



Contamination Assessment

Land off Houghton Main Colliery Roundabout, Park Spring Road, Barnsley,
S71 5EX

Peel Environmental Management (UK) Limited and Northern Bio Power



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Executive Summary

Proposed Development

Planning Application to develop a Timber Resource Recovery Centre on land located off the Houghton Main Colliery Roundabout, Park Spring Road, Houghton Main, Barnsley.

Investigation

Site works were undertaken by Enzygo Ltd. in August and October 2014, together with a desk study and monitoring.

Ground Conditions

Ground conditions were noted to comprise Made Ground. Possible Lower Coal Measures were encountered in one trial pit. Middle Coal Measures were encountered below 28.70m bgl in borehole BH01 comprising medium strong to strong sandstone. Groundwater was encountered at 10.50mbgl and rose to 8.70m bgl in 20 minutes.

Contamination

The soil quality shows no exceedances above the reference GAC value from commercial land usage and no asbestos was detected. Leachate and groundwater analysis indicates that Fluoranthene is shown at the recommended EQS level for three samples, however given the distance of the exceedances to the nearest receptor in excess of 50m it is considered this will naturally attenuate, before affecting the surface water.

Gas

No radon risk identified. Gas monitoring identifies that Characteristic Situation 1 applies.

TABLE OF CONTENTS

Executive Summary i

1.0 INTRODUCTION 1

Background 1

Proposed Development 1

Objectives 1

Risk Classification 1

2.0 SITE SETTING 3

Current Site Description 3

Surrounding Area 4

3.0 SITE HISTORY 5

4.0 ENVIRONMENTAL SETTING 7

Ground Conditions 7

Groundwater 7

Mining 7

Natural Cavities 7

Ground workings 8

Hydrology 8

Radon Risk Potential 8

Natural Hazards Finding 8

Sensitive Land Uses 9

Environmental Sensitivity 9

Industrial Land Uses 9

5.0 CONSULTATIONS 10

Regulatory Database 10

<i>Landfill Sites and Waste Treatment Sites</i>	10
6.0 PRELIMINARY CONCEPTUAL MODEL	11
7.0 SITE INVESTIGATION	13
<i>General</i>	13
<i>Laboratory Testing</i>	13
8.0 GROUND AND GROUNDWATER CONDITIONS	14
<i>Summary of Ground and Groundwater Conditions</i>	14
<i>Made Ground</i>	14
<i>Possible Middle Coal Measures</i>	14
<i>Middle Coal Measures</i>	15
<i>Visual and Olfactory Evidence of Contamination</i>	15
<i>Soil Strength</i>	15
<i>Groundwater</i>	15
<i>Ground Gas</i>	15
9.0 CONTAMINATION ASSESSMENT	17
<i>General</i>	17
<i>Human Health</i>	17
<i>Controlled Waters</i>	17
<i>Ground Gas</i>	19
<i>Revised Conceptual Model</i>	19
<i>Remediation</i>	21
Drawings	22
Appendix A – Desk Study Information	23
Appendix B – Exploratory Hole Records	24
Appendix C – Chemical Testing	25

1.0 INTRODUCTION

Background

- 1.1 Enzygo Limited has been commissioned by Peel Environmental (UK) Limited and Northern Bio Power to prepare a Geo-Environmental Report for a proposed timber Resource Recovery Centre including associated infrastructure on land located off Houghton Main Colliery Roundabout, Park Spring Road, Barnsley, S71 5EX.

Proposed Development

- 1.2 The existing development is shown on topographical survey drawing for the site. The existing site survey has been incorporated in to the site plan prepared by Enzygo, which is presented as Drawing CRM.066.001.D.001. A copy of the preliminary proposed site layout is included is presented in the Drawing section of this report.

Objectives

- 1.3 The objectives of the study are to:
- Review the initial desk study including the historical plans, geology, hydrogeology, site sensitivity, mining records and any local authority information available in order to complete a Desk Study;
 - Undertake a ground investigation to include the entire and surrounding site area;
 - Assess the implications of any potential environmental risks, liabilities and development constraints associated with the site in relation to the future use of the site and in relation to off-site receptors; and
 - Provide a factual and interpretative report relating to the desk study and site investigations. Provide a revised conceptual model and recommendations on any potential development issues and mitigation measures, where appropriate.

Risk Classification

- 1.4 Enzygo has utilised the available information, together with our experience to assess the likely risks to development from land quality issues. Definitions of the risk terms used are provided on the following table.

Risk	Description
Negligible	No contamination risk has been identified which is likely to affect development.
Low	No significant contaminated land risks have been encountered affecting development and a low risk that remediation will be required.
Low-Moderate	There are unlikely to be significant contaminated land issue associated with the site which will adversely affect its re-development. However, minor or localised contamination may be present requiring remediation. Remediation should be possible under a discovery strategy and with a call out service.
Moderate	Some potential contaminated land risks have been encountered or identified which may affect re- development. The risks identified are unlikely to affect the entire site or preclude development. Remediation is considered feasible as part of the development process and no further investigation is considered necessary.
Moderate-High	Some potentially significant contaminated land risks have been identified at the property that requires remediation. It is recommended that a separate remedial methodology is prepared supported by a site specific risk assessment
High	Significant potential contaminated land risks have been identified and remediation is required supported by further intrusive ground investigation, risk assessment and remedial design.

1.5 Where adverse risks from ground instability are identified these are discussed within the report.

2.0 SITE SETTING

Site Description

Item	Description
Site Address	Land off Houghton Main Colliery Roundabout, Park Spring Road, Barnsley, S71 5EX.
National Grid Reference	441799,406582.
Site Area	Approximately 2.915ha

Current Site Description

- 2.1 The following site description has been compiled from the site inspection of the proposed site area undertaken by Enzygo staff, together with current maps and aerial photographs.
- 2.2 The site is currently comprises overgrown derelict land with shrub bushes and rough grassland.
- 2.3 A former railway embankment is shown on the north west boundary of the site.
- 2.4 There are no public restrictions on the site and there are numerous dog walking paths traversing the site.
- 2.5 Park Spring Road marks the eastern boundary of the site. There are no buildings currently on site.
- 2.6 The site is accessed from the Houghton Main Colliery Roundabout to the south east of the site.
- 2.7 There didn't appear to be any drains onsite.
- 2.8 The River Dearne is shown 10m to the south of the site.
- 2.9 During the time of the investigation a bund was shown to the south of the site and off the main access road to the south.
- 2.10 A further site entrance was also located off Park Spring Road to the east of the site.
- 2.11 Large parts of the site were not accessible due to considerable shrubs and tree growth. The majority of the trees are Silver Birch with the main concentrations of trees on the north western and south eastern boundaries.

Surrounding Area

2.12 The surrounding land uses surrounding the site are summarised as follows:

Direction	Land Use
South	Open space, River Dearne and flood plain. SE corner commercial building (sub-station).
East	Park Spring Road (A6195), car parking associated with the commercial unit/warehouse, Large docking warehouse/commercial unit.
West	Old railway embankment open scrub land.
North	Park Spring Road (A6195) and open fields.

2.13 No significant contamination risk to the site is noted.

3.0 SITE HISTORY

3.1 A review of historical Ordnance Survey maps and information pertinent to the site of the annex and within a 250m radius is summarised below:

Potentially Contaminative Historical Land Use		
Map Edition	Site	Surrounding Area
1890	Mineral railway within SW corner of the site. Remainder of the site comprises open fields. This railway line is shown on an embankment	Open fields surround the site, River Dearne 4m NW. Park Field House 250m NE. Houghton Main colliery 300m SE. Mineral Railway crossed the River Dearne 4m NW.
1906	A second railway line (Midland Railway) is present to the north east of the existing line with a set of siding in-between. A further line (Mineral Railway) is shown dissecting the site into two halves from the north to the south east. A third line (Dearne Valley Railway) is shown crossing the far northern corner of the site. All the additional lines are shown on embankments. A foot path is shown crossing the centre of the site.	Houghton Main Colliery has enlarged and now includes a Sewerage works 300m SE. Houghton Junction is shown 250m NW.
1931-1955	Foot path no longer shown.	Houghton Main Colliery has enlarged to the W and N and includes numerous spoil heaps and an aerial cable.
1961-1967	Foot path shown on the S boundary of the northern railway (northern section of the site).	Houghton Main colliery shown as Mine. Spoil heaps shown 100m W.
1980	The additional tracks to the NE of the original line and the line dissecting the site are not shown. The central railway is shown as a dismantled railway. An additional line is shown on the NW boundary of the site which connects the line to the SW with the line to N. A further branch line is shown off the NW line which dissects the site and loops back onto the previous line to the N. A sludge pit is shown within the W of the site.	Mine renamed Houghton Main Colliery and totally reconfigured with a number of new scattered buildings in the area of the former spoil heaps including the main winching buildings and three conveyors. One of which is located 50m SE. Dearne railway shown as dismantled. The river Dearne has been realigned and now in on an embankment to the S and W of the site.
1983-1993	The branch line to the N is shown as dismantled.	Houghton Main Colliery has enlarged NE with a new conveyor linked the colliery with a new spoil heaps to the NE. Two tanks are also shown associated with the main building.
2002	The Railway to the S is not shown. The site is shown as open space with the exception of one previous railway embankment along the NW boundary of the site.	Houghton Main Colliery has been demolished and is shown as Disused Works with no buildings. The Spoil heaps to the NE still remains. A road and roundabout are shown on the eastern boundary of the site.
2012	The railway to the S and N are not shown and the perimeter railway along the northern western boundary is shown as dismantled.	A large commercial building is shown in the area of the former Houghton Main Colliery site 50m to 300m E of the site. A smaller commercial building is shown 10m SE of the site and to the S of the roundabout. The roundabout is referenced Houghton Main colliery Roundabout.

3.2 There is a low risk associated with the previous railway lines and sidings across the site.

- 3.3 Evidence supplied by the Coal Authority and the South Yorkshire Mining Advisory Service indicates that the site was used as an open cast coal pit from 1997 to 2000. There are no available historical plans for this time period. The open cast works was backfilled with compacted earthworks materials. There is a low to moderate risk associated with the backfill materials.

- 3.4 No other significant risks are identified

4.0 ENVIRONMENTAL SETTING

Ground Conditions

- 4.1 The British Geological Survey (BGS) indicates that the hotel extension is underlain by the following geological sequence:

Geological Unit	Type	Description	Aquifer Classification
Drift.	Alluvium.	Clay and Silt.	Secondary (A).
Solid.	Middle Coal Measures.	Mudstone, Siltstone Sandstone and Coal.	Secondary (A).

- 4.2 Made Ground has been recorded on the site. This is associated with the backfill of the open cast coal pit. The permeability of the Made Ground is shown as very high to very low reflecting the mixed nature of the materials.
- 4.3 There are no records of landslips within 500m of the site.
- 4.4 Records of background soil chemistry do not show any elevated concentrations.

Groundwater

- 4.5 The recorded permeability of the drift geology is very low to low reflecting the cohesive nature of these materials. The recorded permeability of the solid geology depends on the classification as a sandstone, siltstone or mudstone and varies accordingly from low to high and has fracture flow type. The permeability of the materials underneath the site is dominated by the Made Ground.
- 4.6 The GroundSure Report shows that the site is not located within a Source Protection Zone.
- 4.7 There are no groundwater abstraction licenses within 1000m of the site.

Mining

- 4.8 The site has been subject to an opencast colliery site. Further details are given in the Mining desk study.

Natural Cavities

- 4.9 No natural cavities are identified within 1000m of the site.

Ground workings

- 4.10 There are a number of historical groundworkings identified within 250m of the site. The closest is associated with the open cast works with further ground workings being associated with the colliery.

Hydrology

- 4.11 There are no water courses on the site. The nearest main river is called the River Dearne and is shown 10m north west at a bridge crossing bordering the western and southern boundary. The river quality of this river has been recorded on the former railway bridge to the north west of the site with a general chemical quality grade D (Poor) and a general biological quality grade D (Poor) both of which were recorded in 2009.
- 4.12 The site is located within a flood zone 2. This is assessed within the Flood Risk Assessment Report prepared by Enzygo Ltd.

Radon Risk Potential

- 4.13 The Groundsure Report indicates that no precautions are necessary to protect against Radon.

Natural Hazards Finding

- 4.14 BGS information presented within the Groundsure Geosight report identifies the following ground conditions:

Hazard	Risk Designation (Groundsure)
Coal Mining	Risk identified and assessed in the coal mining desk study and associated with the open cast works and deep coal.
Collapsible Ground	Negligible to Very low.
Compressible Ground	Negligible to very Low.
Ground Dissolution	Null.
Landslide	Very Low to Low.
Running Sand	Negligible to Low.
Swelling / Shrinking Clay	Negligible to low.

4.15 There are no further geotechnical ground risks which have not been described in the Coal Mining Section of the previous desk study.

Sensitive Land Uses

4.16 The site comprises derelict land and is considered to be of low sensitivity.

4.17 English Heritage has not identified any listed buildings or scheduled ancient monuments on the site.

Environmental Sensitivity

4.18 Overall the site is currently considered to be of Low/Moderate sensitivity due to the following:

- The underlying stratum is classified as an Secondary A Aquifer which can provide base-flow to water courses and there is a water course close to the site;
- Secondary aquifers can provide local water sources but there are no groundwater abstractions within 1000m or of the site;
- The site is not within a source protection zone;
- No ecological designations on the site.

4.19 The likely proposed end use of the site is employment and so the future sensitivity will be low for end users.

Industrial Land Uses.

4.20 Potentially contaminative industrial uses identified within 250m of the site are limited to electrical substation which is not to pose a significant risk to the site

4.21 There are no petrol filling stations within 500m of the site.

4.22 There are no high pressure pipelines within 500m of the site.

4.23 No new risks are identified from the register of industrial land uses.

5.0 CONSULTATIONS

Regulatory Database

- 5.1 No significant risks are identified from the commercially available environmental database.

Landfill Sites and Waste Treatment Sites

- 5.2 No significant risks are identified from waste activities.

6.0 PRELIMINARY CONCEPTUAL MODEL

Source	Location	Exposure Pathway	Potential Receptor	Probability of Exposure	Details
Human Health					
Asbestos, metals and hydrocarbons.	Potential Made Ground on site from infill of colliery open cast pit.	Ingestion dermal and inhalation.	Construction Workers.	Dismissed.	Normal construction PPE will address risk under CDM.
			Site users.	Low/Moderate.	Unknown fill within the backfilled pit (apart from compacted earthwork materials). Low sensitive end use.
Metals.	Potential Made Ground and waste from former railways.	Ingestion dermal and inhalation.	Construction Workers.	Dismissed.	Normal construction PPE will address risk under CDM.
			Site users.	Low.	The majority of the Railway ballast materials will have been removed as part of the opencast works. Low sensitive end use.
Hydrocarbon and metals.	Migration from off-site sources.	Ingestion dermal and inhalation.	Construction Workers.	Dismissed.	No source identified.
			Site users.		
Ground Gas.	Historic Landfills.	Inhalation & Explosive.	Construction Workers.	Dismissed.	No source identified.
			Site users.		
	Made Ground.	Inhalation & Explosive.	Construction Workers.	Dismissed.	No confined access likely.
			Site users.	Negligible.	Unlikely to be significant highly putrescible matter.
	Mine Gas	Inhalation & Explosive.	Construction Workers.	Negligible/Low	No confined access likely and groundwater has stabilised therefore minimising risk of gas migration into compacted backfill materials. Given distance of recorded mine shafts 300m SE negligible risk
			Site users.	Negligible/Low	No confined access likely and groundwater has stabilised therefore minimising risk of gas migration into compacted backfill materials. Given distance of recorded mine shafts 300m SE. negligible risk
Groundwater					
Assessed within the Hydrogeological Desk Study Report.					
Surface Water					
Assessed within the Hydrogeological Desk Study Report.					
Environmental Receptors					
On site contaminants	Ingestion dermal and inhalation.		Ecology.	Dismissed.	No sensitive ecology designation.
	Direct.		Archaeology.	Dismissed.	None present.
	Direct.		Geology.	Dismissed.	None present.
	Phytotoxic.		Woodland.	Dismissed.	None present.
	Phytotoxic.		Crops.	Dismissed.	None present.
	Ingestion dermal and inhalation.		Livestock.	Dismissed.	None present.
Building Services					
On site contaminants	Direct.		Historic Buildings.	Dismissed.	No receptors
	Direct.		Proposed Buildings.	Dismissed.	No source identified.
	Permeate into pipework.		Water Pipes.	Dismissed.	No source identified.

- 6.1 There is a low to moderate risk associated with potential contaminants from the backfill materials.
- 6.2 There is a negligible to low risk of gas migration from the mine shafts 300m from the site, given that the groundwater has stabilised and the backfill materials have been compacted.

7.0 SITE INVESTIGATION

General

- 7.1 A ground investigation and monitoring was undertaken by Enzygo during September 2014 based on the findings of the desk study and taking account of the entire site. The works undertaken are show on Drawing CRM.066.001.D.001 and summarised in the table below:

Rational	Exploratory Holes	Notes
Groundwater and gas	WS1 to WS5, BH01	Installations.
Entire Site coverage	TP01 to TP20 and WS1 to WS5 and HP01 to HP02	Hand pits done in the position of two trial pits as machine could not get to locations.

- 7.2 The density of granular soils and shear strength of the cohesive soils was measured using a Standard Penetration Tests (SPT). Results are included on the logs presented in Appendix B.
- 7.3 Representative soil samples were collected for chemical testing. Soil samples destined for chemical analysis were collected in appropriate containers provided by the analytical laboratory. Samples were stored in cool boxes prior to dispatch to the laboratory for analysis. All samples were collected using appropriate sampling equipment that was cleaned at each sampling location.
- 7.4 Generally samples were collected from Made Ground, which may contain potential inclusions of contaminating materials and also materials displaying evidence of potential contamination.
- 7.5 In the absence of any evidence of contamination samples were collected near surface as this material is more likely to be contaminated by surface spillages and also will potentially be in contact with future residents.

Laboratory Testing

- 7.6 Samples for chemical analysis were sent to the Environmental Laboratories Ltd who are NAMAS and MCERTS accredited. Samples were tested for the CLEA metal suite, pH, sulphate, cyanide, phenols, speciated Polycyclic Aromatic Hydrocarbons (PAH), organic carbon, banded Total Petroleum Hydrocarbon (TPH) and asbestos screen.
- 7.7 Given that no groundwater was encountered leachate analysis was taken from soils samples and was carried out by Environmental Laboratories Ltd who are NAMAS and MCERTS accredited.

8.0 GROUND AND GROUNDWATER CONDITIONS

Summary of Ground and Groundwater Conditions

8.1 The investigations undertaken by Enzygo Ltd identified the following strata:

Strata	Summary Description	Thickness (m)
Made Ground	Gras over grey and brown blue grey slightly sandy gravelly clay. Gravel comprises mudstone, sandstone and ash.	0.30 to 1.2
Made Ground (locally)	Yellow brown and blue grey sandy gravelly clay with occasional fragments of brick.	0.6 to 1.3
Made Ground	Up to 3 layers proved of blue grey slightly sandy gravelly clay with gravel and cobble sized fragments of mudstone, coal, and sandstone.	27.4
Possible weathered Coal Measures (TP16) only	Blue grey occasional light green mottled and grey GRAVEL, COBBLES and BOULDERS of mudstone and sandstone.	>2.10
Weathered coal measures	Medium Strong and strong grey and light grey fine and medium SANDSTONE	Not proved
Groundwater	8.90mbgl	N/A

8.2 Details of the ground and groundwater conditions encountered are given on the exploratory hole records included in Appendix B and are summarised in the sections below:

Made Ground

8.3 Made Ground was encountered across the site and was noted to comprise up to 4 layers of compacted material's comprised sandy gravelly clay over slightly sandy gravel with some cobbles and boulders of mudstone. Localised fragments of brick and ash were also encountered. These materials were proved to depths to in excess of 4.45mbgl.

8.4 Numerous cobbles and boulders of mudstone and sandstone were encountered some of which also contained carbonised coal, however there was no structure encountered indicating these are part of the backfill rather than natural materials.

Possible Middle Coal Measures

8.5 Possible weathered Mudstone was encountered in trial pit TP16 and below 0.70m bgl. And comprised blue grey occasional light green grey gravel cobbles and boulders of sandstone and mudstone.

Middle Coal Measures

8.6 Middle Coal Measures were encountered in BH01 and below 28.70mbgl and comprised Medium strong to strong grey and light grey fine to medium Sandstone. Numerous sub horizontal closely to medium spaced fractures were encountered.

Visual and Olfactory Evidence of Contamination

8.7 No visual or olfactory evidence of contamination was encountered with the exception of fly tipped materials across parts of the site.

Soil Strength

8.8 The consistency of the reworked materials and the granular Made Ground ranged from medium dense to very dense.

8.9 The strength of the underlying Middle Coal Measures ranged from medium strong to strong.

Groundwater

8.10 Groundwater was not encountered during the site works. Subsequent monitoring visits are summarised below:

Exploratory Hole	Depth m(bgl)				
	Site Works	10-9-14	16-9-14	26-9-14	6-11-14
WS1	Dry	Dry	Dry	4.2 (Dry)	Dry
WS2	Dry	Dry	Dry	Dry	Dry
WS3	Dry	Dry	Dry	Dry	Dry
WS4	Dry	Dry	Dry	3.95m (Dry)	Dry
WS5	Dry	Dry	Dry	Dry	Dry
BH01	Strike 10.50m bgl rose to 8.70mbgl	-	-	-	8.90m bgl

Ground Gas

8.11 Ground gas was monitored during the return visits and the results are summarised on the table below:

Exploratory Hole	Atmos pressure (Mb)	Flow (l/hr)	CH4		CO2		O2
			Concentration (%)	GSV (l/hr)	Concentration (%)	GSV (l/hr)	Concentration (%)
10-9-15							
WS1	1018	<0.1	<0.1	<0.0001	12.2	<0.0122	9.2
WS2	1018	<0.1	<0.1	<0.0001	0.0	<0.0001	20.7
WS3	1018	<0.1	<0.1	<0.0001	3.2	<0.0032	17.0
WS4	1018	<0.1	<0.1	<0.0001	16.0	<0.0160	1.1
WS5	1018	<0.1	<0.1	<0.0001	7.3	<0.0073	13.2
16-9-14							

WS1	1012	<0.1	<0.1	<0.0001	7.0	<0.0070	14.3
WS2	1012	<0.1	<0.1	<0.0001	0.0	<0.0001	21.1
WS3	1012	<0.1	<0.1	<0.0001	1.2	<0.0012	18.7
WS4	1012	<0.1	<0.1	<0.0001	14.9	<0.0149	3.0
WS5	1012	<0.1	<0.1	<0.0001	7.5	<0.0075	11.0
26-9-14							
WS1	1019	<0.1	<0.1	<0.0001	3.7	<0.0037	14.3
WS2	1019	<0.1	<0.1	<0.0001	1.1	<0.0011	21.1
WS3	1019	<0.1	<0.1	<0.0001	0.3	<0.0003	18.7
WS4	1019	<0.1	<0.1	<0.0001	0.5	<0.0005	3.0
WS5	1019	<0.1	<0.1	<0.0001	3.3	<0.0033	11.0

- 8.12 Where gas concentrations exceed 1% by volume methane or 5% by volume carbon dioxide the concentrations are coloured orange. If concentrations are lower the values are coloured green. Where gas flux meets characteristic situation 1 the GSV is coloured green. The GSV is coloured yellow for Characteristic Situation 2 and red for Characteristic Situation 3 and above.

9.0 CONTAMINATION ASSESSMENT

General

- 9.1 A Tier I risk assessment has been undertaken using available and current screening values for human health and where appropriate controlled waters. The risk assessment is undertaken based on the findings of the preliminary conceptual model presented in Section 6. Based on the contamination testing and Tier I assessment a revised Conceptual Model has been prepared, which is presented later in this section.
- 9.2 Where significant risks are identified remedial measures are recommended.

Human Health

- 9.3 Assessment of the risks to human health has been undertaken by comparing the soil quality data with reference values obtained from the Contaminated Land Exposure Assessment (CLEA), Soil Guideline Values (SGV) and General Acceptance Criteria (GAC) published by LQM/CIEH. A summary table of the reference values is included in Appendix C.
- 9.4 Where an exceedance is identified the risk is assessed by considering the sensitivity of the proposed development and the potential pathway. Given the limited contact time by site users it is considered that the GAC values for commercial end use is applicable for the proposed development.
- 9.5 Results of the chemical testing are included in Appendix C. In addition to the laboratory sheets there is a sheet with the results coloured. Where results are coloured green these are below the GAC. Values coloured red exceed the GAC.
- 9.6 Environmental samples were taken from the Made Ground and where possible from the materials that identified visual signs of contamination.
- 9.7 The soil quality shows no exceedances above the reference GAC value from commercial land usage and no asbestos was detected.

Controlled Waters

- 9.8 Where groundwater samples have been analysed the results are compared against reference values. These reference values are summarised in Appendix C and are taken from Fresh Water Environmental Quality Standards (EQS), UK Drinking Water Standards and World Health Organisation (WHO) values for Drinking Water.

9.9 Where the controlled waters receptor is a surface water course then the EQS are used as the primary reference value. Drinking Water Standards and WHO values are used where EQS values are not available. An assessment of likely risk is then made based on a source-pathway-receptor model. Where the receptor is potable groundwater resources the Drinking Water Standards and WHO values are used.

9.10 As groundwater could not be undertaken from the window sampling leachate analysis from the Made Ground has been carried out. This leachate result has been compared against freshwater EQS values to assess if there is any risk to the identified groundwater. This assessment generally shows concentrations of determinants to be below the EQS, with the exception of the following:

Determinant	EQS (ug/l)	Location	Concentration (ug/l)
Fluoranthene	0.02	TP5 0.30m and WS2	0.02

9.11 Given they do not exceed the EQS and given the location of these samples in excess of 50m from a surface water it is considered that the Fluoranthene will naturally disperse before affecting the receptors and therefore the groundwater risk has been dismissed.

9.12 To confirm this a ground water sample was collected from the deep rotary borehole installation. This groundwater has been compared against freshwater EQS values to assess if there is any risk to the identified groundwater. This assessment generally shows concentrations of determinants to be below the EQS, with the exception of the following:

Determinant	EQS (ug/l)	Location	Concentration (ug/l)
Fluoranthene	0.02	BH01 8.90	0.04

9.13 Samples of groundwater collected from the borehole installation have been compared against the EQS values included above. The only exceedance was fluoranthene (0.04ug/l) which exceeds the EQS value of 0.02ug/l. Given this is the only a marginally exceedance and there are no abstractions or source protection zones within 1000m of the site it is considered that the risk to controlled waters can be dismissed.

Ground Gas

- 9.14 Following the guidance provided in CIRIA C665 an initial assessment is undertaken to determine if there are any significant sources of potential ground gas. Such sources include landfills, organic clays and made ground incorporating putrescible materials such as rags, paper and wood. Where no significant source is identified no further assessment is necessary.
- 9.15 Where significant potential risk from ground gas has been identified from the Initial Conceptual Model and the intrusive ground investigation works ground gas monitoring is undertaken and the results of the monitoring are compared against the Gas Screening Values given in CIRIA Report 665. From this the Characteristic Situation is identified and remedial measures proposed.
- 9.16 When assessing the risk and type of remedial measures appropriate consideration is given to the likely construction of the development, the nature of the gas posing a risk and the nature of the likely source. The use of engineering judgement when determining risk from ground gas is consistent with the recommendations given in CIRIA C665.
- 9.17 No significant sources of ground gas were noted from the desk study, however substantial Made Ground was encountered on site but this did not include putrescible materials. As such there is not considered to be a significant risk from ground gas. Similarly coal gas has also been potentially identified however given the depth of the coal workings and the fact they have been worked and covered with backfill materials in excess of 40m thick there is limited potential for gas to migrate to surface unless a pathway is provided. Such a pathway could be the piles which are proposed.
- 9.18 Monitoring was undertaken during the 4 return visits to monitor groundwater levels and gas. Ground gas has not recorded elevated concentrations of Methane, however has recorded elevated Carbon Dioxide above 5%. No detectable gas flow rates were measured with the gas flux falling into Characteristics Situation 1. This is consistent with site observations showing Made Ground with no putrescible material. Therefore the potential risk from ground gas is dismissed.

Revised Conceptual Model

- 9.19 The Initial Conceptual Model presented in Section 6 has been revised based on the findings of the ground investigation and the revised Conceptual Model is presented overleaf:






Source	Location	Exposure Pathway	Potential Receptor	Probability of Exposure	Details
Human Health					
Asbestos, metals and hydrocarbons	Unforeseen contamination.	Ingestion dermal and inhalation.	Construction Workers.	Dismissed.	Normal construction PPE will address risk under CDM.
			Site users.	Negligible.	Discovery Strategy.
Asbestos	Made Ground	Inhalation	Construction Workers.	Dismissed.	No exceedance of GAC.
			Site users.		
Metals and hydrocarbons.	Made Ground.	Ingestion dermal and inhalation.	Construction Workers.	Dismissed	No exceedance of GAC.
			Site users.		
Hydrocarbon and metals.	Potential localised spillage on site.	Ingestion dermal and inhalation.	Construction Workers.	Dismissed.	No exceedance of GAC.
			Site users.		
Hydrocarbon and metals.	Potential migration from off-site source.	Ingestion dermal and inhalation.	Construction Workers.	Dismissed.	No exceedance of GAC at boundary
			Site users.		
Ground Gas.	Landfills	Inhalation & Explosive.	Construction Workers.	Dismissed.	Characteristic Situation1 supported by assessment of risk and gas monitoring
			Site users.		
	Made Ground.	Inhalation & Explosive.	Construction Workers.		
			Site users.		
Groundwater					
Hydrocarbon and metals.	Potential spillage on site.	Vertical Migration.	Groundwater.	Dismissed	No hydrocarbon source exceeding GAC
Surface Water					
Hydrocarbon and metals.	Potential spillage on site.	Horizontal Migration.	River Network.	Dismissed.	No source.
Environmental Receptors					
On site contaminants		Ingestion dermal and inhalation.	Ecology.	Dismissed.	No sensitive ecology designation.
		Direct.	Archaeology.	Dismissed.	None present.
		Direct.	Geology.	Dismissed.	None present.
		Phytotoxic.	Woodland.	Dismissed.	None present.
		Phytotoxic.	Crops.	Dismissed.	None present.
		Ingestion dermal and inhalation.	Livestock.	Dismissed.	None present.
Building Services					
On site contaminants		Direct.	Historic Buildings.	Dismissed.	None present.
		Direct.	Proposed Buildings.	Dismissed.	No source identified.
		Permeate into pipework.	Water Pipes.	Dismissed.	No source identified.

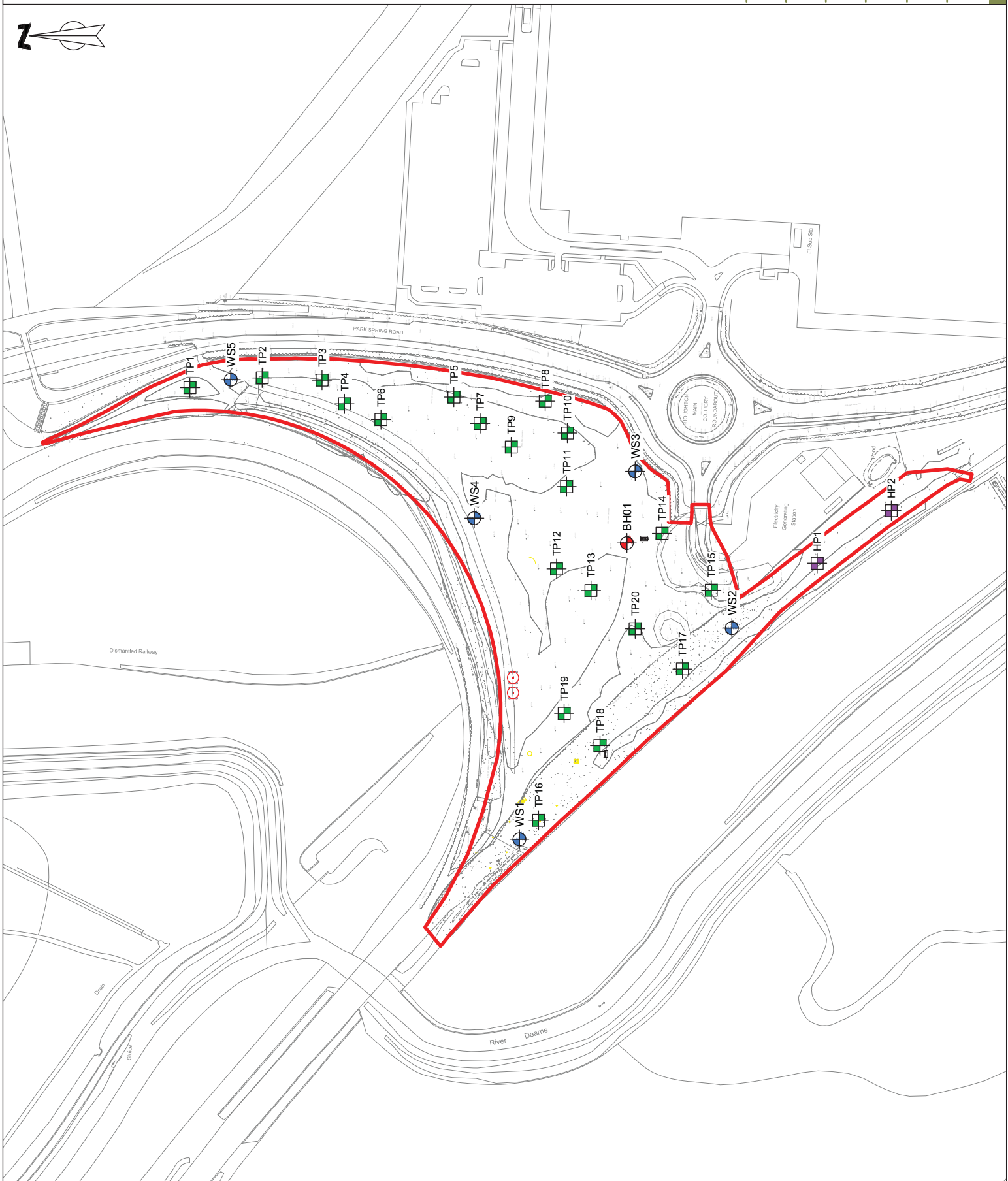
Remediation

9.20 No Remediation required.

9.21 If unforeseen contamination is encountered during construction works such as localised spillage outside the areas investigated an Environmental consultant will be available on a 'call out' basis to undertake an assessment of risk. If 'unforeseen contamination' is encountered the discovery strategy will be to remove the source as it is likely to be very limited in extent and the Local Planning Authority advised.

Key

-  Site Boundary
-  Trial Pit Locations (TP)
(TP1 - TP20)
-  Window Sampler Locations (WS)
(WS1 - WS5)
-  Hand Pit Locations (HP)
(HP1 - HP2)
-  Deep Borehole Location (BH)
(BH01)



STEP Business Centre, Wortley Rd, Sheffield, S36 2UH

CLIENT:	Peel Environmental Ltd		
SCALE:	1:2,000@A3	PROJECT REF:	CRM.066.001
DRAWN:	MG	CHECKED:	RH
DATE:	Nov 2014	PROJECT:	Houghton Main
TITLE:	Site Plan		
FIGURE NO.:	CRM.066.001.GE.D.001		

County Series 1:10,560 scale

VEGETATION

ROADS

RAILWAYS

--	--

GENERAL FEATURES

BOUNDARIES

National Grid 1:10,000 scale

HEIGHTS (METRES)

Values are given in metres above mean sea level at Newlyn.

Surface heights determined by ground survey

Vertical bench marks and bench mark lists containing fuller and possibly later levelling information are obtainable from the Director General, Ordnance Survey.

Contours are at 5 metres vertical interval.

ROCK FEATURES

--	--	--	--

ABBREVIATIONS

BP/BS	Boundary Post or Stone	PO	Post Office
Ch	Church	PC	Public Convenience
CH	Club House	PH	Public House
F Sta	Fire Station	S	Stone
FB	Foot Bridge	Spr	Spring
Fn	Fountain	TCB	Telephone Call Box
GP	Guide Post	TCP	Telephone Call Post
MP/MS	Mile Post or Stone	TH	Town Hall
P	Pole or Post	W	Well
Pol Sta	Police Station	Y	Youth hostel

ROADS

--	--	--

Where unfenced shown by piked lines.

RAILWAYS

GENERAL FEATURES

VEGETATION

In some areas bracken (T) and rough grassland (V) are shown separately.



GroundSure

Historical Map Pack Legend

County Series & National Grid

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

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

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

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



GroundSure

Historical Map Pack Legend

County Series

1:1,250 scale



County Series & National Grid

1:2,500 scale

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maps&data@groundsure.com
www.groundsure.com

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

GENERAL FEATURES

<ul style="list-style-type: none"> Non-Indigenous Tree Coniferous Tree Deciduous Tree Orchard Tree Other Tree Shrub Bracken Heath Rough Grassland Marsh, Slough Reeds 	<ul style="list-style-type: none"> Slope Cave Cave Entrance Rock Slope Masonry Refract Building Archway Change of boundary marking MS AREAS (non) 	<ul style="list-style-type: none"> Antiquity (site of) Orchard Direction of Felling Pole Electrical Pole Transmission Station Traverse Station (Permanent) Beach Rock Recession Point (non-massively fixed) Recession Point & Beach Park coincident
--	--	--

BOUNDARIES

England & Wales

- County Boundary (geographical)
- County & Civil Parish Boundary coincident
- Admin County or County Borough Boundary
- London Borough Boundary
- County District Boundaries based on civil parish
- England, Wales & Scotland
- Civil Parish Boundary
- Bore (or Burgh) Cont. & Ward Bdy. based on civil parish
- Co-Cont Bdy. Parly & Ward Boundaries not based on civil parish

Scotland

- County Boundary (geographical)
- County Council Boundary
- Co-Civil Bdy.
- Co of City Bdy.
- Co of City Bdy.
- Burgh Bdy.
- Burgh Bdy.
- Dist. Bdy.
- Dist. Bdy.

* Not with parish † Coincident with parish

County Series 1:2,500 scale

GENERAL FEATURES

ROADS

- Road over single stream
- Road over River or Canal

RAILWAYS

- Railway crossing River or Canal
- Level Crossing
- Cutting

ABBREVIATIONS

- SI. Sluice
- Tn. Trough
- Sp. Spring
- M.P. Mooring Post
- M.P. Mooring Post
- B.S. Boundary Stone
- B.P. Boundary Post

BOUNDARIES

- England & Wales**
- County Boundary (geographical)
 - County & Civil Parish Boundary coincident
 - Admin County or County Borough Boundary
 - London Borough Boundary
 - County District Boundaries based on civil parish
 - England, Wales & Scotland
 - Civil Parish Boundary
 - Bore (or Burgh) Cont. & Ward Bdy. based on civil parish
 - Co-Cont Bdy. Parly & Ward Boundaries not based on civil parish
- Scotland**
- County Boundary (geographical)
 - County Council Boundary
 - Co-Civil Bdy.
 - Co of City Bdy.
 - Co of City Bdy.
 - Burgh Bdy.
 - Burgh Bdy.
 - Dist. Bdy.
 - Dist. Bdy.
- * Not with parish † Coincident with parish

ABBREVIATIONS

- | | | | |
|--------------------------------------|---------------------------------|------------------------------------|---------------------------|
| B.H. Beer House | F.S. Fire Station | M.P.U. Mail Pickup | S.L. Signal Light |
| B.M. Bench Mark | G.V. Gas Valve | N.T. National Tidal Limit | S.P. Signal Post |
| B.S. Boundary Stone | H. Hydrant or Hydraulic | N.T.L. Normal Tidal Limit | S.Pr. Signal Spring |
| C.H. Club House | Heresies | N.T.S. National Trust for Scotland | S.Su. Signal Station |
| C.I. Club House | Libelous Sign | P.C. Public Convenience | T.C.B. Telephone Call Box |
| Cr. Cranes | L.C. Level Crossing | P.C.B. Police Call Box | Tk. Tank or Truck |
| D.F. Drinking Fountain | L.G. Leading Gauge | P.H. Public House | Tn. Trough |
| E.P. Electricity Pole or Deck | L.L. Level | P.P. Police Telephone Pillar | Traverse |
| E.T.L. Electricity Transmission Line | M. Metres | R. Reservoir | W.B. Weighbridge |
| F.A. Fire Alarm | M.H.W. Mean High Water | R.P. Reservoir | W.P. Wind Pump |
| F.B.M. Flagstaff | M.L.W. Mean Low Water | R.P. Reservoir | W.P. Water Point |
| F.B.M. Fundamental Bench Mark | M.L.W.S. Mean Low Water Springs | S. Stone | W.T. Water Tap |
| F.S. Flagstaff | Mile or Flooding Post | S.B. Signal Box | |



EmapSite
Masdar House, ,
Eversley, RG27 ORP

GroundSure Reference: EMS-245265_329172

Your Reference: EMS_245265_329172

Report Date 8 Apr 2014

Report Delivery Method: Email - pdf

GroundSure EnviroInsight

Address: ,

Dear Sir/ Madam,

Thank you for placing your order with GroundSure. Please find enclosed the **GroundSure Enviroinsight** as requested.

If you would like further assistance regarding this report then please contact the emapsite customer services team on 0118 9736883 quoting the above report reference number.

Yours faithfully,

emapsite customer services team

Enc.
GroundSure EnviroInsight



GroundSure Envirolnsight

Address: ,
Date: 8 Apr 2014
Reference: EMS-245265_329172
Client: EmapSite



Aerial Photograph Capture date: 26-Mar-2012
Grid Reference: 441652,406467
Site Size: 5.85ha

Contents Page

Contents Page	3
Overview of Findings.....	5
Using this report.....	8
1. Environmental Permits, Incidents and Registers Map.....	9
1. Environmental Permits, Incidents and Registers.....	10
1.1 Industrial Sites Holding Licences and/or Authorisations.....	10
1.1.1 Records of historic IPC Authorisations within 500m of the study site:.....	10
1.1.2 Records of Part A(1) and IPPC Authorised Activities within 500m of the study site:.....	10
1.1.3 Records of Water Industry Referrals (potentially harmful discharges to the public sewer) within 500m of the study site:.....	10
1.1.4 Records of Red List Discharge Consents (potentially harmful discharges to controlled waters) within 500m of the study site:.....	10
1.1.5 Records of List 1 Dangerous Substances Inventory Sites within 500m of the study site:.....	10
1.1.6 Records of List 2 Dangerous Substance Inventory Sites within 500m of the study site:.....	11
1.1.7 Records of Part A(2) and Part B Activities and Enforcements within 500m of the study site:	11
1.1.8 Records of Category 3 or 4 Radioactive Substances Authorisations:.....	11
1.1.9 Records of Licensed Discharge Consents within 500m of the study site:.....	11
1.1.10 Records of Planning Hazardous Substance Consents and Enforcements within 500m of the study site:.....	14
1.2 Dangerous or Hazardous Sites.....	14
1.3 Environment Agency Recorded Pollution Incidents.....	14
1.3.1 Records of National Incidents Recording System, List 2 within 500m of the study site:.....	14
1.3.2 Records of National Incidents Recording System, List 1 within 500m of the study site:.....	14
1.4 Sites Determined as Contaminated Land under Part 2A EPA 1990.....	14
2. Landfill and Other Waste Sites Map.....	15
2. Landfill and Other Waste Sites.....	16
2.1 Landfill Sites.....	16
2.1.1 Records from Environment Agency landfill data within 1000m of the study site:	16
2.1.2 Records of Environment Agency historic landfill sites within 1500m of the study site:	16
2.1.3 Records of BGS/DoE non-operational landfill sites within 1500m of the study site:.....	17
2.1.4 Records of Local Authority landfill sites within 1500m of the study site:.....	17
2.2 Other Waste Sites.....	17
2.2.1 Records of waste treatment, transfer or disposal sites within 500m of the study site:	17
2.2.2 Records of Environment Agency licensed waste sites within 1500m of the study site:	18
3. Current Land Use Map.....	19
3. Current Land Uses.....	20
3.1 Current Industrial Data.....	20
3.2 Petrol and Fuel Sites.....	20
3.3 Underground High Pressure Oil and Gas Pipelines.....	20
4. Geology.....	21
4.1 Artificial Ground and Made Ground.....	21
4.2 Superficial Ground and Drift Geology	21
4.3 Bedrock and Solid Geology	21
5. Hydrogeology and Hydrology.....	22
5a. Aquifer Within Superficial Geology.....	22
5b. Aquifer Within Bedrock Geology and Abstraction Licences.....	23
5c. Hydrogeology – Source Protection Zones and Potable Water Abstraction Licences.....	24
5d. Hydrology – Detailed River Network and River Quality.....	25
5. Hydrogeology and Hydrology.....	26
5.1 Aquifer within Superficial Deposits.....	26
5.2 Aquifer within Bedrock Deposits.....	26
5.3 Groundwater Abstraction Licences.....	27
5.4 Surface Water Abstraction Licences.....	27

5.5 Potable Water Abstraction Licences.....	28
5.6 Source Protection Zones.....	28
5.7 River Quality.....	28
5.7.1 Biological Quality.....	28
5.7.2 Chemical Quality.....	29
5.8 Detailed River Network.....	30
5.9 Surface Water Features	32
6. Environment Agency Flood Map for planning (from rivers and the sea).....	33
6. Flooding.....	34
6.1 Zone 2 Flooding.....	34
6.2 Zone 3 Flooding.....	35
6.3 Flood Defences.....	36
6.4 Areas benefiting from Flood Defences.....	36
6.5 Areas benefiting from Flood Storage.....	36
6.6 Groundwater Flooding Susceptibility Areas.....	36
6.6.1 Are there any British Geological Survey groundwater flooding susceptibility areas within 50m of the boundary of the study site?.....	36
6.6.2 What is the highest susceptibility to groundwater flooding in the search area based on the underlying geological conditions?.....	36
6.7 Groundwater Flooding Confidence Areas.....	37
7. Designated Environmentally Sensitive Sites Map.....	38
7. Designated Environmentally Sensitive Sites.....	39
7.1 Records of Sites of Special Scientific Interest (SSSI) within 2000m of the study site:.....	39
7.2 Records of National Nature Reserves (NNR) within 2000m of the study site:.....	39
7.3 Records of Special Areas of Conservation (SAC) within 2000m of the study site:.....	39
7.4 Records of Special Protection Areas (SPA) within 2000m of the study site:.....	39
7.5 Records of Ramsar sites within 2000m of the study site:.....	39
7.6 Records of Ancient Woodland within 2000m of the study site:	40
7.7 Records of Local Nature Reserves (LNR) within 2000m of the study site:.....	40
7.8 Records of World Heritage Sites within 2000m of the study site:.....	40
7.9 Records of Environmentally Sensitive Areas within 2000m of the study site:	40
7.10 Records of Areas of Outstanding Natural Beauty (AONB) within 2000m of the study site:	41
7.11 Records of National Parks (NP) within 2000m of the study site:	41
7.12 Records of Nitrate Sensitive Areas within 2000m of the study site:.....	41
7.13 Records of Nitrate Vulnerable Zones within 2000m of the study site:.....	41
8. Natural Hazards	
Findings.....	42
8.1 Detailed BGS GeoSure Data.....	42
8.1.1 Shrink Swell.....	42
8.1.2 Landslides.....	42
8.1.3 Soluble Rocks.....	43
8.1.4 Compressible Ground.....	43
8.1.5 Collapsible Rocks.....	43
8.1.6 Running Sand.....	44
9. Mining.....	45
9.1 Coal Mining.....	45
9.2 Shallow Mining.....	45
9.3 Brine Affected Areas	45
Contact Details.....	46
Standard Terms and Conditions.....	47

Overview of Findings

For further details on each dataset, please refer to each individual section in the main report as listed. Where the database has been searched a numerical result will be recorded. Where the database has not been searched '-' will be recorded.

Section 1: Environmental Permits, Incidents and Registers		On-site	0-50m	51-250	251-500		
1.1 Industrial Sites Holding Environmental Permits and/or Authorisations							
1.1.1	Records of historic IPC Authorisations	0	0	0	0		
1.1.2	Records of Part A(1) and IPPC Authorised Activities	0	0	0	0		
1.1.3	Records of Water Industry Referrals (potentially harmful discharges to the public sewer)	0	0	0	0		
1.1.4	Records of Red List Discharge Consents (potentially harmful discharges to controlled waters)	0	0	0	0		
1.1.5	Records of List 1 Dangerous Substances Inventory sites	0	0	0	0		
1.1.6	Records of List 2 Dangerous Substances Inventory sites	0	0	1	1		
1.1.7	Records of Part A(2) and Part B Activities and Enforcements	0	0	1	0		
1.1.8	Records of Category 3 or 4 Radioactive Substances Authorisations	0	0	0	0		
1.1.9	Records of Licensed Discharge Consents	1	0	4	18		
1.1.10	Records of Planning Hazardous Substance Consents and Enforcements	0	0	0	0		
1.2	Records of COMAH and NIHHS sites	0	0	0	0		
1.3 Environment Agency Recorded Pollution Incidents							
1.3.1	National Incidents Recording System, List 2	0	0	0	0		
1.3.2	National Incidents Recording System, List 1	0	0	0	0		
1.4	Sites Determined as Contaminated Land under Part 2A EPA 1990	0	0	0	0		
Section 2: Landfill and Other Waste Sites		On-site	0-50m	51-250	251-500	501-1000	1000-5000
2.1 Landfill Sites							
2.1.1	Environment Agency Registered Landfill Sites	0	0	0	0	0	Not searched
2.1.2	Environment Agency Historic Landfill Sites	0	0	0	0	2	2
2.1.3	BGS/DoE Landfill Site Survey	0	0	0	0	1	0
2.1.4	GroundSure Local Authority Landfill Sites Data	0	0	0	0	0	0
2.2 Landfill and Other Waste Sites Findings							
2.2.1	Operational and Non-Operational Waste Treatment, Transfer and Disposal Sites	0	0	0	1	Not searched	Not searched
2.2.2	Environment Agency Licensed Waste Sites	0	0	0	0	0	2

Section 3: Current Land Use	On-site	0-50m	51-250	251-500
3.1 Current Industrial Sites Data	0	0	1	Not searched
3.2 Records of Petrol and Fuel Sites	0	0	0	0
3.3 Underground High Pressure Oil and Gas Pipelines	0	0	0	0

Section 4: Geology

4.1 Are there any records of Artificial Ground and Made Ground present beneath the study site?	Yes
4.2 Are there any records of Superficial Ground and Drift Geology present beneath the study site?	Yes
4.3 For records of Bedrock and Solid Geology beneath the study site see the detailed findings section.	

Section 5: Hydrogeology and Hydrology

	0-500m
5.1 Are there any records of Strata Classification in the Superficial Geology within 500m of the study site?	Yes
5.2 Are there any records of Strata Classification in the Bedrock Geology within 500m of the study site?	Yes

	On-site	0-50m	51-250	251-500	501-1000	1000-2000
5.3 Groundwater Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	3
5.4 Surface Water Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	2
5.5 Potable Water Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	0
5.6 Source Protection Zones (within 500m of the study site)	0	0	0	0	Not searched	Not searched
	On-site	0-50m	51-250	251-500	501-1000	1000-1500
5.7 Is there any Environment Agency information on river quality within 1500m of the study site?	Yes	No	No	No	No	Yes
5.8 Detailed River Network entries within 500m of the site	0	4	4	15	Not searched	Not searched
5.9 Surface water features within 250m of the study site	No	Yes	Yes	Not searched	Not searched	Not searched

Section 6: Flooding

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

Section 7: Designated Environmentally Sensitive Sites

	On-site	0-50m	51-250	251-500	501-1000	1000-2000
7.1 Records of Sites of Special Scientific Interest (SSSI)	0	0	0	0	0	1
7.2 Records of National Nature Reserves (NNR)	0	0	0	0	0	0
7.3 Records of Special Areas of Conservation (SAC)	0	0	0	0	0	0
7.4 Records of Special Protection Areas (SPA)	0	0	0	0	0	0
7.5 Records of Ramsar sites	0	0	0	0	0	0
7.6 Records of Ancient Woodlands	0	0	0	0	2	4
7.7 Records of Local Nature Reserves (LNR)	0	0	0	0	0	1
7.8 Records of World Heritage Sites	0	0	0	0	0	0
7.9 Records of Environmentally Sensitive Areas	0	0	0	0	0	0
7.10 Records of Areas of Outstanding Natural Beauty (AONB)	0	0	0	0	0	0
7.11 Records of National Parks	0	0	0	0	0	0
7.12 Records of Nitrate Sensitive Areas	0	0	0	0	0	0
7.13 Records of Nitrate Vulnerable Zones	1	0	0	0	0	1

Section 8: Natural Hazards

8.1 What is the maximum risk of natural ground subsidence?

Moderate

Section 9: Mining

9.1 Are there any coal mining areas within 75m of the study site?

Yes

9.2 What is the risk of subsidence relating to shallow mining within 150m of the study site?

Low-Moderate

9.3 Are there any brine affected areas within 75m of the study site?

No

Using this report

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

1. Environmental Permits, Incidents and Registers

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

2. Landfills and Other Waste Sites

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

3. Current Land Uses

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

4. Geology

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

5. Hydrogeology and Hydrology

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

6. Flooding

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

7. Designated Environmentally Sensitive Sites

Provides information on the Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR), Special Areas of Conservation (SAC), Special Protection Areas (SPA), Ramsar sites, Local Nature Reserves (LNR), Areas of Outstanding Natural Beauty (AONB), National Parks (NP), Environmentally Sensitive Areas, Nitrate Sensitive Areas, Nitrate Vulnerable Zones and World Heritage Sites and Scheduled Ancient Woodland. These searches are conducted using radii of up to 2000m.

8. Natural Hazards

Provides information on a range of natural hazards that may pose a risk to the study site. These factors include natural ground subsidence.

9. Mining

Provides information on areas of coal and shallow mining.

10. Contacts

This section of the report provides contact points for statutory bodies and data providers that may be able to provide further information on issues raised within this report. Alternatively, GroundSure provide a free Technical Helpline (08444 159000) for further information and guidance.

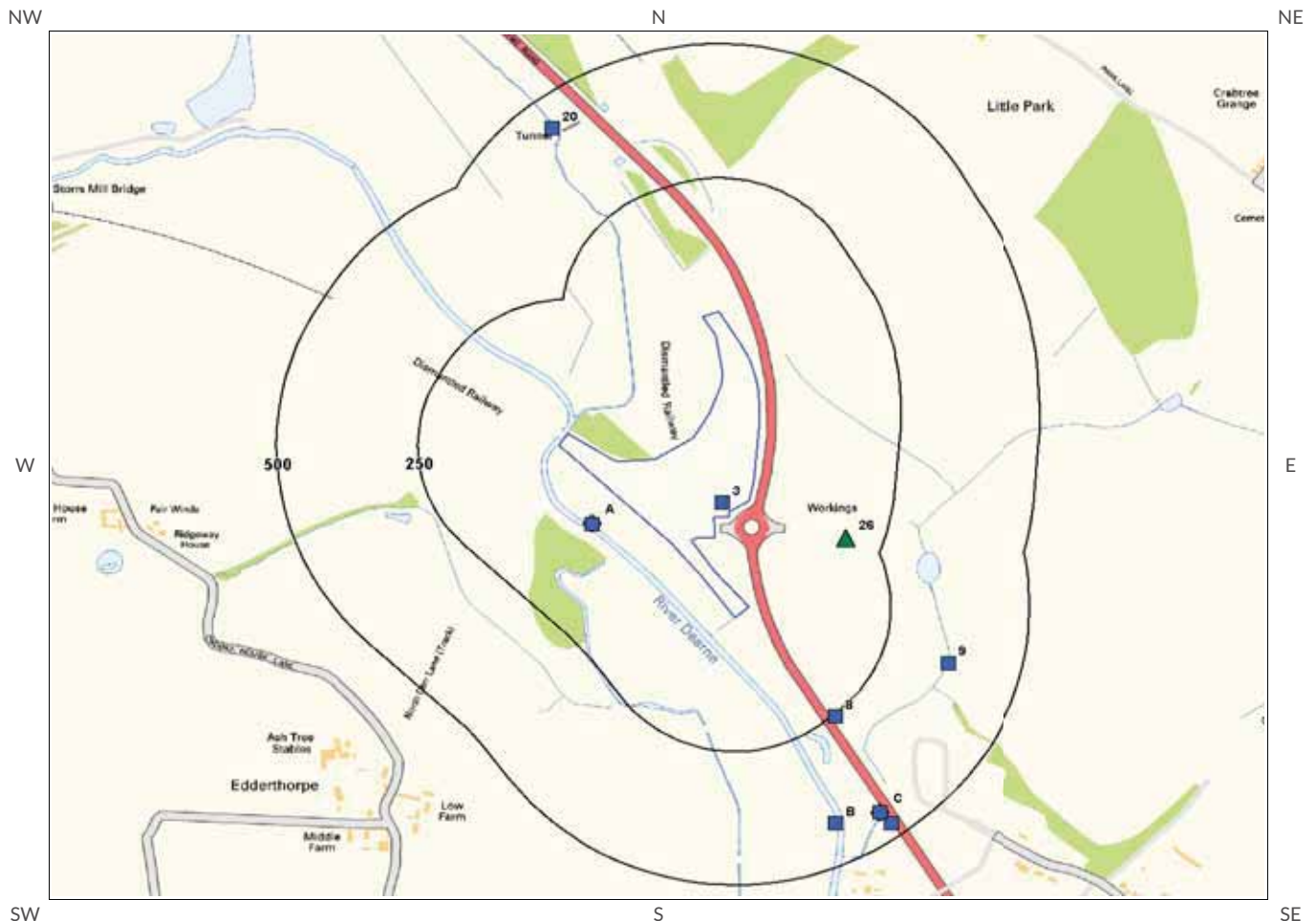
Note: Maps

Only certain features are placed on the maps within the report. All features represented on maps found within this search are given an identification number. This number identifies the feature on the mapping and correlates it to the additional information provided below. This identification number precedes all other information and takes the following format -Id: 1, Id: 2, etc. Where numerous features on the same map are in such close proximity that the numbers would obscure each other a letter identifier is used instead to represent the features. (e.g. Three features which overlap may be given the identifier "A" on the map and would be identified separately as features 1A, 3A, 10A on the data tables provided).

Where a feature is reported in the data tables to a distance greater than the map area, it is noted in the data table as "Not Shown".

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

1. Environmental Permits, Incidents and Registers Map



Environmental Permits, Incidents and Registers Legend



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- | | | | | | |
|--|-----------------------------|--|---------------------------------------|--|--|
| | Site Outline | | Recorded Pollution Incident | | RAS 3 & 4 Authorisations |
| | Search Buffers (m) | | Dangerous Substances (List 1) | | Part A(1) Authorised Processes and Historic IPC Authorisations |
| | | | Dangerous Substances (List 2) | | Part A(2) and Part B Authorised Processes |
| | Water Industry Referrals | | Licenced Discharge Consents | | COMAH / NIHHS Sites |
| | Red List Discharge Consents | | Sites Determined as Contaminated Land | | Hazardous Substance Consents and Enforcements |



1. Environmental Permits, Incidents and Registers

1.1 Industrial Sites Holding Licences and/or Authorisations

Searches of information provided by the Environment Agency and Local Authorities reveal the following information:

1.1.1 Records of historic IPC Authorisations within 500m of the study site:

0

Database searched and no data found.

1.1.2 Records of Part A(1) and IPPC Authorised Activities within 500m of the study site:

0

Database searched and no data found.

1.1.3 Records of Water Industry Referrals (potentially harmful discharges to the public sewer) within 500m of the study site:

0

Database searched and no data found.

1.1.4 Records of Red List Discharge Consents (potentially harmful discharges to controlled waters) within 500m of the study site:

0

Database searched and no data found.

1.1.5 Records of List 1 Dangerous Substances Inventory Sites within 500m of the study site:

0

Database searched and no data found.

1.1.6 Records of List 2 Dangerous Substance Inventory Sites within 500m of the study site:

2

The following List 2 Dangerous Substance Inventory Site records are represented as points on the Authorisations, Incidents and Registers map:

ID	Distance	Direction	NGR	Details
1A	70.0	SW	441470 406360	Name: Rjb Mining Ltd - Outlet D2 - Sw Status: Not Active Receiving Water: River Dearne Authorised Substances: Iron
2C	446.0	SE	441980 405820	Name: Rjb Mining Ltd, Houghton Outlet D1 Status: Not Active Receiving Water: River Dearne Authorised Substances: Iron

1.1.7 Records of Part A(2) and Part B Activities and Enforcements within 500m of the study site:

1

The following Part A(2) and Part B Activities are represented as points on the Authorisations, Incidents and Registers map:

ID	Distance	Direction	NGR	Details
26	186.0	SE	441919 406331	Address: Rjb Mining Houghton Main Occs, Little Houghton, Barnsley, S72 0HY Process: Coal/gypsum/carbon Process Status: Historical Permit Permit Type: Part B Enforcement: No Enforcements Notified Date of Enforcement: No Enforcements Notified Comment: No Enforcements Notified

1.1.8 Records of Category 3 or 4 Radioactive Substances Authorisations:

0

Database searched and no data found.

1.1.9 Records of Licensed Discharge Consents within 500m of the study site:

23

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

ID	Distance	Direction	NGR	Details
3	0.0	On Site	441700 406400	Address: Houghton Main, Sandhill, Barnsley, South Yorkshire Effluent Type: Trade Discharges - Unspecified Permit Number: 3712 Permit Version: 1 Receiving Water: - Status: Revoked - Unspecified Issue date: 12/9/1983 Effective Date: 12/9/1983 Revocation Date: -

ID	Distance	Direction	NGR	Details	
4A	70.0	SW	441470 406360	Address: Houghton Main Occs, Consent Wra7231, South Yorkshire Effluent Type: Trade Discharges - Site Drainage (contam Surface Water, Not Waste Sit) Permit Number: WRA7231 Permit Version: 1	Receiving Water: River Dearne Status: New Consent, By Application (wra 91, Section 88) Issue date: - Effective Date: - Revocation Date: 7/5/1997
5A	70.0	SW	441470 406360	Address: Houghton Main Occs, Consent Wra7231, South Yorkshire Effluent Type: Trade Discharges - Site Drainage (contam Surface Water, Not Waste Sit) Permit Number: WRA7231 Permit Version: 2	Receiving Water: River Dearne Status: Revoked (wra 91, S88 & Sched 10 As Amended By Env Act 1995) Issue date: 8/5/1997 Effective Date: 8/5/1997 Revocation Date: 11/6/2002
6A	70.0	SW	441470 406360	Address: Houghton Main Occs, Consent Wra7231, South Yorkshire Effluent Type: Trade Discharges - Site Drainage (contam Surface Water, Not Waste Sit) Permit Number: WRA7231 Permit Version: 2	Receiving Water: River Dearne Status: Revoked (wra 91, S88 & Sched 10 As Amended By Env Act 1995) Issue date: 8/5/1997 Effective Date: 8/5/1997 Revocation Date: 11/6/2002
7A	70.0	SW	441470 406360	Address: Houghton Main Occs, Consent Wra7231, South Yorkshire Effluent Type: Trade Discharges - Site Drainage (contam Surface Water, Not Waste Sit) Permit Number: WRA7231 Permit Version: 1	Receiving Water: River Dearne Status: New Consent, By Application (wra 91, Section 88) Issue date: - Effective Date: - Revocation Date: 7/5/1997
8	255.0	SE	441900 406000	Address: Ncb,houghton Main Colliery, Surface, Drainage Interceptor Effluent Type: Trade Discharges - Unspecified Permit Number: 3505 Permit Version: 1	Receiving Water: - Status: Revoked - Unspecified Issue date: 12/9/1983 Effective Date: 12/9/1983 Revocation Date: 15/2/1991
9	367.0	E	442100 406100	Address: Ncb,houghton Main Colliery, Surface, Drainage Interceptor Effluent Type: Trade Discharges - Unspecified Permit Number: 3505 Permit Version: 1	Receiving Water: - Status: Revoked - Unspecified Issue date: 12/9/1983 Effective Date: 12/9/1983 Revocation Date: 15/2/1991
10 B	423.0	SE	441900 405800	Address: Little Houghton Stw, Little Houghton, Barnsley, South Yorkshire Effluent Type: Sewage Discharges - Stw Storm Overflow/storm Tank - Water Company Permit Number: E284 Permit Version: 3	Receiving Water: River Dearne Status: Transferred From Copa 1974 Issue date: 12/7/1985 Effective Date: 12/7/1985 Revocation Date: 18/8/1997
11 B	423.0	SE	441900 405800	Address: Little Houghton Stw, Little Houghton, Barnsley, South Yorkshire Effluent Type: Sewage Discharges - Stw Storm Overflow/storm Tank - Water Company Permit Number: E284 Permit Version: 2	Receiving Water: River Dearne Status: Transferred From 1978 Order Issue date: 1/6/1981 Effective Date: 1/6/1981 Revocation Date: 11/7/1985
12 B	423.0	SE	441900 405800	Address: Little Houghton Stw, Little Houghton, Barnsley, South Yorkshire Effluent Type: Sewage Discharges - Stw Storm Overflow/storm Tank - Water Company Permit Number: E284 Permit Version: 1	Receiving Water: River Dearne Status: Transferred From R(pp)a 1951-1961 Issue date: 8/11/1973 Effective Date: 8/11/1973 Revocation Date: 31/5/1981
13 B	423.0	SE	441900 405800	Address: Little Houghton Stw, Little Houghton, Barnsley, South Yorkshire Effluent Type: Sewage Discharges - Final/treated Effluent - Water Company Permit Number: E284 Permit Version: 4	Receiving Water: River Dearne Status: Varied By Application - (wra 91 Sched 10 - As Amended By Env Act 1995) Issue date: 19/8/1997 Effective Date: 19/8/1997 Revocation Date: -
14 B	423.0	SE	441900 405800	Address: Little Houghton Stw, Little Houghton, Barnsley, South Yorkshire Effluent Type: Sewage Discharges - Final/treated Effluent - Water Company Permit Number: E284 Permit Version: 1	Receiving Water: River Dearne Status: Transferred From R(pp)a 1951-1961 Issue date: 8/11/1973 Effective Date: 8/11/1973 Revocation Date: 31/5/1981

ID	Distance	Direction	NGR	Details	
15 B	423.0	SE	441900 405800	Address: Little Houghton Stw, Little Houghton, Barnsley, South Yorkshire Effluent Type: Sewage Discharges - Stw Storm Overflow/storm Tank - Water Company Permit Number: E284 Permit Version: 5	Receiving Water: River Dearne Status: Revoked (wra 91, S88 & Sched 10 As Amended By Env Act 1995) Issue date: 11/3/2005 Effective Date: - Revocation Date: 27/6/2008
16 B	423.0	SE	441900 405800	Address: Little Houghton Stw, Little Houghton, Barnsley, South Yorkshire Effluent Type: Sewage Discharges - Stw Storm Overflow/storm Tank - Water Company Permit Number: E284 Permit Version: 4	Receiving Water: River Dearne Status: Varied By Application - (wra 91 Sched 10 - As Amended By Env Act 1995) Issue date: 19/8/1997 Effective Date: 19/8/1997 Revocation Date: -
17 B	423.0	SE	441900 405800	Address: Little Houghton Stw, Little Houghton, Barnsley, South Yorkshire Effluent Type: Sewage Discharges - Final/treated Effluent - Water Company Permit Number: E284 Permit Version: 5	Receiving Water: River Dearne Status: Revoked (wra 91, S88 & Sched 10 As Amended By Env Act 1995) Issue date: 11/3/2005 Effective Date: - Revocation Date: 27/6/2008
18 B	423.0	SE	441900 405800	Address: Little Houghton Stw, Little Houghton, Barnsley, South Yorkshire Effluent Type: Sewage Discharges - Final/treated Effluent - Water Company Permit Number: E284 Permit Version: 2	Receiving Water: River Dearne Status: Transferred From 1978 Order Issue date: 1/6/1981 Effective Date: 1/6/1981 Revocation Date: 11/7/1985
19 B	423.0	SE	441900 405800	Address: Little Houghton Stw, Little Houghton, Barnsley, South Yorkshire Effluent Type: Sewage Discharges - Final/treated Effluent - Water Company Permit Number: E284 Permit Version: 3	Receiving Water: River Dearne Status: Transferred From Copa 1974 Issue date: 12/7/1985 Effective Date: 12/7/1985 Revocation Date: 18/8/1997
20	442.0	NW	441400 407100	Address: Barnsley Metropolitan Borough Counc, II, New Park Springs Colliery Ti, P, Grimethorpe, Nr. Barnsley, So, Uth Yorkshire Effluent Type: Trade Discharges - Unspecified Permit Number: C4539 Permit Version: 1	Receiving Water: - Status: Revoked - Unspecified Issue date: 18/2/1987 Effective Date: 18/2/1987 Revocation Date: 25/5/1993
21 C	446.0	SE	441980 405820	Address: Houghton Main Occs, Consent Wra7231, South Yorkshire Effluent Type: Trade Discharges - Site Drainage (contam Surface Water, Not Waste Sit Permit Number: WRA7231 Permit Version: 1	Receiving Water: River Dearne Status: New Consent, By Application (wra 91, Section 88) Issue date: - Effective Date: - Revocation Date: 7/5/1997
22 C	446.0	SE	441980 405820	Address: Houghton Main Occs, Consent Wra7231, South Yorkshire Effluent Type: Trade Discharges - Site Drainage (contam Surface Water, Not Waste Sit Permit Number: WRA7231 Permit Version: 2	Receiving Water: River Dearne Status: Revoked (wra 91, S88 & Sched 10 As Amended By Env Act 1995) Issue date: 8/5/1997 Effective Date: 8/5/1997 Revocation Date: 11/6/2002
23 C	446.0	SE	441980 405820	Address: Houghton Main Occs, Consent Wra7231, South Yorkshire Effluent Type: Trade Discharges - Site Drainage (contam Surface Water, Not Waste Sit Permit Number: WRA7231 Permit Version: 2	Receiving Water: River Dearne Status: Revoked (wra 91, S88 & Sched 10 As Amended By Env Act 1995) Issue date: 8/5/1997 Effective Date: 8/5/1997 Revocation Date: 11/6/2002
24 C	446.0	SE	441980 405820	Address: Houghton Main Occs, Consent Wra7231, South Yorkshire Effluent Type: Trade Discharges - Site Drainage (contam Surface Water, Not Waste Sit Permit Number: WRA7231 Permit Version: 1	Receiving Water: River Dearne Status: New Consent, By Application (wra 91, Section 88) Issue date: - Effective Date: - Revocation Date: 7/5/1997
25 C	474.0	SE	442000 405800	Address: Houghton Main Colliery, Ncb Mw (cea, Sed) Effluent Type: Trade Discharges - Unspecified Permit Number: E 878 Permit Version: 1	Receiving Water: No Details Status: Consent Revoked - Discharge Ceased (wra 91, Sched 10 & 6) Issue date: 13/6/1983 Effective Date: 13/6/1983 Revocation Date: 13/8/1992

1.1.10 Records of Planning Hazardous Substance Consents and Enforcements within 500m of the study site:

0

Database searched and no data found.

1.2 Dangerous or Hazardous Sites

Records of COMAH & NIHHS sites within 500m of the study site:

0

Database searched and no data found.

1.3 Environment Agency Recorded Pollution Incidents

1.3.1 Records of National Incidents Recording System, List 2 within 500m of the study site:

0

Database searched and no data found.

1.3.2 Records of National Incidents Recording System, List 1 within 500m of the study site:

0

Database searched and no data found.

1.4 Sites Determined as Contaminated Land under Part 2A EPA 1990

How many records of sites determined as contaminated land under Section 78R of the Environmental Protection Act 1990 are there within 500m of the study site?

0

Database searched and no data found.

2. Landfill and Other Waste Sites Map



Landfill and Other Waste Sites Legend



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- | | | | | | |
|--|--------------------|--|--------------------------|--|----------------------------------|
| | Site Outline | | E.A. Active Landfill | | Historic and Planned Waste Sites |
| | Search Buffers (m) | | E.A. Historic Landfill | | E.A. Licensed Waste Site |
| | | | Local Authority Landfill | | BGS / DoE Survey Landfill |



2. Landfill and Other Waste Sites

2.1 Landfill Sites

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

0

Database searched and no data found.

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

4

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

ID	Distance (m)	Direction	NGR	Details
Not shown	713.0	NE	442100 407400	Site Address: Quarry, Park Lane, Great Houghton, Near Barnsley, South Yorkshire Waste Licence: - Site Reference: - Waste Type: Commercial Environmental Permitting Regulations (Waste) Reference: - Licence Issue: Licence Surrendered: Licence Hold Address: - Operator: Hemsworth Rural District Council
Not shown	771.0	NW	441100 407600	Site Address: National Coal Board, New Park Spring Tip, Grimethorpe, Barnsley Waste Licence: Yes Site Reference: 20B160(45), 4400/B1060, WD20 B160, 20B1060, 4400/0448 Waste Type: IndustrialLiquid sludge, Environmental Permitting Regulations (Waste) Reference: - Licence Issue: 17-Nov-1977 Licence Surrendered: 22-Feb-1996 Licence Hold Address: Coalite Works, Grimethorpe, Barnsley Operator: Coalite and Chemical Products
Not shown	1156.0	N	441400 407900	Site Address: Part of New Park Spring Tip, Wood Lane, Grimethorpe, Barnsley Waste Licence: Yes Site Reference: WD20 B175, 4400/B175, 20B175 Waste Type: Commercial Environmental Permitting Regulations (Waste) Reference: - Licence Issue: 11-Jan-1978 Licence Surrendered: 10-Feb-1993 Licence Hold Address: Barnsley Area, Grimethorpe, Barnsley Operator: -
Not shown	1403.0	N	441100 408100	Site Address: Carlton Main Brickworks, Off Wood Lane, Grimethorpe, Barnsley, South Yorkshire Waste Licence: Yes Site Reference: WD20/B479, NE4242 Waste Type: Inert, Industrial Environmental Permitting Regulations (Waste) Reference: YQ1/L/CAR001 Licence Issue: 21-Oct-1985 Licence Surrendered: 23-Aug-2005 Licence Hold Address: - Operator: -

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

1

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

ID	Distance (m)	Direction	NGR	Details	
Not shown	677.0	NE	44210 0.0 40730 0.0	Address: Quarry, Park Lane, Gt Houghton, nr Barnsley BGS Number: 2524.0	Risk: No risk to aquifer Waste Type: N/A

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

0

Database searched and no data found.

2.2 Other Waste Sites

2.2.1 Records of waste treatment, transfer or disposal sites within 500m of the study site:

1

The following waste treatment, transfer or disposal sites records are represented as points on the Landfill and Other Waste Sites map:

ID	Distance (m)	Direction	NGR	Details		
2	344.0	E	442350 406195	Type of Site: Ground Workings and Refuse Heap Site Address: N/A	Planning Application Reference: N/A Date: 1961	Further Details: N/A Data Source: Historic Mapping Data Type: Polygon

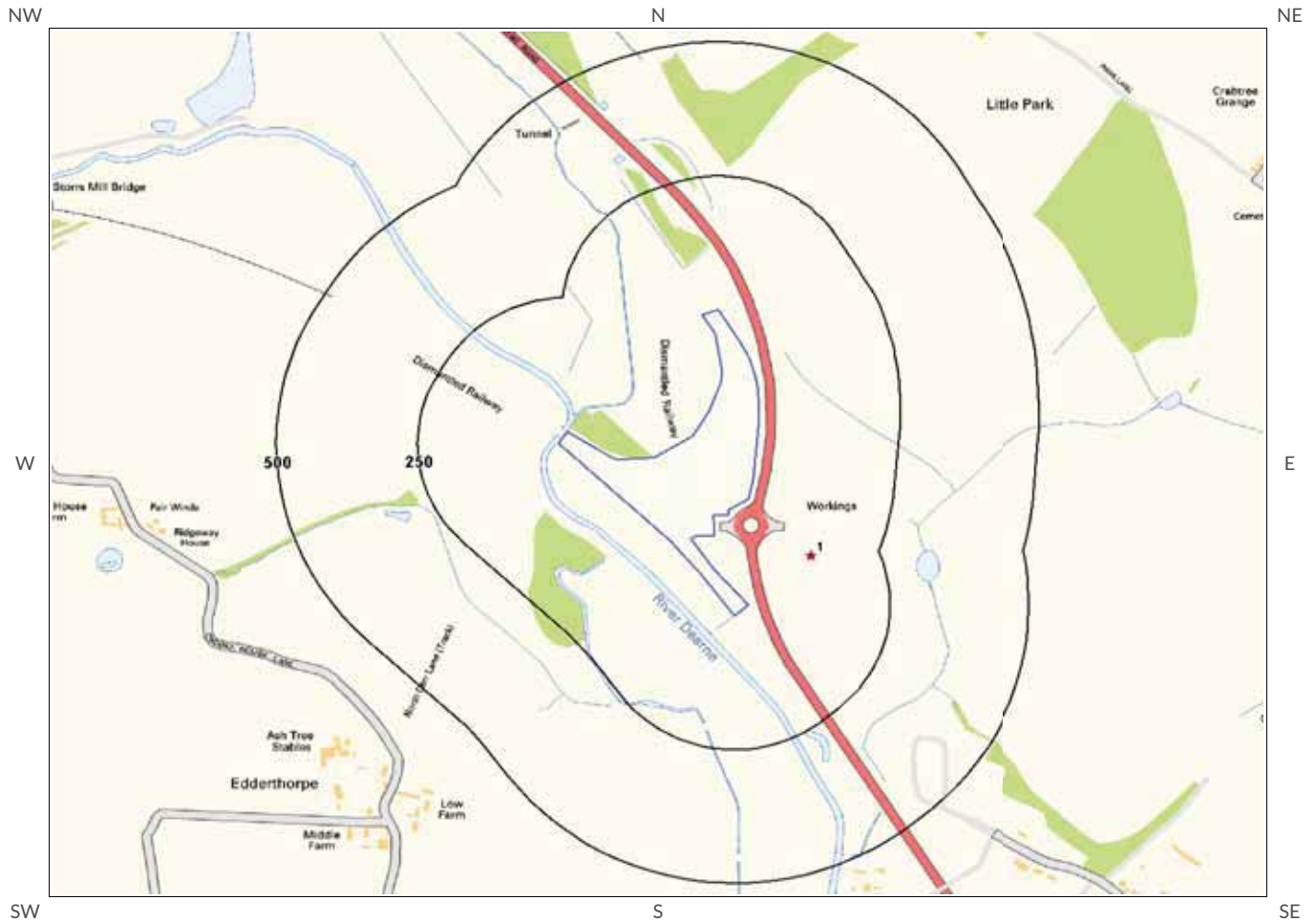
2.2.2 Records of Environment Agency licensed waste sites within 1500m of the study site:

2

The following waste treatment, transfer or disposal sites records are represented as points on the Landfill and Other Waste Sites map:

ID	Distance (m)	Direction	NGR	Details	
Not shown	1472.0	N	441400 408200	Site Address: High Street, Grimethorpe, South Yorkshire, S72 7BG Type: Inert LF Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: CAR172 EPR reference: EA/EPR/VP3238LC/ Operator: Carlton Main Brickworks Limited Waste Management licence No: 210082 Annual Tonnage: 0.0	Issue Date: 27/09/2007 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Carlton Brick Landfill Site Correspondence Address: -, High Street, Grimethorpe, South Yorkshire, S72 7BG
Not shown	1472.0	N	441400 408200	Site Address: Land / Premises At, High Street, Grimethorpe, South Yorkshire, S72 7BG Type: Inert LF Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: CAR172 EPR reference: EA/EPR/VP3238LC/A001 Operator: Carlton Main Brickworks Limited Waste Management licence No: 210082 Annual Tonnage: 190000.0	Issue Date: 27/09/2007 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Carlton Brick Landfill Site Correspondence Address: -, -

3. Current Land Use Map



Current Land Use Legend



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 Site Outline

 Current Industrial Sites

 Search Buffers (m)

 Petrol & Fuel Sites

 Underground High Pressure Oil & Fuel Pipelines



3. Current Land Uses

3.1 Current Industrial Data

Records of potentially contaminative industrial sites within 250m of the study site: 1

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

ID	Distance (m)	Direction	Company	NGR	Address	Activity	Category
1	143.0	NE	Electricity Sub Station	441859 406297	S72	Electrical Features	Infrastructure and Facilities

3.2 Petrol and Fuel Sites

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

Database searched and no data found.

3.3 Underground High Pressure Oil and Gas Pipelines

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

Database searched and no data found.



4. Geology

4.1 Artificial Ground and Made Ground

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

Lex Code	Description	Rock Type
MGR-MGRD	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
MGR-MGRD	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT

4.2 Superficial Ground and Drift Geology

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

Lex Code	Description	Rock Type
ALV-CLSI	ALLUVIUM	CLAY AND SILT

4.3 Bedrock and Solid Geology

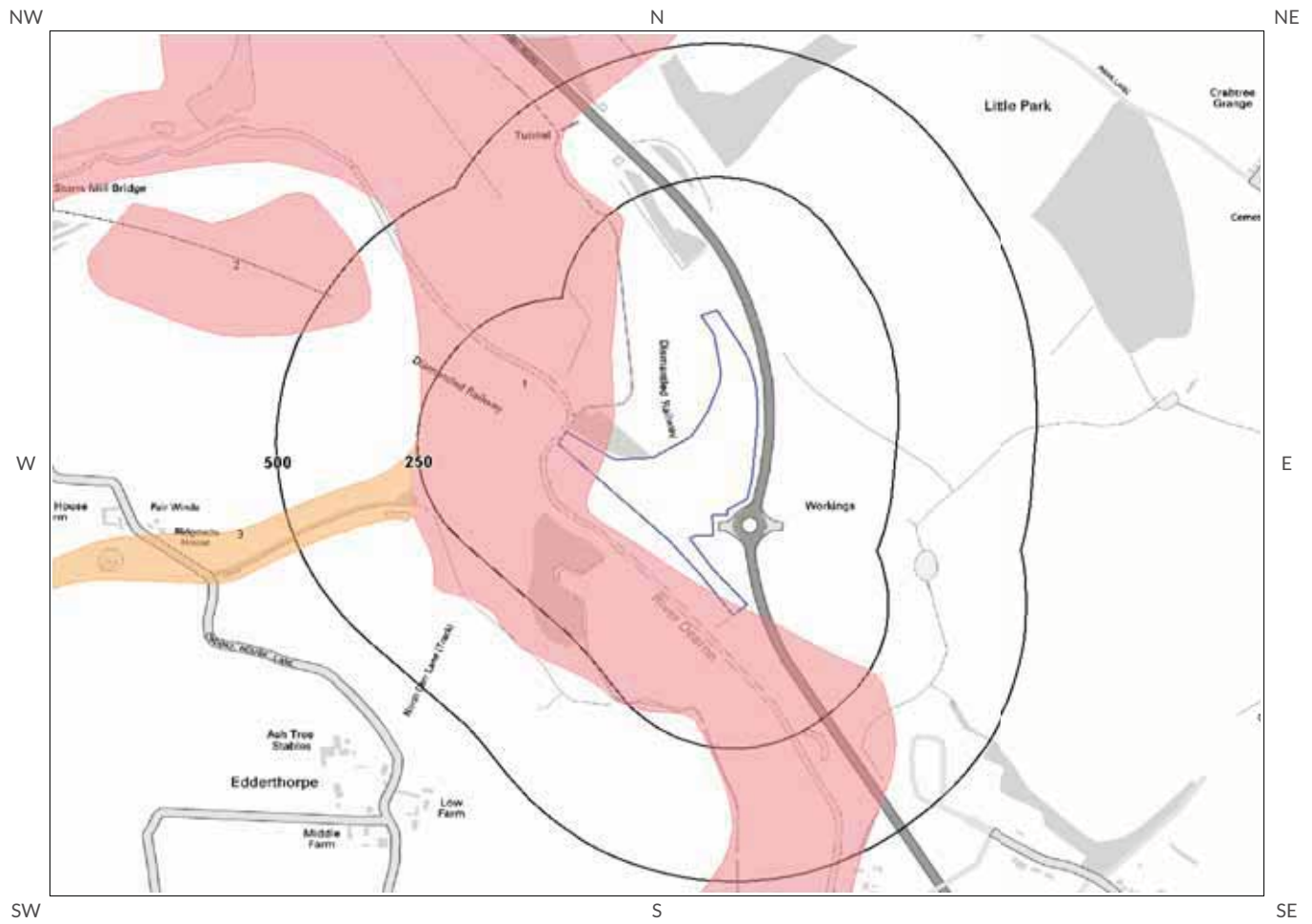
The database has been searched on site, including a 50m buffer.

Lex Code	Description	Rock Type
PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION	MUDSTONE, SILTSTONE AND SANDSTONE
PMCM-SDST	PENNINE MIDDLE COAL MEASURES FORMATION	SANDSTONE
PMCM-SDST	PENNINE MIDDLE COAL MEASURES FORMATION	SANDSTONE
PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION	MUDSTONE, SILTSTONE AND SANDSTONE
MXR-SDST	MEXBOROUGH ROCK	SANDSTONE

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

5. Hydrogeology and Hydrology

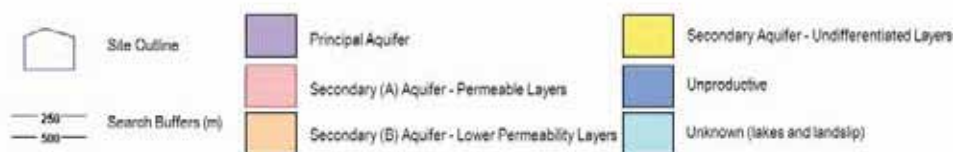
5a. Aquifer Within Superficial Geology



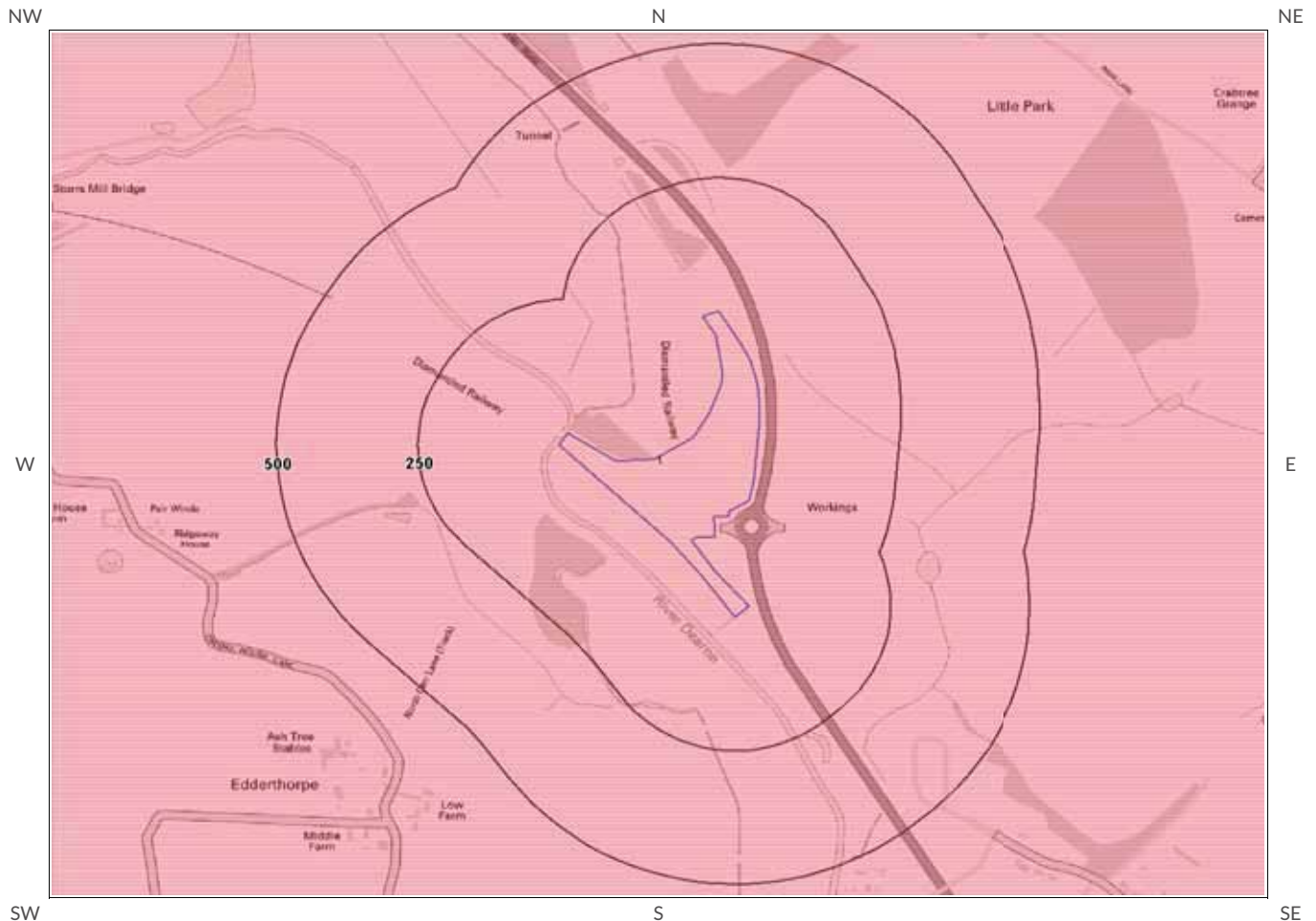
Map Legend



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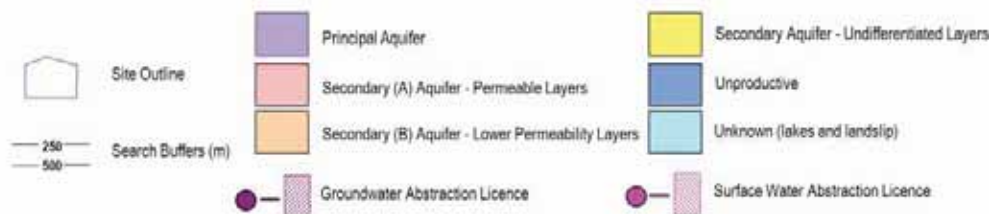
5b. Aquifer Within Bedrock Geology and Abstraction Licenses



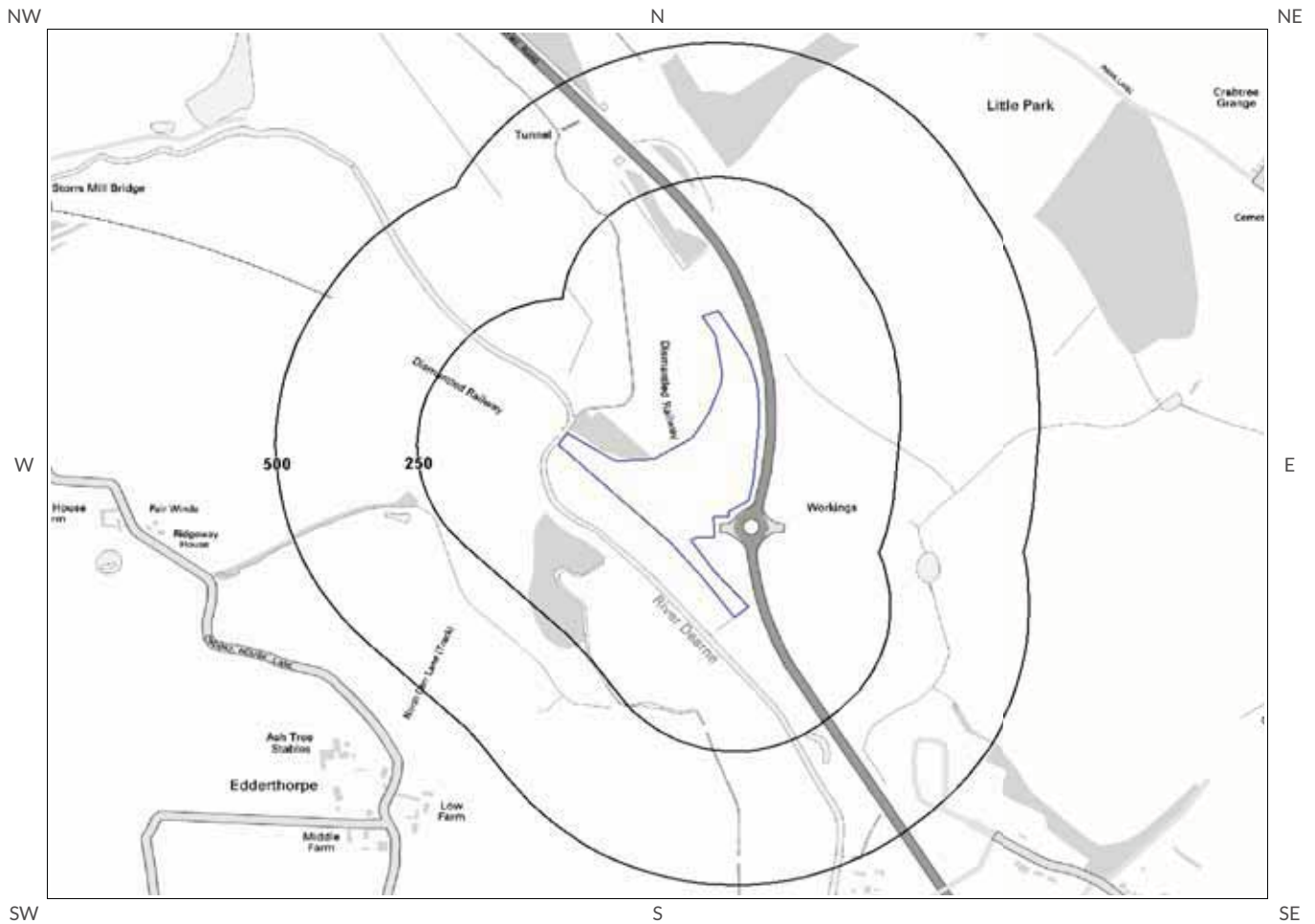
Map Legend



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



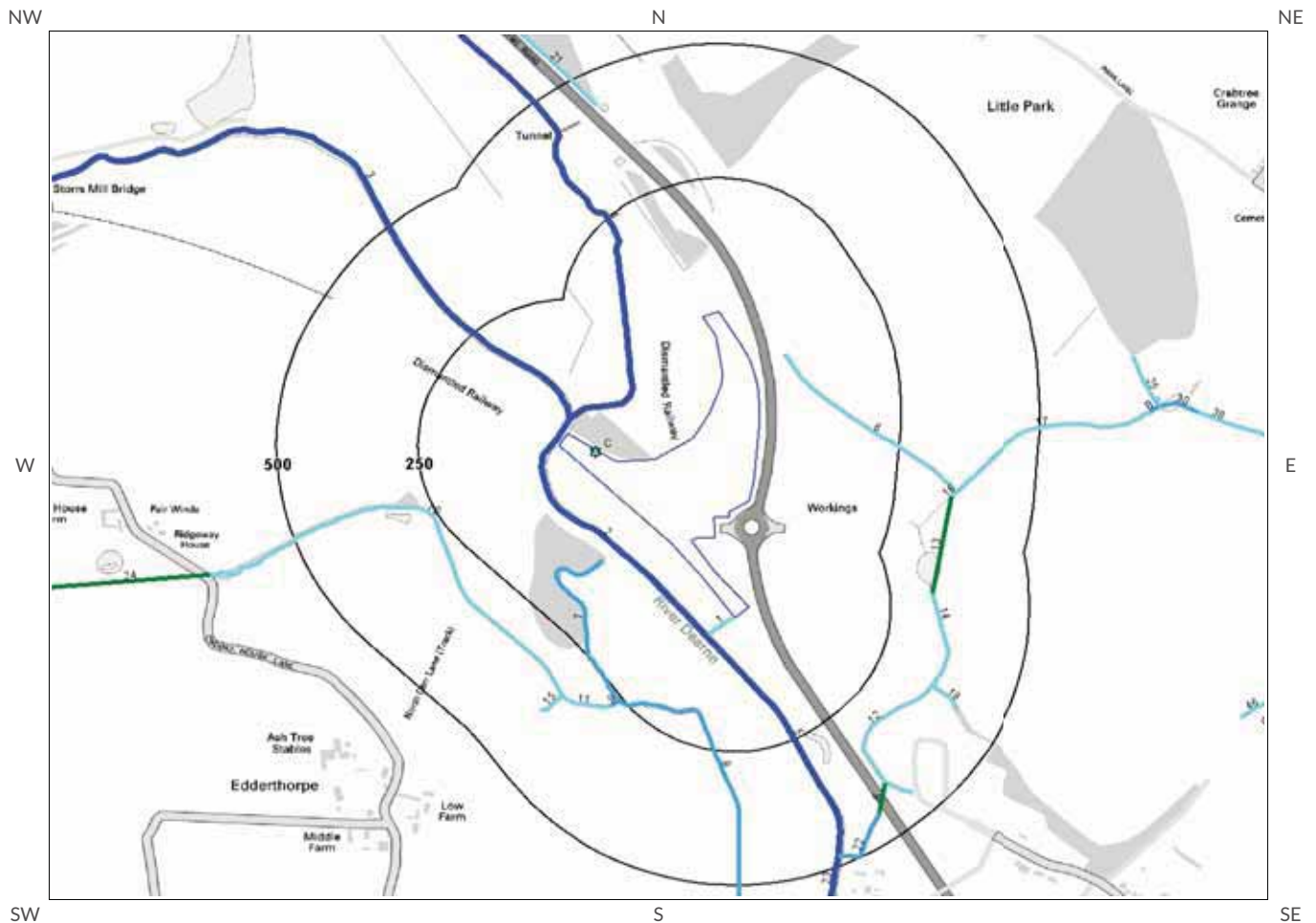
Map Legend



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-  Site Outline
-  Search Buffers (m)
-  Source Protection Zone 1 - Inner Catchment
-  Source Protection Zone 2 - Outer Catchment
-  Source Protection Zone 3 - Total Catchment
-  Source Protection Zone 4 - Zone of Special Interest
-  Potable Water Abstraction Licence

5d. Hydrology – Detailed River Network and River Quality

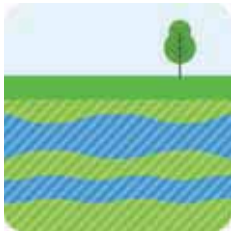


Map Legend



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- | | | | | | |
|--|------------------------|--|---------------------------------------|--|-------------------------------------|
| | Site Outline | | Primary River | | Canal |
| | 250 Search Buffers (m) | | Secondary River | | Canal Tunnel |
| | 500 Search Buffers (m) | | Tertiary River | | Culvert |
| | | | Lake/Reservoir | | Multiple Channel Culvert |
| | | | Underground River (inferred) | | Underground River (Potential Sewer) |
| | | | General Quality Assessment: Biology | | Underground River (local knowledge) |
| | | | General Quality Assessment: Chemistry | | |



5. Hydrogeology and Hydrology

5.1 Aquifer within Superficial Deposits

Are there records of strata classification within the superficial geology at or in proximity to the property? **Yes**

From 1 April 2010, the Environment Agency's Groundwater Protection Policy has been using aquifer designations consistent with the Water Framework Directive. For further details on the designation and interpretation of this information, please refer to the GroundSure Enviroinsight User Guide.

The following aquifer records are shown on the Aquifer within Superficial Geology Map (5a):

ID	Distance (m)	Direction	Designation	Description
1	0.0	On Site	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
3	252.0	W	Secondary B	Predominantly lower permeability layers which may store/yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering. These are generally the water-bearing parts of the former non-aquifers
2	420.0	NW	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers

5.2 Aquifer within Bedrock Deposits

Are there records of strata classification within the bedrock geology at or in proximity to the property? **Yes**

From 1 April 2010, the Environment Agency's Groundwater Protection Policy has been using aquifer designations consistent with the Water Framework Directive. For further details on the designation and interpretation of this information, please refer to the GroundSure Enviroinsight User Guide.

The following aquifer records are shown on the Aquifer within Bedrock Geology Map (5b):

ID	Distance (m)	Direction	Designation	Description
1	0.0	On Site	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers

5.3 Groundwater Abstraction Licences

Are there any Groundwater Abstraction Licences within 2000m of the study site?

Yes

The following Abstraction Licences records are represented as points, lines and regions on the Aquifer within Bedrock Geology Map (5b):

ID	Distance (m)	Direction	NGR	Details
Not shown	1246.0	N	441600 408000	Licence No: 2/27/08/137 Details: Mineral Washing Direct Source: Groundwaters Point: Borehole - Coal Measures - Grimethorpe Colliery Data Type: Point Annual Volume (m ³): 430000 Max Daily Volume (m ³): 1600 Original Application No: NPS/WR/002582 Original Start Date: 25/5/2005 Expiry Date: 31/3/2017 Issue No: 3 Version Start Date: 23/11/2009 Version End Date:
Not shown	1829.0	W	439584 406499	Licence No: NE/027/0008/011 Details: Heat Pump Direct Source: Groundwaters Point: Borehole - Coal Measures - Tyers Hall - Barnsley Data Type: Point Annual Volume (m ³): 30000 Max Daily Volume (m ³): 100 Original Application No: NPS/WR/010886 Original Start Date: 19/12/2012 Expiry Date: 31/3/2029 Issue No: 1 Version Start Date: 19/12/2012 Version End Date:
Not shown	1829.0	W	439584 406499	Licence No: NE/027/0008/011 Details: General Farming & Domestic Direct Source: Groundwaters Point: Borehole - Coal Measures - Tyers Hall - Barnsley Data Type: Point Annual Volume (m ³): 30000 Max Daily Volume (m ³): 100 Original Application No: NPS/WR/010886 Original Start Date: 19/12/2012 Expiry Date: 31/3/2029 Issue No: 1 Version Start Date: 19/12/2012 Version End Date:

5.4 Surface Water Abstraction Licences

Are there any Surface Water Abstraction Licences within 2000m of the study site?

Yes

The following Surface Water Abstraction Licences records are represented as points, lines and regions on the Aquifer within Bedrock Geology Map (5b):

ID	Distance (m)	Direction	NGR	Details
Not shown	1730.0	W	439770 407050	Licence No: 2/27/08/090 Details: Spray Irrigation - Direct Direct Source: Surface Water Point: River Dearne Data Type: Point Annual Volume (m ³): 180000 Max Daily Volume (m ³): 5278 Application No: 5519 Original Start Date: 25/7/1977 Expiry Date: - Issue No: 101 Version Start Date: 19/7/2004 Version End Date:

ID	Distance (m)	Direction	NGR	Details	
Not shown	1730.0	W	439770 407050	Licence No: 2/27/08/090 Details: Spray Irrigation - Storage Direct Source: Surface Water Point: River Dearne Data Type: Point	Annual Volume (m ³): 180000 Max Daily Volume (m ³): 5278 Application No: 5519 Original Start Date: 25/7/1977 Expiry Date: - Issue No: 101 Version Start Date: 19/7/2004 Version End Date:

5.5 Potable Water Abstraction Licences

Are there any Potable Water Abstraction Licences within 2000m of the study site? No

Database searched and no data found.

5.6 Source Protection Zones

Are there any Source Protection Zones within 500m of the study site? No

Database searched and no data found.

5.7 River Quality

Is there any Environment Agency information on river quality within 1500m of the study site? Yes

5.7.1 Biological Quality:

Biological Quality data describes water quality in terms of 83 groups of macroinvertebrates, some of which are pollution sensitive. The results are graded from A ('Very Good') to F ('Bad').

The following Biological Quality records are shown on the Hydrology Map (5d):

ID	Distance (m)	Direction	NGR	River Quality Grade	Biological Quality Grade				
					2005	2006	2007	2008	2009
50C	0.0	On Site	441478 406495	River Name: Dearne Reach: Grimethorpe Dike Billingley Dyke End/Start of Stretch: Start of Stretch NGR	D	D	D	D	D
51C	0.0	On Site	441478 406495	River Name: Dearne Reach: Cudworth Dyke Grimethorpe Dike End/Start of Stretch: End of Stretch NGR	D	D	D	D	D

5.7.2 Chemical Quality:

Chemical quality data is based on the General Quality Assessment Headline Indicators scheme (GQAHI). In England, each chemical sample is measured for ammonia and dissolved oxygen. In Wales, the samples are measured for biological oxygen demand (BOD), ammonia and dissolved oxygen. The results are graded from A ('Very Good') to F ('Bad').

The following Chemical Quality records are shown on the Hydrology Map (5d):

ID	Distance (m)	Direction	NGR	River Quality Grade	Chemical Quality Grade				
					2005	2006	2007	2008	2009
52C	0.0	On Site	441478 406495	River Name: River Dearne Reach: Cudworth Dyke Grimethorpe Dike End/Start of Stretch: End of Stretch NGR	E	E	E	D	D
53C	0.0	On Site	441478 406495	River Name: River Dearne Reach: Grimethorpe Dike Billingley Dyke End/Start of Stretch: Start of Stretch NGR	C	C	C	C	B
Not shown	1129.0	NW	440378 406959	River Name: River Dearne Reach: Cudworth Dyke Grimethorpe Dike End/Start of Stretch: Sample Point NGR	E	E	E	D	D

5.8 Detailed River Network

Are there any Detailed River Network entries within 500m of the study site?

Yes

The following Detailed River Network records are represented on the Hydrology Map (5d):

ID	Distance (m)	Direction	Details
1	4.0	SW	River Name: Drain Welsh River Name: - Alternative Name: - River Type: Tertiary River Main River Status: Currently Undefined
2	10.0	NW	River Name: River Dearne Welsh River Name: - Alternative Name: - River Type: Primary River Main River Status: Currently Undefined
3	27.0	N	River Name: River Dearne Welsh River Name: - Alternative Name: - River Type: Primary River Main River Status: Currently Undefined
4	27.0	N	River Name: - Welsh River Name: - Alternative Name: - River Type: Primary River Main River Status: Currently Undefined
5	61.0	SW	River Name: River Dearne Welsh River Name: - Alternative Name: - River Type: Primary River Main River Status: Currently Undefined
6	61.0	E	River Name: Drain Welsh River Name: - Alternative Name: - River Type: Tertiary River Main River Status: Currently Undefined
7	107.0	SW	River Name: Drain Welsh River Name: - Alternative Name: - River Type: Secondary River Main River Status: Currently Undefined
8	186.0	S	River Name: - Welsh River Name: - Alternative Name: - River Type: Secondary River Main River Status: Currently Undefined
9	256.0	SW	River Name: - Welsh River Name: - Alternative Name: - River Type: Secondary River Main River Status: Currently Undefined
10	259.0	SW	River Name: - Welsh River Name: - Alternative Name: - River Type: Tertiary River Main River Status: Currently Undefined
11	273.0	SW	River Name: - Welsh River Name: - Alternative Name: - River Type: Tertiary River Main River Status: Currently Undefined
12	311.0	SE	River Name: Drain Welsh River Name: - Alternative Name: - River Type: Tertiary River Main River Status: Currently Undefined
13	325.0	E	River Name: - Welsh River Name: - Alternative Name: - River Type: Culvert Main River Status: Currently Undefined
14	325.0	E	River Name: - Welsh River Name: - Alternative Name: - River Type: Tertiary River Main River Status: Currently Undefined
15	331.0	SW	River Name: - Welsh River Name: - Alternative Name: - River Type: Tertiary River Main River Status: Currently Undefined
16	350.0	E	River Name: - Welsh River Name: - Alternative Name: - River Type: Tertiary River Main River Status: Currently Undefined
17	355.0	E	River Name: - Welsh River Name: - Alternative Name: - River Type: Tertiary River Main River Status: Currently Undefined
18	355.0	SE	River Name: - Welsh River Name: - Alternative Name: - River Type: Tertiary River Main River Status: Currently Undefined
19 A	406.0	SE	River Name: Drain Welsh River Name: - Alternative Name: - River Type: Culvert Main River Status: Currently Undefined
20 A	406.0	SE	River Name: Drain Welsh River Name: - Alternative Name: - River Type: Tertiary River Main River Status: Currently Undefined
21	438.0	NW	River Name: Drain Welsh River Name: - Alternative Name: - River Type: Tertiary River Main River Status: Currently Undefined

ID	Distance (m)	Direction	Details	
22	446.0	SE	River Name: - Welsh River Name: - Alternative Name: -	River Type: Secondary River Main River Status: Currently Undefined
23	480.0	S	River Name: River Dearne Welsh River Name: - Alternative Name: -	River Type: Primary River Main River Status: Currently Undefined

5.9 Surface Water Features

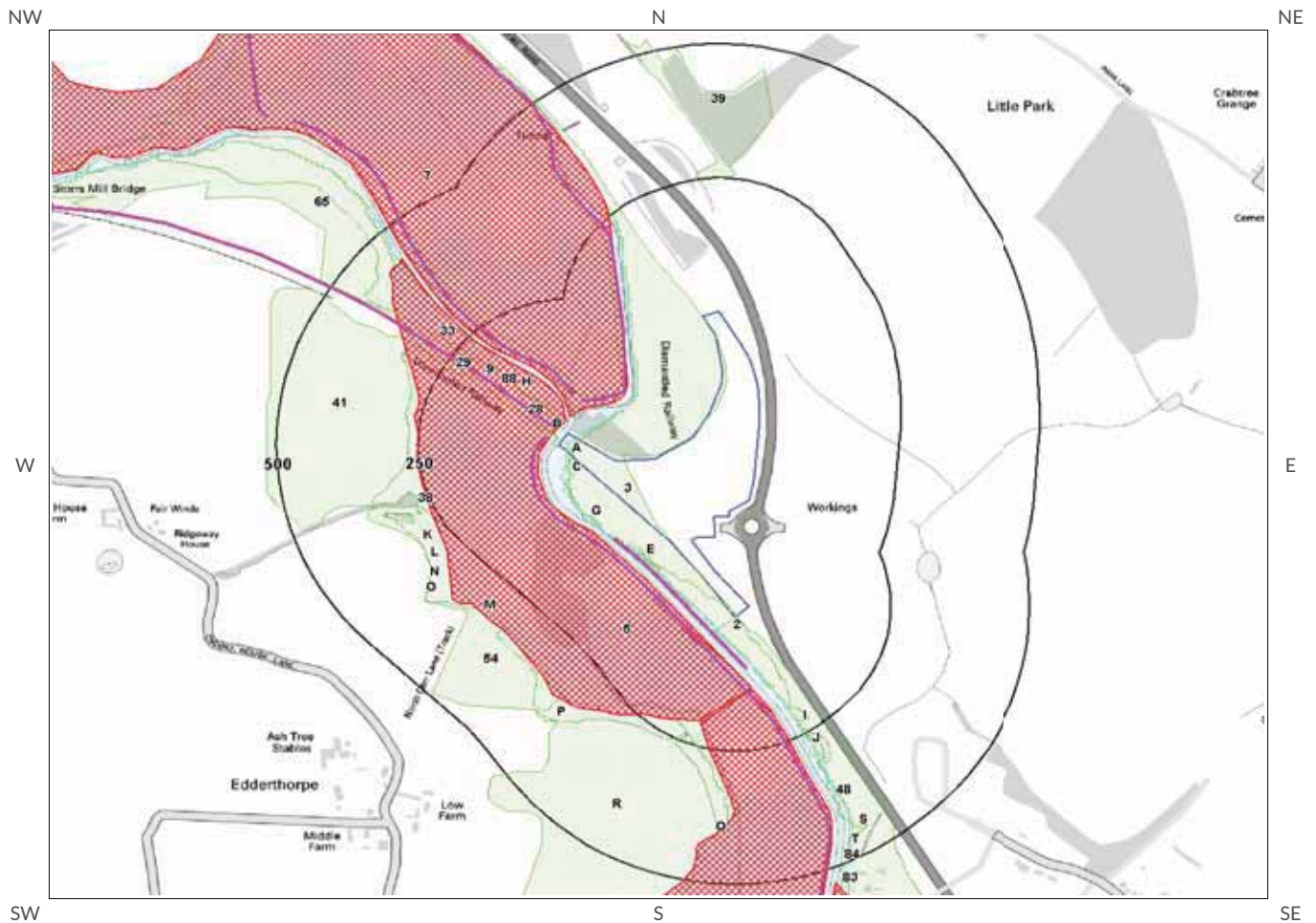
Are there any surface water features within 250m of the study site?

Yes

The following surface water records are not represented on mapping:

Distance (m)	Direction
3.0	NW
3.0	NW
4.0	SW
61.0	E
63.0	S
94.0	N
106.0	SW
113.0	N
119.0	N
187.0	N
217.0	S
219.0	NW
228.0	SE
247.0	SE
249.0	SE









6. Environment Agency Flood Map for planning (from rivers and the sea)



Map Legend



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



6. Flooding

6.1 Zone 2 Flooding

Environment Agency Zone 2 floodplains estimate the annual probability of flooding as between 1 in 1000 (0.1%) and 1 in 100 (1%) from rivers and between 1 in 1000 (0.1%) and 1 in 200 (0.5%) from the sea. Any relevant data is represented on Map 1 – Environment Agency Flood Map for Planning:

Is the site within 250m of an Environment Agency Zone 2 floodplain? Yes

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

ID	Distance (m)	Direction	Update	Type
1A	0.0	On Site	27-Feb-2014	Zone 2 - (Fluvial / Undefined Events)
2	0.0	On Site	27-Feb-2014	Zone 2 - (Fluvial / Undefined Events)
3	0.0	On Site	27-Feb-2014	Zone 2 - (Fluvial Events)
4	0.0	On Site	27-Feb-2014	Zone 2 - (Fluvial Models and Fluvial Events)
5	0.0	On Site	27-Feb-2014	Zone 2 - (Fluvial Models and Fluvial / Undefined Events)
6A	14.0	SW	27-Feb-2014	Zone 2 - (Fluvial Models and Fluvial Events)
7	22.0	N	27-Feb-2014	Zone 2 - (Fluvial Models and Fluvial / Undefined Events)
8C	22.0	SW	27-Feb-2014	Zone 2 - (Fluvial / Undefined Events)
9	24.0	NW	27-Feb-2014	Zone 2 - (Fluvial Models)
10B	25.0	NW	27-Feb-2014	Zone 2 - (Fluvial Models and Undefined Events)
11B	27.0	NW	27-Feb-2014	Zone 2 - (Fluvial Models and Fluvial Events)
12C	35.0	SW	27-Feb-2014	Zone 2 - (Fluvial Models and Fluvial Events)
13E	49.0	SW	27-Feb-2014	Zone 2 - (Fluvial Models and Fluvial / Undefined Events)
14D	50.0	SW	27-Feb-2014	Zone 2 - (Fluvial Models and Fluvial / Undefined Events)
15D	51.0	SW	27-Feb-2014	Zone 2 - (Fluvial Models and Fluvial / Undefined Events)
16E	51.0	SW	27-Feb-2014	Zone 2 - (Fluvial Models and Fluvial Events)
17D	51.0	SW	27-Feb-2014	Zone 2 - (Fluvial Models and Fluvial / Undefined Events)
18D	52.0	SW	27-Feb-2014	Zone 2 - (Fluvial Events)
19D	52.0	SW	27-Feb-2014	Zone 2 - (Fluvial Events)
20D	53.0	SW	27-Feb-2014	Zone 2 - (Fluvial Events)

ID	Distance (m)	Direction	Update	Type
21F	53.0	SW	27-Feb-2014	Zone 2 - (Fluvial Models and Fluvial Events)
22F	56.0	SW	27-Feb-2014	Zone 2 - (Fluvial / Undefined Events)
23G	59.0	SW	27-Feb-2014	Zone 2 - (Fluvial Models and Fluvial Events)
24F	63.0	SW	27-Feb-2014	Zone 2 - (Fluvial / Undefined Events)
25G	64.0	SW	27-Feb-2014	Zone 2 - (Fluvial Models and Fluvial Events)
26G	64.0	SW	27-Feb-2014	Zone 2 - (Fluvial / Undefined Events)
27G	65.0	SW	27-Feb-2014	Zone 2 - (Fluvial / Undefined Events)
28	65.0	NW	27-Feb-2014	Zone 2 - (Fluvial Models and Undefined Events)
29	75.0	NW	27-Feb-2014	Zone 2 - (Fluvial Models and Fluvial Events)
30H	94.0	NW	27-Feb-2014	Zone 2 - (Fluvial Models and Undefined Events)
31H	140.0	NW	27-Feb-2014	Zone 2 - (Fluvial Models and Fluvial Events)
32H	144.0	NW	27-Feb-2014	Zone 2 - (Fluvial Models and Undefined Events)
33	150.0	NW	27-Feb-2014	Zone 2 - (Fluvial Models and Fluvial Events)
34	217.0	SW	27-Feb-2014	Zone 2 - (Fluvial / Undefined Events)
35I	224.0	SE	27-Feb-2014	Zone 2 - (Fluvial Models and Fluvial Events)
36R	234.0	S	27-Feb-2014	Zone 2 - (Fluvial Events)
37I	237.0	SE	27-Feb-2014	Zone 2 - (Fluvial / Undefined Events)
38	247.0	W	27-Feb-2014	Zone 2 - (Fluvial / Undefined Events)
39	248.0	N	27-Feb-2014	Zone 2 - (Fluvial Events)

6.2 Zone 3 Flooding

Zone 3 shows the extent of a river flood with a 1 in 100 (1%) or greater chance of occurring in any year or a sea flood with a 1 in 200 (0.5%) or greater chance of occurring in any year. Any relevant data is represented on Map 1 – Environment Agency Flood Map for Planning.

Is the site within 250m of an Environment Agency Zone 3 floodplain? Yes

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

ID	Distance (m)	Direction	Update	Type
88	0.0	On Site	27-Feb-2014	Zone 3 - (Fluvial Models)

6.3 Flood Defences

Are there any Flood Defences within 250m of the study site? Yes

The following flood defence records are represented as lines on the Flood Map:

ID	Distance (m)	Direction	Update
93	28.0	NW	26-Feb-2014
94	31.0	NW	26-Feb-2014
95	50.0	SW	26-Feb-2014
96	64.0	N	26-Feb-2014
97	72.0	N	26-Feb-2014

6.4 Areas benefiting from Flood Defences

Are there any areas benefiting from Flood Defences within 250m of the study site? No

6.5 Areas benefiting from Flood Storage

Are there any areas used for Flood Storage within 250m of the study site? Yes

6.6 Groundwater Flooding Susceptibility Areas

6.6.1 Are there any British Geological Survey groundwater flooding susceptibility areas within 50m of the boundary of the study site?

Yes

Does this relate to Clearwater Flooding or Superficial Deposits Flooding? Clearwater Flooding

Notes: Groundwater flooding may either be associated with shallow unconsolidated sedimentary aquifers which overlie unproductive aquifers (Superficial Deposits Flooding), or with unconfined aquifers (Clearwater Flooding).

6.6.2 What is the highest susceptibility to groundwater flooding in the search area based on the underlying geological conditions?

Potential at Surface

Where potential for groundwater flooding to occur at surface is indicated, this means that given the geological conditions in the area groundwater flooding hazard should be considered in all land-use planning decisions. It is recommended that other relevant information e.g. records of previous incidence of groundwater flooding, rainfall, property type, and land drainage information be investigated in order to establish relative, but not absolute, risk of groundwater flooding.

6.7 Groundwater Flooding Confidence Areas

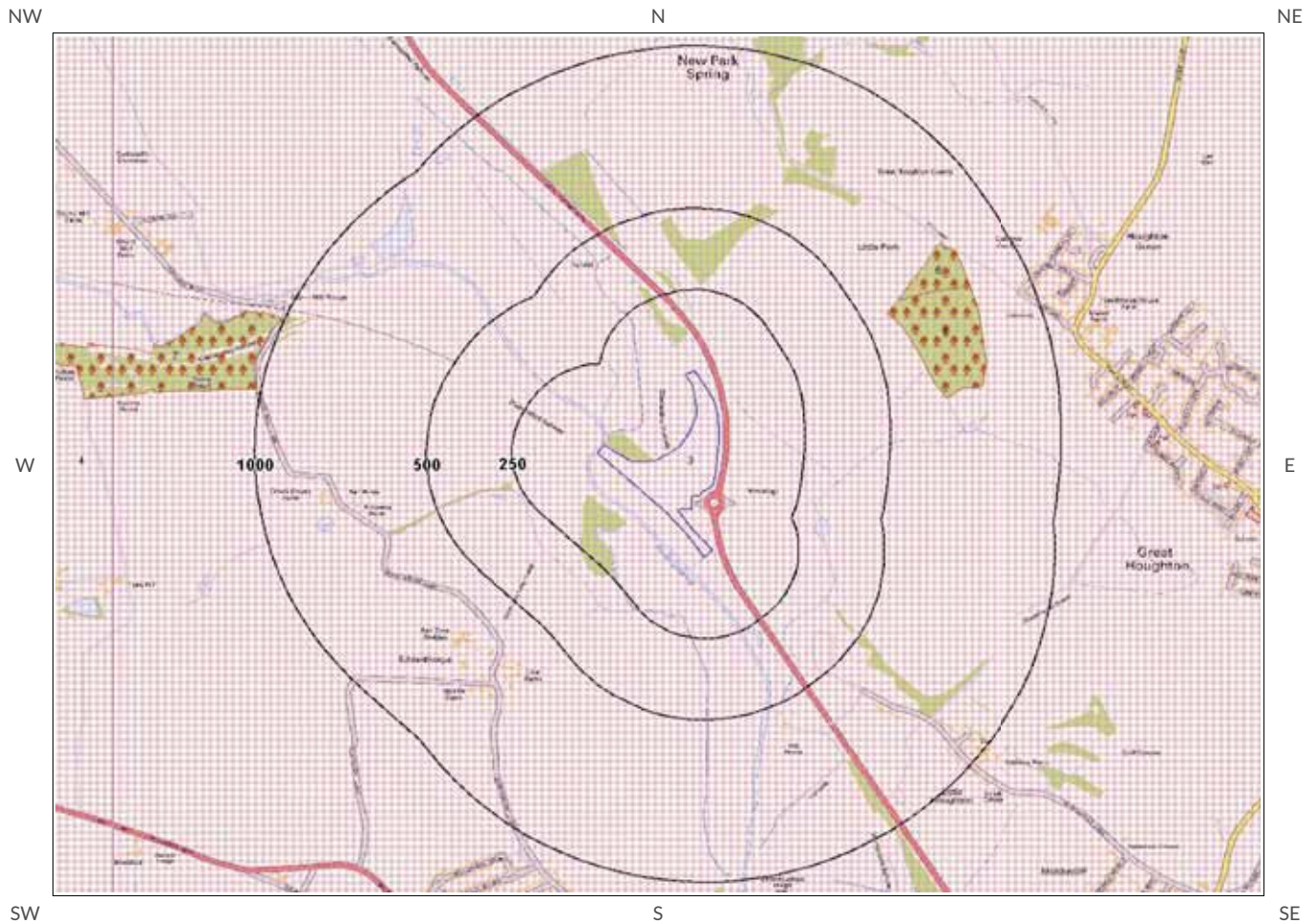
What is the British Geological Survey confidence rating in this result?

Moderate

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

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

7. Designated Environmentally Sensitive Sites Map



Map Legend



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



7. Designated Environmentally Sensitive Sites

Presence of Designated Environmentally Sensitive Sites within 2000m of the study site? Yes

7.1 Records of Sites of Special Scientific Interest (SSSI) within 2000m of the study site: 1

The following Site of Special Scientific Interest (SSSI) records provided by Natural England/Countryside Council for Wales and Scottish Natural Heritage are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	SSSI Name	Data Source
Not shown	1209.0	N	Carlton Main Brickworks	Natural England

7.2 Records of National Nature Reserves (NNR) within 2000m of the study site: 0

Database searched and no data found.

7.3 Records of Special Areas of Conservation (SAC) within 2000m of the study site: 0

Database searched and no data found.

7.4 Records of Special Protection Areas (SPA) within 2000m of the study site: 0

Database searched and no data found.

7.5 Records of Ramsar sites within 2000m of the study site: 0

Database searched and no data found.

7.6 Records of Ancient Woodland within 2000m of the study site:

6

The following Ancient Woodland records are supplied by English Nature/Scottish Natural Heritage/Countryside Council for Wales and are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	Ancient Woodland Name	Data Source
5	570.0	NE	LITTLE PARK	Ancient and Semi-Natural Woodland
6	617.0	NE	LITTLE PARK	Ancient Replanted Woodland
7	1006.0	NW	STORRS WOOD	Ancient and Semi-Natural Woodland
Not shown	1550.0	N	WEST HAIGH WOOD	Ancient and Semi-Natural Woodland
Not shown	1606.0	N	WEST HAIGH WOOD	Ancient Replanted Woodland
Not shown	1913.0	W	UNKNOWN	Ancient and Semi-Natural Woodland

7.7 Records of Local Nature Reserves (LNR) within 2000m of the study site:

1

The following Local Nature Reserve (LNR) records provided by Natural England/Countryside Council for Wales and Scottish Natural Heritage are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	LNR Name	Data Source
Not shown	1552.0	N	West haigh Wood	Natural England

7.8 Records of World Heritage Sites within 2000m of the study site:

0

Database searched and no data found.

7.9 Records of Environmentally Sensitive Areas within 2000m of the study site:

0

Database searched and no data found.

7.10 Records of Areas of Outstanding Natural Beauty (AONB) within 2000m of the study site:

0

Database searched and no data found.

7.11 Records of National Parks (NP) within 2000m of the study site:

0

Database searched and no data found.

7.12 Records of Nitrate Sensitive Areas within 2000m of the study site:

0

Database searched and no data found.

7.13 Records of Nitrate Vulnerable Zones within 2000m of the study site:

2

The following Nitrate Vulnerable Zone records produced by DEFRA are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	NVZ Name	Data Source
3	0.0	On Site	NVZ Area	DEFRA
4	1413.0	W	NVZ Area	DEFRA



8. Natural Hazards Findings

8.1 Detailed BGS GeoSure Data

BGS GeoSure Data has been searched to 50m. The data is included in tabular format. If you require further information on geology and ground stability, please obtain a **GroundSure GeolInsight**, available from our [website](#). The following information has been found:

8.1.1 Shrink Swell

What is the maximum Shrink-Swell* hazard rating identified on the study site? Low

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

Hazard

Ground conditions predominantly medium plasticity. Do not plant trees with high soil moisture demands near to buildings. For new build, consideration should be given to advice published by the National House Building Council (NHBC) and the Building Research Establishment (BRE). There is a possible increase in construction cost to reduce potential shrink-swell problems. For existing property, there is a possible increase in insurance risk, especially during droughts or where vegetation with high moisture demands is present.

8.1.2 Landslides

What is the maximum Landslide* hazard rating identified on the study site? Low

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

Hazard

Possibility of slope instability problems after major changes in ground conditions. Consideration should be given to stability if changes to drainage or excavations take place. Possible increase in construction cost to reduce potential slope stability problems. Existing property no significant increase in insurance risk due to natural slope instability problems.

* This indicates an automatically generated 50m buffer and site.

8.1.3 Soluble Rocks

What is the maximum Soluble Rocks* hazard rating identified on the study site? Null - Negligible

Soluble rocks are not present in the search area. No special actions required to avoid problems due to soluble rocks. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with soluble rocks.

8.1.4 Compressible Ground

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

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

Hazard

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

8.1.5 Collapsible Rocks

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

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

Hazard

Deposits with potential to collapse when loaded and saturated are unlikely to be present. No special ground investigation required or increased construction costs or increased financial risk due to potential problems with collapsible deposits.

8.1.6 Running Sand

What is the maximum Running Sand** hazard rating identified on the study site?

Low

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

Hazard

Possibility of running sand problems after major changes in ground conditions. Normal maintenance to avoid leakage of water-bearing services or water bodies (ponds, swimming pools) should reduce likelihood of problems due to running sand. For new build consider possibility of running sand into trenches or excavations if water table is high or sandy strata are exposed to water. Avoid concentrated water inputs to site. Unlikely to be an increase in construction costs due to potential for running sand. For existing property no significant increase in insurance risk due to running sand problems is likely.

* This indicates an automatically generated 50m buffer and site.



9. Mining

9.1 Coal Mining

Are there any coal mining areas within 75m of the study site?

Yes

The following coal mining information provided by the Coal Authority is not represented on Mapping:

Distance	Direction	Details
0.0	On Site	The study site is located within the specified search distance of an identified mining area. Further details concerning this can be obtained from the Coal Authority Helpline on 0845 762 6848.

9.2 Shallow Mining

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

Low-Moderate

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

9.3 Brine Affected Areas

Are there any brine affected areas within 75m of the study site?

No

Guidance: No Guidance Required.

Contact Details

EmapSite
 Telephone: 0118 9736883
 sales@emapsite.com



British Geological Survey Enquiries

Kingsley Dunham Centre
 Keyworth, Nottingham NG12 5GG
 Tel: 0115 936 3143.
 Fax: 0115 936 3276.
 Email: enquiries@bgs.ac.uk
 Web: www.bgs.ac.uk

BGS Geological Hazards Reports and general geological enquiries



Environment Agency

National Customer Contact Centre, PO Box 544
 Rotherham, S60 1BY
 Tel: 08708 506 506

Web: www.environment-agency.gov.uk
 Email: enquiries@environment-agency.gov.uk



Public Health England

Public information access office
 Public Health England, Wellington House
 133-155 Waterloo Road, London, SE1 8UG
<https://www.gov.uk/government/organisations/public-health-england>

Email: enquiries@phe.gov.uk
 Main switchboard: 020 7654 8000



The Coal Authority

200 Lichfield Lane
 Mansfield
 Notts NG18 4RG
 Tel: 0345 7626 848
 DX 716176 Mansfield 5
www.coal.gov.uk



Ordnance Survey

Adanac Drive, Southampton
 SO16 0AS
 Tel: 08456 050505



Local Authority

Authority: Barnsley Metropolitan Borough Council
 Phone: 01226 770770
 Web: www.barnsley.gov.uk/index.asp
 Address: Town Hall, Barnsley, South Yorkshire, S70 2TA

Gemapping PLC

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



Acknowledgements: Site of Special Scientific Interest, National Nature Reserve, Ramsar Site, Special Protection Area, Special Area of Conservation data is provided by, and used with the permission of, English Nature who retain the Copyright and Intellectual Property Rights for the data. PointX © Database Right/Copyright, Thomson Directories Limited © Copyright Link Interchange Network Limited © Database Right/Copyright and Ordnance Survey © Crown Copyright and/or Database Right. All Rights Reserved. Licence Number [03421028]. This report has been prepared in accordance with the GroundSure Ltd standard Terms and Conditions of business for work of this nature.

Standard Terms and Conditions

1 Definitions

In these terms and conditions unless the context otherwise requires:

“Beneficiary” means the person or entity for whose benefit the Client has obtained the Services.

“Client” means the party or parties entering into a Contract with GroundSure.

“Commercial” means any building or property which is not Residential.

“Confidential Information” means the contents of this Contract and all information received from the Client as a result of, or in connection with, this Contract other than

- (i) information which the Client can prove was rightfully in its possession prior to disclosure by GroundSure and
- (ii) any information which is in the public domain (other than by virtue of a breach of this Contract).

“Support Services” means Support Services provided by GroundSure including, without limitation, interpreting third party and in-house environmental data, providing environmental support advice, undertaking environmental audits and assessments, Site investigation, Site monitoring and related items.

“Contract” means the contract between GroundSure and the Client for the provision of the Services, and which shall incorporate these terms and conditions, the Order, and the relevant User Guide.

“Third Party Data Provider” means any third party providing Third Party Content to GroundSure.

“Data Reports” means reports comprising factual data with no accompanying interpretation.

“Fees” has the meaning set out in clause 5.1.

“GroundSure” means GroundSure Limited, a company registered in England and Wales under number 03421028.

“GroundSure Materials” means all materials prepared by GroundSure and provided as part of the Services, including but not limited to Third Party Content, Data Reports, Mapping, and Risk Screening Reports.

“Intellectual Property” means any patent, copyright, design rights, trade or service mark, moral rights, data protection rights, know-how or trade mark in each case whether registered or not and including applications for the same or any other rights of a similar nature anywhere in the world.

“Mapping” means a map, map data or a combination of historical maps of various ages, time periods and scales.

“Order” means an electronic, written or other order form submitted by the Client requesting Services from GroundSure in respect of a specified Site.

“Ordnance Survey” means the Secretary of State for Business, Innovation and Skills, acting through Ordnance Survey, Adanac Drive, Southampton, SO16 0AS, UK.

“Order Website” means the online platform through which Orders may be placed by the Client and accepted by GroundSure.

“Report” means a Risk Screening Report or Data Report for Commercial or Residential property.

“Residential” means any building or property used as or intended to be used as a single dwelling.

“Risk Screening Report” means a risk screening report comprising factual data with an accompanying interpretation by GroundSure.

“Services” means any Report, Mapping and/or Support Services which GroundSure has agreed to provide by accepting an Order pursuant to clause 2.6.

“Site” means the area of land in respect of which the Client has requested GroundSure to provide the Services.

“Third Party Content” means data, database information or other information which is provided to GroundSure by a Third Party Data Provider.

“User Guide” means the user guide, as amended from time to time, available upon request from GroundSure and on the website (www.GroundSure.com) and forming part of this Contract.

2 Scope of Services, terms and conditions, requests for insurance and quotations

2.1 GroundSure agrees to provide the Services in accordance with the Contract.

2.2 GroundSure shall exercise reasonable skill and care in the provision of the Services.

2.3 Subject to clause 7.3 the Client acknowledges that it has not relied on any statement or representation made by or on behalf of GroundSure which is not set out and expressly agreed in writing in the Contract and all such statements and representations are hereby excluded to the fullest extent permitted by law.

2.4 The Client acknowledges that terms and conditions appearing on a Client's order form, printed stationery or other communication, or any terms or conditions

implied by custom, practice or course of dealing shall be of no effect, and that this Contract shall prevail over all others in relation to the Order.

2.5 If the Client or Beneficiary requests insurance in conjunction with or as a result of the Services, GroundSure shall use reasonable endeavours to recommend such insurance, but makes no warranty that such insurance shall be available from insurers or that it will be offered on reasonable terms. Any insurance purchased by the Client or Beneficiary shall be subject solely to the terms of the policy issued by insurers and GroundSure will have no liability therefor. In addition you acknowledge and agree that GroundSure does not act as an agent or broker for any insurance providers. The Client should take (and ensure that the Beneficiary takes) independent advice to ensure that the insurance policy requested or offered is suitable for its requirements.

2.6 GroundSure's quotations or proposals are valid for a period of 30 days only unless an alternative period of time is explicitly stipulated by GroundSure. GroundSure reserves the right to withdraw any quotation or proposal at any time before an Order is accepted by GroundSure. GroundSure's acceptance of an Order shall be binding only when made in writing and signed by GroundSure's authorised representative or when accepted through the Order Website.

3 The Client's obligations

3.1 The Client shall comply with the terms of this Contract and

(i) procure that the Beneficiary or any third party relying on the Services complies with and acts as if it is bound by the Contract and

(ii) be liable to GroundSure for the acts and omissions of the Beneficiary or any third party relying on the Services as if such acts and omissions were those of the Client.

3.2 The Client shall be solely responsible for ensuring that the Services are appropriate and suitable for its and/or the Beneficiary's needs.

3.3 The Client shall supply to GroundSure as soon as practicable and without charge all requisite information (and the Client warrants that such information is accurate, complete and appropriate), including without limitation any environmental information relating to the Site and shall give such assistance as GroundSure shall reasonably require in the provision of the Services including, without limitation, access to the Site, facilities and equipment.

3.4 Where the Client's approval or decision is required to enable GroundSure to carry out work in order to provide the Services, such approval or decision shall be given or procured in reasonable time and so as not to delay or disrupt the performance of the Services.

3.5 Save as expressly permitted by this Contract the Client shall not, and shall procure that the Beneficiary shall not, re-sell, alter, add to, or amend the GroundSure Materials, or use the GroundSure Materials in a manner for which they were not intended. The Client may make the GroundSure Materials available to a third party who is considering acquiring some or all of, or providing funding in relation to, the Site, but such third party cannot rely on the same unless expressly permitted under clause 4.

3.6 The Client is responsible for maintaining the confidentiality of its user name and password if using the Order Website and the Client acknowledges that GroundSure accepts no liability of any kind for any loss or damage suffered by the Client as a consequence of using the Order Website.

4 Reliance

4.1 The Client acknowledges that the Services provided by GroundSure consist of the presentation and analysis of Third Party Content and other content and that information obtained from a Third Party Data Provider cannot be guaranteed or warranted by GroundSure to be reliable.

4.2 In respect of Data Reports, Mapping and Risk Screening Reports, the following classes of person and no other are entitled to rely on their contents;

- (i) the Beneficiary,
- (ii) the Beneficiary's professional advisers, (iii) any person providing funding to the Beneficiary in relation to the Site (whether directly or as part of a lending syndicate),
- (iv) the first purchaser or first tenant of the Site, and
- (v) the professional advisers and lenders of the first purchaser or tenant of the Site.

4.3 In respect of Support Services, only the Client, Beneficiary and parties expressly named in a Report and no other parties are entitled to rely on its contents.

4.4 Save as set out in clauses 4.2 and 4.3 and unless otherwise expressly agreed in writing, no other person or entity of any kind is entitled to rely on any Services or Report issued or provided by GroundSure. Any party considering such Reports and Services does so at their own risk.

5 Fees and Disbursements

5.1 GroundSure shall charge and the Client shall pay fees at the rate and frequency specified in the written proposal, Order Website or Order acknowledgement form, plus (in the case of Support Services) all proper disbursements incurred by GroundSure. The Client shall in addition pay all value added tax or other tax payable on such fees and disbursements in relation to the provision of the Services (together “Fees”).

5.2 The Client shall pay all outstanding Fees to GroundSure in full without deduction, counterclaim or set off within 30 days of the date of GroundSure's invoice or such other period as may be agreed in writing between GroundSure and the Client ("Payment Date"). Interest on late payments will accrue on a daily basis from the Payment Date until the date of payment (whether before or after judgment) at the rate of 8% per annum.

5.3 The Client shall be deemed to have agreed the amount of any invoice unless an objection is made in writing within 28 days of the date of the invoice. As soon as reasonably practicable after being notified of an objection, without prejudice to clause 5.2 a member of GroundSure's management team will contact the Client and the parties shall then use all reasonable endeavours to resolve the dispute within 15 days.

6 Intellectual Property and Confidentiality

6.1 Subject to

(i) full payment of all relevant Fees and

(ii) compliance with this Contract, the Client is granted (and is permitted to sub-licence to the Beneficiary) a royalty-free, worldwide, non-assignable and (save to the extent set out in this Contract) non-transferable licence to make use of the GroundSure Materials.

6.2 All Intellectual Property in the GroundSure Materials are and shall remain owned by GroundSure or GroundSure's licensors (including without limitation the Third Party Data Providers) the Client acknowledges, and shall procure acknowledgement by the Beneficiary of, such ownership. Nothing in this Contract purports to transfer or assign any rights to the Client or the Beneficiary in respect of such Intellectual Property.

6.3 Third Party Data Providers may enforce any breach of clauses 6.1 and 6.2 against the Client or Beneficiary.

6.4 The Client shall, and shall procure that any recipients of the GroundSure Materials shall:

(i) not remove, suppress or modify any trade mark, copyright or other proprietary marking belonging to GroundSure or any third party from the Services;

(ii) use the information obtained as part of the Services in respect of the subject Site only, and shall not store or reuse any information obtained as part of the Services provided in respect of adjacent or nearby sites;

(iii) not create any product or report which is derived directly or indirectly from the Services (save that those acting in a professional capacity to the Beneficiary may provide advice based upon the Services);

(iv) not combine the Services with or incorporate such Services into any other information data or service;

(v) not reformat or otherwise change (whether by modification, addition or enhancement), the Services (save that those acting for the Beneficiary in a professional capacity shall not be in breach of this clause 6.4(v) where such reformatting is in the normal course of providing advice based upon the Services);

(vi) where a Report and/or Mapping contains material belonging to Ordnance Survey, acknowledge and agree that such content is protected by Crown Copyright and shall not use such content for any purpose outside of receiving the Services; and

(vii) not copy in whole or in part by any means any map prints or run-on copies containing content belonging to Ordnance Survey (other than that contained within Ordnance Survey's OS Street Map) without first being in possession of a valid Paper Map Copying Licence from Ordnance Survey,

6.5 Notwithstanding clause 6.4, the Client may make reasonable use of the GroundSure Materials in order to advise the Beneficiary in a professional capacity. However, GroundSure shall have no liability in respect of any advice, opinion or report given or provided to Beneficiaries by the Client.

6.6 The Client shall procure that any person to whom the Services are made available shall notify GroundSure of any request or requirement to disclose, publish or disseminate any information contained in the Services in accordance with the Freedom of Information Act 2000, the Environmental Information Regulations 2004 or any associated legislation or regulations in force from time to time.

7. Liability: Particular Attention Should Be Paid To This Clause

7.1 This Clause 7 sets out the entire liability of GroundSure, including any liability for the acts or omissions of its employees, agents, consultants, subcontractors and Third Party Content, in respect of:

(i) any breach of contract, including any deliberate breach of the Contract by GroundSure or its employees, agents or subcontractors;

(ii) any use made of the Reports, Services, Materials or any part of them; and

(iii) any representation, statement or tortious act or omission (including negligence) arising under or in connection with the Contract.

7.2 All warranties, conditions and other terms implied by statute or common law are, to the fullest extent permitted by law, excluded from the Contract.

7.3 Nothing in the Contract limits or excludes the liability of the Supplier for death

or personal injury resulting from negligence, or for any damage or liability incurred by the Client or Beneficiary as a result of fraud or fraudulent misrepresentation.

7.4 GroundSure shall not be liable for

(i) loss of profits;

(ii) loss of business;

(iii) depletion of goodwill and/or similar losses;

(iv) loss of anticipated savings;

(v) loss of goods;

(vi) loss of contract;

(vii) loss of use;

(viii) loss or corruption of data or information;

(ix) business interruption;

(x) any kind of special, indirect, consequential or pure economic loss, costs, damages, charges or expenses;

(xi) loss or damage that arise as a result of the use of all or part of the GroundSure Materials in breach of the Contract;

(xii) loss or damage arising as a result of any error, omission or inaccuracy in any part of the GroundSure Materials where such error, omission or inaccuracy is caused by any Third Party Content or any reasonable interpretation of Third Party Content;

(xiii) loss or damage to a computer, software, modem, telephone or other property; and

(xiv) loss or damage caused by a delay or loss of use of GroundSure's internet ordering service.

7.5 GroundSure's total liability in relation to or under the Contract shall be limited to £10 million for any claim or claims.

7.6 GroundSure shall procure that the Beneficiary shall be bound by limitations and exclusions of liability in favour of GroundSure which accord with those detailed in clauses 7.4 and 7.5 (subject to clause 7.3) in respect of all claims which the Beneficiary may bring against GroundSure in relation to the Services or other matters arising pursuant to the Contract.

8 GroundSure's right to suspend or terminate

8.1 If GroundSure reasonably believes that the Client or Beneficiary has not provided the information or assistance required to enable the proper provision of the Services, GroundSure shall be entitled to suspend all further performance of the Services until such time as any such deficiency has been made good.

8.2 GroundSure shall be entitled to terminate the Contract immediately on written notice in the event that:

(i) the Client fails to pay any sum due to GroundSure within 30 days of the Payment Date; or

(ii) the Client (being an individual) has a bankruptcy order made against him or (being a company) shall enter into liquidation whether compulsory or voluntary or have an administration order made against it or if a receiver shall be appointed over the whole or any part of its property assets or undertaking or if the Client is struck off the Register of Companies or dissolved; or

(iii) the Client being a company is unable to pay its debts within the meaning of Section 123 of the Insolvency Act 1986 or being an individual appears unable to pay his debts within the meaning of Section 268 of the Insolvency Act 1986 or if the Client shall enter into a composition or arrangement with the Client's creditors or shall suffer distress or execution to be levied on his goods; or

(iv) the Client or the Beneficiary breaches any term of the Contract (including, but not limited to, the obligations in clause 4) which is incapable of remedy or if remediable, is not remedied within five days of notice of the breach.

9. Client's Right to Terminate and Suspend

9.1 Subject to clause 10.1, the Client may at any time upon written notice terminate or suspend the provision of all or any of the Services.

9.2 In any event, where the Client is a consumer (and not a business) he/she hereby expressly acknowledges and agrees that:

(i) the supply of Services under this Contract (and therefore the performance of this Contract) commences immediately upon GroundSure's acceptance of the Order; and

(ii) the Reports and/or Mapping provided under this Contract are

(a) supplied to the Client's specification(s) and in any event

(b) by their nature cannot be returned.

10 Consequences of Withdrawal, Termination or Suspension

10.1 Upon termination of the Contract:

(i) GroundSure shall take steps to bring to an end the Services in an orderly manner, vacate any Site with all reasonable speed and shall deliver to the Client and/or Beneficiary any property of the Client and/or Beneficiary in

GroundSure's possession or control; and

(ii) the Client shall pay to GroundSure all and any Fees payable in respect of the performance of the Services up to the date of termination or suspension. In respect of any Support Services provided, the Client shall also pay GroundSure any additional costs incurred in relation to the termination or suspension of the Contract.

11 Anti-Bribery

11.1 The Client warrants that it shall:

(i) comply with all applicable laws, statutes and regulations relating to anti-bribery and anti-corruption including but not limited to the Bribery Act 2010;

(ii) comply with such of GroundSure's anti-bribery and anti-corruption policies as are notified to the Client from time to time; and

(iii) promptly report to GroundSure any request or demand for any undue financial or other advantage of any kind received by or on behalf of the Client in connection with the performance of this Contract.

11.2 Breach of this Clause 11 shall be deemed a material breach of this Contract.

12 General

12.1 The Mapping contained in the Services is protected by Crown copyright and must not be used for any purpose other than as part of the Services or as specifically provided in the Contract.

12.2 The Client shall be permitted to make one copy only of each Report or Mapping Order. Thereafter the Client shall be entitled to make unlimited copies of the Report or Mapping Order only in accordance with an Ordnance Survey paper map copy license available through GroundSure.

12.3 GroundSure reserves the right to amend or vary this Contract. No amendment or variation to this Contract shall be valid unless signed by an authorised representative of GroundSure.

12.4 No failure on the part of GroundSure to exercise, and no delay in exercising, any right, power or provision under this Contract shall operate as a waiver thereof.

12.5 Save as expressly provided in this Contract, no person other than the persons set out therein shall have any right under the Contract (Rights of Third Parties) Act 1999 to enforce any terms of the Contract.

12.6 The Secretary of State for Business, Innovation and Skills ("BIS") or BIS' successor body, as the case may be, acting through Ordnance Survey may enforce a breach of clause 6.4(vi) and clause 6.4(vii) of these terms and conditions against the Client in accordance with the provisions of the Contracts (Rights of Third Parties) Act 1999.

12.7 GroundSure shall not be liable to the Client if the provision of the Services is delayed or prevented by one or more of the following circumstances:

- (i) the Client or Beneficiary's failure to provide facilities, access or information;
- (ii) fire, storm, flood, tempest or epidemic;
- (iii) Acts of God or the public enemy;
- (iv) riot, civil commotion or war;
- (v) strikes, labour disputes or industrial action;
- (vi) acts or regulations of any governmental or other agency;
- (vii) suspension or delay of services at public registries by Third Party Data Providers;
- (viii) changes in law; or
- (ix) any other reason beyond GroundSure's reasonable control.

In the event that GroundSure is prevented from performing the Services (or any part thereof) in accordance with this clause 12.6 for a period of not less than 30 days then GroundSure shall be entitled to terminate this Contract immediately on written notice to the Client.

12.8 Any notice provided shall be in writing and shall be deemed to be properly given if delivered by hand or sent by first class post, facsimile or by email to the address, facsimile number or email address of the relevant party as may have been notified by each party to the other for such purpose or in the absence of such notification the last known address.

12.9 Such notice shall be deemed to have been received on the day of delivery if delivered by hand, facsimile or email (save to the extent such day is not a working day where it shall be deemed to have been delivered on the next working day) and on the second working day after the day of posting if sent by first class post.

12.10 The Contract constitutes the entire agreement between the parties and shall supersede all previous arrangements between the parties relating to the subject matter hereof.

12.11 Each of the provisions of the Contract is severable and distinct from the others and if one or more provisions is or should become invalid, illegal or unenforceable, the validity and enforceability of the remaining provisions shall not in any way be tainted or impaired.

12.12 This Contract shall be governed by and construed in accordance with English

law and any proceedings arising out of or connected with this Contract shall be subject to the exclusive jurisdiction of the English courts.

12.13 GroundSure is an executive member of the Council of Property Search Organisation (CoPSO) and has signed up to the Search Code administered by the Property Codes Compliance Board (PCCB). All Risk Screening Reports shall be supplied in accordance with the provisions of the Search Code.

12.14 If the Client or Beneficiary has a complaint about the Services, written notice should be given to the Compliance Officer at GroundSure who will respond in a timely manner.

12.15 The Client agrees that it shall, and shall procure that each Beneficiary shall, treat in confidence all Confidential Information and shall not, and shall procure that each Beneficiary shall not (i) disclose any Confidential Information to any third party other than in accordance with the terms of this Contract; and (ii) use Confidential Information for a purpose other than the exercise of its rights and obligations under this Contract. Subject to clause 6.6, nothing shall prevent the Client or any Beneficiary from disclosing Confidential Information to the extent required by law. © GroundSure Limited June 2013



EmapSite

Masdar House,
Eversley, RG27 0RP

Report Reference: EMS-245265_329171

Your Reference: EMS_245265_329171

Report Date 8 Apr 2014

Report Delivery Method: Email - pdf

GroundSure Geoinsight

Address: ,

Dear Sir/ Madam,

Thank you for placing your order with GroundSure. Please find enclosed the **GroundSure Geolnsight** as requested.

If you would like further assistance regarding this report then please contact the emapsite customer services team on 0118 9736883 quoting the above report reference number.

Yours faithfully,

emapsite customer services team

Enc.
GroundSure Geolnsight



GroundSure GeoInsight

Address: ,
Date: 8 Apr 2014
Reference: EMS-245265_329171
Client: EmapSite

NW N NE

W E



SW S SE

Aerial Photograph Capture date: 26-Mar-2012
Grid Reference: 441652,406467
Site Size: 5.85ha

Contents Page

Contents Page	3
Overview of Findings.....	4
1 Geology.....	6
1.1 Artificial Ground Map.....	6
1.1 Artificial Ground.....	7
1.1.1 Artificial/ Made Ground.....	7
1.1.2 Permeability of Artificial Ground.....	7
1.2 Superficial Deposits and Landslips Map.....	8
1.2 Superficial Deposits and Landslips.....	9
1.2.1 Superficial Deposits/ Drift Geology.....	9
1.2.2 Permeability of Superficial Ground.....	9
1.2.3 Landslip.....	9
1.2.4 Landslip Permeability.....	9
1.3 Bedrock and Faults Map.....	10
1.3 Bedrock, Solid Geology & Faults.....	11
1.3.1 Bedrock/ Solid Geology.....	11
1.3.2 Permeability of Bedrock Ground.....	11
1.3.3 Faults.....	11
1.4 Radon Data.....	13
1.4.1 Radon Affected Areas.....	13
1.4.2 Radon Protection.....	13
2 Ground Workings Map.....	14
2 Ground Workings.....	15
2.1 Historical Surface Ground Working Features derived from Historical Mapping.....	15
2.2 Historical Underground Working Features derived from Historical Mapping.....	16
2.3 Current Ground Workings.....	17
3 Mining, Extraction & Natural Cavities Map.....	18
3 Mining, Extraction & Natural Cavities.....	19
3.1 Historical Mining.....	19
3.2 Coal Mining.....	19
3.3 Johnson Poole and Bloomer.....	20
3.4 Non-Coal Mining.....	20
3.5 Non-Coal Mining Cavities.....	20
3.6 Natural Cavities.....	20
3.7 Brine Extraction.....	21
3.8 Gypsum Extraction.....	21
3.9 Tin Mining.....	21
3.10 Clay Mining.....	21
4 Natural Ground Subsidence.....	22
4.1 Shrink-Swell Clay Map.....	22
4.2 Landslides Map.....	23
4.3 Ground Dissolution Soluble Rocks Map.....	24
4.4 Compressible Deposits Map.....	25
4.5 Collapsible Deposits Map.....	26
4.6 Running Sand Map.....	27
4 Natural Ground Subsidence.....	28
4.1 Shrink-Swell Clays.....	28
4.2 Landslides.....	29
4.3 Ground Dissolution of Soluble Rocks.....	29
4.4 Compressible Deposits.....	29
4.5 Collapsible Deposits.....	30
4.6 Running Sands.....	30
5 Borehole Records Map.....	32
5 Borehole Records.....	33
6 Estimated Background Soil Chemistry.....	35

Overview of Findings

The GroundSure GeoInsight provides high quality geo-environmental information that allows geo-environmental professionals and their clients to make informed decisions and be forewarned of potential ground instability problems that may affect the ground investigation, foundation design and possibly remediation options that could lead to possible additional costs.

The report is based on the BGS 1:50,000 Digital Geological Map of Great Britain, BGS Geosure data; BRITPITS database; Shallow Mining data and Borehole Records, Coal Authority data including brine extraction areas, PBA non-coal mining and natural cavities database, Johnson Poole and Bloomer mining data and GroundSure's unique database including historical surface ground and underground workings.

For further details on each dataset, please refer to each individual section in the report as listed. Where the database has been searched a numerical result will be recorded. Where the database has not been searched '-' will be recorded.

Section 1: Geology

1.1 Artificial Ground	1.1.1 Is there any Artificial Ground/ Made Ground present beneath the study site?	Yes
	1.1.2 Are there any records relating to permeability of artificial ground within the study site* boundary?	Yes
1.2 Superficial Geology and Landslips	1.2.1 Is there any Superficial Ground/Drift Geology present beneath the study site?	Yes
	1.2.2 Are there any records relating to permeability of superficial geology within the study site boundary?	Yes
	1.2.3 Are there any records of landslip within 500m of the study site boundary?	No
	1.2.4 Are there any records relating to permeability of landslips within the study site boundary?	No
1.3 Bedrock, Solid Geology & Faults	1.3.1 For records of Bedrock and Solid Geology beneath the study site* see the detailed findings section.	
	1.3.2 Are there any records relating to permeability of bedrock within the study site boundary?	Yes
	1.3.3 Are there any records of faults within 500m of the study site boundary?	Yes
1.4 Radon data	1.4.1 Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level?	The property is in a Radon Affected Area, as between 1 and 3% of properties are above the Action Level
	1.4.2 Is the property in an area where Radon Protection Measures are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment?	No radon protective measures are necessary

Section 2: Ground Workings

	On-site	0-50m	51-250	251-500	501-1000
2.1 Historical Surface Ground Working Features from Small Scale Mapping	10	3	15	Not Searched	Not Searched
2.2 Historical Underground Workings from Small Scale Mapping	1	1	2	2	7
2.3 Current Ground Workings	0	0	2	1	3

Section 3: Mining, Extraction & Natural Cavities	On-site	0-50m	51-250	251-500	501-1000
3.1 Historical Mining	1	1	2	0	7
3.2 Coal Mining	1	0	0	0	0
3.3 Johnson Poole and Bloomer Mining Area	0	0	0	0	0
3.4 Non-Coal Mining	1	0	2	1	2
3.5 Non-Coal Mining Cavities	0	0	0	0	0
3.6 Natural Cavities	0	0	0	0	0
3.7 Brine Extraction	0	0	0	0	0
3.8 Gypsum Extraction	0	0	0	0	0
3.9 Tin Mining	0	0	0	0	0
3.10 Clay Mining	0	0	0	0	0

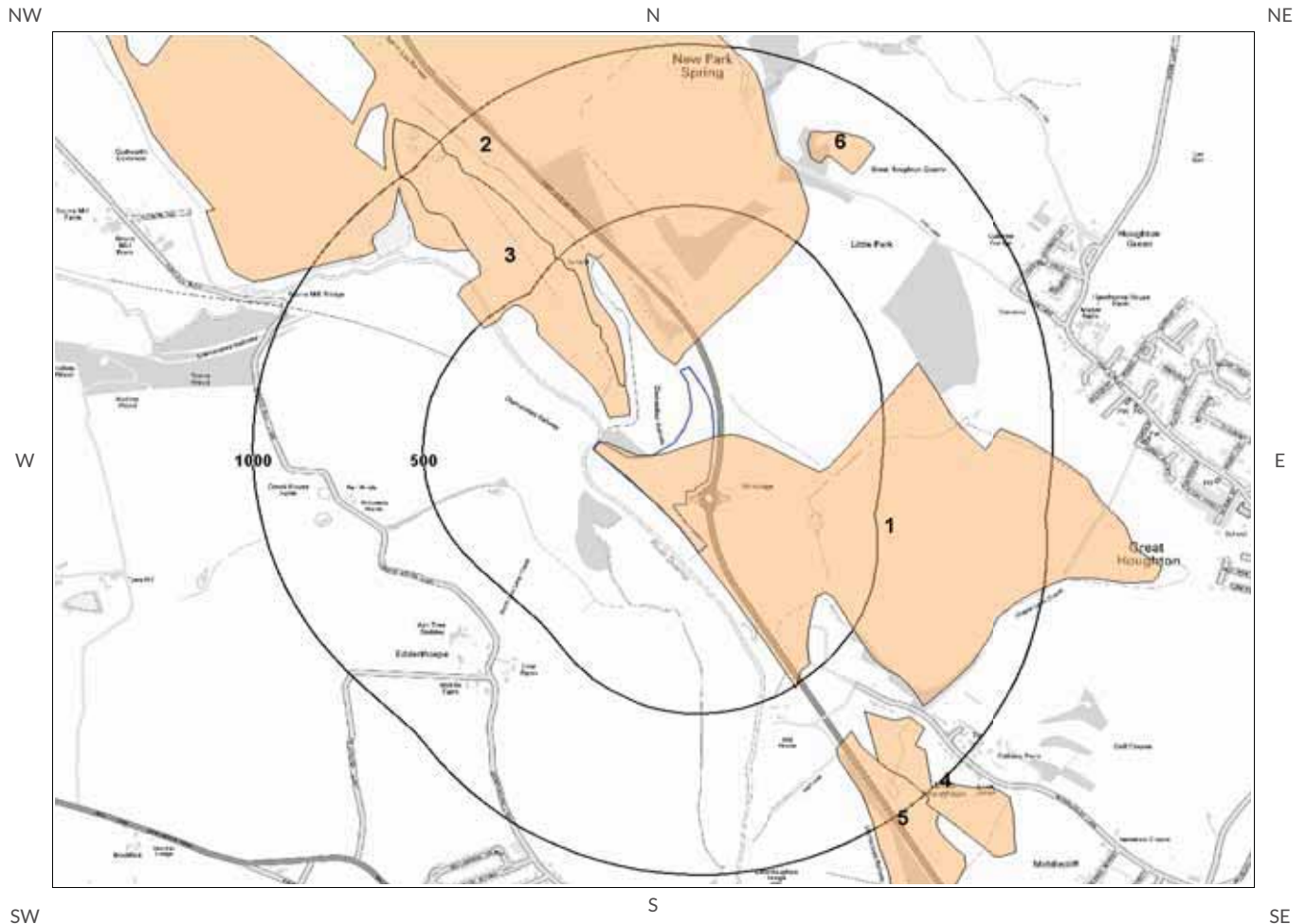
Section 4: Natural Ground Subsidence	On-site
4.1 Shrink Swell Clay	Low
4.2 Landslides	Low
4.3 Ground Dissolution of Soluble Rocks	Null
4.4 Compressible Deposits	Moderate
4.5 Collapsible Deposits	Very Low
4.6 Running Sand	Low

Section 5: Borehole Records	On-site	0-50m	51-250
5 BGS Recorded Boreholes	3	3	13

Section 6: Estimated Background Soil Chemistry	On-site	0-50m	51-250
6 Records of Background Soil Chemistry	5	0	12

1 Geology







1.1 Artificial Ground Map



Artificial Ground Legend



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- | | | | | | |
|---|--------------------|---|---------------------------|---|-------------------------------|
|  | Site Outline |  | Made Ground (undivided) |  | Disturbed Ground (undivided) |
|  | Search Buffers (m) |  | Worked Ground (undivided) |  | Landscaped Ground (undivided) |
| | |  | Infilled Ground |  | Reclaimed Ground |



1 Geology

1.1 Artificial Ground

1.1.1 Artificial/ Made Ground

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No:087

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

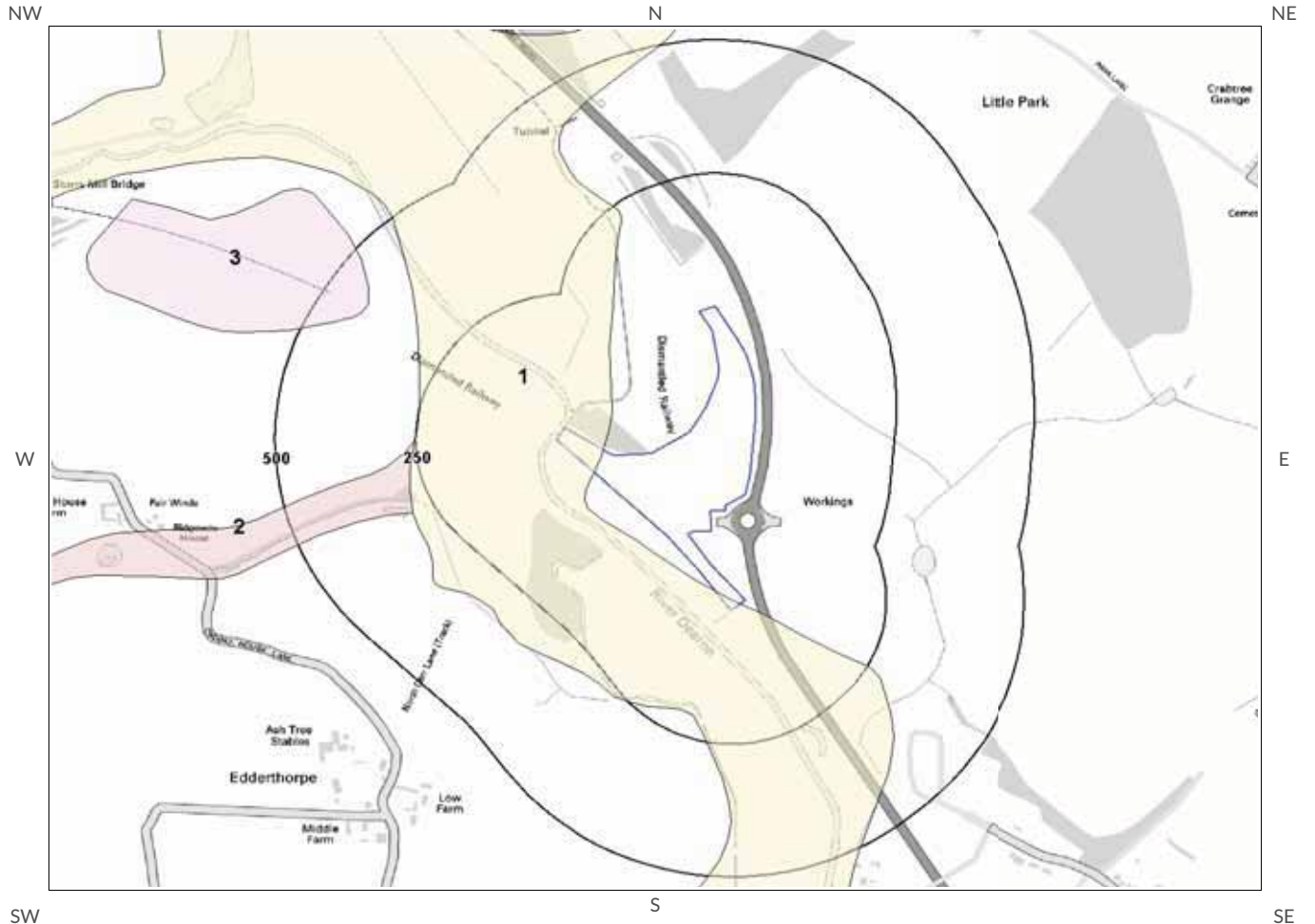
ID	Distance (m)	Direction	LEX Code	Description	Rock Description
1	0.0	On Site	MGR-MGRD	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
2	21.0	NW	MGR-MGRD	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
3	78.0	NE	WMGR-MGRD	INFILLED GROUND	ARTIFICIAL DEPOSIT

1.1.2 Permeability of Artificial Ground

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

Distance (m)	Direction	Flow Type	Maximum Permeability	Minimum Permeability
0.0	On Site	Intergranular	Very High	Very Low
21.0	NW	Intergranular	Very High	Very Low

1.2 Superficial Deposits and Landslips Map



Superficial Deposits and Landslips Legend



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-  Site Outline
-  Search Buffers (m)

1.2 Superficial Deposits and Landslips

1.2.1 Superficial Deposits/ Drift Geology

Are there any records of Superficial Deposits/ Drift Geology within 500m of the study site boundary? Yes

ID	Distance (m)	Direction	LEX Code	Description	Rock Description
1	0.0	On Site	ALV-CLSI	ALLUVIUM	CLAY AND SILT
2	252.0	W	HEAD-DMTN	HEAD	DIAMICTON
3	420.0	NW	GFDMP-SAGR	GLACIOFLUVIAL DEPOSITS, MID PLEISTOCENE	SAND AND GRAVEL

1.2.2 Permeability of Superficial Ground

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

Distance (m)	Direction	Flow Type	Maximum Permeability	Minimum Permeability
0.0	On Site	Intergranular	Low	Very Low

1.2.3 Landslip

Are there any records of Landslip within 500m of the study site boundary? No

Database searched and no data found.

This Geology shows the main components as discrete layers, these are: Artificial / Made Ground, Superficial / Drift Geology and Landslips. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

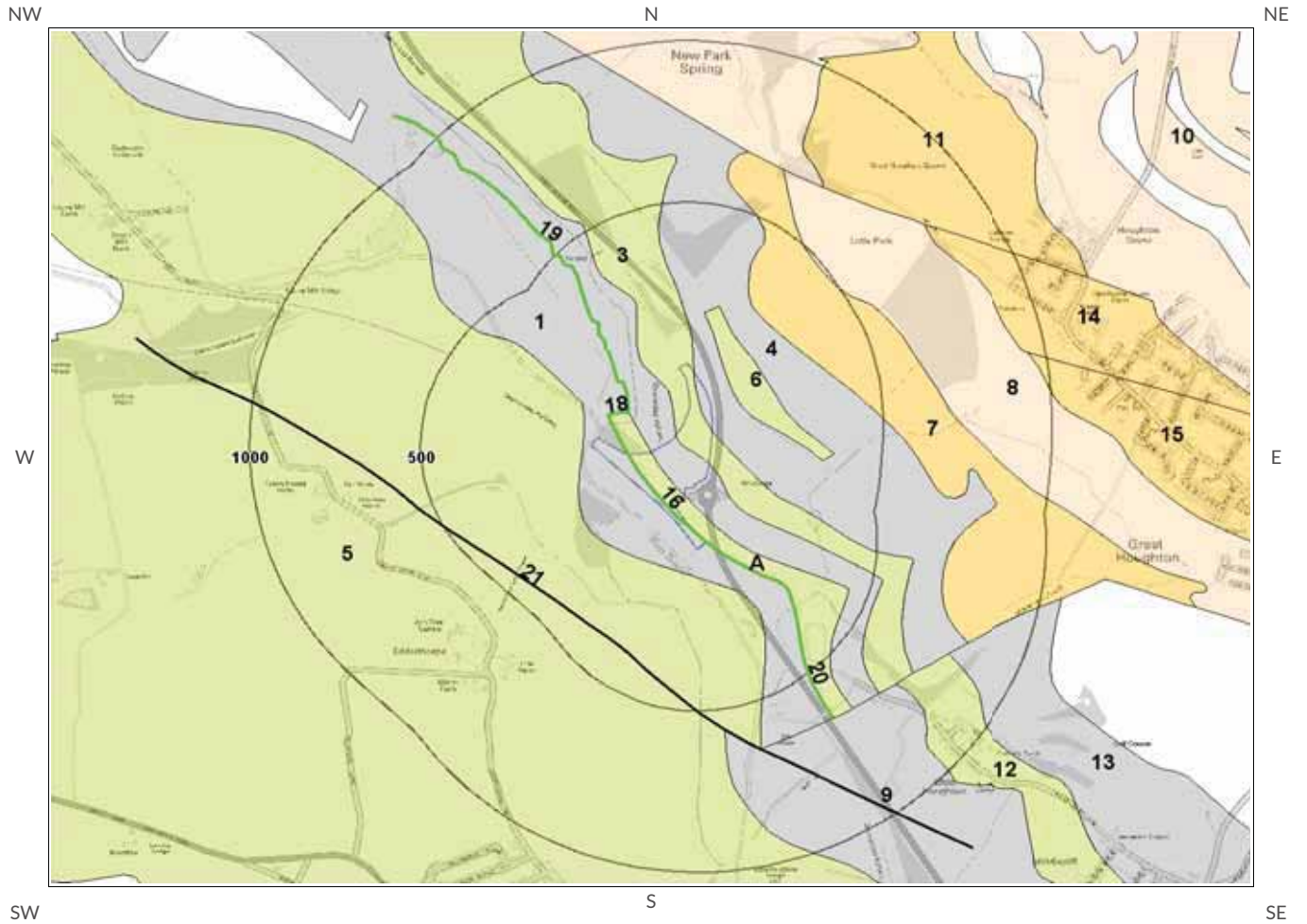
1.2.4 Landslip Permeability

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

Database searched and no data found.

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


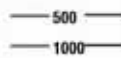
1.3 Bedrock and Faults Map



Bedrock and Faults Legend



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-  Site Outline
-  Search Buffers (m)

1.3 Bedrock, Solid Geology & Faults

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No:087

1.3.1 Bedrock/ Solid Geology

Records of Bedrock/ Solid Geology within 500m of the study site boundary:

ID	Distance (m)	Direction	LEX Code	Description	Rock Age
1	0.0	On Site	PMCM-MDSS	Pennine Middle Coal Measures Formation - Mudstone, Siltstone And Sandstone	Bolsoviaian (westphalian C) / Duckmantian (westphalian B)
2A	0.0	On Site	PMCM-SDST	Pennine Middle Coal Measures Formation - Sandstone	Bolsoviaian (westphalian C) / Duckmantian (westphalian B)
3	0.0	On Site	PMCM-SDST	Pennine Middle Coal Measures Formation - Sandstone	Bolsoviaian (westphalian C) / Duckmantian (westphalian B)
4	0.0	On Site	PMCM-MDSS	Pennine Middle Coal Measures Formation - Mudstone, Siltstone And Sandstone	Bolsoviaian (westphalian C) / Duckmantian (westphalian B)
5	26.0	W	MXR-SDST	Mexborough Rock - Sandstone	Bolsoviaian (westphalian C)
6	71.0	E	PMCM-SDST	Pennine Middle Coal Measures Formation - Sandstone	Bolsoviaian (westphalian C) / Duckmantian (westphalian B)
7	258.0	NE	AR-SDST	Ackworth Rock - Sandstone	Bolsoviaian (westphalian C)
8	486.0	NE	PUCM-MDSS	Pennine Upper Coal Measures Formation - Mudstone, Siltstone And Sandstone	Westphalian D / Bolsoviaian (westphalian C)

1.3.2 Permeability of Bedrock Ground

Are there any records relating to permeability of bedrock ground within the study site^{*} boundary? Yes

Distance (m)	Direction	Flow Type	Maximum Permeability	Minimum Permeability
0.0	On Site	Fracture	High	Moderate
0.0	On Site	Fracture	Moderate	Low
0.0	On Site	Fracture	High	Moderate
0.0	On Site	Fracture	Moderate	Low
26.0	W	Fracture	High	Moderate

1.3.3 Faults

Are there any records of Faults within 500m of the study site boundary? Yes

ID	Distance (m)	Direction	Category Description	Feature Description
16	0.0	On Site	ROCK	Coal seam, inferred
17A	47.0	SE	ROCK	Coal seam, inferred
18	78.0	NE	ROCK	Coal seam, inferred
19	115.0	NE	ROCK	Coal seam, inferred
20	336.0	SE	ROCK	Coal seam, inferred

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

ID	Distance (m)	Direction	Category Description	Feature Description
21	377.0	SW	FAULT	Normal fault, inferred

The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of Great Britain at 1:50,000 scale.

This Geology shows the main components as discrete layers, these are: Bedrock/ Solid Geology and linear features such as Faults. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

1.4 Radon Data

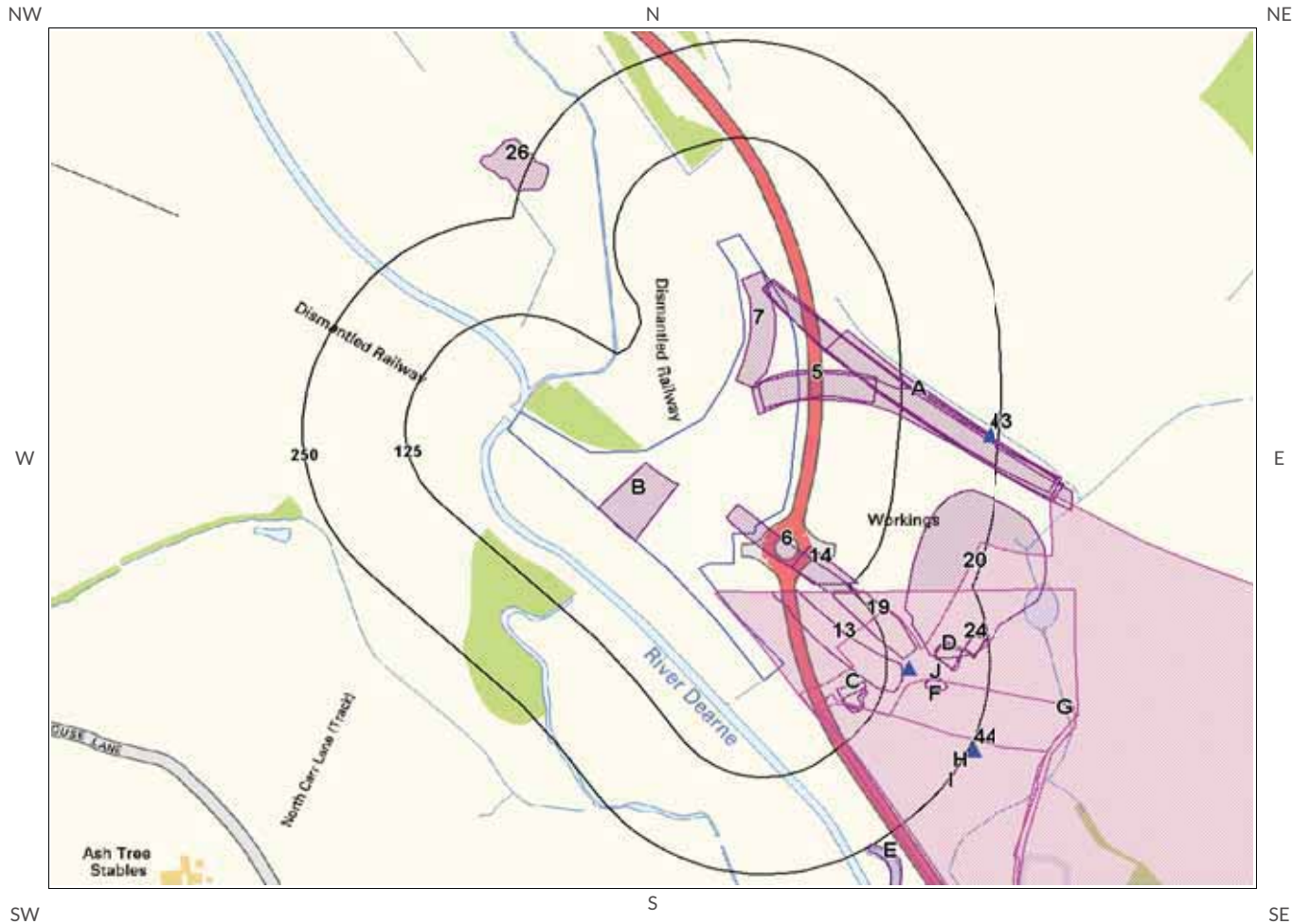
1.4.1 Radon Affected Areas

Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level? The property is in a Radon Affected Area, as between 1 and 3% of properties are above the Action Level

1.4.2 Radon Protection

Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment? No radon protective measures are necessary


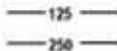


2 Ground Workings Map



Ground Workings Legend



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-  Site Outline
-  Search Buffers (m)
-  Historic Surface Ground Workings
-  Historic Underground Workings
-  Current Ground Workings



2 Ground Workings

2.1 Historical Surface Ground Working Features derived from Historical Mapping

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

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

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

ID	Distance (m)	Direction	NGR	Use	Date
1F	0.0	On Site	441891 406018	Colliery	1948
2A	0.0	On Site	441914 406550	Cuttings	1948
3A	0.0	On Site	441914 406550	Cuttings	1904
4A	0.0	On Site	441968 406499	Cuttings	1981
5	0.0	On Site	441789 406559	Cuttings	1988
6	0.0	On Site	441760 406354	Cuttings	1904
7	0.0	On Site	441714 406637	Cuttings	1988
8B	0.0	On Site	441571 406414	Cuttings	1904
9B	0.0	On Site	441571 406414	Cuttings	1948
10A	0.0	On Site	441879 406563	Cuttings	1951
11A	35.0	E	441945 406527	Cuttings	1967
12G	42.0	SE	442198 406079	Colliery	1951
13	49.0	NE	441814 406235	Cuttings	1904
14	55.0	SE	441799 406333	Cuttings	1948
15H	65.0	SE	441947 405970	Colliery	1904
16C	72.0	SE	441830 406165	Unspecified Ground Workings	1951
17I	76.0	SE	441955 405941	Colliery	1890
18C	84.0	SE	441836 406159	Unspecified Pit	1948
19	103.0	NE	441859 406256	Cuttings	1904
20	163.0	NE	441983 406321	Refuse Heap	1967
21J	173.0	E	441934 406178	Unspecified Pit	1904

ID	Distance (m)	Direction	NGR	Use	Date
22D	184.0	E	441949 406214	Unspecified Pit	1948
23D	184.0	E	441950 406216	Unspecified Pit	1951
24	220.0	E	441981 406230	Cuttings	1951
25D	221.0	E	441982 406228	Cuttings	1948
26	223.0	W	441420 406848	Pond	1988
27E	248.0	SE	441884 405945	Pond	1988
28E	248.0	SE	441884 405945	Pond	1981

2.2 Historical Underground Working Features derived from Historical Mapping

This data is derived from the GroundSure unique Historical Land Use Database. It contains data derived from 1:10,000 and 1:10,560 historical Ordnance Survey Mapping and includes some natural topographical features (Shake Holes for example) as well as manmade features that may have implications for ground stability. Underground and mining features have been identified from surface features such as shafts. The distance that these extend underground is not shown.

Are there any Historical Underground Working Features within 1000m of the study site boundary? Yes

The following Historical Underground Working Features are provided by GroundSure:

ID	Distance (m)	Direction	NGR	Use	Date
29F	0.0	On Site	441891 406018	Colliery	1948
30G	42.0	SE	442198 406079	Colliery	1951
31H	65.0	SE	441947 405970	Colliery	1904
32I	76.0	SE	441955 405941	Colliery	1890
Not shown	421.0	NW	441432 407103	Tunnel	1988
Not shown	421.0	NW	441432 407103	Tunnel	1981
Not shown	642.0	SE	442253 405445	Colliery	1951
Not shown	645.0	SE	442266 405442	Colliery	1938
Not shown	646.0	SE	442266 405496	Colliery	1904
Not shown	649.0	SE	442310 405405	Unspecified Mine	1967
Not shown	649.0	SE	442310 405405	Colliery	1981
Not shown	649.0	SE	442310 405405	Colliery	1988
Not shown	739.0	NW	440859 408124	Colliery	1948

2.3 Current Ground Workings

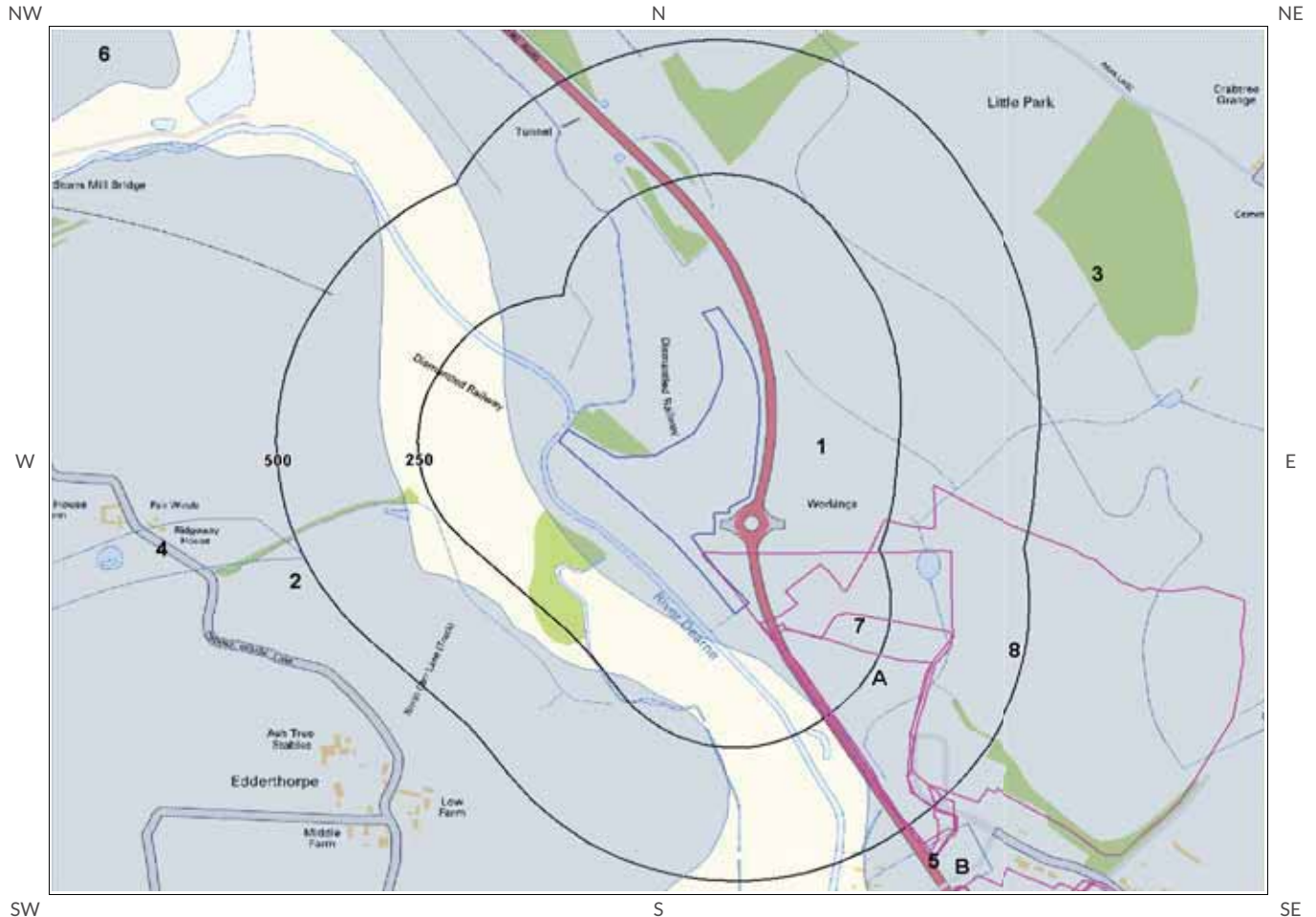
This dataset is derived from the BGS BRITPITS database covering active; inactive mines; quarries; oil wells; gas wells and mineral wharves; and rail deposits throughout the British Isles.

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

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

ID	Distance (m)	Direction	NGR	Commodity Produced	Pit Name	Type of working	Status
42J	151.0	E	441900 406200	Coal, Surface Mined	Houghton Main Extension OCCS	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
43	237.0	E	442000 406500	Coal, Surface Mined	Houghton Main OCCS	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
44	256.0	SE	441980 406095	Coal, Deep	Houghton Main Colliery	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	785.0	NE	442125 407415	Sandstone	Great Houghton	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	804.0	SE	442210 405545	Coal, Deep	Dearne Valley Colliery	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	918.0	SE	442200 405400	Coal, Surface Mined	Firtree Link Road	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased

3 Mining, Extraction & Natural Cavities Map



Mining, Extraction and Natural Cavities Legend

Mapping sourced from Ordnance Survey

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3 Mining, Extraction & Natural Cavities

3.1 Historical Mining

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

Are there any Historical Mining areas within 1000m of the study site boundary? Yes

The following Historical Mining information is provided by GroundSure:

ID	Distance (m)	Direction	NGR	Details	Date
7	0.0	On Site	441891 406018	Colliery	1948
8	42.0	SE	442198 406079	Colliery	1951
9A	65.0	SE	441947 405970	Colliery	1904
10A	76.0	SE	441955 405941	Colliery	1890
11B	642.0	SE	442253 405445	Colliery	1951
12B	645.0	SE	442266 405442	Colliery	1938
13	646.0	SE	442266 405496	Colliery	1904
14B	649.0	SE	442310 405405	Colliery	1981
15B	649.0	SE	442310 405405	Colliery	1988
16B	649.0	SE	442310 405405	Unspecified Mine	1967
Not shown	739.0	NW	440859 408124	Colliery	1948

3.2 Coal Mining

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

Are there any Coal Mining areas within 1000m of the study site boundary? Yes

The following Coal Mining information provided by the Coal Authority is not represented on Mapping:

Distance (m)	Direction	Details
0.0	On Site	The study site is located within the specified search distance of an identified mining area. Further details concerning this can be obtained from the Coal Authority Helpline on 0845 762 6848.

3.3 Johnson Poole and Bloomer

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

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

The following information provided by JPB is not represented on mapping: Database searched and no data found.

3.4 Non-Coal Mining

This dataset provides information as to whether the study site lies within an area which may have been subject to non-coal historic mining.

Are there any Non-Coal Mining areas within 1000m of the study site boundary? Yes

The following non-coal mining information is provided by the BGS:

ID	Distance (m)	Direction	Name	Commodity	Assessment of likelihood
1	0.0	On Site	Not available	Iron Ore (Bedded)	Highly Unlikely - Localised small scale mining may have occurred but restricted in extent.
2	198.0	SW	Sheffield Area	Iron Ore	Highly Unlikely - Localised small scale mining may have occurred but restricted in extent.
3	247.0	NE	Sheffield Area	Iron Ore	Highly Unlikely - Localised small scale mining may have occurred but restricted in extent.
4	496.0	SW	Not available	Iron Ore (Bedded)	Highly Unlikely - Localised small scale mining may have occurred but restricted in extent.
5	546.0	SE	Sheffield Area	Iron Ore	Highly Unlikely - Localised small scale mining may have occurred but restricted in extent.
6	952.0	NW	Sheffield Area	Iron Ore	Highly Unlikely - Localised small scale mining may have occurred but restricted in extent.

3.5 Non-Coal Mining Cavities

This dataset provides information from the Peter Brett Associates (PBA) mining cavities database (compiled for the national study entitled "Review of mining instability in Great Britain, 1990" PBA has also continued adding to this database) on mineral extraction by mining.

Are there any Non-Coal Mining cavities within 1000m of the study site boundary? No

Database searched and no data found.

3.6 Natural Cavities

This dataset provides information based on Peter Brett Associates natural cavities database.

Are there any Natural Cavities within 1000m of the study site boundary? No

Database searched and no data found.

3.7 Brine Extraction

This dataset provides information from the Brine Compensation Board which has been discontinued and is now covered by the Coal Authority.

Are there any Brine Extraction areas within 1000m of the study site boundary? No

Database searched and no data found.

3.8 Gypsum Extraction

This dataset provides information on Gypsum extraction from British Gypsum records.

Are there any Gypsum Extraction areas within 1000m of the study site boundary? No

Database searched and no data found.

3.9 Tin Mining

This dataset provides information on tin mining areas and is derived from tin mining records. This search is based upon postcode information to a sector level.

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

Database searched and no data found.

3.10 Clay Mining

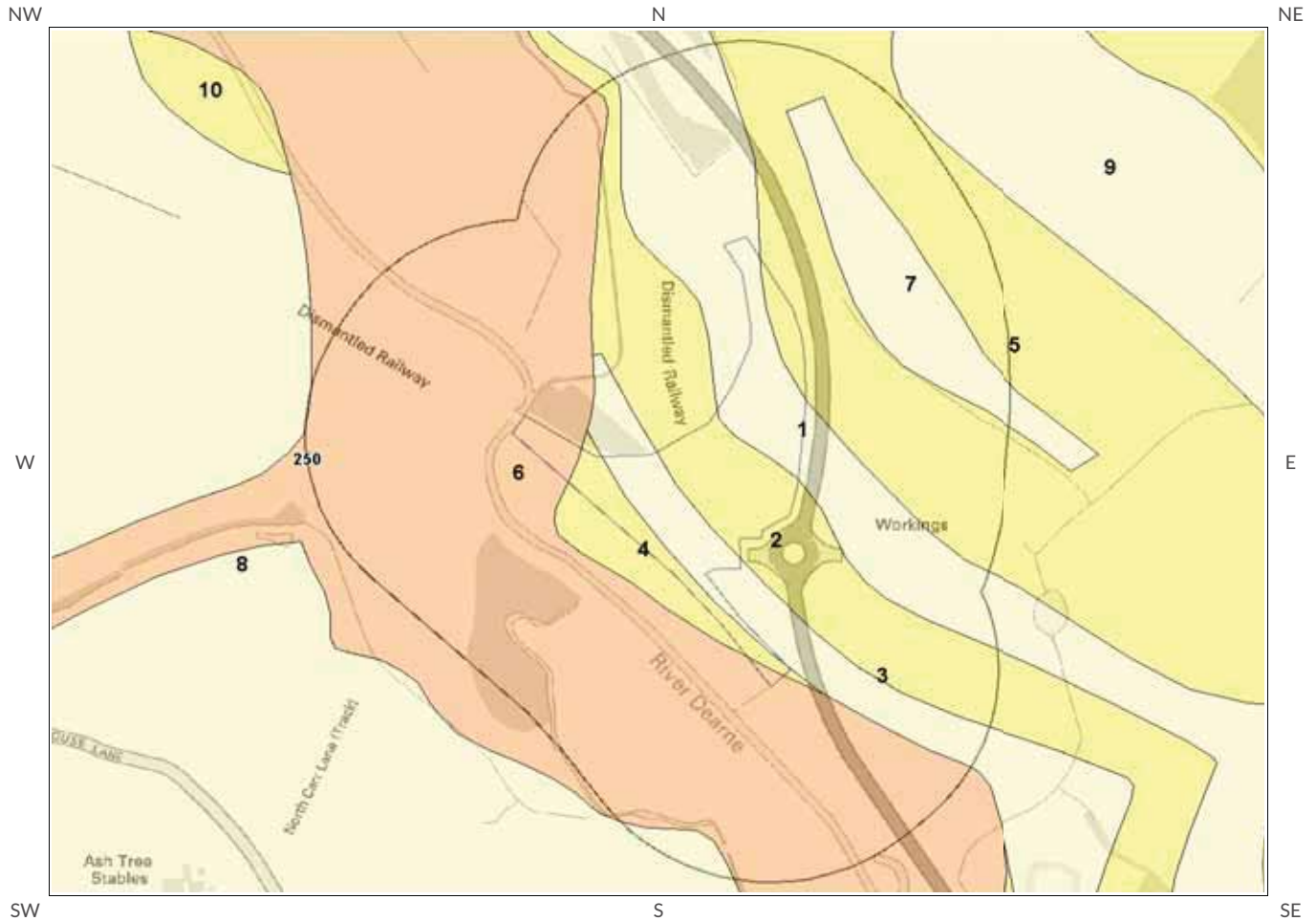
This dataset provides information on Kaolin and Ball Clay mining from relevant mining records.

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

Database searched and no data found.

4 Natural Ground Subsidence

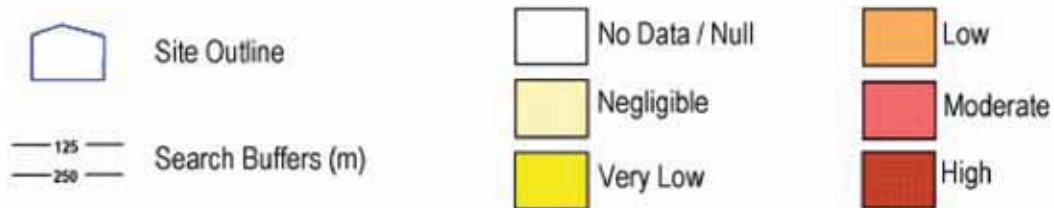
4.1 Shrink-Swell Clay Map



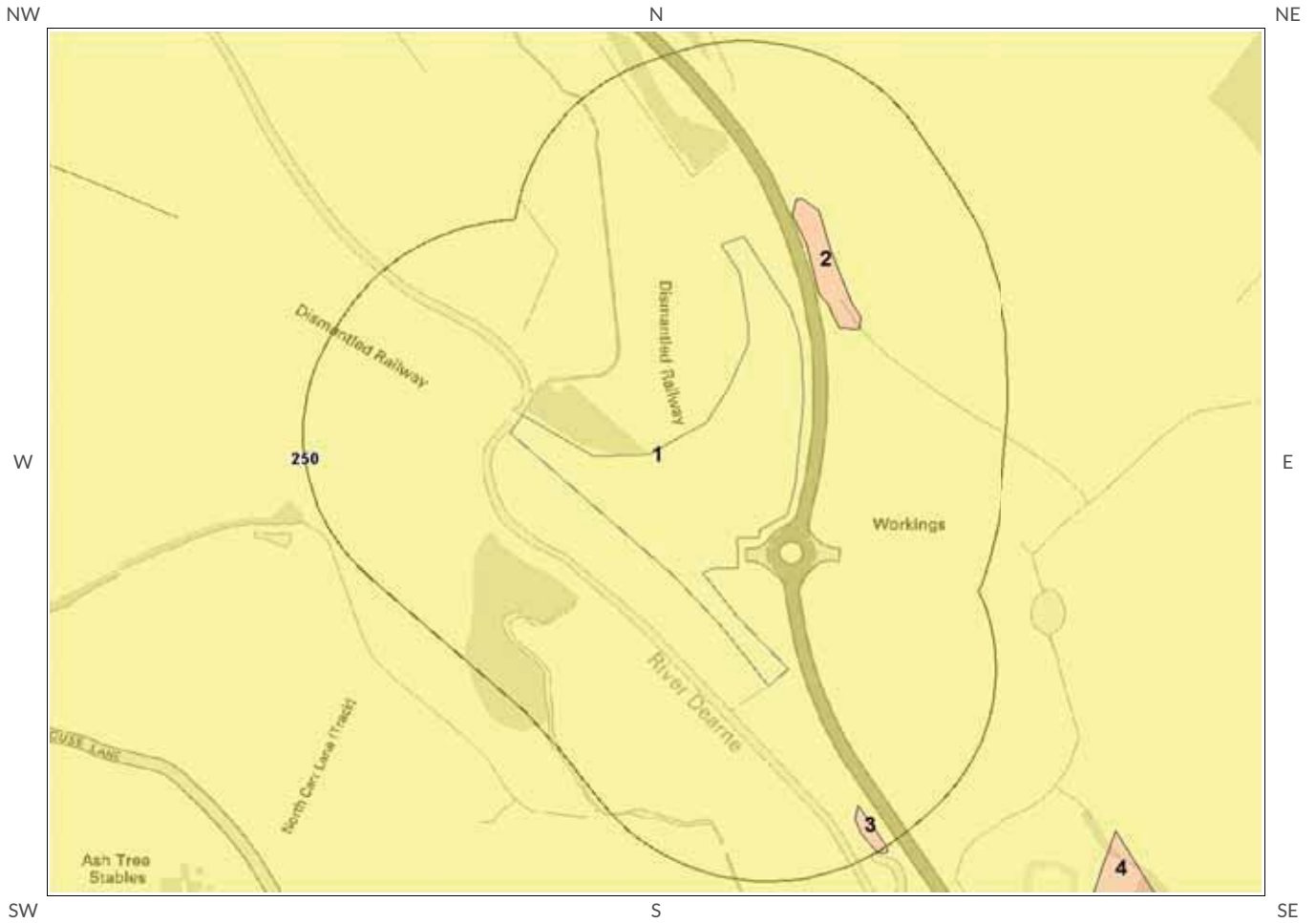
Shrink Swell Clay Legend



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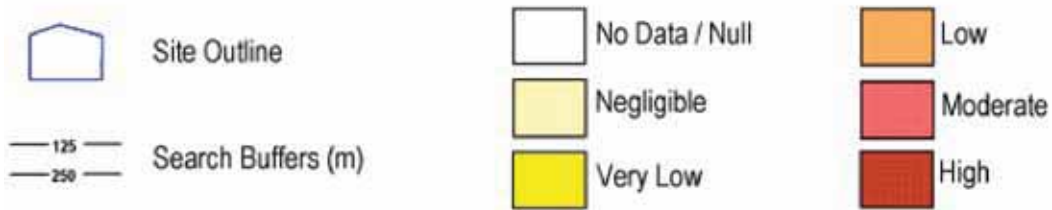
4.2 Landslides Map



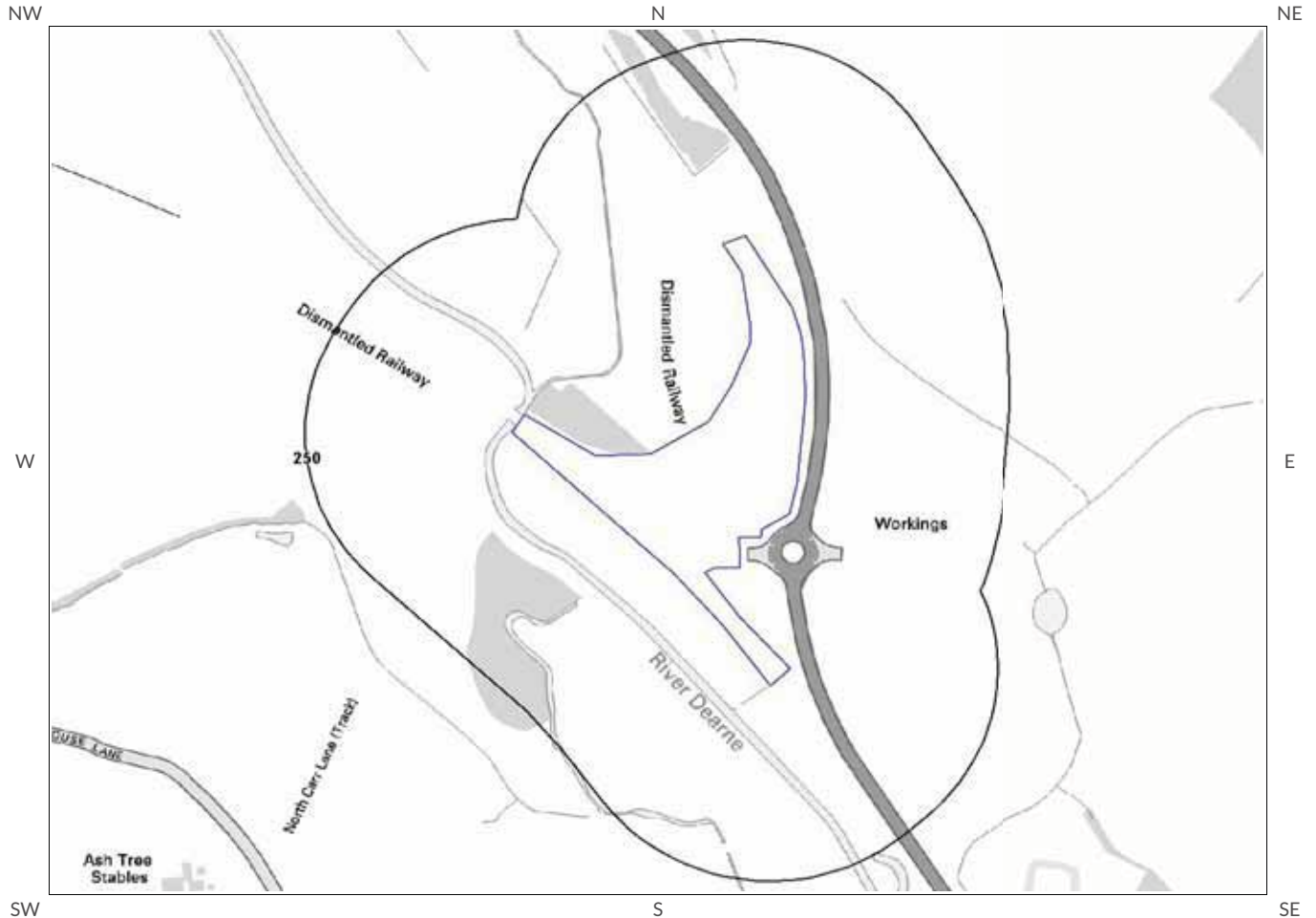
Landslides Legend



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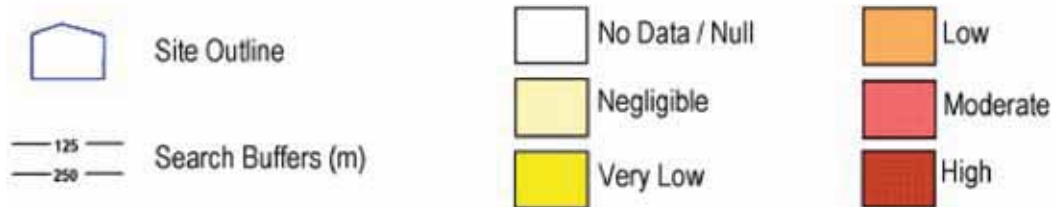
4.3 Ground Dissolution Soluble Rocks Map



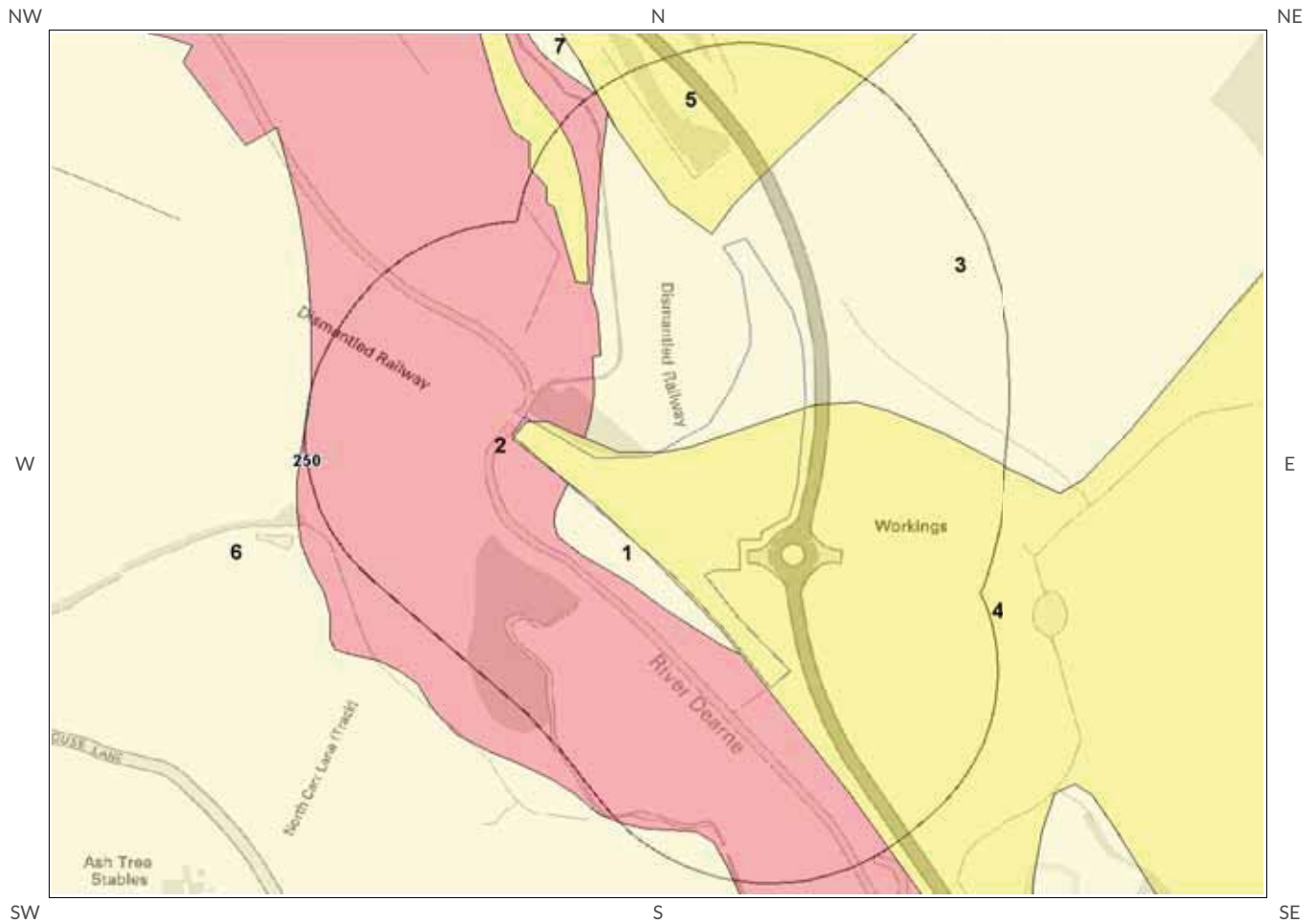
Ground Dissolution Soluble Rocks Legend



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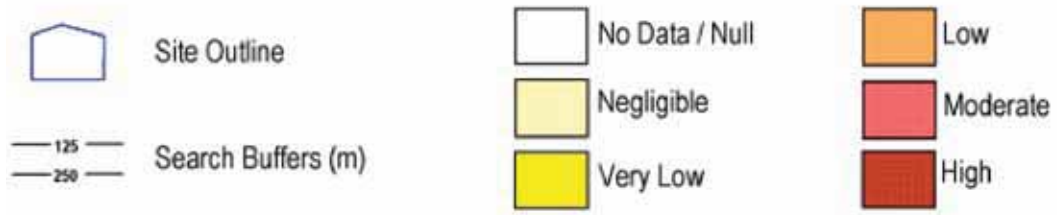
4.4 Compressible Deposits Map



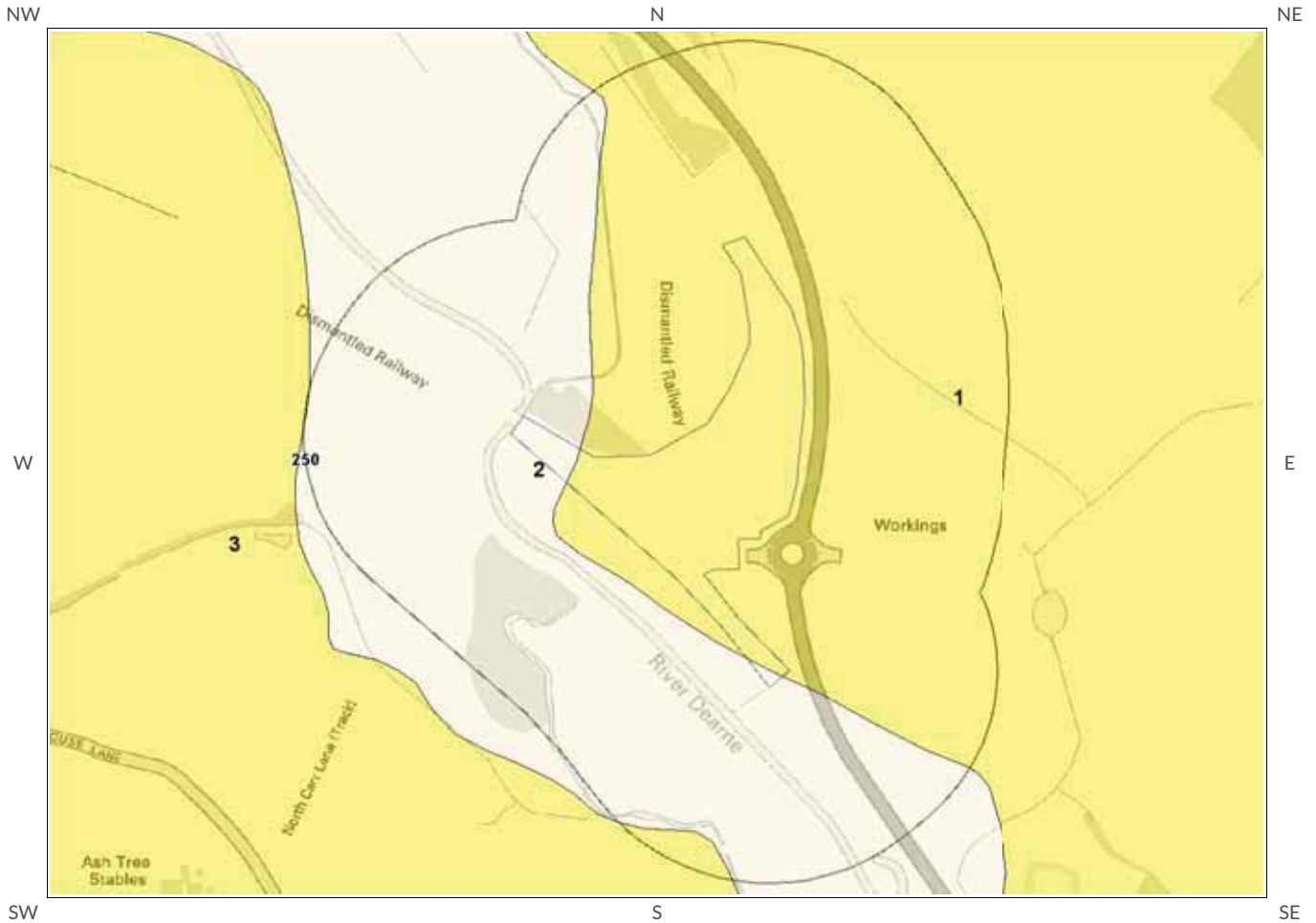
Compressible Deposits Legend



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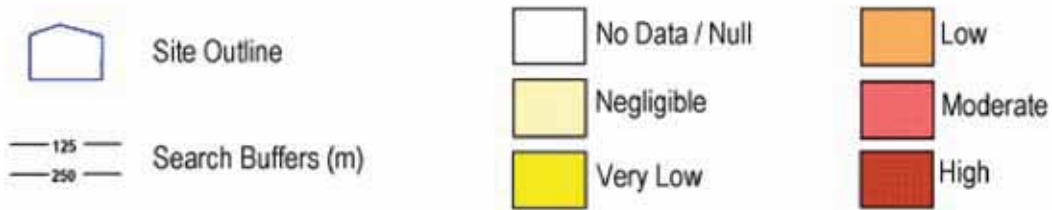
4.5 Collapsible Deposits Map



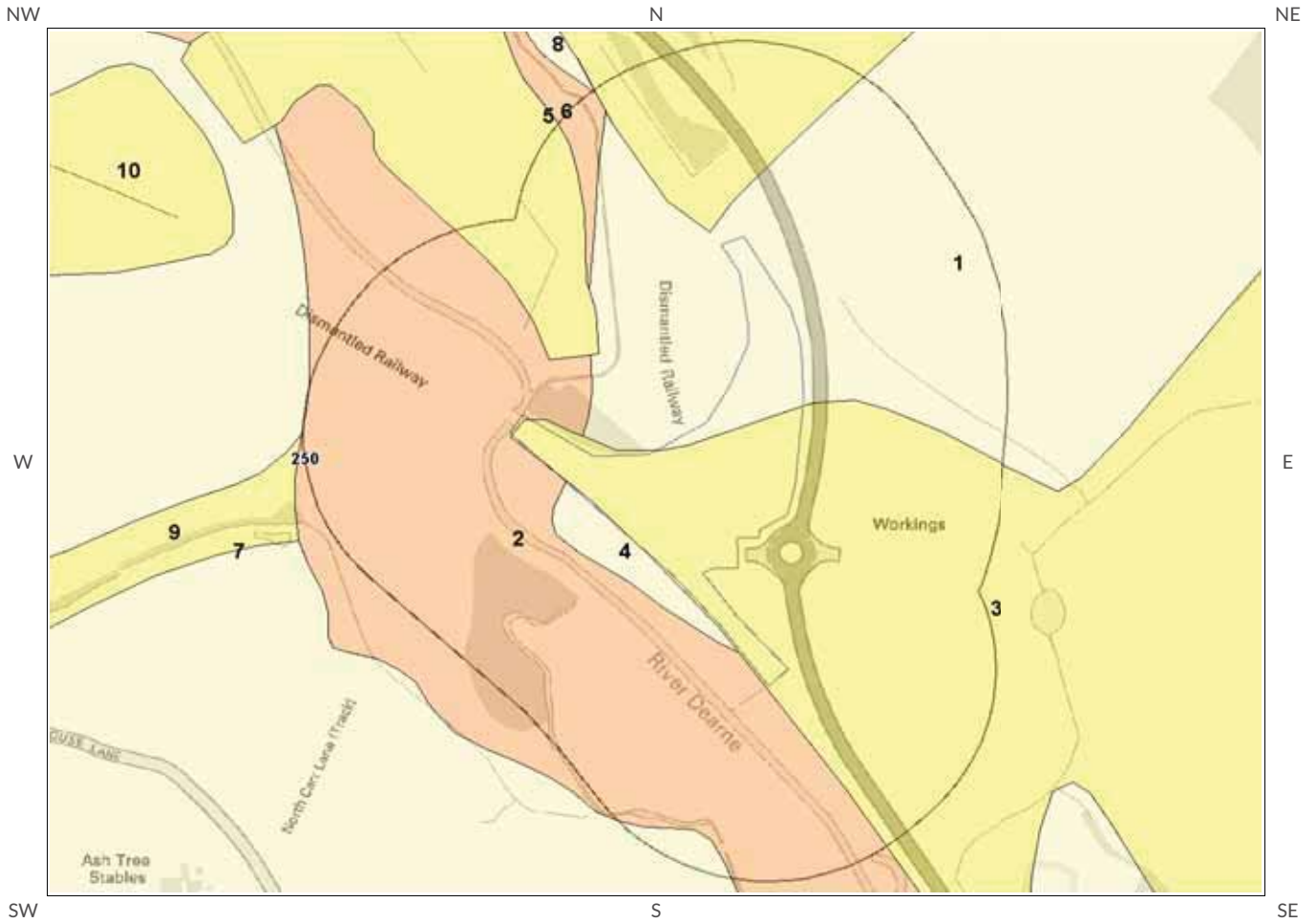
Collapsible Deposits Legend



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4.6 Running Sand Map



Running Sand Legend



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- | | | | | | |
|--|--------------------|--|----------------|--|----------|
| | Site Outline | | No Data / Null | | Low |
| | Search Buffers (m) | | Negligible | | Moderate |
| | | | Very Low | | High |



4 Natural Ground Subsidence

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

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

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

4.1 Shrink-Swell Clays

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

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	Ground conditions predominantly non-plastic. No special actions required to avoid problems due to shrink-swell clays. No special ground investigation required, and increased construction costs or increased financial risks are unlikely likely due to potential problems with shrink-swell clays.
2	0.0	On Site	Very Low	Ground conditions predominantly low plasticity. No special actions required to avoid problems due to shrink-swell clays. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with shrink-swell clays.
3	0.0	On Site	Negligible	Ground conditions predominantly non-plastic. No special actions required to avoid problems due to shrink-swell clays. No special ground investigation required, and increased construction costs or increased financial risks are unlikely likely due to potential problems with shrink-swell clays.
4	0.0	On Site	Very Low	Ground conditions predominantly low plasticity. No special actions required to avoid problems due to shrink-swell clays. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with shrink-swell clays.
5	0.0	On Site	Very Low	Ground conditions predominantly low plasticity. No special actions required to avoid problems due to shrink-swell clays. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with shrink-swell clays.
6	0.0	On Site	Low	Ground conditions predominantly medium plasticity. Do not plant trees with high soil moisture demands near to buildings. For new build, consideration should be given to advice published by the National House Building Council (NHBC) and the Building Research Establishment (BRE). There is a possible increase in construction cost to reduce potential shrink-swell problems. For existing property, there is a possible increase in insurance risk, especially during droughts or where vegetation with high moisture demands is present.

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

4.2 Landslides

The following Landslides information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Slope instability problems are unlikely to be present. No special actions required to avoid problems due to landslides. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with landslides.
2	39.0	NE	Low	Possibility of slope instability problems after major changes in ground conditions. Consideration should be given to stability if changes to drainage or excavations take place. Possible increase in construction cost to reduce potential slope stability problems. Existing property - no significant increase in insurance risk due to natural slope instability problems.

4.3 Ground Dissolution of Soluble Rocks

The following Compressible Deposits information provided by the British Geological Survey:

Distance (m)	Direction	Hazard Rating	Details
0	On site	Null-Negligible	Soluble rocks are not present in the search area. No special actions required to avoid problems due to soluble rocks. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with soluble rocks.

4.4 Compressible Deposits

The following Compressible Deposits information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	No indicators for compressible deposits identified. No special actions required to avoid problems due to compressible deposits. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with compressible deposits.
2	0.0	On Site	Moderate	Significant potential for compressibility problems. Avoid large differential loadings of ground. Do not drain or de-water ground near the property without technical advice. For new build - consider possibility of compressible ground in ground investigation, construction and building design. Consider effects of groundwater changes. Extra construction costs are likely. For existing property - possible increase in insurance risk from compressibility, especially if water conditions or loading of the ground change significantly.
3	0.0	On Site	Negligible	No indicators for compressible deposits identified. No special actions required to avoid problems due to compressible deposits. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with compressible deposits.
4	0.0	On Site	Very Low	Very low potential for compressible deposits to be present. No special actions required to avoid problems due to compressible deposits. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with compressible deposits.

ID	Distance (m)	Direction	Hazard Rating	Details
5	21.0	NW	Very Low	Very low potential for compressible deposits to be present. No special actions required to avoid problems due to compressible deposits. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with compressible deposits.

4.5 Collapsible Deposits

The following Collapsible Rocks information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Deposits with potential to collapse when loaded and saturated are unlikely to be present. No special ground investigation required or increased construction costs or increased financial risk due to potential problems with collapsible deposits.
2	0.0	On Site	Negligible	No indicators for collapsible deposits identified. No actions required to avoid problems due to collapsible deposits. No special ground investigation required, or increased construction costs or increased financial risk due to potential problems with collapsible deposits.

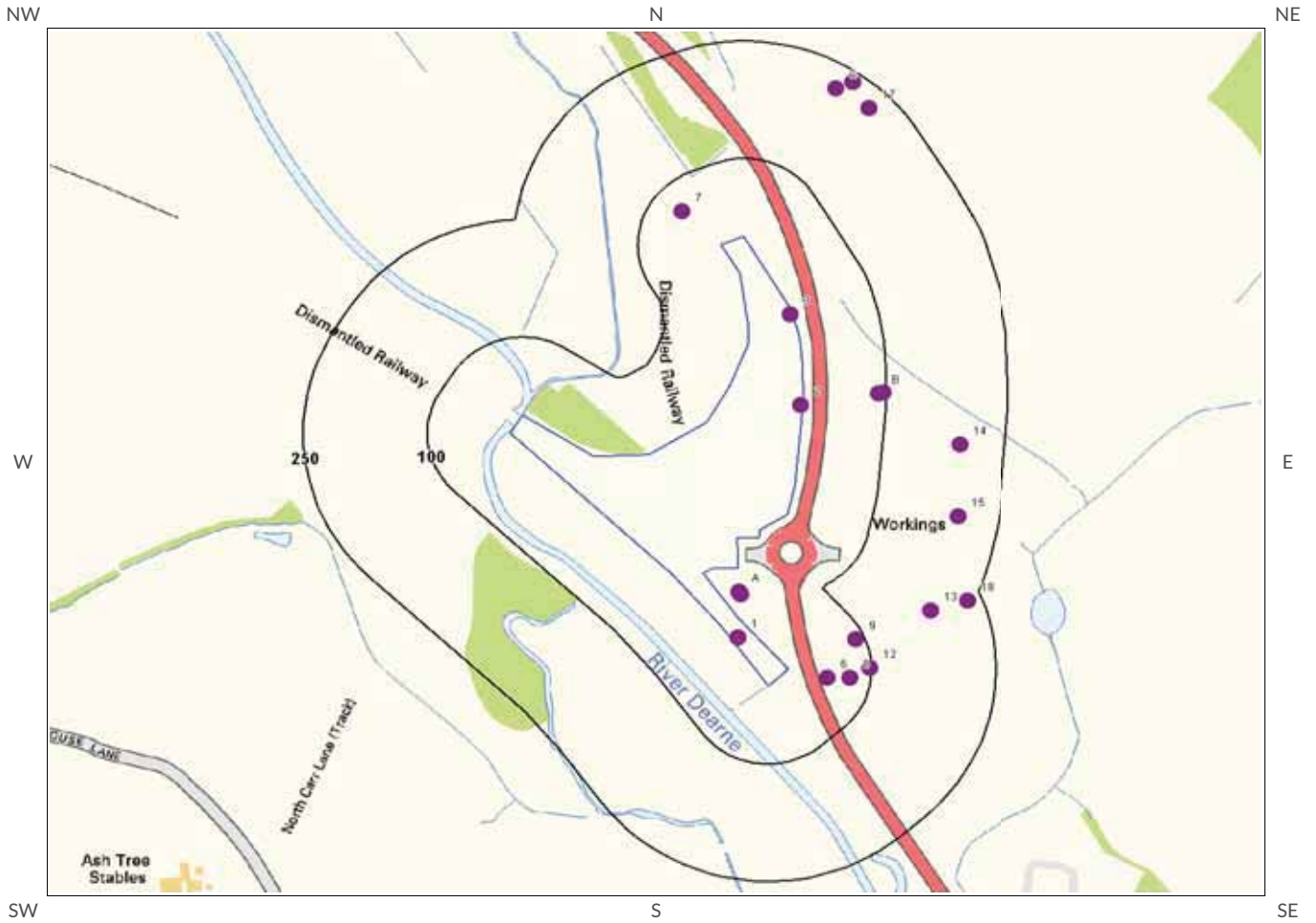
4.6 Running Sands

The following Running Sands information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	No indicators for running sand identified. No special actions required to avoid problems due to running sand. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with running sand.
2	0.0	On Site	Low	Possibility of running sand problems after major changes in ground conditions. Normal maintenance to avoid leakage of water-bearing services or water bodies (ponds, swimming pools) should reduce likelihood of problems due to running sand. For new build - consider possibility of running sand into trenches or excavations if water table is high or sandy strata are exposed to water. Avoid concentrated water inputs to site. Unlikely to be an increase in construction costs due to potential for running sand. For existing property - no significant increase in insurance risk due to running sand problems is likely.
3	0.0	On Site	Very Low	Very low potential for running sand problems if water table rises or if sandy strata are exposed to water. No special actions required, to avoid problems due to running sand. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with running sand.
4	0.0	On Site	Negligible	No indicators for running sand identified. No special actions required to avoid problems due to running sand. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with running sand.

ID	Distance (m)	Direction	Hazard Rating	Details
5	21.0	NW	Very Low	Very low potential for running sand problems if water table rises or if sandy strata are exposed to water. No special actions required, to avoid problems due to running sand. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with running sand.



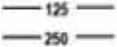
5 Borehole Records Map



Borehole Records Legend



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-  Site Outline
-  Borehole Locations
-  Search Buffers (m)



5 Borehole Records

The systematic analysis of data extracted from the BGS Borehole Records database provides the following information.

Records of boreholes within 250m of the study site boundary:

19

ID	Distance (m)	Direction	NGR	BGS Reference	Drilled Length	Borehole Name
1	0.0	On Site	441687 406246	SE40NW19	37.8	HOUGHTON MAIN COLLIERY 4 U/G
2	0.0	On Site	441763 406543	SE40NW22	32.61	HOUGHTON MAIN COLLIERY 11 U/G
3	0.0	On Site	441750 406658	SE40NW12/C	7.01	GRIMETHORPE
4A	19.0	NE	441688 406304	SE40NW397	-1.0	HOUGHTON MAIN 2
5A	20.0	NE	441691 406301	SE40NW398	-1.0	HOUGHTON MAIN BOREHOLE
6	48.0	E	441795 406194	SE40NW108	12.77	HOUGHTON MAIN COLLIERY NO.6A SURF BH
7	63.0	NW	441620 406790	SE40NW400	31.0	HOUGHTON MAIN COLLIERY BARNSELY
8	75.0	E	441823 406194	SE40NW365	-1.0	HOUGHTON MAIN BARNSELY TP 3
9	89.0	NE	441829 406244	SE40NW106	19.45	HOUGHTON MAIN COLLIERY NO.4A SURF BH
10B	90.0	E	441857 406557	SE40NW12/B	9.14	THREE BHS AT GRIMETHORPE
11B	96.0	E	441863 406558	SE40NW20	31.39	HOUGHTON MAIN COLLIERY 5 U/G
12	98.0	E	441847 406207	SE40NW107	17.08	HOUGHTON MAIN COLLIERY NO.5A SURF BH
13	186.0	NE	441920 406280	SE40NW363	-1.0	HOUGHTON MAIN BARNSELY TP 1
14	193.0	E	441955 406492	SE40NW12/A	8.84	THREE BHS AT GRIMETHORPE
15	200.0	E	441953 406401	SE40NW364	-1.0	HOUGHTON MAIN BARNSELY TP 2
16C	219.0	NE	441805 406947	SE40NW360	-1.0	HOUGHTON MAIN BARNSELY R2
17	222.0	NE	441845 406922	SE40NW367	-1.0	HOUGHTON MAIN BARNSELY TP 5
18	233.0	E	441965 406293	SE40NW105	33.1	HOUGHTON MAIN COLLIERY NO.1A SURF BH
19C	237.0	NE	441826 406955	SE40NW366	-1.0	HOUGHTON MAIN BARNSELY TP 4

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

#1: scans.bgs.ac.uk/sobi_scans/boreholes/105480
#2: scans.bgs.ac.uk/sobi_scans/boreholes/105483
#3: scans.bgs.ac.uk/sobi_scans/boreholes/105473
#6: scans.bgs.ac.uk/sobi_scans/boreholes/105590
#7: scans.bgs.ac.uk/sobi_scans/boreholes/18532958
#9: scans.bgs.ac.uk/sobi_scans/boreholes/105588
#10B: scans.bgs.ac.uk/sobi_scans/boreholes/105472
#11B: scans.bgs.ac.uk/sobi_scans/boreholes/105481
#12: scans.bgs.ac.uk/sobi_scans/boreholes/105589
#14: scans.bgs.ac.uk/sobi_scans/boreholes/105471
#18: scans.bgs.ac.uk/sobi_scans/boreholes/105587



6 Estimated Background Soil Chemistry

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

17

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

Distance (m)	Direction	Sample Type	Arsenic (As)	Cadmium (Cd)	Chromium (Cr)	Nickel (Ni)	Lead (Pb)
0.0	On Site	RuralSoil	15 - 25 mg/kg	<1.8 mg/kg	90 - 120 mg/kg	30 - 45 mg/kg	<150 mg/kg
0.0	On Site	RuralSoil	<15 mg/kg	<1.8 mg/kg	40 - 60 mg/kg	15 - 30 mg/kg	<150 mg/kg
0.0	On Site	RuralSoil	15 - 25 mg/kg	<1.8 mg/kg	90 - 120 mg/kg	30 - 45 mg/kg	<150 mg/kg
0.0	On Site	RuralSoil	<15 mg/kg	<1.8 mg/kg	40 - 60 mg/kg	15 - 30 mg/kg	<150 mg/kg
0.0	On Site	RuralSoil	15 - 25 mg/kg	<1.8 mg/kg	90 - 120 mg/kg	30 - 45 mg/kg	<150 mg/kg
62.0	S	RuralSoil	<15 mg/kg	<1.8 mg/kg	40 - 60 mg/kg	15 - 30 mg/kg	<150 mg/kg
107.0	NE	RuralSoil	<15 mg/kg	<1.8 mg/kg	40 - 60 mg/kg	15 - 30 mg/kg	<150 mg/kg
185.0	S	RuralSoil	15 - 25 mg/kg	<1.8 mg/kg	40 - 60 mg/kg	15 - 30 mg/kg	<150 mg/kg
198.0	SW	RuralSoil	<15 mg/kg	<1.8 mg/kg	40 - 60 mg/kg	15 - 30 mg/kg	<150 mg/kg
201.0	SE	RuralSoil	15 - 25 mg/kg	<1.8 mg/kg	90 - 120 mg/kg	30 - 45 mg/kg	<150 mg/kg
202.0	SW	RuralSoil	<15 mg/kg	<1.8 mg/kg	40 - 60 mg/kg	15 - 30 mg/kg	<150 mg/kg
233.0	E	RuralSoil	15 - 25 mg/kg	<1.8 mg/kg	90 - 120 mg/kg	30 - 45 mg/kg	<150 mg/kg
235.0	E	RuralSoil	<15 mg/kg	<1.8 mg/kg	40 - 60 mg/kg	15 - 30 mg/kg	<150 mg/kg
239.0	SE	RuralSoil	15 - 25 mg/kg	<1.8 mg/kg	90 - 120 mg/kg	30 - 45 mg/kg	<150 mg/kg
242.0	N	RuralSoil	15 - 25 mg/kg	<1.8 mg/kg	90 - 120 mg/kg	30 - 45 mg/kg	<150 mg/kg
245.0	N	RuralSoil	15 - 25 mg/kg	<1.8 mg/kg	40 - 60 mg/kg	15 - 30 mg/kg	<150 mg/kg
247.0	NE	RuralSoil	<15 mg/kg	<1.8 mg/kg	40 - 60 mg/kg	15 - 30 mg/kg	<150 mg/kg

*As this data is based upon underlying 1:50,000 scale geological information, a 50m buffer has been added to the search radius.

Contact Details



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British Geological Survey Enquiries

Kingsley Dunham Centre
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Fax: 0115 936 3276.
Email: enquiries@bgs.ac.uk
Web: www.bgs.ac.uk

BGS Geological Hazards Reports and general geological enquiries



British Gypsum

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Leicestershire
LE12 6HX



The Coal Authority

200 Lichfield Lane
Mansfield
Notts NG18 4RG
Tel: 0345 7626 848
DX 716176 Mansfield 5
www.coal.gov.uk



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Public Health England, Wellington House
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<https://www.gov.uk/government/organisations/public-health-england>
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Report Reference: EMS-245265_329171

Client Reference: EMS_245265_329171

Standard Terms and Conditions

1 Definitions

In these terms and conditions unless the context otherwise requires:

"Beneficiary" means the person or entity for whose benefit the Client has obtained the Services.

"Client" means the party or parties entering into a Contract with GroundSure.

"Commercial" means any building or property which is not Residential.

"Confidential Information" means the contents of this Contract and all information received from the Client as a result of, or in connection with, this Contract other than

(i) information which the Client can prove was rightfully in its possession prior to disclosure by GroundSure and

(ii) any information which is in the public domain (other than by virtue of a breach of this Contract).

"Support Services" means Support Services provided by GroundSure including, without limitation, interpreting third party and in-house environmental data, providing environmental support advice, undertaking environmental audits and assessments, Site investigation, Site monitoring and related items.

"Contract" means the contract between GroundSure and the Client for the provision of the Services, and which shall incorporate these terms and conditions, the Order, and the relevant User Guide.

"Third Party Data Provider" means any third party providing Third Party Content to GroundSure.

"Data Reports" means reports comprising factual data with no accompanying interpretation.

"Fees" has the meaning set out in clause 5.1.

"GroundSure" means GroundSure Limited, a company registered in England and Wales under number 03421028.

"GroundSure Materials" means all materials prepared by GroundSure and provided as part of the Services, including but not limited to Third Party Content, Data Reports, Mapping, and Risk Screening Reports.

"Intellectual Property" means any patent, copyright, design rights, trade or service mark, moral rights, data protection rights, know-how or trade mark in each case whether registered or not and including applications for the same or any other rights of a similar nature anywhere in the world.

"Mapping" means a map, map data or a combination of historical maps of various ages, time periods and scales.

"Order" means an electronic, written or other order form submitted by the Client requesting Services from GroundSure in respect of a specified Site.

"Ordnance Survey" means the Secretary of State for Business, Innovation and Skills, acting through Ordnance Survey, Adanac Drive, Southampton, SO16 0AS, UK.

"Order Website" means the online platform through which Orders may be placed by the Client and accepted by GroundSure.

"Report" means a Risk Screening Report or Data Report for Commercial or Residential property.

"Residential" means any building or property used as or intended to be used as a single dwelling.

"Risk Screening Report" means a risk screening report comprising factual data with an accompanying interpretation by GroundSure.

"Services" means any Report, Mapping and/or Support Services which GroundSure has agreed to provide by accepting an Order pursuant to clause 2.6.

"Site" means the area of land in respect of which the Client has requested GroundSure to provide the Services.

"Third Party Content" means data, database information or other information which is provided to GroundSure by a Third Party Data Provider.

"User Guide" means the user guide, as amended from time to time, available upon request from GroundSure and on the website (www.GroundSure.com) and forming part of this Contract.

2 Scope of Services, terms and conditions, requests for insurance and quotations

2.1 GroundSure agrees to provide the Services in accordance with the Contract.

2.2 GroundSure shall exercise reasonable skill and care in the provision of the Services.

2.3 Subject to clause 7.3 the Client acknowledges that it has not relied on any statement or representation made by or on behalf of GroundSure which is not set out and expressly agreed in writing in the Contract and all such statements and representations are hereby excluded to the fullest extent permitted by law.

2.4 The Client acknowledges that terms and conditions appearing on a Client's order form, printed stationery or other communication, or any terms or conditions implied by custom, practice or course of dealing shall be of no effect, and that this Contract shall prevail over all others in relation to the Order.

2.5 If the Client or Beneficiary requests insurance in conjunction with or as a result of the Services, GroundSure shall use reasonable endeavours to recommend such insurance, but makes no warranty that such insurance shall be available from insurers or that it will be offered on reasonable terms. Any insurance purchased by the Client or Beneficiary shall be subject solely to the terms of the policy issued by insurers and GroundSure will have no liability therefor. In addition you acknowledge and agree that GroundSure does not act as an agent or broker for any insurance providers. The Client should take (and ensure that the Beneficiary takes) independent advice to ensure that the insurance policy requested or offered is suitable for its requirements.

2.6 GroundSure's quotations or proposals are valid for a period of 30 days only unless an alternative period of time is explicitly stipulated by GroundSure. GroundSure reserves the right to withdraw any quotation or proposal at any time before an Order is accepted by GroundSure. GroundSure's acceptance of an Order

shall be binding only when made in writing and signed by GroundSure's authorised representative or when accepted through the Order Website.

3 The Client's obligations

3.1 The Client shall comply with the terms of this Contract and

(i) procure that the Beneficiary or any third party relying on the Services complies with and acts as if it is bound by the Contract and

(ii) be liable to GroundSure for the acts and omissions of the Beneficiary or any third party relying on the Services as if such acts and omissions were those of the Client.

3.2 The Client shall be solely responsible for ensuring that the Services are appropriate and suitable for its and/or the Beneficiary's needs.

3.3 The Client shall supply to GroundSure as soon as practicable and without charge all requisite information (and the Client warrants that such information is accurate, complete and appropriate), including without limitation any environmental information relating to the Site and shall give such assistance as GroundSure shall reasonably require in the provision of the Services including, without limitation, access to the Site, facilities and equipment.

3.4 Where the Client's approval or decision is required to enable GroundSure to carry out work in order to provide the Services, such approval or decision shall be given or procured in reasonable time and so as not to delay or disrupt the performance of the Services.

3.5 Save as expressly permitted by this Contract the Client shall not, and shall procure that the Beneficiary shall not, re-sell, alter, add to, or amend the GroundSure Materials, or use the GroundSure Materials in a manner for which they were not intended. The Client may make the GroundSure Materials available to a third party who is considering acquiring some or all of, or providing funding in relation to, the Site, but such third party cannot rely on the same unless expressly permitted under clause 4.

3.6 The Client is responsible for maintaining the confidentiality of its user name and password if using the Order Website and the Client acknowledges that GroundSure accepts no liability of any kind for any loss or damage suffered by the Client as a consequence of using the Order Website.

4 Reliance

4.1 The Client acknowledges that the Services provided by GroundSure consist of the presentation and analysis of Third Party Content and other content and that information obtained from a Third Party Data Provider cannot be guaranteed or warranted by GroundSure to be reliable.

4.2 In respect of Data Reports, Mapping and Risk Screening Reports, the following classes of person and no other are entitled to rely on their contents;

(i) the Beneficiary,

(ii) the Beneficiary's professional advisers, (iii) any person providing funding to the Beneficiary in relation to the Site (whether directly or as part of a lending syndicate),

(iv) the first purchaser or first tenant of the Site, and

(v) the professional advisers and lenders of the first purchaser or tenant of the Site.

4.3 In respect of Support Services, only the Client, Beneficiary and parties expressly named in a Report and no other parties are entitled to rely on its contents.

4.4 Save as set out in clauses 4.2 and 4.3 and unless otherwise expressly agreed in writing, no other person or entity of any kind is entitled to rely on any Services or Report issued or provided by GroundSure. Any party considering such Reports and Services does so at their own risk.

5 Fees and Disbursements

5.1 GroundSure shall charge and the Client shall pay fees at the rate and frequency specified in the written proposal, Order Website or Order acknowledgement form, plus (in the case of Support Services) all proper disbursements incurred by GroundSure. The Client shall in addition pay all value added tax or other tax payable on such fees and disbursements in relation to the provision of the Services (together "Fees").

5.2 The Client shall pay all outstanding Fees to GroundSure in full without deduction, counterclaim or set off within 30 days of the date of GroundSure's invoice or such other period as may be agreed in writing between GroundSure and the Client ("Payment Date"). Interest on late payments will accrue on a daily basis from the Payment Date until the date of payment (whether before or after judgment) at the rate of 8% per annum.

5.3 The Client shall be deemed to have agreed the amount of any invoice unless an objection is made in writing within 28 days of the date of the invoice. As soon as reasonably practicable after being notified of an objection, without prejudice to clause 5.2 a member of GroundSure's management team will contact the Client and the parties shall then use all reasonable endeavours to resolve the dispute within 15 days.

6 Intellectual Property and Confidentiality

6.1 Subject to

(i) full payment of all relevant Fees and

(ii) compliance with this Contract, the Client is granted (and is permitted to sub-licence to the Beneficiary) a royalty-free, worldwide, non-assignable and (save to the extent set out in this Contract) non-transferable licence to make use of the GroundSure Materials.

6.2 All Intellectual Property in the GroundSure Materials are and shall remain owned by GroundSure or GroundSure's licensors (including without limitation the Third Party Data Providers) the Client acknowledges, and shall procure acknowledgement by the Beneficiary of, such ownership. Nothing in this Contract purports to transfer or assign any rights to the Client or the Beneficiary in respect of such Intellectual Property.

6.3 Third Party Data Providers may enforce any breach of clauses 6.1 and 6.2 against the Client or Beneficiary.

6.4 The Client shall, and shall procure that any recipients of the GroundSure Materials shall:

(i) not remove, suppress or modify any trade mark, copyright or other proprietary marking belonging to GroundSure or any third party from the Services;

(ii) use the information obtained as part of the Services in respect of the subject Site only, and shall not store or reuse any information obtained as part of the Services provided in respect of adjacent or nearby sites;

(iii) not create any product or report which is derived directly or indirectly from the Services (save that those acting in a professional capacity to the Beneficiary may provide advice based upon the Services);

(iv) not combine the Services with or incorporate such Services into any other information data or service;

(v) not reformat or otherwise change (whether by modification, addition or enhancement), the Services (save that those acting for the Beneficiary in a professional capacity shall not be in breach of this clause 6.4(v) where such reformatting is in the normal course of providing advice based upon the Services);

(vi) where a Report and/or Mapping contains material belonging to Ordnance Survey, acknowledge and agree that such content is protected by Crown Copyright and shall not use such content for any purpose outside of receiving the Services; and

(vii) not copy in whole or in part by any means any map prints or run-on copies containing content belonging to Ordnance Survey (other than that contained within Ordnance Survey's OS Street Map) without first being in possession of a valid Paper Map Copying Licence from Ordnance Survey,

6.5 Notwithstanding clause 6.4, the Client may make reasonable use of the GroundSure Materials in order to advise the Beneficiary in a professional capacity. However, GroundSure shall have no liability in respect of any advice, opinion or report given or provided to Beneficiaries by the Client.

6.6 The Client shall procure that any person to whom the Services are made available shall notify GroundSure of any request or requirement to disclose, publish or disseminate any information contained in the Services in accordance with the Freedom of Information Act 2000, the Environmental Information Regulations 2004 or any associated legislation or regulations in force from time to time.

7. Liability: Particular Attention Should Be Paid To This Clause

7.1 This Clause 7 sets out the entire liability of GroundSure, including any liability for the acts or omissions of its employees, agents, consultants, subcontractors and Third Party Content, in respect of:

(i) any breach of contract, including any deliberate breach of the Contract by GroundSure or its employees, agents or subcontractors;

(ii) any use made of the Reports, Services, Materials or any part of them; and

(iii) any representation, statement or tortious act or omission (including negligence) arising under or in connection with the Contract.

7.2 All warranties, conditions and other terms implied by statute or common law are, to the fullest extent permitted by law, excluded from the Contract.

7.3 Nothing in the Contract limits or excludes the liability of the Supplier for death or personal injury resulting from negligence, or for any damage or liability incurred by the Client or Beneficiary as a result of fraud or fraudulent misrepresentation.

7.4 GroundSure shall not be liable for

(i) loss of profits;

(ii) loss of business;

(iii) depletion of goodwill and/or similar losses;

(iv) loss of anticipated savings;

(v) loss of goods;

(vi) loss of contract;

(vii) loss of use;

(viii) loss or corruption of data or information;

(ix) business interruption;

(x) any kind of special, indirect, consequential or pure economic loss, costs, damages, charges or expenses;

(xi) loss or damage that arise as a result of the use of all or part of the GroundSure Materials in breach of the Contract;

(xii) loss or damage arising as a result of any error, omission or inaccuracy in any part of the GroundSure Materials where such error, omission or inaccuracy is caused by any Third Party Content or any reasonable interpretation of Third Party Content;

(xiii) loss or damage to a computer, software, modem, telephone or other property; and

(xiv) loss or damage caused by a delay or loss of use of GroundSure's internet ordering service.

7.5 GroundSure's total liability in relation to or under the Contract shall be limited to £10 million for any claim or claims.

7.6 GroundSure shall procure that the Beneficiary shall be bound by limitations and exclusions of liability in favour of GroundSure which accord with those detailed in clauses 7.4 and 7.5 (subject to clause 7.3) in respect of all claims which the Beneficiary may bring against GroundSure in relation to the Services or other matters arising pursuant to the Contract.

8 GroundSure's right to suspend or terminate

8.1 If GroundSure reasonably believes that the Client or Beneficiary has not provided the information or assistance required to enable the proper provision of the Services, GroundSure shall be entitled to suspend all further performance of the Services until such time as any such deficiency has been made good.

8.2 GroundSure shall be entitled to terminate the Contract immediately on written notice in the event that:

(i) the Client fails to pay any sum due to GroundSure within 30

days of the Payment Date; or

(ii) the Client (being an individual) has a bankruptcy order made against him or (being a company) shall enter into liquidation whether compulsory or voluntary or have an administration order made against it or if a receiver shall be appointed over the whole or any part of its property assets or undertaking or if the Client is struck off the Register of Companies or dissolved; or

(iii) the Client being a company is unable to pay its debts within the meaning of Section 123 of the Insolvency Act 1986 or being an individual appears unable to pay his debts within the meaning of Section 268 of the Insolvency Act 1986 or if the Client shall enter into a composition or arrangement with the Client's creditors or shall suffer distress or execution to be levied on his goods; or

(iv) the Client or the Beneficiary breaches any term of the Contract (including, but not limited to, the obligations in clause 4) which is incapable of remedy or if remediable, is not remedied within five days of notice of the breach.

9. Client's Right to Terminate and Suspend

9.1 Subject to clause 10.1, the Client may at any time upon written notice terminate or suspend the provision of all or any of the Services.

9.2 In any event, where the Client is a consumer (and not a business) he/she hereby expressly acknowledges and agrees that:

(i) the supply of Services under this Contract (and therefore the performance of this Contract) commences immediately upon GroundSure's acceptance of the Order; and

(ii) the Reports and/or Mapping provided under this Contract are

(a) supplied to the Client's specification(s) and in any event

(b) by their nature cannot be returned.

10 Consequences of Withdrawal, Termination or Suspension

10.1 Upon termination of the Contract:

(i) GroundSure shall take steps to bring to an end the Services in an orderly manner, vacate any Site with all reasonable speed and shall deliver to the Client and/or Beneficiary any property of the Client and/or Beneficiary in GroundSure's possession or control; and

(ii) the Client shall pay to GroundSure all and any Fees payable in respect of the performance of the Services up to the date of termination or suspension. In respect of any Support Services provided, the Client shall also pay GroundSure any additional costs incurred in relation to the termination or suspension of the Contract.

11 Anti-Bribery

11.1 The Client warrants that it shall:

(i) comply with all applicable laws, statutes and regulations relating to anti-bribery and anti-corruption including but not limited to the Bribery Act 2010;

(ii) comply with such of GroundSure's anti-bribery and anti-corruption policies as are notified to the Client from time to time; and

(iii) promptly report to GroundSure any request or demand for any undue financial or other advantage of any kind received by or on behalf of the Client in connection with the performance of this Contract.

11.2 Breach of this Clause 11 shall be deemed a material breach of this Contract.

12 General

12.1 The Mapping contained in the Services is protected by Crown copyright and must not be used for any purpose other than as part of the Services or as specifically provided in the Contract.

12.2 The Client shall be permitted to make one copy only of each Report or Mapping Order. Thereafter the Client shall be entitled to make unlimited copies of the Report or Mapping Order only in accordance with an Ordnance Survey paper map copy license available through GroundSure.

12.3 GroundSure reserves the right to amend or vary this Contract. No amendment or variation to this Contract shall be valid unless signed by an authorised representative of GroundSure.

12.4 No failure on the part of GroundSure to exercise, and no delay in exercising, any right, power or provision under this Contract shall operate as a waiver thereof.

12.5 Save as expressly provided in this Contract, no person other than the persons set out therein shall have any right under the Contract (Rights of Third Parties) Act 1999 to enforce any terms of the Contract.

12.6 The Secretary of State for Business, Innovation and Skills ("BIS") or BIS' successor body, as the case may be, acting through Ordnance Survey may enforce a breach of clause 6.4(vi) and clause 6.4(vii) of these terms and conditions against the Client in accordance with the provisions of the Contracts (Rights of Third Parties) Act 1999.

12.7 GroundSure shall not be liable to the Client if the provision of the Services is delayed or prevented by one or more of the following circumstances:

(i) the Client or Beneficiary's failure to provide facilities, access or information;

(ii) fire, storm, flood, tempest or epidemic;

(iii) Acts of God or the public enemy;

(iv) riot, civil commotion or war;

(v) strikes, labour disputes or industrial action;

(vi) acts or regulations of any governmental or other agency;

(vii) suspension or delay of services at public registries by Third

Party Data Providers;

(viii) changes in law; or

(ix) any other reason beyond GroundSure's reasonable control.

In the event that GroundSure is prevented from performing the Services (or any part thereof) in accordance with this clause 12.6 for a period of not less than 30 days then GroundSure shall be entitled to terminate this Contract immediately on written notice to the Client.

12.8 Any notice provided shall be in writing and shall be deemed to be properly

given if delivered by hand or sent by first class post, facsimile or by email to the address, facsimile number or email address of the relevant party as may have been notified by each party to the other for such purpose or in the absence of such notification the last known address.

12.9 Such notice shall be deemed to have been received on the day of delivery if delivered by hand, facsimile or email (save to the extent such day is not a working day where it shall be deemed to have been delivered on the next working day) and on the second working day after the day of posting if sent by first class post.

12.10 The Contract constitutes the entire agreement between the parties and shall supersede all previous arrangements between the parties relating to the subject matter hereof.

12.11 Each of the provisions of the Contract is severable and distinct from the others and if one or more provisions is or should become invalid, illegal or unenforceable, the validity and enforceability of the remaining provisions shall not in any way be tainted or impaired.

12.12 This Contract shall be governed by and construed in accordance with English law and any proceedings arising out of or connected with this Contract shall be subject to the exclusive jurisdiction of the English courts.

12.13 GroundSure is an executive member of the Council of Property Search Organisation (CoPSO) and has signed up to the Search Code administered by the Property Codes Compliance Board (PCCB). All Risk Screening Reports shall be supplied in accordance with the provisions of the Search Code.

12.14 If the Client or Beneficiary has a complaint about the Services, written notice should be given to the Compliance Officer at GroundSure who will respond in a timely manner.

12.15 The Client agrees that it shall, and shall procure that each Beneficiary shall, treat in confidence all Confidential Information and shall not, and shall procure that each Beneficiary shall not (i) disclose any Confidential Information to any third party other than in accordance with the terms of this Contract; and (ii) use Confidential Information for a purpose other than the exercise of its rights and obligations under this Contract. Subject to clause 6.6, nothing shall prevent the Client or any Beneficiary from disclosing Confidential Information to the extent required by law

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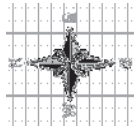
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Report Ref: EMS-245265_329170
Grid Ref: 441652, 406467

Map Name: National Grid

Map date: 2012

Scale: 1:10,000

Printed at: 1:10,000



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GroundSure Environmental Insight
www.groundsure.com

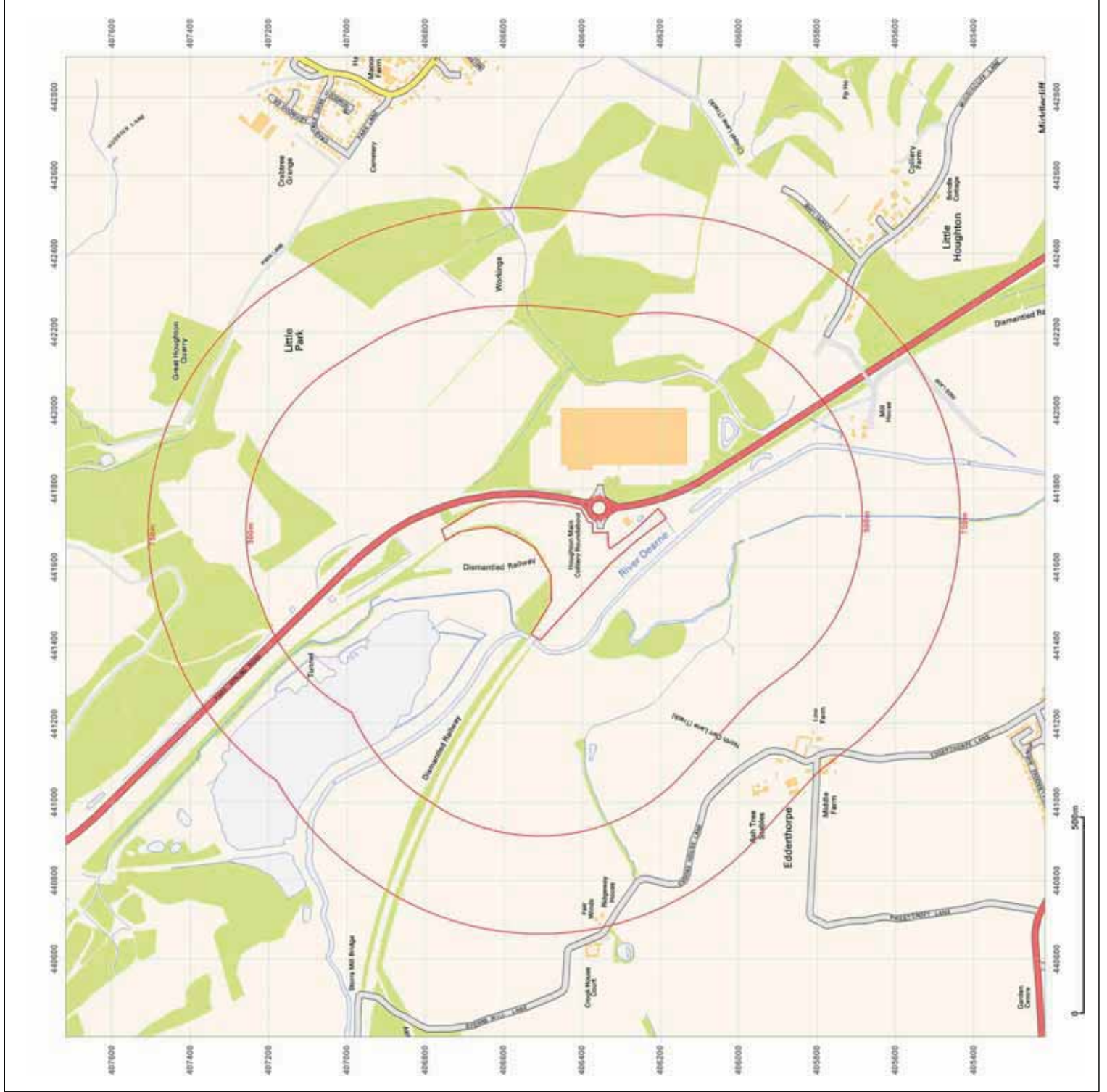


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Production date: 08 April 2014

To view map legend click here [Legend](#)



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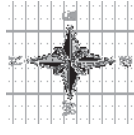
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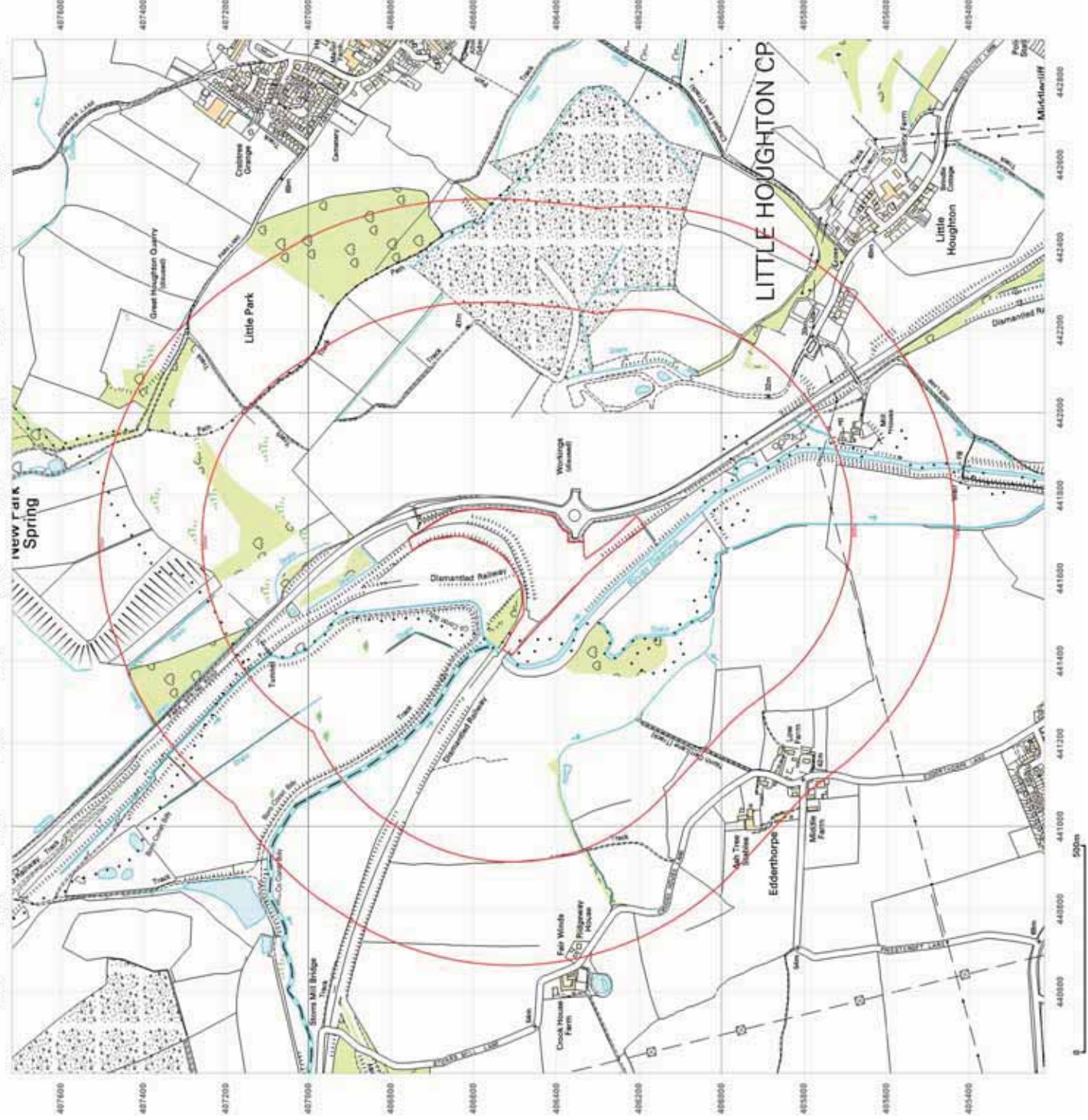


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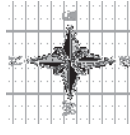
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Report Ref: EMS-245265_329170
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Map date: 1988

Scale: 1:10,000

Printed at: 1:10,000



Surveyed 1987
Revised 1988
Edition N/A
Copyright N/A
Levelled N/A



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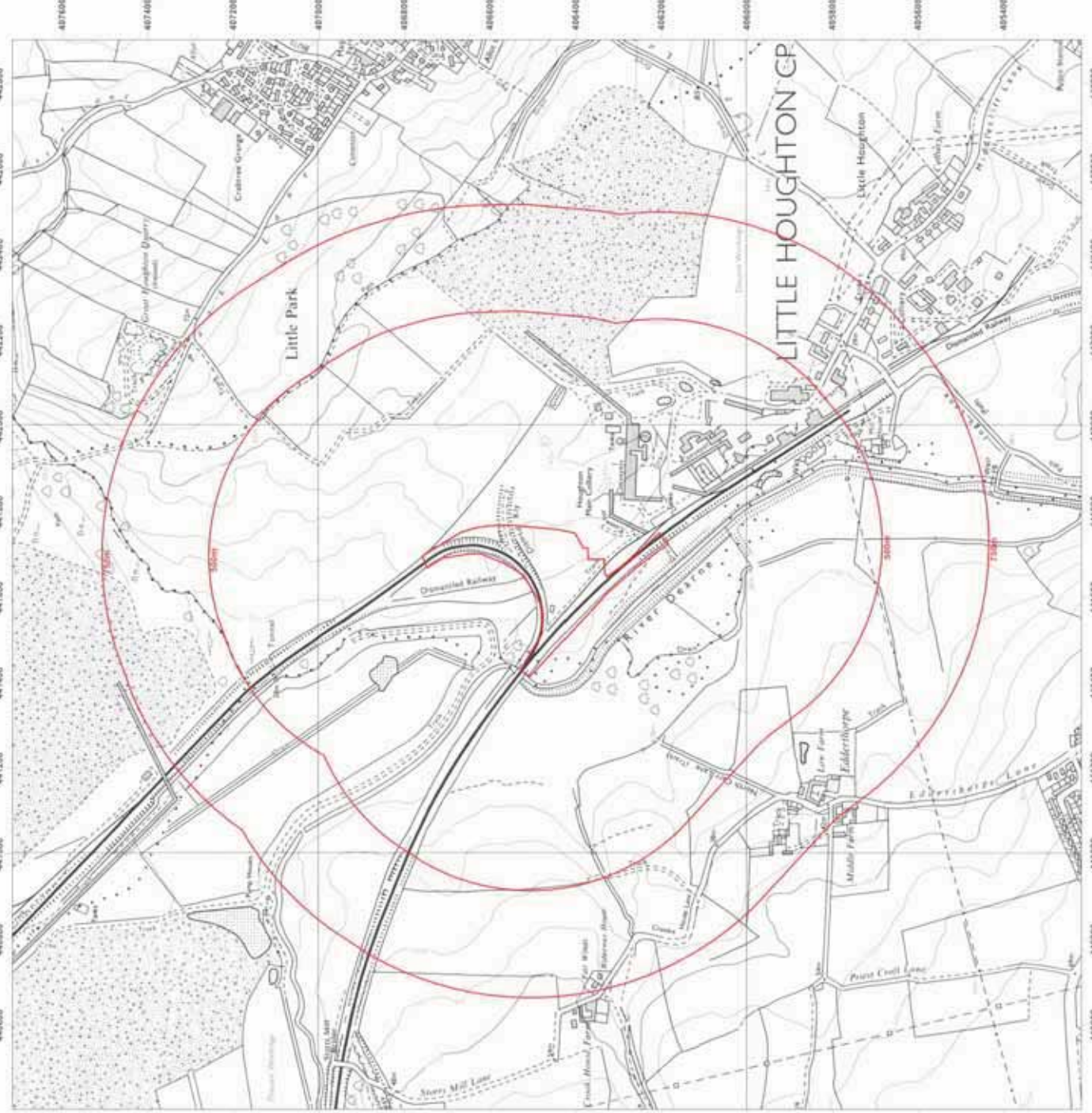


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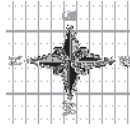
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Map date: 1981

Scale: 1:10,000

Printed at: 1:10,000



Surveyed 1980
Revised 1981
Edition N/A
Copyright N/A
Levelled N/A



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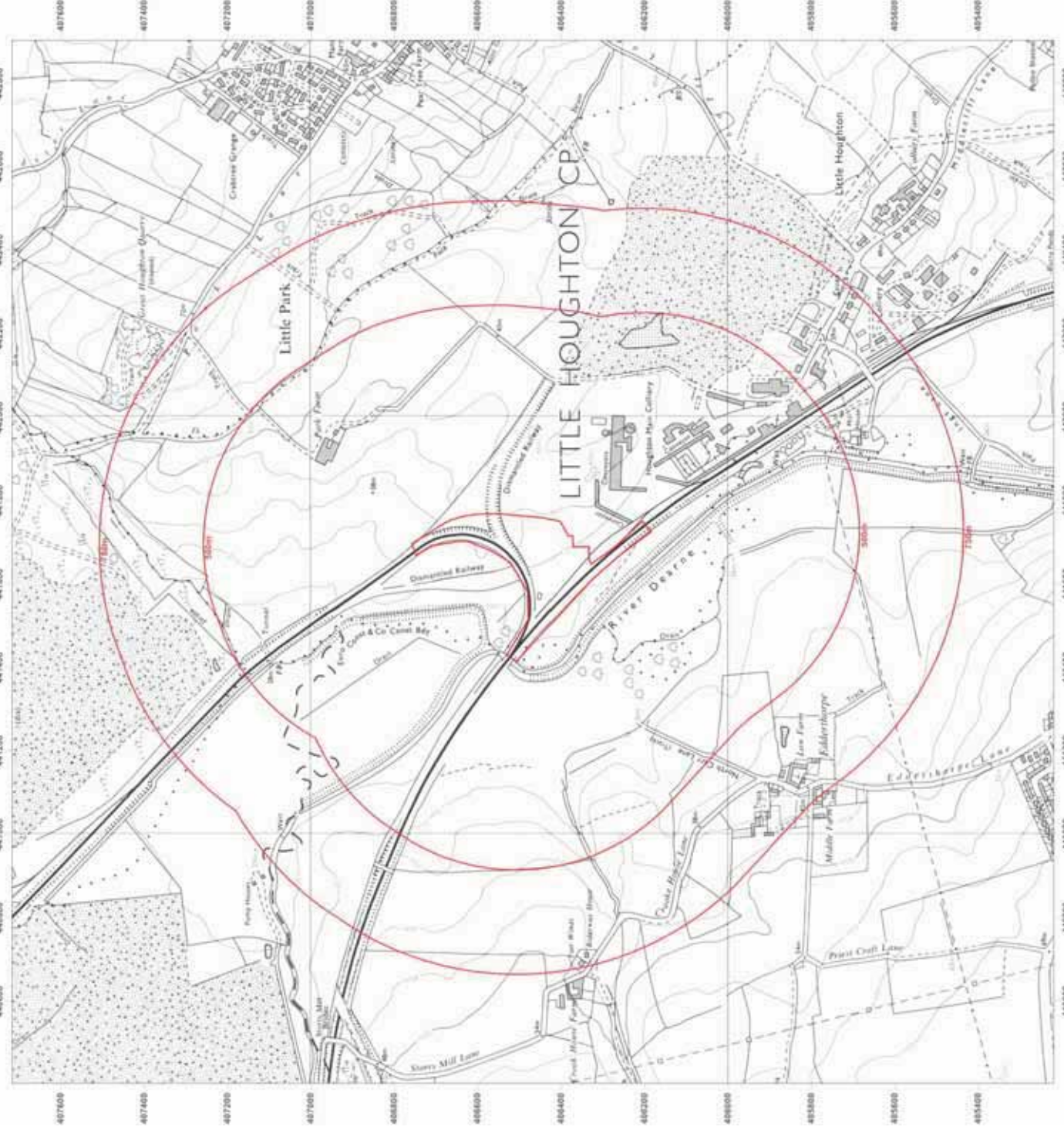


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Production date: 08 April 2014

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0 500m

Site Details:

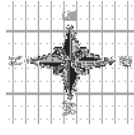
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Report Ref: EMS-245265_329170
Grid Ref: 441652, 406467

Map Name: Provisional

Map date: 1967

Scale: 1:10,560

Printed at: 1:10,560



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



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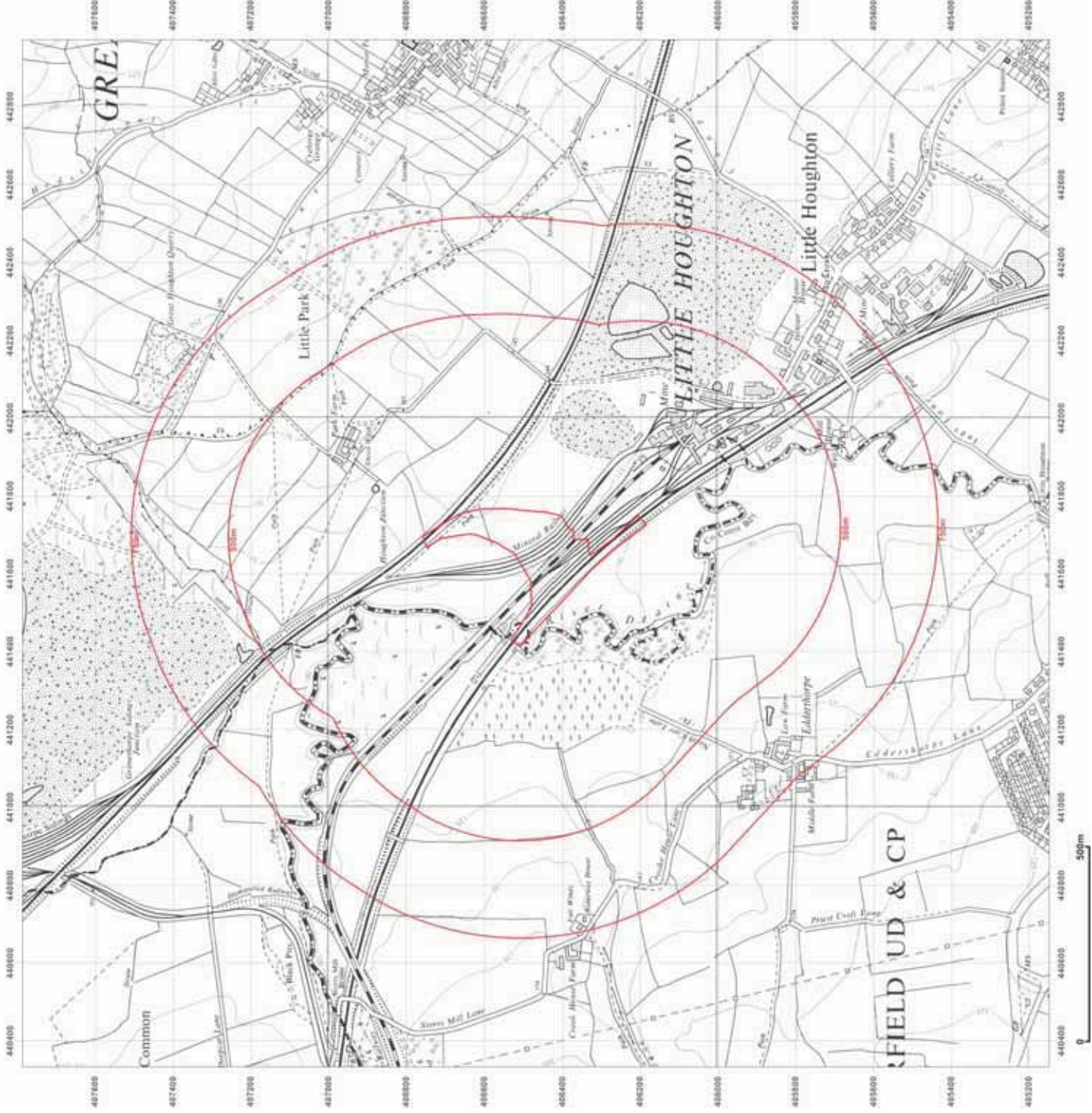


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Production date: 08 April 2014

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Site Details:

Client Ref: EMS_245265_329170
Report Ref: EMS-245265_329170
Grid Ref: 441652, 406467

Map Name: Provisional

Map date: 1955

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1951
Revised 1955
Edition N/A
Copyright N/A
Levelled N/A



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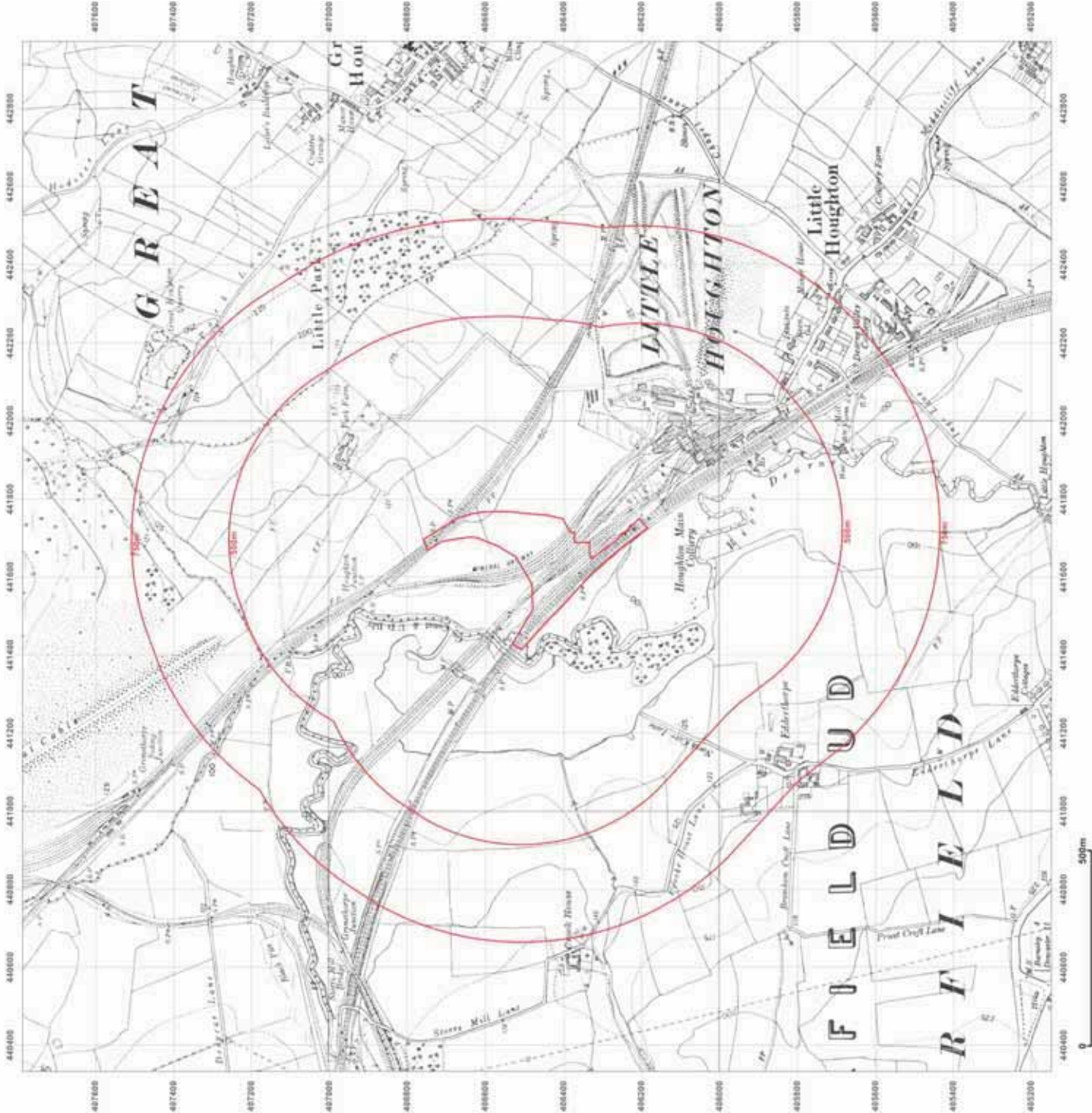


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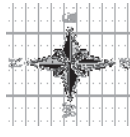
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Report Ref: EMS-245265_329170
Grid Ref: 441652, 406467

Map Name: County Series

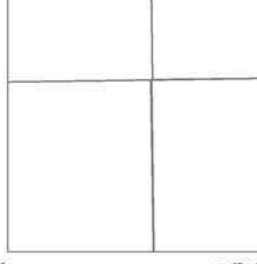
Map date: 1948

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1850
 Revised 1948
 Edition N/A
 Copyright N/A
 Levelled N/A



Surveyed 1850
 Revised 1948
 Edition N/A
 Copyright N/A
 Levelled N/A



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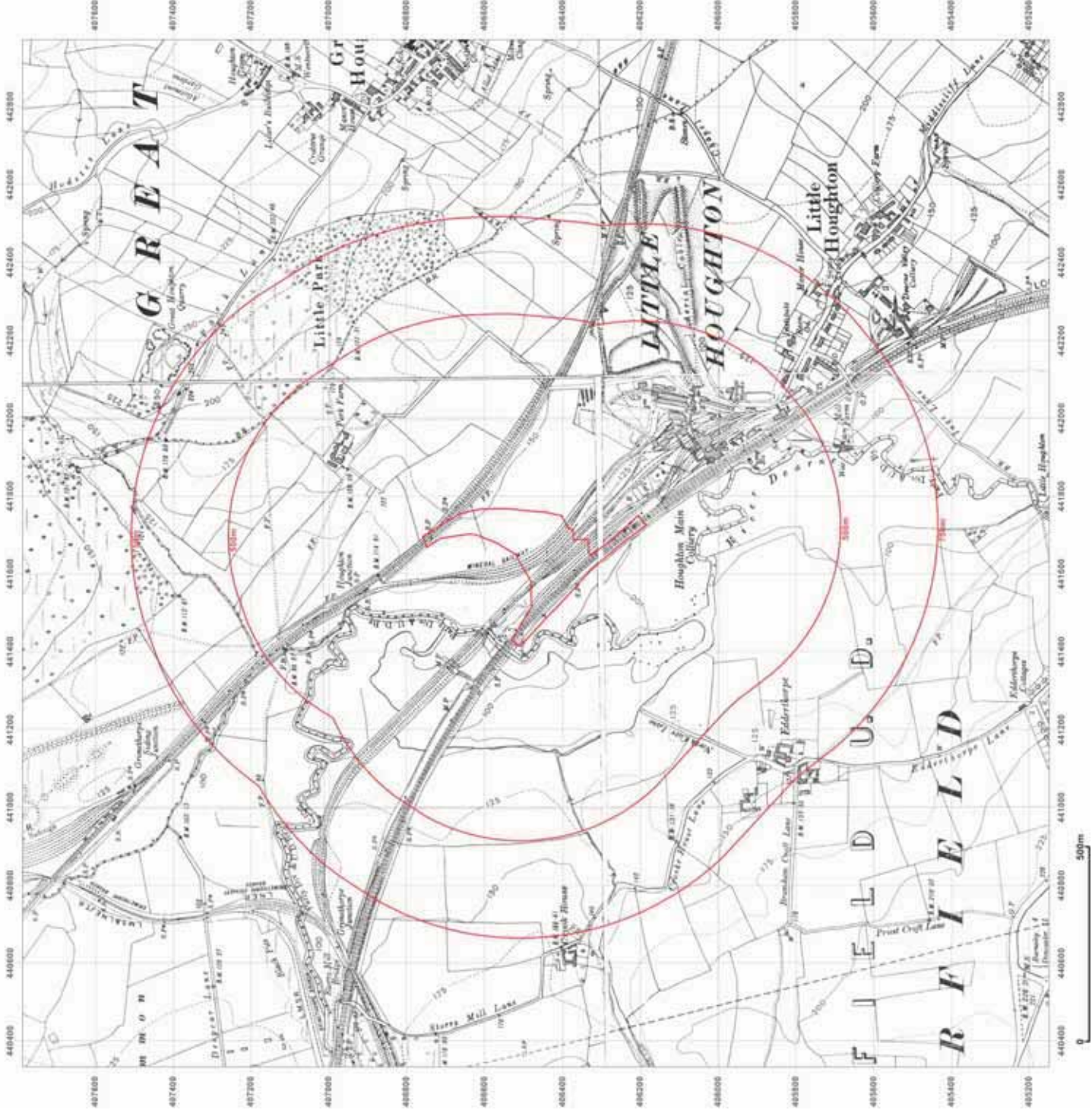


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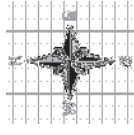
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Grid Ref: 441652, 406467

Map Name: County Series

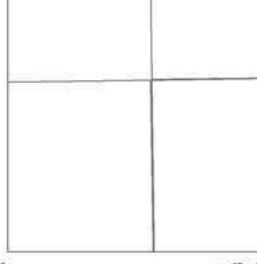
Map date: 1938-1939

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1850
Revised 1938
Edition N/A
Copyright N/A
Levelled N/A



Surveyed 1851
Revised 1938
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1850
Revised 1939
Edition N/A
Copyright N/A
Levelled N/A



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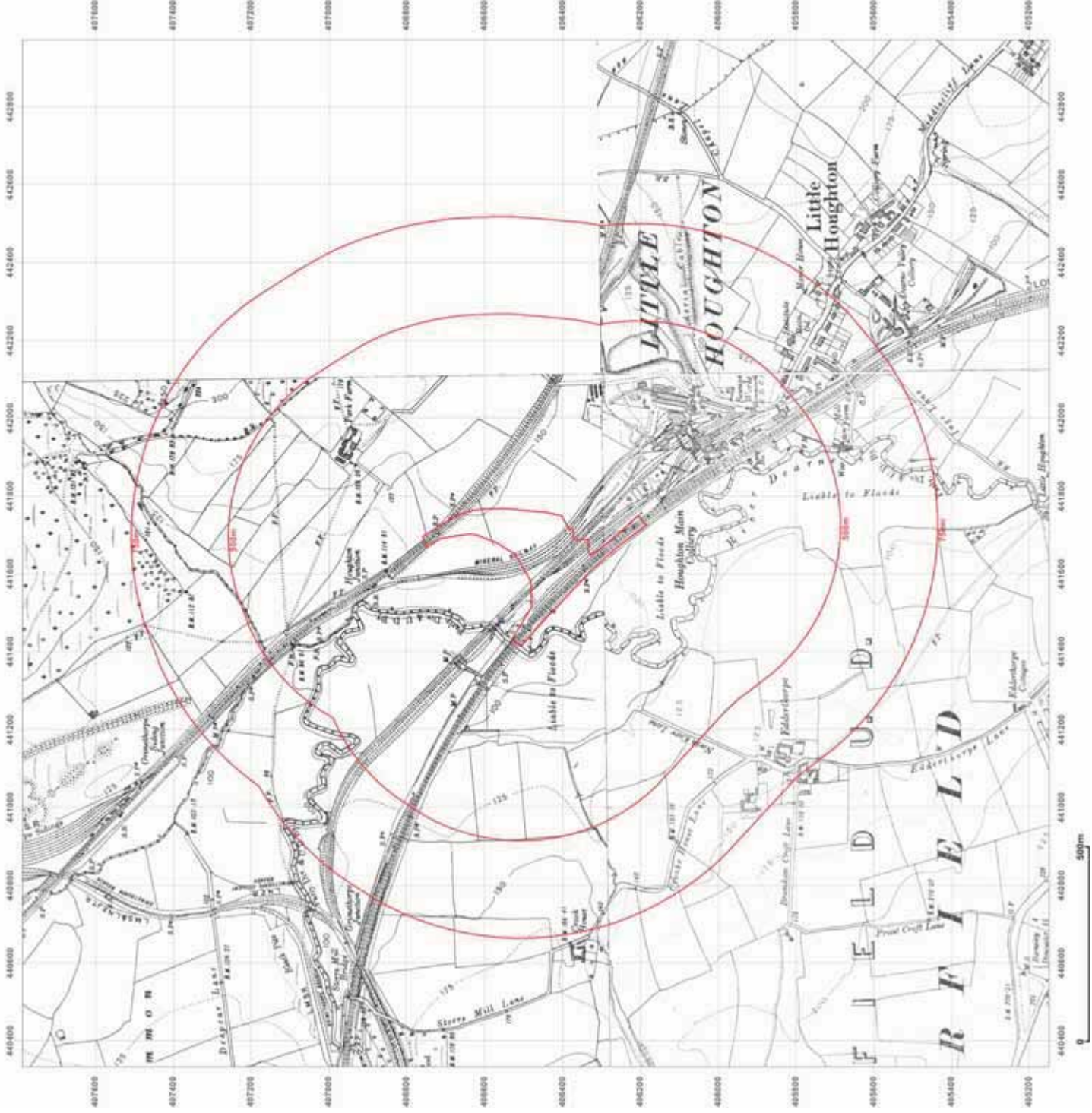


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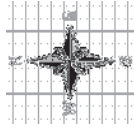
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Report Ref: EMS-245265_329170
Grid Ref: 441652, 406467

Map Name: County Series

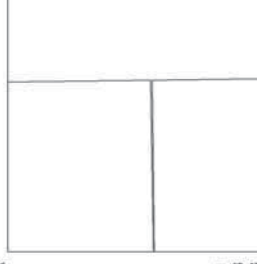
Map date: 1938

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1850
Revised 1938
Edition 1938
Copyright N/A
Levelled N/A



Surveyed 1851
Revised 1938
Edition 1938
Copyright N/A
Levelled N/A



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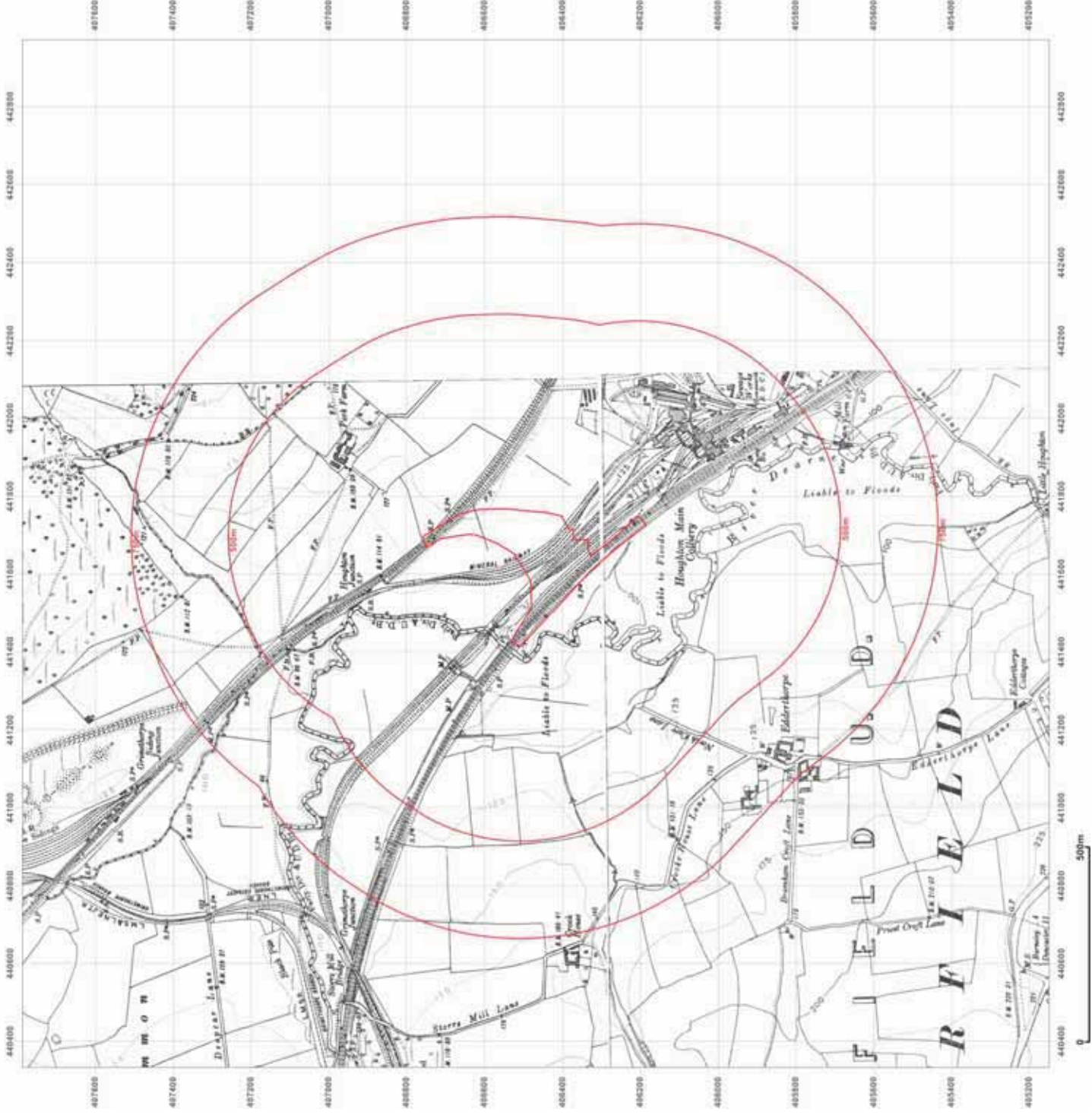


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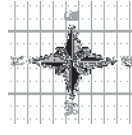
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Report Ref: EMS-245265_329170
Grid Ref: 441652, 406467

Map Name: County Series

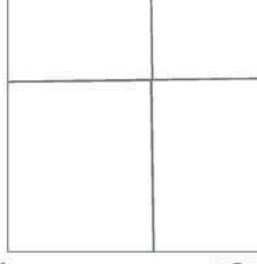
Map date: 1929-1932

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1850
 Revised 1930
 Edition 1932
 Copyright N/A
 Levelled N/A



Surveyed 1851
 Revised 1929
 Edition 1931
 Copyright N/A
 Levelled N/A

Surveyed 1850
 Revised 1932
 Edition 1932
 Copyright N/A
 Levelled N/A

Surveyed 1850
 Revised 1929
 Edition N/A
 Copyright N/A
 Levelled N/A



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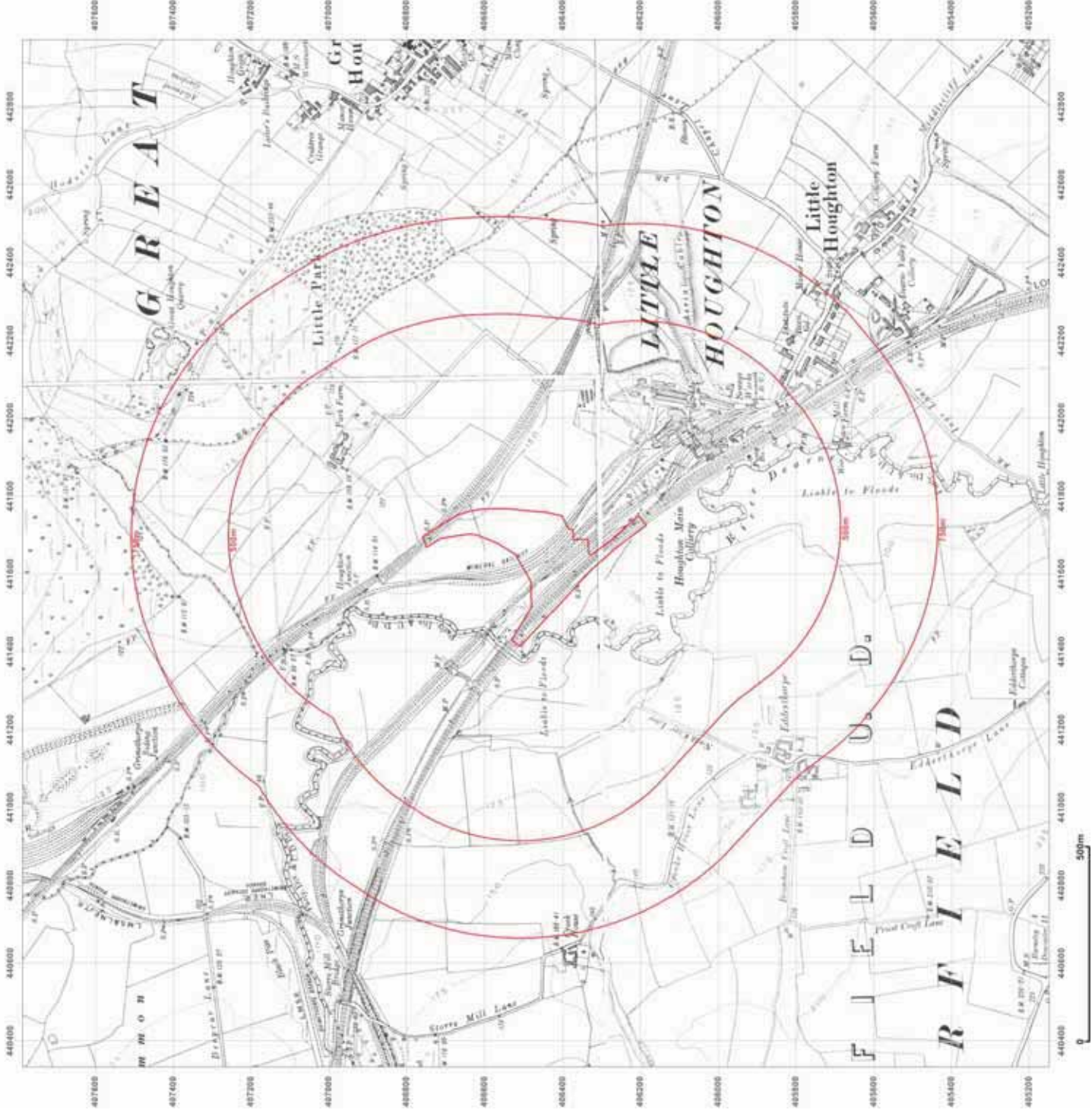


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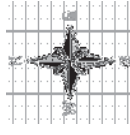
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Report Ref: EMS-245265_329170
Grid Ref: 441652, 406467

Map Name: County Series

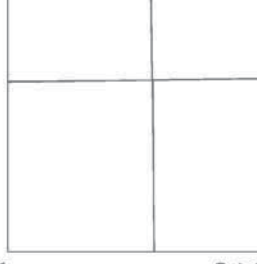
Map date: 1904

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1890
 Revised 1904
 Edition N/A
 Copyright N/A
 Levelled N/A



Surveyed 1890
 Revised 1904
 Edition N/A
 Copyright N/A
 Levelled N/A

Surveyed 1891
 Revised 1904
 Edition N/A
 Copyright N/A
 Levelled N/A

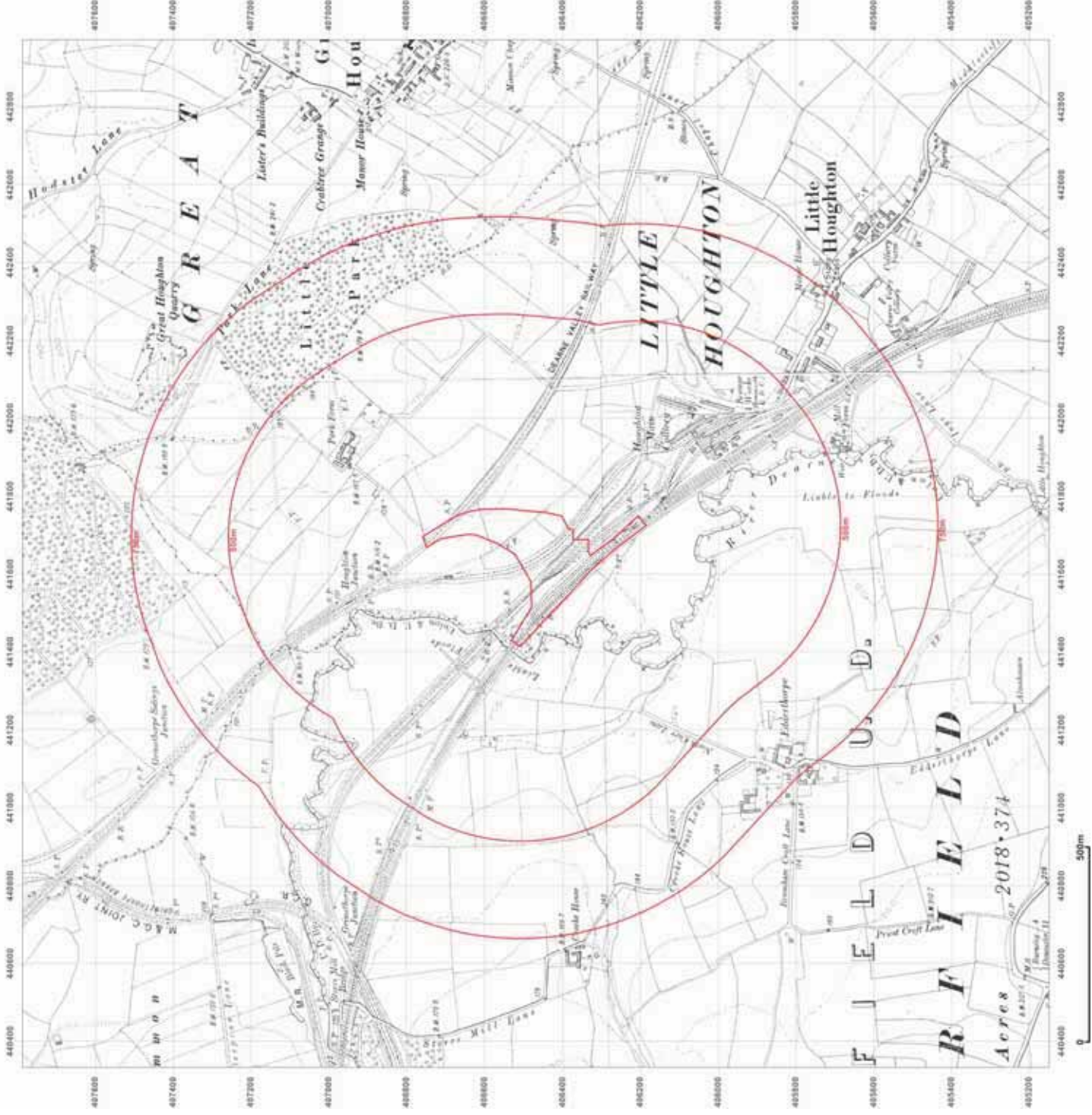
Surveyed 1890
 Revised 1904
 Edition N/A
 Copyright N/A
 Levelled N/A



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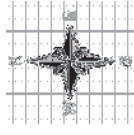
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Report Ref: EMS-245265_329170
Grid Ref: 441652, 406467

Map Name: County Series

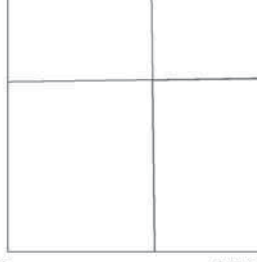
Map date: 1890

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1890
 Revised 1890
 Edition N/A
 Copyright N/A
 Levelled N/A



Surveyed 1890
 Revised 1890
 Edition N/A
 Copyright N/A
 Levelled N/A

Surveyed 1890
 Revised 1890
 Edition N/A
 Copyright N/A
 Levelled N/A



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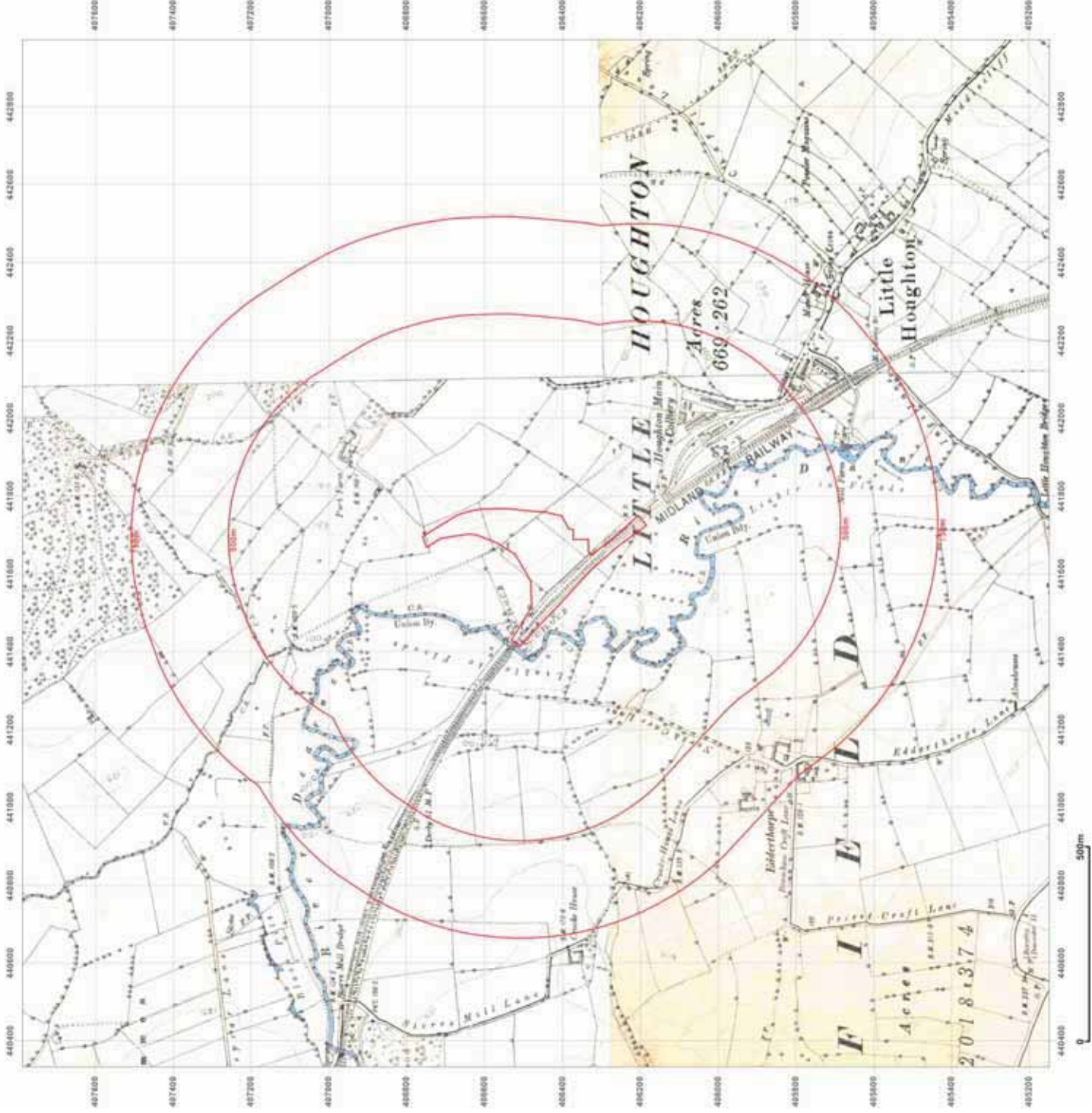


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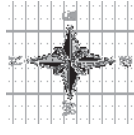
Client Ref: EMS_245265_329170
Report Ref: EMS-245265_329170
Grid Ref: 441652, 406467

Map Name: County Series

Map date: 1850

Scale: 1:10,560

Printed at: 1:10,560



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



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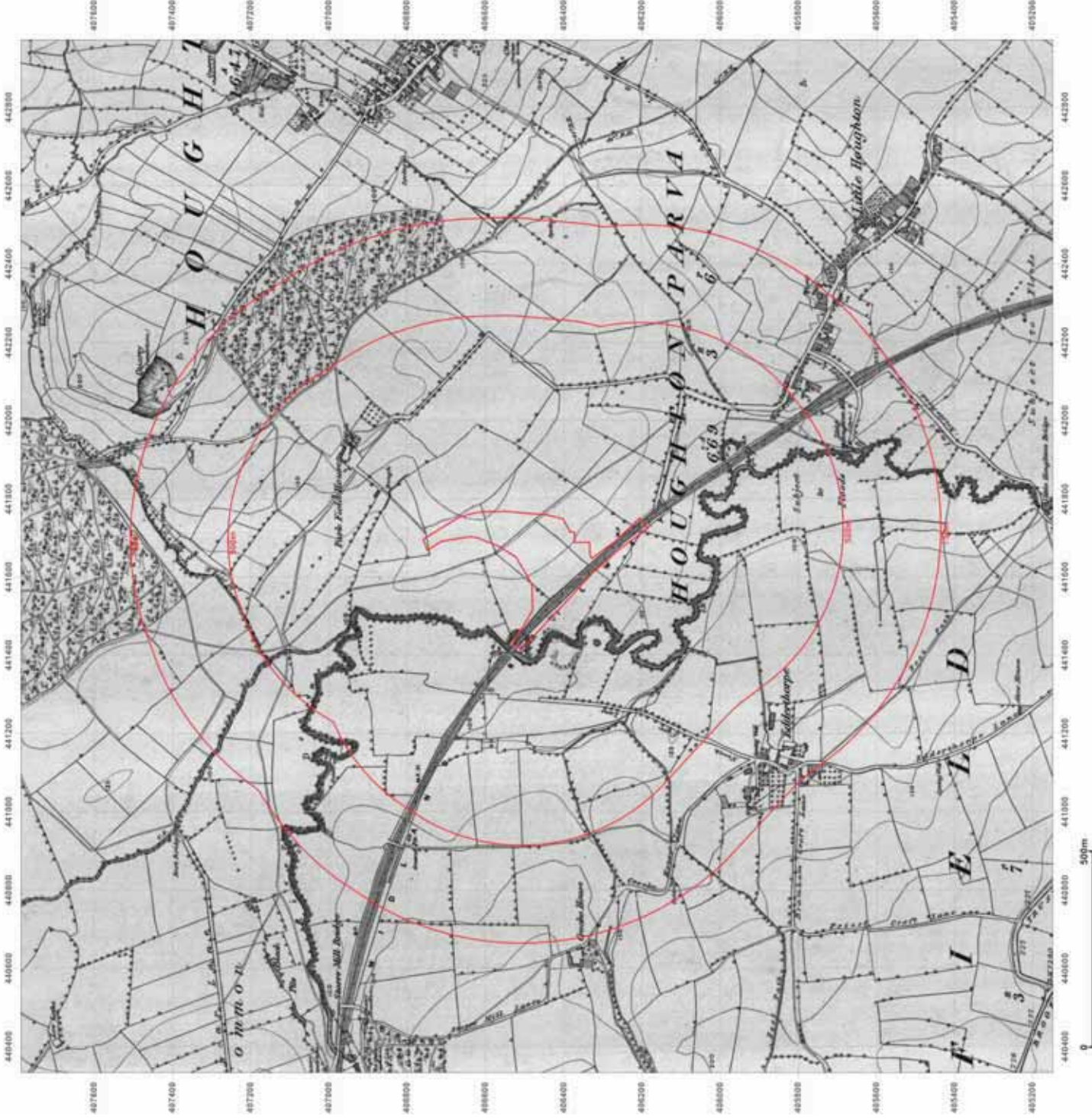


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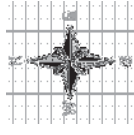
Client Ref: EMS_245265_329170
Report Ref: EMS-245265_329170
Grid Ref: 441652, 406467

Map Name: MasterMap

Map date: 2012

Scale: 1:1,250

Printed at: 1:2,500



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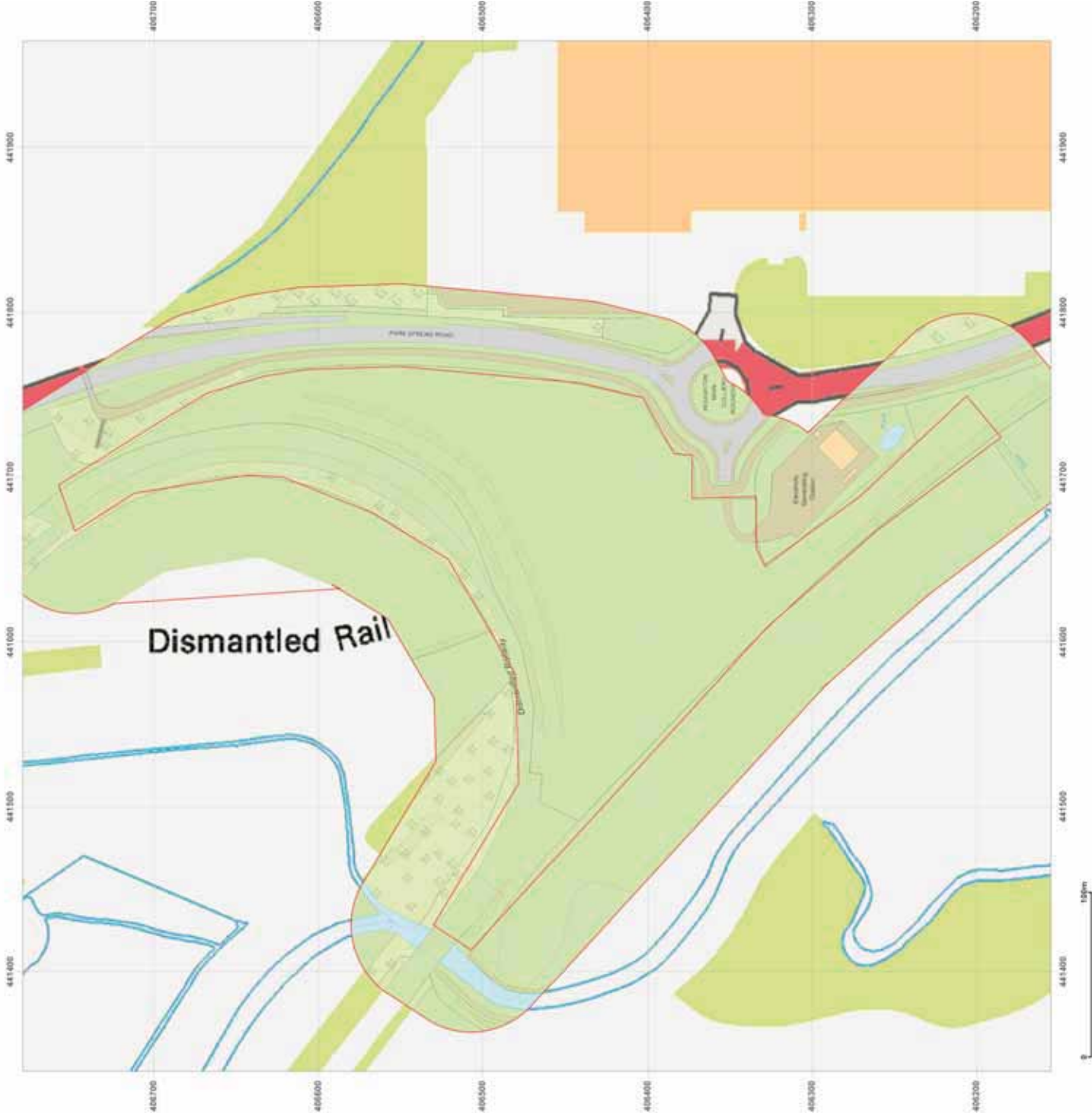


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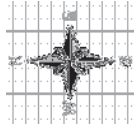
Client Ref: EMS_245265_329170
Report Ref: EMS-245265_329170
Grid Ref: 441652, 406467

Map Name: National Grid

Map date: 1993

Scale: 1:2,500

Printed at: 1:2,500



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



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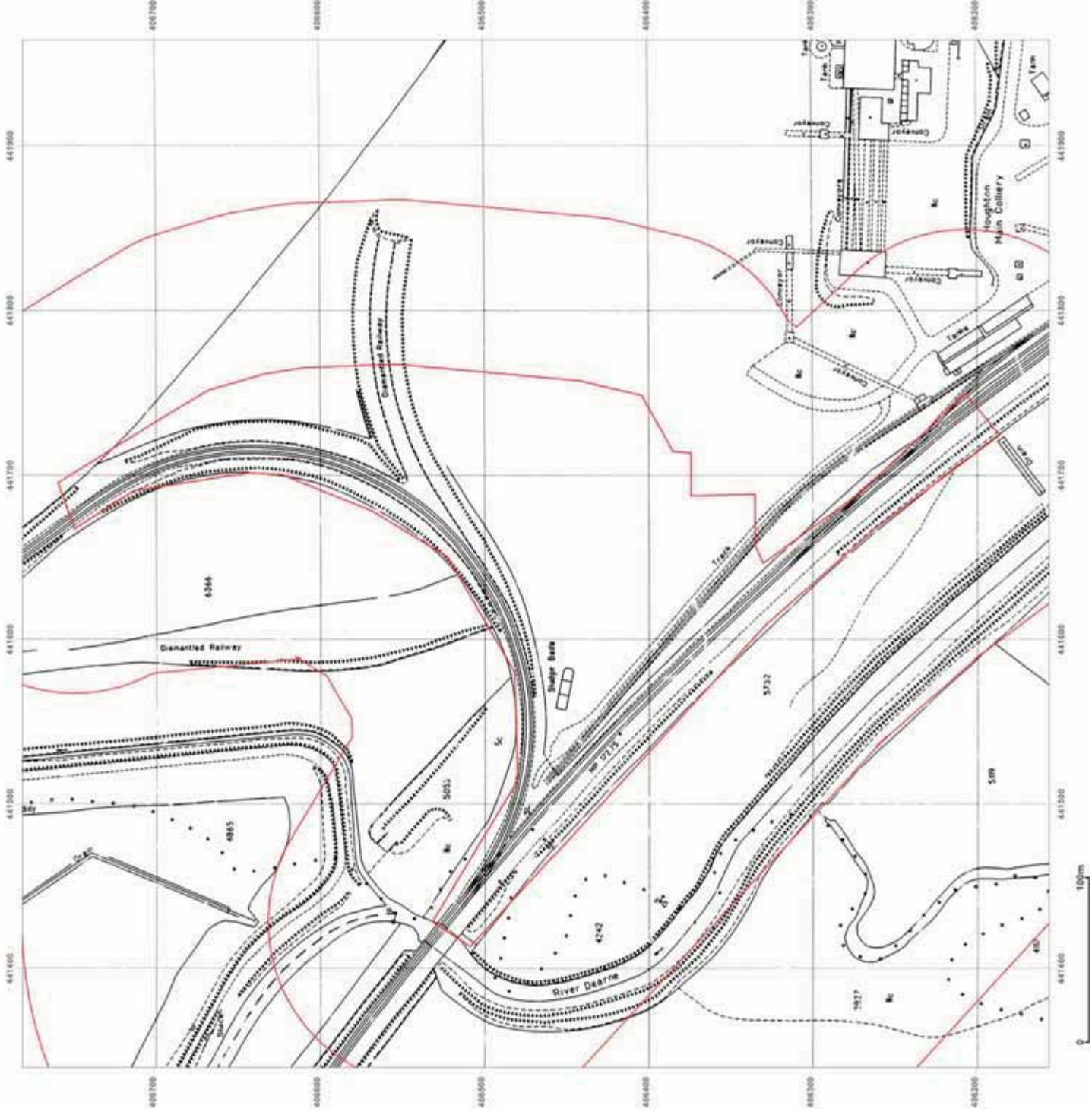


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Production date: 08 April 2014

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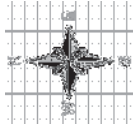
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Report Ref: EMS-245265_329170
Grid Ref: 441652, 406467

Map Name: National Grid

Map date: 1985

Scale: 1:2,500

Printed at: 1:2,500



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



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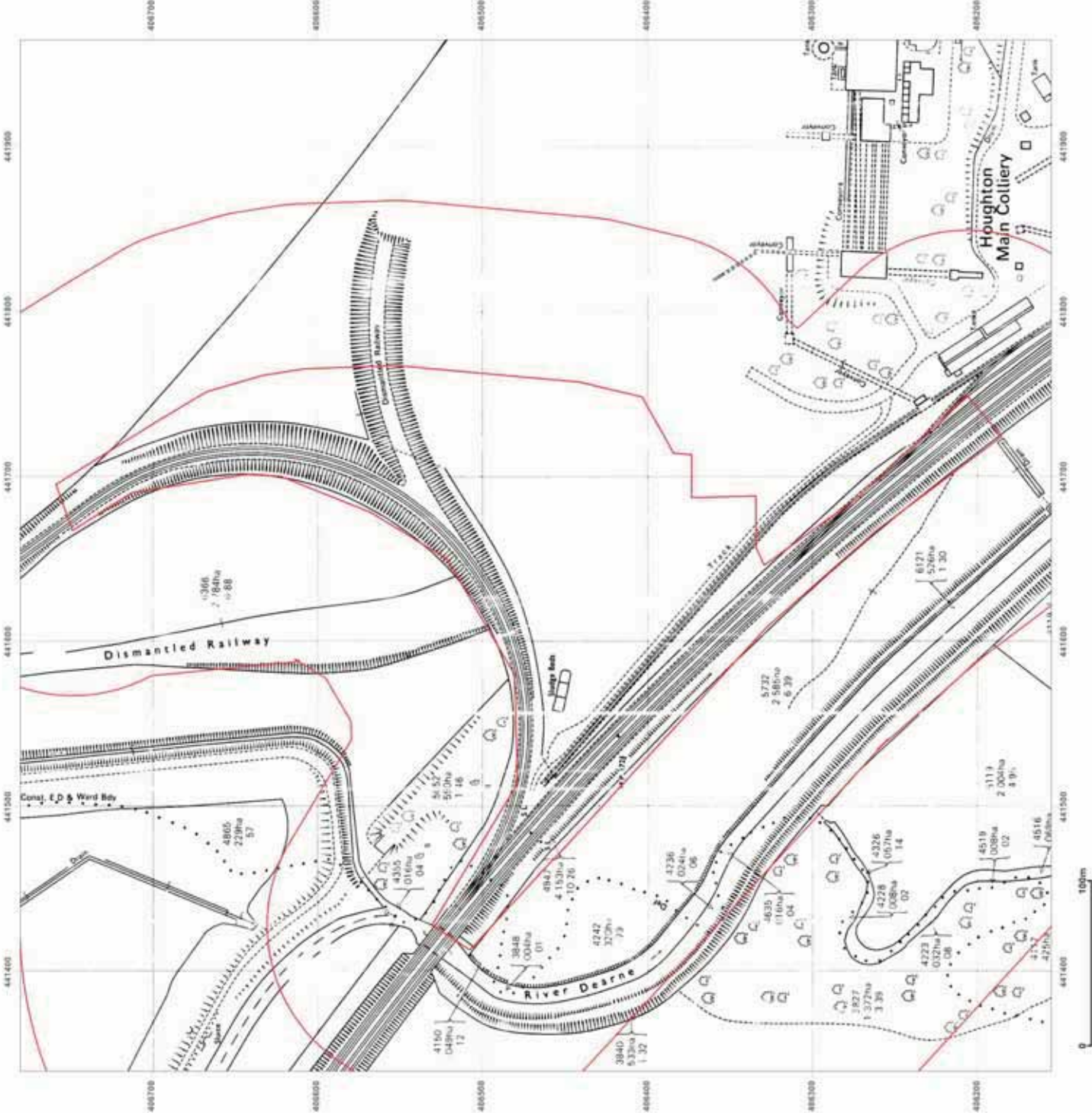


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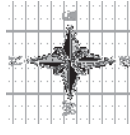
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Report Ref: EMS-245265_329170
Grid Ref: 441652, 406467

Map Name: National Grid

Map date: 1983

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1983
Revised 1983
Edition N/A
Copyright 1985
Levelled 1964



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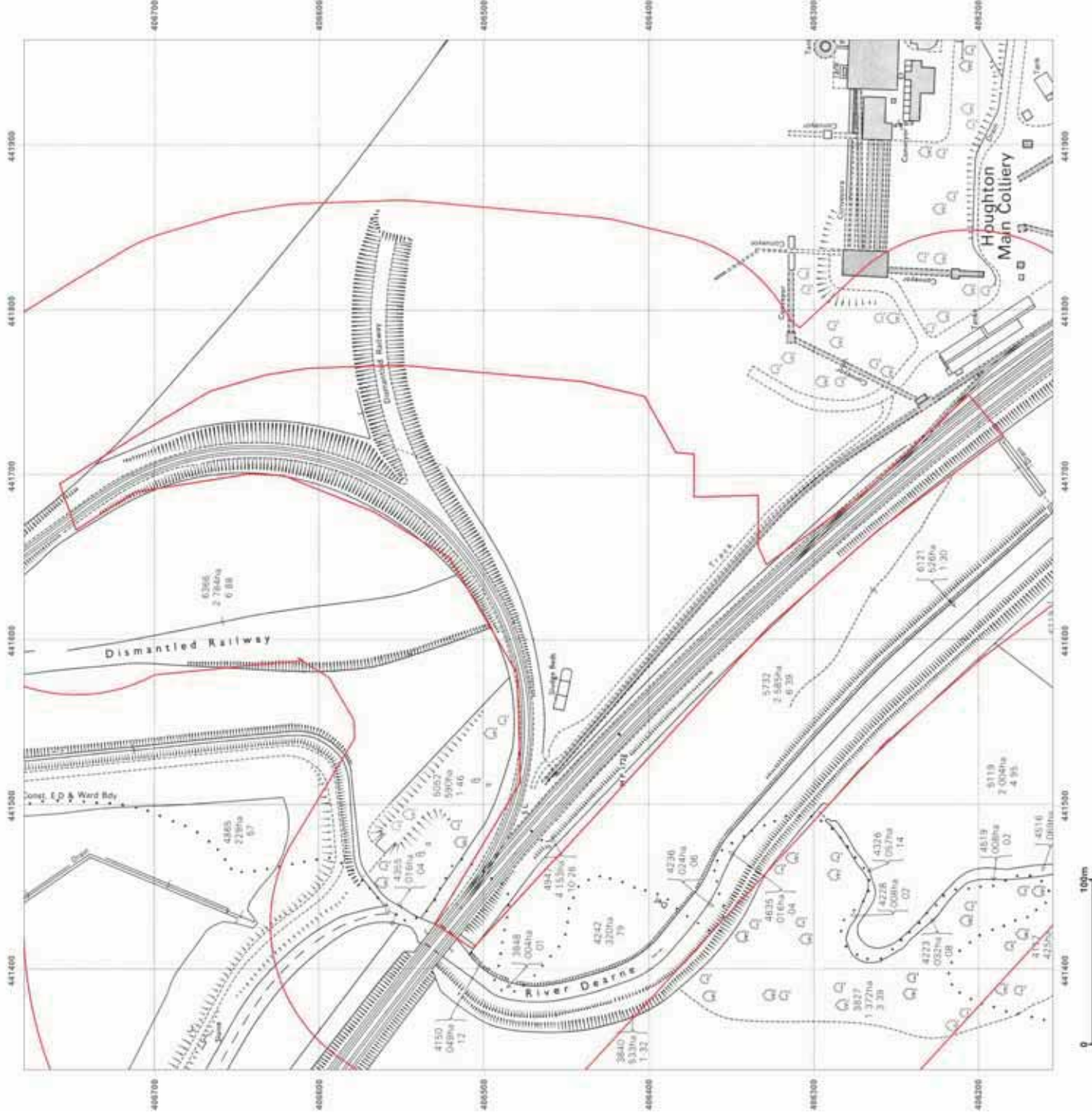


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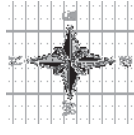
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Report Ref: EMS-245265_329170
Grid Ref: 441652, 406467

Map Name: National Grid

Map date: 1980

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1980
Revised 1980
Edition N/A
Copyright 1981
Levelled 1964



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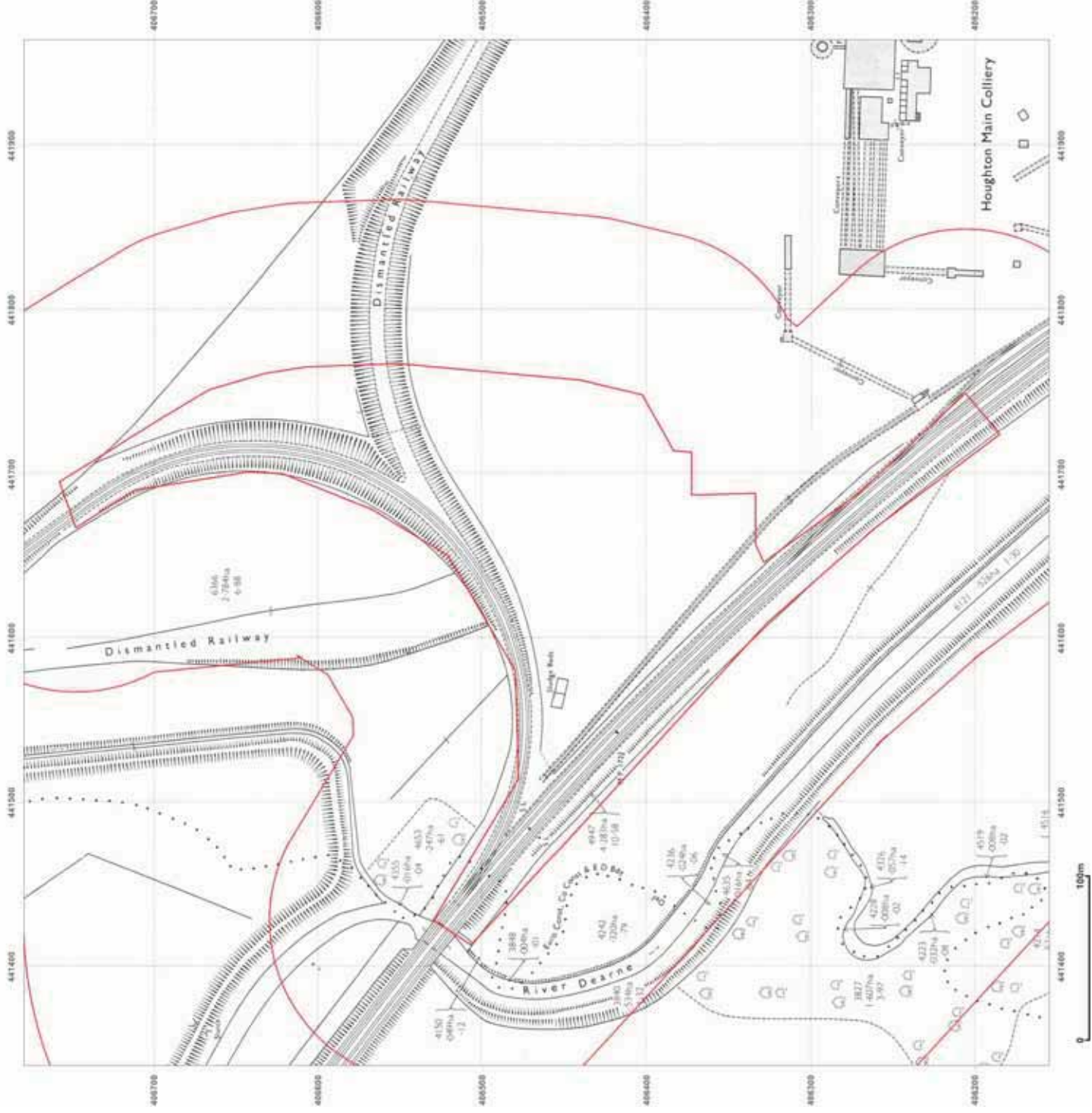


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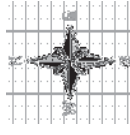
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Report Ref: EMS-245265_329170
Grid Ref: 441652, 406467

Map Name: National Grid

Map date: 1962

Scale: 1:2,500

Printed at: 1:2,500



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



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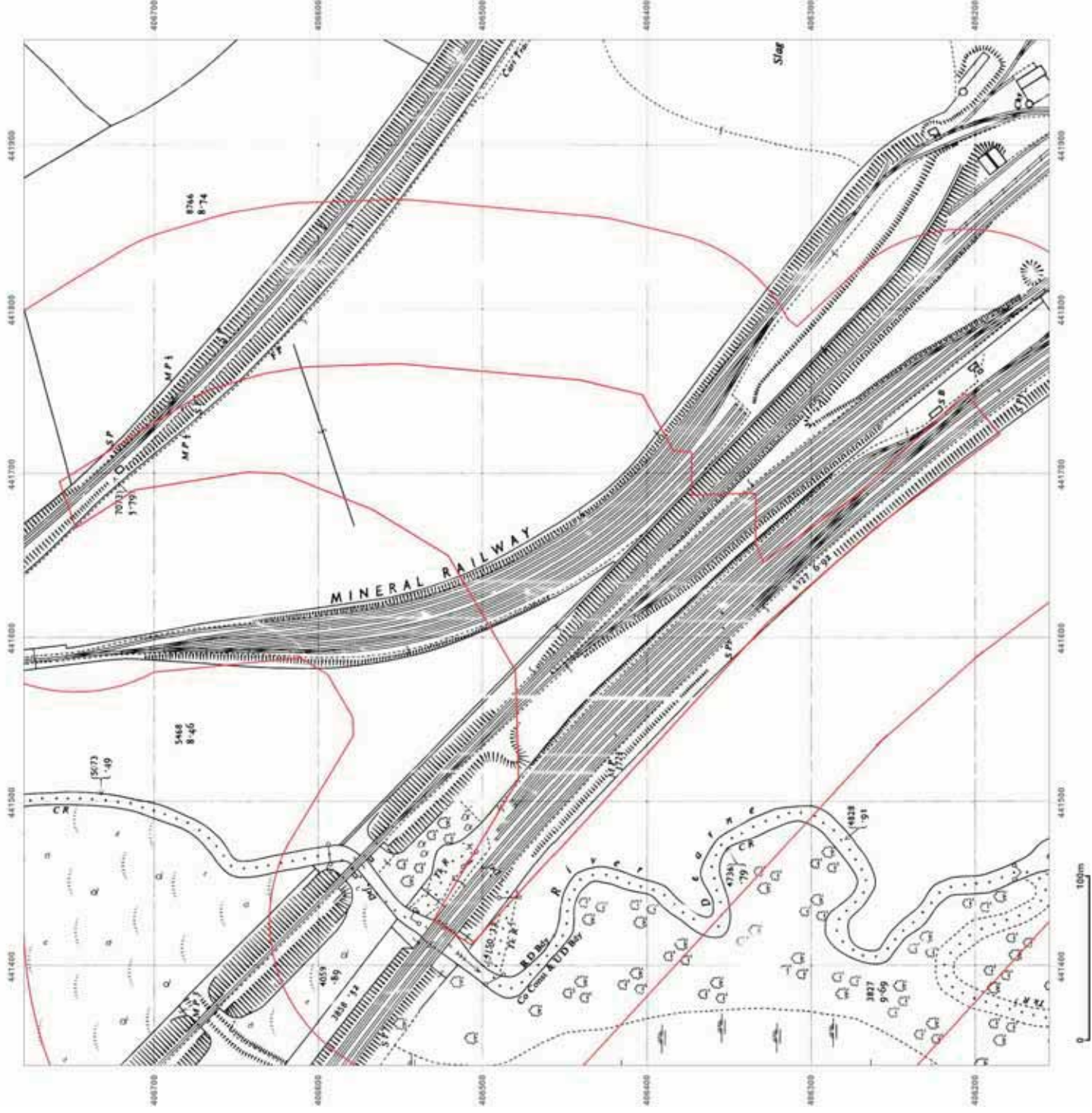


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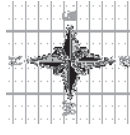
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Report Ref: EMS-245265_329170
Grid Ref: 441652, 406467

Map Name: National Grid

Map date: 1961

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1961
Revised 1961
Edition N/A
Copyright 1982
Levelled 1959



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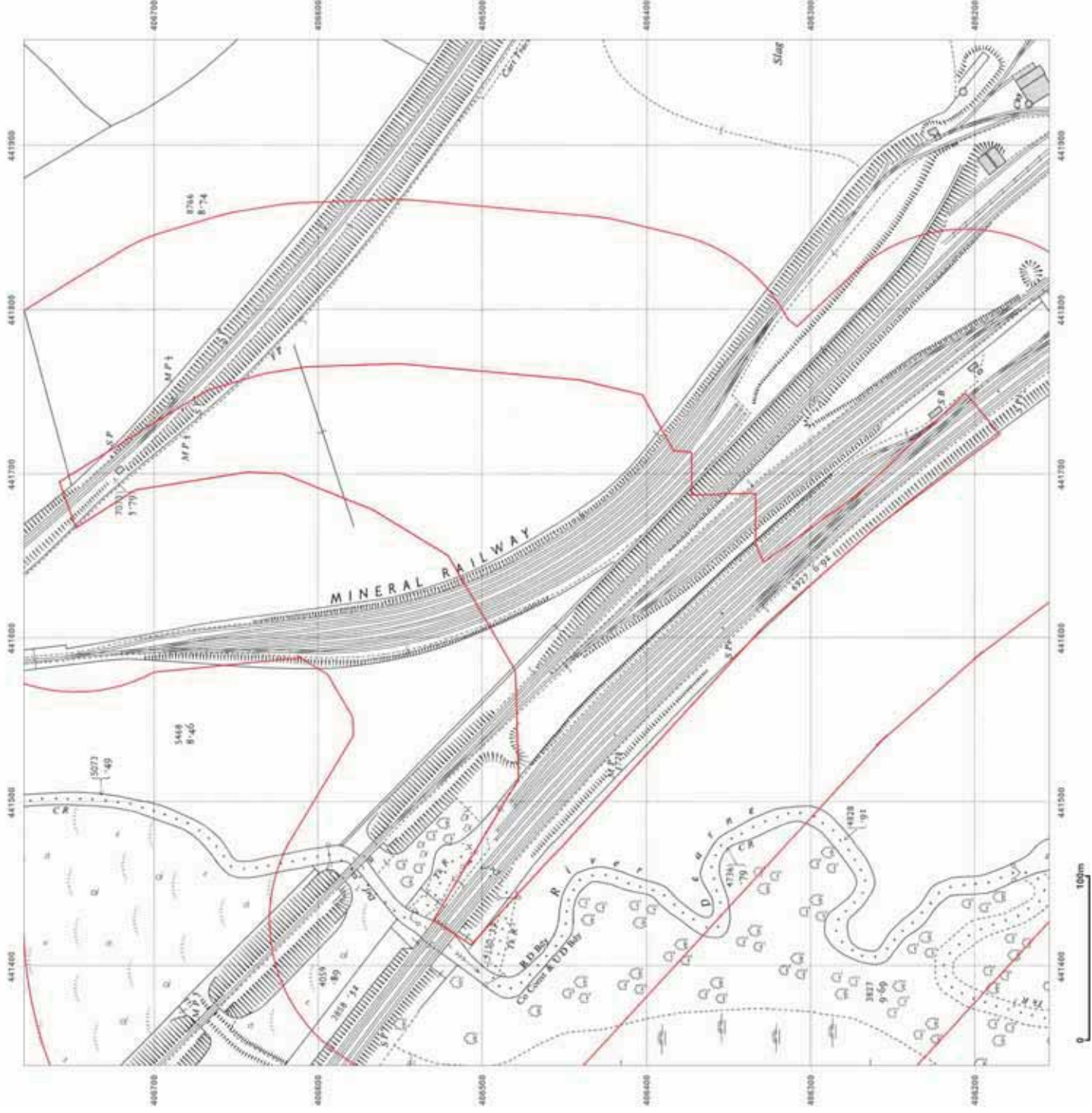


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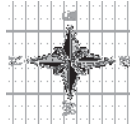
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Report Ref: EMS-245265_329170
Grid Ref: 441652, 406467

Map Name: County Series

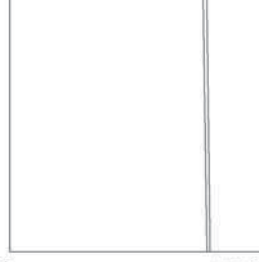
Map date: 1931

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1931
 Revised 1931
 Edition N/A
 Copyright N/A
 Levelled N/A



Surveyed 1931
 Revised 1931
 Edition N/A
 Copyright N/A
 Levelled N/A



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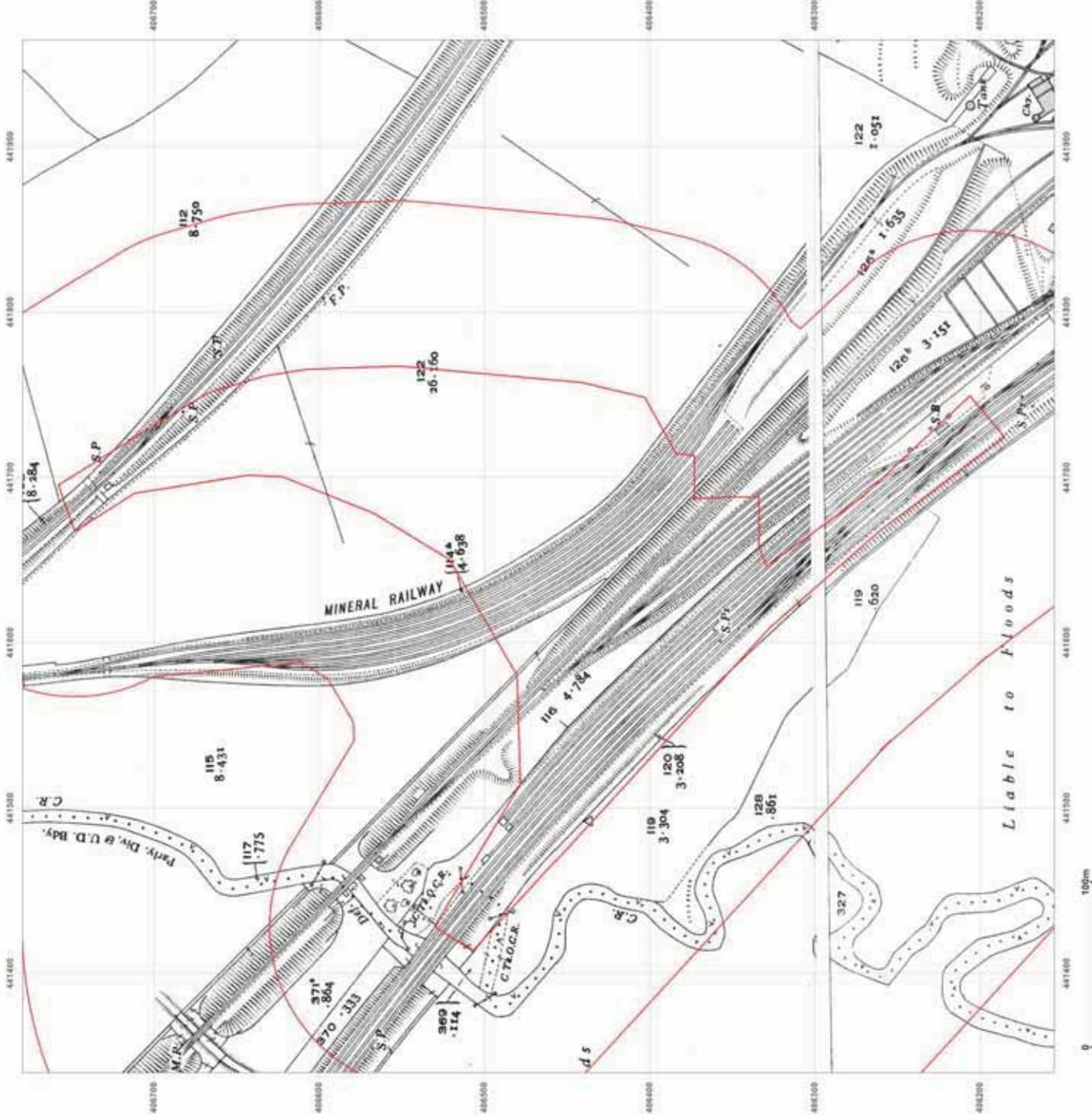


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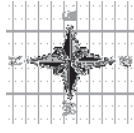
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Report Ref: EMS-245265_329170
Grid Ref: 441652, 406467

Map Name: County Series

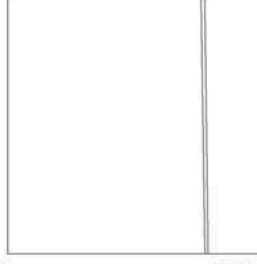
Map date: 1906

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1906
 Revised 1906
 Edition N/A
 Copyright N/A
 Levelled N/A



Surveyed 1906
 Revised 1906
 Edition N/A
 Copyright N/A
 Levelled N/A



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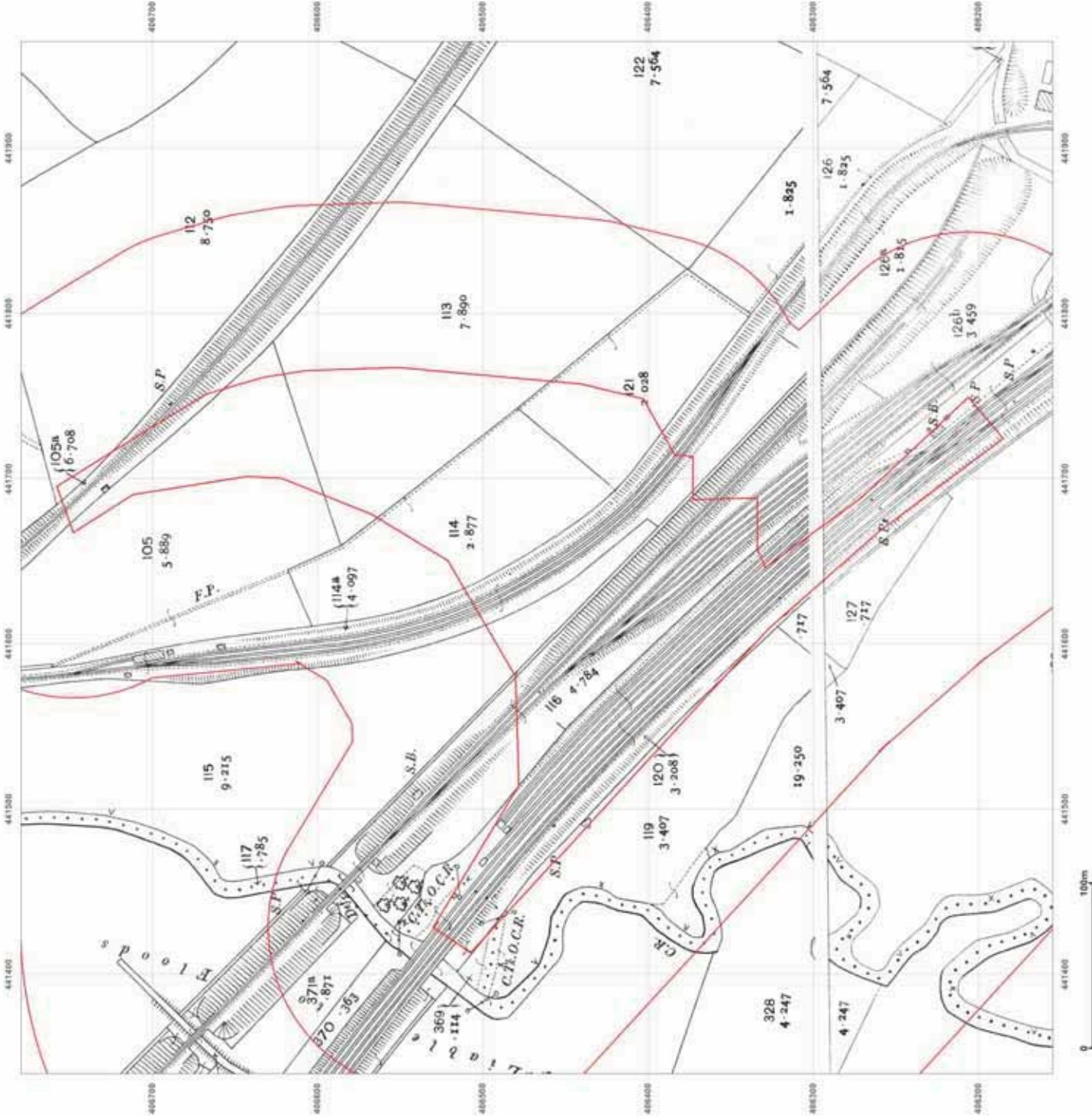


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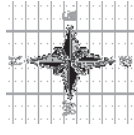
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Report Ref: EMS-245265_329170
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Map Name: County Series

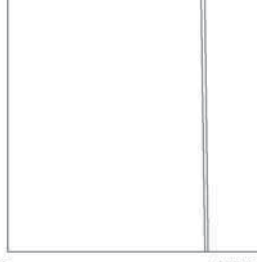
Map date: 1890-1893

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1893
Revised 1893
Edition N/A
Copyright N/A
Levelled N/A



Surveyed 1890
Revised 1890
Edition N/A
Copyright N/A
Levelled N/A



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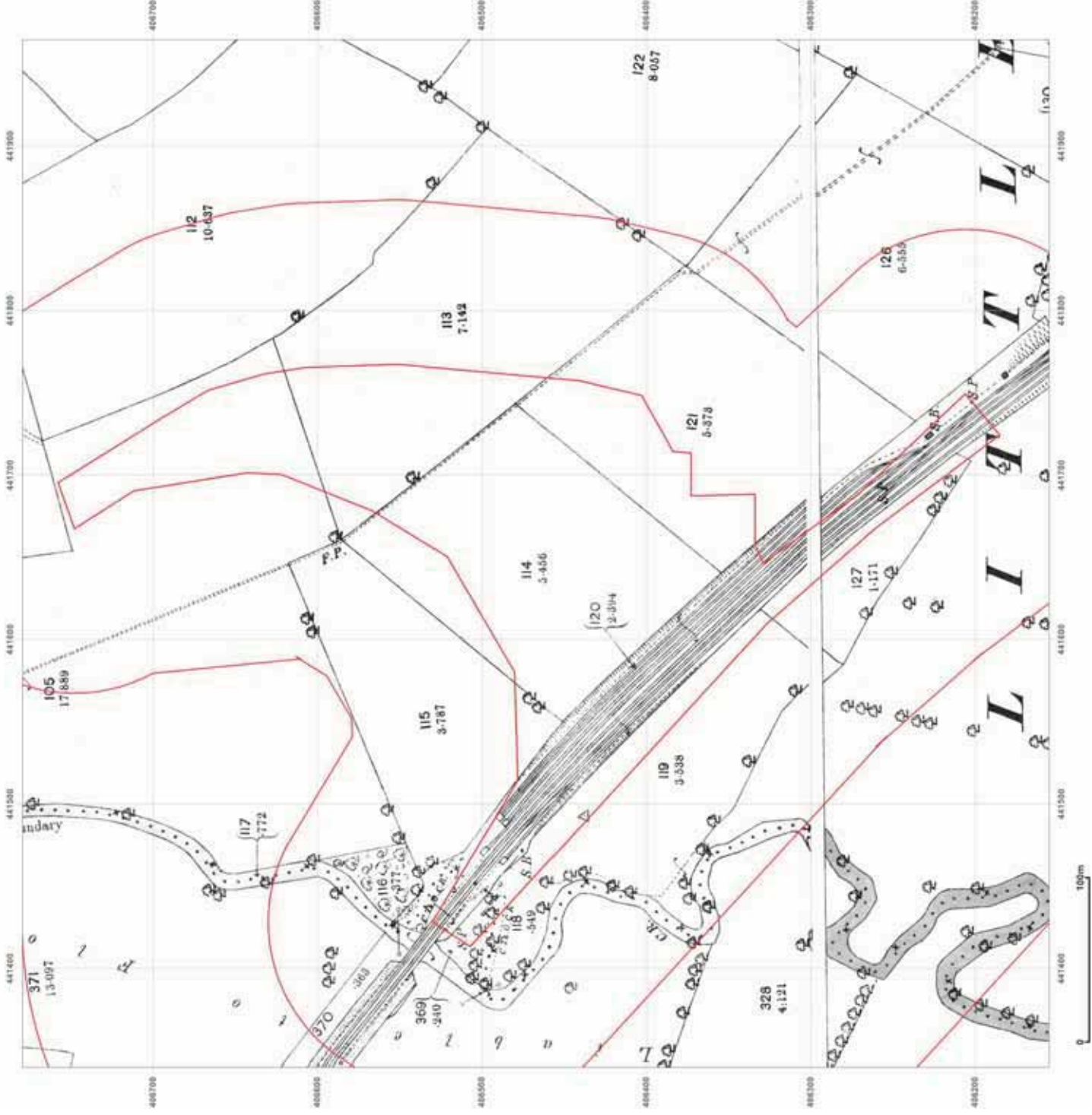


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Enzygo Ltd
 Tel: 01454 269237
 Fax: 01454 269760
 Web: www.enzygo.com

Site Houghton Main, Barnsley			TP10
Job No CRM.066.002	Dates Start 26-08-14 Finish 26-08-14	Ground Level (m) Co-Ordinates	

Client Peel Environmental Ltd	Sheet 1 of 1
----------------------------------	-----------------

Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
	Depth (m)	No/Type	Results					
				0.25			(MADE GROUND) Grass over soft to firm, blue grey mottled yellow brown slightly sandy gravelly clay with black staining. Gravel is fine to coarse, angular and subangular mudstone, carbonised mudstone, occasional sandstone, and occasional cobbles and boulders of mudstone, carbonised mudstone and sandstone.	0
	0.90	ES		1.00			(MADE GROUND) Blue grey mottled orange red occasionally slightly sandy clayey gravel with occasional black staining. Gravel is fine to coarse, angular and subangular mudstone, carbonised mudstone, occasional sandstone, cobbles of mudstone and carbonised mudstone, and boulders of mudstone.	1
				2.80			(MADE GROUND) Blue grey mottled light grey and orange red occasionally slightly sandy clayey gravel with occasional black staining. Gravel is fine to coarse, angular and subangular mudstone, carbonised mudstone, occasional sandstone, cobbles of mudstone and carbonised mudstone, and boulders of mudstone.	2
				{4.00}			Trial Pit completed at 2.80m.	3
								4

General Remarks
 Dimensions: 3.10x0.69x2.80
 Excavated by JCB 3CX mechanical excavator.
 Groundwater was not encountered.
 On completion, the trial pit was backfilled with arisings.

All dimensions in metres Scale 1:25	Logged By N.M
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1.1 ENZYGO TP LOG CRM.066.002 HOUGHTON MAIN.GPJ GINT STD.AGS 3_1 ENZYGO.GPJ 28/11/14



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Site Houghton Main, Barnsley			TP11
Job No CRM.066.002	Dates Start 27-08-14 Finish 27-08-14	Ground Level (m) Co-Ordinates	

Client Peel Environmental Ltd	Sheet 1 of 1
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Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
	Depth (m)	No/Type	Results					
	0.50	ES		0.60			(MADE GROUND) Grass over firm, blue grey mottled orange slightly sandy gravelly clay with occasional rootlets and black staining. Gravel is fine to coarse, angular and subangular mudstone, carbonised mudstone, occasional sandstone, and cobbles of mudstone and occasional cobbles of sandstone.	0
				1.80			(MADE GROUND) Blue grey mottled red orange and white grey slightly clayey and silty gravel with black staining. Gravel is fine to coarse, angular and subangular mudstone, carbonised mudstone, occasional sandstone, and cobbles of mudstone and carbonised mudstone, and occasional boulders of mudstone and sandstone.	1
				2.40			(MADE GROUND) Blue grey mottled white grey slightly clayey and silty gravel. Gravel is fine to coarse, angular and subangular mudstone, carbonised mudstone, and cobbles of mudstone and carbonised mudstone, and boulders of mudstone.	2
				{4.00}			Trial Pit completed at 2.40m.	3
								4

General Remarks
 Dimensions: 2.82x0.68x2.40
 Excavated by JCB 3CX mechanical excavator.
 Groundwater was not encountered.
 On completion, the trial pit was backfilled with arisings.

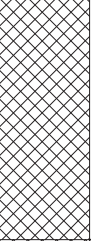
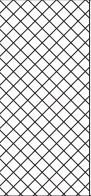
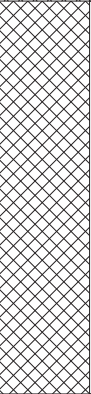
All dimensions in metres Scale 1:25	Logged By N.M
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1.1 ENZYGO TP LOG CRM.066.002 HOUGHTON MAIN.GPJ GINT STD.AGS 3_1 ENZYGO.GPJ 28/11/14



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Site Houghton Main, Barnsley			TP12
Job No CRM.066.002	Dates Start 27-08-14 Finish 27-08-14	Ground Level (m) Co-Ordinates	
Client Peel Environmental Ltd			Sheet 1 of 1

Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
	Depth (m)	No/Type	Results					
	0.70	ES		0.80			(MADE GROUND) Grass over firm, grey brown occasionally blue grey mottled yellow brown and orange slightly sandy gravelly clay with occasional rootlets and black staining. Gravel is fine to coarse, angular and subangular mudstone, carbonised mudstone, occasional sandstone, cobbles of mudstone and carbonised mudstone, and occasional cobbles of sandstone.	0
				1.45			(MADE GROUND) Blue grey mottled white grey and red orange slightly clayey and silty gravel with black staining. Gravel is fine to coarse, angular and subangular mudstone, carbonised mudstone, occasional sandstone, cobbles of mudstone, carbonised mudstone, and occasional boulders of mudstone and sandstone.	1
				2.75			(MADE GROUND) Blue grey mottled white grey slightly clayey and silty gravel. Gravel is fine to coarse, angular and subangular mudstone and carbonised mudstone, cobbles of mudstone and carbonised mudstone, and boulders of mudstone.	2
				{4.00}			Trial Pit completed at 2.75m.	3
								4

General Remarks
 Dimensions: 3.22x0.68x2.75
 Excavated by JCB 3CX mechanical excavator.
 Groundwater was not encountered.
 On completion, the trial pit was backfilled with arisings.

All dimensions in metres Scale 1:25	Logged By N.M
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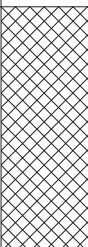
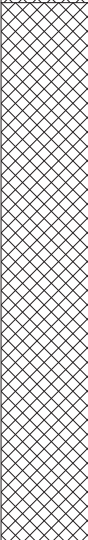
1.1 ENZYGO TP LOG CRM.066.002 HOUGHTON MAIN.GPJ GINT STD.AGS 3_1 ENZYGO.GPJ 28/11/14



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Site Houghton Main, Barnsley			TP13
Job No CRM.066.002	Dates Start 27-08-14 Finish 27-08-14	Ground Level (m) Co-Ordinates	

Client Peel Environmental Ltd	Sheet 1 of 1
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Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
	Depth (m)	No/Type	Results					
	0.20	ES		0.80			(MADE GROUND) Grass over firm, grey brown occasionally blue grey mottled dark grey and orange slightly sandy gravelly clay with frequent rootlets and black staining. Gravel is fine to coarse, angular and subangular mudstone, carbonised mudstone, sandstone, ash, and cobbles of mudstone.	0
				2.60			(MADE GROUND) Blue grey mottled orange brown and white grey slightly clayey and silty gravel. Gravel is fine to coarse, angular and subangular mudstone, cobbles of carbonised mudstone, and cobbles and boulders of mudstone.	1
				{4.00}			Trial Pit completed at 2.60m.	2
								3
								4

General Remarks
 Dimensions: 2.70x0.63x2.60
 Excavated by JCB 3CX mechanical excavator.
 Groundwater was not encountered.
 On completion, the trial pit was backfilled with arisings.

All dimensions in metres Scale 1:25	Logged By N.M
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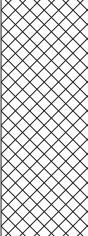
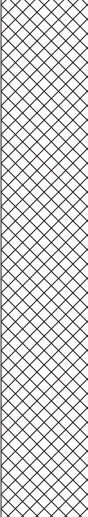
1.1 ENZYGO TP LOG CRM.066.002 HOUGHTON MAIN.GPJ GINT STD.AGS 3_1 ENZYGO.GPJ 28/11/14



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Site Houghton Main, Barnsley			TP14
Job No CRM.066.002	Dates Start 27-08-14 Finish 27-08-14	Ground Level (m) Co-Ordinates	

Client Peel Environmental Ltd	Sheet 1 of 1
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Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
	Depth (m)	No/Type	Results					
	0.75	ES		0.80			(MADE GROUND) Grass over firm, grey brown occasionally blue grey mottled orange and yellow brown slightly sandy gravelly clay with occasional rootlets, and black staining. Gravel is fine to coarse, angular and subangular mudstone, carbonised mudstone, sandstone, ash and occasional bricks, and cobbles of mudstone and sandstone.	0
							(MADE GROUND) Blue grey mottled yellow brown and white grey slightly clayey and silty gravel with occasional black staining. Gravel is fine to coarse, angular and subangular mudstone, carbonised mudstone, sandstone, cobbles of mudstone, carbonised mudstone and occasional sandstone, and boulders of mudstone and carbonised mudstone.	1
				2.55				2
				{4.00}			Trial Pit completed at 2.55m.	3
								4

General Remarks
 Dimensions: 2.66x0.68x2.55
 Excavated by JCB 3CX mechanical excavator.
 Groundwater was not encountered.
 On completion, the trial pit was backfilled with arisings.

All dimensions in metres Scale 1:25	Logged By N.M
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Site Houghton Main, Barnsley			TP15
Job No CRM.066.002	Dates Start 27-08-14 Finish 27-08-14	Ground Level (m) Co-Ordinates	

Client Peel Environmental Ltd	Sheet 1 of 1
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Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
	Depth (m)	No/Type	Results					
	0.40	ES		0.30			(MADE GROUND) Grass over firm, blue grey mottled green grey slightly sandy clayey gravel with occasional rootlets, and black staining. Gravel is fine to coarse, angular and subangular mudstone, carbonised mudstone, sandstone, and cobbles of mudstone, carbonised mudstone and sandstone.	0
			0.55		(MADE GROUND) Dark grey brown mottled blue grey slightly sandy silty gravel with frequent rootlets, and black staining. Gravel is fine to coarse, angular and subangular mudstone, carbonised mudstone, sandstone, occasional ash and bricks.			
			2.20		(MADE GROUND) Blue grey mottled white grey slightly clayey and silty gravel. Gravel is fine to coarse, angular and subangular mudstone, carbonised mudstone, occasional sandstone, cobbles and boulders of mudstone, carbonised mudstone and occasional sandstone.		1	
							Trial Pit completed at 2.20m.	2
				{4.00}				3
								4

General Remarks
 Dimensions: 2.78x0.66x2.20
 Excavated by JCB 3CX mechanical excavator.
 Groundwater was not encountered.
 On completion, the trial pit was backfilled with arisings.

All dimensions in metres Scale 1:25	Logged By N.M
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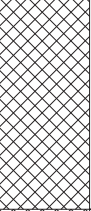
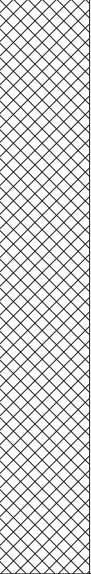
1.1 ENZYGO TP LOG CRM.066.002 HOUGHTON MAIN.GPJ GINT STD.AGS 3_1 ENZYGO.GPJ 28/11/14



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Site Houghton Main, Barnsley			TP16
Job No CRM.066.002	Dates Start 28-08-14 Finish 28-08-14	Ground Level (m) Co-Ordinates	

Client Peel Environmental Ltd	Sheet 1 of 1
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Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
	Depth (m)	No/Type	Results					
	0.50	ES		0.70			(MADE GROUND) Grass over brown grey occasionally blue grey mottled yellow brown slightly sandy and silty clayey gravel with occasional rootlets, and black staining. Gravel is fine to coarse, angular and subangular mudstone, carbonised mudstone, sandstone, cobbles and boulders of mudstone, carbonised mudstone and sandstone.	0
							(MADE GROUND) Blue grey occasionally light green mottled red orange and white grey gravel. Gravel is cobbles and boulders, angular and subangular mudstone and sandstone (Possible natural strata).	1
				2.60			Trial Pit completed at 2.60m.	2
				{4.00}				3
								4

General Remarks
 Dimensions: 3.66x0.69x2.60
 Excavated by JCB 3CX mechanical excavator.
 Groundwater was not encountered.
 On completion, the trial pit was backfilled with arisings.

All dimensions in metres Scale 1:25	Logged By N.M
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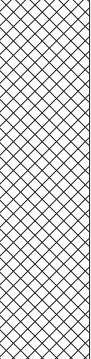
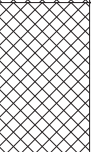
1.1 ENZYGO TP LOG CRM.066.002 HOUGHTON MAIN.GPJ GINT STD.AGS 3_1 ENZYGO.GPJ 28/11/14



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Site Houghton Main, Barnsley			TP17
Job No CRM.066.002	Dates Start 28-08-14 Finish 28-08-14	Ground Level (m) Co-Ordinates	

Client Peel Environmental Ltd	Sheet 1 of 1
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Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
	Depth (m)	No/Type	Results					
	0.55	ES		1.20			(MADE GROUND) Grass over firm, blue grey mottled yellow brown and red orange slightly sandy and silty gravelly clay with frequent rootlets and black staining. Gravel is fine to coarse, angular and subangular mudstone, carbonised mudstone and coal, cobbles of mudstone, carbonised mudstone and sandstone, and occasional boulders of carbonised mudstone.	0
				1.70			(MADE GROUND) Blue grey mottled red orange and white slightly clayey and silty gravel. Gravel is cobbles and boulders, angular and subangular to subrounded mudstone, carbonised mudstone, and sandstone. Pit terminated at 1.70mbgl due to very hard and very compact ground.	1
				{4.00}			Trial Pit completed at 1.70m.	2
								3
								4

General Remarks
 Dimensions: 2.88x0.66x1.70
 Excavated by JCB 3CX mechanical excavator.
 Groundwater was not encountered.
 On completion, the trial pit was backfilled with arisings.

All dimensions in metres Scale 1:25	Logged By N.M
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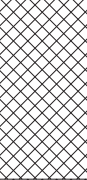
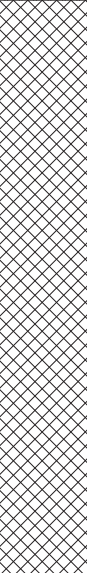
1.1 ENZYGO TP LOG CRM.066.002 HOUGHTON MAIN.GPJ GINT STD.AGS 3_1 ENZYGO.GPJ 28/11/14



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Site Houghton Main, Barnsley			TP18
Job No CRM.066.002	Dates Start 28-08-14 Finish 28-08-14	Ground Level (m) Co-Ordinates	

Client Peel Environmental Ltd	Sheet 1 of 1
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Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
	Depth (m)	No/Type	Results					
				0.60			(MADE GROUND) Grass over soft to firm, grey brown occasionally blue grey mottled orange slightly sandy and silty gravelly clay with occasional rootlets and black staining. Gravel is fine to coarse, angular and subangular mudstone, carbonised mudstone and sandstone, cobbles and boulders of mudstone, carbonised mudstone and sandstone.	0
	0.90	ES					(MADE GROUND) Blue dark grey mottled white grey and orange slightly clayey and silty gravel. Gravel is coarse, angular and subangular mudstone, carbonised mudstone and sandstone, cobbles and boulders of mudstone, carbonised mudstone and sandstone.	1
				2.50				2
				{4.00}			Trial Pit completed at 2.50m.	3
								4

General Remarks
 Dimensions: 2.99x0.72x2.50
 Excavated by JCB 3CX mechanical excavator.
 Groundwater was not encountered.
 On completion, the trial pit was backfilled with arisings.

All dimensions in metres Scale 1:25	Logged By N.M
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1.1 ENZYGO TP LOG CRM.066.002 HOUGHTON MAIN.GPJ GINT STD.AGS 3_1 ENZYGO.GPJ 28/11/14



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Site Houghton Main, Barnsley			TP19
Job No CRM.066.002	Dates Start 28-08-14 Finish 28-08-14	Ground Level (m) Co-Ordinates	

Client Peel Environmental Ltd	Sheet 1 of 1
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Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
	Depth (m)	No/Type	Results					
	0.50	ES		0.50			(MADE GROUND) Grass over grey brown occasionally blue grey mottled dark grey and orange slightly sandy and silty clayey gravel with frequent rootlets, and black staining. Gravel is fine to coarse, angular and subangular mudstone, carbonised mudstone, sandstone and occasional bricks, cobbles and boulders of mudstone and carbonised mudstone.	0
							(MADE GROUND) Blue dark grey mottled white grey and orange gravel. Gravel is cobbles and boulders, angular and subangular mudstone, carbonised mudstone, and occasional sandstone.	1
				2.50				2
				{4.00}			Trial Pit completed at 2.50m.	3
								4

General Remarks
 Dimensions: 2.88x0.72x2.50
 Excavated by JCB 3CX mechanical excavator.
 Groundwater was not encountered.
 On completion, the trial pit was backfilled with arisings.

All dimensions in metres Scale 1:25	Logged By N.M
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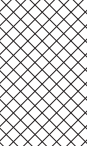
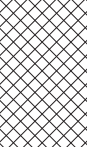
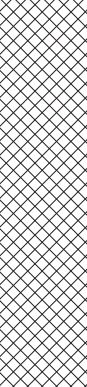
1.1 ENZYGO TP LOG CRM.066.002 HOUGHTON MAIN.GPJ GINT STD.AGS 3_1 ENZYGO.GPJ 28/11/14



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Site Houghton Main, Barnsley			TP20
Job No CRM.066.002	Dates Start 28-08-14 Finish 28-08-14	Ground Level (m) Co-Ordinates	

Client Peel Environmental Ltd	Sheet 1 of 1
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Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
	Depth (m)	No/Type	Results					
	0.40	ES		0.50			(MADE GROUND) Grass over firm, grey brown mottled light green and orange slightly sandy and silty gravelly clay with frequent rootlets, and black staining. Gravel is fine to coarse, angular and subangular mudstone and sandstone, and cobbles of mudstone and sandstone.	0
				1.20			(MADE GROUND) Blue dark grey mottled light grey and orange slightly clayey and silty gravel with occasional black staining. Gravel is cobbles and boulders, angular and subangular mudstone, carbonised mudstone, and occasional sandstone.	1
				2.50			(MADE GROUND) Blue grey mottled orange and white grey gravel. Gravel is cobbles and boulders, angular and subangular mudstone and carbonised mudstone.	2
				{4.00}			Trial Pit completed at 2.50m.	3
								4

General Remarks
 Dimensions: 3.42x0.68x2.50
 Excavated by JCB 3CX mechanical excavator.
 Groundwater was not encountered.
 On completion, the trial pit was backfilled with arisings.

All dimensions in metres Scale 1:25	Logged By N.M
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1.1 ENZYGO TP LOG CRM.066.002 HOUGHTON MAIN.GPJ GINT STD.AGS 3_1 ENZYGO.GPJ 28/11/14



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Site Houghton Main, Barnsley			WS1
Job No CRM.066.002	Dates Start 28-08-14 Finish 28-08-14	Ground Level (m) Co-Ordinates	

Client Peel Environmental Ltd	Sheet 1 of 1
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Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
		0.30	ES		0.65		(MADE GROUND) Grass over firm brown grey occasionally blue green mottled red orange slightly sandy gravelly clay with occasional rootlets and black staining. Gravel is fine to medium, angular and subangular mudstone, sandstone, carbonised mudstone and occasional bricks.	0	
		1.00 - 1.45	SPTLS S 21	1.00			(MADE GROUND) Grey green mottled red orange gravel with black staining. Gravel is fine to coarse, angular and subangular mudstone, sandstone and carbonised mudstone.	1	
		2.00 - 2.45	SPTLS S 26				(MADE GROUND) Medium dense to very dense blue grey mottled white grey gravel with black staining. Gravel is fine to coarse, angular and subangular mudstone and carbonised mudstone.	2	
		3.00 - 3.24	SPTLS S >50	3.24				3	
				{4.00}			Borehole completed at 3.24m.	4	

General Remarks
 EQUIPMENT: Dando Terrier rig.
 METHOD: Dynamic sampled 0.00-3.235m.
 CASING: Not used.
 REMARKS: Groundwater not encountered.
 BACKFILL: On completion, a slotted standpipe (50mm) was installed to 3.00m, granular response zone 3.235-1.00m, bentonite seal 1.00-0.00m.

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres Scale 1:25	Logged By N.M
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1.0.ENZYGO BH LOG CRM.066.002 HOUGHTON MAIN.GPJ GINT STD AGS 3 -1 ENZYGO.GPJ 28/11/14



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Site Houghton Main, Barnsley			WS2
Job No CRM.066.002	Dates Start 28-08-14 Finish 28-08-14	Ground Level (m) Co-Ordinates	

Client Peel Environmental Ltd	Sheet 1 of 1
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Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
		0.35	ES		0.55		(MADE GROUND) Grass over grey green mottled dark grey and orange slightly sandy and silty clayey gravel with occasional rootlets and black staining. Gravel is fine to coarse, angular to subangular sandstone, mudstone, carbonised mudstone and occasional bricks.	0	
		1.00 - 1.45	SPTLS S 28				(MADE GROUND) Medium dense to very dense grey brown occasionally grey green mottled red range gravel with occasional rootlets and black staining. Gravel is fine, angular to subangular sandstone, mudstone, carbonised mudstone and occasional coal.	1	
		2.00 - 2.45	SPTLS S 10					2	
		2.60 - 2.79	SPTLS S >50		2.79			3	
				{4.00}			Borehole completed at 2.79m.	4	

General Remarks
 EQUIPMENT: Dando Terrier rig.
 METHOD: Dynamic sampled 0.00-2.79m.
 CASING: Not used.
 REMARKS: Groundwater not encountered.
 BACKFILL: On completion, a slotted standpipe (50mm) was installed to 2.75m, granular response zone 2.79-0.75m, bentonite seal 0.75-0.00m.

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres Scale 1:25	Logged By N.M
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1.0.ENZYGO BH LOG CRM.066.002 HOUGHTON MAIN.GPJ GINT STD AGS 3 -1 ENZYGO.GPJ 28/11/14



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Site Houghton Main, Barnsley			WS3
Job No CRM.066.002	Dates Start 28-08-14 Finish 28-08-14	Ground Level (m) Co-Ordinates	

Client Peel Environmental Ltd	Sheet 1 of 2
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Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
		0.35	ES		0.55		(MADE GROUND) Grass over grey green mottled dark grey and orange slightly sandy and silty clayey gravel with occasional rootlets and black staining. Gravel is fine to medium, angular to subangular sandstone, mudstone, carbonised mudstone, occasional coal and bricks.	0	
		1.00 - 1.45	SPTLS S 28				(MADE GROUND) Medium dense to dense blue grey mottled white grey and orange occasionally locally sandy slightly clayey and silty gravel with occasional black staining. Gravel is fine to coarse, angular and subangular mudstone, occasional carbonised mudstone and sandstone.	1	
		2.00 - 2.45	SPTLS S 40					2	
		3.00 - 3.45	SPTLS S 35		3.00		(MADE GROUND) Dense to very dense grey mottled light green and orange locally slightly sandy gravel. Gravel is fine to coarse, angular and subangular mudstone, carbonised mudstone and occasional sandstone.	3	
	4.00 - 4.45	SPTLS S >50		{4.00}			Continued next sheet	4	

General Remarks
 EQUIPMENT: Dando Terrier Window Sampler.
 METHOD: Dynamic sampled 0m-4.45mbgl.
 CASING: No casing used.
 REMARKS: Groundwater not encountered.
 BACKFILL: On completion, a slotted standpipe (50mm) was installed to 3.95m, granular response zone 4.45-1.00m, bentonite seal 1.00-0.00m.

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres Scale 1:25	Logged By N.M
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Site Houghton Main, Barnsley			WS3
Job No CRM.066.002	Dates Start 28-08-14 Finish 28-08-14	Ground Level (m) Co-Ordinates	

Client Peel Environmental Ltd	Sheet 2 of 2
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Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
					4.45				4
							Borehole completed at 4.45m.		5
									6
									7
					{8.00}				8

General Remarks
 EQUIPMENT: Dando Terrier Window Sampler.
 METHOD: Dynamic sampled 0m-4.45mbgl.
 CASING: No casing used.
 REMARKS: Groundwater not encountered.
 BACKFILL: On completion, a slotted standpipe (50mm) was installed to 3.95m, granular response zone 4.45-1.00m, bentonite seal 1.00-0.00m.

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres Scale 1:25	Logged By N.M
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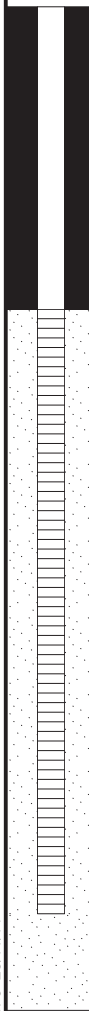
1.0.ENZYGO.BH.LOG CRM.066.002 HOUGHTON MAIN.GPJ GINT STD.AGS 3.1 ENZYGO.GPJ 28/11/14



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Site Houghton Main, Barnsley			WS4
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Client Peel Environmental Ltd	Sheet 1 of 1
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Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
							(MADE GROUND) Grass over blue grey mottled orange and yellow brown slightly sandy and silty clayey gravel with occasional rootlets and black staining. Gravel is fine to coarse, angular to subangular mudstone, carbonised mudstone and sandstone.	0	
		0.70	ES		0.55		(MADE GROUND) Grey brown occasionally blue grey slightly sandy clayey gravel with occasional black staining. Gravel is fine to coarse, angular to subangular mudstone, sandstone and occasional carbonised mudstone.		
		1.00 - 1.45	SPTLS S 15		0.80		(MADE GROUND) Medium dense blue grey mottled light green and orange slightly silty clayey gravel with occasional black staining. Gravel is fine to coarse, angular to subangular mudstone, carbonised mudstone and occasional sandstone.	1	
		2.00 - 2.45	SPTLS S 26		1.65		(MADE GROUND) Medium dense grey gravel. Gravel is fine to coarse, angular to subangular sandstone.	2	
		3.00 - 3.32	SPTLS S >50		2.30		(MADE GROUND) Firm to stiff, medium to high strength blue grey mottled red orange locally slightly sandy silty gravelly clay with occasional black staining. Gravel is fine to medium, angular to subangular mudstone.		
					2.50		(MADE GROUND) Medium dense to very dense blue grey mottled light green and orange slightly clayey and silty gravel. Gravel is fine to coarse, angular to subangular sandstone and mudstone with occasional carbonised mudstone.	3	
				3.32		Borehole completed at 3.32m.			
				{4.00}				4	

General Remarks
 EQUIPMENT: Dando Terrier Window Sampler.
 METHOD: Dynamic sampled 0m-3.32mbgl.
 CASING: No casing used.
 REMARKS: Groundwater not encountered.
 BACKFILL: On completion, a slotted standpipe (50mm) was installed to 3.00m, granular response 3.32-1.00m, bentonite seal 1.00-0.00m.

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres Scale 1:25	Logged By N.M
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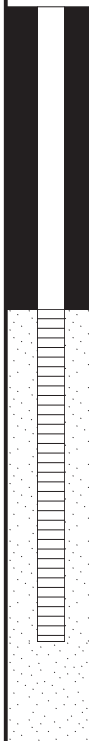
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Site Houghton Main, Barnsley			WS5
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Client Peel Environmental Ltd	Sheet 1 of 1
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Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
							(MADE GROUND) Grass over firm blue grey mottled dark grey and orange locally sandy slightly silty gravelly clay with occasional black staining. Gravel is fine to medium, angular to subangular mudstone, carbonised mudstone, sandstone and occasional bricks.	0	
		0.80	ES		0.50		(MADE GROUND) Blue grey mottled dark grey and orange locally sandy slightly silty clayey gravel with occasional black staining. Gravel is fine to coarse, angular to subangular mudstone, carbonised mudstone, and sandstone.		
		1.00 - 1.45	SPTLS S 49		0.90		(MADE GROUND) Dense to very dense, grey mottled orange locally slightly sandy gravel with black staining. Gravel is fine to coarse, angular to subangular mudstone and carbonised mudstone.	1	
		2.00 - 2.45	2.445 SPTLS		2.45		Borehole completed at 2.45m.	2	
				{4.00}				3	
								4	

General Remarks
 EQUIPMENT: Dando Terrier Window Sampler.
 METHOD: Dynamic sampled 0m-2.445mbgl.
 CASING: No casing used.
 REMARKS: Groundwater not encountered.
 BACKFILL: On completion, a slotted standpipe (50mm) was installed to 2.10m, granular response zone 2.445-1.00m, bentonite seal 1.00-0.00m.

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres Scale 1:25	Logged By N.M
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Client Peel Environmental Ltd	Sheet 1 of 10
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Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
1						X	Grey opencast backfill.	0	
								1	
								2	
								3	
					{4.00}		Continued next sheet	4	

General Remarks
 EQUIPMENT: Dando 250 rotary rig.
 METHOD: Rotary open hole 0.00-28.70m. Air-mist rotary cored 28.70m-39.20m.
 CASING: 125mm diam. duplex casing to 28.70m.
 REMARKS: Groundwater encountered at 10.50mbgl, rose to 8.70mbgl.
 BACKFILL: On completion, a slotted standpipe (50mm) was installed to 39.20m, granular response zone 39.20-8.00m, bentonite seal 8.00-6.00m, arisings from 6.00-1.00m, bentonite seal 1.00-0.20m, concrete and stopcock cover 0.20-0.00m.

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres Scale 1:25	Logged By SS
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Client Peel Environmental Ltd	Sheet 2 of 10
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Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
									4
									5
									6
									7
					{8.00}				8

Continued next sheet

General Remarks

EQUIPMENT: Dando 250 rotary rig.
 METHOD: Rotary open hole 0.00-28.70m. Air-mist rotary cored 28.70m-39.20m.
 CASING: 125mm diam. duplex casing to 28.70m.
 REMARKS: Groundwater encountered at 10.50mbgl, rose to 8.70mbgl.
 BACKFILL: On completion, a slotted standpipe (50mm) was installed to 39.20m, granular response zone 39.20-8.00m, bentonite seal 8.00-6.00m, arisings from 6.00-1.00m, bentonite seal 1.00-0.20m, concrete and stopcock cover 0.20-0.00m.

Groundwater

Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)
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All dimensions in metres
 Scale 1:25

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Client Peel Environmental Ltd	Sheet 3 of 10
----------------------------------	------------------

Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
								8 9 10 11 12	
				{12.00}			Continued next sheet		

General Remarks
 EQUIPMENT: Dando 250 rotary rig.
 METHOD: Rotary open hole 0.00-28.70m. Air-mist rotary cored 28.70m-39.20m.
 CASING: 125mm diam. duplex casing to 28.70m.
 REMARKS: Groundwater encountered at 10.50mbgl, rose to 8.70mbgl.
 BACKFILL: On completion, a slotted standpipe (50mm) was installed to 39.20m, granular response zone 39.20-8.00m, bentonite seal 8.00-6.00m, arisings from 6.00-1.00m, bentonite seal 1.00-0.20m, concrete and stopcock cover 0.20-0.00m.

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)
	23/10/14	10.50		8.70

All dimensions in metres Scale 1:25	Logged By SS
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Job No CRM.066.002	Dates Start 22-10-14 Finish 27-10-14	Ground Level (m) Co-Ordinates	

Client Peel Environmental Ltd	Sheet 4 of 10
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Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
								12	
								13	
								14	
								15	
					{16.00}		Continued next sheet	16	

General Remarks
 EQUIPMENT: Dando 250 rotary rig.
 METHOD: Rotary open hole 0.00-28.70m. Air-mist rotary cored 28.70m-39.20m.
 CASING: 125mm diam. duplex casing to 28.70m.
 REMARKS: Groundwater encountered at 10.50mbgl, rose to 8.70mbgl.
 BACKFILL: On completion, a slotted standpipe (50mm) was installed to 39.20m, granular response zone 39.20-8.00m, bentonite seal 8.00-6.00m, arisings from 6.00-1.00m, bentonite seal 1.00-0.20m, concrete and stopcock cover 0.20-0.00m.

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres Scale 1:25	Logged By SS
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Client Peel Environmental Ltd	Sheet 5 of 10
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Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
								16	
								17	
								18	
								19	
					{20.00}			20	

Continued next sheet

General Remarks

EQUIPMENT: Dando 250 rotary rig.
 METHOD: Rotary open hole 0.00-28.70m. Air-mist rotary cored 28.70m-39.20m.
 CASING: 125mm diam. duplex casing to 28.70m.
 REMARKS: Groundwater encountered at 10.50mbgl, rose to 8.70mbgl.
 BACKFILL: On completion, a slotted standpipe (50mm) was installed to 39.20m, granular response zone 39.20-8.00m, bentonite seal 8.00-6.00m, arisings from 6.00-1.00m, bentonite seal 1.00-0.20m, concrete and stopcock cover 0.20-0.00m.

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres
 Scale 1:25

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Client Peel Environmental Ltd			Sheet 6 of 10

Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
								20	
								21	
								22	
								23	
					{24.00}		Continued next sheet	24	

General Remarks
 EQUIPMENT: Dando 250 rotary rig.
 METHOD: Rotary open hole 0.00-28.70m. Air-mist rotary cored 28.70m-39.20m.
 CASING: 125mm diam. duplex casing to 28.70m.
 REMARKS: Groundwater encountered at 10.50mbgl, rose to 8.70mbgl.
 BACKFILL: On completion, a slotted standpipe (50mm) was installed to 39.20m, granular response zone 39.20-8.00m, bentonite seal 8.00-6.00m, arisings from 6.00-1.00m, bentonite seal 1.00-0.20m, concrete and stopcock cover 0.20-0.00m.

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres
 Scale 1:25

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Client Peel Environmental Ltd	Sheet 7 of 10
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Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
								24	
								25	
								26	
								27	
					{28.00}			28	

Continued next sheet

General Remarks
 EQUIPMENT: Dando 250 rotary rig.
 METHOD: Rotary open hole 0.00-28.70m. Air-mist rotary cored 28.70m-39.20m.
 CASING: 125mm diam. duplex casing to 28.70m.
 REMARKS: Groundwater encountered at 10.50mbgl, rose to 8.70mbgl.
 BACKFILL: On completion, a slotted standpipe (50mm) was installed to 39.20m, granular response zone 39.20-8.00m, bentonite seal 8.00-6.00m, arisings from 6.00-1.00m, bentonite seal 1.00-0.20m, concrete and stopcock cover 0.20-0.00m.

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres Scale 1:25	Logged By SS
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Client Peel Environmental Ltd			Sheet 8 of 10

Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
		28.70 - 30.20	C		28.70			28	
							Medium strong and strong grey and light grey fine and medium SANDSTONE. Fractures are subhorizontal, closely and medium spaced undulating rough and smooth. (180mm, 330mm, 510mm) 28.70 - 30.20 TCR 98%; SCR 87%; RQD 85%.	29	
		30.20 - 31.70	C		30.08		30.08 - 30.16 Drilling disturbed recovered as a gravelly silty clay. Gravel is angular and subangular fine and medium mudstone and siltstone. Weak dark grey MUDSTONE thinly interlaminated to very thinly interbedded with light grey SILTSTONE. Fractures are subhorizontal locally randomly orientated extremely closely to closely spaced undulating smooth locally rough. Locally non intact possible drilling induced. (15mm (NI), 75mm, 150mm) 30.20 - 30.23 Drilling disturbed recovered as a gravelly silty clay. Gravel is angular and subangular fine and medium. 30.20 - 31.70 TCR 100%; SCR 69%; RQD 57%. 30.44 - 30.50 Non intact (NI) 30.58 - 30.61 NI.	30	
		31.70 - 33.20	C		31.13		31.08 - 31.13 NI. Medium strong and strong grey and light grey fine and medium SANDSTONE. Fractures are subhorizontal medium and widely spaced planar and undulating. Locally discoloured black (organic) penetrating up to 1.5mm. (200mm, 430mm, 660mm) 31.70 - 33.20 TCR 98%; SCR 98%; RQD 90%.	31	
				{32.00}			Continued next sheet	32	

General Remarks
 EQUIPMENT: Dando 250 rotary rig.
 METHOD: Rotary open hole 0.00-28.70m. Air-mist rotary cored 28.70m-39.20m.
 CASING: 125mm diam. duplex casing to 28.70m.
 REMARKS: Groundwater encountered at 10.50mbgl, rose to 8.70mbgl.
 BACKFILL: On completion, a slotted standpipe (50mm) was installed to 39.20m, granular response zone 39.20-8.00m, bentonite seal 8.00-6.00m, arisings from 6.00-1.00m, bentonite seal 1.00-0.20m, concrete and stopcock cover 0.20-0.00m.

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres
 Scale 1:25

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Site Houghton Main, Barnsley			BH1
Job No CRM.066.002	Dates Start 22-10-14 Finish 27-10-14	Ground Level (m) Co-Ordinates	

Client Peel Environmental Ltd	Sheet 9 of 10
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Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
		33.20 - 34.70	C		33.10		Medium strong and strong grey, light grey with rare thin dark grey laminae fine and medium SANDSTONE. Fractures are subhorizontal to 10° closely and medium spaced planar smooth locally rough. (60mm, 200mm, 340mm) 33.20 - 34.70 TCR 94%; SCR 94%; RQD 87%.	32 33	
		34.70 - 36.20	C		34.70		34.70 - 35.60 Fractures are subhorizontal to 10° widely spaced planar rough. (900mm) 34.70 - 36.20 TCR 100%; SCR 100%; RQD 97%. Medium strong locally strong grey and light grey fine and medium SANDSTONE.	34 35	
						{36.00}		35.60 - 37.95 Fractures are subhorizontal to 10° very closely and closely spaced undulating rough. (25mm (NI), 120mm, 180mm)	36

Continued next sheet

General Remarks
 EQUIPMENT: Dando 250 rotary rig.
 METHOD: Rotary open hole 0.00-28.70m. Air-mist rotary cored 28.70m-39.20m.
 CASING: 125mm diam. duplex casing to 28.70m.
 REMARKS: Groundwater encountered at 10.50mbgl, rose to 8.70mbgl.
 BACKFILL: On completion, a slotted standpipe (50mm) was installed to 39.20m, granular response zone 39.20-8.00m, bentonite seal 8.00-6.00m, arisings from 6.00-1.00m, bentonite seal 1.00-0.20m, concrete and stopcock cover 0.20-0.00m.

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres
 Scale 1:25

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Client Peel Environmental Ltd	Sheet 10 of 10
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Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
		36.20 - 37.70	C				36.20 - 37.70 TCR 93%; SCR 87%; RQD 80%.	36	
		37.70 - 39.20	C		37.95		37.70 - 39.20 TCR 100%; SCR 95%; RQD 85%.	37	
						39.20		Medium strong and strong grey and light brownish grey with occasional dark grey thin laminae SANDSTONE. Fractures are subhorizontal to 10° very closely and closely spaced undulating rough. (22mm, 100mm, 200mm) 38.20 - 38.30 NI. Drilling disturbed.	38
					{40.00}		Borehole completed at 39.20m.	39	
								40	

General Remarks
 EQUIPMENT: Dando 250 rotary rig.
 METHOD: Rotary open hole 0.00-28.70m. Air-mist rotary cored 28.70m-39.20m.
 CASING: 125mm diam. duplex casing to 28.70m.
 REMARKS: Groundwater encountered at 10.50mbgl, rose to 8.70mbgl.
 BACKFILL: On completion, a slotted standpipe (50mm) was installed to 39.20m, granular response zone 39.20-8.00m, bentonite seal 8.00-6.00m, arisings from 6.00-1.00m, bentonite seal 1.00-0.20m, concrete and stopcock cover 0.20-0.00m.

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)

All dimensions in metres Scale 1:25	Logged By SS
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APPENDIX C – CHEMICAL TESTING

Human Health Assessment Reference Values

Determinant	Units	GAC Value						Primary Pathway
		Residential			Commercial			
Arsenic	mg/kg	32			640			Ingestion
Cadmium	mg/kg	10			230			Ingestion
Chromium	mg/kg	3000			30400			Ingestion
Chromium IV	mg/kg	4.3			35			Ingestion
Lead	mg/kg	450			590			Ingestion
Mercury	mg/kg	170			3600			Inhalation
Nickel	mg/kg	130			1800			Ingestion
Selenium	mg/kg	350			13000			Ingestion
Copper	mg/kg	2330			71700			Ingestion
Zinc	mg/kg	3750			665000			Ingestion
Cyanide	mg/kg	791			16200			Ingestion
Phenol	mg/kg	210			1100000			Ingestion
SOM	%	1	2.5	6	1	2.5	6	
Napthalene	mg/kg	1.5	3.7	8.7	200	480	1100	Inhalation
Acenaphthylene	mg/kg	170	400	850	84000	97000	100000	Dermal and ingestion
Acenaphthene	mg/kg	210	480	1000	85000	98000	100000	Ingestion
Flourene	mg/kg	160	380	780	64000	69000	71000	Ingestion
Phenanthrene	mg/kg	92	200	380	22000	22000	22000	Dermal and ingestion
Anthracene	mg/kg	2300	4900	9200	530000	540000	540000	Dermal and ingestion
Fluoranthene	mg/kg	260	460	670	23000	23000	23000	Dermal and ingestion
Pyrene	mg/kg	560	1000	1600	54000	54000	54000	Dermal and ingestion
Benzo(a)Anthracene	mg/kg	3.1	4.7	5.9	90	95	97	Dermal and ingestion
Chrysene	mg/kg	6	8	9.3	140	140	140	Dermal and ingestion
Benzo(b/k)Flouranthene	mg/kg	5.6	6.5	7	100	100	100	Dermal and ingestion
Benzo(a)Pyrene	mg/kg	0.83	0.94	1	14	14	14	Dermal and ingestion
Indeno(123-cd)Pyrene	mg/kg	3.2	3.9	4.2	60	61	62	Dermal and ingestion
Dibenzo(a,h)Anthracene	mg/kg	0.76	0.86	0.9	13	13	13	Dermal and ingestion
Benzo(ghi)Perylene	mg/kg	44	46	47	650	660	660	Dermal and ingestion
TPH C ₅ -C ₆ Aliphatic	mg/kg	30	55	110	3400	6200	13000	Inhalation
TPH C ₆ -C ₈ Aliphatic	mg/kg	73	160	370	8300	18000	42000	Inhalation
TPH C ₈ -C ₁₀ Aliphatic	mg/kg	19	46	110	2100	5100	12000	Inhalation
TPH C ₁₀ -C ₁₂ Aliphatic	mg/kg	93	230	540	10000	24000	49000	Inhalation
TPH C ₁₂ -C ₁₆ Aliphatic	mg/kg	740	1700	3000	61000	83000	91000	Inhalation
TPH C ₁₆ -C ₃₅ Aliphatic	mg/kg	45000	64000	76000	1600000	1800000	1800000	Inhalation
TPH C ₃₅ -C ₄₄ Aliphatic	mg/kg	45000	64000	76000	1600000	1800000	1800000	Ingestion
TPH C ₅ -C ₇ Aromatic	mg/kg	65	130	280	28000	49000	90000	Inhalation
TPH C ₇ -C ₈ Aromatic	mg/kg	120	270	611	59000	110000	190000	Inhalation
TPH C ₈ -C ₁₀ Aromatic	mg/kg	27	65	151	3700	8600	18000	Inhalation
TPH C ₁₀ -C ₁₂ Aromatic	mg/kg	69	160	346	36000	37000	37800	Ingestion
TPH C ₁₂ -C ₁₆ Aromatic	mg/kg	140	310	593	28000	28000	28000	Ingestion
TPH C ₁₆ -C ₂₁ Aromatic	mg/kg	250	480	770	28000	28000	28000	Ingestion
TPH C ₂₁ -C ₃₅ Aromatic	mg/kg	890	1100	1230	28000	28000	28000	Ingestion
TPH C ₃₅ -C ₄₄ Aromatic	mg/kg	890	1100	1230	28000	28000	28000	Ingestion
Benzene	mg/kg	0.08			95			Inhalation
Toluene	mg/kg	119			4400			Inhalation
Ethylbenzene	mg/kg	65			2800			Inhalation
Xylene	mg/kg	42			3200			Inhalation

Controlled Waters Assessment Reference Values

Determinant	Unit	EQS Freshwater	Uk DWS	WHO
Arsenic	ug/l	50	10	10
Boron	ug/l	2000	1000	0.3
Cadmium	ug/l	5	5	3
Chromium	ug/l	5 – 250	50	50
Lead	ug/l	4 – 250	25	10
Mercury	ug/l	1	1	1
Selenium	ug/l		10	10
Copper	ug/l	1 – 28	20000	2000
Nickel	ug/l	50 – 200	20	70
Zinc	ug/l	8 – 50	5000	3000
Sulphate	mg/l	400	250	250
PAH	ug/l		0.1	
Anthracene	ug/l	0.02		
Napthalene	ug/l	10		
Benzo(a)Pyrene	ug/l	0.03		0.01
Fluoranthene	ug/l	0.02		
Benzene	ug/l	30	1	10
Toluene	ug/l	50		
Ethylbenzene	ug/l	20		
Xylene	ug/l	30		
TPH	ug/l			
C ₅ – C ₆ Aliphatic	ug/l			15000
C ₆ – C ₈ Aliphatic	ug/l			15000
C ₈ – C ₁₀ Aliphatic	ug/l			300
C ₁₀ – C ₁₂ Aliphatic	ug/l			300
C ₁₂ – C ₁₆ Aliphatic	ug/l			300
C ₁₆ – C ₃₆ Aliphatic	ug/l			N/A
C ₆ – C ₇ Aromatic	ug/l			10
C ₇ – C ₈ Aromatic	ug/l	50		10
C ₈ – C ₁₀ Aromatic	ug/l	20		300
C ₁₀ – C ₁₂ Aromatic	ug/l			1000
C ₁₂ – C ₁₆ Aromatic	ug/l			1000
C ₁₆ – C ₂₁ Aromatic	ug/l			90
C ₂₁ – C ₃₅ Aromatic	ug/l			90

ELAB



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THE ENVIRONMENTAL LABORATORY LTD

Analytical Report Number: 14-00539

Issue: 1

Date of Issue: 29/09/2014

Contact: Richard Hamilton

Customer Details: Enzygo - Cromhall
The Granary
Woodend Lane
Cromhall
Gloucestershire

Quotation No: Q14-00007

Order No: CRM 737

Customer Reference: CRM.066.002

Date Received: 15/09/2014

Date Approved: 29/09/2014

Details: Houghton Main

Approved by:

A handwritten signature in blue ink, appearing to read 'J. Wilson', with a large flourish at the end.

John Wilson, Operations Manager

Any comments, opinions or interpretations expressed herein are outside the scope of UKAS accreditation (Accreditation Number 2683)



Sample Summary

Report No.: 14-00539

Elab No.	Client's Ref.	Date Sampled	Date Scheduled	Description	Deviations
3509	HP01 D1 0.20	12/09/2014	15/09/2014	Silty loam	
3510	HP02 D1 0.20	12/09/2014	15/09/2014	Silty loam	



2683



Results Summary

Report No.: 14-00539

ELAB Reference	3509	3510
Customer Reference	D1	D1
Sample ID		
Sample Type	SOIL	SOIL
Sample Location	HP01	HP02
Sample Depth (m)	0.20	0.20
Sampling Date	12/09/2014	12/09/2014

Determinand	Codes	Units	LOD		
Metals					
Arsenic	M	mg/kg	1	13.7	13.4
Cadmium	M	mg/kg	0.5	< 0.5	< 0.5
Chromium	M	mg/kg	5	35.1	31.6
Copper	M	mg/kg	5	41.2	37.3
Lead	M	mg/kg	5	35.6	39.1
Mercury	M	mg/kg	0.5	< 0.5	< 0.5
Nickel	M	mg/kg	5	51.3	47.4
Selenium	M	mg/kg	1	< 1.0	< 1.0
Zinc	M	mg/kg	45	119	114
Inorganics					
Hexavalent Chromium	N	mg/kg	0.8	< 0.8	< 0.8
Total Cyanide	M	mg/kg	1	< 1.0	< 1.0
Miscellaneous					
Moisture Content	N	%	0.1	17.9	16.3
Stones Content	N	%	0.1	< 0.1	< 0.1
Total Organic Carbon	N	%	0.01	1.4	1.0



2683



Results Summary

Report No.: 14-00539

ELAB Reference	3509	3510
Customer Reference	D1	D1
Sample ID		
Sample Type	SOIL	SOIL
Sample Location	HP01	HP02
Sample Depth (m)	0.20	0.20
Sampling Date	12/09/2014	12/09/2014

Determinand	Codes	Units	LOD		
Organics					
>C8-C10 BCB Soil	N	mg/kg	1	< 1.0	< 1.0
>C10-C12 BCB Soil	N	mg/kg	1	< 1.0	< 1.0
>C12-C16 BCB Soil	N	mg/kg	1	< 1.0	< 1.0
>C16-C21 BCB Soil	N	mg/kg	1	< 1.0	< 1.0
>C21-C35 BCB Soil	N	mg/kg	1	< 1.0	< 1.0
>C35-C40 BCB Soil	N	mg/kg	1	< 1.0	< 1.0
Total (>C8-C40) BCB Soil	N	mg/kg	1	< 1.0	< 1.0
Phenols					
Phenol	M	mg/kg	1	< 1	< 1
M,P-Cresol	N	mg/kg	1	< 1	< 1
O-Cresol	N	mg/kg	1	< 1	< 1
3,4-Dimethylphenol	N	mg/kg	1	< 1	< 1
2,3-Dimethylphenol	M	mg/kg	1	< 1	< 1
Trimethylphenol	M	mg/kg	1	< 1	< 1
Total Monohydric Phenols	N	mg/kg	5	< 5	< 5
Polyaromatic hydrocarbons					
Naphthalene	M	mg/kg	0.5	< 0.5	< 0.5
Acenaphthylene	M	mg/kg	0.5	< 0.5	< 0.5
Acenaphthene	M	mg/kg	0.5	< 0.5	< 0.5
Fluorene	M	mg/kg	0.5	< 0.5	< 0.5
Phenanthrene	M	mg/kg	0.5	< 0.5	< 0.5
Anthracene	M	mg/kg	0.5	< 0.5	< 0.5
Fluoranthene	M	mg/kg	0.5	< 0.5	< 0.5
Pyrene	M	mg/kg	0.5	< 0.5	< 0.5
Benzo (a) anthracene	M	mg/kg	0.5	< 0.5	< 0.5
Chrysene	M	mg/kg	0.5	< 0.5	< 0.5
Benzo (b) fluoranthene	M	mg/kg	0.5	< 0.5	< 0.5
Benzo (k) fluoranthene	M	mg/kg	0.5	< 0.5	< 0.5
Benzo (a) pyrene	M	mg/kg	0.5	< 0.5	< 0.5
Indeno (1,2,3-cd) pyrene	M	mg/kg	0.5	< 0.5	< 0.5
Dibenzo(a,h)anthracene	M	mg/kg	0.5	< 0.5	< 0.5
Benzo(ghi)perylene	M	mg/kg	0.5	< 0.5	< 0.5
Total PAH(16) Speciated	M	mg/kg	2	< 2	< 2



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Results Summary

Report No.: 14-00539

Asbestos Qualitative Results

Analytical result only applies to the sample as submitted by the client. Any comments, opinions or interpretations (marked #) in this report are outside UKAS accreditation (Accreditation No2683). They are subjective comments only which must be verified by the client.

Elab No	Depth (m)	Clients Reference	Description of Sample Matrix #	Result
3509	0.20	HP01 D1	Silty loam	No asbestos detected
3510	0.20	HP02 D1	Silty loam	No asbestos detected



Method Summary

Report No.: 14-00539

Parameter	Analysis Undertaken On	Date Tested	Method Number	Technique
Soil				
Hexavalent chromium	As submitted sample	16/09/2014	110	Colorimetry
Aqua regia extractable metals	Air dried sample	25/09/2014	118	ICPMS
Phenols in solids	As submitted sample	16/09/2014	121	HPLC
Polyaromatic hydrocarbons (GC-FID)	As submitted sample	16/09/2014	133	GC-FID
Total cyanide	As submitted sample	17/09/2014	204	Colorimetry
Total organic carbon/Total sulphur	Air dried sample	26/09/2014	210	IR
Basic carbon banding in soil	As submitted sample	16/09/2014	218	GC-FID
Asbestos identification	As submitted sample	29/09/2014	PMAN	Microscopy



Report Information

Report No.: 14-00539

Key

U	hold UKAS accreditation
M	hold MCERTS and UKAS accreditation
N	do not currently hold UKAS accreditation
^	MCERTS accreditation not applicable for sample matrix
S	Subcontracted to approved laboratory UKAS Accredited for the test
SM	Subcontracted to approved laboratory MCERTS/UKAS Accredited for the test
I/S	Insufficient Sample
U/S	Unsuitable sample
n/e	not evaluated
<	means "less than"
>	means "greater than"

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

Deviation Codes

- | | |
|---|--|
| a | No date of sampling supplied |
| b | No time of sampling supplied (Waters Only) |
| c | Sample not received in appropriate containers |
| d | Sample not received in cooled condition |
| e | The container has been incorrectly filled |
| f | Sample age exceeds stability time (sampling to receipt) |
| g | Sample age exceeds stability time (sampling to analysis) |

Sample Retention and Disposal

All soil samples will be retained for a period of one month

All water samples will be retained for 7 days following the date of the test report

Charges may apply to extended sample storage

ELAB



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THE ENVIRONMENTAL LABORATORY LTD

Analytical Report Number: 14-00421

Issue: 1

Date of Issue: 18/09/2014

Contact: Richard Hamilton

Customer Details: Enzygo - Cromhall
The Granary
Woodend Lane
Cromhall
Gloucestershire

Quotation No: Q14-00007

Order No: CRM 712

Customer Reference: CRM.066.002

Date Received: 02/09/2014

Date Approved: 18/09/2014

Details: Houghton Main

Approved by:

A handwritten signature in blue ink, appearing to read 'J. Wilson', with a large flourish at the end.

John Wilson, Operations Manager

Any comments, opinions or interpretations expressed herein are outside the scope of UKAS accreditation (Accreditation Number 2683)



Sample Summary

Report No.: 14-00421

Elab No.	Client's Ref.	Date Sampled	Date Scheduled	Description	Deviations
2721	TP1 0.40	26/08/2014	05/09/2014	Silty loam	g
2722	TP2 0.25	26/08/2014	05/09/2014	Silty loam	
2723	TP3 0.80	27/08/2014	05/09/2014	Silty clayey loam	
2724	TP4 0.50	27/08/2014	05/09/2014	Silty loam	
2725	TP5 0.30	26/08/2014	05/09/2014	Silty loam	g
2726	TP6 0.45	27/08/2014	05/09/2014	Silty loam	
2727	TP7 0.60	27/08/2014	05/09/2014	Silty loam	
2728	TP8 1.00	26/08/2014	05/09/2014	Clayey loam	
2729	TP9 0.30	27/08/2014	05/09/2014	Silty loam	
2730	TP10 0.90	26/08/2014	05/09/2014	Silty loam	
2731	TP11 0.50	27/08/2014	05/09/2014	Silty loam	
2732	TP12 0.70	27/08/2014	05/09/2014	Silty loam	
2733	TP13 0.20	27/08/2014	05/09/2014	Silty clayey loam	
2734	TP14 0.75	27/08/2014	05/09/2014		
2735	TP15 0.40	27/08/2014	05/09/2014	Silty loam	
2736	TP16 0.50	28/08/2014	05/09/2014	Silty loam	
2737	TP17 0.55	28/08/2014	05/09/2014	Silty loam	
2738	TP18 0.90	28/08/2014	05/09/2014	Silty loam	
2739	TP19 0.50	28/08/2014	05/09/2014		
2740	TP19 0.75	27/08/2014	05/09/2014		
2741	TP20 0.40	28/08/2014	05/09/2014	Silty clayey loam	
2742	WS1 0.30	28/08/2014	05/09/2014	Silty loam	
2743	WS2 0.35	28/08/2014	05/09/2014	Silty loam	g
2744	WS3 0.35	28/08/2014	05/09/2014	Silty loam	
2745	WS4 0.70	28/08/2014	05/09/2014	Silty clayey loam	
2746	WS5 0.80	28/08/2014	05/09/2014	Silty loam	
2747	WS5@0.50, TP19@0.75 0.50 -	28/08/2014	05/09/2014	Silty loam	g



Results Summary

Report No.: 14-00421

				ELAB Reference	2721	2722	2723	2724	2725	2726	2727
				Customer Reference							
				Sample ID							
				Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Sample Location	TP1	TP2	TP3	TP4	TP5	TP6	TP7
				Sample Depth (m)	0.40	0.25	0.80	0.50	0.30	0.45	0.60
				Sampling Date	26/08/2014	26/08/2014	27/08/2014	27/08/2014	26/08/2014	27/08/2014	27/08/2014
Determinand	Codes	Units	LOD								
Metals											
Arsenic	M	mg/kg	1	20.2	12.7	17.1	13.9	10.9	11.6	11.5	
Cadmium	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Chromium	M	mg/kg	5	36.7	37.0	42.9	40.0	39.7	39.4	43.8	
Copper	M	mg/kg	5	37.3	36.2	41.3	36.7	39.7	39.9	45.6	
Lead	M	mg/kg	5	27.6	24.1	27.0	23.7	25.2	23.6	26.6	
Mercury	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Nickel	M	mg/kg	5	44.9	47.2	58.9	46.0	49.3	47.7	54.5	
Selenium	M	mg/kg	1	0.8	0.8	0.7	0.7	0.9	0.9	0.9	
Zinc	M	mg/kg	45	105	111	118	105	118	116	131	
Inorganics											
Hexavalent Chromium	N	mg/kg	0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8
Total Cyanide	M	mg/kg	1	*^ < 1.0	*^ < 1.0	*^ < 1.0	*^ < 1.0	*^ < 1.0	*^ < 1.0	*^ < 1.0	*^ < 1.0
Miscellaneous											
Moisture Content	N	%	0.1	15.8	14.0	12.4	17.4	16.7	15.1	11.7	
Stones Content	N	%	0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Total Organic Carbon	N	%	0.01	0.6	0.6	0.9	0.8	0.9	0.8	1.1	

Results Summary

Report No.: 14-00421

				ELAB Reference	2721	2722	2723	2724	2725	2726	2727
				Customer Reference							
				Sample ID							
				Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Sample Location	TP1	TP2	TP3	TP4	TP5	TP6	TP7
				Sample Depth (m)	0.40	0.25	0.80	0.50	0.30	0.45	0.60
				Sampling Date	26/08/2014	26/08/2014	27/08/2014	27/08/2014	26/08/2014	27/08/2014	27/08/2014
Determinand	Codes	Units	LOD								
Organics											
>C8-C10 BCB Soil	N	mg/kg	1	n/t	< 1.0	< 1.0	< 1.0	n/t	< 1.0	< 1.0	< 1.0
>C10-C12 BCB Soil	N	mg/kg	1	n/t	< 1.0	< 1.0	< 1.0	n/t	< 1.0	< 1.0	< 1.0
>C12-C16 BCB Soil	N	mg/kg	1	n/t	< 1.0	< 1.0	< 1.0	n/t	< 1.0	< 1.0	< 1.0
>C16-C21 BCB Soil	N	mg/kg	1	n/t	< 1.0	< 1.0	< 1.0	n/t	< 1.0	< 1.0	< 1.0
>C21-C35 BCB Soil	N	mg/kg	1	n/t	1.8	1.2	< 1.0	n/t	< 1.0	3.5	3.5
>C35-C40 BCB Soil	N	mg/kg	1	n/t	< 1.0	< 1.0	< 1.0	n/t	< 1.0	< 1.0	< 1.0
Total (>C8-C40) BCB Soil	N	mg/kg	1	n/t	1.8	1.2	< 1.0	n/t	< 1.0	< 1.0	3.5
Phenols											
Phenol	M	mg/kg	1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
M,P-Cresol	N	mg/kg	1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
O-Cresol	N	mg/kg	1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
3,4-Dimethylphenol	N	mg/kg	1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2,3-Dimethylphenol	M	mg/kg	1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Trimethylphenol	M	mg/kg	1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Total Monohydric Phenols	N	mg/kg	5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Polyaromatic hydrocarbons											
Naphthalene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Benzo (a) anthracene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Benzo (b) fluoranthene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Benzo (k) fluoranthene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Benzo (a) pyrene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Indeno (1,2,3-cd) pyrene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dibenzo(a,h)anthracene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(ghi)perylene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH(16) Speciated	M	mg/kg	2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	< 2
BTEX											
Benzene	M	ug/kg	10	g < 10.0	n/t	n/t	n/t	g < 10.0	n/t	n/t	n/t
Toluene	M	ug/kg	10	g < 10.0	n/t	n/t	n/t	g < 10.0	n/t	n/t	n/t
Ethylbenzene	M	ug/kg	10	g < 10.0	n/t	n/t	n/t	g < 10.0	n/t	n/t	n/t
Xylenes	M	ug/kg	10	g < 10.0	n/t	n/t	n/t	g < 10.0	n/t	n/t	n/t
TPH CWG											
>C5-C6 Aliphatic	N	mg/kg	0.01	< 0.01	n/t	n/t	n/t	< 0.01	n/t	n/t	n/t
>C6-C8 Aliphatic	N	mg/kg	0.01	< 0.01	n/t	n/t	n/t	< 0.01	n/t	n/t	n/t
>C8-C10 Aliphatic Soil	N	mg/kg	1	1.6	n/t	n/t	n/t	1.7	n/t	n/t	n/t
>C10-C12 Aliphatic Soil	N	mg/kg	1	< 1.0	n/t	n/t	n/t	< 1.0	n/t	n/t	n/t
>C12-C16 Aliphatic Soil	N	mg/kg	1	< 1.0	n/t	n/t	n/t	< 1.0	n/t	n/t	n/t
>C16-C21 Aliphatic Soil	N	mg/kg	1	< 1.0	n/t	n/t	n/t	< 1.0	n/t	n/t	n/t
>C21-C35 Aliphatic Soil	N	mg/kg	1	< 1.0	n/t	n/t	n/t	< 1.0	n/t	n/t	n/t
>C35-C40 Aliphatic Soil	N	mg/kg	1	< 1.0	n/t	n/t	n/t	< 1.0	n/t	n/t	n/t
>C5-C7 Aromatic	N	mg/kg	0.01	< 0.01	n/t	n/t	n/t	< 0.01	n/t	n/t	n/t
>C7-C8 Aromatic	N	mg/kg	0.01	< 0.01	n/t	n/t	n/t	< 0.01	n/t	n/t	n/t
>C8-C10 Aromatic Soil	N	mg/kg	1	< 1.0	n/t	n/t	n/t	< 1.0	n/t	n/t	n/t
>C10-C12 Aromatic Soil	N	mg/kg	1	< 1.0	n/t	n/t	n/t	< 1.0	n/t	n/t	n/t
>C12-C16 Aromatic Soil	N	mg/kg	1	< 1.0	n/t	n/t	n/t	< 1.0	n/t	n/t	n/t
>C16-C21 Aromatic Soil	N	mg/kg	1	< 1.0	n/t	n/t	n/t	< 1.0	n/t	n/t	n/t
>C21-C35 Aromatic Soil	N	mg/kg	1	< 1.0	n/t	n/t	n/t	< 1.0	n/t	n/t	n/t
>C35-C40 Aromatic Soil	N	mg/kg	1	< 1.0	n/t	n/t	n/t	< 1.0	n/t	n/t	n/t



Results Summary

Report No.: 14-00421

ELAB Reference	2721	2722	2723	2724	2725	2726	2727
Customer Reference							
Sample ID							
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Location	TP1	TP2	TP3	TP4	TP5	TP6	TP7
Sample Depth (m)	0.40	0.25	0.80	0.50	0.30	0.45	0.60
Sampling Date	26/08/2014	26/08/2014	27/08/2014	27/08/2014	26/08/2014	27/08/2014	27/08/2014

Determinand	Codes	Units	LOD							
Total (>C8-C40) Ali/Aro Soil	N	mg/kg	1	1.6	n/t	n/t	n/t	1.7	n/t	n/t

Results Summary

Report No.: 14-00421

ELAB Reference	2728	2729	2730	2731	2732	2733	2735
Customer Reference							
Sample ID							
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Location	TP8	TP9	TP10	TP11	TP12	TP13	TP15
Sample Depth (m)	1.00	0.30	0.90	0.50	0.70	0.20	0.40
Sampling Date	26/08/2014	27/08/2014	26/08/2014	27/08/2014	27/08/2014	27/08/2014	27/08/2014

Determinand	Codes	Units	LOD							
Metals										
Arsenic	M	mg/kg	1	8.4	100	11.1	11.8	13.5	14.8	13.2
Cadmium	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Chromium	M	mg/kg	5	39.8	30.0	28.7	39.4	31.5	39.1	29.0
Copper	M	mg/kg	5	43.9	40.6	30.0	38.6	31.5	41.8	32.8
Lead	M	mg/kg	5	23.4	47.6	22.9	25.1	22.0	27.0	39.5
Mercury	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Nickel	M	mg/kg	5	60.6	34.6	39.3	49.5	40.8	51.3	27.7
Selenium	M	mg/kg	1	0.8	2.7	0.7	0.8	0.9	0.9	0.8
Zinc	M	mg/kg	45	126	64.9	91.6	116	100	122	94.1
Inorganics										
Hexavalent Chromium	N	mg/kg	0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8
Total Cyanide	M	mg/kg	1	*^ < 1.0	*^ < 1.0	*^ < 1.0	*^ < 1.0	*^ < 1.0	*^ < 1.0	*^ < 1.0
Miscellaneous										
Moisture Content	N	%	0.1	8.6	22.9	12.2	11.4	14.6	20.4	11.6
Stones Content	N	%	0.1	< 0.1	< 0.1	10.8	< 0.1	< 0.1	< 0.1	6.8
Total Organic Carbon	N	%	0.01	0.6	3.9	1.1	0.9	1.2	0.8	1.5

Results Summary

Report No.: 14-00421

				ELAB Reference	2728	2729	2730	2731	2732	2733	2735
				Customer Reference							
				Sample ID							
				Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Sample Location	TP8	TP9	TP10	TP11	TP12	TP13	TP15
				Sample Depth (m)	1.00	0.30	0.90	0.50	0.70	0.20	0.40
				Sampling Date	26/08/2014	27/08/2014	26/08/2014	27/08/2014	27/08/2014	27/08/2014	27/08/2014
Determinand	Codes	Units	LOD								
Organics											
>C8-C10 BCB Soil	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C10-C12 BCB Soil	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C12-C16 BCB Soil	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C16-C21 BCB Soil	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
>C21-C35 BCB Soil	N	mg/kg	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1.1
>C35-C40 BCB Soil	N	mg/kg	1	< 1.0	< 1.0	< 1.0	2.0	< 1.0	< 1.0	< 1.0	< 1.0
Total (>C8-C40) BCB Soil	N	mg/kg	1	< 1.0	< 1.0	< 1.0	2.0	< 1.0	< 1.0	< 1.0	1.1
Phenols											
Phenol	M	mg/kg	1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
M,P-Cresol	N	mg/kg	1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
O-Cresol	N	mg/kg	1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
3,4-Dimethylphenol	N	mg/kg	1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2,3-Dimethylphenol	M	mg/kg	1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Trimethylphenol	M	mg/kg	1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Total Monohydric Phenols	N	mg/kg	5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Polyaromatic hydrocarbons											
Naphthalene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Benzo (a) anthracene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Benzo (b) fluoranthene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Benzo (k) fluoranthene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	0.6
Benzo (a) pyrene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Indeno (1,2,3-cd) pyrene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dibenzo(a,h)anthracene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(ghi)perylene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH(16) Speciated	M	mg/kg	2	< 2	< 2	< 2	< 2	< 2	< 2	< 2	4
BTEX											
Benzene	M	ug/kg	10	n/t	n/t	n/t	n/t	n/t	n/t	n/t	n/t
Toluene	M	ug/kg	10	n/t	n/t	n/t	n/t	n/t	n/t	n/t	n/t
Ethylbenzene	M	ug/kg	10	n/t	n/t	n/t	n/t	n/t	n/t	n/t	n/t
Xylenes	M	ug/kg	10	n/t	n/t	n/t	n/t	n/t	n/t	n/t	n/t
TPH CWG											
>C5-C6 Aliphatic	N	mg/kg	0.01	n/t	n/t	n/t	n/t	n/t	n/t	n/t	n/t
>C6-C8 Aliphatic	N	mg/kg	0.01	n/t	n/t	n/t	n/t	n/t	n/t	n/t	n/t
>C8-C10 Aliphatic Soil	N	mg/kg	1	n/t	n/t	n/t	n/t	n/t	n/t	n/t	n/t
>C10-C12 Aliphatic Soil	N	mg/kg	1	n/t	n/t	n/t	n/t	n/t	n/t	n/t	n/t
>C12-C16 Aliphatic Soil	N	mg/kg	1	n/t	n/t	n/t	n/t	n/t	n/t	n/t	n/t
>C16-C21 Aliphatic Soil	N	mg/kg	1	n/t	n/t	n/t	n/t	n/t	n/t	n/t	n/t
>C21-C35 Aliphatic Soil	N	mg/kg	1	n/t	n/t	n/t	n/t	n/t	n/t	n/t	n/t
>C35-C40 Aliphatic Soil	N	mg/kg	1	n/t	n/t	n/t	n/t	n/t	n/t	n/t	n/t
>C5-C7 Aromatic	N	mg/kg	0.01	n/t	n/t	n/t	n/t	n/t	n/t	n/t	n/t
>C7-C8 Aromatic	N	mg/kg	0.01	n/t	n/t	n/t	n/t	n/t	n/t	n/t	n/t
>C8-C10 Aromatic Soil	N	mg/kg	1	n/t	n/t	n/t	n/t	n/t	n/t	n/t	n/t
>C10-C12 Aromatic Soil	N	mg/kg	1	n/t	n/t	n/t	n/t	n/t	n/t	n/t	n/t
>C12-C16 Aromatic Soil	N	mg/kg	1	n/t	n/t	n/t	n/t	n/t	n/t	n/t	n/t
>C16-C21 Aromatic Soil	N	mg/kg	1	n/t	n/t	n/t	n/t	n/t	n/t	n/t	n/t
>C21-C35 Aromatic Soil	N	mg/kg	1	n/t	n/t	n/t	n/t	n/t	n/t	n/t	n/t
>C35-C40 Aromatic Soil	N	mg/kg	1	n/t	n/t	n/t	n/t	n/t	n/t	n/t	n/t



Results Summary

Report No.: 14-00421

ELAB Reference	2728	2729	2730	2731	2732	2733	2735
Customer Reference							
Sample ID							
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Location	TP8	TP9	TP10	TP11	TP12	TP13	TP15
Sample Depth (m)	1.00	0.30	0.90	0.50	0.70	0.20	0.40
Sampling Date	26/08/2014	27/08/2014	26/08/2014	27/08/2014	27/08/2014	27/08/2014	27/08/2014

Determinand	Codes	Units	LOD						
Total (>C8-C40) Ali/Aro Soil	N	mg/kg	1	n/t	n/t	n/t	n/t	n/t	n/t

Results Summary

Report No.: 14-00421

ELAB Reference	2736	2737	2738	2741	2742	2743	2744
Customer Reference							
Sample ID							
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Location	TP16	TP17	TP18	TP20	WS1	WS2	WS3
Sample Depth (m)	0.50	0.55	0.90	0.40	0.30	0.35	0.35
Sampling Date	28/08/2014	28/08/2014	28/08/2014	28/08/2014	28/08/2014	28/08/2014	28/08/2014

Determinand	Codes	Units	LOD							
Metals										
Arsenic	M	mg/kg	1	12.0	18.1	26.0	31.6	16.5	14.0	13.0
Cadmium	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Chromium	M	mg/kg	5	33.3	33.2	26.6	30.8	35.3	27.8	34.1
Copper	M	mg/kg	5	36.9	43.2	45.8	63.1	43.2	36.5	36.5
Lead	M	mg/kg	5	25.2	25.0	35.0	50.9	29.6	25.5	24.5
Mercury	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Nickel	M	mg/kg	5	43.3	38.4	44.8	40.6	52.8	39.8	47.8
Selenium	M	mg/kg	1	1.0	0.9	1.4	1.8	1.2	0.9	0.9
Zinc	M	mg/kg	45	106	90.4	95.5	96.5	124	92.2	111
Inorganics										
Hexavalent Chromium	N	mg/kg	0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8
Total Cyanide	M	mg/kg	1	*^ < 1.0	*^ < 1.0	*^ < 1.0	*^ < 1.0	*^ < 1.0	*^ < 1.0	*^ < 1.0
Miscellaneous										
Moisture Content	N	%	0.1	13.0	16.0	9.5	20.7	13.7	14.2	11.3
Stones Content	N	%	0.1	6.7	11.0	22.8	< 0.1	< 0.1	5.4	8.5
Total Organic Carbon	N	%	0.01	1.1	3.3	0.9	1.3	1.0	1.3	0.9

Results Summary

Report No.: 14-00421

				ELAB Reference	2736	2737	2738	2741	2742	2743	2744
				Customer Reference							
				Sample ID							
				Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
				Sample Location	TP16	TP17	TP18	TP20	WS1	WS2	WS3
				Sample Depth (m)	0.50	0.55	0.90	0.40	0.30	0.35	0.35
				Sampling Date	28/08/2014	28/08/2014	28/08/2014	28/08/2014	28/08/2014	28/08/2014	28/08/2014
Determinand	Codes	Units	LOD								
Organics											
>C8-C10 BCB Soil	N	mg/kg	1	< 1.0	< 1.0	< 1.0	n/t	< 1.0	< 1.0	< 1.0	n/t
>C10-C12 BCB Soil	N	mg/kg	1	< 1.0	< 1.0	< 1.0	n/t	< 1.0	< 1.0	< 1.0	n/t
>C12-C16 BCB Soil	N	mg/kg	1	< 1.0	< 1.0	< 1.0	n/t	< 1.0	< 1.0	< 1.0	n/t
>C16-C21 BCB Soil	N	mg/kg	1	< 1.0	< 1.0	< 1.0	n/t	< 1.0	< 1.0	< 1.0	n/t
>C21-C35 BCB Soil	N	mg/kg	1	< 1.0	< 1.0	< 1.0	n/t	< 1.0	< 1.0	< 1.0	n/t
>C35-C40 BCB Soil	N	mg/kg	1	< 1.0	< 1.0	< 1.0	n/t	< 1.0	< 1.0	< 1.0	n/t
Total (>C8-C40) BCB Soil	N	mg/kg	1	< 1.0	< 1.0	< 1.0	n/t	< 1.0	< 1.0	< 1.0	n/t
Phenols											
Phenol	M	mg/kg	1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
M,P-Cresol	N	mg/kg	1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
O-Cresol	N	mg/kg	1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
3,4-Dimethylphenol	N	mg/kg	1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
2,3-Dimethylphenol	M	mg/kg	1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Trimethylphenol	M	mg/kg	1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1
Total Monohydric Phenols	N	mg/kg	5	< 5	< 5	< 5	< 5	< 5	< 5	< 5	< 5
Polyaromatic hydrocarbons											
Naphthalene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Benzo (a) anthracene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Benzo (b) fluoranthene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Benzo (k) fluoranthene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Benzo (a) pyrene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Indeno (1,2,3-cd) pyrene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Dibenzo(a,h)anthracene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(ghi)perylene	M	mg/kg	0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH(16) Speciated	M	mg/kg	2	< 2	< 2	< 2	2	< 2	< 2	< 2	< 2
BTEX											
Benzene	M	ug/kg	10	n/t	n/t	n/t	< 10.0	n/t	n/t	n/t	< 10.0
Toluene	M	ug/kg	10	n/t	n/t	n/t	12.4	n/t	n/t	n/t	< 10.0
Ethylbenzene	M	ug/kg	10	n/t	n/t	n/t	< 10.0	n/t	n/t	n/t	< 10.0
Xylenes	M	ug/kg	10	n/t	n/t	n/t	< 10.0	n/t	n/t	n/t	< 10.0
TPH CWG											
>C5-C6 Aliphatic	N	mg/kg	0.01	n/t	n/t	n/t	< 0.01	n/t	n/t	n/t	< 0.01
>C6-C8 Aliphatic	N	mg/kg	0.01	n/t	n/t	n/t	< 0.01	n/t	n/t	n/t	< 0.01
>C8-C10 Aliphatic Soil	N	mg/kg	1	n/t	n/t	n/t	1.7	n/t	n/t	n/t	1.4
>C10-C12 Aliphatic Soil	N	mg/kg	1	n/t	n/t	n/t	< 1.0	n/t	n/t	n/t	< 1.0
>C12-C16 Aliphatic Soil	N	mg/kg	1	n/t	n/t	n/t	< 1.0	n/t	n/t	n/t	< 1.0
>C16-C21 Aliphatic Soil	N	mg/kg	1	n/t	n/t	n/t	< 1.0	n/t	n/t	n/t	< 1.0
>C21-C35 Aliphatic Soil	N	mg/kg	1	n/t	n/t	n/t	< 1.0	n/t	n/t	n/t	< 1.0
>C35-C40 Aliphatic Soil	N	mg/kg	1	n/t	n/t	n/t	< 1.0	n/t	n/t	n/t	< 1.0
>C5-C7 Aromatic	N	mg/kg	0.01	n/t	n/t	n/t	< 0.01	n/t	n/t	n/t	< 0.01
>C7-C8 Aromatic	N	mg/kg	0.01	n/t	n/t	n/t	0.01	n/t	n/t	n/t	< 0.01
>C8-C10 Aromatic Soil	N	mg/kg	1	n/t	n/t	n/t	< 1.0	n/t	n/t	n/t	< 1.0
>C10-C12 Aromatic Soil	N	mg/kg	1	n/t	n/t	n/t	< 1.0	n/t	n/t	n/t	< 1.0
>C12-C16 Aromatic Soil	N	mg/kg	1	n/t	n/t	n/t	< 1.0	n/t	n/t	n/t	< 1.0
>C16-C21 Aromatic Soil	N	mg/kg	1	n/t	n/t	n/t	< 1.0	n/t	n/t	n/t	< 1.0
>C21-C35 Aromatic Soil	N	mg/kg	1	n/t	n/t	n/t	< 1.0	n/t	n/t	n/t	< 1.0
>C35-C40 Aromatic Soil	N	mg/kg	1	n/t	n/t	n/t	< 1.0	n/t	n/t	n/t	< 1.0



Results Summary

Report No.: 14-00421

ELAB Reference	2736	2737	2738	2741	2742	2743	2744
Customer Reference							
Sample ID							
Sample Type	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Sample Location	TP16	TP17	TP18	TP20	WS1	WS2	WS3
Sample Depth (m)	0.50	0.55	0.90	0.40	0.30	0.35	0.35
Sampling Date	28/08/2014	28/08/2014	28/08/2014	28/08/2014	28/08/2014	28/08/2014	28/08/2014

Determinand	Codes	Units	LOD							
Total (>C8-C40) Ali/Aro Soil	N	mg/kg	1	n/t	n/t	n/t	1.7	n/t	n/t	1.4



Results Summary

Report No.: 14-00421

ELAB Reference	2746	2747
Customer Reference		
Sample ID		
Sample Type	SOIL	SOIL
Sample Location	WS5	TP19@0.50, TP19@0.75
Sample Depth (m)	0.80	0.50 - 0.75
Sampling Date	28/08/2014	28/08/2014

Determinand	Codes	Units	LOD		
Metals					
Arsenic	M	mg/kg	1	12.5	20.3
Cadmium	M	mg/kg	0.5	< 0.5	< 0.5
Chromium	M	mg/kg	5	36.9	41.9
Copper	M	mg/kg	5	48.6	48.1
Lead	M	mg/kg	5	30.2	27.3
Mercury	M	mg/kg	0.5	< 0.5	< 0.5
Nickel	M	mg/kg	5	60.9	55.4
Selenium	M	mg/kg	1	1.5	1.2
Zinc	M	mg/kg	45	136	126
Inorganics					
Hexavalent Chromium	N	mg/kg	0.8	< 0.8	< 0.8
Total Cyanide	M	mg/kg	1	*^ < 1.0	*^ < 1.0
Miscellaneous					
Moisture Content	N	%	0.1	13.9	12.5
Stones Content	N	%	0.1	< 0.1	< 0.1
Total Organic Carbon	N	%	0.01	0.6	1.3

Results Summary

Report No.: 14-00421

ELAB Reference	2746	2747
Customer Reference		
Sample ID		
Sample Type	SOIL	SOIL
Sample Location	WS5	TP19@0.50, TP19@0.75
Sample Depth (m)	0.80	0.50 - 0.75
Sampling Date	28/08/2014	28/08/2014

Determinand	Codes	Units	LOD		
Organics					
>C8-C10 BCB Soil	N	mg/kg	1	< 1.0	n/t
>C10-C12 BCB Soil	N	mg/kg	1	< 1.0	n/t
>C12-C16 BCB Soil	N	mg/kg	1	< 1.0	n/t
>C16-C21 BCB Soil	N	mg/kg	1	< 1.0	n/t
>C21-C35 BCB Soil	N	mg/kg	1	< 1.0	n/t
>C35-C40 BCB Soil	N	mg/kg	1	< 1.0	n/t
Total (>C8-C40) BCB Soil	N	mg/kg	1	< 1.0	n/t
Phenols					
Phenol	M	mg/kg	1	< 1	< 1
M,P-Cresol	N	mg/kg	1	< 1	< 1
O-Cresol	N	mg/kg	1	< 1	< 1
3,4-Dimethylphenol	N	mg/kg	1	< 1	< 1
2,3-Dimethylphenol	M	mg/kg	1	< 1	< 1
Trimethylphenol	M	mg/kg	1	< 1	< 1
Total Monohydric Phenols	N	mg/kg	5	< 5	< 5
Polyaromatic hydrocarbons					
Naphthalene	M	mg/kg	0.5	< 0.5	< 0.5
Acenaphthylene	M	mg/kg	0.5	< 0.5	< 0.5
Acenaphthene	M	mg/kg	0.5	< 0.5	< 0.5
Fluorene	M	mg/kg	0.5	< 0.5	< 0.5
Phenanthrene	M	mg/kg	0.5	< 0.5	< 0.5
Anthracene	M	mg/kg	0.5	< 0.5	< 0.5
Fluoranthene	M	mg/kg	0.5	< 0.5	< 0.5
Pyrene	M	mg/kg	0.5	< 0.5	< 0.5
Benzo (a) anthracene	M	mg/kg	0.5	< 0.5	< 0.5
Chrysene	M	mg/kg	0.5	< 0.5	< 0.5
Benzo (b) fluoranthene	M	mg/kg	0.5	< 0.5	< 0.5
Benzo (k) fluoranthene	M	mg/kg	0.5	< 0.5	< 0.5
Benzo (a) pyrene	M	mg/kg	0.5	< 0.5	< 0.5
Indeno (1,2,3-cd) pyrene	M	mg/kg	0.5	< 0.5	< 0.5
Dibenzo(a,h)anthracene	M	mg/kg	0.5	< 0.5	< 0.5
Benzo(ghi)perylene	M	mg/kg	0.5	< 0.5	< 0.5
Total PAH(16) Speciated	M	mg/kg	2	< 2	< 2
BTEX					
Benzene	M	ug/kg	10	n/t	< 10.0
Toluene	M	ug/kg	10	n/t	< 10.0
Ethylbenzene	M	ug/kg	10	n/t	< 10.0
Xylenes	M	ug/kg	10	n/t	< 10.0
TPH CWG					
>C5-C6 Aliphatic	N	mg/kg	0.01	n/t	< 0.01
>C6-C8 Aliphatic	N	mg/kg	0.01	n/t	< 0.01
>C8-C10 Aliphatic Soil	N	mg/kg	1	n/t	1.1
>C10-C12 Aliphatic Soil	N	mg/kg	1	n/t	< 1.0
>C12-C16 Aliphatic Soil	N	mg/kg	1	n/t	< 1.0
>C16-C21 Aliphatic Soil	N	mg/kg	1	n/t	< 1.0
>C21-C35 Aliphatic Soil	N	mg/kg	1	n/t	< 1.0
>C35-C40 Aliphatic Soil	N	mg/kg	1	n/t	< 1.0
>C5-C7 Aromatic	N	mg/kg	0.01	n/t	< 0.01
>C7-C8 Aromatic	N	mg/kg	0.01	n/t	< 0.01
>C8-C10 Aromatic Soil	N	mg/kg	1	n/t	< 1.0
>C10-C12 Aromatic Soil	N	mg/kg	1	n/t	< 1.0
>C12-C16 Aromatic Soil	N	mg/kg	1	n/t	< 1.0
>C16-C21 Aromatic Soil	N	mg/kg	1	n/t	< 1.0
>C21-C35 Aromatic Soil	N	mg/kg	1	n/t	< 1.0
>C35-C40 Aromatic Soil	N	mg/kg	1	n/t	< 1.0



Results Summary

Report No.: 14-00421

ELAB Reference	2746	2747
Customer Reference		
Sample ID		
Sample Type	SOIL	SOIL
Sample Location	WS5	TP19@0.50, TP19@0.75
Sample Depth (m)	0.80	0.50 - 0.75
Sampling Date	28/08/2014	28/08/2014

Determinand	Codes	Units	LOD
Total (>C8-C40) Ali/Aro Soil	N	mg/kg	1
			n/t
			1.1

Results Summary

Report No.: 14-00421

ELAB Reference	2723	2730	2745
Customer Reference			
Sample ID			
Sample Type	SOIL	SOIL	SOIL
Sample Location	TP3	TP10	WS4
Sample Depth (m)	0.80	0.90	0.70
Sampling Date	27/08/2014	26/08/2014	28/08/2014

Determinand	Codes	Units	LOD			
VOC						
MTBE	N	ug/kg	10	< 10.0	< 10.0	< 10.0
Heptane	N	ug/kg	10	< 10.0	< 10.0	< 10.0
Octane	N	ug/kg	10	< 10.0	< 10.0	< 10.0
Nonane	N	ug/kg	10	< 10.0	< 10.0	< 10.0
Benzene	M	ug/kg	10	< 10.0	< 10.0	< 10.0
Toluene	M	ug/kg	10	10.1	< 10.0	< 10.0
Ethylbenzene	M	ug/kg	10	< 10.0	< 10.0	< 10.0
m+p-xylene	M	ug/kg	10	< 10.0	< 10.0	< 10.0
o-xylene	M	ug/kg	10	< 10.0	< 10.0	< 10.0
cis-1,2-dichloroethene	M	ug/kg	10	< 10.0	< 10.0	< 10.0
1,1-Dichloroethane	M	ug/kg	10	< 10.0	< 10.0	< 10.0
Chloroform	M	ug/kg	10	< 10.0	< 10.0	< 10.0
Dichloromethane	M	ug/kg	10	< 10.0	< 10.0	< 10.0
1,1,1-Trichloroethane	M	ug/kg	10	< 10.0	< 10.0	< 10.0
Trichloroethylene	M	ug/kg	10	< 10.0	< 10.0	< 10.0
Tetrachloroethylene	M	ug/kg	10	< 10.0	< 10.0	< 10.0
1,1,1,2-Tetrachloroethane	M	ug/kg	10	< 10.0	< 10.0	< 10.0
1,1,2,2-Tetrachloroethane	M	ug/kg	10	< 10.0	< 10.0	< 10.0
Chlorobenzene	M	ug/kg	10	< 10.0	< 10.0	< 10.0
Bromobenzene	M	ug/kg	10	< 10.0	< 10.0	< 10.0
Bromodichloromethane	M	ug/kg	10	< 10.0	< 10.0	< 10.0
Methylethylbenzene	M	ug/kg	10	< 10.0	< 10.0	< 10.0
1,1-Dichloro-1-propene	M	ug/kg	10	< 10.0	< 10.0	< 10.0
Trans - 1-2 -dichloroethylene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
2,2-Dichloropropane	N	ug/kg	10	< 10.0	< 10.0	< 10.0
Bromochloromethane	N	ug/kg	10	< 10.0	< 10.0	< 10.0
1,2-Dichloroethane	N	ug/kg	10	< 10.0	< 10.0	< 10.0
Dibromomethane	M	ug/kg	10	< 10.0	< 10.0	< 10.0
1,2-Dichloropropane	M	ug/kg	10	< 10.0	< 10.0	< 10.0
cis-1,3-Dichloro-1-propene	M	ug/kg	10	< 10.0	< 10.0	< 10.0
trans-1,3-Dichloro-1-propene	M	ug/kg	10	< 10.0	< 10.0	< 10.0
1,1,2-Trichloroethane	N	ug/kg	10	< 10.0	< 10.0	< 10.0
Dibromochloromethane	N	ug/kg	10	< 10.0	< 10.0	< 10.0
1,3-Dichloropropane	N	ug/kg	10	< 10.0	< 10.0	< 10.0
Dibromoethane	M	ug/kg	10	< 10.0	< 10.0	< 10.0
Styrene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
Propylbenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
2-Chlorotoluene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
1,2,4-Trimethylbenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
4-Chlorotoluene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
t-butylbenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
1,3,5-Trimethylbenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
1-methylpropylbenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
o-cymene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
1,3-Dichlorobenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
Butylbenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
1,2-Dibromo-3-chloropropane	N	ug/kg	10	< 10.0	< 10.0	< 10.0
Hexachlorobutadiene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
1,2,3-Trichlorobenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
Naphthalene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
1,2,4-Trichlorobenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
1,4-Dichlorobenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
1,2-Dichlorobenzene	N	ug/kg	10	< 10.0	< 10.0	< 10.0
Bromoform	N	ug/kg	10	< 10.0	< 10.0	< 10.0

Results Summary

Report No.: 14-00421

ELAB Reference	2723	2730	2745
Customer Reference			
Sample ID			
Sample Type	SOIL	SOIL	SOIL
Sample Location	TP3	TP10	WS4
Sample Depth (m)	0.80	0.90	0.70
Sampling Date	27/08/2014	26/08/2014	28/08/2014

Determinand	Codes	Units	LOD	27/08/2014	26/08/2014	28/08/2014
SVOC						
Phenol	N	mg/kg	0.01	0.03	0.02	< 0.01
Aniline	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Bis(2-chloroethyl)ether	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
2-Chlorophenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
1,3-Dichlorobenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
1,4-Dichlorobenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Benzyl Alcohol	N	mg/kg	0.01	< 0.01	< 0.01	0.05
1,2-Dichlorobenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
2-Methylphenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Bis(2-chloroisopropyl)ether	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
3 and 4-methylphenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
N-Nitrosodi-n-propylamine	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Hexachloroethane	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Nitrobenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Isophorone	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
2-Nitrophenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
2,4-Dimethylphenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Bis(2-chloroethoxy)methane	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
2,4-Dichlorophenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
1,3,5-Trichlorobenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Naphthalene	N	mg/kg	0.01	0.09	0.02	0.02
3-Chloroaniline	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Hexachloro-1,3-butadiene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
4-Chloro-3-methylphenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
2-Methylnaphthalene	N	mg/kg	0.01	0.12	0.05	0.07
1-Methylnaphthalene	N	mg/kg	0.01	0.15	0.07	0.08
Hexachlorocyclopentadiene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
2,4,6-Trichlorophenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
2,4,5-Trichlorophenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
1-Chloronaphthalene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
2-Nitroaniline	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
1,4-Dinitrobenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Dimethyl phthalate	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
1,3-dinitrobenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
2,6-dinitrotoluene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Acenaphthylene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
1,2-Dinitrobenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
3-Nitroaniline	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
4-nitrophenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Dibenzofuran	N	mg/kg	0.01	0.03	0.01	< 0.01
2,3,5,6-Tetrachlorophenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
2,3,4,6-Tetrachlorophenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Diethyl phthalate	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
1-chloro-4-phenoxybenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Fluorene	N	mg/kg	0.01	0.02	0.01	0.01
4-Nitroaniline	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Dinitro-o-cresol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Diphenylamine	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Azobenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
1-bromo-4-phenoxybenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Hexachlorobenzene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Pentachlorophenol	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	N	mg/kg	0.01	0.10	0.06	0.07
Anthracene	N	mg/kg	0.01	0.03	< 0.01	< 0.01
Carbazole	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Dibutyl phthalate	N	mg/kg	0.01	0.01	< 0.01	0.01
Fluoranthene	N	mg/kg	0.01	0.03	0.02	0.02
Pyrene	N	mg/kg	0.01	0.02	0.02	0.02
Butyl benzyl phthalate	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Bis-2-ethylhexyladipate	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Butyl benzyl phthalate	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Chrysene	N	mg/kg	0.01	0.02	< 0.01	< 0.01
Bis(2-ethylhexyl)phthalate	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-CD)pyrene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Dibenz(ah)anthracene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	N	mg/kg	0.01	< 0.01	< 0.01	< 0.01



Results Summary

Report No.: 14-00421

ELAB Reference	2725	2743	2747
Customer Reference			
Sample ID			
Sample Type	SOIL	SOIL	SOIL
Sample Location	TP5	WS2	TP19@0.50, TP19@0.75
Sample Depth (m)	0.30	0.35	0.50 - 0.75
Sampling Date	26/08/2014	28/08/2014	28/08/2014

Determinand	Codes	Units	LOD			
Metals						
Arsenic	N	ug/l	5	< 5	< 5	< 5
Cadmium	N	ug/l	1	< 1	< 1	< 1
Calcium	N	ug/l	100	1800	n/t	n/t
Chromium	N	ug/l	5	< 5	< 5	< 5
Copper	N	ug/l	5	< 5	< 5	< 5
Lead	N	ug/l	5	< 5	< 5	< 5
Magnesium	N	ug/l	100	2020	n/t	n/t
Mercury	N	ug/l	0.1	< 0.1	< 0.1	< 0.1
Nickel	N	ug/l	5	< 5	< 5	< 5
Selenium	N	ug/l	5	< 5	< 5	< 5
Zinc	N	ug/l	5	< 5	< 5	< 5
Inorganics						
Hexavalent chromium	N	ug/l	100	< 100	< 100	< 100
Total Cyanide	N	ug/l	20	< 20	< 20	< 20
Total hardness (mg/l CaCO3)	N	mg/l	1	14		
Miscellaneous						
Dissolved Organic Carbon	N	mg/l	0.9	9	7	20
Organics						
>C8-C10 BCB Leachate	N	ug/L	5	g < 5.0	g < 5.0	g < 5.0
>C10-C12 BCB Leachate	N	ug/L	5	g < 5.0	g < 5.0	g < 5.0
>C12-C16 BCB Leachate	N	ug/L	5	g < 5.0	g < 5.0	g < 5.0
>C16-C21 BCB Leachate	N	ug/L	5	g < 5.0	g < 5.0	g < 5.0
>C21-C35 BCB Leachate	N	ug/L	5	g < 5.0	g < 5.0	g < 5.0
>C35-C40 BCB Leachate	N	ug/L	5	g < 5.0	g < 5.0	g < 5.0
Total (>C8-C40) BCB Leachate	N	ug/L	5	g 19.2	g 5.2	g < 5.0
Phenols						
Total Phenols	N	mg/L	1	27	< 1	< 1
Polyaromatic hydrocarbons						
Naphthalene Leachate GCMS	N	ug/L	0.01	0.23	0.28	0.21
Acenaphthylene Leachate GCMS	N	ug/L	0.01	< 0.01	< 0.01	< 0.01
Acenaphthene Leachate GCMS	N	ug/L	0.01	0.02	< 0.01	0.02
Fluorene Leachate GCMS	N	ug/L	0.01	0.01	0.02	0.02
Phenanthrene Leachate GCMS	N	ug/L	0.01	0.04	0.05	0.06
Anthracene Leachate GCMS	N	ug/L	0.01	0.01	< 0.01	< 0.01
Fluoranthene Leachate GCMS	N	ug/L	0.01	0.02	0.02	0.02
Pyrene Leachate GCMS	N	ug/L	0.01	0.02	< 0.01	0.02
Benzo (a) anthracene Leachate GCMS	N	ug/L	0.01	< 0.01	< 0.01	< 0.01
Chrysene Leachate GCMS	N	ug/L	0.01	< 0.01	< 0.01	< 0.01
Benzo (b) fluoranthene Leachate GCMS	N	ug/L	0.01	< 0.01	< 0.01	< 0.01
Benzo (k) fluoranthene Leachate GCMS	N	ug/L	0.01	< 0.01	< 0.01	< 0.01
Benzo (a) pyrene Leachate GCMS	N	ug/L	0.01	< 0.01	< 0.01	< 0.01
Indeno (1,2,3-cd) pyrene Leachate GCMS	N	ug/L	0.01	< 0.01	< 0.01	< 0.01
Dibenzo(a,h)anthracene Leachate GCMS	N	ug/L	0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene Leachate GCMS	N	ug/L	0.01	< 0.01	< 0.01	< 0.01
Total PAH(16) Speciated Leachate GCMS	N	ug/L	0.01	0.36	0.38	0.37



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Results Summary

Report No.: 14-00421

Asbestos Qualitative Results

Analytical result only applies to the sample as submitted by the client. Any comments, opinions or interpretations (marked #) in this report are outside UKAS accreditation (Accreditation No2683). They are subjective comments only which must be verified by the client.

Elab No	Depth (m)	Clients Reference	Description of Sample Matrix #	Result
2721	0.40	TP1	Silty loam	No asbestos detected
2722	0.25	TP2	Silty loam	No asbestos detected
2723	0.80	TP3	Silty clayey loam	No asbestos detected
2724	0.50	TP4	Silty loam	No asbestos detected
2725	0.30	TP5	Silty loam	No asbestos detected
2726	0.45	TP6	Silty loam	No asbestos detected
2727	0.60	TP7	Silty loam	No asbestos detected
2728	1.00	TP8	Clayey loam	No asbestos detected
2729	0.30	TP9	Silty loam	No asbestos detected
2730	0.90	TP10	Silty loam	No asbestos detected
2731	0.50	TP11	Silty loam	No asbestos detected
2732	0.70	TP12	Silty loam	No asbestos detected
2733	0.20	TP13	Silty clayey loam	No asbestos detected
2735	0.40	TP15	Silty loam	No asbestos detected
2736	0.50	TP16	Silty loam	No asbestos detected
2737	0.55	TP17	Silty loam	No asbestos detected
2738	0.90	TP18	Silty loam	No asbestos detected
2741	0.40	TP20	Silty clayey loam	No asbestos detected
2742	0.30	WS1	Silty loam	No asbestos detected
2743	0.35	WS2	Silty loam	No asbestos detected
2744	0.35	WS3	Silty loam	No asbestos detected
2746	0.80	WS5	Silty loam	No asbestos detected
2747	0.50 - 0.75	TP19@0.50, TP19@	Silty loam	No asbestos detected

Method Summary

Report No.: 14-00421

Parameter	Analysis Undertaken On	Date Tested	Method Number	Technique
Soil				
BTEX in solids	As submitted sample	10/09/2014		GC-MS
Basic carbon banding in leachate		15/09/2014		GC-FID
Carbon in leachates		18/09/2014		IR
Cyanide (L) in solids in leachates		15/09/2014		Colorimetry
Metals by ICP in leachates		18/09/2014		ICPMS
Phenols in leachates		15/09/2014		HPLC
Hexavalent chromium	As submitted sample	09/09/2014	110	Colorimetry
Aqua regia extractable metals	Air dried sample	15/09/2014	118	ICPMS
Phenols in solids	As submitted sample	09/09/2014	121	HPLC
Polyaromatic hydrocarbons (GC-FID)	As submitted sample	08/09/2014	133	GC-FID
PAHs and/or PCBs in leachates		12/09/2014	135	GC-MS
SVOC in solids	As submitted sample	08/09/2014	167	GC-MS
VOC in solids	As submitted sample	08/09/2014	181	GC-MS
Total cyanide	As submitted sample	10/09/2014	204	Colorimetry
Total organic carbon/Total sulphur	Air dried sample	15/09/2014	210	IR
Aliphatic hydrocarbons in soil	As submitted sample	08/09/2014	214	GC-FID
Aliphatic/Aromatic hydrocarbons in soil	As submitted sample	10/09/2014	214	GC-FID
Aromatic hydrocarbons in soil	As submitted sample	08/09/2014	214	GC-FID
Low range Aliphatic hydrocarbons soil	As submitted sample	10/09/2014	214	GC-MS
Low range Aromatic hydrocarbons soil	As submitted sample	10/09/2014	214	GC-MS
Basic carbon banding in soil	As submitted sample	08/09/2014	218	GC-FID
Asbestos identification	As submitted sample	16/09/2014	PMAN	Microscopy



Report Information

Report No.: 14-00421

Key

U	hold UKAS accreditation
M	hold MCERTS and UKAS accreditation
N	do not currently hold UKAS accreditation
^	MCERTS accreditation not applicable for sample matrix
S	Subcontracted to approved laboratory UKAS Accredited for the test
SM	Subcontracted to approved laboratory MCERTS/UKAS Accredited for the test
I/S	Insufficient Sample
U/S	Unsuitable sample
n/e	not evaluated
<	means "less than"
>	means "greater than"

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

Deviation Codes

- | | |
|---|--|
| a | No date of sampling supplied |
| b | No time of sampling supplied (Waters Only) |
| c | Sample not received in appropriate containers |
| d | Sample not received in cooled condition |
| e | The container has been incorrectly filled |
| f | Sample age exceeds stability time (sampling to receipt) |
| g | Sample age exceeds stability time (sampling to analysis) |

Sample Retention and Disposal

All soil samples will be retained for a period of one month

All water samples will be retained for 7 days following the date of the test report

Charges may apply to extended sample storage



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