

Given the anticipated ground conditions set out above, the potential for ground gas generation has been identified associated with deep underground mining.

6.2.2 Preferential pathways for ground gas migration

Credible preferential pathways potentially connecting the source and receptor through vertical and lateral migration are:

- faults and fractures in the underlying Coal Measures bedrock.
- building foundations (including any piled foundations, if incorporated in the design).
- construction joints and cracks within building structure.
- utility routes and service penetrations into buildings.

6.2.3 Sensitive receptors and linking pathways (ground gases)

Sensitive receptors identified at or in the vicinity of the site that could be affected by the potential ground gas sources identified above, and the linking pathway (in brackets), comprise:

- R1: future site users – commercial/ industrial workers [migration and ingress of ground gases into buildings, build-up in confined spaces and explosion/ asphyxiation]
- R2: adjacent site users – residential users and commercial workers [migration and ingress of ground gases into buildings, build-up in confined spaces and explosion/ asphyxiation]
- R3: future buildings and services [migration and ingress of ground gases into buildings, build-up in confined spaces and explosion].

The assessment has identified receptors to include proposed building structures and future site users, as well as users of adjacent sites.

Construction workers have not been identified as receptors for the purposes of this ground gas risk assessment. Risks may still be present to construction workers especially where works include the entry into excavations within the ground. Construction workers should undertake appropriate risk assessments and risks should be managed through health and safety procedures and the use of PPE.

6.3 Preliminary risk assessment

The preliminary risk assessment findings and potentially complete contaminant linkages are shown in Table 13. The risk classification based on the combination of hazard consequence and probability using a risk matrix from CIRIA C552 (Rudland et al., 2001), a summary of which is included in Appendix F. This relates to Tier 1 preliminary risk assessment in LCRM (Environment Agency, 2021).

The initial CSM is shown schematically in Figure 3.

Table 13 Risk estimation for potentially complete contaminant linkages

Potential source	Potential receptor	Possible pathway	Likelihood	Severity	Potential risk	Justification
On-site sources, including made ground and contamination associated with former site use (S1, S2, S3, S4 and S5)	R1: future site users	P1: oral, dermal and inhalation exposure with impacted soil, soil vapour and dust	Unlikely	Medium	Low	Most site contamination would have been removed during opencast works, and information shows backfill to be inert material placed under supervision
	R2: adjacent site users	P2: migration via dust/fibre deposition, vapour or groundwater migration combined with inhalation	Unlikely	Medium	Low	Any residual contamination beneath the site is unlikely to affect off-site receptors
	R3: buildings and services	P3: direct contact with contaminated soils or groundwater and chemical attack	Low likelihood	Medium	Moderate/Low	If residual contamination remains, there is a possible risk of it impacting services (including potable water supply pipes)
	R4: vegetation	P4: direct contact with contaminated soils or groundwater and root uptake leading to phytotoxicity	Low likelihood	Mild	Low	If there is some deterioration in quality of vegetation as a result of historical contamination, this is likely to be limited in extent
	R5: groundwater in secondary A aquifer within superficial deposits	P5: leaching and lateral migration of dissolved phase	Low likelihood	Medium	Moderate/Low	Backfill material is likely to be inert, but residual contamination may impact groundwater

Potential source	Potential receptor	Possible pathway	Likelihood	Severity	Potential risk	Justification
	R6: groundwater in secondary A aquifer within bedrock deposits	P5: leaching and lateral migration of dissolved phase	Low likelihood	Medium	Moderate/Low	Backfill material is likely to be inert, but residual contamination may impact groundwater
	R7: surface ditches and watercourse	P5: leaching and lateral migration of dissolved phase	Low likelihood	Medium	Moderate/Low	Backfill material is likely to be inert, but residual contamination migrate into surface waters
Off-site sources, including railway, collieries and substation (S6, S7 and S8)	R1: future site users	P1: oral, dermal and inhalation exposure with impacted soil, soil vapour and dust	Unlikely	Medium	Low	Off-site impact is unlikely to migrate onto the site into locations where direction contact might occur
	R3: buildings and services	P3: direct contact with contaminated soils or groundwater and chemical attack	Unlikely	Medium	Low	Off-site impact is unlikely to migrate onto the site into locations where direction contact with services and buildings might occur
	R5: groundwater in secondary A aquifer within superficial deposits	P5: leaching and lateral migration of dissolved phase	Unlikely	Medium	Low	Off-site impact is unlikely to affect on-site shallow groundwater at significant levels
	R6: groundwater in secondary A aquifer within bedrock deposits	P5: leaching and lateral migration of dissolved phase	Unlikely	Medium	Low	Off-site impact is unlikely to affect on-site groundwater
	R7: surface ditches and watercourse	P5: leaching and lateral migration of dissolved phase	Unlikely	Medium	Low	Impact is unlikely to enter watercourses from off-site sources

Potential source	Potential receptor	Possible pathway	Likelihood	Severity	Potential risk	Justification
Mine gases (S9)	R1: future site users	P1: inhalation exposure or explosion risk	Unlikely	Severe	Low/Moderate	Ground gases generated from historical mine workings could be present. The Coal Authority report indicates that no mine gases issues have been reported within 500m of the site boundary. However, the consequences of gas build up in residential properties would be severe.
	R2: adjacent site users	P2: inhalation or explosion	Unlikely	Severe	Low/Moderate	
	R3: buildings and services	P3: explosion risk	Unlikely	Severe	Low/Moderate	

Risk matrix		Consequences			
		Severe	Medium	Mild	Minor
Probability	Highly likely	Very high	High	Moderate	Moderate/low
	Likely	High	Moderate	Moderate/low	Low
	Low likelihood	Moderate	Moderate/low	Low	Very low
	Unlikely	Moderate/low	Low	Very low	Very low

Potentially complete contaminant linkages with a potential risk of low to moderate identified in Table 13 comprise:

- Potential risks to human health due to permeation of potable water supply pipes
- Potential risks to groundwater due to contamination in soil or groundwater
- Potential risks to surface water due to contamination in soil or groundwater
- Potential risks to human health due to ingress of mine gases into buildings or confined spaces, resulting in asphyxiation or explosion
- Potential risks to future buildings due to explosion of mine gases (in order to obtain planning permission assessment of the ground gas regime and implementation of any necessary ground gas preventative measures will be required).

These potentially complete contaminant linkages need to be assessed further through appropriate site investigation to determine whether the identified sources of potential contamination and identified potential pathways are feasible. It should be noted that current mine gas levels will be reliant on the methane extraction system operated as part of the coal gas electricity generation operation to the north west of the site. If this operation were to cease, or be temporarily suspended for any reason, there could be a significant change to mine gas concentrations beneath the site.

6.4 Data gaps and uncertainties

Key data gaps and uncertainties identified in the CSM at desk study stage include:

- there are no previous investigations available for the site, therefore no information on actual concentrations of contaminants in soil and groundwater or ground gas at this stage
- the original report produced by Babbie during backfill compaction works is referred to in the WYG report (2008), but has not been seen by RSK
- groundwater depth and flow direction are assumed based on topography and hydrology.
- information has not been sought relating to the mine gas extraction operation. It would be useful to know of any proposed changes to the collection scheme.

7 CONCLUSIONS AND RECOMMENDATIONS

7.1 Geo-environmental assessment

Based on the results of the PRA, the contaminant linkages that have been identified to be potentially complete (relevant contaminant linkages) and to require further action are:

- Potential for damage to human health following permeation of water supply pipe by contamination
- Impact to groundwater due to contamination beneath the site
- Impact to surface water due to contamination in soil or groundwater
- The potential from mine gases to impact future site users and proposed new buildings due to asphyxiation or explosion.

Although not expected to be a significant issue, it is recommended that the chemical nature of and ground gas regime within, backfill material and shallow natural soils should be investigated prior to site redevelopment. This will clarify whether there may be contaminants present that could affect placement of services or vegetation in areas of soft landscaping and will confirm the ground gas regime.

Should unforeseen contamination be encountered during the development then specialist advice should be sought to determine the appropriate course of action. Imported material (e.g. topsoil, if required) should be validated before use on-site to confirm its suitability.

7.2 Geotechnical assessment

The key findings of the geotechnical assessment are as follows:

- The site has been subjected to backfilling of material in areas of opencast workings, and the report on supervision of compaction indicates that some ongoing settlement can be expected in the long term.
- The presence of known areas of highwalls within the opencast workings mean that there are likely to be areas of contrasting ground conditions, where compacted deep backfill is present close to areas where natural soils were not disturbed.
- Outside the opencast areas shallow coal seams will be present, which may have been worked historically underground (although it should be noted that there was no evidence of this during the surface mining operation).
- Deep coal mining is considered to be at a sufficient depth to have no risk of impacting the surface, and it is considered likely that adits beneath the site have been removed by opencast works. Mine shafts located in the area are off-site to the north, and have been backfilled and treated.

7.3 Recommendations

The following recommendations are made for further assessment of the site to address the risks identified above and to address remaining uncertainties:

1. The Babbie compaction certificate report should be requested, so that original data can be considered and used to assist in designing the geotechnical assessment (see point 5 below) and informing decisions relating to geo-environmental assessment;
2. Information on the mine gas extraction scheme should be requested to allow consideration to be given as to whether any changes in operation of the scheme might impact site conditions;
3. The WYG 2008 report refers to monitoring of groundwater levels and ground settlement (undertaken by Babbie) and it is possible that some of the original monitoring infrastructure remains in situ. It is recommended that the original information is reviewed to obtain monitoring data up to the end of the monitoring period and that a careful site inspection is then carried out on site in order to attempt to try to find and re-monitor the original installations (original data from the Babbie compaction report should be obtained if possible);
4. A site investigation should be undertaken to incorporate shallow soil sampling for environmental analysis to determine the potential risk to human health and controlled waters, and construction of monitoring wells to allow assessment of ground gases affecting the site;
5. A geotechnical assessment should be completed to confirm the thickness, nature and in situ properties of the varying ground conditions expected to be present across the site. This would be used to ascertain bearing capacities and to confirm options for foundation design. Outside the area of surface mining rotary borehole investigation work should be carried out to investigate the shallow coal seams and any possible evidence of workings within these.
6. The findings of points 3 and 5 above will allow a detailed ground model to be established. It is recommended that geotechnical settlement modelling is then carried out to determine the likely long-term settlements associated with the opencast backfill. This will be required in order to determine the most appropriate ground treatment and foundation design options.

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FIGURES



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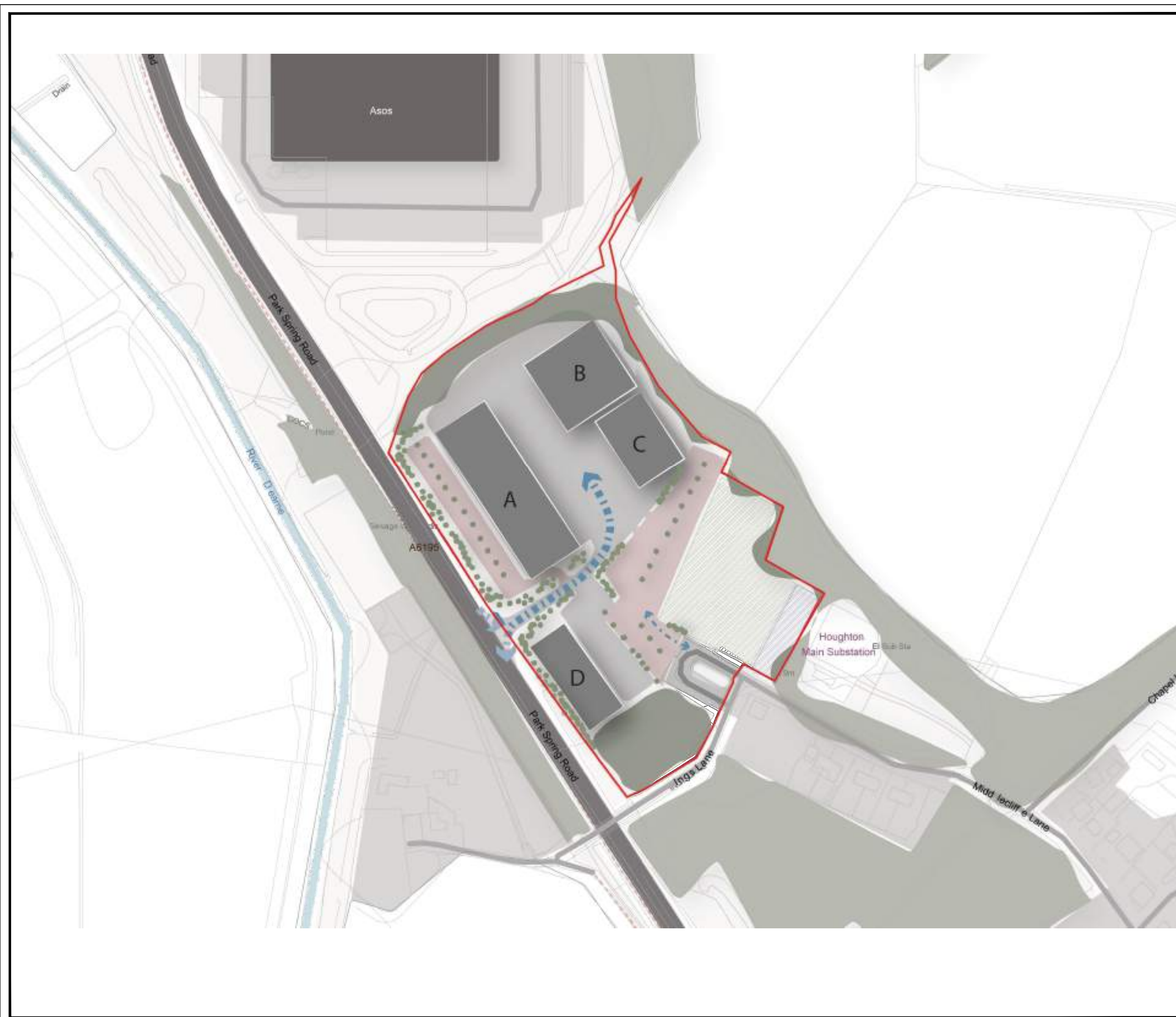
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Drawing Title
SITE LOCATION PLAN

Drawn	Date	Checked	Date	Approved	Date
HD	27.05.21	FC	27.05.21	JC	27.05.21

Project No.	Drawing File
322835	322835-R01(00)D001A

Scale NTS	Orig Size A4	Dimensions —	Drawing No. FIGURE 1	Rev. A
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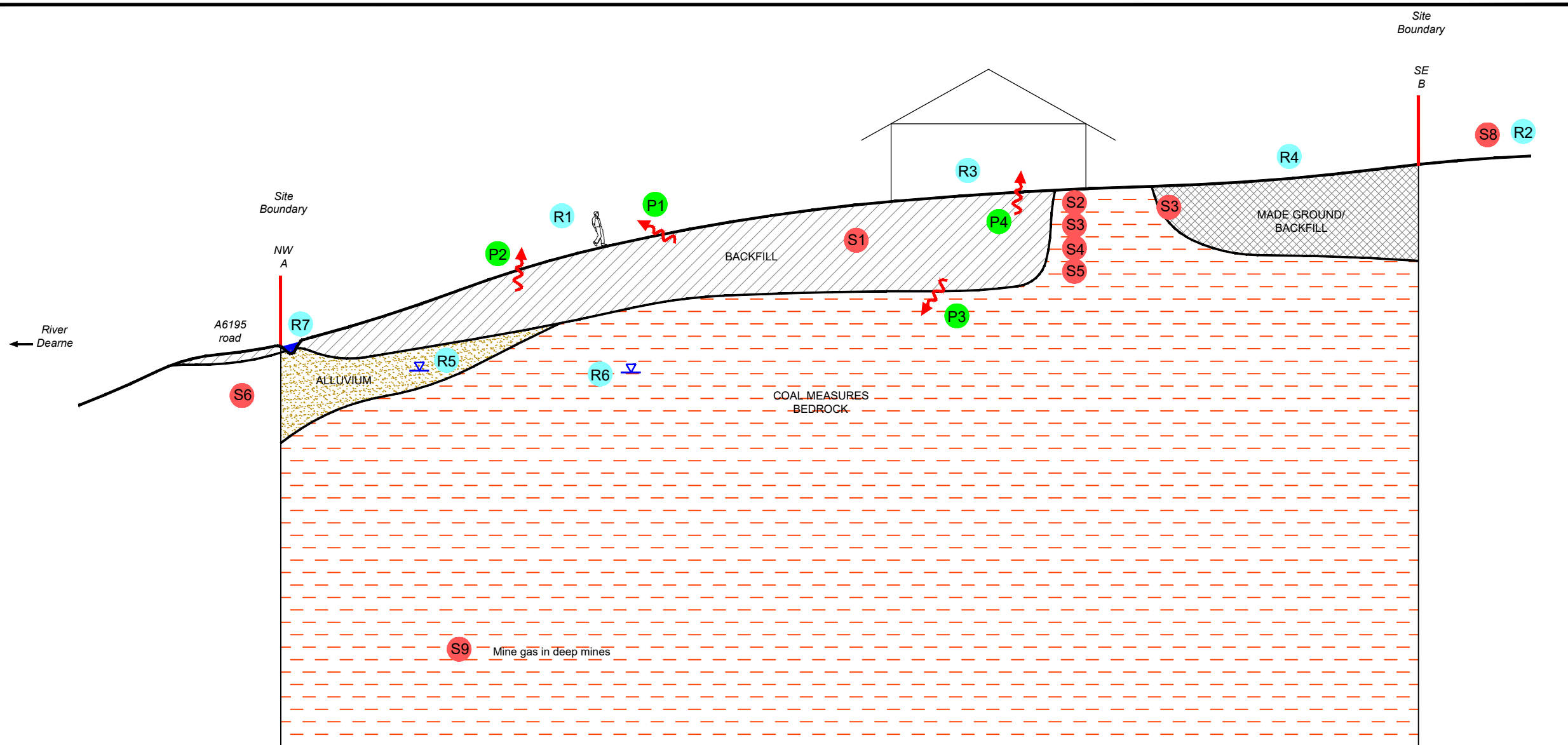
CLIENT
HARWORTH ESTATES INVESTMENTS LIMITED

PROJECT
HOUGHTON MAIN

TITLE
SITE BOUNDARY PLAN

JOB No.:	DRAWING FILE:
322835	322835-R01(00)D002A

BY:	DATE:	CONTRACT NO.	FIGURE 2	REV:
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POTENTIAL CONTAMINANT SOURCES

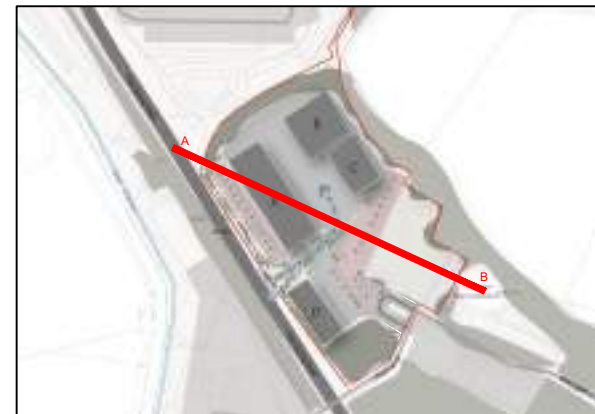
- S1 Made ground (opencast excavation backfill material)
- S2 Colliery contamination
- S3 Area of former cottages
- S4 Sewage works including sludge beds and filter beds
- S5 Former route of A6195 passed through site
- S6 Former railway line running along western site boundary
- S7 Collieries off-site to north and south, with spoil heaps
- S8 Electricity substation
- S9 Mine gases in deep workings

POTENTIALLY VIABLE PATHWAYS

- P1 Oral, dermal and inhalation exposure with impacted soil, soil vapour and dust
- P2 Direct contact with contaminated soils or groundwater and root uptake leading to phytotoxicity
- P3 Leaching from soils/ percolation to aquifer/ lateral migration of dissolved phase
- P4 Migration and ingress of ground gases into buildings, build-up in confined spaces

SENSITIVE RECEPTORS

- R1 Future site users - commercial/ industrial workers
- R2 Current adjacent site users - residential and commercial
- R3 Proposed buildings and services
- R4 Existing/ future vegetation
- R5 Groundwater in secondary A aquifer within superficial deposits
- R6 Groundwater in secondary A aquifer within bedrock deposits
- R7 Surface drainage ditches within site and watercourse along northern site boundary

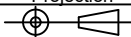


LEGEND:

- S1 Sources
- P1 Pathways
- R1 Receptors
- Red wavy arrow Potential contamination pathways

NOTE:

- S7 Off-site to the north and south
- S9 at depth

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Dimensions		Projection		Scale	Orig Size
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CLIENT					
HARWORTH ESTATES INVESTMENTS LIMITED					
PROJECT					
HOUGHTON MAIN					
TITLE					
INITIAL CONCEPTUAL SITE MODEL					
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APPENDICES

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 Harworth Estates Investments Limited (the "Client") in accordance with the terms of a contract between RSK and the Client, dated 30 April 2021. The Services were performed by RSK with the reasonable skill and care ordinarily exercised by an 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 in writing, 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 of this report, 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 site of asbestos, invasive plants, electromagnetic fields, lead paint, heavy metals, radon gas, persistent, bioaccumulative or toxic chemicals (including PFAS/ PFOS) or other radioactive or hazardous materials, unless specifically identified in the Services.
7. The Services are based upon RSK's observations of existing physical conditions at the site gained from a visual inspection 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, unless specifically identified in the Services or accreditation system (such as UKAS ISO 17020:2012 clause 7.1.6):
 - a. The Services were based on information and/or analysis provided by independent testing and information services or laboratories upon which RSK was reasonably entitled to rely.
 - b. The Services were limited by the accuracy of the information, including documentation, reviewed by RSK and the observations possible at the time of the visual inspection.

- c. The Services 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 intrusive environmental site investigation aspects of the Services are a limited sampling of the site at pre-determined locations based on the known historic / 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 properties of the materials adjacent and local conditions, together with the position of any current structures and underground utilities and 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 scope 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. Features (intrusive and sample locations etc) annotated on site plans are not drawn to scale but are centred over the approximate location. Such features should not be used for setting out and should be considered indicative only.
- 10. 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 and the limitations stated in the data should be recognised.
- 11. Asbestos is often observed to be present in soils in discrete areas. Whilst asbestos-containing materials may have been locally encountered during the fieldworks or supporting laboratory analysis, the history of brownfield and demolition sites indicates that asbestos fibres may be present more widely in soils and aggregates, which could be encountered during more extensive ground works.
- 12. Unless stated otherwise, only preliminary geotechnical recommendations are presented in this report and these should be verified in a Geotechnical Design Report, once proposed construction and structural design proposals are confirmed.

APPENDIX B SUMMARY OF LEGISLATION AND POLICY RELATING TO LAND CONTAMINATION

Part IIA of the Environmental Protection Act 1990

Part IIA of the Environmental Protection Act 1990 (Part IIA) 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 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).

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), reference ISBN: 978-1-5286-1033-9, February 2019.

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

Chapter 11. Making effective use of land

- 117 Planning policies and decisions should promote an effective use of land in meeting the need for homes and other uses, while safeguarding and improving the environment and ensuring safe and healthy living conditions. Strategic policies should set out a clear strategy for accommodating objectively assessed needs, in a way that makes as much use as possible of previously-developed or 'brownfield' land.
118. Planning policies and decisions should:
- c) give substantial weight to the value of using suitable brownfield land within settlements for homes and other identified needs, and support appropriate opportunities to remediate despoiled, degraded, derelict, contaminated or unstable land.

Chapter 15. Conserving and enhancing the natural environment

170. Planning policies and decisions should contribute to and enhance the natural and local environment by:

e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and

f) remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.

Ground conditions and pollution

178. Planning policies and decisions should ensure that:

a) a site is suitable for its proposed use taking account of ground conditions and any risks arising from land instability and contamination. This includes risks arising from natural hazards or former activities such as mining, and any proposals for mitigation including land remediation (as well as potential impacts on the natural environment arising from that remediation);

b) after remediation, as a minimum, land should not be capable of being determined as contaminated land under Part 2A of the Environmental Protection Act 1990; and

c) adequate site investigation information, prepared by a competent person, is available to inform these assessments.

179. Where a site is affected by contamination or land stability issues, responsibility for securing a safe development rests with the developer and/or landowner.

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.

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.

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.

Environmental Permitting Regulations (EPR)

The Environmental Permitting (England and Wales) Regulations 2016 (as amended) 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 2016 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.'

Notes:

- 1. The above information is provided for background but does not constitute site-specific advice*
- 2. The above summary applies to England only. Variations exist within other countries of the United Kingdom*



APPENDIX C ENVIRONMENTAL DATABASE REPORT



Envirocheck[®] Report:

Datasheet

Order Details:

Order Number:

279017115_1_1

Customer Reference:

322835

National Grid Reference:

442110, 405910

Slice:

A

Site Area (Ha):

5.88

Search Buffer (m):

1000

Site Details:

Houghton Main
Park Spring Road
Little Houghton
BARNSELY
S72 0HR

Client Details:

Mrs F Clayton
RSK Environment Ltd
Spring Lodge
172 Chester Road
Helsby
Cheshire
WA6 0AR

Report Section	Page Number
Summary	-
Agency & Hydrological	1
Waste	36
Hazardous Substances	-
Geological	37
Industrial Land Use	42
Sensitive Land Use	43
Data Currency	44
Data Suppliers	49
Useful Contacts	50

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/Natural Resources Wales 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 this datasheet the National Grid References (NGRs) are rounded to the nearest 10m in accordance with Landmark's agreements with a number of Data Suppliers.

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Report Version v53.0

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Agency & Hydrological					
BGS Groundwater Flooding Susceptibility	pg 1	Yes	Yes	Yes	n/a
Contaminated Land Register Entries and Notices					
Discharge Consents	pg 4		16	2	7
Prosecutions Relating to Controlled Waters			n/a	n/a	n/a
Enforcement and Prohibition Notices					
Integrated Pollution Controls					
Integrated Pollution Prevention And Control					
Local Authority Integrated Pollution Prevention And Control					
Local Authority Pollution Prevention and Controls	pg 10		2	1	
Local Authority Pollution Prevention and Control Enforcements					
Nearest Surface Water Feature		Yes			
Pollution Incidents to Controlled Waters	pg 10		2	4	7
Prosecutions Relating to Authorised Processes					
Registered Radioactive Substances					
River Quality	pg 13		1		1
River Quality Biology Sampling Points	pg 13				1
River Quality Chemistry Sampling Points					
Substantiated Pollution Incident Register					
Water Abstractions	pg 13		1		(*7)
Water Industry Act Referrals					
Groundwater Vulnerability Map	pg 15	Yes	n/a	n/a	n/a
Groundwater Vulnerability - Soluble Rock Risk			n/a	n/a	n/a
Bedrock Aquifer Designations	pg 16	Yes	n/a	n/a	n/a
Superficial Aquifer Designations	pg 16	Yes	n/a	n/a	n/a
Source Protection Zones					
Extreme Flooding from Rivers or Sea without Defences	pg 16		Yes	n/a	n/a
Flooding from Rivers or Sea without Defences	pg 18		Yes	n/a	n/a
Areas Benefiting from Flood Defences				n/a	n/a
Flood Water Storage Areas	pg 18		Yes	n/a	n/a
Flood Defences	pg 18		Yes	n/a	n/a
OS Water Network Lines	pg 18	4	10	35	106

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Waste					
BGS Recorded Landfill Sites					
Historical Landfill Sites					
Integrated Pollution Control Registered Waste Sites					
Licensed Waste Management Facilities (Landfill Boundaries)					
Licensed Waste Management Facilities (Locations)					
Local Authority Landfill Coverage	pg 36	1	n/a	n/a	n/a
Local Authority Recorded Landfill Sites	pg 36				1
Registered Landfill Sites					
Registered Waste Transfer Sites					
Registered Waste Treatment or Disposal Sites					
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 37	Yes	n/a	n/a	n/a
BGS Recorded Mineral Sites	pg 37	2	6	3	3
CBSCB Compensation District			n/a	n/a	n/a
Coal Mining Affected Areas	pg 39	Yes	n/a	n/a	n/a
Mining Instability	pg 39	Yes	n/a	n/a	n/a
Man-Made Mining Cavities					
Natural Cavities					
Non Coal Mining Areas of Great Britain	pg 39	Yes	Yes	n/a	n/a
Potential for Collapsible Ground Stability Hazards	pg 39	Yes	Yes	n/a	n/a
Potential for Compressible Ground Stability Hazards	pg 39	Yes	Yes	n/a	n/a
Potential for Ground Dissolution Stability Hazards				n/a	n/a
Potential for Landslide Ground Stability Hazards	pg 40	Yes	Yes	n/a	n/a
Potential for Running Sand Ground Stability Hazards	pg 40	Yes	Yes	n/a	n/a
Potential for Shrinking or Swelling Clay Ground Stability Hazards	pg 40	Yes		n/a	n/a
Radon Potential - Radon Affected Areas	pg 41	Yes	n/a	n/a	n/a
Radon Potential - Radon Protection Measures			n/a	n/a	n/a

Data Type	Page Number	On Site	0 to 250m	251 to 500m	501 to 1000m (*up to 2000m)
Industrial Land Use					
Contemporary Trade Directory Entries	pg 42			2	3
Fuel Station Entries					
Gas Pipelines					
Underground Electrical Cables					
Sensitive Land Use					
Ancient Woodland	pg 43				2
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					
World Heritage Sites					

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13SW (W)	0	1	442050 405900
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SE (E)	0	1	442200 405912
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13NE (NE)	0	1	442150 405950
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SE (S)	0	1	442109 405750
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SE (W)	0	1	442100 405912
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13SW (W)	0	1	441950 405912
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NE (N)	0	1	442109 406100
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13NE (N)	0	1	442100 406000
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A13NW (NW)	2	1	442000 406000
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A13NE (N)	5	1	442100 406100
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SE (SE)	41	1	442200 405700
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13NW (NW)	44	1	442000 406050
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13NE (NE)	55	1	442200 406000
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13NE (N)	57	1	442150 406200
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13NE (N)	72	1	442100 406200
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SE (E)	78	1	442300 405912
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13SE (S)	94	1	442150 405600
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NE (N)	107	1	442109 406250
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SE (SE)	110	1	442250 405650
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A8NE (S)	140	1	442150 405550
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13SE (SE)	146	1	442250 405600
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NW (NW)	155	1	441950 406150

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A18SE (N)	157	1	442109 406300
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A8NE (S)	162	1	442200 405550
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A18SE (N)	164	1	442100 406300
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13NW (NW)	182	1	441900 406150
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A8NE (S)	205	1	442200 405500
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A18SE (N)	207	1	442109 406350
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A18SE (N)	207	1	442150 406350
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13NW (NW)	208	1	441950 406250
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A13NW (NW)	212	1	441800 406100
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NW (NW)	223	1	441900 406200
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A8NE (S)	231	1	442250 405500
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A14NW (E)	237	1	442450 405950
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A13NW (NW)	246	1	441800 406150
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A12SE (W)	248	1	441700 405900
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A12SE (W)	248	1	441700 405912
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A18SE (N)	257	1	442150 406400
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A18SE (N)	262	1	442200 406400
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A13NW (NW)	283	1	441800 406200
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A8NE (S)	298	1	442200 405400
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A8NE (S)	300	1	442300 405450
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A18SE (N)	307	1	442150 406450
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A18SE (N)	311	1	442100 406450

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A18SW (NW)	311	1	441900 406350
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A18SE (N)	312	1	442200 406450
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A14SW (E)	313	1	442550 405912
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A12NE (NW)	317	1	441750 406200
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A18SW (NW)	319	1	441850 406300
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A18SE (N)	324	1	442250 406450
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A12NE (NW)	353	1	441750 406250
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A8NE (S)	363	1	442250 405350
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A12SE (SW)	368	1	441650 405700
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A18SW (N)	370	1	442050 406500
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A17SE (NW)	392	1	441750 406300
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A18SE (N)	411	1	442350 406500
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A18SW (N)	433	1	442000 406550
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A18SE (N)	435	1	442300 406550
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A12NE (W)	455	1	441500 406000
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A17SE (NW)	459	1	441650 406300
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding of Property Situated Below Ground Level	A17SE (NW)	462	1	441700 406350
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A18SE (NE)	479	1	442400 406550
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A17SE (NW)	495	1	441650 406350
	BGS Groundwater Flooding Susceptibility Flooding Type: Limited Potential for Groundwater Flooding to Occur	A9NW (SE)	499	1	442600 405450
	BGS Groundwater Flooding Susceptibility Flooding Type: Potential for Groundwater Flooding to Occur at Surface	A9NW (SE)	499	1	442500 405350

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
1	Discharge Consents Operator: British Coal Corporation Property Type: MINING OF COAL + LIGNITE Location: Ncb,Houghton Main Colliery, Surface, Drainage Interceptor Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: 3505 Permit Version: 1 Effective Date: 12th September 1983 Issued Date: 12th September 1983 Revocation Date: 15th February 1991 Discharge Type: Trade Effluent Discharge: Freshwater Stream/River Environment: Receiving Water: Not Supplied Status: Authorisation revoked Positional Accuracy: Located by supplier to within 100m	A13NE (N)	5	2	442100 406100
2	Discharge Consents Operator: British Coal Corporation Property Type: MINING OF COAL + LIGNITE Location: Houghton Main Colliery, Ncb Mw (Cea, Sed) Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: E 878 Permit Version: 1 Effective Date: 13th June 1983 Issued Date: 13th June 1983 Revocation Date: 13th August 1992 Discharge Type: Trade Effluent Discharge: Unspecified Environment: Receiving Water: No Details Status: Consent revoked: Discharge ceased (Water Resources Act 1991, Schedule 10 & 6) Positional Accuracy: Located by supplier to within 100m	A13SW (SW)	22	2	442000 405800
2	Discharge Consents Operator: Rjb Mining (UK) Ltd Property Type: MINING OF COAL + LIGNITE Location: Houghton Main Occs, Consent Wra7231, South Yorkshire Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: Wra7231 Permit Version: 2 Effective Date: 8th May 1997 Issued Date: 8th May 1997 Revocation Date: 11th June 2002 Discharge Type: Trade Discharges - Site Drainage (Contaminated Surface Water, Not Waste Sites) Discharge: Freshwater Stream/River Environment: Receiving Water: River Dearne Status: Revoked (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995) Positional Accuracy: Located by supplier to within 10m	A13SW (SW)	26	2	441980 405820
2	Discharge Consents Operator: Rjb Mining (UK) Ltd Property Type: MINING OF COAL + LIGNITE Location: Houghton Main Occs, Consent Wra7231, South Yorkshire Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: Wra7231 Permit Version: 1 Effective Date: 23rd October 1996 Issued Date: 23rd October 1996 Revocation Date: 7th May 1997 Discharge Type: Trade Discharges - Site Drainage (Contaminated Surface Water, Not Waste Sites) Discharge: Freshwater Stream/River Environment: Receiving Water: River Dearne Status: New Consent, by Application (Water Resources Act 1991, Section 88) Positional Accuracy: Located by supplier to within 10m	A13SW (SW)	26	2	441980 405820

Map ID	Details	Quadrant Reference (Compass Direction)	Estimated Distance From Site	Contact	NGR
3	Discharge Consents Operator: British Coal Corporation Property Type: MINING OF COAL + LIGNITE Location: Ncb,Houghton Main Colliery, Surface, Drainage Interceptor Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: 3505 Permit Version: 1 Effective Date: 12th September 1983 Issued Date: 12th September 1983 Revocation Date: 15th February 1991 Discharge Type: Trade Effluent Discharge: Freshwater Stream/River Environment: Receiving Water: Not Supplied Status: Authorisation revoked Positional Accuracy: Located by supplier to within 100m	A13NW (NW)	73	2	441900 406000
4	Discharge Consents Operator: Yorkshire Water Services Ltd Property Type: WWTW/SEWAGE TREATMENT WORKS (WATER COMPANY) Location: Little Houghton Stw, Little Houghton, Barnsley, South Yorkshire Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: E284 Permit Version: 5 Effective Date: 31st December 2005 Issued Date: 11th March 2005 Revocation Date: 27th June 2008 Discharge Type: Sewage Discharges - Final/Treated Effluent - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: River Dearne Status: Revoked (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995) Positional Accuracy: Located by supplier to within 100m	A13SW (SW)	104	2	441900 405800
4	Discharge Consents Operator: Yorkshire Water Services Ltd Property Type: WWTW/SEWAGE TREATMENT WORKS (WATER COMPANY) Location: Little Houghton Stw, Little Houghton, Barnsley, South Yorkshire Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: E284 Permit Version: 5 Effective Date: 31st December 2005 Issued Date: 11th March 2005 Revocation Date: 27th June 2008 Discharge Type: Sewage Discharges - Stw Storm Overflow/Storm Tank - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: River Dearne Status: Revoked (Water Resources Act 1991, Section 88 & Schedule 10 as amended by Environment Act 1995) Positional Accuracy: Located by supplier to within 100m	A13SW (SW)	104	2	441900 405800
4	Discharge Consents Operator: Yorkshire Water Services Ltd Property Type: WWTW/SEWAGE TREATMENT WORKS (WATER COMPANY) Location: Little Houghton Stw, Little Houghton, Barnsley, South Yorkshire Authority: Environment Agency, North East Region Catchment Area: Don Tributaries Reference: E284 Permit Version: 4 Effective Date: 19th August 1997 Issued Date: 19th August 1997 Revocation Date: 30th December 2005 Discharge Type: Sewage Discharges - Final/Treated Effluent - Water Company Discharge: Freshwater Stream/River Environment: Receiving Water: River Dearne Status: Varied by Application - (Water Resources Act 1991, Schedule 10 as amended by Environment Act 1995) Positional Accuracy: Located by supplier to within 100m	A13SW (SW)	104	2	441900 405800