

Kirklees Council
George Hotel
Phase 1 Contaminated
Land Study
PART 1
Revision P1

Addendum Statement

This report was originally prepared on behalf of Kirklees Council to accompany application ref: 2023/65/90112/E

The applicant has requested that this be resubmitted with addendum to schedule and confirm that the document is resubmitted with no changes.

This is Part 1 of 3nr reports split due to file size

Addendum Fig A-1.1

Intended for

Bowman Riley Architects Ltd

Date

November 2022

Project Number

1620014217

**GEORGE HOTEL,
HUDDERSFIELD
PHASE I
CONTAMINATED LAND
DESK STUDY**

GEORGE HOTEL, HUDDERSFIELD PHASE I CONTAMINATED LAND DESK STUDY

Project No. **1620014217**
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Date **17 November 2022**
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1. INTRODUCTION

1.1 Brief

Ramboll UK Limited ("Ramboll") was instructed on behalf of Bowman Riley Architects Ltd (the "Client"), to undertake a Phase I Contaminated Land Desk Study of the George Hotel, Huddersfield (the "site").

This assessment has been undertaken assuming the site will be renovated to an operational hotel.

1.2 Objectives

The objective of this Contaminated Land Desk Study is to provide a preliminary risk assessment identifying potential risks and constraints associated with the ground and groundwater conditions, and any contamination which may be present.

No sampling or analysis of soils, waters or other materials was undertaken as part of the review.

1.3 Scope of Works

The scope of the Phase I Contaminated Land Desk Study has included the following:

- Desk based research, including a review of historical maps, geological and hydrogeological maps and published environmental records and available borehole records;
- Preliminary risk assessment discussing potential contamination sources, pathways and receptors within the context of current UK legislation;
- Establish a Conceptual Site Model (CSM) for the site with the view of the proposed development; and
- Provide recommendations for further assessment of ground contamination risks.

This report does not cover any issues other than those relating to contaminated land. For example, no geotechnical, ecological or archaeological studies are included within the scope of this report.

1.4 The Proposed Development

The proposed development has been submitted to the local council (Kirklees Council) under the planning application reference **2019/62/91505/W**. The redevelopment of the Grade II listed building under the planning application is as follows:-

"Partial Change of Use of Hotel To 50 Apart-Hotel Rooms, A3 (Restaurant/Cafe/Function Room), A4 (Drinking Establishment), D1 (Museum), Spa, Ancillary Storage and Associated Internal And External Works (Within A Conservation Area)"

The proposed development would comprise a four-storey hotel with a basement level. At basement level, approximately 250 m² of spa floorspace, 96 m² of museum floorspace and 110 m² of ancillary floorspace will be present. The ground floor will comprise a lobby, café, kitchen and bar area.

Pedestrian access to the application site would primarily be from the car park to the west.

1.5 General Limitations and Reliance

This report has been prepared by Ramboll exclusively for the intended use by the Client in accordance with the agreement between Ramboll and the Client defining, among others, the purpose, the scope and the terms and conditions for the services. No other warranty, expressed or implied, is made as to the professional advice included in this report or in respect of any

matters outside the agreed scope of the services or the purpose for which the report and the associated agreed scope were intended, or any other services provided by Ramboll.

In preparation of the report and performance of any other services, Ramboll has relied upon publicly available information, information provided by the Client and information provided by third parties. Accordingly, the conclusions in this report are valid only to the extent that the information provided to Ramboll was accurate, complete and available to Ramboll within the reporting schedule.

Ramboll's services are not intended as legal advice, nor an exhaustive review of site conditions and/or compliance. This report and accompanying documents are initial and intended solely for the use and benefit of the Client for this purpose only and may not be used by or disclosed to, in whole or in part, any other person without the express written consent of Ramboll. Ramboll neither owes nor accepts any duty to any third party, unless formally agreed by Ramboll through that party entering into, at Ramboll's sole discretion, a written reliance agreement.

Ramboll's scope of services for this assignment did not include collecting samples of any environmental medium. Ramboll cannot rule out the existence of conditions, including, but not limited to, contamination not identified and defined by the data and information available to and / or obtained by Ramboll.

2. SITE DESCRIPTION AND SETTING

The following information was derived from information obtained from publicly available information sources or reported by the Client. Ramboll has not undertaken a site visit.

Figures showing the location of the site, site boundary and the site layout are presented in Figures 1 and 2 within Appendix 1 of this report.

2.1 Site Setting and Layout

The site is located within the town centre of Huddersfield in an area of commercial, office and retail units, at National Grid Reference 414411, 416928. The building is located on a triangular parcel of land that extends to an area of approximately 0.12 Ha (hectares).

The site is bound to the east by John William Street and to the south by Railway Street, which also provides access to the site. The surrounding land use comprises of a car park to the north and west, St George's Square (10 m south), Huddersfield Train Station (40 m west), and various commercial, office and retail units typical of a town centre high street. A public realm with a water fountain is also present to the west. The nearest residential properties are located 150 m north-west of the site.

The site slopes from west to east from approximately 86 m above Ordnance Datum (AOD) in the west to 84 m AOD to the east, and from 83 m AOD in the north to 84 m AOD to the south, following the topography of the surrounding area.

The site comprises a singular four-storey Victorian-era hotel that is listed as Grade II building. The hotel welcomed the firsts guests in August 1851¹, and it operated as such until its closure in 2013². The building occupies approximately 90% of the total site area, with the entire site area comprising hardstanding. An area of soft landscaping (in form of shrubs) is located in the west of the site, located adjacent to the car park.

¹ Huddersfield History, May 2021, The George Hotel – a great past and a glorious future?

<https://oursquare.huddersfieldhistory.org.uk/the-george-hotel-a-great-past-and-a-glorious-future/> Date accessed: 9th November 2022

² Yorkshire Live, October 2022. The George Hotel in Huddersfield to get £20m refurb as Radisson looks set to take it over.

<https://www.examinerlive.co.uk/whats-on/whats-on-news/george-hotel-huddersfield-20m-refurb-25173175> Date accessed: 15th November 2022.

3. HISTORICAL & REGULATORY INFORMATION

3.1 Map History

Ramboll has undertaken a review of historical mapping and aerial imagery (where available) obtained from a proprietary environmental database which is summarised below. The historical maps are presented in Appendix 2.

The historical development of the site and surrounding area is detailed in Table 3.1 below.

Table 3.1: Site History

Date & Scale	Features On-Site	Features Off-Site
1854 1:10,560	The site is annotated as The George Hotel.	The site is within a built up commercial / industrial area of Huddersfield. John Williams Street adjoins the eastern site boundary. Huddersfield Train Station (and associated commercial units such as offices and waiting rooms) is located approximately 40 m west, with two Goods Sheds also present approximately 110 m west and 140 m south-west of the site. Brick Mill is recorded approximately 80 m north.
1889 1:10,560 1890 1:500 1893 1:2,500	George Hotel occupies approximately 80% of the total site area, with the remainder occupied by a courtyard (north of the site). A Cabmen's Shelter is also located in the north of the site.	Railway Sidings extend from Huddersfield Station to adjacent to the western site boundary. The County Series Town Plan (1890) also shows a Tank approximately 50 m north, and two Tanks approximately 80 m and 90 m to the north-west of the site. The south and east surrounding areas of the site are predominately of commercial and residential land use. St George's Square is present to the south. Three Mill Ponds are shown approximately 100 m north and 150 m north-east of the site. Wells Mills and Gordon Works are located 160 m north-east. Britannia Works are shown 210 m north-east. A Tramway system is present to the south and south-east of the site, which passes approximately 10 m to the south-east of the site at its closest point. A Graveyard (associated with St Peter's Church) is recorded 120 m to the south-east.
1905 1:2,500 1907 1:10,560	No significant changes are noted on-site.	Brick Mills (80 m north) and two of the Mill Ponds (100 m north and 150 m north-east) are no longer depicted.
1918 1:2,500	No significant changes are noted on-site.	Brunswick Shed (Clothing) is located approximately 180 m north-west of the site. Britannia and Gordon Works are no longer depicted.
1931, 1938 1:10,560 1932 1:2,500	Small changes are apparent to the Hotel. Numerous external buildings are shown within the courtyard of the Hotel.	A Warehouse is now shown 40 m south-east, and a Woollen Warehouse is present 80 m east.

Date & Scale	Features On-Site	Features Off-Site
1959-1960 1:1,250 1960-1961 1:2,500 1965-1966 1:10,560	No significant changes are noted on-site.	Within 250 m, there are five unspecified Works, five Warehouses and four Garages. The nearest Works are the former Brunswick Shed (Clothing) 180 m north-west; the nearest Garage is 60 m north; and the nearest Warehouse is 60 m east of the site. The Wells Mill (Woollen) and the final Mill Pond in the north-east of the site are no longer shown. The Tramway system is no longer present. The Graveyard has been repurposed to St Peter's Gardens.
1972-1975, 1975, 1975-1978 1:1,250	No significant changes are noted on-site.	The Railway Sidings (adjacent to the north) are no longer apparent, and a Car Park is now present immediately to the north-west of the site. Two further Warehouses are shown 170 m and 200 m east. A Garage (220 m north) is no longer annotated.
1977-1981, 1982-1985 1:1,250 1985-1988 1:10,000	No significant changes are noted on-site.	The area 100 m north-east has been redeveloped as a Supermarket with car parking (replacing two aforementioned Garages and a Warehouse). A Petrol Filling Station is located 190 m north, replacing an unspecified Works. Within 250 m there are four Warehouses, three Works and one Garage.
1993 1:1,250 1993-1995 1:2,000	No significant changes are noted on-site.	No significant changes are noted off-site.
2001, 2010 1:10,000 2003 1:1,250	No significant changes are noted on-site.	No significant changes are noted off-site. The majority of the buildings are not labelled, but it is presumed that some light industrial Works, Factories and Garages are still present.
2010-2022 Google Earth Imagery 2022 1:10,000	No significant changes are noted on-site.	No significant changes are noted off-site.

3.2 Anecdotal Information

In 2021, as part of the restoration works for the hotel, significant amounts of Asbestos Containing Materials (ACMs) were removed by Rhodar Ltd over seven weeks³.

3.3 Environmental Database Records

The following information has been obtained from a search of a publicly available third-party environmental database⁴ (dated 2nd November 2022):

³ Huddersfield Hub, June 2021, Exclusive Look Inside The George Hotel as Asbestos is Removed

<https://huddersfieldhub.co.uk/exclusive-look-inside-the-george-hotel-as-asbestos-is-removed/> Accessed 8th November 2022

⁴ Groundsure Enviro+Geo Insight Report, Reference: RMBL-9169616. Dated: 02 November 2022.

- There are no contaminated land register entries / notices within a 500 m radius of the site.
- There are no current or former landfill sites recorded within a 250 m radius of the site (i.e., the “planning consultation zone”).
- There are no records of former landfill within 500 m of the subject site.
- There are no current Environmental Permits for waste management activities⁵ within 500 m of the site. There is one former Permit for waste management. This was the Former Blakeborough’s Tip, registered to a location approximately 180 m south-east of the site, and held by Property Services Consultancy. The site was authorised to receive up to 25,000 tonnes per annum of household, commercial and industrial waste. The listed address has however been built up and in use as commercial buildings since the earliest historical maps, thus it is considered likely this was a correspondence address rather than the actual site of the landfill.
- There are no Environmental Permits to operate Part A(1) Installations issued under the Industrial Emissions Directive⁶ within 500 m of the site.
- There are no Environmental Permits to operate a Part A(2) Installation issued under the Industrial Emissions Directive⁷, within 500 m of the site.
- There are currently four (4) Environmental Permits to operate Part B Installations issued under the Industrial Emissions Directive⁸ within 500 m of the site. The closest (approximately 190 m north) is held by Tesco Stores Ltd for unloading of petrol into storage at service station.
- There are no Radioactive Consents registered within 500 m of the site. *NB Due to public security restrictions, certain information on closed or mobile radioactive substance authorisations has been removed from the public register and is not available to Ramboll.*
- There are no operational Control of Major Accident Hazard (COMAH) sites, no explosive sites or Planning Hazardous Substance Consents within 500 m of the site.
- There are no current Environmental Permits held with the Environment Agency for water discharge activities (formerly referred to as Discharge Consents) within a 500 m radius of the site.
- There are no Environmental Permits held with the Environment Agency for Groundwater Activities (previously referred to as Discharge Consents) within 500 m of the site.
- There has been one pollution incident recorded within 500 m of the site. This was located 420 m south and related to the release of atmospheric pollutants (smoke) in November 2001 which was classified as having a Minor (Category 3) Impact on Water and Air. Land was unaffected.
- The site is located in an area where less than 1% of residential properties are above the action level for Radon set by Public Health England. No radon protection measures are considered necessary by the British Geological Survey.

Under Health and Safety legislation, employers have a duty to manage workplace risks including the potential for radon exposure. Health and Safety Executive guidance recommends radon monitoring for workplaces located in radon Affected Areas. If the workplace radon threshold is exceeded, the Ionising Radiations Regulations 1999 require employers to take action to reduce risks.

⁵ Excluding Part A(1) and Part B permitted waste installations.

⁶ Formerly referred to as Integrated Pollution Prevention and Control (IPPC) Authorisations, or Pollution Prevention and Control (PPC) Authorisations.

⁷ Formerly referred to as Local Authority IPPC Authorisations.

⁸ Formerly referred to as Local Air Pollution Prevention and Control Authorisations

- There are records of two obsolete and two operational fuel station entries within a 500 m radius. The nearest operational (located 190 m north) is a Tesco branded petrol filling station.
- There are three ecologically sensitive sites within a 2 km radius of the subject site. The closest is Gledholt Woods (approximately 1.09 km west), which is an Ancient Woodland.

The LinesearchbeforeUdig database, which lists pipelines distributing crude oil and refined hydrocarbon products owned and / or operated by a number of UK pipeline operators indicates that there are no records of underground oil or refined hydrocarbon product pipelines on the site or within 250 m.

The site has a low risk from Unexploded Ordnance (UXO), using online information from Zetica UXO database⁹. A low-risk area is indicated as having a bombing density of less than 15 bombs per 1000 acres.

3.4 Regulatory Authority Enquiries

3.4.1 Local Authority Planning Department

Ramboll has obtained a planning history of the site from the Planning Department of the Local Authority (Kirklees Council).

A summary of relevant applications is provided in Table 3.2 below.

Table 3.2: Summary of Relevant Planning Applications at the Site

Applicant	Application ref.	Details of Application	Status
Ekaid Limited	84/60/05642/A1	Outline application to erect retail unit	Application Refused on 1 st February 1985
Ekaid Limited	84/65/05643/A1	Listed Building Consent for total demolition of building	Application Refused on 1 st February 1985
Mr. D. Kemplay	88/62/03080/A1	Erection of extension to form double garage and store	Granted with Conditions on 22 nd July 1988. No documents are available to view.
Principal Hotels Ltd	90/62/03306/B4	Erection of extension to hotel to form additional bedrooms and enclosed fire escape (listed building)	Granted with Conditions on 11 th September 1990. No documents are available to view.
Crimsondale Ltd	96/65/90973/E3	Listed building consent for installation of air conditioning units	Application Refused on 24 th May 1996
Northpoint Living Developments	2014/62/90692/W	Change of use to mixed use 30 bedroom hotel with function rooms, part of first floor to dental centre and educational facility, basement to spa, formation of 11 apartments on parts of first, second and third floor, erection of rooftop coffee shop/diner with creation of terrace with balustrade, erection of canopies and external	Granted with Conditions on 24 th April 2014, none in relation to contaminated land.

⁹ <https://zeticauxo.com/downloads-and-resources/risk-maps/> Accessed 2nd November 2022

Applicant	Application ref.	Details of Application	Status
		alterations (Listed Building within a Conservation Area)	
Northpoint Living Developments Ltd	2019/65/91506/W	Listed Building consent for Partial change of use of hotel to 50 apart-hotel rooms, A3 (restaurant/cafe/function room), A4 (drinking establishment), D1 (museum), Spa, ancillary storage and associated internal and external works (within a Conservation Area)	Granted with Conditions on 7 th May 2019, none in relation to contaminated land.

3.5 Historical Potential for Ground Contamination

3.5.1 The Site

No significant potentially contaminative activities have been identified as having taken place on site. Historical maps show that the site was developed with a Victorian-era hotel since 1851 until 2013.

3.5.2 The Surrounding Area

The following potentially contaminative activities have been identified as having taken place in the surrounding area:

- Huddersfield Train Station from 1847¹⁰ until present-day is located 40 m west. Railway Sidings extended to adjacent to the north of the site from the 1850s until the 1970s. Potential contaminants include fuels, oils, polychlorinated biphenyls (PCBs), metals, polycyclic aromatic hydrocarbons (PAHs) and asbestos.
- An operational Tesco branded petrol filling station is located 190 m north. Potential contaminants include fuels, oils, hydrocarbons and volatile organic compounds (VOCs).
- Various Mills and unspecified Works, Garages and Warehouses have been present from the 1850s until potentially present-day. Potential contaminants depend on the nature of activities on-site but include fuels, oils, hydrocarbons, metals, PCBs, VOCs, PAHs, chlorinated solvents, solvents, acids, alkalis and asbestos.

The above activities represent potential off-site sources of contamination that (if present) could potentially migrate beneath the site.

The potential for off-site contamination (if present) to migrate beneath the site would be dependent on the underlying geological conditions, which are discussed in Section 4.

¹⁰ <https://historicengland.org.uk/listing/the-list/list-entry/1277385?section=official-list-entry> Accessed 9th November 2022

4. ENVIRONMENTAL SETTING

Desk-based research of the local geology, hydrogeology and hydrology was carried out in order to establish the potential for migration of contamination onto or away from the site, and to assess the sensitivity and vulnerability of the site's setting with respect to surface water, groundwater and ecological resources.

Information was obtained from a number of sources, including:

- examination of published geological maps produced by the British Geological Survey (BGS);
- review of publicly available BGS borehole logs for the site or near vicinity;
- a proprietary environmental database procured by Ramboll; and
- Regulatory Authority websites including the Environment Agency (EA)

4.1 Geology and Hydrogeology

According to the BGS website (accessed 2nd November 2022) the nearest available-to-view borehole log (SE11NW22¹¹) is located 70 m south of the site. These together with the regional BGS map indicate the site is underlain by Head drift deposits. The drift deposits are underlain by bedrock geology of Pennine Lower Coal Measures. A coal seam (400 mm in thickness) was encountered in the aforementioned log, at approximately 12.5 m below ground level (m bgl).

A summary of the geological and hydrogeological setting of the site is provided in Table 4.1 below.

Table 4.1: Summary of Geology and Hydrogeology

Formation	Description	Thickness (m)	EA Aquifer Designation	Hydrogeological Significance
Head Deposits	Clay, silt, sand and gravel	Up to 4 m	Secondary (Undifferentiated)	Variable permeability formation with potential to support small or localised abstractions.
Pennine Lower Coal Measures	Interbedded mudstone, siltstone and sandstones	Up to 160 m	Secondary A	Permeable formations with potential to support localised abstractions.

There have been no mineral extraction sites within 500 m of the site.

The EA currently classifies groundwater (in relation to the groundwater in the Aire & Calder Carb Limestone / Millstone Grit / Coal Measures Water Body) at the site as being of 'Poor' Chemical Quality and Quantitative Status under the Water Framework Directive classification scheme.

According to EA information provided by a commercial environmental regulatory database provider, there are three licensed groundwater abstractions within a 1 km radius of the site as detailed in Table 4.2 below.

Table 4.2: Licensed Groundwater Abstractions within 2 km of the Site

Licence Holder	Distance from Site	Abstraction source	Purpose of Abstraction
Kirklees Council	180 m NE	Coal Measures	Heat Pump

¹¹ British Geological Survey, Borehole Log SE11NW22. http://scans.bgs.ac.uk/sobi_scans/boreholes/41069/images/18524258.html
 Date accessed: November 2022.

Licence Holder	Distance from Site	Abstraction source	Purpose of Abstraction
Huddersfield Dyeing Co Ltd	1.18 km NE	Millstone Grit	General Use Relating To Secondary Category (Medium Loss)
W T Johnson & Sons (Huddersfield) Ltd	1.46 km SE	Coal Measures	General Use Relating To Secondary Category (Medium Loss)

The site is not situated within an EA designated groundwater Source Protection Zone.

4.2 Coal Mining

According to the Coal Authority, the site is located in a Coal Mining Affected Area. The Coal Authority Interactive Map does not show the site to be in a mine entry zone of influence but shows the site to be in a Development High Risk Area. The map also shows the site is in an area where Probably Shallow Coal Mine Workings are located.

The BGS has stated that no other (non-coal) mining activities are detected within 1 km of the site.

- According to a Coal Mining (CON29M) Assessment¹² dated 2nd November 2022, the site is not located in the likely zone of influence from coal workings in the past or present from underground methods but is located in an area where coal deposits have been worked at shallow depth in the past (but no plan exists).
- The property does not lie within the boundary of an underground site where The Coal Authority is determining whether to grant a licence to remove coal using underground methods.
- There are no known coal mine entries within 20 m of the site.
- The Authority is not aware of any evidence of damage arising due to geological faults or other lines of weakness that may have been affected by coal mining.
- The site does not lie within the boundary of an opencast site from which coal has been removed by opencast methods in the past, within 200 m of the site presently and within 800 m of an opencast site that the Coal Authority is determining to grant a licence to remove coal by opencast methods.
- The Coal Authority has not received a damage notice or claim for the site or any property within 50 m since 31st October 1994, and there is no current Stop Notice delaying the start of remedial works or repairs to the property.
- There is no record of a mine gas emission requiring action by the Coal Authority within the boundary of the site.
- Neither property has been subject to remedial works, by or on behalf of the Authority, under its Emergency Surface Hazard Call Out Procedures.

A copy of the Coal Mining Assessment is included within Appendix 3 of the report.

4.3 Hydrology

The nearest identified watercourse is the Huddersfield Broad Canal, located 480 m east at its nearest point. The EA currently classifies the Colne from River Holme to River Calder watershed as being of 'Moderate' Ecological Potential and 'Fail' Chemical Quality under the Water Framework Directive classification scheme.

¹² Groundsure CON29M Coal Mining Assessment Report, Reference: RMBL-9171190. Dated: 2nd November 2022.

According to an independent, third-party environmental database, there are four licensed surface water abstractions within a 1 km radius of the site, as detailed in Table 4.3 below.

Table 4.3: Licensed Surface Water Abstractions within 2 km of the Site

Licence Holder	Distance from Site	Abstraction source	Purpose of Abstraction
Canal and River Trust	850 m S	Huddersfield Narrow Canal	Non-Evaporative Cooling
	890 m NE	Huddersfield Broad Canal	General Use Relating To Secondary Category (Medium Loss)
	900 m SE	River Colne	Supply To A Canal For Throughflow
	1.12 km NE	Huddersfield Canal	General Cooling (Existing Licences Only) (Low Loss)

4.4 Regulatory Flood Designations

Regulatory flood maps have been developed to be used in strategic planning and are not intended to provide site-specific information. However, the mapping can provide a useful indication of whether further consideration or assessment of flood risks to a site may be required.

4.4.1 Fluvial

According to the EA's fluvial and tidal flood map for planning, the site is located in Flood Zone 1 (low probability). This zone comprises land assessed as having a less than 1 in 1000 annual probability of river (<0.1% in any year).

4.4.2 Surface Water

According to the EA Flood Map for Surface Water which presents the theoretical potential for flooding from pluvial sources (i.e., flooding caused by rainwater exceeding capacity of drainage systems), the site is located in an area of Very Low flooding probability. This zone comprises land assessed as having a less than 1 in 1,000 annual probability of pluvial flooding (<0.1% in any year).

Surface water drainage networks are typically designed to accommodate only a 1 in 30 (3.3%) annual probability rainfall event. Older drainage networks may have a lower capacity, especially if they have not been maintained adequately. Although not true of every situation, surface water flooding is typically relatively shallow and would be expected to subside following the storm event assuming drainage assets are maintained in an appropriate condition.

4.5 Designated Ecological Sites

There are three designated ecological sites within 2 km of the site; with the closest being Gledholt Woods (1.09 km west), a Local Nature Reserve. The remaining two are Designated Ancient Woodlands; Benholmley Wood (1.87 km south-east) and Grimescar Wood 1.99 km north-west of the site.

4.6 Environmental Sensitivity and Vulnerability

The site is considered to be situated in an area of **low to moderate** sensitivity with respect to groundwater resources due to the underlying Secondary A Aquifer in relation to the Pennine Lower Coal Measures. There are three licensed groundwater abstractions within 2 km of the site; the EA classified the groundwater Quantitative Status and Chemical Quality as 'Poor' under the Water Framework Directive.

The vulnerability of the groundwater receptor in the vicinity of the site is considered to be **low** as the entire site is covered by hardstanding.

The sensitivity of the hydrological receptor can be considered as **low to moderate** as the Colne River Holme to River Calder (the nearest surface watercourse) was classified as 'Moderate' Ecological Potential and 'Fail' Chemical Quality under the Water Framework Directive. There are four licensed surface water abstractions within 2 km of the site.

The site is considered to be in an area of **low** vulnerability with respect to surface water resources as the nearest surface water course is 480 m west.

There are three statutory designated ecologically sensitive areas within 2 km, the closest is located 1.09 km distant.

5. QUALITATIVE RISK ASSESSMENT

5.1 Legislative Framework

The regime for contaminated land was set out in Part 2A (ss.78A-78YC) of the Environmental Protection Act 1990 (EPA), as inserted by S.57 of The Environment Act 1995 and came into effect in England on 1st April 2000 as The Contaminated Land (England) Regulations 2000 (SI 2000/227). These regulations were subsequently revoked with the provision of The Contaminated Land (England) Regulations 2006 (SI 2006/1380) (as amended), which came into force in August 2006, and consolidated the previous regulations and amendments. Revised statutory guidance (“the Guidance”) for local authorities on how to implement the regime, including the decision-making process on whether land is contaminated land in the legal sense, has been published by Defra and entered into force in April 2012.

Under Part 2A of the EPA Section 78A(2), “contaminated land” is defined as “land which appears... to be in such a condition, by reason of substances in, on or under the land, that:

- a) significant harm is being caused or there is a significant possibility of such harm being caused¹³; or
- b) significant pollution of controlled waters is being caused, or there is a significant possibility of such pollution being caused”.

The pollution of controlled waters is defined in Section 78A(9) of the Act as “the entry into controlled waters of any poisonous, noxious or polluting matter or any solid waste matter”.

5.2 Risk Assessment Framework

“Significant harm” or “significant pollution of controlled waters” is defined in the Guidance on risk-based criteria and must be the result of one or more relevant ‘contaminant linkages’ relating to the land.

The presence of a contaminant linkage relies on the Source-Pathway-Receptor concept, where all three (3) factors must be present and potentially or actually linked for a potential risk to exist. For a risk of pollution or environmental harm to occur as a result of ground contamination, all of the following elements must be present:

- A source - a substance that is capable of causing pollution or harm;
- A receptor - something which could be adversely affected by the contaminant; and
- A pathway - a route by which the contaminant can reach the receptor.

If one of these elements is absent there can be no significant risk. If all are present then the magnitude of the risk is a function of the magnitude and mobility of the source, the sensitivity of the receptor and the nature of the migration pathway.

The potential severity of the risk and the probability of the risk occurring have been combined in accordance with the following matrix in order to give a level of risk for each potential hazard.

Table 5.1: Classification of Risk (after NHBC/EA 2008)

		Consequence			
		Severe	Medium	Mild	Minor
Probability	High Likelihood	Very high	High	Moderate	Low
	Likely	High	Moderate	Moderate/Low	Low

¹³ Water Act 2003 (Commencement No. 11) Order 2012

Low Likelihood	Moderate	Moderate/ Low	Low	Very low
Unlikely	Moderate/ Low	Low	Very low	Very low

It has been assumed that the site is to be redeveloped into a functional hotel.

5.3 Preliminary Risk Assessment

A preliminary conceptual site model has been developed and qualitative preliminary risk assessment undertaken to identify and assess the potential risks associated with environmental conditions at and in the vicinity of the site based on the available information. This is presented in Table 5.2.

Table 5.2: Conceptual Site Model

Source	Pathway	Receptor	Potential Consequence	Probability of Risk	Level of Risk
Site is currently a disused hotel. No significant contamination sources identified from current and historical site use. Potential for impacts in made ground beneath the site from historical development (e.g. metals, hydrocarbons, asbestos).	Leaching to Groundwater & Groundwater Flow.	Groundwater in the Lower Pennine Coal Measures (Secondary A Aquifer).	Medium	Unlikely	Low. No significant on-site potential contamination sources from current use.
	Surface water run-off.	Surface water as controlled water in the Huddersfield Broad Canal.	Medium	Unlikely	Low. No significant on-site potential contamination sources from current use. Nearest receptor is at distance.
	Dermal contact / ingestion.	Site users and neighbours.	Medium	Unlikely	Low. No significant on-site potential contamination sources from current use and site covered by hardstanding.
		Construction workers.	Medium	Low	Low to moderate*. Groundworkers will come into contact with soils, if e.g. asbestos is present, there may be a potential risks to construction workers which would require mitigation. Further investigation is required.
Vapours.	Site buildings, users and neighbours. Construction workers.	Medium	Unlikely	Low. No significant on-site potential contamination sources anticipated.	

Source	Pathway	Receptor	Potential Consequence	Probability of Risk	Level of Risk
Potential current and historical off-site contamination sources in the vicinity of the site including: Huddersfield Train Station, petrol filling station and various mills, garages, warehouses and works.	Leaching and movement onto site via Groundwater Flow.	Groundwater in the Lower Pennine Coal Measures (Secondary A Aquifer).	Mild	Low likelihood	Low. Potential presence of potential contamination sources from off-site activities.
	Vapours.	Site buildings, users and neighbours. Construction workers.	Medium	Unlikely	Low. Any potentially significant pollutant linkage is considered unlikely.
Potential for ground gas generation from the underlying coal measures associating with the bedrock geology (Coal seam (400 mm thickness) identified as close as 70 m south)	Gas migration	Site buildings, users and neighbours. Construction workers.	Severe	Low likelihood	Moderate. The site is located in a Coal Mining Affected Area, and in an area where Probably Shallow Coal Mine Workings are located. A coal seam was recorded at 12.5 m depth approximately 70 m south of the site. The potential for a coal seam beneath the site is currently unknown. Further investigation is required.
<p>Notes:</p> <ul style="list-style-type: none"> • Assessment completed assuming site in current condition. Should site levels be altered during development, a reassessment would be required. • Should the development proposals alter significantly a review of this risk assessment may be required. • * Given the use of appropriate PPE and on-site health and safety precautions, risk to construction workers would be reduced to low. 					

6. CONCLUSIONS AND RECOMMENDATIONS

6.1 Summary of Key Findings

The Phase I desk study has been prepared with a view that the site is to be renovated to an operational hotel. The site has historically been a Victorian-era hotel between 1851 and 2013, when the hotel closed.

No significant sources of contamination have been identified from historic or current uses at the site. Historical potentially contaminative activities present in the vicinity include railway sidings, tanks, mills, garages, warehouses and works within 250 m of the site. The site is currently surrounded by Huddersfield Train Station to the west and car park and commercial / retail units to north, east and south.

The site is underlain by superficial deposits comprising shallow Head Deposits, a designated Secondary Undifferentiated Aquifer; and the bedrock of the Pennine Lower Coal Measures, a designated Secondary A Aquifer.

The closest surface watercourse is the Huddersfield Broad Canal, located 480 m east at its nearest point. There are no sensitive use groundwater or surface water abstraction points within 2 km of the site.

According to the EA's fluvial and tidal flood map for planning, the site is located in Flood Zone 1 (low probability). The site is also located in an area of very low pluvial flooding probability.

The site is located within a Coal Mining Affected Area, with a coal seam recorded off-site, at 12.5 m approximately 70 m south of the site.

The preliminary risk assessment for the site has identified a potential moderate risk to human health from gas generation from any possible coal seams/workings beneath the site. There is a low to moderate risk to construction workers from any unknown made ground beneath the site.

Low risk to human health and controlled waters has been identified; and low risk has been identified from the current and historical off-site land uses.

6.2 Recommendations

A ground investigation is recommended to fully characterise the ground conditions beneath the site to assess the potential contaminated land risks on site.

Based on the information summarised in this combined desk-top study report, an intrusive ground investigation should be carried out to:

- Investigate the likely shallow ground conditions beneath the site to accurately inform a revised conceptual site model, with a particular focus on potential contaminants in shallow made ground to which construction workers may come into contact;
- Provide a spread of soil chemical data across the site area, and include testing suites for heavy metals, total petroleum hydrocarbons (TPHs), polyaromatic hydrocarbons (PAHs), and asbestos; and
- Characterise the ground gas regime by monitoring newly installed wells for methane, carbon dioxide, carbon monoxide, hydrogen sulphide to allow Ground Gas and Coal Mining Gas Risk Assessments. The extent of monitoring would be confirmed on completion of the site works once the presence/absence of any coal seams or other potential gas source materials has been quantified.

The ground investigation is likely to comprise, but is not limited to, the following:

GEORGE HOTEL, HUDDERSFIELD

- Window sampler and rotary boreholes to confirm the ground conditions and depth to possible coal seams;
- Borehole installations to allow groundwater and / or ground gas monitoring;
- Soil sample recovery for testing for a range of determinands; and
- Gas monitoring programme.

APPENDIX 1 FIGURES

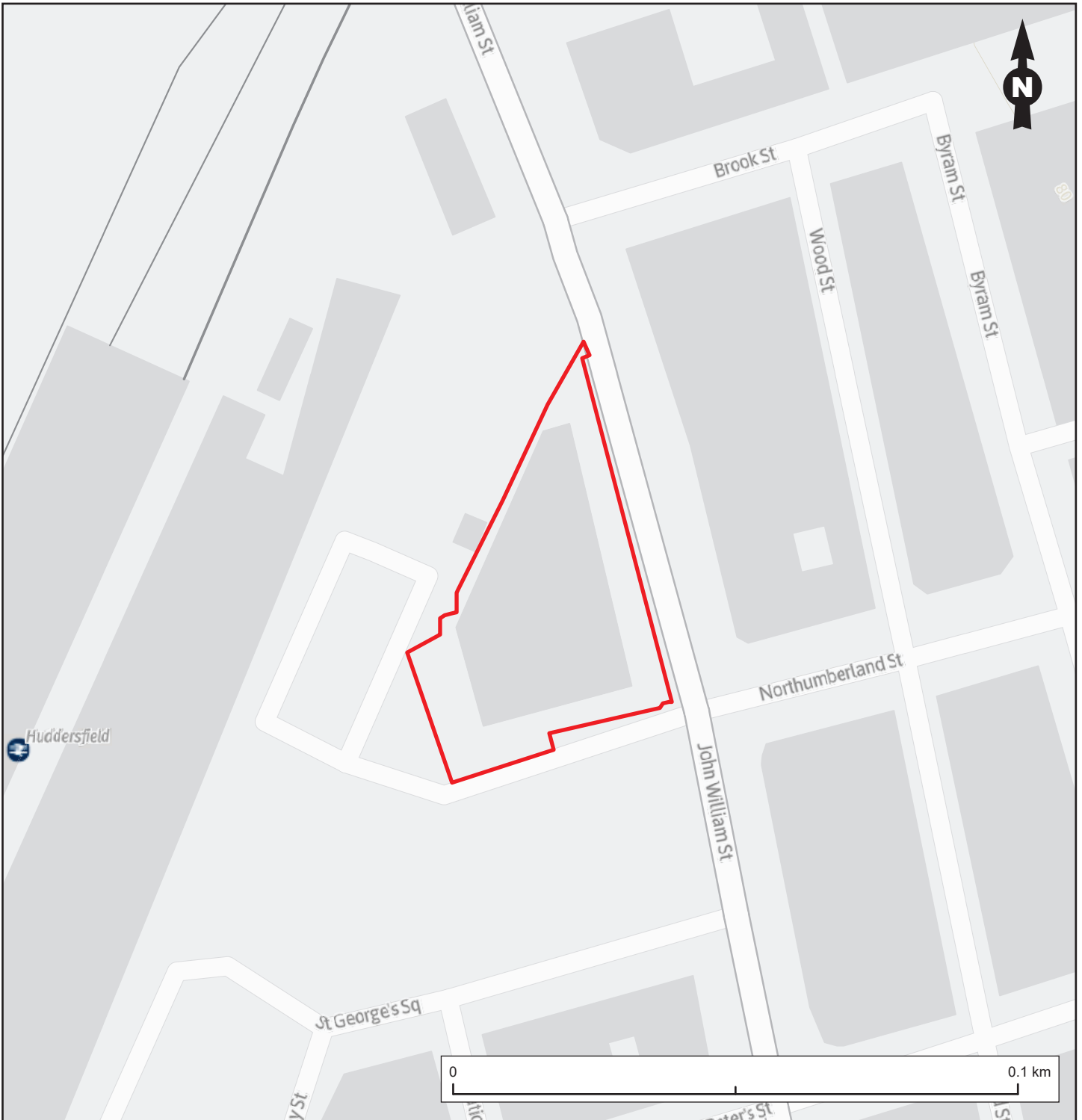
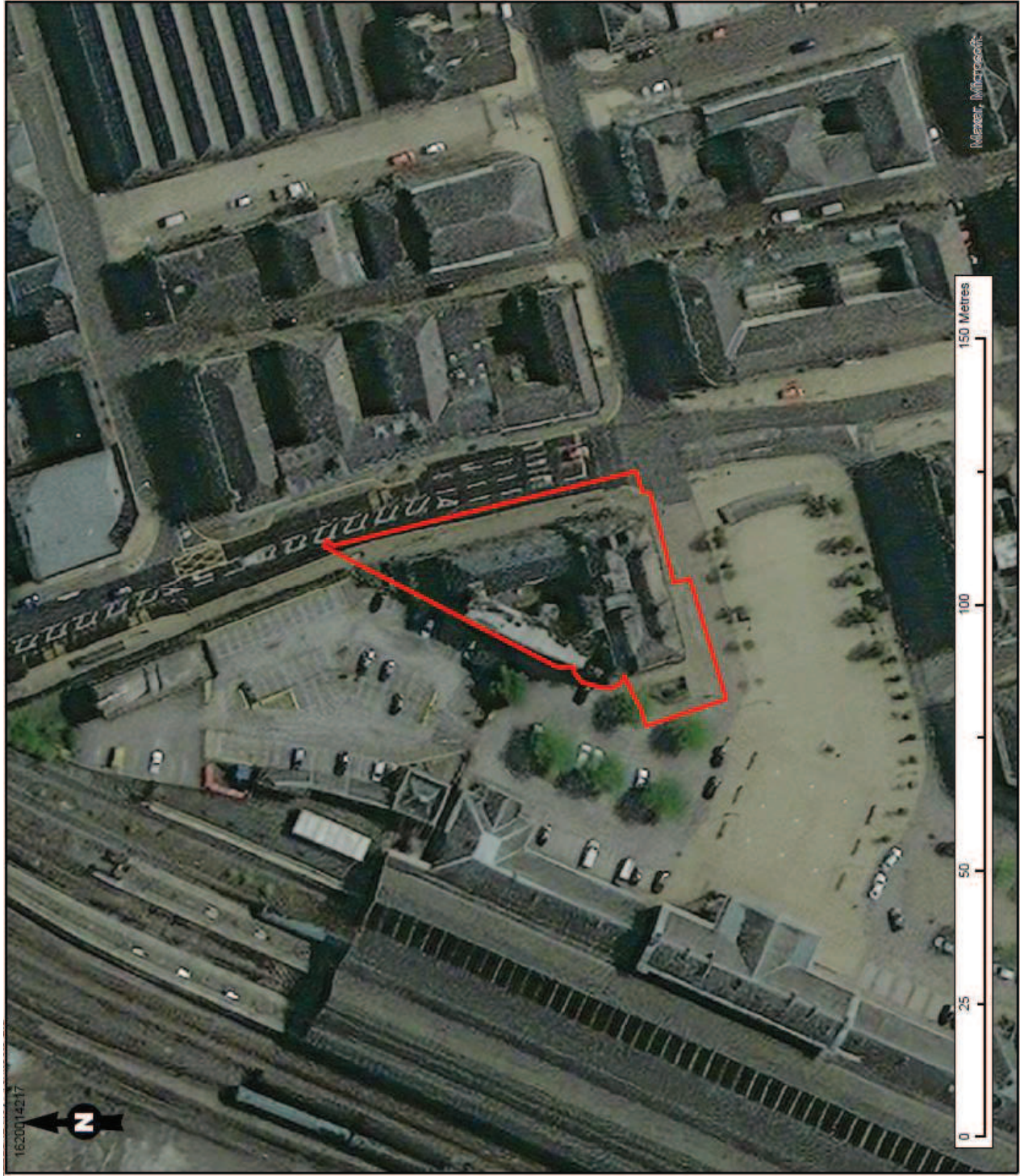




Figure Title Figure 1: Site Location	Project Name George Hotel, Huddersfield, HD1 1JA	Date November 2022	
		Scale on Main Map 1:1,000	
Project Number 1620014217	Client Bowman Riley Architects Ltd	Issue 1	Prepared By lb





Legend	 Site Boundary		
Figure Title	Site Layout		
Project Name	George Hotel, Huddersfield, HD1 1JA		
Project Number	1620014217	Figure No.	2
Date	November 2022	Prepared By	HR
Scale	1:1,000 @A4	Issue	1
Client	Bowman Riley Architects Ltd		
			

APPENDIX 2 GROUNDSURE REPORT



Site Details:

GEORGE HOTEL, ST GEORGE'S SQUARE, HUDDERSFIELD, HD1 1JA

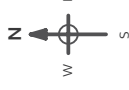
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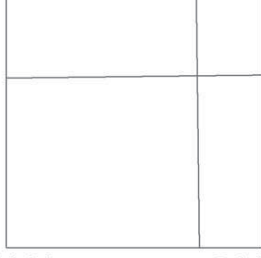
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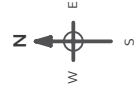




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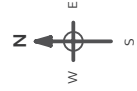




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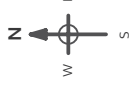
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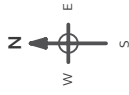
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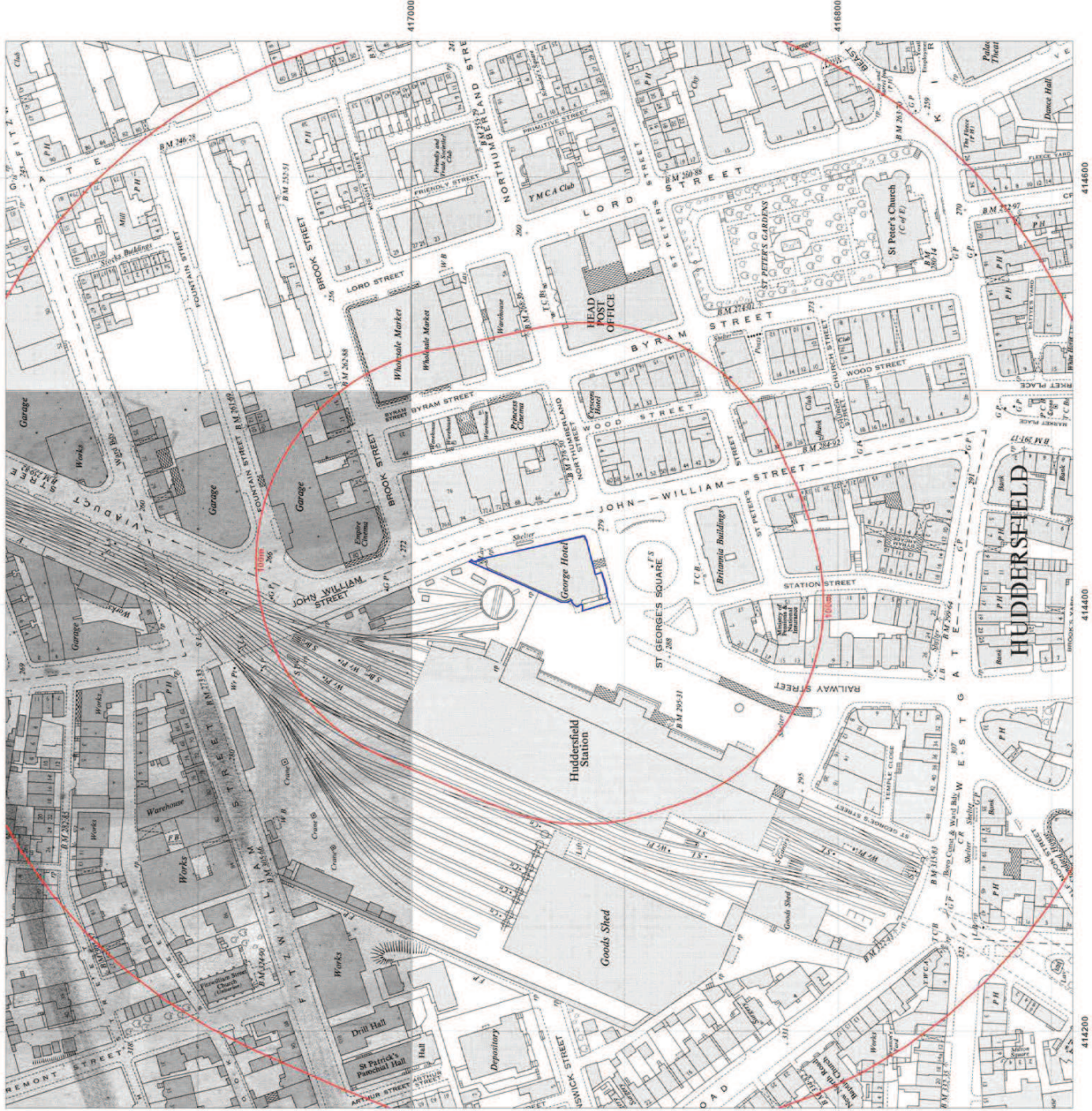
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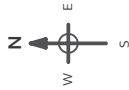
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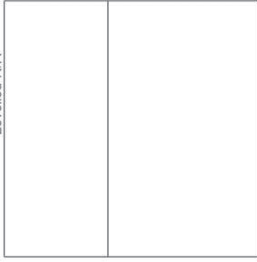
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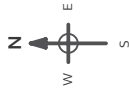
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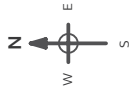


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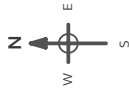
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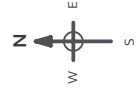
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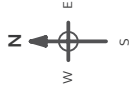


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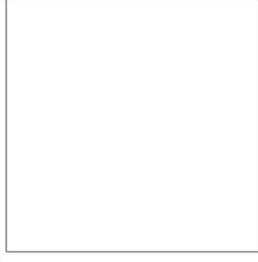
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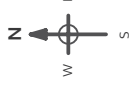
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