Groundwater Observations
Date excavated: 22/10/2012 Date backfilled: 22/10/2012 Shoring: None Stability: Stable during excavation Plant: JCB-3CX Logged by: KAB	<p>Final Depth (m): 3.10</p>	No groundwater observed

General Remarks:



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Trial Pit Log

Trial Pit Number

TP7

Site **Ashland Road, Sutton in Ashfield**

Ground Level mAOD
-

Client **David Wilson Homes - East Midlands**

GRM Project ref: **P5946**

Coordinates:
-
-

GROUNDWATER		SAMPLES	INSITU TESTING		STRATA		STRATA RECORD		Scale: 1:25
Strike	Depth (m)	Depth/Type/Ref (m)	Depth (m)	Hand Vane Strength (kN/m ²)	Depth (m)	Level (mAOD)	Legend	Description	
		0.10-0.25/D/1 0.10-0.25/J/1			0.30	-		Grass over brown slightly sandy silty clay with rare carbonaceous material, brick and glass fragments.(TOPSOIL / MADE GROUND)	
		0.40-0.60/D/2						Soft and firm orange brown slightly sandy very silty CLAY with occasional subangular to subrounded fine to coarse gravel including calcite nodules.(WEATHERED CADEBY FORMATION)	
1		1.30-1.50/D/3			1.20	-		Firm grey and orange brown (locally slightly sandy) very silty CLAY with occasional angular to subangular fine to coarse gravel including dolostone and mudstone lithorelicts. Locally friable below 1.6m.(WEATHERED CADEBY FORMATION)	
		2.20-2.40/D/4			2.00	-		Stiff indistinctly laminated grey silty CLAY with occasional mudstone bands and some mudstone lithorelicts. Friable - recovered as a gravelly clay.(WEATHERED CADEBY FORMATION)	
2					2.60	-		Extremely weak and very weak highly weathered thinly to thickly laminated grey MUDSTONE with clay bands. Recovered as a clayey gravel.(CADEBY FORMATION)	
					3.20	-		End of Trial Pit at 3.20 m	

Excavation Details	Dimensions (m)	Groundwater Observations
Date excavated: 22/10/2012 Date backfilled: 22/10/2012 Shoring: None Stability: Stable during excavation Plant: JCB-3CX Logged by: KAB	<p>Final Depth (m): 3.20</p>	No groundwater observed

General Remarks:
Clay land drain at 0.8m.



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Trial Pit Log

Trial Pit Number

TP8

Site **Ashland Road, Sutton in Ashfield**

Ground Level mAOD
-

Client **David Wilson Homes - East Midlands**

GRM Project ref: **P5946**

Coordinates:
-
-

GROUNDWATER		SAMPLES	INSITU TESTING		STRATA		STRATA RECORD		Scale: 1:25
Strike	Depth (m)	Depth/Type/Ref (m)	Depth (m)	Hand Vane Strength (kN/m ²)	Depth (m)	Level (mAOD)	Legend	Description	
		0.05-0.10/D/1 0.05-0.10/J/1			0.10	-		Grass over brown slightly sandy silty clay with rare carbonaceous material, brick and glass fragments.(TOPSOIL / MADE GROUND)	
		0.30-0.50/D/2						Soft and firm orange brown slightly sandy very silty CLAY. Locally friable.(WEATHERED CADEBY FORMATION)	
1		0.90-1.10/D/3			0.70	-		Firm grey and orange brown (locally slightly sandy) very silty CLAY with occasional mudstone lithorelicts.(WEATHERED CADEBY FORMATION)	
		1.70-1.90/D/4			1.10	-		Firm and stiff grey and orange brown (locally slightly sandy) very silty CLAY with some mudstone lithorelicts. Friable.(WEATHERED CADEBY FORMATION)	
2		3.00-3.20/D/5			1.70	-		Stiff locally firm indistinctly laminated grey silty CLAY with occasional mudstone bands and some mudstone lithorelicts. Friable - recovered as a gravelly clay.(WEATHERED CADEBY FORMATION)	
					3.00	-		Stiff indistinctly laminated grey silty CLAY with some mudstone lithorelicts. Friable.(WEATHERED CADEBY FORMATION)	
					3.20	-		<i>End of Trial Pit at 3.20 m</i>	

Excavation Details	Dimensions (m)	Groundwater Observations
Date excavated: 22/10/2012 Date backfilled: 22/10/2012 Shoring: None Stability: Stable during excavation Plant: JCB-3CX Logged by: KAB	<p>Final Depth (m): 3.20</p>	No groundwater observed

General Remarks:



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Trial Pit Log

Trial Pit Number

TP9

Site **Ashland Road, Sutton in Ashfield**

Ground Level mAOD
-

Client **David Wilson Homes - East Midlands**

GRM Project ref: **P5946**

Coordinates:
-
-

GROUNDWATER		SAMPLES	INSITU TESTING		STRATA		STRATA RECORD		Scale: 1:25
Strike	Depth (m)	Depth/Type/Ref (m)	Depth (m)	Hand Vane Strength (kN/m ²)	Depth (m)	Level (mAOD)	Legend	Description	
		0.10-0.20/D/1 0.10-0.20/J/1			0.20	-		Grass over brown slightly sandy silty clay.(TOPSOIL)	
		0.30-0.50/D/2						Firm (locally soft down to 0.4m) orange brown and grey (locally slightly sandy) very silty CLAY with some subangular to subrounded fine to coarse gravel including calcite nodules.(WEATHERED CADEBY FORMATION)	
1		1.30-1.50/D/3			1.20	-		Stiff grey mottled orange brown very silty CLAY with some mudstone lithorelicts and rare angular flat gravel of dolostone. Friable.(WEATHERED CADEBY FORMATION)	
		1.80-2.00/D/4			1.70	-		Stiff indistinctly laminated grey locally mottled orange brown silty CLAY with occasional mudstone bands and some mudstone lithorelicts. Friable - recovered as a gravelly clay. Occasional bands of dolostone below 2.3m.(WEATHERED CADEBY FORMATION)	
2		2.50-2.70/D/5			2.50	-		Extremely weak and very weak highly weathered thinly to thickly laminated grey MUDSTONE with clay bands. Recovered as a clayey gravel.(CADEBY FORMATION)	
					3.00	-		End of Trial Pit at 3.00 m	

Excavation Details	Dimensions (m)	Groundwater Observations
Date excavated: 22/10/2012 Date backfilled: 22/10/2012 Shoring: None Stability: Stable during excavation Plant: JCB-3CX Logged by: KAB	<p>Final Depth (m): 3.00</p>	No groundwater observed

General Remarks:



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Trial Pit Log

Trial Pit Number

TP10

Site **Ashland Road, Sutton in Ashfield**

Ground Level mAOD
-

Client **David Wilson Homes - East Midlands**

GRM Project ref: **P5946**

Coordinates:
-
-

GROUNDWATER		SAMPLES	INSITU TESTING		STRATA		STRATA RECORD		Scale: 1:25
Strike	Depth (m)	Depth/Type/Ref (m)	Depth (m)	Hand Vane Strength (kN/m ²)	Depth (m)	Level (mAOD)	Legend	Description	
		0.10-0.25/D/1 0.10-0.25/J/1			0.25	-		Grass over brown slightly sandy silty clay.(TOPSOIL)	
		0.40-0.60/D/2			0.90	-		Firm orange brown locally mottled grey (locally slightly sandy) very silty CLAY with occasional angular to subangular fine to coarse gravel including dolostone.(WEATHERED CADEBY FORMATION)	
1		1.10-1.30/D/3			1.65	-		Firm grey and orange brown (locally slightly sandy) very silty CLAY with occasional locally some angular to subangular fine to coarse gravel including dolostone and some mudstone lithorelicts. Locally friable.(WEATHERED CADEBY FORMATION)	
		1.70-1.90/D/4			2.20	-		Stiff grey very silty CLAY with some mudstone lithorelicts. Friable.(WEATHERED CADEBY FORMATION)	
2		2.40-2.60/D/5			2.40	-		Stiff and very stiff indistinctly laminated grey very silty CLAY with mudstone bands and some mudstone lithorelicts. Friable - recovered as a gravelly clay.(CADEBY FORMATION)	
					3.00	-		Extremely weak and very weak highly weathered thinly to thickly laminated grey MUDSTONE with clay bands. Recovered as a clayey gravel.(CADEBY FORMATION)	
								End of Trial Pit at 3.00 m	

Excavation Details	Dimensions (m)	Groundwater Observations
Date excavated: 22/10/2012 Date backfilled: 22/10/2012 Shoring: None Stability: Stable during excavation Plant: JCB-3CX Logged by: KAB	<p>Final Depth (m): 3.00</p>	Slight seepage at 2.4m

General Remarks:



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Trial Pit Log

Trial Pit Number
TP11

Site **Ashland Road, Sutton in Ashfield**

Ground Level mAOD
 -

Client **David Wilson Homes - East Midlands**

GRM Project ref: **P5946**

Coordinates:
 -
 -

GROUNDWATER		SAMPLES	INSITU TESTING		STRATA		STRATA RECORD		Scale: 1:25
Strike	Depth (m)	Depth/Type/Ref (m)	Depth (m)	Hand Vane Strength (kN/m ²)	Depth (m)	Level (mAOD)	Legend	Description	
		0.10-0.25/D/1 0.10-0.25/J/1			0.25	-		Grass over brown slightly sandy silty clay.(TOPSOIL)	
		0.40-0.60/D/2			0.80	-		Soft and firm orange brown slightly sandy silty CLAY with occasional angular to subangular fine to coarse gravel including dolostone.(WEATHERED CADEBY FORMATION)	
1		0.90-1.10/D/3			1.60	-		Firm becoming stiff (1.3m) grey and orange brown (locally slightly sandy) very silty CLAY with occasional locally some angular to subangular fine to coarse gravel including dolostone. Possible thin dolostone band at 1.55m.(WEATHERED CADEBY FORMATION)	
		1.90-2.10/D/4			1.90	-		Stiff indistinctly laminated grey very silty CLAY with some mudstone lithorelicts. Friable.(WEATHERED CADEBY FORMATION)	
2					2.50	-		Stiff and very stiff indistinctly laminated grey very silty CLAY with mudstone bands and some mudstone lithorelicts. Friable - recovered as a gravelly clay.(CADEBY FORMATION)	
					3.00	-		Extremely weak and very weak highly weathered thinly to thickly laminated grey MUDSTONE with clay bands. Recovered as a clayey gravel.(CADEBY FORMATION)	
								<i>End of Trial Pit at 3.00 m</i>	

Excavation Details	Dimensions (m)	Groundwater Observations
Date excavated: 22/10/2012 Date backfilled: 22/10/2012 Shoring: None Stability: Stable during excavation Plant: JCB-3CX Logged by: KAB	<p>Final Depth (m): 3.00</p>	Slight seepage at 2.5m

General Remarks:



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Trial Pit Log

Trial Pit Number

TP12

Site **Ashland Road, Sutton in Ashfield**

Ground Level mAOD
0.000

Client **David Wilson Homes - East Midlands**

GRM Project ref: **P5946**

Coordinates:
0.00E
0.00N

GROUNDWATER		SAMPLES	INSITU TESTING		STRATA		STRATA RECORD		Scale: 1:25
Strike	Depth (m)	Depth/Type/Ref (m)	Depth (m)	Hand Vane Strength (kN/m ²)	Depth (m)	Level (mAOD)	Legend	Description	
		0.10-0.25/D/1 0.10-0.25/J/1			0.30	-0.30		Grass over brown slightly sandy silty clay.(TOPSOIL)	
		0.30-0.50/D/2			0.85	-0.85		Firm orange brown slightly sandy silty CLAY ith occasional locally some angular to subangular fine to coarse gravel including dolostone.(WEATHERED CADEBY FORMATION)	
1		1.10-1.30/D/3			1.50	-1.50		Firm becoming stiff (1.2m) orange brown and grey (locally slightly sandy) very silty CLAY with occasional locally some angular to subangular fine to coarse gravel including dolostone. Locally friable from 1.2m.(WEATHERED CADEBY FORMATION)	
		1.40-1.60/D/4			2.70	-2.70		(Medium dense and dense) grey locally orange brown or red brown (locally clayey) silty SAND with some angular to subrounded fine to coarse gravel including sandstone and occasional sandstone cobbles. Cobbles increase with depth.(WEATHERED MIDDLE COAL MEASURES)	
2								End of Trial Pit at 2.50 m	

Excavation Details	Dimensions (m)	Groundwater Observations
Date excavated: 22/10/2012 Date backfilled: 22/10/2012 Shoring: None Stability: Stable during excavation Plant: JCB-3CX Logged by: KAB	 Final Depth (m): 2.50	Slight seepage at 2m

General Remarks:

Scraping at 2.7m.



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Trial Pit Log

Trial Pit Number

TP13

Site **Ashland Road, Sutton in Ashfield**

Ground Level mAOD
-

Client **David Wilson Homes - East Midlands**

GRM Project ref: **P5946**

Coordinates:
-
-

GROUNDWATER		SAMPLES	INSITU TESTING		STRATA		STRATA RECORD		Scale: 1:25
Strike	Depth (m)	Depth/Type/Ref (m)	Depth (m)	Hand Vane Strength (kN/m ²)	Depth (m)	Level (mAOD)	Legend	Description	
		0.10-0.25/D/1 0.10-0.25/J/1			0.30	-		Grass over brown slightly sandy silty clay.(TOPSOIL)	
		0.30-0.50/D/2			0.65	-		Firm locally soft orange brown slightly sandy silty CLAY with some angular to subangular fine to coarse gravel including dolostone.(WEATHERED CADEBY FORMATION)	
					1.00	-		Firm grey and orange brown (locally slightly sandy) very silty CLAY with occasional subangular to subrounded fine to coarse gravel including dolerite and calcite nodules.(WEATHERED CADEBY FORMATION)	
								<i>End of Trial Pit at 1.00 m</i>	

Excavation Details	Dimensions (m)	Groundwater Observations
Date excavated: 23/10/2012 Date backfilled: 23/10/2012 Shoring: None Stability: Stable during excavation Plant: JCB-3CX Logged by: KAB	<p>Final Depth (m): 1.00</p>	No groundwater observed

General Remarks:

Clay land drain (running parallel to boundary) at 0.8m in first attempt and 0.4m and 0.7m in second attempt. Moderate flow into trial pit and trial pit flooded on both occasions.

Strata strengths/densities determined by observation only.



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Trial Pit Log

Trial Pit Number

TP14

Site **Ashland Road, Sutton in Ashfield**

Ground Level mAOD
-

Client **David Wilson Homes - East Midlands**

GRM Project ref: **P5946**

Coordinates:
-
-

GROUNDWATER		SAMPLES	INSITU TESTING		STRATA		STRATA RECORD		Scale: 1:25
Strike	Depth (m)	Depth/Type/Ref (m)	Depth (m)	Hand Vane Strength (kN/m ²)	Depth (m)	Level (mAOD)	Legend	Description	
		0.10-0.25/D/1 0.10-0.25/J/1			0.25	-		Grass over brown slightly sandy silty clay.(TOPSOIL)	
		0.30-0.50/D/2			0.60	-		Soft and firm orange brown slightly sandy silty CLAY with some angular to subrounded fine to coarse gravel including dolostone and calcite nodules.(WEATHERED CADEBY FORMATION)	
1		0.80-1.00/D/3			1.90	-		Firm becoming stiff (1.3m) grey and orange brown (locally slightly sandy) very silty CLAY with occasional angular to subrounded fine to coarse gravel including dolerite and calcite nodules. Locally friable below 1.1m.(WEATHERED CADEBY FORMATION)	
		1.90-2.10/D/4			2.20	-		Stiff indistinctly laminated grey mottled brown very silty CLAY with some mudstone lithorelicts. Locally friable.(WEATHERED CADEBY FORMATION)	
2		2.30-2.50/D/5			2.70	-		Stiff indistinctly laminated grey very silty CLAY with occasional mudstone bands and some mudstone lithorelicts. Friable - recovered as a gravelly clay.(WEATHERED CADEBY FORMATION)	
					3.00	-		Extremely weak and very weak highly weathered thinly to thickly laminated grey MUDSTONE with clay bands. Recovered as a clayey gravel.(CADEBY FORMATION)	
								<i>End of Trial Pit at 3.00 m</i>	

Excavation Details	Dimensions (m)	Groundwater Observations
Date excavated: 22/10/2012 Date backfilled: 22/10/2012 Shoring: None Stability: Stable during excavation Plant: JCB-3CX Logged by: KAB	<p>Final Depth (m): 3.00</p>	No groundwater observed

General Remarks:



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Trial Pit Log

Trial Pit Number

TP15

Site **Ashland Road, Sutton in Ashfield**

Ground Level mAOD
-

Client **David Wilson Homes - East Midlands**

GRM Project ref: **P5946**

Coordinates:
-
-

GROUNDWATER		SAMPLES	INSITU TESTING		STRATA		STRATA RECORD		Scale: 1:25
Strike	Depth (m)	Depth/Type/Ref (m)	Depth (m)	Hand Vane Strength (kN/m ²)	Depth (m)	Level (mAOD)	Legend	Description	
		0.10-0.25/D/1 0.10-0.25/J/1			0.30			Grass over brown slightly sandy silty clay.(TOPSOIL)	
		0.40-0.60/D/2			0.70			Soft and firm orange brown slightly sandy silty CLAY with some angular to subrounded fine to coarse gravel including dolostone and calcite nodules.(WEATHERED CAEBY FORMATION)	
1		0.80-1.00/D/3						Firm becoming stiff (1.5m) grey and orange brown (locally slightly sandy) very silty CLAY with occasional angular to subrounded fine to coarse gravel including dolostone and calcite nodules. Locally friable below 1.5m.(WEATHERED CAEBY FORMATION)	
		2.00-2.20/D/4			1.90			Stiff indistinctly laminated grey locally mottled orange brown very silty CLAY with some mudstone lithorelicts. Friable. Possible thin band of dolerite at 2.3m.(WEATHERED CAEBY FORMATION)	
2		2.50-2.70/D/5			2.40			Very stiff indistinctly laminated grey locally mottled orange brown very silty CLAY with some occasional mudstone bands and some mudstone lithorelicts. Friable - recovered as a gravelly clay.(WEATHERED CAEBY FORMATION)	
					3.10			End of Trial Pit at 3.00 m	

Excavation Details	Dimensions (m)	Groundwater Observations
Date excavated: 23/10/2012 Date backfilled: 23/10/2012 Shoring: None Stability: Stable during excavation Plant: JCB-3CX Logged by: KAB	<p>Final Depth (m): 3.00</p>	Slight seepage at 2.8m

General Remarks:



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Trial Pit Log

Trial Pit Number

TP16

Site **Ashland Road, Sutton in Ashfield**

Ground Level mAOD
-

Client **David Wilson Homes - East Midlands**

GRM Project ref: **P5946**

Coordinates:
-
-

GROUNDWATER		SAMPLES	INSITU TESTING		STRATA		STRATA RECORD		Scale: 1:25
Strike	Depth (m)	Depth/Type/Ref (m)	Depth (m)	Hand Vane Strength (kN/m ²)	Depth (m)	Level (mAOD)	Legend	Description	
		0.10-0.25/D/1 0.10-0.25/J/1			0.30	-		Grass over brown slightly sandy silty clay.(TOPSOIL)	
		0.40-0.60/D/2						Soft and firm orange brown slightly sandy silty CLAY with some angular to subrounded fine to coarse gravel including dolostone and calcite nodules.(WEATHERED CADEBY FORMATION)	
1		1.10-1.30/D/3			1.00			Firm becoming stiff (1.6m) grey and orange brown (locally slightly sandy) very silty CLAY with occasional subangular to subrounded fine to coarse gravel including calcite nodules.(WEATHERED CADEBY FORMATION)	
		2.00-2.20/D/4			1.90			Stiff grey locally mottled orange brown very silty CLAY with some mudstone lithorelicts. Friable(WEATHERED CADEBY FORMATION)	
2					2.40			Stiff indistinctly laminated grey locally mottled orange brown very silty CLAY with occasional mudstone bands and some mudstone lithorelicts. Friable - recovered as a gravelly clay.(WEATHERED CADEBY FORMATION)	
					3.10			End of Trial Pit at 3.10 m	

Excavation Details	Dimensions (m)	Groundwater Observations
Date excavated: 23/10/2012 Date backfilled: 23/10/2012 Shoring: None Stability: Stable during excavation Plant: JCB-3CX Logged by: KAB	<p>Final Depth (m): 3.10</p>	No groundwater observed

General Remarks:



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Trial Pit Log

Trial Pit Number

TP17

Site **Ashland Road, Sutton in Ashfield**

Ground Level mAOD
-

Client **David Wilson Homes - East Midlands**

GRM Project ref: **P5946**

Coordinates:
-
-

GROUNDWATER		SAMPLES	INSITU TESTING		STRATA		STRATA RECORD		Scale: 1:25
Strike	Depth (m)	Depth/Type/Ref (m)	Depth (m)	Hand Vane Strength (kN/m ²)	Depth (m)	Level (mAOD)	Legend	Description	
		0.10-0.25/D/1 0.10-0.25/J/1			0.30			Grass over brown slightly sandy silty clay.(TOPSOIL)	
		0.40-0.60/D/2			0.80			Firm locally soft orange brown locally mottled grey slightly sandy silty CLAY with some angular to subrounded fine to coarse gravel including calcite nodules.(WEATHERED CADEBY FORMATION)	
1		1.00-1.20/D/3			1.75			Firm becoming stiff (1.3m) grey and orange brown (locally slightly sandy) very silty CLAY with occasional angular to subrounded fine to coarse gravel including dolerite and calcite nodules. Locally friable, some mudstone lithorelicts and friable below 1.4m.(WEATHERED CADEBY FORMATION)	
		1.90-2.10/D/4			2.20			Stiff grey locally brown very silty CLAY with some mudstone lithorelicts. Friable.(WEATHERED CADEBY FORMATION)	
2		2.40-2.60/D/5			2.80			Very stiff indistinctly laminated grey very silty CLAY with occasional mudstone bands and some mudstone lithorelicts. Friable - recovered as a gravelly clay.(WEATHERED CADEBY FORMATION)	
					3.00			Extremely weak highly weathered thinly laminated to very thinly bedded grey MUDSTONE with clay bands. Recovered as a clayey gravel.(CADEBY FORMATION)	
								<i>End of Trial Pit at 3.00 m</i>	

Excavation Details	Dimensions (m)	Groundwater Observations
Date excavated: 22/10/2012 Date backfilled: 22/10/2012 Shoring: None Stability: Stable during excavation Plant: JCB-3CX Logged by: KAB	<p>Final Depth (m): 3.00</p>	No groundwater observed

General Remarks:



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Trial Pit Log

Trial Pit Number

TP18

Site **Ashland Road, Sutton in Ashfield**

Ground Level mAOD
-

Client **David Wilson Homes - East Midlands**

GRM Project ref: **P5946**

Coordinates:
-
-

GROUNDWATER		SAMPLES	INSITU TESTING		STRATA		STRATA RECORD		Scale: 1:25
Strike	Depth (m)	Depth/Type/Ref (m)	Depth (m)	Hand Vane Strength (kN/m ²)	Depth (m)	Level (mAOD)	Legend	Description	
		0.10-0.25/D/1 0.10-0.25/J/1			0.25	-		Grass over brown slightly sandy silty clay.(TOPSOIL)	
		0.40-0.60/D/2						Firm orange brown locally mottled grey slightly sandy silty CLAY with some angular to subrounded fine to coarse gravel including calcite nodules.(WEATHERED CADEBY FORMATION)	
1		1.00-1.20/D/3			0.90	-		Firm becoming stiff (1.4m) grey and orange brown (locally slightly sandy) very silty CLAY with occasional angular to subrounded fine to coarse gravel including dolerite and calcite nodules. Locally friable, some mudstone lithorelicts and friable below 1.4m.(WEATHERED CADEBY FORMATION)	
		2.10-2.30/D/4			2.10	-		Very stiff grey very silty CLAY with occasional mudstone bands and some mudstone lithorelicts. Friable - recovered as a gravelly clay.(WEATHERED CADEBY FORMATION)	
2		2.60-2.80/D/5			2.50	-		Extremely weak highly weathered thinly laminated to very thinly bedded grey MUDSTONE with clay bands. Recovered as a clayey gravel.(CADEBY FORMATION)	
					3.00	-		End of Trial Pit at 3.00 m	

Excavation Details	Dimensions (m)	Groundwater Observations
Date excavated: 22/10/2012 Date backfilled: 22/10/2012 Shoring: None Stability: Stable during excavation Plant: JCB-3CX Logged by: KAB	<p>Final Depth (m): 3.00</p>	Slight seepage at 2.8m

General Remarks:



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Trial Pit Log

Trial Pit Number

TP19

Site **Ashland Road, Sutton in Ashfield**

Ground Level mAOD
-

Client **David Wilson Homes - East Midlands**

GRM Project ref: **P5946**

Coordinates:
-
-

GROUNDWATER		SAMPLES	INSITU TESTING		STRATA		STRATA RECORD		Scale: 1:25
Strike	Depth (m)	Depth/Type/Ref (m)	Depth (m)	Hand Vane Strength (kN/m ²)	Depth (m)	Level (mAOD)	Legend	Description	
		0.10-0.25/D/1 0.10-0.25/J/1			0.25	-		Grass over brown slightly sandy silty clay.(TOPSOIL)	
		0.30-0.50/D/2			0.75	-		Firm locally soft orange brown slightly sandy silty CLAY with some angular to subangular fine to coarse gravel including dolostone.(WEATHERED CADEBY FORMATION)	
1		0.80-1.00/D/3			1.60	-		Firm becoming stiff (1.2m) grey and orange brown (locally slightly sandy) very silty CLAY with occasional locally some angular to subrounded fine to coarse gravel including dolerite.(WEATHERED CADEBY FORMATION)	
		1.30-1.50/D/4			3.00	-		Extremely weak highly weathered thinly to thickly laminated grey locally purple MUDSTONE, SILTSTONE and SANDSTONE with occasional clay bands. Thin conglomerate band at the surface. Recovered as a clayey gravel.(CADEBY FORMATION)	
2		2.00-2.20/D/5							
								End of Trial Pit at 3.00 m	

Excavation Details	Dimensions (m)	Groundwater Observations
Date excavated: 23/10/2012 Date backfilled: 23/10/2012 Shoring: None Stability: Stable during excavation Plant: JCB-3CX Logged by: KAB	<p>Final Depth (m): 3.00</p>	No groundwater observed

General Remarks:

Moved slightly away from the boundary to avoid any drains at the base of the slope.



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Trial Pit Log

Trial Pit Number
TP20

Site **Ashland Road, Sutton in Ashfield**

Ground Level mAOD
 -

Client **David Wilson Homes - East Midlands**

GRM Project ref: **P5946**

Coordinates:
 -
 -

GROUNDWATER		SAMPLES	INSITU TESTING		STRATA		STRATA RECORD		Scale: 1:25
Strike	Depth (m)	Depth/Type/Ref (m)	Depth (m)	Hand Vane Strength (kN/m ²)	Depth (m)	Level (mAOD)	Legend	Description	
		0.10-0.25/D/1 0.10-0.25/J/1			0.25	-		Grass over brown slightly sandy silty clay with rare glass fragments.(TOPSOIL)	
		0.30-0.50/D/2						Firm locally soft orange brown slightly sandy silty CLAY with occasional angular to subangular fine to coarse gravel including dolostone.(WEATHERED CADEBY FORMATION)	
		0.80-1.00/D/3			0.80	-		Firm grey and orange brown (locally slightly sandy) very silty CLAY with occasional locally some angular to subrounded fine to coarse gravel including dolerite, sandstone and calcite nodules.(WEATHERED CADEBY FORMATION)	
1		1.10-1.30/D/4			1.00	-		Extremely weak highly weathered thinly to thickly laminated grey locally purple interlaminated MUDSTONE, SILTSTONE and SANDSTONE with occasional clay bands. Recovered as a clayey gravel.(CADEBY FORMATION)	
		2.00-2.20/D/5			1.60	-		Weak to very weak highly weathered thinly laminated to very thinly bedded grey locally purple MUDSTONE, SILTSTONE and SANDSTONE with occasional clay bands. Recovered as a clayey gravel.(CADEBY FORMATION)	
2					2.40	-		End of Trial Pit at 2.40 m	

Excavation Details	Dimensions (m)	Groundwater Observations
Date excavated: 23/10/2012 Date backfilled: 23/10/2012 Shoring: None Stability: Stable during excavation Plant: JCB-3CX Logged by: KAB	<p>Final Depth (m): 2.40</p>	No groundwater observed

General Remarks:

Moved slightly away from the boundary to avoid any drains at the base of the slope. Scraping at 2.4m.



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Trial Pit Log

Trial Pit Number
TP21

Site **Ashland Road, Sutton in Ashfield**

Ground Level mAOD
 -

Client **David Wilson Homes - East Midlands**

GRM Project ref: **P5946**

Coordinates:
 -
 -

GROUNDWATER		SAMPLES	INSITU TESTING		STRATA		STRATA RECORD		Scale: 1:25
Strike	Depth (m)	Depth/Type/Ref (m)	Depth (m)	Hand Vane Strength (kN/m ²)	Depth (m)	Level (mAOD)	Legend	Description	
		0.10-0.25/D/1 0.10-0.25/J/1			0.25	-		Grass over brown slightly sandy silty clay with rare brick and glass fragments.(TOPSOIL / MADE GROUND)	
		0.30-0.50/D/2			0.80	-		Firm orange brown locally mottled grey slightly sandy silty CLAY with occasional subangular to subrounded fine to coarse gravel including calcite nodules.(WEATHERED CADEBY FORMATION)	
1		1.00-1.20/D/3			1.30	-		Firm grey and orange brown slightly sandy silty CLAY with occasional angular to subrounded fine to coarse gravel including dolerite and calcite nodules. Locally friable.(WEATHERED CADEBY FORMATION)	
		1.30-1.50/D/4			1.60	-		Stiff grey and orange brown very silty CLAY with some mudstone lithorelicts. Locally friable.(WEATHERED CADEBY FORMATION)	
2		2.20-2.40/D/5			2.40	-		Stiff and very stiff indistinctly laminated grey very silty CLAY with occasional dolerite and sandstone bands (1.8m and 2.3m) and mudstone lithorelicts. Friable - recovered as a gravelly clay.(WEATHERED CADEBY FORMATION)	
								<i>End of Trial Pit at 2.40 m</i>	

Excavation Details	Dimensions (m)	Groundwater Observations
Date excavated: 23/10/2012 Date backfilled: 23/10/2012 Shoring: None Stability: Stable during excavation Plant: JCB-3CX Logged by: KAB	<p>Final Depth (m): 2.40</p>	Slight seepage at 1.8m

General Remarks:
 Scraping at 2.4m



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Trial Pit Log

Trial Pit Number

TP22

Site **Ashland Road, Sutton in Ashfield**

Ground Level mAOD
-

Client **David Wilson Homes - East Midlands**

GRM Project ref: **P5946**

Coordinates:
-
-

GROUNDWATER		SAMPLES	INSITU TESTING		STRATA		STRATA RECORD		Scale: 1:25
Strike	Depth (m)	Depth/Type/Ref (m)	Depth (m)	Hand Vane Strength (kN/m ²)	Depth (m)	Level (mAOD)	Legend	Description	
		0.10-0.25/D/1 0.10-0.25/J/1			0.25	-		Grass over brown slightly sandy silty clay.(TOPSOIL)	
		0.40-0.60/D/2						Firm orange brown locally mottled grey slightly sandy silty CLAY with occasional angular to subrounded fine to coarse gravel including calcite nodules.(WEATHERED CADEBY FORMATION)	
1		1.10-1.30/D/3			1.00	-		Firm becoming stiff (1.4m) grey and orange brown slightly sandy very silty CLAY with occasional angular to subrounded fine to coarse gravel including dolerite and calcite nodules. Locally friable and some mudstone lithorelicts below 1.4m.(WEATHERED CADEBY FORMATION)	
		1.80-2.00/D/4			1.70	-		Stiff indistinctly laminated grey locally brown very silty CLAY with some mudstone lithorelicts. Friable.(WEATHERED CADEBY FORMATION)	
2					2.20	-		Stiff and very stiff indistinctly laminated grey very silty CLAY with some mudstone bands and lithorelicts. Friable - recovered as a gravelly clay.(WEATHERED CADEBY FORMATION)	
		2.70-2.90/D/5			2.70	-		Extremely weak highly weathered thinly laminated to very thinly bedded grey MUDSTONE with some clay bands. Recovered as a clayey gravel.(CADEBY FORMATION)	
					3.00	-		End of Trial Pit at 3.00 m	

Excavation Details	Dimensions (m)	Groundwater Observations
Date excavated: 23/10/2012 Date backfilled: 23/10/2012 Shoring: None Stability: Stable during excavation Plant: JCB-3CX Logged by: KAB	<p>Final Depth (m): 3.00</p>	No groundwater observed

General Remarks:



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Trial Pit Log

Trial Pit Number

TP23

Site **Ashland Road, Sutton in Ashfield**

Ground Level mAOD
-

Client **David Wilson Homes - East Midlands**

GRM Project ref: **P5946**

Coordinates:
-
-

GROUNDWATER		SAMPLES	INSITU TESTING		STRATA		STRATA RECORD		Scale: 1:25
Strike	Depth (m)	Depth/Type/Ref (m)	Depth (m)	Hand Vane Strength (kN/m ²)	Depth (m)	Level (mAOD)	Legend	Description	
		0.10-0.25/D/1 0.10-0.25/J/1			0.25	-		Grass over brown slightly sandy silty clay.(TOPSOIL)	
		0.30-0.50/D/2			0.75	-		Firm orange brown locally mottled grey slightly sandy silty CLAY with occasional subangular to subrounded fine to coarse gravel including calcite nodules.(WEATHERED CADEBY FORMATION)	
1		1.00-1.20/D/3						Firm becoming stiff (1.2m) orange brown and grey very silty CLAY with occasional mudstone lithorelicts. Locally friable, becoming some lithorelicts and friable below 1.2m.(WEATHERED CADEBY FORMATION)	
		1.60-1.80/D/4			2.10	-		Stiff and very stiff indistinctly laminated grey and brown very silty CLAY with occasional mudstone bands and some mudstone lithorelicts. Friable - recovered as a gravelly clay.(WEATHERED CADEBY FORMATION)	
2		2.70-2.90/D/5			3.20	-			
								End of Trial Pit at 3.20 m	

Excavation Details	Dimensions (m)	Groundwater Observations
Date excavated: 23/10/2012 Date backfilled: 23/10/2012 Shoring: None Stability: Stable during excavation Plant: JCB-3CX Logged by: KAB	<p>Final Depth (m): 3.20</p>	Locally wet below 2.6m

General Remarks:



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Trial Pit Log

Trial Pit Number

TP24

Site **Ashland Road, Sutton in Ashfield**

Ground Level mAOD
-

Client **David Wilson Homes - East Midlands**

GRM Project ref: **P5946**

Coordinates:
-
-

GROUNDWATER		SAMPLES	INSITU TESTING		STRATA		STRATA RECORD		Scale: 1:25
Strike	Depth (m)	Depth/Type/Ref (m)	Depth (m)	Hand Vane Strength (kN/m ²)	Depth (m)	Level (mAOD)	Legend	Description	
		0.10-0.15/D/1 0.10-0.15/J/1			0.15	-		Grass over brown slightly sandy silty clay.(TOPSOIL)	
		0.30-0.50/D/2						Soft becoming firm (0.4m) orange brown slightly sandy silty CLAY.(WEATHERED CADEBY FORMATION)	
1		1.40-1.60/D/3			1.30	-		Firm light orange brown (becoming brown 1.6m) slightly sandy very silty CLAY. Locally friable.(WEATHERED CADEBY FORMATION)	
		1.80-2.00/D/4			1.70	-		Firm brown slightly sandy silty CLAY with occasional siltstone and mudstone laminations. Friable - recovered as a gravelly clay.(WEATHERED CADEBY FORMATION)	
2		2.20-2.40/D/5			2.10	-		Stiff and very stiff indistinctly laminated grey and brown very silty CLAY with some mudstone lithorelicts. Friable.(WEATHERED CADEBY FORMATION)	
					3.00	-		End of Trial Pit at 3.00 m	

Excavation Details	Dimensions (m)	Groundwater Observations
Date excavated: 23/10/2012 Date backfilled: 23/10/2012 Shoring: None Stability: Stable during excavation Plant: JCB-3CX Logged by: KAB	<p>Final Depth (m): 3.00</p>	No groundwater observed

General Remarks:



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Trial Pit Log

Trial Pit Number

TP25

Site **Ashland Road, Sutton in Ashfield**

Ground Level mAOD
-

Client **David Wilson Homes - East Midlands**

GRM Project ref: **P5946**

Coordinates:
-
-

GROUNDWATER		SAMPLES	INSITU TESTING		STRATA		STRATA RECORD		Scale: 1:25
Strike	Depth (m)	Depth/Type/Ref (m)	Depth (m)	Hand Vane Strength (kN/m ²)	Depth (m)	Level (mAOD)	Legend	Description	
		0.10-0.25/D/1 0.10-0.25/J/1			0.25	-		Grass over brown slightly sandy silty clay with rare pottery fragments.(TOPSOIL)	
		0.30-0.50/D/2			0.60	-		Soft and firm orange brown slightly sandy silty CLAY.(WEATHERED CADEBY FORMATION)	
1		0.80-1.00/D/3			1.90	-		Firm becoming stiff (1.5m) orange brown and grey (locally slightly sandy) very silty CLAY with occasional angular to subangular fine to coarse gravel including dolerite. Occasional lithorelicts and locally friable below 1.3m.(WEATHERED CADEBY FORMATION)	
2		1.90-2.10/D/4			2.40	-		Stiff grey locally mottled brown silty CLAY with some mudstone lithorelicts. Friable.(WEATHERED CADEBY FORMATION)	
		2.50-2.70/D/5			3.20	-		Stiff and very stiff indistinctly laminated grey silty CLAY with occasional mudstone bands and some mudstone lithorelicts. Friable - recovered as a gravelly clay.(WEATHERED CADEBY FORMATION)	
								<i>End of Trial Pit at 3.20 m</i>	

Excavation Details	Dimensions (m)	Groundwater Observations
Date excavated: 24/10/2012 Date backfilled: 24/10/2012 Shoring: None Stability: Stable during excavation Plant: JCB-3CX Logged by: KAB	<p>Final Depth (m): 3.20</p>	No groundwater encountered

General Remarks:



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Trial Pit Log

Trial Pit Number

TP26

Site **Ashland Road, Sutton in Ashfield**

Ground Level mAOD
-

Client **David Wilson Homes - East Midlands**

GRM Project ref: **P5946**

Coordinates:
-
-

GROUNDWATER		SAMPLES	INSITU TESTING		STRATA		STRATA RECORD		Scale: 1:25
Strike	Depth (m)	Depth/Type/Ref (m)	Depth (m)	Hand Vane Strength (kN/m ²)	Depth (m)	Level (mAOD)	Legend	Description	
		0.10-0.25/D/1 0.10-0.25/J/1			0.25	-		Grass over brown slightly sandy silty clay.(TOPSOIL)	
		0.30-0.50/D/2						Firm orange brown slightly sandy silty CLAY with occasional angular to subrounded fine to coarse gravel including dolostone and calcite nodules.(WEATHERED CADEBY FORMATION)	
1		1.10-1.30/D/3			0.90	-		Firm becoming stiff (1.4m) orange brown and grey (locally slightly sandy) very silty CLAY with occasional angular to subrounded fine to coarse gravel including dolerite and calcite nodules.(WEATHERED CADEBY FORMATION)	
		2.00-2.20/D/4			1.90	-		Stiff indistinctly laminated grey locally mottled orange brown very silty CLAY with some mudstone lithorelicts and some sandstone cobbles and boulders close to base. Friable.(WEATHERED CADEBY FORMATION)	
					2.40	-		Extremely weak highly weathered thinly to thickly laminated grey locally orange brown MUDSTONE with some sandstone and clay bands. Recovered as a clayey gravel.(CADEBY FORMATION)	
					2.80	-		End of Trial Pit at 2.80 m	

Excavation Details	Dimensions (m)	Groundwater Observations
Date excavated: 24/10/2012 Date backfilled: 24/10/2012 Shoring: None Stability: Stable during excavation Plant: JCB-3CX Logged by: KAB	<p>Final Depth (m): 2.80</p>	No groundwater observed

General Remarks:

Hole aborted at 2.8m, unable to dig beyond cobbles and boulders.



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Trial Pit Log

Trial Pit Number
TP27

Site **Ashland Road, Sutton in Ashfield**

Ground Level mAOD
 -

Client **David Wilson Homes - East Midlands**

GRM Project ref: **P5946**

Coordinates:
 -
 -

GROUNDWATER		SAMPLES	INSITU TESTING		STRATA		STRATA RECORD		Scale: 1:25
Strike	Depth (m)	Depth/Type/Ref (m)	Depth (m)	Hand Vane Strength (kN/m ²)	Depth (m)	Level (mAOD)	Legend	Description	
		0.10-0.25/D/1 0.10-0.25/J/1			0.25	-		Grass over brown slightly sandy silty clay with occasional subrounded to rounded fine to medium gravel including sandstone and rare glass fragments.(TOPSOIL / MADE GROUND)	
		0.30-0.50/D/2			0.80	-		Firm orange brown slightly sandy silty CLAY with some angular to subrounded fine to coarse gravel including dolostone and calcite nodules.(WEATHERED CADEBY FORMATION)	
1		1.00-1.20/D/3			1.30	-		Firm orange brown and grey (locally slightly sandy) very silty CLAY with some angular to subrounded fine to coarse gravel including dolerite and sandstone.(WEATHERED CADEBY FORMATION)	
		1.30-1.50/D/4			1.50	-		Firm and stiff indistinctly laminated grey mottled brown very silty CLAY with some mudstone lithorelicts. Locally friable.(WEATHERED CADEBY FORMATION)	
		1.60-1.80/D/5			2.10	-		Extremely weak highly weathered thinly laminated grey locally orange brown or purple interlaminated MUDSTONE, SILTSTONE and rare SANDSTONE and clay bands. Recovered as a clayey gravel.(CADEBY FORMATION)	
2					2.50	-		Extremely weak to very weak highly weathered thinly to thickly laminated grey locally orange brown or purple interlaminated MUDSTONE, SILTSTONE and rare SANDSTONE and clay bands. Recovered as a clayey gravel.(CADEBY FORMATION)	
								<i>End of Trial Pit at 2.50 m</i>	

Excavation Details	Dimensions (m)	Groundwater Observations
Date excavated: 24/10/2012 Date backfilled: 24/10/2012 Shoring: None Stability: Stable during excavation Plant: JCB-3CX Logged by: KAB	<p>Final Depth (m): 2.50</p>	No groundwater observed

General Remarks:
 Scraping at 2.5m.



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Trial Pit Log

Trial Pit Number

TP28

Site **Ashland Road, Sutton in Ashfield**

Ground Level mAOD
-

Client **David Wilson Homes - East Midlands**

GRM Project ref: **P5946**

Coordinates:
-
-

GROUNDWATER		SAMPLES	INSITU TESTING		STRATA		STRATA RECORD		Scale: 1:25
Strike	Depth (m)	Depth/Type/Ref (m)	Depth (m)	Hand Vane Strength (kN/m ²)	Depth (m)	Level (mAOD)	Legend	Description	
		0.10-0.25/D/1 0.10-0.25/J/1			0.25	-		Grass over brown slightly sandy silty clay.(TOPSOIL)	
		0.30-0.50/D/2			0.70	-		Firm orange brown slightly sandy silty CLAY.(WEATHERED CADEBY FORMATION)	
1		0.80-1.00/D/3			1.90	-		Firm becoming stiff (1.2m) orange brown and grey (locally slightly sandy) very silty CLAY with some angular to subrounded fine to coarse gravel including dolerite and calcite nodules. No calcite nodules and locally friable below 1.2m.(WEATHERED CADEBY FORMATION)	
2		1.90-2.10/D/4			2.45	-		Stiff indistinctly laminated grey mottled brown very silty CLAY with occasional mudstone bands and some locally much mudstone lithorelicts. Recovered as a gravelly clay.(WEATHERED CADEBY FORMATION)	
		2.50-2.70/D/5			2.80	-		Extremely weak to very weak highly weathered thinly laminated to very thinly bedded grey MUDSTONE with a weak conglomerate band at the surface. Recovered as a clayey gravel.(CADEBY FORMATION)	
								<i>End of Trial Pit at 2.90 m</i>	

Excavation Details	Dimensions (m)	Groundwater Observations
Date excavated: 24/10/2012 Date backfilled: 24/10/2012 Shoring: None Stability: Stable during excavation Plant: JCB-3CX Logged by: KAB	<p>Final Depth (m): 2.90</p>	No groundwater observed

General Remarks:



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Trial Pit Log

Trial Pit Number
TP29

Site **Ashland Road, Sutton in Ashfield**

Ground Level mAOD
 -

Client **David Wilson Homes - East Midlands**

GRM Project ref: **P5946**

Coordinates:
 -
 -

GROUNDWATER		SAMPLES	INSITU TESTING		STRATA		STRATA RECORD		Scale: 1:25
Strike	Depth (m)	Depth/Type/Ref (m)	Depth (m)	Hand Vane Strength (kN/m ²)	Depth (m)	Level (mAOD)	Legend	Description	
		0.10-0.25/D/1 0.10-0.25/J/1			0.25	-		Grass over brown slightly sandy silty clay.(TOPSOIL)	
		0.40-0.60/D/2			0.65	-		Firm orange brown slightly sandy silty CLAY.(WEATHERED CADEBY FORMATION)	
1		1.00-1.20/D/3			1.70	-		Firm becoming stiff (1.0m) orange brown and grey (locally slightly sandy) very silty CLAY with occasional mudstone lithorelicts. Locally friable from 1.0m.(WEATHERED CADEBY FORMATION)	
		1.70-1.90/D/4			2.30	-		Stiff locally indistinctly laminated grey mottled brown silty CLAY with some mudstone lithorelicts. Friable.(WEATHERED CADEBY FORMATION)	
2		2.30-2.50/D/5			2.80	-		Very stiff thinly to thickly laminated grey silty CLAY with occasional mudstone bands and some locally much mudstone lithorelicts. Recovered as a gravelly clay.(WEATHERED CADEBY FORMATION)	
					3.10	-		Extremely weak to very weak highly weathered thinly laminated to very thinly bedded grey MUDSTONE with a weak conglomerate band at the surface. Recovered as a clayey gravel.(CADEBY FORMATION)	
								<i>End of Trial Pit at 3.10 m</i>	

Excavation Details	Dimensions (m)	Groundwater Observations
Date excavated: 24/10/2012 Date backfilled: 24/10/2012 Shoring: None Stability: Stable during excavation Plant: JCB-3CX Logged by: KAB	<p>Final Depth (m): 3.10</p>	No groundwater observed

General Remarks:



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Trial Pit Log

Trial Pit Number
TP30

Site **Ashland Road, Sutton in Ashfield**

Ground Level mAOD
 -

Client **David Wilson Homes - East Midlands**

GRM Project ref: **P5946**

Coordinates:
 -
 -

GROUNDWATER		SAMPLES	INSITU TESTING		STRATA		STRATA RECORD		Scale: 1:25
Strike	Depth (m)	Depth/Type/Ref (m)	Depth (m)	Hand Vane Strength (kN/m ²)	Depth (m)	Level (mAOD)	Legend	Description	
		0.10-0.25/D/1 0.10-0.25/J/1			0.25	-		Grass over brown slightly sandy silty clay.(TOPSOIL)	
		0.30-0.50/D/2			0.70	-		Firm orange brown slightly sandy silty CLAY with occasional angular to subrounded fine to coarse gravel including sandstone, dolerite and calcite nodules.(WEATHERED CADEBY FORMATION)	
1		1.20-1.40/D/3			1.60	-		Firm becoming stiff (1.2m) orange brown and grey (locally slightly sandy) very silty CLAY with occasional angular to subangular fine to coarse gravel including dolostone. Locally friable from 1.2m.(WEATHERED CADEBY FORMATION)	
					1.90	-		Stiff grey mottled brown silty CLAY with some mudstone lithorelicts. Friable.(WEATHERED CADEBY FORMATION)	
2		2.20-2.40/D/4			2.50	-		Stiff indistinctly laminated grey silty CLAY with some mudstone lithorelicts. Friable.(WEATHERED CADEBY FORMATION)	
					3.00	-		Stiff indistinctly laminated grey mottled brown silty CLAY with occasional mudstone bands and some mudstone lithorelicts. Friable - recovered as a gravelly clay.(WEATHERED CADEBY FORMATION)	
								<i>End of Trial Pit at 3.00 m</i>	

Excavation Details	Dimensions (m)	Groundwater Observations
Date excavated: 24/10/2012 Date backfilled: 24/10/2012 Shoring: None Stability: Stable during excavation Plant: JCB-3CX Logged by: KAB	<p>Final Depth (m): 3.00</p>	No groundwater observed

General Remarks:



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Trial Pit Log

Trial Pit Number

TP35

Site **Ashland Road, Sutton in Ashfield**

Ground Level mAOD
-

Client **David Wilson Homes - East Midlands**

GRM Project ref: **P5946**

Coordinates:
-
-

GROUNDWATER		SAMPLES	INSITU TESTING		STRATA		STRATA RECORD		Scale: 1:25
Strike	Depth (m)	Depth/Type/Ref (m)	Depth (m)	Hand Vane Strength (kN/m ²)	Depth (m)	Level (mAOD)	Legend	Description	
		0.10/J/001 0.10/D/002			0.20	-		TOPSOIL(TOPSOIL)	
		0.70/D/003			0.80	-		Firm orange brown silty sandy CLAY with occasional fine to coarse subangular to subrounded gravel including sandstone and mudstone(CADEBY FORMATION)	
1		1.20/D/004			2.00	-		Stiff blue grey brown slightly sandy to sandy silty CLAY with occasional fine to coarse subangular to subrounded gravel of sandstone, mudstone and calcrete nodules(CADEBY FORMATION)	
2					2.40	-		Very stiff blue grey brown silty sandy CLAY with some fine to coarse subangular to subrounded gravel of sandstone and mudstone(CADEBY FORMATION)	
					2.70	-		Very weak blue grey brown thinly bedded SANDSTONE and MUDSTONE with occasional thin clay layers. Recovered as clayey gravel of mudstone and sandstone(CADEBY FORMATION)	
									<i>End of Trial Pit at 2.70 m</i>

Excavation Details	Dimensions (m)	Groundwater Observations
Date excavated: 23/10/2012 Date backfilled: 23/10/2012 Shoring: Not used Stability: Stable during excavation Plant: JCB 3cx Logged by: GWB	<p>Final Depth (m): 2.70</p>	Not used

General Remarks:



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Trial Pit Log

Trial Pit Number

TP36

Site **Ashland Road, Sutton in Ashfield**

Ground Level mAOD
-

Client **David Wilson Homes - East Midlands**

GRM Project ref: **P5946**

Coordinates:
-
-

GROUNDWATER		SAMPLES	INSITU TESTING		STRATA		STRATA RECORD		Scale: 1:25
Strike	Depth (m)	Depth/Type/Ref (m)	Depth (m)	Hand Vane Strength (kN/m ²)	Depth (m)	Level (mAOD)	Legend	Description	
					0.20	-		TOPSOIL(TOPSOIL)	
	1				1.40	-		Firm blue brown yellow slightly sandy silty CLAY with occasional fine to coarse subangular to subrounded gravel of sandstone and calcrete nodules(CADEBY FORMATION)	
	2				2.40	-		Stiff blue grey brown sandy silty CLAY with occasional to some fine to coarse subangular to subrounded gravel of sandstone and mudstone(CADEBY FORMATION)	
					2.70	-		Very weak highly weathered thinly bedded SANDSTONE and MUDSTONE with occasional thin clay layers. Recovered as clayey gravel of mudstone(CADEBY FORMATION)	
								<i>End of Trial Pit at 2.70 m</i>	

Excavation Details	Dimensions (m)	Groundwater Observations
Date excavated: 23/10/2012 Date backfilled: 23/10/2012 Shoring: Not used Stability: Stable during excavation Plant: JCB 3cx Logged by: GWB	<p>Final Depth (m): 2.70</p>	Not observed

General Remarks:



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Trial Pit Log

Trial Pit Number
TP37

Site **Ashland Road, Sutton in Ashfield**

Ground Level mAOD
 -

Client **David Wilson Homes - East Midlands**

GRM Project ref: **P5946**

Coordinates:
 -
 -

GROUNDWATER		SAMPLES	INSITU TESTING		STRATA		STRATA RECORD		Scale: 1:25
Strike	Depth (m)	Depth/Type/Ref (m)	Depth (m)	Hand Vane Strength (kN/m ²)	Depth (m)	Level (mAOD)	Legend	Description	
		0.10/J/001 0.10/D/002			0.20	-		TOPSOIL(TOPSOIL)	
1		1.20/D/003						Firm yellow brown sandy silty CLAY with occasional fine to coarse subangular to subrounded gravel of sandstone and mudstone(CADEBY FORMATION)	
2		1.90/D/004			1.80			Stiff blue grey brown sandy silty CLAY with some fine to coarse subangular to subrounded gravel of sandstone and mudstone(CADEBY FORMATION)	
					2.40			Very weak blue grey thinly bedded SANDSTONE and MUDSTONE with occasional thin clay layers(CADEBY FORMATION)	
					2.90			End of Trial Pit at 2.90 m	

Excavation Details	Dimensions (m)	Groundwater Observations
Date excavated: 23/10/2012 Date backfilled: 23/10/2012 Shoring: Not used Stability: Stable during excavation Plant: JCB 3cx Logged by: GWB	<p>Final Depth (m): 2.90</p>	Minor ingress at 2.6m

General Remarks:



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Trial Pit Log

Trial Pit Number
TP38

Site **Ashland Road, Sutton in Ashfield**

Ground Level mAOD
 -

Client **David Wilson Homes - East Midlands**

GRM Project ref: **P5946**

Coordinates:
 -
 -

GROUNDWATER		SAMPLES	INSITU TESTING		STRATA		STRATA RECORD		Scale: 1:25
Strike	Depth (m)	Depth/Type/Ref (m)	Depth (m)	Hand Vane Strength (kN/m ²)	Depth (m)	Level (mAOD)	Legend	Description	
					0.20	-		TOPSOIL(TOPSOIL)	
	1							Firm to stiff yellow brown slightly sandy silty CLAY with occasional fine to coarse subangular to subrounded gravel of sandstone and mudstone(CADEBY FORMATION)	
					1.60	-		Stiff blue grey brown silty sandy CLAY with some fine to coarse subangular to subrounded gravel of mudstone and sandstone(CADEBY FORMATION)	
	2				2.00	-		Very weak blue grey thinly bedded, interbedded SANDSTONE and MUDSTONE with occasional thin clay layers(CADEBY FORMATION)	
					2.80	-		End of Trial Pit at 2.80 m	

Excavation Details	Dimensions (m)	Groundwater Observations
Date excavated: 23/10/2012 Date backfilled: 23/10/2012 Shoring: Not used Stability: Stable during excavation Plant: JCB 3cx Logged by: GWB	<p>Final Depth (m): 2.80</p>	Not observed

General Remarks:



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Trial Pit Log

Trial Pit Number
TP39

Site **Ashland Road, Sutton in Ashfield**

Ground Level mAOD
 -

Client **David Wilson Homes - East Midlands**

GRM Project ref: **P5946**

Coordinates:
 -
 -

GROUNDWATER		SAMPLES	INSITU TESTING		STRATA		STRATA RECORD		Scale: 1:25
Strike	Depth (m)	Depth/Type/Ref (m)	Depth (m)	Hand Vane Strength (kN/m ²)	Depth (m)	Level (mAOD)	Legend	Description	
		0.10/D/001 0.10/J/002			0.20	-		TOPSOIL(TOPSOIL)	
1		1.20/D/003			1.10	-		Firm orange brown sandy silty CLAY with occasional fine to coarse subangular to subrounded gravel of sandstone and mudstone(CADEBY FORMATION)	
		2.00/D/004			1.90	-		Stiff brown blue grey sandy silty CLAY with occasional to some fine to coarse subangular to subrounded gravel of mudstone and sandstone(CADEBY FORMATION)	
2					2.40	-		Very stiff blue grey brown silty sandy CLAY with occasional fine to coarse subangular to subrounded gravel of sandstone and mudstone(CADEBY FORMATION)	
					2.50	-		Weak blue grey MUDSTONE. Recovered as clayey gravel of mudstone(CADEBY FORMATION) <i>End of Trial Pit at 2.50 m</i>	

Excavation Details	Dimensions (m)	Groundwater Observations
Date excavated: 23/10/2012 Date backfilled: 23/10/2012 Shoring: Not used Stability: Stable during excavation Plant: JCB 3cx Logged by: GWB	<p>Final Depth (m): 2.50</p>	Not observed

General Remarks:



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Trial Pit Log

Trial Pit Number

TP40

Site **Ashland Road, Sutton in Ashfield**

Ground Level mAOD
-

Client **David Wilson Homes - East Midlands**

GRM Project ref: **P5946**

Coordinates:
-
-

GROUNDWATER		SAMPLES	INSITU TESTING		STRATA		STRATA RECORD		Scale: 1:25
Strike	Depth (m)	Depth/Type/Ref (m)	Depth (m)	Hand Vane Strength (kN/m ²)	Depth (m)	Level (mAOD)	Legend	Description	
					0.20	-		TOPSOIL(TOPSOIL)	
	1				1.30	-		Stiff blue grey brown sandy silty CLAY with occasional fine to coarse subangular to subrounded gravel of sandstone(CADEBY FORMATION)	
					1.70	-		Stiff blue grey brown sandy silty CLAY with occasional fine to coarse subangular to subrounded gravel of sandstone and occasional thin sandstone layers(CADEBY FORMATION)	
	2				2.80	-		Weak highly weathered thinnly bedded interbedded SANDSTONE and MUDSTONE(CADEBY FORMATION)	
								<i>End of Trial Pit at 2.80 m</i>	

Excavation Details	Dimensions (m)	Groundwater Observations
Date excavated: 23/10/2012 Date backfilled: 23/10/2012 Shoring: Not used Stability: Stable during excavation Plant: JCB 3cx Logged by:	<p>Final Depth (m): 2.80</p>	Minor ingress at 1.7m

General Remarks:



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Trial Pit Log

Trial Pit Number
TP41

Site **Ashland Road, Sutton in Ashfield**

Ground Level mAOD
 -

Client **David Wilson Homes - East Midlands**

GRM Project ref: **P5946**

Coordinates:
 -
 -

GROUNDWATER		SAMPLES	INSITU TESTING		STRATA		STRATA RECORD		Scale: 1:25
Strike	Depth (m)	Depth/Type/Ref (m)	Depth (m)	Hand Vane Strength (kN/m ²)	Depth (m)	Level (mAOD)	Legend	Description	
		0.10/J/001 0.10/D/002			0.25	-		TOPSOIL(TOPSOIL)	
	1	0.90/D/003			1.50	-		Firm orange brown sandy silty CLAY with occasional fine to coarse subangular to subrounded gravel of sandstone and mudstone(CADEBY FORMATION)	
	2	2.00/D/004			1.90	-		Stiff blue grey brown sandy silty CLAY with occasional fine to coarse subangular to subrounded gravel of sandstone and mudstone(CADEBY FORMATION)	
					2.30	-		Strong dark yellow brown CONGLOMERATE. Recovered as a gravelly sand with cobbles(CADEBY FORMATION)	
									<i>End of Trial Pit at 2.30 m</i>

Excavation Details	Dimensions (m)	Groundwater Observations
Date excavated: 23/10/2012 Date backfilled: 23/10/2012 Shoring: Not used Stability: Stable during excavation Plant: JCB 3cx Logged by:	<p>Final Depth (m): 2.30</p>	Minor Ingress 2m

General Remarks:



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Trial Pit Log

Trial Pit Number

TP42

Site **Ashland Road, Sutton in Ashfield**

Ground Level mAOD
-

Client **David Wilson Homes - East Midlands**

GRM Project ref: **P5946**

Coordinates:
-
-

GROUNDWATER		SAMPLES	INSITU TESTING		STRATA		STRATA RECORD		Scale: 1:25
Strike	Depth (m)	Depth/Type/Ref (m)	Depth (m)	Hand Vane Strength (kN/m ²)	Depth (m)	Level (mAOD)	Legend	Description	
		0.10/J/001 0.10/D/002			0.30			TOPSOIL(TOPSOIL)	
		0.60/D/003						Firm orange brown sandy silty CLAY with occasional fine to coarse subangular to subrounded gravel of sandstone and mudstone(CADEBY FORMATION)	
1		1.60/D/004			1.50			Stiff blue grey brown slightly sandy silty CLAY with occasional to some fine to coarse subangular to subrounded gravel of sandstone. With occasional thin sandstone bands(CADEBY FORMATION)	
		2.30/D/005			1.90			Weak yellow brown and blue grey SANDSTONE with occasional thin stiff clay layers(CADEBY FORMATION)	
2					2.50			End of Trial Pit at 2.50 m	

Excavation Details	Dimensions (m)	Groundwater Observations
Date excavated: 23/10/2012 Date backfilled: 23/10/2012 Shoring: Not used Stability: Stable during excavation Plant: JCB 3cx Logged by: GWB	<p>Final Depth (m): 2.50</p>	Not observed

General Remarks:



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Trial Pit Log

Trial Pit Number
TP43

Site **Ashland Road, Sutton in Ashfield**

Ground Level mAOD
 -

Client **David Wilson Homes - East Midlands**

GRM Project ref: **P5946**

Coordinates:
 -
 -

GROUNDWATER		SAMPLES	INSITU TESTING		STRATA		STRATA RECORD		Scale: 1:25
Strike	Depth (m)	Depth/Type/Ref (m)	Depth (m)	Hand Vane Strength (kN/m ²)	Depth (m)	Level (mAOD)	Legend	Description	
		0.10/J/001 0.10/D/002			0.30			TOPSOIL(TOPSOIL)	
		0.80/D/003						Firm orange brown slightly sandy silty CLAY with occasional fine to coarse subangular to subrounded gravel of sandstone and mudstone(CADEBY FORMATION)	
	1	1.50/D/004			1.60			Stiff blue grey brown slightly sandy to sandy silty CLAY with occasional to some fine to coarse subangular to subrounded gravel of sandstone and mudstone(CADEBY FORMATION)	
	2	2.60/D/005			2.50			Weak blue grey fine grained SANDSTONE(CADEBY FORMATION)	
					2.70			End of Trial Pit at 2.70 m	

Excavation Details	Dimensions (m)	Groundwater Observations
Date excavated: 23/10/2012 Date backfilled: 23/10/2012 Shoring: Not used Stability: Stable during excavation Plant: JCB 3cx Logged by: GWB	<p>Final Depth (m): 2.70</p>	Not observed

General Remarks:



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Trial Pit Log

Trial Pit Number
TP44

Site **Ashland Road, Sutton in Ashfield**

Ground Level mAOD
 -

Client **David Wilson Homes - East Midlands**

GRM Project ref: **P5946**

Coordinates:
 -
 -

GROUNDWATER		SAMPLES	INSITU TESTING		STRATA		STRATA RECORD		Scale: 1:25
Strike	Depth (m)	Depth/Type/Ref (m)	Depth (m)	Hand Vane Strength (kN/m ²)	Depth (m)	Level (mAOD)	Legend	Description	
		0.10-0.20/J/001 0.10-0.20/D/002			0.20	-		TOPSOIL(TOPSOIL)	
		0.70/D/003						Firm orange brown slightly sandy, locally sandy, silty CLAY with occasional fine to coarse subangular to subrounded gravel of sandstone(CADEBY FORMATION)	
1		1.50/D/004			1.40	-		Stiff to very stiff blue grey and orange brown slightly sandy silty CLAY with occasional fine to coarse subangular to subrounded gravel of sandstone(CADEBY FORMATION)	
		2.50/D/005			2.20	-		Hard blue grey slightly sandy silty CLAY with much fine to coarse angular to subangular gravel of mudstone(CADEBY FORMATION)	
2					2.60	-		Weak blue brown fine grained SANDSTONE(CADEBY FORMATION)	
					2.80	-		End of Trial Pit at 2.80 m	

Excavation Details	Dimensions (m)	Groundwater Observations
Date excavated: 23/10/2012 Date backfilled: 23/10/2012 Shoring: None Stability: Stable during excavation Plant: JCB 3cx Logged by: GWB	<p>Final Depth (m): 2.80</p>	Moderate water ingress at 2.4m

General Remarks:



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Trial Pit Log

Trial Pit Number

TP45

Site **Ashland Road, Sutton in Ashfield**

Ground Level mAOD
-

Client **David Wilson Homes - East Midlands**

GRM Project ref: **P5946**

Coordinates:
-
-

GROUNDWATER		SAMPLES	INSITU TESTING		STRATA		STRATA RECORD		Scale: 1:25
Strike	Depth (m)	Depth/Type/Ref (m)	Depth (m)	Hand Vane Strength (kN/m ²)	Depth (m)	Level (mAOD)	Legend	Description	
		0.10/J/001 0.10/D/002			0.30			TOPSOIL(TOPSOIL)	
	1	1.10/D/003						Firm, becoming stiff at 1.5m, orange brown slightly sandy silty CLAY with occasional fine to coarse subangular to subrounded gravel of sandstone(CADEBY FORMATION)	
		1.50/D/004			1.80			Stiff blue grey brown slightly sandy to sandy silty CLAY with occasional to some fine to coarse subangular to subrounded gravel of sandstone and mudstone(CADEBY FORMATION)	
	2	2.50/D/005			2.40			Weak blue brown fine grained SANDSTONE(CADEBY FORMATION)	
					2.60			End of Trial Pit at 2.60 m	

Excavation Details	Dimensions (m)	Groundwater Observations
Date excavated: 23/10/2012 Date backfilled: 23/10/2012 Shoring: Not Used Stability: Stable during excavation Plant: JCB 3cx Logged by: GWB	<p>Final Depth (m): 2.60</p>	Not observed

General Remarks:



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Trial Pit Log

Trial Pit Number

TP46

Site **Ashland Road, Sutton in Ashfield**

Ground Level mAOD
-

Client **David Wilson Homes - East Midlands**

GRM Project ref: **P5946**

Coordinates:
-
-

GROUNDWATER		SAMPLES	INSITU TESTING		STRATA		STRATA RECORD		Scale: 1:25
Strike	Depth (m)	Depth/Type/Ref (m)	Depth (m)	Hand Vane Strength (kN/m ²)	Depth (m)	Level (mAOD)	Legend	Description	
		0.10/J/001 0.10/D/002			0.20	-		TOPSOIL(TOPSOIL)	
		0.80/D/003			1.20	-		Firm orange brown sandy silty CLAY with occasional to some fine to coarse subangular to subrounded gravel of sandstone and occasional black carbonaceous material(CADEBY FORMATION)	
		1.30/D/004			1.80	-		Stiff blue grey and yellow brown slightly sandy silty CLAY with occasional fine to coarse subangular to subrounded gravel of sandstone and mudstone(CADEBY FORMATION)	
		2.10/D/005			2.40 2.50	-		Stiff to very stiff brown blue grey sandy silty CLAY with occasional to some fine to coarse subangular to subrounded gravel of mudstone and sandstone(CADEBY FORMATION)	
								Weak brown fine grained SANDSTONE(CADEBY FORMATION) <i>End of Trial Pit at 2.50 m</i>	

Excavation Details	Dimensions (m)	Groundwater Observations
Date excavated: 23/10/2012 Date backfilled: 23/10/2012 Shoring: Not Used Stability: Stable during excavation Plant: JCB 3cx Logged by: GWB	<p>Final Depth (m): 2.50</p>	Not observed

General Remarks:



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Window Sample Borehole

Borehole Number

WS1

Site: Ashland Road, Sutton in Ashfield

GRM Project ref: **P5946**

Ground Level mAOD
-

Client: David Wilson Homes - East Midlands

Equipment:

Coordinates:
-
-

Crew: **Logger AH**

GROUNDWATER		SAMPLES	INSITU TESTING			STRATA RECORD				Scale: 1:25
Installation	Depth (m)	Depth/Type/Ref (m)	Depth/Type (m)	N Value	Casing Depth (m)	Depth (m)	Level (mAOD)	Key	Description	
		0.10/J/J1							TOPSOIL(TOPSOIL)	
		0.25/D/D1				0.30			Stiff, orange and mottled grey slightly sandy silty CLAY with fine to medium sub-angular gravel including black and grey sandstone. (CADEBY FORMATION)	
		0.80/D/D2				1.30			Firm, grey and mottled orange slightly sandy silty CLAY with fine to medium sub-angular gravel including black and grey sandstone. (CADEBY FORMATION)	
		1.80/D/D3				1.70			Firm, grey and mottled orange slightly sandy silty CLAY with fine to medium angular lithorelicts including siltstone. (CADEBY FORMATION)	
	2.80/D/D4				2.80			Very weak, grey thinly laminated highly weathered SILTSTONE. (CADEBY FORMATION)		
	3.00-3.45/D/1	3.00 C		N=35 (4,5,8,8,8,11)		3.00			End of Borehole at 3.00 m	

Hole Started 23/10/2012 | Hole Complete 23/10/2012

General Remarks:

Groundwater Remarks:

Test Type: S = Standard Penetration Test, C = Cone Penetration Test. N values reported are uncorrected. N value 50/275 = 50 blows in 275mm.



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Window Sample Borehole

Borehole Number

WS2

Site: Ashland Road, Sutton in Ashfield

GRM Project ref: P5946

Ground Level mAOD -

Client: David Wilson Homes - East Midlands

Equipment:

Coordinates: -

Crew: Logger AH

Scale: 1:25

GROUNDWATER		SAMPLES	INSITU TESTING			STRATA RECORD			
Installation	Depth (m)	Depth/Type/Ref (m)	Depth/Type (m)	N Value	Casing Depth (m)	Depth (m)	Level (mAOD)	Key	Description
		0.10/J/J1							TOPSOIL(TOPSOIL)
		0.25/D/D1				0.30			Firm, orange and brown sandy silty CLAY with occasional fine to medium sub-angular gravel including siltstone and black and grey sandstone. (CADEBY FORMATION)
		0.40/D/D2				0.50			Firm, orange and mottled grey slightly sandy silty CLAY with some fine to coarse sub-angular gravel including sandstone and siltstone. (CADEBY FORMATION)
		0.90/D/D3				1.55			Very stiff and friable, grey CLAY. (CADEBY FORMATION)
		1.90/D/D4				2.60			Very weak, grey highly weathered SILTSTONE. (CADEBY FORMATION)
		2.70/D/D5				3.00			End of Borehole at 3.00 m
		3.00-3.45/D/1	3.00 C	N=28 (2,3,3,6,9,10)					

Hole Started 23/10/2012

Hole Complete 23/10/2012

General Remarks:

Groundwater Remarks:

Test Type: S = Standard Penetration Test, C = Cone Penetration Test. N values reported are uncorrected. N value 50/275 = 50 blows in 275mm.



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Window Sample Borehole

Borehole Number
WS3

Site: Ashland Road, Sutton in Ashfield

GRM Project ref: **P5946**

Ground Level mAOD
-

Client: David Wilson Homes - East Midlands

Equipment:

Coordinates:
-
-

Crew: Logger AH

GROUNDWATER		SAMPLES	INSITU TESTING			STRATA RECORD				Scale: 1:25
Installation	Depth (m)	Depth/Type/Ref (m)	Depth/Type (m)	N Value	Casing Depth (m)	Depth (m)	Level (mAOD)	Key	Description	
		0.10/J/J1 0.15/D/D1				0.40			TOPSOIL(TOPSOIL)	
		0.90/D/D2				0.80			Firm, orange and brown sandy silty CLAY with occasional fine to medium sub-angular gravel including sandstone and siltstone. (CADEBY FORMATION)	
	1	1.80/D/D3							Firm and friable (2.3m), orange and mottled grey slightly silty CLAY with occasional fine to coarse gravel including black and grey sandstone, siltstone and mudstone. (CADEBY FORMATION)	
	2	2.80/D/D4				2.60			Very weak, grey highly weathered MUDSTONE. (CADEBY FORMATION)	
	3	3.00-3.45/D/1	3.00 C		N=29 (2,6,7,5,8,9)	3.00			<i>End of Borehole at 3.00 m</i>	
4										

Hole Started 23/10/2012 Hole Complete 23/10/2012

General Remarks:

Groundwater Remarks:

Test Type: S = Standard Penetration Test, C = Cone Penetration Test. N values reported are uncorrected. N value 50/275 = 50 blows in 275mm.



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Window Sample Borehole

Borehole Number
WS4

Site: Ashland Road, Sutton in Ashfield

GRM Project ref: **P5946**

Ground Level mAOD
-

Client: David Wilson Homes - East Midlands

Equipment:
Crew: Logger AH

Coordinates:
-
-

GROUNDWATER	SAMPLES	INSITU TESTING	STRATA RECORD				Scale: 1:25
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Installation	Depth (m)	Depth/Type/Ref (m)	Depth/Type (m)	N Value	Casing Depth (m)	Depth (m)	Level (mAOD)	Key	Description
		0.10/J/J1						[Cross-hatch pattern]	TOPSOIL(TOPSOIL)
		0.25/D/D1				0.30		[Diagonal lines pattern]	Firm, orange and brown sandy silty CLAY with occasional sub-angular to subrounded fine gravel including black and grey sandstone. (CADEBY FORMATION)
		0.40/D/D2				0.60		[Diagonal lines pattern]	Firm, orange and mottled grey sandy silty CLAY with rare coarse gravel including siltstone. Becoming stiff at 1.5m. (CADEBY FORMATION)
		1.50/D/D3				2.40		[Horizontal lines pattern]	Very weak, blue grey highly weathered MUDSTONE. (CADEBY FORMATION)
		2.80/D/D4	2.80 C	50/210mm (14,11,16,20,14)		2.80		[Horizontal lines pattern]	<i>End of Borehole at 2.80 m</i>

Hole Started 23/10/2012 Hole Complete 23/10/2012

General Remarks:

Groundwater Remarks:

Test Type: S = Standard Penetration Test, C = Cone Penetration Test. N values reported are uncorrected. N value 50/275 = 50 blows in 275mm.



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Window Sample Borehole

Borehole Number
WS5

Site: Ashland Road, Sutton in Ashfield

GRM Project ref: **P5946**

Ground Level mAOD
-

Client: David Wilson Homes - East Midlands

Equipment:
Crew: Logger AH

Coordinates:
-
-

GROUNDWATER	SAMPLES	INSITU TESTING			STRATA RECORD					Scale: 1:25
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Installation	Depth (m)	Depth/Type/Ref (m)	Depth/Type (m)	N Value	Casing Depth (m)	Depth (m)	Level (mAOD)	Key	Description	
		0.10/J/J1						[Pattern]	TOPSOIL(TOPSOIL)	
		0.25/D/D1				0.30			[Pattern]	Firm, orange and brown sandy silty CLAY with occasional fine to medium sub-angular gravel including carbonaceous material, sandstone and siltstone. (CADEBY FORMATION)
		0.50/D/D2				0.80		Stiff, orange and grey slightly sandy silty CLAY with occasional to some fine to medium sub-angular gravel including black and grey sandstone. (CADEBY FORMATION)		
		1.20/D/D3				1.50		[Pattern]	Stiff, orange and mottled grey finely laminated slightly sandy silty CLAY with much fine to coarse angular lithorelicts including mudstone and siltstone. (CADEBY FORMATION)	
		1.90/D/D4				2.00		[Pattern]	Very weak, red orange highly weathered SILTSTONE and SANDSTONE bands. (CADEBY FORMATION)	
	2.20-2.48/D/1	2.20 C		50/125mm (9,15,27,23)		2.20		[Pattern]	<i>End of Borehole at 2.20 m</i>	

Hole Started 23/10/2012 Hole Complete 23/10/2012

General Remarks: 2.2m refused and water observed.

Groundwater Remarks:

Test Type: S = Standard Penetration Test, C = Cone Penetration Test. N values reported are uncorrected. N value 50/275 = 50 blows in 275mm.



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Window Sample Borehole

Borehole Number
WS6

Site: Ashland Road, Sutton in Ashfield

GRM Project ref: **P5946**

Ground Level mAOD
-

Client: David Wilson Homes - East Midlands

Equipment:

Coordinates:
-
-

Crew: Logger AH

GROUNDWATER		SAMPLES	INSITU TESTING			STRATA RECORD				Scale: 1:25	
Installation	Depth (m)	Depth/Type/Ref (m)	Depth/Type (m)	N Value	Casing Depth (m)	Depth (m)	Level (mAOD)	Key	Description		
		0.10/J/J1 0.20/D/D1				0.30			TOPSOIL(TOPSOIL)		
						0.50			Firm, orange and brown sandy silty CLAY with occasional fine sub-angular gravel including black and grey sandstone. (CADEBY FORMATION)		
			0.90/D/D2						Firm, orange and mottled grey slightly sandy silty CLAY with some fine to medium subangular gravel including sandstone. (CADEBY FORMATION)		
			1.50/D/D3								
			2.50/D/D4				2.55				
			3.00-3.45/D/1	3.00	N=32 (3,5,6,8,8,10)		3.00			Very weak, blue grey highly weathered MUDSTONE. (CADEBY FORMATION)	
										<i>End of Borehole at 3.00 m</i>	

Hole Started 23/10/2012 Hole Complete 23/10/2012

General Remarks:

Groundwater Remarks:

Test Type: S = Standard Penetration Test, C = Cone Penetration Test. N values reported are uncorrected. N value 50/275 = 50 blows in 275mm.



Burton-on-Trent (HQ) Tel: 01283 551249
 Email: mail@grm-uk.com Web: www.grm-uk.com

Window Sample Borehole

Borehole Number

WS7

Site: Ashland Road, Sutton in Ashfield

GRM Project ref: **P5946**

Ground Level mAOD
-

Client: David Wilson Homes - East Midlands

Equipment:

Coordinates:
-
-

Crew: **Logger AH**

GROUNDWATER		SAMPLES	INSITU TESTING			STRATA RECORD				Scale: 1:25
Installation	Depth (m)	Depth/Type/Ref (m)	Depth/Type (m)	N Value	Casing Depth (m)	Depth (m)	Level (mAOD)	Key	Description	
		0.10/J/J1 0.20/D/D1 0.35/D/D2				0.25	-		TOPSOIL(TOPSOIL)	
						0.90	-		Firm, orange and brown sandy CLAY with fine sub-angular gravel including sandstone and siltstone. (CADEBY FORMATION)	
		1.50/D/D3				1.70	-		Firm and friable, orange and grey mottled sandy silty CLAY with rare to occasional fine sub-angular gravel including black and grey sandstone. Becoming stiff at 1.5m. (CADEBY FORMATION)	
		2.50/D/D4				3.00	-		Very weak, grey and brown highly weathered SANDSTONE. (CADEBY FORMATION)	
	3.00-3.45/D/1	3.00 C		N=27 (3,4,5,6,6,10)		3.00	-		End of Borehole at 3.00 m	

Hole Started 23/10/2012 | Hole Complete 23/10/2012

General Remarks:

Groundwater Remarks:

Test Type: S = Standard Penetration Test, C = Cone Penetration Test. N values reported are uncorrected. N value 50/275 = 50 blows in 275mm.



Burton-on-Trent (HQ) Tel: 01283 551249
 Email: mail@grm-uk.com Web: www.grm-uk.com

Window Sample Borehole

Borehole Number
WS8

Site: Ashland Road, Sutton in Ashfield

GRM Project ref: **P5946**

Ground Level mAOD
 -

Client: David Wilson Homes - East Midlands

Equipment:

Coordinates:
 -
 -

Crew: **Logger AH**

GROUNDWATER		SAMPLES	INSITU TESTING			STRATA RECORD				Scale: 1:25
Installation	Depth (m)	Depth/Type/Ref (m)	Depth/Type (m)	N Value	Casing Depth (m)	Depth (m)	Level (mAOD)	Key	Description	
		0.10/J/J1 0.20/D/D1						[Pattern]	TOPSOIL(TOPSOIL)	
		0.50/D/D2				0.40		[Pattern]	Soft to firm, orange and brown sandy silty CLAY with occasional fine sub-angular to angular gravel including sandstone. (CADEBY FORMATION)	
		1.20/D/D3				0.70		[Pattern]	Firm to stiff, orange and grey sandy silty CLAY with occasional fine sub-angular gravel including black and grey sandstone and occasional fine to coarse sub-angular gravel including mudstone. (CADEBY FORMATION)	
	1							[Pattern]		
		2.60/D/D4					2.40		[Pattern]	Very weak, blue grey highly weathered MUDSTONE. (CADEBY FORMATION)
	3	3.00-3.45/D/1	3.00 C	N=31 (3,3,6,7,8,10)			3.00		[Pattern]	End of Borehole at 3.00 m
4										

Hole Started 23/10/2012 | Hole Complete 23/10/2012

General Remarks: Water observed at 3m.

Groundwater Remarks:

Test Type: S = Standard Penetration Test, C = Cone Penetration Test. N values reported are uncorrected. N value 50/275 = 50 blows in 275mm.



Burton-on-Trent (HQ) Tel: 01283 551249
 Email: mail@grm-uk.com Web: www.grm-uk.com

Window Sample Borehole

Borehole Number

WS9

Site: Ashland Road, Sutton in Ashfield

GRM Project ref: **P5946**

Ground Level mAOD
-

Client: David Wilson Homes - East Midlands

Equipment:

Coordinates:
-
-

Crew: **Logger**

GROUNDWATER		SAMPLES	INSITU TESTING			STRATA RECORD				Scale: 1:25
Installation	Depth (m)	Depth/Type/Ref (m)	Depth/Type (m)	N Value	Casing Depth (m)	Depth (m)	Level (mAOD)	Key	Description	
		0.10/J/J1 0.20/D/D1				0.30			TOPSOIL(TOPSOIL)	
		0.40/D/D2				0.60			Firm, orange and brown slightly sandy silty CLAY with occasional fine sub-angular to angular gravel including sandstone. (CADEBY FORMATION)	
		0.90/D/D3							Firm to stiff, orange and grey sandy silty CLAY with rare coarse angular gravel including sandstone. (CADEBY FORMATION)	
		2.50/D/D4				2.50			Very weak, blue grey highly weathered MUDSTONE. (CADEBY FORMATION)	
						3.00			End of Borehole at 3.00 m	

Hole Started 23/10/2012 | Hole Complete 23/10/2012

General Remarks:

Groundwater Remarks:

Test Type: S = Standard Penetration Test, C = Cone Penetration Test. N values reported are uncorrected. N value 50/275 = 50 blows in 275mm.



Burton-on-Trent (HQ) Tel: 01283 551249
 Email: mail@grm-uk.com Web: www.grm-uk.com

Window Sample Borehole

Borehole Number

WS10

Site: Ashland Road, Sutton in Ashfield

GRM Project ref: **P5946**

Ground Level mAOD
-

Client: David Wilson Homes - East Midlands

Equipment:

Coordinates:
448158E
-

Crew: **Logger**

GROUNDWATER		SAMPLES	INSITU TESTING			STRATA RECORD				Scale: 1:25
Installation	Depth (m)	Depth/Type/Ref (m)	Depth/Type (m)	N Value	Casing Depth (m)	Depth (m)	Level (mAOD)	Key	Description	
		0.20/J/J1 0.30/D/D1				0.35			TOPSOIL(TOPSOIL)	
		0.50/D/D5 0.70/D/D2				0.50			Firm, orange and brown slightly sandy CLAY with occasional fine sub-angular gravel including black and purple sandstone. (CADEBY FORMATION)	
		1.90/D/D3							Firm, orange and mottled grey slightly sandy silty CLAY with occasional fine gravel including sandstone. Becoming stiff and friable at 1.6m. (CADEBY FORMATION)	
		2.80/D/D4							Very weak and friable, blue grey highly weathered MUDSTONE with rare fine sub-angular to angular gravel including carbonaceous material. (CADEBY FORMATION)	
						3.00			End of Borehole at 3.00 m	

Hole Started 23/10/2012 | Hole Complete 23/10/2012

General Remarks:

Groundwater Remarks:

Test Type: S = Standard Penetration Test, C = Cone Penetration Test. N values reported are uncorrected. N value 50/275 = 50 blows in 275mm.



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MONITORING OF SOIL GASES & GROUNDWATER



PROJECT NO. P5946
SITE. Sutton in Ashfield
CLIENT. David Wilson Homes
DATE. 1st November 2012

GRM Development Solutions Limited
 Laurus House
 First Avenue
 Burton-upon-Trent
 Staffordshire
 DE14 2WH

CONDITIONS. *WEATHER:* Overcast
ATMOSPHERIC PRESSURE: 992 mb

Telephone: (01283) 551 249
 Facsimile: (01283) 211 968
 Email: mail@grm-uk.com

OPERATOR. TH

EQUIPMENT. LMXSi Gas Data Recorder

RESULTS

Borehole/ Well Ref. No.	Methane (CH ₄) %v/v	Carbon Dioxide (CO ₂) %v/v	Oxygen (O ₂) %v/v	Flow (l/hr)	L.E.L	Depth to Groundwater (mbegl)	Total Depth (mbegl)
1	Borehole inaccessible due to surface water						
2	Borehole inaccessible due to surface water						
3	0.0	0.9	18.1	0.0	0/0/0	2.58	3.14
4	0.0	1.0	19.3	0.0	0/0/0	1.89	3.12
5	0.0	0.5	19.2	0.0	0/0/0	Dry	3.07
6	0.0	0.3	18.6	0.0	0/0/0	2.75	3.19
7	0.0	0.4	18.4	0.0	0/0/0	0.90	2.31
8	0.0	0.6	19.4	0.0	0/0/0	1.43	3.15
9	0.0	0.0	21.1	0.0	0/0/0	0.73	3.07
10	0.0	1.3	18.4	0.0	0/0/0	1.12	2.93

Notes

L.E.L. Lower Explosive Limit (100% L.E.L.'= 5% Flammable Gas)
 N.D. Not Detected
 N.R. Not Recorded
 % By Volume

MONITORING OF SOIL GASES & GROUNDWATER



PROJECT NO. P5946

SITE. Sutton in Ashfield

CLIENT. David Wilson Homes

DATE. 12-Nov-12

CONDITIONS. WEATHER: Raining
ATMOSPHERIC PRESSURE: 1009 mb

OPERATOR. AH

EQUIPMENT. LMXSi Gas Data Recorder

GRM Development Solutions Limited
Laurus House
First Avenue
Burton-upon-Trent
Staffordshire
DE14 2WH

Telephone: (01283) 551 249
Facsimile: (01283) 211 968
Email: mail@grm-uk.com

RESULTS

Borehole/ Well Ref. No.	Methane (CH ₄) %v/v	Carbon Dioxide (CO ₂) %v/v	Oxygen (O ₂) %v/v	Flow (l/hr)	L.E.L.	Depth to Groundwater (mbegl)	Total Depth (mbegl)
1	0.0	0.0	18.7	0.1	0.0		
2	Borehole inaccessible due to surface water						
3	0.0	3.4	14.9	0.0	0.0	Dry	
4	Borehole inaccessible due to surface water						
5	0.0	2.3	18.4	0.0	0.0	1.25	
6	0.0	0.9	16.5	0.1	0.0		
7	0.0	0.9	17.1	0.1	0.0	Dry	
8	Borehole inaccessible due to surface water						
9	0.0	0.3	21.3	-0.1	0.0	1.62	
10	0.0	2.3	18.4	0.1	0.0	1.40	

Notes

L.E.L. Lower Explosive Limit (100% L.E.L.'= 5% Flammable Gas)
N.D. Not Detected
N.R. Not Recorded
% By Volume

MONITORING OF SOIL GASES & GROUNDWATER



PROJECT NO. P5946

SITE. Sutton in Ashfield

CLIENT. David Wilson Homes

DATE. 26th November 2012

CONDITIONS. *WEATHER:* Foggy and overcast
ATMOSPHERIC PRESSURE: 983 mb

OPERATOR. PT

EQUIPMENT. LMXSi Gas Data Recorder

GRM Development Solutions Limited
Laurus House
First Avenue
Burton-upon-Trent
Staffordshire
DE14 2WH

Telephone: (01283) 551 249
Facsimile: (01283) 211 968
Email: mail@grm-uk.com

RESULTS

Borehole/ Well Ref. No.	Methane (CH ₄) %v/v	Carbon Dioxide (CO ₂) %v/v	Oxygen (O ₂) %v/v	Flow (l/hr)	L.E.L	Depth to Groundwater (mbegl)	Total Depth (mbegl)
1	Borehole inaccessible due to surface water						
2	Borehole inaccessible due to surface water						
3	Borehole inaccessible due to surface water						
4	Borehole inaccessible due to surface water						
5	0.0	1.2	19.1	0.0	0.0	0.73	3.07
6	Borehole inaccessible due to surface water						
7	Borehole inaccessible due to surface water						
8	Borehole inaccessible due to surface water						
9	0.0	0.0	21.4	0.0	0.0	0.86	3.07
10	Borehole inaccessible due to surface water						

Notes

L.E.L. Lower Explosive Limit (100% L.E.L.'= 5% Flammable Gas)
N.D. Not Detected
N.R. Not Recorded
% By Volume



A P P E N D I X K

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Nicholls Colton Analytical
7 - 11 Harding Street
Leicester
LE1 4DH

GRM Development Solutions Ltd

Laurus House
First Avenue
Centrum 100
Burton upon Trent
Staffordshire
DE14 2WH

Analytical Test Report: 12368/GRM/001

Your Project Reference:	P5946	Samples Received on:	31.10.2012
Your Order Number:	P5946	Testing Instruction Received:	31.10.2012
Report Issue Number:	1	Sample Tested :	31.10 to 15.11.2012
Samples Analysed	10 Soils 5 Leachates	Report issued:	15.11.2012

Signed

James Gane
Manager - Data Logistics
Nicholls Colton Analytical

Notes:

General

Please refer to Methodologies tab for details pertaining to the analytical methods undertaken.

Samples will be retained for 14 days after issue of this report unless otherwise requested.

Moisture Content was determined in accordance with NCA method statement MS - CL - Sample Prep, oven dried at <30°C.

Moisture Content is reported as a percentage of the dry mass of soil, this calculation is in accordance with BS1377, Part 2, 1990, Clause 3.2

Stone Content was determined in accordance with NCA method statement MS - CL - Sample Prep and refers to the percentage of stones retained on a 10mm BS test sieve.

With the exception of Sulphate which is crushed over the 2mm test sieve, concentrations are reported as a percentage mass of the dry soil passing the 10mm BS test sieve, where appropriate these results have been corrected for moisture content but not stone content.

Samples were supplied by customer.

Deviant Samples

Samples were received in suitable containers Yes

A date and time of sampling was provided Yes

Sample handling times were exceeded prior to analysis of determinants No

Where samples are marked as deviant at least one of the above criteria was not met and therefore the testing is not covered by our accreditation



12368/GRM/001

Project Reference - P5946

Analytical Test Results - Soil Samples

NCA Reference			12-19932	12-19933	12-19934	12-19935	12-19936	12-19937
Client Sample Reference			TP45	TP25	TP11	TP18	TP26	TP27
Client Sample Location			TP45	TP25	TP11	TP18	TP26	TP27
Depth (m)			0.1-0.25	0.1-0.25	0.1-0.25	0.1-0.25	0.1-0.25	0.1-0.25
Date of Sampling			23.10.2012	23.10.2012	23.10.2012	23.10.2012	23.10.2012	23.10.2012
Time of Sampling			Not provided	Not provided	Not provided	Not provided	Not provided	Not provided
Sample Matrix			Clay	Clay	Clay	Clay	Clay	Clay
Determinant	Units	Accreditation						
Arsenic	(mg/kg)	MCERTS	14.2	15.7	18.2	14.1	12.2	15.4
Cadmium	(mg/kg)	MCERTS	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
Chromium (Total)	(mg/kg)	MCERTS	30.2	27.6	27.6	23.4	20.0	21.6
Copper	(mg/kg)	MCERTS	33.3	37.8	42.8	32.7	41.0	21.0
Lead	(mg/kg)	MCERTS	95.4	101	119	101	92.4	78.5
Mercury	(mg/kg)	UKAS	<0.7	<0.7	1.5	<0.7	<0.7	<0.7
Nickel	(mg/kg)	MCERTS	33.7	43.1	36.2	34.7	36.0	34.5
Selenium	(mg/kg)	None	<5.0	<5.0	<5.0	10.0	<5.0	<5.0
Zinc	(mg/kg)	MCERTS	231	236	259	213	196	182
Total Phenols	(mg/kg)	MCERTS	<1.6	<1.4	<1.6	<1.6	<1.4	<1.3
Chromium (Hexavalent)	(mg/kg)	None	2.3	<1.4	2.6	3.4	<1.4	<1.3
Cyanide (Total)	(mg/kg)	None	<1.6	<1.4	<1.6	<1.6	<1.4	<1.3
pH	pH Units	MCERTS	8.0	8.0	7.9	7.8	8.2	8.3
SOM	(%)	MCERTS	10.1	5.0	12.6	8.8	4.7	5.1
Sulphate	(mg/l)	UKAS	175	43.8	38.5	59.1	26.8	<10
Acenaphthene	(mg/kg)	MCERTS	0.8	0.5	0.6	0.4	0.4	0.4
Acenaphthylene	(mg/kg)	UKAS	<0.1	<0.1	<0.1	<0.1	<0.1	0.1
Anthracene	(mg/kg)	UKAS	0.3	0.1	0.2	0.2	<0.1	<0.1
Benzo (a) anthracene	(mg/kg)	MCERTS	0.4	0.2	0.5	0.4	0.2	0.2
Benzo (a) pyrene	(mg/kg)	MCERTS	0.3	0.2	0.6	0.4	0.2	0.1
Benzo (b) fluoranthene	(mg/kg)	MCERTS	0.4	0.2	0.7	0.5	0.2	0.2
Benzo (g, h, i) perylene	(mg/kg)	MCERTS	0.2	0.1	0.5	0.3	0.1	0.1
Benzo (k) fluoranthene	(mg/kg)	MCERTS	<0.1	<0.1	0.2	0.1	<0.1	<0.1
Chrysene	(mg/kg)	MCERTS	0.4	0.2	0.5	0.4	0.2	0.2
Dibenzo (a,h) anthracene	(mg/kg)	MCERTS	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Fluoranthene	(mg/kg)	MCERTS	1.3	0.6	1.3	1.1	0.5	0.5
Fluorene	(mg/kg)	MCERTS	0.5	0.4	0.4	0.3	0.3	0.4
Indeno (1, 2, 3,-cd) pyrene	(mg/kg)	MCERTS	0.2	0.1	0.5	0.3	0.1	0.1
Naphthalene	(mg/kg)	MCERTS	1.5	1.1	1.4	1.4	1.2	1.3
Phenanthrene	(mg/kg)	MCERTS	1.3	0.8	1.1	1.2	0.6	0.6
Pyrene	(mg/kg)	MCERTS	1.1	0.5	1.2	1.0	0.5	0.5
Total PAH (Sum of USEPA 16)	(mg/kg)	UKAS	8.8	5.3	9.8	8.2	4.8	5.1
Pesticide Screen	(mg/kg)	None	Undetected <1mg/kg	Undetected <1mg/kg	Undetected <1mg/kg	Undetected <1mg/kg	Undetected <1mg/kg	Undetected <1mg/kg



12368/GRM/001

Project Reference - P5946

Analytical Test Results - Soil Samples

NCA Reference			12-19938	12-19939	12-19940	12-19941
Client Sample Reference			TP2	TP9	TP42	TP46
Client Sample Location			TP2	TP9	TP42	TP46
Depth (m)			0.1-0.25	0.1-0.25	0.1-0.25	0.1-0.25
Date of Sampling			23.10.2012	23.10.2012	23.10.2012	23.10.2012
Time of Sampling			Not provided	Not provided	Not provided	Not provided
Sample Matrix			Clay	Clay	Clay	Clay
Determinant	Units	Accreditation				
Arsenic	(mg/kg)	MCERTS	18.1	20.5	28.6	16.9
Cadmium	(mg/kg)	MCERTS	<2.5	<2.5	<2.5	<2.5
Chromium (Total)	(mg/kg)	MCERTS	20.8	32.1	21.6	23.3
Copper	(mg/kg)	MCERTS	26.4	27.1	13.9	20.3
Lead	(mg/kg)	MCERTS	112	98.7	63.8	92.8
Mercury	(mg/kg)	UKAS	1.0	<0.7	<0.7	<0.7
Nickel	(mg/kg)	MCERTS	39.8	50.6	31.5	34.7
Selenium	(mg/kg)	None	19.4	17.0	<5.0	<5.0
Zinc	(mg/kg)	MCERTS	226	285	181	208
Total Phenols	(mg/kg)	MCERTS	<1.4	<1.4	<1.4	<1.4
Chromium (Hexavalent)	(mg/kg)	None	<1.4	<1.4	2.7	2.3
Cyanide (Total)	(mg/kg)	None	<1.4	<1.4	<1.4	<1.4
pH	pH Units	MCERTS	7.9	7.8	6.8	6.8
SOM	(%)	MCERTS	6.1	6.4	4.8	6.1
Sulphate	(mg/l)	UKAS	39.8	14.8	40.7	56.4
Acenaphthene	(mg/kg)	MCERTS	0.5	0.4	0.4	0.6
Acenaphthylene	(mg/kg)	UKAS	0.1	<0.1	<0.1	<0.1
Anthracene	(mg/kg)	UKAS	0.4	<0.1	0.1	<0.1
Benzo (a) anthracene	(mg/kg)	MCERTS	1.4	0.3	0.2	0.2
Benzo (a) pyrene	(mg/kg)	MCERTS	1.2	0.3	0.2	0.2
Benzo (b) fluoranthene	(mg/kg)	MCERTS	1.6	0.1	0.2	0.3
Benzo (g, h, i) perylene	(mg/kg)	MCERTS	0.8	0.3	0.1	0.2
Benzo (k) fluoranthene	(mg/kg)	MCERTS	0.5	<0.1	<0.1	<0.1
Chrysene	(mg/kg)	MCERTS	1.4	0.3	0.2	0.2
Dibenzo (a,h) anthracene	(mg/kg)	MCERTS	0.1	<0.1	<0.1	<0.1
Fluoranthene	(mg/kg)	MCERTS	3.8	0.9	0.6	0.6
Fluorene	(mg/kg)	MCERTS	0.5	0.2	0.3	0.4
Indeno (1, 2, 3,-cd) pyrene	(mg/kg)	MCERTS	0.8	0.2	<0.1	0.2
Naphthalene	(mg/kg)	MCERTS	1.2	0.7	0.8	1.2
Phenanthrene	(mg/kg)	MCERTS	2.8	0.7	0.7	0.7
Pyrene	(mg/kg)	MCERTS	3.2	0.8	0.5	0.5
Total PAH (Sum of USEPA 16)	(mg/kg)	UKAS	20.2	5.7	4.6	5.7
Pesticide Screen	(mg/kg)	None	Undetected <1mg/kg	Undetected <1mg/kg	Undetected <1mg/kg	Undetected <1mg/kg



12368/GRM/001

Project Reference - P5946

Analytical Test Results - Leachates

NCA Reference			12-19942	12-19943	12-19944	12-19945	12-19946
Client Sample Reference			TP29	TP35	TP21	TP10	TP3
Client Sample Location			TP29	TP35	TP21	TP10	TP3
Depth (m)			0.1-0.25	0.10	0.1-0.25	0.1-0.25	0.1-0.25
Date of Sampling			23.10.2012	23.10.2012	23.10.2012	23.10.2012	23.10.2012
Time of Sampling			Not provided	Not provided	Not provided	Not provided	Not provided
Sample Matrix			Leachate	Leachate	Leachate	Leachate	Leachate
Determinant	Units	Accreditation					
Arsenic	(µg/l)	None	<2.5	<2.5	<2.5	<2.5	5.7
Cadmium	(µg/l)	None	<2.5	<2.5	4.2	<2.5	<2.5
Chromium (Total)	(µg/l)	None	<2.5	<2.5	4.2	<2.5	<2.5
Copper	(µg/l)	None	<1.0	<1.0	<1.0	<1.0	14.3
Lead	(µg/l)	None	3.6	<1.0	67.7	<1.0	7.2
Mercury	(µg/l)	None	<1.0	<1.0	<1.0	<1.0	<1.0
Nickel	(µg/l)	None	< 2.5	3.7	4.2	< 2.5	2.6
Selenium	(µg/l)	None	<1.0	<1.0	<1.0	<1.0	<1.0
Zinc	(µg/l)	None	<1.0	5.1	113	2.3	2.4
Phenol	(µg/l)	None	<0.2	<0.2	<0.2	<0.2	<0.2
Cyanide	(mg/l)	None	<0.5	<0.5	<0.5	<0.5	<0.5
pH	pH Units	UKAS	7.7	7.5	7.5	7.9	8.5
Sulphate	(mg/l)	None	<10	<10	<10	12.4	<10
Ammonia	(mg/l)	None	<0.5	<0.5	<0.5	<0.5	<0.5
Benzo (a) pyrene	(µg/l)	None	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo (b) fluoranthene	(µg/l)	None	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo (g, h, i) perylene	(µg/l)	None	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo (k) fluoanthene	(µg/l)	None	<0.01	<0.01	<0.01	<0.01	<0.01
Indeno (1, 2, 3,-cd) pyrene	(µg/l)	None	<0.01	<0.01	<0.01	<0.01	<0.01
Naphthalene	(µg/l)	None	0.06	<0.01	0.03	0.04	0.06



12368/GRM/001

Project Reference - P5946

Sample Descriptions

NCA Reference	Client Sample Reference	Sample Location	Description	Moisture Content (%)	Stone Content (%)
12-19932	TP45	TP45	Brown slightly sandy clay with organic matter	58	0.0
12-19933	TP25	TP25	Brown slightly sandy clay with organic matter	36	0.0
12-19934	TP11	TP11	Brown slightly sandy clay with organic matter	58	0.0
12-19935	TP18	TP18	Brown slightly sandy clay with organic matter	57	0.0
12-19936	TP26	TP26	Brown slightly sandy clay with organic matter	38	0.0
12-19937	TP27	TP27	Brown slightly sandy clay with organic matter	32	0.0
12-19938	TP2	TP2	Brown slightly sandy clay with organic matter	37	0.0
12-19939	TP9	TP9	Brown slightly sandy clay with organic matter	42	0.0
12-19940	TP42	TP42	Brown slightly sandy clay with organic matter	43	0.0
12-19941	TP46	TP46	Brown slightly sandy clay with organic matter	41	0.0
12-19942	TP29	TP29	Dark brown slightly sandy clay with root fragments	-	-
12-19943	TP35	TP35	Dark brown slightly sandy clay with root fragments	-	-
12-19944	TP21	TP21	Dark brown slightly sandy clay with root fragments	-	-
12-19945	TP10	TP10	Dark brown slightly sandy clay with root fragments	-	-
12-19946	TP3	TP3	Dark brown slightly sandy clay with root fragments	-	-



12368/GRM/001

Project Reference - P5946

Analysis Methodologies

Matrix	Determinant	Sample condition for analysis	Test Method used
Soil	Metals	Air Dried	In house method statement - MS - CL - ICP metals
Soil	PAH	Air Dried	In house method statement - MS - CL - PAH
Soil	Phenols	As Received	In house method statement - MS - CL - Phenols (Skalar)
Soil	Chromium (hexavalent)	As Received	In house method statement - MS - CL - Chromium (Hexavalent)
Soil	Cyanide	As Received	In house method statement - MS - CL - Cyanide by Skalar
Soil	pH	Air Dried	In house method statement - MS - CL - pH (Soil)
Soil	SOM	Air Dried	In house method statement - MS - CL - TOC
Soil	Sulphate	Air Dried	In house method statement - MS - CL - Anions
Soil	Pesticide Screen	As Received	In house method statement - MS - CL - Pesticide Screen
Soil	Leaching	As Received	NRA R&D note 301 using a 10 : 1 by wet mass of sample extraction ratio
Leachate	Metals	As Received	In house method statement - MS - CL - ICP Water
Leachate	PAH	As Received	In house method statement - MS - CL - PAH Water
Leachate	Phenol	As Received	Analysis Subcontracted
Leachate	pH	As Received	BS 1377, Part 3, 1990
Leachate	Cyanide	As Received	In house method statement - MS - CL - Cyanide
Leachate	Sulphate	As Received	In house method statement - MS - CL - Anions
Leachate	Ammonia	As Received	In house method statement - MS - CL - Ammonia



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Analytical Test Report: 12367/GRM/001

Your Project Reference:	P5946	Samples Received on:	31.10.2012
Your Order Number:	GRM/P5946	Testing Instruction Received:	31.10.2012
Report Issue Number:	1	Sample Tested :	01.11.2012 to 09.11.2012
Samples Analysed	2 Waters	Report issued:	09.11.2012

Signed

James Gane
Manager - Data Logistics
Nicholls Colton Analytical

Notes:

General

Please refer to Methodologies tab for details pertaining to the analytical methods undertaken.

Samples will be retained for 14 days after issue of this report unless otherwise requested.

Samples were supplied by customer.

Deviant Samples

Samples were received in suitable containers **Yes**

A date and time of sampling was provided **Yes**

Sample handling times were exceeded prior to analysis of determinants **No**

Where samples are marked as deviant at least one of the above criteria was not met and therefore the testing is not covered by our accreditation



12367/GRM/001

Project Reference - P5946

Analytical Test Results - GRM Water Suite

NCA Reference			12-19930	12-19931
Client Sample Reference			WS1	WS9
Client Sample Location			WS1	WS9
Depth (m)			0.50	0.75
Date of Sampling			29.10.2012	29.10.2012
Time of Sampling			Not provided	Not provided
Sample Matrix			Water	Water
Determinant	Units	Accreditation		
Arsenic	(µg/l)	None	47.6	<2.5
Cadmium	(µg/l)	None	<2.5	<2.5
Chromium (Total)	(µg/l)	None	21.6	2.9
Copper	(µg/l)	None	167	34.5
Lead	(µg/l)	None	6.1	<1.0
Mercury	(µg/l)	None	<1.0	<1.0
Nickel	(µg/l)	None	25.8	8.5
Selenium	(µg/l)	None	<1.0	<1.0
Zinc	(µg/l)	None	<1.0	<1.0
Phenol (Total)	(µg/l)	None	<0.2	<0.2
Cyanide (Total)	(mg/l)	None	<0.5	<0.5
pH	pH Units	UKAS	12.6	8.0
Chloride	(mg/l)	None	23.1	69.7
Sulphate	(mg/l)	None	61.3	106
Ammonical Nitrogen	(mg/l)	None	1.1	<0.5
Alkalinity	(mg/l)	None	452	365
Hardness	(mg/l)	None	1450	350
Benzo (a) pyrene	(µg/l)	None	<0.01	<0.01
Benzo (b) fluoranthene	(µg/l)	None	<0.01	<0.01
Benzo (g, h, i) perylene	(µg/l)	None	<0.01	<0.01
Benzo (k) fluoranthene	(µg/l)	None	<0.01	<0.01
Indeno (1, 2, 3,-cd) pyrene	(µg/l)	None	<0.01	<0.01
Naphthalene	(µg/l)	None	<0.01	0.03



12367/GRM/001

Project Reference - P5946

Analysis Methodologies

Matrix	Determinant	Sample condition for analysis	Test Method used
Water	Metals	As Received	In house method statement - MS - CL - ICP Water
Water	PAH	As Received	In house method statement - MS - CL - PAH Water
Water	Phenols	As Received	Subcontract Analysis
Water	pH	As Received	BS 1377, Part 3, 1990
Water	Cyanide	As Received	In house method statement - MS - CL - Cyanide
Water	Sulphate	As Received	In house method statement - MS - CL - Anions
Water	Chloride	As Received	In house method statement - MS - CL - Anions
Water	Hardness	As Received	In house method statement - MS - CL - Calcium and Hardness
Water	Alkalinity	As Received	In house method statement - MS - CL - Alkalinity
Water	Ammonical Nitrogen	As Received	In house method statement - MS - CL - Ammonia



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GRM Development Solutions Ltd

Laurus House
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Staffordshire
DE14 2WH

Analytical Test Report: 12370/GRM/001

Your Project Reference:	P5946	Samples Received on:	31.10.2012
Your Order Number:	GRM/P5946	Testing Instruction Received:	31.10.2012
Report Issue Number:	1	Sample Tested :	01.11.2012 to 08.11.2012
Samples Analysed	9 Soils	Report issued:	09.11.2012

Signed

James Gane
Manager - Data Logistics
Nicholls Colton Analytical

Notes:

General

Please refer to Methodologies tab for details pertaining to the analytical methods undertaken.

Samples will be retained for 14 days after issue of this report unless otherwise requested.

Moisture Content was determined in accordance with NCA method statement MS - CL - Sample Prep, oven dried at <30°C.

Moisture Content is reported as a percentage of the dry mass of soil, this calculation is in accordance with BS1377, Part 2, 1990, Clause 3.2

Stone Content was determined in accordance with NCA method statement MS - CL - Sample Prep and refers to the percentage of stones retained on a 10mm BS test sieve.

With the exception of Sulphate which is crushed over the 2mm test sieve, Concentrations are reported as a percentage mass of the dry soil passing the 10mm BS test sieve, where appropriate these results have been corrected for moisture content but not stone content.

Samples were supplied by customer.

Deviant Samples

Samples were received in suitable containers **Yes**

A date and time of sampling was provided **Yes**

Sample handling times were exceeded prior to analysis of determinants **No**

Where samples are marked as deviant at least one of the above criteria was not met and therefore the testing is not covered by our accreditation



12370/GRM/001

Project Reference - P5946

Analytical Test Results - Sulphate

NCA Reference			12-19959	12-19960	12-19961	12-19962	12-19963	12-19964
Client Sample Reference			TP9	WS5	TP24	TP44	WS9	TP6
Client Sample Location			TP9	WS5	TP24	TP44	WS9	TP6
Depth (m)			2.5-2.7	1.20	1.4-1.6	1.50	2.50	0.9-1.1
Date of Sampling			23.10.2012	23.10.2012	23.10.2012	23.10.2012	23.10.2012	23.10.2012
Time of Sampling			Not provided	Not provided	Not provided	Not provided	Not provided	Not provided
Sample Matrix			Clay	Clay	Clay	Clay	Clay	Clay
Determinant	Units	Accreditation						
Sulphate	(mg/l)	None	199	47.5	25.6	23.4	42.5	79.1



12370/GRM/001

Project Reference - P5946

Analytical Test Results - Sulphate

NCA Reference			12-19965	12-19966	12-19967
Client Sample Reference			TP15	TP30	TP28
Client Sample Location			TP15	TP30	TP28
Depth (m)			0.8-1.0	1.2-1.4	0.8-1.0
Date of Sampling			23.10.2012	23.10.2012	23.10.2012
Time of Sampling			Not provided	Not provided	Not provided
Sample Matrix			Clay	Clay	Clay
Determinant	Units	Accreditation			
Sulphate	(mg/l)	None	39.5	50.9	51.4



12370/GRM/001

Project Reference - P5946

Sample Descriptions

NCA Reference	Client Sample Reference	Sample Location	Description	% Passing 2mm
12-19959	TP9	2.5-2.7	Grey clay	100
12-19960	WS5	1.20	Brown clay	100
12-19961	TP24	1.4-1.6	Brown grey clay	100
12-19962	TP44	1.50	Brown grey clay	100
12-19963	WS9	2.50	Brown clay	100
12-19964	TP6	0.9-1.1	Brown clay	100
12-19965	TP15	0.8-1.0	Brown grey clay	100
12-19966	TP30	1.2-1.4	Brown clay	100
12-19967	TP28	0.8-1.0	Brown clay	100



12370/GRM/001

Project Reference - P5946

Analysis Methodologies

Matrix	Determinant	Sample condition for analysis	Test Method used
Soil	pH	Air Dried	In house method statement - MS - CL - pH (Soil)
Soil	Sulphate	Air Dried	In house method statement - MS - CL - Anions (Aquakem)



0320



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TEST REPORT

BS 1377 PLASTICITY INDEX AND MOISTURE CONTENT

P5946

Report no. 12370/GRM/002

Order reference: GRM-P5946	Date of receipt: 31.10.2012	Date of testing: 06 to 08.11.2012	Date of issue: 09.11.2012
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NCA Sample reference	Client sample reference	Sample type	Depth (m)	Sample description	Fines passing 425µm (%)	Liquid limit (%)	Plastic limit (%)	Plasticity index (%)	Moisture content (%)
12-19950	WS6	Disturbed	0.9	Grey green clay	100	52	25	27	23
12-19951	WS4	Disturbed	1.5	Brown grey clay	100	53	24	29	24
12-19952	TP41	Disturbed	0.9	Brown clay	100	44	21	23	23
12-19953	TP45	Disturbed	1.5	Grey clay	100	48	21	27	23
12-19954	WS2	Disturbed	0.9	Grey green clay	100	55	25	30	32
12-19955	WS10	Disturbed	1.9	Grey clay	100	44	20	24	18

NCA Sample reference	Client sample reference	Sample type	Depth (m)	Sample description	Fines passing 425µm (%)	Liquid limit (%)	Plastic limit (%)	Plasticity index (%)	Moisture content (%)
12-19956	TP16	Disturbed	1.1-1.3	Grey clay	100	49	24	25	26
12-19957	TP19	Disturbed	0.8-1.0	Green grey clay	100	55	25	30	24
12-19958	WS3	Disturbed	1.8	Green grey clay	100	53	27	26	29

NOTES:

1. Sample preparation was in accordance with BS 1377 : Part 1 : 1990.
2. Plasticity index testing was in accordance with BS 1377 : Part 2 : 1990 Clauses 3.4.4 (one-point) & 5.
3. Moisture content testing was in accordance with BS 1377 : Part 2 : 1990 Clause 3.2.3.1 (fine).
4. The material was prepared from its natural state.
5. Some information required by BS 1377 : Part 1 : 1990 Clause 9 is not included in the report. The information will be provided if requested.



.....
 L. Harbottle
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A P P E N D I X M

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	GRM TIER 1 ASSESSMENT CRITERIA		
LAND USE	Residential with Plant Uptake		
CONTAMINANT	1%	2.50%	6%
^a Arsenic	32	32	32
^a Cadmium	10	10	10
^b Chromium III	614	614	614
^b Chromium VI	4.15	4.15	4.15
^c Lead	450	450	450
^d Mercury	170	170	170
^a Selenium	350	350	350
^a Nickel	130	130	130
^b Phenols	184	290	415
^b Copper	2330	2330	2330
^b Zinc	3,750	3750	3750
^e Cyanide	34	34	34
^b Benzene	0.08	0.157	0.332
^b Toluene	119	270	611
^b Ethylbenzene	65	154	354
^b o - xylene	45	106	246
^b m - xylene	44	103	240
^b p - xylene	42	98.2	228
^{b/r} Acenaphthene	210 ⁽³²⁶⁾	480	1000
^{b/r} Acenaphthylene	168	400	850
^{b/r} Anthracene	2300	4900	9200
^b Benzo(a)anthracene	3.1	4.7	5.9
^b Benzo(a)pyrene	0.83	0.94	1
^b Benzo(b)fluoranthene	5.6	6.5	7
^b Benzo(ghi)perylene	40	46	47
^b Benzo(k)fluoranthene	8.5	9.6	10
^b Chrysene	6	8	9.3
^b Dibenzo(ah)anthracene	0.76	0.86	0.9
^b Fluoranthene	260	460	670
^{b/r} Fluorene	160	380	780
^b Ideno(1,2,3-cd)pyrene	3.2	3.9	4.2
^b Napthalene	1.5	3.7	8.7
^{b/r} Phenanthrene	92	200	380
^b Pyrene	560	1000	1600
ALIPHATIC HYDROCARBONS			
^{b/r} C5-C6	30	55	110
^{b/r} C6-C8	73	160	370
^{b/r} C8-C10	19	46	110
^{b/r} C10-C12	93 ⁽⁴⁸⁾	230 ⁽¹¹⁸⁾	540 ⁽²⁸³⁾
^{b/r} C12-C16	740 ⁽²⁴⁾	1700 ⁽⁵⁹⁾	3000 ⁽¹⁴²⁾
^r C16-35	45,000	64,000	76,000
AROMATIC HYDROCARBONS			
^{b/r} C5-7 (benzene)	65	130	280
^{b/r} C7-8 (toluene)	120	270	611
^{b/r} C8-C10	27	65	151
^{b/r} C10-C12	69	160	346
^{b/r} C12-C16	140	310	593
^r C16-C21	250	480	770
^r C21-C35	890	1110	1230

Notes

- a SGV (2009)
- b LQM/CIEH values or derived using CLEAv1.06 with LQM/CIEH Data.
- c 2002 SGV values used until further guidance is published
- d SGV for inorganic Hg used (ref.2009 SGV, Pg5, Para.4)
- e Atkins ATRISKsoil Value
- f Oral, dermal and inhalation exposure compared with Oral HCV
Values in brackets present TAC exceeding solubility & vapour saturation limits

GRM.TAC.03.11

	GRM TIER 1 ASSESSMENT CRITERIA		
LAND USE	Residential without Plant Uptake		
CONTAMINANT	% Soil Organic Matter		
	1%	2.50%	6%
a Arsenic	35	35	35
a Cadmium	17.7	17.7	17.7
b Chromium III	620	620	620
b Chromium VI	4.17	4.17	4.17
c Lead	450	450	450
d Mercury	170	170	170
a Selenium	595	595	595
a Nickel	786	786	786
b Phenols	310	418	519
b Copper	6200	6200	6200
b Zinc	40,500	40,500	40,500
e Cyanide	34	34	34
b Benzene	0.266	0.49	0.998
b Toluene	607	1290	2710
b Ethylbenzene	167	381	843
b o - xylene	59.5	139	321
b m - xylene	55.4	130	302
b p - xylene	53.3	125	288
b ^f Acenaphthene	2020(57)	3090(141)	3910(336)
b ^f Acenaphthylene	1950(86)	3020(212)	3870(506)
b ^f Anthracene	20,100(1.84)	22,400	23,400
b Benzo(a)anthracene	3.71	5.23	6.22
b Benzo(a)pyrene	1	1.03	1.04
b Benzo(b)fluoranthene	6.99	7.25	7.36
b Benzo(ghi)perylene	43	43.6	43.8
b Benzo(k)fluoranthene	10.1	10.3	10.4
b Chrysene	8.84	9.74	10.1
b Dibenzo(ah)anthracene	0.865	0.91	0.928
b Fluoranthene	972	993	1000
b ^f Fluorene	1850(30)	2480(76)	2870(183)
b Ideno(1,2,3-cd)pyrene	4.17	4.35	4.43
b Napthalene	1.64	3.92	9.22
b ^f Phenanthrene	731(16)	872	943
b Pyrene	2330	2380	2400
ALIPHATIC HYDROCARBONS			
b ^f C5-C6	30	55	113
b ^f C6-C8	73	162	371
b ^f C8-C10	19	46	110
b ^f C10-C12	93(48)	230(118)	540(283)
b ^f C12-C16	745(23.7)	1700(59.1)	3040(142)
f C16-35	89,000	89,000	89,000
AROMATIC HYDROCARBONS			
b ^f C5-7 (benzene)	263	483	978
b ^f C7-8 (toluene)	607	1290	2710
b ^f C8-C10	33.2	80.7	189
b ^f C10-C12	177	417	866
b ^f C12-C16	1250(169)	1590(419)	1710
f C16-C21	1340	1340	1340
f C21-C35			

Notes

- a SGV (2009)
- b LQM/CIEH values or derived using CLEAv1.06 with LQM/CIEH Data.
- c 2002 SGV values used until further guidance is published
- d SGV for inorganic Hg used (ref.2009 SGV, Pg5, Para.4)
- e Atkins ATRISKsoil Value
- f Oral, dermal and inhalation exposure compared with Oral HCV
Values in brackets present TAC exceeding solubility & vapour saturation limits

GRM.TAC.03.11

	GRM TIER 1 ASSESSMENT CRITERIA		
LAND USE	Commercial & industrial		
CONTAMINANT	1%	2.50%	6%
a Arsenic	640	640	640
a Cadmium	230	230	230
b Chromium III	8,790	8,790	8,790
b Chromium VI	34.5	34.5	34.5
c Lead	750	750	750
d Mercury	3600	3600	3600
a Selenium	13,000	13,000	13,000
a Nickel	1800	1800	1800
b Phenols	1,100,000	1,100,000	1,200,000
b Copper	71,700	71,700	71,700
b Zinc	667,000	667,000	667,000
e Cyanide	34	34	34
b Benzene	28	50	95
b Toluene	869	1,920	4400
b Ethylbenzene	518	1,220	2800
b o - xylene	4,780	1,120	2600
b m - xylene	625	1,470	3500
b p - xylene	576	1,350	3200
b ¹ f Acenaphthene	85000(57)	98000(141)	100,000
b ¹ f Acenaphthylene	84,000	97000(212)	100,000
b ¹ f Anthracene	530,000	540,000	540,000
b Benzo(a)anthracene	90	95	97
b Benzo(a)pyrene	14	14	14
b Benzo(b)fluoranthene	100	100	100
b Benzo(ghi)perylene	650	660	660
b Benzo(k)fluoranthene	140	140	140
b Chrysene	140	140	140
b Dibenzo(ah)anthracene	13	13	13
b Fluoranthene	23,000	23,000	23,000
b ¹ f Fluorene	64,000	69,000	71,000
b Ideno(1,2,3-cd)pyrene	60	61	62
b Napthalene	200(76)	480(183)	1100(432)
b ¹ f Phenanthrene	22,000	22,000	23,000
b Pyrene	54,000	54,000	54,000
ALIPHATIC HYDROCARBONS			
b ¹ f C5-C6	3339(304)	6200(558)	13,000(1150)
b ¹ f C6-C8	8300(144)	18,000(322)	42,000(736)
b ¹ f C8-C10	2130(78)	5100(190)	12,000(451)
b ¹ f C10-C12	10,000(48)	24,000(118)	49,300(283)
b ¹ f C12-C16	61,000(24)	83,000(59)	91,000(142)
f C16-35	1,600,000	1,800,000	1,800,000
AROMATIC HYDROCARBONS			
b ¹ f C5-7 (benzene)	28,000(1220)	49,000(2260)	90,000(4710)
b ¹ f C7-8 (toluene)	59,000(869)	110,000(1920)	190,000(4360)
b ¹ f C8-C10	3670(613)	8560(1500)	18,000(3580)
b ¹ f C10-C12	17,000(364)	29,000(899)	34,500(2150)
b ¹ f C12-C16	36,000(169)	37,000	37,800
f C16-C21	28,000	28,000	28,000
f C21-C35			

Notes

- a SGV (2009)
- b LQM/CIEH values or derived using CLEAv1.06 with LQM/CIEH Data.
- c 2002 SGV values used until further guidance is published
- d SGV for inorganic Hg used (ref.2009 SGV, Pg5, Para.4)
- e Atkins ATRISKsoil Value
- f Oral, dermal and inhalation exposure compared with Oral HCV
Values in brackets present TAC exceeding solubility & vapour saturation limits

UKDWS		EQS for List 1 & 2 Dangerous Substances (µg/l)	WRAS Values (mg/kg)
Parameter	Concentration	Units	
Acrylamide	0.1	µg/l	
Aluminium	200	µgAl/l	
Ammonium	0.5	mgNH4/l	15 (NH3)
Antimony	5	µgSb/l	10
Arsenic	10	µgAs/l	10*
Benzene	1	µg/l	30
Benz(a)pyrene	0.01	µg/l	
Boron	1	mgB/l	2000
Bromate	10	µgBrO3/l	
Cadmium	5	µgCd/l	5
Chromium	50	µgCr/l	25/600 (CrVI/TCrVI)
Chloride (l)	250	mgCl/l	
Conductivity (l)	2500	µS/cm at 20°C	
Copper (ll)	2	ng/l	
Cyanide	50	µgCN/l	25/250 (Free/Complex)
1, 2 dichloroethane	3	µg/l	
Epichlorohydrin	0.1	µg/l	
Fluoride	1.5	mgF/l	
Hydrogen Ion	10	pH values	
Iron	200	µgFe/l	1000
Lead (l)	25	µgPb/l	500
Manganese	50	µgMn/l	
Mercury	1	µgHg/l	1
Mineral Oil (TPH)	10	µg/l	100/10/1000 (diesel/petrol/ml neutral)
Nickel (l)	20	µgNi/l	
Nitrate (lll)	50	mgNO3/l	
Nitrite (ll)	0.5	mgNO2/l	
Phenol	0.5	µg/l	5
Polycyclic Aromatic Hydrocar	0.1	µg/l	10 (Naphthalene)
Selenium	10	µgSe/l	50
Sodium	200	mgNa/l	3
Sulphate (l)	250	mgSO4/l	2000
Tetrachloroethene and Trich	10	µg/l	
Tetrachloromethane	3	µg/l	
Toluene/Xylene (m, p, o)	0.5	µg/l	50/30
Vinyl chloride	0.5	µg/l	
Zinc	5000	µg/l	

Pesticides	
Aldrin	0.03 µg/l
Dieldrin	0.03 µg/l
Heptachlor	0.03 µg/l
Heptachlor epoxide	0.03 µg/l
other pesticides	0.1 µg/l
Pesticides - Total (v)	0.5 µg/l
Endrin 0.005 - Total/dms (0.03)	

Reference

- UK Water Supply (Water Quality) Regulations 2000
- *PAHs - sum of specified compounds:
 - benzo(b)fluoranthene
 - benzo(k)fluoranthene
 - benzo(a)ghi)perylene
 - indeno(1,2,3-cd)pyrene

EQS for Hardness Related List 2 Dangerous Substances						
Substance	EQS type	EQS (µg/l) for Hardness bands (mg/l CaCO3)				
		0-50	>50-100	>100-150	>150-200	>200-250
Freshwaters, suitable for all fishlife						
Copper (dissolved)	Annual average	1	6	10	10	28
Copper (dissolved)	95th percentile	5	22	40	40	112
Nickel (dissolved)	Annual average	50	100	150	150	200
Vanadium (dissolved)	Annual average	20	20	20	20	60
Freshwaters, suitable for Salmoid (game) fish						
Chromium (dissolved)	Annual average	5	10	20	20	50
Lead (dissolved)	Annual average	4	10	10	20	20
Zinc (total)	Annual average	8	50	75	75	125
Zinc (total)	95th percentile	30	200	300	300	500
Freshwaters, suitable for Cyprinid (coarse) fish						
Chromium (dissolved)	Annual average	150	175	200	200	250
Lead (dissolved)	Annual average	20	125	125	250	250
Zinc (total)	Annual average	75	175	250	250	500
Zinc (total)	95th percentile	300	700	1000	1000	2000

Contaminant Thresholds for Subsurface Water Pipes

Contaminant	Thresholds (mg/kg)
Corrosion	
Wrapped Steel	pH<7 Cond >400µS/cm
Wrapped Ductile Iron	pH<5 Cond >400µS/cm, he not neutral
Copper	pH<5 >8 and Eh +ve
Toxic Substances	
Chromium (total) (Cr)	Applies to above pipe materials
Organic Contaminants	
VOC's	0.5 PE/0.125 PVC
BTEX & MTBE	0.1 PE/0.03 PVC
SVOC	2 PE/1.4 PVC
Phenols	2 PE/0.4 PVC
Cresols & Chlorinated Phenols	2 PE/0.04 PVC
Mineral Oil C11-C20	10 PE
Mineral Oil C21 - C40	500
Ether/Ketone/Amines, Nitrobenzene/Aldehydes	0.5 PE/0.02-1 PVC

Notes.

It is not recommended that water pipes should be laid in sites where these substances are identified or suspected

Local Utility Companies should be consulted prior to pipe specifications being finalised.

Ref: Guidance for the Selection of Water Supply Pipes to be used in Brownfield Sites. UKWIR Ref. No. 10/WM/03/21. 2010.