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Geo-Environmental Report

Land at A151/A6, Spalding PE12 6EP

For

SME Corporation (2) Ltd/ SME Group PLC

'Experience and expertise working in union'

enzygo.com

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Project:	Land at A151/A6, Spalding PE12 6EP
For:	SME Corporation (2) Ltd/ SME Group PLC
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Executive Summary

Proposed Development

The site is to be developed for a restaurant and commercial building.

Investigation

Site investigation, desk study and monitoring visits were undertaken by Enzygo Geoenvironmental Ltd. in September 2018.

Ground Conditions

Ground Conditions comprise variable depths of Made Ground over clays and sands. Soils were noted to become soft and very soft clays and loose sands at depths of between 2m and 4m bgl. Groundwater was encountered at depths of between 3.0m and 3.1m bgl during return monitoring visit.

Contamination

No contamination was identified.

Foundations

Piled foundations are recommended.

Pavement Design

A design CBR of 5% is recommended.

Buried Concrete

Class AC1-s maybe used.

Drainage

Soakaway drainage is not considered feasible.

Ground Gas

Ground gas protection measures are recommended.

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1.0 INTRODUCTION

Background

1.1 Enzygo Geoenvironmental Limited has been commissioned by Simpson Associates on behalf of SME Corporation (2) Ltd/ SME Groupto prepare a Geo-Environmental Report for a site located at Land at A151/A6, Spalding PE12 6EP.

Proposed Development

1.2 The proposed developed is for a fast food restaurant, unspecified building and associated infrastructure. The proposed development is shown on Drawing 2005733-2018-G121 prepared by RPA Group.

Objectives

1.3 The objectives of the study are to:

- Review historical plans, geology, hydrogeology, site sensitivity, mining records and contaminated land information provided by the local authority in order to complete a Desk Study. A Groundsure report has been obtained, a copy of which is included in Appendix A;
- 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;
- Undertake a targeted ground investigation;
- Provide a factual and interpretative report; and
- Provide geotechnical recommendations in relation to environmental risk, potential remedial options and initial assessment of ground engineering considerations.

Risk Classification

1.4 Enzygo Geoenvironmental 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 at A151/A6, Spalding PE12 6EP.
National Grid Reference	526518,323774.
Approximate Site Area	0.49 Ha.

Current Site Description

2.1 The following site description has been compiled from a site inspection undertaken by an experienced environmental consultant, together with current maps and aerial photographs.

2.2 At the time of the inspection the site was occupied by an area of soft landscaping comprising open grass land. An area of tarmac is present along the north western boundary of the site.

2.3 The land rises to a mound within the central area which is approximately 2m high and vegetated with grass.

2.4 The site slopes down along the southern boundary.

2.5 No evidence of contamination is noted on site.

Surrounding Area

2.6 Land uses surrounding the site are summarised as follows:

Direction	Land Use
South	Commercial building surrounded by hardstanding.
East	A16 Low Road on embankment with fields beyond.
North	Tyre fitter with building surrounded by hardstanding.
West	Fulney Lane with residential development beyond.

2.7 No significant contamination risks are identified adjacent to the site.

3.0 SITE HISTORY

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

Potentially Contaminative Historical Land Use		
Map Edition	**Site**	**Surrounding Area**
1888	Field. Road in NW.	Road and fields 0m E & W. Fields 0m N & S. Residential properties 200m W & 250m E. Road 0m SW.
1904	No significant change.	No significant change.
1932	No significant change.	No significant change.
1938	No significant change.	No significant change.
1967	No significant change.	Residential development 100m W. Commercial and retail units 100m NW. River 170m W.
1969	No significant change.	No significant change.
1977	No significant change.	No significant change.
1987	Building in W	No significant change.
1995	No significant change.	No significant change.
2002	Building no longer shown.	A151 10m N. A16 0m E. Road 0m SW no longer shown. Factory 50m S.
2010	No significant change.	No significant change.
2014	No significant change.	Tyre fitter 10m NW.

3.2 No significant risks are identified at or near to the site from the historical maps.

4.0 ENVIRONMENTAL SETTING

Ground Conditions

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

Geological Unit	Type	Description	Aquifer Classification
Drift.	Tidal Mudflats.	Clay and Silt.	Unproductive.
Solid.	Oxford Clay.	Clay and Mudstone.	Unproductive.

4.2 Made Ground is not identified by the BGS on or near to the site.

4.3 There are no landslips shown near to the site.

4.4 Records of background soil chemistry for the site show no exceedance above residential or commercial values.

4.5 BGS borehole records close to the site confirm ground conditions to comprise soft clays and loose sands to in excess of 7.00mbgl over medium dense sands.

Groundwater

4.6 Permeability of the drift geology is very low to low. Permeability of the solid geology is low to very low.

4.7 The Ground Sure Report shows that the site is not located within a Source Protection Zone.

4.8 There are no licensed groundwater abstractions within 500m of the site.

4.9 BGS records show the site is not at risk of groundwater flooding.

Coal Mining

4.10 No coal mining activities have been identified within 1000m of the site.

Non Coal Mining and Cavities

4.11 No other mining works are identified within 1000m of the site.

4.12 No cavities are identified within 1000m of the site.

Ground Workings

4.13 There are no or historic active ground workings within 250m of the site.

4.14 Two ponds are identified 109m north of the site which are not considered a risk.

4.15 No new risks are identified from the ground workings.

Hydrology

4.16 No water courses are present on site.

4.17 There are drains 2m east and north of the site.

4.18 There are no surface water abstractions within 500m of the site.

4.19 Environment Agency records show that the site is located within a Flood Risk Zone 2.

Radon Risk Potential

4.20 The Groundsure GeoInsight Report indicates that the site is not located within an area where Radon protection measures are required.

Natural Hazards Finding

4.21 BGS information presented within the Groundsure Geo Insight report identifies the following ground conditions:

Hazard	Risk Designation (Groundsure)
Mining	None identified.
Collapsible Ground	Very Low.
Compressible Ground	Moderate.
Ground Dissolution	Negligible.
Landslide	Very Low.
Running Sand	Moderate.
Swelling / Shrinking Clay	Low.

4.22 Moderate risks of running sand and compressible deposits are identified associated with the poorly consolidated Tidal Flats Deposits. No other significant ground risks are identified.

Sensitive Land Uses

4.23 The site is currently used for open space. This is considered to have a low sensitivity.

4.24 Historic England identifies no historical features on the site.

Environmental Sensitivity

4.25 Overall the site is currently considered to be of **Low** sensitivity due to the following:

- Site is currently open space;
- There are drains adjacent to the site;
- The site is underlain by Unproductive Aquifers and there are no shallow abstractions nearby;
- There are no ecological designations on or adjacent to the site;
- Site is not within a Source Protection Zone.

4.26 The sensitivity for end users will be low for the restraunt.

Industrial Land Uses

4.27 Industrial land uses within 250m of the site are limited to a factory 89m south, tyre fitter and sub stations. No significant risks are identified.

4.28 The Groundsure EnviroInsight Report shows one fuel station within 250m of the site. This is located 210m north east and is not considered a significant risk based on distance and low permeability of the soils.

4.29 There are no oil or gas pipelines within 250m of the site.

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

5.0 CONSULTATIONS

Regulatory Database

5.1 The following information has been obtained from a commercially available environmental database.

Environmental Permits, Incidents and Registers	0 -250m	250-500m	Details
Site determined as contaminated land.	0	0	Not applicable.
Authorised industrial processes.	12	0	Animal processing 112m S. Not considered a significant risk.
Registered radioactive substances.	0	0	Not applicable.
Enforcements, prohibitions or prosecutions.	0	0	Not applicable.
Pollution Incidents.	1	0	Category 4 (No) impact from biodegradable material 147m NW. Not considered a risk.
Consents issued under the Planning (Hazardous Substances) Act 1990.	0	0	Not applicable.
Control of Major Accident Hazard (COMAH)/ Notification of Installations Handling Hazardous Substances (NIHHS) sites.	0	0	Not applicable.
Records of Licensed Discharge Consents.	1	3	Effluent discharges. Nearest is 2335m SW. Not considered a risk.

5.2 No significant risks are identified from the regulatory data base.

Landfill Sites and Waste Treatment Sites

5.3 There are no operational or historic landfill sites within 250m.

5.4 There are no waste treatment, transfer or management site within 250m site.

6.0 PRELIMINARY CONCEPTUAL MODEL

Source	Location	Exposure Pathway	Potential Receptor	Probability of Exposure	Details
Human Health					
Asbestos, hydrocarbons and metals.	Made Ground.	Ingestion dermal and inhalation.	Construction Workers.	Dismissed.	Normal construction PPE will address risk under CDM.
			Site users.	Negligible.	Significant contamination unlikely.
Hydrocarbon and metals.	Migration from off-site sources.	Ingestion dermal and inhalation.	Construction Workers.	Dismissed.	No significant source identified. Development comprises hardstanding.
			Site users.		
Ground Gas.	Historic Landfills.	Inhalation & Explosive.	Construction Workers.	Dismissed.	No source identified.
			Site users.		
	Potential Made Ground.		Construction Workers.	Negligible.	Significant putrescible material unlikely.
			Site users.		
Groundwater					
Hydrocarbon and metals.	Potential spillage on site.	Vertical Migration.	Groundwater.	Dismissed.	No receptor.
Surface Water					
Hydrocarbon and metals.	Potential spillage on site.	Horizontal Migration.	River Network.	Negligible.	Significant contamination unlikely.
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.	No receptor.
		Phytotoxic.	Crops.	Dismissed.	No receptor.
		Ingestion dermal and inhalation.	Livestock.	Dismissed.	No source identified.
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 negligible risk of contamination and ground gas associated with potential Made Ground.

6.2 No other risks are identified.

7.0 SITE INVESTIGATION

General

7.1 A ground investigation was undertaken based on the findings of the desk study together with details of the proposed development layout.

7.2 Exploratory holes were positioned to target aspects of the development and provide specific design information for the scheme. Locations of exploratory holes are summarised below:

Rational	Exploratory Holes	Notes
Car Park.	HP1 & HP3.	CBR tests.
Foundations.	BH1 to BH5.	Within Restraunt Building Footprint.
Foundations.	BH6 to BH10.	Within Un-specified Building Footprint.
Monitoring Wells.	BH3, BH5 & BH8.	Installations.
Former building.	BH8.	Historical maps.
Mound.	HP2.	Sample.

7.3 Locations of all exploratory holes are shown on Drawing CRM.252.001.GE.D.001.

Site Works

7.4 The site works were undertaken on 21st and 22nd September 2018 and comprised window sampler boreholes (BH1 to BH10) and hand pits (HP1 to HP3). Site investigation works were supervised by an experienced environmental consultant.

7.5 Strength of soils were assessed using Standard Penetration Tests (SPT). The results of which are included on the borehole logs presented in Appendix B.

7.6 Representative soil samples were collected for chemical and geotechnical 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.

7.7 Generally samples were collected from Made Ground, which may contain potential inclusions of contaminating materials and also materials displaying evidence of potential contamination.

7.8 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, in accordance with BS10175.

Laboratory Testing

7.9 Samples for geotechnical testing were sent to I2 Laboratories, who are UKAS accredited, for the following analysis:

- California Bearing Ratio (CBR);
- Atterburg Limits determinations
- Moisture content; and
- Soluble sulphate and pH.

7.10 Samples for chemical analysis were sent to I2 Laboratories who are UKAS 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 CWG), 2 stage WAC and asbestos screen.

7.11 Sample analysis was based on historical uses of the site and also visual and olfactory evidence of contamination in accordance with BS10175.

8.0 GROUND AND GROUNDWATER CONDITIONS

Summary of Ground and Groundwater Conditions

8.1 The investigations undertaken identified the following strata:

Strata	Summary Description	Thickness (m)
Made Ground.	Brown grey silt with fine roots and occasional gravel of flint, brick and concrete.	0.3 to 2.5
Tidal Mudflats.	Very soft and stiff brown silt and clay varying to loose becoming medium dense with depth sand.	>5.1
Groundwater.	Not encountered.	Not Applicable.

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 present across the site comprising grey silt with fine roots and occasional gravel of flint, brick and concrete.

8.4 Generally the Made Ground was between 0.3m and 0.9m thick but southern edge of the Made Ground was noted to be up to 2.5m thick.

Tidal Mudflats

8.5 The Tidal Mudflats were noted to comprise variable deposits of very soft and stiff brown silt and clay varying to loose becoming medium dense with depth sand.

Soil Consistency

8.6 Undrained shear strength values have been assessed from the Standard Penetration Tests (SPT) undertaken within the window sampler boreholes using the correlations of Stroud and Butler.

8.7 Soil strength within the cohesive Tidal Mudflats varies from very soft to stiff clay with undrained shear strength values varying from 20kN/m^2 to 90kN/m^2 with no obvious increase in strength with depth. The granular materials varies from loose to medium dense.

8.8 Generally soils were noted to become soft to very soft clays or loose sands at depths of between 2m and 4m below ground level (bgl).

Groundwater

8.9 Groundwater was not encountered during the site investigation works. The depth of groundwater measured from the installations during the return visit are summarised below:

Exploratory Hole	Depth m(bgl)			
	5.10.18			
BH3	3.0			
BH5	3.1			
BH8	3.1			

Ground Gas

8.10 Ground gas was monitored during the return visits to measure groundwater 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 (%)
5.10.18							
BH3	1015	<0.1	<0.1	<0.0001	0.6	<0.0006	20.1
BH5	1015	<0.1	<0.1	<0.0001	1.1	<0.0011	19.7
BH8	1015	<0.1	<0.1	<0.0001	12.3	<0.0123	8.5

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 or additional investigation is 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. The LQM/CIEH S4ULs values are used and summary tables of the reference values are 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. The proposed development is for a fast food restraunt and commercial use with limited soft landscpaing. As soft landscaping is to be incorporated in to the scheme as perimeter buffer strips only the GAC values for commercial use are considered suitable.

9.5 Results of the chemical testing are included in Appendix C.

9.6 The soil quality analysis shows no exceedances of the GAC values.

9.7 Asbestos has not been encountered in any of the samples.

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 Risk to groundwater is dismissed due to the absence of any source.

9.11 Risk to surface waters is dismissed due to the absence of any source.

Ground Gas

9.12 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.

9.13 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.

9.14 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. No significant sources of ground gas were noted from the desk study.

9.15 Gas monitoring was undertaken during return visits which identified elevated concentrations of Carbon Dioxide associated with deeper areas of Made Ground. It is recommended that gas protective measures are incorporated in to the development meeting requirements of Characteristic Situation 2. Additional gas monitoring is being undertaken.

Revised Conceptual Model

9.16 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 below:

Source	Location	Exposure Pathway	Potential Receptor	Probability of Exposure	Details
Human Health					
Asbestos, Hydrocarbon and metals.	Made Ground.	Ingestion dermal and inhalation.	Construction Workers. Site users.	Dismissed.	No exceedance of GAC.
Asbestos, Hydrocarbon and metals.	Unforeseen Contamination.	Ingestion dermal and inhalation.	Construction Workers. Site users.	Negligible.	Discovery Strategy.
Hydrocarbon and metals.	Potential migration from off-site source.	Ingestion dermal and inhalation.	Construction Workers. Site users.	Dismissed.	No significant source identified.
Ground Gas.	Landfills Made Ground	Inhalation & Explosive.	Construction Workers. Site users.	Low	Requirements of Characteristic Situation 2 proposed.
Groundwater					
Asbestos, Hydrocarbon and metals.	On site source.	Vertical Migration.	Groundwater	Dismissed.	No potentially mobile source identified.
Surface Water					
Hydrocarbon and metals.	On site source.	Horizontal Migration.	River Network.	Dismissed.	No potentially mobile source identified.
Environmental Receptors					
On site contaminants	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

9.17 No remediation is proposed. Requirements for gas protection are discussed in Section 10.

9.18 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 such as hydrocarbon contamination or solvent odours the discovery strategy will be to remove the source as it is likely to be very limited in extent or encapsulate it on site as appropriate and the Local Planning Authority advised.

Waste Classification

9.19 Soil samples measured no elevated concentrations of TPH, PAH or TOC above the threshold value for inert waste. WAC testing recorded no exceedance of leachate concentrations above inert waste threshold.

9.20 The Waste Management paper 2 has recently been updated to version 3 which states that sites which previously could be considered 'uncontaminated land' surplus soils if they did not exceed the GAC values now requires the landfill to make an appropriate assessment of the waste classification. As such final assessment will be undertaken by the receiving landfill based on the requirements of their permit. It is also possible that the waste operator will require additional testing prior to classifying surplus soils.

9.21 It is considered that surplus soils should be classified as Inert Waste.

10.0 GEOTECHNICAL ASSESSMENT

Proposed Development

10.1 The proposed development comprises construction of an unspecified building and a fast food restaurant with associated car parking.

10.2 Structural loadings are not known and are assumed to be 50kN/m for assessment purposes. It is considered that the scheme meets the criteria of Geotechnical Category 1 of Eurocode 7.

Ground Conditions

10.3 Ground Conditions comprise variable depths of Made Ground over clays and sands. Soils were noted to become soft and very soft clays and loose sands at depths of between 2m and 4m bgl. Groundwater was encountered at depths of between 3.0m and 3.1m bgl during return monitoring visit.

Site Preparation

10.4 The site should be cleared and any vegetation below areas of proposed development stripped in accordance with Series 200 of the Specification for Highway Works. This should include:

- Any redundant services should be sealed off and grubbed out and replaced with suitable compacted engineered fill; and
- Regrading of the site to remove the existing mound material.

Foundations

10.5 Given the presence of very soft and loose deposits below the site it is considered that conventional strip foundations are not suitable.

10.6 It is recommended that piled foundations are used which should be supported by a deep borehole to allow final design.

10.7 Consideration has been given to the use of vibro granular columns but the presence of soft clays may prevent their use and as such specialist advice from a Contractor should be sought.

10.8 Atterberg Limits determinations to assess volume change potential in accordance with NHBC Standards are outstanding.

Ground Floor Slab

10.9 It is recommended that suspended floor slabs are used. It is recommended that gas protective measures are incorporated in to ground floor slabs in accordance with BS8485 and meeting requirements of Characteristic Situation 2. It is anticipated that gas protective measures would comprise:

- Underfloor vented void; and
- Gas membrane in place of a DPM sealed to service entry points.

Pavement Construction

10.10 An assessment of the likely California Bearing Ratio (CBR) has been undertaken from the following sources:

- Laboratory CBR tests;
- Description of the materials encountered in the exploratory holes;
- Guidance given in HD25/94.

10.11 Based on the assessment it is considered that a CBR of 5% is appropriate. Soils are not considered to be frost susceptible.

10.12 Any soft materials should be removed and replaced following proof rolling.

Drainage

10.13 It is considered unlikely that soakaway drainage will be viable at the site due to the variability of the soils and presence of cohesive materials.

10.14 Chemical results should be provided to the water authority to confirm the design of potable water supply pipes as they may have separate requirements which are to be followed. No special requirements are anticipated.

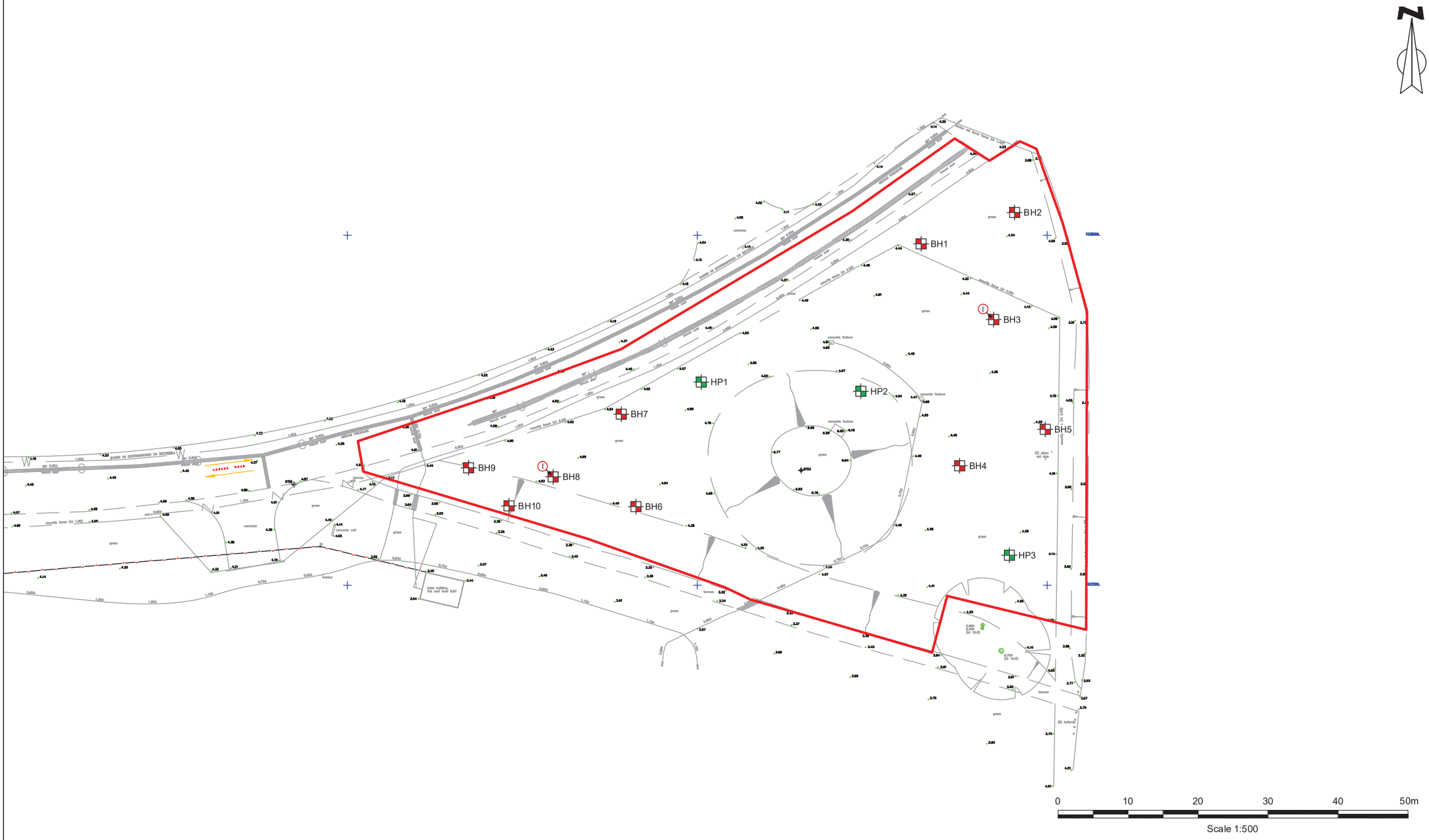
Buried Concrete

10.15 Results of the sulphate testing confirms that buried concrete maybe designed in accordance with AC1-s.

Excavation and Re-use of Soils

10.16 Based on the ground investigation undertaken it is considered that excavations are feasible with conventional plant.

10.17 Excavations where access is required should be supported in accordance with CIRIA RR97.



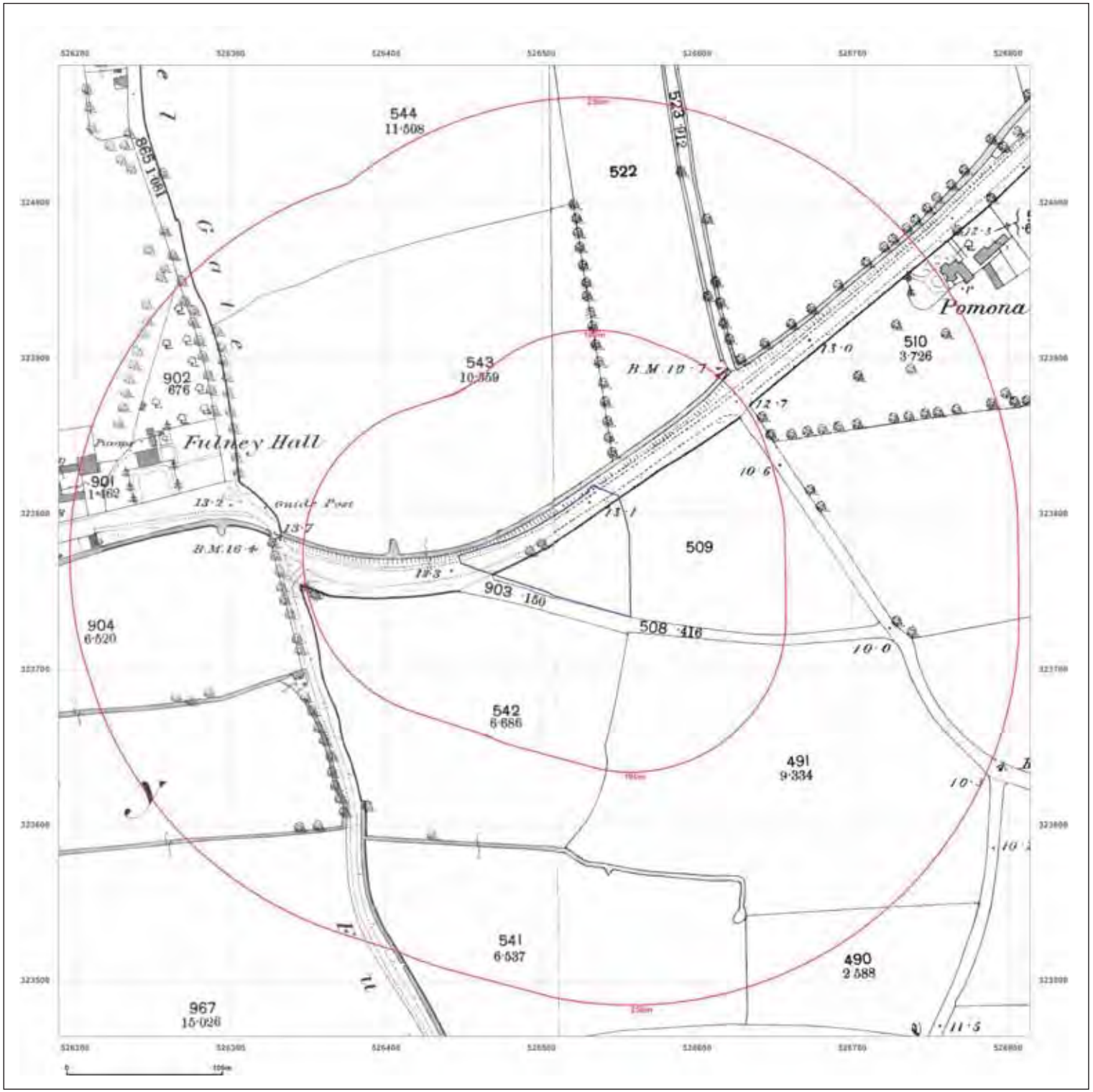
enzygo
environmental consultants
Samuel House, 5 Fox Valley Way, Stocksbridge, Sheffield, S36 2AA

Key:

- Site Boundary
- Borehole Location (BH) (BH1 - BH10)
- Hand Pit Location (HP) (HP1 - HP3)
- Borehole Installation (I)

SCALE	PROJECT NO.	PROJECT
1:500@A3	CRM.252.001	Spalding
DATE	DRAWING NO.	DRAWING TITLE
Oct 2018	CRM.252.001.GE.D.001.A	Site Plan
DRAWN	CHECKED	CLIENT
MG	SR	SME Corporation (2) Ltd/ SME Group PLC

APPENDIX A – DESK STUDY INFORMATION



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Site Details:

Client Ref: EMS_502877_676911
Report Ref: EMS-502877_676911
Grid Ref: 526502, 323776

Map Name: County Series
Map date: 1888-1889
Scale: 1:2,500
Printed at: 1:2,500

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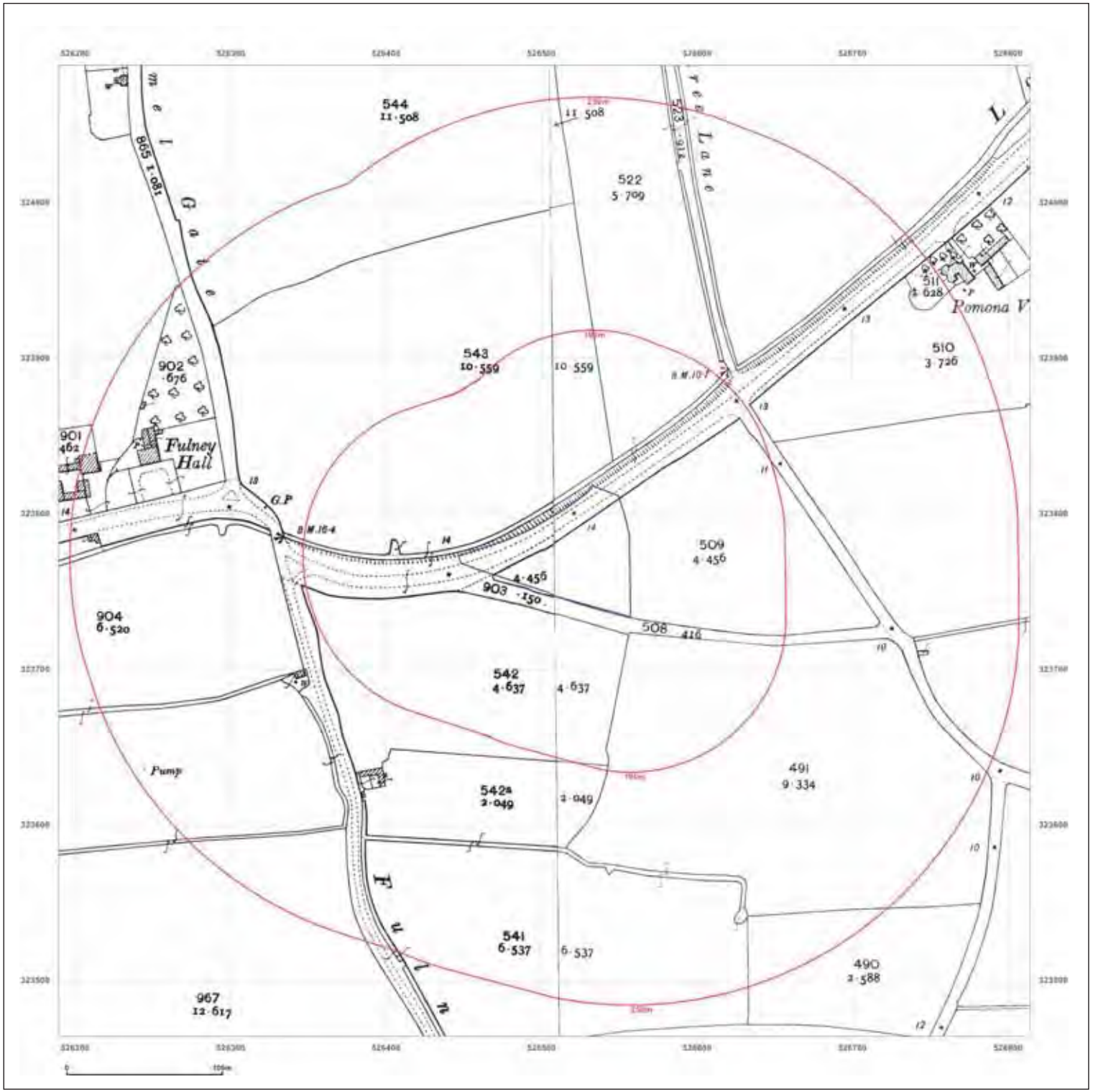
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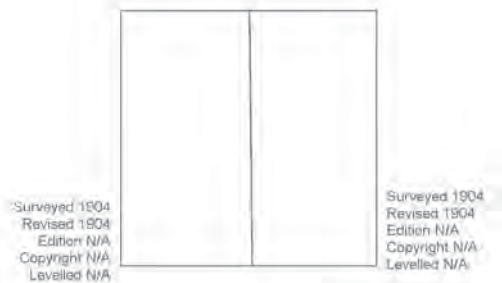
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Site Details:

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Report Ref: EMS-502877_676911
Grid Ref: 526502, 323776

Map Name: County Series
Map date: 1904
Scale: 1:2,500
Printed at: 1:2,500

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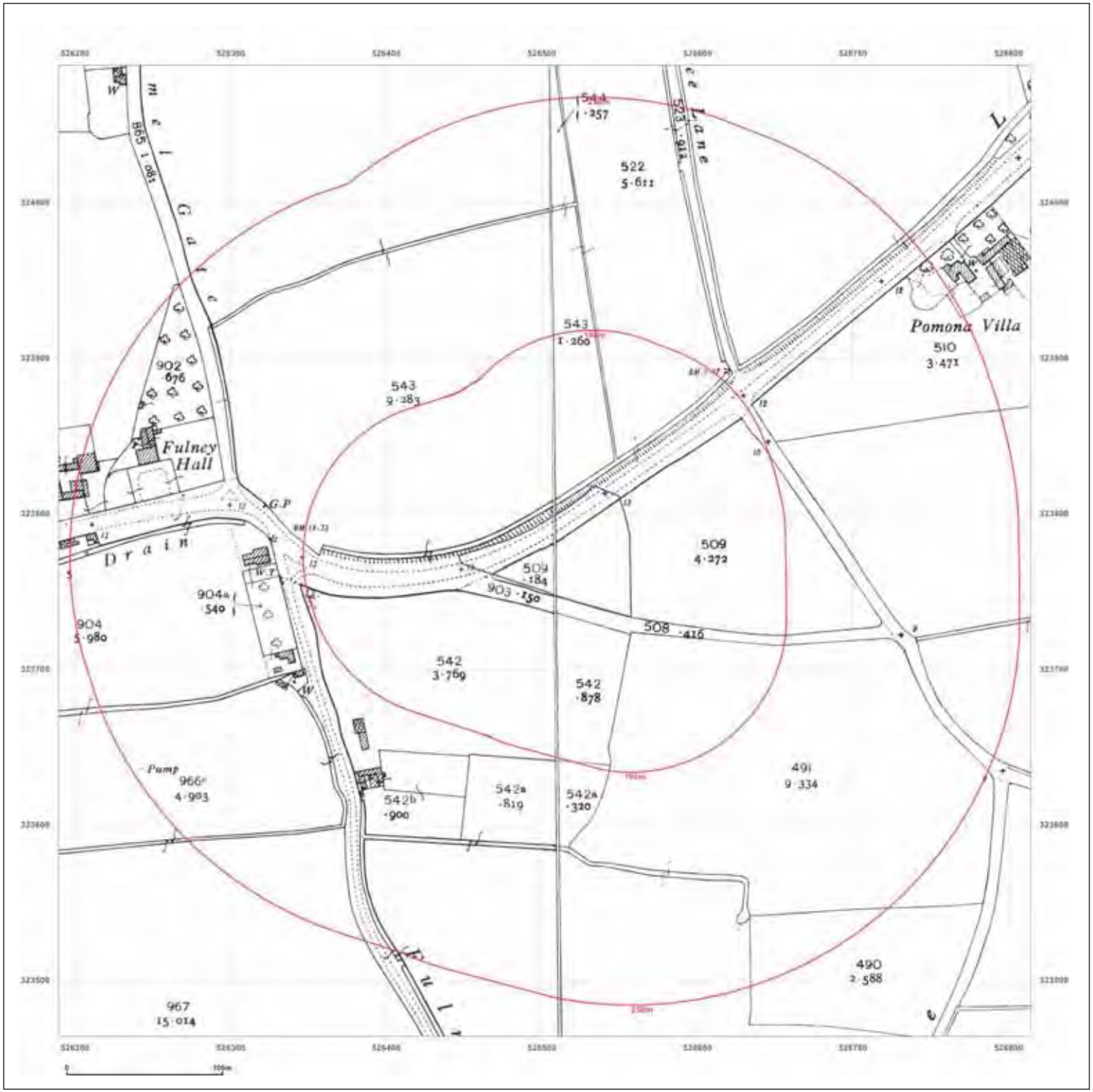
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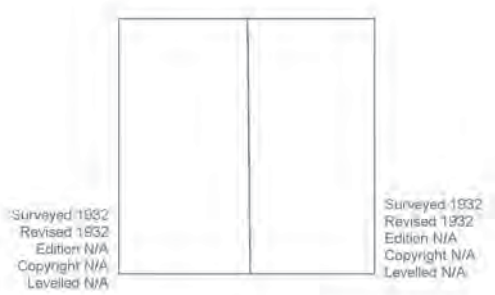
emapsite™

Site Details:

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Report Ref: EMS-502877_676911
Grid Ref: 526502, 323776

Map Name: County Series
Map date: 1932
Scale: 1:2,500
Printed at: 1:2,500

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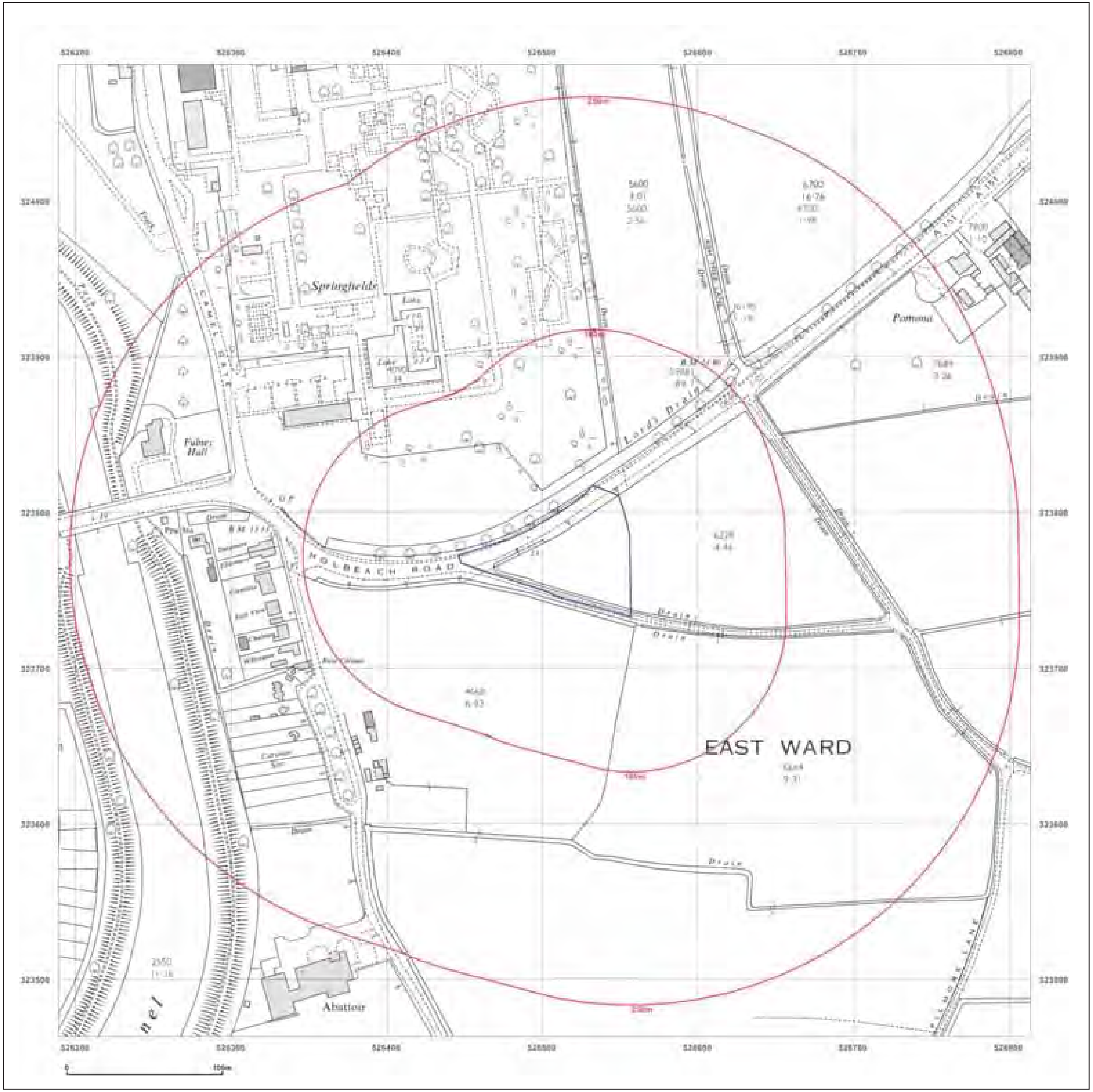
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Site Details:

Client Ref:	EMS_502877_676911
Report Ref:	EMS-502877_676911
Grid Ref:	526502, 323776
Map Name:	National Grid
Map date:	**1967**
Scale:	1:2,500
Printed at:	1:2,500

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Surveyed 1967
Revised 1967
Edition N/A
Copyright 1969
Levelled 1966

Surveyed 1967
Revised 1967
Edition N/A
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Site Details:

Client Ref: EMS_502877_676911
Report Ref: EMS-502877_676911
Grid Ref: 526502, 323776

Map Name: National Grid

Map date: **1969**

Scale: 1:2,500

Printed at: 1:2,500

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

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

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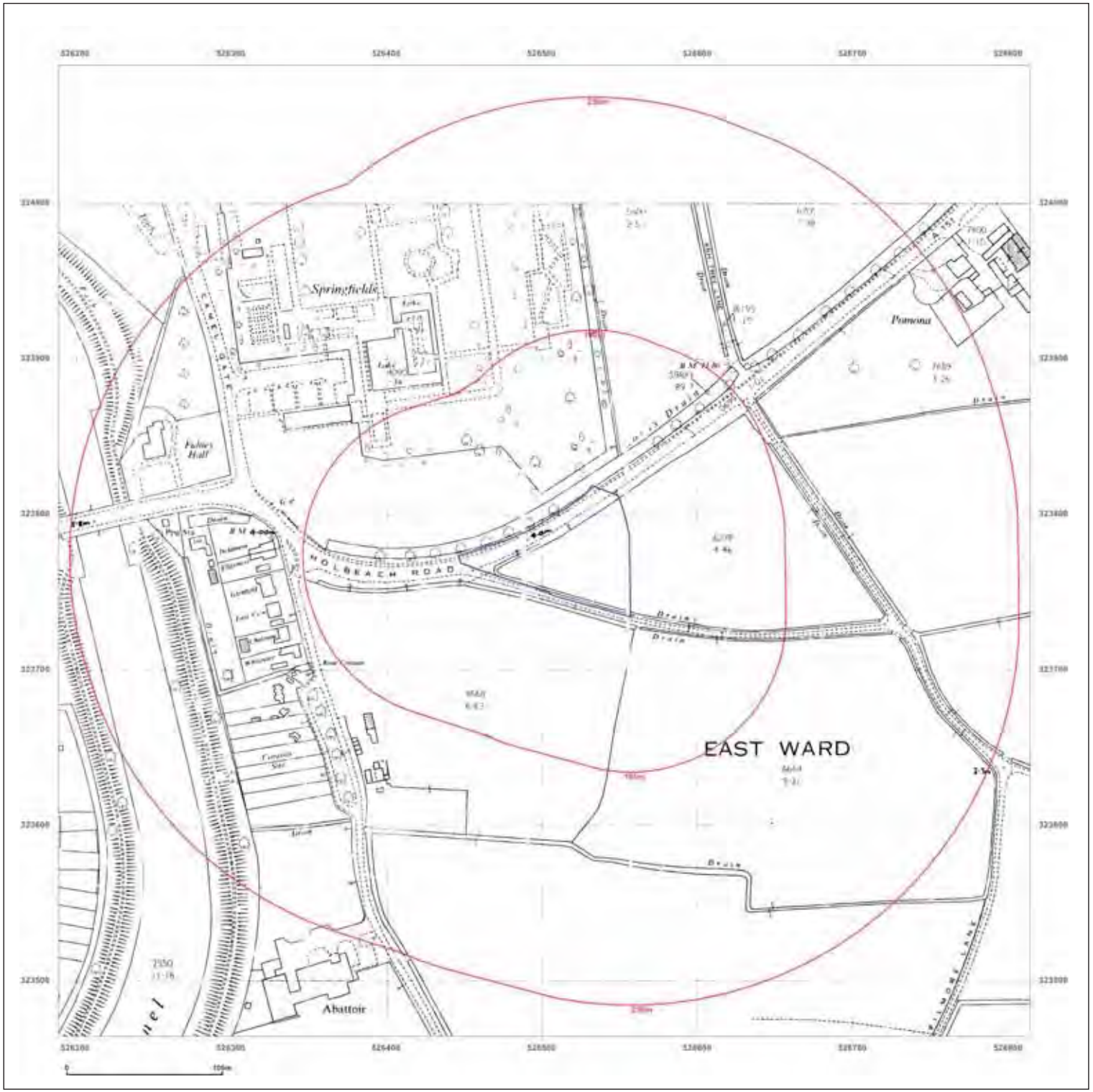
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Site Details:

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Report Ref: EMS-502877_676911
Grid Ref: 526502, 323776

Map Name: National Grid
Map date: 1977
Scale: 1:2,500
Printed at: 1:2,500

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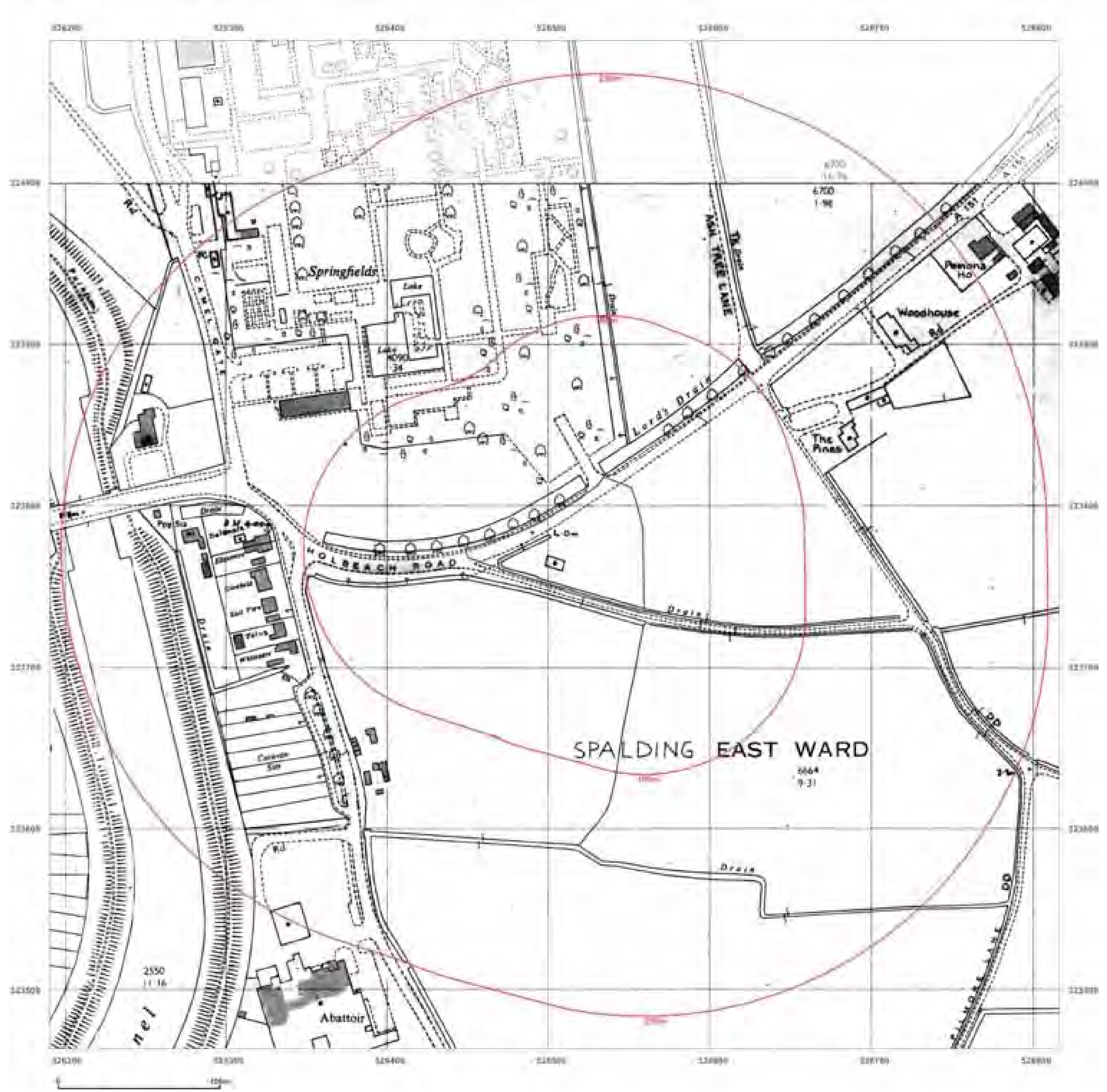
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Site Details:

Client Ref: EMS_502877_676911
Report Ref: EMS-502877_676911
Grid Ref: 526502, 323776

Map Name: National Grid

Map date: **1987-1988**

Scale: 1:2,500

Printed at: 1:2,500

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Revised 1987
Edition N/A
Copyright 1987
Levelled 1965

Surveyed 1965
Revised 1988
Edition N/A
Copyright 1988
Levelled 1965

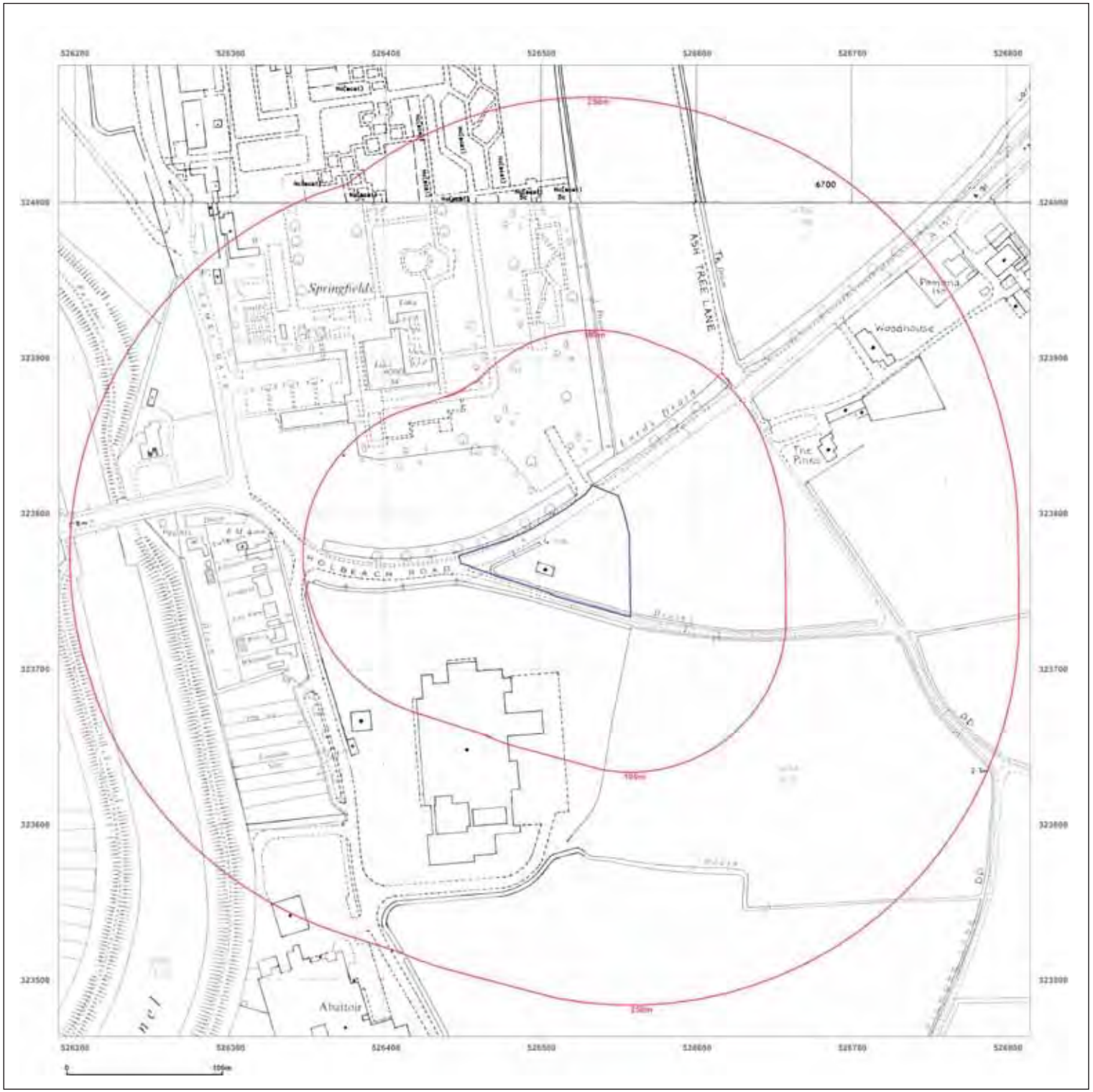
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Site Details:

Client Ref: EMS_502877_676911
Report Ref: EMS-502877_676911
Grid Ref: 526502, 323776

Map Name: National Grid
Map date: 1993-1995
Scale: 1:2,500
Printed at: 1:2,500

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

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

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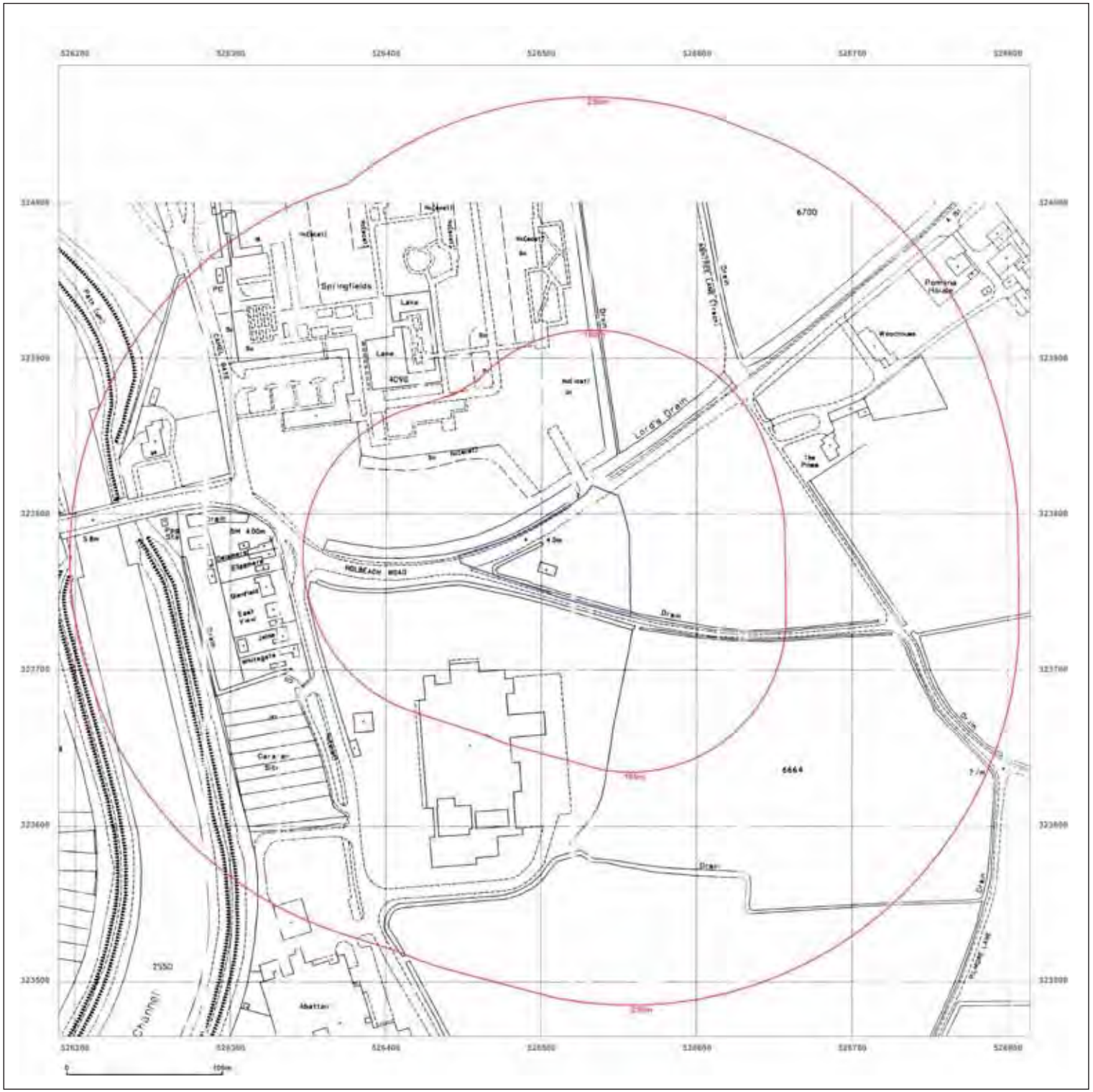
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Site Details:

Client Ref: EMS_502877_676911
Report Ref: EMS-502877_676911
Grid Ref: 526502, 323776

Map Name: National Grid
Map date: 1995
Scale: 1:2,500
Printed at: 1:2,500

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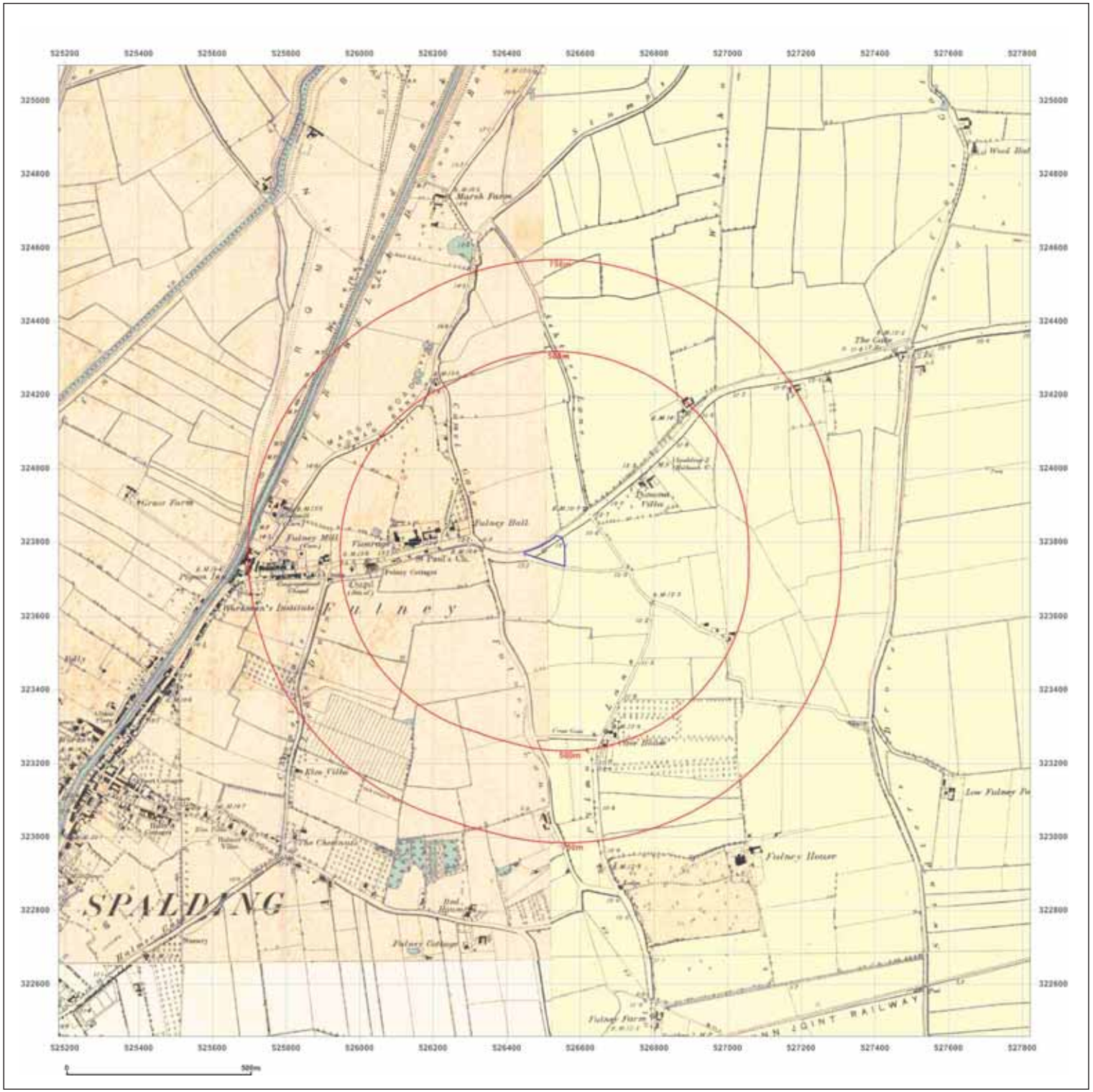
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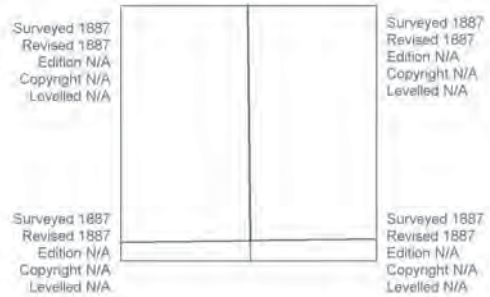
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Report Ref: EMS-502877_676911
Grid Ref: 526502, 323776

Map Name: County Series
Map date: **1887**
Scale: 1:10,560
Printed at: 1:10,560

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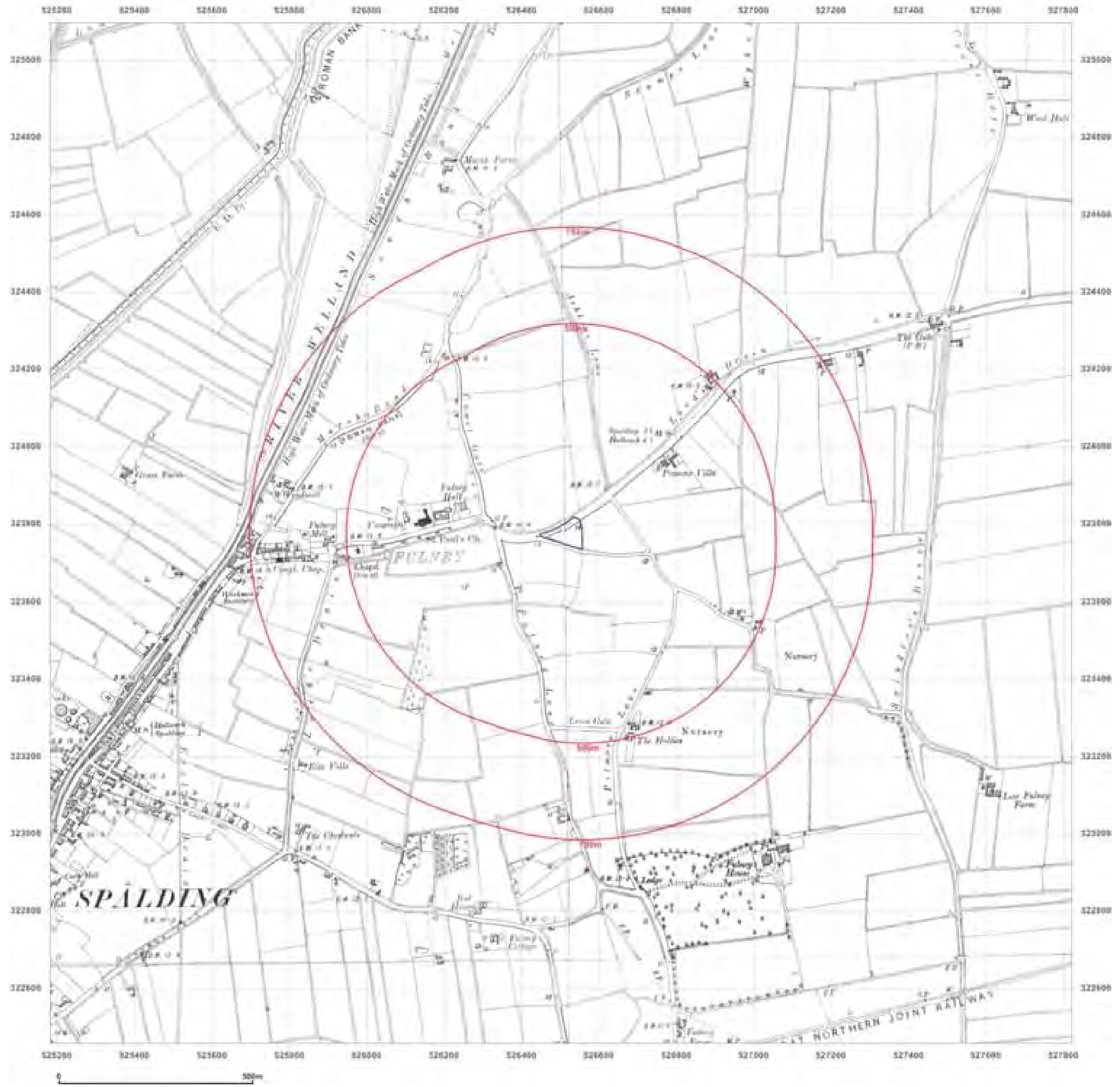
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Site Details:

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Report Ref: EMS-502877_676911
Grid Ref: 526502, 323776

Map Name: County Series

Map date: **1903**

Scale: 1:10,560

Printed at: 1:10,560

Surveyed 1887 Revised 1903 Edition N/A Copyright N/A Levelled N/A	Surveyed 1886 Revised 1903 Edition N/A Copyright N/A Levelled N/A
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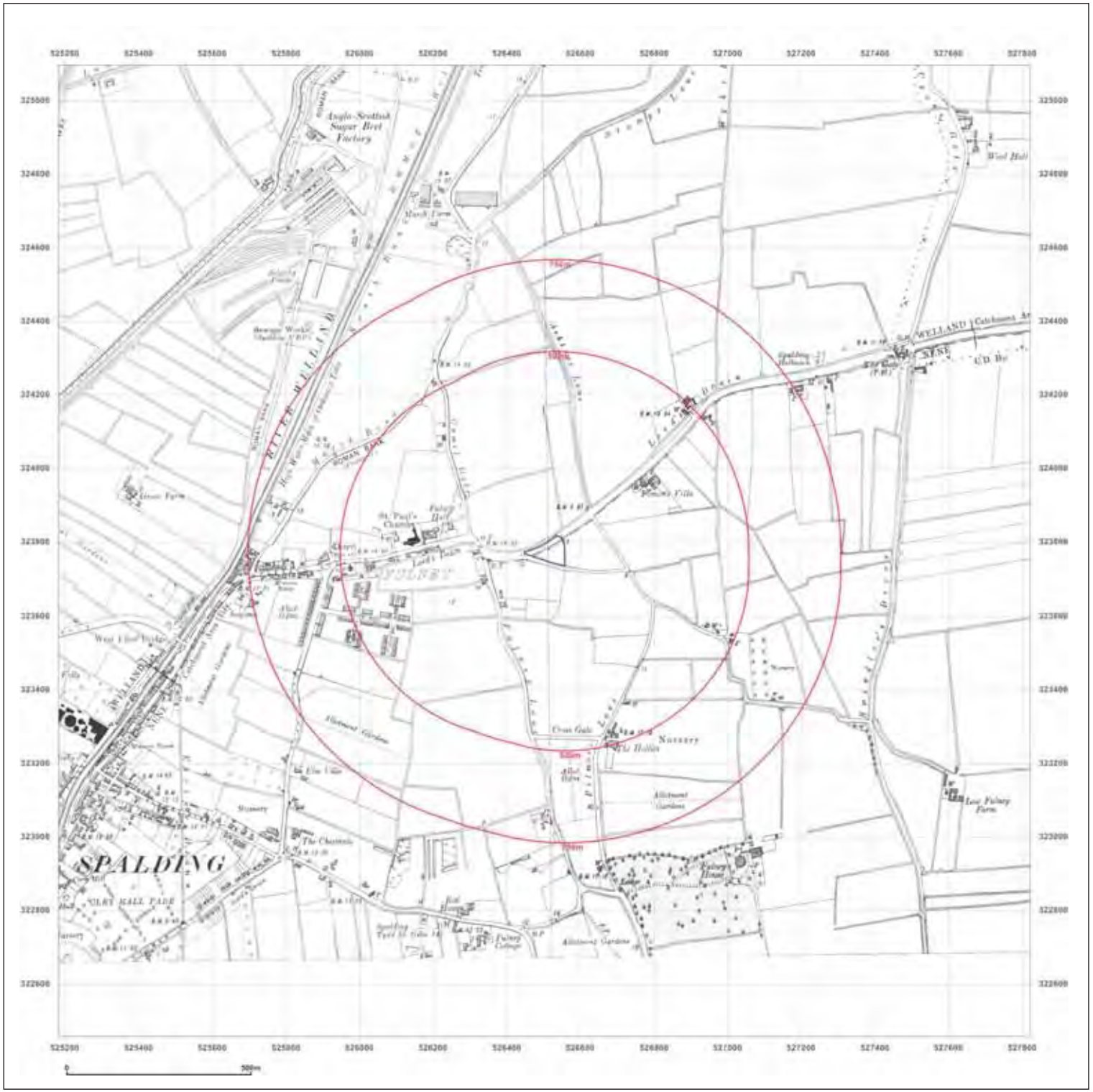
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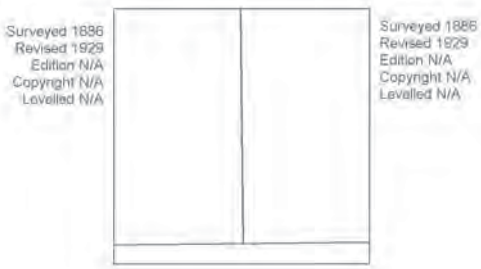
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Report Ref: EMS-502877_676911
Grid Ref: 526502, 323776

Map Name: County Series
Map date: **1929**
Scale: 1:10,560
Printed at: 1:10,560

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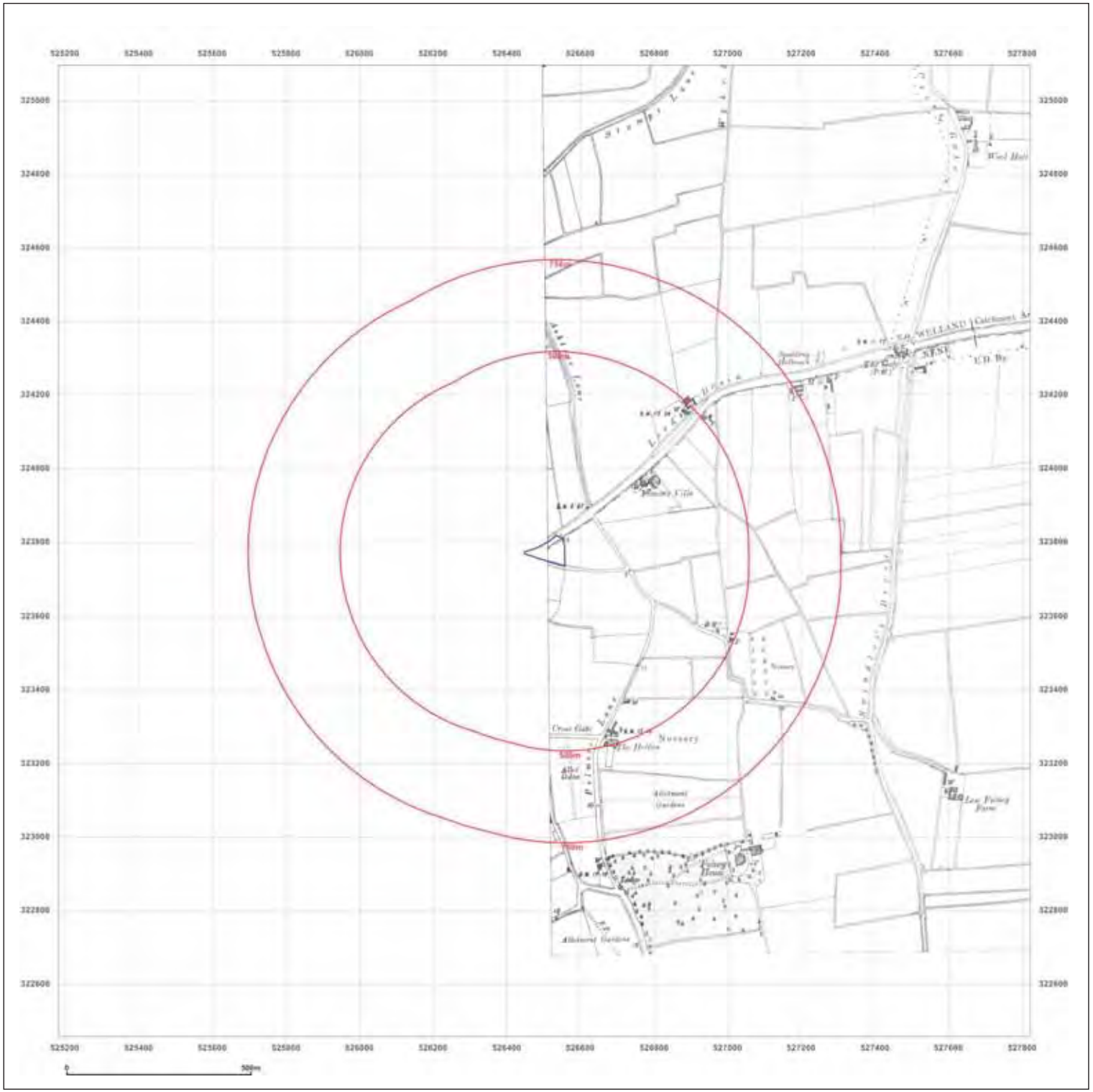
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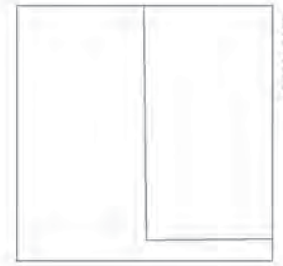
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Site Details:

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Report Ref: EMS-502877_676911
Grid Ref: 526502, 323776

Map Name: County Series
Map date: 1929
Scale: 1:10,560
Printed at: 1:10,560

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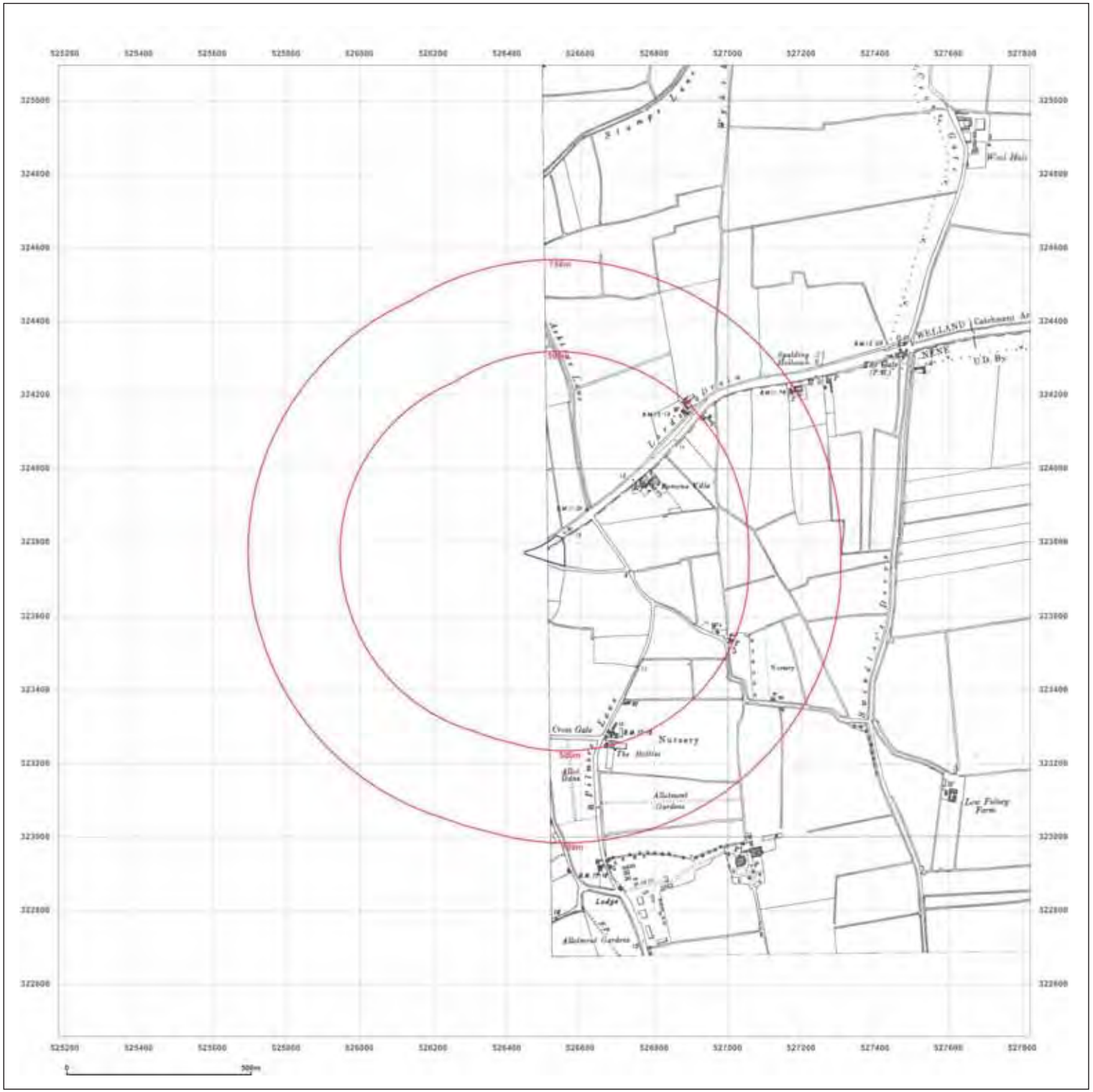
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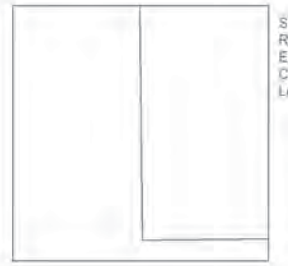
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Grid Ref: 526502, 323776

Map Name: County Series
Map date: 1929
Scale: 1:10,560
Printed at: 1:10,560

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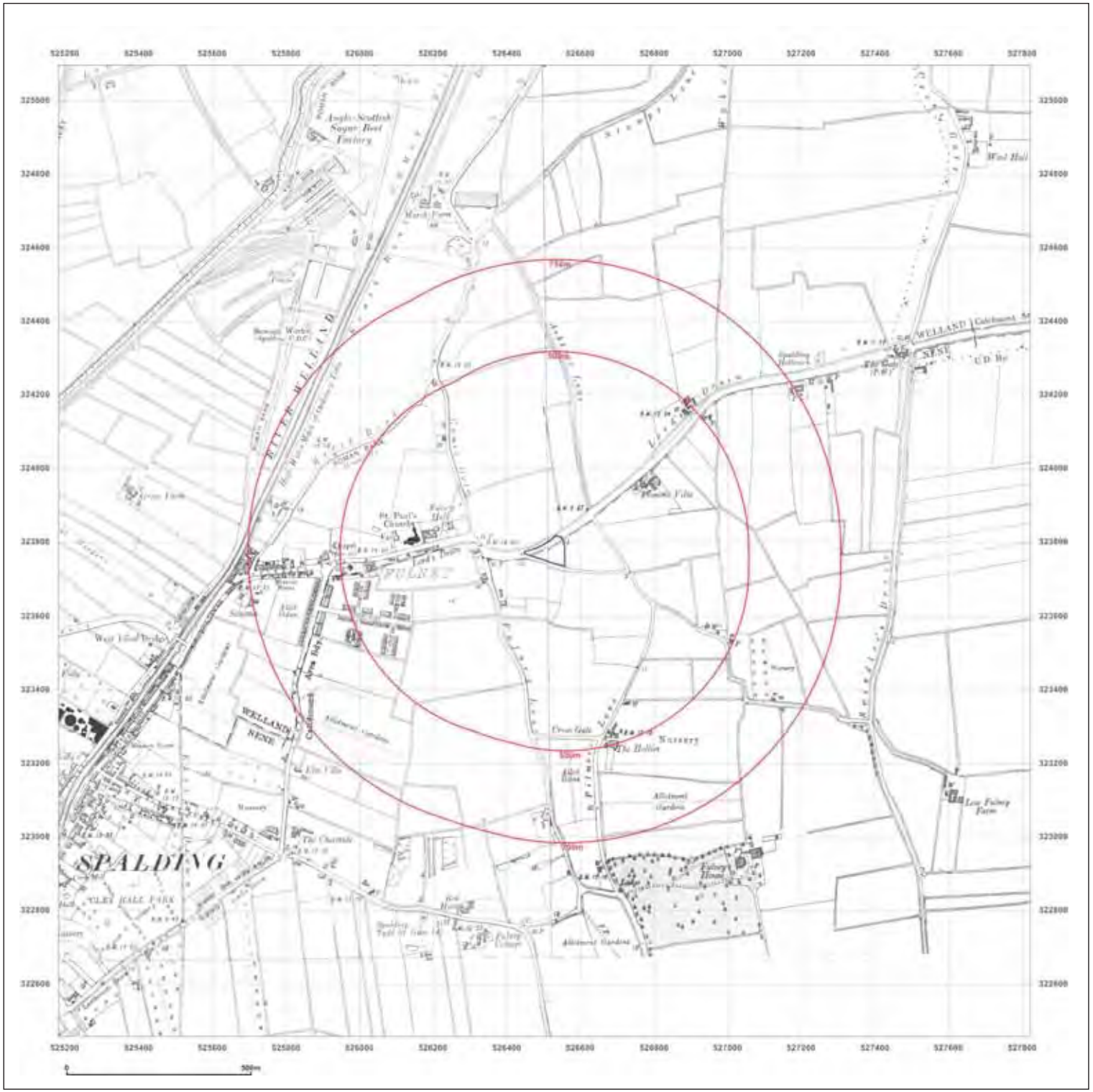
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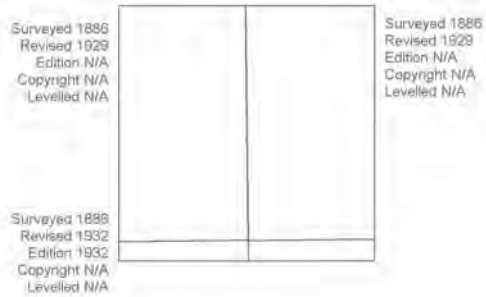
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Report Ref: EMS-502877_676911
Grid Ref: 526502, 323776

Map Name: County Series
Map date: **1929-1932**
Scale: 1:10,560
Printed at: 1:10,560

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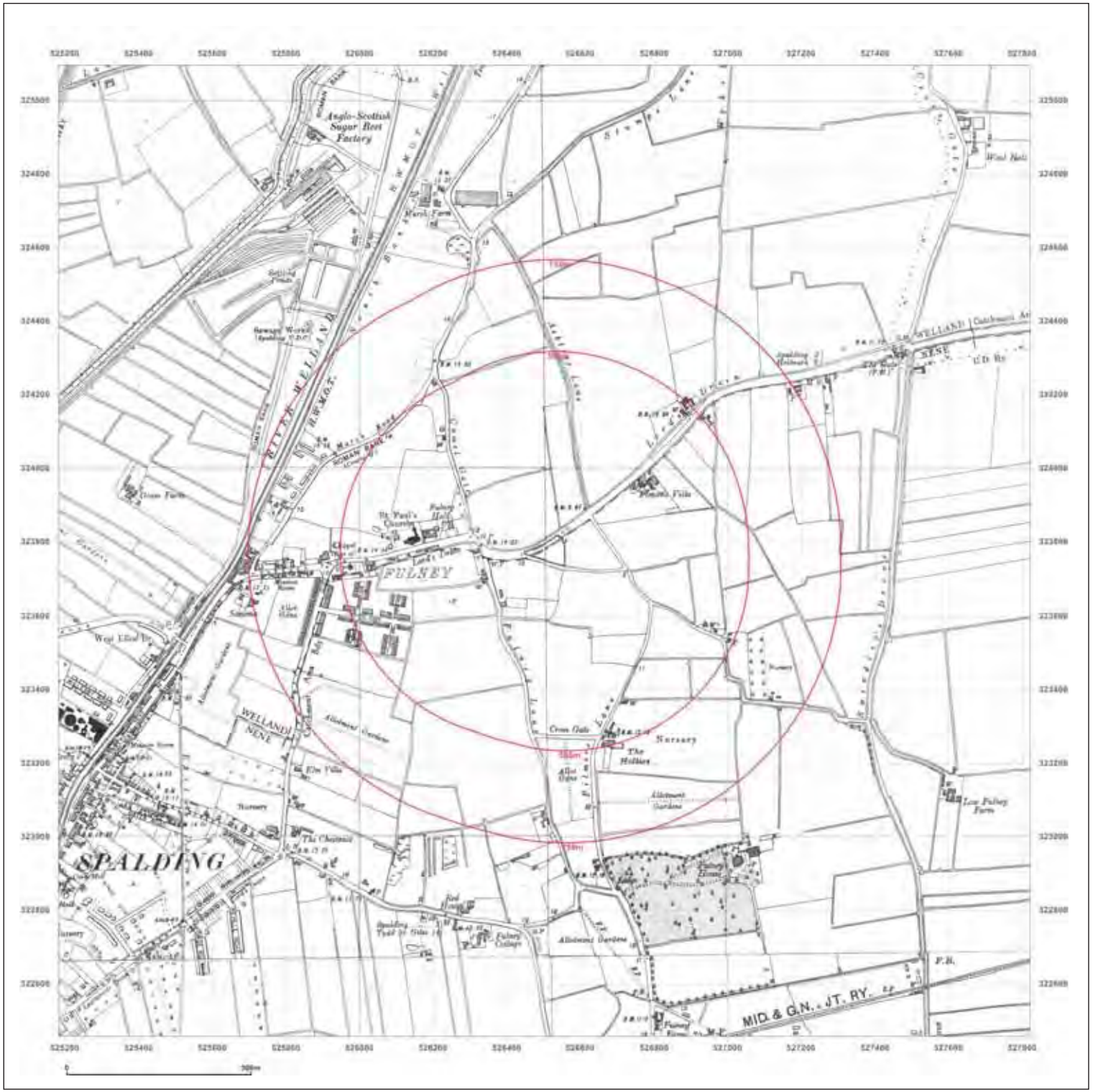
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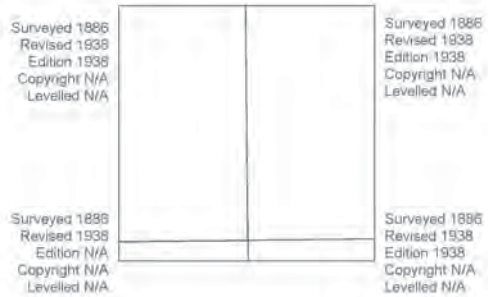
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Site Details:

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Report Ref: EMS-502877_676911
Grid Ref: 526502, 323776

Map Name: County Series
Map date: 1938
Scale: 1:10,560
Printed at: 1:10,560

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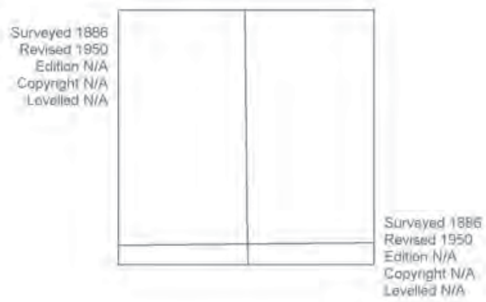
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Grid Ref: 526502, 323776

Map Name: County Series

Map date: **1950**

Scale: 1:10,560

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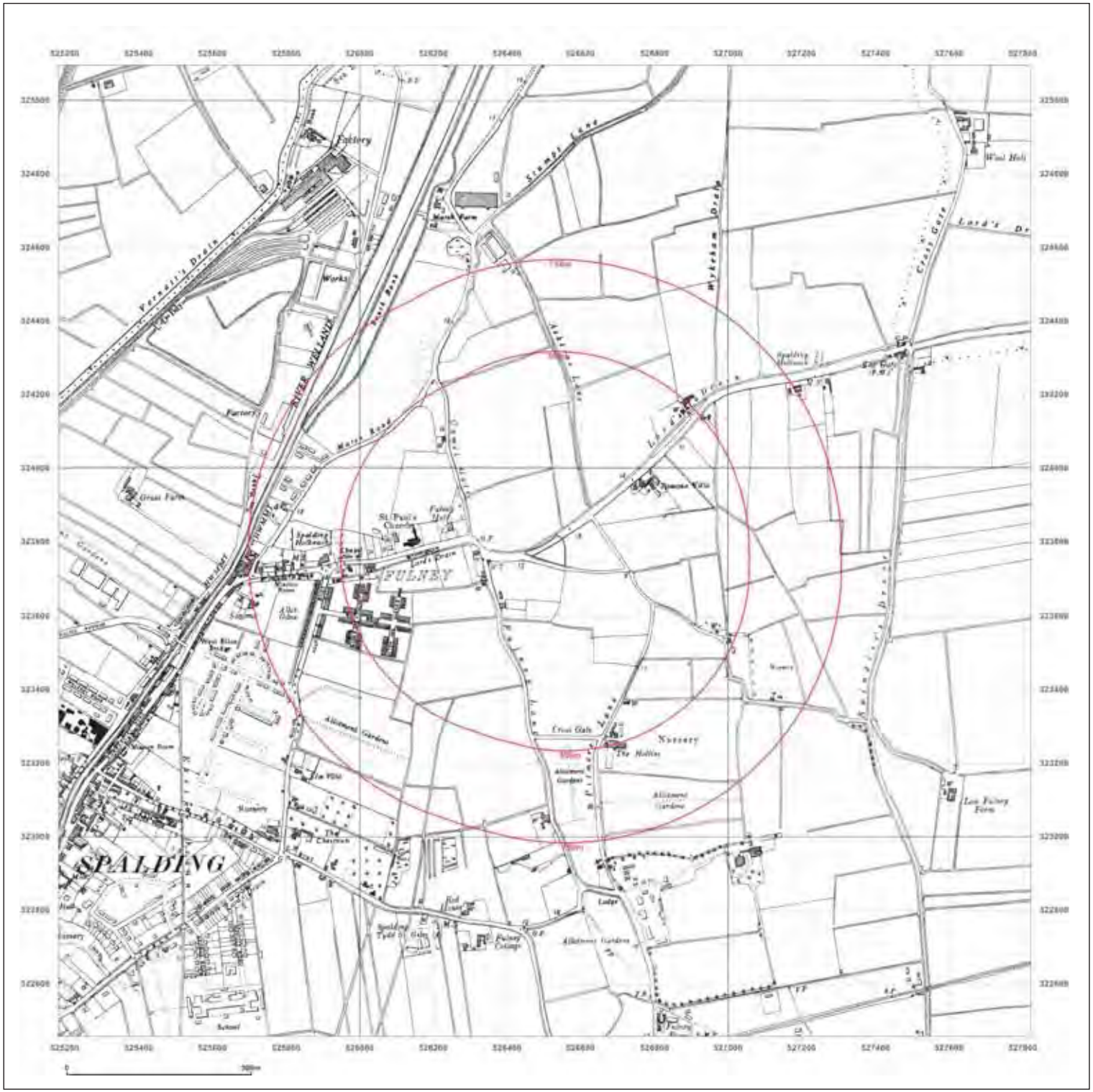
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Site Details:

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Report Ref: EMS-502877_676911
Grid Ref: 526502, 323776

Map Name: Provisional
Map date: **1956-1958**
Scale: 1:10,560
Printed at: 1:10,560

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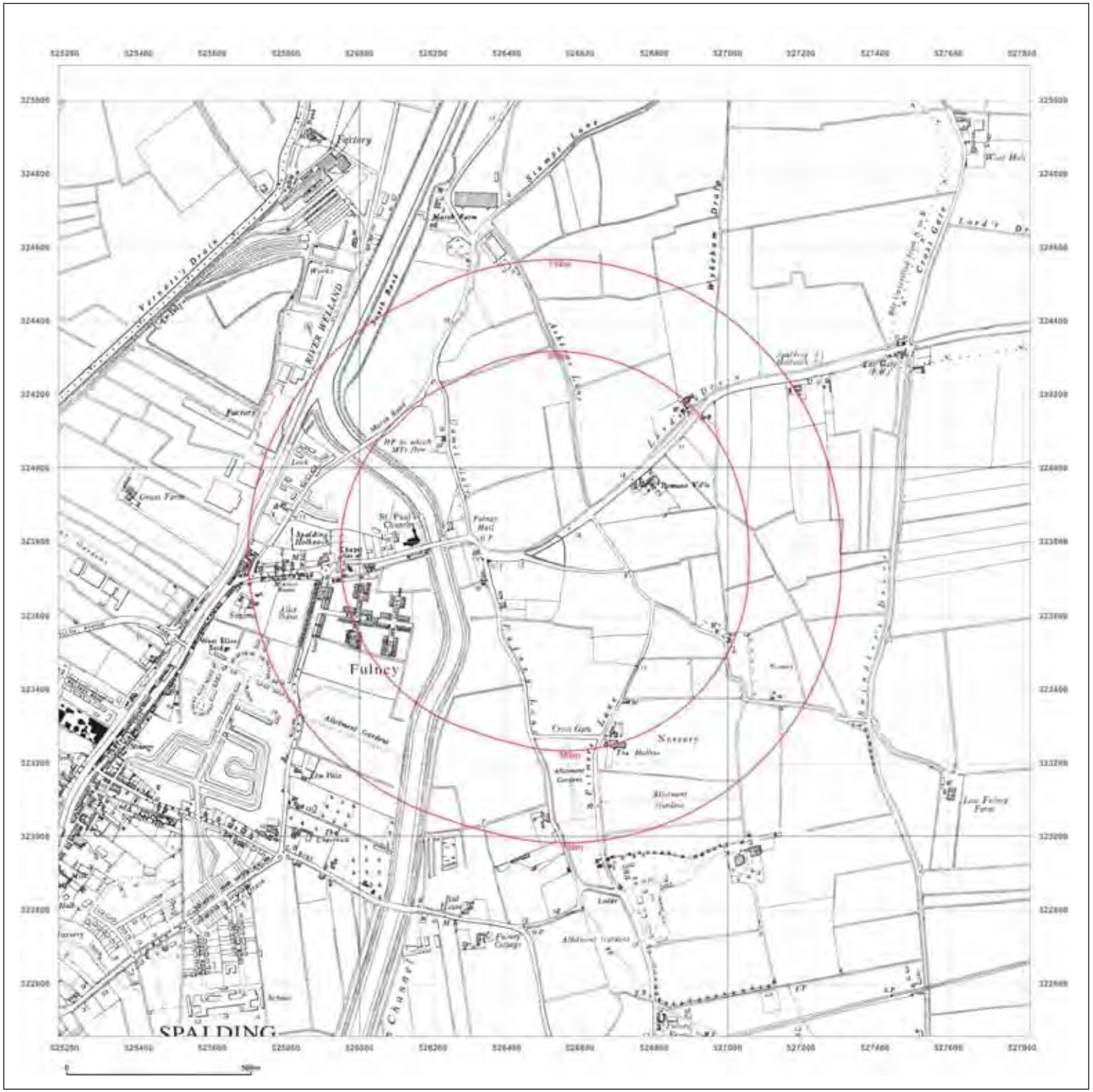
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Site Details:

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Report Ref: EMS-502877_676911
Grid Ref: 526502, 323776

Map Name: Provisional
Map date: 1968
Scale: 1:10,560
Printed at: 1:10,560

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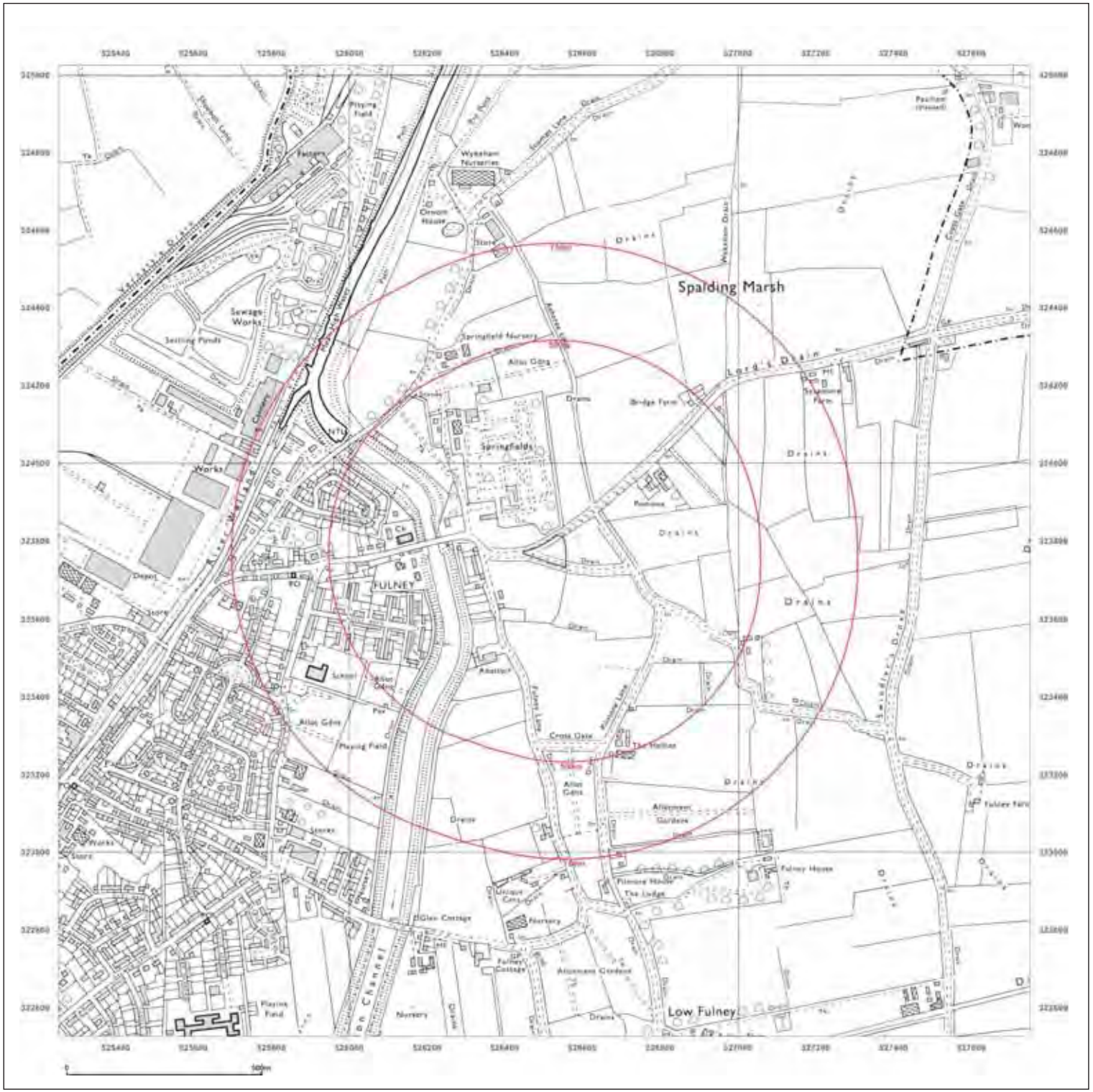
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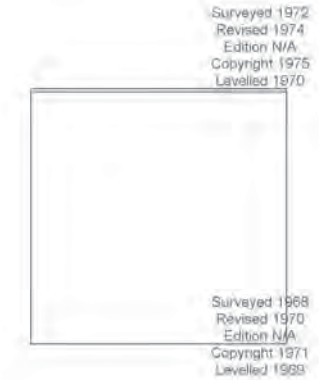
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Report Ref: EMS-502877_676911
Grid Ref: 526502, 323776

Map Name: National Grid
Map date: **1971-1975**
Scale: 1:10,000
Printed at: 1:10,000

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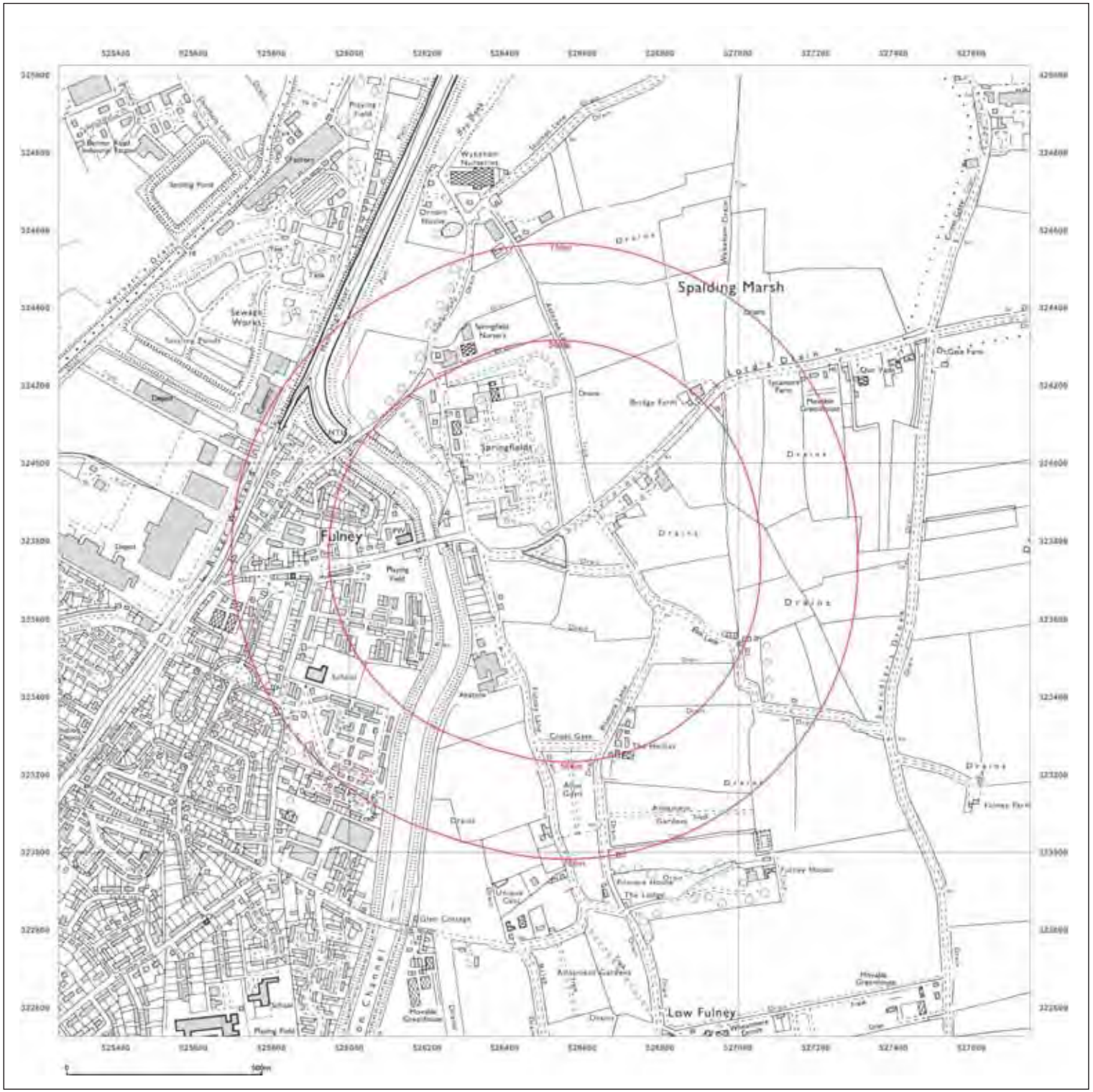
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Site Details:

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Report Ref: EMS-502877_676911
Grid Ref: 526502, 323776

Map Name: National Grid
Map date: 1987
Scale: 1:10,000
Printed at: 1:10,000

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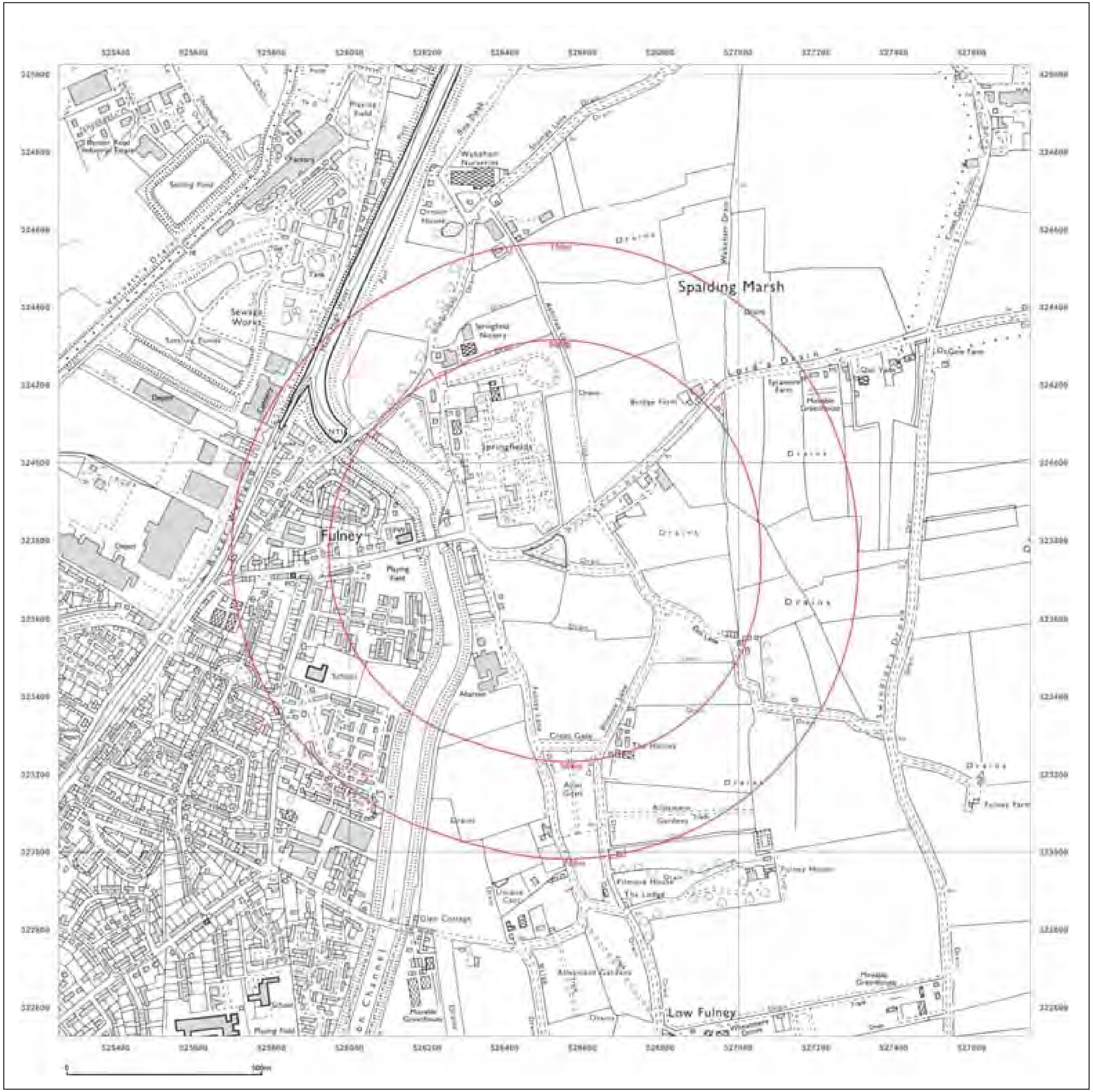
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Report Ref: EMS-502877_676911
Grid Ref: 526502, 323776

Map Name: 1:10,000 Raster
Map date: 2002
Scale: 1:10,000
Printed at: 1:10,000

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Report Ref: EMS-502877_676911
Grid Ref: 526502, 323776

Map Name: National Grid
Map date: 2010
Scale: 1:10,000
Printed at: 1:10,000

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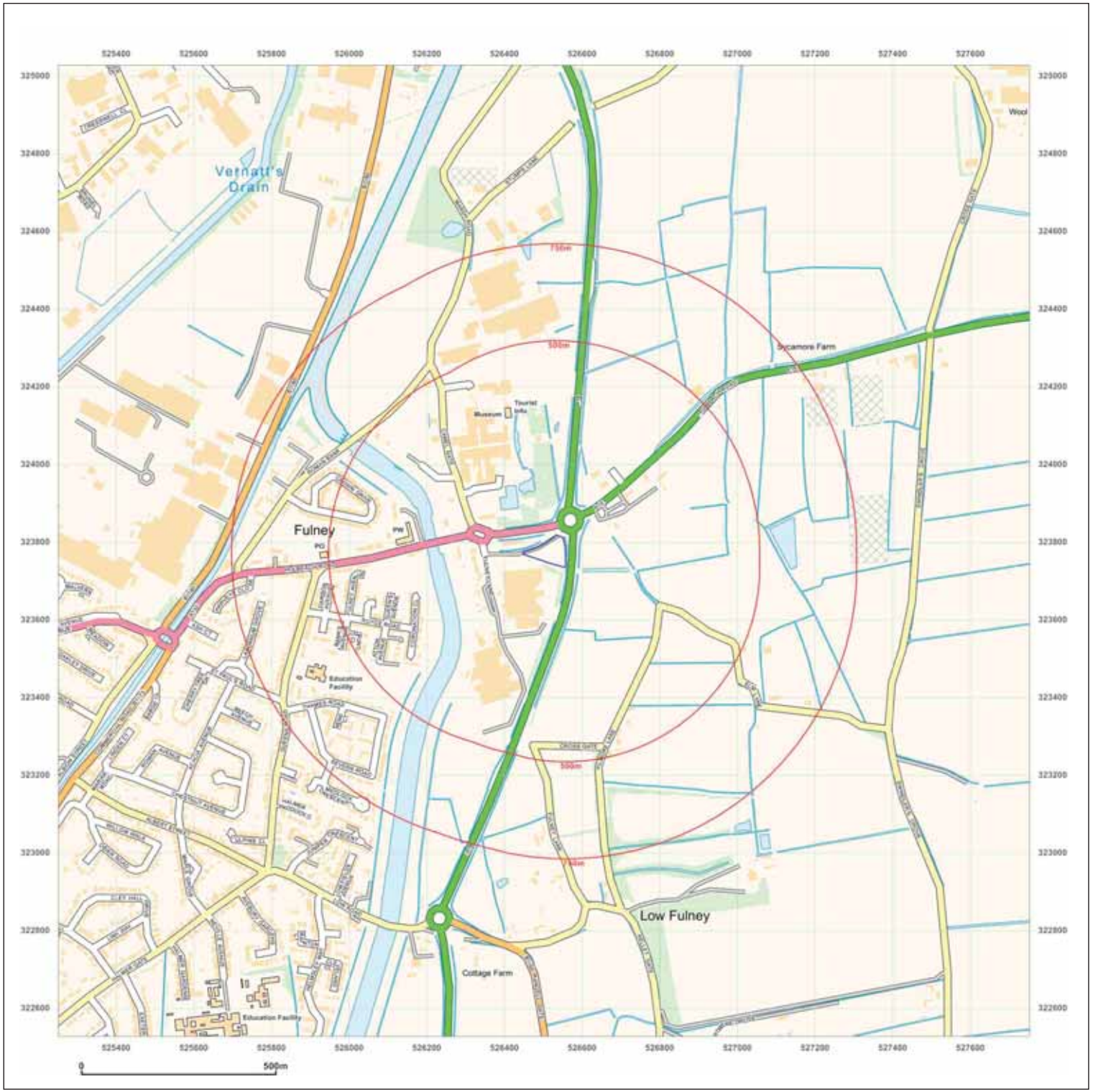
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Report Ref: EMS-502877_676911
Grid Ref: 526502, 323776

Map Name: National Grid
Map date: 2014
Scale: 1:10,000
Printed at: 1:10,000

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EmapSite

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NW N NE



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SW S SE

Aerial Photograph Capture date:	06-Apr-2015
Grid Reference:	526518,323774
Site Size:	0.49ha

Report Reference: EMS-502877_676913
Client Reference: EMS_502877_676913

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Overview of Findings

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Section 1: Historical Industrial Sites	On-site	0-50	51-250	251-500
1.1 Potentially Contaminative Uses identified from 1:10,000 scale mapping	0	0	1	10
1.2 Additional Information – Historical Tank Database	0	0	0	3
1.3 Additional Information – Historical Energy Features Database	0	0	0	2
1.4 Additional Information – Historical Petrol and Fuel Site Database	0	0	0	0
1.5 Additional Information – Historical Garage and Motor Vehicle Repair Database	0	0	0	1
1.6 Historical military sites	0	0	0	0
1.7 Potentially Infilled Land	0	0	2	0

Section 2: Environmental Permits, Incidents and Registers	On-site	0-50m	51-250	251-500
2.1 Industrial Sites Holding Environmental Permits and/or Authorisations				
2.1.1 Records of historic IPC Authorisations	0	0	0	0
2.1.2 Records of Part A(1) and IPPC Authorised Activities	0	0	12	0
2.1.3 Records of Red List Discharge Consents	0	0	0	0
2.1.4 Records of List 1 Dangerous Substances Inventory sites	0	0	0	0
2.1.5 Records of List 2 Dangerous Substances Inventory sites	0	0	1	1
2.1.6 Records of Part A(2) and Part B Activities and Enforcements	0	0	2	0
2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations	0	0	0	0
2.1.8 Records of Licensed Discharge Consents	0	0	1	2
2.1.9 Records of Water Industry Referrals	0	0	0	0
2.1.10 Records of Planning Hazardous Substance Consents and Enforcements within 500m of the study site	0	0	0	0
2.2 Records of COMAH and NIHHS sites	0	0	0	0
2.3 Environment Agency/Natural Resources Wales Recorded Pollution Incidents				
2.3.1 National Incidents Recording System, List 2	0	0	1	0
2.3.2 National Incidents Recording System, List 1	0	0	0	0
2.4 Sites Determined as Contaminated Land under Part 2A EPA 1990	0	0	0	0

Section 3: Landfill and Other Waste Sites	On-site	0-50m	51-250	251-500	501-1000	1000-1500
3.1 Landfill Sites						
3.1.1 Environment Agency/Natural Resources Wales Registered Landfill Sites	0	0	0	0	0	Not searched
3.1.2 Environment Agency/Natural Resources Wales Historic Landfill Sites	0	0	0	0	1	0
3.1.3 BGS/DoE Landfill Site Survey	0	0	0	0	0	0
3.1.4 Records of Landfills in Local Authority and Historical Mapping Records	0	0	0	0	0	3
3.2 Landfill and Other Waste Sites Findings						
3.2.1 Operational and Non-Operational Waste Treatment, Transfer and Disposal Sites	0	0	0	0	Not searched	Not searched
3.2.2 Environment Agency/Natural Resources Wales Licensed Waste Sites	0	0	0	0	0	6

Section 4: Current Land Use	On-site	0-50m	51-250	251-500
4.1 Current Industrial Sites Data	0	2	10	Not searched
4.2 Records of Petrol and Fuel Sites	0	0	1	0
4.3 National Grid Underground Electricity Cables	0	0	0	0
4.4 National Grid Gas Transmission Pipelines	0	0	0	0

Section 5: Geology	
5.1 Records of Artificial Ground and Made Ground present beneath the study site	None identified
5.2 Records of Superficial Ground and Drift Geology present beneath the study site	Identified
5.3 For records of Bedrock and Solid Geology beneath the study site see the detailed findings section.	

Section 6: Hydrogeology and Hydrology	0-500m
6.1 Records of Strata Classification in the Superficial Geology within 500m of the study site	Identified
6.2 Records of Strata Classification in the Bedrock Geology within 500m of the study site	Identified

	On-site	0-50m	51-250	251-500	501-1000	1000-2000
6.3 Groundwater Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	0
6.4 Surface Water Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	6
6.5 Potable Water Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	0
6.6 Source Protection Zones (within 500m of the study site)	0	0	0	0	Not searched	Not searched
6.7 Source Protection Zones within Confined Aquifer	0	0	0	0	Not searched	Not searched
6.8 Groundwater Vulnerability and Soil Leaching Potential (within 500m of the study site)	0	0	#250GWV #	#500GWV #	Not searched	Not searched

Section 6: Hydrogeology and Hydrology

	0-500m					
	On-site	0-50m	51-250	251-500	501-1000	1000-1500
6.9 Environment Agency/Natural Resources Wales information on river quality within 1500m of the study site	No	No	No	No	Yes	No
6.10 Ordnance Survey MasterMap Water Network entries within 500m of the site	0	20	32	64	Not searched	Not searched
6.11 Surface water features within 250m of the study site	No	Yes	Yes	Not searched	Not searched	Not searched

Section 7: Flooding

7.1 Enviroment Agency Zone 2 floodplains within 250m of the study site	Identified
7.2 Environment Agency/Natural Resources Wales Zone 3 floodplains within 250m of the study site	Identified
7.3 Risk of flooding from Rivers and the Sea (RoFRaS) rating for the study site	Medium
7.4 Flood Defences within 250m of the study site	Identified
7.5 Areas benefiting from Flood Defences within 250m of the study site	None identified
7.6 Areas used for Flood Storage within 250m of the study site	None identified
7.7 Maximum BGS Groundwater Flooding susceptibility within 50m of the study site	Not Prone
7.8 BGS confidence rating for the Groundwater Flooding susceptibility areas	Not Applicable

Section 8: Designated Environmentally Sensitive Sites

	On-site	0-50m	51-250	251-500	501-1000	1000-2000
8.1 Records of Sites of Special Scientific Interest (SSSI)	0	0	0	0	0	0
8.2 Records of National Nature Reserves (NNR)	0	0	0	0	0	0
8.3 Records of Special Areas of Conservation (SAC)	0	0	0	0	0	0
8.4 Records of Special Protection Areas (SPA)	0	0	0	0	0	0
8.5 Records of Ramsar sites	0	0	0	0	0	0
8.6 Records of Ancient Woodlands	0	0	0	0	0	0
8.7 Records of Local Nature Reserves (LNR)	0	0	0	0	0	1
8.8 Records of World Heritage Sites	0	0	0	0	0	0
8.9 Records of Environmentally Sensitive Areas	0	0	0	0	0	0

Section 8: Designated Environmentally Sensitive Sites	On-site	0-50m	51-250	251-500	501-1000	1000-2000
8.10 Records of Areas of Outstanding Natural Beauty (AONB)	0	0	0	0	0	0
8.11 Records of National Parks	0	0	0	0	0	0
8.12 Records of Nitrate Sensitive Areas	0	0	0	0	0	0
8.13 Records of Nitrate Vulnerable Zones	0	0	1	0	1	1
8.14 Records of Green Belt land	0	0	0	0	0	0

Section 9: Natural Hazards

9.1 Maximum risk of natural ground subsidence	Moderate
9.1.1 Maximum Shrink-Swell hazard rating identified on the study site	Low
9.1.2 Maximum Landslides hazard rating identified on the study site	Very Low
9.1.3 Maximum Soluble Rocks hazard rating identified on the study site	Negligible
9.1.4 Maximum Compressible Ground hazard rating identified on the study site	Moderate
9.1.5 Maximum Collapsible Rocks hazard rating identified on the study site	Negligible
9.1.6 Maximum Running Sand hazard rating identified on the study site	Moderate
9.2 Radon	
9.2.1 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 site is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.
9.2.2 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.

Section 10: Mining

10.1 Coal mining areas within 75m of the study site	None identified
10.2 Non-Coal Mining areas within 50m of the study site boundary	None identified
10.3 Brine affected areas within 75m of the study site	None identified

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. Historical Industrial Sites

Provides information on past land uses that may pose a risk to the study site in terms of potential contamination from activities or processes. Potentially Infilled Land features are also included. This search is conducted using radii of up to 500m.

2. 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.

3. 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.

4. 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 gas pipelines and underground electricity transmission lines.

5. Geology

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

6. Hydrogeology and Hydrology

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

7. Flooding

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

8. 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.

9. 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 and radon..

10. Mining

Provides information on areas of coal and non-coal mining and brine affected areas.

11. 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”.

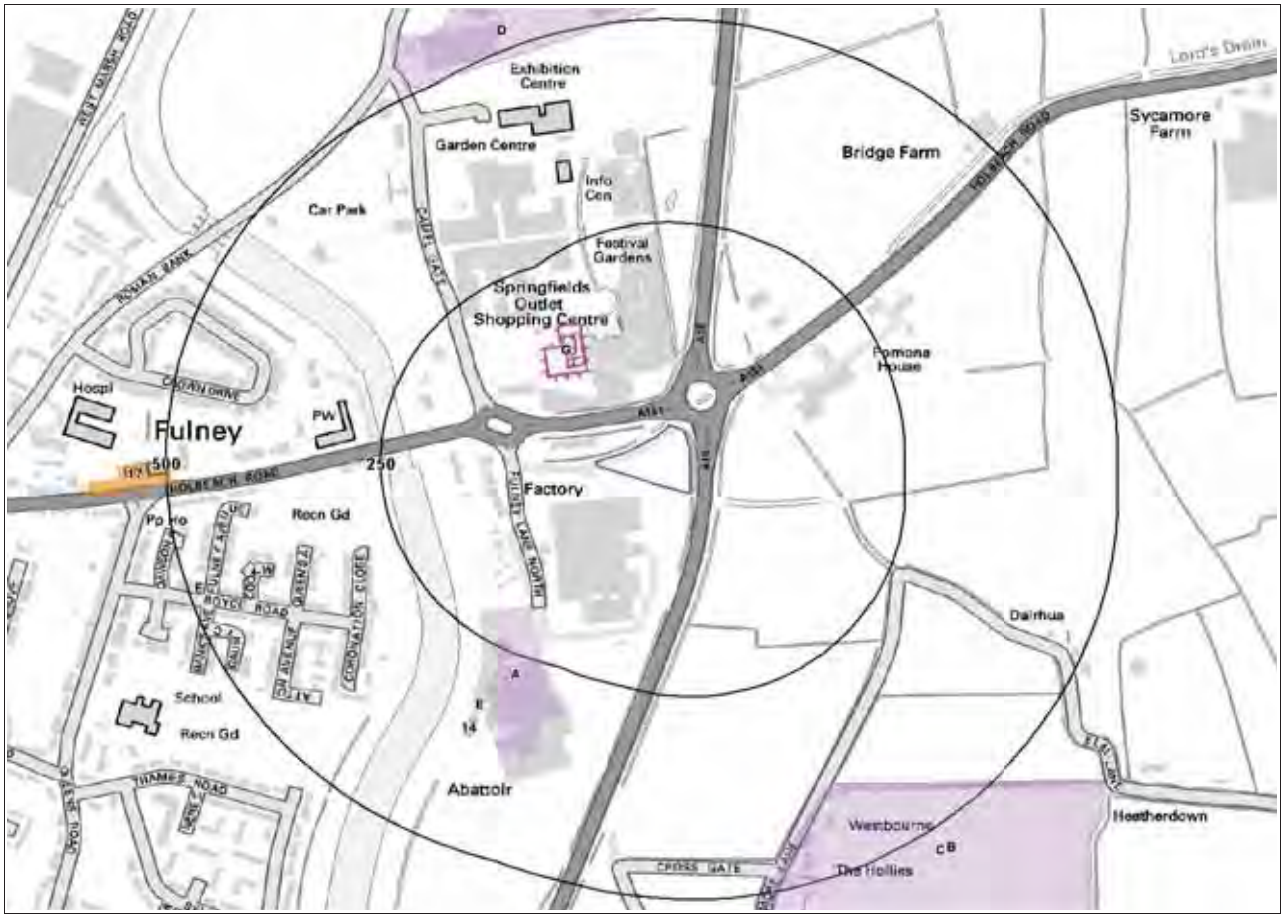
All distances given in this report are in Metres (m). Directions are given as compass headings such as N: North, E: East, NE: North East from the nearest point of the study site boundary.

1. Historical Land Use

NW N NE

W E

SW S SE



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Site Outline

250
500
Search Buffers (m)

Historical 1:10,000 and 1:10,560 scale mapping

Industrial Land Use

Potentially Infilled Land

Historical 1:2,500, 1:1,250 and 1:500 scale mapping

Energy Features

Petrol Stations

Historical military sites

Tanks

Garages

1. Historical Industrial Sites

1.1 Potentially Contaminative Uses identified from 1:10,000 scale Mapping

The systematic analysis of data extracted from standard 1:10,560 and 1:10,000 scale historical maps provides the following information:

Records of sites with a potentially contaminative past land use within 500m of the search boundary: 11

ID	Distance [m]	Direction	Use	Date
1A	186	SW	Abattoir	1987
2A	261	S	Abattoir	1971
3C	394	SE	Nursery	1938
4B	402	S	Nursery	1929
5B	402	S	Nursery	1929
6B	402	S	Nursery	1929
7C	402	S	Nursery	1968
8B	404	SE	Nursery	1903
9B	404	S	Nursery	1929
10D	487	N	Nursery	1971
11D	488	N	Nursery	1987

1.2 Additional Information – Historical Tank Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical tanks within 500m of the search boundary: 3

ID	Distance (m)	Direction	Use	Date
12E	327	SW	Unspecified Tank	1996
13E	342	SW	Unspecified Tank	1996
14	355	SW	Unspecified Tank	1996

1.3 Additional Information – Historical Energy Features Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical energy features within 500m of the search boundary: 2

ID	Distance (m)	Direction	Use	Date
15F	485	W	Electricity Substation	1979
16F	487	W	Electricity Substation	1986

1.4 Additional Information – Historical Petrol and Fuel Site Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical petrol stations and fuel sites within 500m of the search boundary: 0

Database searched and no data found.

1.5 Additional Information – Historical Garage and Motor Vehicle Repair Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical garage and motor vehicle repair sites within 500m of the search boundary: 1

ID	Distance (m)	Direction	Use	Date
17	492	W	Garage	1979

1.6 Historical military sites

Certain military installations were not noted on historic mapping for security reasons. Whilst not all military land is necessarily of concern, Groundsure has researched and digitised a number of Ordnance Factories and other military industrial features (e.g. Ordnance Depots, Munitions Testing Grounds) which may be of contaminative concern. This research was drawn from a number of different sources, and should not be regarded as a definitive or exhaustive database of potentially contaminative military installations. The boundaries of sites within this database have been estimated from the best evidence available to Groundsure at the time of compilation.

Records of historical military sites within 500m of the search boundary: 0

Database searched and no data found.

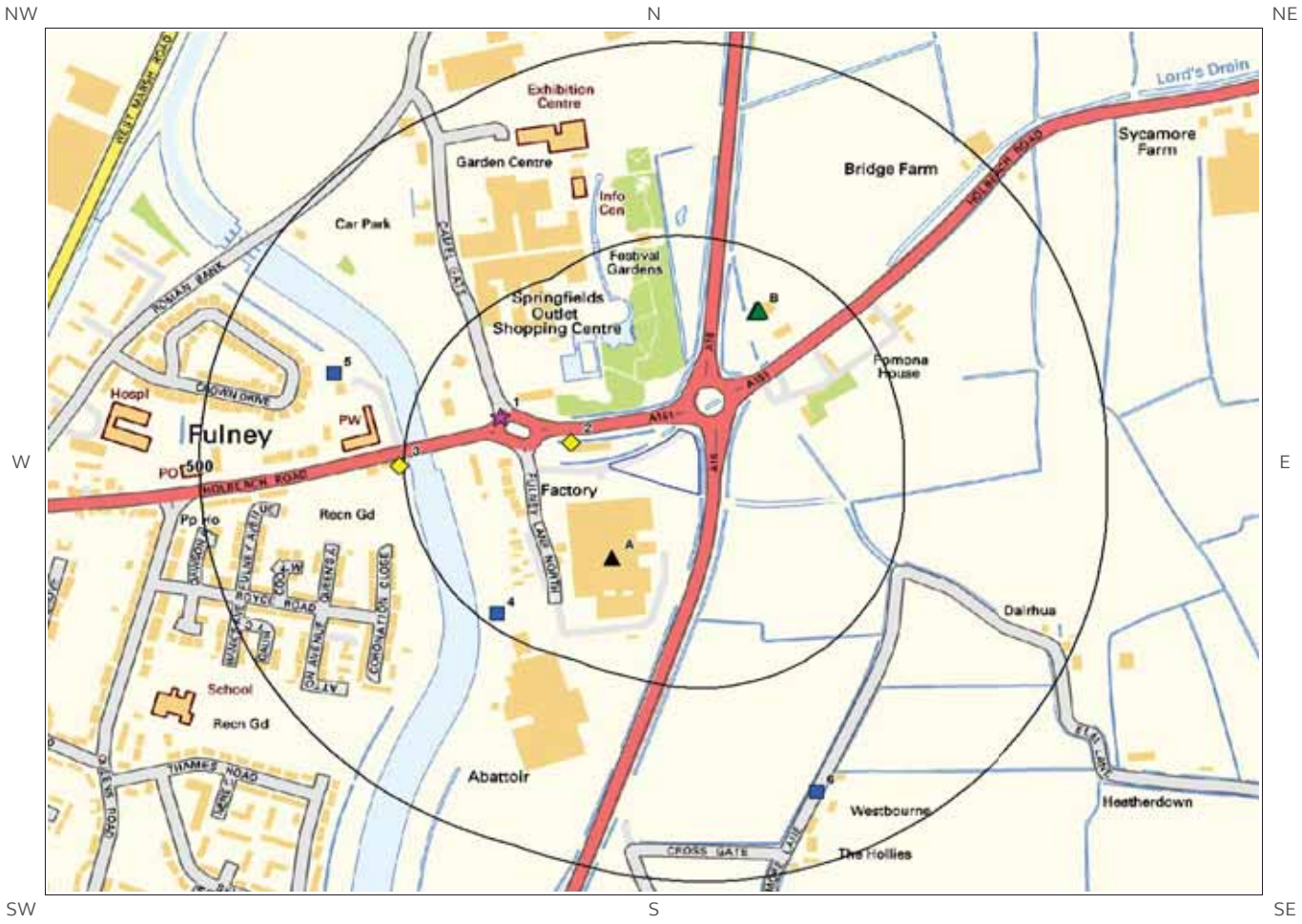
1.7 Potentially Infilled Land

Records of Potentially Infilled Features from 1:10,000 scale mapping within 500m of the study site: 2

The following Historical Potentially Infilled Features derived from the Historical Mapping information is provided by Groundsure:

ID	Distance(m)	Direction	Use	Date
18G	109	N	Ponds	1987
19G	109	N	Ponds	1971

2. Environmental Permits, Incidents and Registers Map



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Site Outline

250
500
Search Buffers (m)

Recorded Pollution Incident
Dangerous Substances (List 1)
Dangerous Substances (List 2)
Water Industry Referrals
Licenced Discharge Consents
Red List Discharge Consents

RAS 3 & 4 Authorisations
Part A(1) Authorised Processes and Historic IPC Authorisations
Part A(2) and Part B Authorised Processes
COMAH / NIHHS Sites
Sites Determined as Contaminated Land
Hazardous Substance Consents and Enforcements

2. Environmental Permits, Incidents and Registers

2.1 Industrial Sites Holding Licences and/or Authorisations

Searches of information provided by the Environment Agency/Natural Resources Wales and Local Authorities reveal the following information:

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

0

Database searched and no data found.

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

12

The following Part A(1) and IPPC Authorised Activities are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	NGR	Details	
21A	112	S	526450 323650	Operator: Geo Adams And Sons Limited Installation Name: Fulney Lane Meat Processing Unit - Spalding Process: ANIMAL, VEGETABLE AND FOOD; SLAUGHTERING ANIMALS >50 T/DAY	Permit Number: LP3630UL Original Permit Number: BT3579IT EPR Reference: - Issue Date: 4/4/2007 Effective Date: 4/4/2007 00:00:00 Last date noted as effective: 2018-03-01 Status: Superceded
22A	112	S	526450 323650	Operator: Tulip Ltd Installation Name: Fulney Lane Meat Processing Unit - Spalding Process: ANIMAL, VEGETABLE AND FOOD; SLAUGHTERING ANIMALS >50 T/DAY	Permit Number: JP3637GB Original Permit Number: JP3637GB EPR Reference: - Issue Date: 6/11/2009 Effective Date: 6/11/2009 00:00:00 Last date noted as effective: 2018-03-01 Status: Superceded
23A	112	S	526450 323650	Operator: Tulip Ltd Installation Name: Fulney Lane Meat Processing Unit - Spalding Process: OTHER WASTE DISPOSAL; NON-HAZARDOUS WASTE >50T/D BY PHYSICO-CHEMICAL TREATMENT	Permit Number: LP3939FC Original Permit Number: JP3637GB EPR Reference: - Issue Date: 18/4/2012 Effective Date: 18/4/2012 00:00:00 Last date noted as effective: 2018-03-01 Status: Superceded
24A	112	S	526450 323650	Operator: Tulip Ltd Installation Name: Fulney Lane Meat Processing Unit - Spalding Process: ANIMAL, VEGETABLE AND FOOD; SLAUGHTERING ANIMALS >50 T/DAY	Permit Number: UP3933EK Original Permit Number: JP3637GB EPR Reference: - Issue Date: 6/9/2013 Effective Date: 6/9/2013 00:00:00 Last date noted as effective: 2018-03-

ID	Distance (m)	Direction	NGR	Details	
					01 Status: Effective
25A	112	S	526450 323650	Operator: Tulip Ltd Installation Name: Fulney Lane Meat Processing Unit - Spalding Process: OTHER WASTE DISPOSAL; NON-HAZARDOUS WASTE >50T/D BY PHYSICO-CHEMICAL TREATMENT	Permit Number: KP3633TG Original Permit Number: JP3637GB EPR Reference: - Issue Date: 10/3/2010 Effective Date: 10/3/2010 00:00:00 Last date noted as effective: 2018-03-01 Status: Superceded
26A	112	S	526450 323650	Operator: Tulip Ltd Installation Name: Fulney Lane Meat Processing Unit - Spalding Process: OTHER WASTE DISPOSAL; NON-HAZARDOUS WASTE >50T/D BY PHYSICO-CHEMICAL TREATMENT	Permit Number: JP3637GB Original Permit Number: JP3637GB EPR Reference: - Issue Date: 6/11/2009 Effective Date: 6/11/2009 00:00:00 Last date noted as effective: 2018-03-01 Status: Superceded
27A	112	S	526450 323650	Operator: Tulip Ltd Installation Name: Fulney Lane Meat Processing Unit - Spalding Process: ANIMAL, VEGETABLE AND FOOD; SLAUGHTERING ANIMALS >50 T/DAY	Permit Number: LP3939FC Original Permit Number: JP3637GB EPR Reference: - Issue Date: 18/4/2012 Effective Date: 18/4/2012 00:00:00 Last date noted as effective: 2018-03-01 Status: Superceded
28A	112	S	526450 323650	Operator: Geo Adams And Sons Limited Installation Name: Fulney Lane Meat Processing Unit - Spalding Process: ANIMAL, VEGETABLE AND FOOD; SLAUGHTERING ANIMALS >50 T/DAY	Permit Number: BT3579IT Original Permit Number: BT3579IT EPR Reference: - Issue Date: 16/6/2005 Effective Date: 16/6/2005 00:00:00 Last date noted as effective: 2018-03-01 Status: Superceded
29A	112	S	526450 323650	Operator: Tulip Ltd Installation Name: Fulney Lane Meat Processing Unit - Spalding Process: ANIMAL, VEGETABLE AND FOOD; SLAUGHTERING ANIMALS >50 T/DAY	Permit Number: KP3633TG Original Permit Number: JP3637GB EPR Reference: - Issue Date: 10/3/2010 Effective Date: 10/3/2010 00:00:00 Last date noted as effective: 2018-03-01 Status: Superceded
30A	112	S	526450 323650	Operator: Tulip Ltd Installation Name: Fulney Lane Meat Processing Unit - Spalding Process: DISPOSAL OF > 50 T/D NON-HAZARDOUS WASTE (> 100 T/D IF ONLY AD) INVOLVING PHYSICO-CHEMICAL TREATMENT	Permit Number: UP3933EK Original Permit Number: JP3637GB EPR Reference: - Issue Date: 6/9/2013 Effective Date: 6/9/2013 00:00:00 Last date noted as effective: 2018-03-01 Status: Effective
31A	112	S	526450 323650	Operator: Geo Adams And Sons Limited Installation Name: Fulney Lane Meat Processing Unit - Spalding Process: OTHER WASTE DISPOSAL; NON-HAZARDOUS WASTE >50T/D BY PHYSICO-CHEMICAL TREATMENT	Permit Number: LP3630UL Original Permit Number: BT3579IT EPR Reference: - Issue Date: 4/4/2007 Effective Date: 4/4/2007 00:00:00 Last date noted as effective: 2018-03-01 Status: Superceded
32A	112	S	526450 323650	Operator: Geo Adams And Sons Limited Installation Name: Fulney Lane Meat Processing Unit - Spalding Process: OTHER WASTE DISPOSAL; NON-HAZARDOUS WASTE >50T/D BY	Permit Number: BT3579IT Original Permit Number: BT3579IT EPR Reference: - Issue Date: 16/6/2005 Effective Date: 16/6/2005 00:00:00 Last date noted as effective: 2018-03-

ID	Distance (m)	Direction	NGR	Details	
				PHYSICO-CHEMICAL TREATMENT	01 Status: Superceded

2.1.3 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.

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

0

Database searched and no data found.

2.1.5 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 Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	NGR	Details	
2	54	NW	526400 323800	Name: George Adams & Sons Ltd Status: Not Active Receiving Water: Na	Authorised Substances: pH
3	256	W	526190 323770	Name: Fulney Launderette Status: Not Active Receiving Water: Na	Authorised Substances: pH

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

2

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

ID	Distance (m)	Direction	NGR	Details	
19B	174	NE	526626 323968	Address: Lincs Co-op, Springfields Roundabout, Holbeach Road, Spalding, Lincs, PE12 0TP Process: Unloading of Petrol into Storage at Service Stations Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcements Notified Date of Enforcement: No Enforcements Notified Comment: No Enforcements Notified

ID	Distance (m)	Direction	NGR	Details	
20B	177	NE	526629 323971	Address: Lincolnshire Co-operative Society, Holbeach Road, Spalding, PE11 6JP Process: Unloading of Petrol into Storage at Service Stations Status: Current Permit Permit Type: Part B	Enforcement: No Enforcements Notified Date of Enforcement: No Enforcements Notified Comment: No Enforcements Notified

2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations:

0

Database searched and no data found.

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

3

The following Licensed Discharge Consents records are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	NGR	Details	
4	233	SW	526310 323580	Address: CRESCENT HOUSE, FULNEY LANE, SPALDING Effluent Type: MISCELLANEOUS DISCHARGES - SURFACE WATER Permit Number: PR5NF5464 Permit Version: 1	Receiving Water: Coronation Channel Status: PRE NRA LEGISLATION WHERE ISSUE DATE < 01-SEP-89 (HISTORIC ONLY) Issue date: 16/12/1987 Effective Date: 16-Dec-1987 Revocation Date: 26/02/1992
5	356	W	526110 323890	Address: 67B HOLBEACH ROAD, SPALDING, LINCOLNSHIRE, ., ., PE11 2HY Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: PRNNF12934 Permit Version: 1	Receiving Water: TRIB OF THE RIVER WELLAND Status: NEW CONSENT (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 24/06/2003 Effective Date: 13-Jun-2003 Revocation Date:
6	410	S	526700 323350	Address: PILMORE LANE BUNGALOW, LOW FULNEY, SPALDING, LINCS, PE12 6EG Effluent Type: UNSPECIFIED Permit Number: PR5LF3430 Permit Version: 1	Receiving Water: land Status: PRE NRA LEGISLATION WHERE ISSUE DATE < 01-SEP-89 (HISTORIC ONLY) Issue date: 01/08/1977 Effective Date: 01-Aug-1977 Revocation Date: 01/10/1996

2.1.9 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.

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

0

Database searched and no data found.

2.2 Dangerous or Hazardous Sites

Records of COMAH & NIHHS sites within 500m of the study site: 0

Database searched and no data found.

2.3 Environment Agency/Natural Resources Wales Recorded Pollution Incidents

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

1

The following NIRS List 2 records are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	NGR	Details	
1	147	NW	526313 323834	Incident Date: 10-Apr-2002 Incident Identification: 70277 Pollutant: General Biodegradable Materials and Wastes Pollutant Description: Blood and Offal	Water Impact: Category 4 (No Impact) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)

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

0

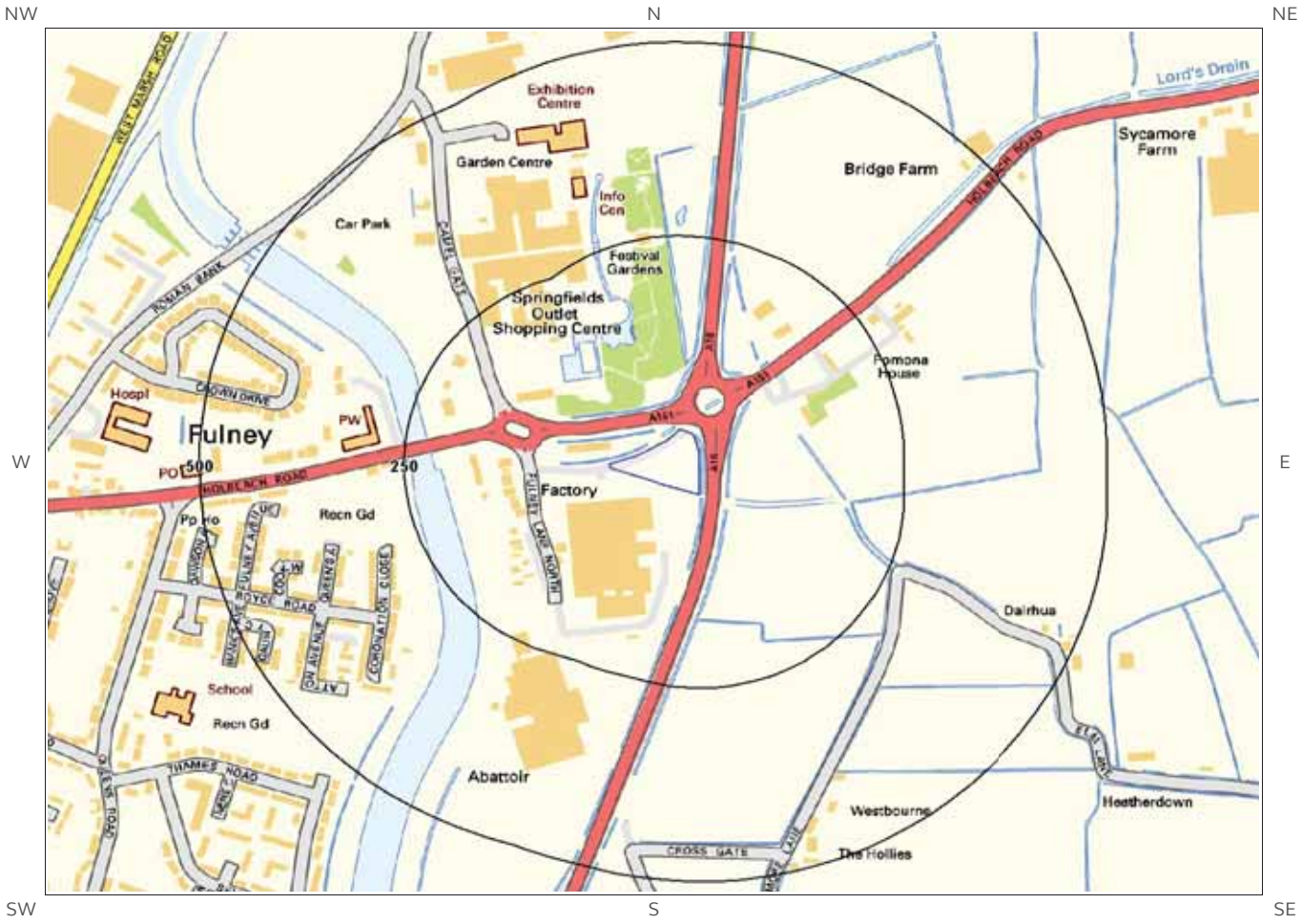
Database searched and no data found.

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

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.

3. Landfill and Other Waste Sites Map



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Site Outline

250
500
Search Buffers (m)

EA/NRW Active Landfill

EA/NRW Historic Landfill

BGS / DoE Survey Landfill

Historic and Planned Waste Sites

EA/NRW Licensed Waste Site

Local Authority/Historical Mapping Landfill Records

3. Landfill and Other Waste Sites

3.1 Landfill Sites

3.1.1 Records from Environment Agency/Natural Resources Wales landfill data within 1000m of the study site:

0

Database searched and no data found.

3.1.2 Records of Environment Agency/Natural Resources Wales historic landfill sites within 1500m of the study site:

1

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	833	NW		Site Address: Spalding Sugar Beet Factory, Spalding, Lincolnshire Waste Licence: Yes Site Reference: L115, RD7 032/2, RD7-70-01/89, SH-70-01/89, 2500/5312 Waste Type: Inert, Household, Liquid sludge Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: 24-Apr-1990 Licence Surrendered: Licence Holder Address: PO Box 26, Oundle Road, Peterborough Operator: British Sugar Plc Licence Holder: British Sugar Plc First Recorded: - Last Recorded: -

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

0

Database searched and no data found.

3.1.4 Records of Landfills from Local Authority and Historical Mapping Records within 1500m of the study site:

3

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

ID	Distance (m)	Direction	NGR	Site Address	Source	Data Type
Not shown	1241	NW	525891 324931	Refuse Tip	1967 mapping	Polygon
Not shown	1275	N	526047 325069	Refuse Tip	1967 mapping	Polygon
Not shown	1439	S	526173 322307	Refuse Tip	1967 mapping	Polygon

3.2 Other Waste Sites

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

0

Database searched and no data found.

3.2.2 Records of Environment Agency/Natural Resources Wales licensed waste sites within 1500m of the study site:

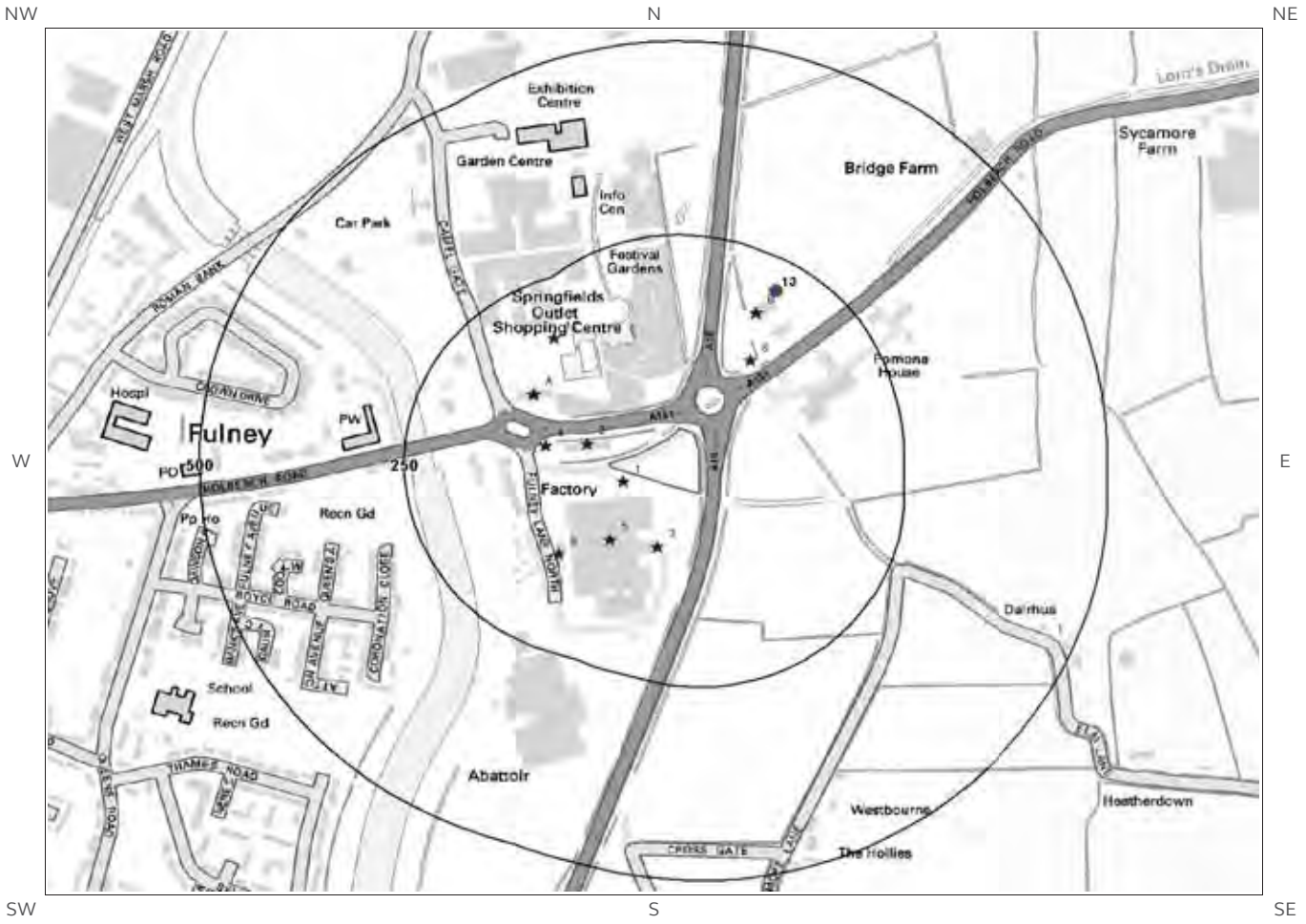
6

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	1049	W	525400 323700	Site Address: Albion Street, Spalding, Linconshire, PE11 2AY Type: Household, Commercial & Industrial Waste T Stn Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: TRA003 EPR reference: - Operator: Transco Waste Management licence No: 73048 Annual Tonnage: 0.0	Issue Date: 26/05/1994 Effective Date: - Modified: - Surrendered Date: 29/02/2000 Expiry Date: - Cancelled Date: - Status: Surrendered Site Name: Spalding Depot Correspondence Address: -
Not shown	1049	W	525400 323700	Site Address: Albion Street, Spalding, Lincolnshire, PE11 2AY Type: Household, Commercial & Industrial Waste T Stn Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: TRA004 EPR reference: EA/EPR/QP3394NT/S002 Operator: Transco	Issue Date: 26/05/1994 Effective Date: - Modified: - Surrendered Date: 29/02/2000 Expiry Date: - Cancelled Date: - Status: Surrendered Site Name: Spalding Depot Correspondence Address: -

ID	Distance (m)	Direction	NGR	Details	
				Waste Management licence No: 73048 Annual Tonnage: 25000.0	
Not shown	1132	N	526200 324900	Site Address: Lincwaste Ltd, West Marsh Road, Spalding, Lincolnshire, PE11 2BB Type: Household, Commercial & Industrial Waste T Stn Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: LIN039 EPR reference: - Operator: Lincolnshire County Council Waste Management licence No: 70996 Annual Tonnage: 5000.0	Issue Date: 16/09/1993 Effective Date: 01/04/2004 Modified: 31/12/2003 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Transferred Site Name: Spalding Hwrc Correspondence Address: City Hall, Lincoln, Lincolnshire, Ln1 1dn, -
Not shown	1132	N	526200 324900	Site Address: Lincwaste Ltd, West Marsh Road, Spalding, Lincolnshire, PE11 2BB Type: Household Waste Amenity Site Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: LIN012 EPR reference: - Operator: Sundourne Products (llanidioes) Ltd Waste Management licence No: 70996 Annual Tonnage: 5000.0	Issue Date: 16/09/1993 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Spalding Hwrc Correspondence Address: Lincwaste Ltd, Park Avenue, Aberystwyth, Ceredigion, SY23 1PG
Not shown	1221	N	526104 324962	Site Address: Lincwaste Ltd, Land / Premises At, West Marsh Road, Spalding, Lincolnshire, PE11 2BB Type: Household Waste Amenity Site Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: LIN039 EPR reference: EA/EPR/GP3498NT/T002 Operator: Lincolnshire County Council Waste Management licence No: 70996 Annual Tonnage: 5000.0	Issue Date: 16/09/1993 Effective Date: 01/04/2004 Modified: 31/12/2003 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Transferred Site Name: Spalding Household Waste Recycling Centre Correspondence Address: -
Not shown	1353	N	526100 325100	Site Address: Anglian Water Services Ltd, Enterprise House, Westmarsh Road, Spalding, Lincolnshire, PE11 2BB Type: Transfer Station taking Non-Biodegradable Wastes Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: ANG010 EPR reference: EA/EPR/UP3998NT/V002 Operator: Anglian Water Services Ltd Waste Management licence No: 70954 Annual Tonnage: 85000.0	Issue Date: 05/01/1993 Effective Date: - Modified: - Surrendered Date: 06/04/2010 Expiry Date: - Cancelled Date: - Status: Surrendered Site Name: Anglian Water Spalding Depot Correspondence Address: -

4. Current Land Use Map



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Site Outline

Search Buffers (m)
250
500

Current Industrial Sites

Petrol & Fuel Sites

Electricity Transmission Cables

Gas Transmission Pipelines

4. Current Land Uses

4.1 Current Industrial Data

Records of potentially contaminative industrial sites within 250m of the study site: 12

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

ID	Distance (m)	Direction	Company	NGR	Address	Activity	Category
1	13	S	Gas Governor Station	526463 323750	PE12	Gas Features	Infrastructure and Facilities
2	37	NW	Bush	526419 323799	Fulney Lane North, Spalding, PE12 6EP	Vehicle Parts and Accessories	Motoring
3	79	S	Electricity Sub Station	526505 323666	PE12	Electrical Features	Infrastructure and Facilities
4	81	W	Electricity Sub Station	526369 323796	PE12	Electrical Features	Infrastructure and Facilities
5	89	S	Factory	526447 323675	PE12	Unspecified Works Or Factories	Industrial Features
6	117	NE	Electricity Sub Station	526618 323906	PE12	Electrical Features	Infrastructure and Facilities
7A	128	NW	Direct Communication Systems	526355 323863	11-13 N F U Centre, Camel Gate, Spalding, PE12 6ES	Radar and Telecommunications Equipment	Industrial Products
8A	128	NW	Spalding Air Conditioning Services Ltd	526354 323862	Springfields House, Camel Gate, Spalding, PE12 6ET	Construction Completion Services	Construction Services
9	129	SW	Electricity Sub Station	526385 323656	PE12	Electrical Features	Infrastructure and Facilities
10B	174	NE	Gulf Petrol Station	526625 323967	Springfields Roundabout, Holbeach Road, Spalding, PE12 6JP	Petrol and Fuel Stations	Road and Rail
11B	174	NE	Co-Op Springfields Service Station	526626 323968	Holbeach Road, Spalding, Lincolnshire, PE12 6JP	Petrol and Fuel Stations	Road and Rail
12	175	NW	Electricity Sub Station	526379 323935	PE12	Electrical Features	Infrastructure and Facilities

4.2 Petrol and Fuel Sites

Records of petrol or fuel sites within 500m of the study site: 1

The following petrol or fuel site records provided by Catalist are represented as points on the Current Land Use map:

ID	Distance (m)	Direction	NGR	Company	Address	LPG	Status
13	210	NE	526650 323995	GULF	Holbeach Road, Spalding, Lincolnshire, PE12 6JP	No	Open

4.3 National Grid High Voltage Underground Electricity Transmission Cables

This dataset identifies the high voltage electricity transmission lines running between generating power plants and electricity substations. The dataset does not include the electricity distribution network (smaller, lower voltage cables distributing power from substations to the local user network). This information has been extracted from databases held by National Grid and is provided for information only with no guarantee as to its completeness or accuracy. National Grid do not offer any warranty as to the accuracy of the available data and are excluded from any liability for any such inaccuracies or errors.

Records of National Grid high voltage underground electricity transmission cables within 500m of the study site: 0

Database searched and no data found.

4.4 National Grid High Pressure Gas Transmission Pipelines

This dataset identifies high-pressure, large diameter pipelines which carry gas between gas terminals, power stations, compressors and storage facilities. The dataset does not include the Local Transmission System (LTS) which supplies gas directly into homes and businesses. This information has been extracted from databases held by National Grid and is provided for information only with no guarantee as to its completeness or accuracy. National Grid do not offer any warranty as to the accuracy of the available data and are excluded from any liability for any such inaccuracies or errors.

Records of National Grid high pressure gas transmission pipelines within 500m of the study site: 0

Database searched and no data found.

5. Geology

5.1 Artificial Ground and Made Ground

Database searched and no data found.

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

5.2 Superficial Ground and Drift Geology

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

Lex Code	Description	Rock Type
TFD-XCZ	TIDAL FLAT DEPOSITS	CLAY AND SILT

5.3 Bedrock and Solid Geology

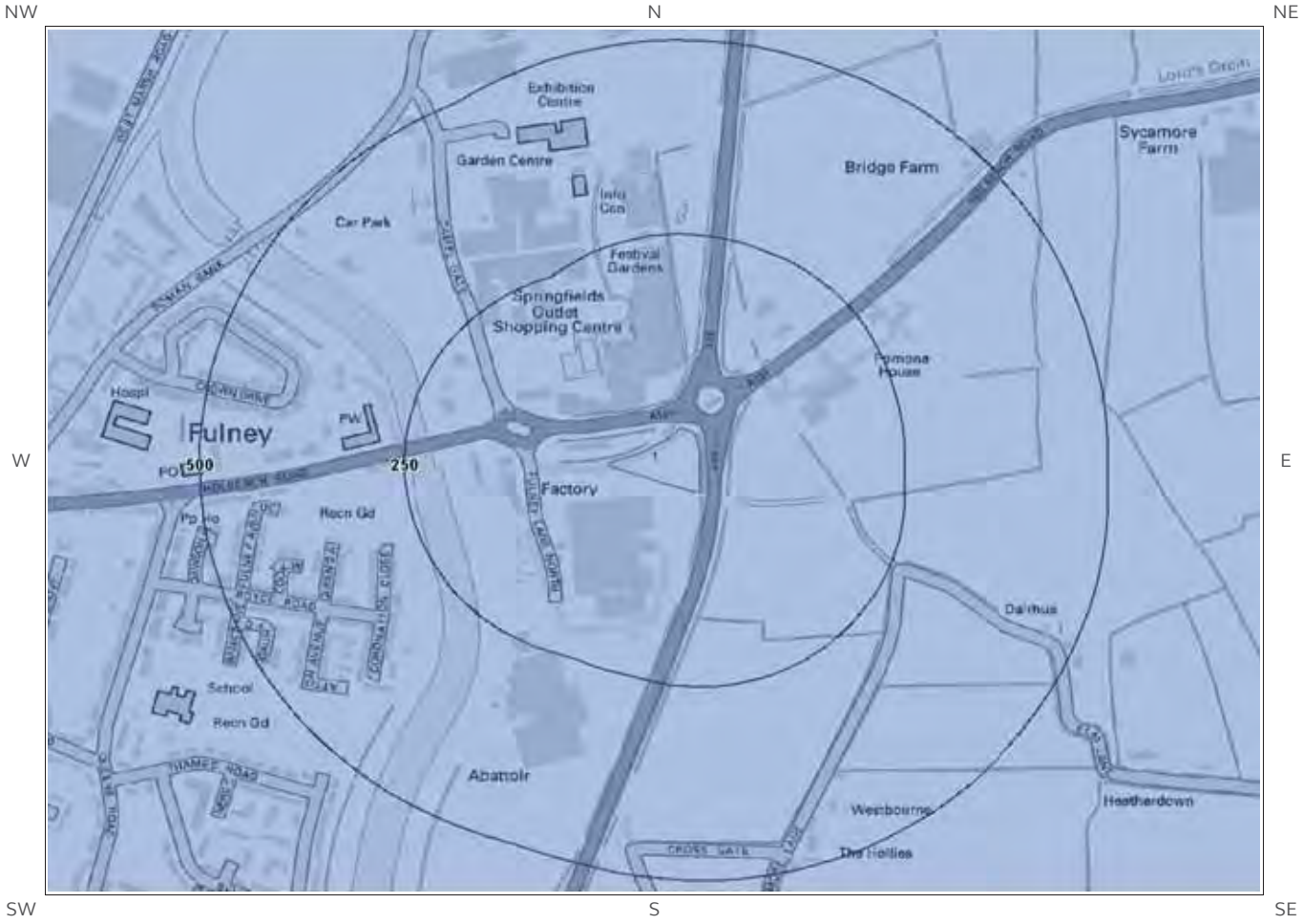
The database has been searched on site, including a 50m buffer.

Lex Code	Description	Rock Type
OXC-MDST	OXFORD CLAY FORMATION	MUDSTONE

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

6 Hydrogeology and Hydrology

6a. Aquifer Within Superficial Geology



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Site Outline

250 — 500 — Search Buffers (m)

Principal Aquifer

Secondary (A) Aquifer - Permeable Layers

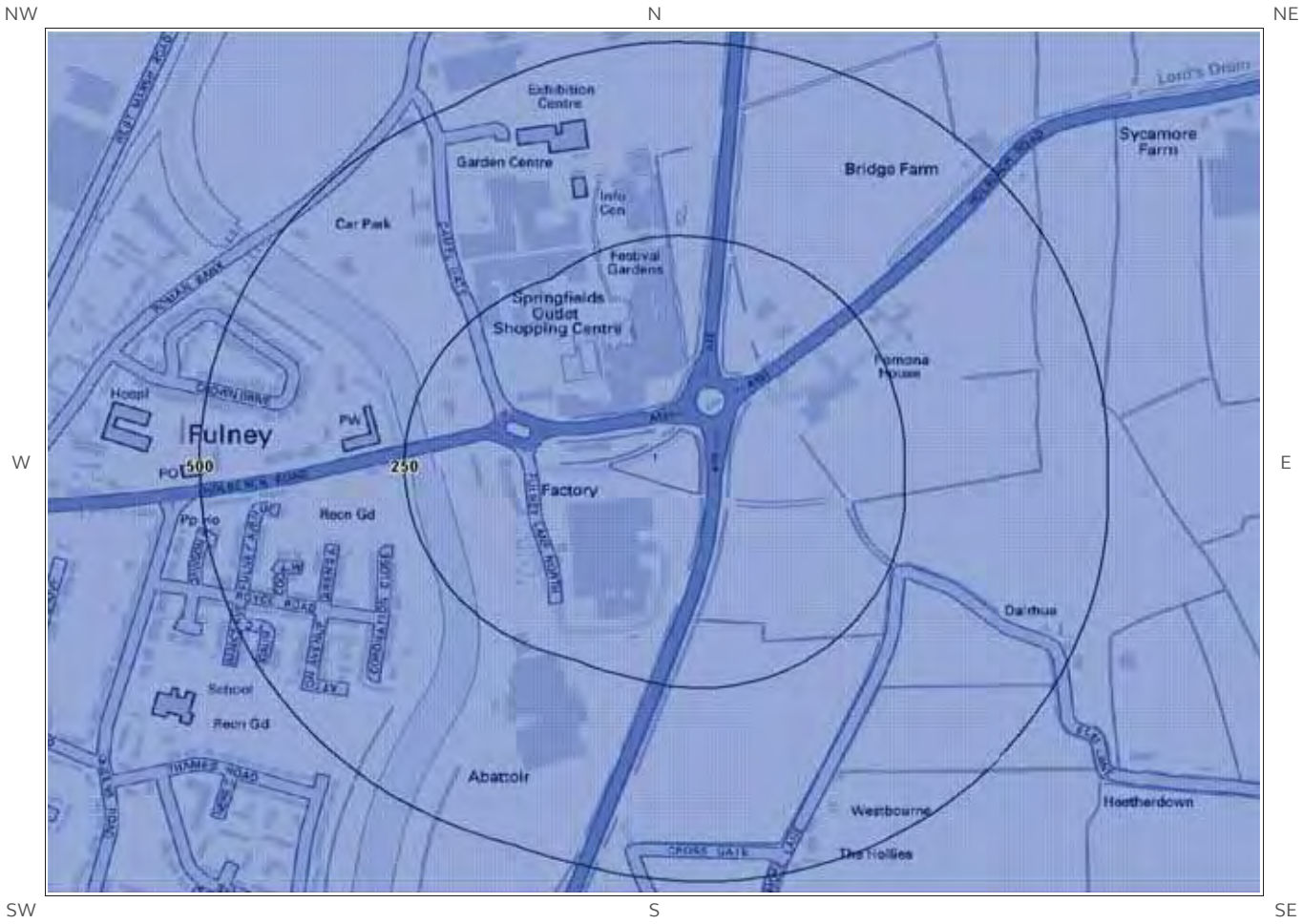
Secondary (B) Aquifer - Lower Permeability Layers

Secondary Aquifer - Undifferentiated Layers

Unproductive

Unknown (lakes and landslip)

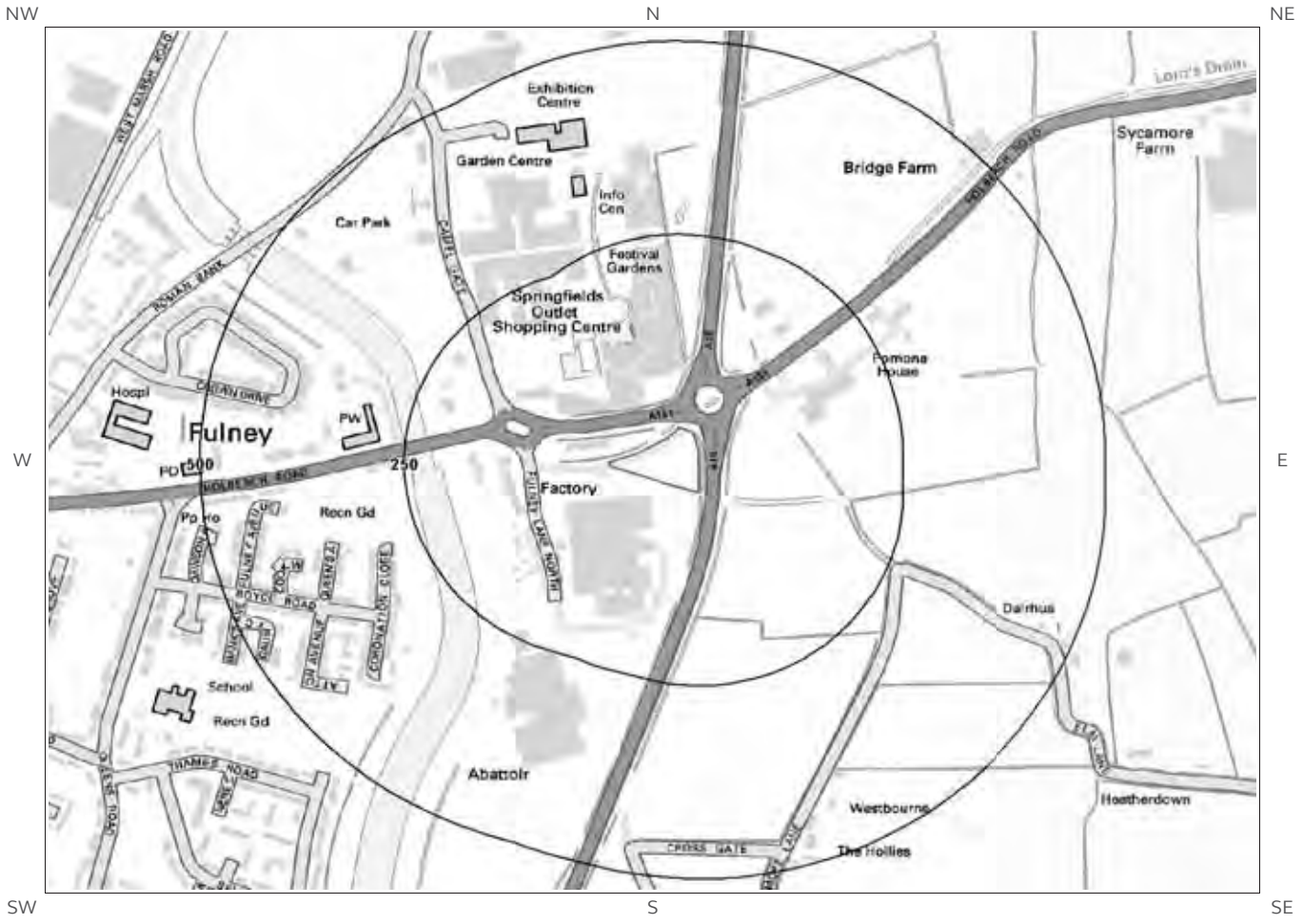
6b. Aquifer Within Bedrock Geology and Abstraction Licences



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Site Outline
250
500
Search Buffers (m)
Principal Aquifer
Secondary (A) Aquifer - Permeable Layers
Secondary (B) Aquifer - Lower Permeability Layers
Groundwater Abstraction Licence
Secondary Aquifer - Undifferentiated Layers
Unproductive
Unknown (lakes and landslip)
Surface Water Abstraction Licence

6c. Hydrogeology – Source Protection Zones and Potable Water Abstraction Licences



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Site Outline

250 500 Search Buffers (m)

Source Protection Zone 1 - Inner Catchment

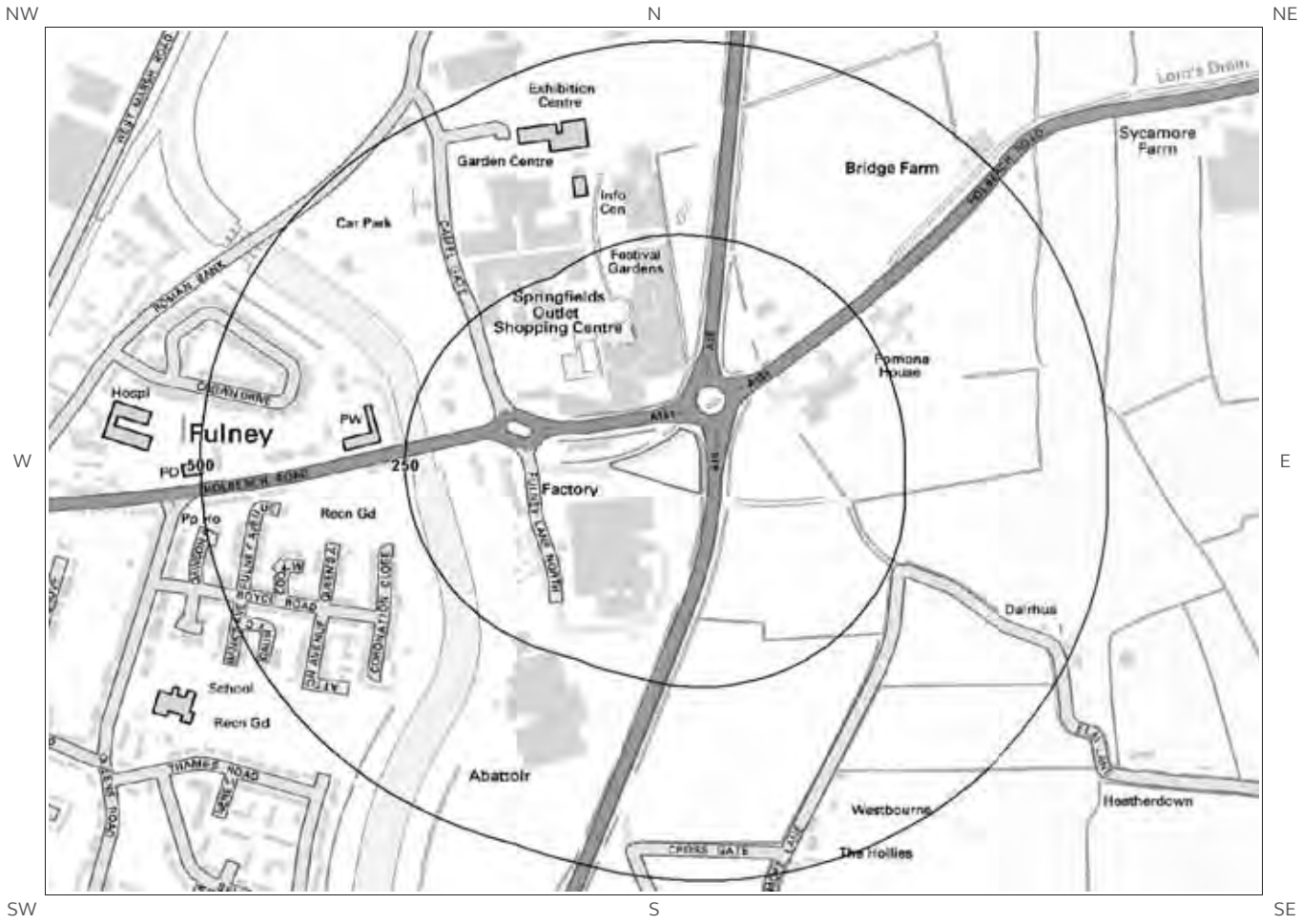
Source Protection Zone 2 - Outer Catchment

Source Protection Zone 3 - Total Catchment

Source Protection Zone 4 - Zone of Special Interest

Potable Water Abstraction Licence

6d. Hydrogeology – Source Protection Zones within confined aquifer



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Source Protection Zone 1 - Inner Catchment

Source Protection Zone 2C - Outer Catchment within Confined Aquifer

Source Protection Zone 3C - Total Catchment within Confined Aquifer

Site Outline

250 500 Search Buffers (m)

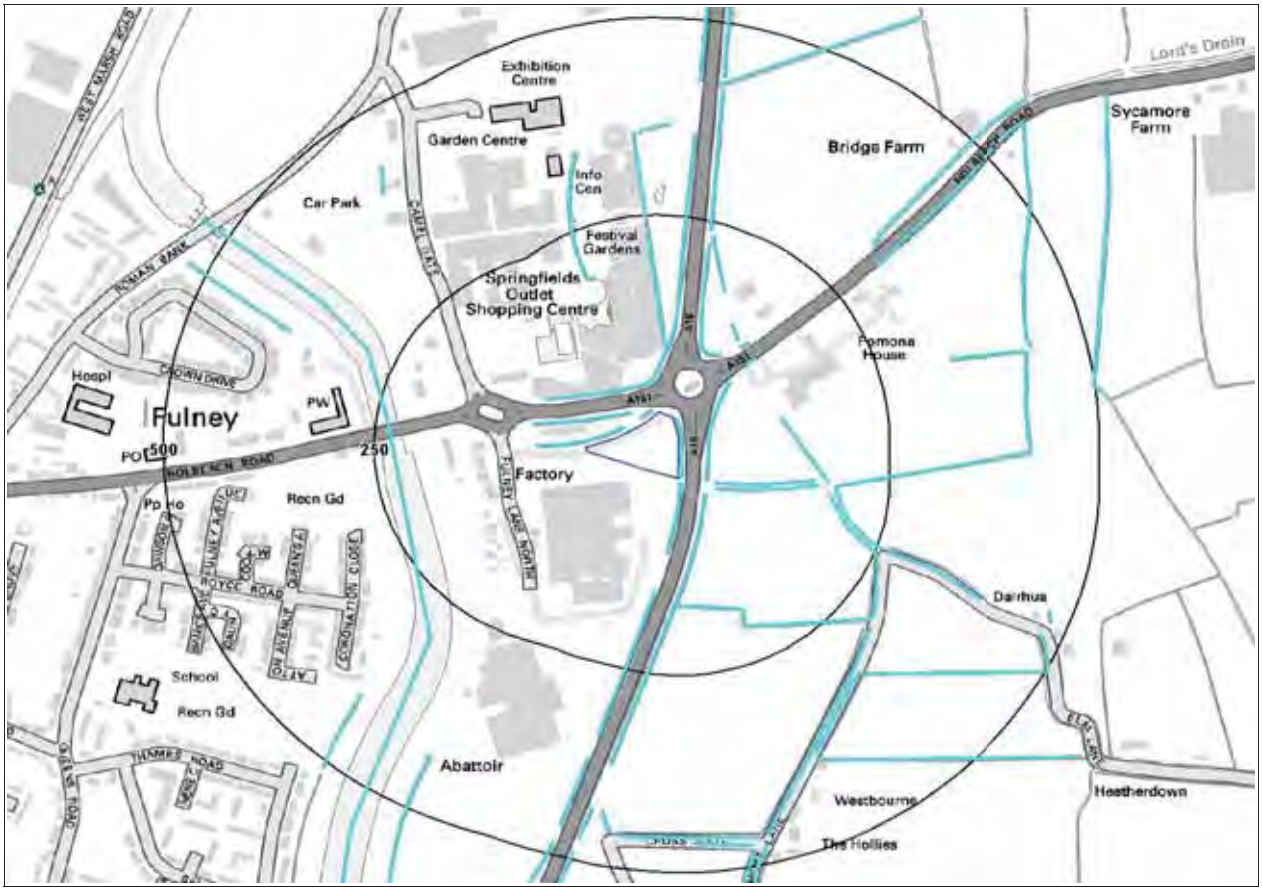
Potable Water Abstraction Licence

6e. Hydrology – Watercourse Network and River Quality

NW N NE

W E

SW S SE



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Site Outline

250 500 Search Buffers (m)

Tidal River

Inland River

Underground or Elevated Tidal River

Underground or Elevated Inland River

Foreshore

General Quality Assessment: Chemistry

Canal

Underground or Elevated Canal

Lock or Flight of Locks

Lake, Reservoir, or Marsh

Drain or Transfer

General Quality Assessment: Biology

6.Hydrogeology and Hydrology

6.1 Aquifer within Superficial Deposits

Records of strata classification within the superficial geology at or in proximity to the property Yes

From 1 April 2010, the Environment Agency/Natural Resources Wales'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 Enviro Insight User Guide.

The following aquifer records are shown on the Aquifer within Superficial Geology Map (6a):

ID	Distance (m)	Direction	Designation	Description
1	0	On Site	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow

6.2 Aquifer within Bedrock Deposits

Records of strata classification within the bedrock geology at or in proximity to the property Yes

From 1 April 2010, the Environment Agency/Natural Resources Wales'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 Enviro Insight User Guide.

The following aquifer records are shown on the Aquifer within Bedrock Geology Map (6b):

ID	Distance (m)	Direction	Designation	Description
1	0	On Site	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow

6.3 Groundwater Abstraction Licences

Groundwater Abstraction Licences within 2000m of the study site None identified

Database searched and no data found.

6.4 Surface Water Abstraction Licences

Surface Water Abstraction Licences within 2000m of the study site — Identified

The following Surface Water Abstraction Licences records are represented as points, lines and regions on the Aquifer within Bedrock Geology Map (6b):

ID	Distance (m)	Direction	NGR	Details	
Not shown	1130	NW	525800 324700	Status: Historical Licence No: 5/31/14/*S/0014 Details: Non-Evaporative Cooling Direct Source: SURFACE WATER SOURCE OF SUPPLY Point: VERNATTS DRAIN Data Type: Point Name: BRITISH SUGAR PLC	Annual Volume (m^3): - Max Daily Volume (m^3): - Application No: - Original Start Date: 01/01/1966 Expiry Date: - Issue No: 100 Version Start Date: 01/01/1966 Version End Date:
Not shown	1208	NW	525340 324320	Status: Historical Licence No: 5/31/14/*S/0014 Details: Non-Evaporative Cooling Direct Source: SURFACE WATER SOURCE OF SUPPLY Point: VERNATTS DRAIN Data Type: Line Name: SPALDING ENERGY CO LTD	Annual Volume (m^3): 2.72766e+006 Max Daily Volume (m^3): 22912 Application No: - Original Start Date: 01/01/1966 Expiry Date: - Issue No: 101 Version Start Date: 02/02/2002 Version End Date:
Not shown	1521	N	526190 325300	Status: Active Licence No: 5/31/14/*S/0247 Details: General Farming & Domestic Direct Source: SURFACE WATER SOURCE OF SUPPLY Point: VERNATTS DRAIN "A - B" Data Type: Line Name: LINCOLNSHIRE FIELD PRODUCTS LTD	Annual Volume (m^3): 135000 Max Daily Volume (m^3): 8000 Application No: - Original Start Date: 27/11/1998 Expiry Date: - Issue No: 1 Version Start Date: 27/11/1998 Version End Date:
Not shown	1521	N	526190 325300	Status: Active Licence No: 5/31/14/*S/0247 Details: Spray Irrigation - Direct Direct Source: SURFACE WATER SOURCE OF SUPPLY Point: VERNATTS DRAIN "A - B" Data Type: Line Name: LINCOLNSHIRE FIELD PRODUCTS LTD	Annual Volume (m^3): 135000 Max Daily Volume (m^3): 8000 Application No: - Original Start Date: 27/11/1998 Expiry Date: - Issue No: 1 Version Start Date: 27/11/1998 Version End Date:
Not shown	1923	N	525810 325600	Status: Active Licence No: 5/31/14/*S/0247 Details: Spray Irrigation - Direct Direct Source: SURFACE WATER SOURCE OF SUPPLY Point: BLUE GOWT "C - D" Data Type: Line Name: LINCOLNSHIRE FIELD PRODUCTS LTD	Annual Volume (m^3): 135000 Max Daily Volume (m^3): 8000 Application No: - Original Start Date: 27/11/1998 Expiry Date: - Issue No: 1 Version Start Date: 27/11/1998 Version End Date:
Not shown	1933	S	525850 321930	Status: Active Licence No: 5/31/14/*S/0157 Details: Make-Up Or Top Up Water Direct Source: SURFACE WATER SOURCE OF SUPPLY Point: CORONATION CHANNEL - SPALDING Data Type: Point Name: LINCOLNSHIRE WILDLIFE TRUST	Annual Volume (m^3): 2500 Max Daily Volume (m^3): 224 Application No: - Original Start Date: 01/01/1982 Expiry Date: - Issue No: 101 Version Start Date: 08/05/2007 Version End Date:

6.5 Potable Water Abstraction Licences

Potable Water Abstraction Licences within 2000m of the study site — None identified

Database searched and no data found.

6.6 Source Protection Zones

Source Protection Zones within 500m of the study site — None identified

Database searched and no data found.

6.7 Source Protection Zones within Confined Aquifer

Source Protection Zones within the Confined Aquifer within 500m of the study site — None identified

Historically, Source Protection Zone maps have been focused on regulation of activities which occur at or near the ground surface, such as prevention of point source pollution and bacterial contamination of water supplies. Sources in confined aquifers were often considered to be protected from these surface pressures due to the presence of a low permeability confining layer (e.g. glacial till, clay). The increased interest in subsurface activities such as onshore oil and gas exploration, ground source heating and cooling requires protection zones for confined sources to be marked on SPZ maps where this has not already been done.

Database searched and no data found.

6.8 Groundwater Vulnerability and Soil Leaching Potential

Environment Agency/Natural Resources Wales information on groundwater vulnerability and soil leaching potential within 500m of the study site — None identified

Database searched and no data found.

6.9 River Quality

Environment Agency/Natural Resources Wales information on river quality within 1500m of the study site — Identified

6.9.1 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 (6e):

ID	Distance (m)	Direction	NGR	River Quality Grade	Biological Quality Grade				
					2005	2006	2007	2008	2009
59A	724	NW	525800 324100	River Name: Welland (coronation Cut) Reach: New River Spalding...tidal Limit (2) End/Start of Stretch: End of Stretch NGR	B	B	B	B	B

6.9.2 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 (6e):

ID	Distance (m)	Direction	NGR	River Quality Grade	Chemical Quality Grade				
					2005	2006	2007	2008	2009
60A	724	NW	525800 324100	River Name: Welland Reach: New River Spalding Tidal Limit (2) End/Start of Stretch: End of Stretch NGR	C	C	B	B	B

6.10 Ordnance Survey MasterMap Water Network

Ordnance Survey MasterMap Water Network entries within 500m of the study site

This watercourse information is provided by Ordnance Survey MasterMap Water Network. The data provides a detailed centre line following the curve of the waterway precisely, so all distances provided in the report should be understood as measurements to the centreline rather than a measurement to the nearest point of the watercourse. Underground watercourses are inferred from entry and exit points so caution is advised in using these to indicate precise locations of underground watercourses when planning site investigation and development.

The following Ordnance Survey MasterMap Water Network records are represented on the Hydrology Map (6e):

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
1	2 E	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.0

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
21	2 E	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.0
2	5 S	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.0
22	5 S	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.0
3	7 NW	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.0
23	7 NW	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.0
4	8 N	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.9
24	8 N	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.9
5	19 NW	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
25	19 NW	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
6	33 E	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.0
26	33 E	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.0
7	36 SE	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.0
27	36	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
	SE			Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.0
8	39 N	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Welland Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.3
28	39 N	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Welland Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.3
9	43 E	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
29	43 E	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
10	45 E	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
30	45 E	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
11	83 N	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Welland Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.4
12	83 N	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Welland Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.9
31	83 N	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Welland Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.4
32	83 N	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Welland Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.9
13	91 NE	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Welland Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.7
33	91 NE	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Welland Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions)

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
				Average Width in Watercourse Section (m): 2.7
14	110 NE	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
34	110 NE	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
15	119 NE	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Welland Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
35	119 NE	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Welland Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
16	124 E	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.4
36	124 E	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.4
17	126 NE	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Welland Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
37	126 NE	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Welland Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
18	145 S	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.0
38	145 S	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.0
19	161 S	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
39	161 S	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
20	173 N	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Welland Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.6
40	173 N	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Welland Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.6
21	179 E	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
41	179 E	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
22	186 E	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.3
23	186 NW	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Welland Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 4.0
42	186 E	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.3
43	186 NW	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Welland Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 4.0
24	224 W	Coronation Channel	Inland river not influenced by normal tidal action.	Catchment Area: Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 38.4
44	224 W	Coronation Channel	Inland river not influenced by normal tidal action.	Catchment Area: Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 38.4
25	239 N	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Welland Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.2
45	239 N	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Welland Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.2
26	248	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Welland Relationship to Ground Level: On ground surface

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
	N			Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.0
46	248 N	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Welland Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.0
27	254 N	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Welland Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.3
47	254 N	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Welland Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.3
28	262 E	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.4
29	262 NW	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Welland Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.8
48	262 E	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.4
49	262 NW	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Welland Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.8
30	295 SE	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.4
50	295 SE	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.4
31	310 NE	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.1
51	310 NE	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.1
32	323 NE	Lord's Drain	Inland river not influenced by normal tidal action.	Catchment Area: Welland Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions)

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
				Average Width in Watercourse Section (m): 5.8
52	323 NE	Lord's Drain	Inland river not influenced by normal tidal action.	Catchment Area: Welland Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 5.8
33	327 SE	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.5
53	327 SE	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.5
34	337 N	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Welland Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
Not shown	337 N	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Welland Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
35	356 N	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Welland Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.9
Not shown	356 N	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Welland Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.9
36	369 NE	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
37	369 S	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
56	369 NE	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
Not shown	369 S	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
38	380 NW	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Welland Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.4

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
Not shown	380 NW	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Welland Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.4
39	391 SE	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.4
Not shown	391 SE	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.4
40	400 NW	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Welland Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	400 NW	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Welland Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
41	406 SW	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Welland Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
Not shown	406 SW	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Welland Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
42	421 N	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Welland Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 4.4
Not shown	421 N	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Welland Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 4.4
43	423 N	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Welland Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.4
Not shown	423 N	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Welland Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.4
44	427 SW	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.1
Not shown	427	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
	SW			Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.1
45	429 S	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
Not shown	429 S	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
46	430 S	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
Not shown	430 S	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
47	433 N	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Welland Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.7
48	433 E	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.7
Not shown	433 N	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Welland Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.7
Not shown	433 E	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.7
49	455 S	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.2
Not shown	455 S	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.2
50	464 S	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.8
Not shown	464 S	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions)

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
				Average Width in Watercourse Section (m): 1.8
51	471 E	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.5
Not shown	471 E	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.5
52	473 SE	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.7
Not shown	473 SE	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.7
53	477 S	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.8
Not shown	477 S	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.8
54	481 S	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
Not shown	481 S	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
55	482 S	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.4
Not shown	482 S	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.4
56	490 S	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
Not shown	490 S	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
57	493 NE	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
Not shown	493 NE	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
58	497 E	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.4
Not shown	497 E	Not specified	Inland river not influenced by normal tidal action.	Catchment Area: Nene Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.4

6.11 Surface Water Features

Surface water features within 250m of the study site | Identified

The following surface water records are not represented on mapping:

Distance (m)	Direction
1	E
5	S
6	N
18	NW
31	E
35	SE
37	N
43	E
45	E
89	NE
110	NE
111	N
123	E
125	NW
145	S
160	S
172	N
178	E
183	E
184	NW
200	W
225	W
239	N

7a. Environment Agency/Natural Resources Wales Flood Map for Planning (from rivers and the sea)



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Site Outline

100
250
Search Buffers (m)

Zone 2 Floodplain

Zone 3 Floodplain

Flood Defences

Area used for Flood Storage

Area Benefiting from Flood Defences

7b. Environment Agency/Natural Resources Wales Risk of Flooding from Rivers and the Sea (RoFRaS) Map



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7 Flooding

7.1 River and Coastal Zone 2 Flooding

Environment Agency/Natural Resources Wales Zone 2 floodplain within 250m — Identified

Environment Agency/Natural Resources Wales 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 7a – Flood Map for Planning:

ID	Distance (m)	Direction	Update	Type
1	0	On Site	29-May-2018	Zone 2 - (Fluvial /Tidal Models)
2	7	S	29-May-2018	Zone 2 - (Fluvial /Tidal Models)
3	15	SW	29-May-2018	Zone 2 - (Fluvial /Tidal Models)
4	30	S	29-May-2018	Zone 2 - (Fluvial /Tidal Models)
5	43	S	29-May-2018	Zone 2 - (Fluvial /Tidal Models)
6	58	SE	29-May-2018	Zone 2 - (Fluvial /Tidal Models)
7	62	SE	29-May-2018	Zone 2 - (Fluvial /Tidal Models)
8	62	E	29-May-2018	Zone 2 - (Fluvial /Tidal Models)
9	75	SW	29-May-2018	Zone 2 - (Fluvial /Tidal Models)
10	112	NE	29-May-2018	Zone 2 - (Fluvial /Tidal Models)
11	114	SW	29-May-2018	Zone 2 - (Fluvial /Tidal Models)
12	134	E	29-May-2018	Zone 2 - (Fluvial /Tidal Models)
13	189	S	29-May-2018	Zone 2 - (Fluvial /Tidal Models)
14	201	N	29-May-2018	Zone 2 - (Fluvial /Tidal Models)
15	216	NE	29-May-2018	Zone 2 - (Fluvial /Tidal Models)
16	243	N	29-May-2018	Zone 2 - (Fluvial /Tidal Models)

7.2 River and Coastal Zone 3 Flooding

Environment Agency/Natural Resources Wales Zone 3 floodplain within 250m — Identified

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 7a – Flood Map for Planning.

ID	Distance (m)	Direction	Update	Type
1	0	On Site	30-May-2018	Zone 3 - (Fluvial Models)
2	12	S	30-May-2018	Zone 3 - (Fluvial Models)

7.3 Risk of Flooding from Rivers and the Sea (RoFRaS) Flood Rating

Highest risk of flooding onsite — Medium

The Environment Agency/Natural Resources Wales RoFRaS database provides an indication of river and coastal flood risk at a national level on a 50m grid with the flood rating at the centre of the grid calculated and given above. The data considers the probability that the flood defences will overtop or breach by considering their location, type, condition and standard of protection.

RoFRaS data for the study site indicates the property is in an area with a Medium (greater than 1 in 100 but less than 1 in 30) chance of flooding in any given year.

Any relevant data within 250m is represented on the RoFRaS Flood map. Data to 50m is reported in the table below.

ID	Distance (m)	Direction	RoFRas flood Risk
1	0.0	On Site	Medium
2	0.0	On Site	Low
3	45.0	NW	Very Low

7.4 Flood Defences

Flood Defences within 250m of the study site — Identified

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

ID	Distance (m)	Direction	Update
56	202	W	11-May-2018
57	239	W	11-May-2018

7.5 Areas benefiting from Flood Defences

Areas benefiting from Flood Defences within 250m of the study site — None identified

7.6 Areas benefiting from Flood Storage

Areas used for Flood Storage within 250m of the study site — None identified

7.7 Groundwater Flooding Susceptibility Areas

7.7.1 British Geological Survey groundwater flooding susceptibility areas within 50m of the boundary of the study site — None identified

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).

7.7.2 Highest susceptibility to groundwater flooding in the search area based on the underlying geological conditions

Not Prone

The area is not considered to be prone to groundwater flooding based on rock type.

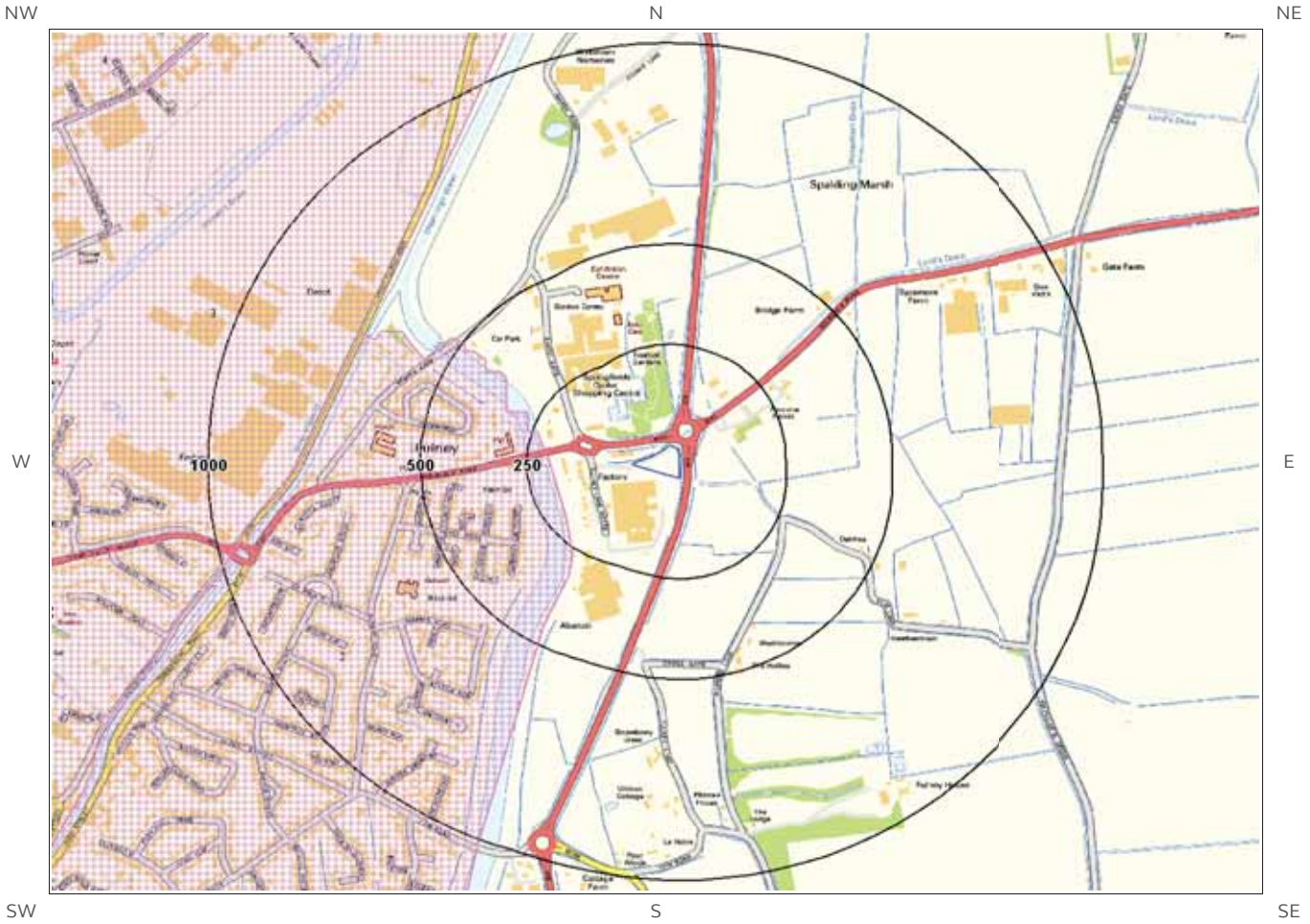
7.8 Groundwater Flooding Confidence Areas

British Geological Survey confidence rating in this result — Not Applicable

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.

8. Designated Environmentally Sensitive Sites Map



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Site Outline

100 250 Search Buffers (m)

AONB

National Park

SSSI

Special Protection Areas

Nitrate Vulnerable Zones

Green Belt

Environmentally Sensitive Areas

Special Areas of Conservation

World Heritage Sites

Nitrate Sensitive Areas

Ancient Woodland

National Nature Reserve

Local Nature Reserves

Ramsar Sites

8. Designated Environmentally Sensitive Sites

Designated Environmentally Sensitive Sites within 2000m of the study site	Identified

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

8.5 Records of Ramsar sites within 2000m of the study site:

0

Database searched and no data found.

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

0

Database searched and no data found.

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

1

The following Local Nature Reserve (LNR) records provided by Natural England/Natural Resources Wales are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	LNR Name	Data Source
1	1378	W	Vernatts	Natural England

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

3

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
2	188	W	Existing	DEFRA
3	717	NW	Existing	DEFRA
4	1476	NW	Existing	DEFRA

8.14 Records of Green Belt land within 2000m of the study site:

0

Database searched and no data found.

9. Natural Hazards Findings

9.1 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 Geo Insight, available from our website. The following information has been found:

9.1.1 Shrink Swell

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.

9.1.2 Landslides

Maximum Landslide* 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
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.

9.1.3 Soluble Rocks

Maximum Soluble Rocks* hazard rating identified on the study site — Negligible

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

Hazard
Soluble rocks are present, but unlikely to cause problems except under exceptional conditions. 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.

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

9.1.4 Compressible Ground

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.

9.1.5 Collapsible Rocks

Maximum Collapsible Rocks* hazard rating identified on the study site — Negligible

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

Hazard
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.

9.1.6 Running Sand

Maximum Running Sand** 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 running sand problems with relatively small changes in ground conditions. Avoid large amounts of water entering the ground (for example through pipe leakage or soak-aways). Do not dig (deep) holes into saturated ground near the property without technical advice. For new build consider the consequences of soil and groundwater conditions during and after construction. For existing property possible increase in insurance risk from running sand, for example, due to water leakage, high rainfall events or flooding.

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

9.2 Radon

9.2.1 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 site is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.

The radon data in this report is supplied by the BGS/Public Health England and is the definitive map of Radon Affected Areas in Great Britain and Northern Ireland. The dataset was created using long-term radon measurements in over 479,000 homes across Great Britain and 23,000 homes across Northern Ireland, combined with geological data. The dataset is considered accurate to 50m to allow for the margin of error in geological lines, and the findings of this report supercede any answer given in the less accurate Indicative Atlas of Radon in Great Britain, which simplifies the data to give the highest risk within any given 1km grid square. As such, the radon atlas is considered indicative, whereas the data given in this report is considered definitive.

9.2.2 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.

10. Mining

10.1 Coal Mining

Coal mining areas within 75m of the study site	None identified

Database searched and no data found.

10.2 Non-Coal Mining

Non-Coal Mining areas within 50m of the study site boundary	None identified

Database searched and no data found.

10.3 Brine Affected Areas

Brine affected areas within 75m of the study site Guidance: No Guidance Required.	None identified

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https://www.groundsure.com/terms-and-conditions-may25-2018

EmapSite

Masdar House, 1 Reading Road,
Eversley, RG27 0RP

Report Reference: EMS-502877_676912

Your Reference: EMS_502877_676912

Report Date 1 Oct 2018

Report Delivery Method: Email - pdf

Geo Insight

Address: ,

Dear Sir/ Madam,

Thank you for placing your order with Groundsure. Please find enclosed the **Groundsure Geo Insight** 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 Geo Insight

Geo Insight

Address:	**,**
Date:	**1 Oct 2018**
Reference:	**EMS-502877_676912**
Client:	**EmapSite**

NW N NE



W E

SW S SE

Aerial Photograph Capture date:	06-Apr-2015
Grid Reference:	526518,323774
Site Size:	0.49ha

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Overview of Findings

The Groundsure Geo Insight 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 and 1:10,000 Digital Geological Map of Great Britain, BGS Geosure data; BRITPITS database; Non-coal 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 1:10,000 Scale		
1.1 Artificial Ground	1.1 Is there any Artificial Ground/ Made Ground present beneath the study site at 1:10,000 scale?	No
1.2 Superficial Geology and Landslips	1.2.1 Is there any Superficial Ground/Drift Geology present beneath the study site at 1:10,000 scale?*	No
	1.2.2 Are there any records of landslip within 500m of the study site boundary at 1:10,000 scale?	No
1.3 Bedrock, Solid Geology and linear features	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 of linear features within 500m of the study site boundary at 1:10,000 scale?	No

Section 2: Geology 1:50,000 Scale		
2.1 Artificial Ground	2.1.1 Is there any Artificial Ground/ Made Ground present beneath the study site?	No
	2.1.2 Are there any records relating to permeability of artificial ground within the study site*boundary?	No
2.2 Superficial Geology and Landslips	2.2.1 Is there any Superficial Ground/Drift Geology present beneath the study site?*	Yes
	2.2.2 Are there any records of permeability of superficial ground within 500m of the study site?	Yes
	2.2.3 Are there any records of landslip within 500m of the study site boundary?	No
	2.2.4 Are there any records relating to permeability of landslips within the study site* boundary?	No

Section 2: Geology 1:50,000 Scale

2.3 Bedrock, Solid Geology and linear features	2.3.1 For records of Bedrock and Solid Geology beneath the study site* see the detailed findings section.	
	2.3.2 Are there any records relating to permeability of bedrock ground within the study site boundary?	Yes
	2.3.3 Are there any records of linear features within 500m of the study site boundary?	No

Section 3: Radon

3. Radon	3.1Is 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 not in a Radon Affected Area, as less than 1% of properties are above the Action Level.
	3.2Radon Protection	No radon protective measures are necessary.

Section 4: Ground Workings	On-site	0-50m	51-250	251-500	501-1000
4.1 Historical Surface Ground Working Features from Small Scale Mapping	0	0	2	Not Searched	Not Searched
4.2 Historical Underground Workings from Small Scale Mapping	0	0	0	0	0
4.3 Current Ground Workings	0	0	0	0	0

Section 5: Mining, Extraction & Natural Cavities	On-site	0-50m	51-250	251-500	501-1000
5.1 Historical Mining	0	0	0	0	0
5.2 Coal Mining	0	0	0	0	0
5.3 Johnson Poole and Bloomer Mining Area	0	0	0	0	0
5.4 Non-Coal Mining*	0	0	0	0	0
5.5 Non–Coal Mining Cavities	0	0	0	0	0
5.5 Natural Cavities	0	0	0	0	0

Section 5: Mining, Extraction & Natural Cavities	On-site	0-50m	51-250	251-500	501-1000
5.6 Brine Extraction	0	0	0	0	0
5.7 Gypsum Extraction	0	0	0	0	0
5.8 Tin Mining	0	0	0	0	0
5.9 Clay Mining	0	0	0	0	0

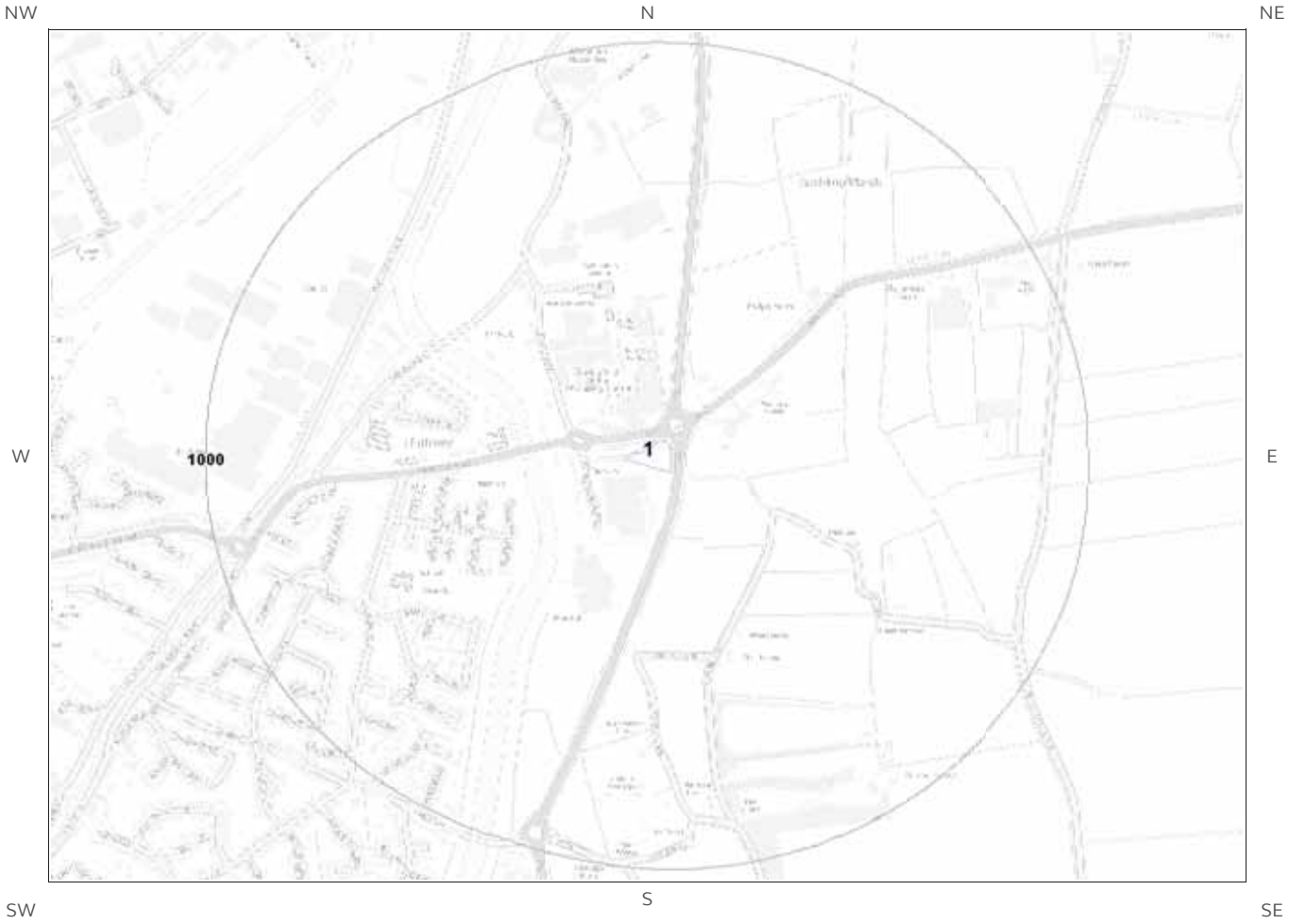
Section 6: Natural Ground Subsidence	On-site
6.1 Shrink-Swell Clay	Low
6.2 Landslides	Very Low
6.3 Ground Dissolution of Soluble Rocks	Negligible
6.4 Compressible Deposits	Moderate
6.5 Collapsible Deposits	Negligible
6.5 Running Sand	Moderate

Section 7: Borehole Records	On-site	0-50m	51-250
7 BGS Recorded Boreholes	0	0	6

Section 8: Estimated Background Soil Chemistry	On-site	0-50m	51-250
8 Records of Background Soil Chemistry	2	0	0

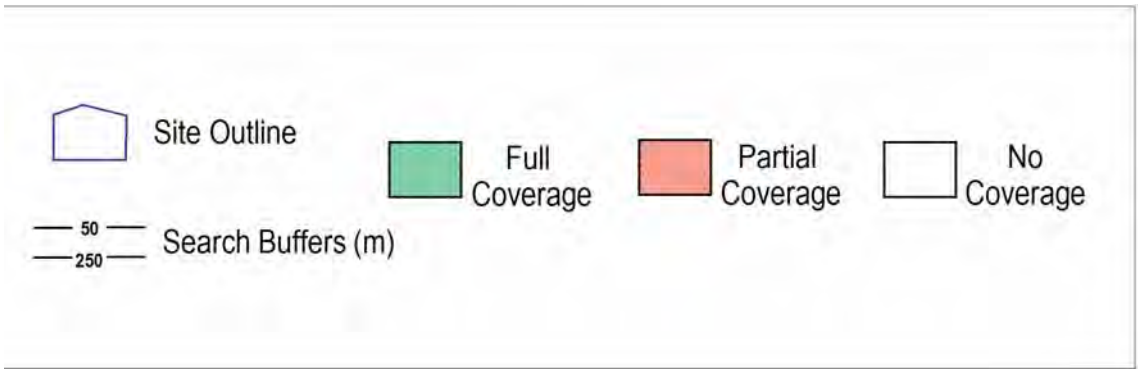
Section 9: Railways and Tunnels	On-site	0-50m	51-250	250-500
9.1 Tunnels	0	0	0	Not Searched
9.2 Historical Railway and Tunnel Features	0	0	0	Not Searched
9.3 Historical Railways	0	0	0	Not Searched
9.4 Active Railways	0	0	0	Not Searched
9.5 Railway Projects	0	0	0	0

1:10,000 Scale Availability



1_10,000 Availability Legend

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Availability of 1:10,000 Scale Geology Mapping

The following information represents the availability of the key components of the 1:10,000 scale geological data.

ID	Distance	Artificial Coverage	Superficial Coverage	Bedrock Coverage	Mass Movement Coverage
1	0.0	No deposits are mapped	No coverage	No coverage	No coverage

Guidance: The 1:10,000 scale geological interpretation is the most detailed generally available from BGS and is the scale at which most geological surveying is carried out in the field. The database is presented as four types of geology (artificial, mass movement, superficial and bedrock), although not all themes are mapped or available on every map sheet. Therefore a coverage layer showing the availability of the four themes is presented above.

The definitions of coverage are as follows:

Geology	Full Coverage	Partial Coverage	No Coverage
Bedrock	The whole tile has been mapped	Some but not all the tile has been mapped	No coverage
Superficial	The whole tile has been mapped	Some but not all of the tile has been mapped	No coverage
Artificial	Some deposits are mapped on this tile	-	No deposits are mapped
Mass Movement	Some deposits are mapped on this tile	-	No coverage

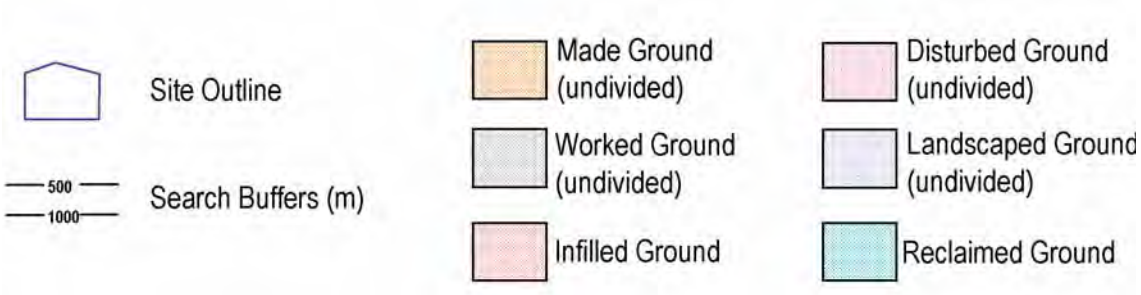
1 Geology (1:10,000 scale).

1.1 Artificial Ground map (1:10,000 scale)



Artificial Ground Legend

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1. Geology 1:10,000 scale

1.1 Artificial Ground

The following geological information represented on the mapping is derived from 1:10,000 scale BGS Geological mapping.

Are there any records of Artificial/ Made Ground within 500m of the study site boundary at 1:10,000 scale? No

Database searched and no data found.

1.2 Superficial Deposits and Landslips map (1:10,000 scale)



Artificial Ground Legend

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Site Outline

500
1000
Search Buffers (m)

1.2 Superficial Deposits and Landslips

The following geological information represented on the mapping is derived from 1:10,000 scale BGS Geological mapping

1.2.1 Superficial Deposits/ Drift Geology

Are there any records of Superficial Deposits/ Drift Geology within 500m of the study site boundary at 1:10,000 scale? No

Database searched and no data found.

1.2.2 Landslip

Are there any records of Landslip within 500m of the study site boundary at 1:10,000 scale?

No

Database searched and no data found.

The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of Great Britain at 1:10,000 scale

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.

1.3 Bedrock and linear features map (1:10,000 scale)



Bedrock and linear features Legend

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Site Outline

500
1000
Search Buffers (m)

1.3 Bedrock and linear features

The following geological information represented on the mapping is derived from 1:10,000 scale BGS Geological mapping.

1.3.1 Bedrock/ Solid Geology

Records of Bedrock/Solid Geology within 500m of the study site boundary at 1:10,000 scale.

Database searched and no data found at this scale.

1.3.2 Linear features

Are there any records of linear features within 500m of the study site boundary at 1:10,000 scale? No

Database searched and no data found at this scale.

The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of great Britain at 1:10,000 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.

---

2 Geology 1:50,000 Scale

2.1 Artificial Ground map



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Site Outline

500
1000
Search Buffers (m)

Made Ground (undivided)

Worked Ground (undivided)

Infilled Ground

Disturbed Ground (undivided)

Landscaped Ground (undivided)

Reclaimed Ground

2. Geology 1:50,000 scale

2.1 Artificial Ground

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No: 144

2.1.1 Artificial/ Made Ground

Are there any records of Artificial/ Made Ground within 500m of the study site boundary? No

Database searched and no data found.

2.1.2 Permeability of Artificial Ground

Are there any records relating to permeability of artificial ground within the study site boundary? No

Database searched and no data found.

2.2 Superficial Deposits and Landslips map (1:50,000 scale)



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Site Outline

500
1000
Search Buffers (m)

2.2 Superficial Deposits and Landslips

2.2.1 Superficial Deposits/ Drift Geology

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

ID	Distance	Direction	LEX Code	Description	Rock Description
1	0.0	On Site	TFD-XCZ	TIDAL FLAT DEPOSITS	CLAY AND SILT

2.2.2 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

2.2.3 Landslip

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

Database searched and no data found.

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, there 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.

2.2.4 Landslip Permeability

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

Database searched and no data found.

2.3 Bedrock and linear features map (1:50,000 scale)



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Site Outline

500
1000
Search Buffers (m)

2.3 Bedrock, Solid Geology & linear features

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No: 144

2.3.1 Bedrock/Solid Geology

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

ID	Distance	Direction	LEX Code	Rock Description	Rock Age
1	0.0	On Site	OXC-MDST	OXFORD CLAY FORMATION - MUDSTONE	CALLOVIAN

2.3.2 Permeability of Bedrock Ground

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

Distance	Direction	Flow Type	Maximum Permeability	Minimum Permeability
0.0	On Site	Fracture	Low	Very Low

2.3.3 Linear features

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

Database searched and no data found.

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 nation wide coverage.

3 Radon Data

3.1 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 not in a Radon Affected Area, as less than 1% of properties are above the Action Level.

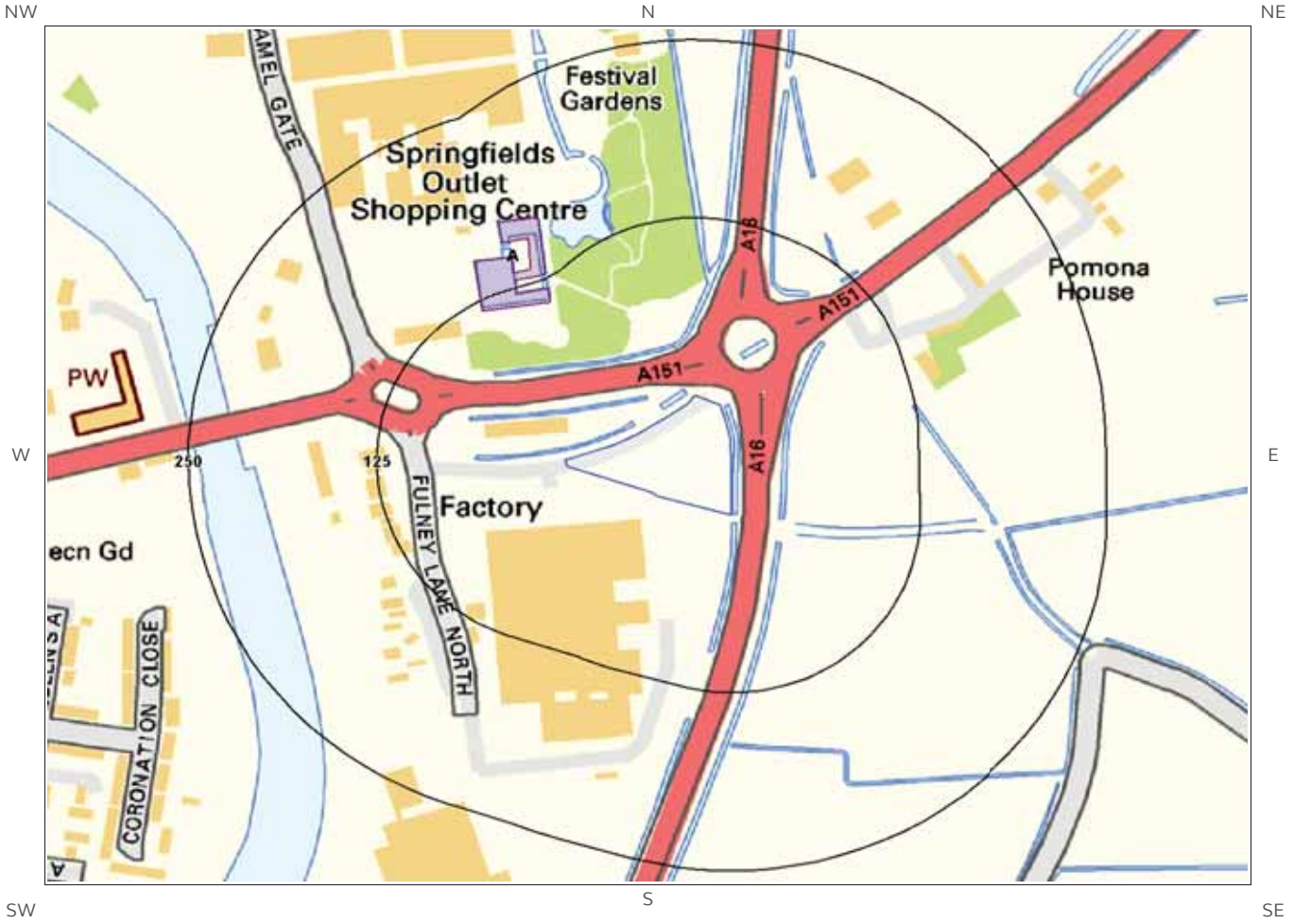
The radon data in this report is supplied by the BGS/Public Health England and is the definitive map of Radon Affected Areas in Great Britain and Northern Ireland. The dataset was created using long-term radon measurements in over 479,000 homes across Great Britain and 23,000 homes across Northern Ireland, combined with geological data. The dataset is considered accurate to 50m to allow for the margin of error in geological lines, and the findings of this report supercede any answer given in the less accurate Indicative Atlas of Radon in Great Britain, which simplifies the data to give the highest risk within any given 1km grid square. As such, the radon atlas is considered indicative, whereas the data given in this report is considered definitive.

3.2 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.

---

4 Ground Workings map



Ground Workings Legend

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Site Outline

125
250
Search Buffers (m)

Historic Surface Ground Workings

Historic Underground Workings

Current Ground Workings

4 Ground Workings

4.1 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

ID	Distance (m)	Direction	NGR	Use	Date
1A	109.0	N	526411 323910	Ponds	1987
2A	109.0	N	526411 323910	Ponds	1971

4.2 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? No

Database searched and no data found.

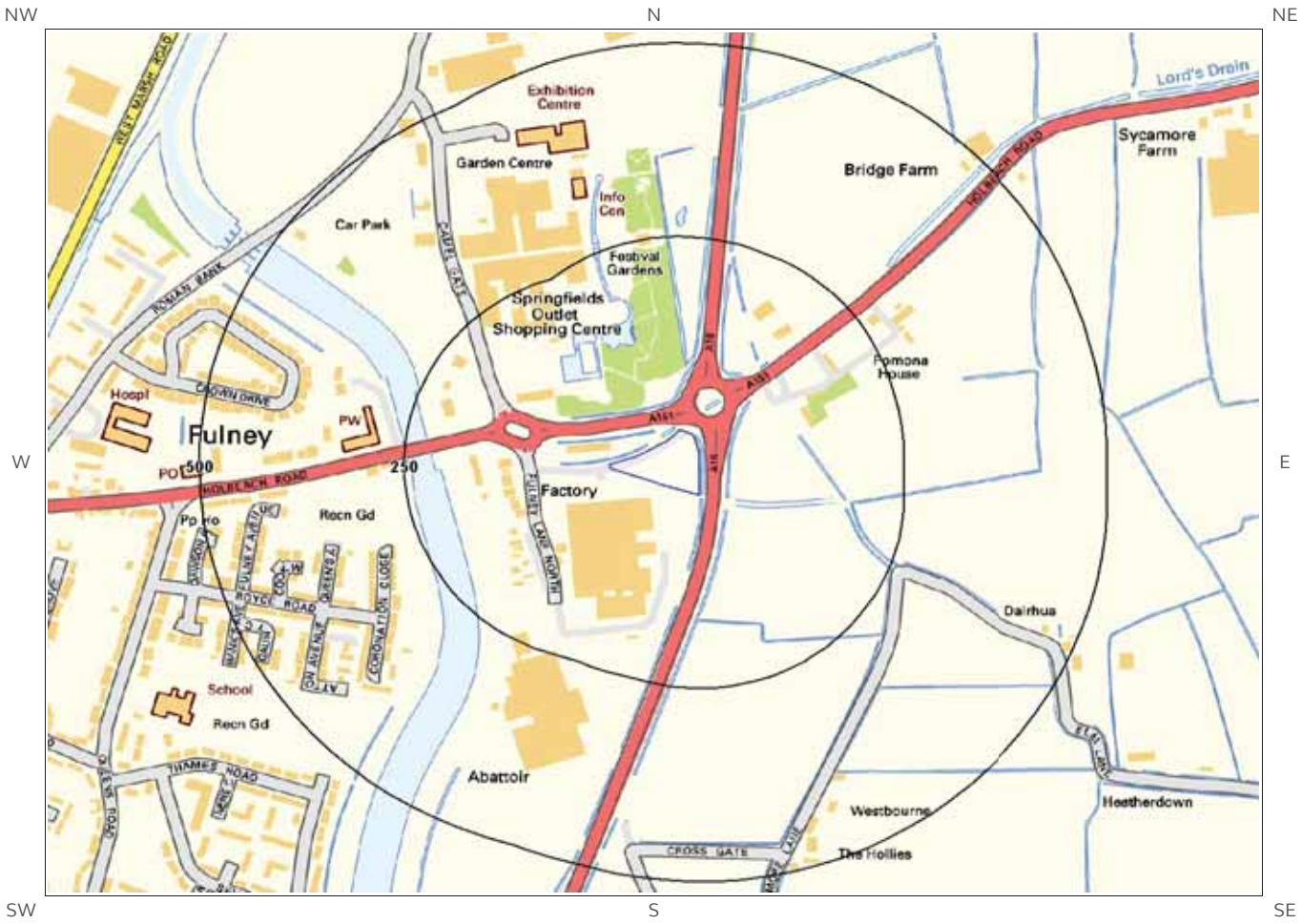
4.3 Current Ground Workings

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? No

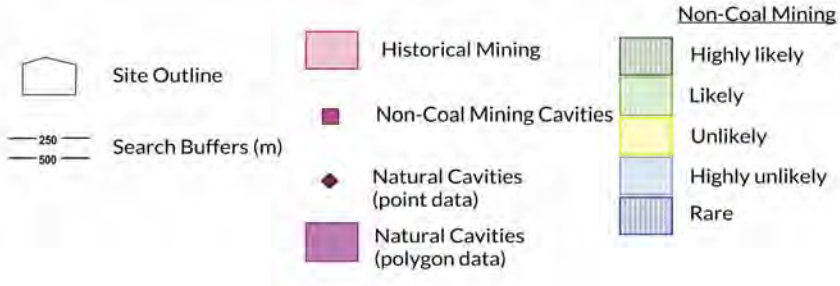
Database searched and no data found.

5 Mining, Extraction & Natural Cavities map



Mining, Extraction and Natural Cavities Legend

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5 Mining, Extraction & Natural Cavities

5.1 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? No

Database searched and no data found.

5.2 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? No

Database searched and no data found.

5.3 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.

5.4 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? No

Database searched and no data found.

5.5 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.

5.6 Natural Cavities

This dataset provides information based on the Peter Brett Associates natural cavities database. The dataset is made up of points and polygons. Where polygons are used these represent an area in which it is expected the cavities could be found. It does not indicate that cavities are present everywhere within the polygon, and caution should be used in the interpretation of this data.

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

Database searched and no data found.

5.7 Brine Extraction

This data provides information from the Coal Authority issued on behalf of the Cheshire Brine Subsidence Compensation Board.

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

Database searched and no data found.

5.8 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.

5.9 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.

5.10 Clay Mining

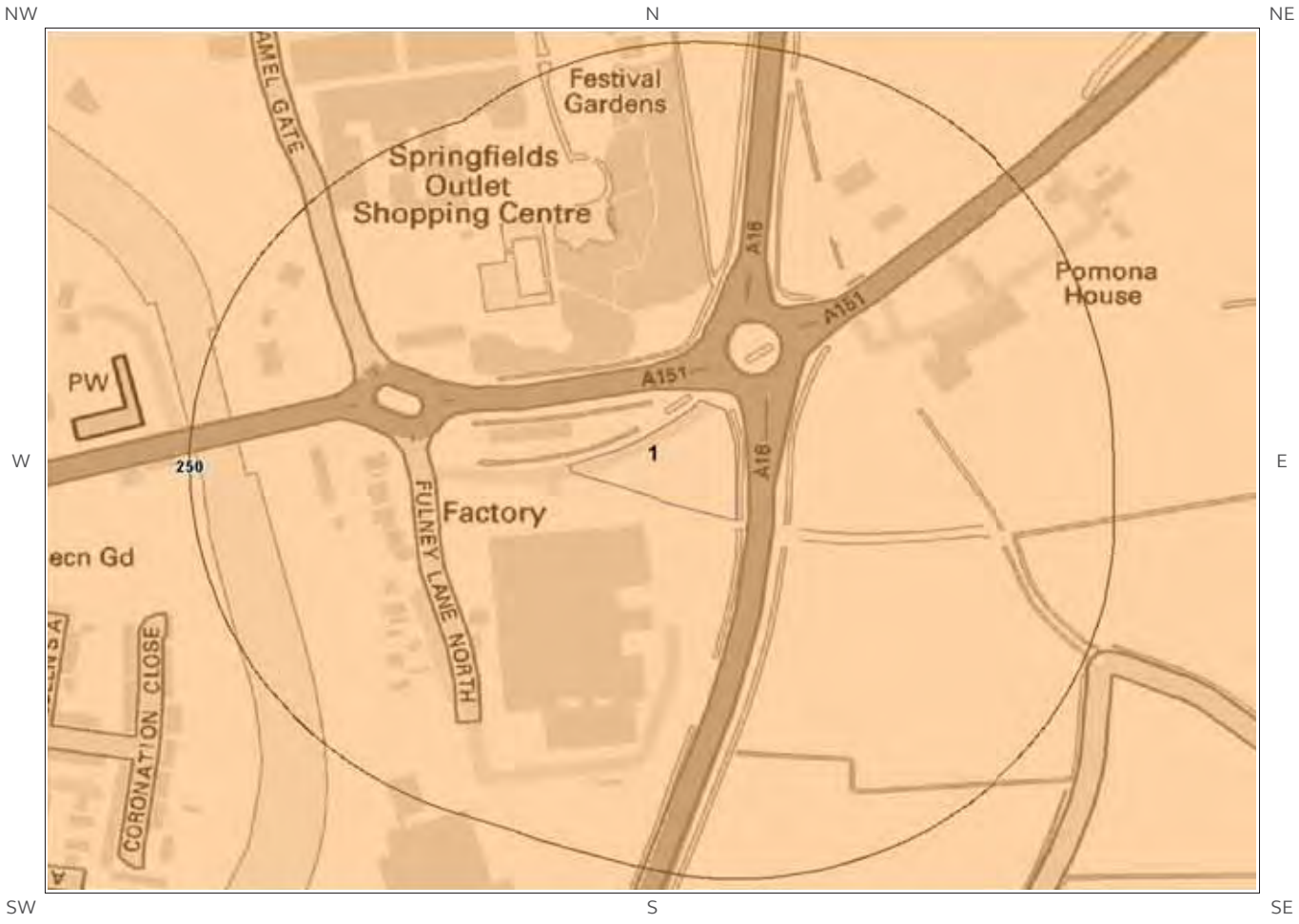
This dataset provides information on Kaolin and Ball Clay mining from relevant mining records.

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

Database searched and no data found.

6 Natural Ground Subsidence

6.1 Shrink-Swell Clay map



Shrink Swell Clay Legend

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6.2 Landslides map



Landslides Legend

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6.3 Ground Dissolution of Soluble Rocks map

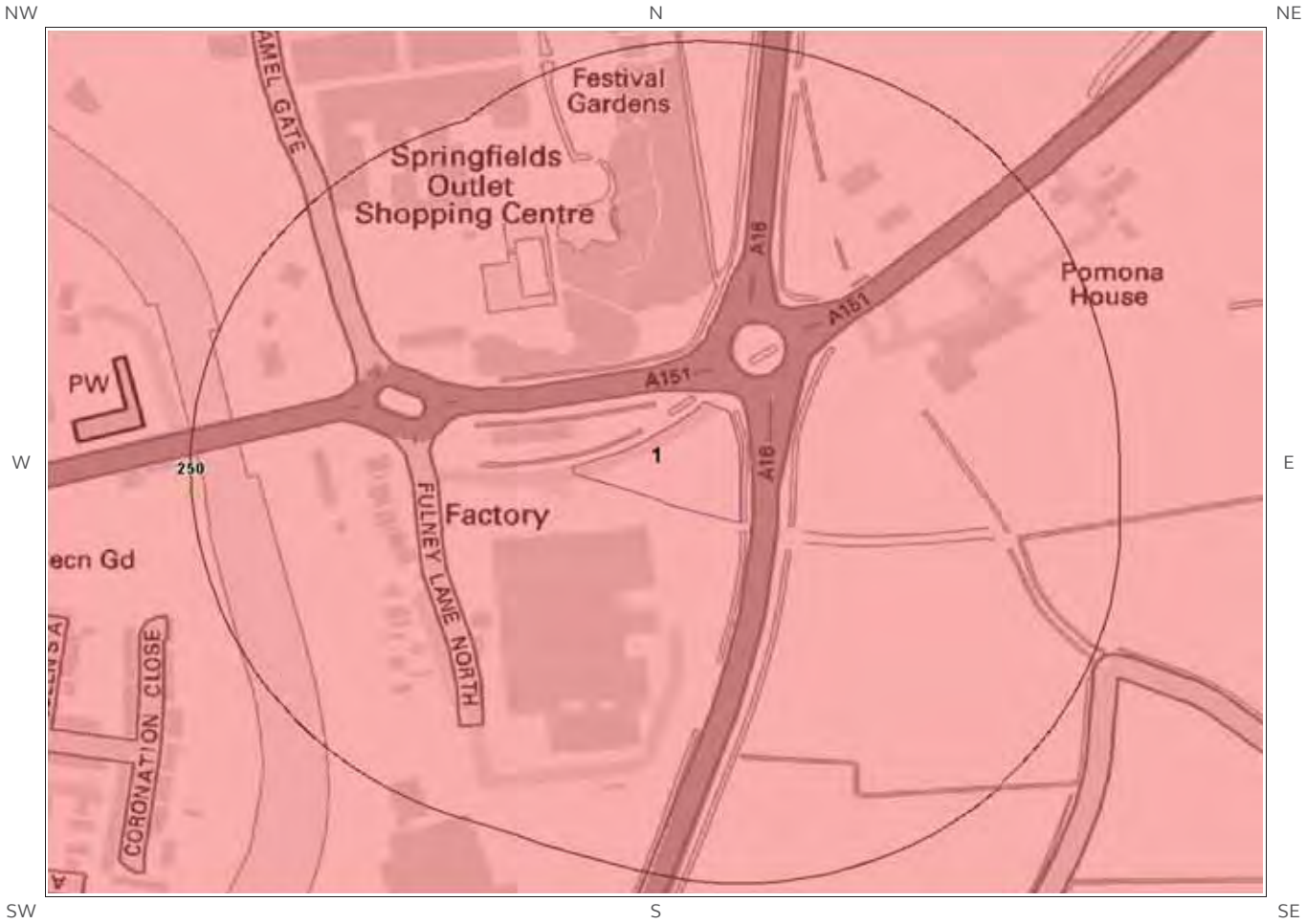


Ground Dissolution Soluble Rocks Legend

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6.4 Compressible Deposits map



Compressible Deposits Legend

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6.5 Collapsible Deposits map

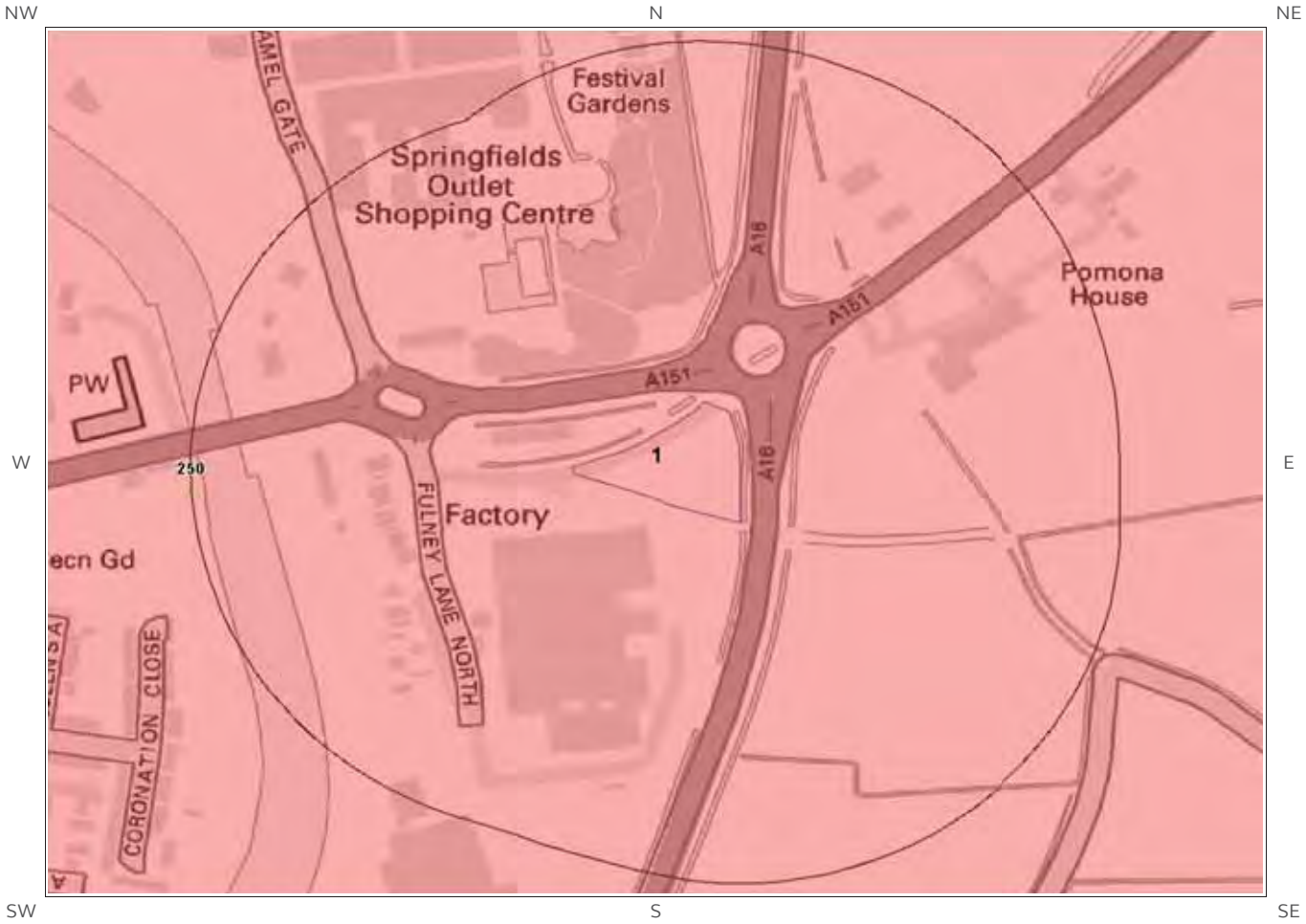


Collapsible Deposits Legend

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6.6 Running Sand map



Running Sand Legend

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6 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

6.1 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	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.

6.2 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.

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

6.3 Ground Dissolution of Soluble Rocks

The following Ground Dissolution information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	Soluble rocks are present, but unlikely to cause problems except under exceptional conditions. 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.

6.4 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	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.

6.5 Collapsible Deposits

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

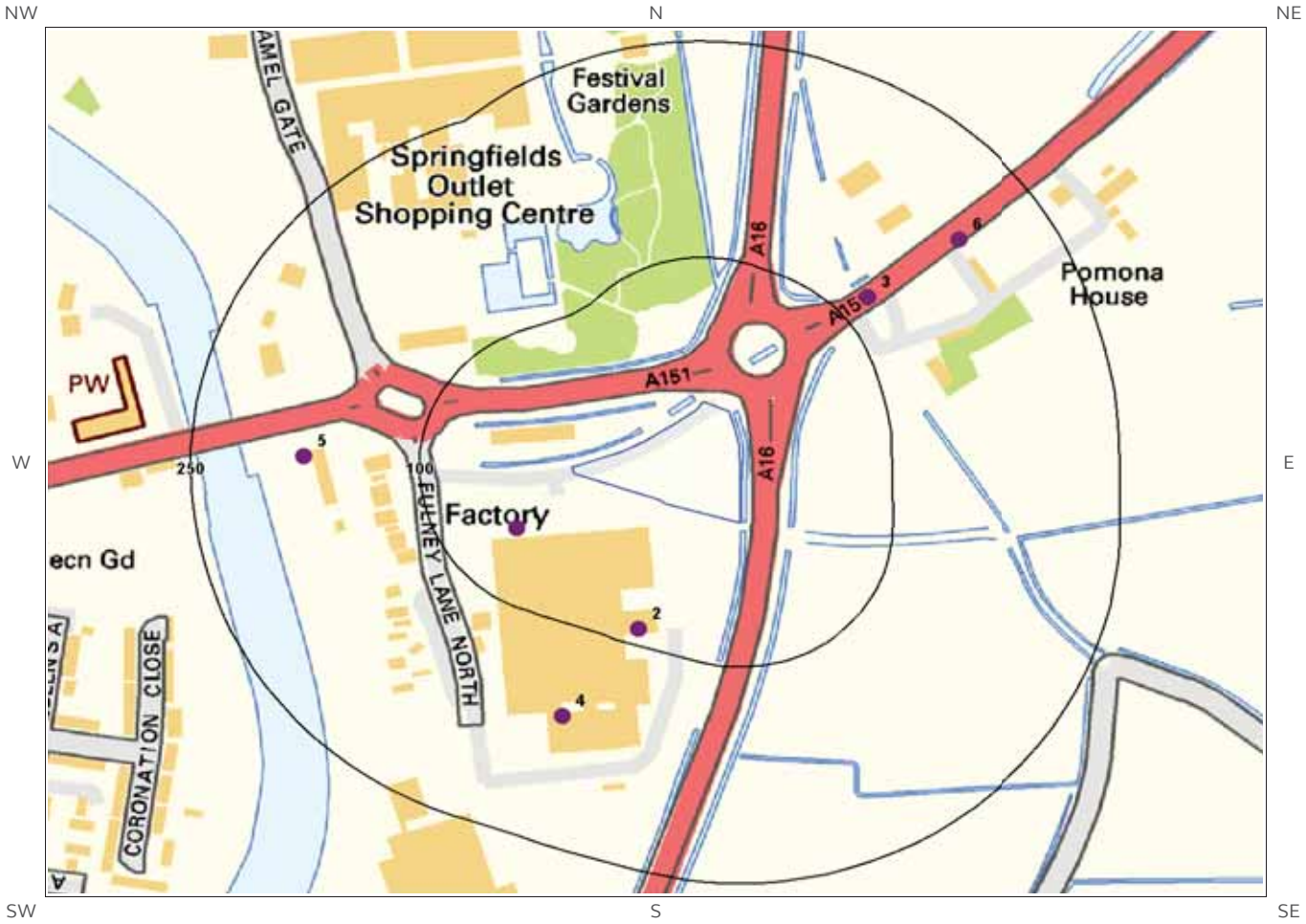
ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	No indicators for collapsible deposits identified. No actions required to avoid problems due to collapsible deposits. No special ground investigation required, or increased construction costs or increased financial risk due to potential problems with collapsible deposits.

6.6 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	Moderate	Significant potential for running sand problems with relatively small changes in ground conditions. Avoid large amounts of water entering the ground (for example through pipe leakage or soak-aways). Do not dig (deep) holes into saturated ground near the property without technical advice. For new build - consider the consequences of soil and groundwater conditions during and after construction. For existing property - possible increase in insurance risk from running sand, for example, due to water leakage, high rainfall events or flooding.

7 Borehole Records map



Borehole Records Legend

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Site Outline

Borehole Locations

125
250
Search Buffers (m)

7 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: 6

ID	Distance (m)	Direction	NGR	BGS Reference	Drilled Length	Borehole Name
1	54.0	SW	526410 323730	TF22SE54	15.0	FULNEY LANE SPALDING 1
2	89.0	S	526490 323660	TF22SE55	13.0	FULNEY LANE SPALDING 2
3	120.0	NE	526640 323890	TF22SE66	1.0	A16 SPALDING ROUNDABOUT TP 1
4	162.0	S	526440 323600	TF22SE56	12.0	FULNEY LANE SPALDING 3
5	176.0	W	526270 323780	TF22SE27	16.0	RIVER WELLAND DEVIATION 13
6	192.0	NE	526700 323930	TF22SE67	1.0	A16 SPALDING ROUNDABOUT TP 2

The borehole records are available using the hyperlinks below: Please note that if the donor of the borehole record has requested the information be held as commercial-in-confidence, the additional data will be held separately by the BGS and a formal request must be made for its release.

#1: scans.bgs.ac.uk/sobi_scans/boreholes/473754
#2: scans.bgs.ac.uk/sobi_scans/boreholes/473755
#3: scans.bgs.ac.uk/sobi_scans/boreholes/13326455
#4: scans.bgs.ac.uk/sobi_scans/boreholes/473756
#5: scans.bgs.ac.uk/sobi_scans/boreholes/473718
#6: scans.bgs.ac.uk/sobi_scans/boreholes/13326457

8 Estimated Background Soil Chemistry

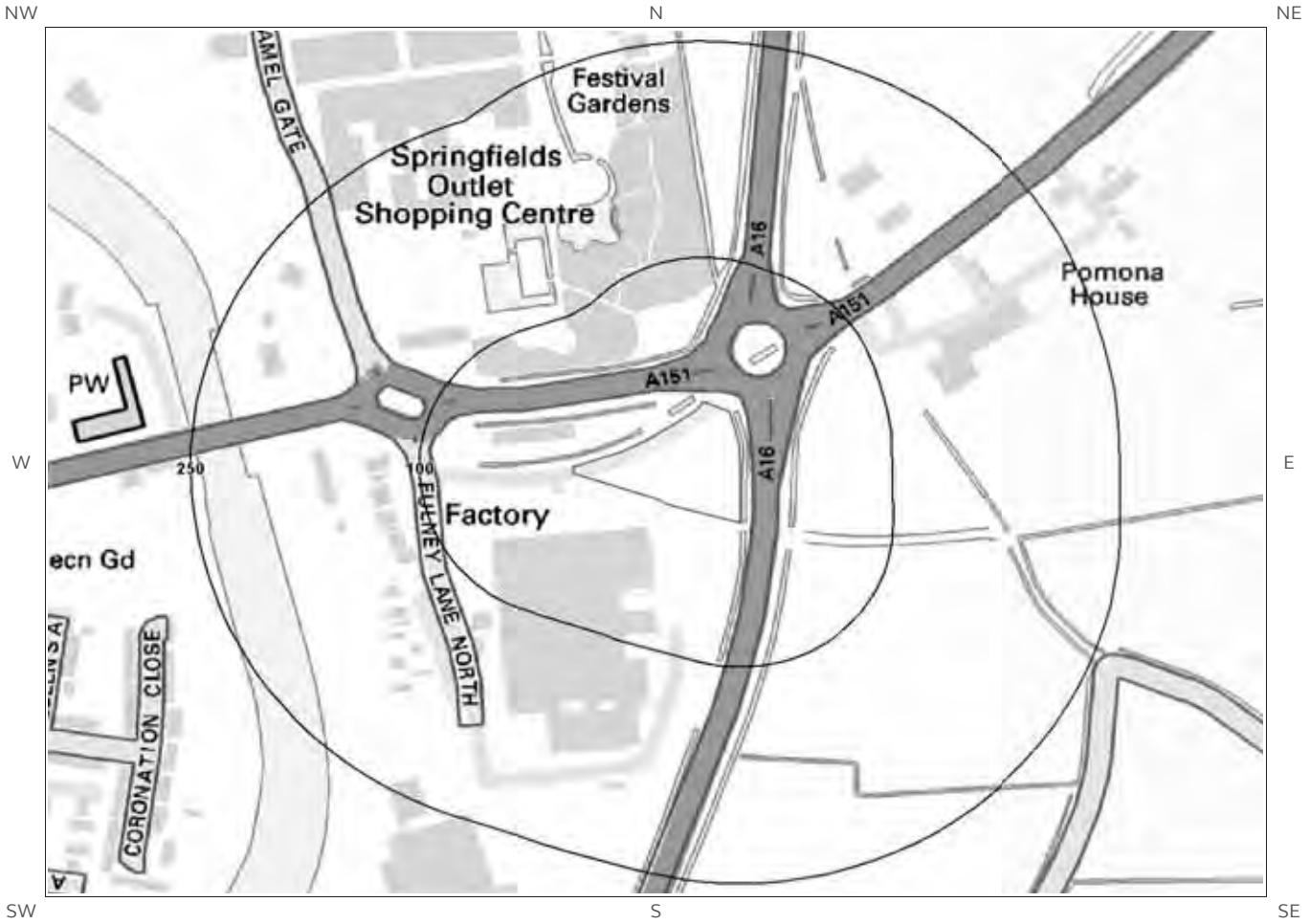
Records of background estimated soil chemistry within 250m of the study site boundary: 2

For further information on how this data is calculated and limitations upon its use, please see the Groundsure Geo Insight 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 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
0.0	On Site	RuralSoil	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 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.

9 Railways and Tunnels map



Railways and Tunnels Legend

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© OpenStreetMapContributors



9 Railways and Tunnels

9.1 Tunnels

This data is derived from OpenStreetMap and provides information on the possible locations of underground railway systems in the UK - the London Underground, the Tyne & Wear Metro and the Glasgow Subway.

Have any underground railway lines been identified within the study site boundary?	No
Have any underground railway lines been identified within 250m of the study site boundary?	No

Database searched and no data found.

Any records that have been identified are represented on the Railways and Tunnels map.

This data is derived from Ordnance Survey mapping and provides information on the possible locations of railway tunnels forming part of the UK overground railway network.

Have any other railway tunnels been identified within the site boundary?	No
Have any other railway tunnels been identified within 250m of the site boundary?	No

Database searched and no data found.

Any records that have been identified are represented on the Railways and Tunnels map.

9.2 Historical Railway and Tunnel Features

This data is derived from Groundsure's unique Historical Land-use Database and contains features relating to tunnels, railway tracks or associated works that have been identified from historical Ordnance Survey mapping.

Have any historical railway or tunnel features been identified within the study site boundary?	No
Have any historical railway or tunnel features been identified within 250m of the study site boundary?	No

Database searched and no data found.

Any records that have been identified are represented on the Railways and Tunnels map.

9.3 Historical Railways

This data is derived from OpenStreetMap and provides information on the possible alignments of abandoned or dismantled railway lines in proximity to the study site.

Have any historical railway lines been identified within the study site boundary?	No
Have any historical railway lines been identified within 250m of the study site boundary?	No

Database searched and no data found.

Multiple sections of the same track may be listed in the detail above
Any records that have been identified are represented on the Railways and Tunnels map.

9.4 Active Railways

These datasets are derived from Ordnance Survey mapping and OpenStreetMap and provide information on the possible locations of active railway lines in proximity to the study site.

Have any active railway lines been identified within the study site boundary?	No
Have any active railway lines been identified within 250m of the study site boundary?	No

Database searched and no data found.

Multiple sections of the same track may be listed in the detail above
Any records that have been identified are represented on the Railways and Tunnels map.

9.5 Railway Projects

These datasets provide information on the location of large scale railway projects High Speed 2 and Crossrail 1 .

Is the study site within 5km of the route of the High Speed 2 rail project?	No
Is the study site within 500m of the route of the Crossrail 1 rail project?	No

Further information on proximity to these routes, the project construction status and associated works can be obtained through the purchase of a Groundsure HS2 and Crossrail 1 Report.

The route data has been digitised from publicly available maps by Groundsure. The route as provided relates to the Crossrail 1 project only, and does not include any details of the Crossrail 2 project, as final details of the route for Crossrail 2 are still under consultation.

Please note that this assessment takes account of both the original Phase 2b proposed route and the amended route proposed in 2016. As the Phase 2b route is still under consultation, Groundsure are providing information on both options until the final route is formally confirmed. Practitioners should take account of this uncertainty when advising clients.

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Standard Terms and Conditions

Groundsure's Terms and Conditions can be viewed online at this link:
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APPENDIX B – EXPLORATORY HOLE RECORDS

Enzygo Ltd
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Site: Spalding

BH01

Job No	Dates	Ground Level (m)	Co-Ordinates
CRM.252.001	Start 20-09-18 Finish 20-09-18		

Client: Enzygo

Sheet: 1 of 1

Well	Water Levels	Samples & In Situ Testing: Depth (m)	No/Type	Results	Depth (m)	Level (mAD)	Legend	Stratum Description
		0.30	ES					MADE GROUND: Grass over light brownish grey SILT with frequent roots and rootlets.
					0.60			Orangish brown and grey mottled yellowish brown very sandy SILT.
		1.00	D	18				
		1.00 - 1.45	SPT					
		2.00	D	12				
		2.00 - 2.45	SPT					
		3.00	D	4	3.00			
		3.00 - 3.45	SPT					Very soft grey and orangish brown mottled yellowish brown very sandy CLAY.
		4.00	D	8				
		4.00 - 4.45	SPT					
					4.60			Grey clayey fine and medium SAND.
		5.00	D	19				
		5.00 - 5.45	SPT					
					5.45			Borehole completed at 5.45m.
					{8.00}			

0 1 2 3 4 5 6 7 8

General Remarks

Window sample borehole advanced from groundlevel to 5.45 m bgl. Ni services encountered. No groundwater encountered. Backfilled with arisings upon completion.

Groundwater

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

All dimensions in metres
Scale 1:50

Logged By: ED

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

Site: Spalding

BH02

Job No	Dates	Ground Level (m)	Co-Ordinates
CRM.252.001	Start 20-09-18 Finish 20-09-18		

Client: Enzygo

Sheet: 1 of 1

Well	Water Levels	Samples & In Situ Testing: Depth (m)	No/Type	Results	Depth (m)	Level (mAD)	Legend	Stratum Description
		0.40	ES		0.30			MADE GROUND: Grass over light brownish grey SILT with frequent roots and rootlets.
					0.60			Greyish brown and mottled orangish yellow very sandy SILT.
		1.00 1.00 - 1.45	D SPT	9				Brown and grey very sandy SILT.
		2.00 2.00 - 2.45	D SPT	8				
		3.00 3.00 - 3.45	D SPT	4				
					3.50			Grey rarely mottled black silty fine and medium SAND.
		4.00 4.00 - 4.45	D SPT	8				
					4.40			Very soft grey very sandy CLAY.
					4.70			Grey rarely mottled black silty fine and medium SAND with occasional laminae of very soft grey clay.
		5.00 5.00 - 5.45	D SPT	12				
					5.45			Borehole completed at 5.45m.
					{8.00}			

0 1 2 3 4 5 6 7 8

General Remarks

Window sample borehole advanced from groundlevel to 5.45 m bgl. No services encoountered. No groundwater encountered. Backfilled with arisings upon completion.

Groundwater

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

All dimensions in metres
Scale 1:50

Logged By: ED

1.0 ENZYGO BH LOG CRM.252.001 SPALDING.GPJ GINT STD AGS 3_1 ENZYGO.GPJ 1/10/18

Enzygo Ltd
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Web: www.enzygo.com

Site: Spalding

BH03

Job No	Dates	Ground Level (m)	Co-Ordinates
CRM.252.001	Start 20-09-18 Finish 20-09-18		

Client: Enzygo

Sheet: 1 of 1

Well	Water Levels	Samples & In Situ Testing: Depth (m)	No/Type	Results	Depth (m)	Level (mAD)	Legend	Stratum Description
		0.10	ES					MADE GROUND: Grass over dark brown slightly gravelly SILT with frequent roots and rootlets. Gravel is subangular fine and medium sandstone.
					0.70			
					0.90			MADE GROUND: Oranagish brown slghtly gravelly SILT with occasional rootlets. Gravel is subangular fine to coarse of sandstone, brick and ash.
		1.00 1.00 - 1.45	D SPT	13				Dark grey mottled reddish brown very silty fine and medium SAND.
					1.60			Orangish brown and grey silty fine and medium SAND.
		2.00 2.00 - 2.45	D SPT	11				
		3.00 3.00 - 3.45	D SPT	6				
		4.00 4.00 - 4.45	D SPT	3				
					4.40			Greyish brown silty fine and medium SAND.
		5.00 5.00 - 5.45	D SPT	15				
					5.45			Borehole completed at 5.45m.
					{8.00}			

0 1 2 3 4 5 6 7 8

General Remarks

Window sample borehole advanced from groundlevel to 5.45 m bgl. No services encountered. No groundwater encountered. 50 mm monitoring well installed upin completion.

Groundwater

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

All dimensions in metres
Scale 1:50

Logged By: ED

1.0 ENZYGO BH LOG CRM.252.001 SPALDING.GPJ GINT STD AGS 3_1 ENZYGO.GPJ 1/10/18

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Site: Spalding

BH04

Job No	Dates	Ground Level (m)	Co-Ordinates
CRM.252.001	Start 20-09-18 Finish 20-09-18		

Client: Enzygo

Sheet: 1 of 1

Well	Water Levels	Samples & In Situ Testing: Depth (m)	No/Type	Results	Depth (m)	Level (mAD)	Legend	Stratum Description
		0.20	ES					MADE GROUND: Grass over light brown and grey sandy SILT with frequent roots and rootlets.
					0.70			
		1.00 1.00 - 1.45	D SPT	17				MADE GROUND: Light borwnish grey slightly gravelly SILT with occasional rootlets and rare coarse gravel sized metal fragmants. Gravel is subangular fine to coarse of flint and concrete.
					1.50			
		2.00 2.00 - 2.45	D SPT	12				Grey sandy SILT.
					2.20			
								Bluish grey mottled orangish brown clayey fine and medium SAND.
					2.70			
		3.00 3.00 - 3.45	D SPT	7				Soft orangsih brown and mottled yellowish grey very sandy CLAY.
					3.60			
		4.00 4.00 - 4.45	D SPT	2				Brownish grey and rarely mottled black fine and medium SAND.
					4.30			
		5.00 5.00 - 5.45	D SPT	8				Grey slightly silty fine and medium SAND.
					5.45			Borehole completed at 5.45m.
					{8.00}			

0 1 2 3 4 5 6 7 8

General Remarks

Window sample borehole advanced from groundlevel to 5.45 m bgl. No services encountered. No groundwater encountered. Backfilled with arisings upon completion.

Groundwater

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

All dimensions in metres
Scale 1:50

Logged By: ED

1.0 ENZYGO BH LOG CRM.252.001 SPALDING.GPJ GINT STD AGS 3_1 ENZYGO.GPJ 1/10/18

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Site: Spalding

BH05

Job No	Dates	Ground Level (m)	Co-Ordinates
CRM.252.001	Start 20-09-18 Finish 20-09-18		

Client: Enzygo

Sheet: 1 of 1

Well	Water Levels	Samples & In Situ Testing: Depth (m)	No/Type	Results	Depth (m)	Level (mAD)	Legend	Stratum Description
		0.20	ES		0.25			MADE GROUND: Grass over brown slightly gravelly sandy SILT with frequent rootlets. Gravel is subangular and subrounded fine and medium flint.
					0.60			MADE GROUND: Light orangish brown and grey slightly gravelly sandy SILT. Gravel is subangular and subrounded fine to coarse sandstone.
		1.00 1.00 - 1.45	D SPT	16				Brown mottled orangish brown and grey slightly gravelly sandy SILT with occasional roots and rootlets. Gravel is subangular to subrounded fine to coarse of sandstone.
					1.50			Firm light grey mottled reddish brown silty CLAY.
		2.00 2.00 - 2.45	D SPT	5				
		3.00 3.00 - 3.45	D SPT	3	3.00			Very soft sandy dark grey CLAY.
					3.70			Brownish grey silty fine and medium SAND.
		4.00 4.00 - 4.45	D SPT	2				
		5.00 5.00 - 5.45	D SPT	10				
					5.45			Borehole completed at 5.45m.
					{8.00}			

0 1 2 3 4 5 6 7 8

General Remarks

Window sample borehole advanced from groundlevel to 5.45 m bgl. No services encountered. No groundwater encountered. 50 mm monitoring well installed upon compeltion.

Groundwater

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

All dimensions in metres
Scale 1:50

Logged By: ED

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BH06

Job No	Dates	Ground Level (m)	Co-Ordinates
CRM.252.001	Start 20-09-18 Finish 20-09-18		

Client: Enzygo

Sheet: 1 of 1

Well	Water Levels	Samples & In Situ Testing: Depth (m)	No/Type	Results	Depth (m)	Level (mAD)	Legend	Stratum Description
		0.30	ES		0.40			MADE GROUND: Grass over light brownish grey slightly gravelly sandy SILT with frequent rootlets. Gravel is subangular fine to coarse of flint.
		1.00 1.00 - 1.45	D SPT	12	1.00			Grey mottled orangish brown and yellowish brown sandy SILT.
		2.00 2.00 - 2.45	D SPT	4	1.50 2.30			Greyish brown slightly sandy SILT.
		3.00 3.00 - 3.45	D SPT	16	3.20			Brown slightly sandy SILT with a faint organic odour.
					3.40			Firm bluish grey very sandy CLAY.
					3.50			Firm brown very sandy CLAY.
		4.00 4.00 - 4.45	D SPT	2				Firm black and brown silty CLAY.
		5.00 5.00 - 5.45	D SPT	12	5.45			Brown rarely mottled black slightly clayey silty fine and medium SAND.
					{8.00}			Borehole completed at 5.45m.

0 1 2 3 4 5 6 7 8

General Remarks

Window sample borehole advanced from groundlevel to 5.45 m bgl. No services encountered. No groundwater encountered. Backfilled with arisings upon completion.

Groundwater

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

All dimensions in metres
Scale 1:50

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Site: Spalding

BH07

Job No	Dates	Ground Level (m)	Co-Ordinates
CRM.252.001	Start 21-09-18 Finish 21-09-18		

Client: Enzygo

Sheet: 1 of 1

Well	Water Levels	Samples & In Situ Testing: Depth (m)	No/Type	Results	Depth (m)	Level (mAD)	Legend	Stratum Description
		0.20	ES		0.30			MADE GROUND: Grass over light brownish grey slightly sandy gravelly SILT with frequent rootlets. Gravel is subangular fine to coarse flint.
					0.80			MADE GROUND: Orangish brown gravelly SILT. Gravel is subangular fine and medium of brick, concrete and ash.
		1.00 1.00 - 1.45	D SPT	10	1.10			MADE GROUND: Orangish brown slightly gravelly clayey SILT. Gravel is subangular fine and medium of brick, concrete and ash.
					1.40			Light brownish grey clayey fine and medium SAND.
		2.00 2.00 - 2.45	D SPT	6	2.50			Brownish grey clayey fine and medium SAND with rare fine gravel sized shell fragments.
					2.60			Firm blusih grey silty CLAY.
		3.00 3.00 - 3.45	D SPT	9	3.40			Firm closely fissured thickly laminated orangish brown mottled bluish grey silty CLAY with frequent light grey fine and medium sand lamine.
		4.00 4.00 - 4.45	D SPT	4				Orangish brown mottled black rarely mottled orangish brown silty fine and medium SAND.
		5.00 5.00 - 5.45	D SPT	9	5.45			Borehole completed at 5.45m.
					{8.00}			

General Remarks

Window sample borehole advanced grom groundlevel to 5.45 m bgl. No services encountered. No groundwater encountered. Backfilled with arisings upon completion.

Groundwater

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

All dimensions in metres
Scale 1:50

Logged By: ED

1.0 ENZYGO BH LOG CRM.252.001 SPALDING.GPJ GINT STD AGS 3_1 ENZYGO.GPJ 1/10/18

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Site: Spalding

BH08

Job No	Dates	Ground Level (m)	Co-Ordinates
CRM.252.001	Start 21-09-18 Finish 21-09-18		

Client: Enzygo

Sheet: 1 of 1

Well	Water Levels	Samples & In Situ Testing: Depth (m)	No/Type	Results	Depth (m)	Level (mAD)	Legend	Stratum Description
		0.20	ES		0.50			MADE GROUND: Grass over light brownish grey slightly gravelly sandy SILT with frequent rootlets. Gravel is subangular fine to coarse of flint.
					0.70			MADE GROUND: Brownsandy SILT with rare roots and rootslets. Gravel is subangular fine to coarse of flint.
		1.00 1.00 - 1.45	ES SPT	12	1.00			MADE GROUND: Dark grey mottled black slightly gravelly SILT with a faint organic odour. Gravel is subangular fine and medium of flint.
					1.40			MADE GROUND: Light brownish grey sandy SILT.
								MADE GROUND: Dark Grey and mottled balck slightly gravelly SILT with a faint organic odour. Gravel is subangular fine and medium brick and clinker.
		2.00 2.00 - 2.45	ES SPT	4	2.10			Firm closely fissured brownish grey silty CLAY with rare fine and medium shell fragments.
					2.70			Firm orangish brown closely fissured brownish grey silty CLAY with rare fine and medium shell fragments.
		3.00 3.00 - 3.45	D SPT	8	3.30			Orangish brown slightly silty clayey fine and medium SAND.
		4.00 4.00 - 4.45	D SPT	4				
		5.00 5.00 - 5.45	D SPT	10	5.45			Borehole completed at 5.45m.
					{8.00}			

0 1 2 3 4 5 6 7 8

General Remarks

Window sample borehole advanced from groundlevel to 5.45 m bgl. No services encountered. No groundwater encountered. 50 mm monitoring well isntalled upon completion.

Groundwater

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

All dimensions in metres
Scale 1:50

Logged By: ED

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Site: Spalding

BH09

Job No	Dates	Ground Level (m)	Co-Ordinates
CRM.252.001	Start 21-09-18 Finish 21-09-18		

Client: Enzygo

Sheet: 1 of 1

Well	Water Levels	Samples & In Situ Testing: Depth (m)	No/Type	Results	Depth (m)	Level (mAD)	Legend	Stratum Description
		0.30	ES		0.55			MADE GROUND: Grass over light brown slightly gravelly slightly sandy SILT with frequent roots and rootlets. Gravel is subangular and subrounded fine and medium of flint.
		1.00 1.00 - 1.45	D SPT	2	1.30			Brown and orangish brown slightly gravelly silty fine and medium SAND. Gravel is subangular and subrounded fine and medium of flint.
					1.50			Orangish brown and grey slightly clayey silty fine and medium SAND.
		2.00 2.00 - 2.45	D SPT	8				Light greyish brown and mottled yellowish brown slightly clayey fine and medium SAND.
		3.00 3.00 - 3.45	D SPT	5	3.20			Firm orangish brown mottled bluish grey and orangish brown silty CLAY.
					3.70			
					3.90			Soft orangish brown mottled bluish grey and orangish brown very sandy CLAY.
		4.00 4.00 - 4.45	D SPT	3	4.40			Orangish brown and mottled bluish grey and orangish brown clayey fine and medium SAND.
					4.70			Grey silty fine and medium SAND.
		5.00 5.00 - 5.45	D SPT	20	5.45			Light brownish grey silty fine to coarse SAND.
					{8.00}			Borehole completed at 5.45m.

0 1 2 3 4 5 6 7 8

General Remarks

Window sample borehole advanced from groundlevel to 5.45 m bgl. No services encountered. No groundwater encountered. Backfilled with arisings upon completion.

Groundwater

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

All dimensions in metres
Scale 1:50

Logged By: ED

1.0 ENZYGO BH LOG CRM.252.001 SPALDING.GPJ GINT STD AGS 3_1 ENZYGO.GPJ 1/10/18

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Site: Spalding

BH10

Job No	Dates	Ground Level (m)	Co-Ordinates
CRM.252.001	Start 21-09-18 Finish 21-09-18		

Client: Enzygo

Sheet: 1 of 1

Well	Water Levels	Samples & In Situ Testing: Depth (m)	No/Type	Results	Depth (m)	Level (mAD)	Legend	Stratum Description
		0.20	ES		0.10			MADE GROUND: Grass over brown slightly sandy fine to coarse SAND with frequent roots and rootlets.
					0.40			Brown slightlysilty sandy subangular fine to coarse concrete GRAVEL and COBBLES with rare fine to coarse gravel sized glass ceramic and plastic fragnents.
		1.00 1.00 - 1.45	D ES SPT	5				MADE GROUND: Brown and reddish brown slightly silty sandy subangular to subrounded fine to coarse brick GRAVEL and COBBLES with rare fine to coarse gravel sized glass and plastic fragments.
		2.00 2.00 - 2.45	D SPT	12	2.00			MADE GROUND: Brown and reddish brown slightly clayey sandy subangular to subrounded fine to coarse brick and clinker GRAVEL with rare fine to coarse gravel sized fragments of glass and plastic fragments.
					2.50			Light brown and mottled orangish brown slightly clayey fine to coarse SAND.
		3.00 3.00 - 3.45	D SPT	2				
		4.00 4.00 - 4.45	D SPT	12				
		5.00 5.00 - 5.45	D SPT	24				
					5.45			Borehole completed at 5.45m.
					{8.00}			

0 1 2 3 4 5 6 7 8

General Remarks

Window sample borehole advanced from groundlevel to 5.45 m bgl. No services encountered. No groundwater encountered. Backfilled with arisings upon completion.

Groundwater

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

All dimensions in metres
Scale 1:50

Logged By: ED

Enzygo Ltd
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Web: www.enzygo.com

Site: Spalding

HP01

Job No	Dates	Ground Level (m)	Co-Ordinates
CRM.252.001	Start 21-09-18 Finish 21-09-18		

Client: Enzygo

Sheet: 1 of 1

Water Levels	Samples & In Situ Testing: Depth (m)	No/Type	Results	Depth (m)	Level (mAD)	Legend	Stratum Description
							MADE GROUND: Grass over light brownish grey slightly gravelly sandy SILT with frequent rootlets. Gravel is subangular fine to coarse of flint.
				0.30			MADE GROUND: Orangish brown gravelly SILT. Gravel is subangular fine to medium of brick concrete and ash.
	0.50	B		0.50			Trial Pit completed at 0.50m.
				{4.00}			

0 1 2 3 4

General Remarks

Dimensions: xx0.50
Hand dug trial pit advanced from groundlevel to 0.5 m bgl. No services encountered. No groundwater encountered. Backfilled with arisings upon completion.

All dimensions in metres
Scale 1:25

Logged By: ED

1.1 ENZYGO TP LOG CRM.252.001 SPALDING.GPJ GINT STD AGS 3_1 ENZYGO.GPJ 1/10/18

Enzygo Ltd
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Site: Spalding

HP02

Job No	Dates	Ground Level (m)	Co-Ordinates
CRM.252.001	Start 21-09-18 Finish 21-09-18		

Client: Enzygo

Sheet: 1 of 1

Water Levels	Samples & In Situ Testing: Depth (m)	No/Type	Results	Depth (m)	Level (mAD)	Legend	Stratum Description
							MADE GROUND: Grass over light brownish grey slightly gravelly sandy SILT with frequent roots and rootlets. Gravel is subangular fine to coarse of flint.
	0.50	B		0.50			Trial Pit completed at 0.50m.
				{4.00}			

0
1
2
3
4

General Remarks

Dimensions: xx0.50
Hand dug trial pit advanced from groundlevel to 0.5 m bgl. No services encountered. No groundwater encountered. Backfilled with arisings upon competion.

All dimensions in metres
Scale 1:25

Logged By: ED

1.1 ENZYGO TP LOG CRM.252.001 SPALDING.GPJ GINT STD AGS 3_1 ENZYGO.GPJ 1/10/18

Enzygo Ltd
Tel: 01454 269237
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Site: Spalding

HP03

Job No	Dates	Ground Level (m)	Co-Ordinates
CRM.252.001	Start 21-09-18 Finish 21-09-18		

Client: Enzygo

Sheet: 1 of 1

Water Levels	Samples & In Situ Testing: Depth (m)	No/Type	Results	Depth (m)	Level (mAD)	Legend	Stratum Description
				0.00			MADE GROUND: Grass over brown slightly gravelly sandy SILT with frequent roots and rootlets. Gravel is subangular to subrounded fine to medium of flint.
	0.50	B		0.50			Trial Pit completed at 0.50m.
				{4.00}			

0
1
2
3
4

General Remarks

Dimensions: xx0.50
Hand dug trial pit advanced from groundlevel to 0.5 m bgl. No services encountered. No groundwater encountered. Backfilled with arisings upon completion.

All dimensions in metres
Scale 1:25

Logged By: ED

1.1 ENZYGO TP LOG CRM.252.001 SPALDING.GPJ GINT STD AGS 3_1 ENZYGO.GPJ 1/10/18

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Analytical Report Number : 18-11570

Project / Site name:	Land at A151-A6 Spalding	**Samples received on:**	25/09/2018
Your job number:	CRM.252.001	**Samples instructed on:**	25/09/2018
Your order number:	CRM.252.001	**Analysis completed by:**	01/10/2018
Report Issue Number:	1	**Report issued on:**	01/10/2018
Samples Analysed:	5 soil samples		

Signed:

Jordan Hill
Reporting Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number: 18-11570

Project / Site name: Land at A151-A6 Spalding
Your Order No: CRM.252.001

Lab Sample Number				1052416	1052417	1052418	1052419	1052420
Sample Reference				BH01	BH03	BH04	BH06	BH09
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	0.10	0.20	0.30	0.30
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	6.5	8.5	7.8	6.2	9.8
Total mass of sample received	kg	0.001	NONE	1.7	1.8	1.8	1.7	1.0
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	-	Not-detected	Not-detected
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	7.8	7.9	8.0	9.5	8.3
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	-	-	0.0089	-	-
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	0.29	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	0.27	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	< 0.05
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	< 0.80	-	< 0.80	< 0.80
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	9.8	8.0	-	9.1	8.5
Boron (water soluble)	mg/kg	0.2	MCERTS	3.5	1.6	-	1.1	2.8
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	-	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	-	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	17	14	-	14	15
Copper (aqua regia extractable)	mg/kg	1	MCERTS	20	23	-	18	32
Lead (aqua regia extractable)	mg/kg	1	MCERTS	42	23	-	17	20
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	-	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	13	13	-	13	11
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	49	47	-	47	49

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Analytical Report Number: 18-11570

Project / Site name: Land at A151-A6 Spalding
Your Order No: CRM.252.001

Lab Sample Number				1052416	1052417	1052418	1052419	1052420
Sample Reference				BH01	BH03	BH04	BH06	BH09
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.20	0.10	0.20	0.30	0.30
Date Sampled				Deviating	Deviating	Deviating	Deviating	Deviating
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	< 0.001	-	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	-	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	-	< 0.001	< 0.001
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0	< 1.0
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	-	< 2.0	< 2.0
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	< 8.0	-	< 8.0	< 8.0
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	< 8.0	-	< 8.0	< 8.0
TPH-CWG - Aliphatic > EC35 - EC44	mg/kg	8.4	NONE	< 8.4	< 8.4	-	< 8.4	< 8.4
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10	-	< 10	< 10
TPH-CWG - Aliphatic (EC5 - EC44)	mg/kg	10	NONE	< 10	< 10	-	< 10	< 10
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	< 0.001	-	< 0.001	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	< 0.001	-	< 0.001	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	< 0.001	< 0.001	-	< 0.001	< 0.001
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0	< 1.0
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	< 2.0	< 2.0	-	< 2.0	< 2.0
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	< 10	< 10	-	< 10	< 10
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	< 10	< 10	-	< 10	< 10
TPH-CWG - Aromatic > EC35 - EC44	mg/kg	8.4	NONE	< 8.4	< 8.4	-	< 8.4	< 8.4
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	< 10	< 10	-	< 10	< 10
TPH-CWG - Aromatic (EC5 - EC44)	mg/kg	10	NONE	< 10	< 10	-	< 10	< 10
TPH (>C5 - C7)	mg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0	< 1.0
TPH (>C7 - C8)	mg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0	< 1.0
TPH (C8 - C10)	mg/kg	0.1	MCERTS	< 0.1	< 0.1	-	< 0.1	< 0.1
TPH (C10 - C12)	mg/kg	2	MCERTS	< 2.0	< 2.0	-	< 2.0	< 2.0
TPH (C12 - C16)	mg/kg	4	MCERTS	< 4.0	< 4.0	-	< 4.0	< 4.0
TPH (C16 - C21)	mg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0	< 1.0
TPH (C21 - C35)	mg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0	6.4
TPH (C35 - C44)	mg/kg	10	NONE	< 10	< 10	-	< 10	< 10
TPH Total C5 - C44	mg/kg	10	NONE	< 10	< 10	-	< 10	< 10

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Analytical Report Number : 18-11570

Project / Site name: Land at A151-A6 Spalding

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1052416	BH01	None Supplied	0.20	Brown loam and sand with gravel and vegetation.
1052417	BH03	None Supplied	0.10	Brown loam and sand with gravel and vegetation.
1052418	BH04	None Supplied	0.20	Brown loam and sand with gravel and vegetation.
1052419	BH06	None Supplied	0.30	Brown loam and sand with gravel and vegetation.
1052420	BH09	None Supplied	0.30	Brown loam and sand with gravel and vegetation.

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Analytical Report Number : 18-11570

Project / Site name: Land at A151-A6 Spalding

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS
TPH in (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding.	L076-PL	D	NONE
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L088/76-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

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Analytical Report Number : 18-11571

Project / Site name:	Land at A151-A6 Spalding	**Samples received on:**	25/09/2018
Your job number:	CRM.252.001	**Samples instructed on:**	25/09/2018
Your order number:	CRM.252.001	**Analysis completed by:**	03/10/2018
Report Issue Number:	1	**Report issued on:**	03/10/2018
Samples Analysed:	2 wac multi samples		

Signed:

Jordan Hill
Reporting Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

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leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Waste Acceptance Criteria Analytical Results

Report No:	**18-11571**						
					Client:	**ENZYGOGEO**	
Location	**Land at A151-A6 Spalding**						
Lab Reference (Sample Number)	1052421				**Landfill Waste Acceptance Criteria Limits**		
Sampling Date					Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	BH02						
Depth (m)	0.40						
Solid Waste Analysis							
TOC (%)**	0.5				3%	5%	6%
Loss on Ignition (%) **	1.4				--	--	10%
BTEX (µg/kg) **	< 10				6000	--	--
Sum of PCBs (mg/kg) **	< 0.30				1	--	--
Mineral Oil (mg/kg) #	< 10				500	--	--
Total PAH (WAC-17) (mg/kg)	< 0.9				100	--	--
pH (units)**	7.8				--	>6	--
Acid Neutralisation Capacity (mol / kg)	12				--	To be evaluated	To be evaluated
Eluate Analysis	2:1	8:1		Cumulative 10:1	Limit values for compliance leaching test		
(BS EN 12457 - 3 preparation utilising end over end leaching procedure)	mg/l	mg/l		mg/kg	using BS EN 12457-3 at L/S 10 l/kg (mg/kg)		
Arsenic *	< 0.010	< 0.010		< 0.050	0.5	2	25
Barium *	0.024	0.019		0.20	20	100	300
Cadmium *	< 0.0005	< 0.0005		< 0.0020	0.04	1	5
Chromium *	< 0.0010	0.0025		0.024	0.5	10	70
Copper *	0.021	0.0062		0.078	2	50	100
Mercury *	< 0.0015	< 0.0015		< 0.010	0.01	0.2	2
Molybdenum *	0.027	0.012		0.13	0.5	10	30
Nickel *	< 0.0010	< 0.0010		0.0084	0.4	10	40
Lead *	< 0.0050	< 0.0050		0.041	0.5	10	50
Antimony *	< 0.0050	< 0.0050		< 0.020	0.06	0.7	5
Selenium *	< 0.010	< 0.010		< 0.040	0.1	0.5	7
Zinc *	0.0044	0.0046		0.046	4	50	200
Chloride *	< 4.0	< 4.0		16	800	4000	25000
Fluoride	1.4	0.77		8.4	10	150	500
Sulphate *	4.0	2.4		26	1000	20000	50000
TDS*	92	57		600	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.13	< 0.13		< 0.50	1	-	-
DOC	12	6.0		66	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	2.0						
Dry Matter (%)	91						
Moisture (%)	9.5						
Stage 1							
Volume Eluate L2 (litres)	0.33						
Filtered Eluate VE1 (litres)	0.18						

Results are expressed on a dry weight basis, after correction for moisture content where applicable.

*= UKAS accredited (liquid eluate analysis only)

Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation

** = MCERTS accredited

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3.
This analysis is only applicable for landfill acceptance criteria (The Environmental Permitting (England and Wales) Regulations) and does not give any indication as to whether a waste may be hazardous or non-hazardous.

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Waste Acceptance Criteria Analytical Results

Report No:	**18-11571**						
					Client:	**ENZYGOGEO**	
Location	**Land at A151-A6 Spalding**						
Lab Reference (Sample Number)	1052422				**Landfill Waste Acceptance Criteria Limits**		
Sampling Date					Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	BH08						
Depth (m)	0.20						
Solid Waste Analysis							
TOC (%)**	0.9				3%	5%	6%
Loss on Ignition (%) **	2.1				--	--	10%
BTEX (µg/kg) **	< 10				6000	--	--
Sum of PCBs (mg/kg) **	< 0.30				1	--	--
Mineral Oil (mg/kg) #	< 10				500	--	--
Total PAH (WAC-17) (mg/kg)	< 0.9				100	--	--
pH (units)**	8.0				--	>6	--
Acid Neutralisation Capacity (mol / kg)	5.3				--	To be evaluated	To be evaluated
Eluate Analysis (BS EN 12457 - 3 preparation utilising end over end leaching procedure)	2:1 mg/l	8:1 mg/l		Cumulative 10:1 mg/kg	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)		
Arsenic *	< 0.010	< 0.010		< 0.050	0.5	2	25
Barium *	0.046	0.024		0.27	20	100	300
Cadmium *	< 0.0005	< 0.0005		< 0.0020	0.04	1	5
Chromium *	< 0.0010	< 0.0010		0.0054	0.5	10	70
Copper *	0.022	0.0056		0.076	2	50	100
Mercury *	< 0.0015	< 0.0015		< 0.010	0.01	0.2	2
Molybdenum *	0.012	0.0053		0.062	0.5	10	30
Nickel *	0.0010	< 0.0010		< 0.0050	0.4	10	40
Lead *	< 0.0050	< 0.0050		0.023	0.5	10	50
Antimony *	< 0.0050	< 0.0050		< 0.020	0.06	0.7	5
Selenium *	< 0.010	< 0.010		0.075	0.1	0.5	7
Zinc *	0.0072	0.0027		0.033	4	50	200
Chloride *	< 4.0	< 4.0		20	800	4000	25000
Fluoride	1.6	0.80		9.0	10	150	500
Sulphate *	19	4.7		65	1000	20000	50000
TDS*	120	65		720	4000	60000	100000
Phenol Index (Monhydric Phenols) *	< 0.13	< 0.13		< 0.50	1	-	-
DOC	14	7.3		81	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	1.8						
Dry Matter (%)	94						
Moisture (%)	5.7						
Stage 1							
Volume Eluate L2 (litres)	0.34						
Filtered Eluate VE1 (litres)	0.22						

Results are expressed on a dry weight basis, after correction for moisture content where applicable.

*= UKAS accredited (liquid eluate analysis only)

Stated limits are for guidance only and i2 cannot be held responsible for any discrepencies with current legislation

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Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3.
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Analytical Report Number : 18-11571

Project / Site name: Land at A151-A6 Spalding

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Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1052421	BH02	None Supplied	0.40	Light brown loam and sand with gravel.
1052422	BH08	None Supplied	0.20	Light brown loam and sand with gravel.

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Analytical Report Number : 18-11571

Project / Site name: Land at A151-A6 Spalding

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Acid neutralisation capacity of soil	Determination of acid neutralisation capacity by addition of acid or alkali followed by electronic probe.	In-house method based on Guidance an Sampling and Testing of Wastes to Meet Landfill Waste Acceptance	L046-PL	W	NONE
BTEX (Sum of BTEX compounds) in soil	Determination of BTEX in soil by headspace GC-MS. Individual components MCERTS accredited	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Chloride in WAC leachate (BS EN 12457-3 Prep)	Determination of Chloride colorimetrically by discrete analyser.	In house based on MEWAM Method ISBN 0117516260.	L082-PL	W	ISO 17025
DOC in WAC leachate (BS EN 12457-3 Prep)	Determination of dissolved organic carbon in leachate by TOC/DOC NDIR analyser.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L037-PL	W	NONE
Fluoride in WAC leachate (BS EN 12457-3 Prep)	Determination of fluoride in leachate by 1:1ratio with a buffer solution followed by Ion Selective Electrode.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L033-PL	W	ISO 17025
Loss on ignition of soil @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L047-PL	D	MCERTS
Metals in WAC leachate (BS EN 12457-3 Prep)	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L039-PL	W	ISO 17025
Mineral Oil in Soil C10 - C40	Determination of dichloromethane/hexane extractable hydrocarbons in soil by GC-MS.	In-house method based on USEPA 8270	L076-PL	D	NONE
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
PCB's by GC-MS in soil	Determination of PCB by extraction with acetone and hexane followed by GC-MS.	In-house method based on USEPA 8082	L027-PL	D	MCERTS
pH in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	MCERTS
Phenol Index in WAC leachate (BS EN 12457-3 Prep)	Determination of monohydric phenols in leachate by continuous flow analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025

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The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number : 18-11571

Project / Site name: Land at A151-A6 Spalding

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270. MCERTS accredited except Coronene.	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate in WAC leachate (BS EN 12457-3 Prep)	Determination of sulphate in leachate by acidification followed by ICP-OES.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L039-PL	W	ISO 17025
TDS in WAC leachate (BS EN 12457-3 Prep)	Determination of total dissolved solids in leachate by electrometric measurement.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L031-PL	W	ISO 17025
Total organic carbon in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L023-PL	D	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

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The results included within the report are representative of the samples submitted for analysis.

Determinant	Units	GAC Value Residential					
		With Plant Uptake			Without Plant Uptake		
Arsenic	mg/kg	37			40		
Cadmium	mg/kg	11			85		
Chromium	mg/kg	910			910		
Chromium VI	mg/kg	6			6		
Lead	mg/kg	200			310		
Mercury	mg/kg	40			56		
Nickel	mg/kg	180			180		
Selenium	mg/kg	250			430		
Copper	mg/kg	2400			7100		
Zinc	mg/kg	3700			40000		
Cyanide	mg/kg	791			800		
SOM	%	1	2.5	6	1	2.5	6
Phenol	mg/kg	120	200	380	440	690	1200
Napthalene	mg/kg	2.3	5.6	13	2.3	5.6	13
Acenaphtylene	mg/kg	170	420	920	2900	4600	6000
Acenaphthene	mg/kg	210	510	1100	3000	4700	6000
Flourene	mg/kg	170	400	860	2800	3800	4500
Phenanthrene	mg/kg	95	220	440	1300	1500	1500
Anthracene	mg/kg	2400	5400	11000	31000	35000	37000
Fluoranthene	mg/kg	280	560	890	1500	1600	1600
Pyrene	mg/kg	620	1200	2000	3700	3800	3800
Benzo(a)Anthracene	mg/kg	7.2	11	13	11	14	15
Chrysene	mg/kg	15	22	27	30	31	32
Benzo(b)Flouranthene	mg/kg	2.6	3.3	3.7	3.9	4.0	4.0
Benzo(k)Flouranthene	mg/kg	77	93	100	110	110	110
Benzo(a)Pyrene	mg/kg	2.2	2.7	3.0	3.2	3.2	3.2
Indeno(123-cd)Pyrene	mg/kg	27	36	41	45	46	46
Dibenzo(a,h)Anthracene	mg/kg	0.24	0.28	0.3	0.31	0.32	0.32
Benzo(ghi)Perylene	mg/kg	320	340	350	360	360	360
TPH C_5-C_6 Aliphatic	mg/kg	**42**	**78**	**160**	**42**	**78**	**160**
TPH C_6-C_8 Aliphatic	mg/kg	**100**	**230**	**530**	**100**	**230**	**530**
TPH C_8-C_{10} Aliphatic	mg/kg	**27**	**65**	**150**	**27**	**65**	**150**
TPH C_{10}-C_{12} Aliphatic	mg/kg	130	330	760	**130**	**330**	**770**
TPH C_{12}-C_{16} Aliphatic	mg/kg	1100	2400	4300	**1100**	2400	4400
TPH C_{16}-C_{35} Aliphatic	mg/kg	65000	92000	110000	65000	92000	110000
TPH C_{35}-C_{44} Aliphatic	mg/kg	65000	92000	110000	65000	92000	110000
TPH C_5-C_7 Aromatic	mg/kg	70	140	300	370	690	1400
TPH C_7-C_8 Aromatic	mg/kg	130	290	660	860	1800	3900
TPH C_8-C_{10} Aromatic	mg/kg	34	83	190	47	110	270
TPH C_{10}-C_{12} Aromatic	mg/kg	**74**	**180**	**380**	250	590	1200
TPH C_{12}-C_{16} Aromatic	mg/kg	**140**	**330**	**660**	1800	**2300**	**2500**
TPH C_{16}-C_{21} Aromatic	mg/kg	**260**	**540**	**930**	**1900**	**1900**	**1900**
TPH C_{21}-C_{35} Aromatic	mg/kg	**1100**	**1500**	**1700**	**1900**	**1900**	**1900**
TPH C_{35}-C_{44} Aromatic	mg/kg	**1100**	**1500**	**1700**	**1900**	**1900**	**1900**
Benzene	mg/kg	0.087	0.17	0.37	0.38	0.70	1.4
Toluene	mg/kg	130	290	660	880	1900	3900
Ethylebenzene	mg/kg	47	110	260	83	190	440
Xylene	mg/kg	56	130	310	79	180	430

Determinant	Units	GAC Value					
		Residential POS			Commercial		
Arsenic	mg/kg	79			640		
Cadmium	mg/kg	120			190		
Chromium	mg/kg	1500			8600		
Chromium VI	mg/kg	7.7			33		
Lead	mg/kg	630			2330		
Mercury	mg/kg	120			1100		
Nickel	mg/kg	230			980		
Selenium	mg/kg	1100			12000		
Copper	mg/kg	12000			68000		
Zinc	mg/kg	81000			730000		
Cyanide	mg/kg	N/A			16200		
SOM	%	1	2.5	6	1	2.5	6
Phenol	mg/kg	440	690	1300	440	690	1300
Napthalene	mg/kg	4900	4900	4900	190	460	1100
Acenaphtylene	mg/kg	15000	15000	15000	83000	97000	100000
Acenaphthene	mg/kg	15000	15000	15000	84000	97000	100000
Flourene	mg/kg	9900	9900	9900	63000	68000	71000
Phenanthrene	mg/kg	3100	3100	3100	22000	22000	23000
Anthracene	mg/kg	74000	74000	74000	520000	540000	540000
Fluoranthene	mg/kg	3100	3100	3100	23000	23000	23000
Pyrene	mg/kg	7400	7400	7400	54000	54000	54000
Benzo(a)Anthracene	mg/kg	29	29	29	170	170	180
Chrysene	mg/kg	57	57	57	350	350	350
Benzo(b)Flouranthene	mg/kg	7.1	7.2	7.2	44	44	45
Benzo(k)Flouranthene	mg/kg	190	190	190	1200	1200	1200
Benzo(a)Pyrene	mg/kg	5.7	5.7	5.7	35	35	36
Indeno(123-cd)Pyrene	mg/kg	82	82	82	500	510	510
Dibenzo(a,h)Anthracene	mg/kg	0.57	0.57	0.58	3.5	3.6	3.6
Benzo(ghi)Perylene	mg/kg	640	640	640	3900	4000	4000
TPH C_5-C_6 Aliphatic	mg/kg	570000	590000	600000	**3200**	**5900**	**12000**
TPH C_6-C_8 Aliphatic	mg/kg	600000	610000	620000	**7800**	**17000**	**40000**
TPH C_8-C_{10} Aliphatic	mg/kg	13000	13000	13000	**2000**	**4800**	**11000**
TPH C_{10}-C_{12} Aliphatic	mg/kg	13000	13000	13000	**9700**	**23000**	47000
TPH C_{12}-C_{16} Aliphatic	mg/kg	13000	13000	13000	59000	82000	90000
TPH C_{16}-C_{35} Aliphatic	mg/kg	250000	250000	250000	1600000	1700000	1800000
TPH C_{35}-C_{44} Aliphatic	mg/kg	250000	250000	250000	1600000	1700000	1800000
TPH C_5-C_7 Aromatic	mg/kg	**56000**	**56000**	**56000**	26000	46000	86000
TPH C_7-C_8 Aromatic	mg/kg	**56000**	**56000**	**56000**	56000	110000	180000
TPH C_8-C_{10} Aromatic	mg/kg	**5000**	**5000**	**5000**	3500	8100	17000
TPH C_{10}-C_{12} Aromatic	mg/kg	**5000**	**5000**	**5000**	16000	28000	**34000**
TPH C_{12}-C_{16} Aromatic	mg/kg	**5100**	**5100**	**5000**	**36000**	**37000**	**38000**
TPH C_{16}-C_{21} Aromatic	mg/kg	**3800**	**3800**	**3800**	**28000**	**28000**	**28000**
TPH C_{21}-C_{35} Aromatic	mg/kg	**3800**	**3800**	**3800**	**28000**	**28000**	**28000**
TPH C_{35}-C_{44} Aromatic	mg/kg	**3800**	**3800**	**3800**	**28000**	**28000**	**28000**
Benzene	mg/kg	72	72	73	27	47	90
Toluene	mg/kg	56000	56000	56000	56000	110000	180000
Ethylebenzene	mg/kg	24000	24000	25000	5700	13000	27000
Xylene	mg/kg	41000	42000	43000	5900	14000	30000

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Determinant	Units	GAC Value					
		Park POS			Allotments		
Arsenic	mg/kg	170			43		
Cadmium	mg/kg	532			1.9		
Chromium	mg/kg	33000			18000		
Chromium VI	mg/kg	220			1.8		
Lead	mg/kg	1300			80		
Mercury	mg/kg	240			19		
Nickel	mg/kg	3400			230		
Selenium	mg/kg	1800			88		
Copper	mg/kg	44000			520		
Zinc	mg/kg	170000			620		
Cyanide	mg/kg						
SOM	%	1	2.5	6	1	2.5	6
Phenol	mg/kg	440	690	1300	23	42	83
Napthalene	mg/kg	1200	1900	3000	4.1	10	24
Acenaphtylene	mg/kg	29000	30000	30000	28	69	160
Acenaphthene	mg/kg	29000	30000	30000	34	85	200
Flourene	mg/kg	20000	20000	20000	27	67	160
Phenanthrene	mg/kg	6200	6200	6300	15	38	90
Anthracene	mg/kg	150000	150000	150000	380	950	2200
Fluoranthene	mg/kg	6300	6300	6400	52	130	290
Pyrene	mg/kg	15000	15000	15000	110	270	620
Benzo(a)Anthracene	mg/kg	49	56	62	2.9	6.5	13
Chrysene	mg/kg	93	110	120	4.1	9.4	19
Benzo(b)Flouranthene	mg/kg	13	15	16	0.99	2.1	3.9
Benzo(k)Flouranthene	mg/kg	370	410	440	37	75	130
Benzo(a)Pyrene	mg/kg	11	12	13	0.97	2.0	3.5
Indeno(123-cd)Pyrene	mg/kg	150	170	180	9.5	21	39
Dibenzo(a,h)Anthracene	mg/kg	1.1	1.3	1.4	0.14	0.27	0.43
Benzo(ghi)Perylene	mg/kg	1400	1500	1600	290	470	640
TPH C_5-C_6 Aliphatic	mg/kg	95000	130000	180000	730	1700	3900
TPH C_6-C_8 Aliphatic	mg/kg	150000	220000	320000	2300	5600	13000
TPH C_8-C_{10} Aliphatic	mg/kg	14000	18000	21000	320	770	1700
TPH C_{10}-C_{12} Aliphatic	mg/kg	21000	23000	24000	2200	4400	7300
TPH C_{12}-C_{16} Aliphatic	mg/kg	25000	25000	26000	11000	13000	13000
TPH C_{16}-C_{35} Aliphatic	mg/kg	450000	480000	490000	260000	270000	270000
TPH C_{35}-C_{44} Aliphatic	mg/kg	450000	480000	490000	260000	270000	270000
TPH C_5-C_7 Aromatic	mg/kg	**76000**	**84000**	**92000**	**13**	**27**	**57**
TPH C_7-C_8 Aromatic	mg/kg	**87000**	**95000**	**100000**	**22**	**51**	**120**
TPH C_8-C_{10} Aromatic	mg/kg	**7200**	**8500**	**9300**	**8.6**	**21**	**51**
TPH C_{10}-C_{12} Aromatic	mg/kg	**9200**	**9700**	**10000**	**13**	**31**	**74**
TPH C_{12}-C_{16} Aromatic	mg/kg	**10000**	**10000**	**10000**	**23**	**57**	**130**
TPH C_{16}-C_{21} Aromatic	mg/kg	**7600**	**7700**	**7800**	**46**	**110**	**260**
TPH C_{21}-C_{35} Aromatic	mg/kg	**7800**	**7800**	**7900**	**370**	**820**	**1600**
TPH C_{35}-C_{44} Aromatic	mg/kg	**7800**	**7800**	**7900**	**370**	**820**	**1600**
Benzene	mg/kg	90	100	110	0.017	0.034	0.075
Toluene	mg/kg	87000	95000	100000	22	51	120
Ethylebenzene	mg/kg	17000	22000	27000	16	39	91
Xylene	mg/kg	17000	23000	31000	28	67	160

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Controlled Waters Assessment Reference Values

Determinant	Unit	EQS Freshwater						Uk DWS	WHO
Hardness	mg/l	0-50	50-100	100-150	150-200	200-250	>250		
Arsenic	ug/l	50						10	10
Boron	ug/l	2000						1000	0.3
Cadmium	ug/l	5						5	3
Chromium	ug/l	2	10	10	20	20	20	50	50
Lead	ug/l	4	10	10	20	20	20	10	10
Mercury	ug/l	1						1	1
Selenium	ug/l							10	10
Copper	ug/l	0.5	3	3	3	8	12	20000	2000
Nickel	ug/l	8	20	20	40	40	40	20	70
Zinc	ug/l	8	15	15	50	50	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							
Ethylebenzene	ug/l	20							
Xylene	ug/l	30							
$C_5 – C_6$ 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

APPENDIX D – GEOTECHNICAL TESTING

TEST CERTIFICATE

Determination of Liquid and Plastic Limits

Tested in Accordance with BS1377-2: 1990: Clause 4.4 & 5: One Point Method

UKAS TESTING
4041

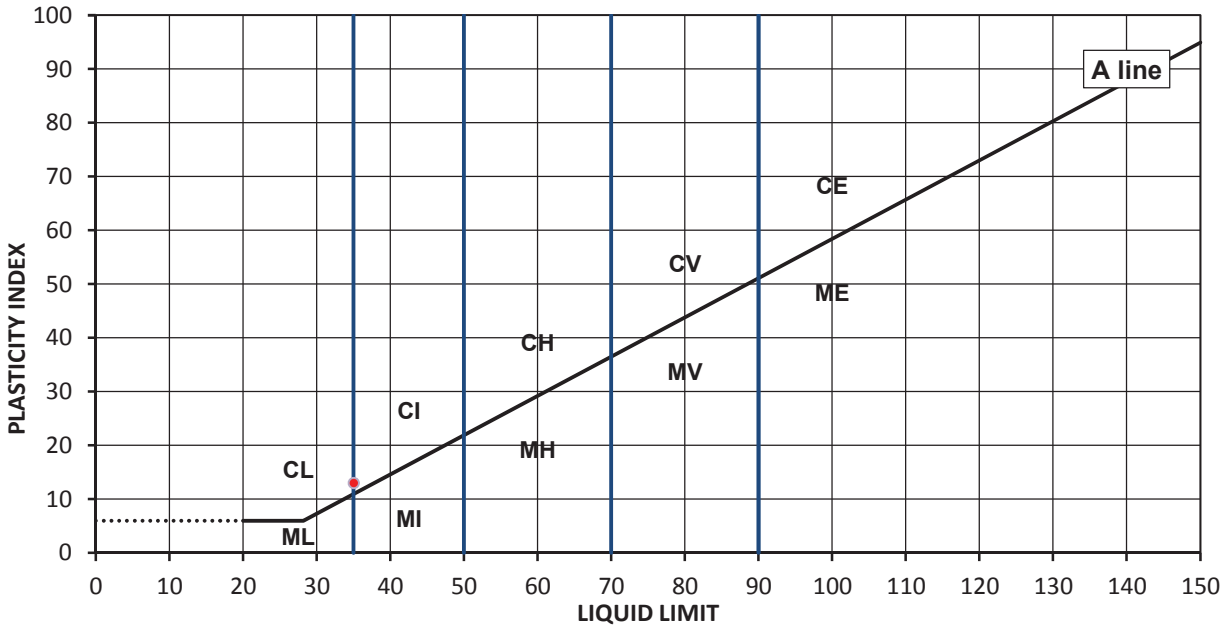
i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

Client:	Enzygo Geoenvironmental Ltd	Client Reference:	CRM.252.001
Client Address:	The Byre Woodend Lane Cromhall Gloucestershire GL12 8AA	Job Number:	18-11759
		Date Sampled:	Not Given
		Date Received:	25/09/2018
Contact:	Richard Hamilton	Date Tested:	28/09/2018
Site Name:	Land at A151/A6 Spalding	Sampled By:	Not Given
Site Address:	Not Given		

Test Results

Laboratory Reference:	1053814	Depth Top [m]:	1.00
Hole No.:	BH01	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	D
Soil Description:	Brown slightly gravelly sandy CLAY		
Sample Preparation:	Tested after >425um removed by hand		

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
17	35	22	13	95



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Remarks:

Approved:

Dariusz Piotrowski
PL Laboratory Manager
Date Reported: 08/10/2018

Signed:

Darren Berrill
Geotechnical General Manager

for and on behalf of i2 Analytical Ltd

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The analysis was carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland."

TEST CERTIFICATE

Determination of Liquid and Plastic Limits

Tested in Accordance with BS1377-2: 1990: Clause 4.4 & 5: One Point Method

UKAS TESTING 4041

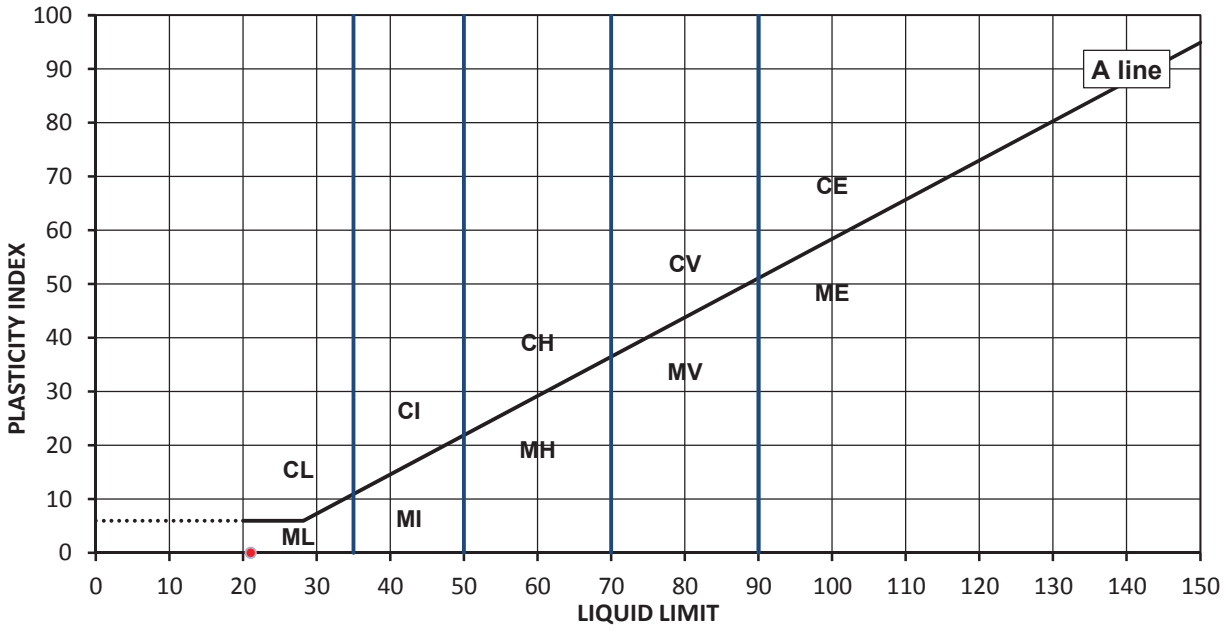
i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

Client:	Enzygo Geoenvironmental Ltd	Client Reference:	CRM.252.001
Client Address:	The Byre Woodend Lane Cromhall Gloucestershire GL12 8AA	Job Number:	18-11759
		Date Sampled:	Not Given
		Date Received:	25/09/2018
Contact:	Richard Hamilton	Date Tested:	28/09/2018
Site Name:	Land at A151/A6 Spalding	Sampled By:	Not Given
Site Address:	Not Given		

Test Results

Laboratory Reference:	1053815	Depth Top [m]:	3.00
Hole No.:	BH01	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	D
Soil Description:	Yellowish brown SAND		
Sample Preparation:	Tested in natural condition		

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
28	21	NP	N/A	100



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Remarks: NP – non plastic

Approved:

Dariusz Piotrowski
PL Laboratory Manager
Date Reported: 08/10/2018

Signed:

Darren Berrill
Geotechnical General Manager

for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

Determination of Liquid and Plastic Limits

Tested in Accordance with BS1377-2: 1990: Clause 4.4 & 5: One Point Method

UKAS TESTING
4041

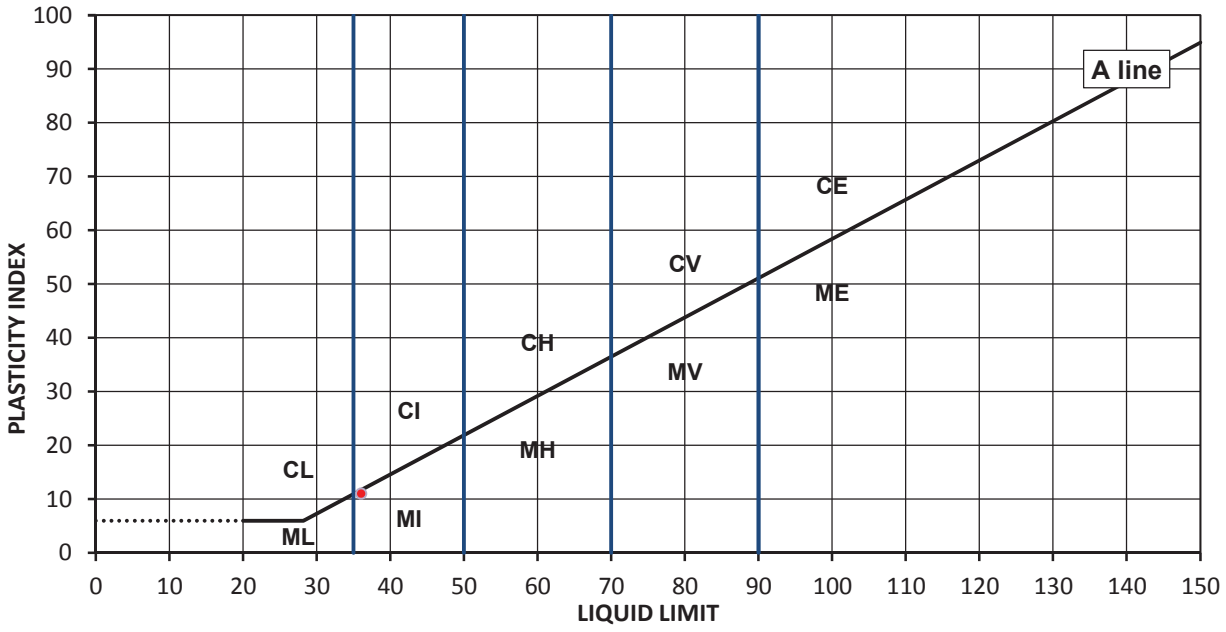
i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

Client:	Enzygo Geoenvironmental Ltd	Client Reference:	CRM.252.001
Client Address:	The Byre Woodend Lane Cromhall Gloucestershire GL12 8AA	Job Number:	18-11759
		Date Sampled:	Not Given
		Date Received:	25/09/2018
Contact:	Richard Hamilton	Date Tested:	28/09/2018
Site Name:	Land at A151/A6 Spalding	Sampled By:	Not Given
Site Address:	Not Given		

Test Results

Laboratory Reference:	1053816	Depth Top [m]:	1.00
Hole No.:	BH02	Depth Base [m]:	3.00
Sample Reference:	BH02	Sample Type:	D
Soil Description:	Brown sandy CLAY		
Sample Preparation:	Tested in natural condition		

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
23	36	25	11	100



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Remarks:

Approved:

Dariusz Piotrowski
PL Laboratory Manager
Date Reported: 08/10/2018

Signed:

Darren Berrill
Geotechnical General Manager

for and on behalf of i2 Analytical Ltd

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The analysis was carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland."

TEST CERTIFICATE

Determination of Liquid and Plastic Limits

Tested in Accordance with BS1377-2: 1990: Clause 4.4 & 5: One Point Method

i2 Analytical Ltd
7 Woodshots Meadow
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Watford Herts WD18 8YS

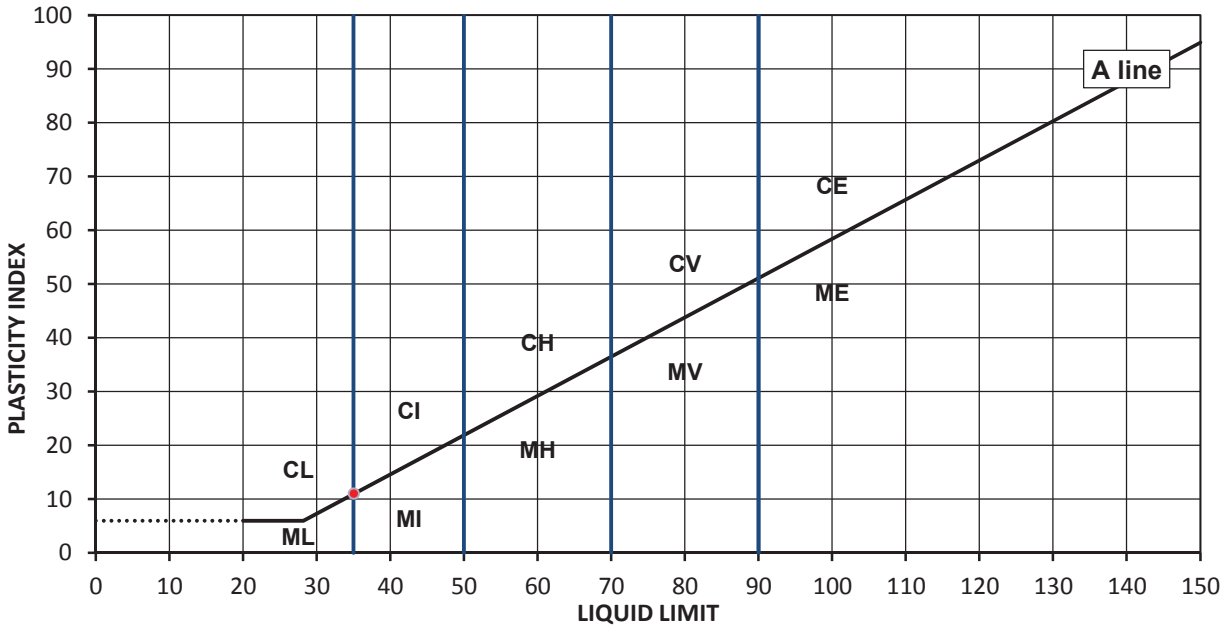
4041

Client:	Enzygo Geoenvironmental Ltd	Client Reference:	CRM.252.001
Client Address:	The Byre Woodend Lane Cromhall Gloucestershire GL12 8AA	Job Number:	18-11759
		Date Sampled:	Not Given
		Date Received:	25/09/2018
Contact:	Richard Hamilton	Date Tested:	28/09/2018
Site Name:	Land at A151/A6 Spalding	Sampled By:	Not Given
Site Address:	Not Given		

Test Results

Laboratory Reference:	1053818	Depth Top [m]:	3.00
Hole No.:	BH07	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	D
Soil Description:	Brown sandy CLAY		
Sample Preparation:	Tested in natural condition		

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
17	35	24	11	100



Legend, based on BS 5930:2015 Code of practice for site investigations

		Plasticity		Liquid Limit
C	Clay	L	Low	below 35
M	Silt	I	Medium	35 to 50
		H	High	50 to 70
		V	Very high	70 to 90
		E	Extremely high	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)	

Remarks:

Approved:

Dariusz Piotrowski
PL Laboratory Manager
Date Reported: 08/10/2018

Signed:

Darren Berrill
Geotechnical General Manager

for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

Summary of Classification Test Results

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

Client: Enzygo Geoenvironmental Ltd
Client Address: The Byre
Woodend Lane
Cromhall
Gloucestershire
GL12 8AA
Contact: Richard Hamilton
Site Name: Land at A151/A6 Spalding
Site Address: Not Given

Client Reference: CRM.252.001
Job Number: 18-11759
Date Sampled: Not Given
Date Received: 25/09/2018
Date Tested: 28/09/2018
Sampled By: Not Given

Test results

Laboratory Reference	Hole No.	Sample				Soil Description	M/C	Atterberg				Density		Total Porosity
		Reference	Top depth [m]	Base depth [m]	Type			% Passing 425um	LL	PL	PI	bulk	PD	
							%	%	%	%	%	Mg/m3	Mg/m3	Mg/m3
1053814	BH01	Not Given	1.00	Not Given	D	Brown slightly gravelly sandy CLAY	17	95	35	22	13			
1053815	BH01	Not Given	3.00	Not Given	D	Yellowish brown SAND	28	100	21	NP	N/A			
1053816	BH02	BH02	1.00	3.00	D	Brown sandy CLAY	23	100	36	25	11			
1053818	BH07	Not Given	3.00	Not Given	D	Brown sandy CLAY	17	100	35	24	11			

Comments: NP - non plastic

Approved:

Dariusz Piotrowski
PL Laboratory Manager
Geotechnical Section

Date Reported: 08/10/2018

Signed:

Darren Berrill
Geotechnical General Manager

for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

Determination of Particle Size Distribution

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Watford Herts WD18 8YS

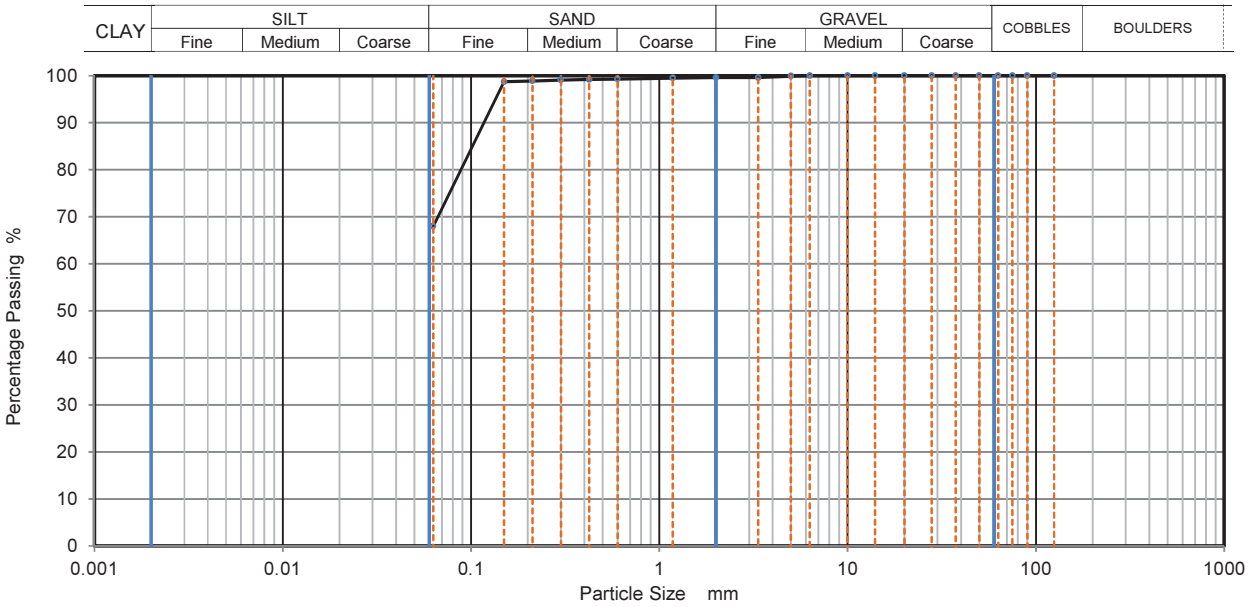
4041

Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Client:	Enzygo Geoenvironmental Ltd	Client Reference:	CRM.252.001
Client Address:	The Byre Woodend Lane Cromhall Gloucestershire GL12 8AA	Job Number:	18-11759
		Date Sampled:	Not Given
		Date Received:	25/09/2018
Contact:	Richard Hamilton	Date Tested:	28/09/2018
Site Name:	Land at A151/A6 Spalding	Sampled By:	Not Given
Site Address:	Not Given		

TEST RESULTS Laboratory Reference: 1053817

Sample description:	Brown slightly sandy CLAY	Sample Reference:	BH03
Location:	BH03	Sample Type:	D
Supplier:	Not Given	Depth Top [m]:	1.00
		Depth Base [m]:	5.00



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	99		
0.425	99		
0.3	99		
0.212	99		
0.15	99		
0.063	68		

Dry Mass of sample [g]: 176

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	0.40
Sand	31.50
Fines <0.063mm	68.00

Grading Analysis		
D100	mm	6.3
D60	mm	
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Approved:

Dariusz Piotrowski
PL Laboratory Manager
Geotechnical Section

Signed:

Darren Berrill
Geotechnical General Manager

Date Reported: 08/10/2018

for and on behalf of i2 Analytical Ltd

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The analysis was carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland."

TEST CERTIFICATE

Determination of Particle Size Distribution

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7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

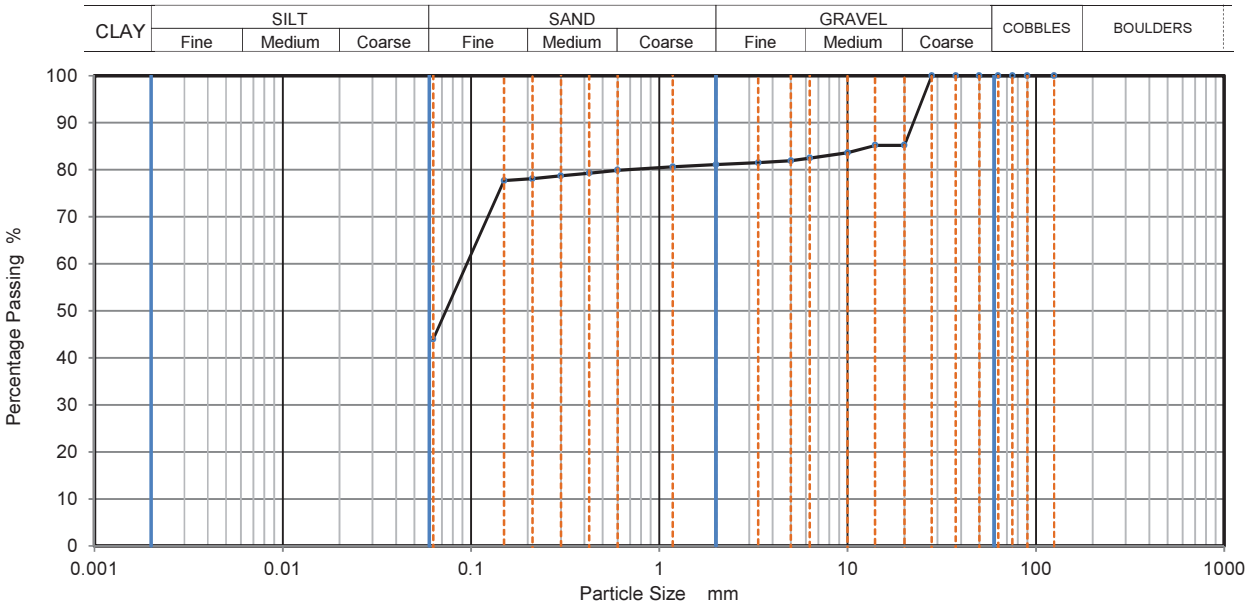
4041

Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Client:	Enzygo Geoenvironmental Ltd	Client Reference:	CRM.252.001
Client Address:	The Byre Woodend Lane Cromhall Gloucestershire GL12 8AA	Job Number:	18-11759
		Date Sampled:	Not Given
		Date Received:	25/09/2018
Contact:	Richard Hamilton	Date Tested:	28/09/2018
Site Name:	Land at A151/A6 Spalding	Sampled By:	Not Given
Site Address:	Not Given		

TEST RESULTS Laboratory Reference: 1053819

Sample description:	Brown slightly gravelly sandy CLAY	Sample Reference:	BH09
Location:	BH09	Sample Type:	D
Supplier:	Not Given	Depth Top [m]:	1.00
		Depth Base [m]:	3.00



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	85		
14	85		
10	84		
6.3	83		
5	82		
3.35	82		
2	81		
1.18	81		
0.6	80		
0.425	79		
0.3	79		
0.212	78		
0.15	78		
0.063	45		

Dry Mass of sample [g]: 957

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	18.90
Sand	36.50
Fines <0.063mm	44.60

Grading Analysis		
D100	mm	28
D60	mm	0.0944
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below
The material submitted - fails to meet the minimum mass requirements as stated in BS1377 Part 2 Table 3

Approved:

Dariusz Piotrowski
PL Laboratory Manager
Geotechnical Section

Signed:

Darren Berrill
Geotechnical General Manager

Date Reported: 08/10/2018

for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

Determination of California Bearing Ratio Top Only

Tested in Accordance with BS 1377-4: 1990: Clause 7

UKAS TESTING 4041

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Croxley Green Business Park
Watford Herts WD18 8YS

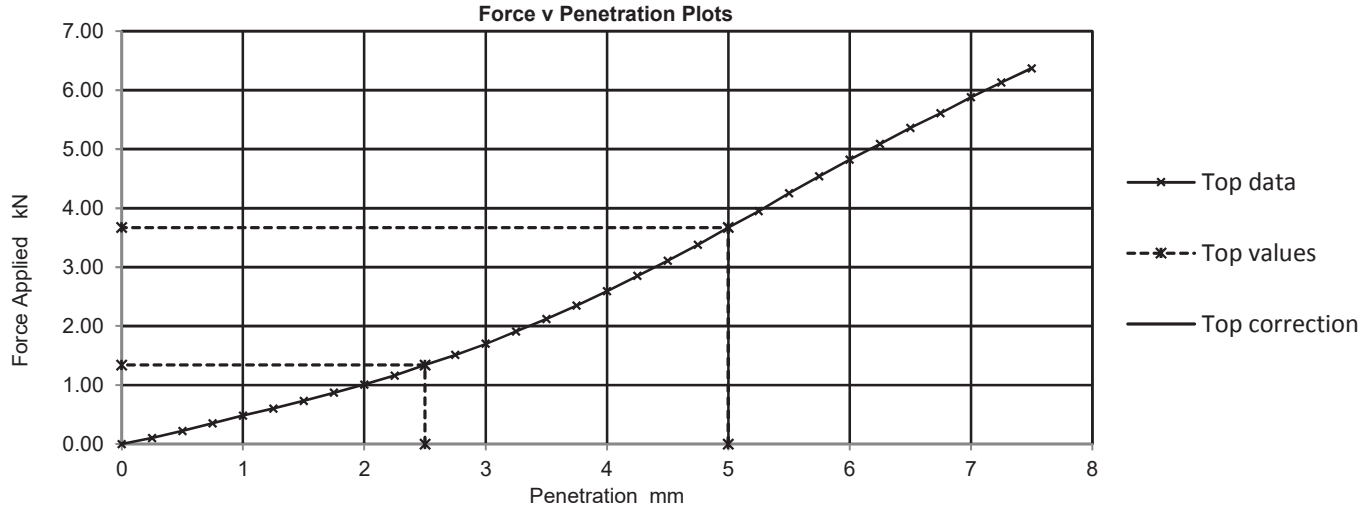
Client:	Enzygo Geoenvironmental Ltd	Client Reference:	CRM.252.001
Client Address:	The Byre Woodend Lane Cromhall Gloucestershire GL12 8AA	Job Number:	18-11759
		Date Sampled:	Not Given
		Date Received:	25/09/2018
Contact:	Richard Hamilton	Date Tested:	01/10/2018
Site Name:	Land at A151/A6 Spalding	Sampled By:	Not Given
Site Address:	Not Given		

Test Results:

Laboratory Reference:	1053812	Depth Top [m]:	0.50
Hole No.:	HP01	Depth Base [m]:	0.50
Sample Reference:	HP02	Sample Type:	B

Specimen Preparation:

Condition	Remoulded			Soaking details	Not soaked	
Details	Recompacted with specified standard effort using 2.5kg rammer			Period of soaking		days
				Time to surface		days
Sample Description:	Yellowish brown slightly gravelly slightly clayey SAND			Amount of swell recorded		mm
Material retained on 20mm sieve removed		6	%	Dry density after soaking		Mg/m3
Initial Specimen details	Bulk density	1.79	Mg/m3	Surcharge applied	8	kg
	Dry density	1.59	Mg/m3		4.9	kPa
	Moisture content	13	%			



Results

	Curve correction applied	CBR Values, %				Moisture Content %
		2.5mm	5mm	Highest	Average	
TOP	No	10.0	18.0	18.0	N/A	12

Remarks:

Test/ Specimen specific remarks:

Approved:

Dariusz Piotrowski
PL Laboratory Manager
Geotechnical Section

Signed:

Darren Berrill
Geotechnical General Manager

Date Reported: 08/10/2018

for and on behalf of i2 Analytical Ltd

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TEST CERTIFICATE

Determination of California Bearing Ratio Top Only

Tested in Accordance with BS 1377-4: 1990: Clause 7

UKAS TESTING 4041

i2 Analytical Ltd
7 Woodshots Meadow
Croxley Green Business Park
Watford Herts WD18 8YS

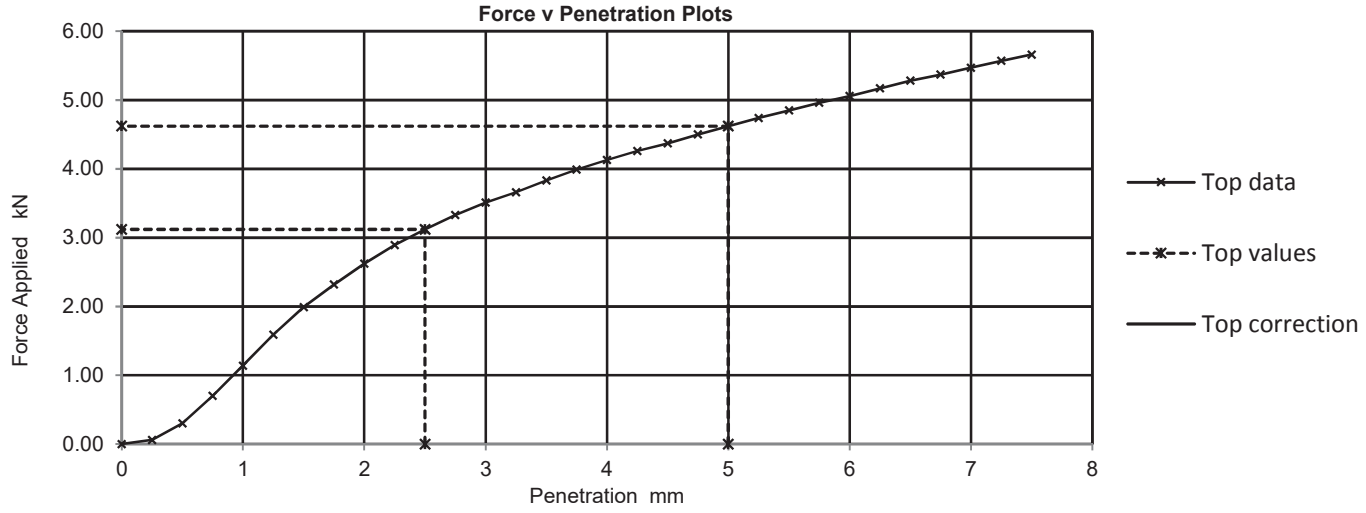
Client:	Enzygo Geoenvironmental Ltd	Client Reference:	CRM.252.001
Client Address:	The Byre Woodend Lane Cromhall Gloucestershire GL12 8AA	Job Number:	18-11759
		Date Sampled:	Not Given
		Date Received:	25/09/2018
Contact:	Richard Hamilton	Date Tested:	01/10/2018
Site Name:	Land at A151/A6 Spalding	Sampled By:	Not Given
Site Address:	Not Given		

Test Results:

Laboratory Reference:	1053813	Depth Top [m]:	0.50
Hole No.:	HP03	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	B

Specimen Preparation:

Condition	Remoulded			Soaking details	Not soaked	
Details	Recompacted with specified standard effort using 2.5kg rammer			Period of soaking		days
				Time to surface		days
Sample Description:	Brown clayey SAND			Amount of swell recorded		mm
Material retained on 20mm sieve removed		5	%	Dry density after soaking		Mg/m3
Initial Specimen details	Bulk density	1.72	Mg/m3	Surcharge applied	8	kg
	Dry density	1.56	Mg/m3		4.8	kPa
	Moisture content	10	%			



Results	Curve correction applied	CBR Values, %				Moisture Content %
		2.5mm	5mm	Highest	Average	
TOP	No	24.0	23.0	24.0	N/A	9.7

Remarks:

Test/ Specimen specific remarks:

Approved:

Dariusz Piotrowski
PL Laboratory Manager
Geotechnical Section

Signed:

Darren Berrill
Geotechnical General Manager

Date Reported: 08/10/2018

for and on behalf of i2 Analytical Ltd

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Richard Hamilton
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e: Richard.hamilton@enzygo.com

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t: 01923 225404
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e: reception@i2analytical.com

Analytical Report Number : 18-11763

Project / Site name:	Land at A151-A6 Spalding	**Samples received on:**	25/09/2018
Your job number:	CRM.252.001	**Samples instructed on:**	25/09/2018
Your order number:	CRM.361.005	**Analysis completed by:**	05/10/2018
Report Issue Number:	1	**Report issued on:**	05/10/2018
Samples Analysed:	4 soil samples		

Signed

Jordan Hill
Reporting Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Analytical Report Number: 18-11763

Project / Site name: Land at A151-A6 Spalding
Your Order No: CRM.361.005

Lab Sample Number				1053829	1053830	1053831	1053832	
Sample Reference				BH02	BH02	BH03	BH07	
Sample Number				BH02	None Supplied	BH03	None Supplied	
Depth (m)				1.00-3.00	4.00	1.00-5.00	3.00	
Date Sampled				Deviating	Deviating	Deviating	Deviating	
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	
Moisture Content	%	N/A	NONE	17	21	19	20	
Total mass of sample received	kg	0.001	NONE	0.52	0.99	0.58	0.54	
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	8.3	8.3	8.4	8.7	
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.042	0.14	0.075	0.018	

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The results included within the report are representative of the samples submitted for analysis.

Analytical Report Number : 18-11763

Project / Site name: Land at A151-A6 Spalding

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1053829	BH02	BH02	1.00-3.00	Brown clay and sand.
1053830	BH02	None Supplied	4.00	Grey clay and sand.
1053831	BH03	BH03	1.00-5.00	Brown sandy clay.
1053832	BH07	None Supplied	3.00	Brown sandy clay.

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Analytical Report Number : 18-11763

Project / Site name: Land at A151-A6 Spalding

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

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