Taylor Wimpey Yorkshire

Kingstone School, Barnsley

Geo-environmental site assessment

301285

NOVEMBER 2013

RSK GENERAL NOTES

Project No.: 301285-02 (00)

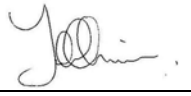
Title: Geo-environmental Site Assessment: Kingstone School, Barnsley

Client: Taylor Wimpey Yorkshire

Date: November 2013

Office: Castleford

Status: Draft

Author	Laura Alderman	**Technical reviewer**	John Harrison
Signature		Signature	
Date:	8 November 2013	Date:	8 November 2013
Project manager	Anthony Jordan	**Quality reviewer**	John Harrison
Signature		Signature	
Date:	8 November 2013	Date:	8 November 2013

CONTENTS

TABLES

FIGURES

APPENDICES

EXECUTIVE SUMMARY

Site description and proposed development	The site is located at Kingstone Road, Broadway, Barnsley. The site covers an area of approximately 9.7 hectares and comprises a former school that has now been demolished. It is being considered for redevelopment for private residential end-use.
Purpose of assessment	In accordance with the tender documentation, this assessment was undertaken to support a detailed planning application.
PRELIMINARY RISK ASSESSMENT	
Site Walkover	The site was visited on 8 May 2013 to undertake a site walkover, which revealed potentially contaminative activities were carried out on site. These were identified in the form of an electricity substation, made ground associated with a backfilled former quarry and potential asbestos containing materials associated with the demolition works. The site reconnaissance survey revealed potential ground stability issues associated with the three slopes situated in the north, centre and south of site.
History of site and surrounding area	The information reviewed indicates that the site was undeveloped agricultural land from around 1855, with a small opencast sandstone quarry situated in the eastern corner of the site. By 1894, the quarry was backfilled and by the 1960's, a school was built in the east corner of the site, which was extended from the 1970's to early 1990's. A small pond was identified on-site and was infilled by the 1970's. The nearest potentially contaminative land use is a former pit/quarry approximately 50m south of site, which was infilled with unknown material around 1960.
Geology, hydrogeology and hydrology	The bedrock underlying the site is the Pennine Middle Coal Measures Formation, which comprises sedimentary sequences of mudstone, siltstone and sandstone with coal seams. Made ground is expected associated with the backfilled former quarry, the demolition of site buildings and the infilled pond. The site is situated on a Secondary A Aquifer and the soils beneath site are indicated to have high leaching potential (U). The nearest current licensed groundwater abstraction relates to a licence for water bottling (potable water) situated approximately 680m to the north east of site. The Environment Agency indicates that the site does not lie within a currently designated groundwater Source Protection Zone. The nearest potential surface water receptors are two drains situated approximately 250m west and 270m south of site. The indicative floodplain map for the area, published by the Environment Agency, shows the site does not lie within a fluvial floodplain and is not at risk from flooding.

Potentially contaminative uses on site and in surrounding area	The historical research/present day use of site indicates that potentially contaminative activities have occurred/take place on the site, including the electricity substation, former agricultural use and localised made ground associated with the demolition of site buildings, the backfilled former quarry and infilled pond. Potentially contaminative activities in the area surrounding the site include an infilled pit/quarry 50m south and 320m north.
Conceptual model	Potentially complete pollutant linkages identified with a risk estimate of moderate or above include: 1. Direct contact of the potential contamination within the soils to site users 2. Permeation of contaminants from soils or from perched groundwater into underground potable water supply service pipes 3. Root uptake of potential contamination within soils to existing and proposed vegetation 4. Migration and build up of ground gas within on-site buildings. An intrusive investigation was recommended.
SITE ASSESSMENT	
Site investigation	An intrusive investigation consisting of twenty trial pits and nine window sample holes with laboratory analysis and two rounds of gas monitoring have been undertaken. The ground conditions encountered generally confirmed the stratigraphical succession described within the initial conceptual model. Made ground is present across most of the site with a typical thickness of 0.5m and with localised deeper made ground in the eastern half of site. The maximum proven depth of made ground was 2.20m, however some locations were terminated in made ground, so the actual depth is not known at these locations. The Pennine Middle Coal Measures formation was encountered from beneath the made ground or topsoil to a maximum proven depth of 3.45m and comprised mudstone and sandstone with residual clay (weathered rock) and coal. Coal was encountered as a 300mm seam in one location and as thin bands, pockets and gravel elsewhere. A slight diesel odour was detected in one location and a horizon of ash, clinker and tarmac gravel was encountered at two locations. A selection of soil samples were analysed for a general suite of contaminants. Shallow groundwater was encountered as slow seepages in two trial pits at depths ranging between 1.0m and 3.0m. Standing groundwater was present in two monitoring wells between 1.8m and 2.6m depth. Concentrations of ground gas were found to be generally low in the initial round of monitoring. However, it is considered that the monitoring carried out to date is insufficient to characterise adequately the ground gas

	regime.
Refined conceptual site model	The laboratory data were compared to generic assessment criteria to evaluate whether the pollutant linkages in the conceptual model require further consideration or mitigation measures. The linkages found to be complete and that may require mitigation measures are: 1. The direct contact of contamination within made ground to future site occupants with respect to localised PAH and localised TPH contamination. 2. The permeation of organic contaminants from soils or into underground potable water supply service pipes in certain areas of the site. 3. Migration and build up of ground gas within on-site buildings.
CONCLUSIONS AND RECOMMENDATIONS	
Environmental assessment and recommendations	A risk to future site users from localised TPH and PAH contamination in made ground has been identified. Therefore, it is recommended that a clean cover with a minimum thickness of 600mm be placed within garden areas. A relevant pollutant linkage exists associated with the permeation of organic contamination to plastic water supply pipes. It is recommended that either PE pipe incorporating a metal barrier is adopted, or further work is completed once the depth and route of the proposed water supply pipe is known to enable a full assessment of the suitability of pipe material. Assessment of the ground gas regime is ongoing with a further two rounds to be completed in line with the proposal. Currently the site is considered green.
Geotechnical assessment	The firm to very stiff natural soils (weathered Coal Measures) would be considered suitable to support shallow spread foundations (strip footings) across most of the site, however in areas where made ground is deeper (eastern half of site) trench fill foundations are considered suitable. Alternate foundation options will depend on final ground levels and may include piled and raft foundations; production of a final foundation design layout is proposed. The preliminary recommended sub-grade soil CBR value for road pavement design is 2.0% based on the ground conditions encountered. It is recommended that in-situ CBR determination be carried out targeting areas of hardstanding, prior to construction works, to confirm this value. The Aggressive Chemical Environment for Concrete (ACEC) Classification is indicated to be AC-1, with a Design Sulphate Class of DS-1 in accordance with BRE Special Digest 1; 2005 Concrete in

	aggressive ground (BRE, 2005).
Coal Bearing Strata and Mining	A potential risk exists associated with the combustibility of coal seams at shallow depths. It is recommended that coal seams be blinded off with concrete during construction of foundations to reduce the potential for combustion. An allowance should be made for blinding off seams in garden areas where coal seams are present at shallow depths, to reduce the potential for future combustion issues. It should also be noted that any proposed cutting of surface materials would bring coal seams closer to the surface, increasing the risk of issues relating to combustion. The PRA highlighted the potential for shallow workings, including evidence of suspected workings and disturbed ground indicated on BGS borehole records in the eastern part of site. Therefore, it is recommended that further investigation be undertaken.
The information given in this summary is necessarily incomplete and is provided for initial briefing purposes only. The summary must not be used as a substitute for the full text of the report.	

1 INTRODUCTION

RSK Environment Limited (RSK) was commissioned by Taylor Wimpey Yorkshire to carry out a geo-environmental assessment of land at Kingstone Road, Broadway, Barnsley. It is understood the site is being considered for residential redevelopment.

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

1.1 Background

The site is currently vacant and was formerly occupied by a school, which has now been demolished and the site cleared.

The production of this geo-environmental site assessment (ESA) document follows the Site Appraisal completed by RSK and reported under RSK reference 301285-01(00), dated June 2013. The site appraisal included a site walkover survey and an initial identification of geo-environmental liabilities associated with the site and recommendations for further work.

1.2 Objective

The objective of the work is to support a detailed planning application.

1.3 Scope

The scope of the investigation and layout of this report has been designed with consideration of CLR11 (Environment Agency, 2004a) and BS 10175: 2011 (BSI, 2011) and guidance on land contamination reports issued by the Environment Agency (EA) (2010a).

The project was carried out to an agreed brief as set out in RSK's proposal (ref. 301285/L01/AJ, dated 26 July 2013). The scope of works for the assessment included:

- preliminary risk assessment (PRA);
- a review of published geological data to assess ground stability
- an intrusive investigation with laboratory analysis plus subsequent ground gas monitoring
- development of a refined conceptual site model followed by generic quantitative risk assessment (GQRA) to assess complete pollutant linkages that may require the implementation of mitigation measures to facilitate redevelopment

- identification of outline mitigation measures for complete pollutant linkages or recommendations for further work
- interpretation of ground conditions and geotechnical data to provide recommendations with respect to foundations and infrastructure design
- a factual and interpretative report with recommendations for further works (i.e. undertake a remedial options appraisal to identify appropriate mitigation measures/produce a remedial implementation and verification plan) and/or remediation as necessary
- an assessment of the potential waste classification implications of soil arisings.

1.4 Existing reports

RSK has completed a Site Appraisal reference 301285-01(00), dated June 2013.

1.5 Limitations

The comments given in this report and the opinions expressed are based on the ground conditions encountered during the site work and on the results of tests made in the field and in the laboratory. However, there may be conditions pertaining to the site that have not been disclosed by the investigation and therefore could not be taken into account. In particular, it should be noted that there may be areas of made ground not detected due to the limited nature of the investigation or the thickness and quality of made ground across the site may be variable. In addition, groundwater levels and ground gas concentrations and flows may vary from those reported due to seasonal, or other, effects.

2 THE SITE

2.1 Site location and description

The site is located at Broadway (A6133) at National Grid reference 433000, 405540, as shown on Figure 1.

The area around the site is predominantly residential as detailed in Table 1.

Table 1: Site setting

To the north:	A warehouse and residential properties. Radio mast, sports ground and playing fields beyond.
To the east:	Broadway (A6133) and Keresforth Centre (Hospital) with residential properties beyond.
To the south:	Greenacre school, Keresforth Lodge, Keresforth House adjacent with fields beyond.
To the west:	A footpath borders the western site boundary with fields and the M1 motorway (1.5km) beyond.

The site covers approximately 9.7 hectares at an elevation of approximately 155m above Ordnance Datum (AOD) at its highest point in the north east and falls less than 5m before the western boundary. It comprises the following main attributes (some of which are shown on Figure 2):

- The site is accessed from Broadway, which borders the eastern site boundary;
- The site is a vacant demolished school which formerly comprised buildings in the eastern half of site and playing fields/ open land in the western half of site;
- Demolition rubble has been removed and the ground levelled with the majority of foundations and underground obstructions removed;
- The topography across most of the site is relatively level with the exception of three slopes. The slopes are situated to the northern site boundary, within the centre of site between the former school buildings and playing fields and in the south of site between an area of grassland and the playing fields;
- An electricity substation is situated in the east of site;
- A nursery remains in the eastern corner of site;

- A small backfilled former quarry is situated in the east of site; small pits were observed at this location during the site walkover with backfill materials including ash, clinker, broken bottles and ceramics;
- A small infilled pond is situated close to the western site boundary.

2.2 Proposed development

The site in question is being considered for residential redevelopment. RSK has been provided with a proposed development plan (drawing reference, D13 4718 SK02, dated 9 May 2013), which shows up to 166 two-three storey units with private gardens and public open space, with initial development occurring on the eastern half of the property over the footprint of the former school. The proposed layout has been reproduced as Figure 4.

3 PRELIMINARY RISK ASSESSMENT (PRA)

3.1 Site walkover

The site was visited on 8 May 2013 to undertake a site walkover. Photographs and the site walkover checklist are provided in Appendix C. Potentially significant environmental and geotechnical issues arising from the survey are summarised below.

3.1.1 Environmental

Potentially contaminative activities currently on the site include an electricity substation located in the eastern part of site, probably containing volumes of transformer oil. The historical assessment indicates that the substation was constructed in the 1960's, therefore leaks and spillages may have occurred over time. Historically equipment is likely to have contained oil containing polychlorinated biphenyls (PCB), which even if replaced, residual PCB may remain. Therefore this presents a potential significant source of contamination.

Asbestos containing materials (ACM) may have been present within former site buildings. The school building service plans show two asbestos service lines connecting the boiler house to the school across the north east of the site. These should have been removed correctly during demolition and the intended site investigation should provide evidence to confirm this.

An historic infilled quarry, observed as small pits with backfill material including ash, clinker, broken bottles and ceramics indicates potential for significant contamination.

Several waste materials are present on site (used gas cylinders, fencing, bricks/ breeze blocks, glass sheets, broken glass, cables, pipes, some general litter); most have a low potential for significant contamination.

Japanese knotweed is a non-native, highly invasive species and spreads via rhizomes (underground 'stems') rather than seeds in the UK. It is found in a range of habitats across the UK including roadsides, riverbanks and derelict land. Japanese knotweed was not identified during the site visit.

3.1.2 Geotechnical/ Structural

No potential issues were highlighted during the site reconnaissance survey.

3.2 Ground conditions

3.2.1 Geology

Published records (British Geological Survey, 1993) and records on the British Geological Survey website (October, 2013) for the area indicate the geology of the site to be characterised by the succession recorded in Table 2.

Table 2: Geology at the site

Geological unit	Description	Estimated thickness (m)
Pennine Middle Coal Measures Formation	Mudstone, siltstone, sandstone and coal	up to 650 m
Source: British Geological Survey Lexicon of Named Rock Units		
Notes: No superficial deposits are indicated.		

In addition to these natural strata, made ground was evident during the site walkover as backfill material associated with an historic quarry and is also anticipated as demolition material associated with the clearance of site buildings. The review of site history highlighted the presence of an infilled pond close to the western site boundary, indicating another area of localised made ground.

Several borehole records exist for the area of site where former buildings were located and a selection were downloaded from the British Geological Survey website to provide further information regarding ground conditions. Copies of these are included in Appendix D. The borehole records indicate localised made ground with an average thickness of 1m over soft to firm clay to a depth of around 2m underlain by weathered mudstone of the Pennine Middle Coal Measures. Where descriptions of made ground are provided, it is described as colliery waste. An area of deep made ground (around 4m thick) was encountered in one borehole (reference SE30NW194); no description is provided.

An inspection of the 1:50,000 solid geology map of the area shows the Barnsley coal seam to outcrop approximately 120m north east of the site and the Swallow Wood or Haigh Moor coal seam to outcrop approximately 30m to the south west of the site, trending north west to south east. They are indicated to dip in an easterly or north easterly direction, therefore the Swallow Wood or Haigh Moor seam is expected to subcrop beneath the site.

Coal seams are indicated on the borehole records from depths of between 0.5m and 9m and are indicated to be around 0.5m to 2.5m thick.

A fault is shown bordering the southern site boundary on the BGS geology map.

3.2.2 Radon

The environmental database report (Envirocheck report, July 2013) indicates that the site is located within a radon affected area where between 1 - 3% of homes are above the Action Level as defined by the Documents of the National Radiological Protection Board (Radon Atlas of England and Wales, NRPB-W26-2002) and therefore, at present, no radon protective measures are necessary in the construction of new dwellings or extensions.

3.2.3 Mining and quarrying

Evidence has been sought to identify any mining and quarrying operations, past and present, which have taken place in the vicinity of the site. The sources of information referenced in this element of the desk study include:

- an environmental database report
- old Ordnance Survey maps and plans
- geological maps
- a Coal Authority Mining Report (see Appendix E)

With reference to the above data the site was believed to lie within an area of possible coal mining activity.

A brief Coal Mining report commissioned from the Coal Authority is included in Appendix E. The report indicates that the site lies within the likely zone of influence on the surface from workings in eight coal seams at shallow to 330m depth, the last date of working being 1971. According to the report, ground movement resulting from these past workings should now have ceased.

There are two mine entries indicated on the eastern site boundary adjacent to the nursery as shown on Figure 2. No records were available regarding the depth of the shafts or treatment of the mine entries. According to the proposed layout plan, these are situated within an area where no development is planned, i.e. they are not indicated to be at the location of any proposed plots. Records are incomplete and therefore there may be other mineshafts in the vicinity of the site. Furthermore the Coal Authority Interactive maps show that the eastern corner and possibly the western corner of the site are within the ‘development high risk area’ meaning these areas are high risk for having been worked in the past.

The review of BGS borehole records on site indicates potential for shallow workings, described as horizons of suspected disturbed ground, suspected old workings, old workings and loose disturbed ground. These horizons were encountered at depths ranging from 2.5m to 9m.

Reserves of coal still exist in the area, which could potentially be worked in the future.

The records do not disclose any fault or line of weakness at the surface as having affected the stability of the property.

The property is within the boundary of an opencast site from which coal has been removed in the past. It is not within 200m of a current coal extraction site or within 800 metres of the boundary of an opencast site for which the Coal Authority is determining whether to grant, or has granted a licence to remove coal by opencast methods.

There are no reports or notice of the risk for the land being affected by subsidence (given under section 46 of the Coal Mining Subsidence Act 1991) or claims for damages to properties as a result of mining activity or damages caused by faulting or lines of weakness as a result of mining activities within 50m of the site since 31st October 1994.

The environmental database report (Envirocheck, September 2013) indicates one record of a BGS recorded mineral site on site, named Keresford House. This refers to the former opencast sandstone quarry located in the east of site, confirmed on historical maps.

3.2.4 Landfilling and land reclamation

Evidence has been sought to identify any landfilling or land reclamation operations, past and present, which have taken place in the vicinity of the site. The sources of information referenced in this element of the desk study include:

- environmental database report
- records held by local authority/EA
- old Ordnance Survey maps and plans (see Section 3.5)
- geological maps (see Section 3.2.1)
- a Coal Authority Mining Report (see Appendix E)

There are no records of landfill sites (former or current) within 250m of the site (i.e. within the planning consultation zone). The nearest historical landfill listed in the environmental database report (Envirocheck, September 2013) is located approximately 320m north. This was a disused quarry, which was also highlighted in the review of historical maps and is indicated to have been backfilled in the 1960's; the type of backfill material is not known. This landfill is considered as representing a low to moderate potential risk to the site from the generation and migration of landfill gases and/or leachate.

An area of deeper made ground is expected at the location of the backfilled former sandstone quarry in the east of site. The BGS borehole records discussed in section 3.2.1 confirm the presence of made ground as colliery fill in the eastern part of site; this is indicated to be 4m at its deepest. The anticipated type of backfill material and size of the former quarry indicates a low to moderate potential risk from the generation and migration of landfill gases and/or leachate.

Made ground associated with the demolition of site buildings is anticipated, however there is a low potential risk of ground gas generation from this type of material.

With reference to the on-site historical assessment (Section 3.5), an infilled pond is situated on site close to the western site boundary. The type of backfill material is not known, however the small size of the feature indicates a low potential risk of ground gas generation.

3.2.5 Ground gas

Given the likelihood of localised made ground beneath site, presumably with a low degradable organic content and the potential presence of shallow coal seams, the site is considered to have a moderate potential risk from ground gas.

3.3 Hydrogeology

3.3.1 Aquifer characteristics

The published geological map indicates that the site is located on a Secondary A Aquifer which contains 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 aquifer.

Based on the published geological map referred to above, the hydrogeology of the site is likely to be characterised by the presence of a semi-confined deep aquifer comprising the Pennine Middle Coal Measures Formation.

3.3.2 Vulnerability of groundwater resources

The soils beneath site are indicated to have high leaching potential (U). This is derived from soil information for restored mineral workings and urban areas. It is based on fewer observations than elsewhere, so a worst-case vulnerability classification is assumed until proven otherwise.

Soils of high leaching potential are those with little ability to attenuate diffuse source pollutants and where non-adsorbed diffuse source pollutants and liquid discharges can move rapidly to underlying strata or shallow groundwater.

3.3.3 Licensed groundwater abstraction

The environmental database, (Envirocheck Report, September 2013) indicates that the nearest licensed groundwater abstraction that is not listed as revoked is located approximately 680m to the north east of the site, operated by Sheldale Developments for water bottling (potable) purposes.

In terms of aquifer protection, the EA generally adopts a three-fold classification of source protection zones (SPZ) for public supply abstraction wells.

- zone 1 or ‘inner protection zone’ is located immediately adjacent to the groundwater source and is based on a 50-day travel time from any point below the water table to the source. It is designed to protect against the effects of human activity and biological/chemical contaminants that may have an immediate effect on the source
- zone 2 or ‘outer protection zone’ is defined by a 400-day travel time from a point below the water table to the source. The travel time is designed to provide delay and attenuation of slowly degrading pollutants.
- zone 3 or ‘total catchment’ is the area around the source within which all groundwater recharge is presumed to be discharged at the source.

Information available on the EA website indicates that the site does not lie within a currently designated groundwater Source Protection Zone.

3.4 Hydrology

3.4.1 Surface watercourses

There are no streams or drainage ditches on or adjacent to the site. Drains are situated approximately 250m west and 270m south of site and flow southwards towards Dodworth dyke, which is situated approximately 700m south west of site.

3.4.2 Surface water abstractions

No surface water abstractions were identified within a 2km radius of the site.

3.4.3 Site drainage

A proposed surface water drainage system that discharges to a sewer located on Broadway is shown on the proposed development layout.

3.4.4 Preliminary flood risk assessment

The indicative floodplain map for the area, published by the Environment Agency, shows that the site does not lie within a fluvial floodplain and is not at risk from flooding. However this report is not intended to replace a full hydrological study.

3.5 History of site and surrounding area

The history of the land-use and development of the site and surrounding area has been assessed based on the following sources:

- planning records
- historical maps within the environmental database from 1855 to 2013

- internet search
- aerial photography

Planning records held by Barnsley Council relating to the site date from 1 January 1993, when permission was granted for the construction of Kingpins Nursery (approved 20 April 2009, for a non-residential development). One subsequent record relates to the demolition of Kingstone School (granted to be left as vacant, 21 December 2012).

Copies of OS and County Series maps are included in the environmental database report in Appendix F. 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 earliest available map from 1855 shows a small opencast sandstone quarry situated in the eastern corner of the site and a number of minor roads/tracks dividing open fields of agricultural appearance. By 1894, the quarry is indicated to have been backfilled. By the 1960's, a school was built in the east corner of the site and was extended from the 1970's to early 1990's.

The nearest potentially contaminative land use is a former pit/quarry approximately 50m south of site, which was infilled with unknown material around 1960.

Table 3: Summary of historical development

Date	Land use/features on site	Land use/features in vicinity of site (of relevance to the assessment)
1855	Opencast sandstone quarry in eastern part of site and minor roads/tracks Pump shown close to southern site boundary	Agricultural land including farm properties
1893	Quarry inactive Small building shown in south of site Pond shown close to western site boundary	No significant change
1894	No significant change	Brick works and clay pit from around 500m north of site
1906	Quarry appears to be backfilled	No significant change
1907	No significant change	Old shaft indicated approximately 750m north of site
1931	Rough grassland at southern site boundary Pump no longer shown	Pit/ quarry 50m south
1932-1933	No significant change	Clay pit extended further south to

		approximately 300m north of site Other old shafts indicated approximately 750m north of site Old shaft shown approximately 440m south of site
1938	No significant change	Clay pit extended further south to approximately 250m north of site
1956	No significant change	Clay pit disused
1960	School with site buildings in east part of site, including a chimney and substation close to the eastern site boundary	Pit/ quarry 50m south shown to be backfilled
1965-1966	No significant change	Brick works appear disused
1970-1974	School has been redeveloped – extended to the north; tennis courts and regarding (slope) to the west of existing buildings Pond no longer shown	Land adjacent to south of site developed as a school
1978-1991	School extended further north (up to northern site boundary)	Former clay pit and brick works redeveloped with factories
1983	No significant change	Large works building approximately 30m north east of site
1993	No significant change	Works 30m north east larger and annotated as a warehouse
2006-2013	No significant change	No significant change

3.6 Sensitive land uses

The site lies within an area of adopted green belt and within a nitrate vulnerable zone.

No national or internationally designated sensitive land uses such as sites of special scientific interest (SSSI) were identified in the vicinity of the site.

3.7 Licences and permissions

No significant licences or permissions relating to the site or close to site were identified.

3.8 Initial conceptual model

The information presented above was used to compile an initial conceptual model. The identified potential sources of contamination and the associated contaminants and receptors have been considered along with the plausible pathways that may link them. The resulting potential pollutant linkages are considered below. The risk classification has been estimated in accordance with information in Appendix G.

3.8.1 Summary of potential contaminant sources

Potential sources and contaminants of concern are summarised in Table 4.

Table 4: Potential sources and types of contamination

Potential sources	Contaminants of concern
On-site historical	
Agricultural Land	Metals, fuels/oils (hydrocarbons), polycyclic aromatic hydrocarbons (PAH), inorganic chemicals, pH, asbestos
On-site present day	
Electricity substation	Metals, fuels/oils (hydrocarbons), PAH, PCB
Localised made ground associated with backfilled former quarry, infilled pond and historical development & demolition works	Metals, fuels/oils (hydrocarbons), PAH, inorganic chemicals, pH, asbestos, ground gases
Coal bearing strata and potential shallow workings	Ground gas including methane and carbon dioxide
Off-site	
Infilled pit/quarry 50m south and 320m north	Ground gas including methane and carbon dioxide, leachate.

The historical agricultural use of the site indicates a low potential for significant contamination. Localised contamination is anticipated in areas of made ground relating to the demolition of former site buildings, a backfilled former quarry and an infilled pond. An electricity substation which remains on site is a potential source of contamination from historical leaks/ spillages of oil from equipment.

A potential risk from ground gases exists associated with made ground, coal bearing strata and off-site infilled pits/ quarries.

3.8.2 Sensitive receptors

Sensitive receptors at this site include:

- future site occupants

- adjacent site users
- vegetation
- potable water supply pipes
- buildings and infrastructure
- groundwater beneath the site, both shallow and in the Secondary A aquifer
- surface water (drains 250m west and 270m south)

Please note that construction 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.

3.8.3 Summary of plausible pathways

The plausible pathways are summarised below:

- direct contact (soil, dust and vegetable ingestion, dermal contact, dust and fibre inhalation)
- ground gas and soil gas inhalation
- vertical and lateral migration including leaching
- root uptake
- chemical attack of infrastructure (including water supply pipes) and buildings.

3.8.4 Potentially complete pollutant linkages

The information presented in the above sections has been used to compile an outline conceptual model. The potential contaminants and receptors identified have been considered along with any possible pathways that might link them. The resultant pollutant linkages are considered in Table 5. The risk classification has been estimated in accordance with information in Appendix G.

Table 5: Risk estimation for potentially complete pollutant linkages

Potential source	Potential receptor	Possible pathway	Likelihood	Severity	Risk
Contaminants in site soils potentially containing metals, hydrocarbons, PAH, inorganic chemicals, asbestos, pH and PCB	Future site occupiers (residential)	Direct contact: inhalation (dust and vapours), ingestion and dermal contact	Likely	Medium	**Moderate.** Potential for site users to come into contact with soils if there is an absence of hardstanding or clean cover systems in place. However, contamination is anticipated to be localised relating to areas of made ground and an electricity substation
	Adjacent site users (residential adjacent to north and south)		Unlikely	Medium	**Low.** Potential exposure to site soils and airborne dust is possible where hard standing or clean cover systems are absent. However, dust is unlikely to be generated in sufficient quantities to cause a significant risk and land use indicates significant contamination is not expected to be site-wide.
	Vegetation (current on-site and proposed areas)	Root uptake	Low	Medium	**Moderate/Low.** Impacted shallow soil could inhibit plant growth. However, previous and current land use indicates significant contamination is not expected to be site-wide.
	Underground potable water supply service pipe	Direct contact: permeation	Likely	Medium	**Moderate.** Potential for permeation of water supply pipes from contaminants could create health risk. Owing to site location in historical coal mining area, coal/ash is likely to be present within shallow soils, indicating potential organic contamination including PAH. Some localised organic contamination may also exist associated with the electricity substation.
	Shallow groundwater	Leaching from made ground/ topsoil	Low	Mild	**Low.** Potentially impacted soils may be in direct contact with perched groundwater body. However, previous and current land use indicates significant contamination is not expected to be site-wide.

Potential source	Potential receptor	Possible pathway	Likelihood	Severity	Risk
Affected shallow groundwater as a result of historical or current leaching of soil contaminants	Surface water receptors (drains 250m west and 270m south)	Lateral and vertical migration	Low	Mild	**Low.** Some lateral migration may occur; however, this is likely to be minimal and the distance to the potential receptors is likely to facilitate attenuation.
	Groundwater in Secondary A aquifer	Vertical migration	Unlikely	Mild	**Very low.** The presence of low-permeability residual clay and mudstone indicated on BGS borehole records will inhibit downward migration of contaminants to depth in the underlying Secondary aquifer.
	Underground potable water supply service pipe	Permeation	Low	Mild	**Low.** The potential for the permeation of water supply pipes by contaminants could create a health risk. Some localised organic contamination associated with the electricity substation and PAH associated with coal/ash in the soil may be present within shallow groundwater.
Ground gases including carbon dioxide and methane derived from on site sources (made ground, coal bearing strata) and off-site sources (backfilled pit/ quarry and coal bearing strata)	Site occupiers (residential) and property	Migration of soil gas via permeable shallow geology and build up in enclosed building spaces	Low	Severe	**Moderate.** If a pathway exists there is a potential for a risk of asphyxiation (from carbon dioxide) if gas concentrations build up in confined spaces or explosion if there is a build up of methane.

The potential pollutant linkages with a risk of moderate or above that may drive site investigation works are:

1. Direct contact of the potential contamination within the soils to site users
2. Permeation of contaminants from soils or from perched groundwater into underground potable water supply service pipes
3. Root uptake of potential contamination within soils to existing and proposed vegetation
4. Migration and build up of ground gas within on-site buildings.

4 SITE INVESTIGATION METHODOLOGY

RSK carried out intrusive investigation work and subsequent ground gas and groundwater monitoring between 23 September and 28 October 2013 to further investigate the potential pollutant linkages identified in the outline conceptual model and to inform geotechnical constraints.

4.1 Sampling strategy and methodology

The techniques adopted for the investigation have been chosen considering the anticipated ground conditions, existing land use and the proposed development.

The trial pit investigation conducted comprised the mechanical excavation of twenty trial pits to a maximum depth of 2.8m below ground level (bgl), which enabled assessment of the shallow ground conditions across the site and the collection of disturbed samples for geotechnical and chemical analysis. This method also enabled in situ testing to be undertaken. The undrained shear strength of cohesive soil was measured using a hand shear vane where suitable arisings were recovered.

The window sample investigation conducted comprised sinking ten shallow boreholes to a maximum depth of 3.45m bgl. This enabled standard penetration tests (SPT) to be undertaken at selected locations, the collection of disturbed samples for environmental analysis and the installation of shallow ground gas and groundwater monitoring wells at selected locations.

4.1.1 Health and safety considerations

Before starting site work, service plans were consulted and all positions were checked and cleared of underground services using electromagnetic (CAT and Genny) techniques by an RSK engineer. A permit to dig system was in operation.

4.1.2 Investigation locations

The following site work was carried out between 23 and 24 September 2013:

- trial pit investigation (TP01 to TP20)
- window sample investigation (PH01 to PH09)

The investigation and the soil descriptions were carried out in general accordance with ‘BS 5930:1999. Code of Practice for Site Investigations’ (BSI, 1999). The exploratory hole records are presented in Appendix H.

The locations of the intrusive investigations are shown in Figure 5. The rationale for these locations is given in Table 6. The investigation included non-targeted locations to enable statistical analysis to be undertaken as per the rationale table.

Table 6: Exploratory hole location rationale

Exploratory hole number	Location	Rationale
PH1 to PH9	General spread in the area of the proposed properties	To provide general coverage of the site and to enable six monitoring wells to be installed in shallow strata
PH1, TP2	East of site, adjacent to electricity substation	To investigate potential contamination close to the substation
PH2, PH3	East of site, in the vicinity of backfilled former quarry	To investigate made ground and potential contamination in the location of the backfilled former quarry
PH4, PH8, PH9, TP1, TP3, TP8, TP9, TP10, TP11, TP12, TP13, TP14	East half of site	To investigate made ground associated with demolition of former school
PH5, PH5A, TP15	Close to western site boundary, in the vicinity of infilled pond	To investigate made ground and potential contamination in the location of the infilled pond
PH6, PH7, TP4, TP5, TP6, TP7, TP16, TP17, TP18, TP19, TP20	General spread across site	To provide general coverage of the site

The investigation points were located using a handheld GPS. Approximate ground levels at the exploratory hole locations have been determined using the topographical survey drawing and are shown on the exploratory hole records.

4.1.3 Soil sampling, in-situ testing and laboratory analysis

Soil samples were collected from each stratum encountered at a range of depths across the site to facilitate geotechnical and chemical laboratory analysis. Soil samples were collected in containers appropriate to the anticipated testing suite required. Samples were stored in accordance with the RSK quality procedures to maintain sample integrity and preservation, and to minimise the chance of cross contamination.

Thirty-nine samples were taken and are recorded, along with their depths, on the exploratory hole logs in Appendix H. The samples were transported to the laboratory in chilled cool boxes. Laboratory chain of custody forms can be provided if required. The testing was scheduled to provide general coverage of the site in terms of analytes, including samples of topsoil, made ground and natural ground for metals, total petroleum hydrocarbon (TPH), polycyclic aromatic hydrocarbon (PAH), polychlorinated biphenyls (PCB), acidity/alkalinity and sulphate. Asbestos screens were undertaken in the samples

of made ground only, as it was not expected to occur naturally in the anticipated geological strata. One bulk sample of potentially asbestos containing material was analysed for identification.

SPTs were carried out at regular intervals of 1m in selected window sample holes. The test results are given on the window sample hole logs presented in Appendix H. Disturbed samples were taken from each stratum encountered to facilitate subsequent geotechnical analysis.

4.1.4 Groundwater monitoring and levelling

Depths to groundwater were recorded using an electronic dip meter on 3 October 2013 and 28 October 2013. The monitoring results are given in Appendix I.

4.1.5 Groundwater developing, sampling and analysis

Groundwater samples were not taken as part of this investigation.

4.1.6 Ground gas monitoring

Two rounds of gas monitoring have been undertaken and a further two monitoring rounds are scheduled. Further monitoring rounds will aim to include periods of low and/or falling atmospheric pressures and after and during rainfall.

An infrared gas meter was used to measure gas flow, the concentrations of carbon dioxide (CO_2), methane (CH_4) and oxygen (O_2) in percentage by volume, and the hydrogen sulphide (H_2S) and carbon monoxide (CO) in parts per million. Initial and steady state concentrations were recorded.

In addition, the atmospheric pressure before and during monitoring, and the weather conditions were recorded.

All the monitoring results to date and the temporal conditions are in Appendix I and are discussed in Section 5.2.

4.1.7 Surface water sampling

Surface water sampling was not undertaken as part of this investigation.

5 GROUND CONDITIONS

The results of the intrusive investigation and subsequent laboratory analysis undertaken are detailed below. The descriptions of the strata encountered, notes regarding visual or olfactory evidence of contamination, list of samples taken, field observations of soil and groundwater, in-situ testing and details of monitoring well installations are included on the exploratory hole records presented in Appendix H.

5.1 Soil

The exploratory holes revealed that the site is underlain by a variable thickness of made ground over Pennine Middle Coal Measures. This confirms the stratigraphical succession described within the initial conceptual model. For the purpose of discussion, the ground conditions are summarised in Table 7 and the strata discussed in subsequent subsections

Table 7: General succession of strata encountered

Strata	Exploratory holes encountered	Depth to top of stratum m bgl	Thickness (m)
Topsoil	PH2, PH5, PH5A, PH9, TP10, TP11, TP12, TP15, TP16, TP17, TP18, TP19, TP20	0	0.15 - 0.25
Made ground	All locations except PH5, PH5A, TP10, TP11, TP12, TP15, TP16, TP17, TP18, TP19, TP20	0 - 0.25	0.00 - 2.20
Pennine Lower Coal Measures	All locations except PH8, TP2, TP8 (terminated in made ground)	0.15 - 1.80	> 3.0

5.1.1 Topsoil

Topsoil was present across much of the western half of site to a maximum depth of 0.70m. It typically comprised soft to firm brown slightly sandy slightly gravelly clay. The gravel generally comprised sandstone and mudstone.

5.1.2 Made ground

Made ground was present in most locations and was generally deeper in the south eastern part of site (maximum depth of 2.20m in TP2). It comprised cohesive and granular material and contained lithic fragments (mudstone, sandstone, siltstone and

coal) and anthropogenic materials including brick, glass, concrete, tarmac and rarely contained coal, ash, clinker, plastic, metal and polystyrene.

5.1.3 Pennine Middle Coal Measures

This stratum was encountered from beneath the topsoil or made ground and comprised a horizon of firm to very stiff residual clay over mudstone, sandstone and siltstone. Occasional sandstone boulders, lenses/ flags of sandstone and ironstone boulders were recorded within this stratum at some locations between 0.6m and 1.3m depth.

Coal was encountered at four locations in the central northern part of site as follows:

- TP5 as thin bands within clay from 2.8m to 3.0m depth;
- TP7 at 0.6 to 0.9m depth;
- TP20 as occasional pockets and thin bands within clay from 0.25m to 2.60m depth;
- PH7 as clayey coal/ coal gravel from 2.9m to 3.0m depth

Elsewhere coal was often encountered as gravel within residual clay.

The SPT 'N' values of the cohesive material in this stratum ranged from N=8 to 29, which indicate soft to firm strata.

The SPT 'N' values of the granular material in this stratum ranged from N=8 to 13, which indicate loose to medium dense strata.

The undrained shear strength of cohesive soil measured using a hand shear vane ranged 36 to >130kPa, which is indicative of low to high strength strata.

The in situ test results are presented on the exploratory hole records in Appendix H.

The plasticity index of this stratum ranged between 13 and 22%, which is indicative of low to intermediate plasticity. The laboratory test results are presented in Appendix N.

5.1.4 Buried Foundations/ Structures

Several buried structures were encountered during the investigation associated with the former site buildings, including:

- Concrete boulders encountered at 0.6m depth in TP1, 0.3m in TP3 and 0.6m in TP13;
- Reinforced concrete slabs encountered at 1.2m and 2.2m depth in TP2 and between 0.8m and 1.9m depth in TP8
- Concrete footings encountered at 0.9m depth in TP7

- An infilled basement between 0.8m and 1.9m depth in TP8

5.1.5 Groundwater

Groundwater was encountered during the investigation as slow seepages at two locations (TP05 at 1.2m and 3.0m; TP19 at 1.0m and 2.0m). It was not encountered elsewhere during the investigation.

All monitoring wells except two were dry; standing groundwater was encountered within PH6 and PH7 at depths of between 1.80m and 2.61m during monitoring.

A piezometric surface has not been calculated, therefore the groundwater flow direction has not been determined.

5.1.6 Visual/olfactory evidence of soil and groundwater contamination

A slight diesel odour was noted within made ground at 0.6m depth in TP4 located in the northern corner of site, which may be associated with a pipe set in concrete from 0.4m to 0.6m depth at this location.

A dark grey to black horizon comprising ash, clinker and tarmac gravel was encountered at two locations in the east of site (TP8 from 0.3m to 0.7m depth and TP14 from 1.0m to 1.6m).

5.2 Ground gas regime

The results of the first two rounds of ground gas monitoring and testing carried out are given in Appendix I. The minimum and maximum results are recorded in Table 8.

Table 8: Summary of ground gas monitoring results

Borehole	Response zone/strata	Probable source(s) of ground gas	Number of monitoring visits	Methane (%)	Carbon dioxide (%)	Oxygen (%)	Flow rate (l/hr)	Atmospheric pressure (mbar)
PH1	MG	Made ground material (demolition material)	2	<0.1	<0.1 0.2	14.0 20.7	<0.1	971 991
PH2	MG	Made ground material (backfilled quarry)	2	<0.1	<0.1 4.4	14.8 20.3	<0.1	968 990
PH3	PMCM	Coal measures strata/ coal gravel in clay	2	<0.1	0.1 2.3	18.3 20.1	<0.1	968 989

PH6	PMCM	Coal measures strata/ coal gravel in clay	2	<0.1	0.1 13.6	4.5 16.3	<0.1	968 989
PH7	PMCM	Coal measures strata/ coal gravel in clay	2	<0.1	0.2 4.2	5.4 19.8	<0.1	970 989
PH9	MG	Made ground material/ off-site infilled pit (50m south)	2	<0.1	<0.1 0.8	<0.1 20.4	<0.1	968 988

Information relating to the atmospheric pressure conditions prior to the monitoring round was obtained using the archive pages of Weather Underground (www.wunderground.com), which indicates that both rounds were undertaken during periods of falling pressure (Round 1: 1010mb to 1007mb in 24 hours and Round 2: 987mb to 986mb in 24 hours)

Interpretation of the initial ground gas monitoring results is presented in Section 6.2.6.

5.3 Refinement of the initial conceptual site model

The investigation generally confirmed the stratigraphical succession described within the initial conceptual model.

The exploratory holes revealed that surface stratum comprising topsoil and made ground is present across the site. Topsoil was generally encountered in the western half of the site, with a thickness of 0.15 to 0.70m. Made ground was generally present in the eastern half of site and is typically around 0.5m in thickness.

Localised deeper made ground was encountered in four adjacent locations in the central eastern part of site (1.6m in PH1, 1.8m in PH2, 1.9m, 2.2m in TP2 and 1.9m in TP8) and four adjacent locations in the south eastern corner of site (1.0m in PH8, 1.45m in PH9, 1.1m in TP1 and 1.6m in TP14).

Made ground in PH1, TP2 and TP8 resembled demolition fill (brick, concrete, tarmac) and the presence of concrete slabs and an infilled basement were recorded. This area of deep made ground is therefore attributed to the demolition of former buildings. Deeper made ground in the south eastern corner of site is also likely to be a result of demolition works, owing to the presence of concrete boulders in TP1 and a possible concrete footing in PH09. It should be noted that obstructions in TP2 and TP8 prevented progress so the actual depth of made ground here remains unconfirmed.

Made ground encountered in PH2 resembled tipped waste material (containing ceramics, glass and metal) and confirms the location of the backfilled quarry. Similar material was encountered in PH3, at the southern edge of the former quarry, where it was 0.6m deep; this provides evidence for the extent of the backfilled quarry.

No made ground was encountered in the location of the infilled pond; exploratory holes (PH5, PH5A and TP15) revealed topsoil over natural strata. It is therefore considered that this source area can be discounted.

A sample of potentially asbestos containing material (ACM) was obtained from TP8 at 1.0m (fibreglass lagging); this was scheduled for analysis. No other potential ACM was encountered during the investigation.

No significant contamination was encountered in soil surrounding the electricity substation. However the soil beneath the substation has not been assessed and therefore this cannot be discounted as a potential source.

Horizons of ash, clinker and tarmac gravel encountered within made ground in different areas of site indicates potential for contamination. This demonstrates variability within the made ground and is not considered to present a new source area.

A slight diesel odour encountered in TP4 indicates potential for localised organic contamination in this area of site.

Pennine Middle Coal Measures Formation stratum were encountered beneath the topsoil or made ground, comprising mudstone, sandstone and siltstone with residual clay (weathered rock) and coal.

Coal was encountered at shallow depths in four locations in the central northern area of site. The highest concentrations of carbon dioxide recorded to date (maximum of 13.6%) were detected in monitoring well PH6, installed within coal measures in the centre of this area of site. This provides evidence for the potential generation of ground gas from coal bearing strata.

Shallow groundwater was absent across most of the site, with the exception of slow seepages observed in two trial pits between 1.0m and 3.0m and standing water within two monitoring wells between 1.8m and 2.6m.

Owing to the considerable thickness of low permeability residual clay across site, the absence of a continuous shallow groundwater body and the distance to the nearest surface water receptors, lateral migration of dissolved phase contaminants is likely to be minimal. This confirms a low risk to surface water.

The low permeability residual clay will also limit vertical migration of potentially contaminated shallow groundwater to the deeper groundwater body within the Secondary A aquifer. This confirms a very low risk to the aquifer.

Concentrations of ground gas were found to be generally low in the first two rounds of monitoring and no flow was recorded, although it is considered that the monitoring carried out to date is insufficient to characterise adequately the ground gas regime.

The following potential pollutant linkages identified within the PRA that require assessment are confirmed:

1. Direct contact of the potential contamination within the soils to site users
2. Permeation of contaminants from soils or from perched groundwater into underground potable water supply service pipes
3. Root uptake of potential contamination within soils to existing and proposed vegetation
4. Migration and build up of ground gas within on-site buildings.

A refined conceptual site model (Figure 7) has been produced; this will be reassessed upon completion of the ground gas and groundwater monitoring programme.

5.3.1 Uncertainty

Several buried structures and foundations were encountered during the investigation and there is a potential for more to be present within the footprint of the former site buildings in the east part of site.

Some locations were terminated within made ground due to the presence of buried obstructions, therefore the thickness of made ground remains unconfirmed in some areas of site.

6 QUANTITATIVE RISK ASSESSMENT

In line with CLR11 (EA, 2004a), there are two stages of quantitative risk assessment, generic and detailed. The GQRA comprises the comparison of soil, groundwater, soil gas and ground gas results with generic assessment criteria (GAC) that are appropriate to the linkage being assessed. This comparison can be undertaken directly against the laboratory results or following statistical analysis depending upon the sampling procedure that was adopted.

6.1 Linkages for assessment

Section 5.3 presents the refined conceptual model which identified the linkages that required assessment after the findings of the site investigation had been considered. These linkages together with the method of assessment are presented in Table 9.

Table 9: Linkages for generic quantitative risk assessment

Potentially relevant pollutant linkage	Assessment method
1. Direct contact with impacted soil by future residents	Human health GAC in Appendix K for a proposed residential end use with private gardens since proposed end use includes residential gardens. Statistical analysis not undertaken owing to majority of sampling locations being targeted.
2. Inhalation exposure of future residents to contaminants in the vapour phase	Qualitative assessment based on soil analytical results.
3. Inhalation exposure of future residents to asbestos fibres	Qualitative assessment based on the asbestos minerals present, their form, concentration, location and the nature of the proposed development.
4. Uptake of contaminants by vegetation potentially impacting plant growth	Comparison of soil data to GAC in Appendix L
5. Contaminants permeating potable water supply pipes	Comparison of soil data to GAC in Appendix M for plastic water supply pipes using UKWIR (2010) guidance.
6. Concentrations of methane and carbon dioxide in ground gas entering and accumulating in: depressions and excavations that could affect workers enclosed spaces or small rooms in new buildings, which could affect future residents.	Gas screening values (GSV) for the monitoring rounds to date have been calculated using maximum methane and carbon dioxide concentrations with maximum flow rates recorded at the site. The GSV have been compared with the generic Traffic Lights, as presented within the NHBC ground gases guide (Boyle and Witherington, 2007) and the aforementioned CIRIA report C665, owing to the development comprising predominantly low-rise housing with suspended floors.

Potentially relevant pollutant linkage	Assessment method
In the case of methane this could create a potentially explosive atmosphere, while death by asphyxiation could result from carbon dioxide.	

6.2 Methodology and results

The methodology and results of the GQRA are presented for each relevant pollutant linkage in turn.

6.2.1 Direct contact with impacted soil by future residents

Current UK guidance (CIEH and CL:AIRE) requires statistical analysis to be undertaken prior to comparison of the laboratory data with the GAC. However, owing to the majority of sampling locations being targeted statistics are not considered appropriate and the laboratory analytical data have been compared directly with the GAC.

The results have been compared with the GAC presented in Appendix K for this linkage. The direct comparison of analytical results for metals, benzene, toluene, ethylbenzene and xylene (BTEX), methyl tertiary butyl ether (MTBE) and polychlorinated biphenyls (PCB) to the GAC indicated no exceedances.

There were two exceedances associated with total petroleum hydrocarbons (TPH) in a sample of made ground obtained from PH6 at 0.4m. The reported concentration of 270mg/kg of aromatic C_{16}-C_{21} fraction exceeds the GAC of 250mg/kg and the reported concentration of 1370mg/kg aromatic C_{21}-C_{35} fraction exceeds the GAC of 890mg/kg. The comparison also highlighted exceedances of six PAH compounds in this sample and a total PAH of 580mg/kg was detected in this sample.

A further ten exceedances of PAH compounds were indicated in four samples of made ground (PH2 at 0.8m, PH3 at 0.3m, TP8 at 0.35m, TP8 at 1.0m and TP9 at 0.3m).

TPH was detected in a sample obtained from a horizon with a slight diesel odour (TP4 at 0.6m), however the results did not exceed the GAC.

No exceedance of the GAC were identified within topsoil or natural strata.

The exceedances are presented as Figure 6.

On the basis of the above assessment, a potential risk associated with localised PAH and TPH impact within made ground has been identified.

6.2.2 Inhalation exposure of future residents to contaminants in the vapour phase

Based on the understanding of the refined CSM, on-site observations and on a review of the soil data, significant site-wide hydrocarbon impact was not indicated and therefore the inhalation exposure risk is considered negligible.

Groundwater samples were not obtained as part of this investigation, therefore no data is available to assess the risk from volatilisation of compounds from groundwater and subsequent inhalation by site users. However, since no site-wide significant hydrocarbon contamination was detected within soils and shallow groundwater was generally absent across site, it is considered that there is unlikely to be a risk from vapour inhalation originating from groundwater.

6.2.3 Inhalation exposure of future residents to asbestos fibres

The visual inspection at the laboratory identified no materials suspected of potentially containing asbestos and the scheduled laboratory screening for asbestos found no detectable asbestos fibres within the samples of topsoil and made ground.

No asbestos was detected within a bulk sample of fibreglass lagging.

This indicates that there is unlikely to be a risk associated with inhalation exposure of future residents to asbestos fibres.

6.2.4 Uptake of contaminants by vegetation potentially inhibiting plant growth

The results have been compared with the GAC presented in Appendix L for this linkage. One exceedance was identified within a sample of made ground from TP8 at 0.35m (concentration of 229mg/kg copper compared to the GAC of 200mg/kg). No exceedances were indicated within topsoil. This is only a slight exceedance at one location and no other exceedances were detected across site, therefore it is considered that a significant risk associated with phytotoxic effects is unlikely.

6.2.5 Impact of organic contaminants on potable water supply pipes

For initial assessment purposes, the results of the investigation have been compared with the GAC presented in Appendix M for this linkage, which are reproduced from *UKWIR Report 10/WM/03/21. Guidance for the Selection of Water Supply Pipes to be used in Brownfield Sites* (UKWIR, 2010).

The reported soil pH values vary between 6.32 and 7.44. One reported value is outside the neutral range of 7 to 8, therefore if metallic supply pipes are proposed, additional assessment of redox potential and conductivity will be required.

The soil TPH concentrations for aromatic fraction C_{10} to C_{21} from PH3 at 0.3m (10.5mg/kg), PH6 at 0.4m (284mg/kg) and TP9 at 0.3m (36.1mg/kg) exceed the GAC for polyethylene (PE) water supply pipes of 10mg/kg for mineral oil in the C_{11}–C_{21} range. The soil TPH concentration for aromatic fraction C_{21} to C_{40} from PH6 at 0.4m

(1370mg/kg) exceeds the GAC for polyethylene (PE) water supply pipes of 500mg/kg for mineral oil in the C_{21}–C_{40} range. These exceedances were detected within made ground encountered at a maximum depth of 0.7m at the three locations. It is therefore unlikely that polyethylene (PE) pipes will be suitable in these areas of the site within this material. No TPH exceedances were indicated in underlying material.

The reported soil PAH concentrations vary between 5.99mg/kg and 580mg/kg within made ground at depths ranging between 0.3m and 0.8m and at concentrations below the laboratory detection limits (<0.08mg/kg) within underlying natural soils. The GAC for semi-volatile organic compounds (SVOCs), which includes PAHs, is 2mg/kg for PE pipes and 1.4mg/kg for polyvinyl chloride (PVC) pipes. All of the samples of made ground analysed exceeded both of these GAC, indicating that PE and PVC pipes may not be suitable within this material.

It should be noted that at the time of this investigation the future routes of water supply pipes had not been established, hence the investigation and sampling strategy may not be fully compliant with UKWIR recommendations. Consequently, a targeted investigation and specific sampling/analytical strategy may be required at a later date once the route(s) of the supply pipe(s) is/are known. In addition, it is recommended that the relevant water supply company be contacted at an early stage to confirm its requirements for assessment, which may not necessarily be the same as those recommended by UKWIR.

6.2.6 Ground gas

The results of the gas monitoring carried out to date have been assessed in accordance with the guidance provided in *CIRIA Report C665: Assessing risks posed by hazardous ground gases to buildings* (Wilson et al., 2007). In the assessment of risks posed by hazardous ground gases and selection of appropriate mitigation measures, CIRIA C665 identifies two types of development, termed Situation A (modified Wilson and Card method), appropriate to all development excluding traditional low-rise construction, and Situation B (National House-Building Council, NHBC) only appropriate to traditional low-rise construction with ventilated sub-floor voids.

Both methods are based on calculations of the limiting borehole gas volume flow for methane and carbon dioxide, renamed as the gas screening value (GSV). The GSV (litres of gas per hour) is calculated by multiplying borehole flow rate (litres per hour) and gas concentration (percent by volume).

In both situations, it is important to note that the GSV is a guideline value and not an absolute threshold. The GSV may be exceeded in certain circumstances, if the site conceptual model indicates it is safe to do so. Similarly, consideration of additional factors such as very high concentrations of methane, should lead to consideration of the need to increase the Characteristic Situation or Traffic Light.

The site is to be redeveloped with low-rise housing and therefore falls under Situation B.

Situation B is a characterisation system developed by the NHBC (Boyle and Witherington, 2007), which relates only to low rise housing development constructed with a clear ventilated underfloor void. The system provides a risk-based approach that is designed to allow an identification of gas protection for low-rise housing by comparing the measured gas emission rates to generic “Traffic Lights”. The Traffic Lights include typical maximum concentrations that are provided for initial screening purposes and risk-based GSVs for situations where the typical maximum concentrations are exceeded. Based on the typical maximum gas concentrations and the GSVs, the appropriate Traffic Light, ranging from Green through Amber 1 and Amber 2 to Red, is determined from Table 8.7 of CIRIA C665 (Wilson et al., 2007).

The gas monitoring data of the first two rounds of monitoring have identified a maximum concentration of carbon dioxide of 13.6%. Negligible methane concentrations were detected at all locations (<0.1 %). Negligible flow rates were recorded across site (<0.1 l/hr). The calculated GSV for methane is <0.0001 l/hr and the GSV for carbon dioxide is <0.0136 l/hr. Based on the GSVs of the results from the ground gas monitoring to date the site has been characterised as Green.

For both types of development, CIRIA C665 (Wilson et al., 2007) provides details of the typical scope of protective measures to be adopted for the relevant site characterisation.

The proposed low-rise development, which fulfils the requirements of Situation B, has been initially characterised as Green, indicating a negligible gas regime and it maybe that gas protection measures will not be required pending further monitoring.

Information from the PRA indicates that the site is not within an area where radon protective measures are necessary in the construction of new dwellings or extensions.

The gas monitoring programme carried out to date provides some evidence for an initial assessment of redevelopment requirements. However, it is considered that the monitoring undertaken during this investigation has not established the ‘worst-case’ scenario and therefore further monitoring is required to characterise adequately the ground gas regime. Adequate monitoring should be carried out to enable the confident assessment of risk and subsequent design of an appropriate gas protection scheme(s) for the proposed development.

6.3 Environmental assessment conclusions

The relevant pollutant linkages that require further action are:

1. The direct contact of contamination within made ground to future site occupants with respect to localised PAH and localised TPH contamination.
2. The permeation of organic contaminants from soils or into underground potable water supply service pipes in certain areas of the site.
3. Migration and build up of ground gas within on-site buildings.

7 GEOTECHNICAL SITE ASSESSMENT

7.1 Engineering considerations

It is understood that the proposed development is to involve the construction of low-rise residential properties and two-storey apartment blocks with associated infrastructure. The proposed development layout is presented as Figure 4, which indicates 166 units.

At the time of reporting, no indicative loadings for the proposed structure were available, although it is considered that a maximum line load of 100kN/m is envisaged.

7.2 Geotechnical hazards

A summary of commonly occurring geotechnical hazards is given in Table 10 together with an assessment of whether the site may be affected by each of the stated hazards.

Table 10: Summary of main potential geotechnical hazards that may affect site

Hazard category (excluding contamination issues)	Hazard status based on investigation findings and proposed development			Engineering considerations if hazard affects site
	Found to be present on site	Could be present but not found	Unlikely to be present and/or affect site	
Sudden lateral changes in ground conditions	√	Variable depth to the bedrock surface across the site		Likely to affect ground engineering and foundation design and construction
Shrinkable clay soils	√			Design to NHBC Standards Chapter 4 or similar
Highly compressible and low-bearing capacity soils (including peat and soft clay)	√			Likely to affect ground engineering and foundation design and construction
Silt-rich soils susceptible to loss of strength in wet conditions		√	Variable silt content within the weathered Lower Coal Measures	Likely to affect ground engineering and foundation design and construction
Running sand at and below water table			√	Likely to affect ground engineering and foundation design and

Hazard category (excluding contamination issues)	Hazard status based on investigation findings and proposed development			Engineering considerations if hazard affects site
	Found to be present on site	Could be present but not found	Unlikely to be present and/or affect site	
				construction
High groundwater table (including waterlogged ground)			√	May affect temporary and permanent works
Underground mining		√	Evidence of possible workings in previous borehole records in east of site; further investigation recommended	Likely to require special stabilisation measures
Existing substructures (e.g. tunnels, foundations, basements, and adjacent substructures)	√	Existing foundations/footings, concrete boulders, infilled basement in east part of site and more may be present in this area		Likely to affect ground engineering and foundation design and construction
Filled and made ground (including embankments, unfilled ponds and quarries)	√	Made ground across east half of the site		Likely to affect ground engineering and foundation design and construction
Adverse ground chemistry (including expansive slags and weathering of sulphides to sulphates)			√ (See section 7.3.6)	May affect ground engineering and foundation design and construction
Note: Seismicity is not included in the above table as this is not normally a design consideration in the UK.				

7.3 Foundations

7.3.1 General suitability

The firm to stiff natural soils (weathered Coal Measures) would be considered suitable to support shallow spread foundations (strip footings) across most of the site.

In areas where existing made ground cover is thin and limited ground raising is required, the underlying firm to very stiff residual clay deposits will be at a relatively shallow depth and the proposed development may be supported upon shallow strip foundations taken

down through any new fill, topsoil or made ground and founded within the underlying residual clays, at a minimum depth of 0.90m below current site surface levels in line with NHBC guidance for shrinkable soils.

Deeper made ground (>2.2m bgl in TP2) in the south eastern corner of site is likely to affect a number of plots and roads. Trench fill foundations are considered suitable for affected plots and material beneath proposed roads may need engineering or replacing to a specification suitable for highways. The approximate area of deeper made ground is presented as Figure 8.

Buried structures including a suspected infilled basement, existing foundations/ footings, and concrete slabs/ boulders were encountered in some locations within the eastern half of site. Sandstone and ironstone boulders were encountered at shallow depths (up to 1.3m) in some locations. Unsuitable/ over-sized material may require removal during ground works and alternate foundation design in these areas may be necessary. The potential for further buried structures/ objects other than those encountered during the investigation cannot be discounted.

Alternate foundation options will depend on final ground levels and may include piled and raft foundations; production of a final foundation design layout is proposed.

7.3.2 Shallow strip foundations

The recommendations for the design and construction of strip and trench fill foundations in relation to the ground conditions are set out in Table 11.

Table 11: Design and construction of spread foundations

Design/construction considerations	Design/construction recommendations
Founding stratum	Residual soils (highly to completely weathered Coal Measures)
Depth	Foundations should be taken to a minimum depth of 0.90m below current ground level and at least 0.1m into the founding stratum below any overlying topsoil or made ground or to any greater depth required in respect of the special design considerations given below.
Special design considerations	Owing to the presence of shrinkable clay soils foundations should be designed taking into account all the normal precautions, including minimum founding depths, to minimise the risk of future foundation movements in accordance with NHBC standards (including Chapter 4.2 Building Near Trees). The findings of the ground investigation indicate that foundations should be designed for shrinkable soils of medium volume change potential. Owing to the lateral and vertical variability of the founding strata, consideration should be given to incorporating appropriate reinforcement into the strip foundations to minimise the risk of future differential foundation movements.

Design/construction considerations	Design/construction recommendations
Bearing capacity	Strip foundations constructed on the weathered Lower Coal Measures at a minimum depth of 0.90m below existing ground level, can be designed using a net allowable bearing pressure of 170kN/m^2. The allowable bearing capacity includes an overall factor of safety of 3 against bearing capacity failure and with total settlements associated with the bearing pressure estimated to be less than 25mm.
Stability of excavations	Generally the trial pits remained stable during excavation, which indicates that foundation excavations should also remain stable in the short term. In the event that excavations are to remain open for longer periods, or man-entry is required then trench support systems will be necessary.
Dewatering	During ground investigation works, groundwater seepage was only recorded in two trial pits; therefore it is unlikely that an allowance for dewatering will be required during foundation excavation.
Construction considerations	All foundation excavations should be inspected, and any made ground and soft, organic or otherwise unsuitable materials removed and replaced with mass concrete. The proposed founding stratum is a relatively silt-rich soil, hence susceptible to rapid softening once exposed. Hence all foundation excavations should immediately be blinded with concrete or the full foundation constructed. It is recommended that during construction, all formation levels are inspected by a competent geotechnical engineer to ensure that the foundations are constructed on competent strata.

7.3.3 Alternative foundation options

As indicated above, alternative options include piled foundations or raft foundations on engineered infill. These will be required in those parts of the site where ground levels are to be raised by significant amounts and the natural residual soils are at too great a depth to permit economic constraint of spread foundations.

If piled foundations are to be used then the materials to be used to raise ground levels need only be placed to a standard suitable of supporting roads and infrastructure. Pile design should allow for negative skin function efforts through any existing and the newly placed fill.

If raft foundations are to be used then the ground level raising will have to be under strict engineering control. The method will be dependant upon the classification of the materials proposed but will require full time supervision and possibly some post placement testing to demonstrate suitability.

7.3.4 Floor slabs

Given the thickness of the existing and anticipated made ground underlying the site, NHBC standards require that floor slabs should be suspended.

Careful examination and rolling of the formation, and replacement of exceptionally hard and soft material with well-compacted, suitable granular fill, will be necessary.

7.3.5 Roads, hardstanding and drainage

The near surface ground conditions consist of made ground over firm to stiff clay. Therefore, for preliminary purposes a CBR value of 2% can be considered for pavement design. It is recommended that in situ CBR determination be carried out targeting areas of hardstanding, prior to construction works, to confirm these values.

7.3.6 Chemical attack on buried concrete

This assessment of the potential for chemical attack on buried concrete is based on current BRE guidance. The desk study and site walkover indicate that, for the purposes of this assessment of the aggressive chemical environment, the site should be considered as a brownfield development. A suite of chemical analyses appropriate to this site classification was carried out on soil samples.

The results indicate 2:1 water soil extract sulphate contents of up to 113 mg/l with pH values varying between to 6.32 to 7.44.

The results indicate that, in accordance with *BRE Special Digest 1: 2005 Concrete in aggressive ground* (BRE, 2005), the Aggressive Chemical Environment for Concrete (ACEC) Classification is AC-1 with a Design Sulphate Class for the site of DS-1. This assumes nominally mobile groundwater conditions and that no significantly disturbed clay comes into contact with concrete foundations or structures.

8 REUSE OF MATERIALS AND WASTE

8.1 Reuse of suitable materials

In accordance with the *CL:AIRE Code of Practice* (2011) (CoP) materials are only considered waste if 'they are discarded, intended to be discarded or required to be discarded, by the holder'. Thus, contaminated material does not become waste until the aforementioned criteria are met.

Under the CoP, soils may be re-used on the site where they were produced provided they are:

- certain to be used
- are suitable for use both chemically and geotechnically
- only the required quantity is used.

The CoP requires the preparation of a materials management plan (MMP) that confirms the three criteria above will be met. This plan needs to be reviewed by a 'Qualified Person' who will then issue a declaration form to the EA.

Therefore, before any excavation works begin on-site, an MMP will need to be prepared to establish whether specific materials are classified as waste and how excavated materials will be treated and/or re-used in line with *The Definition of Waste: Development Industry Code of Practice, Version 2* (CL:AIRE, 2011). The MMP is likely to form part of the site waste management plan for the site.

8.2 Treatment to meet suitable-for-use criteria

Where materials do not meet the suitable for use criteria it may be possible to treat them under an environmental permit (mobile treatment licence) to enable them to be reused onsite.

To enable the treatment options to be determined, an options appraisal and a remediation strategy document will be necessary to support discussion of the issues with regulators and third parties.

8.3 Reuse of waste materials

If material is discarded as waste then its reuse on site may still be possible. Waste soils can be reused on site under a standard rules environmental permit or a U1 waste exemption from the Environmental Permitting (England and Wales) Regulations 2010 provided that they are suitable for the proposed use. However, it should be noted that these have strict limits on the quantity of material that can be reused.

8.4 Wastes for landfill disposal

Wastes require pre-treatment prior to disposal at landfill. Pre-treatment must be a physical, thermal, chemical or biological process (including sorting) that changes the characteristics of the waste to reduce its volume, reduce its hazardous nature, facilitate its handling and enhance its recovery. It is best practice to provide your waste collector (or the disposal site) with details of how the waste has been treated. Your waste collector may provide a pre-treatment confirmation form or space on the waste transfer note to detail the pre-treatment.

Envirolab (an RSK company) has developed a waste soils characterisation assessment tool, which follows the guidance within the EA's 'Technical Guidance WM2' (2003), Interpretation of the definition and classification of hazardous waste. The analytical results have been assessed using this tool for potential off-site disposal of materials in the future. The results are presented in Table 12.

Table 12: Results of waste soils characterisation assessment (HASWASTE)

Sample ref/location	Waste classification
PH1 at 0.70m	Not hazardous
PH2 at 0.80m	Not hazardous
PH3 at 0.30m	Not hazardous
PH8 at 0.50m	Not hazardous
PH6 at 0.40m	Hazardous (Ecotoxic H14)
TP8 at 0.35m	Not hazardous
TP9 at 0.30m	Not hazardous
TP1 at 1.25m	Not hazardous
TP5 at 1.20m	Not hazardous
TP16 at 0.15m	Not hazardous
TP18 at 0.20m	Not hazardous

Sample PH6 at 0.40m is classified as hazardous waste and therefore must be disposed of at a suitably licensed hazardous waste landfill. Please note that if more than 500kg of hazardous waste is to be removed from the site within a 12-month period, the site is required to notify the EA under the Hazardous Waste Regulations (England and Wales) 2005 and obtain a premises code for use on hazardous waste consignment notes.

8.5 Waste acceptance criteria

All inert, stable non-reactive hazardous and hazardous wastes must be tested and found to be below the waste acceptance criteria (WAC) leaching limit values for the class of

landfill they are to be disposed of in. Currently, no WAC are in place for non-hazardous waste.

8.6 Landfill tax

Waste producers disposing of material to landfill are required to pay landfill tax by HM Revenue and Customs.

The tax is chargeable by weight (tonnage) and two rates apply, either standard or lower rate. The lower rate only applies to those less polluting wastes as set-out in the Landfill Tax (Qualifying Material) Order 2011 which include naturally occurring rock and soil, concrete, some minerals, some furnace slags and ash and some low activity organic compounds. Evidence confirming that the waste qualifies for the lower rate will be required and for any loads of mixed waste, standard rate tax will apply for the whole waste load.

Currently (since April 2013), standard rate landfill tax is £72 per tonne. The tax rate will increase to £80 in 2014 and the Treasury has confirmed that for five years thereafter the tax will not fall below £80.

The lower rate of landfill tax applicable to less polluting wastes (i.e. 'inert' wastes) remains at £2.50 per tonne.

Material disposed of at a soil treatment centre will not be subject to landfill tax.

8.7 Groundwater

When there is an intention to discard groundwater, chemical test results will indicate the appropriate disposal options. This could include disposal to treatment facility, via consent (issued by the water authority) to foul sewer or via consent (issued by the EA) to a watercourse.

9 CONCLUSIONS AND RECOMMENDATIONS

9.1 Environmental

On completion of the GQRA the following pollutant linkages that require further action are:

1. The direct contact of contamination within made ground to future site occupants with respect to localised PAH and localised TPH contamination.
2. The permeation of organic contaminants from soils or into underground potable water supply service pipes in certain areas of the site.
3. Migration and build up of ground gas within on-site buildings.

A relevant pollutant linkage exists associated with contamination within made ground to future site users, with respect to localised PAH and localised TPH. It is recommended that a clean cover with a minimum thickness of 600mm be placed within garden areas. Since a reasonable thickness of topsoil was encountered in the western half of site and no exceedances of the GAC were indicated in this material, it is likely that this clean cover material could be site-won.

A relevant pollutant linkage exists associated with the permeation of organic contamination to plastic water supply pipes. The depth and route of the proposed water supply pipe and the final site levels are not currently known. It is recommended that either PE pipe incorporating a metal barrier is adopted, or further work is completed to enable a full assessment of the suitability of pipe material or provide a zonation of the site to allow differing grades of pipe to be used as appropriate to the ground conditions.

Assessment of the ground gas regime is ongoing with a further two rounds to be completed on a weekly basis as part of the initial assessment. Currently the site is considered green however, potential on and off-site sources have been identified therefore, final determination of the requirement for gas protection measures should be reserved until the monitoring programme is completed.

No significant contamination was highlighted associated with the existing substation, however it would be prudent to assess underlying soils during future removal of the structure and seek advice if suspected contamination is encountered.

9.2 Reuse of materials and waste

The results of the waste soils characterisation assessment (HASWASTE) indicate that all except one soil samples are classified as not hazardous. Hazardous waste must be disposed of at a suitably licensed hazardous waste landfill.

The results of the GQRA indicate that most of the topsoil material is likely to be suitable for residential end use. However it is recommended that during development, additional analysis of stockpiled topsoil is undertaken to confirm its suitability for use.

9.3 Geotechnical

The firm to stiff natural soils (weathered Coal Measures) would be considered suitable to support shallow spread foundations (strip footings) across most of the site, however in areas where made ground is deeper (south eastern area of site) trench fill foundations are considered suitable.

Buried foundations/structures associated with former site buildings were encountered in some locations within the eastern half of site and sandstone and ironstone boulders were encountered in natural strata at shallow depths in some locations. Unsuitable/ over-sized material may require removal during ground works and alternate foundation design in these areas may be necessary. The potential for other buried structures/ objects cannot be discounted.

Alternate foundation options will depend on final ground levels and may include piled and raft foundations; production of a final foundation design layout is proposed.

The preliminary recommended sub-grade soil CBR value for road pavement design is 2.0% based on the ground conditions encountered. It is recommended that in-situ CBR determination be carried out targeting areas of hardstanding, prior to construction works, to confirm this value.

The Aggressive Chemical Environment for Concrete (ACEC) Classification is indicated to be AC-1, with a Design Sulphate Class of DS-1 in accordance with BRE Special Digest 1; 2005 Concrete in aggressive ground (BRE, 2005).

9.4 Coal Bearing Strata and Mining

Coal was encountered at four locations in the central northern part of site as a 300mm thick bed, as thin bands, pockets and as gravel. This indicates that shallow coal seams may affect some plots in this area of site.

A potential risk exists associated with the combustibility of coal seams at shallow depths. It is recommended that coal seams be blinded off with concrete during construction of foundations to reduce the potential for combustion.

An allowance should be made for blinding off seams in garden areas where coal seams are present at shallow depths, to reduce the potential for future combustion issues.

It should also be noted that any proposed cutting of surface materials would bring coal seams closer to the surface, increasing the risk of issues relating to combustion.

As discussed previously coal is a potential source of ground gas, in particular methane. However, preferential pathways for the migration of ground gas are more likely to exist in worked coal seams. Ground gas monitoring is ongoing at the site.

The PRA highlighted the potential for shallow workings. Horizons of suspected workings and disturbed ground were indicated between 2.5m and 9m on BGS borehole records in the eastern part of site. Two mine entries have been identified on the eastern site boundary in an area of site where no development is proposed. The depth and treatment of these is not currently known. The eastern corner and possibly the west corner of site have been identified as areas of high risk for having been worked in the past.

Therefore, it is recommended that further investigation be undertaken to address the issue of potential shallow workings. We propose to conduct the following:

- a probehole investigation to confirm the presence or absence of any shallow seams and/or workings.

BIBLIOGRAPHY

Baker, K., Hayward, H., Potter, L., Bradley, D. and McLeod, C. (2009), *CIRIA Report C682. The VOCs Handbook. Investigating, assessing and managing risks from inhalation of VOCs at land affected by contamination* (London: CIRIA).

Barton, N. J. (1992), *The Lost Rivers of London: A Study of Their Effects Upon London and Londoners, and the Effects of London and Londoners on Them* (London: Historical Publications).

Boyle, R. A. and Witherington, P. J. (2007), 'Guidance on Evaluation of Development Proposals on Sites where Methane and Carbon Dioxide are Present', National House-Building Council and RSK Group.

British Geological Survey (1993), Sheet Number 87 Solid & Drift Edition, 1:50 000.

British Standards Institution (BSI) (1990), 'BS 1377:1990. Methods of test for soils for civil engineering purposes'.

British Standards Institution (1999), 'BS 5930:1999. Code of practice for site investigations'.

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

Building Research Establishment (BRE) (2001), *BRE Report 414. Protective measures for housing on gas-contaminated land* (London: BRE).

Building Research Establishment (2005), *BRE Special Digest 1: Concrete in aggressive ground* (London: BRE).

Building Research Establishment (2007) *BRE Digest 365. Soakaway design* (London: BRE).

Card, G. B. (1995), *CIRIA Report 149. Protecting development from methane* (London: CIRIA).

Chandler R. J. and Forster A., (2001) CIRIA Report C570, Engineering in Mercia Mudstone.

Chartered Institute for Environmental Health and Land Quality Management (2009), 'The LQM/CIEH Generic Assessment Criteria for Human Health', second edition.

Chartered Institute of Environmental Health (CIEH) and CL:AIRE (2008), *Guidance on Comparing Soil Contamination Data with a Critical Concentration* (London: CIEH).

CL:AIRE (2009), *Soil Generic Assessment Criteria for Human Health Risk Assessment* (London: CL:AIRE).

CL:AIRE (2011), *CL:AIRE Code of Practice. The Definition of Waste: Development Industry Code of Practice, Version 2* (London: CL:AIRE).

Dangerous Substances Directive (76/464.EEC).

Department for Environment, Food and Rural Affairs (2010), *The River Basin Districts Typology, Standards and Groundwater Threshold Values (Water Framework Directive) (England and Wales) Directions 2010* (London: HMSO).

Department of the Environment (1996), *Code of Practice for Agricultural Use of Sewage Sludge* (London: HMSO).

Environment Agency (2003), 'Technical Guidance WM2. Interpretation of the definition and classification of hazardous waste'.

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

Environment Agency (2004b), 'Policy Number 199_04, dated 9 March 2004, Part IIA – Detailed Quantitative Assessment of Chronic Risks to Human Health from Contaminated Soils'.

Environment Agency (2006a), 'Remedial Targets Methodology: Hydrogeological Risk Assessment for Land Contamination'.

Environment Agency (2006b), 'The Knotweed Code of Practice – managing Japanese Knotweed on development sites'.

Environment Agency (2008), *Science Report SC050021/SR7. Compilation of Data for Priority Organic Pollutants for Derivation of Soil Guideline Values* (Bristol: Environment Agency).

Environment Agency (2009a), Contaminated Land Exposure Assessment (CLEA) software, version 1.06.

Environment Agency (2009b), *Human health toxicological assessment of contaminants in soil. Science Report – Final SC050021/SR2*, January (Bristol: Environment Agency).

Environment Agency (2009c), 'Science Report SC050021/benzene SGV, toluene SGV, ethylbenzene SGV, xylene SGV, mercury SGV, selenium SGV, nickel SGV, arsenic SGV, cadmium SGV, phenol SGV, dioxins, furans and dioxin like PCBs SGVs', 'Supplementary information for the derivation of SGV for: benzene, toluene, ethylbenzene, xylene, mercury, selenium, nickel, arsenic, cadmium, phenol, dioxins, furans and dioxin- like PCBs', and 'Contaminants in soil: updated collation of toxicological data and intake values for humans: benzene, toluene, ethylbenzene, xylene, mercury, selenium, nickel, arsenic, cadmium, phenol, dioxins, furans and dioxin- like PCBs', March 2009, May 2009 and September 2009.

Environment Agency (2009d), *Science Report – SC050021/SR3. Updated technical background to the CLEA model* (Bristol: Environment Agency).

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.

Environment Agency (2010b), 'Horizontal Guidance Note H1 - Environmental risk assessment for permits'.

Environment Agency (2010c), 'Status Report: Management of the London Basin Chalk Aquifer'.

Environment Agency (2011) Chemical Standards Database.

Environment Agency (no date) Freshwater environmental quality standards.

Environment Agency www.environment-agency.gov.uk/.

Environmental Permitting (England and Wales) Regulations 2010 (London: HMSO).

Hartless, R. (1991), 'BRE Report 212: Construction of new buildings on gas-contaminated land', Building Research Establishment.

Hazardous Waste Regulations 2005 (London: HMSO).

Knipp, C. V., Lloyd, J. W., Lerner, D. N. and Greswell, R. (1993), *CIRIA Special Publication 92. Rising groundwater levels in Birmingham, and their engineering significance* (London: CIRIA).

Landmark Information Group (2013), 'Envirocheck report reference 49487972_1_1', dated 25 September 2013.

Lord, J. A., Clayton, C. R. I. and Mortimore, R. N. (2002), *CIRIA Report C574 Engineering in chalk* (London: CIRIA).

National House-Building Council (1999), 'Chapter 5.2: Suspended Ground Floors' in *NHBC Standards*, revised September 1999, effective January 2000.

Norbury, D. (2010), *Soil and Rock Description in Engineering Practice* (Caithness: Whittles).

Office of the Deputy Prime Minister (2004), *Planning Policy Statement 23: Planning and Pollution Control* (London: The Stationery Office).

Part IIA of the Environmental Protection Act (Contaminated Land Regulations (England) 2002 (London: HMSO).

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

Simpson, G., Blower, T., Craig, R. N. and Wilkinson, W. B. (1989), *CIRIA Special Publication 69. The engineering implications of rising groundwater levels in the deep aquifer beneath London* (London: CIRIA).

Stone, K., Murray, A., Cooke, S., Foran, J., Gooderham, L., (2009) CIRIA C681, Unexploded Ordnance (UXO). A guide or the construction industry.

The Building Regulations (revised December 2004) 'Approved Document C. Department of the Environment and The Welsh Office'.

The Coal Authority (2013), 'Non-residential coal and brine report reference 51000373946001', dated 20 September 2013.

The Surface Waters (Abstraction for Drinking Water) (Classification) Regulations 1996 (London: HMSO).

The Surface Waters (Dangerous Substances) (Classification) Regulations 1998 (London: HMSO).

The Water Supply (Water Quality) Regulations 1989, 2000 and 2001 (London: HMSO).

Transport and Road Research Laboratory (1970), 'TRRL Road Note 29 (Appendix 1). Road pavement design'.

Transport and Road Research Laboratory (1984), 'TRRL Report LR1132 (Table C1)'.

UK Water Industry Research (2010) *UKWIR Report 10/WM/03/21. Guidance for the Selection of Water Supply Pipes to be used in Brownfield Sites* (London: UKWIR).

Water Framework Directive (2000/60/EC).

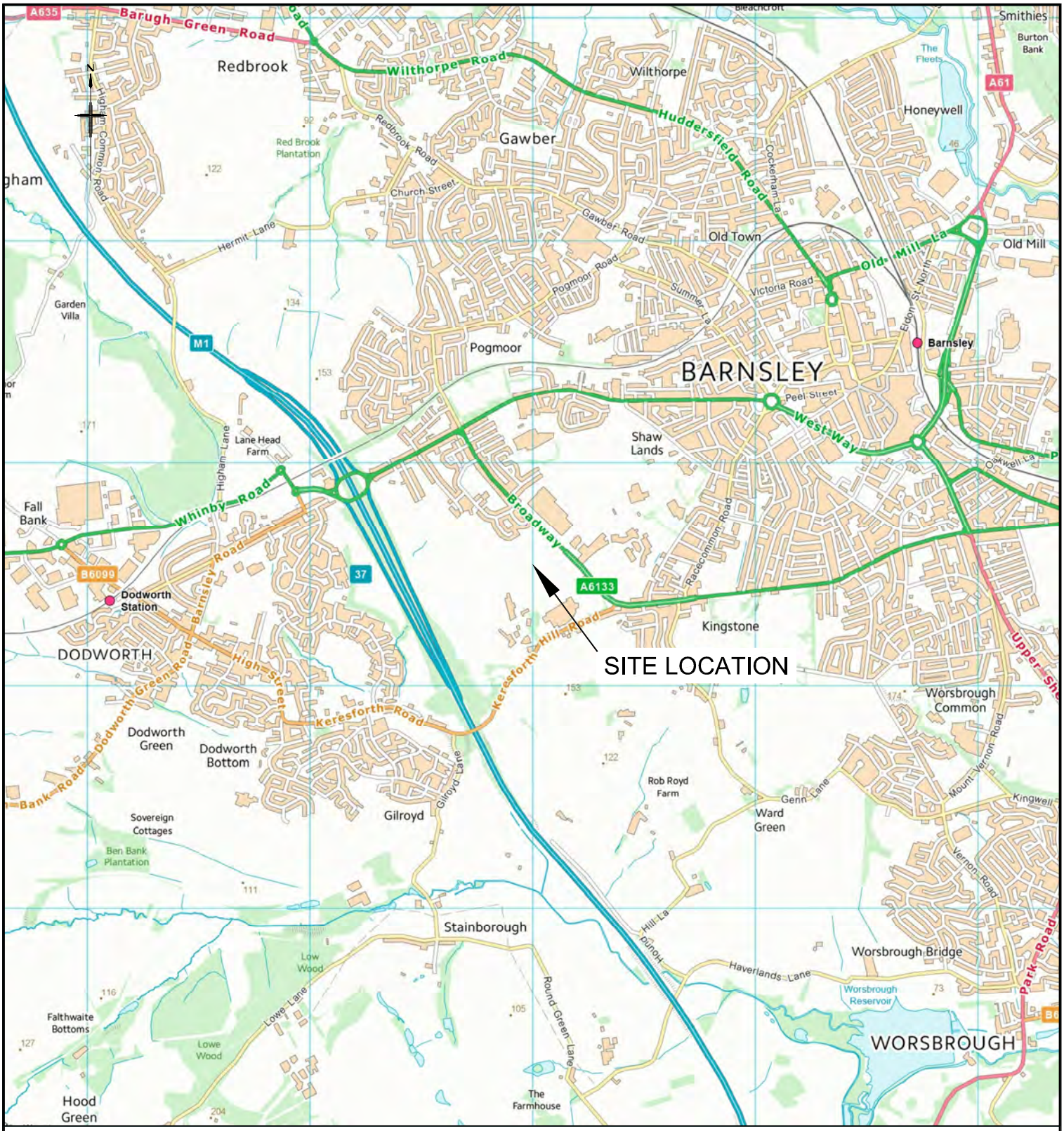
Wilson, S. A. and Card, G. B. (1999), 'Reliability and risk in gas protection design', *Ground Engineering*, February: 33–6.

Wilson, S., Oliver, S., Mallet, H., Hutchings, H. and Card, G. (2007), *CIRIA Report C665: Assessing risks posed by hazardous ground gases to buildings* (London: CIRIA).

World Health Organization (2004), *Guidelines for drinking-water quality*, 3rd edn (Geneva: WHO).

WRc plc (2002), 'Polycyclic Aromatic Hydrocarbons (PAH): Priorities for Environmental Quality Standard Development, R&D Technical Report P45'.

FIGURES



The Potteries
Pottery Street
Castleford
West Yorkshire
WF10 1NJ

Telephone: +44 (0)1977 878007
Fax: +44 (0)1977 552299
Web: www.rsk.co.uk

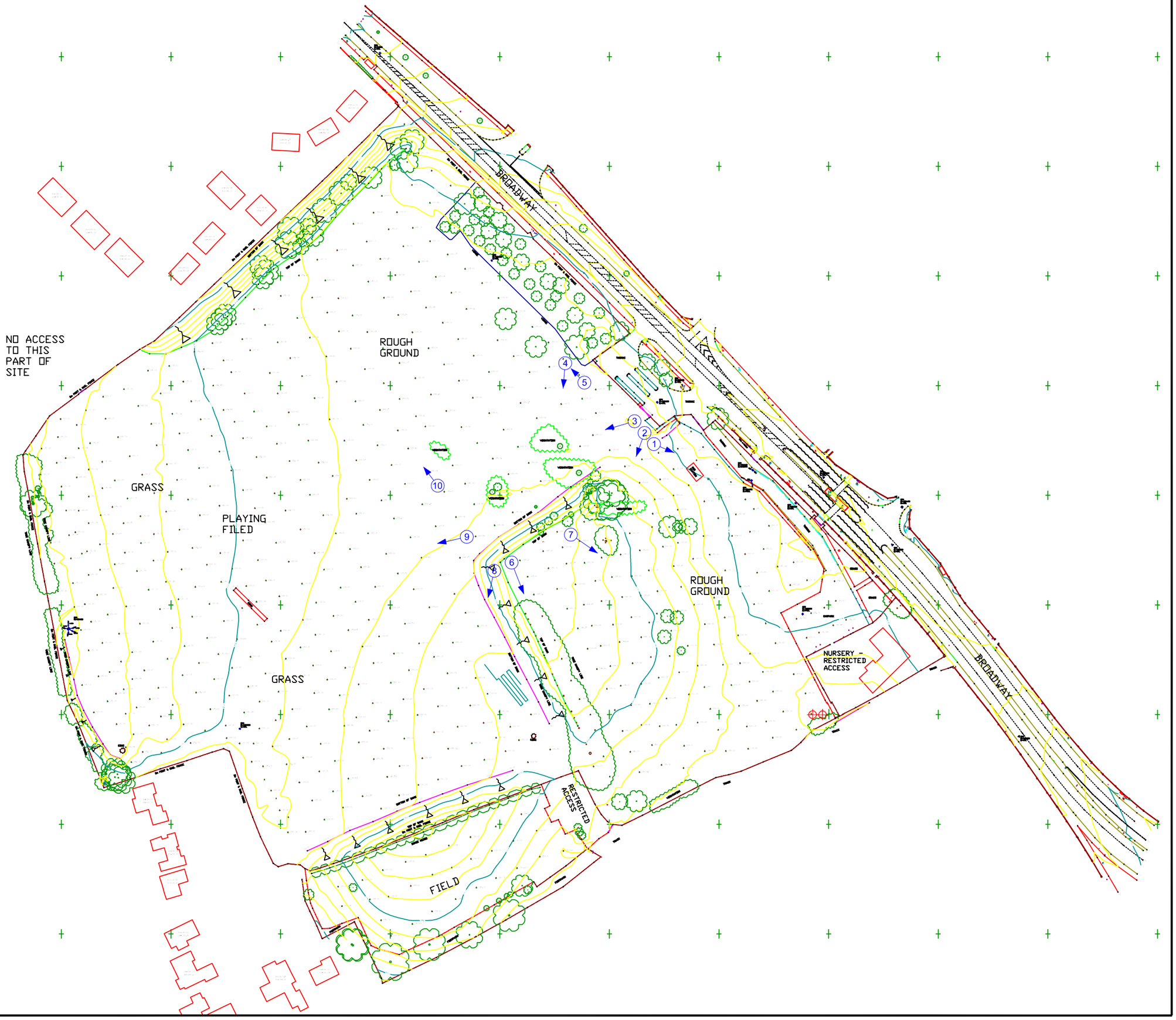
Client: TAYLOR WIMPEY YORKSHIRE

Project Title: KINGSTONE SCHOOL, BROADWAY, BARNSLEY

Drawing Title: SITE LOCATION PLAN

Drawn	Date	Checked	Date	Approved	Date	Project No.	Drawing File
HD	04.11.13	JH	04.11.13	JH	04.11.13	301285	301285-R02(00)D001A

Scale	Orig Size	Dimensions	Drawing No.	Rev.
NTS	A4	—	FIGURE 1	A



LEGEND:

3 Photo reference and direction

Approximate location of disused adit ir mineshaft

N

REV	DATE	DESCRIPTION	BY	CHD.	APR.
A	04.11.13	FIRST ISSUE	HD	JH	JH

Dimensions	Projection	Scale	Orig Size
m		AS SHOWN	A3

RSK
The Potteries
Pottery Street
Castleford
West Yorkshire
WF10 1NJ
Telephone: +44 (0)1977 878007
Fax: +44 (0)1977 552299
Web: www.rsk.co.uk

CLIENT
TAYLOR WIMPEY YORKSHIRE

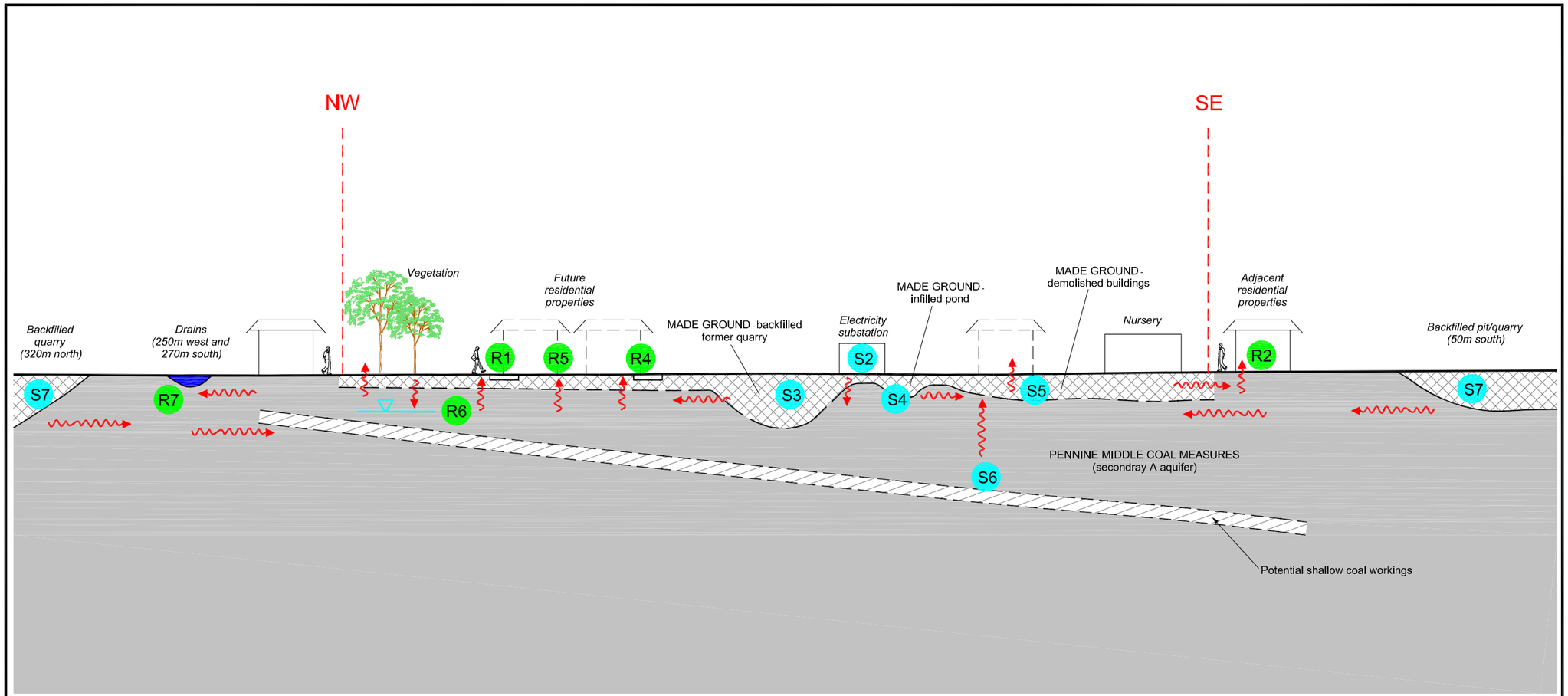
PROJECT
KINGSTONE SCHOOL, BROADWAY, BARNSLEY

TITLE
SITE LAYOUT PLAN

JOB No.:	DRAWING FILE:
301285	301285-R02(00)D002A

BY:	DATE:	CONTRACT NO.		REV:
HD	04.11.13		FIGURE 2	A

Scale bar
0 20 40 60 80 100m



LEGEND:

- S1 Sources
- R1 Receptors
- P1 Pathways
- Potential Contamination pathways

Sources

- S1 Former agricultural land;
- S2 Electricity substation;
- S3 Made ground associated with backfilled former quarry;
- S4 Made ground associated with infilled pond;
- S5 Made ground associated with demolition of buildings;
- S6 Coal bearing strata and potential shallow workings;

Off-site

- S7 Backfilled former pit/quarry 50m south and quarry 320m north.

Pathways

- P1 Direct contact;
- P2 Ground gas and soil gas inhalation;
- P3 Vertical and lateral migration including leaching;
- P4 Root uptake; and
- P5 Chemical attack on infrastructure.

Receptors

- R1 Future site occupants;
- R2 Adjacent site users;
- R3 Vegetation;
- R4 Water supply pipes;
- R5 Buildings and infrastructure;
- R6 Groundwater beneath site; and
- R7 Surface water.

REV	DATE	DESCRIPTION	BY	CHD.	APR.
A	05.11.13	FIRST ISSUE	HD	JH	JH

Dimensions	Projection	Scale	Orig Size
m		NTS	A3

RSK
The Potteries
Pottery Street
Castleford
West Yorkshire
WF10 1NJ
Telephone: +44 (0)1977 878007
Fax: +44 (0)1977 552299
Web: www.rsk.co.uk

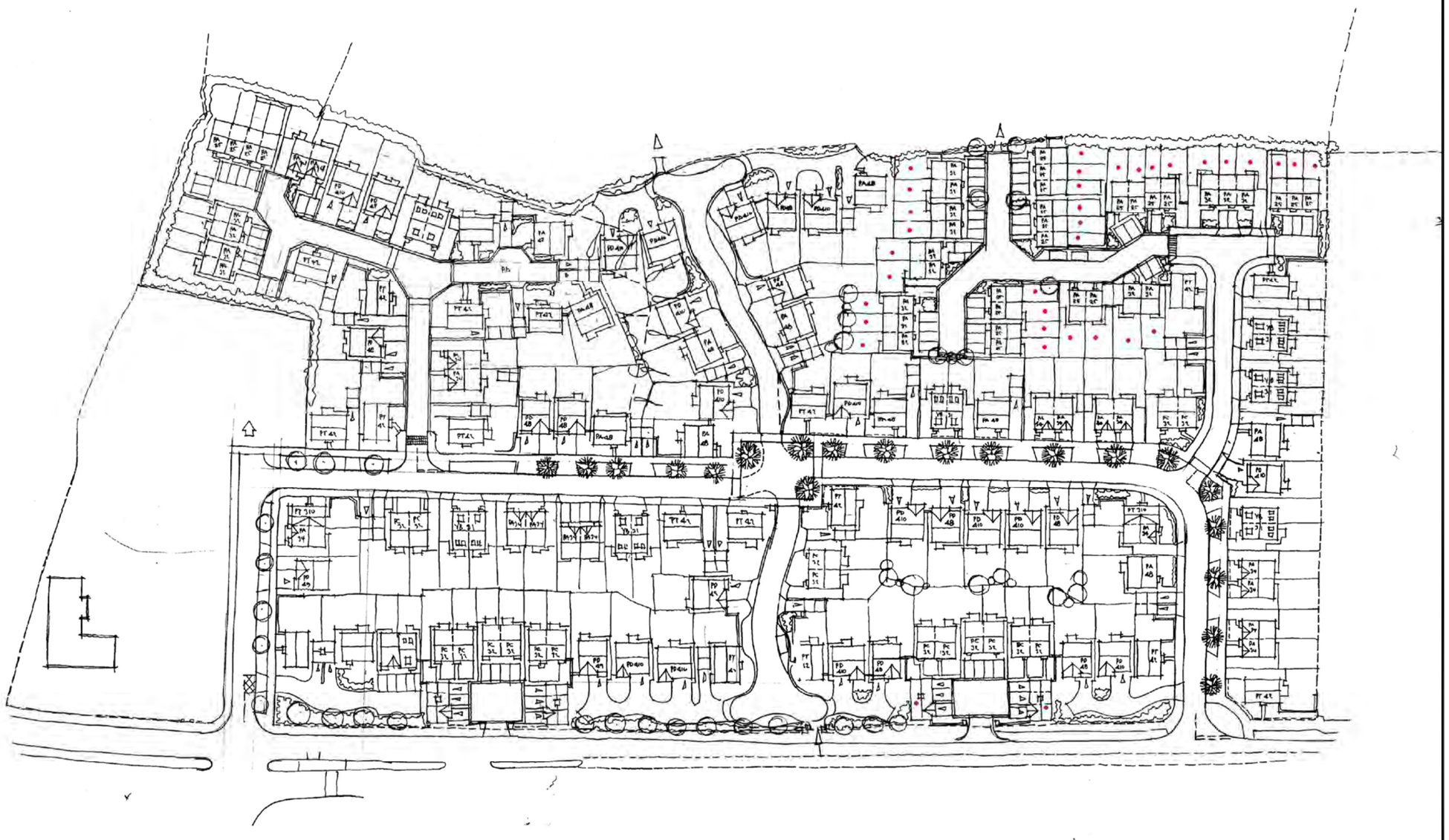
CLIENT: TAYLOR WIMPEY YORKSHIRE

PROJECT: KINGSTONE SCHOOL, BROADWAY, BARNSLEY

TITLE: INITIAL CONCEPTUAL SITE MODEL

JOB No.:	DRAWING FILE:
301285	301285-R02(00)D003A

BY:	DATE:	CONTRACT NO.		REV:
HD	05.11.13		FIGURE 3	A



REV	DATE	DESCRIPTION	BY	CHD.	APR.
A	04.11.13	FIRST ISSUE	HD	JH	JH

Dimensions	Projection	Scale	Orig Size
m		NTS	A3

RSK
The Potteries
Pottery Street
Castleford
West Yorkshire
WF10 1NJ
Telephone: +44 (0)1977 878007
Fax: +44 (0)1977 552299
Web: www.rsk.co.uk

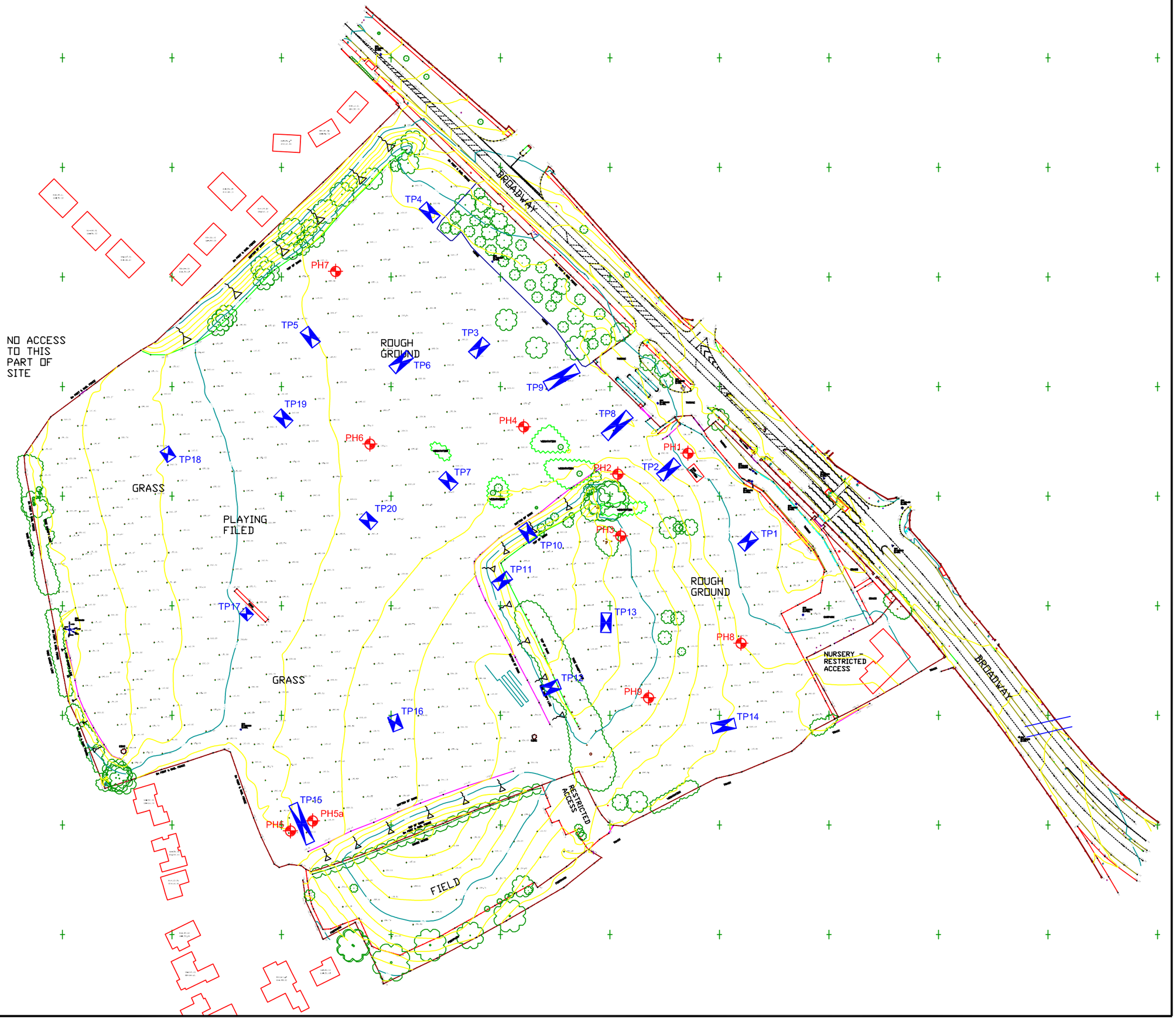
CLIENT
TAYLOR WIMPEY YORKSHIRE

PROJECT
KINGSTONE SCHOOL,
BROADWAY, BARNSLEY

TITLE
PROPOSED DEVELOPMENT PLAN

JOB No.:	DRAWING FILE:
301285	301285-R02(00)D004A

BY:	DATE:	CONTRACT NO.		REV:
HD	04.11.13		FIGURE 4	A



LEGEND:

PH4 RSK probehole location

TP4 RSK trialpit location

REV	DATE	DESCRIPTION	BY	CHD.	APR.
A	04.11.13	FIRST ISSUE	HD	JH	JH

Dimensions	Projection	Scale	Orig Size
m		AS SHOWN	A3

RSK
The Potteries
Pottery Street
Castleford
West Yorkshire
WF10 1NJ
Telephone: +44 (0)1977 878007
Fax: +44 (0)1977 552299
Web: www.rsk.co.uk

CLIENT

TAYLOR WIMPEY YORKSHIRE

PROJECT

KINGSTONE SCHOOL, BROADWAY, BARNSLEY

TITLE

EXPLORATORY HOLE LOCATION PLAN

JOB No.:	DRAWING FILE:
301285	301285-R02(00)D005A

BY:	DATE:	CONTRACT NO.		REV:
HD	04.11.13		FIGURE 5	A

Scale bar

0 20 40 60 80 100m

PH6 0.4m	(mg/kg)	
Contaminant	Concentration	HH GAC
Benzo(a)anthracene	45.4	3.1
Benzo(a)pyrene	53.8	0.83
Benzo(k)fluoranthene	23.3	8.5
Chrysene	43.9	6
Dibenzo(ah)anthracene	6.64	0.76
Indeno(123-cd)pyrene	26.2	3.2
Aro C_{16}-C_{21}	270	250
Aro C_{21}-C_{35}	1370	890

TP9 0.3m	(mg/kg)	
Contaminant	Concentration	HH GAC
Benzo(a)anthracene	10.9	3.1
Benzo(a)pyrene	9.12	0.83
Benzo(b)fluoranthene	10.2	5.6
Chrysene	9.93	6
Dibenzo(ah)anthracene	1.38	0.76
Indeno(123-cd)pyrene	4.86	3.2

TP8 0.35m	(mg/kg)	
Contaminant	Concentration	HH GAC
Benzo(a)pyrene	1.11	0.83

PH2 0.8m	(mg/kg)	
Contaminant	Concentration	HH GAC
Benzo(a)pyrene	2.26	0.83

PH3 0.3m	(mg/kg)	
Contaminant	Concentration	HH GAC
Benzo(a)anthracene	3.47	3.1
Benzo(a)pyrene	3.36	0.83

NO ACCESS TO THIS PART OF SITE

ROUGH GROUND

GRASS

PLAYING FILED

GRASS

ROUGH GROUND

NURSERY - RESTRICTED ACCESS

RESTRICTED ACCESS

FIELD

BROADWAY

BROADWAY

TP1 TP2 TP3 TP4 TP5 TP6 TP7 TP8 TP9 TP10 TP11 TP12 TP13 TP14 TP15 TP16 TP17 TP18 TP19 TP20

PH1 PH2 PH3 PH4 PH5 PH5a PH6 PH7 PH8 PH9

LEGEND:

PH4 RSK probehole location

TP4 RSK trialpit location

N

REV	DATE	DESCRIPTION	BY	CHD.	APR.
A	04.11.13	FIRST ISSUE	HD	JH	JH

Dimensions	Projection	Scale	Orig Size
m		AS SHOWN	A3

RSK
The Potteries
Pottery Street
Castleford
West Yorkshire
WF10 1NJ
Telephone: +44 (0)1977 878007
Fax: +44 (0)1977 552299
Web: www.rsk.co.uk

CLIENT
TAYLOR WIMPEY YORKSHIRE

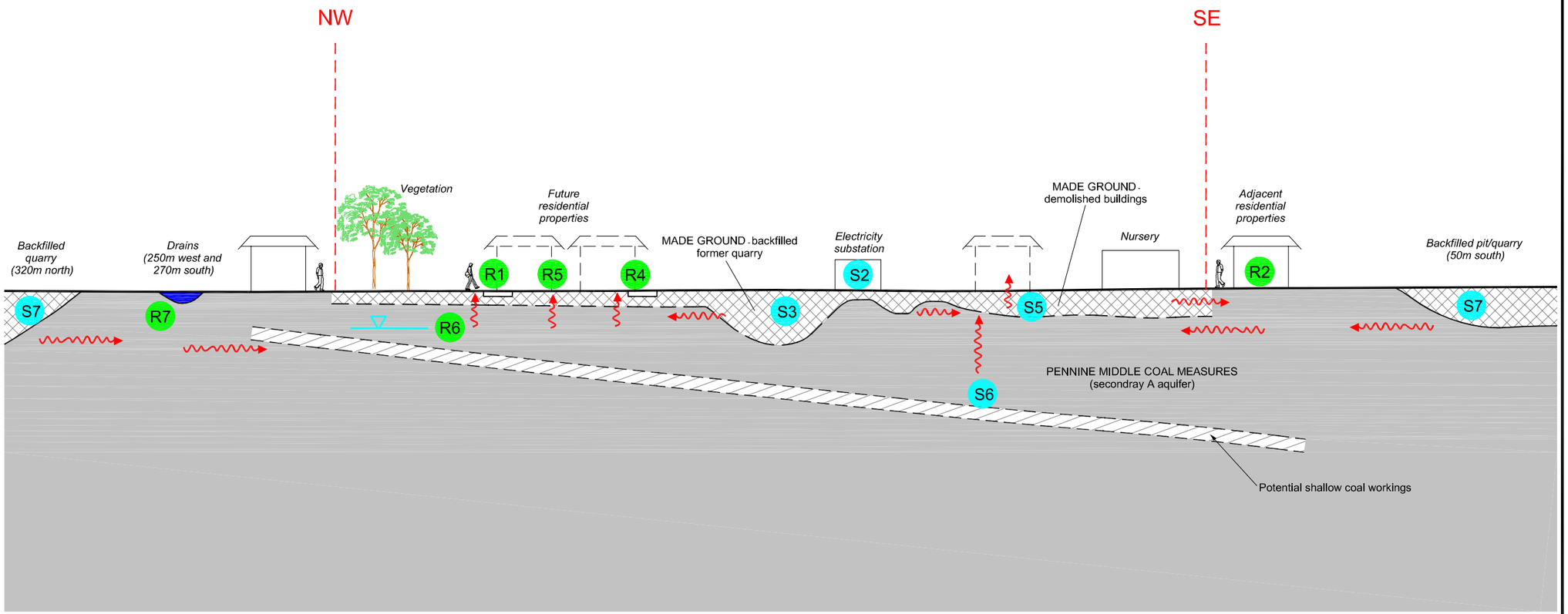
PROJECT
KINGSTONE SCHOOL, BROADWAY, BARNSLEY

TITLE
LOCATION OF EXCEEDANCES

JOB No.:	DRAWING FILE:
301285	301285-R02(00)D006A

BY:	DATE:	CONTRACT NO.		REV:
HD	04.11.13		FIGURE 6	A

Scale bar
0 20 40 60 80 100m



LEGEND:

- S1 Sources
- R1 Receptors
- P1 Pathways
- Potential Contamination pathways

Sources

- S1 Former agricultural land;
- S2 Electricity substation;
- S3 Made ground associated with backfilled former quarry;
- S5 Made ground associated with demolition of buildings;
- S6 Coal bearing strata and potential shallow workings;

Off-site

- S7 Backfilled former pit/quarry 50m south and quarry 320m north.

Pathways

- P1 Direct contact;
- P2 Ground gas and soil gas inhalation;
- P3 Vertical and lateral migration including leaching;
- P4 Root uptake; and
- P5 Chemical attack on infrastructure.

Receptors

- R1 Future site occupants;
- R2 Adjacent site users;
- R3 Vegetation;
- R4 Water supply pipes;
- R5 Buildings and infrastructure;
- R6 Groundwater beneath site; and
- R7 Surface water.

REV	DATE	DESCRIPTION	BY	CHD.	APR.
A	05.11.13	FIRST ISSUE	HD	JH	JH

Dimensions	Projection	Scale	Orig Size
m		NTS	A3

RSK
The Potteries
Pottery Street
Castleford
West Yorkshire
WF10 1NJ
Telephone: +44 (0)1977 878007
Fax: +44 (0)1977 552299
Web: www.rsk.co.uk

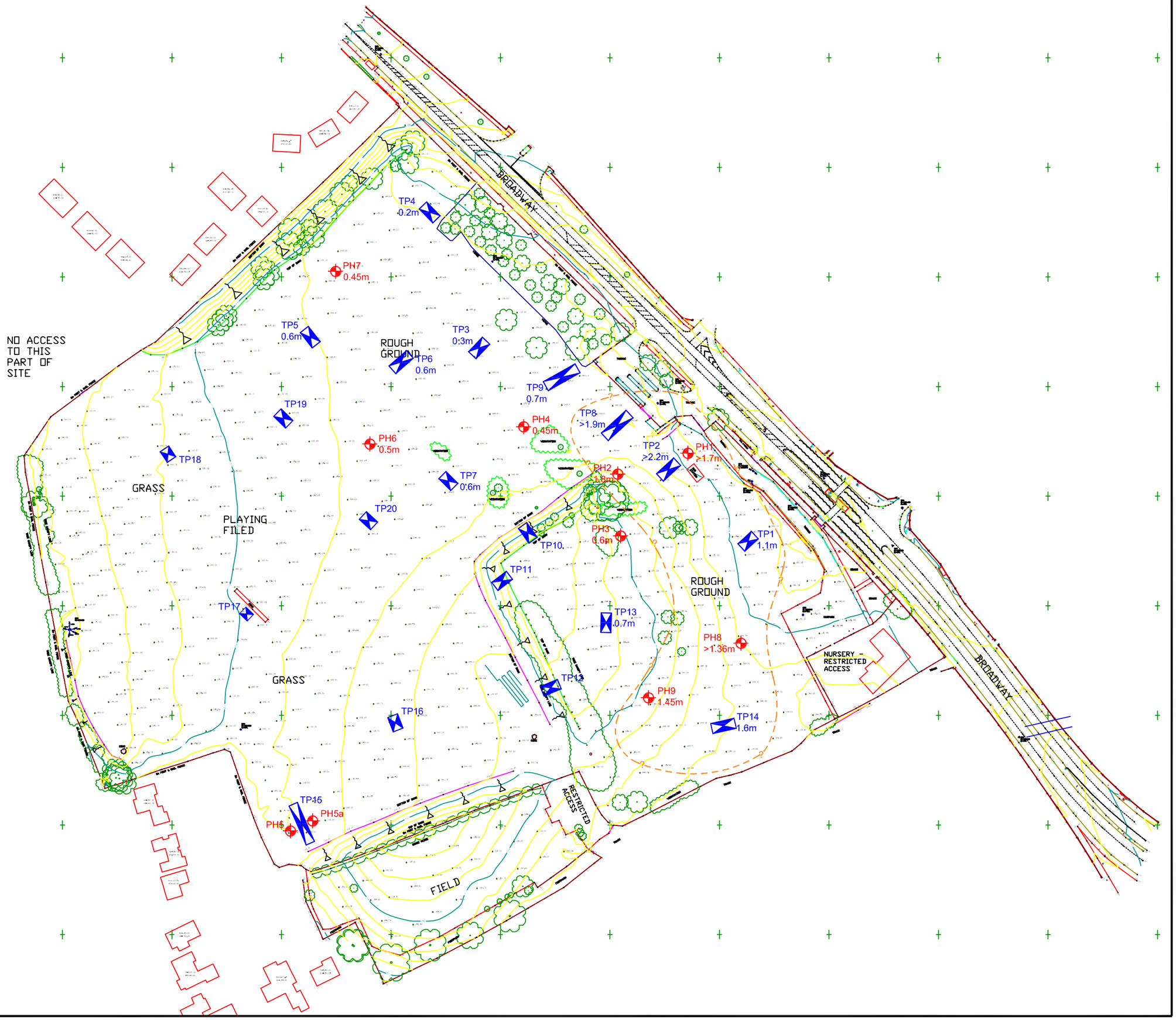
CLIENT: TAYLOR WIMPEY YORKSHIRE

PROJECT: KINGSTONE SCHOOL, BROADWAY, BARNSLEY

TITLE: REFINED CONCEPTUAL SITE MODEL

JOB No.:	DRAWING FILE:
301285	301285-R02(00)D007A

BY:	DATE:	CONTRACT NO.		REV:
HD	05.11.13		FIGURE 7	A



LEGEND:

- PH4 / TP4 — RSK probehole location; RSK trial pit location
- 1.8m / 1.1m — Depth of made ground
- Approximate extent of deeper made ground

N

REV	DATE	DESCRIPTION	BY	CHD.	APR.
A	08.11.13	FIRST ISSUE	HD	JH	JH

Dimensions	Projection	Scale	Orig Size
m		AS SHOWN	A3

RSK
The Potteries
Pottery Street
Castleford
West Yorkshire
WF10 1NJ
Telephone: +44 (0)1977 878007
Fax: +44 (0)1977 552299
Web: www.rsk.co.uk

CLIENT
TAYLOR WIMPEY YORKSHIRE

PROJECT
KINGSTONE SCHOOL, BROADWAY, BARNSLEY

TITLE
LOCATION OF DEEPER MADE GROUND

JOB No.:	DRAWING FILE:
301285	301285-R02(00)D008A

BY:	DATE:	CONTRACT NO.		REV:
HD	08.11.13		FIGURE 8	A

Scale bar
0 20 40 60 80 100m

APPENDIX A
SERVICE CONSTRAINTS

1. This report and the site investigation carried out in connection with the report (together the "Services") were compiled and carried out by RSK Environment Limited (RSK) for Taylor Wimpey Yorkshire (the "client") in accordance with the terms of a contract between RSK and the "client", dated 26 July 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 to include 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.

Planning Policy

Contaminated land is often dealt with through planning because of land redevelopment. This approach was 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.

PPS23 was withdrawn early in 2012 and has been replaced by much reduced guidance within the National Planning Policy Framework (NPPF).

The new framework has only limited guidance on contaminated land, as follows:

- *"planning policies and decisions should also ensure that:*
    - *the site is suitable for its new use taking account of ground conditions and land instability, including from natural hazards or former activities such as mining, pollution arising from previous uses and any proposals for mitigation including land remediation or impacts on the natural environment arising from that remediation;*
    - *after remediation, as a minimum, land should not be capable of being determined as contaminated land under Part IIA of the Environmental Protection Act 1990; and*
    - *adequate site investigation information, prepared by a competent person, is presented".*

APPENDIX C
SITE PHOTOGRAPHS AND WALKOVER REPORT

WALKOVER SURVEY CHECKLIST: GEOSCIENCES

SITE NAME: Kingstone School, Barnsley **SITE REFERENCE:** 301285

NGR: 433000, 405540

These inspections can provide useful information on:

- Potential geotechnical hazards
- Suitable and appropriate locations for investigation
- The groundwater and surface water environments
- Potentially sensitive receptors (targets) including issues that require further investigation, e.g. ecology surveys
- Potential sources of contaminants
- Nature of contamination
- Potential migration routes (pathways)

Mark locations of features described on a map and give them a reference number.

Describe features in as much detail as possible. Continue on the back of the checklist if necessary, using the feature letter for reference. Take photos of site and relevant features in immediate surrounding area.

The walkover survey can also provide information for the environmental consultant in planning the site investigation.

Points that should be addressed in a walkover survey are as follows:

Features	Description	Photo no.	Map ref.
a) Describe materials exposed in nearby road or railway cuttings, in pits and quarries and natural exposures of soils and rocks near to the site. *This will give an indication of the geology beneath the site*	Small pits observed at the location of former quarry – fill material includes ash, clinker, broken bottles and ceramics		
b) Describe surrounding properties/land use and name occupiers. Type of boundary demarcation (if any) on each side. *This will identify any potential sources of contamination from adjacent sites and any sensitive receptors*	Residential and agricultural		
c) Describe present land use. Are there areas of hardstanding (if yes describe location, types and condition)? *Especially crops, for consideration of appropriate timing for further investigation, compensation and reinstatement. Also note hardstanding, obstructions etc. Note any old buildings/ivy covered trees as these may be used by owls or bats*	Site cleared of buildings except for electricity substation, site surface graded and re-seeded in places		

WALKOVER SURVEY CHECKLIST Continued

SITE NAME **SITE REFERENCE** **NGR**

Features	Description	Photo no.	Map ref.
d) Describe the site in terms of ground slopes and changes in slope. Is there any evidence of subsidence or landslip/slope erosion? *Old scarps or hummocky ground may be evidence of previous landslips that could be reactivated. A terraced appearance may be indicative of superficial solifluction movement or cambering. Trees that are leaning may indicate instability or general slope movement.*	Raised area in east corner and slopes along north site boundary, centre of site and south of site		
e) Describe the types and condition of surface vegetation. *Nettles may indicate an old cesspit for example or unhealthy vegetation may indicate the presence of phytotoxic fill or landfill gas. Note invasive weeds, e.g. Japanese knotweed.*	Mostly exposed soil, some re-seeded areas, trees, bushes/hedges		
f) Note the number, location, height and species of trees and hedges. *This is important in terms of shrinking and swelling ground. Trees and hedgerows may be protected; their condition should be noted along with any restrictions they will impose for site access.* *It is important to note any areas with the potential for nesting birds, roosting bats, water voles and badger setts.*	Several mature trees, particularly at site boundaries		
g) Describe any evidence of animal activity. *For example obvious animal paths or areas of excavations and burrows.*	None identified		
h) Describe any damage to existing structures on site or adjacent to the site *For example, cracks in buildings both on the site and in the neighbourhood, and other evidence of settlement or differential settlement.* *Note presence of any suspected asbestos-containing materials (ACM)*	None identified		
i) Note the remains of structures that have been demolished. Look for evidence of remnants of any historical structures. *This will provide valuable information on the location of previous foundations, processes etc.* *Note presence of any suspected asbestos-containing materials (ACM)*	None identified		

WALKOVER SURVEY CHECKLIST Continued

SITE NAME **SITE REFERENCE** **NGR**

Features	Description	Photo no.	Map ref.
j) Note any abrupt changes in ground level. Is there evidence of Made Ground/fill on site *May indicate that minerals have been worked in surface excavations. May indicate cut and fill.*	Some differing levels/slopes across site		
k) Note any surface hollows. *Which may indicate the presence of solution features or swallow holes in rocks such as chalk limestone, gypsum and salt, or collapsed underground workings in these materials. May also indicate badger setts or other wildlife activity.*	None identified		
l) In areas of country underlain by coal or other minerals note any hummocky ground. *Which may be the remnants of spoil tips and surface depressions that may indicate collapsed shallow workings. Areas of general unevenness may be evidence of waste disposal activities.*	None identified		
m) Note any evidence of gas from nearby landfill sites *Can be indicated for example by poor vegetation or gas bubbles in water-filled trenches.*	None identified		
n) Are there any evidence of gas protection measures (gas membrane, gravel filled trenches, venting pipes, cowls etc)	None identified		
o) Note the location of streams, culverts, ponds, seepages and sinks and signs of previous flooding. Note direction of flow. Note where the stream is accessible for sampling. May need to take dimensions of stream. *If ponds are present on site they may contain great crested newts. Ditches, streams and rivers that border or run through a site may contain water voles, otters or white-clawed crayfish. Presence of water features on site may prompt the need for a survey during a site investigation.*	None identified		
p) All surface waters should be examined for evidence of contamination. *For example, oil sheen, silt, solid matter, discoloured sediment.*	None identified		

Features	Description	Photo no.	Map ref.
q) Note site drainage. Are there any drain covers/soakaways (if yes describe locations). Are there any outfalls to surface watercourses? Are there any interceptors/lagoons/effluent treatment plants?	None identified		
r) Describe storage of fuels and chemicals. Are there any drums/containers (if yes, describe quantity, full/empty, stored on hardstanding/softstanding, bunded)? *Is there evidence of underground fuel tanks (if yes, describe locations, how many, volumes, bunding, used/disused, condition)?*	Oil in equipment in electricity substation		
s) Note any discoloured ground. *This may provide evidence of contamination.*	None identified		
t) Accidents: In the event of a large spillage would runoff affect any vulnerable watercourses/culverts? *Are emergency procedures/equipment in place?*	None identified		
u) Waste: Are there any waste skips on site? Are waste storage facilities adequate? Is there any litter/fly-tipped material?	Some littering - used gas cylinders, fencing, bricks, breeze blocks, glass sheets, pipes		
v) Are there any electricity substations on or adjacent to site?	One in east of site		
w) Identify any old structures, pipework etc. wherever possible and, if safe, inspect for evidence of stored waste. *Old tanks may contain oil. Old electricity transformers should be noted. Asbestos risk should be assessed together with the need for a specialist hazardous materials survey.*	None identified		
x) Examine surrounding areas for evidence of contamination which could migrate onto the site. *For example a leaking oil tank on an adjacent site.*	None identified		
y) Note the presence of any underground structures, services, mine workings, tunnels etc *From a safety point of view for development of the site and also as they may provide contaminant migration routes.*	None identified		
z) Note any anecdotal information in past uses of the site. *Local street names etc. can provide indicators of past industry or ground problems*	None identified		

Features	Description	Photo no.	Map ref.
aa) Description of buildings on site. Is there any evidence of asbestos construction materials, e.g. roofing, insulation materials. Do any of the buildings have basements? Do any of the buildings have a boiler room? (if yes describe fuel type and storage arrangements)	None identified		
bb) Identify potential access routes to the site for plant for the site investigation *Excavators and drilling rigs may be required for the next stage of the investigation, or if the access is limited window sampling techniques may need to be specified. Note any specific obstructions such as unsafe/unstable ground, protected trees or hedgerows, or protected buildings.*	Main vehicular access point off Broadway		
cc) Evidence of buried services (water, gas, electricity, telephone, cable, television, pipelines) *Both for safety considerations and in the case of water as supply for further investigation. As well as danger, there is the question of considerable expense, which can arise from an inadequate knowledge of the location of buried services. The locations and heights of overhead cables may be important when considering the movement of site equipment.*	None identified		

Walkover survey completed	Approved:	Joshua Duckering	Date 8.05.13

Notes:

PHOTOGRAPHIC LOG

Photo no. **1**	**Date:** 10.05.13	
Direction photo taken: South east		
Description: Eastern site boundary looking towards substation building and nursery.		

Photo No. **2**	**Date:** 10.05.13	
Direction photo taken: South west		
Description: View from entrance towards raised area in ease of site		

Photo No.	Date:	
3	10.05.13	
Direction Photo Taken: West		
Description: View across former playing fields towards residential properties adjacent to west of site		

Photo No.	Date:	
4	10.05.13	
Direction Photo Taken: South		
Description: View towards slope in centre of site		

Photo No.	Date:	
5	10.05.13	
Direction Photo Taken: North west		
Description: View along eastern site boundary		

Photo No.	Date:	
6	10.05.13	
Direction Photo Taken: South east.		
Description: View from slope towards nursery in eastern corner		

Photo No.	Date:	
7	10.05.13	
Direction Photo Taken: South east		
Description: View looking along western edge of raised area		

Photo No.	Date:	
8	10.05.13	
Direction Photo Taken: South		
Description: View towards southern corner of site		

Photo No.	Date:	
9	10.05.13	
Direction Photo Taken: West		
Description: View across former playing fields towards western site boundary		

Photo No.	Date:	
10	10.05.13	
Direction Photo Taken: North west		
Description: View from centre of site towards northern corner showing slope along northern site boundary		

APPENDIX D
BGS BOREHOLE RECORDS

SE 30 NW 182

3322 0543

Holst & Co Limited

Site Investigation Division

Parkside Lane, Dewsbury Road, Leeds, LS11 5SX

Contract No. L4108/F1647 Borehole No. 2

Location Barnsley Ground Level

Client Sir John Burnet, Tait, Durrant and Prts. Date 12/3/71

BOREHOLE LOG

STRATA	Legend	Depth below Ground Level	Thickness of Strata	Type of Sample	c lb/sq. ft.	ø deg.	m.c %	γ lb/cu. ft.	N
MADE GROUND:- Colliery waste		2'0"	2'0"						
Firm brown shaley clay		6'0"	4'0"		Core drilling from 6'0" below ground level.				
Highly weathered brown mudstone		12'0"	6'0"						
Weathered and broken grey mudstone (Suspected disturbed ground)		23'0"	11'0"						
Old Workings		29'6"	6'6"						
Broken and weathered grey mudstone		38'0"	8'6"						

Water Struck at None Encountered Maximum Observed Water Level

Water levels are subject to seasonal or tidal variation and should not be taken as constant

SE 30 NW 183

3321 0543

Holst & Co Limited

Site Investigation Division

Parkside Lane, Dewsbury Road, Leeds, LS11 5SX

Contract No. L41081/F1647 Borehole No. 3

Location Barnsley Ground Level

Client Sir John Burnet, Tait, Durrant and Prts. Date 13/3/71

BOREHOLE LOG

STRATA	Legend	Depth below Ground Level	Thickness of Strata	Type of Sample	c lb/sq. ft.	ø deg.	m.c %	γ lb/cu. ft.	N
MADE GROUND:- Colliery waste		3'0"	3'0"						
Suspected old workings or disturbed ground		9'0"	6'0"						
Very loose and disturbed ground (No air flush return)		25'0"	16'0"						

Water Struck at None Encountered Maximum Observed Water Level

Water levels are subject to seasonal or tidal variation and should not be taken as constant

SE 30 NW 184

3322 0543

Holst & Co Limited

Site Investigation Division

Parkside Lane, Dewsbury Road, Leeds, LS11 5SX

Contract No. L4108/F1647 Borehole No. 4

Location Barnsley Ground Level

Client Sir John Burnet, Tait, Durrant and Prtn. Date 14/3/71

BOREHOLE LOG

STRATA	Legend	Depth below Ground Level	Thickness of Strata	Type of Sample	c lb/sq. ft.	ø deg.	m.c %	γ lb/cu. ft.	N
Firm brown and grey shaley clay		9'0"	9'0"						
Weathered grey and brown mudstone		21'3"	12'3"						
Coal		29'0"	7'9"						

Water Struck at None Encountered Maximum Observed Water Level

Water levels are subject to seasonal or tidal variation and should not be taken as constant

SE30 NW 185

3320 0548

Holst & Co Limited

Site Investigation Division

Parkside Lane, Dewsbury Road, Leeds, LS11 5SX

Contract No. L4108/F1647 Borehole No. 5

Location Barnsley Ground Level

Client Sir John Burnet, Tait, Durrant and Prts. Date 15/3/71

BOREHOLE LOG

STRATA	Legend	Depth below Ground Level	Thickness of Strata	Type of Sample	c lb/sq. ft.	ø deg.	m.c %	γ lb/cu. ft.	N
Firm brown shaley clay		6'0"	6'0"						
Weathered and shattered mudstone		11'0"	5'0"						
Highly fractured brown and grey siltstone (Possibly disturbed old works)		23'6"	12'6"		Core drilling from 6'0" below ground level.				
Grey fireclay		26'6"	3'0"						
Hard broken shaley mudstone		35'10"	9'4"						
Hard slightly fractured grey sandy siltstone		51'0"	15'2"						
Hard massive grey and brown fine sandstone		54'0"	3'0"						

Water Struck at None Encountereed Maximum Observed Water Level

Water levels are subject to seasonal or tidal variation and should not be taken as constant

SE 30 NW 186

3321 0547

Holst & Co Limited

Site Investigation Division

Parkside Lane, Dewsbury Road, Leeds, LS11 5SX

Contract No. L4108/F1647 Borehole No. 6

Location Barnsley Ground Level

Client Sir John Burnet, Tait, Durrant and Prts. Date 16/3/71

BOREHOLE LOG

STRATA	Legend	Depth below Ground Level	Thickness of Strata	Type of Sample	c lb/sq. ft.	ø deg.	m.c %	γ lb/cu. ft.	N
Soft clay		2'0"	2'0"						
Firm brown shaley clay		10'0"	8'0"						
Brown weatheredshaley mudstone		12'0"	2'0"						
Weathered grey mudstone		20'0"	8'0"						
Grey mudstone		25'3"	5'3"						
Coal		26'0"	0'9"						
Air return lost suspected old works		29'0"	3'0"						

Water Struck at None Encountered Maximum Observed Water Level

Water levels are subject to seasonal or tidal variation and should not be taken as constant

APPENDIX E
COAL AUTHORITY MINING REPORT

The COAL AUTHORITY

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

RSK
12 ROYAL SCOT ROAD
PRIDE PARK
DERBY
DE24 8AJ

Our reference:	**51000373946001**
Your reference:	**301285**
Date of your enquiry:	**20 September 2013**
Date we received your enquiry:	**20 September 2013**
Date of issue:	**20 September 2013**

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

Non-Residential Coal Authority Mining Report

BROADWAY, BARNSLEY, SOUTH YORKSHIRE, S70 6RB

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

Coal mining	See comments below
Brine Compensation District	No

Information from the Coal Authority

Underground coal mining

Past

The property is in the likely zone of influence from workings in 8 seams of coal at shallow to 330m depth, and last worked in 1971.

Present

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

Future

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

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

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

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

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

Mine entries

Within, or within 20 metres of, the boundary of the property there are 2 mine entries, the approximate positions of which are shown on the attached plan.

There is no record of what steps, if any, have been taken to treat the mine entries.

Records may be incomplete. Consequently, there may exist in the local area mine entries of which the Coal Authority has no knowledge.

For an additional fee, the Coal Authority will provide a supplementary Mine Entry Interpretive Report. The report will provide a separate assessment for the mine entry (entries) referred to in this report. It will give details based on information in the Coal Authority's possession, together with an opinion on the likelihood of mining subsidence damage arising from ground movement as a consequence of the existence of the mine entry/entries. It will also give details of the remedies available for subsidence damage where the mine entry was sunk in connection with coal mining.

Please note that it may not be possible to produce a report if the main building to the property cannot be identified from Coal Authority plans (ie. for development sites and new build).

For further advice on how to order this additional information visit www.groundstability.com or telephone 0845 7626 848.

Coal mining geology

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

Opencast coal mining

Past

The property is within the boundary of an opencast site from which coal has been removed by opencast methods.

Present

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

Future

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

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

Coal mining subsidence

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

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

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

Mine gas

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

Hazards related to coal mining

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

Withdrawal of support

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

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

Working facilities orders

The property is not in an area for which an Order has been made under the provisions of the Mines (Working Facilities and Support) Acts 1923 and 1966 or any statutory modification or amendment thereof.

Payments to owners of former copyhold land

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

Comments on Coal Authority information

The attached plan shows the approximate location of the disused mine entry/entries referred to in this report. For reasons of clarity, mine entry symbols may not be drawn to the same scale as the plan.

Property owners have the benefit of statutory protection (under the Coal Mining Subsidence act 1991*). This contains provision for the making good, to the reasonable satisfaction of the owner, of physical damage from disused coal mine workings including disused coal mine entries. A leaflet setting out the rights and the obligations of either the Coal Authority or other responsible persons under the 1991 Act can be obtained by telephoning 0845 762 6848 or online at www.coal.decc.gov.uk/en/coal/cms/services/claims.

If you wish to discuss the relevance of any of the information contained in this report you should seek the advice of a qualified mining engineer or surveyor. If you or your adviser wish to examine the source plans from which the information has been taken these are normally available at our Mansfield office, free of charge, by prior appointment, telephone 01623 637235. Should you or your adviser wish to carry out any physical investigations that may enter, disturb or interfere with any disused mine entry the prior permission of the owner must be sought. For coal mine entries the owner will normally be the Coal Authority.

The Coal Authority, regardless of responsibility and in conjunction with other public bodies, provide an emergency call out facility in coalfield areas to assess the public safety implications of mining features (including disused mine entries). Our emergency telephone number at all times is 01623 646333.

*Note, this Act does not apply where coal was worked or gotten by virtue of the grant of a gale in the Forest of Dean, or any other part of the Hundred of St. Briavels in the county of Gloucester.

In view of the mining circumstances a prudent developer would seek appropriate technical advice before any works are undertaken.

Therefore if development proposals are being considered, technical advice relating to both the investigation of coal and former coal mines and their treatment should be obtained before beginning work on site. All proposals should apply good engineering practice developed for mining areas. No development should be undertaken that intersects, disturbs or interferes with any coal or mines of coal without the permission of the Coal Authority. Developers should be aware that the investigation of coal seams/former mines of coal may have the potential to generate and/or displace underground gases and these risks both under and adjacent to the development should be fully considered in developing any proposals. The need for effective measures to prevent gases entering into public properties either during investigation or after development also needs to be assessed and properly addressed. This is necessary due to the public safety implications of any development in these circumstances.

A site investigation was carried out in January 2004 by SYMAS. Barnsley MBC, Central Offices, Kendray Street, Barnsley. S70 2TN.

A site investigation was carried out in January 2003 by SYMAS Barnsley MBC, Central Offices, Kendray Street, Barnsley, S70 2TN.

A site investigation was carried out in January 2006 by CC Geotechnical. Essex House, Bridle Road, Bootle, Merseyside, L304UE on behalf of: Barnsley MBC Springfield House, Springfield Street, Barnsley, S70 6HH.

Information from the Cheshire Brine Subsidence Compensation Board

The property lies outside the Cheshire Brine Compensation District.

Additional Remarks

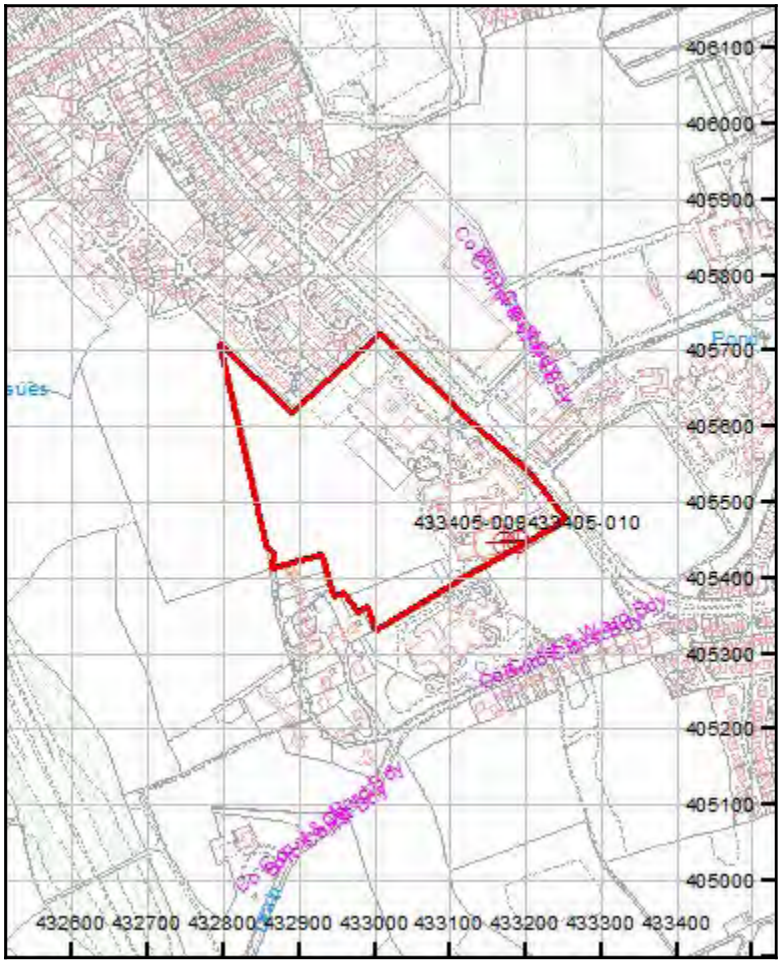
This report is prepared in accordance with the Law Society's Guidance Notes 2006, the User Guide 2006 and the Coal Authority and Cheshire Brine Board's Terms and Conditions 2006.

Issued by:	The Coal Authority, 200 Lichfield Lane, Mansfield, Nottinghamshire, NG18 4RG
Tax Point Date:	20 September 2013
Issued to:	RSK 12 ROYAL SCOT ROAD PRIDE PARK DERBY DE24 8AJ
Property Search for:	BROADWAY, BARNSLEY, SOUTH YORKSHIRE, S70 6RB
Reference Number:	51000373946001
Date of Issue:	20 September 2013
Cost:	£59.00
VAT @ 20%:	£11.80
Total Received:	£70.80
VAT Registration	598 5850 68

Location map

Approximate position of property

Enquiry boundary



Key

Approximate position of enquiry boundary shown

Disused Adit or Mineshaft

Mapping sourced from Ordnance Survey

APPENDIX F
ENVIRONMENTAL DATABASE REPORT

Envirocheck® Report:

Datasheet

Order Details:

Order Number:
49487972_1_1

Customer Reference:
301285

National Grid Reference:
433000, 405540

Slice:
A

Site Area (Ha):
9.62

Search Buffer (m):
1000

Site Details:

Kingstone School
Broadway
BARNSLEY
South Yorkshire
S706RB

Client Details:

Mr J Harrison
RSK Environment Ltd
RSK Geoconsult Limited
The Potteries
Pottery Street
Casleford
West Yorkshire
WF10 1NJ

Contents

Introduction

The Environment Act 1995 has made site sensitivity a key issue, as the legislation pays as much attention to the pathways by which contamination could spread, and to the vulnerable targets of contamination, as it does the potential sources of contamination.
For this reason, Landmark's Site Sensitivity maps and Datasheet(s) place great emphasis on statutory data provided by the Environment Agency and the Scottish Environment Protection Agency; it also incorporates data from Natural England (and the Scottish and Welsh equivalents) and Local Authorities; and highlights hydrogeological features required by environmental and geotechnical consultants. It does not include any information concerning past uses of land. The datasheet is produced by querying the Landmark database to a distance defined by the client from a site boundary provided by the client.

In the attached datasheet the National Grid References (NGRs) are rounded to the nearest 10m in accordance with Landmark's agreements with a number of Data Suppliers.

Copyright Notice

Natural England Copyright Notice

Ove Arup Copyright Notice

Peter Brett Associates Copyright Notice

Radon Potential dataset Copyright Notice

Report Version v47.0

Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Agency & Hydrological					
Contaminated Land Register Entries and Notices					
Discharge Consents	pg 1		14	2	6
Enforcement and Prohibition Notices					
Integrated Pollution Controls	pg 6				4
Integrated Pollution Prevention And Control	pg 7				2
Local Authority Integrated Pollution Prevention And Control					
Local Authority Pollution Prevention and Controls	pg 7				6
Local Authority Pollution Prevention and Control Enforcements					
Nearest Surface Water Feature	pg 8			Yes	
Pollution Incidents to Controlled Waters	pg 8			1	8
Prosecutions Relating to Authorised Processes					
Prosecutions Relating to Controlled Waters					
Registered Radioactive Substances					
River Quality	pg 10				1
River Quality Biology Sampling Points					
River Quality Chemistry Sampling Points					
Substantiated Pollution Incident Register					
Water Abstractions	pg 10				5 (*1)
Water Industry Act Referrals					
Groundwater Vulnerability	pg 11	Yes	n/a	n/a	n/a
Bedrock Aquifer Designations	pg 11	Yes	n/a	n/a	n/a
Superficial Aquifer Designations			n/a	n/a	n/a
Source Protection Zones					
Extreme Flooding from Rivers or Sea without Defences				n/a	n/a
Flooding from Rivers or Sea without Defences				n/a	n/a
Areas Benefiting from Flood Defences				n/a	n/a
Flood Water Storage Areas				n/a	n/a
Flood Defences				n/a	n/a
Waste					
BGS Recorded Landfill Sites	pg 12			1	
Historical Landfill Sites	pg 12			2	6
Integrated Pollution Control Registered Waste Sites					
Licensed Waste Management Facilities (Landfill Boundaries)					
Licensed Waste Management Facilities (Locations)	pg 14				1
Local Authority Recorded Landfill Sites	pg 14			1	7
Registered Landfill Sites	pg 15				3
Registered Waste Transfer Sites	pg 16				1
Registered Waste Treatment or Disposal Sites					

Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Hazardous Substances					
Control of Major Accident Hazards Sites (COMAH)					
Explosive Sites					
Notification of Installations Handling Hazardous Substances (NIHHS)					
Planning Hazardous Substance Consents					
Planning Hazardous Substance Enforcements					
Geological					
BGS 1:625,000 Solid Geology	pg 17	Yes	n/a	n/a	n/a
BGS Estimated Soil Chemistry	pg 17	Yes	Yes	Yes	Yes
BGS Recorded Mineral Sites	pg 33	1		2	7
BGS Urban Soil Chemistry					
BGS Urban Soil Chemistry Averages					
Brine Compensation Area			n/a	n/a	n/a
Coal Mining Affected Areas	pg 35	Yes	n/a	n/a	n/a
Mining Instability	pg 35	Yes	n/a	n/a	n/a
Man-Made Mining Cavities					
Natural Cavities					
Non Coal Mining Areas of Great Britain	pg 35	Yes		n/a	n/a
Potential for Collapsible Ground Stability Hazards	pg 35	Yes		n/a	n/a
Potential for Compressible Ground Stability Hazards	pg 35	Yes	Yes	n/a	n/a
Potential for Ground Dissolution Stability Hazards				n/a	n/a
Potential for Landslide Ground Stability Hazards	pg 35	Yes	Yes	n/a	n/a
Potential for Running Sand Ground Stability Hazards	pg 35	Yes	Yes	n/a	n/a
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 36	Yes		n/a	n/a
Radon Potential - Radon Affected Areas	pg 36	Yes	n/a	n/a	n/a
Radon Potential - Radon Protection Measures			n/a	n/a	n/a
Industrial Land Use					
Contemporary Trade Directory Entries	pg 37		5	4	57
Fuel Station Entries	pg 42				3

Summary

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Sensitive Land Use					
Areas of Adopted Green Belt	pg 43	1			
Areas of Unadopted Green Belt					
Areas of Outstanding Natural Beauty					
Environmentally Sensitive Areas					
Forest Parks					
Local Nature Reserves					
Marine Nature Reserves					
National Nature Reserves					
National Parks					
Nitrate Sensitive Areas					
Nitrate Vulnerable Zones	pg 43	1			
Ramsar Sites					
Sites of Special Scientific Interest					
Special Areas of Conservation					
Special Protection Areas					

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
1	**Discharge Consents** Operator: Danaford Ltd Property Type: Domestic Property (Single) Location: Keresforth House Dark Lane, Off Keresforth Hill Road, Barnsley, South Yorkshire Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: 3815 Permit Version: 3 Effective Date: 15th November 2006 Issued Date: 15th November 2006 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Tributary Of Dodworth Dyke **Status: Modified (Water Resources Act 1991, Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 100m	A13SW (S)	31	1	433000 405300
1	**Discharge Consents** Operator: Danaford Ltd Property Type: Domestic Property (Single) Location: Keresforth House Dark Lane, Off Keresforth Hill Road, Barnsley, South Yorkshire Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: 3815 Permit Version: 2 Effective Date: 16th January 1985 Issued Date: 16th January 1985 Revocation Date: 14th November 2006 Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Tributary Of Dodworth Dyke **Status: Transferred from Rivers (Prevention of Pollution) Act 1951-1961** Positional Accuracy: Located by supplier to within 100m	A13SW (S)	31	1	433000 405300
1	**Discharge Consents** Operator: Danaford Ltd Property Type: Domestic Property (Single) Location: Keresforth House Dark Lane, Off Keresforth Hill Road, Barnsley, South Yorkshire Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: 3815 Permit Version: 1 Effective Date: 3rd September 1984 Issued Date: 3rd September 1984 Revocation Date: 15th January 1985 Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Tributary Of Dodworth Dyke **Status: Transferred from Rivers (Prevention of Pollution) Act 1951-1961** Positional Accuracy: Located by supplier to within 100m	A13SW (S)	31	1	433000 405300
2	**Discharge Consents** Operator: Mr & Mrs Sykes Property Type: Domestic Property (Single) Location: 1 Bramley Carr, Keresforth Hill, Barnsley, South Yorkshire, S70 6rx Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: Wra8056 Permit Version: 1 Effective Date: 3rd September 2003 Issued Date: 3rd September 2003 Revocation Date: 22nd September 2003 Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Land/Soakaway Receiving Water: Land **Status: New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 100m	A13SW (S)	86	1	432900 405300

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
3	**Discharge Consents** Operator: Mr & Mrs Sykes Property Type: Domestic Property (Single) Location: 1 Bramley Carr, Keresforth Hill, Barnsley, South Yorkshire, S70 6rx Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: Wra8056 Permit Version: 3 Effective Date: 26th July 2012 Issued Date: 26th July 2012 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Land/Soakaway Receiving Water: Land **Status: Varied under EPR 2010** Positional Accuracy: Located by supplier to within 10m	A13SW (S)	121	1	433000 405210
3	**Discharge Consents** Operator: Mr & Mrs Sykes Property Type: Domestic Property (Single) Location: 1 Bramley Carr, Keresforth Hill, Barnsley, South Yorkshire, S70 6rx Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: Wra8056 Permit Version: 2 Effective Date: 23rd September 2003 Issued Date: 23rd September 2003 Revocation Date: 25th July 2012 Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Land/Soakaway Receiving Water: Land **Status: Modified (Water Resources Act 1991, Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 10m	A13SW (S)	121	1	433000 405210
4	**Discharge Consents** Operator: Cherry Trees Property Type: Sewage Disposal Works - Other Location: Cherry Trees, Dark Lane, Barnsley, South Yorkshire, S70 6re Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: Wra7645 Permit Version: 1 Effective Date: 20th November 2000 Issued Date: 20th November 2000 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Trib Of Dodworth Dyke **Status: New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 10m	A13SW (S)	126	1	432910 405240
4	**Discharge Consents** Operator: David Farrar Property Type: Domestic Property (Single) Location: Greengates, Dark Lane, Barnsley, South Yorkshire, S70 6re Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: Wra8313 Permit Version: 1 Effective Date: 30th March 2004 Issued Date: 30th March 2004 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Trib Of Dodworth Dyke **Status: New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 100m	A13SW (S)	164	1	432900 405200

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
5	**Discharge Consents** Operator: Wortley Construction Ltd Property Type: Trade (Unknown/Other) Location: Dark Lane Development, Off Keresforth Hill Road, Barnsley, South Yorkshire Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: 3630 Permit Version: 3 Effective Date: 10th October 1997 Issued Date: 10th October 1997 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Trib Of Dodworth Dyke **Status: Varied by Application - (Water Resources Act 1991, Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 100m	A8NW (S)	231	1	433000 405100
5	**Discharge Consents** Operator: Mrs A. C. Vernon-Wentworth, C/O Nuttall & Partners Property Type: Trade (Unknown/Other) Location: Dark Lane Development, Off Keresforth Hill Road, Barnsley, South Yorkshire Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: 3630 Permit Version: 3 Effective Date: 10th October 1997 Issued Date: 10th October 1997 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Trib Of Dodworth Dyke **Status: Varied by Application - (Water Resources Act 1991, Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 100m	A8NW (S)	231	1	433000 405100
5	**Discharge Consents** Operator: Mrs A. C. Vernon-Wentworth, C/O Nuttall & Partners Property Type: Trade (Unknown/Other) Location: Dark Lane Development, Off Keresforth Hill Road, Barnsley, South Yorkshire Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: 3630 Permit Version: 2 Effective Date: 26th April 1983 Issued Date: 26th April 1983 Revocation Date: 9th October 1997 Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Trib Of Dodworth Dyke **Status: Transferred from Rivers (Prevention of Pollution) Act 1951-1961** Positional Accuracy: Located by supplier to within 100m	A8NW (S)	231	1	433000 405100
5	**Discharge Consents** Operator: Wortley Construction Ltd Property Type: Trade (Unknown/Other) Location: Dark Lane Development, Off Keresforth Hill Road, Barnsley, South Yorkshire Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: 3630 Permit Version: 2 Effective Date: 26th April 1983 Issued Date: 26th April 1983 Revocation Date: 9th October 1997 Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Trib Of Dodworth Dyke **Status: Transferred from Rivers (Prevention of Pollution) Act 1951-1961** Positional Accuracy: Located by supplier to within 100m	A8NW (S)	231	1	433000 405100

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
5	**Discharge Consents** Operator: Mrs A. C. Vernon-Wentworth, C/O Nuttall & Partners Property Type: Trade (Unknown/Other) Location: Dark Lane Development, Off Keresforth Hill Road, Barnsley, South Yorkshire Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: 3630 Permit Version: 1 Effective Date: 29th June 1982 Issued Date: 29th June 1982 Revocation Date: 25th April 1983 Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Trib Of Dodworth Dyke **Status: Transferred from Rivers (Prevention of Pollution) Act 1951-1961** Positional Accuracy: Located by supplier to within 100m	A8NW (S)	231	1	433000 405100
5	**Discharge Consents** Operator: Wortley Construction Ltd Property Type: Trade (Unknown/Other) Location: Dark Lane Development, Off Keresforth Hill Road, Barnsley, South Yorkshire Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: 3630 Permit Version: 1 Effective Date: 29th June 1982 Issued Date: 29th June 1982 Revocation Date: 25th April 1983 Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Trib Of Dodworth Dyke **Status: Transferred from Rivers (Prevention of Pollution) Act 1951-1961** Positional Accuracy: Located by supplier to within 100m	A8NW (S)	231	1	433000 405100
6	**Discharge Consents** Operator: Respite Options (Barnsley) Limited Property Type: Trade (Unknown/Other) Location: Barnsley Metropolitan Borough Counc, Il Needlewood Assessment Centre, Barnsley Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: C5045 Permit Version: 1 Effective Date: 12th April 1988 Issued Date: 12th April 1988 Revocation Date: 9th June 2009 Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Trib Of Dodworth Dike **Status: Revoked (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 100m	A8NW (SW)	303	1	432800 405100
7	**Discharge Consents** Operator: Yorkshire Water Services Ltd Property Type: Sewerage Network - Pumping Station - Water Company Location: Dodworth Road Sps Dodworth Road, Dodworth, Barnsley, South Yorkshire Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: Wra7980 Permit Version: 1 Effective Date: 27th February 2003 Issued Date: 27th February 2003 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Pumping Station - Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Dodworth Dike **Status: New Consent (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 10m	A12SE (SW)	462	1	432440 405250

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
8	**Discharge Consents** Operator: Yorkshire Water Services Ltd Property Type: Sewerage Network - Pumping Station - Water Company Location: M1 Motorway Sps, Dodworth, Barnsley, South Yorkshire Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: Wadc311 Permit Version: 1 Effective Date: 2nd November 1989 Issued Date: 2nd November 1989 Revocation Date: 27th February 2003 Discharge Type: Sewage Discharges - Pumping Station - Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Brough Green Brook **Status: Transferred from Water Act 1989** Positional Accuracy: Located by supplier to within 100m	A12NW (NW)	535	1	432280 405860
9	**Discharge Consents** Operator: Mr John Farnsworth Property Type: Domestic Property (Multiple) Location: Land At Rear Of Keresforth Drive Keresforth, Barnsley, South Yorkshire, -, S70 6nh Authority: Environment Agency, North East Region Catchment Area: Sheffield And South Yorks Navigation Reference: Eprcp3622gg Permit Version: 1 Effective Date: 21st July 2010 Issued Date: 21st July 2010 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Land/Soakaway Receiving Water: Ground Water **Status: New issued under EPR 2010** Positional Accuracy: Located by supplier to within 10m	A9NW (SE)	678	1	433647 404924
10	**Discharge Consents** Operator: Yorkshire Water Services Ltd Property Type: Sewerage Network - Sewers - Water Company Location: Keresforth Road Cso Land Opposite Water Royd Drive, Keresforth Road, Dodworth, South Yorkshire Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: Wra7254 Permit Version: 1 Effective Date: 2nd January 1997 Issued Date: 2nd January 1997 Revocation Date: 30th March 2004 Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Dodworth Dyke **Status: New Consent, by Application (Water Resources Act 1991, Section 88)** Positional Accuracy: Located by supplier to within 10m	A7NW (SW)	764	1	432300 404910
10	**Discharge Consents** Operator: Yorkshire Water Services Ltd Property Type: Sewerage Network - Sewers - Water Company Location: Keresforth Road Cso Land Opposite Water Royd Drive, Keresforth Road, Dodworth, South Yorkshire Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: Wra7254 Permit Version: 2 Effective Date: 31st March 2004 Issued Date: 3rd February 2004 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Dodworth Dyke **Status: Modified (Water Resources Act 1991, Schedule 10 as amended by Environment Act 1995)** Positional Accuracy: Located by supplier to within 10m	A7NW (SW)	777	1	432300 404890

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
11	**Discharge Consents** Operator: Mr David & Mrs Peggy A. Hudson Property Type: Domestic Property (Single) Location: Proposed Bungalow Farmhouse Lane, Pogmoor, Barnsley, South Yorkshire Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: 2118 Permit Version: 1 Effective Date: 27th July 1966 Issued Date: 27th July 1966 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Trib Of Red Brook **Status:** **Transferred from Rivers (Prevention of Pollution) Act 1951-1961** Positional Accuracy: Located by supplier to within 100m	A22SE (NW)	921	1	432400 406550
12	**Discharge Consents** Operator: Sam Lockwood-Dukes Property Type: Trade (Unknown/Other) Location: Goodison Round Green Lane, Stainborough, Barnsley, South Yorkshire Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: 22 Permit Version: 1 Effective Date: 28th May 1952 Issued Date: 28th May 1952 Revocation Date: Not Supplied Discharge Type: Sewage Discharges - Final/Treated Effluent - Not Water Company Discharge Environment: Freshwater Stream/River Receiving Water: Trib Of Carr Dike **Status:** **Transferred from Rivers (Prevention of Pollution) Act 1951-1961** Positional Accuracy: Located by supplier to within 100m	A20SW (NE)	983	1	434050 406050
13	**Integrated Pollution Controls** Name: Royston Lead Ltd Location: Pogmoor Works, Stocks Lane, BARNSLEY, South Yorkshire, S75 2DS Authority: Environment Agency, North East Region Permit Reference: BB9539 Dated: 30th October 1998 Process Type: IPC new application Description: 2.2 A (E) Non-ferrous Metal processes within the Metal Industry **Status:** **Authorisation superseded by a substantial or non substantial variationSuperseded** Positional Accuracy: Automatically positioned to the address	A23SE (N)	891	1	433299 406568
13	**Integrated Pollution Controls** Name: Royston Lead Ltd Location: Pogmoor Works, Stocks Lane, BARNSLEY, South Yorkshire, S75 2DS Authority: Environment Agency, North East Region Permit Reference: Bi5710 Dated: 30th May 2000 Process Type: IPC minor (non-substantial) variation to previous variation Description: 2.2 A (E) Non-ferrous Metal processes within the Metal Industry **Status:** **Revoked - Now IPPC** Positional Accuracy: Automatically positioned to the address	A23SE (N)	894	1	433294 406573
13	**Integrated Pollution Controls** Name: Royston Lead Location: Pogmoor Works, Stocks Lane, BARNSLEY, South Yorkshire, S75 2DS Authority: Environment Agency, North East Region Permit Reference: AN6671 Dated: 27th June 1994 Process Type: Application since found to be exempt from IPC Description: 4.1 A (B) Petrochemical processes within the Chemical Industry **Status:** **Application since found to be exempt from IPCExempt** Positional Accuracy: Automatically positioned to the address	A23SE (N)	894	1	433294 406573
13	**Integrated Pollution Controls** Name: Royston Lead Ltd Location: Pogmoor Works, Stocks Lane, BARNSLEY, South Yorkshire, S75 2DS Authority: Environment Agency, North East Region Permit Reference: BE6064 Dated: 24th November 1998 Process Type: IPC minor (non-substantial) variation to previous variation Description: 2.2 A (E) Non-ferrous Metal processes within the Metal Industry **Status:** **Authorisation superseded by a substantial or non substantial variationSuperseded** Positional Accuracy: Automatically positioned to the address	A23SE (N)	896	1	433299 406573

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
14	**Integrated Pollution Prevention And Control** Name: Royston Lead Limited Location: Royston Lead Ltd, Pogmoor Works, Stocks Lane,,, BARNSLEY, South Yorkshire, S75 2DS Authority: Environment Agency, North East Region Permit Reference: PP3838GZ Original Permit Ref: Bk6408ig Effective Date: 16th February 2009 **Status:** **Effective** Application Type: Variation App. Sub Type: Standard Positional Accuracy: Automatically positioned to the address Activity Code: 2.2 A(1) (A) Activity Description: Non-Ferrous Metals; Producing From Raw Materials By Metallurgical Activities Etc Primary Activity: N Activity Code: 2.2 A(1) (D) (II) Activity Description: Non-Ferrous Metals; Producing Etc Lead And Alloys Greater Than 23 Percent Lead (With Copper) Or 2 Percent Lead (Without) Primary Activity: N Activity Code: 2.2 A(1) (D) (I) Activity Description: Non-Ferrous Metals; Producing Etc Lead And Alloys With Release To Air Primary Activity: Y	A23SE (N)	894	1	433294 406573
14	**Integrated Pollution Prevention And Control** Name: Royston Lead Limited Location: Royston Lead Ltd, Pogmoor Works, Stocks Lane, Barnsley, South Yorkshire, S75 2DS Authority: Environment Agency, North East Region Permit Reference: Bk6408ig Original Permit Ref: Bk6408ig Effective Date: 28th March 2002 **Status:** **Superseded By Variation** Application Type: Application App. Sub Type: New Positional Accuracy: Automatically positioned to the address Activity Code: 2.2 A(1) (D) (I) Activity Description: Non-Ferrous Metals; Producing Etc Lead And Alloys With Release To Air Primary Activity: Y Activity Code: 2.2 A(1) (D) (II) Activity Description: Non-Ferrous Metals; Producing Etc Lead And Alloys Greater Than 23 Percent Lead (With Copper) Or 2 Percent Lead (Without) Primary Activity: N Activity Code: 2.2 A(1) (A) Activity Description: Non-Ferrous Metals; Producing From Raw Materials By Metallurgical Activities Etc Primary Activity: N	A23SE (N)	894	1	433294 406573
15	**Local Authority Pollution Prevention and Controls** Name: Shell Barnsley Motorway Location: Dodworth Road, Barnsley, S70 6PD Authority: Barnsley Metropolitan Borough Council, Environmental Health and Trading Standards Permit Reference: PPC/B/99 Dated: 17th June 1999 Process Type: Local Authority Pollution Prevention and Control Description: PG1/14 Petrol filling station **Status:** **Site Closed** Positional Accuracy: Located by supplier to within 10m	A18NW (N)	514	2	432853 406229
16	**Local Authority Pollution Prevention and Controls** Name: Polar Motor Co Ltd Location: Dodworth Road, BARNSLEY, South Yorkshire, S70 6PA Authority: Barnsley Metropolitan Borough Council, Environmental Health and Trading Standards Permit Reference: Ppc/B/37 Dated: 28th September 1993 Process Type: Local Authority Pollution Prevention and Control Description: PG6/34 Respraying of road vehicles **Status:** **Site Closed** Positional Accuracy: Automatically positioned to the address	A18NE (N)	669	2	433107 406389
17	**Local Authority Pollution Prevention and Controls** Name: Seals Packaging & Gaskets Location: Shaw Lane, Barnsley, S70 6eh Authority: Barnsley Metropolitan Borough Council, Environmental Health and Trading Standards Permit Reference: Not Supplied Dated: Not Supplied Process Type: Local Authority Air Pollution Control Description: PG3/13 Asbestos processes **Status:** **Authorisation revokedRevoked** Positional Accuracy: Manually positioned to the road within the address or location	A19SE (NE)	768	2	433758 406063

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
18	**Local Authority Pollution Prevention and Controls** Name: S J Autowelding Location: West Road, Pogmoor, BARNSLEY, S75 2DH Authority: Barnsley Metropolitan Borough Council, Environmental Health and Trading Standards Permit Reference: Ppc/B/09 Dated: 3rd November 1997 Process Type: Local Authority Pollution Prevention and Control Description: PG1/1Waste oil burners, less than 0.4MW net rated thermal input **Status: Permitted** Positional Accuracy: Located by supplier to within 10m	A23SE (N)	823	2	433063 406548
19	**Local Authority Pollution Prevention and Controls** Name: Intake 1 Service Station Location: Pogmoor Road, BARNSLEY, South Yorkshire, S75 2DZ Authority: Barnsley Metropolitan Borough Council, Environmental Health and Trading Standards Permit Reference: PPC/B/65 Dated: 24th May 1999 Process Type: Local Authority Pollution Prevention and Control Description: PG1/14 Petrol filling station **Status: Permitted** Positional Accuracy: Automatically positioned to the address	A23SW (N)	948	2	432897 406670
19	**Local Authority Pollution Prevention and Controls** Name: Crows Garage Location: Pogmoor Road, Pogmoor, BARNSLEY, S75 2DZ Authority: Barnsley Metropolitan Borough Council, Environmental Health and Trading Standards Permit Reference: Ppc/B/06 Dated: 6th October 1994 Process Type: Local Authority Pollution Prevention and Control Description: PG1/1Waste oil burners, less than 0.4MW net rated thermal input **Status: Permitted** Positional Accuracy: Manually positioned to the address or location	A23SW (N)	950	2	432896 406672
	Nearest Surface Water Feature	A12NE (W)	279	-	432525 405650
20	**Pollution Incidents to Controlled Waters** Property Type: Textile industry Location: Rear Of, Polar Motors On A628, Dodworth Road Authority: Environment Agency, North East Region Pollutant: Oils - Gas Oil Note: No Pollution Found; No Fish Killed Incident Date: 8th July 1996 Incident Reference: SH960458 Catchment Area: Dearne Tributaries Receiving Water: Freshwater Stream/River Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A18SW (N)	386	1	432900 406100
21	**Pollution Incidents to Controlled Waters** Property Type: Water Company Sewage: Foul Sewer Location: Keresforth Hall Road Authority: Environment Agency, North East Region Pollutant: Unknown Sewage Note: Not Supplied Incident Date: 8th March 1989 Incident Reference: 6805 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A8NW (SW)	524	1	432700 404900
22	**Pollution Incidents to Controlled Waters** Property Type: Highway/Car Park Location: Markers Bridge B6273, /Darfld A635 Dearne 08 Authority: Environment Agency, North East Region Pollutant: Chemicals - Other Inorganic Note: Not Supplied Incident Date: 9th November 1990 Incident Reference: 116600 Catchment Area: Not Given Receiving Water: No Pollution Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A12NW (W)	601	1	432200 405800

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
23	**Pollution Incidents to Controlled Waters** Property Type: Miscellaneous Premises: Unknown Location: Darfield/Source Dove(S) Afu Authority: Environment Agency, North East Region Pollutant: Not Given Note: Not Supplied Incident Date: 22nd April 1994 Incident Reference: 150731 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A7NE (SW)	699	1	432400 404900
23	**Pollution Incidents to Controlled Waters** Property Type: Miscellaneous Premises: Unknown Location: Darfield/Source Dove(S) Afu Authority: Environment Agency, North East Region Pollutant: Not Given Note: Not Supplied Incident Date: 22nd April 1994 Incident Reference: 150754 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A7NE (SW)	703	1	432400 404895
24	**Pollution Incidents to Controlled Waters** Property Type: Surface Water Sewers Location: Markers Bridge B6273, /Darfld A635 Dearne 08 Authority: Environment Agency, North East Region Pollutant: Blood And Offal Note: Not Supplied Incident Date: 15th March 1991 Incident Reference: 120573 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A7SE (SW)	720	1	432500 404800
25	**Pollution Incidents to Controlled Waters** Property Type: Industrial Premises Location: Road Bridge A628, /Old Mill Bridge A61 Dearne 15 Authority: Environment Agency, North East Region Pollutant: Oils - Unknown Note: Not Supplied Incident Date: 9th December 1993 Incident Reference: 149074 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A19NW (NE)	837	1	433500 406400
26	**Pollution Incidents to Controlled Waters** Property Type: Industrial: Other Location: West Road, Old Sough Culvert, BARNSLEY Authority: Environment Agency, North East Region Pollutant: Chemicals - Deicing Compounds Note: No Pollution Found; No Fish Killed Incident Date: 8th August 1996 Incident Reference: SH960354 Catchment Area: Dearne Tributaries Receiving Water: Freshwater Stream/River Cause of Incident: Unknown Incident Severity: Category 3 - Minor Incident Positional Accuracy: Located by supplier to within 100m	A23SW (N)	878	1	432900 406600
27	**Pollution Incidents to Controlled Waters** Property Type: Surface Water Sewers Location: Markers Bridge B6273, /Darfld A635 Dearne 08 Authority: Environment Agency, North East Region Pollutant: Unknown Sewage Note: Not Supplied Incident Date: 7th November 1990 Incident Reference: 116549 Catchment Area: Not Given Receiving Water: Freshwater Stream/River Cause of Incident: Not Given Incident Severity: Category 2 - Significant Incident Positional Accuracy: Located by supplier to within 100m	A4NW (SE)	966	1	433500 404500

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	River Quality Name: Dodworth_Dyke GQA Grade: River Quality D Reach: Dodworth_House_Carr_Dyk Estimated Distance (km): 2.7 Flow Rate: Flow less than 0.31 cumecs Flow Type: River Year: 2000	A7SE (SW)	729	1	432491 404793
28	**Water Abstractions** Operator: Barnsley District Council Licence Number: 2/27/08/060 Permit Version: Not Supplied Location: Location Description Not Available Authority: Environment Agency, North East Region Abstraction: Glasshouse Irrigation Abstraction Type: Not Supplied Source: Groundwater Daily Rate (m3): 23 Yearly Rate (m3): 3410 Details: Licence Revoked Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A14SE (E)	574	1	433800 405300
29	**Water Abstractions** Operator: Sheldale Developments Ltd Licence Number: 2/27/08/110 Permit Version: 101 Location: Spring-Sandstone/Middle Coal Measures-Shaw Lane Authority: Environment Agency, North East Region Abstraction: Food And Drink: Water Bottling Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: 43a Shaw Lane, Barnsley, South Yorkshire Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 8th April 2003 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A19SE (NE)	682	1	433700 406000
29	**Water Abstractions** Operator: Sheldale Water Limited Licence Number: 2/27/08/110 Permit Version: 100 Location: Well/Spring - Sandstone/Middle Coal Measures - Shaw Lane Authority: Environment Agency, North East Region Abstraction: Food And Drink: Water Bottling Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): 200 Yearly Rate (m3): 45000 Details: Land Adjoining To Rear Of 43a Shaw Lane, Barnsley, South Yorkshire Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st December 1999 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A19SE (NE)	682	1	433700 406000
30	**Water Abstractions** Operator: Sheldale Developments Ltd Licence Number: 2/27/08/133 Permit Version: 1 Location: Spring - Sandstone&Middle Coal Measures - Barnsley Authority: Environment Agency, North East Region Abstraction: Food And Drink: Water Bottling Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: 43a Shaw Lane, Barnsley, South Yorkshire Authorised Start: 01 January Authorised End: 31 December Permit Start Date: 1st January 2004 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A19SE (NE)	724	1	433700 406060

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
30	**Water Abstractions** Operator: Yorkshire Water Plc Licence Number: 2/27/08/058 Permit Version: Not Supplied Location: Location Description Not Available Authority: Environment Agency, North East Region Abstraction: Unclassified (Other) Abstraction Type: Not Supplied Source: Groundwater Daily Rate (m3): 14 Yearly Rate (m3): 1137 Details: Licence Revoked Authorised Start: Not Supplied Authorised End: Not Supplied Permit Start Date: Not Supplied Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 100m	A19SE (NE)	753	1	433700 406100
	Water Abstractions Operator: The Coal Authority Licence Number: 2/27/08/145 Permit Version: 1 Location: Silkstone Mineshaft-Coal Measures-Straffordcolliery-Barnsley Authority: Environment Agency, North East Region Abstraction: Environmental: Pump & Treat: Transfer Between Sources Abstraction Type: Water may be abstracted from a single point Source: Groundwater Daily Rate (m3): Not Supplied Yearly Rate (m3): Not Supplied Details: Former Strafford Colliery Site, Barnsley Authorised Start: 01 April Authorised End: 31 March Permit Start Date: 17th December 2008 Permit End Date: Not Supplied Positional Accuracy: Located by supplier to within 10m	A2SW (SW)	1425	1	432200 404150
	Groundwater Vulnerability Soil Classification: Soils of Low Leaching Potential - Soils in which pollutants are unlikely to penetrate the soil layer because water movement is largely horizontal or they have large ability to attenuate diffuse pollutants. Lateral flow from these soils contribute to groundwater recharge elsewhere in the catchment Map Sheet: Sheet 11 South Pennines Scale: 1:100,000	A13SW (SW)	0	1	432858 405472
	Groundwater Vulnerability Soil Classification: Soils of High Leaching Potential (U) - Soil information for restored mineral workings and urban areas is based on fewer observations than elsewhere. A worst case vulnerability classification (H) assumed, until proved otherwise Map Sheet: Sheet 11 South Pennines Scale: 1:100,000	A13NW (SE)	0	1	433001 405544
	Drift Deposits None				
	Bedrock Aquifer Designations Aquifer Desination: Secondary Aquifer - A	A13NW (SE)	0	3	433001 405544
	Superficial Aquifer Designations No Data Available				
	Extreme Flooding from Rivers or Sea without Defences None				
	Flooding from Rivers or Sea without Defences None				
	Areas Benefiting from Flood Defences None				
	Flood Water Storage Areas None				
	Flood Defences None				

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
31	**BGS Recorded Landfill Sites** Site Name: Disused Quarry Location: Dodworth Rd, BARNSLEY, Yorks Authority: British Geological Survey, National Geoscience Information Service Ground Water: Information not available Surface Water: Information not available Geology: N/A Positional Accuracy: Manually positioned to the address or location Boundary Accuracy: Derived	A18SW (N)	373	3	432913 406090
32	**Historical Landfill Sites** Licence Holder: Not Supplied Location: Dodworth Road, Barnsley, Yorkshire Name: Disused Quarry Operator Location: Not Supplied Boundary Accuracy: As Supplied Provider Reference: EAHLD31670 First Input Date: 31st December 1968 Last Input Date: Not Supplied Specified Waste Type: Not Supplied EA Waste Ref: Not Supplied Regis Ref: Not Supplied WRC Ref: Not Supplied BGS Ref: 1892 Other Ref: Not Supplied	A18SW (N)	322	1	432939 406043
33	**Historical Landfill Sites** Licence Holder: Barnsley Metropolitan Borough Council Location: Dodworth Road, Barnsley Name: S.R. Gents Operator Location: Not Supplied Boundary Accuracy: As Supplied Provider Reference: EAHLD04326 First Input Date: Not Supplied Last Input Date: Not Supplied Specified Waste Type: Not Supplied EA Waste Ref: Not Supplied Regis Ref: Not Supplied WRC Ref: 4400/0533 BGS Ref: Not Supplied Other Ref: 4400/(131)	A18SW (N)	381	1	432976 406108
34	**Historical Landfill Sites** Licence Holder: Mr J Clayton Location: Oakworth, Keighley Name: Quarry at Higher Spring Head Farm Operator Location: Not Supplied Boundary Accuracy: As Supplied Provider Reference: EAHLD04324 First Input Date: Not Supplied Last Input Date: Not Supplied Specified Waste Type: Deposited Waste included Inert and Commercial Waste EA Waste Ref: Not Supplied Regis Ref: Not Supplied WRC Ref: 4400/0532 BGS Ref: Not Supplied Other Ref: 671, 4400/(130)	A18NW (N)	618	1	432818 406337
35	**Historical Landfill Sites** Licence Holder: Polar Motors Location: Pogmoor Name: Land North of Dodworth Road Operator Location: Not Supplied Boundary Accuracy: As Supplied Provider Reference: EAHLD04327 First Input Date: 1st February 1992 Last Input Date: 31st December 1992 Specified Waste Type: Not Supplied EA Waste Ref: Not Supplied Regis Ref: Not Supplied WRC Ref: Not Supplied BGS Ref: Not Supplied Other Ref: 4400/(139)	A18NE (N)	687	1	433058 406413

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
36	**Historical Landfill Sites** Licence Holder: Not Supplied Location: Pogmoor Road, Barnsley Name: Recreation Ground Operator Location: Not Supplied Boundary Accuracy: As Supplied Provider Reference: EAHLD04325 First Input Date: Not Supplied Last Input Date: Not Supplied Specified Waste Type: Not Supplied EA Waste Ref: Not Supplied Regis Ref: Not Supplied WRC Ref: 4400/0536 BGS Ref: Not Supplied Other Ref: 4400/(134)	A18NW (N)	741	1	432858 406460
37	**Historical Landfill Sites** Licence Holder: A F Budge Location: Pogmoor, Barnsley Name: West Road Operator Location: Public Services Department, Central Services Department, Kendray Street, Barnsley Boundary Accuracy: As Supplied Provider Reference: EAHLD04328 First Input Date: 15th July 1987 Last Input Date: 31st December 1987 Specified Waste Type: Deposited Waste included Inert and Commercial Waste EA Waste Ref: Not Supplied Regis Ref: Not Supplied WRC Ref: 4400/0566 BGS Ref: Not Supplied Other Ref: WD2 B19, 20B572(57), WD20 B572, 4400/B572, 4400/0459	A18NE (N)	742	1	433134 406457
38	**Historical Landfill Sites** Licence Holder: Co-op Retail Services Limited, Yorkshire Region Location: Stocks Lane, Barnsley, South Yorkshire Name: Land West of Summer Lane Dairy Operator Location: Not Supplied Boundary Accuracy: As Supplied Provider Reference: EAHLD04329 First Input Date: 30th November 1982 Last Input Date: 3rd June 1988 Specified Waste Type: Deposited Waste included Inert, Industrial and Commercial Waste EA Waste Ref: Not Supplied Regis Ref: Not Supplied WRC Ref: 4400/0463 BGS Ref: Not Supplied Other Ref: 20B38(61), 4400/B19, 4400/B38, WD20 B38	A18NE (N)	746	1	433170 406455
39	**Historical Landfill Sites** Licence Holder: Not Supplied Location: Pogmoor Name: Allotment Gardens Operator Location: Not Supplied Boundary Accuracy: As Supplied Provider Reference: EAHLD04330 First Input Date: Not Supplied Last Input Date: Not Supplied Specified Waste Type: Not Supplied EA Waste Ref: Not Supplied Regis Ref: Not Supplied WRC Ref: Not Supplied BGS Ref: Not Supplied Other Ref: 4400/B197	A23SE (N)	836	1	433135 406553

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
40	**Licensed Waste Management Facilities (Locations)** Licence Number: 60564 Location: Haulage Yard, Off West Road, Pogmoor, Barnsley, South Yorkshire, S75 2DH Operator Name: Lycett D Operator Location: Not Supplied Authority: Environment Agency - North East Region, Yorkshire Area Site Category: Household, Commercial And Industrial Transfer Stations **Licence Status: Issued** Issued: 13th April 1987 Last Modified: Not Supplied Expires: Not Supplied Suspended: Not Supplied Revoked: Not Supplied Surrendered: Not Supplied IPPC Reference: Not Supplied Positional Accuracy: Located by supplier to within 10m	A18NE (N)	811	1	433077 406535
	Local Authority Landfill Coverage Name: Barnsley Metropolitan Borough Council - Has supplied landfill data		0	2	433001 405544
41	**Local Authority Recorded Landfill Sites** Location: Not Supplied Reference: 131 Authority: Barnsley Metropolitan Borough Council, Environmental Health and Trading Standards **Last Reported Status: Unknown** Types of Waste: Not Supplied Date of Closure: Not Supplied Positional Accuracy: Positioned by the supplier Boundary Quality: Moderate	A18SW (N)	367	2	432965 406093
42	**Local Authority Recorded Landfill Sites** Location: Not Supplied Reference: 130 Authority: Barnsley Metropolitan Borough Council, Environmental Health and Trading Standards **Last Reported Status: Unknown** Types of Waste: Not Supplied Date of Closure: Not Supplied Positional Accuracy: Positioned by the supplier Boundary Quality: Moderate	A18NW (N)	548	2	432868 406271
43	**Local Authority Recorded Landfill Sites** Location: Not Supplied Reference: 57 Authority: Barnsley Metropolitan Borough Council, Environmental Health and Trading Standards **Last Reported Status: Unknown** Types of Waste: Not Supplied Date of Closure: Not Supplied Positional Accuracy: Positioned by the supplier Boundary Quality: Moderate	A18NE (N)	695	2	433088 406418
44	**Local Authority Recorded Landfill Sites** Location: Not Supplied Reference: 134 Authority: Barnsley Metropolitan Borough Council, Environmental Health and Trading Standards **Last Reported Status: Unknown** Types of Waste: Not Supplied Date of Closure: Not Supplied Positional Accuracy: Positioned by the supplier Boundary Quality: Moderate	A18NW (N)	728	2	432816 406450
45	**Local Authority Recorded Landfill Sites** Location: Not Supplied Reference: 61 Authority: Barnsley Metropolitan Borough Council, Environmental Health and Trading Standards **Last Reported Status: Unknown** Types of Waste: Not Supplied Date of Closure: Not Supplied Positional Accuracy: Positioned by the supplier Boundary Quality: Moderate	A18NE (N)	734	2	433104 406454

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
46	**Local Authority Recorded Landfill Sites** Location: Not Supplied Reference: 139 Authority: Barnsley Metropolitan Borough Council, Environmental Health and Trading Standards **Last Reported Status:** **Unknown** Types of Waste: Not Supplied Date of Closure: Not Supplied Positional Accuracy: Unknown Boundary Quality: Not Applicable	A18NE (N)	797	2	433200 406500
47	**Local Authority Recorded Landfill Sites** Location: Not Supplied Reference: 44 Authority: Barnsley Metropolitan Borough Council, Environmental Health and Trading Standards **Last Reported Status:** **Unknown** Types of Waste: Not Supplied Date of Closure: Not Supplied Positional Accuracy: Positioned by the supplier Boundary Quality: Moderate	A23SE (N)	844	2	433119 406563
48	**Local Authority Recorded Landfill Sites** Location: Not Supplied Reference: 113 Authority: Barnsley Metropolitan Borough Council, Environmental Health and Trading Standards **Last Reported Status:** **Unknown** Types of Waste: Not Supplied Date of Closure: Not Supplied Positional Accuracy: Positioned by the supplier Boundary Quality: Moderate	A11SE (W)	988	2	431831 405508
49	**Registered Landfill Sites** Licence Holder: A F Budge (Contractors) Ltd Licence Reference: WD20 B 572 (WD2 B19) Site Location: West Road, Pogmoor, Barnsley, South Yorkshire Licence Easting: 433200 Licence Northing: 406500 Operator Location: West Carr Road, RETFORD, Nottinghamshire, DN22 7SW Authority: Environment Agency - North East Region, Ridings Area Site Category: Landfill Max Input Rate: Medium (Equal to or greater than 25,000 and less than 75,000 tonnes per year) Waste Source Restrictions: No known restriction on source of waste Status: Licence lapsed/cancelled/defunct/not applicable/surrenderedCancelled Dated: 1st September 1987 Preceded By Licence: Not Given Superseded By Licence: Not Given Positional Accuracy: Manually positioned to the address or location Boundary Accuracy: Not Applicable Authorised Waste: Clean Demol.Rubble Clean Excavation Spoil/Subsoil Rock,Stone,Concrete Prohibited Waste: Asbestos Paper Plastic Wood	A18NE (N)	797	1	433200 406500

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
49	**Registered Landfill Sites** Licence Holder: Barnsley M.B.C. Licence Reference: WD 2 B19 Site Location: West Road, Pogmoor, Barnsley, South Yorkshire Licence Easting: 433200 Licence Northing: 406500 Operator Location: Central Offices, Kendray Street, Barnsley, South Yorkshire Authority: Environment Agency - North East Region, Ridings Area Site Category: Landfill Max Input Rate: Large (Equal to or greater than 75,000 and less than 250,000 tonnes per year) Waste Source Restrictions: No known restriction on source of waste Status: Licence lapsed/cancelled/defunct/not applicable/surrenderedCancelled Dated: 1st July 1987 Preceded By Licence: Not Given Superseded By Licence: Not Given Positional Accuracy: Manually positioned to the address or location Boundary Accuracy: Not Applicable Authorised Waste: Clean Demol. Rubble Incl. Clean Excavated Spoil & Subsoil Rock, Stone, Concrete Prohibited Waste: Asbestos Paper Plastic Wood	A18NE (N)	797	1	433200 406500
50	**Registered Landfill Sites** Licence Holder: C.R.S. Ltd Yorkshire Reg Licence Reference: WD20 B 38 Site Location: Summer Lane Dairy, Stocks Lane, Barnsley, South Yorkshire Licence Easting: 433300 Licence Northing: 406500 Operator Location: Wellington Street, BARNSLEY, South Yorkshire, S70 1SP Authority: Environment Agency - North East Region, Ridings Area Site Category: Landfill Max Input Rate: Very Small (Less than 10,000 tonnes per year) Waste Source Restrictions: No known restriction on source of waste Status: Licence lapsed/cancelled/defunct/not applicable/surrenderedCancelled Dated: 1st July 1983 Preceded By Licence: Not Given Superseded By Licence: Not Given Positional Accuracy: Manually positioned to the address or location Boundary Accuracy: Not Applicable Authorised Waste: Construction And Demolition Wastes Excavated Natural Materials $ Incinerator Residues Prohibited Waste: Liquids In Containers Over 4l Cap. Slurry In Containers Over 4l Cap.	A18NE (N)	828	1	433300 406500
51	**Registered Waste Transfer Sites** Licence Holder: D Lycett Licence Reference: WD20 B 554 MOD 3 Site Location: Haulage Yard Off West Road, Pogmoor, Barnsley, South Yorkshire Operator Location: 2 Intake Gardens, BARNSLEY, South Yorkshire, S75 2HN Authority: Environment Agency - North East Region, Ridings Area Site Category: Transfer Max Input Rate: Small (Equal to or greater than 10,000 and less than 25,000 tonnes per year) Waste Source Restrictions: No known restriction on source of waste Licence Status: Operational as far as is knownOperational Dated: 1st April 1987 Preceded By Licence: Not Given Superseded By Licence: Not Given Positional Accuracy: Located by supplier to within 100m Boundary Quality: Not Supplied Authorised Waste: Commercial Waste Construction And Demolition Wastes Excavation Waste/Soil/Subsoil Max.Storage Permitted By Licence Max.Waste Permitted By Licence Packaging/Paper Etc. Solid Ind. Non-Haz. Waste Prohibited Waste: Poisonous, Noxious, Polluting Wastes	A18NE (N)	729	1	433100 406450

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS 1:625,000 Solid Geology Description: Lower Westphalian (mainly Productive Coal Measures)	A13NW (SE)	0	3	433001 405544
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A13NW (W)	0	4	432969 405542
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A13NW (SE)	0	4	433001 405544
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A13NE (NE)	0	4	433171 405621
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A13SE (SE)	0	4	433113 405385
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A13NW (W)	0	4	433000 405544
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A13SW (S)	26	4	433000 405305

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A13SW (S)	26	4	433000 405305
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A13SW (S)	131	4	432905 405237
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A14NW (E)	135	4	433380 405575
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A13NE (NE)	169	4	433260 405732
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A12SE (W)	233	4	432614 405474
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A18SW (N)	246	4	433000 405974

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A18SW (N)	272	4	433000 406000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A18SW (N)	272	4	433001 406000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A18SW (N)	273	4	433015 406000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A18SE (N)	288	4	433094 406000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A12SE (W)	307	4	432538 405475
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A18SE (N)	311	4	433151 406000

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A8NW (S)	331	4	433000 405000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A8NW (S)	331	4	433001 405000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A8NE (S)	338	4	433066 405000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A14SW (E)	351	4	433580 405348
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A8NW (S)	411	4	432815 404963
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A8NW (SW)	416	4	432746 405000

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A18SW (N)	419	4	433000 406147
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A12SE (SW)	433	4	432460 405278
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A8NW (SW)	434	4	432735 404985
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A8NW (S)	469	4	432810 404901
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A8NW (SW)	481	4	432707 404948
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A7NE (SW)	485	4	432587 405023

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A7NE (SW)	524	4	432554 405000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A7NE (SW)	528	4	432546 405000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A18NW (N)	539	4	433000 406266
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A9NW (SE)	548	4	433525 405000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A14SE (E)	563	4	433774 405261
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A7NE (SW)	564	4	432426 405071

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A7NE (SW)	584	4	432462 405000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A7NE (SW)	617	4	432416 405000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A19NW (NE)	629	4	433371 406244
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A9NW (SE)	636	4	433676 405000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A8SW (S)	636	4	433000 404695
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A7SE (SW)	640	4	432620 404806

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A14SE (E)	643	4	433842 405216
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A18NE (N)	646	4	433162 406353
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A7SE (SW)	652	4	432598 404815
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A9NW (SE)	653	4	433684 404985
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A9NE (SE)	654	4	433702 405000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A9NE (SE)	659	4	433737 405028

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A9NE (SE)	668	4	433782 405067
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A17SW (NW)	671	4	432186 406000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A18NE (N)	679	4	433049 406405
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A7SE (SW)	683	4	432656 404736
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A9NE (SE)	684	4	433745 405000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A9NE (SE)	699	4	433865 405138

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A18NW (N)	701	4	433000 406429
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A7NE (SW)	707	4	432394 404895
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A14SE (E)	717	4	433920 405211
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A7SE (SW)	723	4	432549 404763
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A7NW (SW)	730	4	432281 404987
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A9NE (SE)	733	4	433811 405000

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A7NW (SW)	733	4	432268 405000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A7NE (SW)	734	4	432370 404880
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 120 - 180 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A7NW (SW)	738	4	432327 404918
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A14SE (E)	747	4	434000 405473
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A14NE (E)	747	4	434000 405544
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A14SE (E)	765	4	434000 405308

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A19SE (NE)	766	4	433812 406000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A14SE (E)	778	4	434000 405257
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A14NE (E)	789	4	434000 405731
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A11NE (W)	796	4	432000 405544
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A19SE (NE)	801	4	433858 406000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: <15 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A8SW (S)	802	4	433000 404530

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A7NW (SW)	808	4	432179 405000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A9NE (SE)	811	4	433910 405000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A9SW (SE)	818	4	433566 404716
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A19SE (NE)	830	4	433882 406017
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A16SE (W)	831	4	432000 405957
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A22SE (N)	842	4	432660 406549

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A16SE (NW)	844	4	432000 406000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A11SE (W)	844	4	432000 405421
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A19SE (NE)	852	4	433925 406000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A7NW (SW)	876	4	432066 405073
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A16SE (NW)	879	4	432000 406092
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A3NW (S)	884	4	433000 404447

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A9NE (SE)	885	4	434000 405000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A11SE (W)	887	4	432000 405218
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A19SE (NE)	893	4	434000 405965
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A16SE (NW)	895	4	431947 406000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A19SE (E)	906	4	434024 405952
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A19SE (NE)	913	4	434000 406000

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A9NE (SE)	916	4	434000 404945
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A23SE (N)	938	4	433159 406652
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A7NW (SW)	953	4	432015 405000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A20SW (NE)	961	4	434058 406000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 15 - 25 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 60 - 90 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 15 - 30 mg/kg	A6NE (SW)	966	4	432000 405000
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A6NE (SW)	969	4	432000 404993

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A2NE (S)	982	4	432669 404405
	BGS Estimated Soil Chemistry Source: British Geological Survey, National Geoscience Information Service Soil Sample Type: Rural Soil Arsenic Concentration: 25 - 35 mg/kg Cadmium Concentration: <1.8 mg/kg Chromium Concentration: 90 - 120 mg/kg Lead Concentration: <150 mg/kg Nickel Concentration: 30 - 45 mg/kg	A20SW (E)	997	4	434164 405880
52	**BGS Recorded Mineral Sites** Site Name: Keresford House Location: , Keresforth Hill, Barnsley, South Yorkshire Source: British Geological Survey, National Geoscience Information Service Reference: 37872 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Unknown Operator Periodic Type: Carboniferous Geology: Pennine Middle Coal Measures Formation Commodity: Sandstone Positional Accuracy: Located by supplier to within 10m	A13NE (E)	0	3	433095 405548
53	**BGS Recorded Mineral Sites** Site Name: Dodworth Road Location: Dodworth Road, Barnsley, South Yorkshire Source: British Geological Survey, National Geoscience Information Service Reference: 13308 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Unknown Operator Periodic Type: Carboniferous Geology: Pennine Middle Coal Measures Formation Commodity: Iron Ore - Ironstone Positional Accuracy: Located by supplier to within 10m	A18SW (N)	367	3	433000 406095
53	**BGS Recorded Mineral Sites** Site Name: Dodworth Road Location: Dodworth Road, Barnsley, South Yorkshire Source: British Geological Survey, National Geoscience Information Service Reference: 13308 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Unknown Operator Periodic Type: Carboniferous Geology: Pennine Middle Coal Measures Formation Commodity: Common Clay and Shale Positional Accuracy: Located by supplier to within 10m	A18SW (N)	367	3	433000 406095
54	**BGS Recorded Mineral Sites** Site Name: Dodworth Road Location: Dodworth Road, Barnsley, South Yorkshire Source: British Geological Survey, National Geoscience Information Service Reference: 37853 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Unknown Operator Periodic Type: Carboniferous Geology: Pennine Middle Coal Measures Formation Commodity: Sandstone Positional Accuracy: Located by supplier to within 10m	A18NW (N)	553	3	432907 406272

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
55	**BGS Recorded Mineral Sites** Site Name: Dodworth Road Location: Dodworth Road, Barnsley, South Yorkshire Source: British Geological Survey, National Geoscience Information Service Reference: 13307 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Unknown Operator Periodic Type: Carboniferous Geology: Pennine Middle Coal Measures Formation Commodity: Common Clay and Shale Positional Accuracy: Located by supplier to within 10m	A18NW (N)	597	3	432805 406315
56	**BGS Recorded Mineral Sites** Site Name: Dodworth Bottom Location: , Dodworth Bottom, Dodworth, Barnsley, South Yorkshire Source: British Geological Survey, National Geoscience Information Service Reference: 37875 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Unknown Operator Periodic Type: Carboniferous Geology: Pennine Middle Coal Measures Formation Commodity: Sandstone Positional Accuracy: Located by supplier to within 10m	A7SE (SW)	652	3	432555 404846
57	**BGS Recorded Mineral Sites** Site Name: Dodworth Location: , Dodworth, Barnsley, South Yorkshire Source: British Geological Survey, National Geoscience Information Service Reference: 37874 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Unknown Operator Periodic Type: Carboniferous Geology: Pennine Middle Coal Measures Formation Commodity: Sandstone Positional Accuracy: Located by supplier to within 10m	A12NW (W)	674	3	432136 405858
58	**BGS Recorded Mineral Sites** Site Name: Kingstone Place Location: , Worsbrough, South Yorkshire Source: British Geological Survey, National Geoscience Information Service Reference: 37871 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Unknown Operator Periodic Type: Carboniferous Geology: Pennine Middle Coal Measures Formation Commodity: Sandstone Positional Accuracy: Located by supplier to within 10m	A14SE (E)	742	3	433983 405340
59	**BGS Recorded Mineral Sites** Site Name: Victoria Colliery Location: , Worsbrough, South Yorkshire Source: British Geological Survey, National Geoscience Information Service Reference: 37873 Type: Underground **Status: Ceased** Operator: Unknown Operator Operator Location: Unknown Operator Periodic Type: Carboniferous Geology: Pennine Middle Coal Measures Formation Commodity: Coal - Deep Positional Accuracy: Located by supplier to within 10m	A9NE (SE)	870	3	433947 404951
60	**BGS Recorded Mineral Sites** Site Name: Stocks Lane Location: Stocks Lane, Barnsley, South Yorkshire Source: British Geological Survey, National Geoscience Information Service Reference: 13306 Type: Opencast **Status: Ceased** Operator: Unknown Operator Operator Location: Unknown Operator Periodic Type: Carboniferous Geology: Pennine Middle Coal Measures Formation Commodity: Common Clay and Shale Positional Accuracy: Located by supplier to within 10m	A23SE (N)	898	3	433195 406605

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Measured Urban Soil Chemistry No data available				
	BGS Urban Soil Chemistry Averages No data available				
	Coal Mining Affected Areas Description: In an area which may be affected by coal mining activity. It is recommended that a coal mining report is obtained from the Coal Authority. Contact details are included in the Useful Contacts section of this report.	A13NW (SE)	0	5	433001 405544
	Mining Instability Mining Evidence: Inconclusive Coal Mining Source: Ove Arup & Partners Boundary Quality: As Supplied	A13NW (SE)	0	-	433001 405544
	Non Coal Mining Areas of Great Britain Risk: Highly Unlikely Source: British Geological Survey, National Geoscience Information Service	A13NW (SE)	0	3	433001 405544
	Potential for Collapsible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NW (SE)	0	3	433001 405544
	Potential for Compressible Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NW (SE)	0	3	433001 405544
	Potential for Compressible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NW (NW)	0	3	432999 405546
	Potential for Compressible Ground Stability Hazards Hazard Potential: Moderate Source: British Geological Survey, National Geoscience Information Service	A13SW (W)	13	3	432831 405491
	Potential for Compressible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NE (E)	88	3	433307 405564
	Potential for Compressible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A12SE (W)	177	3	432664 405507
	Potential for Compressible Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NE (NE)	198	3	433202 405809
	Potential for Ground Dissolution Stability Hazards No Hazard				
	Potential for Landslide Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NW (SE)	0	3	433001 405544
	Potential for Landslide Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13NW (W)	6	3	432835 405530
	Potential for Landslide Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13SW (W)	98	3	432750 405462
	Potential for Landslide Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A12NE (W)	159	3	432639 405655
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Low Source: British Geological Survey, National Geoscience Information Service	A13SE (SE)	0	3	433151 405479
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NW (NW)	0	3	432999 405546
	Potential for Running Sand Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NW (SE)	0	3	433001 405544
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13SW (W)	13	3	432831 405491

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NE (E)	88	3	433307 405564
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A12SE (W)	177	3	432664 405507
	Potential for Running Sand Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NE (NE)	198	3	433202 405809
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13NW (E)	0	3	433005 405545
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SW (S)	0	3	433017 405377
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: Very Low Source: British Geological Survey, National Geoscience Information Service	A13NW (SE)	0	3	433001 405544
	Potential for Shrinking or Swelling Clay Ground Stability Hazards Hazard Potential: No Hazard Source: British Geological Survey, National Geoscience Information Service	A13SW (S)	68	3	432928 405295
	Radon Potential - Radon Protection Measures Protection Measure: No radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service	A13NW (W)	0	3	432900 405544
	Radon Potential - Radon Protection Measures Protection Measure: No radon protective measures are necessary in the construction of new dwellings or extensions Source: British Geological Survey, National Geoscience Information Service	A13NW (SE)	0	3	433001 405544
	Radon Potential - Radon Affected Areas Affected Area: The property is in a lower probability radon area, as less than 1% of homes are above the action level Source: British Geological Survey, National Geoscience Information Service	A13NW (W)	0	3	432900 405544
	Radon Potential - Radon Affected Areas Affected Area: The property is in an intermediate probability radon area, as between 1 and 3% of homes are above the action level Source: British Geological Survey, National Geoscience Information Service	A13NW (SE)	0	3	433001 405544

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
61	**Contemporary Trade Directory Entries** Name: Mdo Services Location: 16, Keresforth Court, BARNSLEY, South Yorkshire, S70 6RT Classification: Commercial Cleaning Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NE (E)	65	-	433237 405591
61	**Contemporary Trade Directory Entries** Name: Mdo Cleaning Services Location: 16, Keresforth Court, Barnsley, South Yorkshire, S70 6RT Classification: Commercial Cleaning Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NE (E)	65	-	433237 405591
62	**Contemporary Trade Directory Entries** Name: Barnsley Community & Priority Services Nhs Trust Location: 7, Keresforth Close, Barnsley, South Yorkshire, S70 6RS Classification: Hospitals **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A13NE (E)	120	-	433284 405622
63	**Contemporary Trade Directory Entries** Name: Kv Services Pest Control (Barnsley) Location: 67, Broadway, BARNSLEY, South Yorkshire, S70 6QJ Classification: Pest & Vermin Control **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A18SW (NW)	168	-	432830 405883
64	**Contemporary Trade Directory Entries** Name: Keresforth Centre Location: Keresforth Court, BARNSLEY, South Yorkshire, S70 6RT Classification: Hospitals **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A14NW (E)	221	-	433430 405609
65	**Contemporary Trade Directory Entries** Name: Wincanton Location: Broadway, Barnsley, South Yorkshire, S70 6RA Classification: Distribution Services **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A18SW (NW)	258	-	432780 405976
66	**Contemporary Trade Directory Entries** Name: Badbats Location: 33, Caister Avenue, Barnsley, South Yorkshire, S70 6RN Classification: Bus & Coach Operators & Stations **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A9NW (SE)	395	-	433510 405176
66	**Contemporary Trade Directory Entries** Name: Badbats Location: 33, Caister Avenue, BARNSLEY, South Yorkshire, S70 6RN Classification: Garage Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A9NW (SE)	395	-	433510 405176
67	**Contemporary Trade Directory Entries** Name: S R Gent (International) Ltd Location: Dodworth Road, Barnsley, South Yorkshire, S70 6JE Classification: Clothing & Fabrics - Manufacturers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A18SW (N)	443	-	432910 406161
68	**Contemporary Trade Directory Entries** Name: Shell Location: Dodworth Rd, Barnsley, South Yorkshire, S70 6JE Classification: Petrol Filling Stations - 24 Hour **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A18NW (N)	514	-	432847 406230
69	**Contemporary Trade Directory Entries** Name: S.E. Gas Services Location: 15, Grosvenor Drive, BARNSLEY, South Yorkshire, S70 6HU Classification: Boilers - Servicing, Replacements & Repairs **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A18NE (N)	605	-	433259 406275
70	**Contemporary Trade Directory Entries** Name: Beaumont Commercials Location: 221, Dodworth Road, Barnsley, South Yorkshire, S70 6HT Classification: Commercial Vehicle Servicing, Repairs, Parts & Accessories **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A18NE (N)	642	-	433143 406354

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
71	**Contemporary Trade Directory Entries** Name: Rope Systems Ltd Location: Gable End, Keresforth Road, Dodworth, Barnsley, South Yorkshire, S75 3NX Classification: Wire Products - Manufacturers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A7SE (SW)	644	-	432577 404840
71	**Contemporary Trade Directory Entries** Name: Vic Cross Location: Laurel Dene, Keresforth Road, Dodworth, Barnsley, South Yorkshire, S75 3NX Classification: Road Haulage Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A7SE (SW)	659	-	432554 404839
72	**Contemporary Trade Directory Entries** Name: Polar Van Centre Location: Dodworth Road, Barnsley, South Yorkshire, S70 6PA Classification: Commercial Vehicle Dealers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A18NE (N)	669	-	433107 406389
72	**Contemporary Trade Directory Entries** Name: Rapid Fit Location: Dodworth Road, Barnsley, South Yorkshire, S70 6PA Classification: Exhaust & Shock Absorber Centres **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A18NE (N)	669	-	433107 406389
73	**Contemporary Trade Directory Entries** Name: Pat King Location: 1 Jacksons Yard,Dodworth Rd, Barnsley, South Yorkshire, S70 6DZ Classification: Clothing & Fabrics - Manufacturers **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A19NW (NE)	692	-	433421 406278
74	**Contemporary Trade Directory Entries** Name: Birchfield Supplies Location: 20, Orchard Croft, Dodworth, Barnsley, South Yorkshire, S75 3QY Classification: Insulation Materials **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A7NW (SW)	716	-	432349 404927
75	**Contemporary Trade Directory Entries** Name: Birchfield Pest Management Location: 2, Birchfield Crescent, Dodworth, Barnsley, South Yorkshire, S75 3NZ Classification: Pest & Vermin Control **Status: Active** Positional Accuracy: Automatically positioned to the address	A12NW (W)	759	-	432059 405537
76	**Contemporary Trade Directory Entries** Name: M C R Plant Repairs Location: 109, Lancaster Street, Barnsley, South Yorkshire, S70 6EW Classification: Plant & Machinery Repairs **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A19SW (NE)	766	-	433674 406142
77	**Contemporary Trade Directory Entries** Name: Pauls Graffiti Removal Location: 86, Lancaster Street, Barnsley, South Yorkshire, S70 6EW Classification: Graffiti Removers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A19SW (NE)	767	-	433691 406127
77	**Contemporary Trade Directory Entries** Name: Multiblast Services Location: 5, Wellington Place, Waterloo Road, Barnsley, South Yorkshire, S70 6EN Classification: Blast Cleaning **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A19SE (NE)	790	-	433730 406121
78	**Contemporary Trade Directory Entries** Name: Pauls Autos Ltd Location: West Road, Barnsley, South Yorkshire, S75 2DH Classification: Garage Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A18NE (N)	776	-	433129 406494
79	**Contemporary Trade Directory Entries** Name: William Cooper Ltd Location: Shaw Lane Business Park, Shaw Lane, Barnsley, South Yorkshire, S70 6EH Classification: Cladding Suppliers & Installers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A19SE (NE)	786	-	433796 406048

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
79	**Contemporary Trade Directory Entries** Name: Bellamy Electrical Engineering Ltd Location: Shaw Lane Business Park, Shaw Lane, Barnsley, South Yorkshire, S70 6EH Classification: Electrical Engineers **Status: Active** Positional Accuracy: Automatically positioned to the address	A19SE (NE)	786	-	433796 406048
80	**Contemporary Trade Directory Entries** Name: Rossi'S Icecream Location: 261, Park Road, Barnsley, South Yorkshire, S70 1QN Classification: Ice Cream Manufacturers & Suppliers **Status: Active** Positional Accuracy: Automatically positioned to the address	A15SW (E)	795	-	434048 405453
81	**Contemporary Trade Directory Entries** Name: Torque Motors Location: 131, Dodworth Road, Barnsley, South Yorkshire, S70 6HL Classification: Garage Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A19NW (NE)	797	-	433553 406303
82	**Contemporary Trade Directory Entries** Name: Take 2 Printers Location: 96, Racecommon Road, Barnsley, South Yorkshire, S70 6AP Classification: Printers **Status: Active** Positional Accuracy: Automatically positioned to the address	A19SE (NE)	811	-	433905 405958
83	**Contemporary Trade Directory Entries** Name: Hiltons Electrical Services Ltd Location: West Road, Barnsley, South Yorkshire, S75 2DH Classification: Electrical Engineers **Status: Active** Positional Accuracy: Automatically positioned to the address	A18NE (N)	814	-	433079 406538
83	**Contemporary Trade Directory Entries** Name: David Warsop & Co Location: West Road, BARNSLEY, South Yorkshire, S75 2DH Classification: Precision Engineers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A23SE (N)	826	-	433038 406553
83	**Contemporary Trade Directory Entries** Name: Sw Transport Location: West Rd, Barnsley, South Yorkshire, S75 2DH Classification: Road Haulage Services **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A23SE (N)	844	-	433058 406570
84	**Contemporary Trade Directory Entries** Name: Marks Pet & Farm Feeds Location: Maple Estate,Stocks La, Barnsley, South Yorkshire, S75 2BL Classification: Pet Foods & Animal Feeds **Status: Active** Positional Accuracy: Manually positioned within the geographical locality	A19NW (NE)	831	-	433383 406466
85	**Contemporary Trade Directory Entries** Name: Foiled Again Location: 1, The Link, Dodworth, Barnsley, South Yorkshire, S75 3QG Classification: Printers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A7SW (SW)	837	-	432252 404854
86	**Contemporary Trade Directory Entries** Name: Barnsley Carpet Cleaning Services Location: Unit 12, Maple Estate, Stocks Lane, Barnsley, South Yorkshire, S75 2BL Classification: Carpet, Curtain & Upholstery Cleaners **Status: Active** Positional Accuracy: Automatically positioned to the address	A19NW (NE)	860	-	433462 406455
86	**Contemporary Trade Directory Entries** Name: Sleep Marketing Llp Location: Unit 12, Maple Estate, Stocks Lane, Barnsley, South Yorkshire, S75 2BL Classification: Soft Furnishings - Manufacturers **Status: Active** Positional Accuracy: Automatically positioned to the address	A19NW (NE)	860	-	433462 406455
86	**Contemporary Trade Directory Entries** Name: Raw 2k Salvage Solutions Ltd Location: Unit 11, Maple Estate, Stocks Lane, Barnsley, South Yorkshire, S75 2BL Classification: Salvage Dealers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A19NW (NE)	860	-	433462 406455

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
86	**Contemporary Trade Directory Entries** Name: Tridoor Ltd Location: Unit 27, Maple Estate, Stocks Lane, Barnsley, South Yorkshire, S75 2BL Classification: Door Manufacturers - Industrial **Status: Active** Positional Accuracy: Manually positioned to the address or location	A19NW (NE)	866	-	433423 406484
86	**Contemporary Trade Directory Entries** Name: Vesseltech (Uk) Ltd Location: Unit 9, Maple Estate, Stocks Lane, Barnsley, South Yorkshire, S75 2BL Classification: Stainless Steel Manufacturers **Status: Active** Positional Accuracy: Automatically positioned to the address	A19NW (NE)	877	-	433452 406480
87	**Contemporary Trade Directory Entries** Name: Jmack Print Location: Unit 2 Town Mills,Bradbury St, Barnsley, South Yorkshire, S70 6AQ Classification: Printers **Status: Inactive** Positional Accuracy: Manually positioned to the address or location	A19SE (NE)	863	-	433869 406082
87	**Contemporary Trade Directory Entries** Name: Sykes Pet Foods Location: Townend Mill, Bradbury Street, Barnsley, South Yorkshire, S70 6AQ Classification: Pet Foods & Animal Feeds **Status: Active** Positional Accuracy: Automatically positioned to the address	A19SE (NE)	864	-	433870 406083
87	**Contemporary Trade Directory Entries** Name: Barnsley Printing Services Ltd Location: The Old Chapel, Parker Street, Barnsley, South Yorkshire, S70 6EG Classification: Printers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A19SE (NE)	865	-	433840 406118
88	**Contemporary Trade Directory Entries** Name: Redfernbenz Location: Springfield St, Barnsley, South Yorkshire, S70 6HF Classification: Car Dealers - Used **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A19NW (NE)	881	-	433640 406336
89	**Contemporary Trade Directory Entries** Name: Damp Check Location: 9, Birdwell Road, Dodworth, Barnsley, South Yorkshire, S75 3PN Classification: Damp & Dry Rot Control **Status: Active** Positional Accuracy: Automatically positioned to the address	A7SE (SW)	882	-	432497 404606
90	**Contemporary Trade Directory Entries** Name: Townmills Printing Services Location: 2, Bradbury Street, Barnsley, South Yorkshire, S70 6AQ Classification: Printers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A19SE (NE)	883	-	433908 406067
91	**Contemporary Trade Directory Entries** Name: Haydon Print Solutions Ltd Location: Media HouseGlendale Cl, Barnsley, South Yorkshire, S75 2DU Classification: Printers **Status: Inactive** Positional Accuracy: Manually positioned to the road within the address or location	A23SW (N)	886	-	432866 406603
91	**Contemporary Trade Directory Entries** Name: Discontinued Bathrooms Location: 140, Pogmoor Road, Barnsley, South Yorkshire, S75 2DX Classification: Bath Resurfacing **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A23SW (N)	895	-	432841 406613
92	**Contemporary Trade Directory Entries** Name: Royston Lead Ltd Location: Pogmoor Works, Stocks Lane, Barnsley, South Yorkshire, S75 2DS Classification: Engineers - General **Status: Active** Positional Accuracy: Automatically positioned to the address	A23SE (N)	894	-	433294 406573
92	**Contemporary Trade Directory Entries** Name: James Town Location: Pogmoor Works, Stocks Lane, Barnsley, South Yorkshire, S75 2DS Classification: Metal Workers **Status: Active** Positional Accuracy: Automatically positioned to the address	A23SE (N)	894	-	433294 406573

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
93	**Contemporary Trade Directory Entries** Name: R G Plumbing & Heating Location: 73, South Road, Dodworth, Barnsley, South Yorkshire, S75 3LQ Classification: Boilers - Servicing, Replacements & Repairs **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A11SE (W)	897	-	431936 405458
94	**Contemporary Trade Directory Entries** Name: Mr Shift-It Location: 24, Queens Drive, Dodworth, Barnsley, South Yorkshire, S75 3LW Classification: Waste Disposal Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A11SE (W)	898	-	431964 405326
95	**Contemporary Trade Directory Entries** Name: Dust In Time Location: 23, Sycamore Street, Barnsley, South Yorkshire, S75 2DQ Classification: Cleaning Services - Domestic **Status: Active** Positional Accuracy: Automatically positioned to the address	A19NW (NE)	901	-	433423 406525
96	**Contemporary Trade Directory Entries** Name: Collect Dry Cleaning Location: 3, Spencer Street, Barnsley, South Yorkshire, S70 1QX Classification: Dry Cleaners **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A15SW (E)	912	-	434165 405504
97	**Contemporary Trade Directory Entries** Name: C & C Textiles Location: 25, Hawthorne Street, Barnsley, South Yorkshire, S70 1QQ Classification: Recycling Centres **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A15NW (E)	915	-	434120 405766
98	**Contemporary Trade Directory Entries** Name: Barnsley Mini Centre Location: West Rd, Barnsley, South Yorkshire, S75 2DR Classification: Garage Services **Status: Inactive** Positional Accuracy: Manually positioned within the geographical locality	A23SW (N)	918	-	432986 406645
99	**Contemporary Trade Directory Entries** Name: Alan Lodge Location: 95, Pogmoor Road, Barnsley, South Yorkshire, S75 2LP Classification: Road Haulage Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A23SW (N)	923	-	432717 406638
100	**Contemporary Trade Directory Entries** Name: Barnsley Motors Location: 12, Grafton Street, Barnsley, South Yorkshire, S70 6AG Classification: Garage Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A19SE (NE)	924	-	433919 406118
101	**Contemporary Trade Directory Entries** Name: Intake 1 Filling Station Location: Pogmoor Road, Barnsley, South Yorkshire, S75 2DZ Classification: Petrol Filling Stations - 24 Hour **Status: Active** Positional Accuracy: Automatically positioned to the address	A23SW (N)	948	-	432897 406670
101	**Contemporary Trade Directory Entries** Name: Crows Garage Location: Greaves Fold, Barnsley, South Yorkshire, S75 2EA Classification: Garage Services **Status: Active** Positional Accuracy: Automatically positioned to the address	A23SW (N)	987	-	432882 406707
102	**Contemporary Trade Directory Entries** Name: Easy Life Mobility Location: 62, Winter Road, Barnsley, South Yorkshire, S75 2EL Classification: Disability Equipment - Manufacturers & Suppliers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A23SE (N)	970	-	433159 406685
103	**Contemporary Trade Directory Entries** Name: Pet Food Direct Wholesale Location: 12, Lancaster Street, Barnsley, South Yorkshire, S70 6DX Classification: Pet Foods & Animal Feeds **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A19NE (NE)	985	-	433902 406227

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
104	**Contemporary Trade Directory Entries** Name: M A Midgley Location: 61, Rose Hill Drive, Dodworth, Barnsley, South Yorkshire, S75 3LY Classification: Refrigerators & Freezers - Servicing & Repairs **Status: Active** Positional Accuracy: Automatically positioned to the address	A11SE (W)	988	-	431879 405297
105	**Contemporary Trade Directory Entries** Name: S T Templin Location: Gilroyd La, Dodworth, Barnsley, South Yorkshire, S75 3EF Classification: Commercial Vehicle Servicing, Repairs, Parts & Accessories **Status: Active** Positional Accuracy: Manually positioned to the road within the address or location	A2NE (S)	992	-	432571 404436
106	**Contemporary Trade Directory Entries** Name: Kwik-Fit Location: Racecommon Road, Barnsley, South Yorkshire, S70 6AB Classification: Tyre Dealers **Status: Active** Positional Accuracy: Automatically positioned to the address	A19SE (NE)	996	-	433970 406167
106	**Contemporary Trade Directory Entries** Name: Kwik-Fit Location: Racecommon Road, BARNSLEY, South Yorkshire, S70 6AB Classification: Tyre Dealers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A19SE (NE)	996	-	433970 406167
106	**Contemporary Trade Directory Entries** Name: Kwik-Fit Location: Racecommon Road, Barnsley, South Yorkshire, S70 6AB Classification: Tyre Dealers **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A19SE (NE)	996	-	433970 406167
107	**Contemporary Trade Directory Entries** Name: Buzz Promotions Location: 68, St. Georges Road, Barnsley, South Yorkshire, S70 1HB Classification: Distribution Services **Status: Inactive** Positional Accuracy: Automatically positioned to the address	A20SW (E)	998	-	434127 405957
108	**Fuel Station Entries** Name: Shell Barnsley Location: Dodworth Road, Barnsley, South Yorkshire, S70 6DY Brand: SHELL Premises Type: Not Applicable **Status: Obsolete** Positional Accuracy: Manually positioned to the address or location	A18NW (N)	514	-	432847 406230
109	**Fuel Station Entries** Name: Polar Motor Company Ltd Location: Dodworth Road, BARNSLEY, South Yorkshire, S70 6PA Brand: OBSOLETE Premises Type: Not Applicable **Status: Obsolete** Positional Accuracy: Approximate location provided by supplier	A18NE (N)	566	-	433153 406273
110	**Fuel Station Entries** Name: Jet Intake 1 Location: 1, Pogmoor Road, Barnsley, South Yorkshire, S75 2EW Brand: JET Premises Type: Petrol Station **Status: Open** Positional Accuracy: Manually positioned to the address or location	A23SW (N)	949	-	432896 406671

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
111	**Areas of Adopted Green Belt** Authority: Barnsley Metropolitan Borough Council, Planning Department Plan Name: Barnsley Unitary Development Plan **Status: Adopted** Plan Date: 31st December 2000	A13SW (W)	0	6	432932 405519
112	**Nitrate Vulnerable Zones** Name: Not Supplied Description: NVZ Area Source: Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	A13NW (SE)	0	8	433001 405544

Agency & Hydrological	Version	Update Cycle
Contaminated Land Register Entries and Notices		
Sheffield City Council - Environmental Protection Service	April 2013	Annual Rolling Update
Barnsley Metropolitan Borough Council - Environmental Health and Trading Standards	July 2013	Annual Rolling Update
Wakefield City Metropolitan District Council - Environmental Health	November 2012	Annual Rolling Update
Discharge Consents		
Environment Agency - North East Region	July 2013	Quarterly
Enforcement and Prohibition Notices		
Environment Agency - North East Region	March 2013	Quarterly
Integrated Pollution Controls		
Environment Agency - North East Region	October 2008	Not Applicable
Integrated Pollution Prevention And Control		
Environment Agency - North East Region	July 2013	Quarterly
Local Authority Integrated Pollution Prevention And Control		
Sheffield City Council - Environmental Protection Service	December 2012	Annual Rolling Update
Barnsley Metropolitan Borough Council - Environmental Health and Trading Standards	November 2012	Annual Rolling Update
Wakefield City Metropolitan District Council - Environmental Health	November 2012	Annual Rolling Update
Local Authority Pollution Prevention and Controls		
Sheffield City Council - Environmental Protection Service	December 2012	Annual Rolling Update
Barnsley Metropolitan Borough Council - Environmental Health and Trading Standards	November 2012	Annual Rolling Update
Wakefield City Metropolitan District Council - Environmental Health	November 2012	Annual Rolling Update
Local Authority Pollution Prevention and Control Enforcements		
Sheffield City Council - Environmental Protection Service	December 2012	Annual Rolling Update
Barnsley Metropolitan Borough Council - Environmental Health and Trading Standards	November 2012	Annual Rolling Update
Wakefield City Metropolitan District Council - Environmental Health	November 2012	Annual Rolling Update
Nearest Surface Water Feature		
Ordnance Survey	July 2012	Quarterly
Pollution Incidents to Controlled Waters		
Environment Agency - North East Region	December 1998	Not Applicable
Prosecutions Relating to Authorised Processes		
Environment Agency - North East Region	March 2013	Quarterly
Prosecutions Relating to Controlled Waters		
Environment Agency - North East Region	March 2013	Quarterly
Registered Radioactive Substances		
Environment Agency - North East Region	July 2013	Quarterly
River Quality		
Environment Agency - Head Office	November 2001	Not Applicable
River Quality Biology Sampling Points		
Environment Agency - Head Office	July 2012	Annually
River Quality Chemistry Sampling Points		
Environment Agency - Head Office	July 2012	Annually
Substantiated Pollution Incident Register		
Environment Agency - North East Region - Ridings Area	July 2013	Quarterly
Environment Agency - North East Region - Yorkshire Area	July 2013	Quarterly
Water Abstractions		
Environment Agency - North East Region	July 2013	Quarterly
Water Industry Act Referrals		
Environment Agency - North East Region	July 2013	Quarterly
Groundwater Vulnerability		
Environment Agency - Head Office	January 2011	Not Applicable
Drift Deposits		
Environment Agency - Head Office	January 1999	Not Applicable

Agency & Hydrological	Version	Update Cycle
Bedrock Aquifer Designations		
British Geological Survey - National Geoscience Information Service	October 2012	Annually
Superficial Aquifer Designations		
British Geological Survey - National Geoscience Information Service	October 2012	Annually
Source Protection Zones		
Environment Agency - Head Office	July 2013	Quarterly
Extreme Flooding from Rivers or Sea without Defences		
Environment Agency - Head Office	August 2013	Quarterly
Flooding from Rivers or Sea without Defences		
Environment Agency - Head Office	August 2013	Quarterly
Areas Benefiting from Flood Defences		
Environment Agency - Head Office	August 2013	Quarterly
Flood Water Storage Areas		
Environment Agency - Head Office	August 2013	Quarterly
Flood Defences		
Environment Agency - Head Office	August 2013	Quarterly
Waste	**Version**	**Update Cycle**
BGS Recorded Landfill Sites		
British Geological Survey - National Geoscience Information Service	June 1996	Not Applicable
Historical Landfill Sites		
Environment Agency - North East Region - Ridings Area	July 2013	Quarterly
Environment Agency - North East Region - Yorkshire Area	July 2013	Quarterly
Integrated Pollution Control Registered Waste Sites		
Environment Agency - North East Region	October 2008	Not Applicable
Licensed Waste Management Facilities (Landfill Boundaries)		
Environment Agency - North East Region - Ridings Area	July 2013	Quarterly
Environment Agency - North East Region - Yorkshire Area	July 2013	Quarterly
Licensed Waste Management Facilities (Locations)		
Environment Agency - North East Region - Ridings Area	April 2013	Quarterly
Environment Agency - North East Region - Yorkshire Area	April 2013	Quarterly
Local Authority Landfill Coverage		
Barnsley Metropolitan Borough Council - Environmental Health and Trading Standards	May 2000	Not Applicable
Sheffield City Council - Environmental Protection Service	May 2000	Not Applicable
Wakefield City Metropolitan District Council - Environmental Health	May 2000	Not Applicable
Local Authority Recorded Landfill Sites		
Barnsley Metropolitan Borough Council - Environmental Health and Trading Standards	May 2000	Not Applicable
Sheffield City Council - Environmental Protection Service	May 2000	Not Applicable
Wakefield City Metropolitan District Council - Environmental Health	May 2000	Not Applicable
Registered Landfill Sites		
Environment Agency - North East Region - Ridings Area	March 2003	Not Applicable
Registered Waste Transfer Sites		
Environment Agency - North East Region - Ridings Area	March 2003	Not Applicable
Registered Waste Treatment or Disposal Sites		
Environment Agency - North East Region - Ridings Area	March 2003	Not Applicable

Hazardous Substances	Version	Update Cycle
Control of Major Accident Hazards Sites (COMAH)		
Health and Safety Executive	August 2013	Bi-Annually
Explosive Sites		
Health and Safety Executive	March 2013	Bi-Annually
Notification of Installations Handling Hazardous Substances (NIHHS)		
Health and Safety Executive	November 2000	Not Applicable
Planning Hazardous Substance Enforcements		
Wakefield City Metropolitan District Council	February 2013	Annual Rolling Update
Sheffield City Council	November 2012	Annual Rolling Update
Barnsley Metropolitan Borough Council - Planning Department	September 2012	Annual Rolling Update
Planning Hazardous Substance Consents		
Wakefield City Metropolitan District Council	February 2013	Annual Rolling Update
Sheffield City Council	November 2012	Annual Rolling Update
Barnsley Metropolitan Borough Council - Planning Department	September 2012	Annual Rolling Update

Geological	Version	Update Cycle
BGS 1:625,000 Solid Geology		
British Geological Survey - National Geoscience Information Service	August 1996	Not Applicable
BGS Estimated Soil Chemistry		
British Geological Survey - National Geoscience Information Service	January 2010	Variable
BGS Recorded Mineral Sites		
British Geological Survey - National Geoscience Information Service	April 2013	Bi-Annually
Brine Compensation Area		
Cheshire Brine Subsidence Compensation Board	August 2011	Not Applicable
Coal Mining Affected Areas		
The Coal Authority - Mining Report Service	January 2012	As notified
Mining Instability		
Ove Arup & Partners	October 2000	Not Applicable
Non Coal Mining Areas of Great Britain		
British Geological Survey - National Geoscience Information Service	February 2011	Not Applicable
Potential for Collapsible Ground Stability Hazards		
British Geological Survey - National Geoscience Information Service	February 2011	Annually
Potential for Compressible Ground Stability Hazards		
British Geological Survey - National Geoscience Information Service	February 2011	Annually
Potential for Ground Dissolution Stability Hazards		
British Geological Survey - National Geoscience Information Service	February 2011	Annually
Potential for Landslide Ground Stability Hazards		
British Geological Survey - National Geoscience Information Service	February 2011	Annually
Potential for Running Sand Ground Stability Hazards		
British Geological Survey - National Geoscience Information Service	February 2011	Annually
Potential for Shrinking or Swelling Clay Ground Stability Hazards		
British Geological Survey - National Geoscience Information Service	February 2011	Annually
Radon Potential - Radon Affected Areas		
British Geological Survey - National Geoscience Information Service	July 2011	As notified
Radon Potential - Radon Protection Measures		
British Geological Survey - National Geoscience Information Service	July 2011	As notified

Industrial Land Use	Version	Update Cycle
Contemporary Trade Directory Entries		
Thomson Directories	August 2013	Quarterly
Fuel Station Entries		
Catalist Ltd - Experian	August 2013	Quarterly
Sensitive Land Use	**Version**	**Update Cycle**
Areas of Adopted Green Belt		
Barnsley Metropolitan Borough Council - Planning Department	August 2013	As notified
Sheffield City Council	August 2013	As notified
Wakefield City Metropolitan District Council	August 2013	As notified
Areas of Unadopted Green Belt		
Barnsley Metropolitan Borough Council - Planning Department	August 2013	As notified
Sheffield City Council	August 2013	As notified
Wakefield City Metropolitan District Council	August 2013	As notified
Areas of Outstanding Natural Beauty		
Natural England	July 2013	Bi-Annually
Environmentally Sensitive Areas		
Natural England	July 2013	Annually
Forest Parks		
Forestry Commission	April 1997	Not Applicable
Local Nature Reserves		
Natural England	July 2013	Bi-Annually
Marine Nature Reserves		
Natural England	July 2013	Bi-Annually
National Nature Reserves		
Natural England	July 2013	Bi-Annually
National Parks		
Natural England	July 2013	Bi-Annually
Nitrate Sensitive Areas		
Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	February 2012	Not Applicable
Nitrate Vulnerable Zones		
Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)	February 2013	Annually
Ramsar Sites		
Natural England	July 2013	Bi-Annually
Sites of Special Scientific Interest		
Natural England	July 2013	Bi-Annually
Special Areas of Conservation		
Natural England	July 2013	Bi-Annually
Special Protection Areas		
Natural England	July 2013	Bi-Annually

Data Suppliers

A selection of organisations who provide data within this report

Data Supplier	Data Supplier Logo
Ordnance Survey	
Environment Agency	
Scottish Environment Protection Agency	
The Coal Authority	
British Geological Survey	
Centre for Ecology and Hydrology	
Countryside Council for Wales	
Scottish Natural Heritage	
Natural England	
Health Protection Agency	
Ove Arup	
Peter Brett Associates	

Useful Contacts

Contact	Name and Address	Contact Details
1	**Environment Agency - National Customer Contact Centre (NCCC)** PO Box 544, Templeborough, Rotherham, S60 1BY	Telephone: 08708 506 506 Email: enquiries@environment-agency.gov.uk
2	**Barnsley Metropolitan Borough Council - Environmental Health and Trading Standards** Central Offices, Kendray Street, Barnsley, South Yorkshire, S70 2TN	Telephone: 01226 770770 Fax: 01226 772599 Website: www.barnsley.gov.uk
3	**British Geological Survey - Enquiry Service** British Geological Survey, Kingsley Dunham Centre, Keyworth, Nottingham, Nottinghamshire, NG12 5GG	Telephone: 0115 936 3143 Fax: 0115 936 3276 Email: enquiries@bgs.ac.uk Website: www.bgs.ac.uk
4	**Landmark Information Group Limited** Imperium, Imperial Way, Reading, Berkshire, RG2 0TD	Telephone: 0844 844 9952 Fax: 0844 844 9951 Email: customerservices@landmark.co.uk Website: www.landmarkinfo.co.uk
5	**The Coal Authority - Mining Report Service** 200 Lichfield Lane, Mansfield, Nottinghamshire, NG18 4RG	Telephone: 0845 7626848 Email: thecoalauthority@coal.gov.uk
6	**Barnsley Metropolitan Borough Council - Planning Department** Central Offices, Kendray Street, Barnsley, South Yorkshire, S70 2TN	Telephone: 01226 770770 Fax: 01226 772599 Website: www.barnsley.gov.uk
7	**Natural England** Northminster House, Northminster Road, Peterborough, Cambridgeshire, PE1 1UA	Telephone: 0845 600 3078 Fax: 01733 455103 Email: enquiries@naturalengland.org.uk Website: www.naturalengland.org.uk
8	**Department for Environment, Food and Rural Affairs (DEFRA - formerly FRCA)** Government Buildings, Otley Road, Lawnswood, Leeds, West Yorkshire, LS16 5QT	Telephone: 0113 2613333 Fax: 0113 230 0879
-	**Health Protection Agency - Radon Survey, Centre for Radiation, Chemical and Environmental Hazards** Chilton, Didcot, Oxfordshire, OX11 0RQ	Telephone: 01235 822622 Fax: 01235 833891 Email: radon@hpa.org.uk Website: www.hpa.org.uk
-	**Landmark Information Group Limited** Imperium, Imperial Way, Reading, Berkshire, RG2 0TD	Telephone: 0844 844 9952 Fax: 0844 844 9951 Email: customerservices@landmarkinfo.co.uk Website: www.landmarkinfo.co.uk

Please note that the Environment Agency / SEPA have a charging policy in place for enquiries.