

Appendix 3.2

Land Contamination Assessment



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Redevelopment of land associated with Ingol Village Golf Course, Preston

Hybrid planning application with full planning permission sought for public open space and outline planning permission with all matters reserved save for access for a new First Team Training Facility for Preston North End Football Club (Use Class D2) and up to 450 dwellings (Use Class C3).

LAND CONTAMINATION ASSESSMENT

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1 INTRODUCTION

- 1.1 PWA Planning is retained by Preston North End Football Club ('the applicant') to prepare a hybrid planning application in respect of land associated with Ingol Village Golf Course, Preston ('the Site'), for a mixed use development comprising of a new first team training facility for Preston North End Football Club ('PNE') (Use Class D2), public open space and up to 450 dwellings (Use Class C3) ('the Proposed Development'). Full planning permission will be sought for the public open space and outline with all matters reserved save for access for the new first team training facility and the residential dwellings. This document is the Land Contamination Assessment and has been produced in support of the planning submission.

- 1.2 The following pages are taken from the previous outline planning application for the full site of Ingol Village Golf Course (Planning Application Ref. 06/2010/0626). It is taken from the previously submitted Environmental Statement Volume 1.

- 1.3 It confirms that there were no significant anticipated effects in respect of ground conditions as a result of the previously proposed development. It is therefore considered that this matter can be adequately dealt with by way of condition.

12 Ground Conditions

Introduction

- 12.1 This chapter provides a description of the physical environment (soils, geology and hydrogeology) within a 1km centred search area of the proposed above ground works. It identifies and assesses the potential activities associated with the proposed works that could impact upon, and result in contamination of, soils and/or groundwater. Where necessary, proposed mitigation measures are identified to eliminate or minimise potential impacts.
- 12.2 This chapter also outlines the relevant legislation, policies, impact assessment methodology and significance criteria for the assessment and has been prepared by Betts Associates.

Key Legislation and Policy Context

- 12.3 Table 12.1 summarises key relevant legislation relating to the physical environment.

Table 12.1: Key Relevant Legislation

Legislation	Key Issues
Environmental Protection Act 1990, Part IIA	A wide-ranging act incorporating numerous issues, but primarily making provision for the improved control of pollution. Part IIA deals with the identification and remediation of contaminated land
Environment Act 1995	Includes the establishment of EA and SEPA, improving control of contaminated land, abandoned mines, control of pollution and the conservation of natural resources and the environment
The Control of Pollution (Oil Storage) (England) Regulations 2001	Legislation to prevent pollution of controlled waters due to the use or storage of oil
Control of Substances Hazardous to Health Regulation 2002 as amended	These regulations require employers to control exposure to hazardous substances to prevent ill health. They require protection of employees and others who may be exposed
Water Resources Act 1991	Amended by the Water Act, 2003 (see below)
Land Drainage Act 1991	An Act relating to the responsibilities and functions of internal drainage boards, and of local authorities in relation to land drainage
Groundwater Regulations 1998	Relate to the prevention, reduction and elimination of pollution of water
European Community Water Framework Directive 2000	The directive establishes an integrated approach to the protection, improvement and sustainable use of Europe's rivers, lakes, estuaries, coastal waters and groundwater
Water Act 2003	The act provides amendments to the Water Resources Act, 1991 and strengthens the EA's powers for the sustainable management of water resources, including powers relating to abstraction licensing

Legislation	Key Issues
Planning Policy Statement 23 (PPS 23)	Planning and Pollution Control 2004 PPS23 provides guidelines for complying with national legislation on contamination, land, air and water quality management as well as remediation of land
Water Resources (Abstraction and Impounding) Regulations 2006	These regulations specify procedural requirements in respect of the licensing of abstraction and impounding of water
Controlled Waste (Registration of Carriers and Seizure of Vehicles) Regulations 1991 as amended	Local authorities are required to establish and maintain a register of carriers of controlled waste
European Community Landfill Directive (1999/31/EC)	Legislation to ensure that the amount of waste being landfilled is reduced, with an emphasis on minimisation, reuse, re-cycling or recovery options. The Directive has provisions covering location of landfills, and technical and engineering requirements for aspects such as water control and leachate management, protection of soil and water and methane emissions control
European Community Hazardous Waste Directive 91/689/EC	The directive aims to provide a precise and uniform European-wide definition of hazardous waste and to ensure the correct management and regulation of such waste
Landfill (England and Wales) Regulations 2002	Regulations to ensure that the technical and regulatory requirements of the Landfill Directive are implemented
Clean Neighbourhoods and Environment Act 2005	This act covers a wide range of provisions, including the transportation, collection, disposal and management of waste.
Hazardous Waste Regulations 2005	These require that notification be provided to the EA prior to any hazardous waste being produced at a site
Environmental Permitting Regulations 2007	These regulations combine Pollution Prevention and Control (PPC) and Waste Management Licensing (WML) regulations. The EP Regulations contain references to the Environmental Protection Act of 1990, which remains in force
Site Waste Management Plans Regulations 2008	Apply to any construction site with an estimated cost greater than £300,000. Construction cannot begin without a Site Waste Management Plan
Groundwater Protection Policy (GP3) 2010	Relate to the prevention, reduction and elimination of pollution of water

National Planning Policy

Planning Policy Statement 23 (PPS 23) – Planning and Pollution Control

- 12.4 Whilst the Environmental Protection Act details the likely risks posed by existing land conditions, potential risks arising from a change in land use are principally managed through the planning regime. Historic land contamination is a material planning consideration that must be taken into account at various stages in the planning process, including proposals for the future use and redevelopment of the site.
- 12.5 Government guidance on the development of contaminated land is contained within Planning Policy Statement 23 (PPS 23) – Planning and Pollution Control (ODPM, 2004b). PPS23 provides guidelines for complying with national legislation on contamination, land, air and water quality management as well as remediation of land. PPS 23 states that:

“Any consideration of the quality of land, air or water and potential impacts arising from development possibly leading to an impact on

health, is capable of being a material planning consideration, in so far as it arises or may arise from any land use...”

“The presence of contamination in land can present risks to human health and the environment, which adversely affect or restrict the beneficial use of land, but development presents an opportunity to deal with these risks successfully...”

“The remediation of land affected by contamination through the granting of planning permission (with the attachment of the necessary conditions) should secure the removal of unacceptable risk and make the site suitable for its new use. As a minimum, after carrying out the development and commencement of its use, the land should not be capable of being determined as contaminated land under Part IIA of the EPA 1990.”

Local Planning Policy

PCC Guide: Developing Land within Preston

- 12.6 PCC has produced a planning guidance document for developers titled ‘Developing Land within Preston – a guide to submitting planning applications for land that may be contaminated’ (PCC, 2008b) which details the level of information required by the Council in order to assess an application for planning consent on land which may be affected by the presence of contamination. The guidance is based on the requirements of PPS 23.
- 12.7 The Council’s approach is based on Government guidance which recognises that land potentially affected by contamination is a material planning consideration and that the development phase is the most cost-effective time to deal with the problem. In addition, the guidance stipulates that the Council’s duty is to ensure that a landowner and/or developer carry out the necessary investigations and formulate proposals for dealing with an contamination in a responsible and effective manner.
- 12.8 In order to assess the contents of site reports submitted to support a planning application or in response to a planning condition, the council will require reports such as Phase I reports (Desk Studies), Phase II reports (Detailed investigation and Risk Assessments) and Phase III reports (Remediation Strategy/Validation Report).

Assessment Methodology and Significance Criteria

Assessment Methodology

Establishment of Baseline Environment

- 12.9 Consideration of the physical environment has focussed on soil and geology, landfill sites and contaminated land, surface water and groundwater abstractions, groundwater source protection zones, and an assessment of any other sensitive physical receptors.
- 12.10 A desk-based study, consultations and a site walkover have been conducted in order to determine the baseline environment. This included:

- desk-based review of published documents: geology maps, historical topographical maps, hydrogeological maps, groundwater vulnerability data;
- desk-based review of relevant information from a site-specific environmental database search report (Centremaps reports);
- walkover of the site was carried to visually inspect the development area;
- review and identification of sensitive receptors relating to the physical environment (sites of geological interest, aquifers, water abstraction points, source protection zones, flood risk areas, etc.)

12.11 No physical ground investigations have been undertaken to date due to the site currently been in use. Physical ground investigation will be undertaken at a later date to full fill planning / building control requirements

Significance Criteria

12.12 Potential impacts and mitigation measures have been identified as a result of information received from data collection and knowledge of the impacts and appropriate mitigation measures from similar construction projects.

12.13 An assessment has been made of the significance of impact taking into account the importance/sensitivity of the receptor, the magnitude of impact, the duration/persistence of impact and the likelihood of the impact. The criteria that have been used to make judgements on the importance/sensitivity of the receptor(s) and the magnitude of change are presented in Table 12.2 and Table 12.3 respectively.

Table 12.2: Receptor Sensitivity

Receptor Sensitivity Description	
High	Designated areas (e.g. Special Protection Areas, Sites of Special Scientific Interest, Special Areas of Conservation, Regionally Important Geological Sites or National Park, etc.) Zone 1 Source Protection Zones Salmonid Rivers with a Grade A water classification Commercial fisheries Areas of flood risk Areas of known/confirmed contaminated groundwater Principal (Major) Aquifers Areas of high groundwater vulnerability
Medium	Zone II and III source protection zones Rivers used for recreational fishing or other recreational use Rivers with a Grade B water classification Secondary (Minor) Aquifers Areas with intermediate groundwater vulnerability
Low	Rivers with a Grade C or D water classification Non-aquifers Areas with low groundwater vulnerability Negligible Impermeable and non-soluble geological strata

Table 12.3: Magnitude of Impact

Magnitude	Description
Large	Irreversible or long-term (>10 years) impact on the integrity/value of the receptor Class 1 Pollution Incident Permanent breach of water quality standards
Medium	Change is likely to impact adversely the integrity/value of the receptor but recovery is predicted in the medium term (5–10 years) and there is predicted to be no permanent impact on its integrity Class 2 Pollution Incident Temporary breach of water quality standards with impacts on other users of that resource
Small	Change is likely to adversely impact the integrity/value of the receptor but recovery is expected in the short term (0–4 years) Class 3 Pollution Incident

12.14 The categories used when classifying overall significance are indicated in Table 12.4. Significant effects would be those effects that give rise to Major, Moderate or Minor effects as highlighted in table 12.4. An assessment has also been made of the significance of residual impacts, i.e. those remaining after mitigation.

Table 12.4: Significance

Sensitivity / Importance			
Magnitude	High	Medium	Low
Large	Major	Moderate	Minor
Medium	Moderate	Minor	Not Significant
Small	Minor	Not Significant	Not Significant
Negligible	Not Significant	Not Significant	Not Significant

Assumptions and Limitations

12.15 Please refer to notes and limitations in Appendix 20.

Baseline Conditions

12.16 The current land use is vacant land bounded by residential development.

Historical Landuse

12.17 The site is shown to be relatively undeveloped, comprising open farmland with occasional large residential / farms until the 1980's when the site was developed into the golf course and surrounding residential development.

12.18 The surrounding area has historical been used for open farmland with the only notable industrial activities being a railway to the eastern boundary (shown on first edition 1892 map), occasional farms, kennels, an existing electricity substation (on site) and occasional clay pits off site. Multiple ponds are noted on site some of which have been backfilled over the years. A recorded Landfill lies within 250 metres of the site (Preston Grasshoppers RFC site) 212 metres to the north of the site - operational until 1991. Records indicate inert waste only being deposited.

Geology

12.19 The following section provides a summary of available geological data in the vicinity of the proposed development.

Superficial Deposits

12.20 No made ground is shown on published geology maps, however some made ground is anticipated associated with the current and former land uses. The site is predominantly underlain by Glacial Till with the exception of the area around Sharoe Brook where Glaciofluvial Sands and Gravels exist to the north east, changing to recent Alluvial deposits 'downstream' to the south west which are likely to be soft to firm consolidated, compressible silty clay but (can contain layers of silt, sand, peat and basal gravel). A stronger, desiccated surface zone may also be present.

Solid Geology

12.21 The Geological Survey Map of Great Britain (Sheet 67, 1:50,000, Solid Edition) shows the site to be underlain by Sandstones of the Sherwood Sandstone Group of Permian to Ladinian age. These sandstones are typically a sandstone of red, yellow and brown colour, part pebbly; subordinate with red mudstone and siltstones

Mining

12.22 A Coal Authority Report was not obtained, as the sites geographic location is not listed on the Coal Gazetteer as requiring a report for either coal or brine.

Hydrogeology and Hydrology

12.23 From 1st April 2010 new aquifer designations replace the old system of classifying aquifers as Major, Minor and Non-Aquifer. This new system is in line with our Groundwater Protection Policy (GP3) and the Water Framework Directive (WFD) and is based on British Geological Survey mapping. The Environment Agency (EA) groundwater vulnerability map (Web based) shows the site location as overlying a Principal Aquifer (Sandstone) and Secondary A (Sand and Gravel deposits associated with the Sharoe Brook).

12.24 These Sandstones formations are layers of rock that have high intergranular and/or fracture permeability - meaning they usually provide a high level of water storage. They may support water supply and/or river base flow on a strategic scale. In most cases, principal aquifers are aquifers previously designated as major aquifer.

12.25 The sand and gravels are deemed to be permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers.

12.26 The EA defines zones around groundwater abstractions used for public water supply as being Source Protection Zones (SPZ). The Zones are defined by the estimated travel time of potential contaminants to the abstractions. This travel time can be influenced by factors such as the underlying geology or the volume of groundwater being abstracted. Source Protection Zones are therefore areas that may be particularly sensitive to groundwater impact.

12.27 The site is located within an outer catchment. The nearest public water supply abstraction associated with the Source Protection Zone are located approximately 537 metres to the North.

12.28 The nearest surface water course is the Sharoe Brook which runs across the eastern section of the site flowing north east to south west.

Environmental Database

12.29 The key findings of the site-centred Centermaps Report including 'Notable' features in these data sets, are summarised below:

Table 12.5: Summary of Environmental Database

Environmental Permits, Incidents and Registers	On site	Distance from site	Comments
Records of Part A(2) and Part B Activities and Enforcements	Yes		Jacksons Contractors – Other Minerals
Records of Licensed Discharge Consents	Yes		3 discharges recorded to Sharoe Brook – Emergency Discharge, Sewage (revoked) and Surface Water (revoked)
National Incidents Recording System,	Yes		2003 Grey water / sewage to water – Minor water impact
Landfill and Other Waste Sites within 250m of the site boundary			
Environment Agency Historic Landfill Sites		213m N	Preston Grasshoppers RFC (1991) Inert waste
Current Land Uses			
Current Industrial Sites Data	Yes		Electricity Sub Station
Hydrogeology and Hydrology			
Is a Secondary Aquifer present on site?	Yes		
Is a Principal Aquifer present on site?	Yes		
Environment Agency Groundwater Vulnerability and Soil Classification			
Groundwater Abstraction Licences		537m N	Borehole abstractions from Principal Aquifer
Potable Water Abstraction Licences		537m N	Borehole abstractions from Principal Aquifer
Are there any Source Protection Zones within 500m of the study site?	Yes		Site lies within outer catchment
River Quality			
Is there any Environment Agency information on river quality within 500m of the study site?	Yes		Sharoe Brook – Chemical Grade C Biological Grade D
Flooding			
Are there any Environment Agency indicative Zone 2 floodplains within 250m of the study site?	Yes		
Are there any Environment Agency indicative Zone 3 floodplains within 250m of the study site?	Yes		
Designated Environmentally Sensitive Sites			None evident
Natural Hazards			No significant risks identified

12.30 The site is located within a predominantly residential area with leisure (golf course) uses.

12.31 The site is located on a principal aquifer (Sandstone) and the nearest surface water feature is on site (Sharoe Brook). There are two groundwater abstractions within 600m of the site.

12.32 The site is not within the likely zone of influence from mine workings either past or present.

Potential Sources of Contamination

- 12.33 The potential sources of contamination are likely to be associated with past uses of the site and of the land close to the site. Contaminants associated with the various activities both on and around the site are one of the main potential sources of contamination.
- 12.34 The main historical land use on the site is open farmland with numerous ponds. Other than backfilled ponds with possible demolition materials the sites former use pose little risk. An electricity substation is evident on site which may pose a potential PCB contamination source. Adjacent to the site has been landfill to the north and railways to the east.
- 12.35 Contaminants from these sources may include, heavy metals (Cadmium, Chromium, Copper, Lead, Mercury, Nickel and Zinc), semi-and non-metals (Arsenic, Selenium and Sulphur), inorganic chemicals (Sulphate and Sulphide), Asbestos, acidity (pH), phenols, hydrocarbons, PAH's and PCB's.
- 12.36 Other potential sources of contamination are the past construction activity on site. Construction, excavation and demolition waste (made ground) is likely to be present on site. This could contain a number of contaminants including heavy metals, hydrocarbons, PAH's and asbestos.
- 12.37 Based on the available baseline data, the presence of potential contaminants within made ground and soils of the proposed development is considered likely, but of limited extent and severity.

Potential Receptors

- 12.38 There are a number of potentially sensitive receptors in the physical environment that may be affected by the potential contamination sources present on and close to the proposed area of aboveground works. These are detailed below:
- The main receptors are the future users of the site, which will be the residents of the residential dwellings;
 - As the site is within a SPZ outer zone, groundwater would also be considered a sensitive receptor ;
 - A watercourse, the Sharoe Brook, could also be a receptor for surface runoff as it is on site;
 - Other receptors include plants (areas of soft landscaping), buildings and underground services both on site and on adjacent land;
 - Construction workers are short-term receptors.

Identification and Evaluation of Key Impacts

- 12.39 This assessment focuses on the potential impacts of the proposed aboveground works on soils, geology and hydrogeology.

Construction

- 12.40 The potential impacts on soils, geology and hydrogeology associated with construction include:

- spillages or unplanned releases of fuel, oils and associated lubricants to nearby watercourses during plant refuelling and maintenance. This might affect any part of the site in which vehicles are used;
- contaminated water runoff from the construction site (including from excavations, exposed ground and stockpiles, plant and wheel washing and site roads), potentially containing silt, fuel oil and other associated lubricants, chemicals or cement slurry, could cause impacts to local watercourses. This applies to all parts of the site;
- drilling wastes or mud used on site could cause contamination to nearby watercourses;
- temporary or permanent drainage systems which could be disturbed during construction;
- generation of wastes and potentially contaminated materials and inappropriate handling and disposal could cause contamination to underlying strata;
- generation and deposition of dust generated during earthworks;
- piled foundations forming conduits for contamination 'drawdown'.

12.41 In the absence of mitigation, there is potential for contamination during construction to result in an impact of medium magnitude on geology and soils (a receptor of High sensitivity); hence, the **Adverse** impact is expected to be **Moderate**

12.42 In the absence of mitigation measures, there is potential for contamination during construction to result in an impact of medium magnitude on groundwater (a receptor of High sensitivity); hence the **Adverse** impact is expected to be **Moderate**.

12.43 Appropriate mitigation measures for the reduction or elimination of the potential impacts are detailed in the following section.

Operation

12.44 The potential impacts associated with the typical operation of the proposed Development, which could result in impacts to soils, groundwater and/or surface waters, are as follows:

- surface water runoff from areas of hardstanding, which may include silt and vehicle fuel/oil spillages; and
- piled foundations may act as preferential migration pathways allowing vertical migration of any contamination into the underlying groundwater.

12.45 In the absence of mitigation measures, there is a potential for contamination during the operation phase of development to result in an impact of small magnitude on geology and soils (a receptor of High sensitivity); hence the impact is expected to be **Minor**.

12.46 In the absence of mitigation measures, there is potential for contamination during operation to result in an impact of small magnitude on groundwater (a receptor of High sensitivity Principal Aquifer); hence the impact is expected to be **Minor**.

Mitigation Measures

Construction

12.47 Prior to the construction work, detailed engineering site investigations will be carried out across the area of proposed above ground works. Should evidence of ground contamination be encountered during these works, it may be necessary to carry out further investigations into the presence of contamination. Some remediation works may then be necessary. However, at this stage, for the reasons set out at paragraphs 12.33 – 12.43 it is not expected that contamination of a significant nature will be encountered. If this is the case, a site-specific remedial strategy would be developed and contaminated soil or groundwater would be treated using the most appropriate methods.

12.48 As discussed in the baseline section above, the area of proposed above ground works is located in an outer catchment zone upon a Principal Aquifer. Prior to the commencement of construction a Pollution Prevention Plan and Emergency Response Plan will be produced in consultation with the Environment Agency and in accordance with the Environment Agency guidelines such as 'Pollution Prevention Guideline No.6 Working at Construction and Demolition Sites'. Standard construction measures will be adhered to.

12.49 These will include, but not be limited to, the following:

- Fuel tanks, unless manufactured as self-contained bunded tanks, will be stored on an impervious bunded area to contain 110% capacity of the largest vessel as per the Control of Pollution (Oil Storage) Regulations 2001.
- All fuel stores will be sited at an appropriate distance from any watercourse and 50m from any borehole or well. Refuelling will be carried out at a minimum of 30m from any watercourse and 50m from any borehole or well.
- Liquid chemicals will be stored in bunded enclosures with an impermeable base. Drums will be stored on proprietary spill control pallets or in a bunded area designed to contain 110% of the largest drum or 25% of the total capacity of all the drums, whichever is greater.
- Diesel bowsers will be double skinned and equipped with spill control kits.
- A scheme for the storage of oils/fuels and chemicals will be prepared and agreed with the Environment Agency prior to the start of construction.
- All significant spillages to ground or watercourses will be reported and recorded as part of incident notification procedures to the statutory authorities. Adequate spill kits will be maintained in working areas and staff will be trained in their use.
- Drip trays will be used under compressors, pumps, motors, and redundant plant and during re-fuelling. These will be emptied and cleaned regularly especially after rainfall.
- Control measures for controlling silt run-off to watercourses. Measures could include the use of silt fencing to filter particles, ditches and berms to direct and capture the water, pumping to grassed areas (at identified low points within the site) to allow water to percolate into the ground and pumping to filtration tanks or straw bales/terram. These would be implemented on a case-by-case basis by site personnel dependent upon factors such as topography and rainfall levels.

- A Site Waste Management Plan (SWMP) will be prepared before construction begins.
- 12.50 Best environmental practices would be followed with the potential for release of contaminants to ground being minimal. Appropriate spill and leak containment systems will be incorporated into the construction procedures to ensure no uncontrolled releases of contaminants occur.
- 12.51 Any materials to be removed from site would be subject to the appropriate waste management licensing regulations. Care will be taken to manage any stockpiles of materials in order to reduce runoff from exposed surfaces.
- 12.52 Site waste management and environmental, health and safety plans will be prepared in advance of all construction or other disruptive site works. All personnel will be fully trained in these matters to ensure compliance.
- 12.53 Prior to any intrusive investigation or construction work, all existing service plans will be consulted and a comprehensive service line location survey carried out in order to ensure that existing services are not disrupted. This will include radiodetection, ground penetration radar and vacuum excavation.

Operation

- 12.54 During operation of the proposed Development the mitigation of the identified potential impacts should include:
- Implementation of an appropriate drainage system to minimise off-site conveyance of surface sediment/silt. This may include the installation of an interceptor into the surface drainage system; and
 - Consultation with a specialist piling contractor with regard to minimising any potential preferential migration pathways into the underlying groundwater (although identified as being a non aquifer)

Residual Effects

12.55 A summary of the significance of residual effects (i.e. those impacts predicted to remain after mitigation measures have been implemented) is presented in Table 12.6. Subject to implementation of the above mitigation measures, no significant residual impacts are anticipated in respect of ground conditions and hydrogeology during any phase of the proposed development.

Table 12.6: Summary of Residual Effects

Scenario	Potential Impact	Significant of Impact	Mitigation measures	Residual Effect
Construction	Contamination of soil and groundwater resulting construction (e.g. from storage and use of hazardous materials)	Moderate	Detailed site investigation and risk assessment to provide a remediation strategy for construction activities Implementation of Pollution Prevention Plan and Emergency Response Plan	Not Significant
Operation	Contamination of groundwater aquifers via existing pathways	Minor	Detailed foundation risk assessment to mitigate potential pathways Drainage designed to intercept sediment / silt	Not Significant

APPENDIX 20: Notes on Limitations

The Chapter 12 Geology, Hydrogeology and Hydrology section within this report includes examination and provision of historical maps and an environmental database search covering geology, hydrogeology, historical, land use, water abstractions, groundwater source protection zones, landfill sites, radon, trade directory entries, petrol filling stations and nature reserves for the site and surrounding area. A Coal Authority Report has not been obtained as part of the investigation.

The assessment and judgements given in this report are directed by both the finite data on which they are based and the proposed works to which they are addressed. The data essentially comprised a study of available documented information from various sources together with discussions with relevant authorities and other interested parties. There may also be circumstances at the site that are not documented. The information reviewed is not exhaustive and has been accepted in good faith as providing representative and true data pertaining to site conditions. If additional information becomes available which might impact our environmental conclusions, we request the opportunity to review the information, reassess the potential concerns and modify our opinion if warranted.

It should be noted that any risks identified in this report are perceived risks based on the available information. Actual risks can only be assessed following a physical investigation of the site.

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