Manor Oak Homes Ltd.

Land off Cork Lane, Glen Parva, Leicester

Data summary report

Project no. 26244

FEBRUARY 2014

RSK GENERAL NOTES

Project No.: 26244-R01 (00)

Title: Data summary report: Land off Cork Lane, Glen Parva, Leicester

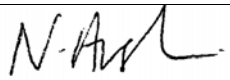
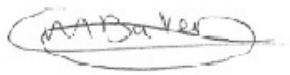
Client: Manor Oak Homes Ltd.

Date: February 2014

Office: Hemel Hempstead

Contact: Nigel Austin, Tel: 01442 437530

Status: Final

Author	Mel Lyons pp	**Technical reviewer**	Nigel Austin
Signature		Signature	
Date:	February 2014	Date:	February 2014
Project manager	Nigel Austin	**Quality reviewer**	Carys Baker
Signature		Signature	
Date:	February 2014	Date:	February 2014

CONTENTS

TABLES

FIGURES

APPENDICES

1 INTRODUCTION

RSK Environment Limited (RSK) was commissioned by Manor Oak Homes Ltd. (the client) to provide a data review report for an area of land situated off Cork Lane, Glen Parva, Leicester (the site) which has been identified for potential residential redevelopment.

This report is subject to the RSK service constraints given in **Appendix A**.

1.1 Objective and aims

The objective of the work is to present a summary of the data available to date in relation to the site, including the results of preliminary intrusive investigation and ground gas monitoring completed by RSK. It is acknowledged that at the present time, only a limited initial site investigation has been carried out and that further works, including a geoenvironmental investigation with associated sampling will be required.

This review will compile a conceptual model of the site and surrounding area to determine the potential sources of contamination, sensitive receptors and potential linkages between the two. Where all three are present (source, pathway and receptor), these are termed potentially complete pollutant linkages. In accordance with UK guidance including CLR11[(1)] and BS 10175[(2)], the potential pollutant linkages will be listed and where data gaps are identified, the details of any additional investigation or risk assessment that may be required will be outlined.

1.2 Scope

The scope of works comprises undertaking a desk-based review of environmental information pertaining to the site and surrounding area, including:

- publically available geological and hydrogeological data to enable assessments to be made on the migration potential for contaminants that may be present on the site or in adjacent properties;
- site data contained within Groundsure GeoInsight and EnviroInsight data reports (ref. EMS 195848_285918 and 285919, dated February 2013) (**Appendix C**);
- information obtained from Blaby Council (letter dated 20th February 2013) (**Appendix D**);
- results of initial discussions with the National House Building Council (NHBC) with respect to the redevelopment potential of the site (**Appendix E**);
- the results of preliminary intrusive investigation (**Appendix F**) and ground gas monitoring works (**Appendix G**) completed by RSK (reported within several letters issued by RSK between April and October 2013 (ref. 26244-L02, L03 and L04).

- presentation of a conceptual site model (CSM) identification of potential pollutant linkages that might require further investigation.

The layout of this report has been designed with consideration of CLR11[(1)] and BS 10175: 2011[(2)], plus guidance on land contamination reports issued by the Environment Agency in 2010[(3)].

A summary of relevant legislation and government policies applicable to land development is included in **Appendix B**.

1.3 Existing reports

RSK have not been provided with any third party historical reports pertaining to the site.

1.4 Limitations

The comments given in this report and the opinions expressed herein are based on the information available at the time of completion. However, there may be conditions pertaining to the site that have not been disclosed by the assessment and therefore could not be taken into account.

This report is subject to RSK's service constraints presented in **Appendix A**.

2 THE SITE

2.1 Site location and description

The site can be located by Ordnance Survey National Grid reference 456197, 298780, approximately 6km south west of Leicester town centre, in the area of Glen Parva.

The site comprises an area of open grassland covering approximately 10.8 hectares. With the exception of a steep slope down to the south on the southern boundary, and a gentler slope to the west on the western boundary, the site is generally level in topography at an elevation of approximately 82 metres above Ordnance Datum (AOD). The site lies within an area of mixed land use including residential properties to the north and south, commercial / industrial to the east, and open land / fields to the west, as indicated in **Figure 1** below.

Figure 1: Site setting

2.2 Geology

Published records indicate the geology of the site indicate the presence of made ground and infilled ground at the site. Where present, the natural superficial geology is indicated to comprise glaciofluvial sands and gravels and glacial till clay. Underlying bedrock geology is indicated to be mudstone of the Branscombe formation.

Following preliminary intrusive works by RSK in February / March and June 2013, site specific ground conditions have been found to comprise the following:

- MADE GROUND – encountered to a maximum depth of 15mbgl (BH1) predominantly comprising a matrix of intermixed generally firm to stiff sandy clay, gravelly clay and silty sand with occasional ash, brick and concrete rubble and wood fragments. Some organic materials have also been encountered and a detailed breakdown of the constituents of the matrix is included within **Appendix F**, based upon a visual assessment.

  Groundwater was noted within the two deep boreholes at depths of 5.5m (BH2) and 5.9m (BH1). In general, groundwater was not encountered within the shallower probeholes, with the exception of WS104 and WS106 where seepages were noted at 2m and 2.6m bgl (within made ground).

- NATURAL STRATA - natural strata was encountered within BH2 and BH1 at depths of 7.50m and 15.10m respectively and comprised stiff to very stiff silty clay (glacial till) (BH2) and very weak siltstone/silty sandstone (BH1).

Borehole logs from these works are also included as **Appendix F**.

2.2.1 Natural and mining related hazards

The Groundsure EnviroInsight report (included as **Appendix C**) indicates that there are no subsurface mining or mineral sites present within 500m of the site. The Groundsure GeoInsight report does however confirm the history of surface ground workings at the site, including a clay pit (brick works related), a pond and a refuse heap.

Based on information provided within by the BGS and contained within the Groundsure EnviroInsight report, the site is categorised as follows with respect to potential risks associated with subsidence:

- very low risk associated with collapsible rock stability hazards;
- moderate risk associated with compressible ground stability hazards;
- low risk associated with landslide ground stability hazards;
- very low risk associated with running sand ground stability hazards;
- negligible risk associated with soluble rocks ground stability hazards; and
- low risk associated with shrinking or swelling clay subsidence hazards.

2.2.2 Radon

The Groundsure GeoInsight report uses BGS data (National Geoscience Information Service) to determine the potential level of risk from radon. The report lists the site as being in a lower probability radon area where less than 1% of homes are above the action threshold. Radon protective measures are therefore not considered necessary in developments in this area.

2.2.3 Landfilling

The Groundsure EnviroInsight indicates that Environment Agency and local authority records identify the site as a historical landfill site associated with the former Blaby Brickworks. Environment Agency records indicate that the waste licence was issued in May 1977 and surrendered in April 1994 (held by Midland Land Reclamation Ltd).

Information obtained from Balby Council (**Appendix D**) confirms the site's historical operations as a landfill, as well as the surrender of the Waste Management License / Environmental Permit in April 1994. Deposited waste is known to include inert, industrial, commercial and household waste.

Further anecdotal information provided by the landowner indicates that *"the (clay) pit was infilled with predominantly excavated soils, brick and concrete rubble. Also some metal, plastic and some wood. During the 3 day week in the 1970's - for a period of about 3 weeks - household refuse was tipped in an area off site to the west approximately 50m from development site boundary"*.

2.3 Hydrogeology

2.3.1 Groundwater levels

The preliminary RSK investigations recorded groundwater strikes within made at 5.5m to 5.9m bgl in BH2 and BH1 respectively. Groundwater levels recorded during subsequent ground gas monitoring visits completed at the site between February and June 2013 indicate groundwater levels ranging between 0.58m bgl (WS2 on 26th April 2013) and 2.91m bgl (WS4 on 17th June 2013). A number of the monitoring wells were also recorded as dry however, namely WS6 and WS101 - WS103 and WS105 - WS107.

2.3.2 Aquifer characteristics

The Environment Agency website indicates that the glaciofluvial sands and gravels are designated as a Secondary A aquifer, while the glacial till is indicated to be unproductive.

The Branscombe mudstone bedrock underlying the site is designated as a Secondary B aquifer.

2.3.3 Vulnerability of groundwater resources

Groundwater vulnerability data within the EnviroInsight report indicates soils underlying the site are classified as ranging from “low” to “very high” permeability.

2.3.4 Licensed groundwater abstraction

The site does not lie within a currently designated source protection zone and there are no groundwater abstraction licences listed within 500m of the site. There are two abstractions listed within 2km of the site relating to abstraction of groundwater from a single point. These abstractions are located at 843m (northwest) and 1843m (south) and are indicated to be used for spray irrigation and cooling purposes respectively.

None of the records listed relate to groundwater abstraction for potable uses.

2.3.5 Flood risk: groundwater

Information contained within the EnviroInsight report as provided by the BGS indicates that there are areas of land within 50m of the site that are classified as hiving a “very high” susceptibility to groundwater flooding (based on a high data confidence).

2.4 Hydrology

2.4.1 Surface watercourses

The Grand Union Canal lies to the immediate south of the southern most tip of the site boundary, oriented in an east-west direction. The route of the canal then turns a 90° corner at a point approximately 340m to the west of the site, and heads northwards towards Gee’s Lock. The River Sence is also present to the south of the site, flowing in a westerly direction approximately 100m from the southernmost tip of the site boundary.

In addition, several large ponds are also present to the south west of the site (300m away) and the River Soar flows northwards on beyond the Grand Union Canal (675m to the west of the site).

Environmental records indicate that there are no current discharge consents listed for the either the River Sence or the River Soar within 1km of the site.

2.4.2 Flood risk

The indicative floodplain map for the area, published by the EA, shows that the site is not located within a flood zone. Lands along the river corridor of the River Sence and River Soar are however designated as zone 2 and zone 3 floodplains, with the zones extending to within 30m of the southernmost tip of the site boundary.

2.5 Previous investigations

Although RSK have not been provided with any historical reports for the site, information contained within the Blaby Council response (**Appendix D**) reports the following, with the site in question referred to as “Blaby Brickworks” (site 86):

- a site investigation was carried out in 2001 for the Blaby Brickworks and Bovis site;
- the investigations revealed the presence of polycyclic aromatic hydrocarbons (PAH), “slightly elevated” levels of arsenic and phytotoxic metals in the ground;
- proposals for remediation during redevelopment were submitted, including addition of 0.6m of soils to gardens, to mitigate against and potentially remaining contamination;
- landfill gas was reportedly primarily encountered at the Blaby Brickworks (site 86) site, although some was also recorded on the Bovis site;
- methane concentrations reduced during monitoring within the shallow boreholes, but remained “elevated” within the deeper boreholes (5m bgl);
- no gas flow rates were recorded;
- proposals were made to incorporate gas protection measures in all proposed buildings, including greenhouses and garages;
- proposals also included that any residential buildings were to be protected by the use of clay rich soils and “Monarflex” membrane, as well as ensuring sub-floor voids were ventilated using airbricks and suspended floors and service entries to properties were through side walls (as opposed to the floor); and
- finally, it is reported that landfill gas vent trenches were included on the perimeter of the Bovis site.

2.6 RSK investigations (to date)

2.6.1 Preliminary ground gas assessment

Initial site investigation works have been carried out by RSK in two phases. The first phase of works was completed in February / March 2013 and following the discovery descriptions of isolated organic material within the top 3m, further positions across the site were subsequently proposed to determine if the predominantly clay layer was homogenous or if there was evidence of more widespread organic material. Additional works were then completed in June 2013. Overall the works comprised the following:

- advancement of two cable percussive boreholes to depths of 16m (BH1) and 8.50m (BH2) (February / March 2013);

- advancement of seventeen window sample probeholes to 3m (WS1-WS7 in February / March 2013 and WS101-WS108, WS105a and WS108a in June 2013); and

- groundwater measurements and gas monitoring on 7 occasions in existing and new installations (results included within **Appendix G**).

At the present time there has been no environmental testing of the soils (although it is acknowledged this will be required), however all the indications from the retrieved soils samples are that there the backfill is relatively inert and predominantly inorganic.

Initial ground gas monitoring indicated a small number of the window samples holes where the total gas concentration was elevated above the Amber 2 Criteria (NHBC Traffic Light System), namely WS3, WS4 and WS6. At these locations it was therefore decided that further assessment of the gas flow characteristics via a ground gas purge and recovery test (using a nitrogen flush) would be beneficial.

The results of the subsequent gas recovery test indicate that the gas generation rates are lower than initially suggested by the conventional monitoring data, given in Table 1 and 2.

Table 1: Gas flow rate data (interpreted from nitrogen purge data during gas recovery test)

Location	Flow rate (l/hr)
WS3 - stage 1	0.65
WS3 - stage 2	1.28
WS3 - combined	0.46
WS4	0.857
WS6	1.01

Table 2: Gas screening value data (following gas recovery test with nitrogen purge)

Location	Max concentration for purge (%)	GSV for purge data	Max concentration for monitoring (%)	GSV for monitoring data
WS3	6.6	0.085	29.1	0.372
WS4	11	0.094	23.3	0.200
WS6	12.3	0.124	33.9	0.342
			Overall worst case:	0.434

Overall, the results of the ground gas monitoring completed historically and by RSK between February and June 2013 indicate that the soil gas around the northern edge of the landfill is at low concentrations with low flows.

Within the landfill area, the RSK have recorded concentrations ranging from negligible to relatively high, but with acceptable flow rates after assessment using nitrogen purging techniques (the GSV falls within the Amber 2 classification if note 5 in Table 7 of the CIRIA C665:2007 guidance is accepted). In addition the gas recovery test results also indicate that gas generation rates produced flows (which when combined with the maximum recorded methane concentrations from each of the three worst Scenario installations produced Gas Screening Values) that fell within the Amber 2 classification.

Overall the works concluded that that the additional exploratory locations have confirmed that the top 2-3m is sufficiently homogenous in nature to allow consideration of engineering solutions (including robust gas protection measures) to manage the potential risks from ground gas.

Initial discussions with the National House Building Council (NHBC) have been undertaken in respect to the preliminary gas data, and to date, resulting correspondence with respect to proposals for in-construction based gas protection measures has been favourable. Copies of the email correspondence are included within **Appendix E**.

2.6.2 Preliminary foundation design considerations

The initial assessment of the ground conditions at the above site indicates the following:

- use of conventional strip footings onto natural strata is not feasible; and
- piled foundations through the made ground and into the underlying natural strata will be prohibitively expensive.

An alternative solution is proposed however, based upon initial indications that that the landfill backfill is relatively homogenous in composition (although it is recognised that the backfill compaction and consistency may differ over distance). It also appears from BH1 that the deeper fill has undergone some consolidation but that it should be noted that that any settlement of the landfill would appear to be relatively even as there are no large settlement differentials visible at the surface.

It is suggested that a combination of the following remediation/groundwork techniques could therefore be suitable to allow for the adoption of reinforced slab foundations (rafts):

- consolidation of the top 2m of the ground by dynamic compaction. This will allow a uniform layer to be formed (with any soft spots being replaced) and reduce any potential for differential settlement to occur in particularly in relation to infrastructure and services;
- installation of vibro-replacement stone columns beneath the plan area of proposed residential units (restricted to detached and semi detached properties), to a depth of 8m throughout. This will allow a homogeneous layer to be formed upon which the raft foundation can be constructed;

- QA/QC validated gas membrane to be installed into the raft foundation with all services entry points to be suitable sealed; and

- use of flexible joints for services with adequate falls to allow for some minor settlement.

Initial discussions with the NHBC regarding the preliminary proposed foundation options have also been favourable, with an agreement in principle reached based on the above approach. Copies of the email correspondence are included within **Appendix E**.

2.7 Sensitive land uses and archaeology

No sensitive land uses are identified within 500m of the site, although the whole area is designated as a nitrate vulnerable zone. There are two sites of special scientific interest (SSSI) reported within 2km of the site, both associated with Narborough Bog (1139km and 1149km to the south west).

2.8 Industrial permits, authorisations and licences

The following industrially permitted / authorised / licensed sites are listed within 500m of the site:

- Part B activity permitted site (Easycrete, 499m to the south);

- waste management licensed site 225m east (Wharf Way South HCI waste, treatment and asbestos); and

- licensed waste transfer site 262m south east (Blaby Industrial estate).

In addition to these sites and the former landfill listed within the site boundary, there is also an operational landfill listed 238m to the north west (Gees Lock, “difficult” waste landfill site) and another historical landfill site recorded 371m to the east at Sonning Way, Glen Parva.

2.9 Pollution incidents and contraventions

There are no pollution incidents or contraventions relating specifically to the site listed within the EnviroInsight report. There are two previous incidents listed from 2002 and 2006 that affected the Grand Union Canal surface water quality however, with impacts listed as minor and insignificant.

2.10 History of site and surrounding area

The history of the land-use and development of the site and the surrounding area has been assessed based on historical maps dated between 1885 and 2012, included within the Groundsure EnviroInsight report in **Appendix C**.

Reference to historical maps provides invaluable information regarding the land use history of the site, but historical evidence may be incomplete for the period pre-dating the first edition and between successive maps.

The development history of the site and the surrounding area from the above sources is summarised below in Table 3.

Table 3: Summary of historical development

Date	Land use/features on site	Land use/features in vicinity of site (of relevance to the assessment)
1885 - 1886	Site is undeveloped and split by field boundaries.	Surrounding land comprises fields, as well as the canal to the south with River Sence beyond, and Cork Lane to the east.
1902 - 1919	London and Northeastern Railway runs north-south on western boundary of the site, with associated area of ground working present to the east of the railway.	Brickworks present to immediate south east of the site, on opposite side of Cork Lane.
1928- 1938	Site remains unchanged.	Additional brickworks now present to immediate south of the eastern end of the site. The previous brickworks to the south east is now a chemical works. Kilns associated with the new brickworks are identified. Residential development has occurred to the north east of the site, beyond Cork Lane.
1950 - 1973	The site contains several clay pits associated with the brickworks to the immediate south.	The brickworks to the south of the site has expanded and now has associated clay pits that extend into the eastern portion of the subject site. Ponds and springs (issues) are noted in the base of some of the clay pits.
1977 - 1981	The clay pits are listed as disused and the northern most pit (at the northern site boundary) is labelled as a refuse tip. A spoil heap is also noted on the southern boundary, above the brickworks.	The brickworks is still present to the immediate south of the site, with several electrical sub-stations and chimneys labelled.
1989 - 1994	Almost the entire site area is identified as a refuse tip (based on the map legend), including the clay pits and the former	The former chemical works to the south east of the site is now shown as a depot, and there is another works to the east of the site, with residential properties in between the works and the site. Further residential

Date	Land use/features on site	Land use/features in vicinity of site (of relevance to the assessment)
	excavations that were associated with the railway (on the western site boundary)	development has taken place to the north of the site.
2002	Site is shown as vacant, with just the site outline visible. No evidence of former clay pits or refuse tip is indicated.	The area to the south of the site that was formerly occupied by the brickworks has been cleared, although warehouses are still present to the south of the canal.
2012	The site is still shown as vacant.	The area of land to the south that was previously occupied by the brickworks has been redeveloped with residential properties.

3 INITIAL CONCEPTUAL MODEL

The environmental risk management process for any site comprises up to three stages of risk assessment: preliminary, generic quantitative and detailed quantitative (PRA, GQRA and DQRA). The basis for the risk assessment is a conceptual model that is produced as part of the PRA and is updated throughout the risk management process.

The information presented in the preceding sections has been used to compile an initial conceptual model. The identified potential sources of contamination, associated contaminants and receptors have been considered with plausible pathways that may link them. The sources, pathways and receptors are presented below together with the potentially complete contaminant linkages.

The risk classification has been estimated in accordance with information in **Appendix H**.

3.1.1 Summary of potential contaminant sources

Currently an unoccupied, grassed site, the historical activities at the site associated with the former brickworks, clay pits and subsequent landfilling represent the most significant potential source of contaminants.

Waste materials deposited at the site are understood to include inert wastes as well as commercial, industrial and household wastes. Preliminary ground investigation works have identified that the filled ground comprises predominately sandy clay, gravelly clay and silty sand with occasional ash, brick, concrete and wood fragments. Some isolated organic materials have also been discovered. Anecdotal information also suggests that a limited volume of household waste was deposited within land to the immediate west of the site boundary.

3.1.2 Receptors

The site is proposed to be redeveloped for residential land use, and as such, the following potential receptors are relevant in this instance:

- future site users (residential);
- current adjacent site users, including residential and commercial properties;
- vegetation in any areas of soft landscaping / gardens;
- groundwater beneath the site in superficial and bedrock aquifers (Secondary A categorisation for superficial sands and gravels and Secondary B for the mudstone bedrock) and ;
- surface water (Grand Union Canal and River Sence) down gradient from the site; and

- future on-site buildings and infrastructure.

Please note that any potential construction / ground workers have not been identified in the conceptual model as receptors because risks are considered to be managed through health and safety procedures, including CDM regulations.

3.1.3 Pathways

Based on the site's proposed future usage, the pathways that could result in a potentially complete contaminant linkage are:

- direct contact (soil, dust and ingestion, dermal contact and dust inhalation);
- inhalation of potential soil vapours in indoor air within buildings;
- ground gas migration and accumulation within buildings;
- vertical and lateral migration to and within groundwater, including leaching from unsaturated soils;
- root uptake by plants; and
- permeation through any plastic potable water supply pipes.

3.1.4 Potentially complete contaminant linkages

The potentially complete contaminant linkages identified for the current land use are:

- direct contact by future site residents with soils that may be impacted by organic contaminants and metals;
- inhalation by future site residents (and adjacent users) of vapours originating from potential volatile organic compounds present in the soil / groundwater and potential asbestos fibres (if present in made ground);
- potential generation and accumulation of ground gas within buildings;
- leaching of contaminants from made ground to groundwater in the secondary aquifers beneath;
- lateral migration of any impacted shallow groundwater towards the canal and River Sence;
- potential root uptake of metals in soils by vegetation within landscaping areas and gardens; and
- chemical attack on infrastructure (incl. any plastic water supply pipes).

3.1.5 Risk classification

The risks associated with each potential linkage identified in Section 3.1.4 have been qualitatively assessed considering the current site usage, and are presented in Table 4. The risk classification has been undertaken in accordance with CIRIA C552[4], a summary of which is included in **Appendix H**.

Table 4: Risk estimation for potentially complete contaminant linkages

Contaminant linkage	Likelihood	Severity	Risk and justification*
1.Direct contact by future site users with soil that may be impacted by a range of organic contaminants/metals	Likely	Medium	**Moderate** Limited information is currently available in terms of soil quality. Previous investigations have encountered some contaminants in the soil, including metals and PAH, and recommendations were made to manage these contaminants during proposed redevelopment. Uncertainty remains at this stage however until further investigation has been completed with associated chemical testing of soil.
2. Inhalation by current site users (and adjacent users) of potential vapours (soil and groundwater related) and asbestos fibres from asbestos potentially contained within the made ground	Likely	Severe	**High** Limited information is currently available in terms of soil and groundwater quality. Previous investigations have encountered some non-volatile contaminants in the soil however, uncertainty remains in terms of the chemical nature of the fill materials and will remain until further investigation has been completed with associated chemical and asbestos related testing of soil (and groundwater).
3. Potential generation and accumulation of ground gas within buildings	Highly likely	Medium	**High** Monitoring works to date have confirmed the ground gas potential of the site following its historical use as a landfill site. Initial classifications have indicated that the ground gas regime may be categorised as "amber 2" and that mitigation can be addressed via engineering based ground gas protections measures incorporated into proposed buildings. Further monitoring works may be required however, following more detailed intrusive investigation.

Contaminant linkage	Likelihood	Severity	Risk and justification*
4. Leaching of contaminants to groundwater in the secondary aquifer(s)	Likely	Medium	**Moderate** Groundwater at the site is present within the filled made ground materials and water quality is unknown at this stage. Potential for dissolution of contaminants present in the made ground is therefore possible. Site specific geological data indicates the absence of superficial deposits in some locations with bedrock directly overlain by made ground, and geological maps suggest permeable superficial deposits may also be present (as well as lower permeability glacial tills).
5. Lateral migration of any impacted shallow groundwater towards the canal and River Sence	Likely	Medium	**Moderate** Groundwater flow is expected to be towards the River Sence to the south and south-west of the site, hence lateral migration down hydraulic gradient may potentially occur. Groundwater at the site is present within the filled made ground materials at the site and quality is unknown at this stage. Geological maps suggest permeable superficial deposits may also be present (as well as lower permeability glacial tills), hence potential lateral migration may be occurring within made ground and superficial deposits.
6. Potential root uptake of metals in soils by vegetation within landscaping areas and gardens (of future residential properties)	Likely	Medium	**Moderate** Limited information is currently available in terms of soil quality. Previous investigations have encountered some contaminants in the soil, including metals and PAH which may pose a risk to vegetation. If identified however, such risks may be managed via the implementation of a cover system where required. Uncertainty remains at this stage however until further investigation has been completed.

Contaminant linkage	Likelihood	Severity	Risk and justification*
7. Chemical attack on infrastructure (incl. water supply pipes or future residential properties)	Likely	Medium	**Moderate** Potential exists for the presence of contaminants within the made ground which could affect foundations and water supply pipes. Limited information is currently available in terms of soil quality, but previous investigations have encountered some contaminants in the soil, including metals and PAH. If such contaminants are identified on site however, such risks may be managed via the selection of appropriately protective water supply pipes. possible plastic pipes would be low.

3.1.6 Data gaps and uncertainties

Inferences with respect to the ground conditions on the subject and the potential associated risks have been made based on publically available information and the results of limited intrusive investigation completed to date. However, the specific ground quality conditions and the presence and extent of any potential contamination at the site are nonetheless currently unknown.

3.2 Summary of risk estimation

Linkages with risk estimations of moderate or above would typically require further investigation.

In this instance, considering the proposed site redevelopment with residential properties, all seven identified potential pollutant linkages are associated with risks of moderate or above. These classifications are precautionary however, and are based on worst case assumptions in the absence of any site specific data.

4 CONCLUSIONS AND RECOMMENDATIONS

4.1 Conclusions

The site currently comprises open grassland that is unoccupied although the potential redevelopment of the site with residential properties is under consideration. Surrounding land uses include residential properties, commercial / industrial facilities and further open grassland. The site is also in close proximity to the Grand Union Canal and the River Sence.

A number of clay pits were previously present on the site, associated with a former brickworks that was located to the immediate south. Following cessation of clay removal, the pits were infilled with waste materials, including inert wastes as well as commercial / industrial and household waste. The site was operated under a waste management licence between May 1977 and April 1994.

Initial intrusive investigation works completed by RSK between February and June 2013 have encountered up to 15m of made ground at the site, with materials characterised as a matrix of intermixed generally firm to stiff sandy clay, gravelly clay and silty sand with occasional ash, brick and concrete rubble and wood fragments. Some organic materials have also been encountered.

Initial ground gas monitoring and assessment has also been completed, with early indications and liaison with the NHBC suggesting that robust ground gas protections measures incorporated into proposed residential properties should provide acceptable levels of protection.

Considering the available data and using a degree of professional judgement and conservatism, seven potentially complete contaminant linkages were identified and assessed in terms of risk. The potential risks associated with these seven potential linkages have been characterised to range from **moderate** to **high**, with further works required to reduce current uncertainty.

In addition to the assessment of potential risks posed to human health and environmental receptors (via the seven pollutant linkages identified), initial proposals with respect to possible foundation options have also been considered. Ground conditions at the site indicate that neither conventional shallow nor piled foundations would be possible. Instead, the solution that is being recommended, and has been agreed in principle with the NHBC, is the consolidation of the shallow soils and the densification of the top 8m by vibro-replacement stone columns beneath the plan area of proposed residential units (restricted to detached, semi detached properties and small terraces). This will allow a homogeneous layer to be formed upon which a raft foundation could be constructed. It has also been recommended that an appropriately validated gas membrane should also be installed into the raft foundations, with all

services entry points to be suitable sealed, with the use of flexible joints for services with adequate falls to allow for some minor settlement.

4.2 Recommendations

Considering the **moderate** to **high** classification of the potential risks identified at the site, and the current uncertainty in terms of the contaminant status of the soil and groundwater at the site, further investigation and assessment is required. Completion of an additional phase of intrusive investigation is recommended in order to quantify the potential risks and liabilities identified at the site to date, with associated subsequent retrieval of soil and groundwater samples and quantitative assessment. It is anticipated that works would include (but not necessarily be limited to):

- advancement of a number of trial pits across the site to allow collection of shallow depth soil samples and further characterisation of backfill materials;
- advancement of a number of additional boreholes / window sample locations across the site to allow installation of monitoring wells, additional soil sample collection and delineation of thickness of backfill;
- installation of groundwater monitoring wells with subsequent sampling to assess groundwater quality and allow assessment of the groundwater flow regime. Monitoring wells would be constructed within appropriate response zones as determined during the site investigation works;
- installation of ground gas monitoring wells to allow further (more detailed) assessment of the ground gas regime, with appropriate response zones determined during the site investigation works;
- analysis of selected soil and groundwater samples in a UKAS/MCERTS accredited laboratory for a suite of analytes to include heavy metals, inorganics, speciated TPH (TPH-CWG), speciated PAHs, chromium VI, pH, soil organic matter, asbestos (screen and identification where required), polychlorinated biphenyls (PCBs), volatile and semi-volatile organic compounds (VOC and SVOC), phenols and waste acceptance criteria (including hydrocarbon ID); and
- interrogation of data and development of a site specific conceptual model, with subsequent generic quantitative risk assessment (GQRA) and potentially detailed quantitative risk assessment (DQRA) if required, in order to quantify risks to human health and environmental receptors; and
- preparation of an interpretative report outlining the findings of the GQRA / DQRA with associated recommendations for any further or potential remedial measures that may be required considering the proposed residential redevelopment.

BIBLIOGRAPHY

- Environment Agency (2004), *Model Procedures for the Management of Contaminated Land. Contaminated Land Report Number 11 (CLR11),* September (Bristol: Environment Agency).

- British Standards Institution (2011), 'BS 10175:2011. Investigation of potentially contaminated sites: Code of practice'.

- Environment Agency (2010a), 'GPLC1 – Guiding Principles of Land Contamination', 'GPLC2 – Frequency Asked Questions, Technical Information, Detailed Advice and References', and 'GPLC3 – Reporting Checklists', all March.

- Rudland, D. J., Lancefield, R. M. and Mayell, P. N. (2001), *CIRIA C552. Contaminated Land Risk Assessment: A Guide to Good Practice* (London: CIRIA).

APPENDIX A
SERVICE CONSTRAINTS

1. This report and the preliminary risk assessment carried out in connection with the report (together the "Services") were compiled and carried out by RSK Environment Limited (RSK) for Manor Oak Homes Ltd.(the "client") in accordance with the terms of a contract between RSK and the "client", dated 28th January 2013 The Services were performed by RSK with the skill and care ordinarily exercised by a reasonable environmental consultant at the time the Services were performed. Further, and in particular, the Services were performed by RSK taking into account the limits of the scope of works required by the client, the time scale involved and the resources, including financial and manpower resources, agreed between RSK and the client.

2. Other than that expressly contained in paragraph 1 above, RSK provides no other representation or warranty whether express or implied, in relation to the Services.

3. Unless otherwise agreed the Services were performed by RSK exclusively for the purposes of the client. RSK is not aware of any interest of or reliance by any party other than the client in or on the Services. Unless expressly provided in writing, RSK does not authorise, consent or condone any party other than the client relying upon the Services. Should this report or any part of this report, or otherwise details of the Services or any part of the Services be made known to any such party, and such party relies thereon that party does so wholly at its own and sole risk and RSK disclaims any liability to such parties. **Any such party would be** well advised to seek independent advice from a competent environmental consultant and/or lawyer.

4. It is RSK's understanding that this report is to be used for the purpose described in the introduction to the report. That purpose was a significant factor in determining the scope and level of the Services. Should the purpose for which the report is used, or the proposed use of the site change, this report may no longer be valid and any further use of or reliance upon the report in those circumstances by the client without RSK 's review and advice shall be at the client's sole and own risk. Should RSK be requested to review the report after the date hereof, RSK shall be entitled to additional payment at the then existing rates or such other terms as agreed between RSK and the client.

5. The passage of time may result in changes in site conditions, regulatory or other legal provisions, technology or economic conditions which could render the report inaccurate or unreliable. The information and conclusions contained in this report should not be relied upon in the future without the written advice of RSK. In the absence of such written advice of RSK, reliance on the report in the future shall be at the client's own and sole risk. Should RSK be requested to review the report in the future, RSK shall be entitled to additional payment at the then existing rate or such other terms as may be agreed between RSK and the client.

6. The observations and conclusions described in this report are based solely upon the Services which were provided pursuant to the agreement between the client and RSK. RSK has not performed any observations, investigations, studies or testing not specifically set out or required by the contract between the client and RSK. RSK is not liable for the existence of any condition, the discovery of which would require performance of services not otherwise contained in the Services. For the avoidance of doubt, unless otherwise expressly referred to in the introduction to this report, RSK did not seek to evaluate the presence on or off the site of asbestos, electromagnetic fields, lead paint, heavy metals, radon gas or other radioactive or hazardous materials.

7. The Services are based upon RSK's observations of existing physical conditions at the Site gained from a walk-over survey of the site together with RSK's interpretation of information including documentation, obtained from third parties and from the client on the history and usage of the site. The Services are also based on information and/or analysis provided by independent testing and information services or laboratories upon which RSK was reasonably entitled to rely. The Services clearly are limited by the accuracy of the information, including documentation, reviewed by RSK and the observations possible at the time of the walk-over survey. Further RSK was not authorised and did not attempt to independently verify the accuracy or completeness of information, documentation or materials received from the client or third parties, including laboratories and information services, during the performance of the Services. RSK is not liable for any inaccurate information or conclusions, the discovery of which inaccuracies required the doing of any act including the gathering of any information which was not reasonably available to RSK and including the doing of any independent investigation of the information provided to RSK save as otherwise provided in the terms of the contract between the client and RSK.

8. The phase II or intrusive environmental site investigation aspects of the Services is a limited sampling of the site at pre-determined borehole and soil vapour locations based on the operational configuration of the site. The conclusions given in this report are based on information gathered at the specific test locations and can only be extrapolated to an undefined limited area around those locations. The extent of the limited area depends on the soil and groundwater conditions, together with the position of any current structures and underground facilities and natural and other activities on site. In addition chemical analysis was carried out for a limited number of parameters [as stipulated in the contract between the client and RSK] [based on an understanding of the available operational and historical information,] and it should not be inferred that other chemical species are not present.

9. Any site drawing(s) provided in this report is (are) not meant to be an accurate base plan, but is (are) used to present the general relative locations of features on, and surrounding, the site.

APPENDIX B
SUMMARY OF LEGISLATION AND POLICY RELATING TO CONTAMINATED LAND

Part IIA of the Environmental Protection Act 1990 (EPA) and its associated Contaminated Land Regulations 2000 (SI 2000/227), which came into force in England on 1 April 2000, formed the basis for the current regulatory framework and the statutory regime for the identification and remediation of contaminated land. Part IIA of the EPA 1990 defines contaminated land as 'any land which appears to the Local Authority in whose area it is situated to be in such a condition by reason of substances in, on or under the land, that significant harm is being caused, or that there is significant possibility of significant harm being caused, or that pollution of controlled waters is being or is likely to be caused'. Controlled waters are considered all groundwater, inland waters and estuaries.

In August 2006, the Contaminated Land (England) Regulations 2006 (SI 2006/1380) were implemented, which extended the statutory regime to include Part IIA of the EPA as originally introduced on 1 April 2000, together with changes intended chiefly to address land that is contaminated by virtue of radioactivity. These have been replaced subsequently by the Contaminated Land (England) (Amendment) Regulations 2012, which now exclude land that is contaminated by virtue of radioactivity.

The intention of Part IIA of the EPA is to deal with contaminated land issues that are considered to cause significant harm on land that is not undergoing development (see Environmental Protection Act 1990: Part 2A Contaminated Land Statutory Guidance, April 2012). This document replaces Annex III of Defra Circular 01/2006, published in September 2006 (the remainder of this document is now obsolete).

Water Framework Directive (WFD)

The Water Framework Directive 2000/60/EC is designed to:

- enhance the status and prevent further deterioration of aquatic ecosystems and associated wetlands that depend on the aquatic ecosystems
- promote the sustainable use of water
- reduce pollution of water, especially by 'priority' and 'priority hazardous' substances
- ensure progressive reduction of groundwater pollution.

The WFD requires a management plan for each river basin be developed every six years.

Groundwater Directive (GWD)

The 1980 Groundwater Directive 80/68/EEC and the 2006 Groundwater Daughter Directive 2006/118/EC of the WFD are the main European legislation in place to protect groundwater. The 1980 Directive is due to be repealed in December 2013. The European legislation has been transposed into national legislation by regulations and directions to the Environment Agency.

Environmental Permitting Regulations (EPR)

The Environmental Permitting (England and Wales) Regulations 2010 provide a single regulatory framework that streamlines and integrates waste management licensing, pollution prevention and control, water discharge consenting, groundwater authorisations, and radioactive substances regulation. Schedule 22, paragraph 6 of EPR 2010 states: 'the regulator must, in exercising its relevant functions, take all necessary measures - (a) to prevent the input of any hazardous substance to groundwater; and (b) to limit the input of non-hazardous pollutants to groundwater so as to ensure that such inputs do not cause pollution of groundwater.'

Water Resources Act (WRA)

The Water Resources Act 1991 (Amendment) (England and Wales) Regulations 2009 updated the Water Resources Act 1991, which introduced the offence of causing or knowingly permitting pollution of controlled waters. The Act provides the Environment Agency with powers to implement remediation necessary to protect controlled waters and recover all reasonable costs of doing so.

Priority Substances Directive (PSD)

The Priority Substances Directive 2008/105/EC is a 'Daughter' Directive of the WFD, which sets out a priority list of substances posing a threat to or via the aquatic environment. The PSD establishes environmental quality standards for priority substances, which have been set at concentrations that are safe for the aquatic environment and for human health. In addition, there is a further aim of reducing (or eliminating) pollution of surface water (rivers, lakes, estuaries and coastal waters) by pollutants on the list. The WFD requires that countries establish a list of dangerous substances that are being discharged and EQS for them. In England and Wales, this list is provided in the River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010. In order to achieve the objectives of the WFD, classification schemes are used to describe where the water environment is of good quality and where it may require improvement.

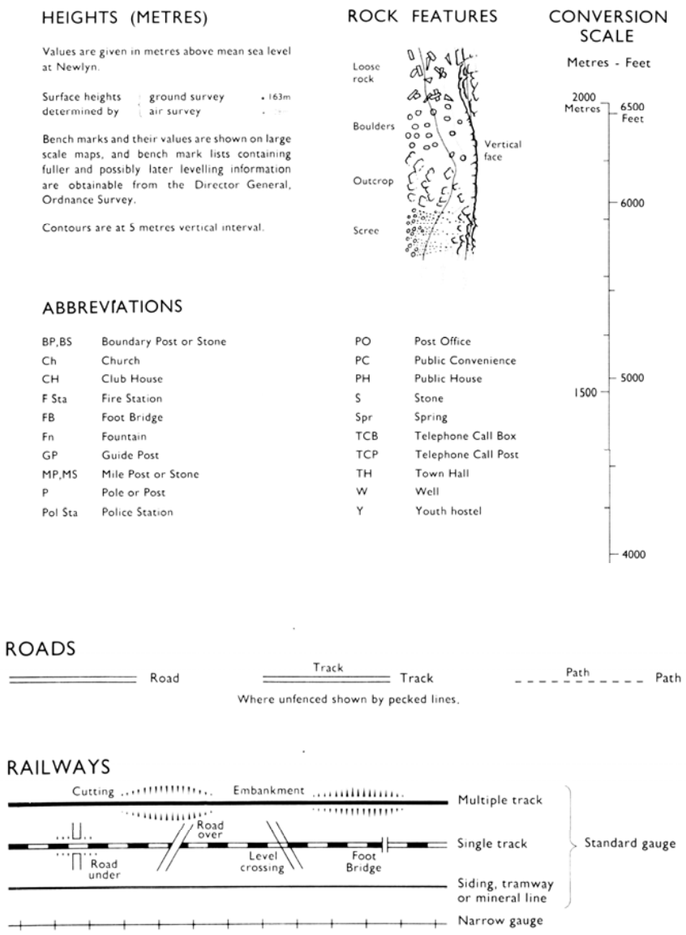
Contaminated land is often dealt with through planning because of land redevelopment. This approach is documented in Planning Policy Statement: Planning and Pollution Control PPS23, which states that it remains the responsibility of the landowner and developer to identify land affected by contamination and carry out sufficient remediation to render the land suitable for use. The overall aim of the planning and pollution control policy is to promote the sustainable and beneficial use of land (in particular, encouraging reuse of previously developed land in preference

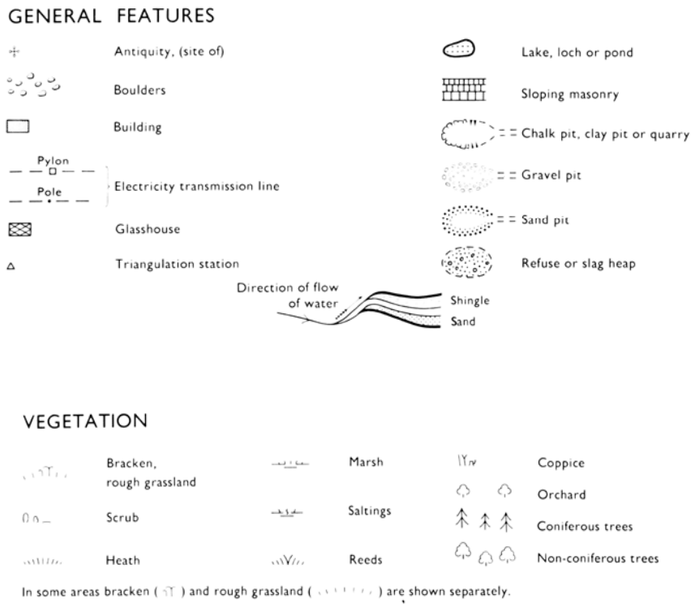
to greenfield sites). Within this aim, polluting activities that are necessary for society and the economy should be so sited and planned, and subject to such planning conditions, that their adverse effects are minimised and contained to within acceptable limits.

APPENDIX C
GROUNDSURE GEOINSIGHT AND ENVIROINSIGHT REPORTS

County Series 1:10,560 scale

National Grid 1:10,000 scale





GroundSure

Historical Map Pack Legend

County Series & National Grid

1:10,560 scale & 1:10,000 scale

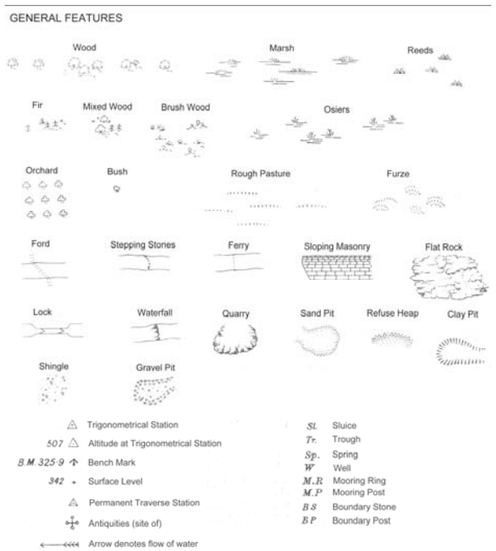
Information present on these legends is sourced from the same Ordnance Survey mapping as the maps used in this product.

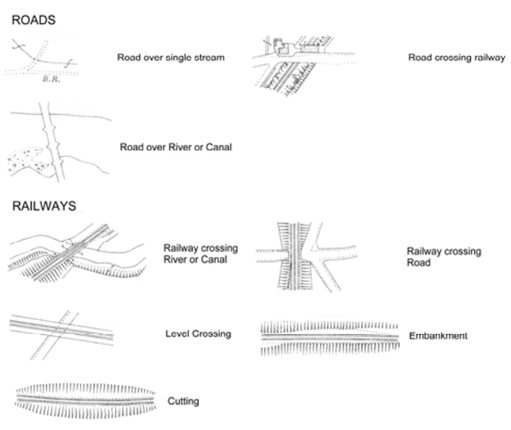
If you have a query regarding any of the maps provided please contact GroundSure's technical helpline. We will endeavour to answer any queries you may have.

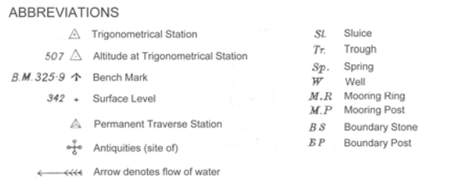
Technical Helpline

Tel:01273 819 700
maps&data@groundsure.com
www.groundsure.com

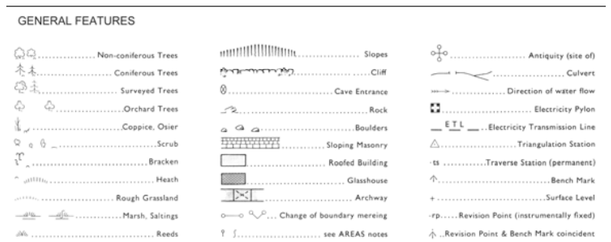
County Series 1:2,500 scale

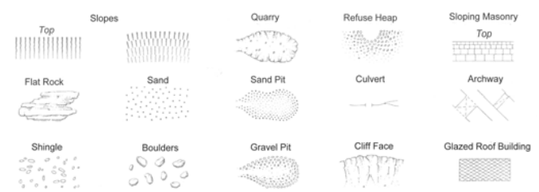


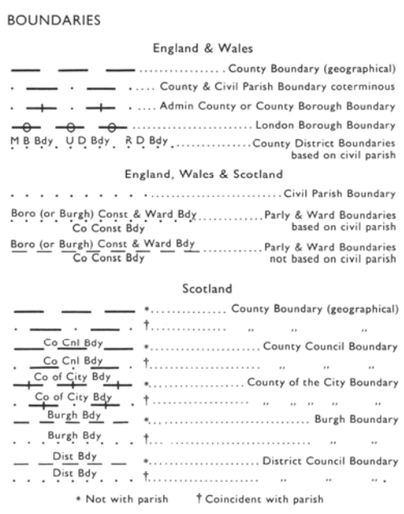


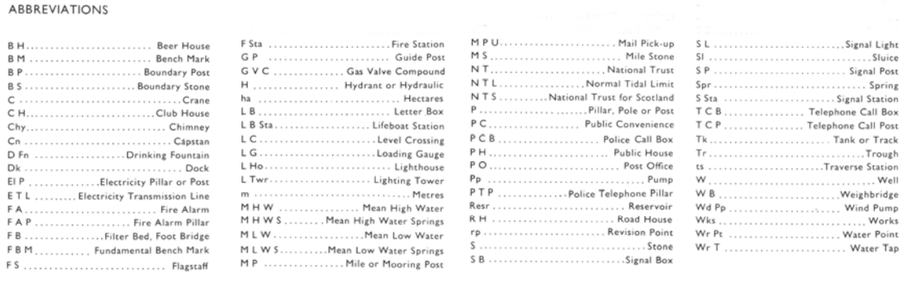


National Grid 1:2,500 / 1:1,250 scale









Historical Map Pack Legend

County Series

1:1,250 scale

~

County Series & National Grid

1:2,500 scale

Information present on these legends is sourced from the same Ordnance Survey mapping as the maps used in this product.

If you have a query regarding any of the maps provided within this map pack, please contact GroundSure's technical helpline. We will endeavour to answer any queries you may have.

Technical Helpline:

Tel:01273 819 700
maps&data@groundsure.com
www.groundsure.com

EmapSite
Masdar House, ,
Eversley, RG27 0RP

GroundSure Reference:	EMS-195848_285919
Your Reference:	EMS_195848_285919
Report Date:	Feb 26, 2013
Report Delivery Method:	**Email - pdf**
Client Email:	sales@emapsite.com

GroundSure EnviroInsight

Address:

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

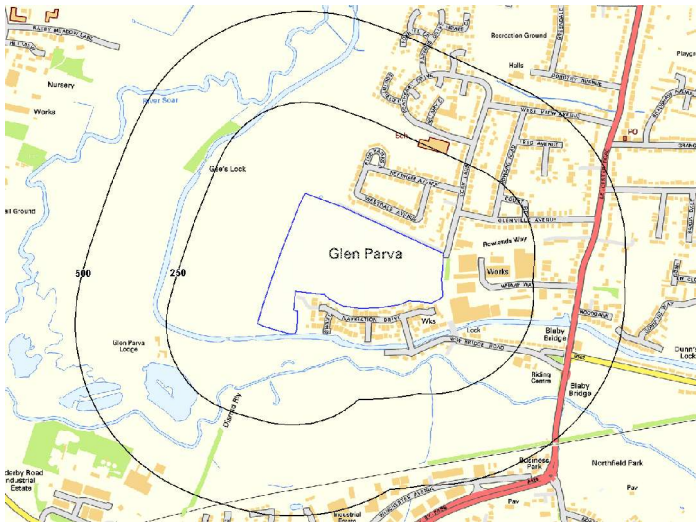
Address:

Date: Feb 26, 2013

GroundSure Reference: EMS-195848_285919

Your Reference: EMS_195848_285919

Client: EmapSite



Brought to you by emapsite

Aerial Photograph of Study Site

NW ▲ N NE

◄W

E►

SW S ▼ SE

Site Name:
Grid Reference: 456197,298780
Size of Site: 10.79 ha

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					
1. Environmental Permits, Incidents and Registers	on-site	0-50	51-250	251-500	501-1000	1000-1500
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	0	1	-	-
Records of Category 3 or 4 Radioactive Substances Authorisations	0	0	0	0	-	-
Records of Licensed Discharge Consents	0	0	2	8	-	-
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	0	2	-	-	-
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	on-site	0-50	51-250	251-500	501-1000	1000-1500
2.1 Landfill Sites						
Environment Agency Registered Landfill Sites	0	0	0	0	0	-
Landfill Data – Operational Landfill Sites	0	0	1	0	0	-
Environment Agency Historic Landfill Sites	1	1	0	1	1	0
Landfill Data – Non-Operational Landfill Sites	0	0	0	0	1	-
BGS/DoE Landfill Site Survey	0	0	0	0	0	0
GroundSure Local Authority Landfill Sites Data	4	0	0	0	4	0
2.2 Landfill and Other Waste Sites Findings						
Operational Waste Treatment, Transfer and Disposal Sites	0	0	0	1	-	-
Non-Operational Waste Treatment, Transfer and Disposal Sites	0	0	0	0	-	-
Environment Agency Licensed Waste Sites	0	0	2	2	8	5

3. Current Land Uses

	on-site	0-50	51-250	251-500	501-1000	1000-1500
3.1 Current Industrial Sites Data	0	5	15	-	-	-
3.2 Records of Petrol and Fuel Sites	0	0	0	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? *	Yes
4.2 Are there any records of Superficial Ground and Drift Geology present beneath the study site? *	Yes
4.3 For records of Bedrock and Solid Geology beneath the study site* see the detailed findings section.	

Source: Scale: 1:50,000 BGS Sheet 156

* 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	0	0	1	1
5.4 Surface Water Abstraction Licences (within 2000m of the study site).	0	0	0	0	0	1
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	Yes	No	Yes	Yes
5.8 Detailed River Network entries within 500m of the site	0	1	3	11	-	-
5.9 Surface water features within 250m of the study site	No	Yes	Yes	-	-	-

6. Flooding

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

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	2
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	2
7.3 Records of Local Nature Reserves (LNR)	0	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	0	0	1
7.13 Records of Ancient Woodlands	0	0	0	0	0	0

8. Natural Hazards

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

9. Mining

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

Using this Report

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

1. Environmental Permits, Incidents and Registers

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

2. Landfills and Other Waste Sites

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

3. Current Land Uses

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

4. Geology

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

5. Hydrogeology and Hydrology

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

6. Flooding

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

7. Designated Environmentally Sensitive Sites

Provides information on the Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR), Special Areas of Conservation (SAC), Special Protection Areas (SPA), Ramsar sites, Local Nature Reserves (LNR), Areas of Outstanding Natural Beauty (AONB), National Parks (NP), Environmentally Sensitive Areas, Nitrate Sensitive Areas, Nitrate Vulnerable Zones and World Heritage Sites. 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".

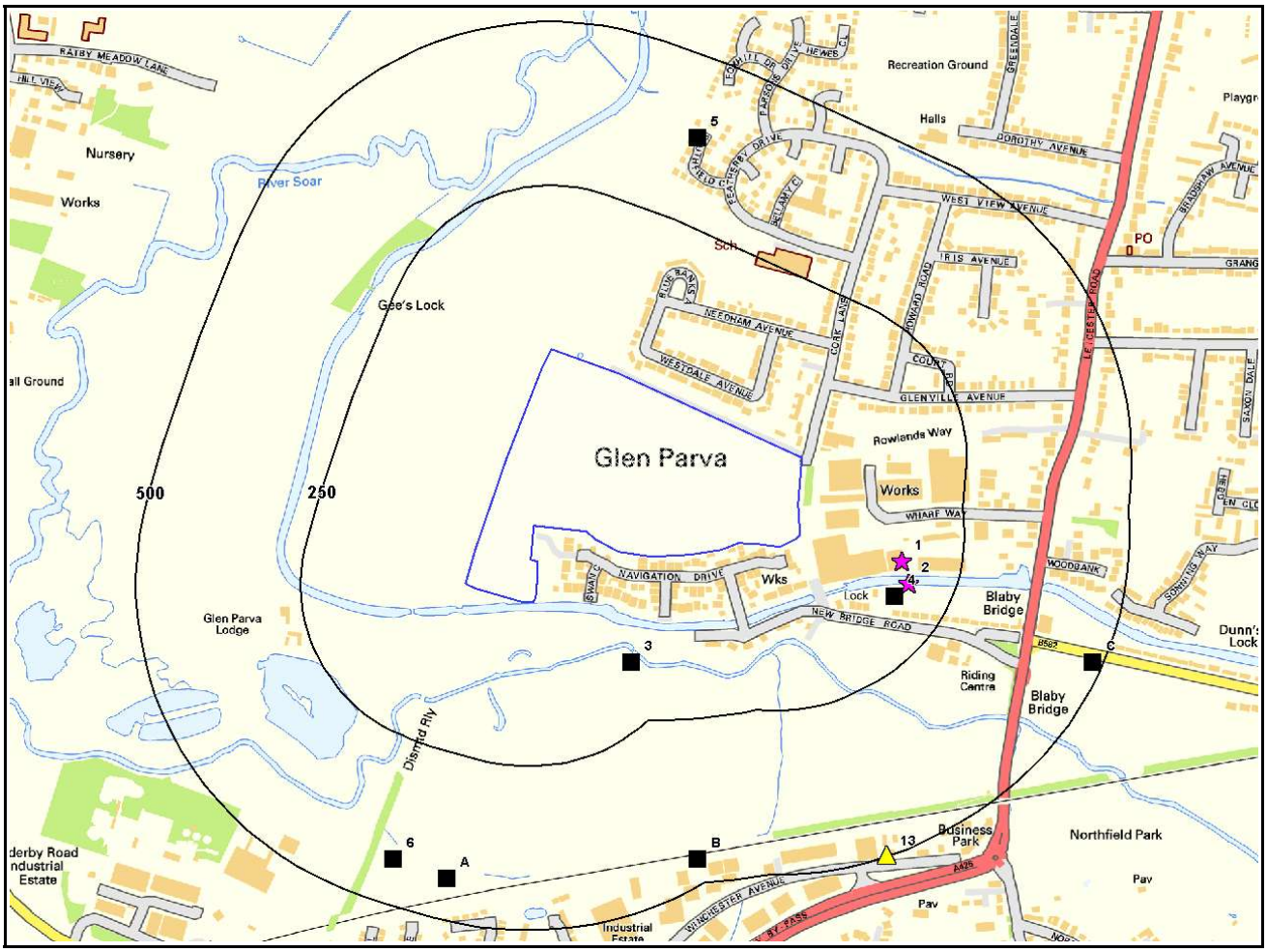
All distances given in this report are in Metres (m). Directions are given as compass headings such as N: North, E: East, NE: North East from the nearest point of the study site boundary.

1. Environmental Permits, Incidents and Registers Map

NW N NE

W E

SW S SE



Authorisations,Incidents and Registers Legend

- Site Outline
- Search Buffers (m) — 250 — 500
- 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 / NIHHS 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: **1**

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	
13	499.0	S	456588, 298203	Address: Easycrete, Winchester Avenue Industrial Estate, Blaby, Leicester LE8 4GZ Process: Blending, loading and the use of bulk cement Status: Current Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement 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: 10

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

ID	Distance	Direction	NGR	Details	
3	163.0	S	456200, 298500	Address: Butterley Building Materials, Blaby, Leicestershire Effluent Type: Trade Discharges - Mineral Workings Permit Number: T/51/02109/T Permit Version: 1	Receiving Water: Grand Union Canal Status: Revoked - Unspecified Issue date: 3/1/1968 Effective Date: 3/1/1968 Revocation Date: 8/6/1992
4	171.0	SE	456600, 298600	Address: Tibbett & Britten, Wharf Way, Glen Parva, Leicester, Leicestershire Effluent Type: Trade Discharges - Site Drainage Permit Number: T/51/08283/T Permit Version: 1	Receiving Water: Grand Union Canal Status: Revoked - Unspecified Issue date: 9/1/1981 Effective Date: 9/1/1981 Revocation Date: 20/3/1992
5	380.0	N	456300, 299300	Address: Areas Of Glen Parva/stm & Emg O/f, Cork Lane/ps Nr Railway Viaduct, Little Glen Road Ps, Glen Parva, Leicestershire Effluent Type: Sewage Discharges - Pumping Station - Water Company Permit Number: T/52/03045/O Permit Version: 1	Receiving Water: River Sence (soar) Status: Pre Nra Legislation Where Issue Date < 01-sep-89 (historic Only) Issue date: - Effective Date: - Revocation Date: -
6	430.0	S	455840, 298200	Address: Lovell Plant Storm Overflow, Lovell Plant, Enderby Road, Whetstone Effluent Type: Sewage Discharges - Sewer Storm Overflow - Water Company Permit Number: T/51/21105/O Permit Version: 1	Receiving Water: Trib Of River Sence Status: Post Nra Legislation Where Issue Date > 31-aug-89 (historic Only) Issue date: 30/1/1992 Effective Date: 30/1/1992 Revocation Date: -
7A	437.0	S	455920, 298170	Address: Vicarage Lane Pumping Station, Vicarage Lane, Vicarage Lane, Whetstone, Leicestershire Effluent Type: Sewage Discharges - Pumping Station - Water Company Permit Number: T/51/40070/O Permit Version: 1	Receiving Water: River Sence Status: Post Nra Legislation Where Issue Date > 31-aug-89 (historic Only) Issue date: 23/2/1995 Effective Date: 23/2/1995 Revocation Date: -
8A	437.0	S	455920, 298170	Address: Vicarage Lane Pumping Station, Vicarage Lane, Vicarage Lane, Whetstone, Leicestershire Effluent Type: Sewage Discharges - Sewer Storm Overflow - Water Company Permit Number: T/51/40070/O Permit Version: 1	Receiving Water: River Sence Status: Post Nra Legislation Where Issue Date > 31-aug-89 (historic Only) Issue date: 23/2/1995 Effective Date: 23/2/1995 Revocation Date: -
9B	462.0	SE	456300, 298200	Address: Areas Of Blaby Ps/stm/emg/ O/f, Enderby Mill / Dicken Sps, West Street Ps/ Warwick Road Ps, Flh Blaby / Auburn Road Area, Blaby Effluent Type: Sewage Discharges - Sewer Storm Overflow - Water Company Permit Number: T/50/02171/O Permit Version: 2	Receiving Water: R Soar/sence/whetstone Brook Status: Varied Under Epr 2010 Issue date: - Effective Date: - Revocation Date: -
10B	462.0	SE	456300, 298200	Address: Areas Of Blaby Ps/stm/emg/ O/f, Enderby Mill / Dicken Sps, West Street Ps/ Warwick Road Ps, Flh Blaby / Auburn Road Area, Blaby Effluent Type: Sewage Discharges - Sewer Storm Overflow - Water Company Permit Number: T/50/02171/O Permit Version: 1	Receiving Water: R Soar/sence/whetstone Brook Status: Pre Nra Legislation Where Issue Date < 01-sep-89 (historic Only) Issue date: 11/8/1972 Effective Date: 11/8/1972 Revocation Date: -
11C	484.0	SE	456900, 298500	Address: Pumping Station, Little Glen Road, Blaby, Leicestershire Effluent Type: Sewage Discharges - Pumping Station - Water Company Permit Number: DT/8058 Permit Version: 1	Receiving Water: River Sence (soar) (tributary) Status: 1961 R(pp)a Application Refused Issue date: 30/5/1963 Effective Date: 30/5/1963 Revocation Date: 1/3/2001

12C	484.0	SE	456900, 298500	Address: Areas Of Glen Parva/stm & Emg O/f, Cork Lane/ps Nr Railway Viaduct, Little Glen Road Ps, Glen Parva, Leicestershire Effluent Type: Sewage Discharges - Pumping Station - Water Company Permit Number: T/52/03045/O Permit Version: 1	Receiving Water: River Sence (soar) Status: Pre Nra Legislation Where Issue Date < 01-sep-89 (historic Only) Issue date: - Effective Date: - Revocation Date: -

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: 2

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

ID	Distance	Direction	NGR	Details	
1	158.0	E	456609, 298653	Incident Date: 3/5/2002 Incident Identification: 76437 Pollutant: Organic Chemicals/Products Pollutant Description: Dyes and Inks	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
2	180.0	SE	456620, 298620	Incident Date: 12/7/2006 Incident Identification: 415976 Pollutant: Pollutant Not Identified Pollutant Description: Not Identified	Water Impact: Category 2 (Significant) 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.

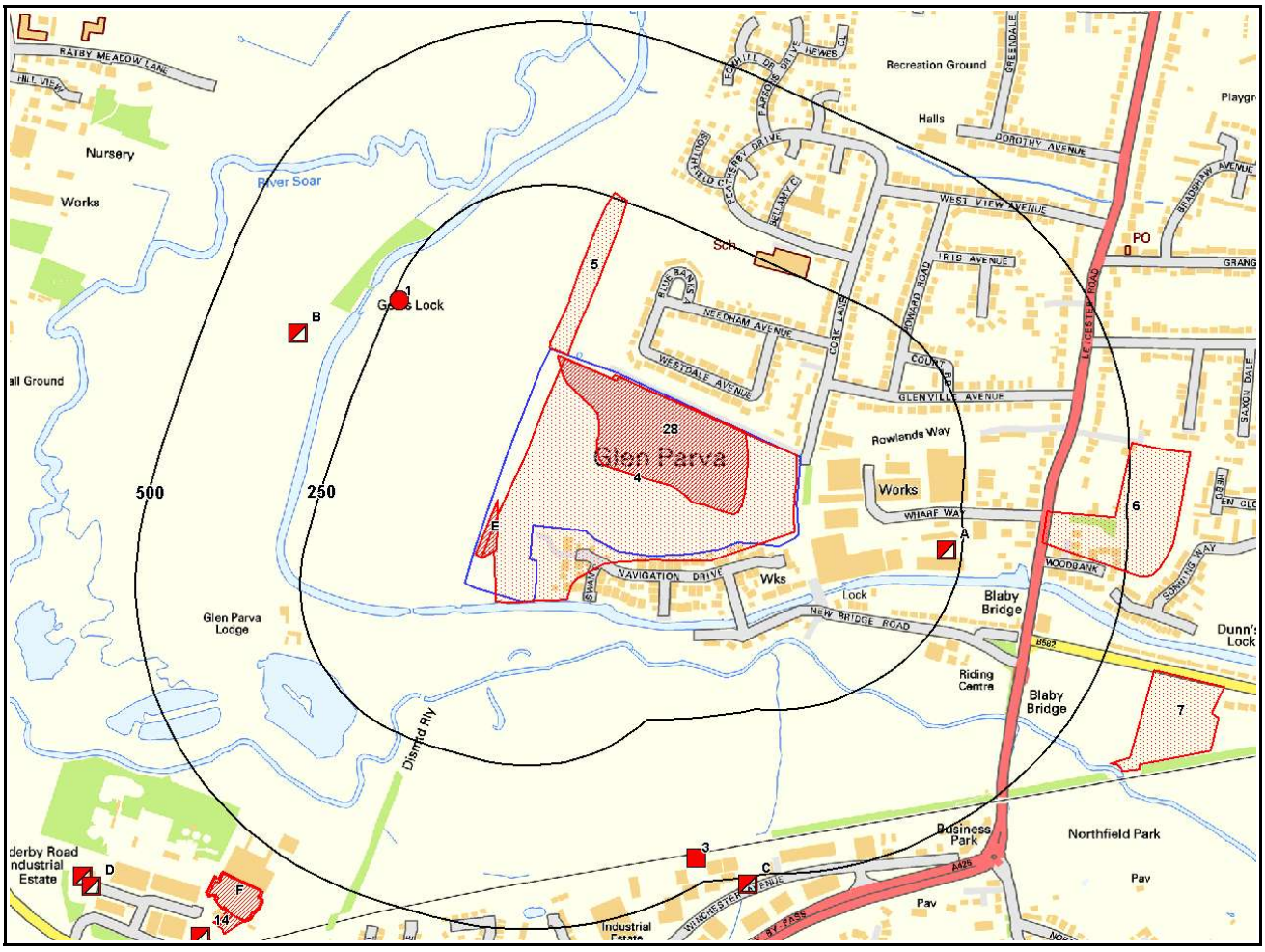
1.4 Sites Determined as Contaminated Land under Part IIA EPA 1990

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 N NE



W E

SW S SE

Landfill & Other Waste Sites Legend

- Site Outline
- Search Buffers (m): 250, 500
- E.A. Active Landfill
- E.A. Historic Landfill (Area Data)
- E.A. Historic Landfill (Point Data)
- BGS / DoE Survey Landfill
- Local Authority Landfill (Area Data)
- Local Authority Landfill (Point Data)
- Operational Waste Treatment Licence
- Closed Waste Treatment Licence
- REGIS Waste Licence
- Operational Landfill
- Closed Landfill

2. Landfill and Other Waste Sites

2.1 Landfill Sites

Records from Environment Agency landfill data within 1000m of the study site: 0

Database searched and no data found.

Records of operational landfill sites sourced from Landmark within 1000m 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	
1	238.0	NW	455850, 299050	Site Address: Gees Lock, Glen Parva, LEICESTER, Leicestershire, Agency Reference: EAWML43387 Waste Type: Difficult Waste Description: Difficult Landfill Known Restrictions: Waste produced/controlled by licence holder	Record Date: 01-Apr-1994 Transfer Date: Modification Date: 01-Oct-1997 Status: Operational as far as is known Category: LANDFILL Regulator: EA - Midlands Region - Lower Trent Area (Rothley) Size: Very Small (<10,000 tonnes/year)

Records of Environment Agency historic landfill sites within 1500m of the study site: 4

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

ID	Distance	Direction	NGR	Details	
4	0.0	On Site	456200, 298700	Site Address: Blaby Brickworks, Glen Parva, Blaby, Blaby Brickworks, Cork Lane, Glen Parva, Blaby, Leicestershire Waste Licence: Yes Site Reference: 0011, GDO 86 Waste Type: Inert, Industrial, Commercial, Household Regis Reference: -	Licence Issue: 31-May-1977 Licence Surrendered: 28-Apr-1994 Licence Hold Address: Brooks Court, Stamford, Lincolnshire Operator: Midland Land Reclamation Limited
5	1.0	N	456100, 299000	Site Address: Blaby Brickworks, Glen Parva, Blaby, Blaby Brickworks, Cork Lane, Glen Parva, Blaby, Leicestershire Waste Licence: Yes Site Reference: 0011, GDO 86 Waste Type: Inert, Industrial, Commercial, Household Regis Reference: -	Licence Issue: 31-May-1977 Licence Surrendered: 28-Apr-1994 Licence Hold Address: Brooks Court, Stamford, Lincolnshire Operator: Midland Land Reclamation Limited
6	371.0	E	456900, 298700	Site Address: Sonning Way, Glen Parva, Blaby, Sonning Way, Glen Parva, Blaby, Leicestershire Waste Licence: - Site Reference: GDO 199, 185 Waste Type: Inert, Industrial, Commercial, Household Regis Reference: -	Licence Issue: Licence Surrendered: Licence Hold Address: - Operator: -
7	579.0	E	457000, 298400	Site Address: Little Glen Road, Glen Parva, Little Glen Road, Glen Parva, Leicester, Leicestershire Waste Licence: - Site Reference: GDO 309 Waste Type: Inert Regis Reference: -	Licence Issue: Licence Surrendered: Licence Hold Address: - Operator: -

Records of non-operational landfill sites sourced from Landmark within 1000m 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	833.0	N	456200, 299800	Site Address: Blaby Brickworks, Cork Lane, Glen Parva, LEICESTER, Leicestershire, Landfill Licence: 260AEYAL Agency Reference: Waste Type: Difficult Waste Description: Difficult Landfill Known Restrictions: No known restriction on source of waste	Record Date: 01-May-1977 Transfer Date: 01-Apr-1985 Modification Date: Status: Licence lapsed/cancelled/defunct/not applicable/surrendered Category: LANDFILL Regulator: EA - Midlands Region - Lower Trent Area (Rothley) Size: Large (< 250,000 tonnes/year)

Records of BGS/DoE non-operational landfill sites within 1500m of the study site: 0

Database searched and no data found.

Records of Local Authority landfill sites within 1500m of the study site: 8

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
25E	0.0	On Site	Refuse Tip	1989 mapping	Polygon
26E	0.0	On Site	Refuse Tip	1990 mapping	Polygon
27E	0.0	On Site	Refuse Tip	1966 mapping	Polygon
28	0.0	On Site	Refuse Tip	1975 mapping	Polygon
29F	561.0	SW	Refuse Tip	1989 mapping	Polygon
30F	561.0	SW	Refuse Tip	1990 mapping	Polygon
31F	562.0	SW	Refuse Tip	1966 mapping	Polygon
32F	562.0	SW	Refuse Tip	1993 mapping	Polygon

2.2 Other Waste Sites

Records of 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	
3	462.0	SE	456300, 298200	Site Address: Blaby Industrial Estate, Winchester Avenue, LEICESTER, Leicestershire, LE8 3GN Landfill Licence: 260ARAAL EA Reference: EAWML43339 Waste Type: Difficult Rating: Difficult Transfer Known Restrictions: No known restriction on source of waste	Record Date: 01-Mar-1994 Transfer Date: Modification Date: Status: Operational as far as is known Category: TRANSFER Regulator: EA - Midlands Region - Lower Trent Area (Rothley) Size: Very Small (<10,000 tonnes/year)

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

Database searched and no data found.

Records of Environment Agency licensed waste sites within 1500m of the study site: 17

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

8A	225.0	E	456680, 298670	Site Address: Wharf Way South, Wharf Way, Glen Parva, Leicester, LE2 9TF Type: HCI Waste TS + treatment + asbestos Size: < 25000 tonnes Regis Licence Number: BWS005 EPR reference: - Operator: Bakers Waste Services Ltd Waste Management licence No: 100545 Annual Tonnage: 0.0	Issue Date: 10/15/2008 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Bakers Waste Services Ltd Correspondence Address: -
9A	225.0	E	456680, 298670	Site Address: Wharf Way South, Wharf Way, Glen Parva, Leicester, Leicestershire, LE2 9TF Type: HCI Waste TS + treatment + asbestos Size: >= 25000 tonnes < 75000 tonnes Regis Licence Number: BWS005 EPR reference: EA/EPR/BP3297SL/A001 Operator: Bakers Waste Services Ltd Waste Management licence No: 100545 Annual Tonnage: 74999.0	Issue Date: 15/10/2008 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Bakers Waste Services Ltd Correspondence Address: -, -
10B	363.0	W	455696, 299001	Site Address: Gees Lock, Glen Parva, Leicester, Leicestershire Type: Landfill taking other wastes Size: >= 75000 tonnes Regis Licence Number: BRI002 EPR reference: - Operator: British Waterways Waste Management licence No: 43387 Annual Tonnage: 0.0	Issue Date: 13/10/1993 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Closure Site Name: Gees Lock Correspondence Address: -, Fearns Wharf, Neptune Street, Leeds, Yorkshire, LS9 8PB
11B	363.0	W	455696, 299001	Site Address: Grand Union Canal, Gees Lock, Glen Parva, Leicester, Leicestershire, LE9 5BA Type: Landfill taking other wastes Size: < 25000 tonnes Regis Licence Number: BRI002 EPR reference: EA/EPR/CP3993MM/S001 Operator: British Waterways Waste Management licence No: 43387 Annual Tonnage: 0.0	Issue Date: 13/10/1993 Effective Date: - Modified: - Surrendered Date: 28/01/2009 Expiry Date: - Cancelled Date: - Status: Surrendered Site Name: Gees Lock Correspondence Address: -, -
12C	511.0	S	456379, 298160	Site Address: Winchester Avenue, Blaby Industrial Estate, Blaby, Leicestershire, LE8 4GN Type: In-House Storage Facility Size: Unknown Regis Licence Number: FCH001 EPR reference: - Operator: F C Heaton Ltd Waste Management licence No: 43339 Annual Tonnage: 0.0	Issue Date: 28/03/1994 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: F C Heaton Ltd Correspondence Address: -, 23, Richardshaw Road, Grangefield Ind Estate, Pudsey, Leeds, Yorkshire, LS28 6QX
13C	511.0	S	456379, 298160	Site Address: Unit 4b, Winchester Avenue, Blaby Ind Est, Blaby, Leicestershire, LE8 4GNZ Type: In-House Storage Facility Size: < 25000 tonnes Regis Licence Number: FCH001 EPR reference: EA/EPR/EP3493CH/A001 Operator: F C Heaton Ltd Waste Management licence No: 43339 Annual Tonnage: 7500.0	Issue Date: 28/03/1994 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: F C Heaton Ltd Correspondence Address: -, -
14	672.0	SW	455548, 298079	Site Address: Whetstone Transfer Station, Enderby Road, Whetstone, Leicester, Leicestershire, LE8 6JL Type: Special Waste Transfer Station Size: >= 25000 tonnes < 75000 tonnes Regis Licence Number: LEI006 EPR reference: EA/EPR/DP3093CB/V003 Operator: Leicestershire County Council Waste Management licence No: 43385 Annual Tonnage: 50000.0	Issue Date: 31/10/1980 Effective Date: - Modified: 07/07/2006 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: Whetstone Transfer Station Correspondence Address: -, -

15D	731.0	SW	455383, 298156	Site Address: Maxi Waste Skip Hire, Enderby Road Ind Est, Whetstone, Leicester, Leicestershire, LE8 6HZ Type: Household, Commercial & Industrial Waste T Stn Size: < 25000 tonnes Regis Licence Number: WAS160 EPR reference: EA/EPR/EB3939AD/T001 Operator: Wastecycle Ltd Waste Management licence No: 43329 Annual Tonnage: 50000.0	Issue Date: 09/10/1998 Effective Date: 10/02/2012 Modified: 11/12/2003 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Transferred Site Name: Wastecycle Skip Hire Correspondence Address: -, -
16D	731.0	SW	455383, 298156	Site Address: Maxi Waste Skip Hire, Enderby Road Ind Est, Whetstone, Leicester, Leicestershire, LE8 6HZ Type: Household, Commercial & Industrial Waste T Stn Size: < 25000 tonnes Regis Licence Number: MAX001 EPR reference: EA/EPR/BP3595SU/V002 Operator: Maxi Waste Ltd Waste Management licence No: 43329 Annual Tonnage: 50000.0	Issue Date: 09/10/1998 Effective Date: - Modified: 11/12/2003 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: Maxi Waste Skip Hire Ltd Correspondence Address: -, -
17D	732.0	SW	455382, 298156	Site Address: Enderby Road Industrial Estate, Whetstone, Leicester, Leicestershire, LE8 6HZ Type: Household, Commercial & Industrial Waste T Stn Size: < 25000 tonnes Regis Licence Number: MAX001 EPR reference: - Operator: J F Abraham Waste Management licence No: 43329 Annual Tonnage: 0.0	Issue Date: 09/10/1998 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Maxi Waste Skip Hire Ltd Correspondence Address: -, Enderby Road Industrial Estate, Whetstone, Leicester, Leicestershire, LE8 6HZ
18D	732.0	SW	455369, 298172	Site Address: Maxi Waste Depot, Enderby Road Ind Est, Whetstone, Leicester, Leicestershire, LE8 6HZ Type: Vehicle depollution facility Size: < 25000 tonnes Regis Licence Number: WAS159 EPR reference: EA/EPR/EB3938RF/T001 Operator: Wastecycle Ltd Waste Management licence No: 100625 Annual Tonnage: 2499.0	Issue Date: 23/10/2008 Effective Date: 13/02/2012 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Transferred Site Name: Wastecycle Depot Correspondence Address: -, -
19D	732.0	SW	455369, 298172	Site Address: Maxi Waste Depot, Enderby Road Ind Est, Whetstone, Leicester, Leicestershire, LE8 6HZ Type: Vehicle depollution facility Size: < 25000 tonnes Regis Licence Number: MAX011 EPR reference: EA/EPR/CP3190LU/A001 Operator: Maxi - Waste Ltd Waste Management licence No: 100625 Annual Tonnage: 2499.0	Issue Date: 23/10/2008 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Maxi - Waste Depot Correspondence Address: -, -
Not shown	1166.0	W	454787, 298540	Site Address: St Johns, Narborough, Leicester, Leicestershire, LE9 5BS Type: Metal Recycling Site (Vehicle Dismantler) Size: < 25000 tonnes Regis Licence Number: CLA001 EPR reference: EA/EPR/WP3293CP/S002 Operator: Clarks Garage Narborough Waste Management licence No: 43360 Annual Tonnage: 800.0	Issue Date: 06/08/1993 Effective Date: - Modified: - Surrendered Date: 10/01/2000 Expiry Date: - Cancelled Date: - Status: Surrendered Site Name: Clarks Garage (Narborough) Ltd Correspondence Address: -, -
Not shown	1166.0	W	454787, 298539	Site Address: St Johns, Narborough, Leicester, Leicestershire, LE9 5BS Type: Metal Recycling Site (Vehicle Dismantler) Size: Unknown Regis Licence Number: CLA001 EPR reference: - Operator: Clarks Garage Narborough Waste Management licence No: 43360 Annual Tonnage: 0.0	Issue Date: 06/08/1993 Effective Date: - Modified: - Surrendered Date: 10/01/2000 Expiry Date: - Cancelled Date: - Status: Surrendered Site Name: Clarks Garage (Narborough) Ltd Correspondence Address: -, St Johns, Narborough, Leicester, Leicestershire, LE9 5BS

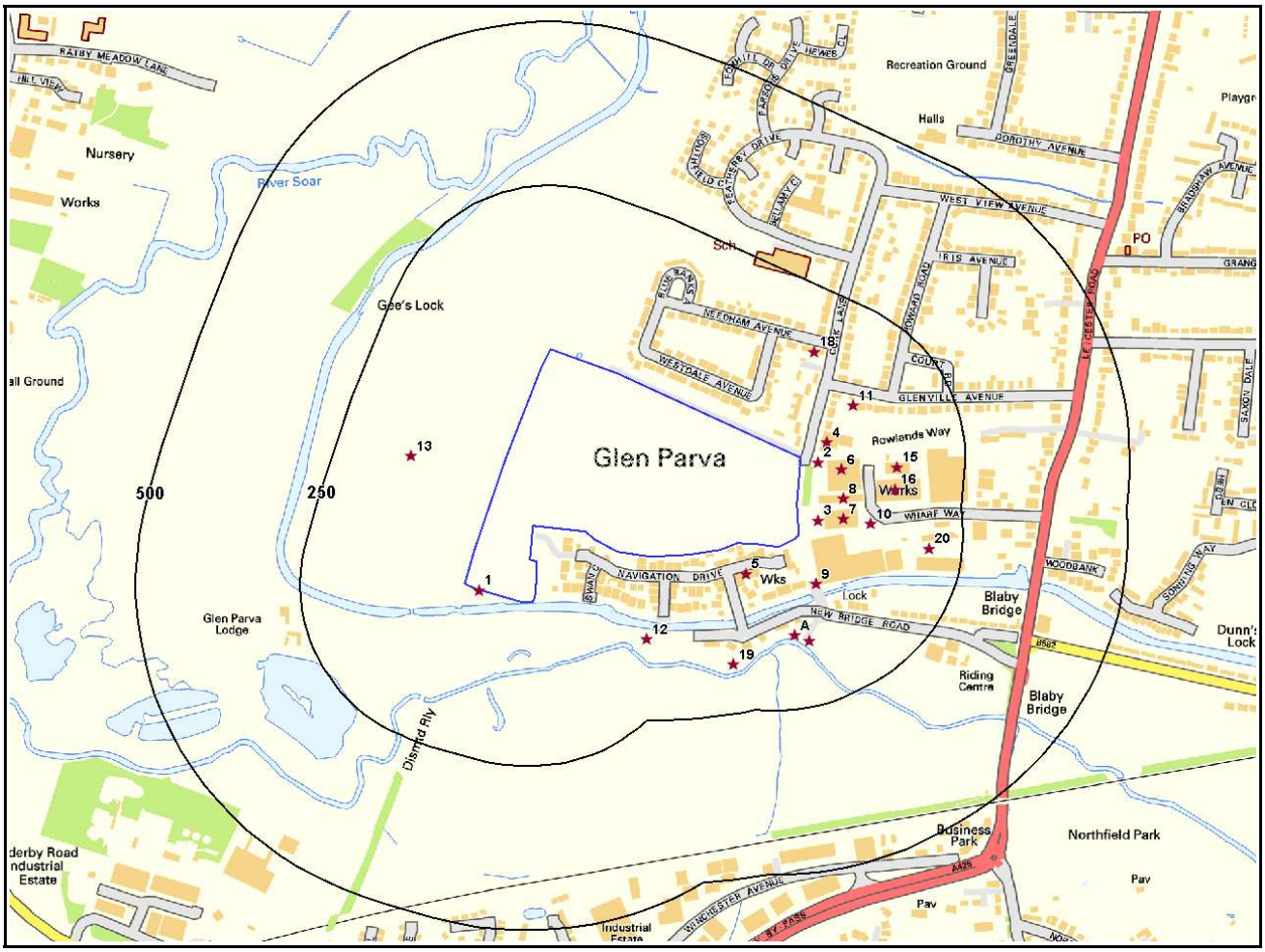
Not shown	1180.0	E	457550, 298250	Site Address: The Grange, Units 111, Little Glen Road, Glen Parva, Leicester, Leics, LE2 9TW Type: Vehicle Depollution Facility <5000 tps Size: < 25000 tonnes Regis Licence Number: MAR231 EPR reference: EA/EPR/RP3395VD/V002 Operator: J M Car Breakers Ltd Waste Management licence No: 102246 Annual Tonnage: 4999.0	Issue Date: 10/05/2011 Effective Date: - Modified: 24/08/2011 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: J M Car Breakers Correspondence Address: -, -
Not shown	1180.0	E	457550, 298250	Site Address: The Grange, Units 111, Little Glen Road, Glen Parva, Leicester, LE2 9TW Type: Vehicle depollution facility Size: < 25000 tonnes Regis Licence Number: MAR231 EPR reference: EA/EPR/RP3395VD/A001 Operator: J M Car Breakers Ltd Waste Management licence No: 102246 Annual Tonnage: 74999.0	Issue Date: 10/05/2011 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: J M Car Breakers Correspondence Address: -, -
Not shown	1180.0	E	457556, 298265	Site Address: Glenford Grange, Unit 9, Little Glen Road, Glen Parva, Leicester, Leicestershire, LE2 9TW Type: ELV Facility Size: < 25000 tonnes Regis Licence Number: AUT005 EPR reference: EA/EPR/AP3090CV/A001 Operator: A & P Autosalvage Waste Management licence No: 43673 Annual Tonnage: 2499.0	Issue Date: 23/06/2005 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: A & P Autosalvage Ltd Correspondence Address: -, -

3. Current Land Use Map

NW ▲ N NE

◄W E►

SW ▼ S SE



Current Land Use Legend

Site Outline

250
500
Search Buffers (m)

Current Industrial Sites

Petrol & Fuel Sites

Underground High Pressure Oil & Fuel Pipelines

3. Current Land Uses

3.1 Current Industrial Data

Records of potentially contaminative industrial sites within 250m of the study site: **20**

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

ID	Distance	Direction	Company	Address	Activity	Category
1	1.0	S	Pylon	LE2	Electrical Features	Infrastructure and Facilities
2	26.0	E	Electricity Sub Station	LE2	Electrical Features	Infrastructure and Facilities
3	30.0	E	Works	LE2	Unspecified Works Or Factories	Industrial Features
4	46.0	NE	Works	LE2	Unspecified Works Or Factories	Industrial Features
5	46.0	S	Blind Rack Ltd	32, Navigation Drive, Glen Parva, Leicester, LE2 9TB	Curtains and Blinds	Consumer Products
6	63.0	E	Factory	LE2	Unspecified Works Or Factories	Industrial Features
7	69.0	E	Works	LE2	Unspecified Works Or Factories	Industrial Features
8	70.0	E	Warehouse	LE2	Container and Storage	Transport, Storage and Delivery
9	77.0	SE	Gas Governor	LE2	Gas Features	Infrastructure and Facilities
10	110.0	E	Electricity Sub Station	LE2	Electrical Features	Infrastructure and Facilities
11	112.0	NE	Electricity Sub Station	LE2	Electrical Features	Infrastructure and Facilities
12	126.0	S	Pylon	LE2	Electrical Features	Infrastructure and Facilities
13	137.0	W	Pylon	LE2	Electrical Features	Infrastructure and Facilities
14 A	137.0	S	Tank	LE2	Tanks (Generic)	Industrial Features
15	147.0	E	Works	LE2	Unspecified Works Or Factories	Industrial Features
16	148.0	E	Works	LE2	Unspecified Works Or Factories	Industrial Features
17 A	151.0	S	Electricity Sub Station	LE2	Electrical Features	Infrastructure and Facilities
18	155.0	NE	Air Auto Id Resource Ltd	2a The Parade, Needham Avenue, Glen Parva, Leicester, LE2 9JW	Stationery, Stamps, Tags and Labels	Industrial Products
19	176.0	S	Pylon	LE2	Electrical Features	Infrastructure and Facilities
20	199.0	E	Depot	LE2	Container and Storage	Transport, Storage and Delivery

3.2 Petrol and Fuel Sites

Records of petrol or fuel sites within 500m of the study site: **0**

Database searched and no data found.

3.3 Underground High Pressure Oil and Gas Pipelines

Records of high pressure underground pipelines within 500m of the study site: **0**

Database searched and no data found.

4. Geology

4.1 Artificial Ground and Made Ground

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

LEX Code	Description	Rock Type
MGR-MGRD	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
WMGR-MGRD	INFILLED GROUND	ARTIFICIAL DEPOSIT
MGR-MGRD	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
WMGR-MGRD	INFILLED GROUND	ARTIFICIAL DEPOSIT

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

4.2 Superficial Ground and Drift Geology

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

Lex Code	Description	Rock Type
THT-DMTN	THRUSSINGTON MEMBER	DIAMICTON
GFDMP-SAGR	GLACIOFLUVIAL DEPOSITS, MID PLEISTOCENE	SAND AND GRAVEL
GFDMP-SAGR	GLACIOFLUVIAL DEPOSITS, MID PLEISTOCENE	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
BCMU-MDST	BRANSCOMBE MUDSTONE FORMATION	MUDSTONE

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

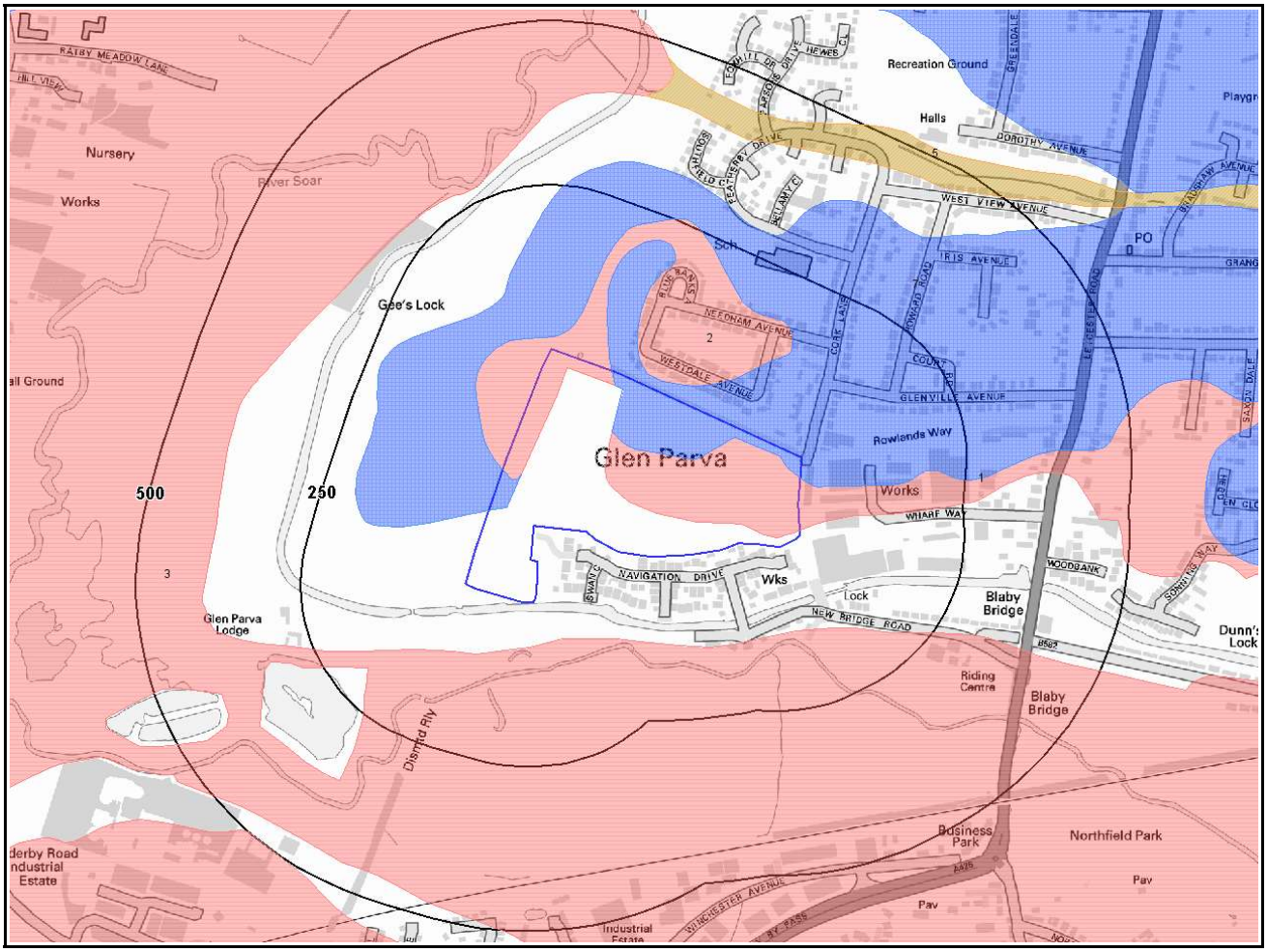
For more detailed geological and ground stability data please refer to the "GroundSure GeoInsight". Available from our website.

5a. Hydrogeology - Aquifer Within Superficial Geology

NW N NE

W E

SW S SE

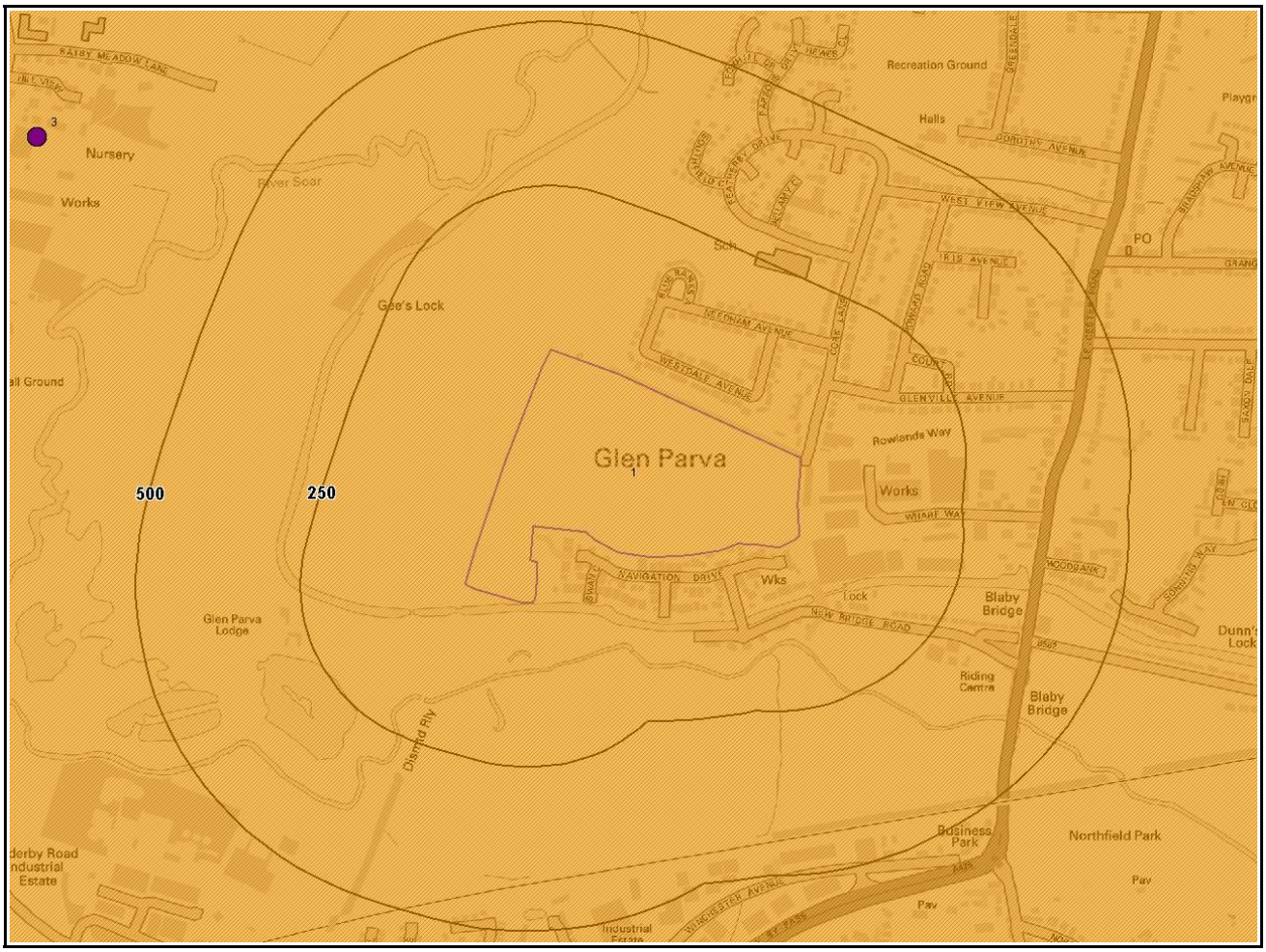


Aquifer Within Superficial Geology Legend

- Site Outline
- 250 / 500 — Search Buffers (m)
- Principal Aquifer
- Secondary (A) Aquifer - Permeable Layers
- Secondary (B) Aquifer - Lower Permeability Layers
- Secondary Aquifer - Undifferentiated Layers
- Unproductive
- Unknown (lakes and landslip)

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

NW N NE



W E

SW S SE

Aquifer Within Bedrock Geology Legend

Enabled by Ordnance Survey

Site Outline

250
500
Search Buffers (m)

Principal Aquifer

Secondary (A) Aquifer - Permeable Layers

Secondary (B) Aquifer - Lower Permeability Layers

Groundwater Abstraction Licence

Secondary Aquifer - Undifferentiated Layers

Unproductive

Unknown (lakes and landslip)

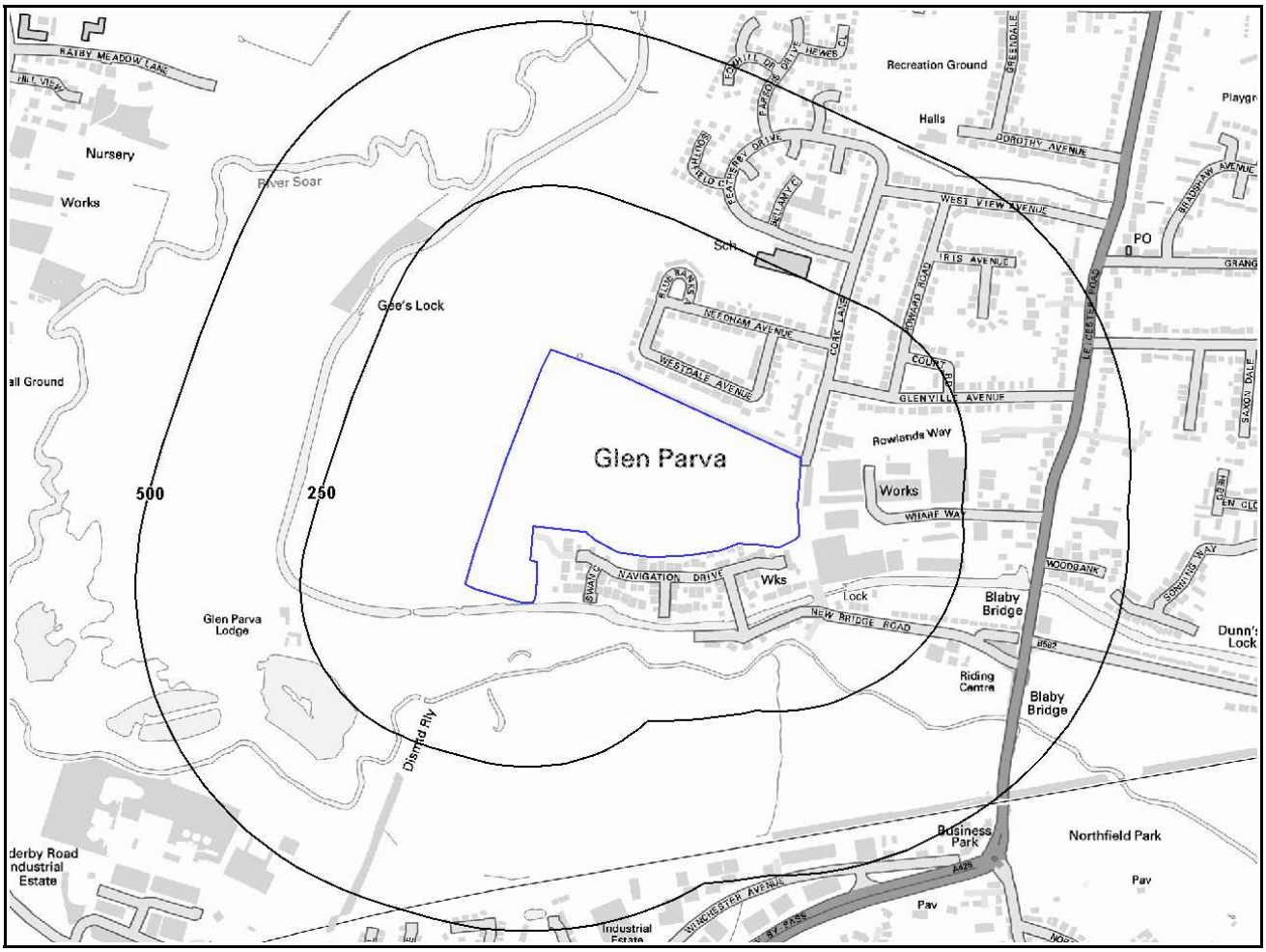
Surface Water Abstraction Licence

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

NW N NE

W E

SW S SE



SPZ and Potable Water Abstraction Licenses Legend

Site Outline

250
500
Search Buffers (m)

Source Protection Zone 1 - Inner Catchment

Source Protection Zone 2 - Outer Catchment

Source Protection Zone 3 - Total Catchment

Source Protection Zone 4 - Zone of Special Interest

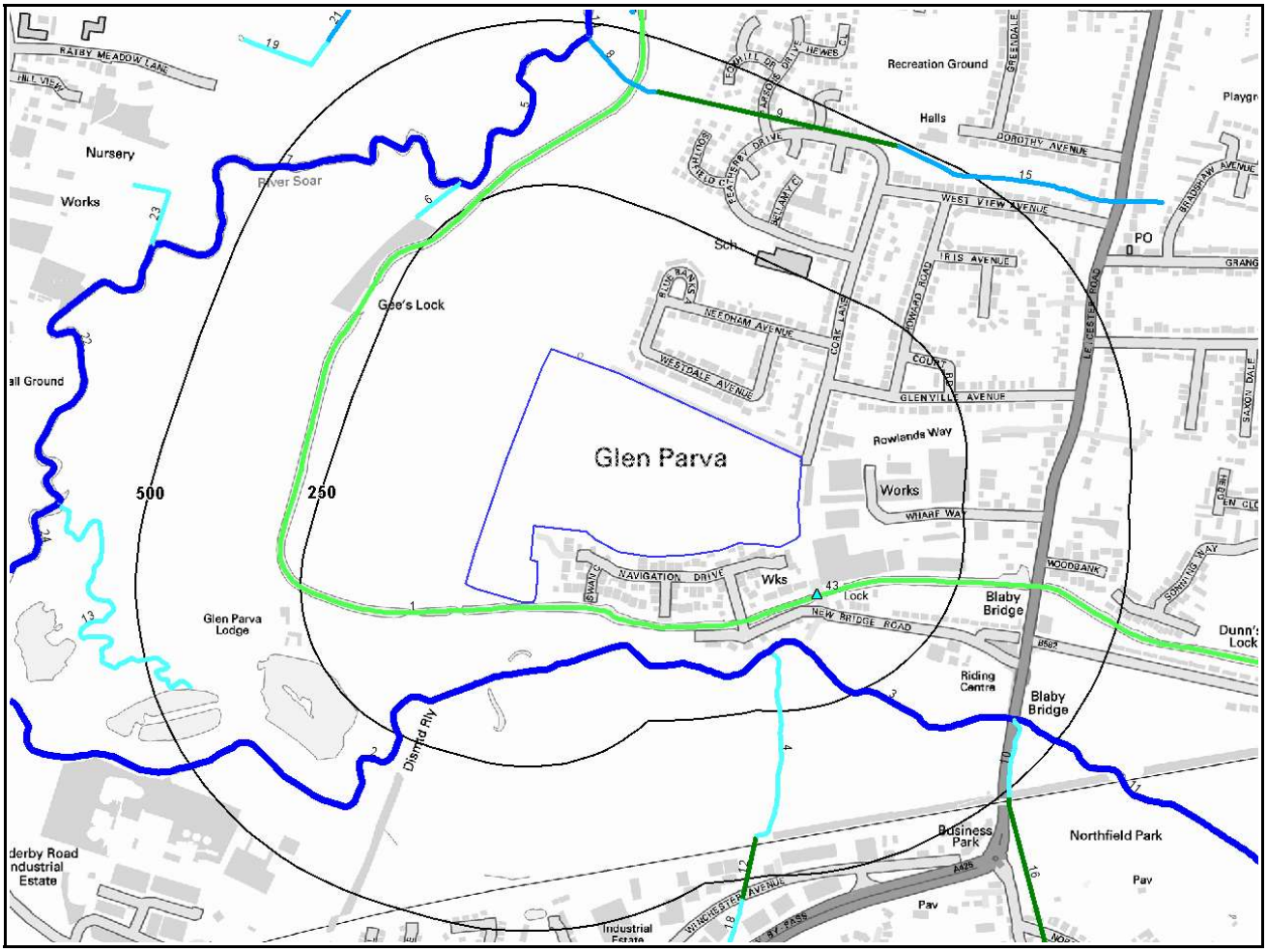
Potable Water Abstraction Licence

5d. Hydrology – Detailed River Network and River Quality

NW N NE

W E

SW S SE



Hydrology Legend

Enabled by Ordnance Survey

- Site Outline
- 250 / 500 — Search Buffers (m)
- Primary River
- Secondary River
- Tertiary River
- Lake/Reservoir
- Underground River (inferred)
- General Quality Assessment: Chemistry
- Canal
- Canal Tunnel
- Extended Culvert (greater than 50m)
- D/S of High Water Mark
- D/S seaward extension
- 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
1	0.0	On Site	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
2	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
7	0.0	On Site	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow
3	65.0	S	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	405.0	NE	Secondary B	Predominantly lower permeability layers which may store/yield limited amounts of groundwater due to localised features such as fissures, thin permeablehorizons and weathering. These are generally the water-bearing parts of the former non-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	Secondary B	Predominantly lower permeability layers which may store/yield limited amounts of groundwater due to localised features such as fissures, thin permeablehorizons and weathering. These are generally the water-bearing parts of the former non-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	
3	843.0	NW	455300, 299300	Licence No: 03/28/52/0003 Details: Spray Irrigation - Direct Direct Source: Groundwater Midlands Region Point: Narboro' Road Nurseries - Borehole And Well Data Type: Point	Annual Volume (m³): 9092.15 Max Daily Volume (m³): 54.55 Original Application No: - Original Start Date: 20/1/1966 Expiry Date: - Issue No: 101 Version Start Date: 16/3/2005 Version End Date:
Not shown	1843.0	S		Licence No: 03/28/50/0110 Details: Non-Evaporative Cooling Direct Source: Groundwater Midlands Region Point: Whetstone Works - Borehole Data Type: Point	Annual Volume (m³): 9092 Max Daily Volume (m³): 327.3 Original Application No: - Original Start Date: 6/10/1969 Expiry Date: - Issue No: 102 Version Start Date: 2/6/2006 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	
Not shown	1741.0	W	454230, 298350	Licence No: 03/28/50/0130 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: Enderby Golf Course Data Type: Point	Annual Volume (m³): - Max Daily Volume (m³): - Application No: - Original Start Date: 26/3/1993 Expiry Date: - Issue No: 100 Version Start Date: 1/4/2000 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**

Biological Quality:

Report Reference: EMS-195848_285919

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	759.0	W	455200, 298500	River Name: Sence (soar) Reach: Ford At Blaby To Conf. R. Soar End/Start of Stretch: End of Stretch NGR	C	C	C	C	C
Not shown	1201.0	SE	457500, 298100	River Name: Sence (soar) Reach: Ford At Blaby To Conf. R. Soar End/Start of Stretch: Start of Stretch NGR	C	C	C	C	C
Not shown	1201.0	SE	457500, 298100	River Name: Sence (soar) Reach: Wigston Stw Outfall To Ford At Blaby End/Start of Stretch: End of Stretch NGR	C	C	C	C	C

Chemical Quality:

Chemical quality data is based on the General Quality Assessment Headline Indicators scheme (GQAHI). 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
43	92.0	SE	456483, 298601	River Name: Grand Union Canal Reach: Kings Lock To Wistow Hall Fleckney End/Start of Stretch: Sample Point NGR	B	B	B	B	B
Not shown	759.0	W	455200, 298500	River Name: Sence R Reach: Ford At Blaby To Conf R Soar End/Start of Stretch: End of Stretch NGR	C	D	C	C	B
Not shown	789.0	W	455174, 298476	River Name: Sence R Reach: Ford At Blaby To Conf R Soar End/Start of Stretch: Sample Point NGR	C	D	C	C	B
Not shown	858.0	W	455100, 298500	River Name: Soar R Reach: Conf R Sence To Grand Union Canal End/Start of Stretch: Start of Stretch NGR	C	C	B	B	A
Not shown	858.0	W	455100, 298500	River Name: Soar R Reach: Whetstone Bk To Conf R Sence End/Start of Stretch: End of Stretch NGR	C	C	B	B	B
Not shown	877.0	W	455082, 298495	River Name: Soar R Reach: Whetstone Bk To Conf R Sence End/Start of Stretch: Sample Point NGR	C	C	B	B	B
Not shown	1201.0	SE	457500, 298100	River Name: Sence R Reach: Ford At Blaby To Conf R Soar End/Start of Stretch: Start of Stretch NGR	C	D	C	C	B

Not shown	1201.0	SE	457500, 298100	River Name: Sence R Reach: Wigston Stw Outfall To Ford At Blaby End/Start of Stretch: End of Stretch NGR	C	C	C	B	B
Not shown	1495.0	S	455664, 297143	River Name: Whetstone Bk Reach: Narborough Stw To Conf R Soar End/Start of Stretch: Sample Point NGR	E	E	B	C	C

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	8.0	S	River Name: Grand Union Canal Water Course Name: - Welsh River Name: - Alternative Name: -	River Type: Canal Catchment: - Drain: NO Main River Status: Currently Undefined
2	101.0	S	River Name: River Sence Water Course Name: RIVER SENCE Welsh River Name: - Alternative Name: -	River Type: Primary River Catchment: - Drain: NO Main River Status: Currently Undefined
3	144.0	S	River Name: River Sence Water Course Name: RIVER SENCE Welsh River Name: - Alternative Name: -	River Type: Primary River Catchment: - Drain: NO Main River Status: Currently Undefined
4	160.0	S	River Name: Sence Water Course Name: - Welsh River Name: - Alternative Name: -	River Type: Tertiary River Catchment: - Drain: NO Main River Status: Currently Undefined
5	276.0	NW	River Name: River Soar Water Course Name: RIVER SOAR Welsh River Name: - Alternative Name: -	River Type: Primary River Catchment: - Drain: NO Main River Status: Currently Undefined
6	284.0	NW	River Name: Drain Water Course Name: - Welsh River Name: - Alternative Name: -	River Type: Tertiary River Catchment: - Drain: YES Main River Status: Currently Undefined
7	287.0	NW	River Name: River Soar Water Course Name: RIVER SOAR Welsh River Name: - Alternative Name: -	River Type: Primary River Catchment: - Drain: NO Main River Status: Currently Undefined
8	419.0	N	River Name: - Water Course Name: - Welsh River Name: - Alternative Name: -	River Type: Secondary River Catchment: - Drain: NO Main River Status: Currently Undefined
9	423.0	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
10	427.0	SE	River Name: River Sence Water Course Name: - Welsh River Name: - Alternative Name: -	River Type: Tertiary River Catchment: - Drain: NO Main River Status: Currently Undefined
11	427.0	SE	River Name: River Sence Water Course Name: RIVER SENCE Welsh River Name: - Alternative Name: -	River Type: Primary River Catchment: - Drain: NO Main River Status: Currently Undefined
12	439.0	S	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
13	446.0	W	River Name: Drain Water Course Name: - Welsh River Name: - Alternative Name: -	River Type: Tertiary River Catchment: - Drain: YES Main River Status: Currently Undefined
14	480.0	N	River Name: - Water Course Name: RIVER SOAR Welsh River Name: - Alternative Name: -	River Type: Primary River Catchment: - Drain: NO Main River Status: Currently Undefined

15	490.0	NE	River Name: - Water Course Name: - Welsh River Name: - Alternative Name: -	River Type: Secondary 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:

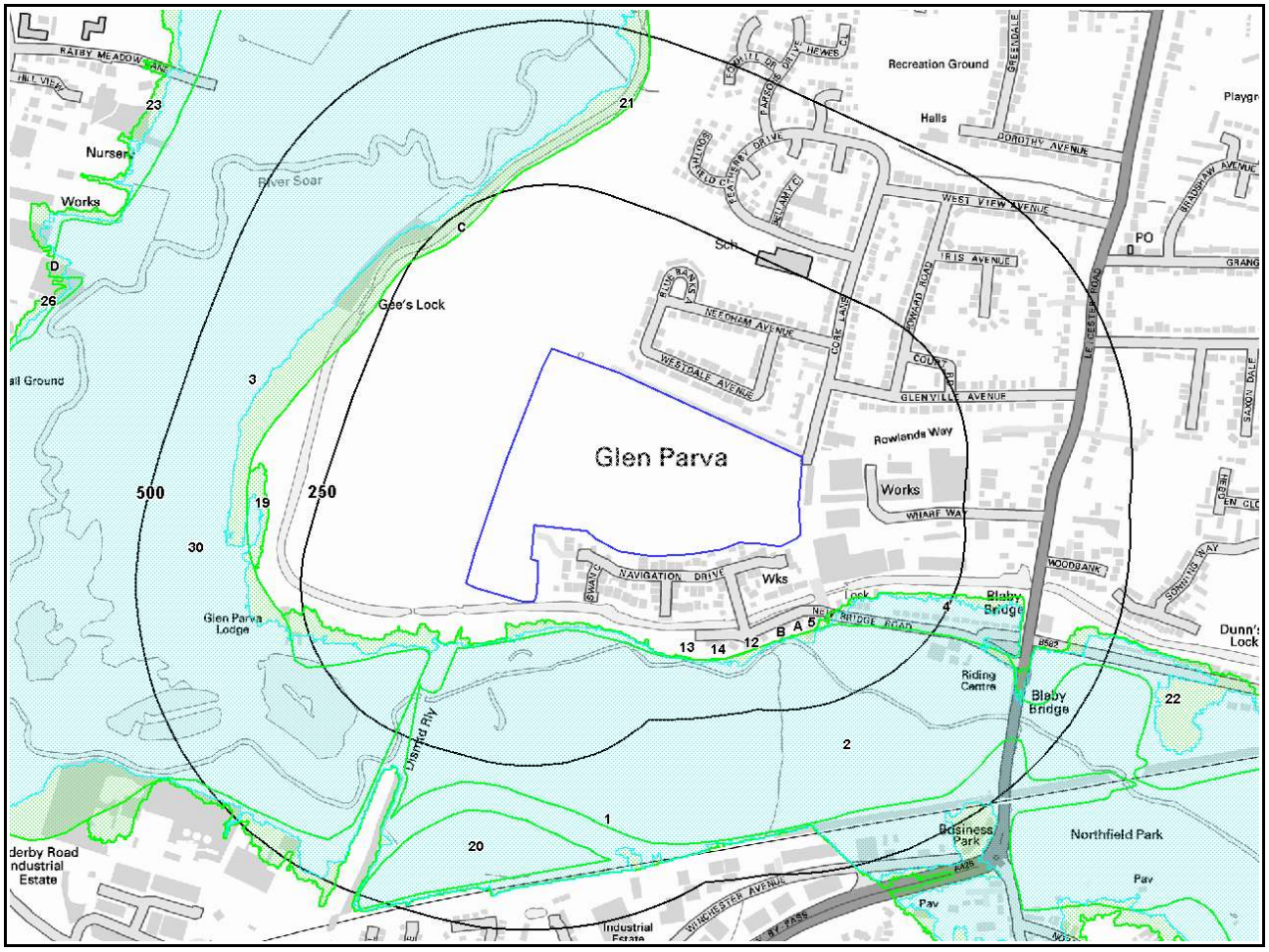
Distance to Surface Water (m)	on-site	0-50	51-250
Surface water features within 250m of the study site	No	Yes	Yes

6. Environment Agency Flood Map

NW ▲ N NE

◄W E►

SW ▼ S SE



Environment Agency Flood Legend

- Site Outline
- 250 / 500 — Search Buffers (m)
- Zone 2 Floodplain
- Zone 3 Floodplain
- Flood Storage Area
- Area Benefiting from Flood Defences
- Flood Defences

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? **Yes**

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

ID	Distance	Direction	Update	Type
1	31.0	S	30-Nov-2012	Zone 2 - (Fluvial Models)
2	52.0	S	30-Nov-2012	Zone 2 - (Fluvial Models and Fluvial Events)
3	119.0	SW	30-Nov-2012	Zone 2 - (Fluvial Models and Fluvial Events)
4	123.0	SE	30-Nov-2012	Zone 2 - (Fluvial Models)
5	137.0	S	30-Nov-2012	Zone 2 - (Fluvial Events)
6A	138.0	S	30-Nov-2012	Zone 2 - (Fluvial Models)
7A	139.0	S	30-Nov-2012	Zone 2 - (Fluvial Models)
8A	139.0	S	30-Nov-2012	Zone 2 - (Fluvial Models)
9B	145.0	S	30-Nov-2012	Zone 2 - (Fluvial Models)
10B	147.0	S	30-Nov-2012	Zone 2 - (Fluvial Models)
11B	148.0	S	30-Nov-2012	Zone 2 - (Fluvial Events)
12	151.0	S	30-Nov-2012	Zone 2 - (Fluvial Models)
13	151.0	S	30-Nov-2012	Zone 2 - (Fluvial Models)
14	162.0	S	30-Nov-2012	Zone 2 - (Fluvial Models)
15C	224.0	NW	30-Nov-2012	Zone 2 - (Fluvial Events)
16C	224.0	NW	30-Nov-2012	Zone 2 - (Fluvial Events)
17C	224.0	NW	30-Nov-2012	Zone 2 - (Fluvial Models)

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? **Yes**

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

ID	Distance	Direction	Update	Type
30	44.0	S	30-Nov-2012	Zone 3 - (Fluvial Models)

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?	**High**

Notes:

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

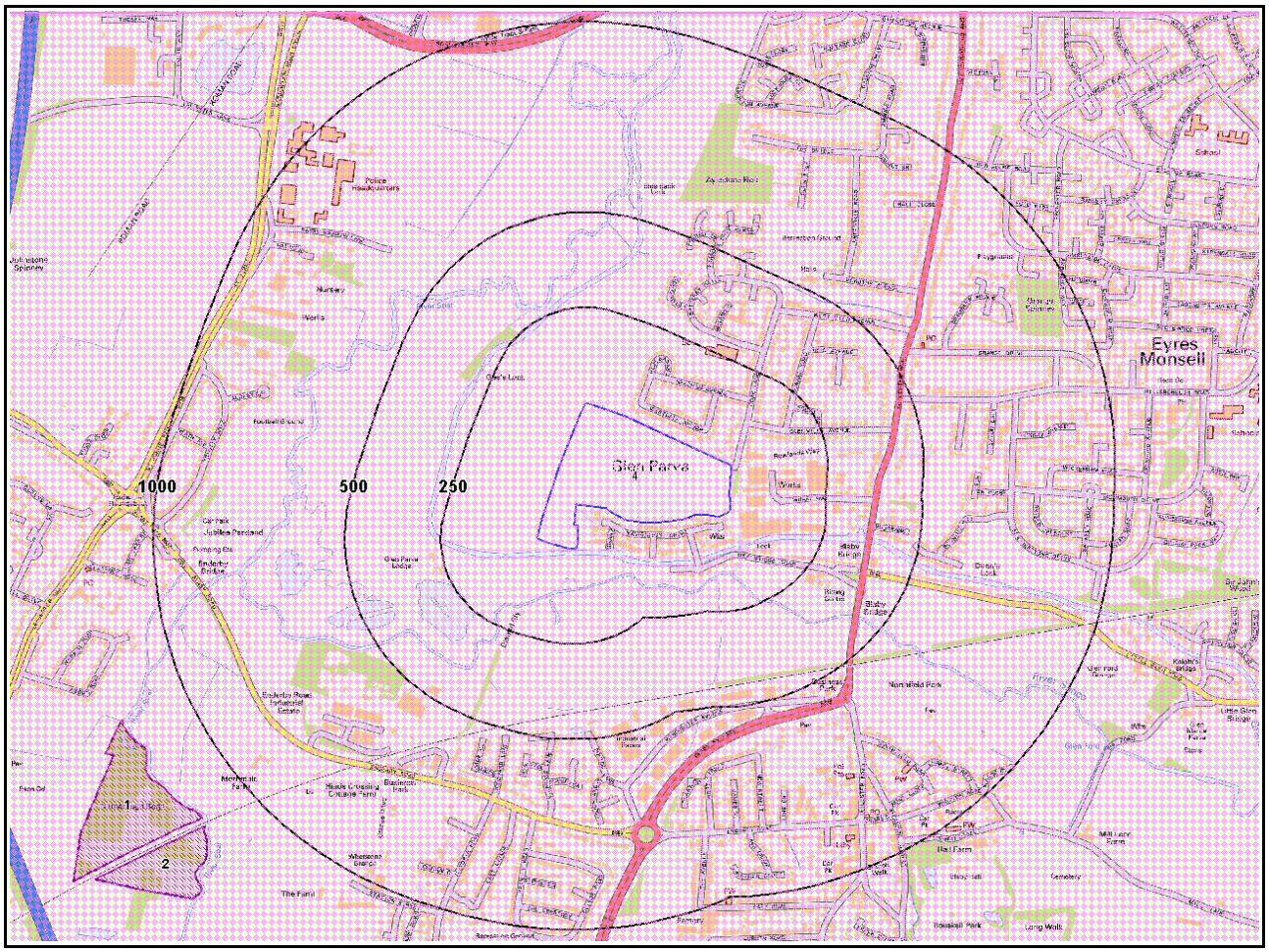
The **confidence rating** is on a threefold scale - Low, Moderate and High. This provides a relative indication of the BGS confidence in the accuracy of the susceptibility result for groundwater flooding. This is based on the amount and precision of the information used in the assessment. In areas with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

7.Designated Environmentally Sensitive Sites Map

NW ▲ N NE

◄W E►

SW ▼ S SE



Designated Environmentally Sensitive Sites Legend

Enabled by Ordnance Survey

- Site Outline
- SAC
- SSSI
- NNR
- World Heritage Sites
- SPA
- Ramsar
- LNR
- Environmentally Sensitive Areas
- Areas of Outstanding Natural Beauty
- Nitrate Vulnerable Zones
- Nitrate Sensitive Areas
- National Parks
- Ancient Woodlands

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: 2

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
1	1139.0	SW	Narborough Bog	Natural England
2	1149.0	SW	Narborough Bog	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: 1

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
Not shown	1382.0	N	Aylestone Meadows	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: **2**

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	1024.0	N	NVZ Area	DEFRA

Records of Ancient Woodland within 2000m of the study site: **0**

Database searched and no data found.

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? **Negligible**

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

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

8.1.4 Compressible Ground

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

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

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

8.1.5 Collapsible Rocks

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

8.1.6Running 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? **No**

Database searched and no data found.

9.2 Shallow Mining

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

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

9.3 Brine Affected Areas

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

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: Blaby District Council
Phone: 0116 275 0555
Web: www.blaby.gov.uk
Address: Desford Road, Narborough, Leicester, LE19 2EP

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

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

7.1Subject 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.

7.2GroundSure 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 GroudSure'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 he 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.

EmapSite
Masdar House,
Eversley, RG27 0RP

Report Reference:	EMS-195848_285918
Your Reference:	EMS_195848_285918
Report Date	Feb 26, 2013
Report Delivery Method:	Email - pdf

GroundSure GeoInsight

Address:

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

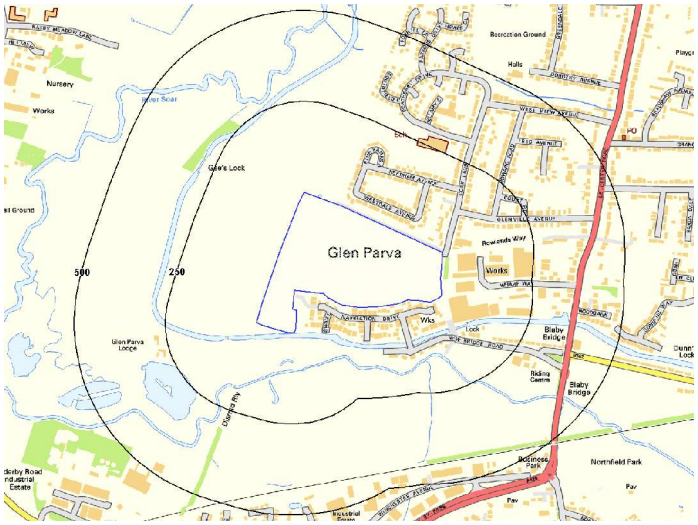
GroundSure GeoInsight

Address:

Date: Feb 26, 2013

Report Reference: EMS-195848_285918

Your Reference: EMS_195848_285918



Brought to you by emapsite

Aerial Photograph of Study Site

NW N NE

W E

SW S SE

Site Name:
Grid Reference: 456197,298780
Size of Site: 10.79 ha

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?*	Yes
1.1.2 Are there any records relating to permeability of artificial ground within the study site* boundary?	Yes
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?	No
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 not in a Radon Affected Area, as less than 1% 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?	No radon protective measures are necessary

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

Source:Scale 1:50,000 BGS Sheet No:156

2. Ground Workings	on-site	0-50	51-250	251-500	501-1000
2.1 Historical Surface Ground Working Features from Small Scale Mapping	41	26	11	-	-
2.2 Historical Underground Workings Features from Small Scale Mapping	0	0	0	0	0
2.3 Current Ground Workings	0	0	2	0	3

3. Mining, Extraction & Natural Cavities	on-site	0-50	51-250	251-500	501-1000
3.1 Historical Mining	0	0	0	0	0
3.2 Coal Mining	0	0	0	0	0
3.3 Johnson Poole and Bloomer Mining Area	0	0	0	0	0
3.4 Non-Coal Mining*	0	0	0	0	0
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	Negligible	-	-	-	-
4.4 Compressible Deposits	Moderate	-	-	-	-
4.5 Collapsible Deposits	Very Low	-	-	-	-
4.6 Running Sand	Very Low	-	-	-	-

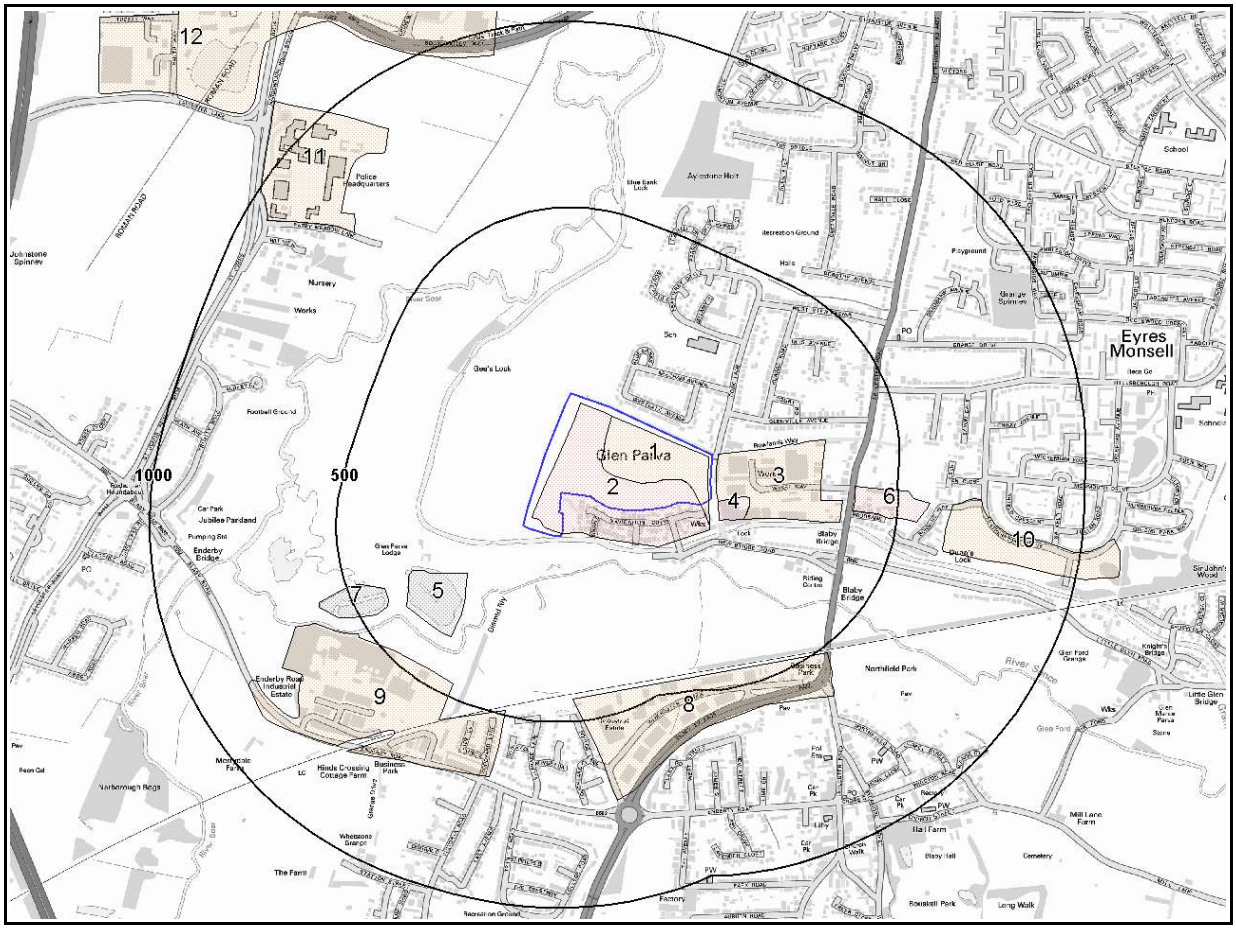
* This includes an automatically generated 50m buffer zone around the site

5. Borehole Records	on-site	0-50	51-250	251-500	501-1000
5.1 BGS Recorded Boreholes	0	2	10	-	-

6. Estimated Background Soil Chemistry	on-site	0-50	51-250	251-500	501-1000
6.1 Records of Background Soil Chemistry	4	3	0	-	-

1.1 Artificial Ground Map

NW N NE



W E

SW S SE

Artificial Ground Legend

Site Outline

500
1000
Search Buffers (m)

Made Ground (undivided)

Disturbed Ground (undivided)

Worked Ground (undivided)

Landscaped Ground (undivided)

Infilled Ground

Reclaimed Ground

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:156

1.1.1 Artificial/Made Ground

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

ID	Distance (m)	Direction	LEX Code	Description	Rock Description
1	0.0	On Site	MGR-MGRD	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
2	0.0	On Site	WMGR-MGRD	INFILLED GROUND	ARTIFICIAL DEPOSIT
3	13.0	E	MGR-MGRD	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
4	18.0	E	WMGR-MGRD	INFILLED GROUND	ARTIFICIAL DEPOSIT
5	195.0	SW	WGR-OPEN	WORKED GROUND (UNDIVIDED)	VOID
6	379.0	E	WMGR-MGRD	INFILLED GROUND	ARTIFICIAL DEPOSIT
7	406.0	SW	WGR-OPEN	WORKED GROUND (UNDIVIDED)	VOID
8	436.0	S	MGR-MGRD	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
9	460.0	SW	MGR-MGRD	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT

1.1.2 Permeability of Artificial Ground

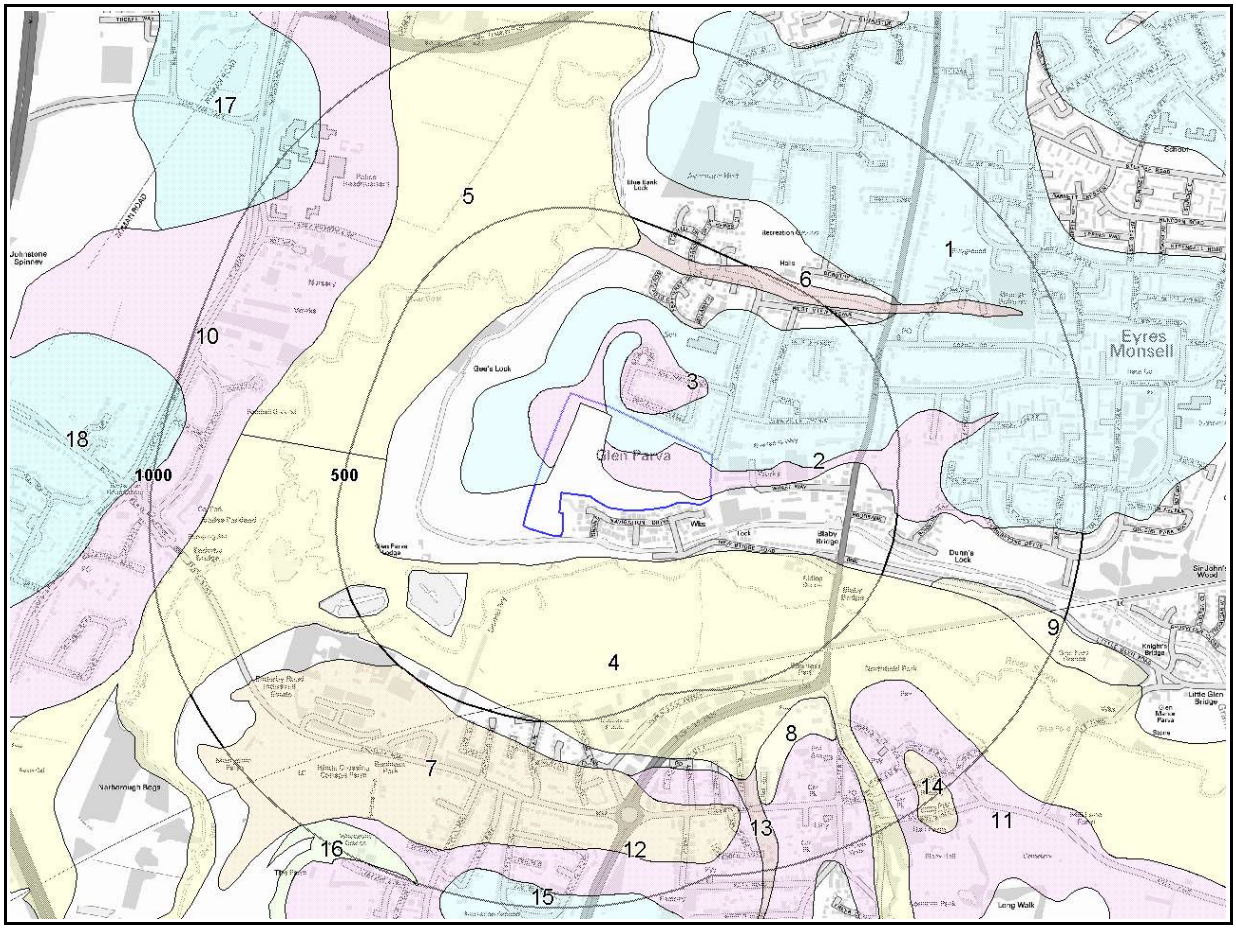
Are there any records relating to permeability of artificial ground within the study site* boundary? Yes

Distance (m)	Direction	Flow type	Maximum Permeability	Minimum Permeability
0.0	On Site	Intergranular	Very High	Very Low
0.0	On Site	Intergranular	Very High	Very Low
13.0	E	Intergranular	Very High	Very Low
18.0	E	Intergranular	Very High	Very Low

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

1.2 Superficial Deposits and Landslips Map

NW N NE



W E

SW S SE

Superficial and Landslips Legend

Site Outline

500
1000
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	0.0	On Site	THT-DMTN	THRUSSINGTON MEMBER	DIAMICTON
2	0.0	On Site	GFDMP-SAGR	GLACIOFLUVIAL DEPOSITS, MID PLEISTOCENE	SAND AND GRAVEL
3	0.0	On Site	GFDMP-SAGR	GLACIOFLUVIAL DEPOSITS, MID PLEISTOCENE	SAND AND GRAVEL
4	65.0	S	ALV-CSSG	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL
5	272.0	NW	ALV-CSSG	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL
6	405.0	NE	COLV-CSSG	COLLUVIUM	CLAY, SILT, SAND AND GRAVEL
7	500.0	SW	WASG-SAGR	WANLIP MEMBER	SAND AND GRAVEL

1.2.2 Permeability of Superficial Ground

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

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

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

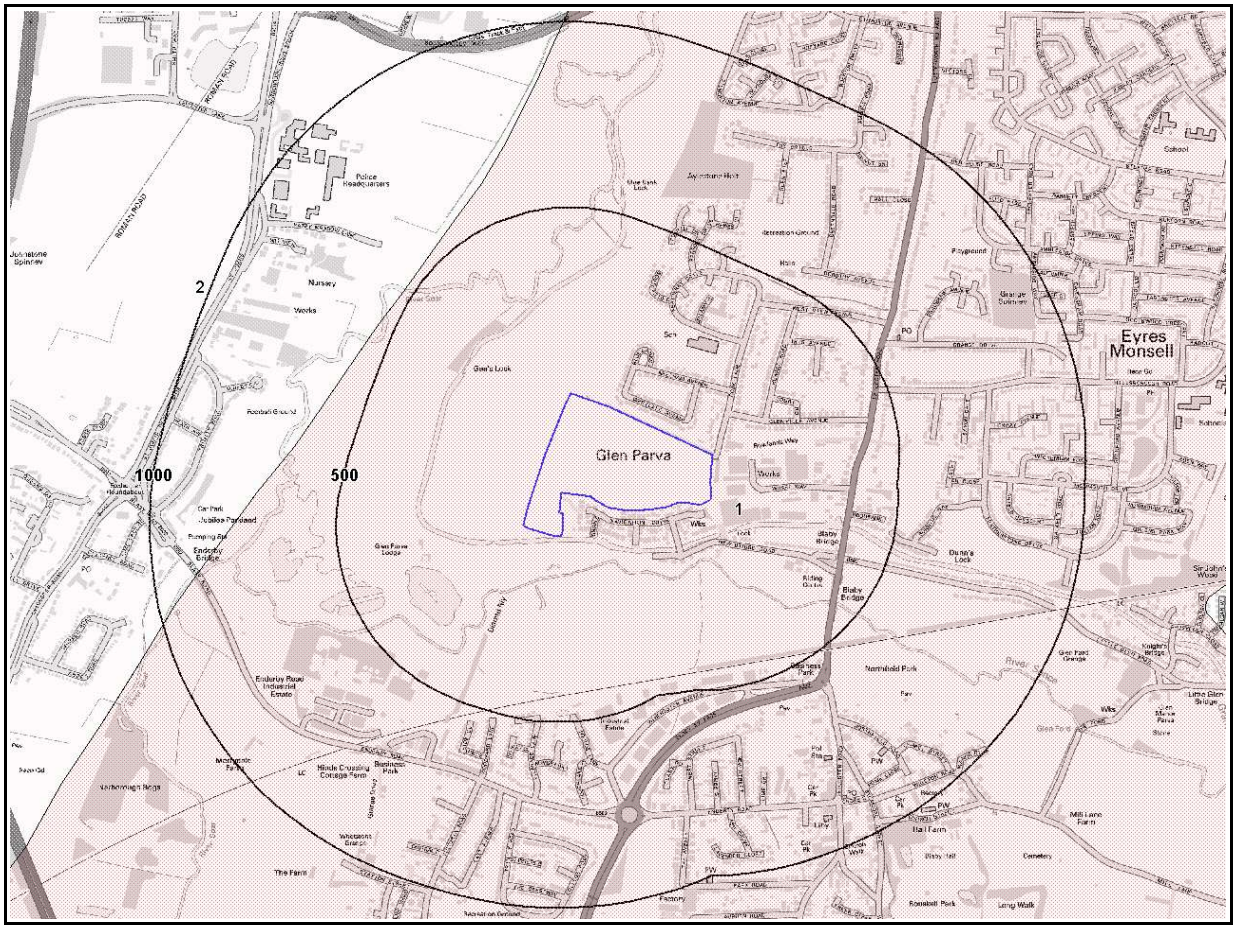
Are there any records relating to permeability of landslips within the study site* boundary? No

Database searched and no data found.

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

1.3 Bedrock and Faults Map

NW N NE



W E

SW S SE

Bedrock & Faults Deposits Legend

Site Outline

500
1000
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:156

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	BCMU-MDST	Branscombe Mudstone Formation - Mudstone	Rhaetian / Norian

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	Low	Low

1.3.3 Faults

Are there any records of Faults 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: 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

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

The property is not in a Radon Affected Area, as less than 1% of properties are above the Action Level

1.3.5 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?

No radon protective measures are necessary

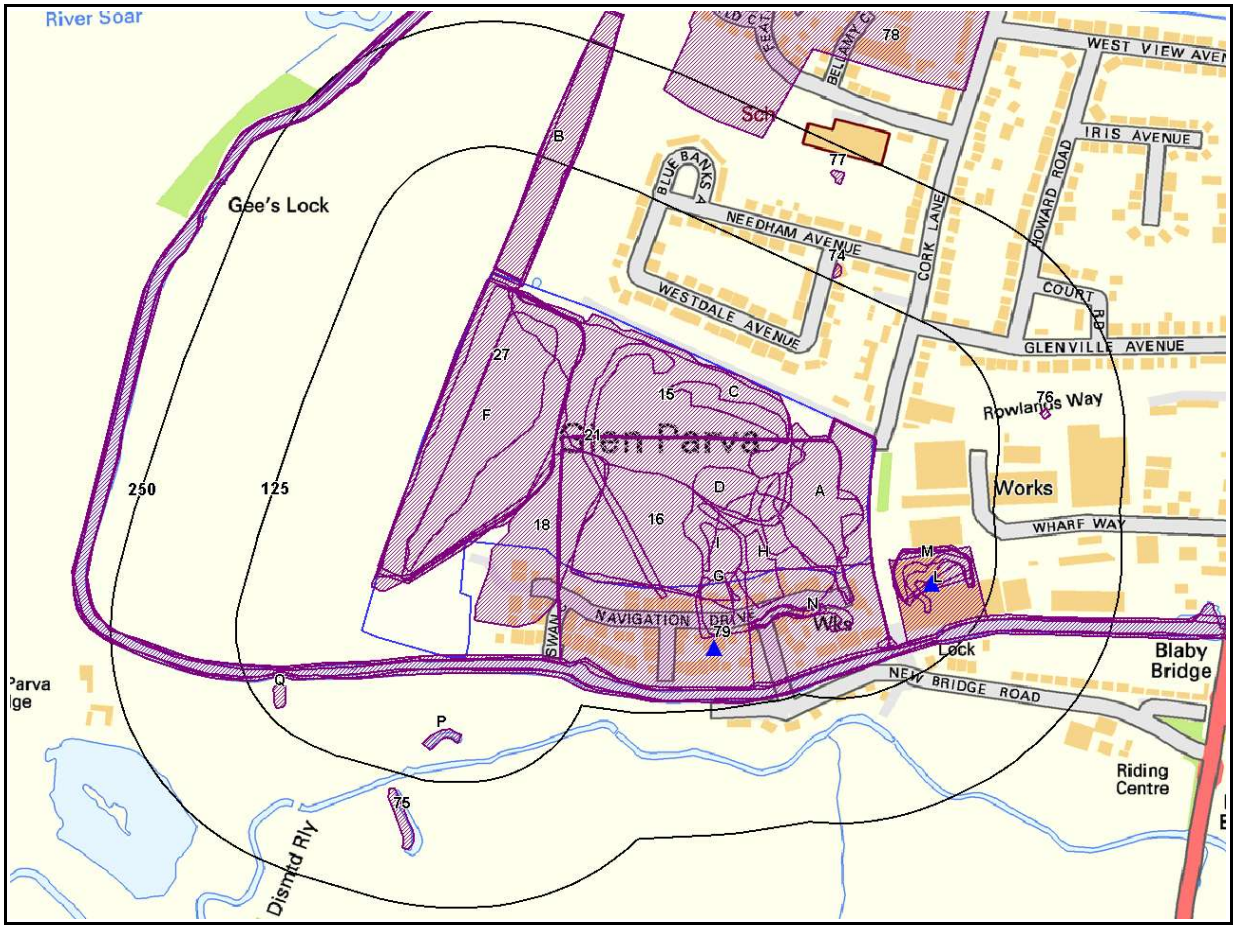
* This includes an automatically generated 50m buffer zone around the site.

2. Ground Workings Map

NW N NE

W E

SW S SE



Ground Workings Legend

Site Outline

125
250
Search Buffers (m)

Historic Surface Ground Workings

Historic Underground Workings

Current Ground Workings

2. Ground Workings

2.1 Historical Surface Ground Working Features derived from Historical Mapping

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

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

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

ID	Distance (m)	Direction	NGR	Use	Date
1A	0.0	On Site	456406,298730	Unspecified Ground Workings	1980
2A	0.0	On Site	456397,298735	Unspecified Ground Workings	1967
3A	0.0	On Site	456397,298735	Unspecified Ground Workings	1971
4A	0.0	On Site	456406,298730	Unspecified Ground Workings	1992
5H	0.0	On Site	456353,298684	Unspecified Quarry	1885
6F	0.0	On Site	456073,298818	Cuttings	1928
7B	0.0	On Site	456144,299101	Cuttings	1928
8B	0.0	On Site	456144,299101	Cuttings	1885
9B	0.0	On Site	456144,299101	Cuttings	1902
10 C	0.0	On Site	456314,298835	Unspecified Ground Workings	1971
11I	0.0	On Site	456311,298693	Brick Works	1938
12 C	0.0	On Site	456314,298835	Unspecified Ground Workings	1967
13 D	0.0	On Site	456308,298729	Unspecified Ground Workings	1967
14 G	0.0	On Site	456303,298657	Unspecified Disused Pit	1980
15	0.0	On Site	456239,298843	Refuse Heap	1980
16	0.0	On Site	456246,298719	Unspecified Disused Pit	1980
17 D	0.0	On Site	456308,298729	Unspecified Ground Workings	1971
18	0.0	On Site	456129,298709	Unspecified Disused Pit	1992
19 E	0.0	On Site	456182,298777	Unspecified Ground Workings	1967
20 E	0.0	On Site	456182,298777	Unspecified Ground Workings	1971
21	0.0	On Site	456167,298805	Refuse Heap	1992
22 F	0.0	On Site	456068,298807	Old Clay Pit	1885
23 F	0.0	On Site	456073,298818	Cuttings	1885
24 F	0.0	On Site	456068,298807	Unspecified Pit	1928
25 F	0.0	On Site	456068,298807	Unspecified Pit	1902
26 B	0.0	On Site	456144,299101	Cuttings	1938
27	0.0	On Site	456088,298952	Cuttings	1919
28 G	0.0	On Site	456304,298643	Pond	1971
29 H	0.0	On Site	456343,298688	Pond	1971
30 F	0.0	On Site	456081,298816	Cuttings	1967
31 G	0.0	On Site	456304,298643	Pond	1967
32 H	0.0	On Site	456343,298688	Pond	1967
33 H	0.0	On Site	456343,298688	Pond	1980
34 F	0.0	On Site	456060,298824	Clay Pit	1980
35 F	0.0	On Site	456081,298816	Cuttings	1971
36 F	0.0	On Site	456081,298814	Old Clay Pit	1950

37J	0.0	On Site	457114,298509	Canal	1950
38I	0.0	On Site	456313,298745	Brick Works	1885
39 N	0.0	On Site	456407,298622	Brick Works	1928
40I	0.0	On Site	456309,298695	Brick Works	1950
41 B	0.0	N	456146,299103	Cuttings	1950
42 B	1.0	N	456140,299087	Cuttings	1967
43 B	1.0	N	456140,299087	Cuttings	1980
44 B	1.0	N	456140,299087	Cuttings	1971
45 B	1.0	N	456140,299087	Cuttings	1992
46J	2.0	S	457125,298505	Canal	1967
47J	2.0	S	457125,298505	Canal	1980
48J	2.0	S	457125,298505	Canal	1971
49J	2.0	S	457125,298505	Canal	1992
50 K	3.0	S	456311,298546	Canal	1902
51 K	3.0	S	456311,298546	Canal	1885
52 K	3.0	S	456311,298546	Canal	1928
53	3.0	S	456215,299404	Canal	1919
54 K	3.0	S	456311,298546	Canal	1938
55 L	19.0	E	456523,298653	Brick Works	1919
56 L	19.0	E	456523,298653	Brick Works	1902
57 M	24.0	SE	456518,298675	Unspecified Pit	1950
58 M	25.0	SE	456517,298675	Unspecified Pit	1967
59 M	25.0	SE	456517,298675	Unspecified Pit	1971
60 M	27.0	SE	456518,298671	Unspecified Pit	1938
61 M	27.0	E	456484,298672	Unspecified Pit	1885
62 M	27.0	E	456484,298672	Unspecified Pit	1928
63 N	33.0	S	456354,298630	Unspecified Pit	1928
64 O	34.0	S	456355,298632	Unspecified Ground Workings	1950
65 O	35.0	S	456356,298631	Unspecified Ground Workings	1938
66 M	43.0	SE	456496,298665	Unspecified Pit	1902
67 M	43.0	SE	456496,298665	Unspecified Pit	1919
68 P	72.0	S	456022,298509	Pond	1980
69 P	72.0	S	456022,298509	Pond	1967
70 P	72.0	S	456022,298509	Pond	1971
71 P	72.0	S	456022,298509	Pond	1992
72 Q	95.0	SW	455868,298552	Unspecified Ground Workings	1885
73 Q	95.0	SW	455868,298552	Unspecified Ground Workings	1928
74	128.0	NE	456423,298977	Pond	1885
75	140.0	S	455989,298430	Pond	1992
76	168.0	E	456630,298834	Pond	1885
77	215.0	NE	456423,299070	Pond	1885
78	222.0	NE	456380,299273	Sewage Farm	1938

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? No

Database searched and no data found.

2.3 Current Ground Workings

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

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

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

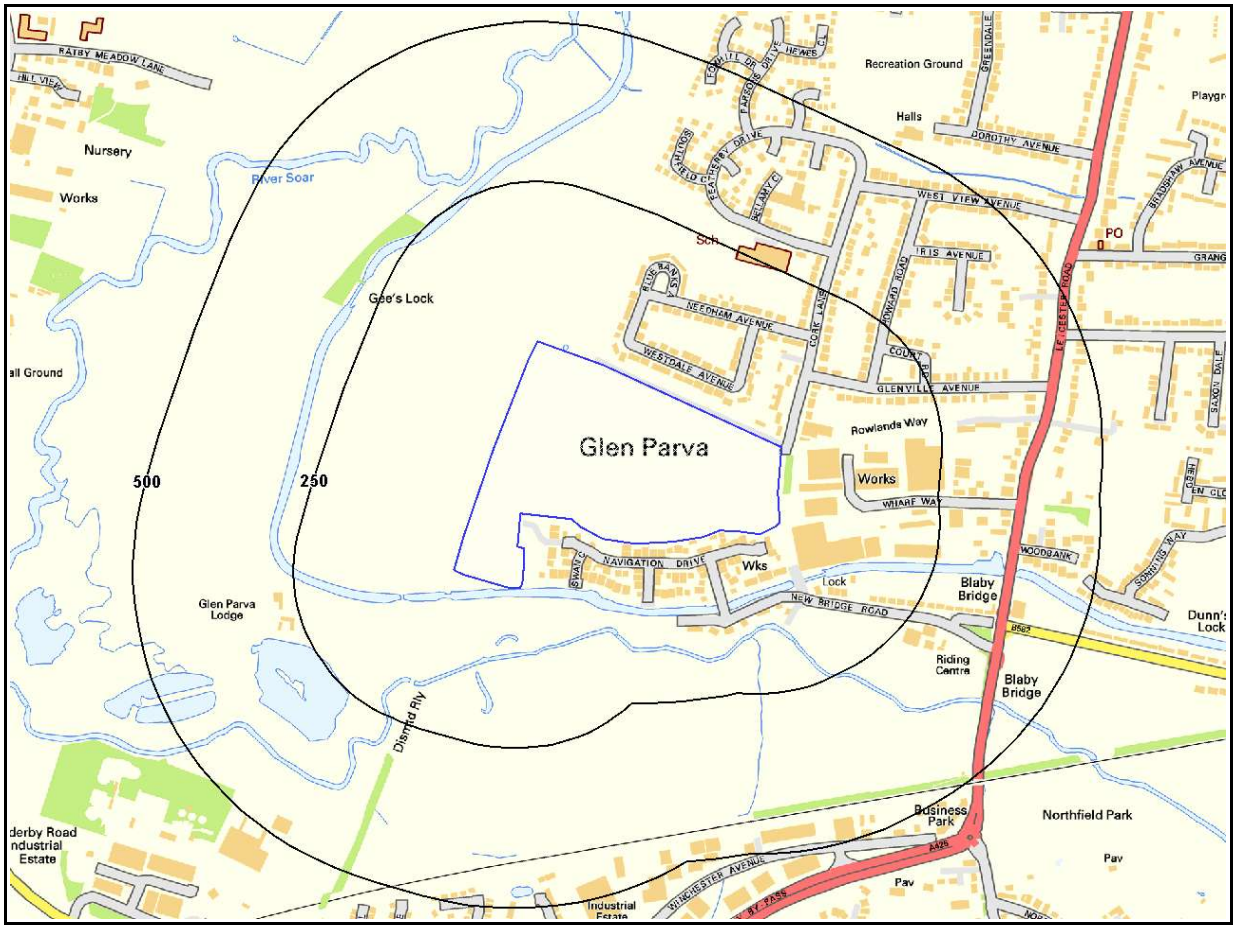
ID	Distance (m)	Direction	NGR	Commodity Produced	Pit Name	Type of working	Status
79	64.0	S	4563 00,29 8600	Clay & Shale	Glen Parva	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
80M	67.0	SE	4565 16,29 8664	Clay & Shale	Whetstone Lock Brick Works	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	543.0	E	4569 99,29 8674	Sand	Glen Parver Sand Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	580.0	E	4570 39,29 8796	Sand	Glen Parver Sand Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	699.0	E	4571 50,29 8608	Clay & Shale	Dundds Lock Brick Yard	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased

3. Mining, Extraction & Natural Cavities Map

NW N NE

W E

SW S SE



Mining, Extraction & Natural Cavities Legend

Enabled by Ordnance Survey

Site Outline

250
500
Search Buffers (m)

Historical Mining

Non-Coal Mining Cavities

Natural Cavities

Non-Coal Mining

Highly likely

Likely

Unlikely

Highly unlikely

Rare

3.Mining, Extraction & Natural Cavities

3.1 Historical Mining

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

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

Database searched and no data found.

3.2 Coal Mining

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

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

Database searched and no data found.

3.3 Johnson Poole and Bloomer

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

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

The following information provided by JPB is not represented on Mapping:

Database searched. 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? **No**

Database searched and no data found.

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.

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

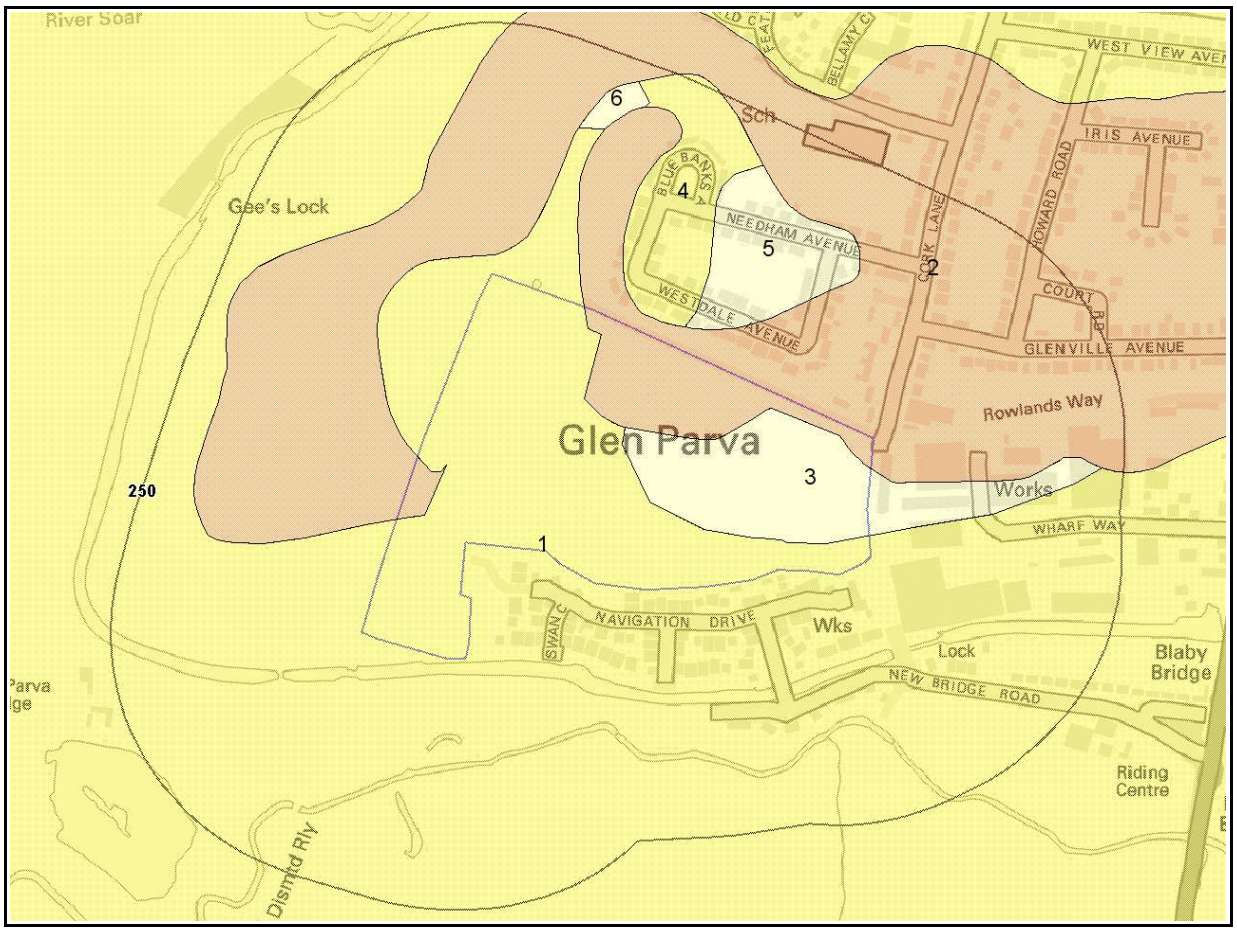
This dataset provides information on Kaolin and Ball Clay mining from relevant mining records.

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

NW N NE



W E

SW S SE

Shrink-Swell Clay Legend

Site Outline

125
250
Search Buffers (m)

No Data / Null
Negligible
Very Low

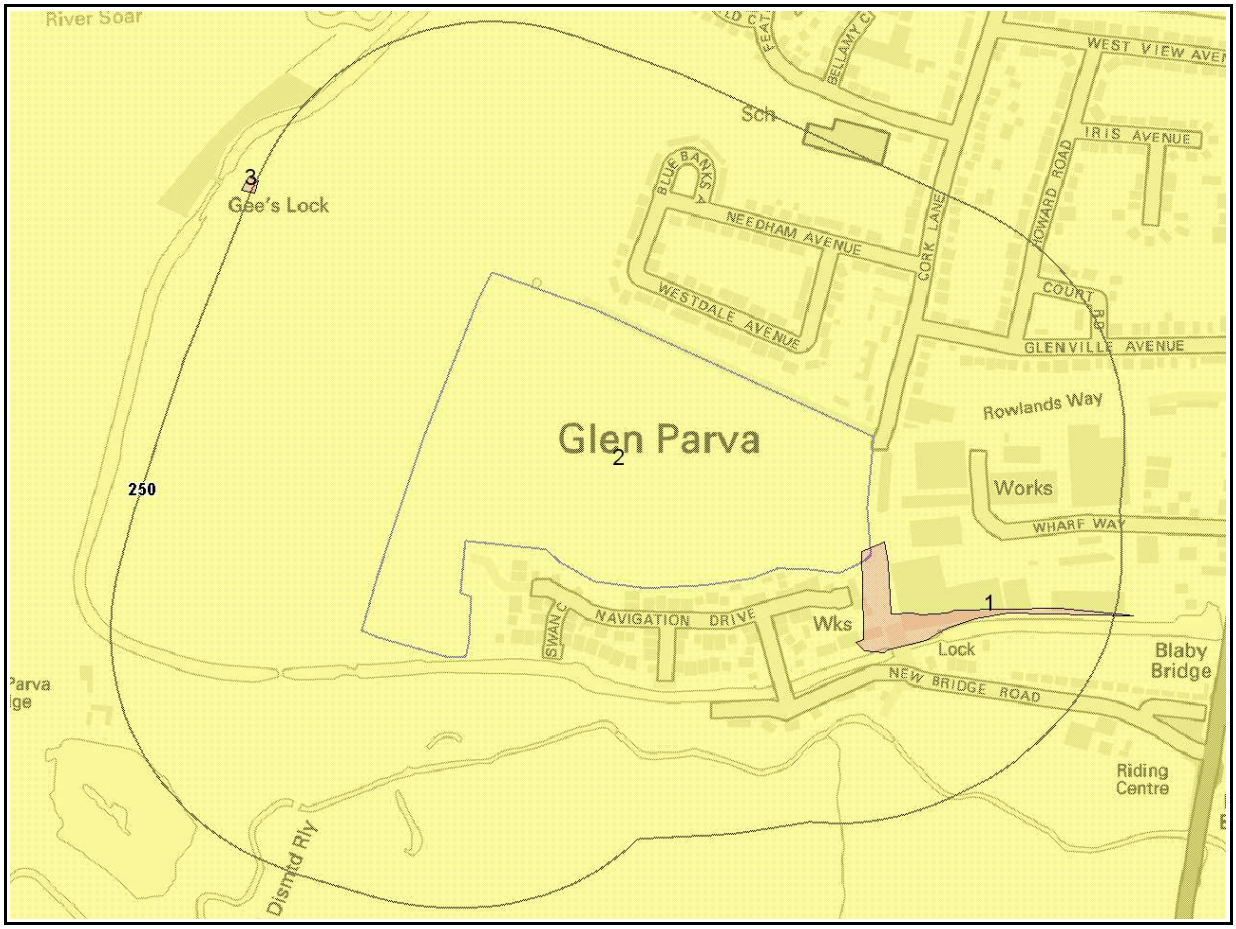
Low
Moderate
High

4.2 Landslides Map

NW N NE

W E

SW S SE



Landslides Legend

Enabled by Ordnance Survey

Site Outline

125
250
Search Buffers (m)

No Data / Null
Negligible
Very Low

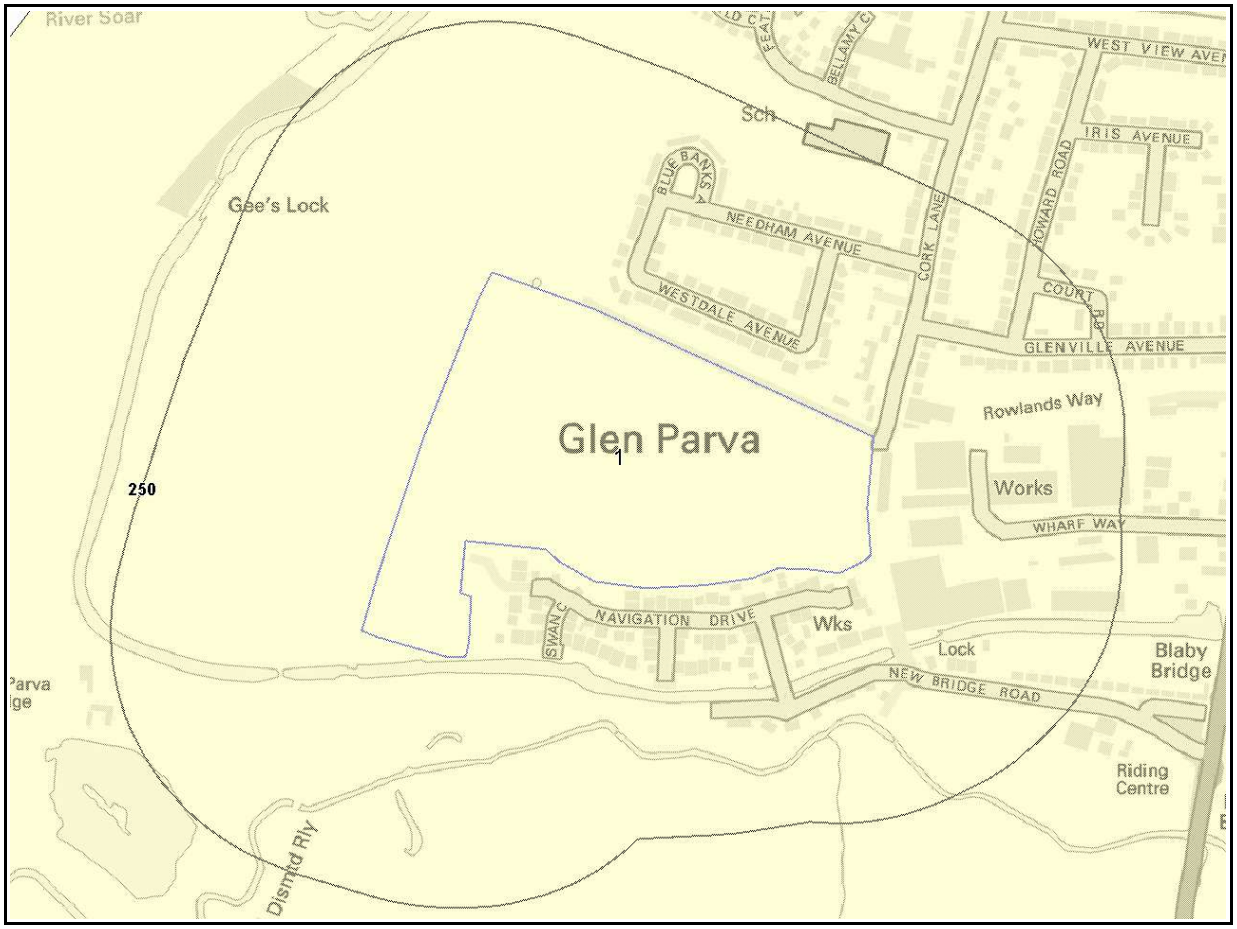
Low
Moderate
High

4.3 Ground Dissolution Soluble Rocks Map

NW N NE

W E

SW S SE



Ground Dissolution Soluble Rocks Legend

Enabled by Ordnance Survey

Site Outline

125
250
Search Buffers (m)

No Data / Null
Negligible
Very Low

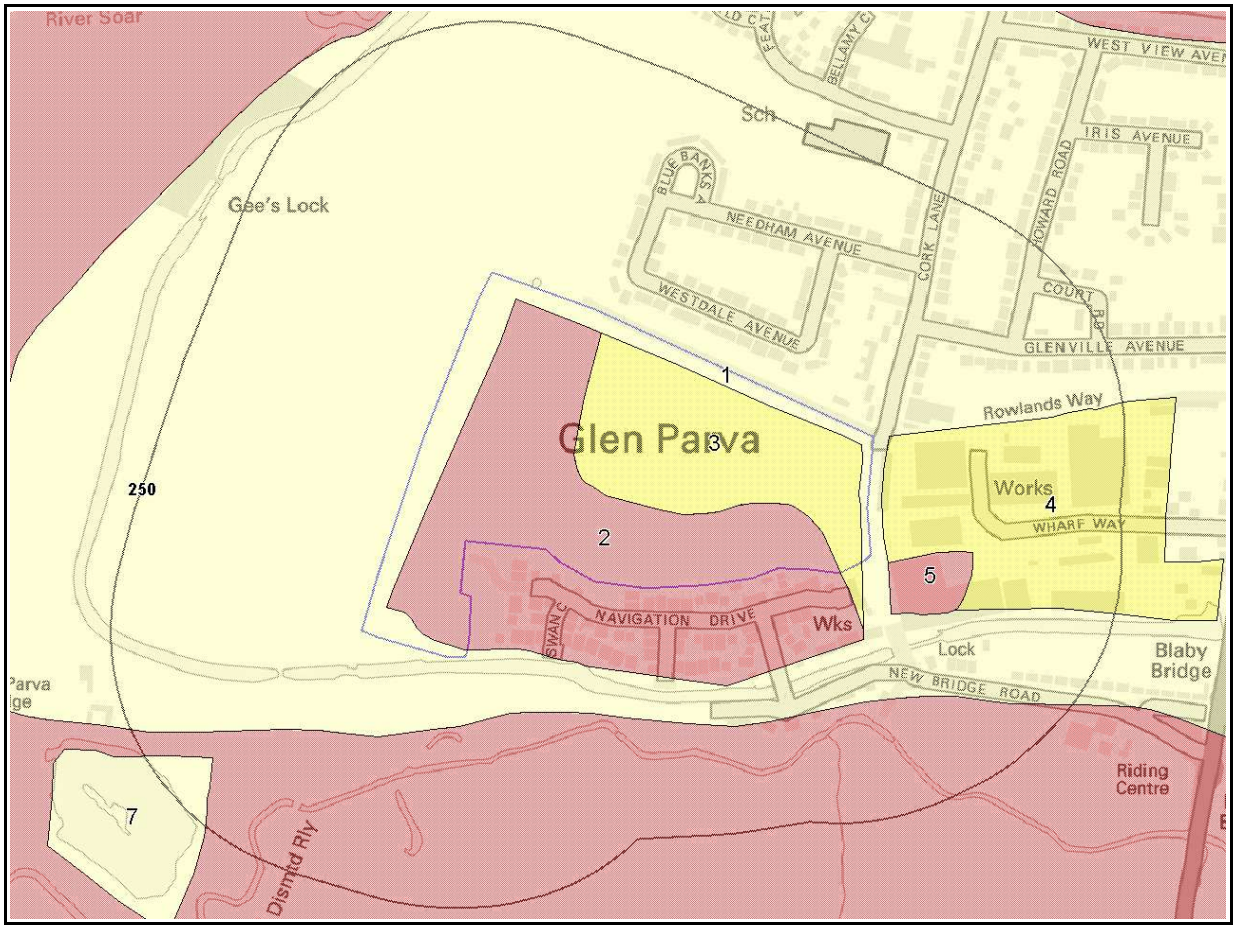
Low
Moderate
High

4.4 Compressible Deposits Map

NW N NE

W E

SW S SE



Compressible Deposits Legend

Site Outline

125
250
Search Buffers (m)

No Data / Null
Negligible
Very Low

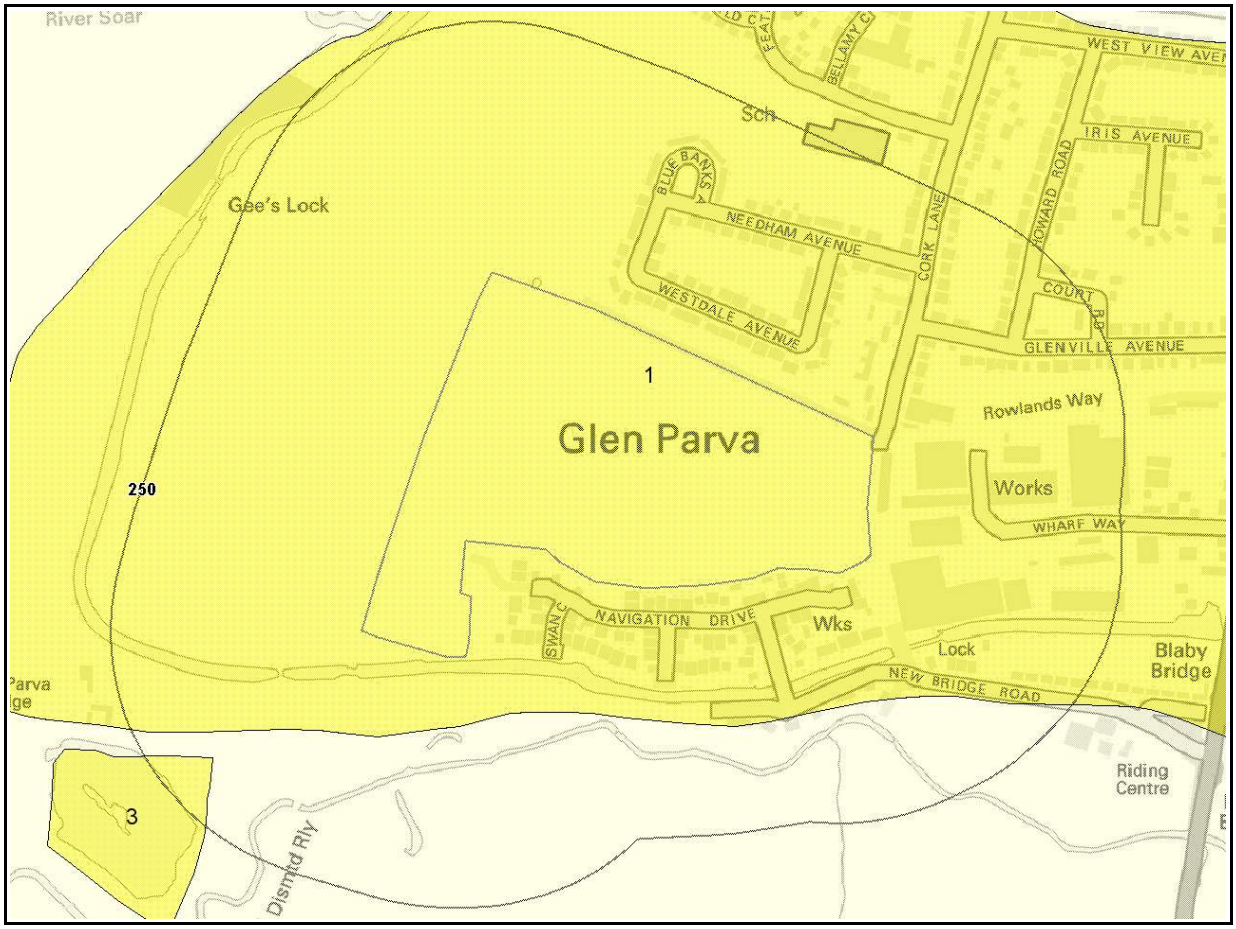
Low
Moderate
High

4.5 Collapsible Deposits Map

NW N NE

W E

SW S SE



Collapsible Deposits Legend

Site Outline

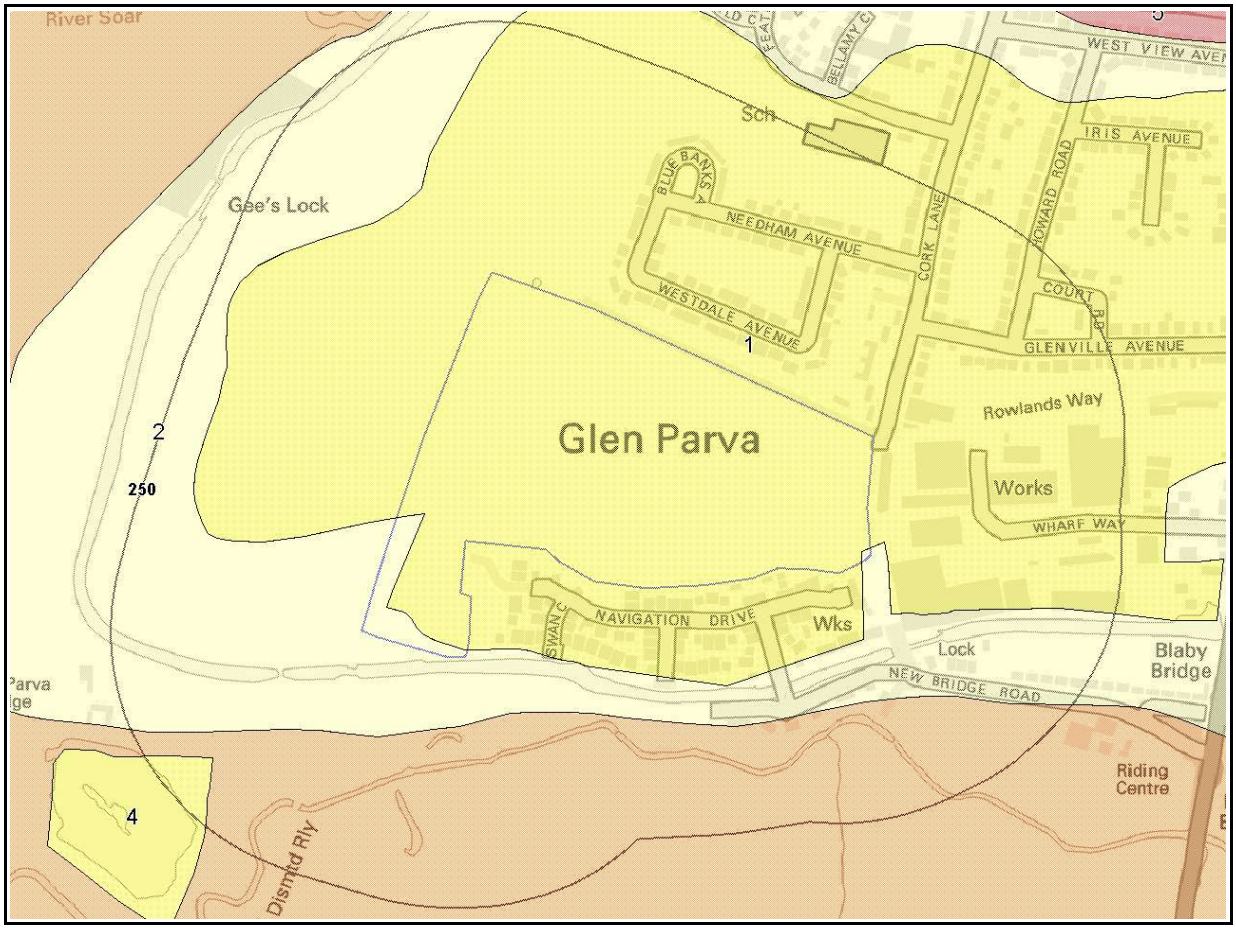
125
250
Search Buffers (m)

No Data / Null
Negligible
Very Low

Low
Moderate
High

4.6 Running Sand Map

NW N NE



W E

SW S SE

Running Sand Legend

Site Outline

125
250
Search Buffers (m)

No Data / Null
Negligible
Very Low

Low
Moderate
High

4.Natural Ground Subsidence

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

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

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

4.1 Shrink – Swell Clays

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

ID	Distance (m) *	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Ground conditions predominantly low plasticity. No special actions required to avoid problems due to shrink-swell clays. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with shrink-swell clays.
2	0.0	On Site	Low	Ground conditions predominantly medium plasticity. Do not plant trees with high soil moisture demands near to buildings. For new build, consideration should be given to advice published by the National House Building Council (NHBC) and the Building Research Establishment (BRE). There is a possible increase in construction cost to reduce potential shrink-swell problems. For existing property, there is a possible increase in insurance risk, especially during droughts or where vegetation with high moisture demands is present.
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 likely due to potential problems with shrink-swell clays.
4	17.0	NE	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.
5	23.0	NE	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 likely 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.

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

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.
2	0.0	On Site	Moderate	Significant potential for compressibility problems. Avoid large differential loadings of ground. Do not drain or de-water ground near the property without technical advice. For new build - consider possibility of compressible ground in ground investigation, construction and building design. Consider effects of groundwater changes. Extra construction costs are likely. For existing property - possible increase in insurance risk from compressibility, especially if water conditions or loading of the ground change significantly.
3	0.0	On Site	Very Low	Very low potential for compressible deposits to be present. No special actions required to avoid problems due to compressible deposits. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with compressible deposits.
4	13.0	E	Very Low	Very low potential for compressible deposits to be present. No special actions required to avoid problems due to compressible deposits. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with compressible deposits.
5	18.0	E	Moderate	Significant potential for compressibility problems. Avoid large differential loadings of ground. Do not drain or de-water ground near the property without technical advice. For new build - consider possibility of compressible ground in ground investigation, construction and building design. Consider effects of groundwater changes. Extra construction costs are likely. For existing property - possible increase in insurance risk from compressibility, especially if water conditions or loading of the ground change significantly.

4.5 Collapsible Deposits

The following Collapsible Rocks information 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:

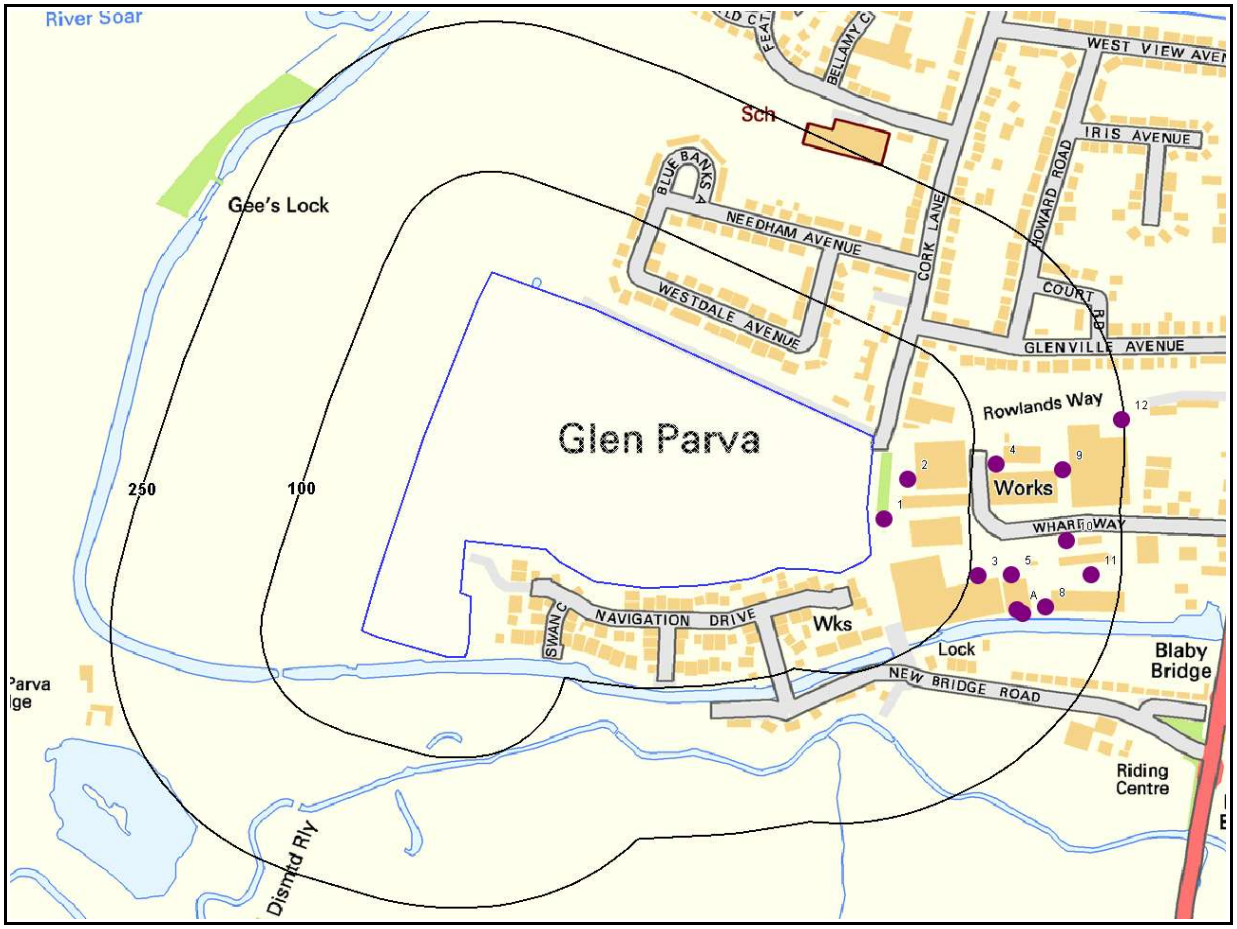
ID	Distance (m)*	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Very low potential for running sand problems if water table rises or if sandy strata are exposed to water. No special actions required, to avoid problems due to running sand. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with running sand.
2	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.

5. Borehole Records Map

NW N NE

W E

SW S SE



Borehole Records Legend

Site Outline

Borehole Locations

125
250
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: **12**

ID	Distance (m)	Direction	NGR	BGS Reference	Drilled Length (m)	Borehole Name
1	15.0	E	456469,298729	SP59NE171	-1.0	WHARF WAY GLEN PARVA LEICESTER DCS1
2	37.0	E	456493,298768	SP59NE172	-1.0	WHARF WAY GLEN PARVA LEICESTER DCS2
3	109.0	E	456563,298672	SP59NE180	-1.0	WHARF WAY GLEN PARVA LEICESTER DCS10
4	124.0	E	456581,298783	SP59NE173	-1.0	WHARF WAY GLEN PARVA LEICESTER DCS3
5	141.0	E	456596,298673	SP59NE183	-1.0	WHARF WAY GLEN PARVA LEICESTER DCS13
6A	155.0	E	456601,298638	SP59NE175	-1.0	WHARF WAY GLEN PARVA LEICESTER DCS5
7A	162.0	E	456607,298634	SP59NE185	-1.0	WHARF WAY GLEN PARVA LEICESTER DCS5A
8	182.0	E	456630,298641	SP59NE176	-1.0	WHARF WAY GLEN PARVA LEICESTER DCS6
9	190.0	E	456647,298778	SP59NE182	-1.0	WHARF WAY GLEN PARVA LEICESTER DCS12
10	194.0	E	456650,298707	SP59NE181	-1.0	WHARF WAY GLEN PARVA LEICESTER DCS11
11	220.0	E	456675,298673	SP59NE184	-1.0	WHARF WAY GLEN PARVA LEICESTER DCS14
12	247.0	E	456705,298828	SP59NE174	-1.0	WHARF WAY GLEN PARVA LEICESTER DCS4

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

6.Estimated Background Soil Chemistry

Records of background estimated soil chemistry within 250m of the study site boundary: 7

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

			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 mg/kg	<1.8 mg/kg	40 - 60 mg/kg	15 - 30 mg/kg	<150 mg/kg
0.0	On Site	RuralSoil	<15 mg/kg	<1.8 mg/kg	40 - 60 mg/kg	15 - 30 mg/kg	<150 mg/kg
0.0	On Site	RuralSoil	<15 mg/kg	<1.8 mg/kg	40 - 60 mg/kg	15 - 30 mg/kg	<150 mg/kg
0.0	On Site	RuralSoil	<15 mg/kg	<1.8 mg/kg	40 - 60 mg/kg	15 - 30 mg/kg	<150 mg/kg
24.0	N	RuralSoil	<15 mg/kg	<1.8 mg/kg	40 - 60 mg/kg	15 - 30 mg/kg	<150 mg/kg
38.0	S	RuralSoil	<15 mg/kg	<1.8 mg/kg	40 - 60 mg/kg	15 - 30 mg/kg	<150 mg/kg
47.0	S	RuralSoil	<15 mg/kg	<1.8 mg/kg	40 - 60 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
Telephone: 0118 9736883
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
Tel: 0845 762 6848
DX 716176 Mansfield 5 www.coal.gov.uk

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

Ordnance Survey
Romsey Road, Southampton SO16 4GU
Tel: 08456 050505

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

Peter Brett Associates
Caversham Bridge House, Waterman Place, Reading
Berkshire RG1 8DN
Tel: +44 (0)118 950 0761 E-mail: reading@pba.co.uk

Acknowledgements

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

7.1Subject 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.

7.2GroundSure 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 GroudSure'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 he 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.

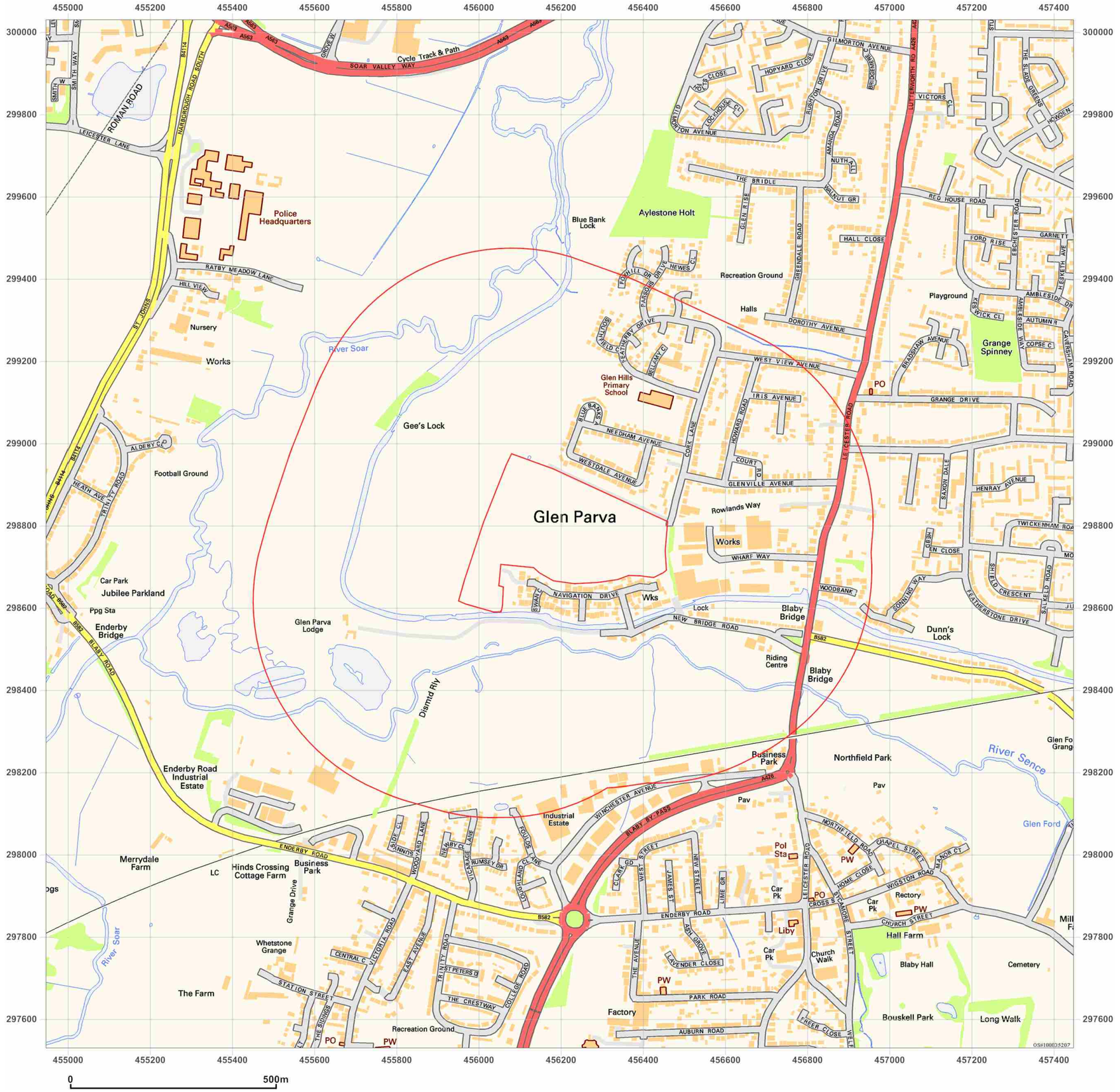
11.8 Such notice shall be deemed to have been received on the day of delivery if delivered by hand, facsimile or email and on the second working day after the day of posting if sent by first class post.

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.



emapsite™

Site Details:

Client Ref: EMS_195848_285917
Report Ref: EMS-195848_285917
Grid Ref: 456197, 298780

Map Name: National Grid

Map date: **2012**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
S

2012

GroundSure

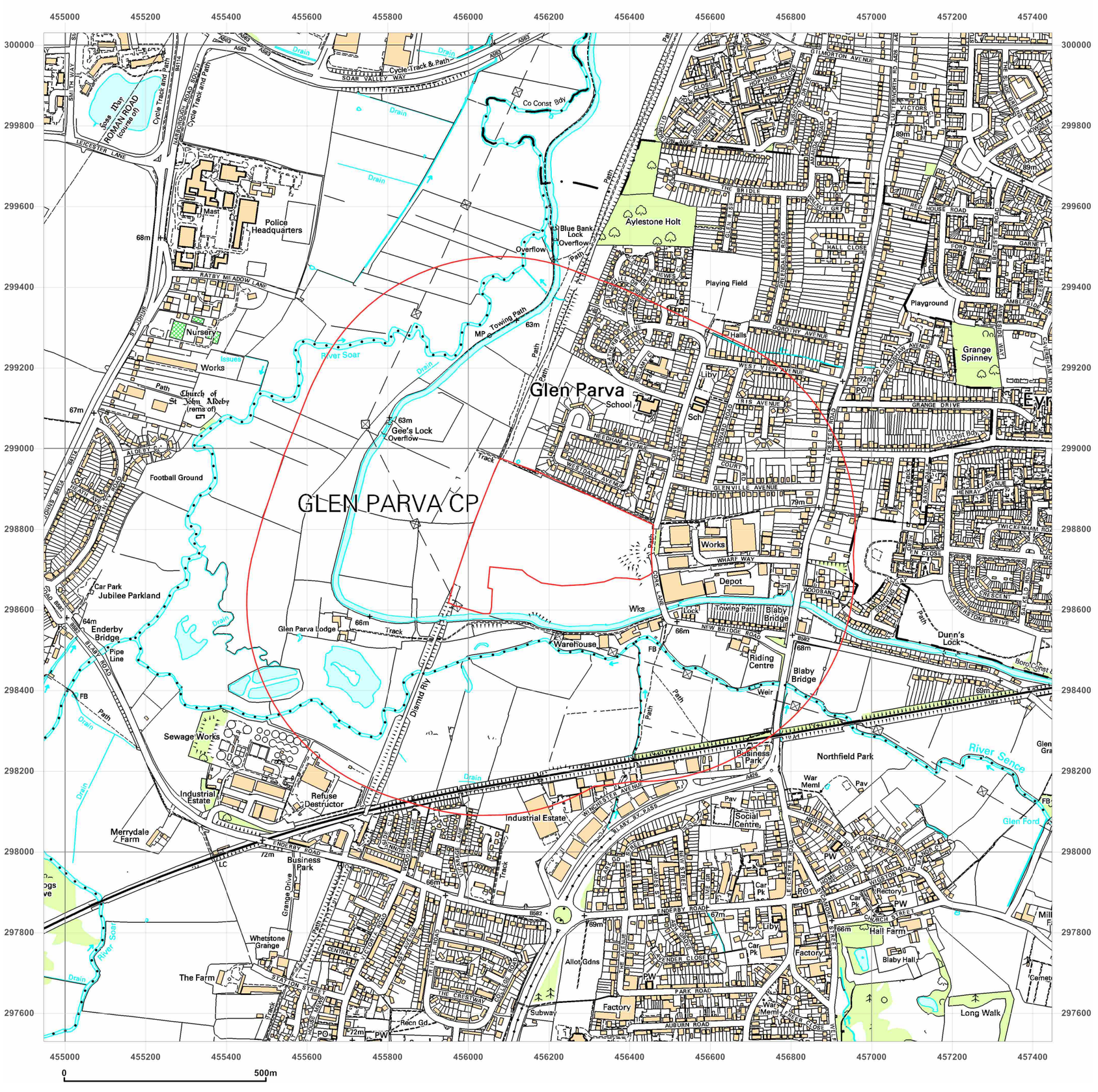
Produced by
GroundSure Environmental Insight
www.groundsure.com

Ordnance Survey Licensed Partner

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

Production date: 26 February 2013

To view map legend click here *Legend*



emapsite™

Site Details:

Client Ref: EMS_195848_285917
Report Ref: EMS-195848_285917
Grid Ref: 456197, 298780

Map Name: 1:10,000 Raster

Map date: **2002**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
S

2002

Produced by
GroundSure Environmental Insight
www.groundsure.com

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

Production date: 26 February 2013

To view map legend click here *Legend*

emapsite™

Site Details:

Client Ref: EMS_195848_285917
Report Ref: EMS-195848_285917
Grid Ref: 456197, 298780

Map Name: National Grid

Map date: **1989-1992**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
S

Surveyed 1984
Revised 1989
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1986
Revised 1989
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1990
Revised 1992
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1991
Revised 1992
Edition N/A
Copyright N/A
Levelled N/A

GroundSure

Ordnance Survey® Licensed Partner

Produced by
GroundSure Environmental Insight
www.groundsure.com

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

Production date: 26 February 2013

To view map legend click here *Legend*

emapsite™

Site Details:

Client Ref: EMS_195848_285917
Report Ref: EMS-195848_285917
Grid Ref: 456197, 298780

Map Name: National Grid

Map date: **1979-1981**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
S

Surveyed 1980
Revised 1980
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1976
Revised 1979
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1973
Revised 1981
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1978
Revised 1980
Edition N/A
Copyright N/A
Levelled N/A

GroundSure

Ordnance Survey® Licensed Partner

Produced by
GroundSure Environmental Insight
www.groundsure.com

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

Production date: 26 February 2013

To view map legend click here *Legend*

Site Details:

Client Ref: EMS_195848_285917
Report Ref: EMS-195848_285917
Grid Ref: 456197, 298780

Map Name: National Grid

Map date: **1968-1973**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
S

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

Surveyed 1968
Revised 1968
Edition N/A
Copyright N/A
Levelled N/A

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

Surveyed 1971
Revised 1971
Edition N/A
Copyright N/A
Levelled N/A

Produced by
GroundSure Environmental Insight
www.groundsure.com

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

Production date: 26 February 2013

To view map legend click here *Legend*

emapsite™

Site Details:

Client Ref: EMS_195848_285917
Report Ref: EMS-195848_285917
Grid Ref: 456197, 298780

Map Name: Provisional

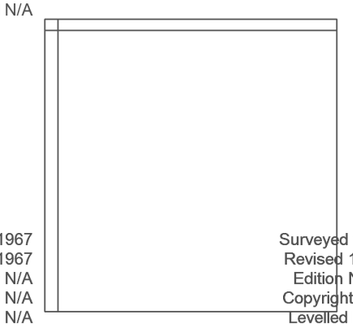
Map date: **1965-1967**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

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



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

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

GroundSure

Produced by
GroundSure Environmental Insight
www.groundsure.com

Ordnance Survey Licensed Partner

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

Production date: 26 February 2013

To view map legend click here *Legend*

emapsite™

Site Details:

Client Ref: EMS_195848_285917
Report Ref: EMS-195848_285917
Grid Ref: 456197, 298780

Map Name: Provisional

Map date: **1950-1955**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

Surveyed 1953
Revised 1953
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1950
Revised 1950
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1950
Revised 1950
Edition N/A
Copyright N/A
Levelled N/A

GroundSure

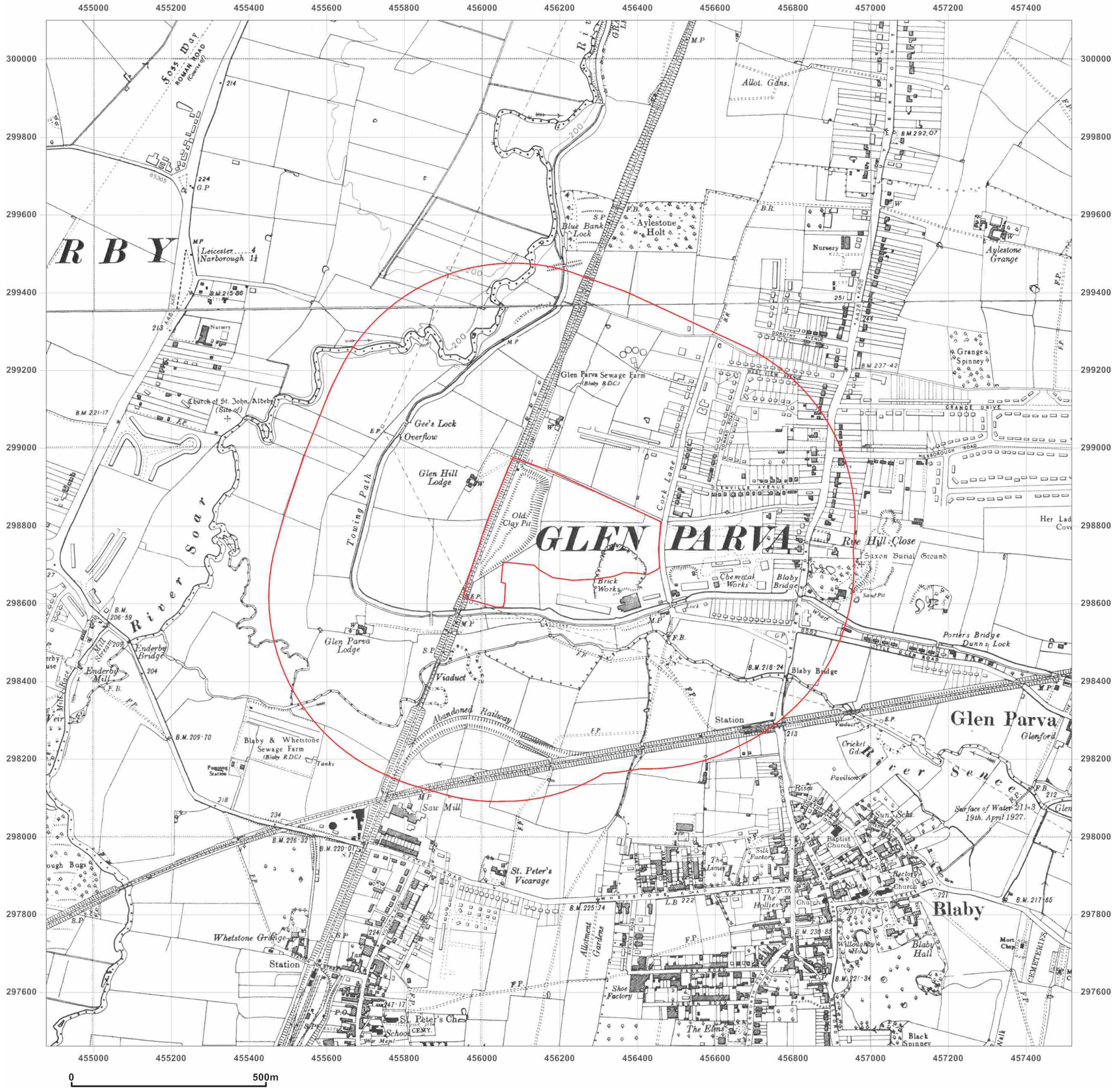
Produced by
GroundSure Environmental Insight
www.groundsure.com

Ordnance Survey® Licensed Partner

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

Production date: 26 February 2013

To view map legend click here *Legend*



emapsite™

Site Details:

Client Ref: EMS_195848_285917
Report Ref: EMS-195848_285917
Grid Ref: 456197, 298780

Map Name: County Series

Map date: **1950**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

Surveyed 1885
Revised 1950
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1885
Revised 1885
Edition N/A
Copyright N/A
Levelled N/A

GroundSure

Ordnance Survey® Licensed Partner

Produced by
GroundSure Environmental Insight
www.groundsure.com

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

Production date: 26 February 2013

To view map legend click here *Legend*

emapsite™

Site Details:

Client Ref: EMS_195848_285917
Report Ref: EMS-195848_285917
Grid Ref: 456197, 298780

Map Name: County Series

Map date: **1938**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

Surveyed 1885
Revised 1938
Edition 1938
Copyright N/A
Levelled N/A

Surveyed 1885
Revised 1938
Edition N/A
Copyright N/A
Levelled N/A

GroundSure

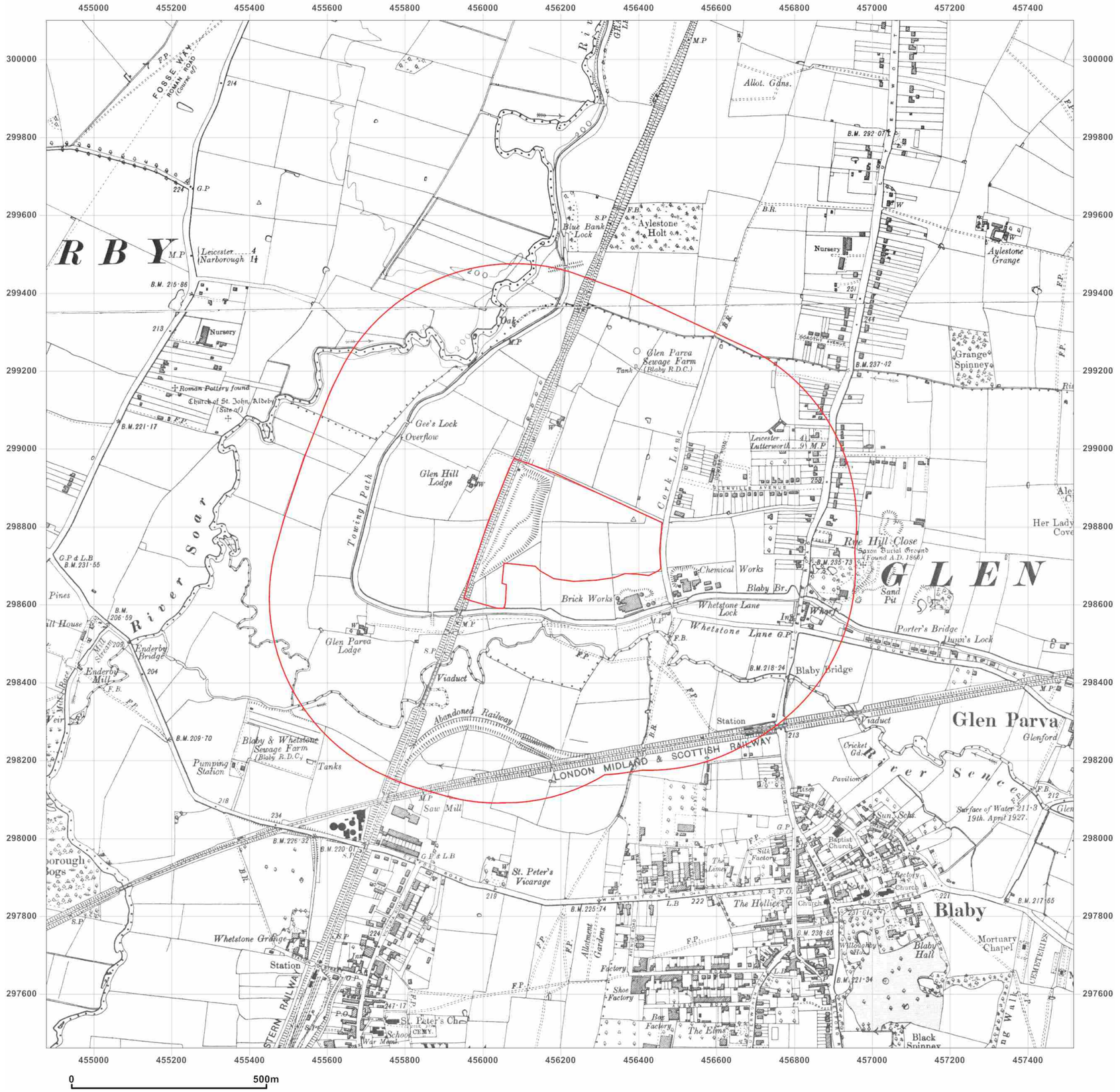
Ordnance Survey® Licensed Partner

Produced by
GroundSure Environmental Insight
www.groundsure.com

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

Production date: 26 February 2013

To view map legend click here *Legend*



emapsite™

Site Details:

Client Ref: EMS_195848_285917
Report Ref: EMS-195848_285917
Grid Ref: 456197, 298780

Map Name: County Series

Map date: **1928**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

Surveyed 1885
Revised 1928
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1885
Revised 1928
Edition N/A
Copyright N/A
Levelled N/A

GroundSure

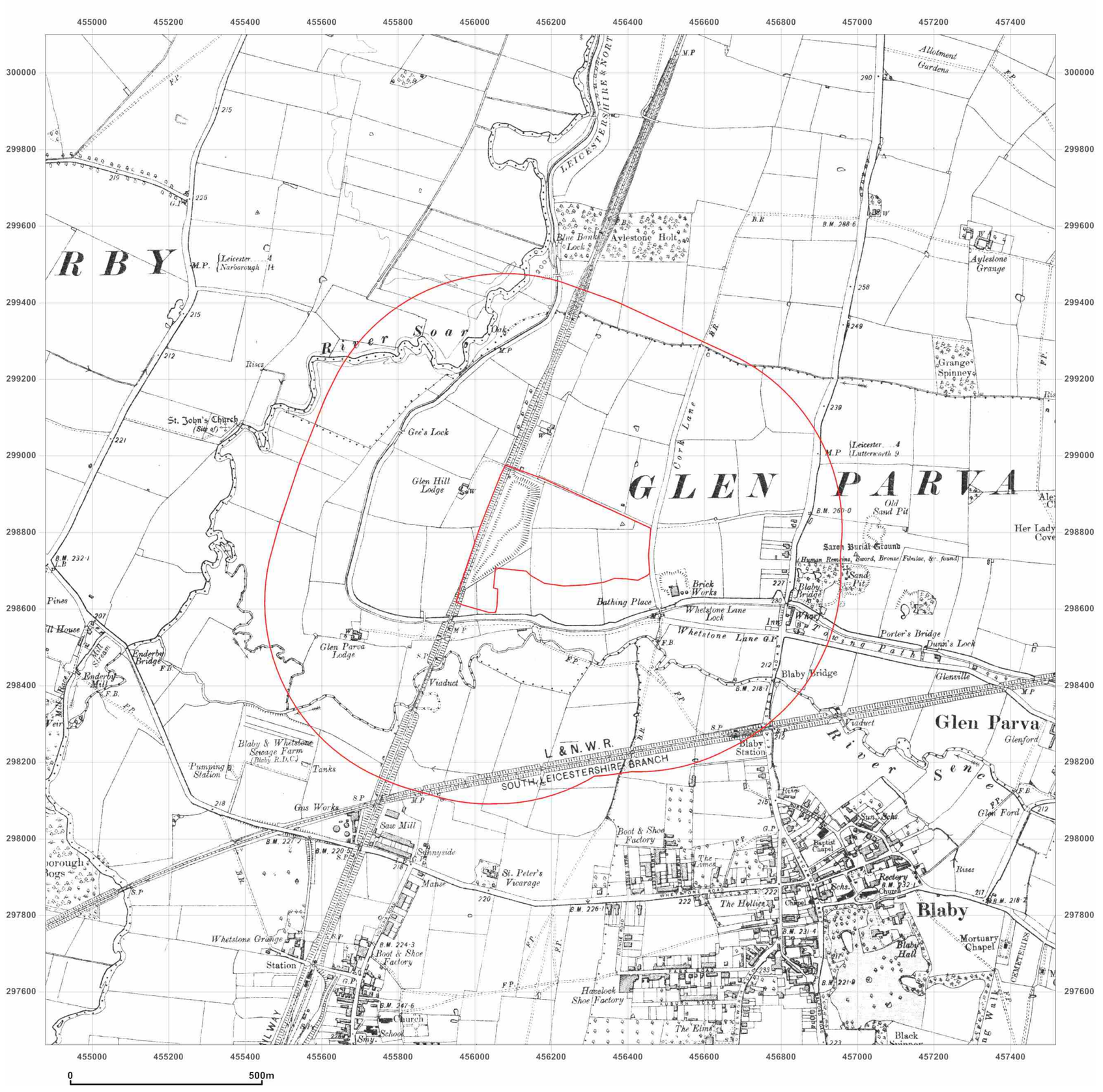
Ordnance Survey Licensed Partner

Produced by
GroundSure Environmental Insight
www.groundsure.com

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

Production date: 26 February 2013

To view map legend click here *Legend*



emapsite™

Site Details:

Client Ref: EMS_195848_285917
Report Ref: EMS-195848_285917
Grid Ref: 456197, 298780

Map Name: County Series

Map date: **1919**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

Surveyed 1885
Revised 1919
Edition N/A
Copyright N/A
Levelled N/A

GroundSure

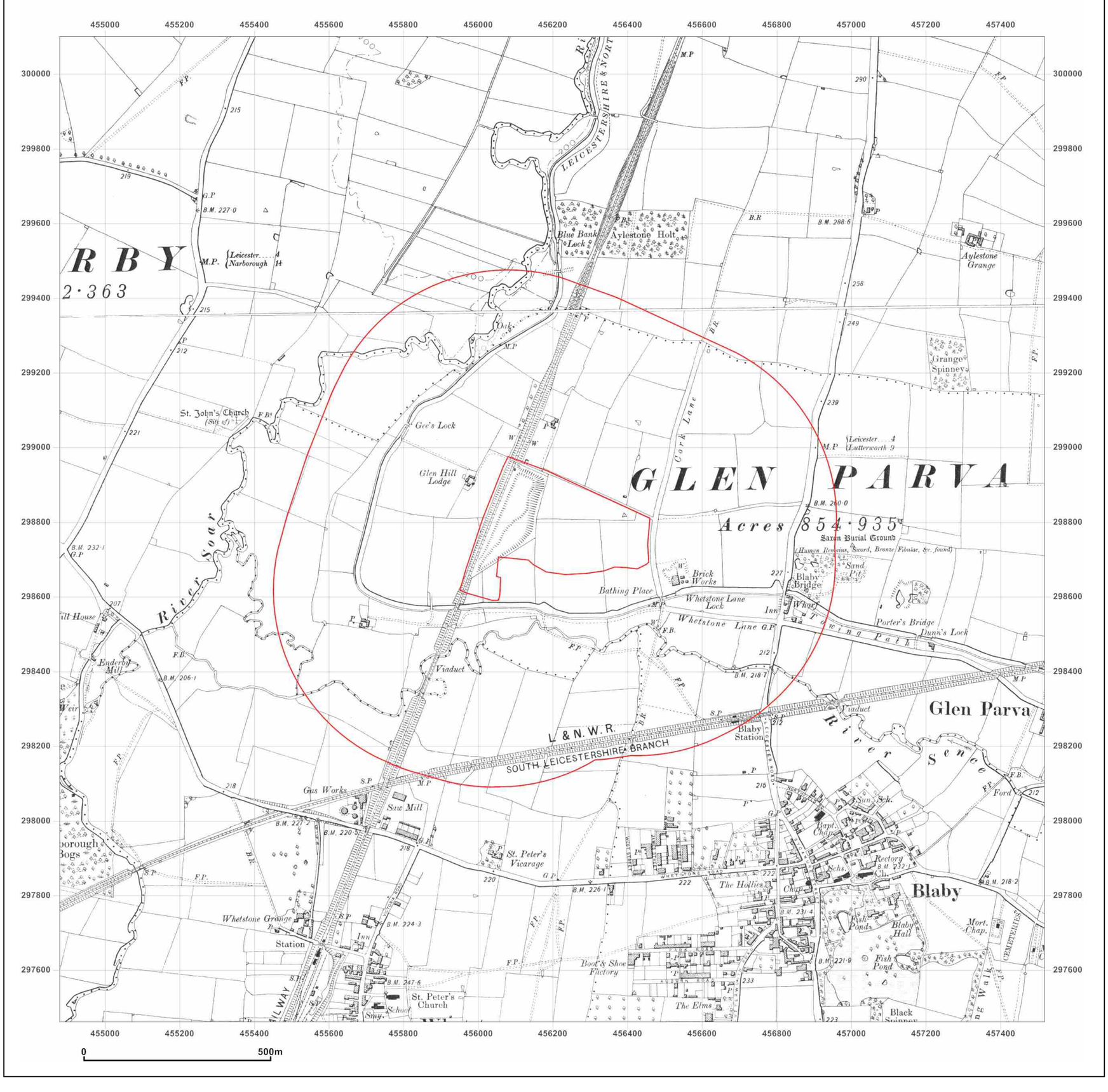
Produced by
GroundSure Environmental Insight
www.groundsure.com

Ordnance Survey® Licensed Partner

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

Production date: 26 February 2013

To view map legend click here *Legend*



emapsite™

Site Details:

Client Ref: EMS_195848_285917
Report Ref: EMS-195848_285917
Grid Ref: 456197, 298780

Map Name: County Series

Map date: **1902**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

Surveyed 1885
Revised 1902
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1885
Revised 1902
Edition N/A
Copyright N/A
Levelled N/A

GroundSure

Produced by
GroundSure Environmental Insight
www.groundsure.com

Ordnance Survey® Licensed Partner

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

Production date: 26 February 2013

To view map legend click here *Legend*

emapsite™

Site Details:

Client Ref: EMS_195848_285917
Report Ref: EMS-195848_285917
Grid Ref: 456197, 298780

Map Name: County Series

Map date: **1885**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

Surveyed 1885
Revised 1885
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1885
Revised 1885
Edition N/A
Copyright N/A
Levelled N/A

GroundSure

Ordnance Survey Licensed Partner

Produced by
GroundSure Environmental Insight
www.groundsure.com

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

Production date: 26 February 2013

To view map legend click here *Legend*

emapsite™

Site Details:

Client Ref: EMS_195848_285917
Report Ref: EMS-195848_285917
Grid Ref: 456197, 298780

Map Name: MasterMap

Map date: **2012**

Scale: 1:1,250

Printed at: 1:2,500

N
W E
S

2012

GroundSure

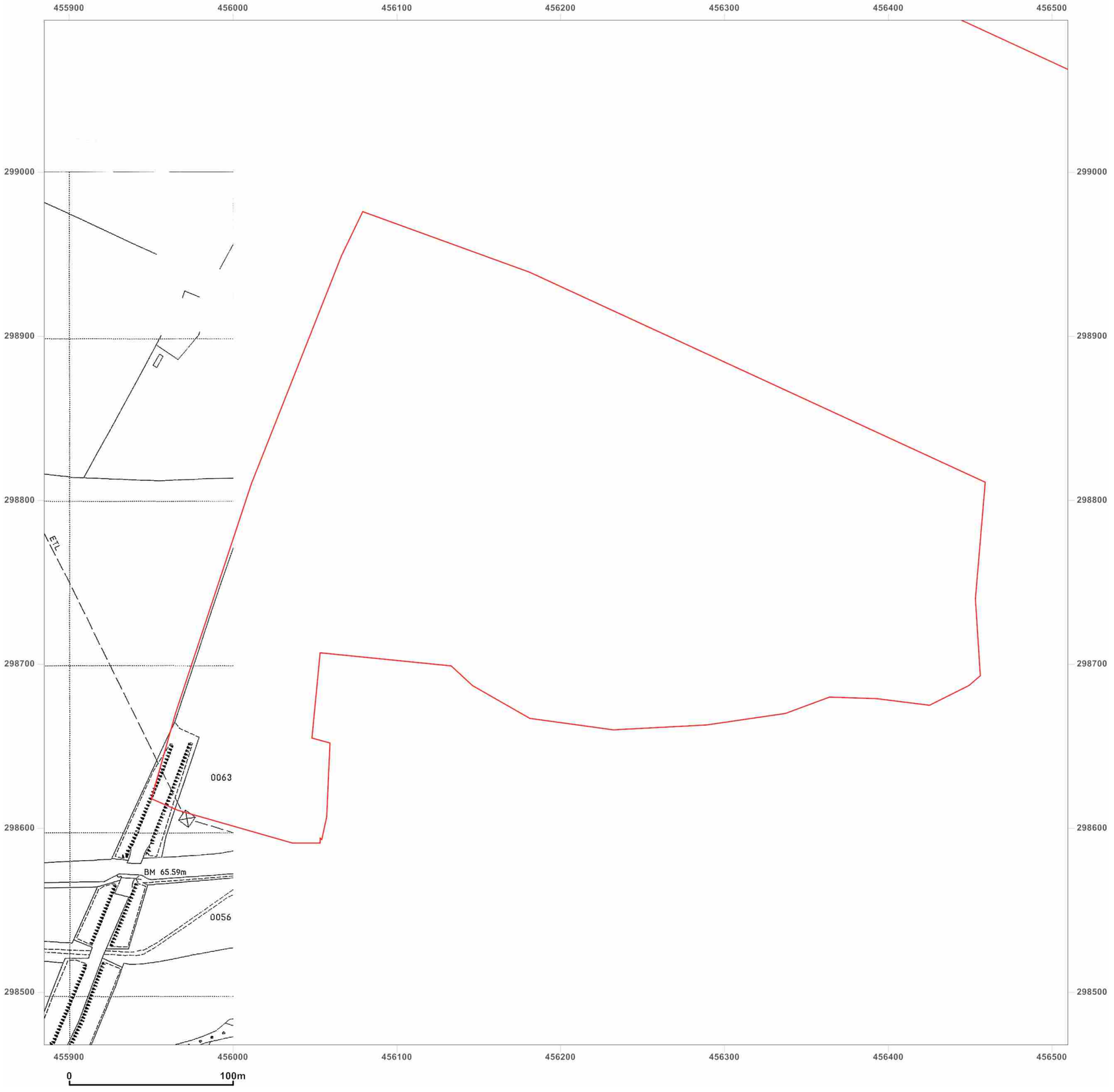
Produced by
GroundSure Environmental Insight
www.groundsure.com

Ordnance Survey® Licensed Partner

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

Production date: 26 February 2013

To view map legend click here *Legend*



emapsite™

Site Details:

Client Ref: EMS_195848_285917
Report Ref: EMS-195848_285917
Grid Ref: 456197, 298780

Map Name: National Grid

Map date: **1993-1995**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed N/A
Revised N/A
Edition N/A
Copyright 1995
Levelled N/A

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

GroundSure

Produced by
GroundSure Environmental Insight
www.groundsure.com

Ordnance Survey Licensed Partner

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

Production date: 26 February 2013

To view map legend click here *Legend*

emapsite™

Site Details:

Client Ref: EMS_195848_285917
Report Ref: EMS-195848_285917
Grid Ref: 456197, 298780

Map Name: National Grid

Map date: **1989-1994**

Scale: 1:1,250

Printed at: 1:2,500

N
W E
S

Surveyed N/A Revised N/A Edition N/A Copyright 1994 Levelled N/A	Surveyed 1993 Revised 1993 Edition N/A Copyright 1993 Levelled N/A
Surveyed N/A Revised N/A Edition N/A Copyright 1994 Levelled N/A	Surveyed N/A Revised N/A Edition N/A Copyright 1994 Levelled N/A
Surveyed 1965 Revised 1989 Edition N/A Copyright 1989 Levelled 1965	Surveyed 1965 Revised 1989 Edition N/A Copyright 1989 Levelled 1965

GroundSure

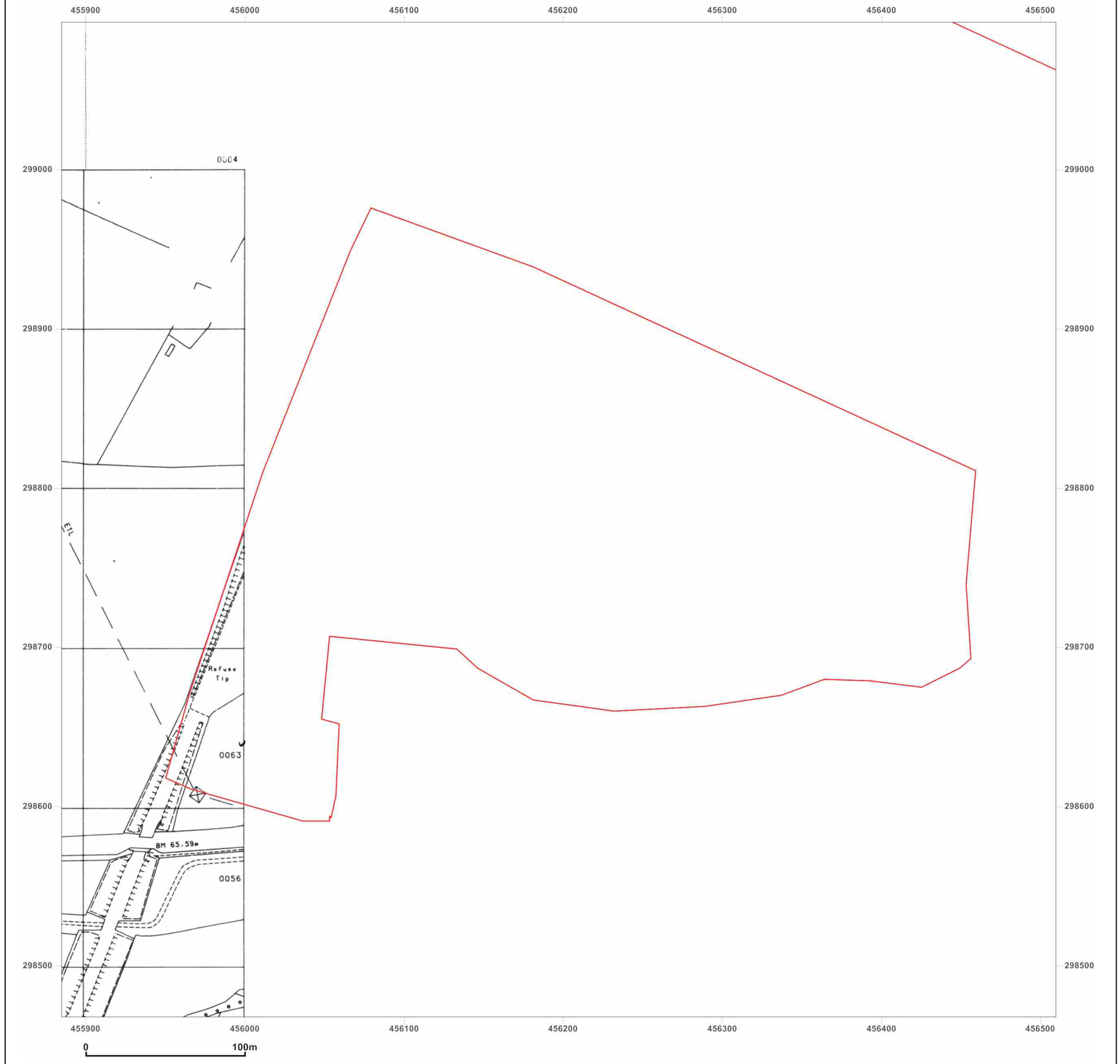
Ordnance Survey® Licensed Partner

Produced by
GroundSure Environmental Insight
www.groundsure.com

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

Production date: 26 February 2013

To view map legend click here *Legend*



emapsite™

Site Details:

Client Ref: EMS_195848_285917
Report Ref: EMS-195848_285917
Grid Ref: 456197, 298780

Map Name: National Grid

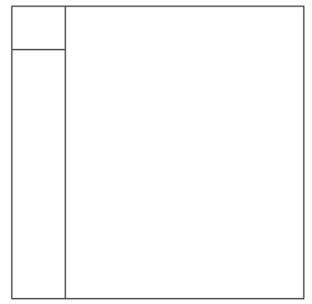
Map date: **1992-1994**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed N/A
Revised N/A
Edition N/A
Copyright 1994
Levelled N/A



Surveyed 1957
Revised 1966
Edition N/A
Copyright 1992
Levelled N/A

GroundSure

Produced by
GroundSure Environmental Insight
www.groundsure.com

Ordnance Survey® Licensed Partner

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

Production date: 26 February 2013

To view map legend click here *Legend*

emapsite™

Site Details:

Client Ref: EMS_195848_285917
Report Ref: EMS-195848_285917
Grid Ref: 456197, 298780

Map Name: National Grid

Map date: **1985-1989**

Scale: 1:1,250

Printed at: 1:2,500

N
W E
S

Surveyed 1954
Revised 1984
Edition N/A
Copyright 1985
Levelled 1966

Surveyed N/A
Revised N/A
Edition N/A
Copyright 1989
Levelled 1965

Surveyed 1965
Revised 1989
Edition N/A
Copyright 1989
Levelled 1965

GroundSure

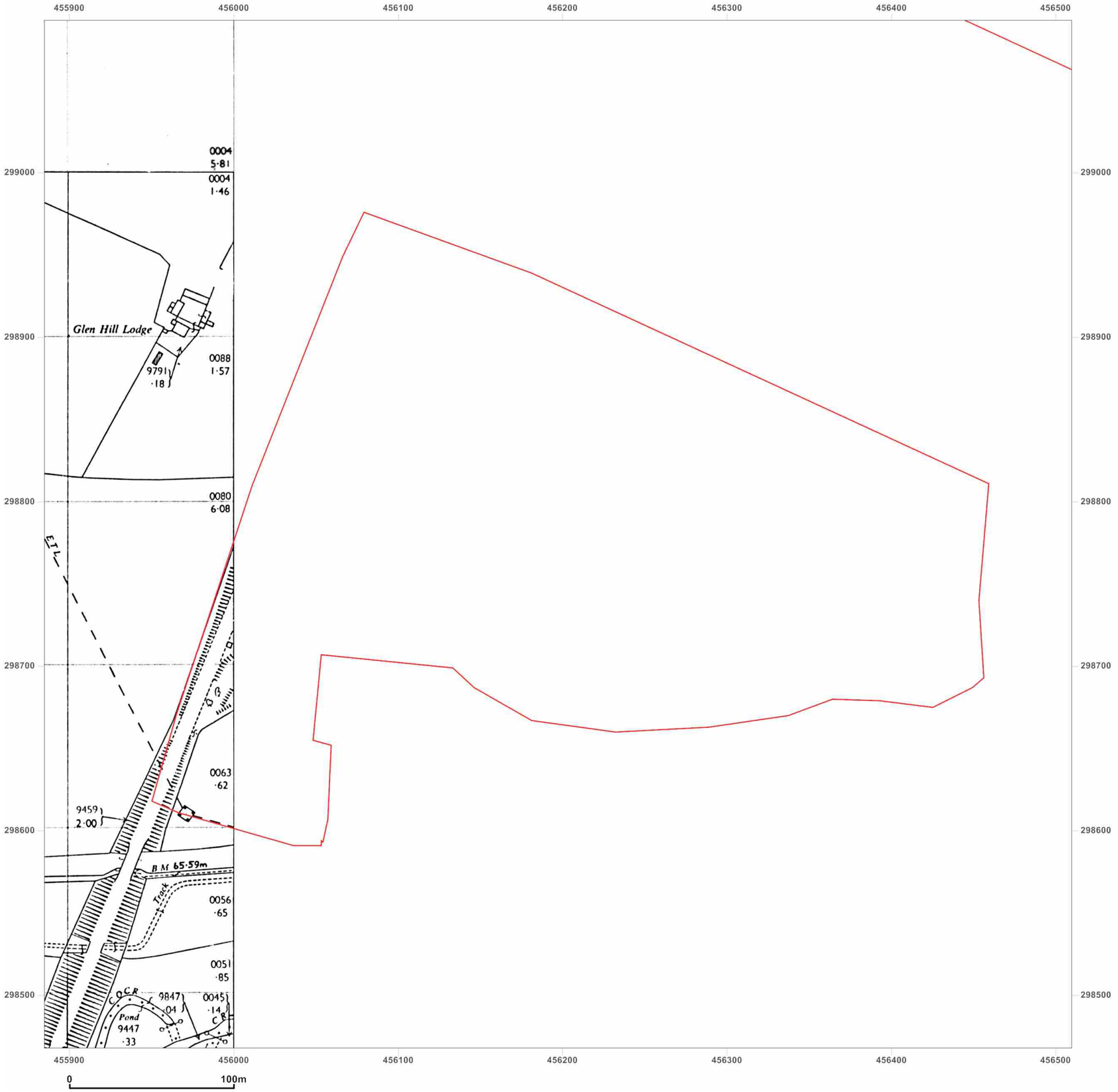
Ordnance Survey® Licensed Partner

Produced by
GroundSure Environmental Insight
www.groundsure.com

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

Production date: 26 February 2013

To view map legend click here *Legend*



emapsite™

Site Details:

Client Ref: EMS_195848_285917
Report Ref: EMS-195848_285917
Grid Ref: 456197, 298780

Map Name: National Grid

Map date: **1986-1989**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1965
Revised 1989
Edition N/A
Copyright 1989
Levelled 1965

Surveyed 1965
Revised 1986
Edition N/A
Copyright 1986
Levelled 1965

GroundSure

Produced by
GroundSure Environmental Insight
www.groundsure.com

Ordnance Survey Licensed Partner

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

Production date: 26 February 2013

To view map legend click here *Legend*

emapsite™

Site Details:

Client Ref: EMS_195848_285917
Report Ref: EMS-195848_285917
Grid Ref: 456197, 298780

Map Name: National Grid

Map date: **1977-1981**

Scale: 1:1,250

Printed at: 1:2,500

N
W E
S

Surveyed N/A
Revised N/A
Edition N/A
Copyright 1981
Levelled 1965

Surveyed 1965
Revised 1981
Edition N/A
Copyright 1981
Levelled 1965

Surveyed 1954
Revised 1975
Edition N/A
Copyright 1977
Levelled 1965

GroundSure

Ordnance Survey Licensed Partner

Produced by
GroundSure Environmental Insight
www.groundsure.com

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

Production date: 26 February 2013

To view map legend click here *Legend*

emapsite™

Site Details:

Client Ref: EMS_195848_285917
Report Ref: EMS-195848_285917
Grid Ref: 456197, 298780

Map Name: National Grid

Map date: **1971-1974**

Scale: 1:1,250

Printed at: 1:2,500

N
W E
S

Surveyed 1954
Revised 1972
Edition N/A
Copyright 1972
Levelled 1965

Surveyed 1954
Revised 1971
Edition N/A
Copyright 1971
Levelled 1965

Surveyed 1954
Revised 1971
Edition N/A
Copyright 1972
Levelled 1965

Surveyed 1973
Revised 1973
Edition N/A
Copyright 1974
Levelled 1965

Surveyed 1973
Revised 1973
Edition N/A
Copyright 1974
Levelled 1965

GroundSure

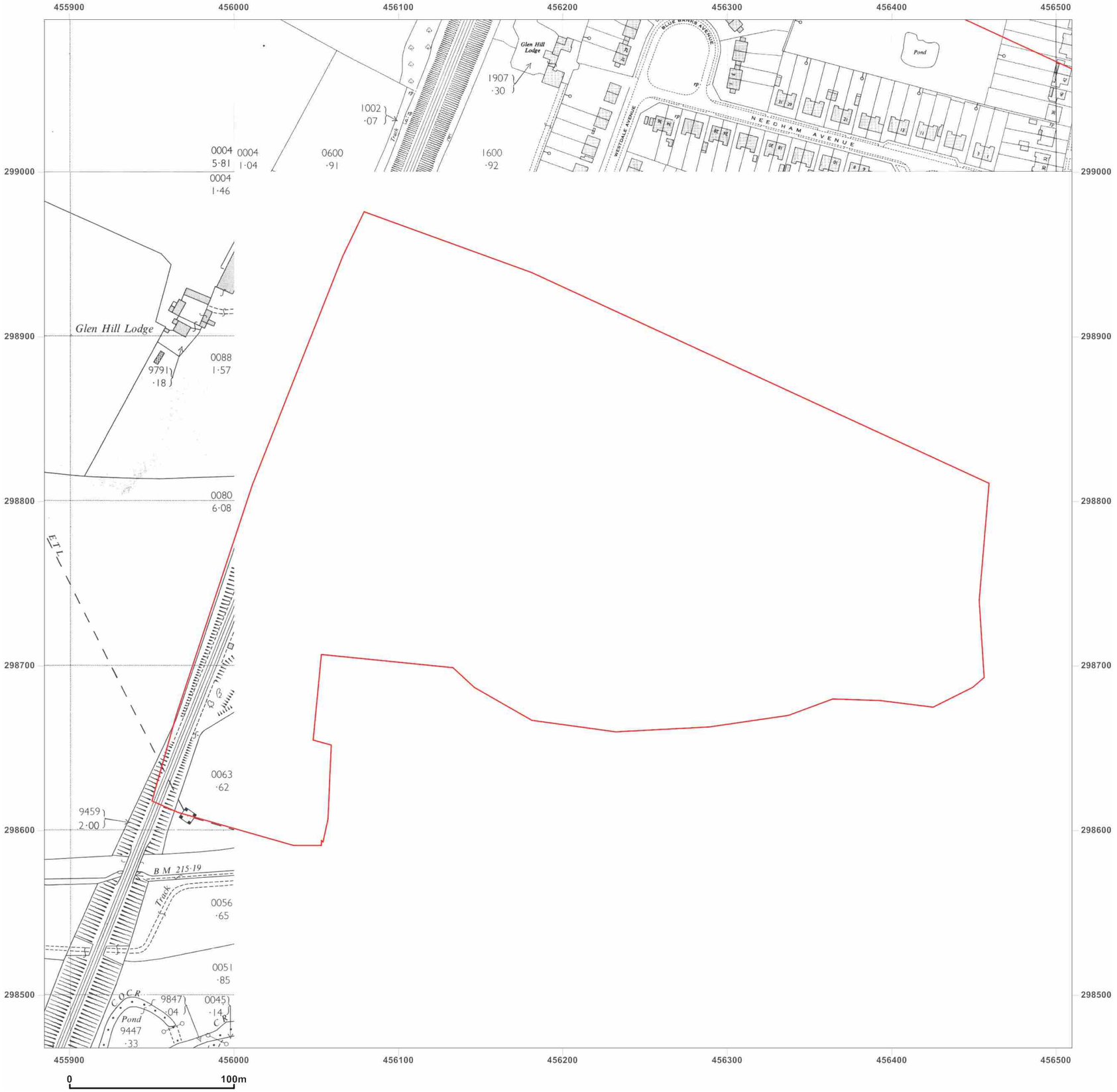
Produced by
GroundSure Environmental Insight
www.groundsure.com

Ordnance Survey Licensed Partner

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

Production date: 26 February 2013

To view map legend click here *Legend*



emapsite™

Site Details:

Client Ref: EMS_195848_285917
Report Ref: EMS-195848_285917
Grid Ref: 456197, 298780

Map Name: National Grid

Map date: **1966-1967**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1966
Revised 1966
Edition N/A
Copyright 1967
Levelled 1965

Surveyed 1967
Revised 1967
Edition N/A
Copyright 1968
Levelled 1965

Surveyed 1966
Revised 1966
Edition N/A
Copyright 1967
Levelled 1964

GroundSure

Ordnance Survey Licensed Partner

Produced by
GroundSure Environmental Insight
www.groundsure.com

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

Production date: 26 February 2013

To view map legend click here *Legend*

emapsite™

Site Details:

Client Ref: EMS_195848_285917
Report Ref: EMS-195848_285917
Grid Ref: 456197, 298780

Map Name: National Grid

Map date: **1961**

Scale: 1:1,250

Printed at: 1:2,500

N
W E
S

Surveyed 1961
Revised 1961
Edition N/A
Copyright 1961
Levelled 1927

GroundSure

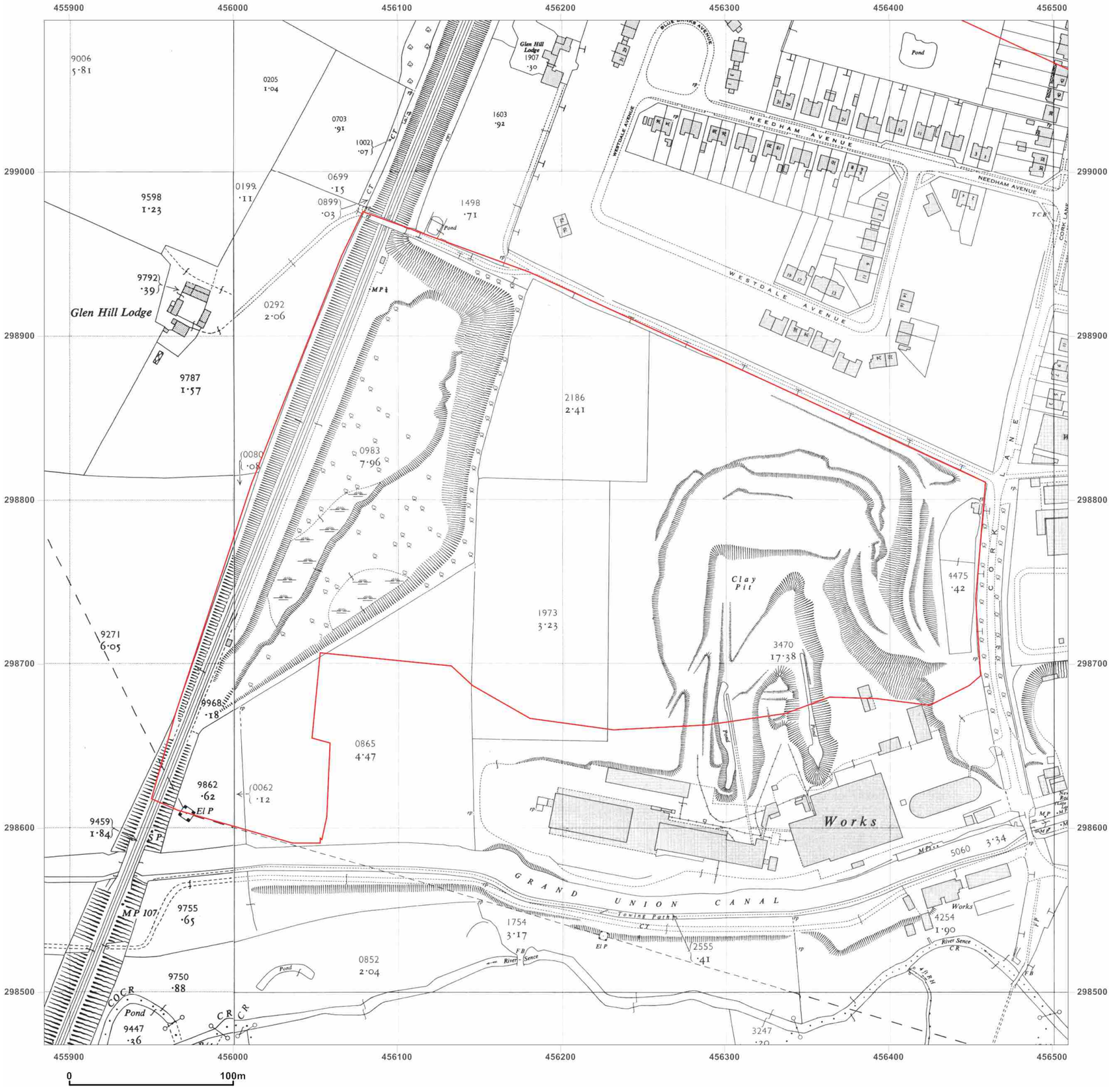
Ordnance Survey® Licensed Partner

Produced by
GroundSure Environmental Insight
www.groundsure.com

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

Production date: 26 February 2013

To view map legend click here *Legend*



emapsite™

Site Details:

Client Ref: EMS_195848_285917
Report Ref: EMS-195848_285917
Grid Ref: 456197, 298780

Map Name: National Grid

Map date: **1954-1957**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1957
Revised 1957
Edition N/A
Copyright N/A
Levelled 1927

Surveyed 1954
Revised 1954
Edition 1955
Copyright N/A
Levelled 1927

Surveyed 1957
Revised 1957
Edition N/A
Copyright N/A
Levelled 1927

Surveyed 1957
Revised 1957
Edition 1958
Copyright N/A
Levelled 1927

GroundSure

Ordnance Survey® Licensed Partner

Produced by
GroundSure Environmental Insight
www.groundsure.com

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

Production date: 26 February 2013

To view map legend click here *Legend*

emapsite™

Site Details:

Client Ref: EMS_195848_285917
Report Ref: EMS-195848_285917
Grid Ref: 456197, 298780

Map Name: National Grid

Map date: **1954**

Scale: 1:1,250

Printed at: 1:2,500

N
W E
S

Surveyed 1954
Revised 1954
Edition N/A
Copyright N/A
Levelled 1927

Surveyed 1954
Revised 1954
Edition N/A
Copyright N/A
Levelled 1927

Surveyed 1954
Revised 1954
Edition N/A
Copyright N/A
Levelled 1927

Surveyed 1954
Revised 1954
Edition N/A
Copyright N/A
Levelled 1927

GroundSure

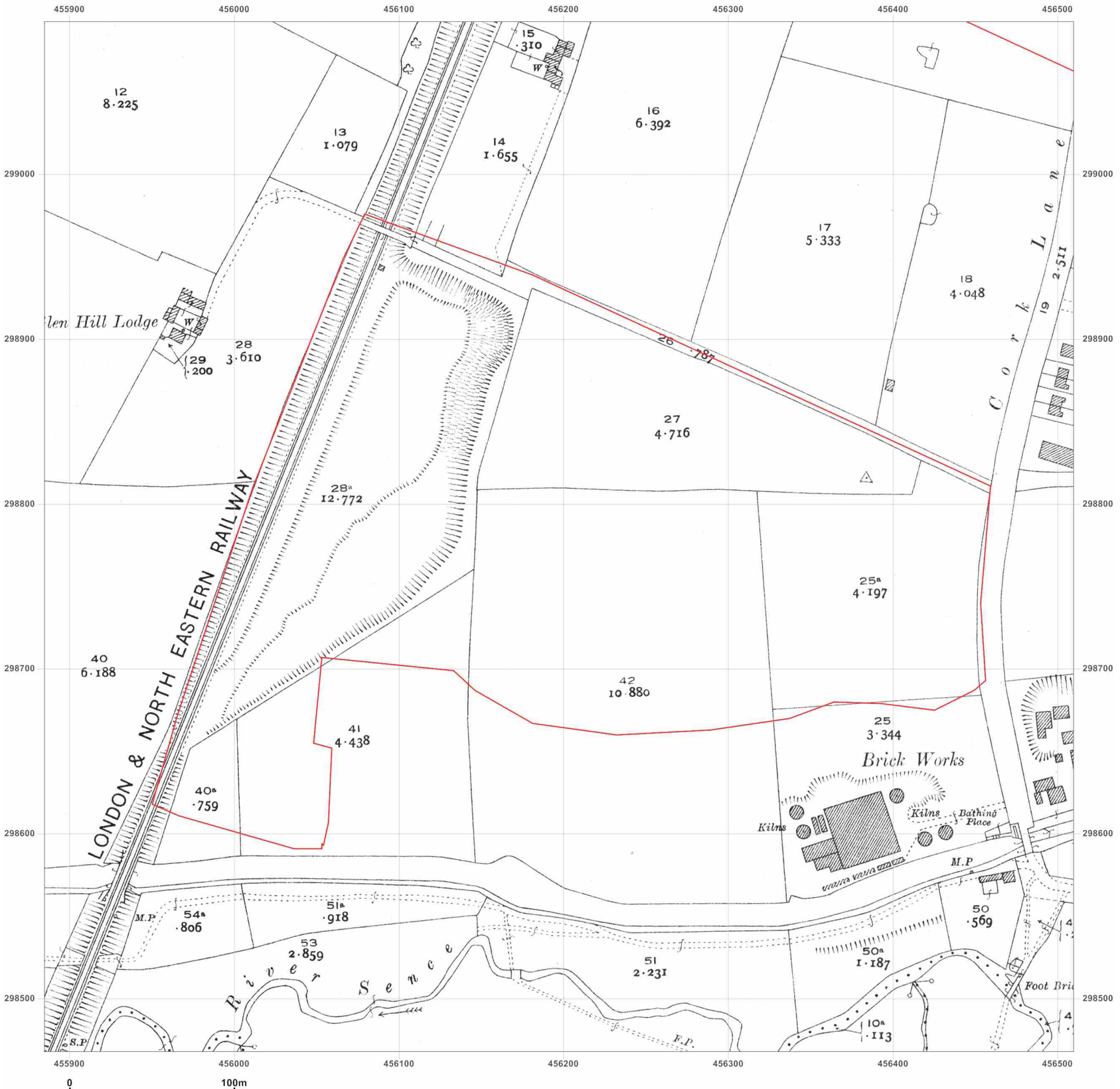
Ordnance Survey® Licensed Partner

Produced by
GroundSure Environmental Insight
www.groundsure.com

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

Production date: 26 February 2013

To view map legend click here *Legend*



emapsite™

Site Details:

Client Ref: EMS_195848_285917
Report Ref: EMS-195848_285917
Grid Ref: 456197, 298780

Map Name: County Series

Map date: **1930**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

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

GroundSure

Produced by
GroundSure Environmental Insight
www.groundsure.com

Ordnance Survey® Licensed Partner

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

Production date: 26 February 2013

To view map legend click here *Legend*

emapsite™

Site Details:

Client Ref: EMS_195848_285917
Report Ref: EMS-195848_285917
Grid Ref: 456197, 298780

Map Name: County Series

Map date: **1914**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1914
Revised 1914
Edition N/A
Copyright N/A
Levelled N/A

GroundSure

Ordnance Survey® Licensed Partner

Produced by
GroundSure Environmental Insight
www.groundsure.com

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

Production date: 26 February 2013

To view map legend click here *Legend*

emapsite™

Site Details:

Client Ref: EMS_195848_285917
Report Ref: EMS-195848_285917
Grid Ref: 456197, 298780

Map Name: County Series

Map date: **1904**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1904
Revised 1904
Edition N/A
Copyright N/A
Levelled N/A

GroundSure

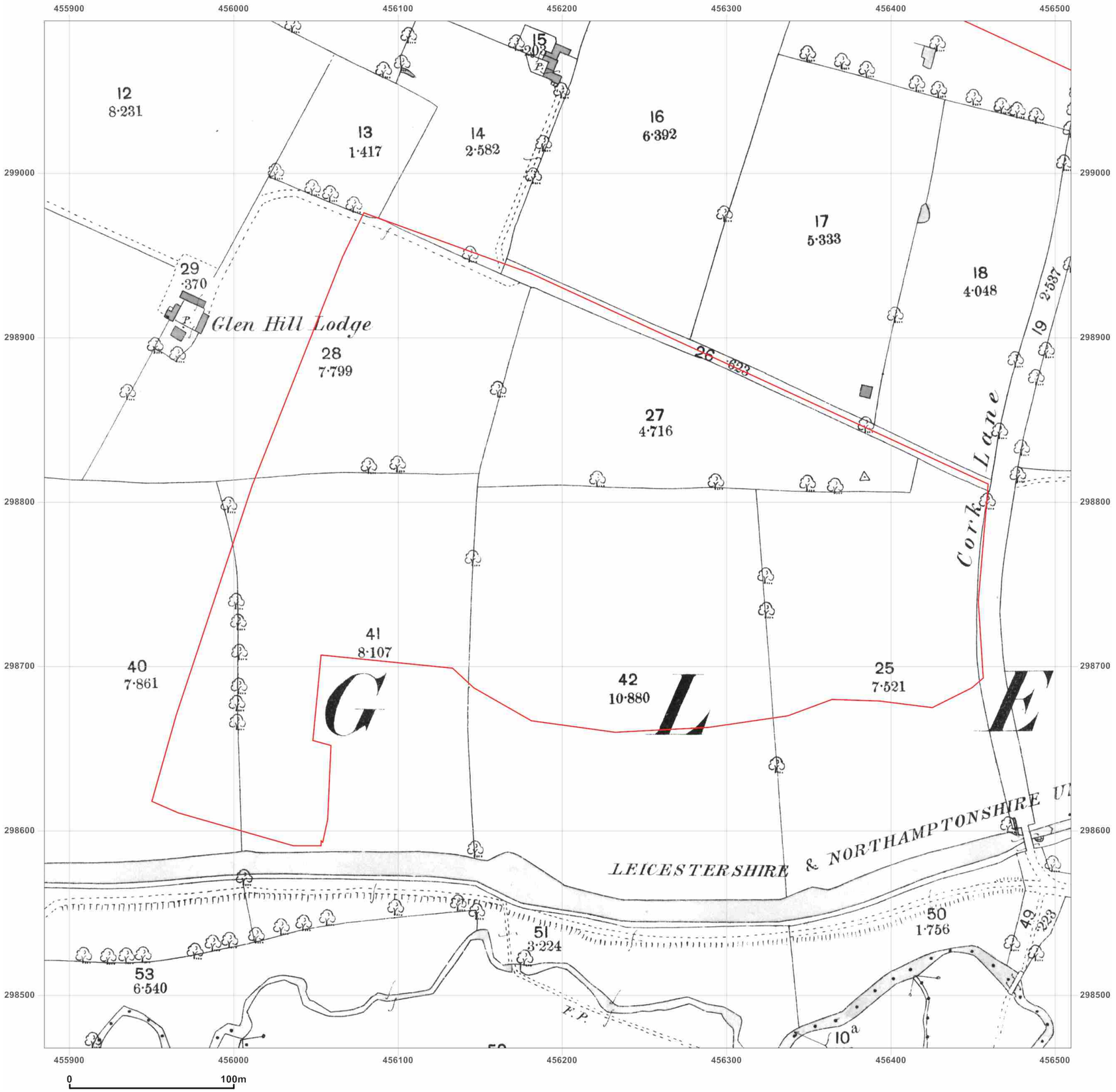
Produced by
GroundSure Environmental Insight
www.groundsure.com

Ordnance Survey® Licensed Partner

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

Production date: 26 February 2013

To view map legend click here *Legend*



emapsite™

Site Details:

Client Ref: EMS_195848_285917
Report Ref: EMS-195848_285917
Grid Ref: 456197, 298780

Map Name: County Series

Map date: **1886**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1886
Revised 1886
Edition N/A
Copyright N/A
Levelled N/A

GroundSure

Produced by
GroundSure Environmental Insight
www.groundsure.com

Ordnance Survey® Licensed Partner

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

Production date: 26 February 2013

To view map legend click here *Legend*

APPENDIX D
BLABY COUNCIL INFORMATION

Blaby District Council

the heart of Leicestershire

Date: 20 February 2013
My Ref: LW/CorkLane/Glen Parva
Your Ref: 26244 L01
Contact: Louisa Waterton
Tel No: 0116 272 7500
Fax No: 0116 275 0368
Email: enquiries@blaby.gov.uk

F.T.A.O. Vicky Evans
18 Frogmore Road
Hemel Hempstead
Hertfordshire
HP3 9RT
UK

Dear Vicky Evans,

Contaminated Land Enquiry – Land off Cork Lane, Glen Parva, Leicester, and the Bovis site to the South

Thank you for your recent enquiry regarding the above location. Enclosed with this letter is a receipt for the enquiry and a map to illustrate the extent and location of local landfill sites as requested in 6a of your letter referenced 26244 L01.

The land being enquired about; Land off Cork Lane, Glen Parva and the Bovis site to the South is situated both on and near to a former landfill site (number indicated site 86 on the enclosed map, and also formally known as Blaby Brickworks).

I will answer your questions in the same order posed to maintain continuity and will answer both enquiries in the same letter for your convenience.

1. Details of the past and current Waste Management Licence / Environmental Permit for both site areas; Currently site 86 which is the nearest known contaminated landfill site to both of your enquiries (Land off Cork Lane and the Bovis site), was known to be licensed by Leicestershire County Council from 31.05.1977 to 28.04.1994.

2. Details of depths, volumes and types of waste deposited for Site 86 (indicated on attached map): Site 86 was known to contain inert, industrial, commercial and household waste.

3. Details of the location and depth / construction of the gas monitoring borehole installations: (Please see enclosed map)

4, 5,6 and 7. Gas monitoring records and historical information for both sites and information of any remediation measures required / implemented for the Bovis site, including gas venting trenches and details of any protection measures included within the residential dwellings and details of any past site investigations that we have on record for both sites: For your convenience, I have included an additional map stating

the approximate bore hole location for the site bordering the Bovis site and Blaby Brickworks site. These bore holes are privately owned, and therefore Blaby District Council do not hold current records of any monitoring data from these.
A site investigation was carried out in 2001 for the Blaby Brickworks and Bovis site. This investigation revealed that PAH, slight elevated levels of arsenic and elevated levels of phytotoxic metal were found in the ground. As a result, the site was presumed remediated during development of the site. A proposal to add a further 0.6m soils to gardens was proposed to mitigate against any potentially remaining contamination.
The main issue with regards to landfill gas was found on the former Blaby Brickworks site (also known as site 86 on the enclosed map), although some methane was discovered on the Bovis site. During the course of monitoring, methane in the shallow boreholes (5m bgl) diminished to neglible levels. Methane levels remained elevated in three of the deeper boreholes, but no gas flow rates were recorded. As a result, proposals to incorporate gas protection measures to all buildings on the Bovis development including greenhouses and garages was proposed to mitigate against any risk from landfill gas. It was also proposed that residential buildings were to be protected by the use of clay rich soil and Monarflex membrane. Additionally, the sub floor void was to be ventilated by the use of airbricks and suspended floor. In areas of the site which had geotechnical problems a proprietary void former was recommended to be used to allow sub floor air circulation. In addition, service entry points were to enter through the walls where possible.
Finally, landfill gas vent trenches were included on the perimeter of the Bovis site.

Land off Cork Lane, Glen Parva, Leicester and the Bovis site to the South

O. S. Map Ref. :- SP5698

Date :- 20 February 2013

Scale :- 1:5000

N

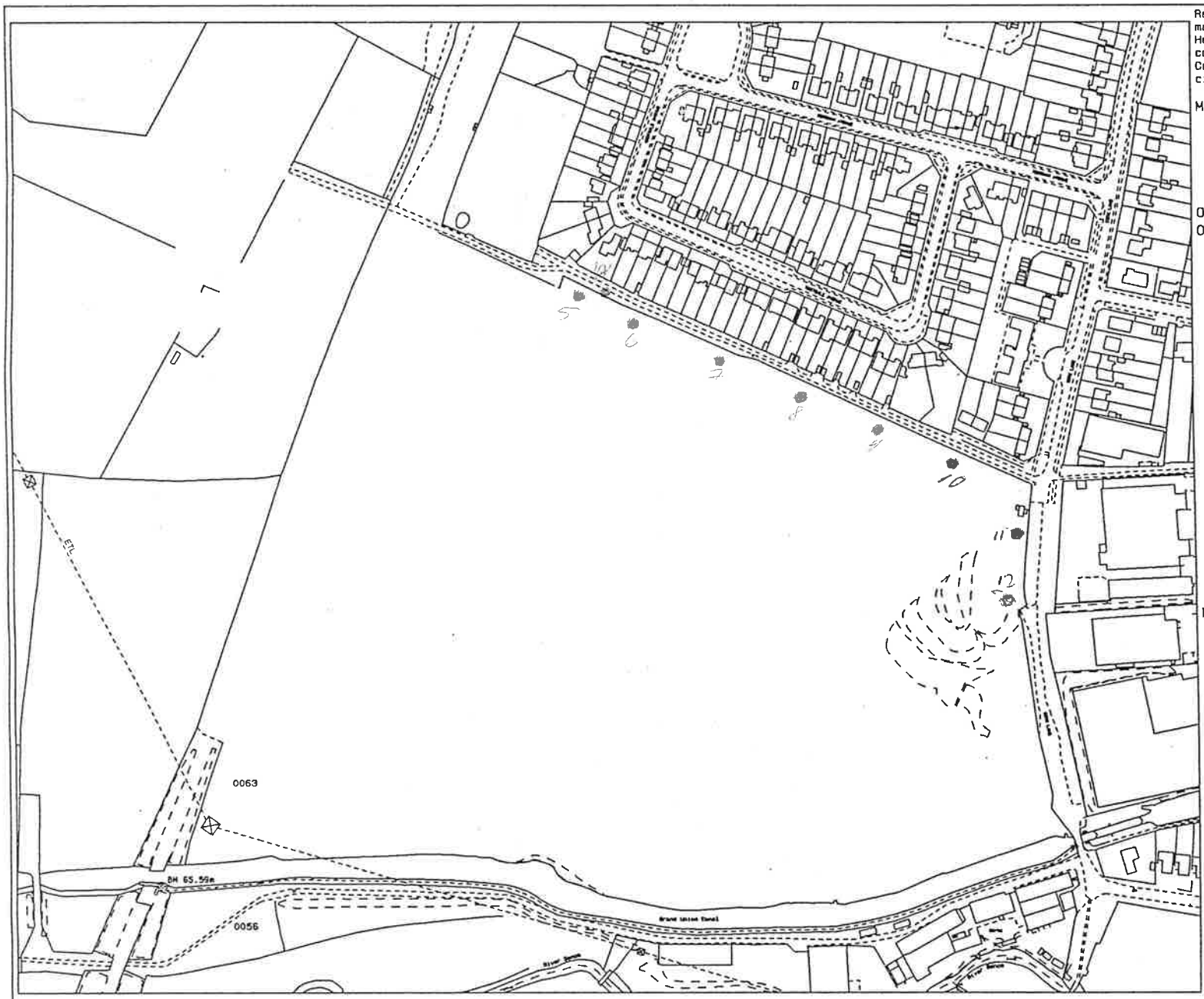
Map details: Easting 455858 - 456557
Northing 298510 - 299083
Scale 1:3451
Date 03/06/96
Roads

Overplots:
Ordnance Survey Sheets

Key plan:

Leicestershire County Council
T W Thompson, C.Eng, MICE, FIHT, FRSA
Director of Planning and Transportation

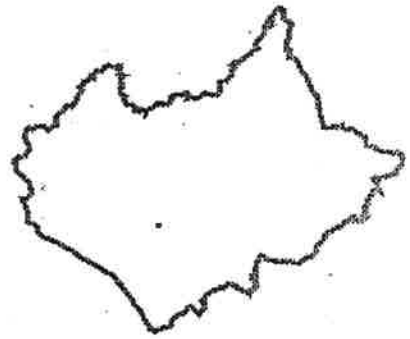
Plotted by PC/GRILS



Map details: Easting 455858 - 456557
Northing 298510 - 299083
Scale 1:3451
Date 03/06/96
Roads

Overplots:
Ordnance Survey Sheets

Key plan:



Leicestershire County Council
T W Thompson, C.Eng, MICE, FIHT, FRSA
Director of Planning and Transportation

Plotted by PC/GRILS

APPENDIX E
NHBC CORRESPONDENCE

Carys Baker

From: David Shohet [DShohet@NHBC.co.UK]
Sent: 14 May 2013 11:21
To: Nigel Austin; Adrian Lunn
Cc: Karen Thornton; Ruth Easterbrook
Subject: RE: Glen Parva - initial assessment of suitability for redevelopment

Dear Nigel,

Thank you for the information you sent through. I have now reviewed the preliminary geotechnical information and your ground improvement/foundation proposals and confirm that in principle, they are likely to be acceptable for NHBC warranty. However, my colleagues Karen Thornton and/or Ruth Easterbrook will be looking at the geo environmental issues including the methane and carbon dioxide levels and will no doubt contact you separately on this.

We look forward to receiving further site investigation information and registration details for the plots in due course.

As an aside and for the sake of completeness, I believe that our meeting at Cransley Sailing Club was on 5 April 2013 and not 29 March as you indicated.

Regards,

David

David Shohet
Specialist Geotechnical Engineer
Direct Tel: 020 8236 0413 I Direct Fax: 0844 633 0024
Mobile: 07918 651864
Email: dshohet@nhbc.co.uk

NHBC I NHBC House I Davy Avenue I Knowlhill I Milton Keynes I MK5 8FP
www.nhbc.co.uk I Tel: 0844 633 1000 I Fax: 0844 633 0022

From: NAustin@rsk.co.uk [mailto:NAustin@rsk.co.uk]
Sent: 07 May 2013 18:28
To: David Shohet; Adrian Lunn
Cc: Karen Thornton
Subject: RE: Glen Parva - initial assessment of suitability for redevelopment

David/Adrian,

Sorry you were unable to download.

I have copied in Karen as i was discussing another site with an intermittent gas issue and I mentioned this one as well.

Since the original letter we have carried out a further two gas monitoring visits (results enclosed) and these have indicated one installation (WS4) consistently recording elevated methane and a steady flow). The other 2 installations where elevated concentrations were recorded were inconsistent either in the total gas concentration and/or the flow - indicating a small source/sporadic flow??. It is considered that the soil gas regime (whilst understandably needs a more comprehensive classification) should not at this stage be considered to be prohibitive to residential development. There are solutions which we consider may be employed which would mitigate against isolated soil gas.

1. As indicated all semi detached ot detached units would be placed upon a semi rigid slab "raft" foundation incorporating a QA/QC'd impermeable gas membrane with services entering from the side.
2. All services should be designed with flexible connections and placed at gradients that will allow a small amount of settlement (~20mm).
3. THe raft should be placed upon a 20-40mm graded granular blanket (nominally 250mm thick) - with an option for this blanket to be passively ventilated by a series of interconnecting pipes to a dummy lamp column (vent) if required.

Our client is looking at this stage for an indication that the above would be appropriate - of course subject to additional works, and therefore your comments would be greatly appreciated.

Regards

Nigel Austin
Director - Geosciences

RSK
18 Frogmore Road, Hemel Hempstead, Hertfordshire, HP3 9RT, UK

Switchboard: +44 (0)1442 437500
Fax: +44 (0)1442 437550
Direct dial: +44 (0)1442 437530
Mobile: +44 (0)7713 214583
email: naustin@rsk.co.uk

http://www.rsk.co.uk

RSK Environment Ltd is registered in Scotland at 34 Albyn Place, Aberdeen, Aberdeenshire, AB10 1FW, UK
Registered number: 115530

From: David Shohet [mailto:DShohet@nhbc.co.uk]
Sent: 01 May 2013 08:03
To: Nigel Austin
Cc: Adrian Lunn
Subject: RE: Glen Parva

Nigel,

Thanks for the notification.

I am unable to access this download site as our IT systems prevent access. Please could you email it.

Many thanks

David

David Shohet
Specialist Geotechnical Engineer
Direct Tel: 020 8236 0413 I Direct Fax: 0844 633 0024
Mobile: 07918 651864
Email: dshohet@nhbc.co.uk

NHBC I NHBC House I Davy Avenue I Knowlhill I Milton Keynes I MK5 8FP
www.nhbc.co.uk I Tel: 0844 633 1000 I Fax: 0844 633 0022

NHBC supports Marie Curie Cancer Care


Please consider the environment before printing this e-mail

From: NAustin@rsk.co.uk [mailto:NAustin@rsk.co.uk]
Sent: 22 April 2013 18:33
To: David Shohet
Cc: Adrian Lunn
Subject: Glen Parva

David,

Further to our meeting and discussions please find a summary letter outlining the findings of the initial SI and desk study. Your comments would be appreciated to allow the next stages of investigation to go forward.

https://www.yousendit.com/download/UVJpQk01MGtoMlhtcXNUQw
expires 26th April

Regards

Nigel Austin
Director - Geosciences

RSK
18 Frogmore Road, Hemel Hempstead, Hertfordshire, HP3 9RT, UK

Switchboard: +44 (0)1442 437500
Fax: +44 (0)1442 437550
Direct dial: +44 (0)1442 437530
Mobile: +44 (0)7713 214583
email: naustin@rsk.co.uk

http://www.rsk.co.uk

RSK Environment Ltd is registered in Scotland at 34 Albyn Place, Aberdeen, Aberdeenshire, AB10 1FW, UK
Registered number: 115530

may use the content of this email for its intended purpose. If you are not the intended recipient, you may not retain, copy, forward or disclose the information herein, and we ask you to notify the sender or contact our Customer Services department on 0844 633 1000 or at cssupport@nhbc.co.uk The copyright and all other intellectual property rights subsisting in or to the contents of this email belong to NHBC or are used with the permission of the owner and all such rights are reserved. Recipients are asked to note that opinions, conclusions and other information in the contents of this email that do not relate to the official business of NHBC are neither given nor endorsed by NHBC. This email has been scanned for viruses, but NHBC does not accept any liability in respect of loss or damage caused by any virus which is not detected by its virus detection systems. Data Protection Act 1998. NHBC is the Data Controller for the purposes of the Act. Your personal details will be stored and processed in accordance with the Act for the purposes of dealing with your enquiry or claim and for research and statistical purposes. If you make a claim under a Buildmark policy you agree to your data being passed to others involved with your claim such as the original builder, or a consultant or remedial works contractor that we may employ in connection with your claim(s) and matter ancillary to your claim(s). Other than disclosure provided for in this statement, we will not pass any data about you to any other party without your permission unless we are required to do so by law. NHBC, the National House-Building Council, is a company registered by guarantee in England, registration number 320784, and it is authorised and regulated by the Financial Services Authority.

The content of this email is private and confidential, and unless otherwise stated only the intended recipient may use the content of this email for its intended purpose. If you are not the intended recipient, you may not retain, copy, forward or disclose the information herein, and we ask you to notify the sender or contact our Customer Services department on 0844 633 1000 or at cssupport@nhbc.co.uk The copyright and all other intellectual property rights subsisting in or to the contents of this email belong to NHBC or are used with the permission of the owner and all such rights are reserved. Recipients are asked to note that opinions, conclusions and other information in the contents of this email that do not relate to the official business of NHBC are neither given nor endorsed by NHBC. This email has been scanned for viruses, but NHBC does not accept any liability in respect of loss or damage caused by any virus which is not detected by its virus detection systems. Data Protection Act 1998. NHBC is the Data Controller for the purposes of the Act. Your personal details will be stored and processed in accordance with the Act for the purposes of dealing with your enquiry or claim and for research and statistical purposes. If you make a claim under a Buildmark policy you agree to your data being passed to others involved with your claim such as the original builder, or a consultant or remedial works contractor that we may employ in connection with your claim(s) and matter ancillary to your claim(s). Other than disclosure provided for in this statement, we will not pass any data about you to any other party without your permission unless we are required to do so by law. NHBC, the National House-Building Council, is a company registered by guarantee in England, registration number 320784, and it is authorised and regulated by the Financial Services Authority.

Carys Baker

From: Karen Thornton [KThornton@nhbc.co.uk]
Sent: 26 June 2013 16:39
To: Nigel Austin
Cc: william@main1.co.uk
Subject: RE: Land off Cork Lane, Glen Parva - Soil Gas Regime

Dear Nigel;

Thank you for providing further information relating to the above proposed scheme.

We understand that this information is issued as a 'pre-submission enquiry' to enable early consideration, by NHBC, of specified risks relating to the ground gas regime; and to allow comment and on-going discussions of possible development constraints and/or acceptability of possible in-construction gas protection solutions for a residential type development. Ultimately the overall aim is to satisfy requirements under NHBC technical Standards in relation to adequately identifying and characterising the ground gas hazard and determining appropriate solutions for its subsequent management.

Your recent submission; dated 21st June 2013 (letter ref. 26244/L03); provides additional investigation findings, which were aimed at better characterising the site ground gas regime. Based on additional tests (purge & recovery tests) data suggests that the rate of equilibrium of the gas in the sampling points (interpreted as indicative hazardous gas flow rates) are similar (albeit slightly higher) than that suggested by direct measurement. Although it is acknowledged that indicated gas flux measurements using this methodology should be treated with caution.

(Note: I'm unsure how you derived the GSV using the purge data; but from my own calculation estimates, data suggested higher GSVs than indicated in your report. My example calculation is as follows: Gas Flux (Q) = Volume of vadose * Change in gas concentration (%)/time taken

Using data from WS6, I have assumed following parameters as being appropriate - (2.92m vadose, 12.2% gas change concentration & 1.12hrs for time)

.

So for WS6 Q= (5.73*0122)/0.8 = **0.87 l/hr/CH4**.

However using the worst case result (i.e. WS6 = 0.87 l/hr/ch4); this still indicates that CS3/Amber2 gas regime is appropriate & on this basis, your proposals to consider in-construction gas measures as the primary means of mitigation currently seems reasonable.

With respect to the likely (primary) ground gas source, it is agreed from soil description logs presented; that the presence of potentially degradable constituents; (comprising wood, paper & cloth) within the historic backfills is the most likely candidate. Data suggests that its presence is more common at around 1.5-3m depth, beneath an upper mantle of less degradable gravelly clay fills. From descriptions provided it would seem that the mass content of degradable constituents is generally <5%, although locally up to 15%. On this basis localised variations in ground gas generation could exist. It might be worth considering whether likely ground improvements (required to permit suitable ground bearing properties for construction) could detrimentally influence the exhibited regime (i.e. alter anaerobic/aerobic conditions) and/or consider whether some in ground venting might be necessary to provide an additional pressure relief and/or migration control. This might or might not be an issue, but requires consideration never the less.

As detailed previously; and before moving it onto a definitive conclusion, further work is believed necessary & hopefully my comments above will assist with this work. Additionally & in order to better assist with the understanding of the gas regime, interrogation of worst case trends for hazardous gas flow rates are needed to ultimately allow consideration of a robust & acceptable solution. It is suggested that work should therefore also interrogate the likely mechanisms or trends relating to exhibited hazardous gas flow rates, although I understand that you intend to provide graphical interrogation of temporal/environmental (i.e. BP, water level etc) conditions, to assist in this matter & look forward to these findings.

Hopefully, (& as before), you will appreciate that the above comments are based on limited data and therefore merely represents my initial outline thoughts. It solely considers risks from ground gas without consideration of any other environmental matters or geotechnical aspects that may also influence the scheme. I must therefore remind that the above comments should not be taken as definitive, or relied upon; they are merely provided to provide an indication of likely questions and/or monitoring information requirements in order to aid your future submissions. Should your client wish to pursue this scheme further, then it might be beneficial to arrange a site meeting, at a pertinent time, to discuss the project in more depth.

Kindest Regards
Karen Thornton
Specialist Environmental Engineer **BSc (Hons), FGS, MCIWEM, C.WEM**
NHBC Engineering
Direct Tel:- 0121 445 3489 || Fax:- 0844 633 0024

From: NAustin@rsk.co.uk [mailto:NAustin@rsk.co.uk]
Sent: 21 June 2013 13:00
To: Karen Thornton
Cc: william@main1.co.uk
Subject: Land off Cork Lane, Glen Parva - Soil Gas Regime

Karen,

Please find a letter with respect to further works on the above site. Hope that it is another step in the right direction - and as always your comments, and hopefully approval would be greatly appreciated.

Regards

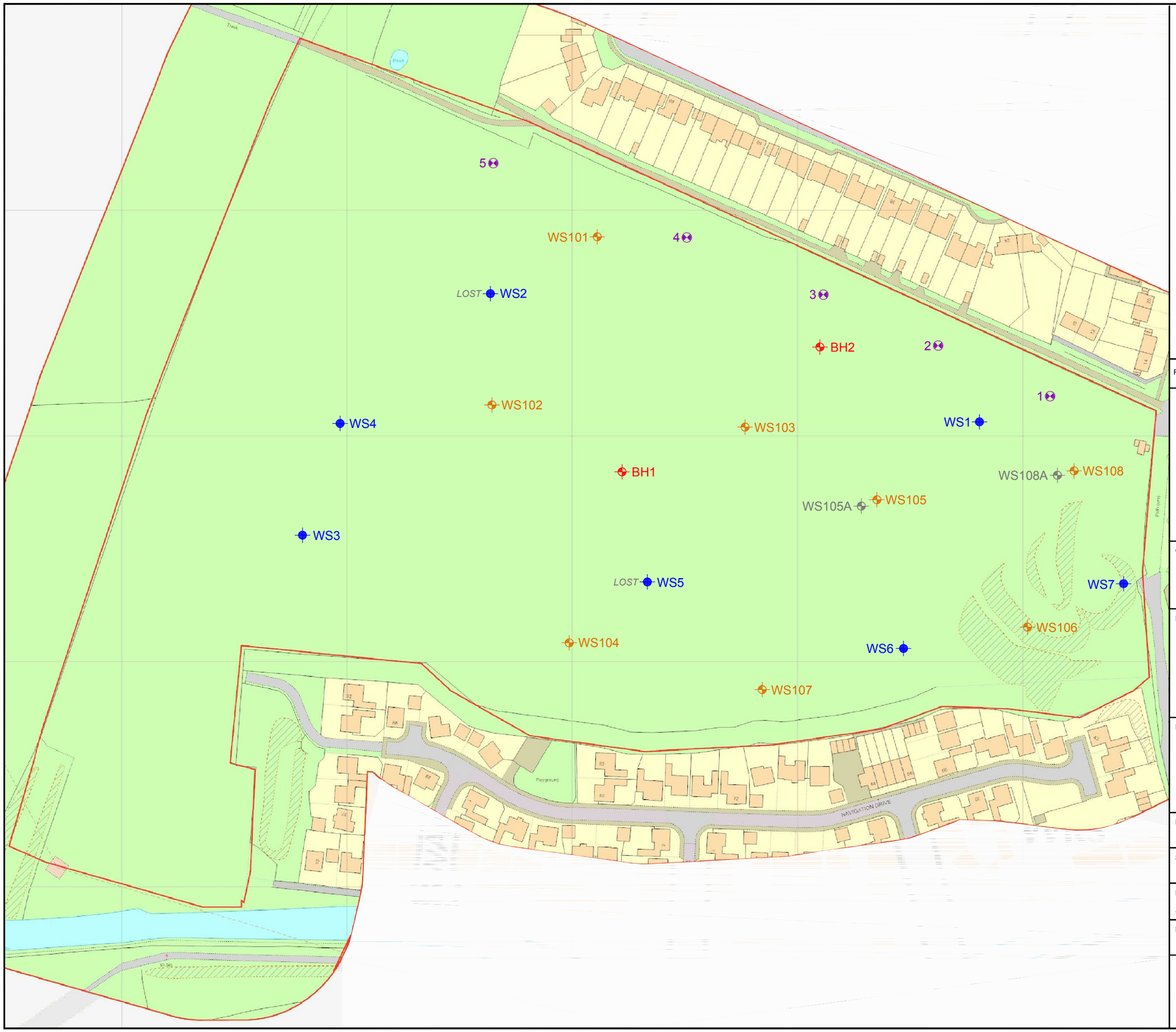
Nigel Austin
Director - Geosciences

RSK
18 Frogmore Road, Hemel Hempstead, Hertfordshire, HP3 9RT, UK

Switchboard: +44 (0)1442 437500
Fax: +44 (0)1442 437550
Direct dial: +44 (0)1442 437530
Mobile: +44 (0)7713 214583
email: naustin@rsk.co.uk

http://www.rsk.co.uk

APPENDIX F
RSK BOREHOLE RECORDS AND SAMPLE DESCRIPTIONS



LEGEND

- Site Boundary
- Window Sample Location *(RSK March 2013)*
- Borehole Location *(RSK March 2013)*
- Previous Gas Monitoring Borehole Location
- Window Sample Location *(RSK June 2013)*
- Window Sample Refusal Location *(RSK June 2013)*

Rev.	Date	Amendment	Drawn	Chkd.	Appd.
P1	19.06.13	First Issue	RS	NBA	NBA

RSK

18 Frogmore Road
Hemel Hempstead
Hertfordshire
HP3 9RT
United Kingdom

Tel: +44 (0) 1442 437500
Fax: +44 (0) 1442 437550
Email: info@rsk.co.uk
Web: www.rsk.co.uk

Client

MANOR OAK HOMES

Project Title

LAND OFF CORK LANE,
GLEN PARVA,
LEICESTERSHIRE

Drawing Title

SITE PLAN SHOWING
EXPLORATORY
HOLE LOCATIONS

Drawn	Date	Checked	Date	Approved	Date
RS	19.06.13	NBA	19.06.13	NBA	19.06.13

Scale	Orig Size	Dimensions
1:1500	A3	m

Project No.	Drawing File
26244 L02	26244 (L02).dwg

Drawing No.	Rev.
FIGURE 1	P1

Scale 1 : 1,500

0 20 40 60 80 100m

WINDOW SAMPLE LOG

Contract:	Client:	Window Sample:
Cork Lane, Glen Parva	**Manor Oak Homes**	**WS101**

Contract Ref:	Start:	Ground Level:	Co-ordinates:	Sheet:
26244	End: **17.06.13**	**---**	**---**	**1** of **1**

Progress	Samples / Tests				Water	Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Window Run	Depth	No	Type	Results					
0.00 - 1.00 (85mm dia) 100% rec							Grass over brown slightly sandy slightly gravelly CLAY. Gravel is angular to rounded fine to coarse quartzite and mudstone. With many rootlets. (MADE GROUND)	0.25	
							Firm brown slightly sandy to sandy slightly gravelly CLAY. gravel is angular to rounded fine to coarse quartzite, sandstone and mudstone. (MADE GROUND)	0.50 (0.30)	
							Stiff yellow brown slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded fine to coarse chalk, sandstone and mudstone. (MADE GROUND)	0.80	
	1.00-1.45	1	SPT(c)	N=22			Firm dark orange brown and dark brown slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded fine to coarse quartzite, sandstone and mudstone. (MADE GROUND)	(0.70)	
1.00 - 2.00 (75mm dia) 100% rec							0.80m, with piece of plastic (bag), approximately 1% of recovery within this meter.	1.50	
							1.00m, becoming stiff.	(0.35)	
							1.30m, with pieces of wood (dry construction type wood), approximately 3% of recovery within this meter.	1.85	
	2.00-2.45	2	SPT(c)	N=7			Firm grey brown slightly sandy slightly gravelly CLAY. Gravel is angular to subangular fine to coarse siltstone, flint and mudstone. With rare cobbles of quartzite. (MADE GROUND)	2.00 (0.40)	
2.00 - 3.00 (65mm dia) 80% rec							1.80m, with piece of black decomposing wood (natural), approximately 1% of recovery within this meter.	2.40	
	2.60-2.80	1	D				Soft dark grey slightly sandy slightly gravelly CLAY. Gravel is angular to subangular fine to coarse sandstone, mudstone and chalk. (MADE GROUND)	2.60	
	3.00-3.45	3	SPT(c)	N=7			Soft red brown sandy slightly gravelly CLAY. Gravel is angular to subangular fine to medium sandstone. (MADE GROUND)	(0.85)	
							Soft dark grey sandy slightly gravelly CLAY. Gravel is angular to subangular fine to coarse ash, mudstone, sandstone and brick. (MADE GROUND)	3.45	
							Brown claybound paper (newspaper), plastic (bags) and wood (dry construction wood). With strong odour of decomposing waste. (MADE GROUND) 2.80 to 3.00m, no recovery.		
							Window sample hole terminated at 3.45 m depth.		

Drilling Progress and Water Observations					
Date	Time	Borehole Depth (m)	Casing Depth (m)	Borehole Diameter (mm)	Water Depth (m)

General Remarks

1. Location scanned with CAT and signal generator prior to commencing drilling. No services detected.
2. No groundwater encountered during drilling.
3. Window sample hole installed with gas and groundwater monitoring well to 3.00m bgl on completion of drilling.
4. Gas monitoring carried out during drilling, maximum concentrations of CH4 = 0.50%, CO2 = 0.30%, O2 = 20.0%, LEL = 9% recorded.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Tracked window sampling	**Archway Competitor**	**MBD**	**K Foster**	

WINDOW SAMPLE LOG

Contract:	Client:	Window Sample:
Cork Lane, Glen Parva	**Manor Oak Homes**	**WS102**

Contract Ref:	Start: **17.06.13**	Ground Level:	Co-ordinates:	Sheet:
26244	End: **17.06.13**	**---**	**---**	**1** of **1**

Progress	Samples / Tests				Water	Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Window Run	Depth	No	Type	Results					
0.00 - 1.00 (85mm dia) 100% rec							Grass over brown slightly sandy slightly gravelly CLAY. Gravel is angular to subangular fine to coarse sandstone, mudstone, quartzite, flint and chalk. With many rootlets. (MADE GROUND)	0.20	
							Firm dark orange brown slightly sandy slightly gravelly CLAY. Gravel is angular to subrounded fine to coarse quartzite, sandstone, mudstone and chalk. (MADE GROUND)	(1.30)	
	1.00-1.45	1	SPT(c)	N=9			0.50m, with occasional cobbles of quartzite.		
1.00 - 2.00 (75mm dia) 90% rec							0.70m, becoming sandy.		
							1.00m, with occasional cobbles of quartzite.		
							1.20 to 1.30m, becoming dark grey with slightly organic odour.	1.50	
							Firm dark grey slightly sandy slightly gravelly CLAY. Gravel is angular to subrounded fine to coarse sandstone, mudstone, siltstone, quartzite and brick. (MADE GROUND)		
	2.00-2.45	2	SPT(c)	N=13			2.00m, becoming dark red brown and dark grey.		
2.00 - 3.00 (65mm dia) 80% rec	2.40-2.60	1	D					(1.95)	
							2.50m, with piece of material and occasional pieces of wood (construction wood), approximately 2% of recovery of this meter. With slight organic odour.		
							2.70m, with band (approximately 2mm thick) of black organic clay with slight organic odour.		
	3.00-3.45	3	SPT(c)	N=4			3.00m, becoming soft.		
								3.45	
							Window sample hole terminated at 3.45 m depth.		

Drilling Progress and Water Observations

Date	Time	Borehole Depth (m)	Casing Depth (m)	Borehole Diameter (mm)	Water Depth (m)

General Remarks

1. Location scanned with CAT and signal generator prior to commencing drilling. No services detected.
2. No groundwater encountered during drilling.
3. Window sample hole installed with gas and groundwater monitoring well to 2.20m bgl on completion of drilling.
4. Gas monitoring carried out during drilling, maximum concentrations of CH4 = 0.00%, CO2 = 0.30%, O2 = 20.4%, LEL = 0% recorded.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Tracked window sampling	**Archway Competitor**	**MBD**	**K Foster**	AGS

WINDOW SAMPLE LOG

Contract:	Client:	Window Sample:
Cork Lane, Glen Parva	**Manor Oak Homes**	**WS103**

Contract Ref:	Start:	Ground Level:	Co-ordinates:	Sheet:
26244	End: **17.06.13**	**---**	**---**	**1** of **1**

Progress	Samples / Tests				Water	Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Window Run	Depth	No	Type	Results					
0.00 - 1.00 (85mm dia) 100% rec	0.60-0.80	1	D				Grass over brown slightly sandy slightly gravelly CLAY. Gravel is subangular to subrounded fine to coarse mudstone, sandstone, quartzite and flint. With many rootlets. (MADE GROUND)	0.20	
							Stiff dark orange red brown slightly sandy slightly gravelly CLAY. Gravel is angular to subrounded fine to coarse siltstone, sandstone, mudstone and quartzite. (MADE GROUND)		
							0.60 to 0.80m, with some pale grey veining.		
	1.00-1.45	1	SPT(c)	N=17				(2.00)	
1.00 - 2.00 (75mm dia) 100% rec							1.40 to 1.70m, with some pale grey veining.		
	2.00-2.45	2	SPT(c)	N=12			1.90m, With occasional cobbles of brick, approximately 2% of recovery of the meter.	2.20	
							2.00m, becoming firm.		
2.00 - 3.00 (65mm dia) 70% rec	2.40-2.60	2	D				Medium dense dark grey, black and dark brown slightly clayey very gravelly fine to coarse SAND. Gravel is angular to subangular fine to coarse clinker, ash, mudstone and sandstone. With pieces of wood (construction wood), platic (bags) and material. (Approximately 10-15% of recovery within this meter) (MADE GROUND)	(1.25)	
	3.00-3.45	3	SPT(c)	N=5			3.00m, becoming loose.	3.45	
							Window sample hole terminated at 3.45 m depth.		

Drilling Progress and Water Observations

Date	Time	Borehole Depth (m)	Casing Depth (m)	Borehole Diameter (mm)	Water Depth (m)

General Remarks

1. Location scanned with CAT and signal generator prior to commencing drilling. No services detected.
2. No groundwater encountered during drilling.
3. Window sample hole installed with gas and groundwater monitoring well to 3.00m bgl on completion of drilling.
4. Gas monitoring carried out during drilling, maximum concentrations of CH4 = 21.4%, CO2 = 3.7%, O2 = 10.4%, LEL = >>>>% recorded.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Tracked window sampling	**Archway Competitor**	**MBD**	**K Foster**	AGS

WINDOW SAMPLE LOG

Contract:	Client:	Window Sample:
Cork Lane, Glen Parva	**Manor Oak Homes**	**WS104**

Contract Ref:	Start:	Ground Level:	Co-ordinates:	Sheet:
26244	End: **17.06.13**	**---**	**---**	**1** of **1**

Progress	Samples / Tests				Water	Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Window Run	Depth	No	Type	Results					
0.00 - 1.00 (85mm dia) 100% rec							Grass over brown slightly sandy slightly gravelly CLAY. Gravel is angular to subangular fine to coarse brick, mudstone, sandstone and flint. With many rootlets. (MADE GROUND)	0.20	
	1.00-1.45	1	SPT(c)	N=18			Stiff orange brown slightly sandy, locally sandy, slightly gravelly CLAY. Gravel is angular to subangular fine to coarse sandstone, mudstone, quartzite, concrete and brick. With occasional cobbles of quartzite and brick (approximately 5% of recovery of this meter). (MADE GROUND)	(1.00)	
1.00 - 2.00 (75mm dia) 80% rec								1.20	
	1.60-1.80	1	D				Soft dark grey and black slightly sandy gravelly CLAY. Gravel is angular fine to coarse clinker, ash, brick, concrete and mudstone. With strong bitumous odour. (MADE GROUND)	(0.80)	
							1.40m, With occasional cobbles of concrete, approximately 3% of recovery of this meter.		
							1.70m, with occasional pieces of black decomposing wood (natural) and pieces of glass, approximately 2% of recovery of this meter.	2.00	
	2.00-2.45	2	SPT(c)	N=7			Soft dark grey and grey brown sandy slightly gravelly CLAY. Gravel is angular to rounded fine to coarse siltstone, mudstone, sandstone and quartzite. With slight bitumous odour. (MADE GROUND)		
2.00 - 3.00 (65mm dia) 30% rec							2.30 to 3.00m, no recovery.	(1.45)	
	3.00-3.45	3	SPT(c)	N=6					
								3.45	
							Window sample hole terminated at 3.45 m depth.		

Drilling Progress and Water Observations

Date	Time	Borehole Depth (m)	Casing Depth (m)	Borehole Diameter (mm)	Water Depth (m)
17/06/13	12:00	3.00	-	65	2.00

General Remarks

1. Location scanned with CAT and signal generator prior to commencing drilling. No services detected.
2. Goundwater seepage encountered at 2.00m bgl.
3. Window sample hole installed with gas and groundwater monitoring well to 3.00m bgl on completion of drilling.
4. Gas monitoring carried out during drilling, maximum concentrations of CH4 = 0.1%, CO2 = 1.5%, O2 = 19.1%, LEL = 2% recorded.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Tracked window sampling	**Archway Competitor**	**MBD**	**K Foster**	AGS

WINDOW SAMPLE LOG

Contract:	Client:	Window Sample:
Cork Lane, Glen Parva	**Manor Oak Homes**	**WS105**

Contract Ref:	Start:	Ground Level:	Co-ordinates:	Sheet:
26244	End: **17.06.13**	**---**	**---**	**1** of **1**

Progress	Samples / Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Window Run	Depth	No	Type	Results					
0.00 - 1.00 (85mm dia) 100% rec							Grass over brown slightly sandy slightly gravelly CLAY. Gravel is angular to rounded fine to coarse sandstone, mudstone, quartzite and flint. With many rootlets. (MADE GROUND)	0.25	
							Orange brown slightly clayey gravelly fine to coarse SAND. Gravel is angular to rounded fine to coarse sandstone, quartzite, siltstone and mudstone. (MADE GROUND)	(0.65) 0.90	
	1.00-1.40	1	SPT(c)	N=60*			Firm dark grey slightly sandy slightly gravelly CLAY. Gravel is angular to subangular fine to coarse sandstone and mudstone. With some decomposing plant remains and slight organic odour. (MADE GROUND)	(0.50) 1.40	
							Window sample hole terminated at 1.40 m depth on obstruction of possible concrete.		

Drilling Progress and Water Observations

Date	Time	Borehole Depth (m)	Casing Depth (m)	Borehole Diameter (mm)	Water Depth (m)

General Remarks

1. Location scanned with CAT and signal generator prior to commencing drilling. No services detected.
2. No groundwater encountered during drilling.
3. Obstruction encountered at 1.40m, position moved 1m west to WS105a.
4. Gas monitoring carried out during drilling, maximum concentrations of CH4 = 0.0%, CO2 = 0.6%, O2 = 20.6%, LEL = 0% recorded.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Tracked window sampling	**Archway Competitor**	**MBD**	**K Foster**	

WINDOW SAMPLE LOG

Contract:	Client:	Window Sample:
Cork Lane, Glen Parva	**Manor Oak Homes**	**WS105a**

Contract Ref:	Start:	Ground Level:	Co-ordinates:	Sheet:
26244	End: **17.06.13**	**---**	**---**	**1** of **1**

Progress	Samples / Tests				Water	Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Window Run	Depth	No	Type	Results					
0.00 - 1.00 (85mm dia) 100% rec	0.70	1	D				Grass over orange brown slightly sandy slightly gravelly CLAY. Gravel is angular to rounded fine to coarse sandstone, mudstone and quartzite. With many rootlets. (MADE GROUND)	0.25	
							Orange brown slightly clayey slightly gravelly fine to coarse SAND. gravel is angular to rounded fine to coarse flint, sandstone, mudstone and quartzite. (MADE GROUND)	(0.75)	
	1.00-1.45	1	SPT(c)	N=10				1.00	
							Firm grey slightly sandy slightly gravelly CLAY. Gravel is angular to subangular fine to medium mudstone. (MADE GROUND)	1.25	
1.00 - 2.00 (75mm dia) 100% rec							Stiff yellow brown slightly sandy slightly gravelly CLAY. Gravel is angular to subangular fine to coarse mudstone, sandstone, chalk, brick and quartzite. (MADE GROUND)	(0.35)	
								1.60	
							Stiff dark grey slightly sandy slightly gravelly CLAY. Gravel is angular to subangular fine to coarse mudstone, sandstone, siltstone and occasional brick. With occasional pieces of decomposing black wood (natural), approximately 5% of recovery of this meter.	(0.40)	
								2.00	
2.00 - 2.35 (65mm dia) 100% rec	2.00-2.35	2	SPT(c)	N=75*			With slight organic odour. (MADE GROUND)	(0.35)	
							Soft to firm red brown slightly sandy slightly gravelly CLAY. Gravel is angular to subangular fine to coarse sandstone, brick, mudstone, siltstone and chalk. (MADE GROUND)	2.35	
							Window sample hole terminated at 2.35 m depth due to refusal on obstruction of possible concrete.		

Drilling Progress and Water Observations					
Date	Time	Borehole Depth (m)	Casing Depth (m)	Borehole Diameter (mm)	Water Depth (m)

General Remarks

1. Location scanned with CAT and signal generator prior to commencing drilling. No services detected.
2. No groundwater encountered during drilling.
3. Window sample hole installed with gas and groundwater monitoring well to 2.00m bgl on completion of drilling.
4. Gas monitoring carried out during drilling, maximum concentrations of CH4 = 0.0%, CO2 = 4.8%, O2 = 17.3%, LEL = 0% recorded.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Tracked window sampling	**Archway Competitor**	**MBD**	**K Foster**	

WINDOW SAMPLE LOG

Contract:	Client:	Window Sample:
Cork Lane, Glen Parva	**Manor Oak Homes**	**WS106**

Contract Ref:	Start:	Ground Level:	Co-ordinates:	Sheet:
26244	**17.06.13** End: **17.06.13**	**---**	**---**	**1** of **1**

Progress	Samples / Tests				Water	Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Window Run	Depth	No	Type	Results					
0.00 - 1.00 (85mm dia) 100% rec							Grass over brown slightly sandy slightly gravelly CLAY. gravel is angular to rounded fine to coarse sandstone, mudstone and quartzite. With many rootlets. (MADE GROUND)	0.20	
							Brown slightly sandy slightly gravelly CLAY. Gravel is angular to rounded fine to coarse sandstone, mudstone and quartzite. With some rootlets. (MADE GROUND)	(0.40) 0.60	
	1.00-1.45	1	SPT(c)	N=8			Firm orange brown, locally dark brown, sandy, locally slightly sandy, slightly gravelly CLAY. Gravel is angular to rounded fine to coarse sandstone, mudstone and quartzite. (MADE GROUND)		
1.00 - 2.00 (75mm dia) 100% rec							0.90m, with occasional cobbles of quartzite.	(1.40)	
	2.00-2.45	2	SPT(c)	N=6			1.90m, with occasional cobbles of sandstone.	2.00	
2.00 - 3.00 (65mm dia) 80% rec					≈		Soft red brown sandy slightly gravelly CLAY. Gravel is angular to subangular fine to medium siltstone, sandstone, flint and mudstone. (MADE GROUND)	(1.45)	
	3.00-3.45	3	SPT(c)	N=9			3.00m, becoming firm.	3.45	
							Window sample hole terminated at 3.45 m depth.		

Drilling Progress and Water Observations

Date	Time	Borehole Depth (m)	Casing Depth (m)	Borehole Diameter (mm)	Water Depth (m)
17/06/13	10:00	3.45	-	65	2.60

General Remarks

1. Location scanned with CAT and signal generator prior to commencing drilling. No services detected.
2. Groundwater seepage encountered at 2.60m bgl.
3. Window sample hole installed with gas and groundwater monitoring well to 3.00m bgl on completion of drilling.
4. Gas monitoring carried out during drilling, maximum concentrations of CH4 = 0.0%, CO2 = 4.6%, O2 = 15.3%, LEL = 0% recorded.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Tracked window sampling	**Archway Competitor**	**MBD**	**K Foster**	

WINDOW SAMPLE LOG

Contract:	Client:	Window Sample:
Cork Lane, Glen Parva	**Manor Oak Homes**	**WS107**

Contract Ref:	Start:	Ground Level:	Co-ordinates:	Sheet:
26244	End: **17.06.13**	**---**	**---**	**1** of **1**

Progress	Samples / Tests				Water	Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Window Run	Depth	No	Type	Results					
0.00 - 1.00 (85mm dia) 100% rec	0.50	1	D				Grass over brown slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded fine to coarse sandstone, mudstone and quartzite. With many roots and rootlets. (MADE GROUND)	0.20	
							Firm brown slightly sandy slightly gravelly. locally gravelly, CLAY. Gravel is angular to subrounded fine to coarse brick, sandstone, mudstone, quartzite and flint. (MADE GROUND)	(1.00)	
	1.00-1.45	1	SPT(c)	N=8			0.70m, with some cobbles of brick and quartzite, approximately 5% of recovery of this meter. 0.80m, becoming dark brown.	1.20	
1.00 - 2.00 (75mm dia) 100% rec							Firm grey brown, locally yellow brown, slightly sandy, locally sandy, slightly gravelly CLAY. gravel is angular fine to coarse sandstone, mudstone and flint. With rare pieces of fine sized glass. (MADE GROUND)		
	2.00-2.45	2	SPT(c)	N=9				(2.25)	
2.00 - 3.00 (65mm dia) 100% rec							2.40m, with gravel of chalk.		
	3.00-3.45	3	SPT(c)	N=8			2.90m, with rare pieces of decomposing black and grey wood (natural), approximately 2% of recovery of this meter.	3.45	
							Window sample hole terminated at 3.45 m depth.		

Drilling Progress and Water Observations

Date	Time	Borehole Depth (m)	Casing Depth (m)	Borehole Diameter (mm)	Water Depth (m)

General Remarks

1. Location scanned with CAT and signal generator prior to commencing drilling. No services detected.
2. No groundwater encountered during drilling.
3. Window sample hole installed with gas and groundwater monitoring well to 3.00m bgl on completion of drilling.
4. Gas monitoring carried out during drilling, maximum concentrations of CH4 = 0.0%, CO2 = 0.9%, O2 = 20.4%, LEL = 0% recorded.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Tracked window sampling	**Archway Competitor**	**MBD**	**K Foster**	

WINDOW SAMPLE LOG

Contract:	Client:	Window Sample:
Cork Lane, Glen Parva	**Manor Oak Homes**	**WS108**

Contract Ref:	Start:	Ground Level:	Co-ordinates:	Sheet:
26244	End: **17.06.13**	**---**	**---**	**1** of **1**

Progress	Samples / Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Window Run	Depth	No	Type	Results					
0.00 - 0.30 (85mm dia) 100% rec							Grass over brown slightly sandy slightly gravelly CLAY Gravel is angular to subangular fine to coarse sandstone and mudstone. With many rootlets. (MADE GROUND)	0.15	
							Firm to stiff brown slightly sandy slightly gravelly CLAY. Gravel is angular to subangular fine to coarse gravel of sandstone, mudstone and quartzite. (MADE GROUND)	0.30	
							Window sample hole terminated at 0.30 m depth on obstruction on possible concrete.		

Drilling Progress and Water Observations					
Date	Time	Borehole Depth (m)	Casing Depth (m)	Borehole Diameter (mm)	Water Depth (m)

General Remarks

1. Location scanned with CAT and signal generator prior to commencing drilling. No services detected.
2. No groundwater encountered during drilling.
3. Obstruction encountered at 0.30m, position moved 1m west to WS108a.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Tracked window sampling	**Archway Competitor**	**MBD**	**K Foster**	

WINDOW SAMPLE LOG

Contract:	Client:	Window Sample:
Cork Lane, Glen Parva	**Manor Oak Homes**	**WS108a**

Contract Ref:	Start:	Ground Level:	Co-ordinates:	Sheet:
26244	End: **17.06.13**	**---**	**---**	**1** of **1**

Progress	Samples / Tests				Water	Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Window Run	Depth	No	Type	Results					
0.00 - 1.00 (85mm dia) 100% rec							Grass over brown slightly sandy slightly gravelly CLAY. gravel is angular to subangular fine to coarse sandstone and mudstone. With many rootlets. (MADE GROUND)	0.15	
							Firm to stiff brown slightly sandy slightly gravelly CLAY. Gravel is angular to subangular fine to coarse gravel of sandstone, mudstone, quartzite, flint, concrete and brick. With rare pieces of wood and metal, approximately 1% of recovery of this meter. (MADE GROUND)	(0.55) 0.70	
							Red brown claybound angular to subangular fine to coarse GRAVEL of brick. With cobbles of brick. (Approximately 90% brick). (MADE GROUND)	0.90 (0.30) 1.20	
	1.00-1.45	1	SPT(c)	N=15					
1.00 - 2.00 (75mm dia) 100% rec	1.25	1	D				Stiff dark brown and dark orange brown slightly sandy gravelly CLAY. Gravel is angular to subangular fine to coarse mudstone, clinker, ash and sandstone. With slight bitumous odour. With rare pieces of fibrous material, approximately 1% of recovery of this meter. (MADE GROUND) 1.15m, with cobble of brick.	(0.80) 2.00	
	2.00-2.45	2	SPT(c)	N=14			Firm to stiff brown slightly sandy slightly gravelly CLAY. Gravel is angular to subangular fine to coarse mudstone, brick, quartzite, siltstone, concrete and sandstone. (MADE GROUND) 1.25m, with piece of black decomposing wood (natural), approximately 2% of recovery of this meter. 1.70m, becoming gravelly.		
2.00 - 3.00 (65mm dia) 70% rec							Firm to stiff brown slightly sandy slightly gravelly CLAY. Gravel is subangular to rounded fine to coarse quartzite, sandstone, mudstone and brick. (MADE GROUND)	(1.45)	
	3.00-3.45	3	SPT(c)	N=21			2.60m, becoming sandy and locally soft.	3.45	
							Window sample hole terminated at 3.45 m depth.		

Drilling Progress and Water Observations					
Date	Time	Borehole Depth (m)	Casing Depth (m)	Borehole Diameter (mm)	Water Depth (m)

General Remarks

1. Location scanned with CAT and signal generator prior to commencing drilling. No services detected.
2. No groundwater encountered during drilling.
3. Window sample hole installed with gas and groundwater monitoring well to 3.00m bgl on completion of drilling.
4. Gas monitoring carried out during drilling, maximum concentrations of CH4 = 1.8%, CO2 = 0.6%, O2 = 19.0%, LEL = 35% recorded.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Tracked window sampling	**Archway Competitor**	**MBD**	**K Foster**	

WINDOW SAMPLE LOG

Contract:	Client:	Window Sample:
Cork Lane, Glen Parva	**Manor Oak Homes**	**WS1**

Contract Ref:	Start:	Ground Level:	Co-ordinates:	Sheet:
26244	End: **01.03.13**	**---**	**---**	**1** of **1**

Progress	Samples / Tests				Water	Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Window Run	Depth	No	Type	Results					
							Grass over dark brown clayey TOPSOIL with frequent rootlets. (TOPSOIL)	0.15	
	0.50-3.00	1	BLK				MADE GROUND: Soft to firm dark brown sandy very gravelly clay. Gravels angular to sub-angular fine to coarse brick, sand stone slag, with occasional ash pockets. . . . Light blue/grey clinker nodule, with a strong "rotten egg" smell between 0.60m and 0.62m	(1.75)	
	1.00-1.45	1	SPT	N=7			. . . Frequent rounded medium to coarse quartzite gravel and less brick at 1.10m		
	1.50-3.00	2	BLK				. . . Frequent pockets of black stained organic material with an organic odour at 1.40m	1.90	
	2.00-2.45	2	SPT	N=20			MADE GROUND: Firm to stiff light brown mottled light grey clay with occasional rounded medium to coarse quartzite	(1.10)	
	2.50-3.00	3	BLK						
	3.00-3.45	3	SPT	N=23				3.00	

Drilling Progress and Water Observations

Date	Time	Borehole Depth (m)	Casing Depth (m)	Borehole Diameter (mm)	Water Depth (m)

General Remarks

1. CAT scanned, no services
2. Pipe installed to 3m.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Tracked window sampling	**Archway Competitor**	**MBD**	**RBloxham**	

WINDOW SAMPLE LOG

Contract:	Client:	Window Sample:
Cork Lane, Glen Parva	**Manor Oak Homes**	**WS2**

Contract Ref:	Start:	Ground Level:	Co-ordinates:	Sheet:
26244	End: **01.03.13**	**---**	**---**	**1** of **1**

Progress	Samples / Tests				Water	Backfill & Instru-mentation	Description of Strata	Depth (Thick ness)	Material Graphic Legend
Window Run	Depth	No	Type	Results					
							Grass over brown clayey TOPSOIL. (TOPSOIL)	0.12	
							MADE GROUND: Firm brown slightly sandy gravelly clay. Gravel is rounded fine to coarse quartzite, with occasional cobbles.		
	1.00-1.45	1	SPT	N=4					
							. . . Becoming damp and soft/contains occasional pockets of organic material at 1.20m	(2.88)	
	2.00-2.45	2	SPT	N=10					
								3.00	
	3.00-3.45	3	SPT	N=11					

Drilling Progress and Water Observations

Date	Time	Borehole Depth (m)	Casing Depth (m)	Borehole Diameter (mm)	Water Depth (m)
01/03/13		3.00	-		1.20

General Remarks

1. CAT scanned, no services.
2. Well installed, base of hole collapsed to 2m.
3. No groundwater encountered until after pipe was installed. Damp sample from 1.20m. Groundwater standing at base of hole.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Tracked window sampling	**Archway Competitor**	**MBD**	**RBloxham**	AGS

WINDOW SAMPLE LOG

Contract:	Client:	Window Sample:
Cork Lane, Glen Parva	**Manor Oak Homes**	**WS3**

Contract Ref:	Start:	Ground Level:	Co-ordinates:	Sheet:
26244	**01.03.13**	**---**	**---**	**1** of **1**
	End: **01.03.13**			

Progress	Samples / Tests				Water	Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Window Run	Depth	No	Type	Results					
							Grass over dark brown clayey TOPSOIL with frequent rootlets. (TOPSOIL)	0.15	
							MADE GROUND: Soft to firm dark brown, occasional orange brown and occasional black very gravelly clay. Gravel is angular to sub-angular fine to coarse brick, concrete, clinker and quartzite.		
	1.00-1.45	1	SPT	N=7					
							. . . Becoming occasionally damp and soft at 1.40m	(2.85)	
	2.00-2.45	2	SPT	N=14					
	3.00-3.45	3	SPT	N=9				3.00	

Drilling Progress and Water Observations

Date	Time	Borehole Depth (m)	Casing Depth (m)	Borehole Diameter (mm)	Water Depth (m)
01/03/13		3.00	-		3.00

General Remarks

1. CAT scanned, no services.
2. Well installed to 3.00m.
3. Groundwater standing at base of pipe following installation.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Tracked window sampling	**Archway Competitor**	**MBD**	**RBloxham**	

WINDOW SAMPLE LOG

Contract:	Client:	Window Sample:
Cork Lane, Glen Parva	**Manor Oak Homes**	**WS4**

Contract Ref:	Start:	Ground Level:	Co-ordinates:	Sheet:
26244	**01.03.13**	**---**	**---**	**1** of **1**
	End: **01.03.13**			

Progress	Samples / Tests				Water	Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Window Run	Depth	No	Type	Results					
							Grass over dark brown clayey TOPSOIL with frequent rootlets. (TOPSOIL)	0.18	
	1.00-1.45	1	SPT	N=18			MADE GROUND: Firm brown very gravelly clay. Gravel is angular to sub-angular, fine to coarse and occasionally cobble sized concrete, brick and wood.	(1.77)	
								1.95	
	2.00-2.45	2	SPT	N=12			MADE GROUND: Soft black/brown gravelly clay and frequent fragments of plastic bag sheeting and wood fragments.	(1.05)	
	3.00-3.45	3	SPT	N=7				3.00	

Drilling Progress and Water Observations					
Date	Time	Borehole Depth (m)	Casing Depth (m)	Borehole Diameter (mm)	Water Depth (m)

General Remarks

1. CAT scanned, no services.
2. Pipe installed to 3.00m.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Tracked window sampling	**Archway Competitor**	**MBD**	**RBloxham**	

WINDOW SAMPLE LOG

Contract:	Client:	Window Sample:
Cork Lane, Glen Parva	**Manor Oak Homes**	**WS5**

Contract Ref:	Start:	Ground Level:	Co-ordinates:	Sheet:
26244	End: **01.03.13**	**---**	**---**	**1** of **1**

Progress	Samples / Tests				Water	Backfill & Instru-mentation	Description of Strata	Depth (Thick ness)	Material Graphic Legend
Window Run	Depth	No	Type	Results					
							Grass over dark brown clayey TOPSOIL with frequent rootlets. (TOPSOIL)	0.10	
							MADE GROUND: Firm brown and orange/brown slightly sandy, very gravely clay. Gravel is angular to sub-angular with fine to coarse brick, concrete and quartzite.	(1.00)	
	1.00-1.45	1	SPT	N=1				1.10	
							MADE GROUND: Soft to firm silty sandy clay with frequent rounded to sub-rounded fine to coarse quartzite gravel. (Sample very damp)	(1.90)	
	2.00-2.45	2	SPT	N=9					
	3.00-3.45	3	SPT	N=6				3.00	

Drilling Progress and Water Observations

Date	Time	Borehole Depth (m)	Casing Depth (m)	Borehole Diameter (mm)	Water Depth (m)
01/03/13		3.00	-		3.00

General Remarks

1. CAT scanned, no services.
2. Pipe installed to 3.00m.
3. Grounwater standing at base of hole following installation.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Tracked window sampling	**Archway Competitor**	**MBD**	**RBloxham**	

WINDOW SAMPLE LOG

Contract:	Client:	Window Sample:
Cork Lane, Glen Parva	**Manor Oak Homes**	**WS6**

Contract Ref:	Start:	Ground Level:	Co-ordinates:	Sheet:
26244	**01.03.13**	**---**	**---**	**1** of **1**
	End: **01.03.13**			

Progress	Samples / Tests				Water	Backfill & Instru-mentation	Description of Strata	Depth (Thick ness)	Material Graphic Legend
Window Run	Depth	No	Type	Results					
							Grass over dark brown clayey TOPSOIL with frequent rootlets. (TOPSOIL)	0.10	
							MADE GROUND: Firm to stiff dark brown slightly sandy gravelly clay. Gravel is angular to sub-angular with fine to coarse brick, concrete and occasional wood.		
	1.00-1.45	1	SPT	N=13					
							. . . Becoming softer in places at 1.20m.	(2.90)	
	2.00-2.45	2	SPT	N=7					
	3.00-3.45	3	SPT	N=10				3.00	

Drilling Progress and Water Observations					
Date	Time	Borehole Depth (m)	Casing Depth (m)	Borehole Diameter (mm)	Water Depth (m)

General Remarks

1. CAT scanned, no services.
2. Pipe installed to 3.00m.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Tracked window sampling	**Archway Competitor**	**MBD**	**RBloxham**	

WINDOW SAMPLE LOG

Contract:	Client:	Window Sample:
Cork Lane, Glen Parva	**Manor Oak Homes**	**WS7**

Contract Ref:	Start:	Ground Level:	Co-ordinates:	Sheet:
26244	End: **01.03.13**	**---**	**---**	**1** of **1**

Progress	Samples / Tests				Water	Backfill & Instrumentation	Description of Strata	Depth (Thickness)	Material Graphic Legend
Window Run	Depth	No	Type	Results					
							Grass over dark brown clayey TOPSOIL with frequent rootlets. (TOPSOIL)	0.13	
							MADE GROUND: Soft to firm brown and occasionally orange/brown slightly silty gravelly clay. Gravel is angular to sub-anuglar with fine to coarse brick, concrete and quartzite.	(1.47)	
	1.00-1.45	1	SPT	N=6				1.60	
							MADE GROUND: Soft to firm silty clay with occasional pockets of organic material and occasional rounded fine quartzite gravel.	(1.40)	
	2.00-2.45	2	SPT	N=11				3.00	
	3.00-3.45	3	SPT	N=11					

Drilling Progress and Water Observations					
Date	Time	Borehole Depth (m)	Casing Depth (m)	Borehole Diameter (mm)	Water Depth (m)

General Remarks

1. CAT scanned before drilling, no services.
2. Monitoring well installed to 3.00m.

All dimensions in metres | Scale: **1:25**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Tracked window sampling	**Archway Competitor**	**MBD**	**RBloxham**	AGS

BOREHOLE LOG

Contract:	Client:	Borehole:
Cork Lane, Glen Parva	**Manor Oak Homes**	**BH1**

Contract Ref:	Start:	Ground Level:	Co-ordinates:	Sheet:
26244	**27.02.13** End: **28.02.13**	**---**	**---**	**1** of **2**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						Grass over TOPSOIL.	0.10	
0.30	1	B				MADE GROUND: Brown silty sandy clay fill with occasional ash, concrete and wood fragments.		
1.00-1.45	1	SPT	N=7			. . . Brown/red clay between 1.5m to 3.40m.		
2.00-2.45	2	SPT	N=30					
2.50	5	B						
3.00-3.45	3	SPT	N=18			. . . With occasional plastic, wood, metal, ash, brick and concrete at 3.40m		
4.00-4.45	4	SPT	N=1					
4.60	9	B						
5.00-5.45	5	SPT	N=32					
6.50-6.95	6	SPT	N=16					
7.50	13	B					(15.00)	
8.00-8.45	7	SPT	N=17					

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
28/02/13		16.00	-		5.90

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Cable tool rig**	**MBD**	**VMacfarlane**	

BOREHOLE LOG

Contract:	Client:	Borehole:
Cork Lane, Glen Parva	**Manor Oak Homes**	**BH1**

Contract Ref:	Start:	Ground Level:	Co-ordinates:	Sheet:
26244	**27.02.13** End: **28.02.13**	**---**	**---**	**2** of **2**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
9.50-9.95	8	SPT	N=28			MADE GROUND: Brown silty sandy clay fill with occasional ash, concrete and wood fragments. *(stratum text copied from layer at 0.10m depth from previous sheet)*		
10.00	17	B						
11.00-11.45	9	SPT	N=29					
12.50-12.95	10	SPT	N=15					
13.00	21	B						
14.00-14.45	11	SPT	N=10					
							15.10	
15.50-15.95	12	SPT	N=50			Very weak, highly weathered red/brown SILTSTONE/ Silty SANDSTONE.	(0.90)	
							16.00	

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Cable tool rig**	**MBD**	**VMacfarlane**	

BOREHOLE LOG

Contract:	Client:	Borehole:
Cork Lane, Glen Parva	**Manor Oak Homes**	**BH2**

Contract Ref:	Start:	Ground Level:	Co-ordinates:	Sheet:
26244	**01.03.13** End: **01.03.13**	**---**	**---**	**1** of **1**

Samples and In-situ Tests				Water	Backfill	Description of Strata	Depth (Thickness)	Material Graphic Legend
Depth	No	Type	Results					
						Grass over TOPSOIL.	0.10	
0.50	1	B				MADE GROUND: Inter mixed brown silty sandy clay and silty sand with occasional brick, concrete and ash.	(2.30)	
							2.40	
2.50	2	D				MADE GROUND: Soft to firm brown silty sandy clay.		
3.00-3.45	1	SPT	N=7					
3.00	3	D						
3.50	4	B						
4.00-4.45	2	SPT	N=4					
4.00	5	D						
4.70	6	D					(5.10)	
5.00-5.45	3	SPT	N=4					
5.00	7	D						
6.00	8	B						
6.50-6.95	4	SPT	N=8					
6.50	9	D						
							7.50	
7.50	10	D				Firm to stiff grey becoming stiff to very stiff silty clay (Boulder Clay). (BOULDER CLAY)	(1.00)	
8.00-8.45	5	SPT	N=55					
8.00	11	D						
							8.50	

Boring Progress and Water Observations					
Date	Time	Borehole Depth	Casing Depth	Borehole Diameter (mm)	Water Depth
01/03/13		8.50	-		5.50

Chiselling / Slow Progress		
From	To	Duration (hh:mm)

General Remarks

All dimensions in metres | Scale: **1:50**

Method Used:	Plant Used:	Drilled By:	Logged By:	Checked By:
Cable percussion	**Cable tool rig**	**MBD**	**VMacfarlane**	

APPENDIX G
RSK GAS MONITORING RECORDS

* READINGS TAKEN FROM TOP OF HEADWORKS - THE OFFSET TO GROUND LEVEL WILL BE RECORDED ON NEXT VISIT. (APPLIES TO ALL POINTS).

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: overcast	Air Temperature: 3°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet/snow	Equipment Used: GA7810 Calibration date: 1/4/13	BUNG+GAS TAPS FITTED TO ALL MONITORING POINTS.	N/A
Measurement datum: GL / Top of pipe (Other) TOP OF HWKS	Offset to GL (m): *	Wind:	Data Collected By: Grenace	Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
BH1S	19 mm	1	11/2/13	Initial	1000	✓	✓	✓	✓	✓	✓	✓	✓	✓	0.44	4.32
			10:52:00	Steady												
BH1M	19 mm	1	11/2/13													
			10:54:00		996	✓	✓	✓	✓	✓	✓	✓	✓	✓	0.39	11.51
BH1D	19mm	1	11/2/13													
			10:55:00		996	✓	✓	✓	✓	✓	✓	✓	✓	✓	0.39	11.81
			90													
			120													
			180													
			240													
			300													
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
11/2/2013	Grenace	GW	?UKN??

Contract: Glen Parva, Leicester

Page: 1 of 5

Engineer:

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: overcast	Air Temperature: 3°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet / snow	Equipment Used: GA7810 Calibration date: 1/4/13		N/A
Measurement datum: GL / Top of pipe / (Other) TOP OF HWKS; Offset to GL (m):	Wind:	Data Collected By: Terrace		Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
BH2S	19 mm	1	11/2/13 11:07:00	Initial	997	—	—	—	—	—	—	—	—	—	1.76	2.88
				Steady												
BH2M	19 mm	1	11/2/13 11:08:00		997	—	—	—	—	—	—	—	—	—	3.05	3.06
BH2D	19 mm	1	11/2/13 11:10:00		997	—	—	—	—	—	—	—	—	—	1.80	6.13
			90													
			120													
			180													
			240													
			300													
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
11/2/13	Terrace	GW	?

Contract: Glen Parva, Leicester

Page: 2 of 5

Engineer:

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Overcast	Air Temperature: 3°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet/snow	Equipment Used: GA 7810 Calibration date: 1/4/13		N/A
Measurement datum: GL / Top of pipe / (Other) TOP OF HWRS — Offset to GL (m):	Wind:	Data Collected By: Gerace		Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
BH3S	19 mm	1	11/2/13	Initial	997	/	/	/	/	/	/	/	/	/	3.26	11.34
			11:20:00	Steady												
BH3D	19 mm	1	11/2/13													
			11:22:00		998	/	/	/	/	/	/	/	/	/	0.38	15.83
			30													
			60													
			90													
			120													
			180													
			240													
			300													
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
11/2/13	Gerace	GW	?

Contract: Glen Parva, Leicester

Page: 3 of 5

Engineer:

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Overcast	Air Temperature: 3°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet/snow	Equipment Used: GA 7810 Calibration date: 1/4/13		N/A
Measurement datum: GL / Top of pipe / (Other) TOP OF HWRS — Offset to GL (m):	Wind:	Data Collected By: Geraca		Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
BH4S	19mm	1	11/2/13	Initial	998	✓	✓	✓	✓	✓	✓	✓	✓	✓	6.16	6.17
			11:33:00	Steady												
BH4M	19 mm	1	11/2/13													
			11:34:00		999	✓	✓	✓	✓	✓	✓	✓	✓	✓	2.30	6.20
BH4D	19 mm	1	11/2/13 30													
			11:35:00		999	✓	✓	✓	✓	✓	✓	✓	✓	✓	0.71	7.67
			90													
			120													
			180													
			240													
			300													
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
11/2/13	Geraca	GW	7

Contract: Glen Parva, Leicester

Page: 4 of 5

Engineer:

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: overcast	Air Temperature: 3°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet / snow	Equipment Used: GA 7810 Calibration date: 1/4/13		N/A
Measurement datum: GL / Top of pipe (Other) TOP OF HWKS Offset to GL (m):	Wind:	Data Collected By: Terrace		Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
BH5S	19mm	1	11/2/13	Initial	999	✓	✓	✓	✓	✓	✓	✓	✓	✓	0.94	1.37
			12:32:00	Steady												
BH5M	19mm	1	11/2/13 0													
			12:33:00		1001	✓	✓	✓	✓	✓	✓	✓	✓	✓	4.81	6.17
BH5D	19 mm	1	11/2/13 30													
			12:34:00 30		1001	✓	✓	✓	✓	✓	✓	✓	✓	✓	13.49	13.49 DRY
			90													
			120													
			180													
			240													
			300													
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
11/2/13	Terrace	GW.	?

Contract: Glen Parva, Leicester

Page: 5 of 5

Engineer:

Template release: 18/12/2010 21:18:45

Field Calibration Record Sheet

Project Name	Glen Parva, Leics	**Technician**	L Terrace
Client Project Number	26244	**GA2000+ Serial No.**	GA 7810
Date of Visit	15/12/13	**Cal. Cylinder Batch No.**	---78560 (cannot read)

Field Calibration

Prior to each monitoring visit, a mixture of 4%v/vCH4; 5%v/vCO2; 50ppmCO; 0%v/v Oxygen is used to calibrate the G2000+ gas analyser. The results are recorded here:-

	CH4 (%v/v)	CO2 (%v/v)	CO (ppm)	O2 (%v/v)
Mixture 1 (Target)	4.0	5.0	50	0.0
Achieved	4.0	5.0	40	0.0
Mixture 2 (Target)	0.0	0.0	0	20.9
Achieved	0	0.1	0	20.8

Post Monitoring Verification

Before leaving site, the same mixture is passed through the analyser. We record the actual reading to evidence any drift, which may have taken place.

	CH4 (%v/v)	CO2 (%v/v)	CO (ppm)	O2 (%v/v)
Mixture 1 (Target)	4.0	5.0	50	0.0
Achieved	4.4	4.9	41	0.0
Mixture 2 (Target)	0.0	0.0	0	20.9
Achieved	0	0.1	0	20.9

Technician L Terrace **Checked by** Ruth Gregory

Technical Support Services

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: overcast	Air Temperature: 6°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet	Equipment Used: GA7810 Calibration date: 1/4/13		N/A
Measurement datum: GL / Top of pipe / (Other) TOP OF HWKS	Offset to GL (m): 13cm	Wind:	Data Collected By: Terrace	Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
15	19 mm	2	15/2/13	Initial												
			10:04:00	Steady												
			0	1.1	1014	-0.43		0	0	0.1	20.8	0	0	0.0		
			15					0	0	0.1	20.8	0	0			
			30					0	0	0.1	20.9	0	0			
			60					0	0	0.1	20.9	0	0			
			90					0	0	0.1	21.1	0	0			
			120					0	0	0.1	21.2	2	0			
			180					0	0	0.1	21.2	1	0			
			240					0	0	0.1	21.1	0	0			
			300					0	0	0.1	21.3	3	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
15/2/13	Terrace	RG	26244

Contract: Glen Parva, Leic's

Page: 1 of 14

Engineer: GT

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: overcast	Air Temperature: 6°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet	Equipment Used: GA7810 Calibration date: 1/4/13		N/A
Measurement datum: GL / Top of pipe / (Other) TOP OF HOOKS	Offset to GL (m): 13cm	Wind:	Data Collected By: Terrace	Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
IM	19 mm	2	15/2/13	Initial												
			10:10:00	Steady												
			0	1·0	1013	-0·42		0	0	0	20·8	0	0	0·0		
			15					0	0	0·1	20·7	0	0			
			30					0	0	0·1	20·8	0	0			
			60					0	0	0·1	20·8	0	0			
			90					0	0	0·1	20·8	0	0			
			120					0	0	0·1	20·8	0	0			
			180					0	0	0·1	20·8	0	0			
			240					0	0	0·1	20·8	0	0			
			300					0	0	0·1	20·8	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
15/2/13	Terrace	RG	26244
Contract: Glen Parva, Leic's			Page: 2 of 14 / Engineer: IK

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: overcast	Air Temperature: 6°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet	Equipment Used: GA7810 Calibration date: 1/4/13		N/A
Measurement datum: GL / Top of pipe (Other) TOP OF HOLES	Offset to GL (m): 13cm	Wind:	Data Collected By: Terrace	Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
1D	19 mm	2	15/2/13	Initial												
			10:20:00	Steady												
			0	0·3	1031	+0·55		0	0	0·1	20·8	0	0	0·0		
			15					0	0	0·1	20·9	0	0			
			30					0	0	0·1	21·0	0	0			
			60					0	0	0·1	20·9	0	0			
			90					0	0	0·1	21·0	0	0			
			120					0	0	0·1	20·9	0	0			
			180					0	0	0·1	21·0	0	0			
			240					0	0	0·1	20·9	0	0			
			300					0	0	0·1	20·9	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
15/2/13	Terrace	RG	26244

Contract:	Page:	Engineer:
Glen Parva, Leic's	3 of 14	GA

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Overcast	Air Temperature: 6°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet	Equipment Used: GA 7810 Calibration date: 1/4/13		N/A
Measurement datum: TOP OF HWKS GL / Top of pipe / (Other)	Offset to GL (m): 19cm	Wind:	Data Collected By: Terrace	Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
2S	19 mm	2	15/2/13	Initial												
			10:38:00	Steady												
			0	0.0	1013	-0.28		0	0	0	20.8	0	0	1.2		
			15					0	0	4.6	12.8	0	0			
			30					0	0	3.8	12.1	0	0			
			60					0	0	1.0	18.7	0	0			
			90					0	0	1.0	19.3	0	0			
			120					0	0	0.9	19.4	0	0			
			180					0	0	1.0	19.3	0	0			
			240					0	0	1.0	19.3	0	0			
			300					0	0	1.0	19.3	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
15/2/13	Terrace	RG	26244

Contract: Glen Parva, Leic's

Page: 4 of 14

Engineer: VS

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: overcast	Air Temperature: 6°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet	Equipment Used: GA7810 Calibration date: 1/4/13		N/A
Measurement datum: GL / Top of pipe / (Other) TOP OF HOLES	Offset to GL (m): 19 cm	Wind:	Data Collected By: Terrace	Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
2M	19 mm	2	15/2/13	Initial												
			10:46:00	Steady												
			0	-5.8	1014	-0.51		0	0	0	20.8	0	0	0.0		
			15					0	0	0.1	20.8	0	0			
			30					0	0	0.1	20.9	0	0			
			60					0	0	0.1	20.9	0	0			
			90					0	0	0.1	20.9	0	0			
			120					0	0	0.1	20.9	0	0			
			180					0	0	0.1	20.9	0	0			
			240					0	0	0.1	20.9	0	0			
			300					0	0	0.1	20.8	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
15/2/13	Terrace	RG	26244
Contract: Glen Parva, Leic's			Page: 5 of 14 / Engineer:

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: overcast	Air Temperature: 6°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet	Equipment Used: GA 7810 Calibration date: 1/4/13		N/A
Measurement datum: GL / Top of pipe / (Other) TOP OF HWKS	Offset to GL (m): 19cm	Wind:	Data Collected By: Terrace	Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
2D	19 mm	2	15/2/13	Initial												
			10:54:00	Steady												
			0	0.6	1014	-0.41		0	0	0	20.8	0	0	0.5		
			15					0	0	0.1	20.8	0	0			
			30					0	0	0.1	20.9	0	0			
			60					0	0	0.1	20.8	0	0			
			90					0	0	0.1	20.7	0	0			
			120					0	0	0.1	20.9	0	0			
			180					0	0	0.1	20.8	0	0			
			240					0	0	0.1	20.7	0	0			
			300					0	0	0.1	20.8	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
15/2/13	Terrace	RG	26244

Contract: Glen Parva, Kerbs

Page: 6 of 14

Engineer:

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Overcast	Air Temperature: 6°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: Wet	Equipment Used: GA7810 Calibration date: 1/4/13		N/A
Measurement datum: GL / Top of pipe (Other) TOP OF HWKS	Wind:	Data Collected By: Terrace		Sampling method:
Offset to GL (m): 17cm				

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
35	19 mm	2	15/2/13	Initial												
			11:02:00	Steady												
			0	1.0	1015	-0.38		0	0	0	20.8	0	0	0.0		
			15					0	0	0.1	20.7	0	0			
			30					0	0	0.1	20.7	0	0			
			60					0	0	0.1	20.7	0	0			
			90					0	0	0.1	20.7	0	0			
			120					0	0	0.1	20.7	0	0			
			180					0	0	0.1	20.7	0	0			
			240					0	0	0.1	20.7	0	0			
			300					0	0	0.1	20.7	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
15/2/13	Terrace	RG	26244

Contract:	Page:	Engineer:
Glen Parva Leics	7 of 14	

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: overcast	Air Temperature: 6°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet	Equipment Used: GA 7810		
Measurement datum: GL / Top of pipe (Other) TOP OF HOLES	Offset to GL (m): 17cm	Calibration date: 1/4/13		Sampling method:
	Wind:	Data Collected By: G Terrace		

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
3D	19 mm	2	15/2/13	Initial												
			11:11:00	Steady												
			0	0.4	1015	-0.44		0	0	0	20.8	0	0	0.0		
			15					0	0	1.5	18.8	0	0			
			30					0	0	2.2	17.0	0	0			
			60					0	0	2.7	14.4	0	0			
			90					0	0	2.8	13.9	0	0			
			120					0	0	2.9	13.7	0	0			
			180					0	0	2.9	13.6	0	0			
			240					0	0	3.0	13.4	0	0			
			300					0	0	3.0	13.2	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
15/2/13	G Terrace	RG	26244
Contract: Glen Parva, Leic's			Page: 8 of 14 / Engineer: LA

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Overcast	Air Temperature: 6°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet	Equipment Used: GA7810 Calibration date: 1/4/13		N/A
Measurement datum: TOP OF HWKS GL / Top of pipe (Other)	Offset to GL (m): 22cm	Wind:	Data Collected By: Terrace	Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
45	19 mm	2	15/2/13	Initial												
			11:20:00	Steady												
			0	0.6	1015	-0.39		0	0	0	20.8	0	0	0.0		
			15					0	0	0.1	20.6	0	0			
			30					0	0	1.0	19.1	0	0			
			60					0	0	1.1	18.8	0	0			
			90					0	0	1.1	18.5	0	0			
			120					0	0	1.2	18.4	0	0			
			180					0	0	1.3	18.3	0	0			
			240					0	0	1.4	18.1	0	0			
			300					0	0	1.5	17.9	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
15/2/13	Terrace	RG	26244

Contract:	Page:	Engineer:
Glen Parva, Leics	9 of 14	

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: overcast	Air Temperature: 6°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet	Equipment Used: GA7810 Calibration date: 1/4/13		N/A
Measurement datum: GL / Top of pipe / (Other) TOP OF HWKS	Offset to GL (m): 22cm	Wind:	Data Collected By: Terrace	Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
4m	19 mm	2	15/2/13	Initial												
			11:29:00	Steady												
			0	1.6	1018	-0.53		0	0	0	20.8	0	0	0.0		
			15					0	0	0.1	20.5	0	0			
			30					0	0	0.1	20.5	0	0			
			60					0	0	0.1	20.6	0	0			
			90					0	0	0.1	20.6	0	0			
			120					0	0	0.1	20.6	0	0			
			180					0	0	0.1	20.5	0	0			
			240					0	0	0.1	20.5	0	0			
			300					0	0	0.1	20.6	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
15/2/13	Terrace	RG	26244

Contract: Glen Parva, Leics

Page: 10 of 14

Engineer:

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: overcast	Air Temperature: 6°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet	Equipment Used: GA7810 Calibration date: 1/4/13		N/A
Measurement datum: TOP OF HOLES GL / Top of pipe / (Other)	Offset to GL (m): 22cm	Wind:		Sampling method:
		Data Collected By: Terrace		

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
4D	19 mm	2	15/2/13	Initial												
			11:38:00	Steady	1026	-0.45										
			0	0.8	~~1026~~	~~-0.45~~		0	0	0	20.8	0	0	0.0		
			15					0	0	0.2	20.5	0	0			
			30					0	0	0.1	20.5	0	0			
			60					0	0	0.2	20.6	0	0			
			90					0	0	0.1	20.5	0	0			
			120					0	0	0.1	20.6	0	0			
			180					0	0	0.1	20.5	0	0			
			240					0	0	0.1	20.5	0	0			
			300					0	0	0.1	20.6	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
15/2/13	Terrace	RG	26244

Contract:	Page:	Engineer:
Glen Parva, Leics	11 of 14	

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: overcast	Air Temperature: 6°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet	Equipment Used: GA 7810 Calibration date: 1/4/13		N/A
Measurement datum: GL / Top of pipe (Other) TOP OF HWKS	Wind:	Data Collected By: Terrace		Sampling method:
Offset to GL (m): 19 cm				

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
SS	19 mm	2	15/2/13	Initial												
			12:02:00	Steady												
			0	0.7	1015	-0.23		0	0	0	20.8	0	0	0.0		
			15					0	0	1.8	19.5	0	0			
			30					10	0.6	4.5	16.6	0	0			
			60					14	0.7	4.8	15.1	0	0			
			90					14	0.8	4.8	14.7	0	0			
			120					31	1.2	6.1	2.7	12	0			
			180					12	0.6	6.0	0.4	1	0			
			240					11	0.6	6.0	0.7	0	9			
			300					12	0.6	6.0	0.8	0	11			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
15/2/13	Terrace	RG	262444

Contract: Glen Parva, Leics

Page: 12 of 14

Engineer:

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: overcast	Air Temperature: 6°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet	Equipment Used: GA7810 Calibration date: 1/4/13		N/A
Measurement datum: GL / Top of pipe / (Other) TOP OF HWKS Offset to GL (m): 19 cm	Wind:	Data Collected By: Terrace		Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
5m	19 mm	2	15/2/13	Initial												
			12:10:00	Steady												
			0	0.6	1015	-0.46		0	0	0	20.8	0	0	0.0		
			15					0	0	0.4	20.3	0	0			
			30					0	0	0.2	20.8	0	0			
			60					0	0	0.2	20.9	0	0			
			90					0	0	0.1	21.0	0	0			
			120					0	0	0.1	21.0	0	0			
			180					0	0	0.1	20.9	0	0			
			240					0	0	0.1	20.9	0	0			
			300					0	0	0.1	20.8	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
15/2/13	Terrace	RG	262444

Contract: Glen Parva, Leics

Page: 13 of 14

Engineer:

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: overcast	Air Temperature: 6°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet	Equipment Used: GA7810 Calibration date: 1/4/13		N/A
Measurement datum: TOP OF HWKS GL / Top of pipe / (Other)	Offset to GL (m): 19cm	Wind:	Data Collected By: Terrace	Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
5D	19 mm	2	15/12/13	Initial												
			12:20:00	Steady												
			0	-0.1	1015	-1.64		0	0	0	20.8	0	0	0.0		
			15					0	0	0.1	20.8	0	0			
			30					0	0	0.1	20.8	0	0			
			60					0	0	0.1	20.8	0	0			
			90					0	0	0.1	20.8	0	0			
			120					0	0	0.1	20.9	0	0			
			180					0	0	0.1	20.8	0	0			
			240					0	0	0.1	20.8	0	0			
			300					0	0	0.1	20.8	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
15/12/13	Terrace	RG	262444

Contract:	Page:	Engineer:
Glen Parva, Leics	14 of 14	

Template release: 18/12/2010 21:18:45

CERTIFICATION OF CALIBRATION

ISSUED BY: GEOTECH LABORATORY

Geotech
A subsidiary of LANDTEC

Date Of Calibration: 19 September, 2012
Certificate Number: GA07810_1/9655

Approved by Signatory

Dawn Hemings
Laboratory Inspection

GEOTECHNICAL INSTRUMENTS (UK) LTD
Sovereign House, Queensway, Leamington Spa, WarwickShire, CV31 3JR United Kingdom
Tel: +44 (0) 1926 338111 Fax: +44 (0) 1926 338110
E-mail: service@geotech.co.uk www.geotechuk.com

Customer: ***RSK Argus Environmental Limited***
Accounts Payable
Spring Lodge
172 Chester Road
Helsby
Cheshire
WA6 0AR
UNITED KINGDOM

Description: Gas Analyser

Model: GA2000Plus
Serial Number: GA07810

Methane (CH4)	
Certified Gas (%)	Instrument Reading (%)
50.0	49.4
15.0	15.4
5.1	5.2

Carbon Dioxide (CO2)	
Certified Gas (%)	Instrument Reading (%)
50.0	49.6
15.0	14.7
5.0	4.9

Oxygen (O2)	
Certified Gas (%)	Instrument Reading (%)
21.0	21.0

Barometer (mb)	
Reference	Reading
1015mb	1015mb

Additional Gas Cells		
Gas	Certified Gas (ppm)	Instrument Reading (ppm)
H^2	1012	LOW
CO	500	501
H^2S	51.3	51.4

All concentrations are molar.
CH4, CO2 readings recorded at: 31.1°C
O2 readings recorded at : 21.6°C
Barometric Pressure : 1015mb

Method of Test: The analyser is calibrated in a temperature controlled chamber using reference gases, providing traceability of measurement to recognised international standards.

End of Certificate

Field Calibration Record Sheet

Project Name	Glen Parva - Leic's	**Technician**	Terrace
Client Project Number	26244	**GA2000+ Serial No.**	GA7810
Date of Visit	11/3/2013	**Cal. Cylinder Batch No.**	78560

Field Calibration

Prior to each monitoring visit, a mixture of 4%v/vCH4; 5%v/vCO2; 50ppmCO; 0%v/v Oxygen is used to calibrate the G2000+ gas analyser. The results are recorded here:-

	CH4 (%v/v)	CO2 (%v/v)	CO (ppm)	O2 (%v/v)
Mixture 1 (Target)	4.0	5.0	50	0.0
Achieved	4.0	5.0	49	0.0
Mixture 2 (Target)	0.0	0.0	0	20.9
Achieved	0.0	0.2	0	20.6

Post Monitoring Verification

Before leaving site, the same mixture is passed through the analyser. We record the actual reading to evidence any drift, which may have taken place.

	CH4 (%v/v)	CO2 (%v/v)	CO (ppm)	O2 (%v/v)
Mixture 1 (Target)	4.0	5.0	50	0.0
Achieved	4.1	5.4	47	0
Mixture 2 (Target)	0.0	0.0	0	20.9
Achieved	0.0	0.2	0	19.7

Technician Terrace

Checked by Talaat Mousa

Technical Support Services

26217

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Sunny	Air Temperature: 30c	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: Frozen	Equipment Used: GA7810 Calibration date: 1/4/13		N/A
Measurement datum: GL / Top of pipe / (Other) TOP OF HWKS	Wind:	Data Collected By: Terrace		Sampling method:
Offset to GL (m): 1.5cm				

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
15	19 mm	3	11/3/13	Initial											0.61	4.31
			10:43:00	Steady		-0.07										
			0	0.8	1007			0	0	0	20.8	0	0	0		
			15					0	0	0.1	20.6	0	0			
			30					0	0	0.1	20.7	0	0			
			60					0	0	0.1	20.7	0	0			
			90					0	0	0.1	20.8	0	0			
			120					0	0	0.1	20.7	0	0			
			180					0	0	0.1	20.7	0	0			
			240					0	0	0.1	20.9	0	0			
			300					0	0	0.1	20.8	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
11/3/13	Terrace	TM	26244

Contract: Glen Parva

Page: 1 of 21

Engineer:

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Sunny	Air Temperature: 3°c	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: Frozen	Equipment Used: GA7810 Calibration date: 1/4/13		N/A
Measurement datum: GL / Top of pipe / (Other) TOP OF HWKS	Offset to GL (m): 15cm	Wind:	Data Collected By: Llewace	Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
1M	19 mm	3	11/3/13	Initial											0.60	11.51
			10:59:00	Steady												
			0	-0.5	1005	-0.19		0	0	0	20.8	0	0	0		
			15					0	0	0.1	21.0	0	0			
			30					0	0	0.1	20.9	0	0			
			60					0	0	0.1	20.9	0	0			
			90					0	0	0.1	20.9	0	0			
			120					0	0	0.1	20.9	0	0			
			180					0	0	0.1	20.9	0	0			
			240					0	0	0.1	20.9	0	0			
			300					0	0	0.1	20.9	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
11/3/2013	Llewace	TM	26244

Contract: Glen Parva

Page: 2 of 21

Engineer:

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Sunny	Air Temperature: 3°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: Frozen	Equipment Used: GA7810 Calibration date: 1/4/13		N/A
Measurement datum: TOP OF GL / Top of pipe / (Other) HWKS	Wind:	Data Collected By: Terrace		Sampling method:
Offset to GL (m): 15cm				

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
1D	19 mm	3	11/3/13	Initial											0.65	11.81
			11:07:00	Steady												
			0	0.0	1006	+1.87		0	0	0	20.8	0	0	0		
			15					0	0	0	20.7	0	0			
			30					0	0	0.1	20.8	0	0			
			60					0	0	0.1	20.8	0	0			
			90					0	0	0.1	20.7	0	0			
			120					0	0	0.1	20.8	0	0			
			180					0	0	0.1	20.8	0	0			
			240					0	0	0.1	20.8	0	0			
			300					0	0	0.1	20.8	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
11/3/13	Terrace	TM	26244

Contract: Glen Parva

Page: 3 of 21

Engineer:

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Overcast	Air Temperature: 3°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: Snowing	Equipment Used: GA7810 Calibration date: 1/4/13		N/A
Measurement datum: TOP OF HWKS GL / Top of pipe / (Other)	Offset to GL (m): 20cm	Wind:	Data Collected By: Terrace	Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
25	19 mm	3	11/3/13	Initial											2.00	2.87
			11:26:00	Steady												
			0	1.0	1006	-1.00		0	0	0	20.8	0	0	2.4		
			15					0	0	4.2	17.8	0	0			
			30					0	0	4.3	16.3	0	0			
			60					0	0	4.3	16.6	0	0			
			90					0	0	4.3	16.6	0	0			
			120					0	0	4.3	16.7	0	0			
			180					0	0	4.3	16.6	0	0			
			240					0	0	4.3	16.5	0	0			
			300					0	0	4.3	16.5	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
11/3/13	Terrace	TM	26244
Contract: Glen Parva			Page: 4 of 21 / Engineer:

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Snowing	Air Temperature: 3°c	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: Frozen	Equipment Used: GA7810 Calibration date: 1/4/13		N/A
Measurement datum: GL / Top of pipe (Other) TOP OF HWRS — Offset to GL (m): 20cm	Wind:	Data Collected By: Terrace		Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
2m	19 mm	3	11/3/13	Initial											3.06	3.06
			11:37:00	Steady												DRY
			0	1.1	1007	0.71		0	0	0	20.8	0	0	0.0		
			15					0	0	0.1	20.9	0	0			
			30					0	0	0.1	20.9	0	0			
			60					0	0	0.1	20.9	0	0			
			90					0	0	0.1	20.9	0	0			
			120					0	0	0.1	20.9	0	0			
			180					0	0	0.1	20.9	0	0			
			240					0	0	0.1	20.9	0	0			
			300					0	0	0.1	20.9	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
11/3/13	Terrace	TM	262144

Contract: Glen Parva

Page: 5 of 21

Engineer:

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Overcast	Air Temperature: 3°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: snowing	Equipment Used: GA7810 Calibration date: 1/4/13		N/A
Measurement datum: TOP OF HOLES GL / Top of pipe / (Other)	Offset to GL (m): 20cm	Wind:		Sampling method:
		Data Collected By: Terrace		

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
20	19 mm	3	11/3/13	Initial											2.01	6.13
			11:48:00	Steady												
			0	1.2	1008	-0.41		0	0	0	20.8	0	0	0.3		
			15					0	0	0	20.8	0	0			
			30					0	0	0.1	20.8	0	0			
			60					0	0	0.1	20.7	0	0			
			90					0	0	0.1	20.8	0	0			
			120					0	0	0.1	20.7	0	0			
			180					0	0	0.1	20.7	0	0			
			240					0	0	0.1	20.7	0	0			
			300					0	0	0.1	20.7	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
11/3/13	Terrace	TM	262444
Contract: Glen Parva			Page: 6 of 21
			Engineer:

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Sunny	Air Temperature: 3°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: frozen	Equipment Used: GA7610 Calibration date: 1/4/13		N/A
Measurement datum: TOP OF HWKS GL / Top of pipe (Other)	Offset to GL (m): 12cm	Wind:	Data Collected By: Terrace	Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
35	19 mm	3	11/3/13	Initial											9.21	11.34
			12:07:00	Steady												
			0	1.0	1008	-0.51		0	0	0	20.8	0	0	0		
			15					0	0	0.1	20.3	0	0			
			30					0	0	0.1	20.4	0	0			
			60					0	0	0.1	20.3	0	0			
			90					0	0	0.1	20.2	0	0			
			120					0	0	0.1	20.3	0	0			
			180					0	0	0.2	20.1	0	0			
			240					0	0	0.2	20.2	0	0			
			300					0	0	0.1	20.2	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
11/3/13	Terrace	TM	26244
Contract: Glen Parva			Page: 7 of 21
			Engineer:

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Sunny	Air Temperature: 3°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: frozen	Equipment Used: GA7810 Calibration date: 1/4/13		N/A
Measurement datum: TOP OF GL / Top of pipe (Other) HWKS	Wind:	Data Collected By: Terrace		Sampling method:
Offset to GL (m): 12 cm				

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
3D	19 mm	3	11/3/13	Initial											10.57	15.83
			12:15:00	Steady												
			0	1.0	1008	-0.50		0	0	0	20.8	0	0	0		
			15					0	0	0.6	20.1	0	0			
			30					0	0	0.5	19.8	0	0			
			60					0	0	0.6	19.7	0	0			
			90					0	0	0.7	19.4	0	0			
			120					0	0	0.8	19.4	0	0			
			180					0	0	0.9	19.1	0	0			
			240					0	0	1.0	18.8	0	0			
			300					0	0	1.0	18.5	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
11/3/13	Terrace	TM	26244
Contract: Glen Parva			Page: 8 of 21
			Engineer:

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Sunny	Air Temperature: 3°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet	Equipment Used: GA7810 Calibration date: 1/4/13		N/A
Measurement datum: GL / Top of pipe / (Other) TOP OF HWKS	Wind:	Data Collected By: Terrace		Sampling method:
Offset to GL (m): 22cm				

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
45	19 mm	3	11/3/13	Initial											6.17	6.17
			12:32:00	Steady												DRY
			0	-0.1	1007	-0.82		0	0	0	20.8	0	0	0		
			15					0	0	1.3	19.9	0	0			
			30					0	0	5.5	8.3	0	0			
			60					0	0	5.7	1.9	0	0			
			90					0	0	5.7	1.8	0	0			
			120					0	0	5.8	1.5	0	0			
			180					0	0	6.0	1.3	0	0			
			240					0	0	6.1	1.0	0	0			
			300					0	0	6.2	1.0	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
11/3/13	LTerrace	TM	26244
Contract: Glen Parva			Page: 9 of 21 / Engineer:

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: overcast	Air Temperature: 3°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: snowing	Equipment Used: GA7810 Calibration date: 1/4/13		N/A
Measurement datum: TOP OF GL / Top of pipe (Other) HWKS	Wind:	Data Collected By: Terrace		Sampling method:
Offset to GL (m): 22cm				

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
4m	19 mm	3	11/3/13	Initial											1.29	6.20
			12:42:00	Steady												
			0	0.0	1008	-0.51		0	0	0	20.8	0	0	0		
			15					0	0	0.1	20.4	0	0			
			30					0	0	0.1	20.6	0	0			
			60					0	0	0.1	20.6	0	0			
			90					0	0	0.1	20.6	0	0			
			120					0	0	0.1	20.7	0	0			
			180					0	0	0.1	20.7	0	0			
			240					0	0	0.1	20.8	0	0			
			300					0	0	0.1	20.6	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
11/3/13	Terrace	TM	26244
Contract: Glen Parva			Page: 10 of 21 / Engineer:

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Sunny	Air Temperature: 3°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: Snowing	Equipment Used: GA7810 Calibration date: 1/4/13		N/A
Measurement datum: GL / Top of pipe (Other) TOP OF HWKS	Wind:	Data Collected By: Terrace		Sampling method:
Offset to GL (m): 22cm				

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring (dd/mm/yyyy hh:mm:ss)	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
4D	19 mm	3	11/3/13	Initial											0.89	7.67
			12:55:00	Steady												
			0	-0.2	1007	-0.49		0	0	0	20.8	0	0	0		
			15					0	0	0.1	20.8	0	0			
			30					0	0	0.1	20.7	0	0			
			60					0	0	0.1	20.7	0	0			
			90					0	0	0.1	20.7	0	0			
			120					0	0	0.1	20.7	0	0			
			180					0	0	0.1	20.7	0	0			
			240					0	0	0.1	20.8	0	0			
			300					0	0	0.1	20.7	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
11/3/13	Terrace	TM	262464

Contract: Glen Parva

Page: 11 of 21

Engineer:

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Sunny	Air Temperature: 3°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet	Equipment Used: GA7810 Calibration date: 1/4/13		N/A
Measurement datum: GL / Top of pipe / (Other) TOP OF HOLES	Offset to GL (m): 21cm	Wind:	Data Collected By: Terrace	Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
5S	19 mm	3	11/3/13	Initial											1.04	1.37
			13:15:00	Steady												
			0	0	1007	-0.41		0	0	0	20.8	0	0	0		
			15					0	0	0.2	20.2	0	0			
			30					0	0	0.1	20.0	0	0			
			60					0	0	0.1	20.0	0	0			
			90					0	0	0.1	20.0	0	0			
			120					0	0	0.1	20.0	0	0			
			180					0	0	0.1	20.0	0	0			
			240					0	0	0.1	20.0	0	0			
			300					0	0	0.1	20.0	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
11/3/13	Terrace	TM	262446
Contract: Glen Parva			Page: 12 of 21
			Engineer:

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Sunny	Air Temperature: 3°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet	Equipment Used: GA7810 Calibration date: 1/4/13		N/A
Measurement datum: GL / Top of pipe / (Other) TOP OF HWKS Offset to GL (m): 21cm	Wind:	Data Collected By: Terrace		Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
5m	19 mm	3	11/3/13	Initial											4.82	6.17
			13:25:00	Steady												
			0	0.3	1007	-0.43		0	0	0	20.8	0	0	0		
			15					0	0	0.1	20.8	0	0			
			30					0	0	0.1	20.8	0	0			
			60					0	0	0.1	20.8	0	0			
			90					0	0	0.1	20.8	0	0			
			120					0	0	0.1	20.8	0	0			
			180					0	0	0.1	20.7	0	0			
			240					0	0	0.1	20.8	0	0			
			300					0	0	0.1	20.8	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
11/3/13	Terrace	TM	26244
Contract: Glen Parva			Page: 13 of 21 / Engineer: CT

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Sunny	Air Temperature: 3°c	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet	Equipment Used: GA7810 Calibration date: 1/4/13		N/A
Measurement datum: GL / Top of pipe / (Other) TOP OF HWKS	Offset to GL (m): 21 cm	Wind:	Data Collected By: Terrace	Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
5D	19 mm	3		Initial											13.48	13.48
			11/3/13	Steady												Dry
			13:35:00	0	1007	-0.20		0	0	0	20.8	0	0	0		
			15					0	0	0.1	21.0	0	0			
			30					0	0	0.1	21.0	0	0			
			60					0	0	0.1	21.0	0	0			
			90					0	0	0.1	21.0	0	0			
			120					0	0	0.1	21.0	0	0			
			180					0	0	0.1	21.0	0	0			
			240					0	0	0.1	21.0	0	0			
			300					0	0	0.1	21.0	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
11/3/13	Terrace	TM	262441
Contract: Glen Parva			Page: 14 of 21 / Engineer:

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Sunny	Air Temperature: 3°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet	Equipment Used: GA7810 Calibration date: 1/4/13		N/A
Measurement datum: (GL) / Top of pipe / Other _____ Offset to GL (m):	Wind:	Data Collected By: Guerrace		Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
WS1	50 mm	3	11/3/13	Initial											0.29	2.47
			14:45:00	Steady												
			0	1.1	1007	-0.51		0	0	0	20.8	0	0	0.1		
			15					0	0	0.2	21.0	0	0			
			30					0	0	0.2	21.0	0	0			
			60					0	0	0.2	21.0	0	0			
			90					0	0	0.2	21.0	0	0			
			120					0	0	0.2	21.0	0	0			
			180					0	0	0.2	21.0	0	0			
			240					0	0	0.2	21.0	0	0			
			300					0	0	0.2	21.0	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
11/3/13	Guerrace	TM	26244
Contract: Glen Parva			Page: 15 of 21 / Engineer:

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Snowing	Air Temperature: 3°c	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet	Equipment Used: GA7810 Calibration date: 1/4/13		N/A
Measurement datum: (GL) / Top of pipe / Other _____ Offset to GL (m):	Wind:	Data Collected By: Terrace		Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
WS2	50 mm	3	11/3/13	Initial											0.0	1.72
			15:02:00	Steady												
			0				Flooded Borehole - unable to gas								DRY	
			15													
			30													
			60													
			90													
			120													
			180													
			240													
			300													
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
11/3/13	Terrace	TM	26244

Contract: Glen Parva

Page: 16 of 21

Engineer:

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Snowing	Air Temperature: 3°c	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet	Equipment Used: GA7810 Calibration date: 1/4/13		N/A
Measurement datum: (GL) / Top of pipe / Other _____ Offset to GL (m):	Wind:	Data Collected By:		Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
WS 4	50 mm	3	11/3/13	Initial												
			15:10:00	Steady												
			0	0.0	1008	-0.44		0	0	0	20.5	0	0	0.2	2.77	2.82
			15					0	0	0.2	20.9	0	0			
			30					0	0	0.2	21.0	0	0			
			60					0	0	0.2	21.1	0	0			
			90					12	0.8	0.3	20.9	0	0			
			120					25	1.4	0.5	20.5	1	0			
			180					51	2.9	0.9	19.7	2	0			
			240					100+	17.9	3.1	12.8	0	0			
			300					100+	23.3	3.9	9.5	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
11/3/13	Terrace	TM	26244
Contract: Glen Parva			Page: 17 of 21 / Engineer:

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Sunny	Air Temperature: 3°c	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet	Equipment Used: GA 7810 Calibration date: 1/4/13		N/A
Measurement datum: (GL) / Top of pipe / Other _____ Offset to GL (m):	Wind:	Data Collected By: Terrace		Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
WS3	50 mm	3	11/3/13	Initial											2.73	2.79
			15:51:00	Steady												
			0	5.2	1009	-0.50		0	0	0	20.8	0	0	0.0		
			15					100+	28.8	4.0	1.3	0	0			
			30					100+	28.8	4.0	1.0	0	0			
			60					100+	28.9	4.0	0.8	1	0			
			90					100+	28.9	4.0	0.7	5	0			
			120					100+	28.9	4.0	0.6	0	0			
			180					100+	28.9	4.0	0.5	2	0			
			240					100+	29.0	4.0	0.5	2	0			
			300					100+	29.1	4.0	0.4	2	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
11/3/13	Terrace	TM	26244
Contract: Glen Parva		Page: 18 of 21	Engineer:

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Sunny	Air Temperature: 3°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet	Equipment Used: GA7810 Calibration date: 1/4/13		N/A
Measurement datum: (GL) Top of pipe / Other _____ Offset to GL (m):	Wind:	Data Collected By: Terrace		Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
WS5	50 mm	3	11/3/13	Initial											1.25	2.80
			16:09:00	Steady												
			0	1.8	1010	-0.35		0	0	0	20.8	0	0	0.0		
			15					0	0	2.5	16.1	0	0			
			30					0	0	2.2	14.5	0	0			
			60					0	0	2.1	14.6	0	0			
			90					0	0	2.0	14.9	0	0			
			120					0	0	2.0	15.3	0	0			
			180					0	0	1.9	15.5	0	0			
			240					0	0	1.9	15.5	0	0			
			300					0	0	1.8	16.1	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
11/3/13	Terrace	TM	26244
Contract: Glen Parva		Page: 19 of 21	Engineer: LT

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Snowing	Air Temperature: 3°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet	Equipment Used: GA7810 Calibration date: 1/4/13		N/A
Measurement datum: (GL) / Top of pipe / Other _____ Offset to GL (m):	Wind:	Data Collected By: Terrace		Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
WS6	50 mm	3	11/3/13	Initial											2.82	2.82
			16:24:00	Steady												DRY
			0	2.6	1010	-0.49		0	0	0	20.8	0	0	0.0		
			15					100+	33.9	3.1	3.2	0	0			
			30					100+	33.7	3.1	0.5	4	0			
			60					100+	33.8	3.1	0	3	0			
			90					100+	33.8	3.1	0	3	0			
			120					100+	33.8	3.2	0	0	0			
			180					100+	33.8	3.2	0	0	0			
			240					100+	33.8	3.2	0	0	0			
			300					100+	33.8	3.2	0	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
11/3/13	Terrace	TM	26244
Contract: Glen Parva		Page: 20 of 21	Engineer: LG

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Sunny	Air Temperature: 3°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet	Equipment Used: GA7810 Calibration date: 1/4/13		N/A
Measurement datum: (GL) Top of pipe / Other _____ Offset to GL (m):	Wind:	Data Collected By: Terrace		Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
WS7	50 mm	3	11/3/13	Initial											1·82	2·83
			16:36:00	Steady												
			0	1·5	1010	-0·51		0	0	0	20·8	0	0	0·0		
			15					0	0	0·5	20·7	0	0			
			30					0	0	0·3	20·5	0	0			
			60					0	0	0·3	20·6	0	0			
			90					0	0	0·3	20·6	0	0			
			120					0	0	0·3	20·7	0	0			
			180					0	0	0·3	20·6	0	0			
			240					0	0	0·3	20·7	0	0			
			300					0	0	0·3	20·6	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
11/3/13	Terrace	TM	26244
Contract: Glen Parva		Page: 21 of 21	Engineer:

Template release: 18/12/2010 21:18:45

Field Calibration Record Sheet

Project Name	Glen Parva	**Technician**	Terrace
Client Project Number	26244	**GA2000+ Serial No.**	GA7808
Date of Visit	24/4/13	**Cal. Cylinder Batch No.**	1243158

Field Calibration

Prior to each monitoring visit, a mixture of 4%v/vCH4; 5%v/vCO2; 50ppmCO; 0%v/v Oxygen is used to calibrate the G2000+ gas analyser. The results are recorded here:-

	CH4 (%v/v)	CO2 (%v/v)	CO (ppm)	O2 (%v/v)
Mixture 1 (Target)	4.0	5.0	50	0.0
Achieved	4.0	5.0	50	0.0
Mixture 2 (Target)	0.0	0.0	0	20.9
Achieved	0.0	0.1	0	20.8

Post Monitoring Verification

Before leaving site, the same mixture is passed through the analyser. We record the actual reading to evidence any drift, which may have taken place.

	CH4 (%v/v)	CO2 (%v/v)	CO (ppm)	O2 (%v/v)
Mixture 1 (Target)	4.0	5.0	50	0.0
Achieved	3.7	4.8	29	0.1
Mixture 2 (Target)	0.0	0.0	0	20.9
Achieved	0.0	0.1	0	20.6

Technician Terrace

Checked by Talaat Mousa

Technical Support Services

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: overcast	Air Temperature: 11°c	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: dry	Equipment Used: GA 7808 Calibration date: 1/6/13		N/A
Measurement datum: GL / Top of pipe / (Other) TOP OF HWKS Offset to GL (m): 16cm	Wind:	Data Collected By: Terrace		Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
BH 1S	19 mm		24/4/13	Initial -0.2												
			9:24:00	Steady -0.4												
			0		1014	-0.36		0	0	0.1	20.8	0	0			
			15					1	0.1	2.4	17.7	0	0			
			30					0	0	4.2	13.8	0	0			
			60					0	0	5.6	10.1	0	0			
			90					0	0	5.6	10.0	0	0			
			120					0	0	5.6	10.1	0	0			
			180					0	0	5.6	10.2	0	0			
			240					0	0	5.6	10.2	0	0			
			300					0	0	5.6	10.4	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
24/4/13	Terrace	TM	26244

Contract: Glen Parva

Page: 1 of 28

Engineer:

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: overcast	Air Temperature: 11°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: dry	Equipment Used: GA7808 Calibration date: 1/6/13		N/A
Measurement datum: GL / Top of pipe / (Other) TOP OF HWKS	Offset to GL (m): 16cm	Wind:	Data Collected By: Terrace	Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
BH 1M	19 mm		24/4/13	Initial 0.0												
			9:31:00	Steady 0.0												
			0		1030	-0.08		0	0	0.1	20.9	0	0			
			15					0	0	0.1	20.4	0	0			
			30					0	0	0.1	20.5	0	0			
			60					0	0	0.1	20.5	0	0			
			90					0	0	0.1	20.5	0	0			
			120					0	0	0.1	20.6	0	0			
			180					0	0	0.1	20.5	0	0			
			240					0	0	0.1	20.5	0	0			
			300					0	0	0.1	20.5	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
24/4/13	Terrace	TM	26244

Contract: Glen Parva

Page: 2 of 28

Engineer: LS

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: overcast	Air Temperature: 11°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: dry	Equipment Used: GA7808 Calibration date: 1/6/13		N/A
Measurement datum: GL / Top of pipe / (Other) TOP OF KWKS Offset to GL (m): 16cm	Wind:	Data Collected By: Terrace		Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
BH 1D	19 mm		24/4/13	Initial 0.0												
			9:38:00	Steady 0.0												
			0		1014	-0.46		0	0	0.1	20.8	0	0			
			15					0	0	0.1	20.5	0	0			
			30					0	0	0.1	20.6	0	0			
			60					0	0	0.1	20.6	0	0			
			90					0	0	0.1	20.7	0	0			
			120					0	0	0.1	20.8	0	0			
			180					0	0	0.1	20.6	0	0			
			240					0	0	0.1	20.7	0	0			
			300					0	0	0.1	20.6	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
24/4/13	Terrace	TM	262144

Contract: Glen Parva

Page: 3 of 28

Engineer:

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: overcast	Air Temperature: 11c	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: dry	Equipment Used: GA7808 Calibration date: 1/6/13		N/A
Measurement datum: GL / Top of pipe / (Other) Top of Kerb — Offset to GL (m): 19cm	Wind:	Data Collected By: Terrace		Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
BH 2S	19 mm		24/4/13 9:46:00	Initial -0.4 Steady -0.3												
			0		1014	+0.18		0	0	0.1	20.8	0	0			
			15					0	0	4.6	17.2	0	0			
			30					0	0	4.7	17.2	0	0			
			60					0	0	4.8	16.9	0	0			
			90					0	0	4.9	16.7	0	0			
			120					0	0	4.9	16.6	0	0			
			180					0	0	4.9	16.7	0	0			
			240					0	0	4.9	16.6	0	0			
			300					0	0	5.0	16.4	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
24/4/13	Terrace	TM	26244

Contract: Glen Parva

Page: 4 of 28

Engineer: LA

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: overcast	Air Temperature: 11°c	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: Dry	Equipment Used: GA7808 Calibration date: 1/6/13		N/A
Measurement datum: GL / Top of pipe / Other TOP OF HWKS	Offset to GL (m): 19 cm	Wind:	Data Collected By: Gerace	Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
BH 2m	19 mm		24/4/13 9:53:00	Initial -0.7 Steady -0.6												
			0		1014	+0.08		0	0	0.1	20.8	0	0			
			15					0	0	0.1	20.6	0	0			
			30					0	0	0.1	20.8	0	0			
			60					0	0	0.1	20.8	0	0			
			90					0	0	0.1	20.7	0	0			
			120					0	0	0.1	20.7	0	0			
			180					0	0	0.1	20.7	0	0			
			240					0	0	0.1	20.7	0	0			
			300					0	0	0.1	20.7	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
24/4/13	Gerace	TM	26244

Contract: Glen Parva

Page: 5 of 28

Engineer: CA

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Overcast	Air Temperature: 11°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: dry	Equipment Used: GA7808 Calibration date: 1/6/13		N/A
Measurement datum: GL / Top of pipe / (Other) Top of Hwks Offset to GL (m): 19cm	Wind:	Data Collected By: Teresa		Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
BH 2D	19 mm		24/4/13 10:00:00	Initial -15.2 Steady -0.3												
			0		1014	-0.18		0	0	0.1	20.9	0	0			
			15					0	0	0	20.9	0	0			
			30					0	0	0	20.9	0	0			
			60					0	0	0	20.9	0	0			
			90					0	0	0	20.8	0	0			
			120					0	0	0	20.9	0	0			
			180					0	0	0	20.9	0	0			
			240					0	0	0	20.9	0	0			
			300					0	0	0	20.9	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
24/4/13	Teresa	TM	26244

Contract: Glen Dana

Page: 6 of 28

Engineer: LT

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Overcast	Air Temperature: 11°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: Dry	Equipment Used: 947808 Calibration date: 1/6/13		N/A
Measurement datum: GL / Top of pipe / (Other) TOP OF HWKS	Wind:	Data Collected By: Gerace		Sampling method:
Offset to GL (m): 17cm				

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
BH 35	19 mm		24/4/13	Initial 0.0												
			10:07:00	Steady 0.0												
			0		1030	+0.10		0	0	0.1	20.8	0	0			
			15					0	0	0.1	20.8	0	0			
			30					0	0	0.1	20.9	0	0			
			60					0	0	0.1	20.9	0	0			
			90					0	0	0.1	20.9	0	0			
			120					0	0	0.1	20.8	0	0			
			180					0	0	0.1	20.7	0	0			
			240					0	0	0.1	20.7	0	0			
			300					0	0	0.1	20.8	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
24/4/13	Gerace	TM	26244

Contract: Glen Parva

Page: 7 of 28

Engineer: GT

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: overcast	Air Temperature: 11°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: Dry	Equipment Used: GA7808 Calibration date: 1/6/13		N/A
Measurement datum: GL / Top of pipe / (Other) TOP OF HWKS	Offset to GL (m): 17cm	Wind:	Data Collected By: Gerace	Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
BH 3D	19 mm		24/4/13	Initial 4.2												
			10:13:00	Steady 0.0												
			0		1030	-0.03		0	0	0.1	20.8	0	0			
			15					0	0	0.1	20.8	0	0			
			30					0	0	0	20.9	0	0			
			60					0	0	0	20.9	0	0			
			90					0	0	0	20.9	0	0			
			120					0	0	0	20.9	0	0			
			180					0	0	0	20.9	0	0			
			240					0	0	0	20.9	0	0			
			300					0	0	0	20.8	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
24/4/13	Gerace	TM	26244

Contract: Glen Parva

Page: 8 of 28 Engineer: LS

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: overcast	Air Temperature: 11oc	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: dry	Equipment Used: GA7808 Calibration date: 1/6/13		N/A
Measurement datum: TOP of HWKS GL / Top of pipe / (Other)	Offset to GL (m): 22cm	Wind:	Data Collected By: Terrace	Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
BH 45	19 mm		24/4/13	Initial -0.1												
			10:20:00	Steady 0.0												
			0		1014	-0.07		0	0	0	20.8	0	0			
			15					0	0	0.1	20.5	0	0			
			30					0	0	2.0	15.1	0	0			
			60					0	0	2.3	13.8	0	0			
			90					0	0	2.3	13.5	0	0			
			120					0	0	2.3	13.4	0	0			
			180					0	0	2.3	13.6	0	0			
			240					0	0	2.3	13.4	0	0			
			300					0	0	2.3	13.4	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
24/4/13	Terrace	TM	26244

Contract: Glen Parva

Page: 9 of 28

Engineer: [illegible]

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Overcast	Air Temperature: 11°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: dry	Equipment Used: GA 7808 Calibration date: 1/6/13		N/A
Measurement datum: TOP OF HWRS GL / Top of pipe / (Other)	Offset to GL (m): 22cm	Wind:	Data Collected By: Terrace	Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
BH 4M	19 mm		24/4/13	Initial 0.1												
			10:29:00	Steady 0.0												
			0		1035	-0.08		0	0	0.1	20.8	0	0			
			15					0	0	0.1	20.7	0	0			
			30					0	0	0.1	20.9	0	0			
			60					0	0	0.1	20.9	0	0			
			90					0	0	0.1	20.9	0	0			
			120					0	0	0.1	20.9	0	0			
			180					0	0	0.1	20.9	0	0			
			240					0	0	0.1	20.9	0	0			
			300					0	0	0.1	20.9	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
24/4/13	Terrace	TM	26244

Contract: Glen Parva

Page: 10 of 28

Engineer:

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Overcast	Air Temperature: 11°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: dry	Equipment Used: GA7808 Calibration date: 1/6/13		N/A
Measurement datum: Top of Kerbs GL / Top of pipe / (Other)	Offset to GL (m): 22cm	Wind:	Data Collected By: Terrace	Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
BH 4D	19 mm		24/4/13 10:45:00	Initial 0.1 Steady 0.0												
			0		1015	-0.18		0	0	0.1	20.8	0	0			
			15					0	0	0	20.8	0	0			
			30					0	0	0	20.9	0	0			
			60					0	0	0	20.9	0	0			
			90					0	0	0	20.9	0	0			
			120					0	0	0	20.9	0	0			
			180					0	0	0	20.8	0	0			
			240					0	0	0	20.9	0	0			
			300					0	0	0	20.9	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
24/4/13	Terrace	TM	26244

Contract: Glen Parva

Page: 11 of 28 Engineer: LT

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Overcast	Air Temperature: 11°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: DRY	Equipment Used: GA7808 Calibration date: 1/6/13		N/A
Measurement datum: Top of Hwks GL / Top of pipe / (Other)	Offset to GL (m): 21cm	Wind:	Data Collected By: Terrace	Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
BHS 5	19 mm		24/4/13	Initial 0.0												
			10:54:00	Steady 0.0												
			0		1015	+0.15		0	0	0	20.8	0	0			
			15					0	0	0.1	20.9	0	0			
			30					0	0	0	20.9	0	0			
			60					0	0	0	20.9	0	0			
			90					0	0	0	20.9	0	0			
			120					0	0	0	20.9	0	0			
			180					0	0	0	20.9	0	0			
			240					0	0	0	20.9	0	0			
			300					0	0	0	20.9	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
24/4/13	Terrace	TM	26244

Contract: Glen Parva

Page: 12 of 28

Engineer: LS

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Overcast	Air Temperature: 11°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: Dry	Equipment Used: GA7808 Calibration date: 1/6/13		N/A
Measurement datum: TOP OF HWRS GL / Top of pipe / (Other)	Offset to GL (m): 21cm	Wind:	Data Collected By: Terrace	Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
BH5 m	19 mm		24/4/13	Initial 0.0												
			11:00:00	Steady -0.1												
			0		1033	-0.03		0	0	0	20.9	0	0			
			15					0	0	0.1	20.9	0	0			
			30					0	0	0	20.9	0	0			
			60					0	0	0	20.8	0	0			
			90					0	0	0	20.8	0	0			
			120					0	0	0	20.9	0	0			
			180					0	0	0	20.8	0	0			
			240					0	0	0	20.9	0	0			
			300					0	0	0	20.9	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
24/4/13	LTerrace	TM	26244

Contract: Glen Airva

Page: 13 of 28

Engineer:

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Overcast	Air Temperature: 11°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: Dry	Equipment Used: GA7808 Calibration date: 1/6/13		N/A
Measurement datum: GL / Top of pipe / (Other) Top of Kerbs	Wind:	Data Collected By: Gerace		Sampling method:
Offset to GL (m): 21cm				

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
BH5 D	19 mm		24/4/13 11:07:00	Initial -8.5 Steady -7.7												
			0		1033	-0.76		0	0	0.1	20.8	0	0			
			15					0	0	0	20.9	0	0			
			30					0	0	0	20.8	0	0			
			60					0	0	0.1	20.9	0	0			
			90					0	0	0.1	20.9	0	0			
			120					0	0	0.1	20.8	0	0			
			180					0	0	0.1	20.8	0	0			
			240					0	0	0.1	20.9	0	0			
			300					0	0	0.1	20.9	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
24/4/13	Gerace	TM	26244
Contract: Glen Parva			Page: 14 of 28 / Engineer: CS

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Overcast	Air Temperature: 11°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: Dry	Equipment Used: GA7808 Calibration date: 1/6/13		N/A
Measurement datum: GL / Top of pipe / Other _____ Offset to GL (m):	Wind:	Data Collected By: Terrace		Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
WS1 (1)	50		24/4/13 11:49:00	Initial 0.0 Steady											1.52	2.56
			0		1015	-0.76		0	0	0.1	20.8	0	0			
			15					0	0	2.1	19.1	0	0			
			30					0	0	2.5	18.8	0	0			
			60					0	0	2.8	18.4	0	0			
			90					0	0	2.9	18.4	0	0			
			120					0	0	2.9	18.4	0	0			
			180					0	0	2.9	18.4	0	0			
			240					0	0	3.0	18.2	0	0			
			300					0	0	3.0	18.2	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
24/4/13	Terrace	TM	26244

Contract: Glen Parva

Page: 15 of 28

Engineer:

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Overcast	Air Temperature: 11°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: Dry	Equipment Used: GA7808 Calibration date: 1/6/13		N/A
Measurement datum: (GL) / Top of pipe / Other _____ Offset to GL (m):	Wind:	Data Collected By: Terrace		Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
WS 2 (1)	50 mm		24/4/13 12:13:00	Initial 0.3 Steady 0.1											0.60	1.77
			0		1014	-0.26		0	0	0.1	20.8	0	0			
			15					0	0	0	20.5	0	0			
			30					0	0	0	20.5	0	0			
			60					0	0	0	20.6	0	0			
			90					0	0	0	20.5	0	0			
			120					0	0	0	20.6	0	0			
			180					0	0	0	20.6	0	0			
			240					0	0	0	20.5	0	0			
			300					0	0	0	20.6	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
24/4/13	Terrace	TM	26244

Contract: Glen Parva

Page: 16 of 28

Engineer: VS

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Overcast	Air Temperature: 11°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: Dry	Equipment Used: GA7808 Calibration date: 1/6/13		N/A
Measurement datum: (GL) / Top of pipe / Other _____ Offset to GL (m):	Wind:	Data Collected By: Terrace		Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
WS4 (1)	50 mm		24/4/13 12:21:00	Initial 3.1 Steady 3.3											2.86	2.92
			0		1029	+0.20		0	0	0.1	20.8	0	0			
			15					100+	25.5	5.3	3.3	0	0			
			30					100+	25.4	5.4	3.0	0	0			
			60					100+	25.5	5.4	2.7	0	0			
			90					100+	25.5	5.4	2.6	0	0			
			120					100+	25.5	5.4	2.5	0	0			
			180					100+	25.5	5.4	2.6	0	0			
			240					100+	25.5	5.4	2.6	0	0			
			300					100+	25.3	5.4	2.6	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
24/4/13	Terrace	TM	26244
Contract: Glen Parva			Page: 17 of 28 / Engineer: LT

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Raining	Air Temperature: 11°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: Dry	Equipment Used: GA 7808 Calibration date: 1/6/13		N/A
Measurement datum: (GL) / Top of pipe / Other _____ Offset to GL (m):	Wind:	Data Collected By: Terrace		Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
WS 3 (1)	50 mm		24/4/13 12:36:00	Initial 0.0 Steady -0.3											2.80	2.87
			0		1014	-0.12		0	0	0	20.8	0	0			
			15					0	0	0	20.8	0	0			
			30					0	0	0	20.8	0	0			
			60					0	0	0	20.9	0	0			
			90					0	0	0	20.9	0	0			
			120					0	0	0	20.9	0	0			
			180					0	0	0	20.9	0	0			
			240					0	0	0	20.8	0	0			
			300 ✓					0	0	0	20.8	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
24/4/13	Terrace	TM	26244

Contract: Glen Parva

Page: 18 of 28 Engineer: VT

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Sunny	Air Temperature: 11°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: dry	Equipment Used: GA7808 Calibration date: 1/6/13		N/A
Measurement datum: (GL) / Top of pipe / Other _____ Offset to GL (m):	Wind:	Data Collected By: Terrace		Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
WS 5 (1)	50 mm		24/4/13	Initial 0.2											1.59	2.89
			13:10:00	Steady 0.4												
			0		1015	-0.13		0	0	0	20.8	0	0			
			15					0	0	0.1	20.9	0	0			
			30					0	0	0.1	20.7	0	0			
			60					0	0	0.2	20.6	0	0			
			90					0	0	0.2	20.4	0	0			
			120					0	0	0.2	20.5	0	0			
			180					0	0	0.3	20.2	0	0			
			240					0	0	0.4	20.1	0	0			
			300					0	0	0.4	20.0	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
24/4/13	LTerrace	TM	2G244

Contract: Glen Parva

Page: 19 of 28

Engineer: G

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Sunny	Air Temperature: 11°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: dry	Equipment Used: GA7808 Calibration date: 1/6/13		NA
Measurement datum: (GL) / Top of pipe / Other _____ Offset to GL (m):	Wind:	Data Collected By: GTerrace		Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
WS6 (1)	50 mm		24/4/13 13:19:00	Initial 0.0 Steady 0.0											2.93	2.93 DRY
			0		1031	-0.17		0	0	0.1	20.8	0	0			
			15					100+	20.4	2.2	5.8	0	0			
			30					100+	21.2	2.2	5.2	0	0			
			60					100+	21.3	2.3	4.9	0	0			
			90					100+	21.6	2.3	4.8	0	0			
			120					100+	21.8	2.3	4.6	0	0			
			180					100+	21.9	2.3	4.5	0	0			
			240					100+	22.3	2.3	4.4	0	0			
			300					100+	22.3	2.3	4.2	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
24/4/13	GTerrace	TM	26244

Contract: Glen Parva

Page: 20 of 28

Engineer: LT

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: overcast	Air Temperature: 11°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: dry	Equipment Used: GA7808 Calibration date: 1/6/13		N/A
Measurement datum: (GL) Top of pipe / Other _____ Offset to GL (m):	Wind:	Data Collected By: Terrace		Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
WS 7 (1)	50 mm		24/4/13 13:46:00	Initial 0.0											1.44	2.90
				Steady 0.0												
			0		1028	-007		0	0	0	20.8	0	0			
			15					0	0	0	20.7	0	0			
			30					0	0	0	20.7	0	0			
			60					0	0	0	20.8	0	0			
			90					0	0	0	20.8	0	0			
			120					0	0	0	20.7	0	0			
			180					0	0	0	20.7	0	0			
			240					0	0	0	20.8	0	0			
			300					0	0	0	20.8	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
24/4/13	Terrace	TM	262244

Contract: Glen Parva

Page: 21 of 28

Engineer:

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Overcast	Air Temperature: 11°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: Dry	Equipment Used: GA7808 Calibration date: 1/6/13		N/A
Measurement datum: (GL) Top of pipe / Other _____ Offset to GL (m):	Wind:	Data Collected By: Terrace		Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
WS1 (2)	50 mm		24/4/13 13:55:00	Initial 0.3												
				Steady 0.3												
			0		1013	-0.12		0	0	0	20.8	0	0			
			15					0	0	0.3	20.3	0	0			
			30					0	0	1.6	19.6	0	0			
			60					0	0	1.6	19.6	0	0			
			90					0	0	1.6	19.5	0	0			
			120					0	0	1.8	19.5	0	0			
			180					0	0	2.0	19.3	0	0			
			240					0	0	2.0	19.3	0	0			
			300					0	0	2.2	19.1	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
24/4/13	Terrace	TM	26244

Contract: Glen Parva

Page: 22 of 28

Engineer: LT

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Sunny	Air Temperature: 11°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: dry	Equipment Used: GA7808 Calibration date: 1/6/13		N/A
Measurement datum: (GL) Top of pipe / Other _____ Offset to GL (m):	Wind:	Data Collected By: Gerrace		Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
WS 2 (2)	50 mm		24/4/13 14:05:00	Initial 0.0 Steady 0.0												
			0		1024	+0.02		0	0	0.1	20.8	0	0			
			15					0	0	0.1	20.9	0	0			
			30					0	0	0.1	20.9	0	0			
			60					0	0	0.1	20.9	0	0			
			90					0	0	0.1	20.9	0	0			
			120					0	0	0.1	20.9	0	0			
			180					0	0	0.1	20.9	0	0			
			240					0	0	0.1	20.9	0	0			
			300					0	0	0.1	20.9	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
24/4/13	Gerrace	TM	26244

Contract: Glen Parva

Page: 23 of 28

Engineer: CT

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: overcast	Air Temperature: 11°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: Dry	Equipment Used: GA 7808 Calibration date: 1/6/13		N/A
Measurement datum: GL / Top of pipe / Other _____ Offset to GL (m):	Wind:	Data Collected By: Gerard		Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
WS4 (2)	50 mm		24/4/13 14:14:00	Initial 3.3 Steady 0.0												
			0		1014	-0.19		0	0	0	20.8	0	0			
			15					0	0	0.1	20.7	0	0			
			30					100+	23.2	4.4	6.7	0	0			
			60					100+	23.9	4.4	6.1	0	0			
			90					100+	24.1	4.5	6.1	0	0			
			120					100+	24.4	4.5	6.0	0	0			
			180					100+	24.5	4.5	5.9	0	0			
			240					100+	24.6	4.5	5.8	0	0			
			300					100+	24.7	4.6	5.7	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
24/4/13	Gerard	TM	26244
Contract: Glen Parva			Page: 24 of 28 Engineer: GS

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: overcast	Air Temperature: 11°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: dry	Equipment Used: GA7808 Calibration date: 1/6/13		N/A
Measurement datum: GL / Top of pipe / Other _____ Offset to GL (m):	Wind:	Data Collected By: Gerace		Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
WS3 (2)	50 mm		24/4/13 14:22:00	Initial 4.5												
				Steady 4.6												
			0		1028	+0.05		0	0	0	20.8	0	0			
			15					1	0.1	0	20.9	0	0			
			30					0	0	0	20.9	0	0			
			60					0	0	0	20.9	0	0			
			90					0	0	0	20.9	0	0			
			120					0	0	0	20.9	0	0			
			180					0	0	0.1	20.9	0	0			
			240					0	0	0.1	20.8	0	0			
			300					0	0	0.1	20.8	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
24/4/13	Gerace	TM	26244

Contract: Glen Parva

Page: 25 of 28

Engineer: LS

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Overcast	Air Temperature: 11°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: Dry	Equipment Used: GA7808 Calibration date: 1/6/13		N/A
Measurement datum: (GL) / Top of pipe / Other _____ Offset to GL (m):	Wind:	Data Collected By: Gerace		Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
WS 5 (2)	50 mm		24/4/13 14:30:00	Initial 0.2 Steady 0.1												
			0		1028	10.06		0	0	0.1	20.8	0	0			
			15					0	0	0.1	20.7	0	0			
			30					0	0	0.1	20.5	0	0			
			60					0	0	0.1	20.5	0	0			
			90					0	0	0.2	20.4	0	0			
			120					0	0	0.2	20.3	0	0			
			180					0	0	0.2	20.2	0	0			
			240					0	0	0.3	20.2	0	0			
			300					0	0	0.3	20.1	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
24/4/13	Gerace	TM	26244

Contract: Glen Parva

Page: 26 of 28

Engineer: LA

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Sunny	Air Temperature: 11°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: dry	Equipment Used: GA7808 Calibration date: 1/6/13		N/A
Measurement datum: GL / Top of pipe / Other _____ Offset to GL (m):	Wind:	Data Collected By: Terrace		Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
WS6 (2)	50 mm		24/4/13	Initial 2.1												
			14:39:00	Steady 2.0												
			0		1015	+0.01		0	0	0.1	20.8	0	0			
			15					100+	23.7	2.6	3.4	0	0			
			30					100+	24.7	2.6	2.4	0	0			
			60					100+	25.2	2.7	2.0	0	0			
			90					100+	25.3	2.7	2.2	0	0			
			120					100+	25.2	2.7	2.0	0	0			
			180					100+	25.4	2.7	1.9	0	0			
			240					100+	25.4	2.7	1.9	0	0			
			300					100+	25.4	2.7	1.9	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
24/4/13	Terrace	TM	26244

Contract: Glen Parva

Page: 27 of 28 Engineer: CT

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Overcast	Air Temperature: 11°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: DRY	Equipment Used: GA7808 Calibration date: 1/6/13		N/A
Measurement datum: (GL) / Top of pipe / Other _____ Offset to GL (m):	Wind:	Data Collected By: Terrace		Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
WS 7 (2)	50 mm		24/4/13 14:50:00	Initial 0.0 Steady 0.1												
			0		1014	-0.36		0	0	0.1	20.8	0	0			
			15					0	0	0	20.7	0	0			
			30					0	0	0	20.7	0	0			
			60					0	0	0	20.7	0	0			
			90					0	0	0	20.8	0	0			
			120					0	0	0	20.8	0	0			
			180					0	0	0	20.8	0	0			
			240					0	0	0	20.9	0	0			
			300					0	0	0	20.9	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
24/4/13	Terrace	TM	26244

Contract: Glen Parva

Page: 28 of 28 Engineer: CS

Template release: 18/12/2010 21:18:45

CERTIFICATION OF CALIBRATION

ISSUED BY: GEOTECH LABORATORY

Date Of Calibration: 7 December, 2012

Certificate Number: GA07808_2/10141

Approved by Signatory

GEOTECHNICAL INSTRUMENTS (UK) LTD
Sovereign House, Queensway, Leamington Spa, WarwickShire, CV31 3JR United Kingdom
Tel: +44 (0) 1926 338111 Fax: +44 (0) 1926 338110
E-mail: service@geotech.co.uk www.geotechuk.com

Graham Ingles
Laboratory Inspection

Customer: ***RSK Argus Environmental Limited***
Accounts Payable
Spring Lodge
172 Chester Road
Helsby
Cheshire
WA6 0AR
UNITED KINGDOM

Description: Gas Analyser

Model: GA2000Plus

Serial Number: GA07808

Methane (CH4)	
Certified Gas (%)	Instrument Reading (%)
50.0	49.2
15.0	14.9
5.1	5.0

Carbon Dioxide (CO2)	
Certified Gas (%)	Instrument Reading (%)
50.0	49.8
15.0	14.8
5.0	4.9

Oxygen (O2)	
Certified Gas (%)	Instrument Reading (%)
21.1	21.1

Barometer (mb)	
Reference	Reading
0995mb	0993mb

Additional Gas Cells		
Gas	Certified Gas (ppm)	Instrument Reading (ppm)
H^2	1012	LOW
CO	500	508
H^2S	51.3	51.4

All concentrations are molar.

CH4, CO2 readings recorded at: 30.6°C

O2 readings recorded at : 21.5°C

Barometric Pressure : 0995mb

Method of Test: The analyser is calibrated in a temperature controlled chamber using reference gases, providing traceability of measurement to recognised international standards.

End of Certificate

Field Calibration Record Sheet

Project Name	Glen Parva	**Technician**	Terrace
Client Project Number	26244	**GA2000+ Serial No.**	GA 7808
Date of Visit	26/4/13	**Cal. Cylinder Batch No.**	1243158

Field Calibration

Prior to each monitoring visit, a mixture of 4%v/vCH4; 5%v/vCO2; 50ppmCO; 0%v/v Oxygen is used to calibrate the G2000+ gas analyser. The results are recorded here:-

	CH4 (%v/v)	CO2 (%v/v)	CO (ppm)	O2 (%v/v)
Mixture 1 (Target)	4.0	5.0	50	0.0
Achieved	4.0	5.0	53	0.0
Mixture 2 (Target)	0.0	0.0	0	20.9
Achieved	0.0	0.2	0	20.7

Post Monitoring Verification

Before leaving site, the same mixture is passed through the analyser. We record the actual reading to evidence any drift, which may have taken place.

	CH4 (%v/v)	CO2 (%v/v)	CO (ppm)	O2 (%v/v)
Mixture 1 (Target)	4.0	5.0	50	0.0
Achieved	3.9	4.9	52	0.0
Mixture 2 (Target)	0.0	0.0	0	20.9
Achieved	0.0	0.1	0	20.7

Technician Terrace

Checked by Talaat Mousa

Technical Support Services

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Overcast	Air Temperature: 9°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet	Equipment Used: GA7808		N/A
Measurement datum: GL / Top of pipe (Other) TOP OF HWKS	Offset to GL (m): 16cm	Calibration date: 1/6/13		Sampling method:
	Wind:	Data Collected By: Terrace		

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
BH 1S	19 mm		26/4/13	Initial 0.0												
			10:05:00	Steady 0.0												
			0		1015	+0.05		0	0	0.2	20.8	0	0			
			15					1	0.1	2.5	17.9	0	0			
			30					0	0	4.3	13.6	0	0			
			60					0	0	5.4	11.3	0	0			
			90					1	0.1	5.8	10.1	0	0			
			120					1	0.1	5.9	10.0	0	0			
			180					1	0.1	5.9	10.2	0	0			
			240					1	0.1	5.9	10.1	0	0			
			300					1	0.1	5.9	10.1	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
26/4/13	Terrace	TM	26244

Contract: Glen Garva

Page: 1 of 21

Engineer:

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Sunny	Air Temperature: 9oc	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet	Equipment Used: GA7808 Calibration date: 1/6/13		N/A
Measurement datum: GL / Top of pipe / (Other) TOP OF HWKS	Offset to GL (m): 16cm	Wind:		Sampling method:
		Data Collected By: Terrace		

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
BH 1M	19 mm		26/4/13 10:13:00	Initial 1.5 Steady 1.3												
			0		1009	-0.05		0	0	0.1	20.8	0	0			
			15					1	0.1	0.1	20.9	0	0			
			30					1	0.1	0.1	20.6	0	0			
			60					1	0.1	0.1	20.7	0	0			
			90					1	0.1	0.1	20.6	0	0			
			120					1	0.1	0.1	20.7	0	0			
			180					1	0.1	0.1	20.7	0	0			
			240					1	0.1	0.1	20.7	0	0			
			300					1	0.1	0.1	20.6	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
26/4/13	Terrace	TM	26244

Contract: Glen Parva

Page: 2 of 21

Engineer: CA

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: overcast	Air Temperature: 9°c	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet	Equipment Used: GA 7808 Calibration date: 1/6/13		N/A
Measurement datum: TOP OF HWKS GL / Top of pipe / (Other)	Offset to GL (m): 16 cm	Wind:	Data Collected By: Terrace	Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
BH 1D	19 mm		[redacted]	Initial -7.5												
			26/4/13	Steady 0.3												
			10:21:00		1009			0	0	0.1	20.8	0	0			
			15					1	0.1	0.1	20.7	0	0			
			30					1	0.1	0.1	20.8	0	0			
			60					1	0.1	0.1	20.8	0	0			
			90					1	0.1	0.1	20.9	0	0			
			120					1	0.1	0.1	20.9	0	0			
			180					1	0.1	0	20.9	0	0			
			240					1	0.1	0	20.8	0	0			
			300					1	0.1	0	20.7	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
26/4/13	Terrace	TM	26244

Contract: Glen Parva

Page: 3 of 21

Engineer: LT

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Sunny	Air Temperature: 9°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet	Equipment Used: GA7808 Calibration date: 1/6/13		N/A
Measurement datum: TOP OF HWKS GL / Top of pipe / (Other)	Offset to GL (m): 19cm	Wind:	Data Collected By: Terrace	Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
2S	19 mm		26/4/13 10:28:00	Initial 0.3 Steady 0.4												
			0		1009	+0.12		0	0	0	20.8	0	0			
			15					0	0	5.0	15.6	0	2			
			30					0	0	5.3	15.0	0	1			
			60					0	0	5.5	14.5	0	0			
			90					0	0	5.6	14.3	0	0			
			120					0	0	5.6	14.3	0	0			
			180					0	0	5.6	14.2	0	0			
			240					0	0	5.6	14.3	0	0			
			300					0	0	5.6	14.2	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
26/4/13	Terrace	TM	262.44

Contract: Glen Parva

Page: 4 of 21

Engineer: LT

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Sonny	Air Temperature: 9°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet	Equipment Used: GA7808 Calibration date: 1/6/13		N/A
Measurement datum: Top of Hwks GL / Top of pipe / (Other)	Offset to GL (m): 19cm Wind:	Data Collected By: Gerace		Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
2M	19mm		26/4/13	Initial 0.1												
			10:35:00	Steady 0.3												
			0		1008	+0.00		0	0	0.1	20.8	0	0			
			15					0	0	0.1	20.6	0	0			
			30					0	0	0.1	20.7	0	0			
			60					0	0	0.1	20.7	0	0			
			90					0	0	0	20.6	0	0			
			120					0	0	0	20.6	0	0			
			180					0	0	0	20.6	0	0			
			240					0	0	0	20.7	0	0			
			300					0	0	0	20.6	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
26/4/13	Gerace	TM	26244

Contract: Glen Parva

Page: 5 of 21

Engineer: CA

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Overcast	Air Temperature: 9°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet	Equipment Used: GA7808 Calibration date: 1/6/13		N/A
Measurement datum: GL / Top of pipe / (Other) TOP OF HWRS Offset to GL (m): 19cm	Wind:	Data Collected By: Terrace		Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
2D	19 mm		26/4/13	Initial 0.3												
			10:42:00	Steady 0.1												
			0		1008	+0.00		0	0	0.1	20.8	0	0			
			15					0	0	0	20.7	0	0			
			30					0	0	0	20.9	0	0			
			60					0	0	0	20.9	0	0			
			90					0	0	0	20.9	0	0			
			120					0	0	0	20.9	0	0			
			180					0	0	0	20.9	0	0			
			240					0	0	0	20.9	0	0			
			300					0	0	0	20.9	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
26/4/13	Terrace	TM	26244

Contract: Glen Nova

Page: 6 of 21

Engineer:

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Overcast	Air Temperature: 9°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet	Equipment Used: GA7808 Calibration date: 1/6/13		N/A
Measurement datum: TOP OF HWRS GL / Top of pipe / (Other)	Offset to GL (m): 17cm	Wind:	Data Collected By: Terrace	Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
35	19 mm		26/4/13	Initial 0.9												
			10:51:00	Steady 0.4												
			0		1028	-0.11		0	0	0.1	20.8	0	0			
			15					0	0	0.3	20.7	0	0			
			30					0	0	0.8	19.6	0	0			
			60					0	0	0.8	19.7	0	0			
			90					0	0	0.9	19.5	0	0			
			120					0	0	0.9	19.4	0	0			
			180					0	0	0.8	19.2	0	0			
			240					0	0	0.8	19.2	0	0			
			300					0	0	0.8	19.2	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
26/4/13	Terrace	TM	26244

Contract: Glen Parva

Page: 7 of 21

Engineer: LT

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Overcast	Air Temperature: 9°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet	Equipment Used: GA7808 Calibration date: 1/6/13		N/A
Measurement datum: TOP OF HWKS GL / Top of pipe (Other)	Offset to GL (m): 17cm	Wind:	Data Collected By: Terrace	Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
3D	19 mm		26/4/13	Initial 7.6												
			10:57:00	Steady 0.6												
			0		1011	-0.19		0	0	0.1	20.8	0	0			
			15					0	0	0.1	20.4	0	0			
			30					0	0	0.1	20.9	0	0			
			60					0	0	0.1	20.9	0	0			
			90					0	0	0.1	20.9	0	0			
			120					0	0	0.1	20.9	0	0			
			180					0	0	0.1	20.9	0	0			
			240					0	0	0.1	20.9	0	0			
			300					0	0	0.1	20.9	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
26/4/13	Terrace	TM	26244

Contract: Glen Parva

Page: 8 of 21

Engineer: LS

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: overcast	Air Temperature: 9oC	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet	Equipment Used: GA7808 Calibration date: 1/6/13		N/A
Measurement datum: TOP OF HUICS GL / Top of pipe / (Other)	Offset to GL (m): 21cm	Wind:	Data Collected By: Terrace	Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
BH 45	19 mm		26/4/13 11:06:00	Initial 3.3 Steady 0.2												
			0		1008	+0.11		0	0	0	20.8	0	0			
			15					0	0	2.6	12.3	0	0			
			30					0	0	2.7	12.1	0	0			
			60					0	0	2.7	12.0	0	0			
			90					0	0	2.7	11.9	0	0			
			120					0	0	2.7	12.0	0	0			
			180					0	0	2.7	11.9	0	0			
			240					0	0	2.7	11.9	0	0			
			300					0	0	2.7	11.9	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
26/4/13	Terrace	TM	26244

Contract: Glen Parva

Page: 9 of 21

Engineer: TS

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Overcast	Air Temperature: 9°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet	Equipment Used: GA7808 Calibration date: 1/6/13		N/A
Measurement datum: GL / Top of pipe / (Other) TOP OF HWKS Offset to GL (m): 21cm	Wind:	Data Collected By: Terrace		Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
BH 4M	19 mm		26/4/13	Initial 0.2												
			11:15:00	Steady 0.1												
			0		1024	+0.10		0	0	0.1	20.8	0	0			
			15					0	0	0.1	20.9	0	0			
			30					0	0	0.1	20.9	0	0			
			60					0	0	0.1	20.9	0	0			
			90					0	0	0.1	20.9	0	0			
			120					0	0	0.1	20.9	0	0			
			180					0	0	0.1	20.9	0	0			
			240					0	0	0.1	20.9	0	0			
			300					0	0	0.1	20.9	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
26/4/13	Terrace	TM	26244

Contract: Glen Parva

Page: 10 of 21

Engineer: LS

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Overcast	Air Temperature: 9°c	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet	Equipment Used: GA7808 Calibration date: 1/6/13		N/A
Measurement datum: Top of Hwks GL / Top of pipe / (Other)	Offset to GL (m): 21 cm	Wind:	Data Collected By: Terrace	Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
BH 4D	19 mm		26/4/13 11:24:00	Initial 0.1 Steady 0.3												
			0		1024	+0.27		0	0	0.1	20.8	0	0			
			15					0	0	0.1	20.9	0	0			
			30					0	0	0.1	20.9	0	0			
			60					0	0	0.1	20.9	0	0			
			90					0	0	0.1	20.8	0	0			
			120					0	0	0.1	20.9	0	0			
			180					0	0	0.1	20.9	0	0			
			240					0	0	0.1	20.9	0	0			
			300					0	0	0.1	20.9	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
26/4/13	Terrace	TM	26244

Contract: Glen Parva

Page: 11 of 21

Engineer: LE

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Sunny	Air Temperature: 9oC	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet	Equipment Used: GA7808 Calibration date: 1/6/13		N/A
Measurement datum: GL / Top of pipe / (Other) TOP OF HWKS	Offset to GL (m): 21 cm	Wind:	Data Collected By: Terrace	Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
BH 5S	19 mm		26/4/13 11:34:00	Initial -7.6 Steady 0.0												
			0		1008	+0.61		0	0	0.1	20.8	0	0			
			15					0	0	0.1	20.7	0	0			
			30					0	0	0.1	20.6	0	0			
			60					0	0	0.1	20.6	0	0			
			90					0	0	0.1	20.6	0	0			
			120					0	0	0.1	20.6	0	0			
			180					0	0	0.1	20.7	0	0			
			240					1	0.1	0.1	20.5	0	0			
			300					0	0	0.1	20.6	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
26/4/13	Terrace	TM	26244

Contract: Glen Parva

Page: 12 of 21

Engineer: LS

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: overcast	Air Temperature: 9°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet	Equipment Used: GA7808 Calibration date: 1/6/13		N/A
Measurement datum: GL / Top of pipe / (Other) TOP OF HWKS Offset to GL (m): 21cm	Wind:	Data Collected By: Terrace		Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
BH 5M	19 mm		26/4/13 11:40:00	Initial 0.1												
				Steady 0.3												
			0		1008	+0.08		0	0	0.1	20.8	0	0			
			15					0	0	0.1	20.7	0	0			
			30					0	0	0.1	20.7	0	0			
			60					0	0	0.1	20.7	0	0			
			90					0	0	0.1	20.6	0	0			
			120					0	0	0.1	20.6	0	0			
			180					0	0	0.1	20.7	0	0			
			240					0	0	0.1	20.6	0	0			
			300					0	0	0.1	20.7	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
26/4/13	Terrace	TM	26244

Contract: Glen Parva

Page: 13 of 21

Engineer: TS

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Raining	Air Temperature: 9°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet	Equipment Used: GA 7808 Calibration date: 1/6/13		N/A
Measurement datum: GL / Top of pipe / (Other) Top of Hwks Offset to GL (m): 21cm	Wind:	Data Collected By: Terrace		Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
BH SD	19 mm		26/4/13 11:50:00	Initial 12.4 Steady 12.2												
			0		1008	+0.47		0	0	0.1	20.8	0	0			
			15					0	0	2.2	10.9	0	0			
			30					0	0	2.3	5.3	0	0			
			60					0	0	2.3	5.3	0	0			
			90					0	0	2.3	5.2	0	0			
			120					0	0	2.4	5.2	0	0			
			180					0	0	2.4	5.4	0	0			
			240					0	0	2.4	5.1	0	0			
			300					0	0	2.4	5.3	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
26/4/13	Terrace	TM	26244

Contract: Glen Parva

Page: 14 of 21

Engineer: LG

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Sunny	Air Temperature: 9oc	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet	Equipment Used: 947808 Calibration date: 1/6/13		N/A
Measurement datum: (GL) Top of pipe / Other _____ Offset to GL (m): Flush	Wind:	Data Collected By: Terrace		Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
WS 1	50 mm		26/4/13 13:11:00	Initial 0.0 Steady 0.0											1.55	2.56
			0		1007	-0.11		0	0	0.1	20.8	0	0			
			15					0	0	2.7	18.5	0	0			
			30					0	0	2.8	18.3	0	0			
			60					0	0	2.8	18.3	0	0			
			90					0	0	2.9	18.1	0	0			
			120					0	0	2.9	18.1	0	0			
			180					0	0	2.9	18.0	0	0			
			240					0	0	3.0	18.1	0	0			
			300					0	0	3.0	17.9	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
26/4/13	Terrace	JM	26244

Contract: Glen Parva

Page: 21 of 21 Engineer: CA

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Sunny	Air Temperature: 9°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet	Equipment Used: GA7808 Calibration date: 1/6/13		N/A
Measurement datum: (GL) Top of pipe / Other _____ Offset to GL (m): flush	Wind:	Data Collected By: Terrace		Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
WS 2	50 mm		26/4/13	Initial 0.4											0.58	1.77
			12:01:00	Steady 0.4												
			0		1008	+0.13		0	0	0.1	20.8	0	0			
			15					0	0	0.1	20.9	0	0			
			30					0	0	0.1	20.9	0	0			
			60					0	0	0.1	20.9	0	0			
			90					0	0	0.1	20.9	0	0			
			120					0	0	0.1	20.9	0	0			
			180					0	0	0.1	20.9	0	0			
			240					0	0	0.1	20.9	0	0			
			300					0	0	0.1	20.9	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
26/4/13	Terrace	TM	2G244

Contract: Glen Parva

Page: 15 of 21

Engineer: LS

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Sunny	Air Temperature: 9°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet	Equipment Used: GA7808 Calibration date: 1/6/13		N/A
Measurement datum: (GL) Top of pipe / Other ____ Offset to GL (m): flush	Wind:	Data Collected By: Terrace		Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
WS 4	50 mm		26/4/13 12:12:00	Initial 7.6											2.89	2.94
				Steady 9.3												
			0		1027	+0.02		0	0	0.1	20.8	0	0			
			15					100+	36.0	7.0	0.8	0	0			
			30					100+	36.3	7.1	0.0	0	0			
			60					100+	36.2	7.2	0.0	0	0			
			90					100+	36.2	7.2	0.0	0	0			
			120					100+	36.5	7.2	0.0	0	0			
			180					100+	36.4	7.2	0.0	0	0			
			240					100+	36.4	7.2	0.0	0	0			
			300					100+	36.4	7.2	0.0	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
26/4/13	Terrace	TM	26244

Contract: Glen Parva

Page: 16 of 21

Engineer: LT

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Sunny	Air Temperature: 9oc	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet	Equipment Used: GA7808 Calibration date: 1/6/13		N/A
Measurement datum: GL / Top of pipe / Other _____ Offset to GL (m): flush	Wind:	Data Collected By: Terrace		Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
WS 3	50 mm		26/4/13	Initial 0.0											2.77	2.94
			12:20:00	Steady 0.1												
			0		1007	+007		0	0	0.1	20.8	0	0			
			15					100+	12.9	3.2	0.0	0	0			
			30					100+	12.9	3.2	0.0	0	0			
			60					100+	12.9	3.2	0.0	0	0			
			90					100+	12.9	3.2	0.0	0	0			
			120					100+	12.9	3.3	0.0	0	0			
			180					100+	12.9	3.3	0.0	0	0			
			240					100+	12.9	3.3	0.0	0	0			
			300					100+	12.9	3.3	0.0	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
26/4/13	Terrace	TM	26244

Contract: Glen Parva

Page: 17 of 21 Engineer: LT

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Sunny	Air Temperature: 9c	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet	Equipment Used: GA7808 Calibration date: 1/6/13		N/A
Measurement datum: (GL) / Top of pipe / Other _____ Offset to GL (m): flush	Wind:	Data Collected By: Terrace		Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
WS 5	50 mm		26/4/13 12:32:00	Initial 0.3											1.52	2.88
				Steady 0.3												
			0		1008	-0.06		0	0	0.1	20.8	0	0			
			15					0	0	0	20.5	0	0			
			30					0	0	0	20.6	0	0			
			60					0	0	0	20.6	0	0			
			90					0	0	0	20.8	0	0			
			120					0	0	0	20.8	0	0			
			180					0	0	0	20.8	0	0			
			240					0	0	0	20.7	0	0			
			300					0	0	0	20.9	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
26/4/13	Terrace	TM	26244

Contract: Glen Parva

Page: 18 of 21 Engineer: CT

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Sunny	Air Temperature: 9°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet	Equipment Used: GA7808 Calibration date: 1/6/13		N/A
Measurement datum: (GL) Top of pipe / Other _____ Offset to GL (m): flush	Wind:	Data Collected By: Terrace		Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
WS6	50 mm		26/4/13 12:45:00	Initial 4.1											2.92	2.92
				Steady 4.4												DRY
			0		1023	+0.11		0	0	0	20.8	0	0			
			15					100+	25.1	2.6	3.8	0	0			
			30					100+	26.7	2.8	2.1	0	0			
			60					100+	26.8	2.8	1.8	0	0			
			90					100+	27.1	2.8	1.4	0	0			
			120					100+	27.3	2.8	1.4	0	0			
			180					100+	27.4	2.8	1.5	0	0			
			240					100+	27.9	2.8	1.4	0	0			
			300					100+	27.8	2.8	1.4	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
26/4/13	Terrace	JM	26244

Contract: Glen Parva

Page: 19 of 21 Engineer: CT

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Sunny	Air Temperature: 9a	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet	Equipment Used: GA7808 Calibration date: 1/6/13		N/A
Measurement datum: (GL) Top of pipe / Other _____ Offset to GL (m): flush	Wind:	Data Collected By: Terrace		Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
WS 7	50 mm		26/4/13	Initial 0.0											1.47	2.91
			13:00:00	Steady 0.1												
			0		1023	-0.05		0	0	0	20.8	0	0			
			15					0	0	0.1	20.4	0	0			
			30					1	0.1	1.4	19.7	0	0			
			60					0	0	1.4	19.7	0	0			
			90					0	0	1.5	19.6	0	0			
			120					0	0	0.1	20.3	0	0			
			180					0	0	0.1	20.5	0	0			
			240					1	0.1	1.2	20.1	0	0			
			300					0	0	0.2	20.7	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
26/4/13	Terrace	TM	26244

Contract: Glen Parva

Page: 20 of 21 Engineer: LT

Template release: 18/12/2010 21:18:45

Field Calibration Record Sheet

Project Name	Glen Parva	**Technician**	Talaat MOUSA
Client Project Number	26244	**GA2000+ Serial No.**	GA077744
Date of Visit	12/06/2013	**Cal. Cylinder Batch No.**	1378560

Field Calibration

Prior to each monitoring visit, a mixture of 4%v/vCH4; 5%v/vCO2; 50ppmCO; 0%v/v Oxygen is used to calibrate the G2000+ gas analyser. The results are recorded here:-

	CH4 (%v/v)	CO2 (%v/v)	CO (ppm)	O2 (%v/v)
Mixture 1 (Target)	4.0	5.0	50	0.0
Achieved	4.0	5.0	42	0.0
Mixture 2 (Target)	0.0	0.0	0	20.9
Achieved	0.0	0.0	0	20.7

Post Monitoring Verification

Before leaving site, the same mixture is passed through the analyser. We record the actual reading to evidence any drift, which may have taken place.

	CH4 (%v/v)	CO2 (%v/v)	CO (ppm)	O2 (%v/v)
Mixture 1 (Target)	4.0	5.0	50	0.0
Achieved				
Mixture 2 (Target)	0.0	0.0	0	20.9
Achieved				

Technician Talaat MOUSA **Checked by** .....

Technical Support Services

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Overcast	Air Temperature: 17°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT	Ground Conditions: Dry	Equipment Used: GA2000+		Not applicable
Measurement datum: GL / Top of pipe / Other _____	Wind: Windy	Calibration date: October 2013		Sampling method:
Offset to GL (m):		Data Collected By: T Mousa		

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
BH1 (D)	19mm	6	13:01:10	Initial +0.8	997	+0.39										
			13:04:12	Steady +0.4												
			13:05:41 0					0	0.0	0.0	20.8	0	0			
			15					0	0.0	0.1	20.7	0	0			
			30					0	0.0	0.2	20.6	0	0			
			60					0	0.0	0.1	20.7	0	0			
			90					0	0.0	0.1	20.7	0	0			
			120					0	0.0	0.1	20.8	0	0			
			180					0	0.0	0.1	20.8	0	0			
			240					0	0.0	0.1	20.8	0	0			
			300					0	0.0	0.1	20.8	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
12/6/13	Talaat Mousa		26244
Contract:			Page: of / Engineer: TM

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Overcast	Air Temperature: 17°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: Dry	Equipment Used: GA2000+ Calibration date: October 2013		Not applicable
Measurement datum: GL / Top of pipe / Other _____ Offset to GL (m):	Wind: Windy	Data Collected By: T Mousa		Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
BH1 (S)	19mm		14:41:32	Initial +0.4	998	+0.61										
			14:43:17	Steady +0.0												
			14:44:51					0	0.0	0.0	20.8	0	0			
			15					0	0.0	3.2	15.7	0	0			
			30					2	0.1	4.3	15.1	0	0			
			60					2	0.1	6.0	14.2	0	0			
			90					2	0.1	7.0	12.5	0	0			
			120					2	0.1	7.9	11.0	0	0			
			180					0	0.0	8.5	9.5	0	0			
			240					0	0.0	6.9	11.7	0	0			
			300					0	0.0	6.5	12.4	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
12/06/13	Talaat Mousa		26244
Contract: Glen Parva.		Page: of	Engineer: TM

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Overcast	Air Temperature: 17°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: Dry	Equipment Used: GA 2000+ Calibration date: October 2013		Not applicable
Measurement datum: GL / Top of pipe / Other _____ Offset to GL (m):	Wind: Windy	Data Collected By: Talaat Moussa		Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
BH1 (M)	19mm	6	14:50:21	Initial -0.1	998	+0.36										
			14:52:12	Steady -0.0												
			14:53:51					0	0.0	0.0	20.8	0	0			
			15					0	0.0	0.1	20.8	0	0			
			30					0	0.0	0.1	20.8	0	0			
			60					2	0.1	0.1	20.9	0	0			
			90					2	0.1	0.1	20.9	0	0			
			120					0	0.0	0.1	20.8	0	0			
			180					0	0.0	0.1	20.8	0	0			
			240					0	0.0	0.1	20.9	0	0			
			300					0	0.0	0.1	20.9	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
12/06/13	Talaat Moussa		26244
Contract: Glen Parva.		Page: of	Engineer: TM

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Overcast	Air Temperature: 17°c	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: Dry	Equipment Used: GA 2000+ Calibration date: October 2013		Not applicable
Measurement datum: GL / Top of pipe / Other _____ Offset to GL (m):	Wind: Windy	Data Collected By: T Mousa		Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
BH2 (D)	19mm	6	14:27:10	Initial +0.1	998	+0.28										
			14:29:51	Steady +0.0												
			14:30:32					0	0.0	0.0	20.8	0	0			
			15					0	0.0	0.1	20.8	0	0			
			30					0	0.0	0.1	20.8	0	0			
			60					0	0.0	0.4	20.7	0	0			
			90					0	0.0	1.0	20.1	0	0			
			120					0	0.0	1.1	19.8	0	0			
			180					0	0.0	1.2	19.8	0	0			
			240					0	0.0	1.2	19.7	0	0			
			300					0	0.0	1.2	19.6	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
12/06/2013	Talaat Mousa		26244
Contract: Glen Parva.		Page: of	Engineer: TM

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Overcast	Air Temperature: 17°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: Dry	Equipment Used: GA2000+ Calibration date: October 2013		Not applicable
Measurement datum: GL / Top of pipe / Other _____ Offset to GL (m):	Wind: Windy	Data Collected By: T Mousa		Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
BH2 (M)	19mm	6	14:18:31	Initial +0.0	998	+0.11										
			14:20:21	Steady +0.0												
			14:21:27					0	0.0	0.0	20.8	0	0			
			15					0	0.0	0.0	20.8	0	0			
			30					0	0.0	0.0	20.8	0	0			
			60					0	0.0	0.0	20.7	0	0			
			90					0	0.0	0.0	20.8	0	0			
			120					0	0.0	0.0	20.7	0	0			
			180					0	0.0	0.0	20.7	0	0			
			240					0	0.0	0.0	20.7	0	0			
			300					0	0.0	0.0	20.7	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
12/06/13	TALAAT MOUSA		262444
Contract: Glen Parva.		Page: of	Engineer: TM

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Overcast	Air Temperature: 17°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: Dry.	Equipment Used: GA2000+ Calibration date: October 2013		Not applicable
Measurement datum: GL / Top of pipe / Other _____ Offset to GL (m):	Wind: windy	Data Collected By: Talaat Moosa		Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
BH2 (S)	19mm	6	14:10:13	Initial -0.1	998	-0.32										
			14:12:10	Steady -0.0												
			14:14:21					0	0.0	0.0	20.8	0	0			
			15					0	0.0	0.1	20.8	0	0			
			30					0	0.0	2.3	20.8	0	0			
			60					0	0.0	2.9	19.6	0	0			
			90					0	0.0	3.0	19.4	0	0			
			120					0	0.0	2.7	19.5	0	0			
			180					0	0.0	2.2	19.8	0	0			
			240					0	0.0	2.1	19.8	0	0			
			300					0	0.0	2.1	19.7	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
12/06/2013	TALAAT MOOSA		26244
Contract: Glen Parva.		Page: of	Engineer: TM

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Overcast	Air Temperature: 17°c	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: Dry	Equipment Used: GA2000+ Calibration date: October 2013		Not applicable
Measurement datum: GL / Top of pipe / Other _____ Offset to GL (m):	Wind: Windy	Data Collected By: T. Mousa -		Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
BH3 Deep	14mm	6	14:01:09	Initial -0.2	998	-0.59										
			14:03:21	Steady -0.1												
			14:05:13					0	0.0	0.0	20.8	0	0			
			15					0	0.0	3.5	15.1	0	0			
			30					0	0.0	4.4	12.1	0	0			
			60					0	0.0	5.0	10.5	0	0			
			90					0	0.0	5.3	9.3	0	0			
			120					0	0.0	5.3	9.0	0	0			
			180					0	0.0	5.3	8.9	0	0			
			240					0	0.0	5.3	8.8	0	0			
			300					0	0.0	5.3	8.7	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
12/06/2013	Talaat Mousa		26244
Contract: Glen Parva.		Page: of	Engineer: TM

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Overcast	Air Temperature: 17°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: Dry	Equipment Used: GA 2000+ Calibration date: October 2013		Not applicable
Measurement datum: GL / Top of pipe / Other _____ Offset to GL (m):	Wind: Windy	Data Collected By: TALAAT MOUSA		Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
BH3 shallow	19mm	6	13:48:10	Initial +0.2	997	-0.38										
			13:51:10	Steady +0.0												
			13:52:14					0	0.0	0.0	20.8	0	0			
			15					0	0.0	0.0	20.7	0	0			
			30					0	0.0	0.0	20.6	0	0			
			60					0	0.0	0.0	20.7	0	0			
			90					0	0.0	0.0	20.7	0	0			
			120					0	0.0	0.0	20.7	0	0			
			180					0	0.0	0.0	20.7	0	0			
			240					0	0.0	0.0	20.7	0	0			
			300					0	0.0	0.0	20.7	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
12/06/2013	TALAAT MOUSA		26244
Contract: Glen Parva.		Page: of	Engineer: TM

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Overcast	Air Temperature: 17°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: dry	Equipment Used: GA2000+ Calibration date: October 2013		Not applicable
Measurement datum: GL / Top of pipe / Other _____ Offset to GL (m):	Wind: Windy	Data Collected By: T. Mousa		Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
BH4 Deep	19mm	6	12/6/13 11:06:21	Initial +0.1	997	+0.07										
			11:08:37	Steady +0.0												
			11:09:10					0	0.0	0.0	20.8	0	0			
			15					0	0.0	0.0	20.1	0	0			
			30					0	0.0	0.0	20.0	0	0			
			60					0	0.0	0.0	19.9	0	0			
			90					0	0.0	0.0	20.0	0	0			
			120					0	0.0	6.0	19.8	0	0			
			180					0	0.0	0.0	19.9	0	0			
			240					0	0.0	0.0	20.0	0	0			
			300					0	0.0	0.0	20.0	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
12/06/2013	Talaat Mousa		26244
Contract: Glen Parva		Page: of	Engineer: TM

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Overcast	Air Temperature: 17°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT	Ground Conditions: dry	Equipment Used: GA2000+ Calibration date: October 2013		Not applicable
Measurement datum: GL / Top of pipe / Other _____ Offset to GL (m):	Wind: Windy	Data Collected By: Talaat Moussa		Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
BH4 (M)	19mm	6	12/6/13 10:43:12	Initial -0.2	997	-0.09										
			10:46:10	Steady -0.1												
			10:47:00					0	0.0	0.0	20.8	0	0			
			15					0	0.0	0.1	20.5	0	0			
			30					0	0.0	0.1	20.3	0	0			
			60					0	0.0	0.1	20.4	0	0			
			90					0	0.0	0.1	20.3	0	0			
			120					0	0.0	0.1	20.2	0	0			
			180					0	0.0	0.1	20.2	0	0			
			240					0	0.0	0.1	20.3	0	0			
			300					0	0.0	0.1	20.3	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
12/6/2013	Talaat Moussa		26244
Contract: Glen Parva		Page: of	Engineer: TM

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Overcast	Air Temperature: 17°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT	Ground Conditions: Dry	Equipment Used: GA 2000+		Not applicable
Measurement datum: GL / Top of pipe / Other _____ Offset to GL (m):	Wind: windy	Calibration date: GA07010 October 2013		Sampling method:
		Data Collected By: Talaat Mousa		

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
BH4 Shallow	19	6	12/6/13 10:34:10	Initial -0.1	997	-0.18										
			10:36	Steady -0.0												
			10:37 0					0	0.0	0.0	20.8	0	0			
			15					0	0.0	0.3	20.1	0	0			
			30					0	0.0	0.4	20.0	0	0			
			60					0	0.0	0.6	19.5	0	0			
			90					0	0.0	1.0	18.5	0	0			
			120					0	0.0	1.4	17.5	0	0			
			180					0	0.0	1.6	17.1	0	0			
			240					0	0.0	1.9	16.5	0	0			
			300					0	0.0	2.3	15.8	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
12/06/2013	Talaat Mousa		26244

Contract: Glen Parva

Page: of

Engineer: TM

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Overcast	Air Temperature: 17°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: Dry	Equipment Used: GA2000+ Calibration date: October 2013		Not applicable
Measurement datum: GL / Top of pipe / Other _____ Offset to GL (m):	Wind: Windy	Data Collected By: T. Mousa		Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
BH5 (M)	19mm	6	13:39:42	Initial -0.1	997	-0.10										
			13:42:19	Steady -0.1												
			13:44:19					0	0.0	0.0	20.8	0	0			
			15					0	0.0	0.1	20.8	0	0			
			30					0	0.0	0.1	20.9	0	0			
			60					0	0.0	0.1	20.8	0	0			
			90					0	0.0	0.1	20.7	0	0			
			120					0	0.0	0.0	20.7	0	0			
			180					0	0.0	0.0	20.8	0	0			
			240					0	0.0	0.1	20.8	0	0			
			300					0	0.0	0.1	20.8	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
12/6/13	Talaat Mousa		26244
Contract: Glen Parva.		Page: of	Engineer: TM

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Overcast	Air Temperature: 17°c	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: dry	Equipment Used: GA2000+		Not applicable
Measurement datum: GL / Top of pipe / Other _____ Offset to GL (m):	Wind: windy	Calibration date: October 2013		Sampling method:
		Data Collected By: T. Mousa		

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
BH15 Deep	19mm	6	13:23:41	Initial -0.6	997	+0.21										
			13:26:10	Steady -0.3												
			13:27:12					0	0.0	0.0	20.8	0	0			
			15					0	0.0	0.2	20.7	0	0			
			30					0	0.0	0.2	20.8	0	0			
			60					0	0.0	0.2	20.9	0	0			
			90					0	0.0	0.1	20.8	0	0			
			120					0	0.0	0.1	20.7	0	0			
			180					0	0.0	0.1	20.7	0	0			
			240					0	0.0	0.1	20.7	0	0			
			300					0	0.0	0.1	20.7	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
12/06/13	Talaat Mousa		26244
Contract: Glen Parva.		Page: of	Engineer: TM

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Overcast	Air Temperature: 17°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: dry	Equipment Used: GA2000+ Calibration date: October 2013		Not applicable
Measurement datum: GL / Top of pipe / Other _____ Offset to GL (m):	Wind: Windy	Data Collected By: T. Mousa		Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
BH5 Shallow	19mm	6	13:08:10	Initial -0.9	997	-0.12										
			13:10:19	Steady -0.7												
			13:12:17					0	0.0	0.0	20.8	0	0			
			15					0	0.0	0.0	20.8	0	0			
			30					0	0.0	0.8	20.3	0	0			
			60					0	0.0	1.8	18.7	0	0			
			90					0	0.0	3.6	17.1	0	0			
			120					0	0.0	6.5	12.3	0	0			
			180					0	0.0	11.2	2.8	0	0			
			240					0	0.0	11.9	0.6	0	0			
			300					0	0.0	12.1	0.3	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
12/6/13	Talaat Mousa		26244
Contract: Glen Parva.		Page: of	Engineer: TM

Template release: 18/12/2010 21:18:45

Field Calibration Record Sheet

Project Name	Glenpava	**Technician**	Geraee
Client Project Number	26244	**GA2000+ Serial No.**	GA7598
Date of Visit	17/6/13	**Cal. Cylinder Batch No.**	No number

Field Calibration

Prior to each monitoring visit, a mixture of 4%v/vCH4; 5%v/vCO2; 50ppmCO; 0%v/v Oxygen is used to calibrate the G2000+ gas analyser. The results are recorded here:-

	CH4 (%v/v)	CO2 (%v/v)	CO (ppm)	O2 (%v/v)
Mixture 1 (Target)	4.0	5.0	50	0.0
Achieved	3.9	5.0	60	0.0
Mixture 2 (Target)	0.0	0.0	0	20.9
Achieved	0.0	0.1	0	20.8

Post Monitoring Verification

Before leaving site, the same mixture is passed through the analyser. We record the actual reading to evidence any drift, which may have taken place.

	CH4 (%v/v)	CO2 (%v/v)	CO (ppm)	O2 (%v/v)
Mixture 1 (Target)	4.0	5.0	50	0.0
Achieved	3.5	4.7	88	0
Mixture 2 (Target)	0.0	0.0	0	20.9
Achieved	0.0	0.1	0	20.8

Technician Geraee

Checked by Talaat Mousa.

RSK

Technical Support Services

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: overcast	Air Temperature: 14°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet	Equipment Used: GA7598 Calibration date: 1/11/13		N/A
Measurement datum: GL / Top of pipe / Other _____ Offset to GL (m): flush	Wind:	Data Collected By: Terraco		Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
WS 6	50 mm		17/6/13	Initial 0.2											2.92	2.92
			10:36:00	Steady 0.4												DRY
			0		1008	-0.03		0	0	0.1	20.8	0	0			
			15					100+	10.2	1.6	14.3	43	0			
			30					100+	14.0	1.8	11.2	0	0			
			60					100+	14.4	1.8	10.7	0	0			
			90					100+	14.8	1.8	10.5	0	0			
			120					100+	14.9	1.8	10.3	0	0			
			180					100+	15.3	1.9	9.6	0	0			
			240					100+	16.5	2.1	8.9	52	0			
			300					100+	17.1	2.1	8.2	37	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
17/6/13	Terraco		26244

Contract: Glen Parva

Page: 1 of 29 Engineer:

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: overcast	Air Temperature: 14°c	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet	Equipment Used: GA7598 Calibration date:		N/A
Measurement datum: (GL) / Top of pipe / Other ____ Offset to GL (m): flush	Wind:	Data Collected By: Terraco		Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
WS 5	50 mm		17/6/13	Initial												
				Steady												
			0		1008			0	0	0.1	20.8	0	0			
			15					could not locate Borehole								
			30													
			60													
			90													
			120													
			180													
			240													
			300													
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
17/6/13	Terraco		26244

Contract: Glen Parva

Page: 2 of 29

Engineer: TA

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: overcast	Air Temperature: 14°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet	Equipment Used: GA7598 Calibration date: 1/11/13		N/A
Measurement datum: (GL) Top of pipe / Other _____ Offset to GL (m): flush	Wind:	Data Collected By: Terraco		Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
WS 3	50 mm		17/6/13 12:22:00	Initial 0.0 Steady 0.4											2.80	2.85
			0		1008	-0.25		0	0	0.1	20.8	0	0			
			15					100+	8.8	4.8	5.1	49	0			
			30					100+	8.6	4.8	4.9	42	0			
			60					100+	8.4	4.7	5.4	46	0			
			90					100+	7.9	4.5	6.4	50	0			
			120					100+	7.7	4.4	7.2	51	0			
			180					100+	6.0	3.6	9.8	42	0			
			240					100+	5.4	3.2	11.3	48	0			
			300					100+	4.5	2.6	13.0	49	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
17/6/13	Terraco		26244

Contract: Glen Parva

Page: 3 of 29

Engineer:

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: overcast	Air Temperature: 14°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet	Equipment Used: GA 7598 Calibration date: 1/11/13		N/A
Measurement datum: (GL) / Top of pipe / Other _____ Offset to GL (m): flush	Wind:	Data Collected By: Terraco		Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
WS 4	50 mm		17/6/13 12:34:00	Initial 1.3 Steady 2.2											2.91	2.95
			0		1008	-0.15		0	0	0.1	20.8	0	0			
			15					100+	21.0	6.2	5.5	24	0			
			30					100+	20.9	6.2	5.6	42	0			
			60					100+	12.2	3.0	14.1	26	0			
			90					100+	11.4	2.8	13.9	0	0			
			120					100+	10.9	3.5	13.4	0	0			
			180					100+	11.0	3.7	13.2	0	0			
			240					100+	11.0	3.7	13.0	0	0			
			300					100+	11.1	3.7	12.9	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
17/6/13	Terraco		26244

Contract: Glen Parva

Page: 4 of 29

Engineer:

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: overcast	Air Temperature: 14°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet	Equipment Used: GA 7598 Calibration date: 1/11/13		N/A
Measurement datum: GL / Top of pipe / Other _____ Offset to GL (m):	Wind:	Data Collected By: Terraco		Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
WS2	50 mm		17/6/13	Initial												
			12:59:00	Steady												
			0					0	0	0.1	20.8	0	0			
			15													
			30					could not locate borehole								
			60													
			90													
			120													
			180													
			240													
			300													
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
17/6/13	Terraco		26244

Contract: Glen Parva

Page: 5 of 29

Engineer:

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: overcast	Air Temperature: 14°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet	Equipment Used: GA7598 Calibration date: 1/11/13		N/A
Measurement datum: (GL) / Top of pipe / Other _____ Offset to GL (m): flush	Wind:	Data Collected By: Terraco		Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
WS1	50 mm		17/6/13	Initial 0.3											1.50	2.57
			13:17:00	Steady 0.3												
			0		1008	-0.48		0	0	0.1	20.8	0	0			
			15					0	0	2.7	18.9	0	0			
			30					0	0	3.2	17.5	7	0			
			60					0	0	3.5	17.1	0	0			
			90					0	0	3.5	16.9	0	0			
			120					0	0	3.6	16.9	0	0			
			180					0	0	3.6	16.9	0	0			
			240					0	0	3.6	17.0	0	0			
			300					0	0	3.6	17.0	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
17/6/13	Terraco		26244

Contract: Glen Dorva

Page: 6 of 29

Engineer:

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: overcast	Air Temperature: 14°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet	Equipment Used: GA7598 Calibration date: 1/11/13		N/A
Measurement datum: (GL) / Top of pipe / Other _____ Offset to GL (m): flush	Wind:	Data Collected By: Terrace		Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
WS 7	50 mm		17/6/13	Initial 0.0											1.74	2.90
			13:28:00	Steady 0.0												
			0		1008	-0.15		0	0	0.1	20.8	0	0			
			15					0	0	0.1	20.8	0	0			
			30					0	0	0.1	20.6	0	0			
			60					0	0	0	20.8	0	0			
			90					0	0	0	20.8	0	0			
			120					0	0	0	20.9	0	0			
			180					0	0	0	20.8	0	0			
			240					0	0	0	20.8	0	0			
			300					0	0	0	20.8	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
17/6/13	Terrace		26244
Contract: Glen Parva			Page: 7 of 29 / Engineer:

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: overcast	Air Temperature: 14°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet	Equipment Used: GA7598 Calibration date: 1/6/13		N/A
Measurement datum: GL / Top of pipe / (Other) TOP OF HWKS	Offset to GL (m): 16 cm	Wind:	Data Collected By: Terraco	Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
BH 15	19 mm		17/6/13	Initial 0.0												
			13:40:00	Steady 0.0												
			0		1008	-0.30		0	0	0.1	20.8	0	0			
			15					0	0	8.1	10.7	0	0			
			30					0	0	9.4	8.1	0	0			
			60					0	0	9.7	7.9	13	0			
			90					0	0	9.7	7.8	0	0			
			120					0	0	9.7	7.9	0	0			
			180					0	0	9.6	8.2	0	0			
			240					0	0	9.6	8.3	0	0			
			300					0	0	9.6	8.4	8	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
17/6/13	Terraco		26244
Contract: Glen Parva			Page: 8 of 29 / Engineer:

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: overcast	Air Temperature: 14c	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet	Equipment Used: GA7598 Calibration date: 1/11/13		N/A
Measurement datum: GL / Top of pipe / (Other) TOP OF HWKS	Offset to GL (m): 16cm	Wind:	Data Collected By: Terraco	Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
BH 1M	19 mm		17/6/13	Initial 0.0												
			13:46:00	Steady 0.0												
			0		1008	-0.46		0	0	0.1	20.8	0	0			
			15					0	0	0.1	21.0	0	0			
			30					0	0	0.1	20.9	0	0			
			60					0	0	0	20.9	0	0			
			90					0	0	0	20.9	0	0			
			120					0	0	0	20.9	0	0			
			180					0	0	0	20.9	0	0			
			240					0	0	0	20.9	0	0			
			300					0	0	0	20.9	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
17/6/13	Terraco		26244

Contract: Glen Parva

Page: 9 of 29

Engineer: GT

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: overcast	Air Temperature: 16c	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet	Equipment Used: GA7S98 Calibration date: 1/11/13		N/A
Measurement datum: GL / Top of pipe / Other TOP OF HOKS Offset to GL (m): 16cm	Wind:	Data Collected By: Terraco		Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
BH 1D	19 mm		17/6/13 13:51:00	Initial -0.6 Steady 0.0												
			0		1008	-0.44		0	0	0.1	20.8	0	0			
			15					0	0	0.1	20.9	2	0			
			30					0	0	0	20.9	0	0			
			60					0	0	0	20.9	0	0			
			90					0	0	0	20.9	0	0			
			120					0	0	0	20.9	0	0			
			180					0	0	0	20.9	0	0			
			240					0	0	0	20.9	0	0			
			300					0	0	0	20.9	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
17/6/13	Terraco		26244
Contract: Glen parva			Page: 10 of 29 / Engineer:

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: overcast	Air Temperature: 14°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet	Equipment Used: GA7598 Calibration date: 1/6/13		N/A
Measurement datum: GL / Top of pipe / (Other) TOP OF HWKS	Wind:	Data Collected By: Terraco		Sampling method:
Offset to GL (m): 20cm				

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
BH 2S	19 mm		17/6/13 13:58:00	Initial 0.0 Steady 0.0												
			0		1008	-0.36		0	0	0.1	20.8	0	0			
			15					0	0	2.3	17.0	36	0			
			30					0	0	2.6	16.5	0	0			
			60					0	0	3.0	15.9	52	0			
			90					0	0	3.3	15.7	55	0			
			120					0	0	3.3	15.9	45	0			
			180					0	0	3.3	15.8	7	0			
			240					0	0	3.3	15.9	59	0			
			300					0	0	3.3	15.9	54	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
17/6/13	Terraco		26244
Contract: Glen Parva			Page: 11 of 29 / Engineer:

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: overcast	Air Temperature: 16°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet	Equipment Used: GA7598 Calibration date: 1/11/13		N/A
Measurement datum: GL / Top of pipe / (Other) Top of Hwks	Offset to GL (m): 20cm	Wind:	Data Collected By: Terraco	Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
BH 2m	19 mm		17/6/13 14:04:00	Initial 0.0 Steady 0.0												
			0		1008	-0.46		0	0	0.1	20.8	0	0			
			15					0	0	0	20.9	10	0			
			30					0	0	0	20.9	12	0			
			60					0	0	0	20.9	0	0			
			90					0	0	0	20.9	0	0			
			120					0	0	0	20.9	0	0			
			180					0	0	0	20.9	0	0			
			240					0	0	0	20.9	0	0			
			300					0	0	0	20.9	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
17/6/13	Terraco		262FF
Contract: Glan Parra			Page: 12 of 29 / Engineer:

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Overcast	Air Temperature: 14°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet	Equipment Used: GA 7598 Calibration date: 1/11/13		N/A
Measurement datum: GL / Top of pipe / (Other) TOP OF HOOKS	Offset to GL (m): 20cm	Wind:	Data Collected By: Terraco	Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
BH 2D	19 mm		17/6/13 14:10:00	Initial 20.1 Steady 0.0												
			0		1008	-0.59		0	0	0.1	20.8	0	0			
			15					0	0	0	20.9	0	0			
			30					0	0	0	20.9	0	0			
			60					0	0	0	20.9	1	0			
			90					0	0	0	20.9	0	0			
			120					0	0	0	20.9	0	0			
			180					0	0	0	20.9	0	0			
			240					0	0	0	20.9	0	0			
			300					0	0	0	20.9	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
17/6/13	Terraco		26244

Contract: Glen Parva

Page: 13 of 29

Engineer:

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: overcast	Air Temperature: 16°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet	Equipment Used: GA7598 Calibration date: 1/11/13		N/A
Measurement datum: GL / Top of pipe / Other TOP OF HWKS	Wind:	Data Collected By: Terraco		Sampling method:
Offset to GL (m): 11cm				

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
BH 35	19 mm		17/6/13 14:21:00	Initial 0.0 Steady 0.0												
			0		1008	-0.37		0	0	0.1	20.8	0	0			
			15					0	0	0.3	20.2	0	0			
			30					0	0	0.2	20.9	23	0			
			60					0	0	0.2	20.9	0	0			
			90					0	0	0.1	20.9	0	0			
			120					0	0	0.2	20.9	0	0			
			180					0	0	0.2	20.9	0	0			
			240					0	0	0.2	20.9	0	0			
			300					0	0	0.2	20.9	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
17/6/13	Terraco		26244

Contract: Glen Parva

Page: 14 of 29

Engineer:

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: overcast	Air Temperature: 14c	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet	Equipment Used: GA7598 Calibration date: 1/11/13		N/A
Measurement datum: GL / Top of pipe / (Other) TOP OF HOOKS	Wind:	Data Collected By: Terraco		Sampling method:
Offset to GL (m): 11cm				

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
BH 3D	19 mm		17/6/13	Initial 0.0												
			14:26:00	Steady 0.0												
			0		1008	-0.36		0	0	0.1	20.8	0	0			
			15					0	0	0.2	20.6	0	0			
			30					0	0	0	20.9	0	0			
			60					0	0	0	20.9	0	0			
			90					0	0	0	20.9	0	0			
			120					0	0	0	20.9	0	0			
			180					0	0	0	20.9	0	0			
			240					0	0	0	20.9	0	0			
			300					0	0	0	20.9	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
17/6/13	Terraco		26244

Contract: Glen Parva

Page: 15 of 29

Engineer: LT

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: overcast	Air Temperature: 14°c	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet	Equipment Used: GA7598 Calibration date: 1/11/13		N/A
Measurement datum: GL / Top of pipe / (Other) TOPOF HWKS	Offset to GL (m): 21cm	Wind:		Sampling method:
		Data Collected By: Terraco		

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
BH 45	19 mm		17/6/13	Initial 0.0												
			14:35:00	Steady 0.0												
			0		1008	-0.28		0	0	0.1	20.8	0	0			
			15					0	0	0.1	20.7	0	0			
			30					0	0	0	20.7	0	0			
			60					0	0	0	20.9	5	0			
			90					0	0	0	20.9	0	0			
			120					0	0	0	20.9	0	0			
			180					0	0	0	20.9	0	0			
			240					0	0	0	20.9	0	0			
			300					0	0	0	20.9	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
17/6/13	Terraco		26244
Contract: Glen Parva			Page: 16 of 29 / Engineer:

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: overcast	Air Temperature: 14oC	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet	Equipment Used: GA7598 Calibration date: 1/11/13		N/A
Measurement datum: GL / Top of pipe / (Other) TOP OF HWKS	Offset to GL (m): 21cm	Wind:		Sampling method:
		Data Collected By: Terraco		

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
BH 4m	19 mm		17/6/13	Initial 0.0												
			14:42:00	Steady 0.0												
			0		1008	-0.35		0	0	0.1	20.8	0	0			
			15					0	0	0	20.9	0	0			
			30					0	0	0	20.9	9	0			
			60					0	0	0	20.8	0	0			
			90					0	0	0	20.8	0	0			
			120					0	0	0	20.8	0	0			
			180					0	0	0	20.8	0	0			
			240					0	0	0	20.8	0	0			
			300					0	0	0	20.8	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
17/6/13	Terraco		26244

Contract: Glen Parva

Page: 17 of 29

Engineer:

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: overcast	Air Temperature: 14oC	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet	Equipment Used: GA7598 Calibration date: 1/11/13		N/A
Measurement datum: GL / Top of pipe / (Other) TOP OF HUSKS Offset to GL (m): 21cm	Wind:	Data Collected By: Terraco		Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
BH 4D	19 mm		17/6/13 14:47:00	Initial 0.0 Steady 0.0												
			0		1008	-0.29		0	0	0.1	20.8	0	0			
			15					0	0	0	20.8	0	0			
			30					0	0	0	20.8	14	0			
			60					0	0	0	20.7	0	0			
			90					0	0	0	20.7	8	0			
			120					0	0	0	20.8	4	0			
			180					0	0	0	20.6	0	0			
			240					0	0	0	20.7	10	0			
			300					0	0	0	20.6	23	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
17/6/13	Terraco		26244
Contract: Glen Parva			Page: 18 of 29 / Engineer:

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: overcast	Air Temperature: 14c	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet	Equipment Used: GA7598 Calibration date: 1/11/13		N/A
Measurement datum: TOP OF HOLES GL / Top of pipe / (Other)	Offset to GL (m): 22cm	Wind:	Data Collected By: Terraco	Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
BH SS	19 mm		17/6/13	Initial -21.2												
			14:53:00	Steady -0.3												
			0		1008	-0.54		0	0	0.1	20.8	0	0			
			15					0	0	0	20.9	13	0			
			30					0	0	0	20.9	0	0			
			60					0	0	0	20.9	0	0			
			90					0	0	0	20.9	0	0			
			120					0	0	0	20.9	2	0			
			180					0	0	0	20.9	0	0			
			240					0	0	0	20.9	0	0			
			300					0	0	0	20.9	1	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
17/6/13	Terraco		26244

Contract: Glan Para

Page: 19 of 29

Engineer:

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: overcast	Air Temperature: 16oc	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet	Equipment Used: GA7598 Calibration date: 1/11/13		N/A
Measurement datum: GL / Top of pipe / (Other) TOP OF HWKS	Offset to GL (m): 22cm	Wind:	Data Collected By: Terraco	Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
BH 5m	19 mm		17/6/13	Initial 0.0												
			14:59:00	Steady 0.0												
			0		1008	-0.43		0	0	0.1	20.8	0	0			
			15					0	0	0	20.9	0	0			
			30					0	0	0	20.9	0	0			
			60					0	0	0	20.9	0	0			
			90					0	0	0	20.9	0	0			
			120					0	0	0	20.9	0	0			
			180					0	0	0	20.9	0	0			
			240					0	0	0	20.9	0	0			
			300					0	0	0	20.9	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
17/6/13	Terraco		26244
Contract: Glen Parva		Page: 20 of 29	Engineer:

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Overcast	Air Temperature: 14°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet	Equipment Used: GA 7598 Calibration date: 1/11/13		N/A
Measurement datum: GL / Top of pipe / (Other) TOP OF HOLES Offset to GL (m): 22cm	Wind:	Data Collected By: Terraco		Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
BH 5D	19 mm		17/6/13	Initial -2.0												
			15:08:00	Steady -1.2												
			0		1008	-0.52		0	0	0.1	20.8	0	0			
			15					0	0	0	20.8	0	0			
			30					0	0	0	20.9	0	0			
			60					0	0	0	20.9	0	0			
			90					0	0	0	20.9	0	0			
			120					0	0	0	20.8	0	0			
			180					0	0	0	20.9	0	0			
			240					0	0	0	20.9	0	0			
			300					0	0	0.1	20.9	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
17/6/13	Terraco		2G244
Contract: Glen Parva			Page: 21 of 29 / Engineer: CT

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Overcast	Air Temperature: 14°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: wet	Equipment Used: GA7598 Calibration date: 1/11/13		N/A
Measurement datum: GL / Top of pipe / (Other) TOP OF KERBS Offset to GL (m): 30cm	Wind:	Data Collected By: Terraco		Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
WS108	50 mm		17/6/13	Initial 0.0											2.92	2.97
			15:33:00	Steady 0.0												
			0		1008	-0.32		0	0	0.1	20.8	0	0			
			15					0	0	0.2	19.3	1	0			
			30					0	0	0.2	19.3	67	0			
			60					0	0	0.2	19.3	0	0			
			90					0	0	0.2	19.3	0	0			
			120					0	0	0.2	18.9	81	0			
			180					0	0	0.2	18.9	68	0			
			240					0	0	0.2	19.0	45	0			
			300					1	0.1	0.2	18.9	3	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
17/6/13	Terraco		26244

Contract: Glen Parva

Page: 22 of 29

Engineer: VT

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: overcast	Air Temperature: 16°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: dry	Equipment Used: GA7598 Calibration date: 1/11/13		N/A
Measurement datum: GL / Top of pipe / (Other) TOP OF HWKS Offset to GL (m): 13cm	Wind:	Data Collected By: Terraco		Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
WS 106	50 mm		17/6/13 15:48:00	Initial 0.0 Steady 0.0											2.89	2.89 DRY
			0	•	1008	-0.42		0	0	0.1	20.8	0	0			
			15					0	0	1.3	19.8	0	0			
			30					0	0	1.5	19.6	13	0			
			60					0	0	1.5	19.6	0	0			
			90					0	0	1.6	19.5	0	0			
			120					0	0	1.6	19.4	0	0			
			180					0	0	1.6	19.3	0	0			
			240					0	0	1.6	19.3	0	0			
			300					0	0	1.8	19.2	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
17/6/13	Terraco		26244

Contract: Glen Parva

Page: 23 of 29

Engineer: VT

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: overcast	Air Temperature: 14°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: dry	Equipment Used: GA7598 Calibration date: 1/11/13		N/A
Measurement datum: GL / Top of pipe (Other) TOP OF HWKS	Wind:	Data Collected By: Terraco		Sampling method:
Offset to GL (m): 12cm				

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
WS 105	50 mm		17/6/13	Initial 0.0											2.03	2.03
			16:00:00	Steady 0.0												DRY
			0		1008	-0.50		0	0	0.1	20.8	0	0			
			15					0	0	0.7	20.1	0	0			
			30					0	0	0.8	20.0	0	0			
			60					0	0	0.9	19.9	74	0			
			90					1	0.1	1.0	19.7	0	0			
			120					3	0.2	1.1	19.7	51	0			
			180					6	0.3	1.5	18.9	75	0			
			240					6	0.3	1.7	18.6	60	0			
			300					8	0.4	1.9	18.4	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
17/6/13	Terraco		26244

Contract: Glenparva

Page: 24 of 29

Engineer:

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: overcast	Air Temperature: 14oC	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: dry	Equipment Used: GA7598 Calibration date: 1/11/13		N/A
Measurement datum: GL / Top of pipe / (Other) Top of HWKS	Wind:	Data Collected By: Terraco		Sampling method:
Offset to GL (m): 5cm				

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
WS 107	50 mm		17/6/13	Initial 0.0											2.94	2.94
			16:22:00	Steady 0.0												dry
			0		1008	-0.27		0	0	0.1	20.8	0	0			
			15					●2	0.1	0.3	20.9	34	0			
			30					3	0.2	0.3	20.9	37	0			
			60					3	0.2	0.3	20.9	13	0			
			90					3	0.2	0.3	20.9	23	0			
			120					4	0.2	0.3	20.9	11	0			
			180					4	0.2	0.3	20.8	30	0			
			240					5	0.3	0.3	20.9	13	0			
			300 ✓					5	0.3	0.3	20.9	2	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
17/6/13	Terraco		26244

Contract: Glan Pava

Page: 25 of 29

Engineer:

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: overcast	Air Temperature: 14°c	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: dry	Equipment Used: 947598 Calibration date: 1/11/13		N/A
Measurement datum: GL / Top of pipe / (Other) Top of Hwks	Offset to GL (m): 27cm	Wind:	Data Collected By: Terraco	Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
WS 104	50 mm		17/6/13	Initial 0.0											2.65	2.91
			16:33:00	Steady 0.0												
			0		1008	-0.40		0	0	0.1	20.8	0	0			
			15					0	0	0.1	19.9	0	0			
			30					0	0	0.1	19.9	17	0			
			60					0	0	0.2	19.5	0	0			
			90					0	0	0.2	19.4	0	0			
			120					0	0	0.2	18.8	0	0			
			180					0	0	0.2	18.7	13	0			
			240					0	0	0.2	18.5	13	0			
			300					0	0	0.2	18.5	0	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
17/6/13	Terraco		26244
Contract: Glen Parva			Page: 26 of 29 / Engineer:

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: overcast	Air Temperature: 14oC	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: dry	Equipment Used: GA7598 Calibration date: 1/11/13		N/A
Measurement datum: GL / Top of pipe / Other TOP OF HWKS — Offset to GL (m): 12cm	Wind:	Data Collected By: Terraco		Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
WS 103	50 mm		17/6/13	Initial 4.3											2.90	2.90
			16:47:00	Steady 5.4												Dry
			0		1008	-0.21		0	0	0.1	20.8	0	0			
			15					100+	40.2	5.1	0	5	0			
			30					100+	40.1	5.1	0	52	0			
			60					100+	40.2	5.1	0	0	0			
			90					100+	40.5	5.1	0	0	0			
			120					100+	40.4	5.1	0	0	0			
			180					100+	40.4	5.1	0	0	0			
			240					100+	40.4	5.1	0	0	0			
			300					100+	40.4	5.1	0	0	0			
			360													
			420													

RSK GROUP PLC	Compiled Date	Compiled By	Checked	Contract Ref:
	17/6/13	Terraco		26244
	Contract: Glen Parva			Page: 27 of 29 — Engineer:

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: Overcast	Air Temperature: 14oC	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: dry	Equipment Used: GA7598 Calibration date: 1/11/13		N/A
Measurement datum: TOPOC HWKS GL / Top of pipe / (Other)	Offset to GL (m): 11cm	Wind:	Data Collected By: Terraco	Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
WS 102	50 mm		17/6/13	Initial 0.1											2.04	2.04
			17:01:00	Steady 0.1												DRY
			0		1008	-0.47		0	0	0.1	20.8	0	0			
			15					100+	36.2	6.6	1.2	41	0			
			30					100+	37.6	6.8	0.1	48	0			
			60					100+	38.5	6.9	0	57	0			
			90					100+	38.6	7.0	0	58	0			
			120					100+	39.1	7.0	0	59	0			
			180					100+	39.5	7.0	0	0	0			
			240					100+	39.4	7.1	0	0	0			
			300					100+	39.4	7.1	0	19	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
17/6/13	Terraco		26244

Contract: Glen Parva

Page: 28 of 29

Engineer:

Template release: 18/12/2010 21:18:45

GAS MONITORING RESULTS - FIELD SHEET

Pre-Testing Remarks:	Weather: overcast	Air Temperature: 14°C	Post-Testing Remarks	Samples taken
Pressure: RISING CONSTANT FALLING	Ground Conditions: dry	Equipment Used: GA7598 Calibration date: 1/11/13		N/A
Measurement datum: GL / Top of pipe / (Other) Top of Hwks	Offset to GL (m): 19cm	Wind:	Data Collected By: Terraco	Sampling method:

Exploratory Position ID	Pipe ref & Pipe diameter	Monitoring Round / Test Number	Date & Time of Monitoring dd/mm/yyyy hh:mm:ss	Gas Flow (l/hr)	Atmos Pressure (mb)	Differential Pressure (mb)	Borehole Pressure (mb)	LEL (%)	Methane (%/vol)	Carbon Dioxide (%/vol)	Oxygen (%/vol)	Carbon Monoxide (ppm)	Hydrogen Sulphide (ppm)	PID (ppm)	Depth to water (m)	Depth to well base (m)
WS 101	50 mm		17/6/13	Initial 0.4											2.98	2.98
			17:16:00	Steady 0.2												dry
			0		1008	-0.59		0	0	0.1	20.8	0	0			
			15					100+	28.1	0.5	0	55	0			
			30					100+	28.2	0.5	0	58	0			
			60					100+	28.3	0.5	0	62	0			
			90					100+	28.4	0.5	0	41	0			
			120					100+	28.5	0.5	0	59	0			
			180					100+	28.7	0.5	0	58	0			
			240					100+	28.7	0.5	0	35	0			
			300					100+	28.7	0.5	0	60	0			
			360													
			420													

RSK GROUP PLC

Compiled Date	Compiled By	Checked	Contract Ref:
17/6/13	Terraco		26244
Contract: Glen Parva			Page: 29 of 29 / Engineer: LA

Template release: 18/12/2010 21:18:45

CERTIFICATION OF CALIBRATION

Geotech
A subsidiary of LANDTEC

ISSUED BY: GEOTECH LABORATORY
Date Of Calibration: 30-Apr-2013
Certificate Number: GA07598_1/10932

Approved by Signatory

Martin Moloney
Laboratory Inspection

GEOTECHNICAL INSTRUMENTS (UK) LTD
Sovereign House, Queensway, Leamington Spa, WarwickShire, CV31 3JR United Kingdom
Tel: +44 (0) 1926 338111 Fax: +44 (0) 1926 338110
E-mail: service@geotech.co.uk www.geotechuk.com

Customer: ***RSK Argus Environmental Limited***
Accounts Payable
Spring Lodge
172 Chester Road
Helsby
Cheshire
WA6 0AR
UNITED KINGDOM

Description: Gas Analyser

Model: GA2000Plus
Serial Number: GA07598

Methane (CH4)	
Certified Gas (%)	**Instrument Reading (%)**
50.0	49.0
15.0	14.9
5.1	4.8

Carbon Dioxide (CO2)	
Certified Gas (%)	**Instrument Reading (%)**
50.0	50.0
15.0	14.6
5.0	4.8

Oxygen (O2)	
Certified Gas (%)	**Instrument Reading (%)**
20.9	20.9

Barometer (mbar)	
Reference	**Reading**
1019	1019

Additional Gas Cells		
Gas	**Certified Gas (ppm)**	**Instrument Reading (ppm)**
H2	1012	LOW
CO	500.0	507.0
H2S	51.3	51.1

All concentrations are molar.
CH4, CO2 readings recorded at : 30.9 °C
O2 readings recorded at : 22.1 °C
Barometric Pressure : 1019 mbar

Method of Test: The analyser is calibrated in a temperature controlled chamber using reference gases, providing traceability of measurement to recognised international standards.

End of Certificate

APPENDIX H
RISK ASSESSMENT METHODOLOGY

CLR11 outlines the framework to be followed for risk assessment in the UK. The framework is designed to be consistent with UK legislation and policies including planning. Under CLR11, three stages of risk assessment exist: preliminary, generic quantitative and detailed quantitative. An outline conceptual model should be formed at the preliminary risk assessment stage that collates all the existing information pertaining to a site in text, tabular or diagrammatic form. The outline conceptual model identifies potentially complete (termed possible) pollutant linkages (source–pathway–receptor) and is used as the basis for the design of the site investigation. The outline conceptual model is updated as further information becomes available, for example as a result of the site investigation.

Production of a conceptual model requires an assessment of risk to be made. Risk is a combination of the likelihood of an event occurring and the magnitude of its consequences. Therefore, both the likelihood and the consequences of an event must be taken into account when assessing risk. RSK has adopted guidance provided in CIRIA C552 for use in the production of conceptual models.

The likelihood of an event can be classified on a four-point system using the following terms and definitions based on CIRIA C552:

- highly likely: the event appears very likely in the short term and almost inevitable over the long term or there is evidence at the receptor of harm or pollution
- likely: it is probable that an event will occur or circumstances are such that the event is not inevitable, but possible in the short term and likely over the long term
- low likelihood: circumstances are possible under which an event could occur, but it is not certain even in the long term that an event would occur and it is less likely in the short term
- unlikely: circumstances are such that it is improbable the event would occur even in the long term.

The severity can be classified using a similar system also based on CIRIA C552. The terms and definitions relating to severity are:

- severe: short term (acute) risk to human health likely to result in ‘significant harm’ as defined by the Environment Protection Act 1990, Part IIA. Short-term risk of pollution of sensitive water resources. Catastrophic damage to buildings or property. Short-term risk to an ecosystem or organism forming part of that ecosystem (note definition of ecosystem in ‘Draft Circular on Contaminated Land’, DETR 2000)
- medium: chronic damage to human health (‘significant harm’ as defined in ‘Draft Circular on Contaminated Land’, DETR 2000), pollution of sensitive water resources, significant change in an ecosystem or organism forming part of that ecosystem (note definition of ecosystem in ‘Draft Circular on Contaminated Land’, DETR 2000)

- mild: pollution of non-sensitive water resources. Significant damage to crops, buildings, structures and services ('significant harm' as defined in 'Draft Circular on Contaminated Land', DETR 2000). Damage to sensitive buildings, structures or the environment
- minor: harm, not necessarily significant, but that could result in financial loss or expenditure to resolve. Non-permanent human health effects easily prevented by use of personal protective clothing. Easily repairable damage to buildings, structures and services.

Once the likelihood of an event occurring and its severity have been classified, a risk category can be assigned the table below.

		Consequences			
		Severe	**Medium**	**Mild**	**Minor**
Probability	**Highly likely**	Very high	High	Moderate	Moderate/low
	Likely	High	Moderate	Moderate/low	Low
	Low likelihood	Moderate	Moderate/low	Low	Very low
	Unlikely	Moderate/low	Low	Very low	Very low

Definitions of these risk categories are as follows together with an assessment of the further work that may be required:

- Very high: there is a high probability that severe harm could occur or there is evidence that severe harm is currently happening. This risk, if realised, could result in substantial liability; urgent investigation and remediation are likely to be required.
- High: harm is likely to occur. Realisation of the risk is likely to present a substantial liability. Urgent investigation is required. Remedial works may be necessary in the short term and are likely over the long term.
- Moderate: it is possible that harm could arise, but it is unlikely that the harm would be severe and it is more likely that the harm would be relatively mild. Investigation is normally required to clarify the risk and determine the liability. Some remedial works may be required in the longer term.
- Low: it is possible that harm could occur, but it is likely that if realised this harm would at worst normally be mild.
- Very low: there is a low possibility that harm could occur and if realised the harm is unlikely to be severe.