Dice
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Castle Lane, Barnsley
Phase I & II Geo-Environmental Report

18/09/2025

101722

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Site	Castle Lane, Barnsley, Castle Lane, Penistone, Barnsley Sheffield, S36 6AH
Client	Halsall Lloyd Partnership
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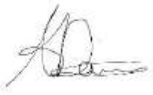
Drafted by:		Abbie Davies BSc AMIEnvSc Geo-Environmental Consultant
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Date	18th September 2025	

Executive Summary

Site Description	On the 11th August 2025, a comprehensive site walkover took place, with a photographic record available in Appendix A. The site comprises a disused plot of land to the south of Castle Lane. The site is accessible via a locked metal gate in the north of the site, adjacent to the residential property at 2 Castle Lane. Upon entry into the site, there is a steep slope, approximately 2m in height, leading into the site from north to south. The slope becomes more gradual further south, increasing in elevation by a further approximately 4m at the furthest southern site boundary. The site is bordered by an adjacent property to the north, surrounding by wooden fences. A dry-stone wall lines the north-west of the site, with the remainder of the site is predominantly bordered by wire fencing. Much of the site is covered with short grasses, however shrubs and semi-mature to mature trees line the edges of the site. Abandoned goal posts are present in the west of the site, indicating the site may have been previously in use as a play area. An electricity substation is present in the north-eastern corner of the site. Beyond the presence of Made Ground and the on-site stockpile, no significant visual or olfactory evidence of contamination was observed during the site walkover.
Proposed Development	The proposed development on site is to include the development of 3No. 1 bed bungalows with associated soft landscaped rear gardens in addition to a large front communal garden and a site staff welfare facility.
Geology	Made ground generally comprised sandy gravelly topsoil with rootlets, identified to a maximum depth of 0.4mbgl across the site. Gravels comprised ceramic, brick fragments, metal, plastic and mixed lithologies. Geological maps of the area show the site is not underlain by superficial strata. However, superficial geology was identified to a maximum recorded depth of 4mbgl. Superficial strata generally comprised an initial layer of slightly clayey gravelly sand, to a maximum depth of 0.65mbgl. Underlying this was predominantly cohesive strata, comprising silty sandy gravelly clay, becoming increasingly stiff with depth. Geological maps of the area show that the site is situated upon bedrock of the Grenoside Sandstone comprising sandstone. The Pennine Lower Coal Measures Formation, comprising Mudstone, Siltstone and Sandstone, is shown to be present on the southernmost region of the site boundary. Solid geology was encountered at depths of between 0.60mbgl and 2.60mbgl, and identified to a maximum depth of 3mbgl. Solid geology was generally identified as very weak mudstone, and recovered as either a very dense brown mottled grey gravelly clay (WS02 & WS03), or a very dense dark grey slightly silty clayey sandy gravel (WS05, TP02, SA02). However, in TP02, an initial layer of very weak sandstone was recovered as very dense sandy cobbly gravel from 0.60mbgl in TP02. This was underlain by very weak mudstone, recovered as gravel from 1.10mbgl.

Hydrogeology	The underlying bedrock geology is classified as Secondary A Aquifer, comprising geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale.
Hydrology	2No. unnamed watercourses are located 200m north-west and 209m south-east of the site boundary.
Radon	The Groundsure reports included within Appendix B shows that the site is located within an area where the percentage of homes above the radon action level is less than 1%. Therefore, it is considered that radon protection measures are not required for this development.
Ground Gas & Vapours	No significant potential source of ground gas has been identified for this site.
Geo-Technical	Cohesive strata, identified as a primary component of soil composition, was determined to be of medium to high plasticity with medium volume change potential. Therefore, where any proposed foundations, and the medium volume change potential cohesive strata are present, the NHBC Guidance (Chapter 4.2 – Building Near Trees) would recommend a minimum foundation depth of 0.90mbgl, in the absence of any deep rooting vegetation. This is in order to be below the zone of seasonal volume change in accordance the NHBC standards. Trees and shrubs can extend the depth affected by seasonal moisture variation, and advice on this is given in the NHBC document. The NHBC document provides guidance for the deepening of new foundations within the range of influence of existing and proposed deep rooting vegetation, which should be taken into account during detailed design in areas of cohesive soils. Irrespective of the possible foundation depths determined from the NHBC document, new foundations should ideally be taken down at least 0.50m below the last vestiges of live roots within foundation excavations, where clay soils are present. Shallow, natural cohesive superficial strata from 1.0mbgl across most of the site was identified as firm to very stiff. Therefore, a presumed bearing capacity of 150kN/m2, relative to location, is considered to be achievable in the underlying natural soils from 1.0mbgl, increasing with depth. However, localised areas of soft strata were identified and deepening of foundations may be required in these areas. A combination of granular and cohesive strata was identified across the site. Therefore, it is recommended that light mesh reinforcement is incorporated into foundations where they span between different strata to account for potential differential settlement. Whilst excavations remained stable during this site investigation, this was over a relatively short period of time. Instability of trenches should be assumed and battened as a precautionary measure. Based on the recorded elevated water-soluble sulphate concentrations and pH value it is considered appropriate to adopt a precautionary Design Sulphate Class of DS-1, together with an Aggressive Chemical Environment of Concrete (ACEC) AC-2z.
Risk to Controlled Waters	No significant levels of contaminants of concern have been identified with respect to controlled waters. Therefore, no specific remediation is considered to be required. Negligible Risk – No specific action required.

Human Health Risk Assessment	Elevated levels of Lead were identified in the shallow soils of WS04 with respect to the proposed end use. However, this is an unexpected result that is not considered representative of the general site conditions, as the remaining samples all recorded levels of Lead below the threshold for a residential with produce end use (all recorded <100mg/kg). The average level of lead for the site was identified as 103mg/kg, and the upper 95% percentile of the sample set is identified as 98mg/kg, both of which are below the threshold for Residential with Produce End Use. This suggests that the elevated result at WS04 is anomalous and does not reflect the broader site conditions. Additionally, WS04 is within an area of proposed hard landscaping, blocking the pathway from source to receptor. Therefore, no remediation is considered to be required at this time.
Recommendations	- Elevated levels of Lead were identified in the shallow soils of WS04 with respect to the proposed end use. However, this is an unexpected result that is not considered representative of the general site conditions, as the remaining samples all recorded levels of Lead below the threshold for a residential with produce end use (all recorded <100mg/kg). The average level of lead for the site was identified as 103mg/kg, and the upper 95% percentile of the sample set is identified as 98mg/kg, both of which are below the threshold for Residential with Produce End Use. This suggests that the elevated result at WS04 is anomalous and does not reflect the broader site conditions. Additionally, WS04 is within an area of proposed hard landscaping, blocking the pathway from source to receptor. Therefore, no remediation is considered to be required at this time. - Shallow, natural cohesive superficial strata from 1.0mbgl across most of the site was identified as firm to very stiff. Therefore, a presumed bearing capacity of 150kN/m2, relative to location, is considered to be achievable in the underlying natural soils from 1.0mbgl, increasing with depth. However, localised areas of soft strata were identified and deepening of foundations may be required in these areas. - Cohesive strata, identified as a primary component of soil composition, was determined to be of medium to high plasticity with medium volume change potential. Therefore, foundations may need to be deepened in areas of cohesive strata with medium volume change potential, according to NHBC Guidance Chapter 4.2 – Building Near Trees. - A combination of granular and cohesive strata was identified across the site. Therefore, it is recommended that light mesh reinforcement is incorporated into foundations where they span between different strata to account for potential differential settlement. - Based on the recorded elevated water-soluble sulphate concentrations and pH value it is considered appropriate to adopt a precautionary Design Sulphate Class of DS-1, together with an Aggressive Chemical Environment of Concrete (ACEC) AC-2z.

Contents

Appendices

1. Introduction

1.1. Client Brief

Dice Environmental was instructed by Halsall Lloyd Partnership to undertake a Phase I & II Geo-Environmental Report for the site known as 'Castle Lane, Barnsley, Penistone, Sheffield, S36 6AH.

The proposed development on site is to include the development of 3No. 1 bed bungalows with associated soft landscaped rear gardens in addition to a large front communal garden and a site staff welfare facility.

The site location plan and layout are included within Appendix A.

1.2. Report Objectives

This Phase I & 2 Geo-Environmental Assessment includes:

- A record, including written and photographic evidence, of a site inspection walkover, subsequent site description, and appraisal of any observed land contamination, or potential contaminative sources.
- A review of historical maps, including aerial imagery, for the site and surrounding area, with respect to potential sources of contamination.
- A review of the general expected environmental setting, including geology, hydrogeology and hydrology, alongside BGS Borehole Archive records.
- The development of a preliminary conceptual site model based on the concept of 'contaminant linkage', which considers potential contamination sources, pathways and receptors.
- The provision and execution of a Phase II Contamination Assessment strategy, to investigate the potential sources of contamination identified.
- The sampling of soils with chemical and geotechnical analysis to make recommendations and conclusions on geotechnical and geoenvironmental matters associated with the proposed development of the site.
- The completion of BRE 365 infiltration tests to identify soil infiltration rate.
- The development of a Phase II Conceptual Model.
- Conclusions and recommendations to facilitate responsible development of the site, in relation to the intended end use.
- An Executive Summary.

1.3. References

Assessment guidance and site-specific information has been sought from the following locations:

- EA/DEFRA (2020) LCRM: Land contamination Risk Management (Supersedes (2004), CLR11: Model Procedures for the Assessment of Land Contamination).

- BRE Digest 365 (2016) Soakaway Design

- BS 5930:2015+A1:2020: Code of practice for ground investigations.

- Nathanail, C.P., McCaffrey, C., Gillett, A.G., Ogden, R.C. and Nathanail, J.F. 2015. The LQM/CIEH S4ULs for Human Health Risk Assessment. Land Quality Press, Nottingham.

- DEFRA (2014). Category 4 Screening Levels (C4SL) – SP1010: Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination.

- CIRIA. (2001). *Contaminated land risk assessment A guide to good practice.*

- DoE (1995), Industry profiles.

- Environment Agency. (2008). *R&D Publication 66. Guidance for the Safe Development of Housing on Land Affected by Contamination.*

- Environment Agency. (March 2017). *New Groundwater Vulnerability Mapping Methodology in England and Wales. Reference SC040016/R. Environment Agency.*

- BS 8485:2015+A1:2019 Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings.

- BRE (2004), BR465: Cover systems for land regeneration.

- CIRIA (2014), C733 Asbestos in soil and made ground: a guide to understanding and managing risks.

- Scivyer, C. (2015). *BRE 211. Radon: Guidance on protective measures for new buildings (including supplementary advice for extensions, conversions and refurbishment projects). Fifth Edition.*

- Mining Remediation Authority. (2025). *Mining Remediation Authority Map Viewer. Retrieved from* https://datamine-cauk.hub.arcgis.com/

1.4. Limitations

The recommendations and opinions expressed in this report are based on information obtained as part of the desk study or provided by others. Information provided from other sources is taken in good faith and Dice Environmental cannot guarantee its accuracy. By the very nature of a ground investigation, information gained through intrusive investigation is from specific point locations. Ground conditions have the potential to vary significant across any site, and the ultimate decision with regards to foundation design or other technical specifications lies with the developer and/or structural engineer. Reliance upon the contents of this report is subject to receipt of payment for any outstanding balance owed to Dice Consulting Engineers Ltd. or Dice Environmental Ltd. dated prior to, and in associated with this report.

This report does not include specific investigation for the presence of either Potential Asbestos Containing Material (PACM) (unless identified within soils) or Japanese Knotweed at the subject site however, if obvious evidence of either is observed during the site walkover, details will be provided in this report. Specialist contractors should be commissioned to make detailed assessments and recommendations if these materials are suspected.

The information contained in this report is intended for the use of Halsall Lloyd Partnership and Dice Environmental can take no responsibility for the use of this information by any third party or for uses other than that described in this report or detailed within the terms of our engagement.

2. Site Information

2.1. Site Location

The site is located approximately 0.72km south-east of Penistone town centre. The national grid reference for the approximate site centre is SE252026, and the co-ordinates are 425209E, 402693N.

A site plan is presented within Appendix A.

2.2. Site Description

On the 11th August 2025, a comprehensive site walkover took place, with a photographic record available in Appendix A.

The site comprises a disused plot of land to the south of Castle Lane. The site is accessible via a locked metal gate in the north of the site, adjacent to the residential property at 2 Castle Lane.

Upon entry into the site, there is a steep slope, approximately 2m in height, leading into the site from north to south. The slope becomes more gradual further south, increasing in elevation by a further approximately 4m at the furthest southern site boundary.

The site is bordered by an adjacent property to the north, surrounding by wooden fences. A dry-stone wall lines the north-west of the site, with the remainder of the site is predominantly bordered by wire fencing.

Much of the site is covered with short grasses, however shrubs and semi-mature to mature trees line the edges of the site. Abandoned goal posts are present in the west of the site, indicating the site may have been previously in use as a play area. An electricity substation is present in the north-eastern corner of the site.

Beyond the presence of Made Ground and the on-site stockpile, no significant visual or olfactory evidence of contamination was observed during the site walkover.

2.3. General Area Context

North: Adjacent north of the site is Castle Lane, with residential properties with associated gardens and parking facilities beyond.

East: To the east of the site there are arable fields followed by residential properties with associated gardens and parking facilities.

South: To the south of the site there are unspecified barns and farm buildings, beyond which there are predominantly arable fields.

West: To the west of the site there are two small arable fields followed by residential properties with associated gardens and parking facilities.

3. Geo-Environmental Setting

3.1. Geology

3.1.1 Mapping Data

Geological maps of the area show the site is not underlain by superficial strata.

Geological maps of the area show that the site is situated upon bedrock of the Grenoside Sandstone comprising sandstone. The Pennine Lower Coal Measures Formation, comprising Mudstone, Siltstone and Sandstone, is shown to be present on the southernmost region of the site boundary.

3.1.2 BGS Borehole Archive

12No. boreholes are recorded within 250m of the site, the closest being 116m north of the site boundary. Records of this borehole describe 2.5m of made ground rubble fill overlying a made ground clayey fill to 3.5mbgl, underlain by stiff light greyish brown clay to 4.2mbgl and very compact medium brown sandstone to 5.5mbgl.

3.1.3. Soil Chemistry

The indicative background concentration values (estimated) for the natural topsoil on site are recorded within the Groundsure Reports (Appendix B) and reproduced in the table below:

Element	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
Concentration (mg/kg)	15-25	N/A	100	60	1.8	90-120	15-30

Table 1: Background natural soil chemistry values

3.2. Hydrogeology

No superficial aquifer is recorded beneath the site.

The underlying bedrock geology is classified as a Secondary A Aquifer, comprising permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers.

The bedrock aquifer is noted to be of high groundwater vulnerability, identified as an area able to easily transmit pollution to groundwater.

The site is not located within a Source Protection Zone.

There are 2No. records of groundwater abstractions 266m west of the site.

3.3. Hydrology

2No. unnamed watercourses are located 200m north-west and 209m south-east of the site boundary.

3.4. Ecology

There are no Sites of Special Scientific Interest (SSSIs), Conserved wetland sites (Ramsar Sites), Special Protection Areas (SPAs), Special Areas of Conservation (SACs), Local Nature Reserves (LNRs) or National Nature Reserves (NNRs) recorded within 500m of the site.

Whilst there are no SSSIs located on-site, the site is situated in an SSSI impact risk zone, and the South and West Yorkshire Green Belt is located 69m south-west of the site boundary.

3.5. Radon

The Groundsure reports included within Appendix B shows that the site is located within an area where the percentage of homes above the radon action level is less than 1%.

Therefore, it is considered that radon protection measures are not required for this development.

3.6 Heritage & Archaeological Sites

No Areas of Outstanding Natural Beauty, World Heritage Sites, Listed Buildings, Conservation Areas or Scheduled Ancient monuments are present within 500m of the site.

3.7. Historical Coal & Non-Coal Mining

The site is located within a coal mining reporting area as defined by the Mining Remediation Authority; however, the site is not located within a High-Risk Development Area.

Additional records associated with non-coal mining comprise 3No. records of britpits within 500m of the site boundary with the closest record being 103m south-east of the site. There are 6No. records of surface ground workings within 250m of the site, and the nearest record is 206m north-east of the site and relates to an unspecified heap.

3.8. Landfills & Waste Sites

The Groundsure reports included within Appendix B show that:

- There are no active landfills recorded within 500m of the site.
- There are 2No. historical landfills 378m north (industrial and inert waste) and 466m south-west of the site.

There are 3No. records of historical waste sites within 500m of the site boundary. These records comprise ground workings and a refuse heap 307m north-east, a waste transfer site 426m east and a material recycling centre 426m east.

There are 6No. records of licenced Waste Sites, relating to a commercial and industrial waste works 418m east of the site and a vehicle depollution facility 451m east of the site.

3.9. Industrial Land Use

3.9.1. Current Industrial Land Use

The Groundsure reports included within Appendix B show that:

- No waste treatment works are recorded within 250m of the site.
- A recently obsolete petrol station is recorded 486m south of the site.

An electricity substation is recorded in the north-east of the site.

Proximal to the site there are industrial product stores from 134m north-west, a works 192m north and electricity substations from 198m east.

3.9.2. Historic Industrial Land Use

The Groundsure reports included within Appendix B show that:

- No historic petrol stations are recorded within 250m of the site.

No historical industrial land use has been recorded on-site.

There are 18No records of historical land use within 250m of the site boundary. These features comprise railway sidings and railway buildings (from 38m north), alongside foundries, works, steel/iron works and wheel works (from 39m north), unspecified ground workings (236m north) and gravel pit (245m north).

Further from the site, refuse heaps are recorded from 307m north-east and unspecified quarries and pits are recorded from 407m east.

4. Site History

4.1. Historical Map Review

A review of all relevant mapping resources, including aerial images and Groundsure Mapping, has been undertaken below, identifying all the significant changes between 1854 and 2025. Groundsure mapping provides data between 1854 and 2025. Google Earth provides aerial images between 2003 and 2025.

Map Date	Significant Changes on Site	Significant Changes in the Surrounding Area
1854	The site comprises a disused field.	A railway adjacent to unspecified surface ground workings is present 250m north-east of the site boundary. A sandstone quarry is located 100m south-east and 350m south-east of the site boundary. A dam is located 500m south-east of the site boundary.
1891 - 93	No significant change.	Unspecified ground workings are present 100m north-west of the site boundary. An Ironworks is present 100m north of the site boundary.
1903-06	No significant change.	Residential development has occurred adjacent north of the site. An unspecified works is located 500m east of the site boundary.
1929-31	No significant change.	The Yorkshire Steel and Iron Works (with associated tanks, chimneys and travelling crane) complex is located from 50m north to 350m north of the site boundary.
1938	No significant change.	The works 50m north of the site have been renamed into the Penistone Works, and one of the buildings have been removed.
1971	The site is identified as a playground.	The works north of the site have been rearranged, and a portion is identified as a foundry. Another unspecified works has been identified 250m east of the site boundary. Electricity substations are present 170m north-east and 320m north-east of the site.
2009-10	No significant change.	The works north of the site have been predominantly cleared and residential development is being undertaken within its former location.
2018	An electricity substation has been constricted in the north-eastern corner of the site (Google Earth).	The residential development to the north of the site has been completed.
2025	No significant change.	No significant change.

Table 2: Summary of site targeted historical map data.

A copy of the historical maps used for this review are included within Appendix C and Appendix D.

Mapping data shows that the site has was predominantly an open field until 1965, by which time it was identified as a playground. By 2018, an electricity substation was constructed in the north-east of the site.

The surrounding area comprised some industrial land uses with a railway line 250m north-east of the site boundary from 1854, an Ironworks from 1891 to 1965; when these works were redeveloped and again until 2009 when these works were almost completely removed. Some additional records of various unspecified works and sandstone quarries have temporarily been present across the surrounding area, however, in the present day, the area comprises predominantly residential land use.

4.2 Council Records

4.2.1. Planning Application History

No planning application has previously been made on the site. However, several planning applications have been made proximal to the site.

Adjacent north/north-west of the site, an application was submitted at the old fish and chip shop, for the construction of a bungalow (2005/1797). Adjacent south of the site, in the neighbouring field, an application as made for the construction of a building to house Raytec Cell (B/96/0642/PU).

From 50m north of the site, multiple planning applications have been submitted at the old works, including for enlargement of the foundry building in 1981 (B/81/0198/PU) and proposals to refurbish the man works building, change the works office to general office use, and construction of 153 residential properties in 2006 (2006/1860). The residential proposal was approved with conditions including related to contaminated land; however, any associated reports are not publicly available to view.

5. Conceptual Site Model

5.1. Potential Sources

Significant potential on-site sources of contamination which have been identified for the site include:

- Potential made ground and spillages associated with the electricity substation in the north-eastern corner of the site. The potential contaminants of concern associated with this potential source include:
    - Heavy Metals, Polyaromatic Hydrocarbon (PAHs), Petroleum Hydrocarbons (TPH), Polychlorinated Biphenyls (PCBs), asbestos-containing materials (ACMs) and fibres.

Significant potential off-site sources of contamination which have been identified for the site include:

- Historical unspecified industrial works, railway land and an ironworks north of the site boundary. The potential contaminants of concern associated with this potential source include:
    - Heavy Metals, Polyaromatic Hydrocarbons (PAHs), Petroleum Hydrocarbons (TPH), Sulphates, asbestos-containing materials (ACMs) and fibres.

- Potentially deep-made ground associated with the presence of historical unspecified industrial works, railway land and an ironworks north of the site boundary. The potential contaminants of concern associated with this potential source include:
    - Ground Gas (CH4 & CO2).

5.2. Potential Pathways

Pathways to human receptors:

- Direct dermal contact or ingestion of soils, or inhalation of dust/fibres and/or vapours (i.e. human interaction with surface and subsurface materials).

- The migration and accumulation of ground gases through permeable sub-surface materials and/ or preferential pathways.

Pathways to environmental receptors:

- Lateral and vertical migration of groundwater through permeable sub-surface materials and/ or preferential pathways, alongside overland flow.

- Root uptake of plant life and subsequent ingestion by fauna.

- Direct dermal contact or ingestion of soils by fauna.

5.3. Potential Receptors

The potential receptors for the site include:

- Humans: site workers during the redevelopment of the site, intended end users of the site (staff & residents) and neighbours.
- Groundwater: The Secondary A Aquifers within the underlying strata.
- Ecology: flora and fauna associated with the end use of the site.

5.4. Classification of Consequence, Probability and Risk

Classification of Consequence of Risk

Category	Definition
Severe	Short-term (acute) risk to human health likely to result in 'significant harm' as defined within Part 2A of the Environment Protection Act (1990). Short-term risk of pollution of a sensitive water resource. Catastrophic damage to buildings or property. A short-term risk to a particular ecosystem, or organism forming part of such ecosystem.
Medium	Chronic damage to human health (significant harm). Pollution of sensitive water resources. A significant change in a particular ecosystem, or organism forming part of such ecosystem.
Mild	Pollution of non-sensitive water resources. Significant damage to crops, buildings, structures, services or the environment. Non-permanent health effects to human health.
Minor	Harm, although not necessarily significant harm, which may result in a financial loss, or expenditure to resolve. Easily repairable effects of damage to buildings, structures and services.

Table 3: Consequence of risk

Classification of Probability of Risk

Category	Definition
High Likelihood	There is a contaminant linkage and an event, which would either appear likely in the short term and almost inevitable over the long term, or, there is evidence at the receptor of harm or pollution.
Likely	There is a contaminant linkage, and all the elements are present and in the right place, which means that it is probable than an event will occur. Circumstances are such that an event is not inevitable, but possible in the short term and likely over the long term.
Low Likelihood	There is a contaminant linkage, and circumstances are possible under which an event could occur. However, it is by no means certain that even over a longer period such event would take place and is less likely in the shorter term.
Unlikely	There is a contaminant linkage, but circumstances are such that it is improbable that an event would occur even in the very long term.

Table 4: Probability of risk

Risk as a Function of Consequence and Probability

		Consequence			
		Severe	*Medium*	*Mild*	*Minor*
Risk	*High*	Very High Risk	High Risk	Moderate Risk	Low to Moderate Risk
	Likely	High Risk	Moderate Risk	Low to Moderate Risk	Low Risk
	Low	Moderate Risk	Low to Moderate Risk	Low Risk	Very Low Risk
	Unlikely	Low to Moderate Risk	Low Risk	Very Low Risk	Very Low Risk

Table 5: Risk as a function of consequence and probability

6. Phase I Conceptual Site Model

Sources	Potential Contaminants of Concern	Pathway	Receptor	Probability	Consequence	Overall Risk
On – Site Sources						
Potential made ground and spillages associated with the electricity substation in the north-eastern corner of the site.	Heavy Metals, Polyaromatic Hydrocarbon (PAHs), Petroleum Hydrocarbons (TPH), Polychlorinated Biphenyls (PCBs), asbestos-containing materials (ACMs) and fibres.	Direct dermal contact or ingestion of soils, or inhalation of dust/fibres and/or vapours (i.e. human interaction with surface and subsurface materials).	Site workers during the redevelopment of the site.	Low	Medium	Low to Moderate
			Intended end users of the site (staff and residents).	Low	Medium	Low to Moderate
			Neighbours	Low	Medium	Low to Moderate
		Lateral and vertical migration of groundwater, alongside overland flow.	The Secondary A Aquifers underlying the site.	Low	Medium	Low to Moderate
		Root uptake of plant life and subsequent ingestion by fauna. Direct dermal contact or ingestion of soils.	Flora and fauna associated with the end use of the site.	Low	Mild	Low
No significant on-site source of ground gas has been identified.	Ground Gas (CO2 & CH4).	The migration and accumulation of ground gas through permeable sub-surface materials and/ or preferential pathways.	Site workers during the redevelopment of the site.	No contaminant linkage.		
			Intended end users of the site (staff and residents).	No contaminant linkage.		
			Neighbours	No contaminant linkage.		

Off – Site Sources						
Historical unspecified industrial works, railway land and an ironworks north of the site boundary.	Heavy Metals, Polyaromatic Hydrocarbon (PAHs), Petroleum Hydrocarbons (TPH), Sulphates, asbestos containing materials (ACMs) and fibres.	Direct dermal contact or ingestion of soils, or inhalation of dust/fibres and/or vapours (i.e. human interaction with surface and subsurface materials).	Site workers during the redevelopment of the site.	Low	Medium	Low to Moderate
			Intended end users of the site (staff and residents).	Low	Medium	Low to Moderate
		Lateral and vertical migration of groundwater, alongside overland flow.	The Secondary A Aquifers within the underlying strata.	Low	Medium	Low to Moderate
		Root uptake of plant life and subsequent ingestion by fauna. Direct dermal contact or ingestion of soils.	Flora and fauna associated with the end use of the site.	Low	Mild	Low
Potentially deep made ground north of the site boundary associated with the historical industry and redevelopment of the surrounding area.	Ground Gas (CO2 & CH4).	The migration and accumulation of ground gas through permeable sub-surface materials and/ or preferential pathways.	Site workers during the redevelopment of the site.	Unlikely	Mild	Very Low
			Intended end users of the site (staff and residents).	Unlikely	Medium	Low

Table 6: Phase 1 CSM

7. Uncertainties and Limitations

A comprehensive evaluation of potential on-site contamination has been conducted through analysis of historical maps, environmental data, available council records, and a site walkover inspection.

The Phase 1 investigation has identified several issues necessitating further intrusive investigation and assessment to inform the proposed development's design:

1. On-site Made Ground: While there has been minimal historical use of the site, an electricity substation is present in the north-eastern corner of the site, and the land adjacent north of the site has experienced significant historical industrial use. The presence of extent of any potential contamination should be assessed, and the status of the natural soils should be investigated to determine the extent of any potential contamination.

2. Controlled Waters: The risk to controlled waters, comprising the Secondary A Aquifer underlying the site is currently assessed as 'Low to Moderate'. Additional investigation is recommended to examine underground contaminants, groundwater table depth, and any potential hydrological links.

8. Phase II Investigation

8.1. Overview of Works

The Phase II intrusive investigation was undertaken on the 11th and 12th August 2025 under the supervision of a suitably qualified engineer and in general accordance with the Code of Practice for Site Investigations BS 5930:2015+A1:2020.

The Phase II investigation incorporated the following:

- The advancement of 5No.window sample boreholes to a maximum depth of 4mbgl.

- The advancement of 4No. machine-excavated trial pits to a maximum depth of 1.6, 2No. of which BRE 365 infiltration testing was carried out in.

In all exploratory locations, holes were advanced through any made ground onto underlying natural soils, soils were logged and any visual or olfactory evidence of contamination noted.

- The analysis of 8No. soil samples at a UKAS/MCERTS accredited laboratory for general and site specific chemical determinands. This included:
    - 8No. soil samples being analysed for a standard 'CLEA' screening suite of heavy metals (As, Cd, Cr, Cu, Pb, Hg, Ni, Se, V, Zn), PAHs (USEPA 16 & Total) and asbestos.
    - 3No. soil samples being analysed for TPH (ali/aro).
    - 2No. soil samples analysed against the Waste Acceptance Criteria.
    - 2No. soil samples analysed for Polychlorinated Biphenyls (PCBs).

- The analysis of 7No. soils samples at a UKAS/MCERTS accredited laboratory for Geo-technical properties including plasticity index, particle size density, BRE SD1 and moisture content.

Soil logs are contained in Appendix E.
Boreholes and sample locations are contained within Appendix A.

9. Ground Conditions

9.1. Made Ground

Made ground was generally present to depths between 0.2-0.4mbgl.

Made ground generally comprised a sandy gravelly topsoil with rootlets, identified to a maximum depth of 0.4mbgl across the site. Gravels comprised ceramic, brick fragments, metal, plastic and mixed lithologies.

9.2. Superficial Strata

Superficial geology was identified to a maximum recorded depth of 4mbgl.

Superficial strata generally comprised an initial layer of slightly clayey gravelly sand, to a maximum depth of 0.65mbgl. Underlying this was predominantly cohesive strata, comprising silty sandy gravelly clay, becoming increasingly stiff with depth.

Lithorelics of mudstone, and occasionally sandstone, were increasingly abundant with depth, as the superficial strata transitioned to bedrock.

9.3. Solid Strata

Solid geology was encountered at depths of between 0.60mbgl and 2.60mbgl and identified to a maximum depth of 3mbgl.

Shallowest bedrock was encountered in WS02 and TP01, at a depth of 0.6mbgl and 0.8mbgl respectively. Solid geology as also encountered at 1.70mbgl in WS03, 2.60mbgl in WS05 and 1.40mbgl in SA02.

Solid geology was generally identified as very weak mudstone and recovered as either a very dense brown mottled grey gravelly clay (WS02 & WS03), or a very dense dark grey slightly silty clayey sandy gravel (WS05, TP02, SA02).

However, in TP02, an initial layer of very weak sandstone was recovered as very dense sandy cobbly gravel from 0.60mbgl in TP02. This was underlain by very weak mudstone, recovered as gravel from 1.10mbgl.

9.4. Groundwater

Groundwater was encountered at 2.0mbgl in WS04, in the east of the site.

9.5. Field Observations

Beyond the presence made ground no significant visual or olfactory evidence of contamination was noted within soils across the site.

10. Geo-technical

10.1. Laboratory Testing

Atterberg Limits testing was instructed within cohesive soils, and Particle Size Distribution (PSD) testing was instructed within the granular strata. Results are presented within Appendix F of this report.

Cohesive strata was identified across the site, underlying an initial granular layer of superficial strata. Particle size distribution testing indicated samples taken from WS01 at 0.80mbgl and TP02 at 1.15mbgl to predominantly comprise clay, with the latter also comprising gravels. Samples taken from WS04 at 1.20mbgl and WS05 at 1.0mbgl were identified as high plasticity, whereas sample WS03 at 1.5mbgl was identified as medium plasticity.

The recorded water-soluble sulphate concentrations and pH value across the site were 13-45mg/ISO4 and 5.8 – 7.3 respectively.

Full Laboratory test results are available within Appendix F.

10.2. Foundation Design

Cohesive strata, identified as a primary component of soil composition, was determined to be of medium to high plasticity with medium volume change potential. Therefore, where any proposed foundations, and the medium volume change potential cohesive strata are present, the NHBC Guidance (Chapter 4.2 – Building Near Trees) would recommend a minimum foundation depth of 0.90mbgl, in the absence of any deep rooting vegetation. This is in order to be below the zone of seasonal volume change in accordance the NHBC standards. Trees and shrubs can extend the depth affected by seasonal moisture variation, and advice on this is given in the NHBC document. The NHBC document provides guidance for the deepening of new foundations within the range of influence of existing and proposed deep rooting vegetation, which should be taken into account during detailed design in areas of cohesive soils. Irrespective of the possible foundation depths determined from the NHBC document, new foundations should ideally be taken down at least 0.50m below the last vestiges of live roots within foundation excavations, where clay soils are present.

Shallow, natural cohesive superficial strata from 1.0mbgl across most of the site was identified as firm to very stiff. Therefore, a presumed bearing capacity of 150kN/m^2, relative to location, is considered to be achievable in the underlying natural soils from 1.0mbgl, increasing with depth. However, localised areas of soft strata were identified and deepening of foundations may be required in these areas.

A combination of granular and cohesive strata was identified across the site. Therefore, it is recommended that light mesh reinforcement is incorporated into foundations where they span between different strata to account for potential differential settlement.

Whilst excavations remained stable during this site investigation, this was over a relatively short period of time. Instability of trenches should be assumed and battened as a precautionary measure.

10.3. Buried Concrete

The requirement for protecting concrete from aggressive ground is determined from BRE Special Digest 1: Concrete in Aggressive Ground. For the assessment of buried concrete mix requirements on site, the materials have been assessed as a whole with no sub-division into separate strata or geographically, in order to establish a site wide characterisation based on the laboratory test results for the soil samples analysed.

The recorded water-soluble sulphate concentrations and pH value across the site were 13-45mg/ISO4 and 5.8 – 7.3 respectively.

Based on the recorded elevated water-soluble sulphate concentrations and pH value it is considered appropriate to adopt a precautionary Design Sulphate Class of DS-1, together with an Aggressive Chemical Environment of Concrete (ACEC) AC-2z.

10.4. Permeability and Soakaway Drainage

Infiltration testing was undertaken on the 12th August 2025 in SA1 and SA2, with results of the testing presented within Appendix I to this report.

The infiltration tests were performed in general accordance with BRE 365 at a depth of 1.4mbgl and 1.6mbgl.

Both SA1 and SA2 failed to drain within the time period allowed, and extrapolation of results indicated that a soakaway within this location/stratum would fail to drain within a 24 hour test period.

Therefore, the soils across the site would be classed as having a poor permeability in accordance with BS:8004 (now withdrawn) and hence poor soakaway infiltration potential. It is therefore recommended that soakaway drainage is not used on this site.

11. Contamination Assessment

The guidance detailed in section 1.3 has been followed to ensure that the risk posed to identified receptors, is reported according to accepted compliance criteria.

A Tier 1 stage, the long term (chronic) human health toxicity of the soil has been assessed by comparing the on-site concentrations of organic and inorganic compounds with reference values published in LQM/CIEH S4UL ("Copyright Land Quality Management Limited reproduced with permission; Publication Number S4UL3829. All rights reserved") and DEFRAs C4SLs within Appendix G.

11.1. Inorganics & Organics

Determinand	Greatest recorded value across all samples (mg/kg)	Residential with Produce end use (mg/kg)	Pass/Fail	Samples with exceedances
Arsenic (total)	20	37	Pass	N/A
Cadmium (total)	0.3	11	Pass	N/A
Chromium (total)	100	910	Pass	N/A
Chromium (VI)	<1.80	6	Pass	N/A
Copper (total)	69	2400	Pass	N/A
Lead (total)	380	200	Fail	WS04 @ 0.3m
Mercury (total)	<0.3	1.2	Pass	N/A
Nickel (total)	68	180	Pass	N/A
Selenium (total)	1	250	Pass	N/A
Vanadium (total)	61	410	Pass	N/A
Zinc (total)	430	3700	Pass	N/A
PAHs				
Naphthalene	0.08	13	Pass	N/A
Acenaphthylene	0.06	920	Pass	N/A
Acenaphthene	0.09	1100	Pass	N/A
Fluorene	0.10	860	Pass	N/A
Phenanthrene	1.70	440	Pass	N/A
Anthracene	0.38	11000	Pass	N/A
Fluoranthene	4.10	890	Pass	N/A
Pyrene	3.50	2000	Pass	N/A
Benzo(a)anthracene	2.00	13	Pass	N/A
Chrysene	1.80	27	Pass	N/A
Benzo(b)fluoranthene	2.30	3.7	Pass	N/A
Benzo(k)fluoranthene	0.91	100	Pass	N/A
Benzo(a)pyrene	1.90	3	Pass	N/A
Indeno(123cd)pyrene	1.00	41	Pass	N/A
Dibenz(ah)anthracene	0.27	0.3	Pass	N/A
Benzo(ghi)perylene	1.10	350	Pass	N/A

TPH				
VPH Aromatic (>EC5-EC7)	<0.01	300	Pass	N/A
VPH Aromatic (>EC7-EC8)	<0.01	660	Pass	N/A
VPH Aromatic (>EC8-EC10)	<0.02	190	Pass	N/A
EPH Aromatic (>EC10-EC12)	<1	380	Pass	N/A
EPH Aromatic (>EC12-EC16)	<2	660	Pass	N/A
EPH Aromatic (>EC16-EC21)	<10	930	Pass	N/A
EPH Aromatic (>EC21-EC35)	13	1700	Pass	N/A
EPH Aromatic (>EC35-EC44)	<8.4	1700	Pass	N/A
VPH Aliphatic (>C5-C6)	<0.01	160	Pass	N/A
VPH Aliphatic (>C6-C8)	<0.01	530	Pass	N/A
VPH Aliphatic (>C8-C10)	<0.01	150	Pass	N/A
EPH Aliphatic (>C10-C12)	<1	760	Pass	N/A
EPH Aliphatic (>C12-C16)	<2	4300	Pass	N/A
EPH Aliphatic (>C16-C35)	<16	110000	Pass	N/A
EPH Aliphatic (>C35-C44)	<8.4	110000	Pass	N/A

Table 9: Contamination assessment

a. Based on sandy loam soil as defined in SR3 (Environment Agency, 2009c) and 6% soil organic matter (SOM)
b. Figures are rounded to two significant figures
c. In applying the rules for non-soil background to the S4ULs, the background ADE is limited to being no larger that the contribution from the relevant soil ADE
d. Based on comparison of inhalation exposure with inhalation ID
e. Based on comparison of oral and dermal exposure with oral TDI

2No. samples were tested for Polychlorinated Biphenyls (PCBs). Both samples revealed negligible levels (<0.012mg/kg), all testing below the laboratory limits of detection.

Based on published LQM/CIEH S4ULs & DEFRAs C4SLs, a single exceedance in Lead has been identified in WS04 @ 0.30mbgl, with respect to a residential with produce end use. The remaining samples tested for Lead recorded values of <100mg/kg. This will be discussed further in Section 13.

11.2. Asbestos

No asbestos was identified within any of the soil samples taken from across the site.

11.3. Controlled Waters

No significant levels of contaminants of concern were identified, with respect to controlled waters.

Therefore, the risk posed to controlled waters is considered to be negligible.

11.4. Ground Gas

No significant source of ground gas has been identified for this site.

Therefore, no specific ground gas protection measures are considered required at this time.

11.5. WAC Testing

2No. soil samples, SA01 at 0.4mbgl and SA02 at 0.15mbgl, were sent for analysis against the Landfill Waste Acceptance Criteria to determine a waste classification for the soils in the vicinity.

Subsequently, both samples were identified as Inert Waste.

12. Phase II Conceptual Site Model

Source	Pathway	Receptor	Solution
Human Receptors			
Elevated levels of Lead were identified in the shallow soils of WS04 with respect to the proposed end use.	Direct dermal contact or ingestion of soils, or inhalation of dust/fibres (i.e. human interaction with surface and subsurface materials).	Site workers during the redevelopment of the site.	Basic PPE is considered to be sufficient for groundworkers.
		Intended end users of the site (staff & residents).	However, this is an unexpected result that is not considered representative of the general site conditions, as the remaining samples all recorded levels of Lead below the threshold for a residential with produce end use (all recorded <100mg/kg). The average level of lead for the site was identified as 103mg/kg, and the upper 95% percentile of the sample set is identified as 98mg/kg, both of which are below the threshold for Residential with Produce End Use. This suggests that the elevated result at WS04 is anomalous and does not reflect the broader site conditions. Additionally, WS04 is within an area of proposed hard landscaping, blocking the pathway from source to receptor. Therefore, no remedial measures are considered necessary at this time.
No significant source of ground gas or vapours has been identified for this site.	The migration and accumulation of ground gases through permeable sub-surface materials and/ or preferential pathways.	Intended end users of the site (staff & residents).	No specific ground gas protection measures are considered required for this site.
Environmental Receptors (Controlled Waters)			
No elevated levels of contaminants have been identified in shallow soils across the site with respect to the proposed end use.	Lateral and vertical migration of groundwater through permeable sub-surface materials and/ or preferential pathways.	The Secondary A Aquifers within the underlying strata.	No specific remediation is considered to be necessary for this receptor.

Table 11: Phase 2 CSM

13. Risk Management & Remediation

Previous sections have quantified the risk posed to identified receptors. The following section details measures and recommendations for dealing with risks associated with soil, gas, and groundwater contamination in respect to the proposed development.

13.1. Remediation to Protect End Users

Elevated levels of Lead were identified in the shallow soils of WS04 with respect to the proposed end use.

However, this is an unexpected result that is not considered representative of the general site conditions, as the remaining samples all recorded levels of Lead below the threshold for a residential with produce end use (all recorded <100mg/kg). The average level of lead for the site was identified as 103mg/kg, and the upper 95% percentile of the sample set is identified as 98mg/kg, both of which are below the threshold for Residential with Produce End Use. This suggests that the elevated result at WS04 is anomalous and does not reflect the broader site conditions. Additionally, WS04 is within an area of proposed hard landscaping, blocking the pathway from source to receptor.

Therefore, no remedial measures are considered necessary at this time.

13.2. Ground Gas & vapours Protection Measures

No significant source of ground gas or vapours has been identified for this site.

Therefore, no specific ground gas remedial measures are considered necessary at this time.

13.3. Remediation to Protect Controlled Waters

No significant levels of contaminants of concern have been identified with respect to controlled waters.

Therefore, no specific remediation is considered to be required.

13.4. Remediation to Protect Construction Workers

Basic PPE is considered to be sufficient for groundworkers.

14. Conclusions and Recommendations

A Phase 1 & 2 site investigation was carried out which successfully characterised made ground & natural soils across the site, as well as its depth & extent. Representative soil samples were taken of these made ground materials and sent for analysis at a UKAS/MCERTS accredited laboratory for analysis of the identified contaminants of concern.

Recommendations:

- Elevated levels of Lead were identified in the shallow soils of WS04 with respect to the proposed end use. However, this is an unexpected result that is not considered representative of the general site conditions, as the remaining samples all recorded levels of Lead below the threshold for a residential with produce end use (all recorded <100mg/kg). The average level of lead for the site was identified as 103mg/kg, and the upper 95% percentile of the sample set is identified as 98mg/kg, both of which are below the threshold for Residential with Produce End Use. This suggests that the elevated result at WS04 is anomalous and does not reflect the broader site conditions. Additionally, WS04 is within an area of proposed hard landscaping, blocking the pathway from source to receptor. Therefore, no remediation is considered to be required at this time.

- Shallow, natural cohesive superficial strata from 1.0mbgl across most of the site was identified as firm to very stiff. Therefore, a presumed bearing capacity of 150kN/m^2, relative to location, is considered to be achievable in the underlying natural soils from 1.0mbgl, increasing with depth. However, localised areas of soft strata were identified and deepening of foundations may be required in these areas.

- Cohesive strata, identified as a primary component of soil composition, was determined to be of medium to high plasticity with medium volume change potential. Therefore, foundations may need to be deepened in areas of cohesive strata with medium volume change potential, according to NHBC Guidance Chapter 4.2 – Building Near Trees.

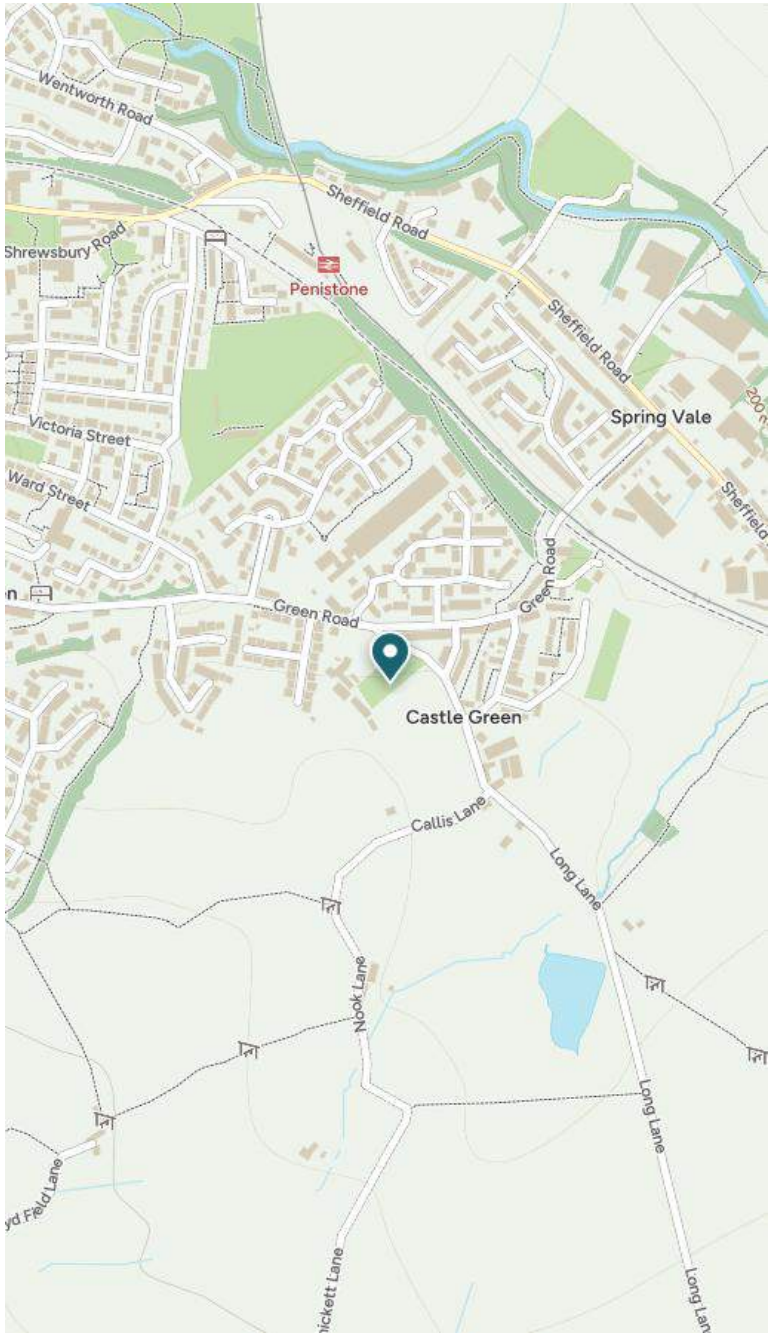
- A combination of granular and cohesive strata was identified across the site. Therefore, it is recommended that light mesh reinforcement is incorporated into foundations where they span between different strata to account for potential differential settlement.

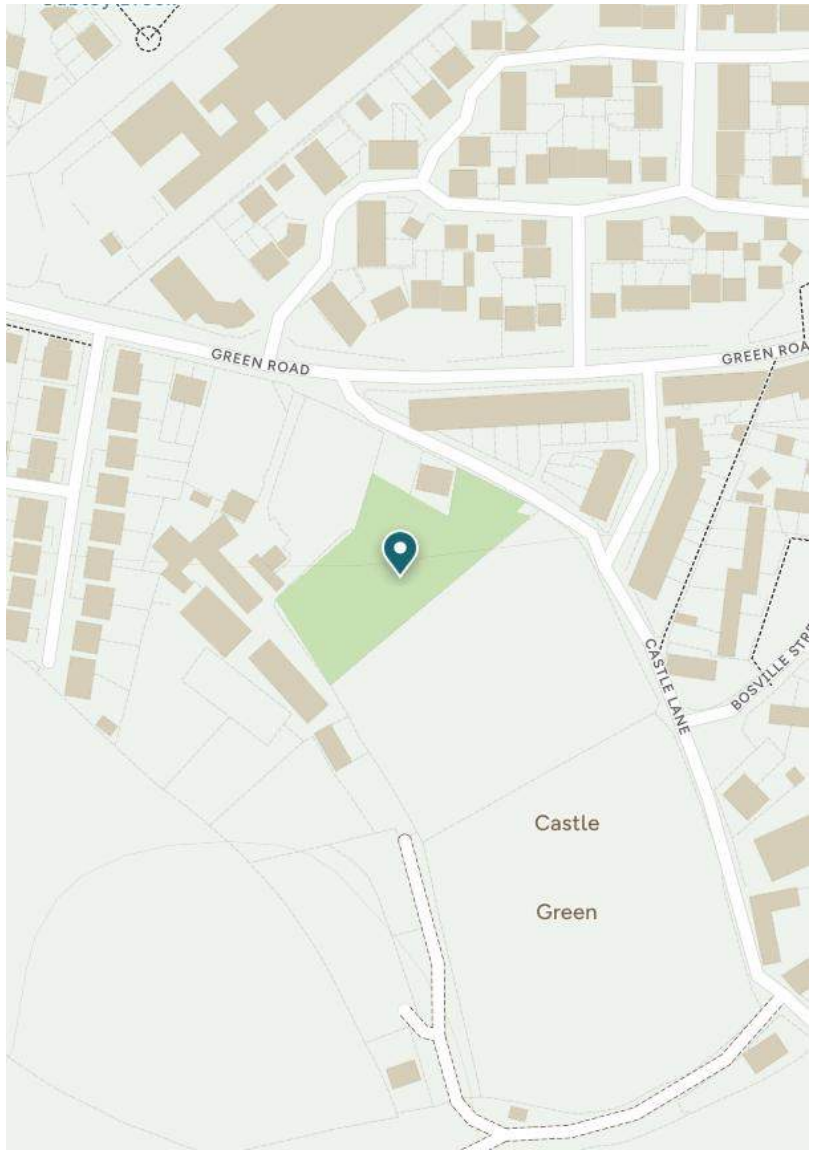
- Based on the recorded elevated water-soluble sulphate concentrations and pH value it is considered appropriate to adopt a precautionary Design Sulphate Class of DS-1, together with an Aggressive Chemical Environment of Concrete (ACEC) AC-2z.

This report should be submitted to your local planning authority for approval.

Dice Environmental

APPENDIX A





Dice Environmental

Title
Site Location

Reference
101722

Date
13/08/2025

Site Address

Castle Lane,
Barnsley,
S36 6AH

Legend

Approximate Site Centre

Scale
NTS

Drawn
AMD

Figure Number
Fig.1

Dice Environmental

Title
Site Boundary

Reference
101722

Date
13/08/2025

Site Address

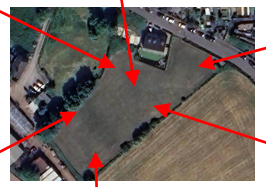
Castle Lane,
Barnsley,
S36 6AH

Legend

Scale
NTS

Drawn
AMD

Figure Number
Fig.2



Dice Environmental

Title
Photos

Reference
101722

Date
13/08/2025

Site Address

Castle Lane,
Barnsley,
S36 6AH

Legend

Scale
NTS

Drawn
AMD

Figure Number
Fig.3

Dice Environmental

Title
Site Investigation Plan

Reference
101722

Date
13/08/2025

Site Address

Castle Lane,
Barnsley,
S36 6AH

Legend

- Borehole location
- Trial Pit
- Trial Pit with Infiltration Testing

Scale
NTS

Drawn
AMD

Figure Number
Fig.4

N

Accommodation Schedule

- ***Staff welfare & communal facilities*** - *88.3m²*
- ***Plot 1*** - *1-bed bungalow M4(3) - 61.2m²*
- ***Plot 2*** - *1-bed bungalow M4(3) - 61.4m²*
- ***Plot 3*** - *1-bed bungalow M4(3) - 61.2m²*
- ***Parking Provision*** - *7 car parking spaces*

Key

- *Communal garden area*
- *Private garden area*
- *Tarmac footpath*
- *Parking spaces*
- *Paved footpath*
- *Paved patio area*
- *PV panels*
- *Proposed Tree*
- *Box hedging*
- 2.752 *Indicative offset dimensions*
- +220 *Indicative site levels*
  (Levels taken from existing topo. Proposed levels subject to engineer input)

Dice Environmental

Title
Development Proposal

Reference
101722

Date
13/08/2025

Site Address

Castle Lane,
Barnsley,
S36 6AH

Legend

Approximate Site Centre

Scale
NTS

Drawn
AMD

Figure Number
Fig.1

Dice Environmental

APPENDIX B

Groundsure
LOCATION INTELLIGENCE

Enviro+Geo Insight

unspecified

Order Details

Date: 25/07/2025

Your ref: EMS_1039143_1299088

Our Ref: EMS-1039143_1311450

Site Details

Location: 425208 402689

Area: 0.35 ha

Authority: Barnsley Metropolitan Borough Council ↗

Contact us with any questions at:
info@groundsure.com ↗
01273 257 755

Certified B Corporation

Summary of findings

Page	Section	Past land use >	On site	0-50m	50-250m	250-500m	500-2000m
15 >	1.1 >	Historical industrial land uses >	0	5	14	54	-
18 >	1.2 >	Historical tanks >	0	0	1	11	-
19 >	1.3 >	Historical energy features >	0	0	6	5	-
20	1.4	Historical petrol stations	0	0	0	0	-
20 >	1.5 >	Historical garages >	0	0	0	4	-
21	1.6	Historical military land	0	0	0	0	-
Page	Section	Past land use - un-grouped >	On site	0-50m	50-250m	250-500m	500-2000m
22 >	2.1 >	Historical industrial land uses >	0	5	21	64	-
26 >	2.2 >	Historical tanks >	0	0	3	18	-
27 >	2.3 >	Historical energy features >	0	0	13	8	-
28	2.4	Historical petrol stations	0	0	0	0	-
28 >	2.5 >	Historical garages >	0	0	0	6	-
Page	Section	Waste and landfill >	On site	0-50m	50-250m	250-500m	500-2000m
29	3.1	Active or recent landfill	0	0	0	0	-
29	3.2	Historical landfill (BGS records)	0	0	0	0	-
30	3.3	Historical landfill (LA/mapping records)	0	0	0	0	-
30 >	3.4 >	Historical landfill (EA/NRW records) >	0	0	0	2	-
30 >	3.5 >	Historical waste sites >	0	0	0	3	-
31 >	3.6 >	Licensed waste sites >	0	0	0	6	-
33 >	3.7 >	Waste exemptions >	0	20	8	15	-
Page	Section	Current industrial land use >	On site	0-50m	50-250m	250-500m	500-2000m
38 >	4.1 >	Recent industrial land uses >	1	0	6	-	-
39	4.2	National Geographic Database (NGD) - Current or recent tanks	0	0	0	-	-
39	4.3	Current or recent petrol stations	0	0	0	0	-
39	4.4	Electricity cables	0	0	0	0	-
39	4.5	Gas pipelines	0	0	0	0	-

40	4.6	Sites determined as Contaminated Land	0	0	0	0	-
40	4.7	Control of Major Accident Hazards (COMAH)	0	0	0	0	-
40	4.8	Regulated explosive sites	0	0	0	0	-
40	4.9	Hazardous substance storage/usage	0	0	0	0	-
40 >	**4.10 >**	**Historical licensed industrial activities (IPC) >**	0	0	3	0	-
41 >	**4.11 >**	**Licensed industrial activities (Part A(1)) >**	0	0	4	0	-
42 >	**4.12 >**	**Licensed pollutant release (Part A(2)/B) >**	0	0	0	2	-
42	4.13	Radioactive Substance Authorisations	0	0	0	0	-
43 >	**4.14 >**	**Licensed Discharges to controlled waters >**	0	0	6	0	-
44	4.15	Pollutant release to surface waters (Red List)	0	0	0	0	-
44	4.16	Pollutant release to public sewer	0	0	0	0	-
44	4.17	List 1 Dangerous Substances	0	0	0	0	-
44 >	**4.18 >**	**List 2 Dangerous Substances >**	0	0	0	1	-
45 >	**4.19 >**	**Pollution Incidents (EA/NRW) >**	0	0	0	3	-
45	4.20	Pollution inventory substances	0	0	0	0	-
45	4.21	Pollution inventory waste transfers	0	0	0	0	-
46	4.22	Pollution inventory radioactive waste	0	0	0	0	-

Page	Section	Hydrogeology	On site	0-50m	50-250m	250-500m	500-2000m
47	5.1	Superficial aquifer	None (within 500m)				
48 >	**5.2 >**	**Bedrock aquifer >**	Identified (within 500m)				
50 >	**5.3 >**	**Groundwater vulnerability >**	Identified (within 50m)				
51	5.4	Groundwater vulnerability- soluble rock risk	None (within 0m)				
51	5.5	Groundwater vulnerability- local information	None (within 0m)				
52 >	**5.6 >**	**Groundwater abstractions >**	0	0	0	2	4
54 >	**5.7 >**	**Surface water abstractions >**	0	0	0	0	2
55	5.8	Potable abstractions	0	0	0	0	0
55	5.9	Source Protection Zones	0	0	0	0	-
55	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-

Page	Section	**Hydrology >**	On site	0-50m	50-250m	250-500m	500-2000m

56 >	6.1 >	Water Network (OS MasterMap) >	0	0	3	-	-
57 >	6.2 >	Surface water features >	0	0	1	-	-
57 >	6.3 >	WFD Surface water body catchments >	1	-	-	-	-
58 >	6.4 >	WFD Surface water bodies >	0	0	1	-	-
58 >	6.5 >	WFD Groundwater bodies >	1	-	-	-	-
Page	Section	River and coastal flooding	On site	0-50m	50-250m	250-500m	500-2000m
59	7.1	Risk of flooding from rivers and the sea	None (within 50m)				
59	7.2	Historical Flood Events	0	0	0	-	-
59	7.3	Flood Defences	0	0	0	-	-
60	7.4	Areas Benefiting from Flood Defences	0	0	0	-	-
60	7.5	Flood Storage Areas	0	0	0	-	-
61	7.6	Flood Zone 2	None (within 50m)				
61	7.7	Flood Zone 3	None (within 50m)				
Page	Section	Surface water flooding >					
62 >	8.1 >	Surface water flooding >	1 in 30 year, 0.3m - 1.0m (within 50m)				
Page	Section	Groundwater flooding >					
64 >	9.1 >	Groundwater flooding >	Negligible (within 50m)				
Page	Section	Environmental designations >	On site	0-50m	50-250m	250-500m	500-2000m
65	10.1	Sites of Special Scientific Interest (SSSI)	0	0	0	0	0
66	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
66	10.3	Special Areas of Conservation (SAC)	0	0	0	0	0
66	10.4	Special Protection Areas (SPA)	0	0	0	0	0
66	10.5	National Nature Reserves (NNR)	0	0	0	0	0
67	10.6	Local Nature Reserves (LNR)	0	0	0	0	0
67 >	10.7 >	Designated Ancient Woodland >	0	0	0	0	5
67	10.8	Biosphere Reserves	0	0	0	0	0
68	10.9	Forest Parks	0	0	0	0	0
68	10.10	Marine Conservation Zones	0	0	0	0	0
68 >	10.11 >	Green Belt >	0	0	1	0	1

68	10.12	Proposed Ramsar sites	0	0	0	0	0
69	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
69	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
69	10.15	Nitrate Sensitive Areas	0	0	0	0	0
69 >	10.16 >	Nitrate Vulnerable Zones >	0	0	0	0	1
71 >	10.17 >	SSSI Impact Risk Zones >	2	-	-	-	-
72	10.18	SSSI Units	0	0	0	0	0
Page	Section	Visual and cultural designations	On site	0-50m	50-250m	250-500m	500-2000m
73	11.1	World Heritage Sites	0	0	0	-	-
73	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
73	11.3	National Parks	0	0	0	-	-
73	11.4	Listed Buildings	0	0	0	-	-
74	11.5	Conservation Areas	0	0	0	-	-
74	11.6	Scheduled Ancient Monuments	0	0	0	-	-
74	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	Agricultural designations >	On site	0-50m	50-250m	250-500m	500-2000m
75 >	12.1 >	Agricultural Land Classification >	Grade 4 (within 250m)				
76	12.2	Open Access Land	0	0	0	-	-
76	12.3	Tree Felling Licences	0	0	0	-	-
76	12.4	Environmental Stewardship Schemes	0	0	0	-	-
77	12.5	Countryside Stewardship Schemes	0	0	0	-	-
Page	Section	Habitat designations >	On site	0-50m	50-250m	250-500m	500-2000m
78 >	13.1 >	Priority Habitat Inventory >	0	0	2	-	-
79	13.2	Habitat Networks	0	0	0	-	-
79	13.3	Open Mosaic Habitat	0	0	0	-	-
79	13.4	Limestone Pavement Orders	0	0	0	-	-
Page	Section	Geology 1:10,000 scale >	On site	0-50m	50-250m	250-500m	500-2000m
80 >	14.1 >	10k Availability >	Identified (within 500m)				
81 >	14.2 >	Artificial and made ground (10k) >	0	0	2	6	-

83	14.3	Superficial geology (10k)	0	0	0	0	-
83	14.4	Landslip (10k)	0	0	0	0	-
84 >	14.5 >	Bedrock geology (10k) >	2	1	8	13	-
86 >	14.6 >	Bedrock faults and other linear features (10k) >	0	0	5	1	-
Page	Section	Geology 1:50,000 scale >	On site	0-50m	50-250m	250-500m	500-2000m
87 >	15.1 >	50k Availability >	Identified (within 500m)				
88 >	15.2 >	Artificial and made ground (50k) >	0	0	1	0	-
89	15.3	Artificial ground permeability (50k)	0	0	-	-	-
90	15.4	Superficial geology (50k)	0	0	0	0	-
90	15.5	Superficial permeability (50k)	None (within 50m)				
90	15.6	Landslip (50k)	0	0	0	0	-
90	15.7	Landslip permeability (50k)	None (within 50m)				
91 >	15.8 >	Bedrock geology (50k) >	2	1	5	10	-
92 >	15.9 >	Bedrock permeability (50k) >	Identified (within 50m)				
93 >	15.10 >	Bedrock faults and other linear features (50k) >	0	0	4	1	-
Page	Section	Boreholes >	On site	0-50m	50-250m	250-500m	500-2000m
94 >	16.1 >	BGS Boreholes >	0	0	12	-	-
Page	Section	Natural ground subsidence >					
96 >	17.1 >	Shrink swell clays >	Very low (within 50m)				
98 >	17.2 >	Running sands >	Negligible (within 50m)				
99 >	17.3 >	Compressible deposits >	Negligible (within 50m)				
100 >	17.4 >	Collapsible deposits >	Very low (within 50m)				
101 >	17.5 >	Landslides >	Low (within 50m)				
103 >	17.6 >	Ground dissolution of soluble rocks >	Negligible (within 50m)				
Page	Section	Mining and ground workings >	On site	0-50m	50-250m	250-500m	500-2000m
105 >	18.1 >	BritPits >	0	0	1	2	-
106 >	18.2 >	Surface ground workings >	0	0	6	-	-
107	18.3	Underground workings	0	0	0	0	0
107	18.4	Underground mining extents	0	0	0	0	-

107	18.5	Historical Mineral Planning Areas	0	0	0	0	-
107	18.6	Non-coal mining	0	0	0	0	0
108	18.7	JPB mining areas	None (within 0m)				
108	18.8	The Coal Authority non-coal mining	0	0	0	0	-
108	18.9	Researched mining	0	0	0	0	-
108	18.10	Mining record office plans	0	0	0	0	-
109	18.11	BGS mine plans	0	0	0	0	-
109 >	**18.12 >**	**Coal mining >**	Identified (within 0m)				
109	18.13	Brine areas	None (within 0m)				
109	18.14	Gypsum areas	None (within 0m)				
109	18.15	Tin mining	None (within 0m)				
110	18.16	Clay mining	None (within 0m)				
Page	Section	Ground cavities and sinkholes	On site	0-50m	50-250m	250-500m	500-2000m
111	19.1	Natural cavities	0	0	0	0	-
111	19.2	Mining cavities	0	0	0	0	0
111	19.3	Reported recent incidents	0	0	0	0	-
111	19.4	Historical incidents	0	0	0	0	-
Page	Section	**Radon >**					
113 >	**20.1 >**	**Radon >**	Less than 1% (within 0m)				
Page	Section	**Soil chemistry >**	On site	0-50m	50-250m	250-500m	500-2000m
115 >	**21.1 >**	**BGS Estimated Background Soil Chemistry >**	1	2	-	-	-
115	21.2	BGS Estimated Urban Soil Chemistry	0	0	-	-	-
115	21.3	BGS Measured Urban Soil Chemistry	0	0	-	-	-
Page	Section	**Railway infrastructure and projects >**	On site	0-50m	50-250m	250-500m	500-2000m
116	22.1	Underground railways (London)	0	0	0	-	-
116	22.2	Underground railways (Non-London)	0	0	0	-	-
117	22.3	Railway tunnels	0	0	0	-	-
117 >	**22.4 >**	**Historical railway and tunnel features >**	0	5	8	-	-
118	22.5	Royal Mail tunnels	0	0	0	-	-

118	22.6	Historical railways	0	0	0	-	-
118	22.7	Railways	0	0	0	-	-
118	22.8	Crossrail 2	0	0	0	0	-
118	22.9	HS2	0	0	0	0	-

Recent aerial photograph

Capture Date: 30/05/2021

Site Area: 0.35ha

Recent site history - 2018 aerial photograph

Capture Date: 27/06/2018

Site Area: 0.35ha

Recent site history - 2012 aerial photograph

Capture Date: 28/05/2012

Site Area: 0.35ha

Recent site history - 2009 aerial photograph

Capture Date: 11/09/2009

Site Area: 0.35ha

Recent site history - 1999 aerial photograph

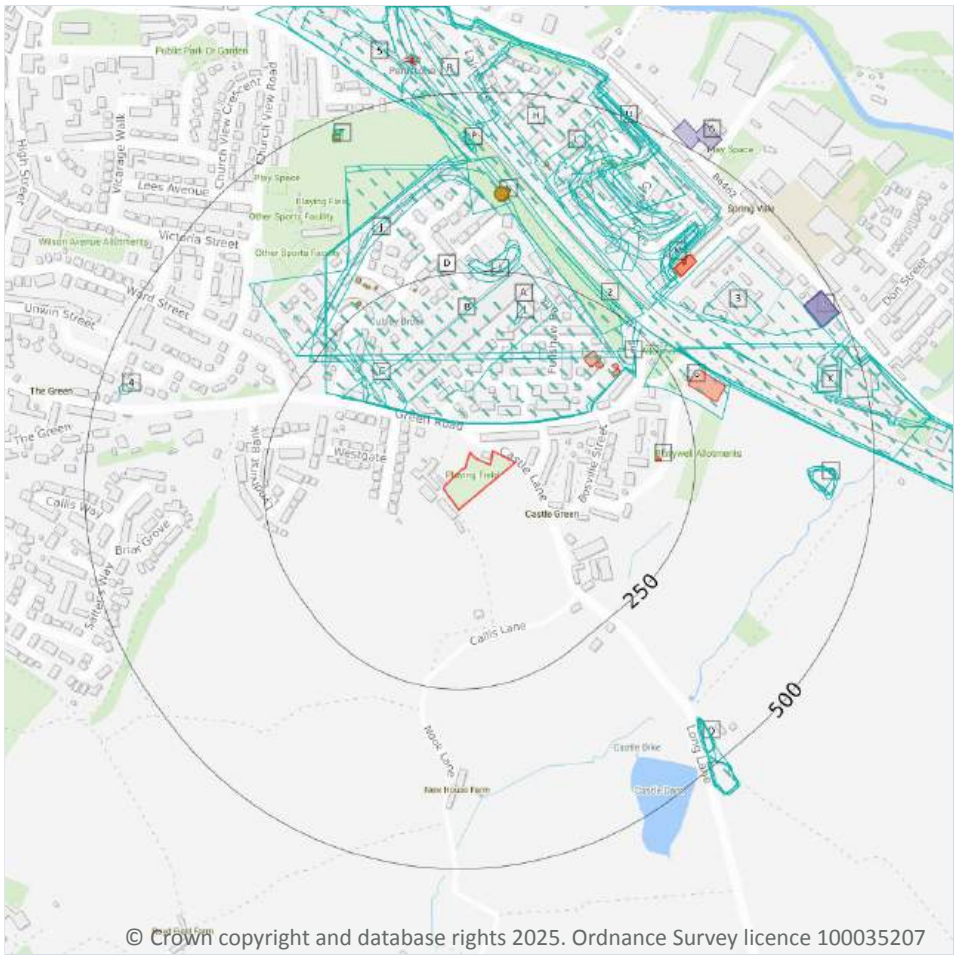
Capture Date: 10/07/1999

Site Area: 0.35ha

OS MasterMap site plan

Site Area: 0.35ha

1 Past land use



Site Outline

Search buffers in metres (m)

Historical industrial land uses

Historical tanks

Historical energy features

Historical garages

1.1 Historical industrial land uses

Records within 500m	73

Potentially contaminative land use features digitised from historical Ordnance Survey mapping at 1:10,000 and 1:10,560 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 15 >**

ID	Location	Land use	Dates present	Group ID
A	38m N	Railway Sidings	1929 - 1948	1539461

ID	Location	Land use	Dates present	Group ID
A	39m N	Railway Sidings	1965	1516895
B	39m N	Unspecified Foundry	1987	1449116
A	39m N	Railway Sidings	1951	1481214
B	39m N	Unspecified Works	1951	1498985
B	84m N	Unspecified Works	1965	1484988
C	109m NW	Railway Sidings	1987	1556649
D	128m N	Steel and Iron Works	1929	1441380
C	134m NW	Railway Buildings	1948	1436223
D	136m N	Unspecified Works	1938 - 1948	1565847
1	179m N	Railway Sidings	1929	1555752
E	206m NE	Unspecified Heap	1891	1466149
G	207m NE	Unspecified Works	1965 - 1987	1527201
H	216m NE	Railway Sidings	1891	1493343
I	236m N	Unspecified Ground Workings and Heap	1929	1470382
J	236m NW	Unspecified Ground Workings	1929	1440901
I	245m N	Unspecified Ground Workings	1938	1511080
I	245m N	Gravel Pit	1948 - 1951	1492951
2	247m NE	Railway Sidings	1929	1481693
K	277m NE	Wagon and Wheel Works	1938 - 1948	1535191
K	277m NE	Railway Sidings	1891	1555833
K	277m NE	Railway Sidings	1904	1563823
L	282m NE	Steel and Iron Works	1903	1441381
L	290m NE	Unspecified Commercial/Industrial	1929	1432010
H	294m NE	Railway Sidings	1903	1516035
L	307m NE	Refuse Heap	1903	1571507
L	317m NE	Refuse Heap	1891	1488770
M	324m NE	Refuse Heap	1929	1517094
L	331m NE	Railway Sidings	1929	1511897

ID	Location	Land use	Dates present	Group ID
M	332m NE	Gravel Pit	1951	1483937
M	333m NE	Refuse Heap	1948	1534261
M	333m NE	Gravel Pit	1938	1530290
3	334m NE	Unspecified Works	1987	1460707
K	338m NE	Wagon and Wheel Works	1904	1513791
L	360m NE	Iron Works	1891	1433987
L	366m NE	Refuse Heap	1929	1536484
L	374m NE	Refuse Heap	1948	1577765
L	375m NE	Gravel Pit	1938	1486244
M	376m NE	Refuse Heap	1965	1534447
L	377m NE	Gravel Pit	1951	1493471
L	391m NE	Refuse Heap	1965	1565894
O	407m E	Unspecified Quarry	1948	1538901
O	407m E	Unspecified Quarry	1904	1549747
O	409m E	Unspecified Pit	1938	1546535
O	410m E	Unspecified Pit	1951	1562243
O	414m E	Unspecified Disused Quarry	1987	1461930
O	414m E	Unspecified Quarry	1965	1578077
P	415m N	Railway Buildings	1948 - 1951	1562526
P	420m N	Junction Station	1938	1465945
P	421m N	Railway Building	1891 - 1903	1528371
K	429m E	Railway Building	1951	1476752
K	433m E	Unspecified Works	1965 - 1987	1560426
Q	435m SE	Unspecified Pit	1891	1518715
Q	436m SE	Unspecified Pit	1904	1556122
Q	436m SE	Unspecified Pit	1948	1582664
R	437m N	Railway Sidings	1850	1516707
Q	439m SE	Unspecified Pits	1951	1555621

ID	Location	Land use	Dates present	Group ID
Q	441m SE	Unspecified Pits	1938	1576086
K	447m E	Wagon and Wheel Works	1951	1521147
4	453m W	Unspecified Pit	1891	1452816
R	454m N	Railway Sidings	1929	1508093
5	467m N	Cuttings	1850	1433835
T	469m NW	Unspecified Tank	1929	1513186
U	470m NE	Unspecified Heap	1951	1468607
U	470m NE	Unspecified Ground Workings	1948	1440903
T	472m N	Unspecified Tank	1938 - 1948	1564881
T	477m N	Unspecified Tank	1891	1485780
T	478m N	Unspecified Tank	1951	1576465
Q	492m SE	Unspecified Pit	1891	1578874
Q	494m SE	Unspecified Pit	1904	1513116
Q	494m SE	Unspecified Pit	1948	1558574
R	496m N	Railway Building	1938	1552476
R	498m N	Railway Building	1951	1550071

This data is sourced from Ordnance Survey / Groundsure.

1.2 Historical tanks

Records within 500m	**12**

Tank features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 15 >**

ID	Location	Land use	Dates present	Group ID
D	237m N	Unspecified Tank	1971 - 1996	249544
J	257m NW	Unspecified Tank	1971 - 1988	246673

ID	Location	Land use	Dates present	Group ID
J	262m NW	Unspecified Tank	1971 - 1988	245544
J	269m NW	Unspecified Tank	1971	238442
J	273m NW	Unspecified Tank	1971 - 1996	257160
J	283m NW	Unspecified Tank	1988 - 1996	244461
N	348m N	Unspecified Tank	1995	261262
N	349m N	Unspecified Tank	1968	247620
N	349m N	Unspecified Tank	1985	250295
N	350m N	Unspecified Tank	1983	246531
L	403m N	Unspecified Tank	1960 - 1968	257120
T	472m N	Unspecified Tank	1893	238450

This data is sourced from Ordnance Survey / Groundsure.

1.3 Historical energy features

Records within 500m	**11**

Energy features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 15 >**

ID	Location	Land use	Dates present	Group ID
E	169m NE	Electricity Substation	1988 - 1999	147139
E	175m NE	Electricity Substation	1996 - 1999	148839
E	182m NE	Electricity Substation	1971 - 1988	156557
E	191m NE	Gas Governor	1988 - 1999	154552
F	196m E	Electricity Substation	1988	154329
F	199m E	Electricity Substation	1996 - 1999	160426
G	264m NE	Electricity Substation	1971 - 1999	158353
M	345m NE	Electricity Substation	1988	156453

ID	Location	Land use	Dates present	Group ID
M	348m NE	Electricity Substation	1996	149412
M	362m NE	Electricity Substation	1999	152455
M	363m NE	Electricity Substation	1971	149140

This data is sourced from Ordnance Survey / Groundsure.

1.4 Historical petrol stations

Records within 500m	0

Petrol stations digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

1.5 Historical garages

Records within 500m	4

Garages digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 15 >**

ID	Location	Land use	Dates present	Group ID
S	456m NE	Garage	1988	46523
S	458m NE	Garage	1996 - 1999	46685
S	458m NE	Garage	1960 - 1971	46560
6	499m NE	Garage	1983 - 1985	46634

This data is sourced from Ordnance Survey / Groundsure.

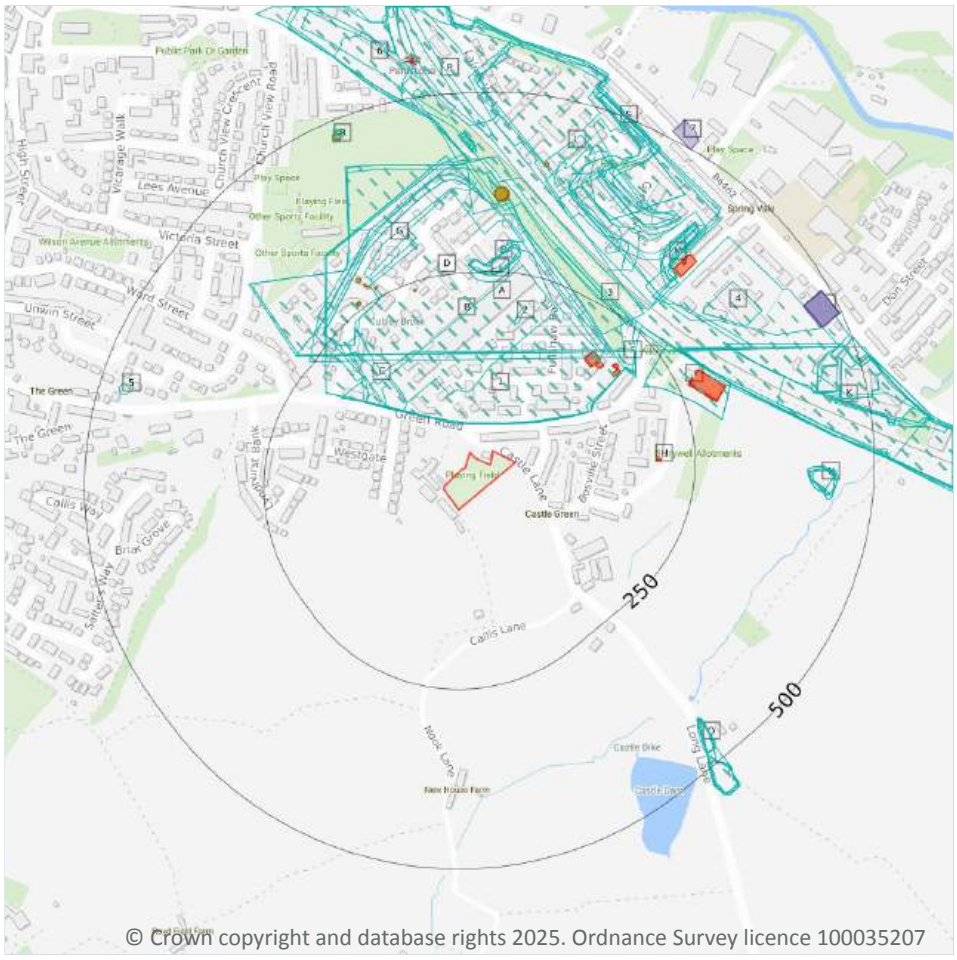
1.6 Historical military land

Records within 500m	0

Areas of military land digitised from multiple sources including the National Archives, local records, MOD records and verified other sources, intelligently grouped into contiguous features.

This data is sourced from Ordnance Survey / Groundsure / other sources.

2 Past land use - un-grouped



Site Outline

Search buffers in metres (m)

Historical industrial land uses

Historical tanks

Historical energy features

Historical garages

2.1 Historical industrial land uses

Records within 500m	90

Potentially contaminative land use features digitised from historical Ordnance Survey mapping at 1:10,000 and 10,560 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 22 >**

ID	Location	Land Use	Date	Group ID
1	38m N	Railway Sidings	1948	1539461
A	39m N	Railway Sidings	1965	1516895
B	39m N	Unspecified Foundry	1987	1449116

ID	Location	Land Use	Date	Group ID
A	39m N	Railway Sidings	1951	1481214
B	39m N	Unspecified Works	1951	1498985
B	84m N	Unspecified Works	1965	1484988
C	109m NW	Railway Sidings	1987	1556649
D	128m N	Steel and Iron Works	1929	1441380
C	134m NW	Railway Buildings	1948	1436223
D	136m N	Unspecified Works	1948	1565847
E	136m N	Railway Sidings	1948	1539461
D	137m N	Unspecified Works	1938	1565847
2	179m N	Railway Sidings	1929	1555752
D	179m NE	Railway Sidings	1929	1539461
G	196m NW	Railway Sidings	1938	1539461
F	206m NE	Unspecified Heap	1891	1466149
I	207m NE	Unspecified Works	1987	1527201
I	207m NE	Unspecified Works	1965	1527201
E	216m NE	Railway Sidings	1891	1493343
J	236m N	Unspecified Ground Workings and Heap	1929	1470382
G	236m NW	Unspecified Ground Workings	1929	1440901
J	245m N	Unspecified Ground Workings	1938	1511080
J	245m N	Unspecified Ground Workings	1938	1511080
J	245m N	Gravel Pit	1948	1492951
3	247m NE	Railway Sidings	1929	1481693
J	247m N	Gravel Pit	1951	1492951
E	252m NE	Railway Sidings	1938	1539461
K	276m NE	Railway Sidings	1948	1539461
K	277m NE	Wagon and Wheel Works	1938	1535191
K	277m NE	Railway Sidings	1938	1539461
K	277m NE	Railway Sidings	1891	1555833

ID	Location	Land Use	Date	Group ID
L	282m NE	Steel and Iron Works	1903	1441381
L	290m NE	Unspecified Commercial/Industrial	1929	1432010
E	294m NE	Railway Sidings	1903	1516035
L	307m NE	Refuse Heap	1903	1571507
L	317m NE	Refuse Heap	1891	1488770
M	324m NE	Refuse Heap	1929	1517094
L	331m NE	Railway Sidings	1929	1511897
M	332m NE	Gravel Pit	1951	1483937
M	333m NE	Refuse Heap	1948	1534261
M	333m NE	Gravel Pit	1938	1530290
4	334m NE	Unspecified Works	1987	1460707
K	338m NE	Wagon and Wheel Works	1948	1535191
K	338m NE	Wagon and Wheel Works	1904	1513791
K	338m NE	Railway Sidings	1904	1563823
L	360m NE	Iron Works	1891	1433987
L	366m NE	Refuse Heap	1929	1536484
L	374m NE	Refuse Heap	1948	1577765
L	375m NE	Gravel Pit	1938	1486244
M	376m NE	Refuse Heap	1965	1534447
L	377m NE	Gravel Pit	1951	1493471
L	391m NE	Refuse Heap	1965	1565894
N	407m E	Unspecified Quarry	1948	1538901
N	407m E	Unspecified Quarry	1904	1549747
N	409m E	Unspecified Pit	1938	1546535
N	409m E	Unspecified Pit	1938	1546535
N	410m E	Unspecified Pit	1951	1562243
N	414m E	Unspecified Disused Quarry	1987	1461930
N	414m E	Unspecified Quarry	1965	1578077

ID	Location	Land Use	Date	Group ID
E	415m N	Railway Buildings	1948	1562526
E	417m N	Railway Buildings	1951	1562526
E	420m N	Junction Station	1938	1465945
E	421m N	Railway Building	1903	1528371
E	425m N	Railway Building	1891	1528371
K	429m E	Railway Building	1951	1476752
K	433m E	Unspecified Works	1987	1560426
K	433m E	Unspecified Works	1965	1560426
O	435m SE	Unspecified Pit	1891	1518715
O	436m SE	Unspecified Pit	1948	1582664
O	436m SE	Unspecified Pit	1904	1556122
P	437m N	Railway Sidings	1850	1516707
O	439m SE	Unspecified Pits	1951	1555621
O	441m SE	Unspecified Pits	1938	1576086
O	441m SE	Unspecified Pits	1938	1576086
K	447m E	Wagon and Wheel Works	1951	1521147
5	453m W	Unspecified Pit	1891	1452816
P	454m N	Railway Sidings	1929	1508093
6	467m N	Cuttings	1850	1433835
R	469m NW	Unspecified Tank	1929	1513186
S	470m NE	Unspecified Heap	1951	1468607
S	470m NE	Unspecified Ground Workings	1948	1440903
R	472m N	Unspecified Tank	1938	1564881
R	473m N	Unspecified Tank	1948	1564881
R	477m N	Unspecified Tank	1891	1485780
R	478m N	Unspecified Tank	1951	1576465
O	492m SE	Unspecified Pit	1891	1578874
O	494m SE	Unspecified Pit	1948	1558574

ID	Location	Land Use	Date	Group ID
O	494m SE	Unspecified Pit	1904	1513116
P	496m N	Railway Building	1938	1552476
P	498m N	Railway Building	1951	1550071

This data is sourced from Ordnance Survey / Groundsure.

2.2 Historical tanks

Records within 500m	**21**

Tank features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 22 >**

ID	Location	Land Use	Date	Group ID
D	237m N	Unspecified Tank	1988	249544
D	237m N	Unspecified Tank	1971	249544
D	238m N	Unspecified Tank	1996	249544
G	257m NW	Unspecified Tank	1988	246673
G	258m NW	Unspecified Tank	1971	246673
G	262m NW	Unspecified Tank	1988	245544
G	263m NW	Unspecified Tank	1971	245544
G	269m NW	Unspecified Tank	1971	238442
G	273m NW	Unspecified Tank	1988	257160
G	274m NW	Unspecified Tank	1996	257160
G	274m NW	Unspecified Tank	1971	257160
G	283m NW	Unspecified Tank	1988	244461
G	283m NW	Unspecified Tank	1996	244461
E	348m N	Unspecified Tank	1995	261262
E	348m N	Unspecified Tank	1995	261262
E	349m N	Unspecified Tank	1985	250295
E	349m N	Unspecified Tank	1968	247620

ID	Location	Land Use	Date	Group ID
E	350m N	Unspecified Tank	1983	246531
L	403m N	Unspecified Tank	1960	257120
L	403m N	Unspecified Tank	1968	257120
R	472m N	Unspecified Tank	1893	238450

This data is sourced from Ordnance Survey / Groundsure.

2.3 Historical energy features

Records within 500m	**21**

Energy features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 22 >**

ID	Location	Land Use	Date	Group ID
F	169m NE	Electricity Substation	1988	147139
F	171m NE	Electricity Substation	1996	147139
F	171m NE	Electricity Substation	1999	147139
F	175m NE	Electricity Substation	1996	148839
F	175m NE	Electricity Substation	1999	148839
F	182m NE	Electricity Substation	1988	156557
F	185m NE	Electricity Substation	1971	156557
F	191m NE	Gas Governor	1988	154552
F	192m NE	Gas Governor	1996	154552
F	192m NE	Gas Governor	1999	154552
H	196m E	Electricity Substation	1988	154329
H	199m E	Electricity Substation	1996	160426
H	199m E	Electricity Substation	1999	160426
I	264m NE	Electricity Substation	1988	158353
I	266m NE	Electricity Substation	1996	158353
I	266m NE	Electricity Substation	1999	158353

ID	Location	Land Use	Date	Group ID
I	268m NE	Electricity Substation	1971	158353
M	345m NE	Electricity Substation	1988	156453
M	348m NE	Electricity Substation	1996	149412
M	362m NE	Electricity Substation	1999	152455
M	363m NE	Electricity Substation	1971	149140

This data is sourced from Ordnance Survey / Groundsure.

2.4 Historical petrol stations

Records within 500m	**0**

Petrol stations digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

2.5 Historical garages

Records within 500m	**6**

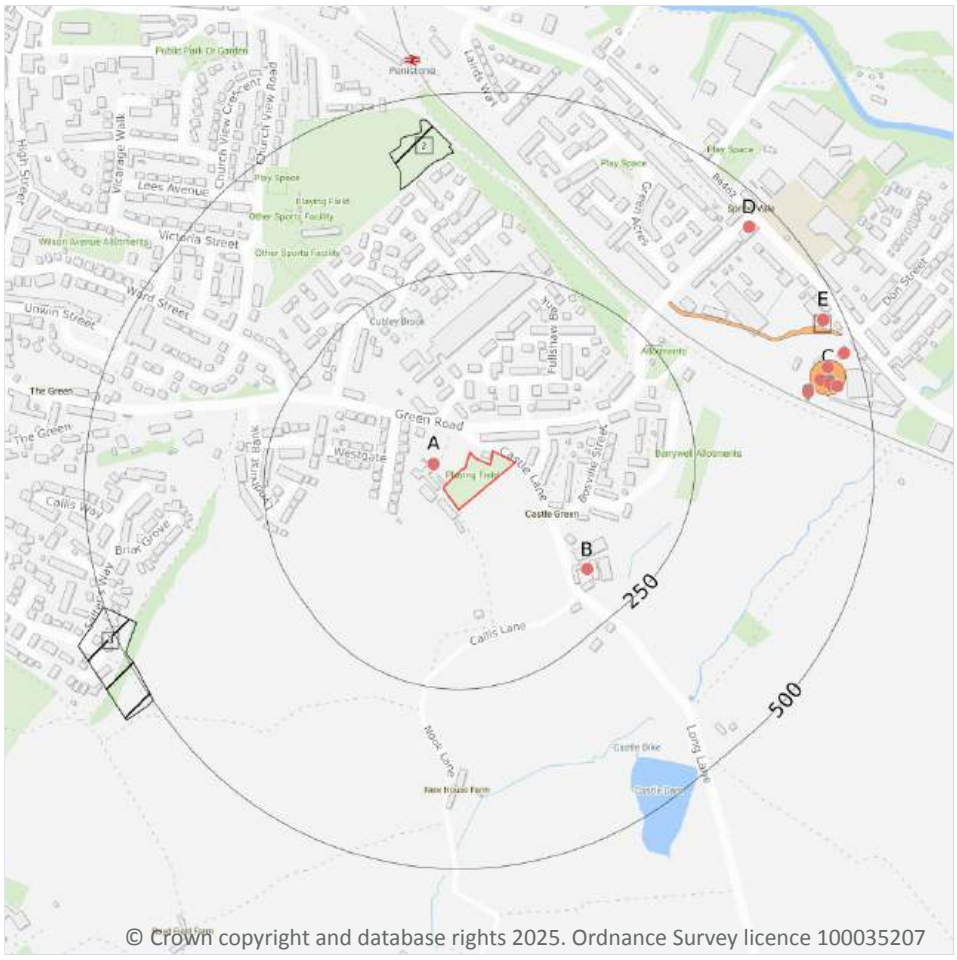
Garages digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 22 >**

ID	Location	Land Use	Date	Group ID
Q	456m NE	Garage	1988	46523
Q	458m NE	Garage	1999	46685
Q	458m NE	Garage	1996	46685
Q	458m NE	Garage	1960	46560
Q	458m NE	Garage	1971	46560
7	499m NE	Garage	1983	46634

This data is sourced from Ordnance Survey / Groundsure.

3 Waste and landfill



Site Outline

Search buffers in metres (m)

Historical landfill (EA/NRW)

Historical waste sites

Licensed waste sites

Waste exemptions

3.1 Active or recent landfill

Records within 500m	0

Active or recently closed landfill sites under Environment Agency/Natural Resources Wales regulation.

This data is sourced from the Environment Agency and Natural Resources Wales.

3.2 Historical landfill (BGS records)

Records within 500m	0

Landfill sites identified on a survey carried out on behalf of the DoE in 1973. These sites may have been closed or operational at this time.

This data is sourced from the British Geological Survey.

3.3 Historical landfill (LA/mapping records)

Records within 500m	0

Landfill sites identified from Local Authority records and high detail historical mapping.

This data is sourced from the Ordnance Survey/Groundsure and Local Authority records.

3.4 Historical landfill (EA/NRW records)

Records within 500m	2

Known historical (closed) landfill sites (e.g. sites where there is no PPC permit or waste management licence currently in force). This includes sites that existed before the waste licensing regime and sites that have been licensed in the past but where a licence has been revoked, ceased to exist or surrendered and a certificate of completion has been issued.

Features are displayed on the Waste and landfill map on **page 29 >**

ID	Location	Details		
2	378m N	Site Address: Penistone Church, Churchfield Road, Penistone Licence Holder Address: Foundries Fabrication Divisions, Penistone, Sheffield	Waste Licence: Yes Site Reference: WD20 B546, 4400/B546, 20B546(104) Waste Type: Inert, Industrial Environmental Permitting Regulations (Waste) Reference: - Licence Issue: 02/02/1987 Licence Surrender: 28/09/1993	Operator: David Brown Gear Industries Limited Licence Holder: David Brown Gear Industries First Recorded 02/02/1987 Last Recorded: 31/12/1991
3	466m SW	Site Address: Mortimer Road, Cubley, Sheffield Licence Holder Address: -	Waste Licence: - Site Reference: 4400/(34) Waste Type: - Environmental Permitting Regulations (Waste) Reference: - Licence Issue: - Licence Surrender: -	Operator: G Longden Homes Limited Licence Holder: G Lonigden First Recorded - Last Recorded: -

This data is sourced from the Environment Agency and Natural Resources Wales.

3.5 Historical waste sites

Records within 500m	3

Waste site records derived from Local Authority planning records and high detail historical mapping.

Features are displayed on the Waste and landfill map on **page 29 >**

ID	Location	Address	Further Details	Date
1	307m NE	Site Address: N/A	Type of Site: Ground Workings and Refuse Heap Planning application reference: N/A Description: N/A Data source: Historic Mapping Data Type: Polygon	1960
C	426m E	Site Address: Laurence Works,Sheffield Road, Springvale, Penistone, SHEFFIELD, South Yorkshire, S36 6HF	Type of Site: Waste transfer Site Planning application reference: 03/1075 Description: Scheme comprises skip and waste transfer site. An application (ref: 03/1075) for Detailed Planning permission was submitted to Barnsley B.C. on 11th July 2003. Data source: Historic Planning Application Data Type: Point	-
C	426m E	Site Address: Lawrence Works, Springvale Industrial Estate, Penistone, SHEFFIELD, South Yorkshire, S36 6WP	Type of Site: Materials Recycling Centre Planning application reference: 2007/0121 Description: Scheme comprises change of use to materials recycling centre. An application (ref: 2007/0121) for detailed planning permission was granted by Barnsley B.C. Planning decision obtained Data source: Historic Planning Application Data Type: Point	-

This data is sourced from Ordnance Survey/Groundsure and Local Authority records.

3.6 Licensed waste sites

Records within 500m	**6**

Active or recently closed waste sites under Environment Agency/Natural Resources Wales regulation.

Features are displayed on the Waste and landfill map on **page 29 >**

ID	Location	Details		
C	418m E	Site Name: - Site Address: Unit 1, Sheffield Road, Penistone, Sheffield, South Yorkshire, S36 6HF Correspondence Address: Unit 1, Sheffield Road, Penistone, Sheffield, South Yorkshire, S36 6HF	Type of Site: Household, Commercial & Industrial Waste T Stn Size: >= 25000 tonnes 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: PEN005 EPR reference: - Operator: Penistone Waste Management Ltd Waste Management licence No: 65406 Annual Tonnage: 25000	Issue Date: 04/05/2005 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued
C	418m E	Site Name: Penistone Waste Management Site Address: Laurence Works, Sheffield Road, Penistone, Sheffield, South Yorkshire, S36 6HF Correspondence Address: -	Type of Site: Household, Commercial & Industrial Waste T Stn Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: PEN005 EPR reference: EA/EPR/EP3992ZW/A001 Operator: Penistone Waste Management Ltd Waste Management licence No: 65406 Annual Tonnage: 25000	Issue Date: 04/05/2005 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued
C	418m E	Site Name: Lawrence Works Site Address: Laurence Works, Sheffield Road, Penistone, Sheffield, South Yorkshire, S36 6HF Correspondence Address: -	Type of Site: Household, Commercial & Industrial Waste T Stn Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: BWM001 EPR reference: EA/EPR/FB3939RN/V002 Operator: Bulk Waste Management Limited Waste Management licence No: 65406 Annual Tonnage: 24999	Issue Date: 04/05/2005 Effective Date: 19/04/2012 Modified: 14/12/2012 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified

ID	Location	Details		
C	418m E	Site Name: Lawrence Works Site Address: Laurence Works, Sheffield Road, Penistone, Sheffield, South Yorkshire, S36 6HF Correspondence Address: -	Type of Site: Household, Commercial & Industrial Waste T Stn Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: 648294 EPR reference: EA/EPR/FB3939RN Operator: Bulk Waste Management Limited Waste Management licence No: 65406 Annual Tonnage: 24999	Issue Date: 04/05/2005 Effective Date: 04/05/2005 Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued
C	451m E	Site Name: Bulk Metals Ltd Site Address: Laurence Works Ind Estate, Springvale, Penistone, South Yorkshire, S36 6HF Correspondence Address: -	Type of Site: 75kte Vehicle Depollution Facility Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: BUL037 EPR reference: EA/EPR/LB3537RK/V002 Operator: Bulk Metals Limited Waste Management licence No: 104775 Annual Tonnage: 74999	Issue Date: 04/06/2013 Effective Date: - Modified: 13/09/2016 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified
C	451m E	Site Name: Bulk Metals Ltd Site Address: Laurence Works Ind Estate, Springvale, Penistone, South Yorkshire, S36 6HF Correspondence Address: -	Type of Site: 75kte Vehicle Depollution Facility Size: >= 25000 tonnes 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: 631923 EPR reference: EA/EPR/LB3537RK Operator: Bulk Metals Limited Waste Management licence No: 104775 Annual Tonnage: 74999	Issue Date: 04/06/2013 Effective Date: 04/06/2013 Modified: 04/06/2013 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued

This data is sourced from the Environment Agency and Natural Resources Wales.

3.7 Waste exemptions

Records within 500m	**43**

Activities involving the storage, treatment, use or disposal of waste that are exempt from needing a permit. Exemptions have specific limits and conditions that must be adhered to.

Features are displayed on the Waste and landfill map on **page 29 >**

ID	Location	Site	Reference	Category	Sub-Category	Description
A	33m NW	Castle Green Farm Green Road Sheffield S36 6be	EPR/CE5986LC/A001	Disposing of waste exemption	Agricultural waste only	Burning waste in the open
A	33m NW	Castle Green Farm Green Road Sheffield S36 6be	EPR/CE5986LC/A001	Using waste exemption	Agricultural waste only	Spreading waste on agricultural land to confer benefit
A	33m NW	Castle Green Farm Green Road Sheffield S36 6be	EPR/CE5986LC/A001	Treating waste exemption	Agricultural waste only	Aerobic composting and associated prior treatment
A	33m NW	Castle Green Farm Green Road Sheffield S36 6be	EPR/CE5986LC/A001	Using waste exemption	Agricultural waste only	Use of waste in construction
A	33m NW	Castle Green Farm Green Road Sheffield S36 6be	EPR/CE5986LC/A001	Using waste exemption	Agricultural waste only	Use of waste for a specified purpose
A	33m NW	Castle Green Farm, Green Road, Penistone, Sheffield, S36 6be	WEX033695	Treating waste exemption	On a farm	Aerobic composting and associated prior treatment
A	33m NW	Castle Green Farm, Green Road, Penistone, Sheffield, S36 6be	WEX033695	Using waste exemption	On a farm	Use of waste in construction
A	33m NW	Castle Green Farm, Green Road, Penistone, Sheffield, S36 6be	WEX033695	Using waste exemption	On a farm	Use of waste for a specified purpose
A	33m NW	Castle Green Farm, Green Road, Penistone, Sheffield, S36 6be	WEX198336	Treating waste exemption	On a farm	Aerobic composting and associated prior treatment
A	33m NW	Castle Green Farm, Green Road, Penistone, Sheffield, S36 6be	WEX198336	Using waste exemption	On a farm	Use of waste for a specified purpose
A	33m NW	Castle Green Farm, Green Road, Penistone, Sheffield, S36 6be	WEX198336	Using waste exemption	On a farm	Use of waste in construction
A	33m NW	Castle Green Farm, Green Road, Penistone, Sheffield, S36 6be	WEX198336	Disposing of waste exemption	On a farm	Burning waste in the open
A	33m NW	Castle Green Farm, Green Road, Penistone, Sheffield, S36 6be	WEX198336	Using waste exemption	On a farm	Spreading waste on agricultural land to confer benefit
A	33m NW	Castle Green Farm, Green Road, Penistone, Sheffield, S36 6be	WEX033695	Disposing of waste exemption	On a farm	Burning waste in the open

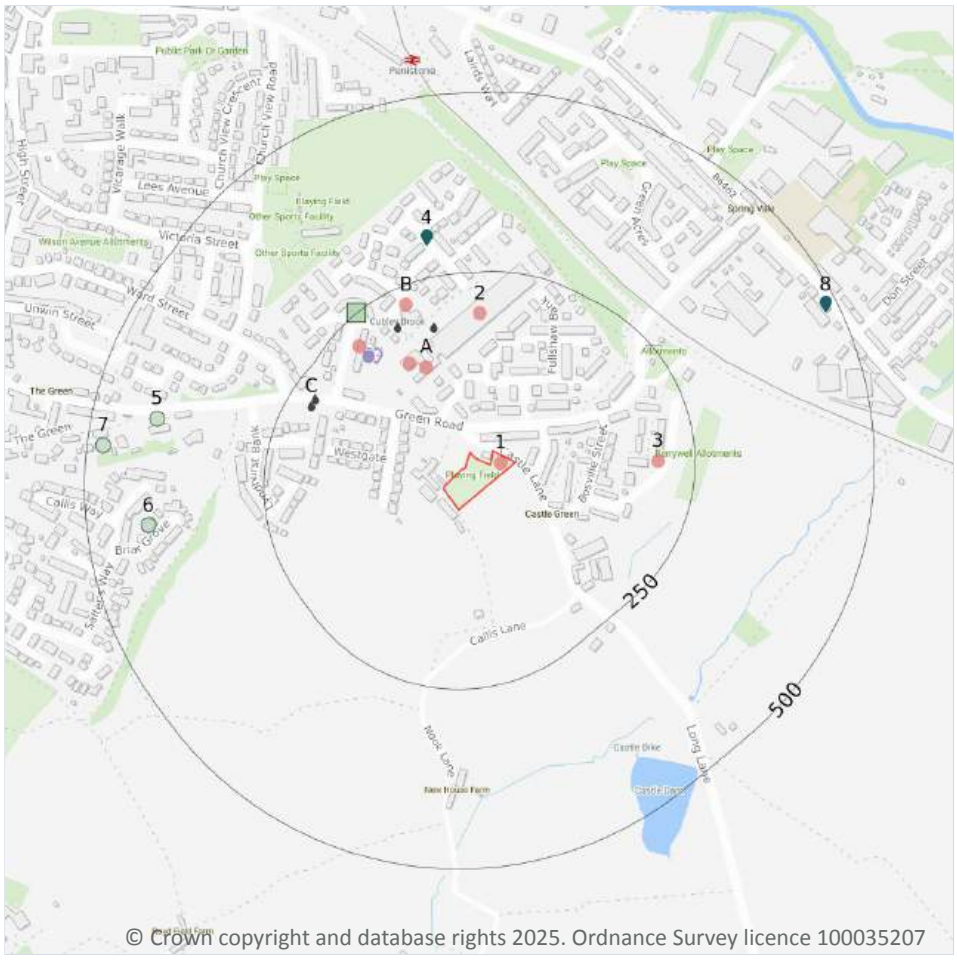
ID	Location	Site	Reference	Category	Sub-Category	Description
A	33m NW	Castle Green Farm, Green Road, Penistone, Sheffield, S36 6be	WEX033695	Using waste exemption	On a farm	Spreading waste on agricultural land to confer benefit
A	33m NW	Castle Green Farm, Green Road, Penistone, Sheffield, S36 6be	WEX326226	Using waste exemption	On a farm	Use of waste in construction
A	33m NW	Castle Green Farm, Green Road, Penistone, Sheffield, S36 6be	WEX326226	Using waste exemption	On a farm	Use of waste for a specified purpose
A	33m NW	Castle Green Farm, Green Road, Penistone, Sheffield, S36 6be	WEX326226	Treating waste exemption	On a farm	Aerobic composting and associated prior treatment
A	33m NW	Castle Green Farm, Green Road, Penistone, Sheffield, S36 6be	WEX326226	Using waste exemption	On a farm	Spreading waste on agricultural land to confer benefit
A	33m NW	Castle Green Farm, Green Road, Penistone, Sheffield, S36 6be	WEX326226	Disposing of waste exemption	On a farm	Burning waste in the open
B	178m SE	Shepherd's Castle Farm Castle Lane Sheffield S36 8an	EPR/FE5881FY/A001	Disposing of waste exemption	Agricultural waste only	Burning waste in the open
B	178m SE	Shepherd's Castle Farm Castle Lane Sheffield S36 8an	EPR/FE5881FY/A001	Using waste exemption	Agricultural waste only	Spreading waste on agricultural land to confer benefit
B	178m SE	Shepherd's Castle Farm Castle Lane Sheffield S36 8an	EPR/FE5881FY/A001	Disposing of waste exemption	Agricultural waste only	Deposit of waste from dredging of inland waters
B	178m SE	Shepherd's Castle Farm Castle Lane Sheffield S36 8an	EPR/FE5881FY/A001	Treating waste exemption	Agricultural waste only	Cleaning, washing, spraying or coating relevant waste
B	178m SE	Shepherd's Castle Farm Castle Lane Sheffield S36 8an	EPR/FE5881FY/A001	Treating waste exemption	Both agricultural and non-agricultural waste	Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising
B	178m SE	Shepherd's Castle Farm Castle Lane Sheffield S36 8an	EPR/FE5881FY/A001	Using waste exemption	Both agricultural and non-agricultural waste	Use of waste in construction

ID	Location	Site	Reference	Category	Sub-Category	Description
B	178m SE	Shepherd's Castle Farm Castle Lane Sheffield S36 8an	EPR/FE5881FY/A001	Using waste exemption	Both agricultural and non-agricultural waste	Burning of waste as a fuel in a small appliance
B	178m SE	Shepherd's Castle Farm Castle Lane Sheffield S36 8an	EPR/FE5881FY/A001	Using waste exemption	Both agricultural and non-agricultural waste	Use of waste for a specified purpose
C	418m E	5d Laurence Works Sheffield Road Sheffield S36 6hf	EPR/ZE5044VR/A001	Using waste exemption	Non-agricultural waste only	Burning of waste as a fuel in a small appliance
C	440m E	5 Laurance Work Sheffield Road S36 6hf	EPR/FF0232QN/A001	Treating waste exemption	Non-agricultural waste only	Recovery of scrap metal
C	440m E	5 Laurance Work Sheffield Road S36 6hf	EPR/FF0232QN/A001	Storing waste exemption	Non-agricultural waste only	Storage of waste in a secure place
C	451m E	5 Laurance Works Sheffield Road Sheffield S36 6hf	EPR/ZE5344VB/A001	Using waste exemption	Non-agricultural waste only	Burning of waste as a fuel in a small appliance
C	454m E	-	WEX264331	Using waste exemption	Not on a farm	Burning of waste as a fuel in a small appliance
C	454m E	-	WEX264331	Storing waste exemption	Not on a farm	Storage of waste in a secure place
C	461m E	Laurence Works, Unit 5d, Sheffield Road, Penistone, Sheffield, S36 6hf	WEX165195	Using waste exemption	Not on a farm	Burning of waste as a fuel in a small appliance
C	461m E	Laurence Works, Unit 5d, Sheffield Road, Penistone, Sheffield, S36 6hf	WEX303010	Using waste exemption	Not on a farm	Burning of waste as a fuel in a small appliance
D	462m NE	Springvale Community Garden, Off Sheffield Road, Penistone, Sheffield, S36 6hf	WEX242609	Treating waste exemption	Not on a farm	Aerobic composting and associated prior treatment
D	462m NE	Springvale Community Garden, Off Sheffield Road, Penistone, Sheffield, S36 6hf	WEX242609	Disposing of waste exemption	Not on a farm	Burning waste in the open

ID	Location	Site	Reference	Category	Sub-Category	Description
E	472m NE	Springvale Community Garden, Off Sheffield Road, Penistone, Sheffield, S36 6hf	WEX100507	Disposing of waste exemption	Not on a farm	Burning waste in the open
E	472m NE	Springvale Community Garden, Off Sheffield Road, Penistone, Sheffield, S36 6hf	WEX100507	Treating waste exemption	Not on a farm	Aerobic composting and associated prior treatment
E	472m NE	Laurence Works, Unit 5d, Sheffield Road, Penistone, Sheffield, S36 6hf	WEX437988	Using waste exemption	Not on a farm	Burning of waste as a fuel in a small appliance
C	481m E	Bulk Waste Management, Laurance Works, Laurance Works, Sheffield Rd, Springvale, Sheffield, S36 6hf	WEX124592	Storing waste exemption	Not on a farm	Storage of waste in a secure place
C	481m E	Bulk Waste Management, Laurance Works, Laurance Works, Sheffield Rd, Springvale, Sheffield, S36 6hf	WEX124592	Using waste exemption	Not on a farm	Burning of waste as a fuel in a small appliance

This data is sourced from the Environment Agency and Natural Resources Wales.

4 Current industrial land use



4.1 Recent industrial land uses

Records within 250m	7

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on **page 38 >**

ID	Location	Company	Address	Activity	Category
1	**On site**	**Electricity Sub Station**	**South Yorkshire, S36**	**Electrical Features**	**Infrastructure and Facilities**
A	134m NW	S P X Flow	Green Road, Penistone, Sheffield, South Yorkshire, S36	Pumps and Compressors	Industrial Products
A	150m NW	Esat Safety Systems Ltd	Office 2 Fairfield Business Park, Green Road, Penistone, Sheffield, South Yorkshire, S36	Workwear	Industrial Products

ID	Location	Company	Address	Activity	Category
2	192m N	Works	South Yorkshire, S36	Unspecified Works Or Factories	Industrial Features
3	198m E	Electricity Sub Station	South Yorkshire, S36	Electrical Features	Infrastructure and Facilities
A	213m NW	Sheffield Alarm Centre	10, Chauntry Avenue, Penistone, Barnsley, South Yorkshire, S36 6EE	Electronic Equipment	Industrial Products
B	224m NW	Electricity Sub Station	South Yorkshire, S36	Electrical Features	Infrastructure and Facilities

This data is sourced from Ordnance Survey.

4.2 National Geographic Database (NGD) - Current or recent tanks

Records within 250m	0

Current or recent tanks identified from the Ordnance Survey NGD.

This data is sourced from Ordnance Survey.

4.3 Current or recent petrol stations

Records within 500m	0

Open, closed, under development and obsolete petrol stations.

This data is sourced from Experian.

4.4 Electricity cables

Records within 500m	0

High voltage underground electricity transmission cables.

This data is sourced from National Grid.

4.5 Gas pipelines

Records within 500m	0

High pressure underground gas transmission pipelines.

This data is sourced from National Grid.

4.6 Sites determined as Contaminated Land

Records within 500m	0

Contaminated Land Register of sites designated under Part 2a of the Environmental Protection Act 1990.

This data is sourced from Local Authority records.

4.7 Control of Major Accident Hazards (COMAH)

Records within 500m	0

Control of Major Accident Hazards (COMAH) sites. This data includes upper and lower tier sites, and includes a historical archive of COMAH sites and Notification of Installations Handling Hazardous Substances (NIHHS) records.

This data is sourced from the Health and Safety Executive.

4.8 Regulated explosive sites

Records within 500m	0

Sites registered and licensed by the Health and Safety Executive under the Manufacture and Storage of Explosives Regulations 2005 (MSER). The last update to this data was in April 2011.

This data is sourced from the Health and Safety Executive.

4.9 Hazardous substance storage/usage

Records within 500m	0

Consents granted for a site to hold certain quantities of hazardous substances at or above defined limits in accordance with the Planning (Hazardous Substances) Regulations 2015.

This data is sourced from Local Authority records.

4.10 Historical licensed industrial activities (IPC)

Records within 500m	3

Integrated Pollution Control (IPC) records of substance releases to air, land and water. This data represents a historical archive as the IPC regime has been superseded.

Features are displayed on the Current industrial land use map on **page 38 >**

ID	Location	Details	
A	195m NW	Operator: Hi-tec Integrity Castings Ltd (dissolved) Address: Green Road, Penistone, Sheffield, South Yorkshire, S36 6BU Process: Iron And Steel Permit Number: AR2619	Original Permit Number: IPCAIRAPP Date Approved: 26-1-1996 Effective Date: 12-2-1996 Status: Superseded By Variation
A	195m NW	Operator: Hi-tec Integrity Castings Ltd (dissolved) Address: Green Road, Penistone, Sheffield, South Yorkshire, S36 6BU Process: Iron And Steel Permit Number: BD1466	Original Permit Number: IPCMINVAR Date Approved: 24-11-1998 Effective Date: 30-11-1998 Status: Superseded By Variation
A	195m NW	Operator: Hi-tec Integrity Castings Ltd (dissolved) Address: Green Road, Penistone, Sheffield, South Yorkshire, S36 6BU Process: Iron And Steel Permit Number: BI0122	Original Permit Number: IPCMINVAR Date Approved: 4-4-2000 Effective Date: 10-4-2000 Status: Revoked - Now Ippc

This data is sourced from the Environment Agency and Natural Resources Wales.

4.11 Licensed industrial activities (Part A(1))

Records within 500m **4**

Records of Part A(1) installations regulated under the Environmental Permitting (England and Wales) Regulations 2016 for the release of substances to the environment.

Features are displayed on the Current industrial land use map on **page 38 >**

ID	Location	Details	
A	188m NW	Operator: HI TEC INTEGRITY CASTINGS LIMITED Installation Name: FOUNDRY, PENISTONE Process: FERROUS METALS; PRODUCING, MELTING OR REFINING Permit Number: BK6700IY Original Permit Number: BK6700IY	EPR Reference: EPR/BK6700IY Issue Date: 30/08/2002 Effective Date: 01/03/2007 Last date noted as effective: 28/04/2025 Status: Revoked
A	188m NW	Operator: HI TEC INTEGRITY CASTINGS LIMITED Installation Name: FOUNDRY, PENISTONE Process: FERROUS METALS; CASTING > 20T/DAY Permit Number: BK6700IY Original Permit Number: BK6700IY	EPR Reference: EPR/BK6700IY Issue Date: 30/08/2002 Effective Date: 01/03/2007 Last date noted as effective: 28/04/2025 Status: Revoked
A	195m NW	Operator: HI TEC INTEGRITY CASTINGS LTD Installation Name: - Process: FERROUS METALS; CASTING > 20T/DAY Permit Number: BK6700 Original Permit Number: BK6700	EPR Reference: - Issue Date: 30/08/2002 Effective Date: 30/08/2002 Last date noted as effective: 01/10/2004 Status: SUPERSEDED BY PAS

ID	Location	Details	
A	195m NW	Operator: HI TEC INTEGRITY CASTINGS LTD Installation Name: - Process: FERROUS METALS; PRODUCING, MELTING OR REFINING Permit Number: BK6700 Original Permit Number: BK6700	EPR Reference: - Issue Date: 30/08/2002 Effective Date: 30/08/2002 Last date noted as effective: 01/10/2004 Status: SUPERSEDED BY PAS

This data is sourced from the Environment Agency and Natural Resources Wales.

4.12 Licensed pollutant release (Part A(2)/B)

Records within 500m **2**

Records of Part A(2) and Part B installations regulated under the Environmental Permitting (England and Wales) Regulations 2016 for the release of substances to the environment.

Features are displayed on the Current industrial land use map on **page 38 >**

ID	Location	Address	Details	
4	305m N	Cecil Penney, Sheffield Rd Garage, Sheffield Rd, Penistone, S36 6HF	Process: Petrol Vapour Recovery Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcements Notified Date of enforcement: No Enforcements Notified Comment: No Enforcements Notified
8	485m NE	Cecil Penney Ltd, Sheffield Road, Penistone, Sheffield, S36 6HF	Process: Unloading of Petrol into Storage at Service Stations Status: Current Permit Permit Type: Part B	Enforcement: No Enforcement Notified Date of enforcement: No Enforcement Notified Comment: No Enforcement Notified

This data is sourced from Local Authority records.

4.13 Radioactive Substance Authorisations

Records within 500m **0**

Records of the storage, use, accumulation and disposal of radioactive substances regulated under the Radioactive Substances Act 1993.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.14 Licensed Discharges to controlled waters

Records within 500m **6**

Discharges of treated or untreated effluent to controlled waters under the Water Resources Act 1991.

Features are displayed on the Current industrial land use map on **page 38 >**

ID	Location	Address	Details	
B	182m N	FOUNDRYSITE,GREENROAD,SOUTH YORKSHIRE	Effluent Type: TRADE DISCHARGES - COOLING WATER Permit Number: WRA7008 Permit Version: 1 Receiving Water: CUBLEY BROOK	Status: REVOKED (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 23/12/1993 Effective Date: 23/12/1993 Revocation Date: 10/11/2003
B	202m NW	CLYDEUNIONDBLIMITED,CLYDEUNI ONPUMPS,ANSPXBRAND,GREENRO AD,PENISTONE,SHEFFIELD,S366BJ	Effluent Type: TRADE DISCHARGES - PROCESS EFFLUENT - NOT WATER COMPANY Permit Number: C4380 Permit Version: 1 Receiving Water: CUBLEY BROOK	Status: SURRENDERED UNDER EPR 2010 Issue date: 05/09/1986 Effective Date: 05/09/1986 Revocation Date: 31/05/2023
C	216m NW	GREENBROOKPLACECSO,ROGREEN BROOKPLACE,OFFGREENROAD,PEN ISTONE,SHEFFIELD,SOUTHYORKSHI RE,S366EQ	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: WRA9310 Permit Version: 1 Receiving Water: CUBLEY BROOK	Status: REVOKED UNDER EPR 2010 Issue date: 31/03/2008 Effective Date: 31/03/2008 Revocation Date: 05/09/2010
C	216m NW	GREENBROOKPLACECSO,ROGREEN BROOKPLACE,OFFGREENROAD,PEN ISTONE,SHEFFIELD,SOUTHYORKSHI RE,S366EQ	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: EPREP3225XP Permit Version: 2 Receiving Water: CUBLEY BROOK	Status: VARIED UNDER EPR 2010 Issue date: 06/09/2010 Effective Date: 06/09/2010 Revocation Date: 14/11/2017
C	217m NW	GREENROADCSO,GREENROAD,PENI STONE,BARNSLEY,SOUTHYORKSHIR E	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: YWUCD2/76 Permit Version: 1 Receiving Water: CUBLEY BROOK	Status: NEW CONSENT (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 12/11/1997 Effective Date: 12/11/1997 Revocation Date: 30/03/2008
C	217m NW	GREENBROOKPLACECSO,ROGREEN BROOKPLACE,OFFGREENROAD,PEN ISTONE,SHEFFIELD,SOUTHYORKSHI RE,S366EQ	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: EPREP3225XP Permit Version: 3 Receiving Water: CUBLEY BROOK	Status: VARIED UNDER EPR 2010 Issue date: 15/11/2017 Effective Date: 15/11/2017 Revocation Date: -

This data is sourced from the Environment Agency and Natural Resources Wales.

4.15 Pollutant release to surface waters (Red List)

Records within 500m	0

Discharges of specified substances under the Environmental Protection (Prescribed Processes and Substances) Regulations 1991.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.16 Pollutant release to public sewer

Records within 500m	0

Discharges of Special Category Effluents to the public sewer.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.17 List 1 Dangerous Substances

Records within 500m	0

Discharges of substances identified on List I of European Directive E 2006/11/EC, and regulated under the Environmental Damage (Prevention and Remediation) Regulations 2015.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.18 List 2 Dangerous Substances

Records within 500m	1

Discharges of substances identified on List II of European Directive E 2006/11/EC, and regulated under the Environmental Damage (Prevention and Remediation) Regulations 2015.

Features are displayed on the Current industrial land use map on **page 38 >**

ID	Location	Name	Status	Receiving Water	Authorised Substances
A	251m NW	William Cook Ndt Penistone Sheffield S36 6be	Not Active	Unknown	Silver, Zinc

This data is sourced from the Environment Agency and Natural Resources Wales.

4.19 Pollution Incidents (EA/NRW)

Records within 500m	3

Records of substantiated pollution incidents. Since 2006 this data has only included category 1 (major) and 2 (significant) pollution incidents.

Features are displayed on the Current industrial land use map on **page 38 >**

ID	Location	Details	
5	411m W	Incident Date: 18/02/2002 Incident Identification: 58904 Pollutant: Inorganic Chemicals/Products Pollutant Description: Heavy Metals	Water Impact: Category 4 (No Impact) Land Impact: Category 4 (No Impact) Air Impact: Category 3 (Minor)
6	415m W	Incident Date: 27/03/2002 Incident Identification: 66964 Pollutant: Atmospheric Pollutants and Effects Pollutant Description: Fumes	Water Impact: Category 4 (No Impact) Land Impact: Category 4 (No Impact) Air Impact: Category 3 (Minor)
7	478m W	Incident Date: 10/07/2001 Incident Identification: 15273 Pollutant: Sewage Materials Pollutant Description: Storm Sewage	Water Impact: Category 2 (Significant) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)

This data is sourced from the Environment Agency and Natural Resources Wales.

4.20 Pollution inventory substances

Records within 500m	0

The pollution inventory (substances) includes reporting on annual emissions of certain regulated substances to air, controlled waters and land. A reporting threshold for each substance is also included. Where emissions fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

4.21 Pollution inventory waste transfers

Records within 500m	0

The pollution inventory (waste transfers) includes reporting on annual transfers and recovery/disposal of controlled wastes from a site. A reporting threshold for each waste type is also included. Where releases fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

4.22 Pollution inventory radioactive waste

Records within 500m	0

The pollution inventory (radioactive wastes) includes reporting on annual releases of radioactive substances from a site, including the means of release. Where releases fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

5 Hydrogeology - Superficial aquifer

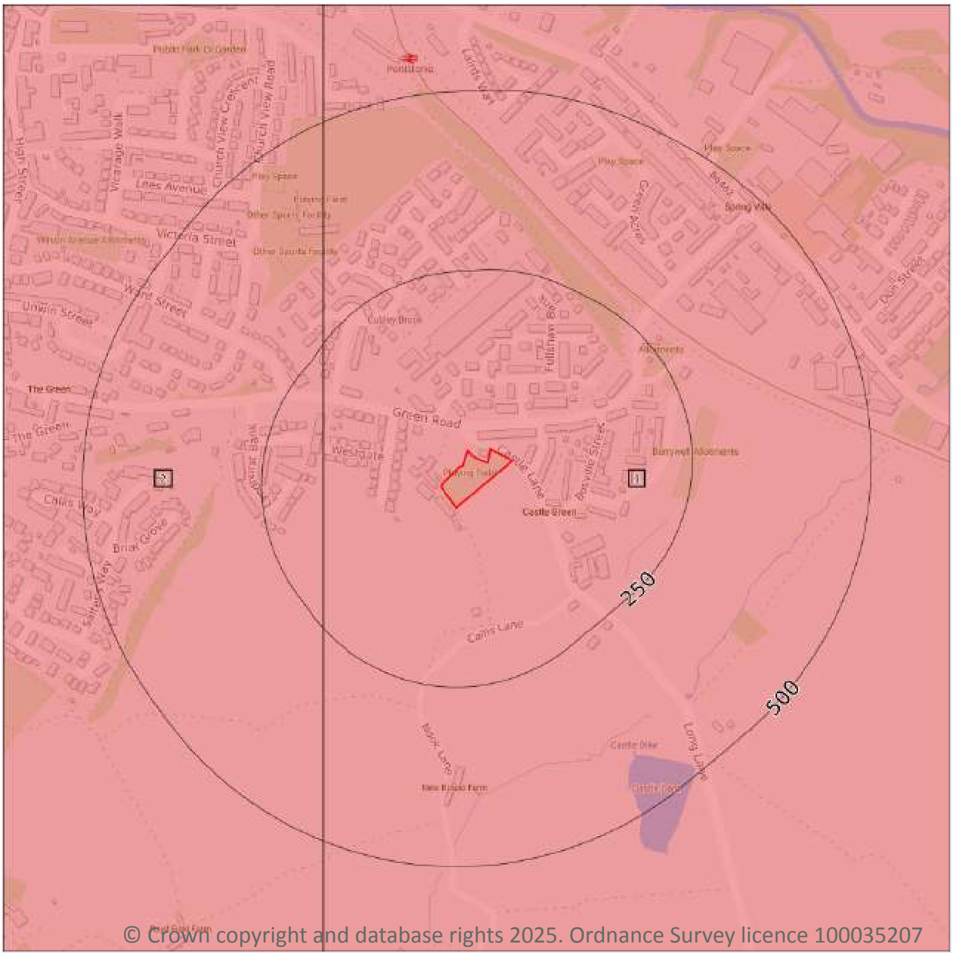
5.1 Superficial aquifer

Records within 500m	0

Aquifer status of groundwater held within superficial geology.

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.

Bedrock aquifer



Site Outline

Search buffers in metres (m)

- Principal
- Secondary A
- Secondary B
- Secondary Undifferentiated
- Unproductive

5.2 Bedrock aquifer

Records within 500m	2

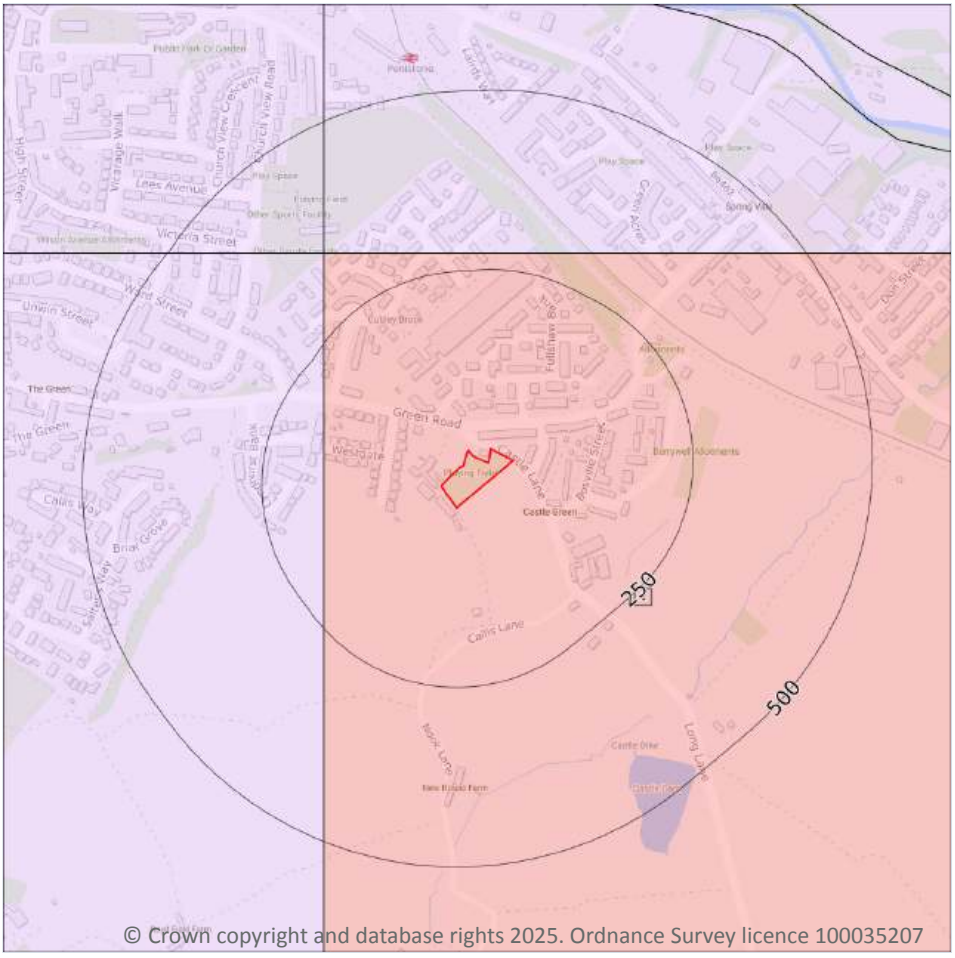
Aquifer status of groundwater held within bedrock geology.

Features are displayed on the Bedrock aquifer map on page 48 >

ID	Location	Designation	Description
1	**On site**	**Secondary A**	**Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers**
2	164m W	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.

Groundwater vulnerability



Site Outline

Search buffers in metres (m)

Superficial vulnerability
- Principal superficial aquifer, high vulnerability
- Secondary superficial aquifer, high vulnerability
- Principal superficial aquifer, medium vulnerability
- Secondary superficial aquifer, medium vulnerability
- Principal superficial aquifer, low vulnerability
- Secondary superficial aquifer, low vulnerability

Bedrock vulnerability
- Principal bedrock aquifer, high vulnerability
- Secondary bedrock aquifer, high vulnerability
- Principal bedrock aquifer, medium vulnerability
- Secondary bedrock aquifer, medium vulnerability
- Principal bedrock aquifer, low vulnerability
- Secondary bedrock aquifer, low vulnerability

Other information
- Unproductive aquifer
- Soluble rock risk
- Local information

5.3 Groundwater vulnerability

Records within 50m	1

An assessment of the vulnerability of groundwater to a pollutant discharged at ground level based on the hydrological, geological, hydrogeological and soil properties within a one kilometre square grid. Groundwater vulnerability is described as High, Medium or Low as follows:

- High - Areas able to easily transmit pollution to groundwater. They are likely to be characterised by high leaching soils and the absence of low permeability superficial deposits.
- Medium - Intermediate between high and low vulnerability.
- Low - Areas that provide the greatest protection from pollution. They are likely to be characterised by low leaching soils and/or the presence of superficial deposits characterised by a low permeability.

Features are displayed on the Groundwater vulnerability map on **page 50 >**

ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
1	**On site**	**Summary Classification: Secondary bedrock aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, No Superficial Aquifer**	**Leaching class: High Infiltration value: <40% Dilution value: 300-550mm/year**	**Vulnerability: - Aquifer type: - Thickness: <3m Patchiness value: <90% Recharge potential: No Data**	**Vulnerability: High Aquifer type: Secondary Flow mechanism: Well connected fractures**

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.

5.4 Groundwater vulnerability- soluble rock risk

Records on site	**0**

This dataset identifies areas where solution features that enable rapid movement of a pollutant may be present within a 1km grid square.

This data is sourced from the British Geological Survey and the Environment Agency.

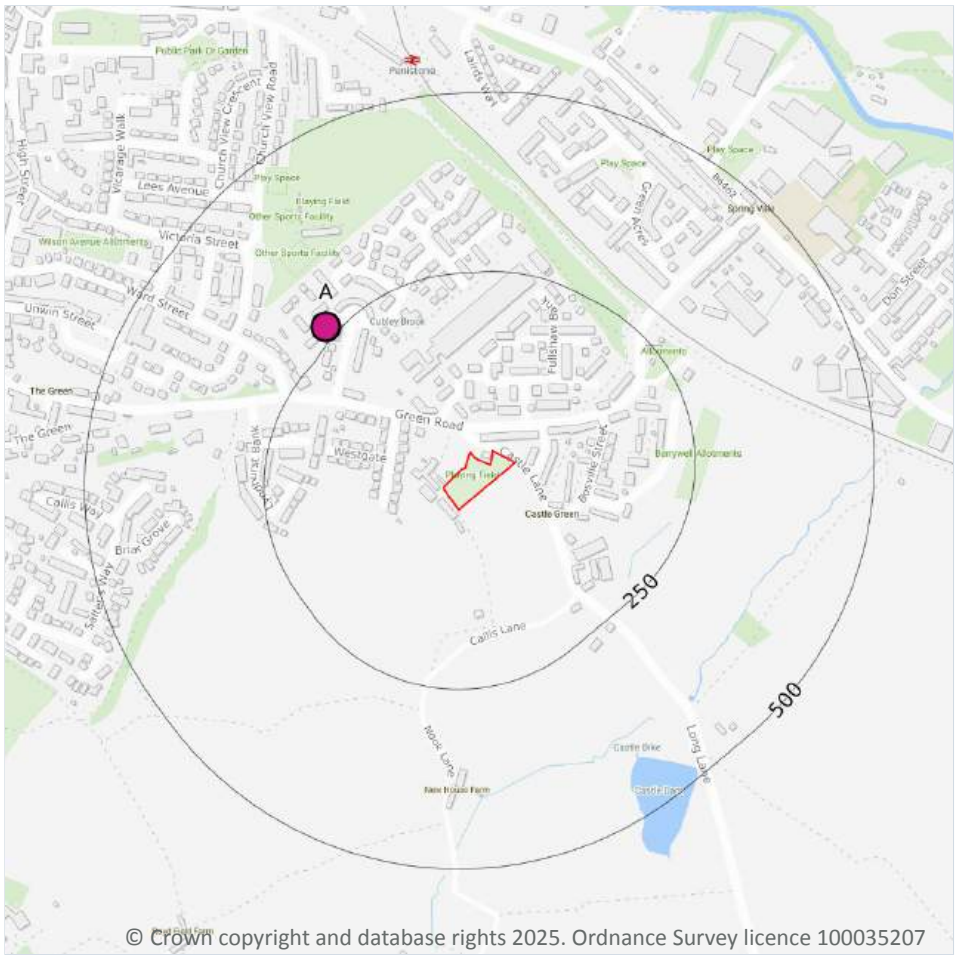
5.5 Groundwater vulnerability- local information

Records on site	**0**

This dataset identifies areas where additional local information affecting vulnerability is held by the Environment Agency. Further information can be obtained by contacting the Environment Agency local Area groundwater team through the Environment Agency National Customer Call Centre on 03798 506 506 or by email on enquiries@environment-agency.gov.uk ↗.

This data is sourced from the British Geological Survey and the Environment Agency.

Abstractions and Source Protection Zones



Site Outline

Search buffers in metres (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
- Source Protection Zone 1c — Inner catchment - confined aquifer
- Source Protection Zone 2c — Outer catchment - confined aquifer
- Source Protection Zone 3c — Total catchment - confined aquifer
- Drinking water abstraction licences
- Drinking water abstraction licences — Polygon features
- Drinking water abstraction licences — Linear features
- Groundwater abstraction licence (point)
- Groundwater abstraction licence (area)
- Groundwater abstraction licence (linear)
- Surface Water Abstractions (point)
- Surface Water Abstractions (area)
- Surface Water Abstractions (linear)

5.6 Groundwater abstractions

Records within 2000m	6

Licensed groundwater abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, between two points (line data) or a larger area.

Features are displayed on the Abstractions and Source Protection Zones map on **page 52 >**

ID	Location	Details	
A	266m NW	Status: Historical Licence No: 2/27/05/010 Details: General use relating to Secondary Category (Medium Loss) Direct Source: GROUNDWATERS Point: BOREHOLE X2 Data Type: Point Name: WILLIAM COOK HI-TEC INTEGRITY LTD Easting: 425000 Northing: 402900	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 07/12/1965 Expiry Date: - Issue No: 100 Version Start Date: 31/05/1996 Version End Date: -
A	266m NW	Status: Historical Licence No: 2/27/05/010 Details: General use relating to Secondary Category (Medium Loss) Direct Source: GROUNDWATERS Point: BOREHOLE X2 - COAL MEASURES - PENISTONE Data Type: Point Name: WILLIAM COOK HI-TEC INTEGRITY LTD Easting: 425000 Northing: 402900	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 07/12/1965 Expiry Date: - Issue No: 100 Version Start Date: 31/05/1996 Version End Date: -
-	1843m SW	Status: Historical Licence No: 2/27/05/159 Details: General Farming & Domestic Direct Source: GROUNDWATERS Point: BOREHOLE Data Type: Point Name: FLINT Easting: 423600 Northing: 401700	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 20/02/1975 Expiry Date: - Issue No: 100 Version Start Date: 20/02/1975 Version End Date: -
-	1843m SW	Status: Historical Licence No: 2/27/05/159 Details: General Farming & Domestic Direct Source: GROUNDWATERS Point: BOREHOLE - COAL MEASURES - PENISTONE Data Type: Point Name: FLINT Easting: 423600 Northing: 401700	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 20/02/1975 Expiry Date: - Issue No: 100 Version Start Date: 20/02/1975 Version End Date: -
-	1864m SW	Status: Historical Licence No: 2/27/05/070 Details: General Farming & Domestic Direct Source: GROUNDWATERS Point: WELL - COAL MEASURES - PENISTONE Data Type: Point Name: YORKSHIRE WATER SERVICES LTD Easting: 424310 Northing: 401000	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 17/03/1966 Expiry Date: - Issue No: 100 Version Start Date: 17/03/1966 Version End Date: -

ID	Location	Details	
-	1971m S	Status: Historical Licence No: 2/27/05/020 Details: General Farming & Domestic Direct Source: GROUNDWATERS Point: WELL - COAL MEASURES - OXSPRING Data Type: Point Name: STUART Easting: 425500 Northing: 400700	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 14/12/1965 Expiry Date: - Issue No: 100 Version Start Date: 14/12/1965 Version End Date: -

This data is sourced from the Environment Agency and Natural Resources Wales.

5.7 Surface water abstractions

Records within 2000m	**2**

Licensed surface water abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, a stretch of watercourse or a larger area.

Features are displayed on the Abstractions and Source Protection Zones map on **page 52 >**

ID	Location	Details	
-	1036m E	Status: Historical Licence No: 2/27/05/104 Details: General use relating to Secondary Category (Medium Loss) Direct Source: SURFACE WATER Point: RIVER DON -- PUMP Data Type: Point Name: WINTERBOTTOM (WIREDRAWERS) LTD Easting: 426300 Northing: 402700	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 17/03/1966 Expiry Date: - Issue No: 100 Version Start Date: 17/03/1966 Version End Date: -
-	1036m E	Status: Historical Licence No: 2/27/05/104 Details: General use relating to Secondary Category (Medium Loss) Direct Source: SURFACE WATER Point: RIVER DON Data Type: Point Name: WINTERBOTTOM (WIREDRAWERS) LTD Easting: 426300 Northing: 402700	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 17/03/1966 Expiry Date: - Issue No: 100 Version Start Date: 17/03/1966 Version End Date: -

This data is sourced from the Environment Agency and Natural Resources Wales.

5.8 Potable abstractions

Records within 2000m	0

Licensed potable water abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, a stretch of watercourse or a larger area.

This data is sourced from the Environment Agency and Natural Resources Wales.

5.9 Source Protection Zones

Records within 500m	0

Source Protection Zones define the sensitivity of an area around a potable abstraction site to contamination.

This data is sourced from the Environment Agency and Natural Resources Wales.

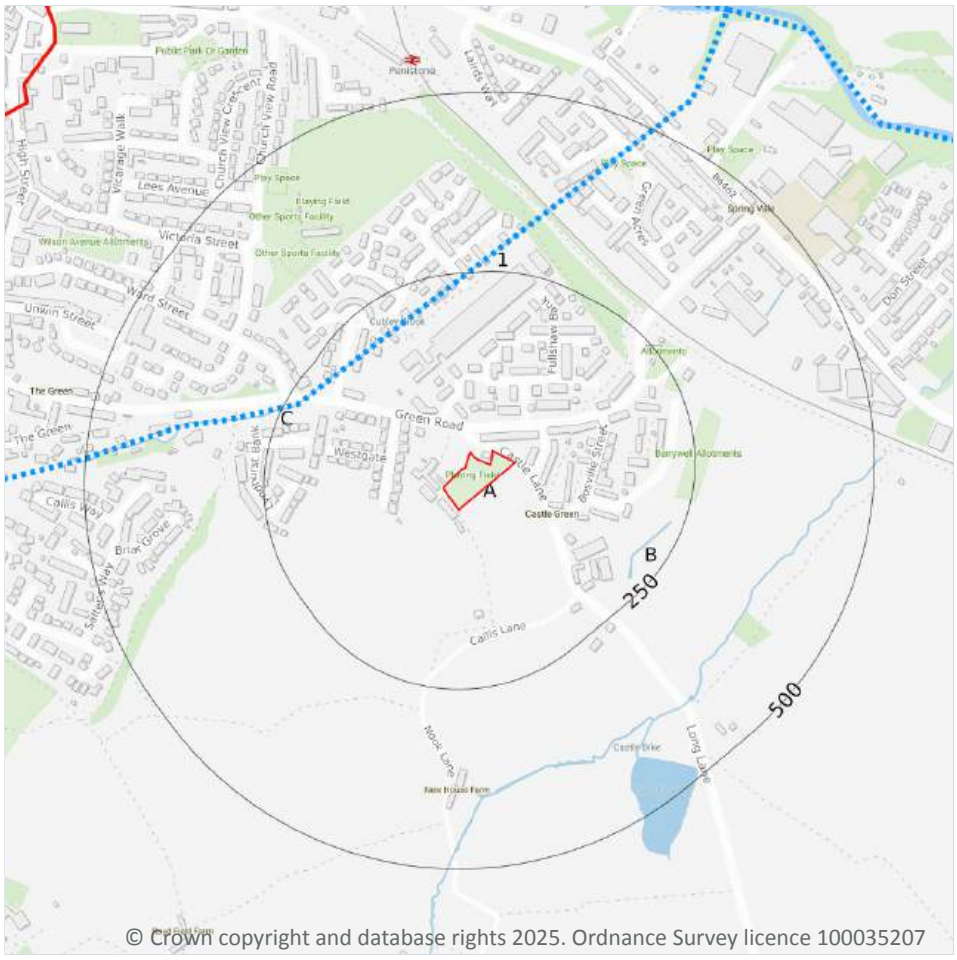
5.10 Source Protection Zones (confined aquifer)

Records within 500m	0

Source Protection Zones in the confined aquifer define the sensitivity around a deep groundwater abstraction to contamination. A confined aquifer would normally be protected from contamination by overlying geology and is only considered a sensitive resource if deep excavation/drilling is taking place.

This data is sourced from the Environment Agency and Natural Resources Wales.

6 Hydrology



Site Outline

Search buffers in metres (m)

Water Network (OS MasterMap)

Surface water features (wider than 5m)

Surface water features (narrower than 5m)

WFD River, canal and surface water transfer water bodies

WFD Lake water bodies

WFD Transitional and coastal water bodies

WFD Surface water body catchments boundaries

WFD Groundwater body boundaries

6.1 Water Network (OS MasterMap)

Records within 250m	3

Detailed water network of Great Britain showing the flow and precise central course of every river, stream, lake and canal.

Features are displayed on the Hydrology map on **page 56 >**

ID	Location	Type of water feature	Ground level	Permanence	Name
1	200m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Cubley Brook

ID	Location	Type of water feature	Ground level	Permanence	Name
B	209m SE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
C	233m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Cubley Brook

This data is sourced from the Ordnance Survey.

6.2 Surface water features

Records within 250m	**1**

Covering rivers, streams and lakes (some overlap with OS MasterMap Water Network data in previous section) but additionally covers smaller features such as ponds. Rivers and streams narrower than 5m are represented as a single line. Lakes, ponds and rivers or streams wider than 5m are represented as polygons.

Features are displayed on the Hydrology map on **page 56 >**

This data is sourced from the Ordnance Survey.

6.3 WFD Surface water body catchments

Records on site	**1**

The Water Framework Directive is an EU-led framework for the protection of inland surface waters, estuaries, coastal waters and groundwater through river basin-level management planning. In terms of surface water, these basins are broken down into smaller units known as management, operational and water body catchments.

Features are displayed on the Hydrology map on **page 56 >**

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
A	**On site**	**River**	**Don from Scout Dyke to the Little Don**	**GB104027057490**	**Don Upper**	**Don and Rother**

This data is sourced from the Environment Agency and Natural Resources Wales.

6.4 WFD Surface water bodies

Records identified	1

Surface water bodies under the Directive may be rivers, lakes, estuary or coastal. To achieve the purpose of the Directive, environmental objectives have been set and are reported on for each water body. The progress towards delivery of the objectives is then reported on by the relevant competent authorities at the end of each six-year cycle. The river water body directly associated with the catchment listed in the previous section is detailed below, along with any lake, canal, coastal or artificial water body within 250m of the site. Click on the water body ID in the table to visit the EA Catchment Explorer to find out more about each water body listed.

Features are displayed on the Hydrology map on **page 56 >**

ID	Location	Type	Name	Water body ID	Overall rating	Chemical rating	Ecological rating	Year
2	200m NW	River	Don from Scout Dyke to the Little Don	GB104027057490 ↗	Moderate	Fail	Moderate	2019

This data is sourced from the Environment Agency and Natural Resources Wales.

6.5 WFD Groundwater bodies

Records on site	1

Groundwater bodies are also covered by the Directive and the same regime of objectives and reporting detailed in the previous section is in place. Click on the water body ID in the table to visit the EA Catchment Explorer to find out more about each groundwater body listed.

Features are displayed on the Hydrology map on **page 56 >**

ID	Location	Name	Water body ID	Overall rating	Chemical rating	Quantitative	Year
A	**On site**	**Don & Rother Millstone grit & Coal Measures**	**GB40402G992300 ↗**	**Poor**	**Poor**	**Good**	**2019**

This data is sourced from the Environment Agency and Natural Resources Wales.

7 River and coastal flooding

7.1 Risk of flooding from rivers and the sea

Records within 50m	0

The chance of flooding from rivers and/or the sea in any given year, based on cells of 50m within the Risk of Flooding from Rivers and Sea (RoFRaS)/Flood Risk Assessment Wales (FRAW) models. Each cell is allocated one of four flood risk categories, taking into account flood defences and their condition. The risk categories for RoFRaS for rivers and the sea and FRAW for rivers are; Very low (less than 1 in 1000 chance in any given year), Low (less than 1 in 100 but greater than or equal to 1 in 1000 chance), Medium (less than 1 in 30 but greater than or equal to 1 in 100 chance) or High (greater than or equal to 1 in 30 chance). The risk categories for FRAW for the sea are; Very low (less than 1 in 1000 chance in any given year), Low (less than 1 in 200 but greater than or equal to 1 in 1000 chance), Medium (less than 1 in 30 but greater than or equal to 1 in 200 chance) or High (greater than or equal to 1 in 30 chance).

This data is sourced from the Environment Agency and Natural Resources Wales.

7.2 Historical Flood Events

Records within 250m	0

Records of historic flooding from rivers, the sea, groundwater and surface water. Records began in 1946 when predecessor bodies started collecting detailed information about flooding incidents, although limited details may be included on flooding incidents prior to this date. Takes into account the presence of defences, structures, and other infrastructure where they existed at the time of flooding, and includes flood extents that may have been affected by overtopping, breaches or blockages.

This data is sourced from the Environment Agency and Natural Resources Wales.

7.3 Flood Defences

Records within 250m	0

Records of flood defences owned, managed or inspected by the Environment Agency and Natural Resources Wales. Flood defences can be structures, buildings or parts of buildings. Typically these are earth banks, stone and concrete walls, or sheet-piling that is used to prevent or control the extent of flooding.

This data is sourced from the Environment Agency and Natural Resources Wales.

7.4 Areas Benefiting from Flood Defences

Records within 250m	0

Areas that would benefit from the presence of flood defences in a 1 in 100 (1%) chance of flooding each year from rivers or 1 in 200 (0.5%) chance of flooding each year from the sea.

This data is sourced from the Environment Agency and Natural Resources Wales.

7.5 Flood Storage Areas

Records within 250m	0

Areas that act as a balancing reservoir, storage basin or balancing pond to attenuate an incoming flood peak to a flow level that can be accepted by the downstream channel or to delay the timing of a flood peak so that its volume is discharged over a longer period.

This data is sourced from the Environment Agency and Natural Resources Wales.

River and coastal flooding - Flood Zones

7.6 Flood Zone 2

Records within 50m	0

Areas of land at risk of flooding, when the presence of flood defences are ignored. Covering land between Flood Zone 3 (see next section) and the extent of the flooding from rivers or the sea with a 1 in 1000 (0.1%) chance of flooding each year.

This data is sourced from the Environment Agency and Natural Resources Wales.

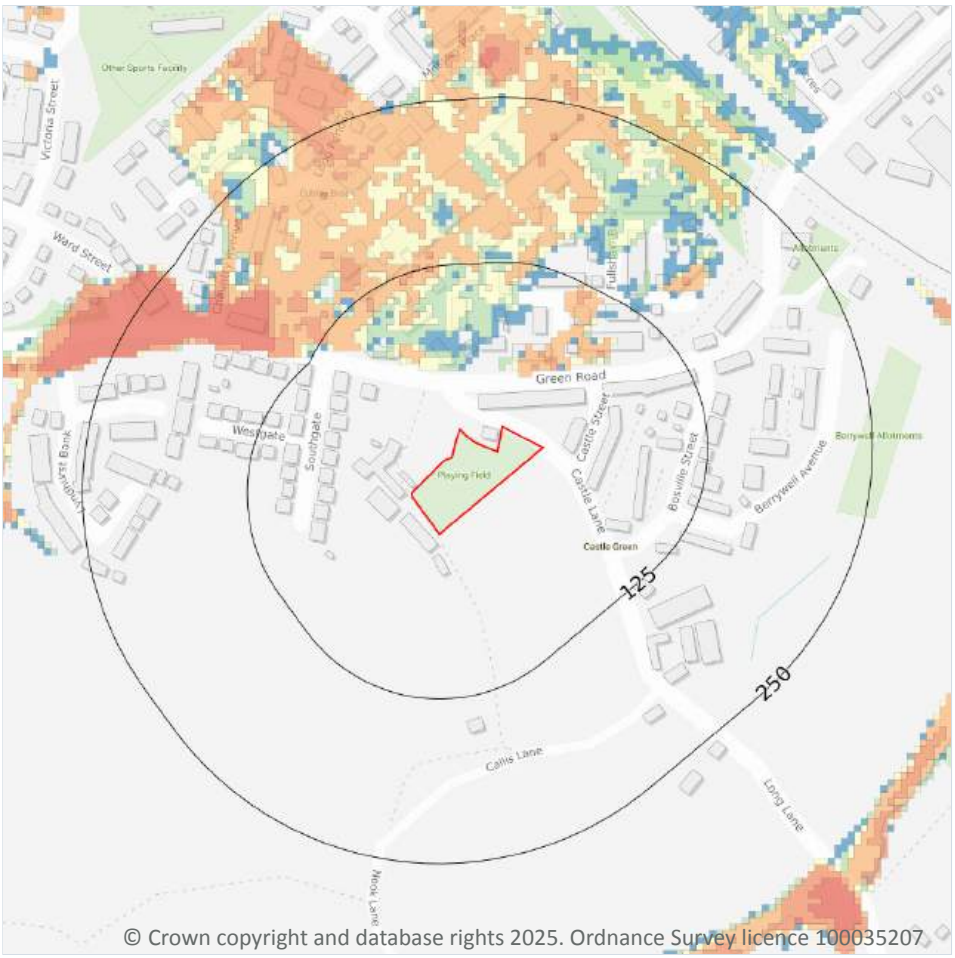
7.7 Flood Zone 3

Records within 50m	0

Areas of land at risk of flooding, when the presence of flood defences are ignored. Covering land with a 1 in 100 (1%) or greater chance of flooding each year from rivers or a 1 in 200 (0.5%) or greater chance of flooding each year from the sea.

This data is sourced from the Environment Agency and Natural Resources Wales.

8 Surface water flooding



Site Outline
Search buffers in metres (m)

1 in 1000 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 250 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 100 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 30 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

8.1 Surface water flooding

Highest risk on site	**Negligible**
Highest risk within 50m	**1 in 30 year, 0.3m - 1.0m**

Ambiental Risk Analytics surface water (pluvial) FloodMap identifies areas likely to flood as a result of extreme rainfall events, i.e. land naturally vulnerable to surface water ponding or flooding. This data set was produced by simulating 1 in 30 year, 1 in 100 year, 1 in 250 year and 1 in 1,000 year rainfall events. Modern urban drainage systems are typically built to cope with rainfall events between 1 in 20 and 1 in 30 years, though some older ones may flood in a 1 in 5 year rainfall event.

Features are displayed on the Surface water flooding map on **page 62 >**

The data shown on the map and in the table above shows the highest likelihood of flood events happening at the site. Lower likelihood events may have greater flood depths and hence a greater potential impact on a site.

The table below shows the maximum flood depths for a range of return periods for the site.

Return period	Maximum modelled depth
1 in 1000 year	Negligible
1 in 250 year	Negligible
1 in 100 year	Negligible
1 in 30 year	Negligible

This data is sourced from Ambiental Risk Analytics.

9 Groundwater flooding

Site Outline

Search buffers in metres (m)

- High
- Moderate - High
- Moderate
- Low
- Negligible

9.1 Groundwater flooding

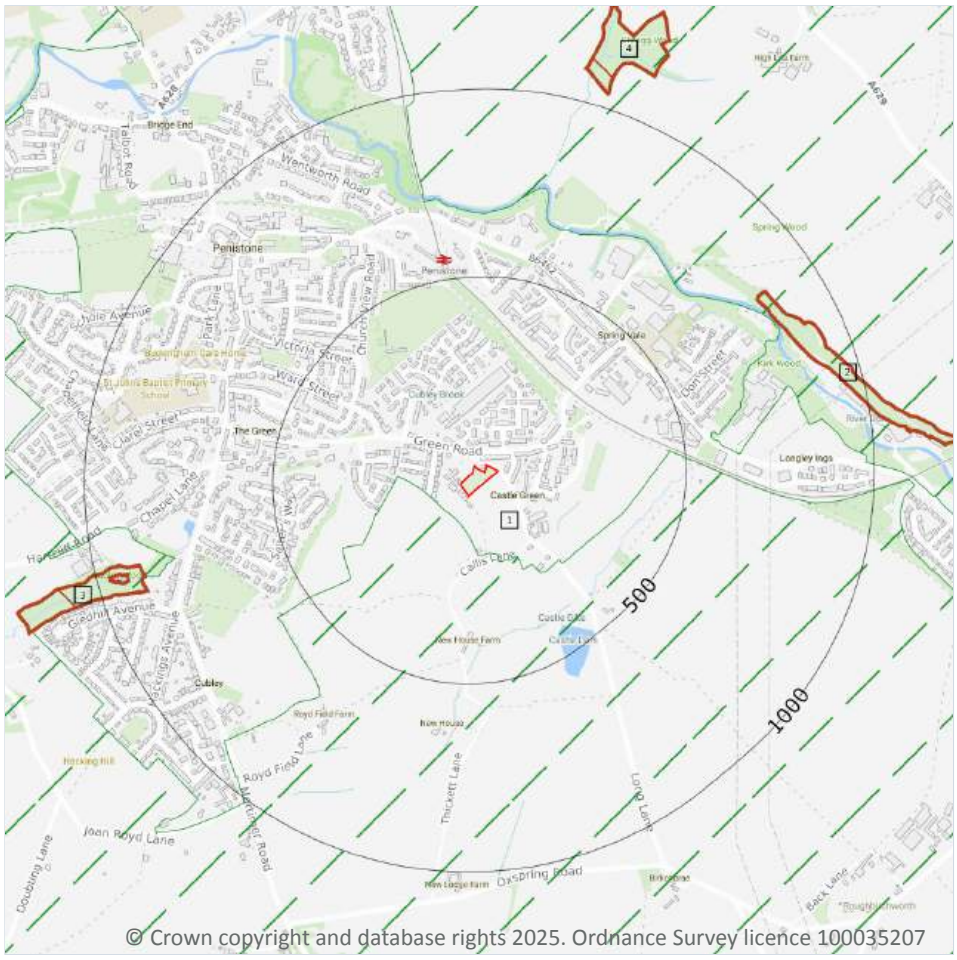
Highest risk on site	**Negligible**
Highest risk within 50m	**Negligible**

Groundwater flooding is caused by unusually high groundwater levels. It occurs when the water table rises above the ground surface or within underground structures such as basements or cellars. Groundwater flooding tends to exhibit a longer duration than surface water flooding, possibly lasting for weeks or months, and as a result it can cause significant damage to property. This risk assessment is based on a 1 in 100 year return period and a 5m Digital Terrain Model (DTM).

Features are displayed on the Groundwater flooding map on **page 64 >**

This data is sourced from Ambiental Risk Analytics.

10 Environmental designations



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Site Outline

Search buffers in metres (m)

Designated Ancient Woodland

Green Belt

10.1 Sites of Special Scientific Interest (SSSI)

Records within 2000m	0

Sites providing statutory protection for the best examples of UK flora, fauna, or geological or physiographical features. Originally notified under the National Parks and Access to the Countryside Act 1949, SSSIs were re-notified under the Wildlife and Countryside Act 1981. Improved provisions for the protection and management of SSSIs were introduced by the Countryside and Rights of Way Act 2000 (in England and Wales) and (in Scotland) by the Nature Conservation (Scotland) Act 2004 and the Wildlife and Natural Environment (Scotland) Act 2010.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.2 Conserved wetland sites (Ramsar sites)

Records within 2000m	0

Ramsar sites are designated under the Convention on Wetlands of International Importance, agreed in Ramsar, Iran, in 1971. They cover all aspects of wetland conservation and wise use, recognizing wetlands as ecosystems that are extremely important for biodiversity conservation in general and for the well-being of human communities. These sites cover a broad definition of wetland; marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, and even some marine areas.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.3 Special Areas of Conservation (SAC)

Records within 2000m	0

Areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs are designated under the EC Habitats Directive.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.4 Special Protection Areas (SPA)

Records within 2000m	0

Sites classified by the UK Government under the EC Birds Directive, SPAs are areas of the most important habitat for rare (listed on Annex I to the Directive) and migratory birds within the European Union.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.5 National Nature Reserves (NNR)

Records within 2000m	0

Sites containing examples of some of the most important natural and semi-natural terrestrial and coastal ecosystems in Great Britain. They are managed to conserve their habitats, provide special opportunities for scientific study or to provide public recreation compatible with natural heritage interests.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.6 Local Nature Reserves (LNR)

Records within 2000m	0

Sites managed for nature conservation, and to provide opportunities for research and education, or simply enjoying and having contact with nature. They are declared by local authorities under the National Parks and Access to the Countryside Act 1949 after consultation with the relevant statutory nature conservation agency.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.7 Designated Ancient Woodland

Records within 2000m	5

Ancient woodlands are classified as areas which have been wooded continuously since at least 1600 AD. This includes semi-natural woodland and plantations on ancient woodland sites. 'Wooded continuously' does not mean there is or has previously been continuous tree cover across the whole site, and not all trees within the woodland have to be old.

Features are displayed on the Environmental designations map on **page 65 >**

ID	Location	Name	Woodland Type
2	825m NE	Spring Vale Wood	Ancient & Semi-Natural Woodland
3	875m W	Unknown	Ancient Replanted Woodland
4	1038m N	Shrogg Wood	Ancient & Semi-Natural Woodland
-	1448m E	Unknown	Ancient & Semi-Natural Woodland
-	1694m NE	Coates Great Wood	Ancient Replanted Woodland

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.8 Biosphere Reserves

Records within 2000m	0

Biosphere Reserves are internationally recognised by UNESCO as sites of excellence to balance conservation and socioeconomic development between nature and people. They are recognised under the Man and the Biosphere (MAB) Programme with the aim of promoting sustainable development founded on the work of the local community.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.9 Forest Parks

Records within 2000m	0

These are areas managed by the Forestry Commission designated on the basis of recreational, conservation or scenic interest.

This data is sourced from the Forestry Commission.

10.10 Marine Conservation Zones

Records within 2000m	0

A type of marine nature reserve in UK waters established under the Marine and Coastal Access Act (2009). They are designated with the aim to protect nationally important, rare or threatened habitats and species.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.11 Green Belt

Records within 2000m	2

Areas designated to prevent urban sprawl by keeping land permanently open.

Features are displayed on the Environmental designations map on **page 65 >**

ID	Location	Name	Local Authority name
1	69m SW	South and West Yorkshire Green Belt	Barnsley
-	1726m E	South and West Yorkshire Green Belt	Barnsley

This data is sourced from the Ministry of Housing, Communities and Local Government.

10.12 Proposed Ramsar sites

Records within 2000m	0

Ramsar sites are areas listed as a Wetland of International Importance under the Convention on Wetlands of International Importance especially as Waterfowl Habitat (the Ramsar Convention) 1971. The sites here supplied have a status of 'Proposed' having been identified for potential adoption under the framework.

This data is sourced from Natural England.

10.13 Possible Special Areas of Conservation (pSAC)

Records within 2000m	0

Special Areas of Conservation are areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs are designated under the EC Habitats Directive. Those sites supplied here are those with a status of 'Possible' having been identified for potential adoption under the framework.

This data is sourced from Natural England and Natural Resources Wales.

10.14 Potential Special Protection Areas (pSPA)

Records within 2000m	0

Special Protection Areas (SPAs) are areas designated (or 'classified') under the European Union Wild Birds Directive for the protection of nationally and internationally important populations of wild birds. Those sites supplied here are those with a status of 'Potential' having been identified for potential adoption under the framework.

This data is sourced from Natural England.

10.15 Nitrate Sensitive Areas

Records within 2000m	0

Areas where nitrate concentrations in drinking water sources exceeded or was at risk of exceeding the limit of 50 mg/l set by the 1980 EC Drinking Water Directive. Voluntary agricultural measures as a means of reducing the levels of nitrate were introduced by DEFRA as MAFF, with payments being made to farmers who complied. The scheme was started as a pilot in 1990 in ten areas, later implemented within 32 areas. The scheme was closed to further new entrants in 1998, although existing agreements continued for their full term. All Nitrate Sensitive Areas fell within the areas designated as Nitrate Vulnerable Zones (NVZs) in 1996 under the EC Nitrate Directive (91/676/EEC).

This data is sourced from Natural England.

10.16 Nitrate Vulnerable Zones

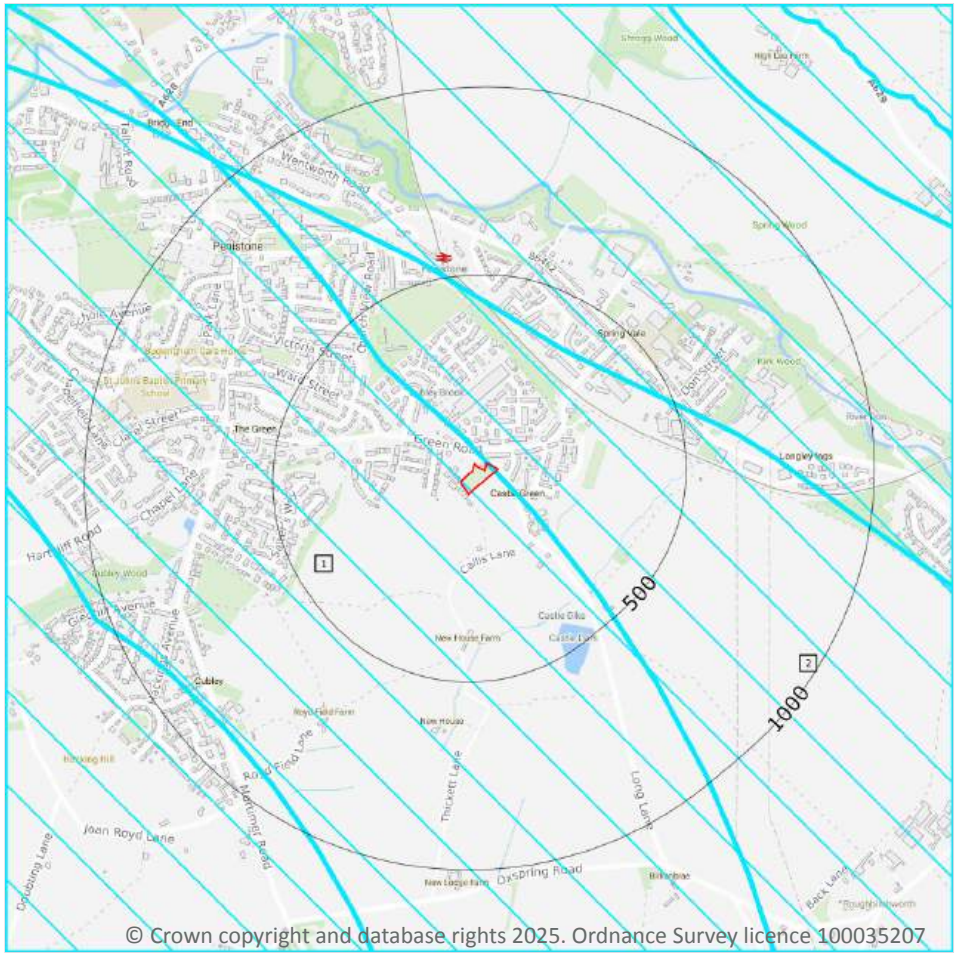
Records within 2000m	1

Areas at risk from agricultural nitrate pollution designated under the EC Nitrate Directive (91/676/EEC). These are areas of land that drain into waters polluted by nitrates. Farmers operating within these areas have to follow mandatory rules to tackle nitrate loss from agriculture.

Location	Name	Type	NVZ ID	Status
1441m NE	River Dearne NVZ	Surface Water	278	Existing

This data is sourced from Natural England and Natural Resources Wales.

SSSI Impact Zones and Units



Site Outline

Search buffers in metres (m)

SSSI Impact Risk Zones

SSSI Units

- Not recorded
- Favourable
- Unfavourable - Recovering
- Unfavourable - No change
- Unfavourable - Declining
- Partially destroyed
- Destroyed

10.17 SSSI Impact Risk Zones

Records on site	2

Developed to allow rapid initial assessment of the potential risks to SSSIs posed by development proposals. They define zones around each SSSI which reflect the particular sensitivities of the features for which it is notified and indicate the types of development proposal which could potentially have adverse impacts.

Features are displayed on the SSSI Impact Zones and Units map on **page 71 >**

ID	Location	Type of developments requiring consultation
1	**On site**	**https://irz.geodata.org.uk/IRZ/step2.html?irzcode=0301000430000&notes=&location=420920,403476%20(IRZ%20polygon%20centre)**
2	**On site**	**https://irz.geodata.org.uk/IRZ/step2.html?irzcode=0303000430000&notes=&location=427089,399811%20(IRZ%20polygon%20centre)**

This data is sourced from Natural England.

10.18 SSSI Units

Records within 2000m	0

Divisions of SSSIs used to record management and condition details. Units are the smallest areas for which Natural England gives a condition assessment, however, the size of units varies greatly depending on the types of management and the conservation interest.

This data is sourced from Natural England and Natural Resources Wales.

11 Visual and cultural designations

11.1 World Heritage Sites

Records within 250m	0

Sites designated for their globally important cultural or natural interest requiring appropriate management and protection measures. World Heritage Sites are designated to meet the UK's commitments under the World Heritage Convention.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.2 Area of Outstanding Natural Beauty

Records within 250m	0

Areas of Outstanding Natural Beauty (AONB) are conservation areas, chosen because they represent 18% of the finest countryside. Each AONB has been designated for special attention because of the quality of their flora, fauna, historical and cultural associations, and/or scenic views. The National Parks and Access to the Countryside Act of 1949 created AONBs and the Countryside and Rights of Way Act, 2000 added further regulation and protection. There are likely to be restrictions to some developments within these areas.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

11.3 National Parks

Records within 250m	0

In England and Wales, the purpose of National Parks is to conserve and enhance landscapes within the countryside whilst promoting public enjoyment of them and having regard for the social and economic well-being of those living within them. In Scotland National Parks have the additional purpose of promoting the sustainable use of the natural resources of the area and the sustainable social and economic development of its communities. The National Parks and Access to the Countryside Act 1949 established the National Park designation in England and Wales, and The National Parks (Scotland) Act 2000 in Scotland.

This data is sourced from Natural England, Natural Resources Wales and the Scottish Government.

11.4 Listed Buildings

Records within 250m	0

Buildings listed for their special architectural or historical interest. Building control in the form of 'listed building consent' is required in order to make any changes to that building which might affect its special interest. Listed buildings are graded to indicate their relative importance, however building controls apply to all buildings equally, irrespective of their grade, and apply to the interior and exterior of the building in its entirety, together with any curtilage structures.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.5 Conservation Areas

Records within 250m	0

Local planning authorities are obliged to designate as conservation areas any parts of their own area that are of special architectural or historic interest, the character and appearance of which it is desirable to preserve or enhance. Designation of a conservation area gives broader protection than the listing of individual buildings. All the features within the area, listed or otherwise, are recognised as part of its character. Conservation area designation is the means of recognising the importance of all factors and of ensuring that planning decisions address the quality of the landscape in its broadest sense.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.6 Scheduled Ancient Monuments

Records within 250m	0

A scheduled monument is an historic building or site that is included in the Schedule of Monuments kept by the Secretary of State for Digital, Culture, Media and Sport. The regime is set out in the Ancient Monuments and Archaeological Areas Act 1979. The Schedule of Monuments has c.20,000 entries and includes sites such as Roman remains, burial mounds, castles, bridges, earthworks, the remains of deserted villages and industrial sites. Monuments are not graded, but all are, by definition, considered to be of national importance.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.7 Registered Parks and Gardens

Records within 250m	0

Parks and gardens assessed to be of particular interest and of special historic interest. The emphasis being on 'designed' landscapes, rather than on planting or botanical importance. Registration is a 'material consideration' in the planning process, meaning that planning authorities must consider the impact of any proposed development on the special character of the landscape.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

12 Agricultural designations

Site Outline

Search buffers in metres (m)

- Grade 1 - excellent quality
- Grade 2 - very good quality
- Grade 3 - good to moderate quality
- Grade 3a - good quality
- Grade 3b - moderate quality
- Grade 4 - poor quality
- Grade 5 - very poor quality
- Non-agricultural land
- Urban land
- Exclusion land
- Tree felling licences
- Open Access land

12.1 Agricultural Land Classification

Records within 250m	2

Classification of the quality of agricultural land taking into consideration multiple factors including climate, physical geography and soil properties. It should be noted that the categories for the grading of agricultural land are not consistent across England, Wales and Scotland.

Features are displayed on the Agricultural designations map on **page 75 >**

ID	Location	Classification	Description
1	**On site**	**Urban**	**Non-agricultural/no quality assigned**

ID	Location	Classification	Description
2	**On site**	**Grade 4**	**Poor quality agricultural land. Land with severe limitations which significantly restrict the range of crops and/or level of yields. It is mainly suited to grass with occasional arable crops (e.g. cereals and forage crops) the yields of which are variable. In moist climates, yields of grass may be moderate to high but there may be difficulties in utilisation. The grade also includes very droughty arable land.**

This data is sourced from Natural England.

12.2 Open Access Land

Records within 250m	**0**

The Countryside and Rights of Way Act 2000 (CROW Act) gives a public right of access to land without having to use paths. Access land includes mountains, moors, heaths and downs that are privately owned. It also includes common land registered with the local council and some land around the England Coast Path. Generally permitted activities on access land are walking, running, watching wildlife and climbing.

This data is sourced from Natural England and Natural Resources Wales.

12.3 Tree Felling Licences

Records within 250m	**0**

Felling Licence Application (FLA) areas approved by Forestry Commission England. Anyone wishing to fell trees must ensure that a licence or permission under a grant scheme has been issued by the Forestry Commission before any felling is carried out or that one of the exceptions apply.

This data is sourced from the Forestry Commission.

12.4 Environmental Stewardship Schemes

Records within 250m	**0**

Environmental Stewardship covers a range of schemes that provide financial incentives to farmers, foresters and land managers to look after and improve the environment. The schemes identified may be historical schemes that have now expired, or may still be active.

This data is sourced from Natural England.

12.5 Countryside Stewardship Schemes

Records within 250m	0

Countryside Stewardship covers a range of schemes that provide financial incentives to farmers, foresters and land managers to look after and improve the environment. Main objectives are to improve the farmed environment for wildlife and to reduce diffuse water pollution.

This data is sourced from Natural England.

13 Habitat designations

Site Outline

Search buffers in metres (m)

Priority Habitat Inventory
Open Mosaic Habitat
Limestone Pavement Orders

Habitat Networks

Primary Habitat
Restorable Habitat
Associated Habitats
Habitat Restoration-Creation
Network Enhancement Zone 1
Network Enhancement Zone 2

13.1 Priority Habitat Inventory

Records within 250m	2

Habitats of principal importance as named under Natural Environment and Rural Communities Act (2006) Section 41.

Features are displayed on the Habitat designations map on **page 78 >**

ID	Location	Main Habitat	Other habitats
1	211m NE	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
2	214m NE	Deciduous woodland	Main habitat: DWOOD (INV > 50%)

This data is sourced from Natural England.

13.2 Habitat Networks

Records within 250m	0

Habitat networks for 18 priority habitat networks (based primarily, but not exclusively, on the priority habitat inventory) and areas suitable for the expansion of networks through restoration and habitat creation.

This data is sourced from Natural England.

13.3 Open Mosaic Habitat

Records within 250m	0

Sites verified as Open Mosaic Habitat. Mosaic habitats are brownfield sites that are identified under the UK Biodiversity Action Plan as a priority habitat due to the habitat variation within a single site, supporting an array of invertebrates.

This data is sourced from Natural England.

13.4 Limestone Pavement Orders

Records within 250m	0

Limestone pavements are outcrops of limestone where the surface has been worn away by natural means over millennia. These rocks have the appearance of paving blocks, hence their name. Not only do they have geological interest, they also provide valuable habitats for wildlife. These habitats are threatened due to their removal for use in gardens and water features. Many limestone pavements have been designated as SSSIs which affords them some protection. In addition, Section 34 of the Wildlife and Countryside Act 1981 gave them additional protection via the creation of Limestone Pavement Orders, which made it a criminal offence to remove any part of the outcrop. The associated Limestone Pavement Priority Habitat is part of the UK Biodiversity Action Plan priority habitat in England.

This data is sourced from Natural England.

14 Geology 1:10,000 scale - Availability

Site Outline

Search buffers in metres (m)

Full coverage

Partial coverage

No coverage

14.1 10k Availability

Records within 500m	2

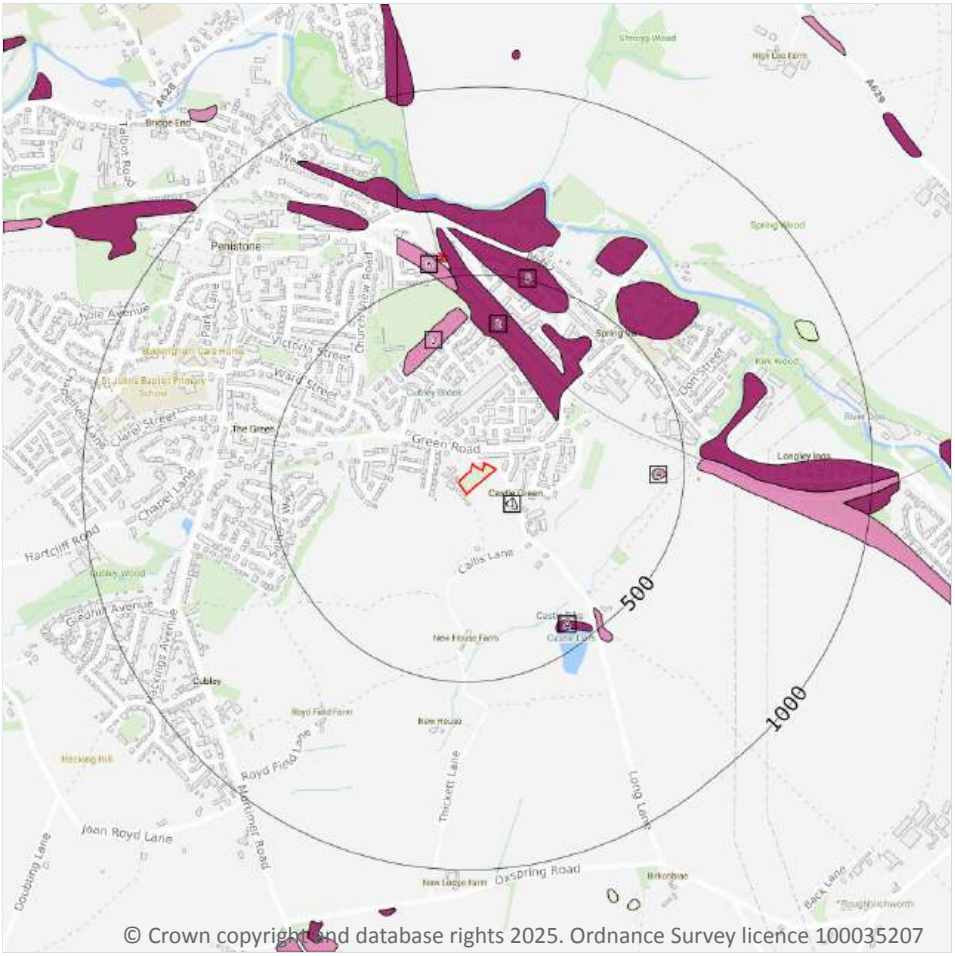
An indication on the coverage of 1:10,000 scale geology data for the site, the most detailed dataset provided by the British Geological Survey. Either 'Full', 'Partial' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:10,000 scale - Availability map on **page 80 >**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**Full**	**Full**	**Full**	**Full**	**SE20SE**
2	164m W	Full	Full	Full	Full	SE20SW

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Artificial and made ground



Site Outline

Search buffers in metres (m)

- Reclaimed ground
- Made ground
- Worked ground
- Infilled ground
- Disturbed ground
- Landscaped ground

14.2 Artificial and made ground (10k)

Records within 500m	8

Details of made, worked, infilled, disturbed and landscaped ground at 1:10,000 scale. Artificial ground can be associated with potentially contaminated material, unpredictable engineering conditions and instability.

Features are displayed on the Geology 1:10,000 scale - Artificial and made ground map on **page 81 >**

ID	Location	LEX Code	Description	Rock description
1	85m SE	WMGR-ARTDP	Infilled Ground	Artificial Deposit
2	205m NE	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
3	291m NW	WGR-VOID	Worked Ground (Undivided)	Void
4	414m E	WGR-VOID	Worked Ground (Undivided)	Void

ID	Location	LEX Code	Description	Rock description
A	420m SE	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
5	436m NE	MGR-ARTDP	Made Ground (Undivided)	Artificial Deposit
A	450m SE	WGR-VOID	Worked Ground (Undivided)	Void
6	462m N	WGR-VOID	Worked Ground (Undivided)	Void

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Superficial

14.3 Superficial geology (10k)

Records within 500m	0

Superficial geological deposits at 1:10,000 scale. Also known as 'drift', these are the youngest geological deposits, formed during the Quaternary. They rest on older deposits or rocks referred to as bedrock.

This data is sourced from the British Geological Survey.

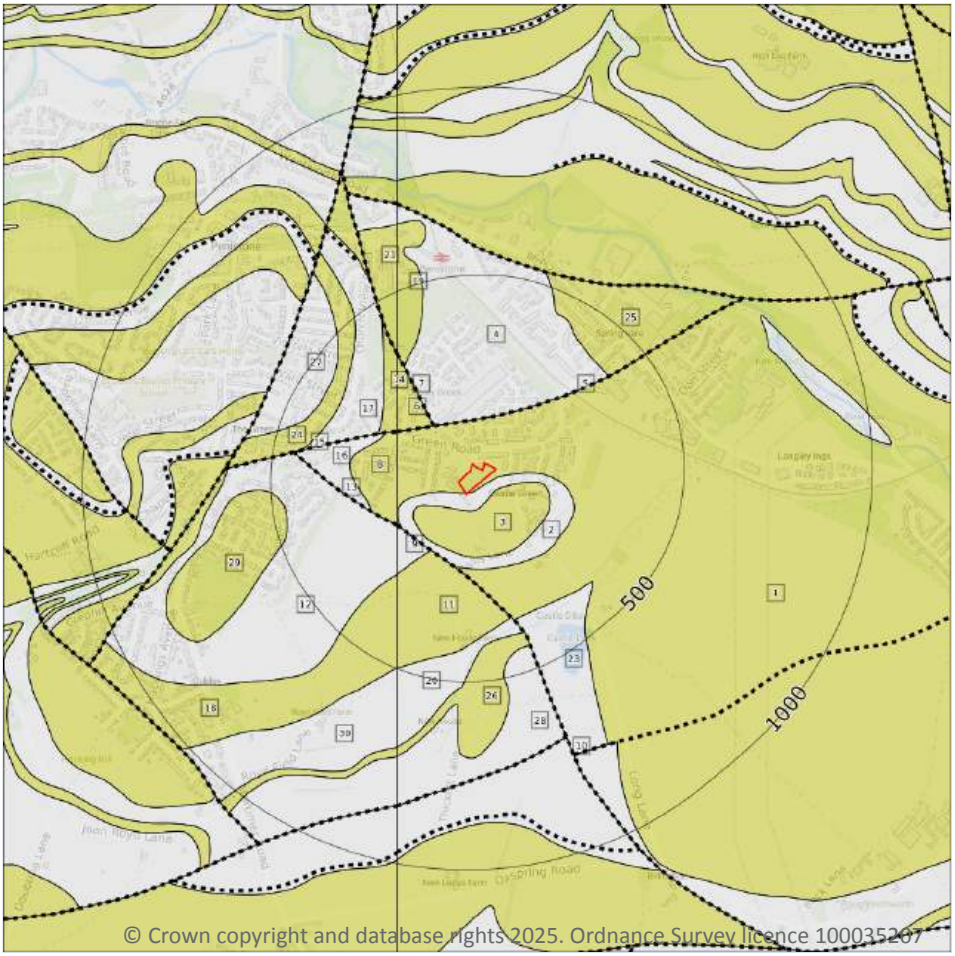
14.4 Landslip (10k)

Records within 500m	0

Mass movement deposits on BGS geological maps at 1:10,000 scale. Primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground.

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Bedrock



Site Outline

Search buffers in metres (m)

Bedrock faults and other linear features (10k)

Bedrock geology (10k)
Please see table for more details.

14.5 Bedrock geology (10k)

Records within 500m **24**

Bedrock geology at 1:10,000 scale. The main mass of rocks forming the Earth and present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

Features are displayed on the Geology 1:10,000 scale - Bedrock map on **page 84 >**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**GR-SDST**	**Grenoside Sandstone - Sandstone**	**Langsettian Sub-age**
2	**On site**	**PLCM-MDSS**	**Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone**	**Langsettian Sub-age**
3	43m SE	PF-SDST	Penistone Flags - Sandstone	Langsettian Sub-age

ID	Location	LEX Code	Description	Rock age
4	115m N	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
6	144m NW	PF-SDST	Penistone Flags - Sandstone	Langsettian Sub-age
8	164m W	GR-SDST	Grenoside Sandstone - Sandstone	Langsettian Sub-age
9	177m SW	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
11	178m SW	PF-SDST	Penistone Flags - Sandstone	Langsettian Sub-age
12	199m SW	PLCM-MDSI	Pennine Lower Coal Measures Formation - Mudstone And Siltstone	Langsettian Sub-age
14	212m NW	PF-SDST	Penistone Flags - Sandstone	Langsettian Sub-age
16	236m NW	PLCM-MDSI	Pennine Lower Coal Measures Formation - Mudstone And Siltstone	Langsettian Sub-age
17	251m NW	PLCM-MDSI	Pennine Lower Coal Measures Formation - Mudstone And Siltstone	Langsettian Sub-age
18	284m SW	PF-SDST	Penistone Flags - Sandstone	Langsettian Sub-age
19	315m NW	PF-SDST	Penistone Flags - Sandstone	Langsettian Sub-age
20	349m S	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
21	356m NW	PF-SDST	Penistone Flags - Sandstone	Langsettian Sub-age
23	357m SE	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
24	376m NW	PF-SDST	Penistone Flags - Sandstone	Langsettian Sub-age
25	387m NE	GR-SDST	Grenoside Sandstone - Sandstone	Langsettian Sub-age
26	395m S	PF-SDST	Penistone Flags - Sandstone	Langsettian Sub-age
27	424m NW	PLCM-MDSI	Pennine Lower Coal Measures Formation - Mudstone And Siltstone	Langsettian Sub-age
28	435m S	PLCM-MDSS	Pennine Lower Coal Measures Formation - Mudstone, Siltstone And Sandstone	Langsettian Sub-age
29	466m W	PF-SDST	Penistone Flags - Sandstone	Langsettian Sub-age
30	499m S	PLCM-MDSI	Pennine Lower Coal Measures Formation - Mudstone And Siltstone	Langsettian Sub-age

This data is sourced from the British Geological Survey.

14.6 Bedrock faults and other linear features (10k)

Records within 500m	6

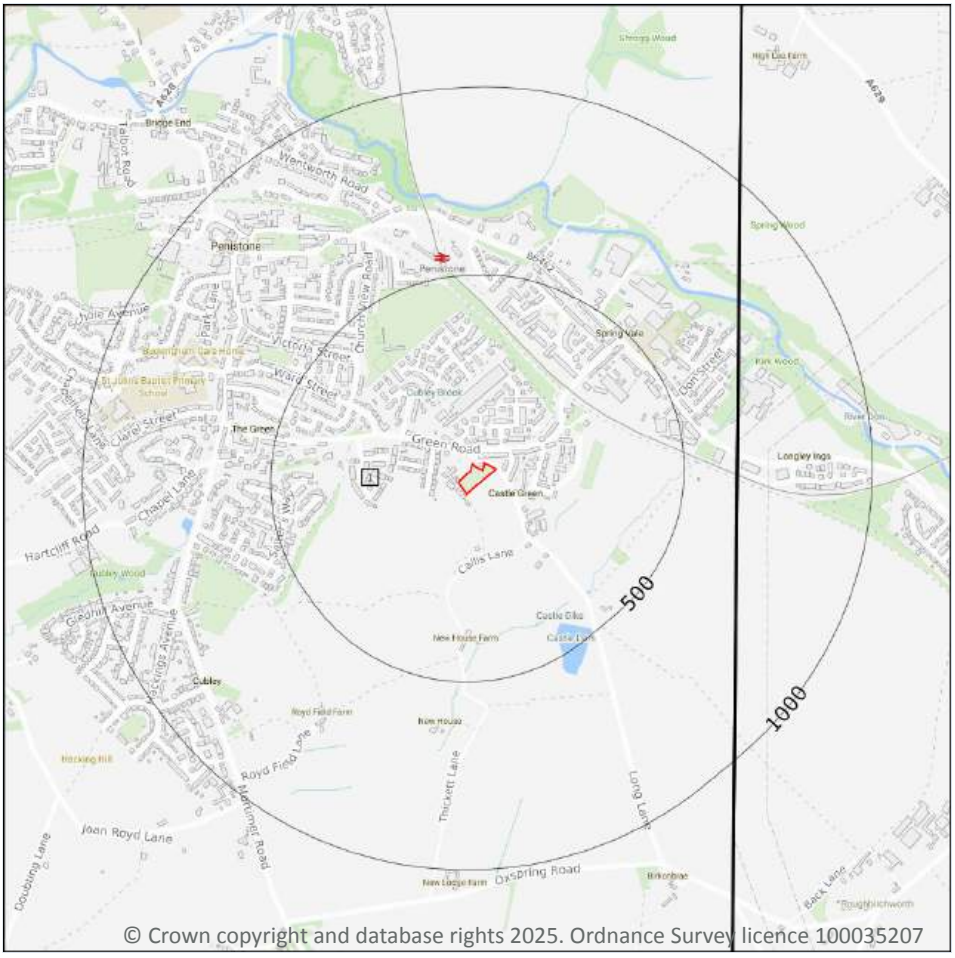
Linear features at the ground or bedrock surface at 1:10,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

Features are displayed on the Geology 1:10,000 scale - Bedrock map on **page 84 >**

ID	Location	Category	Description
5	115m N	FAULT	Normal fault, inferred
7	144m NW	FAULT	Normal fault, inferred
10	177m SW	FAULT	Normal fault, inferred
13	199m SW	FAULT	Normal fault, inferred; crossmarks on downthrow side
15	212m NW	FAULT	Normal fault, inferred; crossmarks on downthrow side
22	356m NW	FAULT	Normal fault, inferred; crossmarks on downthrow side

This data is sourced from the British Geological Survey.

15 Geology 1:50,000 scale - Availability



Site Outline

Search buffers in metres (m)

Geological map tile

15.1 50k Availability

Records within 500m	1

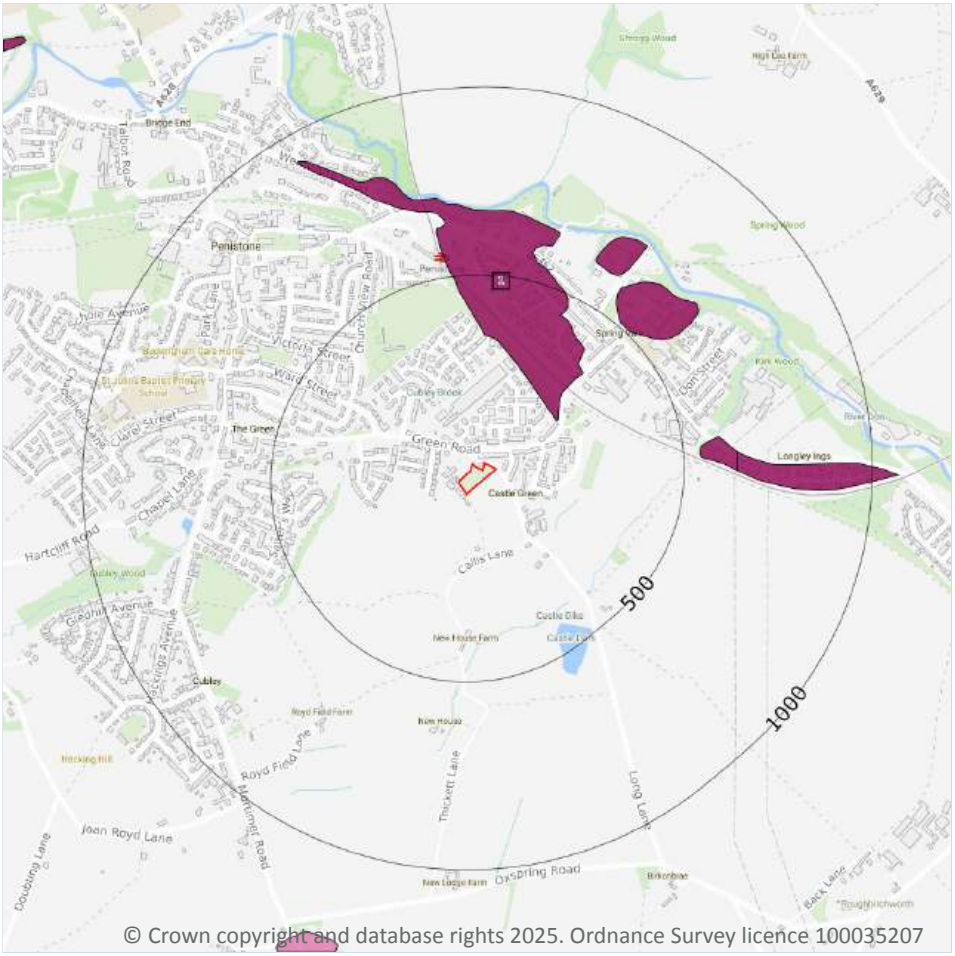
An indication on the coverage of 1:50,000 scale geology data for the site. Either 'Full' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:50,000 scale - Availability map on **page 87 >**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**Full**	**Full**	**Full**	**Full**	**EW086_glossop_v4**

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Artificial and made ground



Site Outline

Search buffers in metres (m)

- Made ground
- Worked ground
- Infilled ground
- Disturbed ground
- Landscaped ground

15.2 Artificial and made ground (50k)

Records within 500m	1

Details of made, worked, infilled, disturbed and landscaped ground at 1:50,000 scale. Artificial ground can be associated with potentially contaminated material, unpredictable engineering conditions and instability.

Features are displayed on the Geology 1:50,000 scale - Artificial and made ground map on **page 88 >**

ID	Location	LEX Code	Description	Rock description
1	205m NE	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT

This data is sourced from the British Geological Survey.

15.3 Artificial ground permeability (50k)

Records within 50m	0

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any artificial deposits (the zone between the land surface and the water table).

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Superficial

15.4 Superficial geology (50k)

Records within 500m	0

Superficial geological deposits at 1:50,000 scale. Also known as 'drift', these are the youngest geological deposits, formed during the Quaternary. They rest on older deposits or rocks referred to as bedrock.

This data is sourced from the British Geological Survey.

15.5 Superficial permeability (50k)

Records within 50m	0

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any superficial deposits (the zone between the land surface and the water table).

This data is sourced from the British Geological Survey.

15.6 Landslip (50k)

Records within 500m	0

Mass movement deposits on BGS geological maps at 1:50,000 scale. Primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground.

This data is sourced from the British Geological Survey.

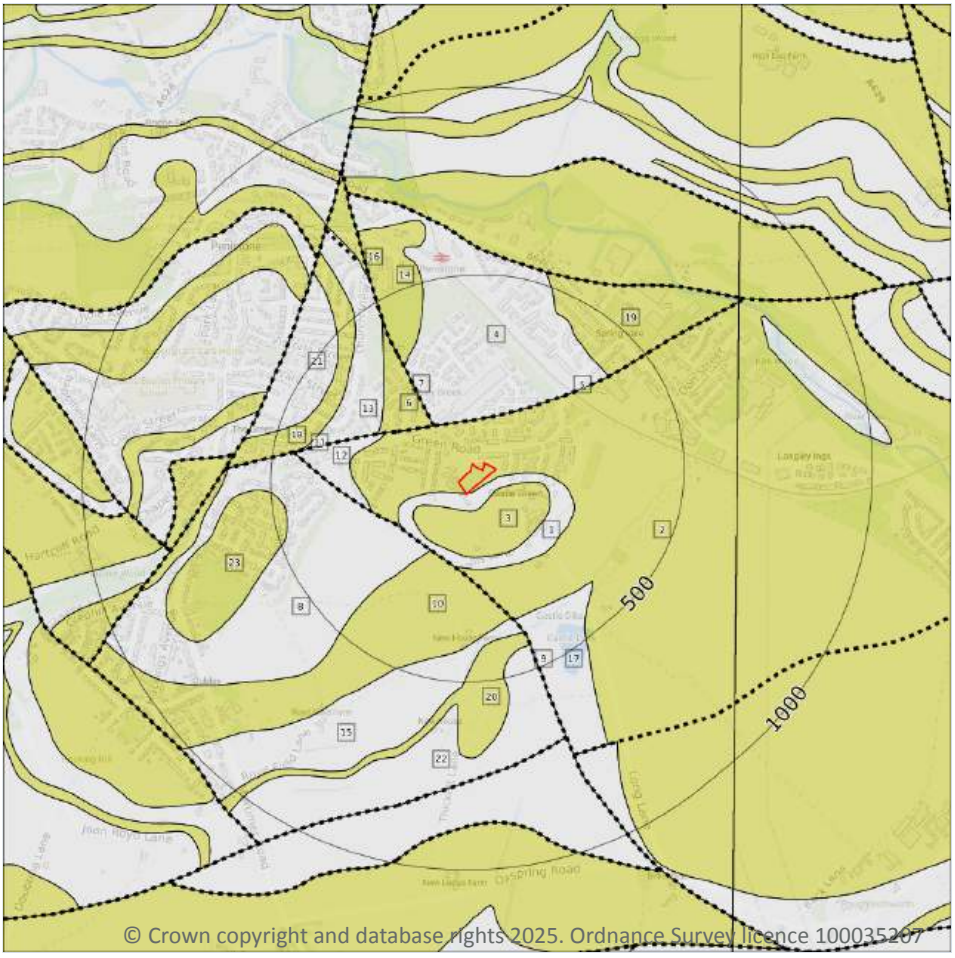
15.7 Landslip permeability (50k)

Records within 50m	0

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any landslip deposits (the zone between the land surface and the water table).

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Bedrock



Site Outline

Search buffers in metres (m)

Bedrock faults and other linear features (50k)

Bedrock geology (50k)
Please see table for more details.

15.8 Bedrock geology (50k)

Records within 500m **18**

Bedrock geology at 1:50,000 scale. The main mass of rocks forming the Earth and present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 91 >**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**PLCM-MDSS**	**PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE**	**WESTPHALIAN**
2	**On site**	**GR-SDST**	**GRENOSIDE SANDSTONE - SANDSTONE**	**WESTPHALIAN**
3	43m SE	PF-SDST	PENISTONE FLAGS - SANDSTONE	WESTPHALIAN

ID	Location	LEX Code	Description	Rock age
4	115m N	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
6	145m NW	PF-SDST	PENISTONE FLAGS - SANDSTONE	WESTPHALIAN
8	177m SW	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
10	178m SW	PF-SDST	PENISTONE FLAGS - SANDSTONE	WESTPHALIAN
12	235m NW	PLCM-MDSI	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE AND SILTSTONE	WESTPHALIAN
13	250m NW	PLCM-MDSI	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE AND SILTSTONE	WESTPHALIAN
14	315m NW	PF-SDST	PENISTONE FLAGS - SANDSTONE	WESTPHALIAN
15	348m S	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
17	356m SE	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
18	375m NW	PF-SDST	PENISTONE FLAGS - SANDSTONE	WESTPHALIAN
19	386m NE	GR-SDST	GRENOSIDE SANDSTONE - SANDSTONE	WESTPHALIAN
20	395m S	PF-SDST	PENISTONE FLAGS - SANDSTONE	WESTPHALIAN
21	424m NW	PLCM-MDSI	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE AND SILTSTONE	WESTPHALIAN
22	435m S	PLCM-MDSS	PENNINE LOWER COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
23	466m W	PF-SDST	PENISTONE FLAGS - SANDSTONE	WESTPHALIAN

This data is sourced from the British Geological Survey.

15.9 Bedrock permeability (50k)

Records within 50m **3**

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of bedrock (the zone between the land surface and the water table).

Location	Flow type	Maximum permeability	Minimum permeability
On site	**Fracture**	**Moderate**	**Low**
On site	**Fracture**	**High**	**Moderate**

Location	Flow type	Maximum permeability	Minimum permeability
43m SE	Fracture	High	Moderate

This data is sourced from the British Geological Survey.

15.10 Bedrock faults and other linear features (50k)

Records within 500m	**5**

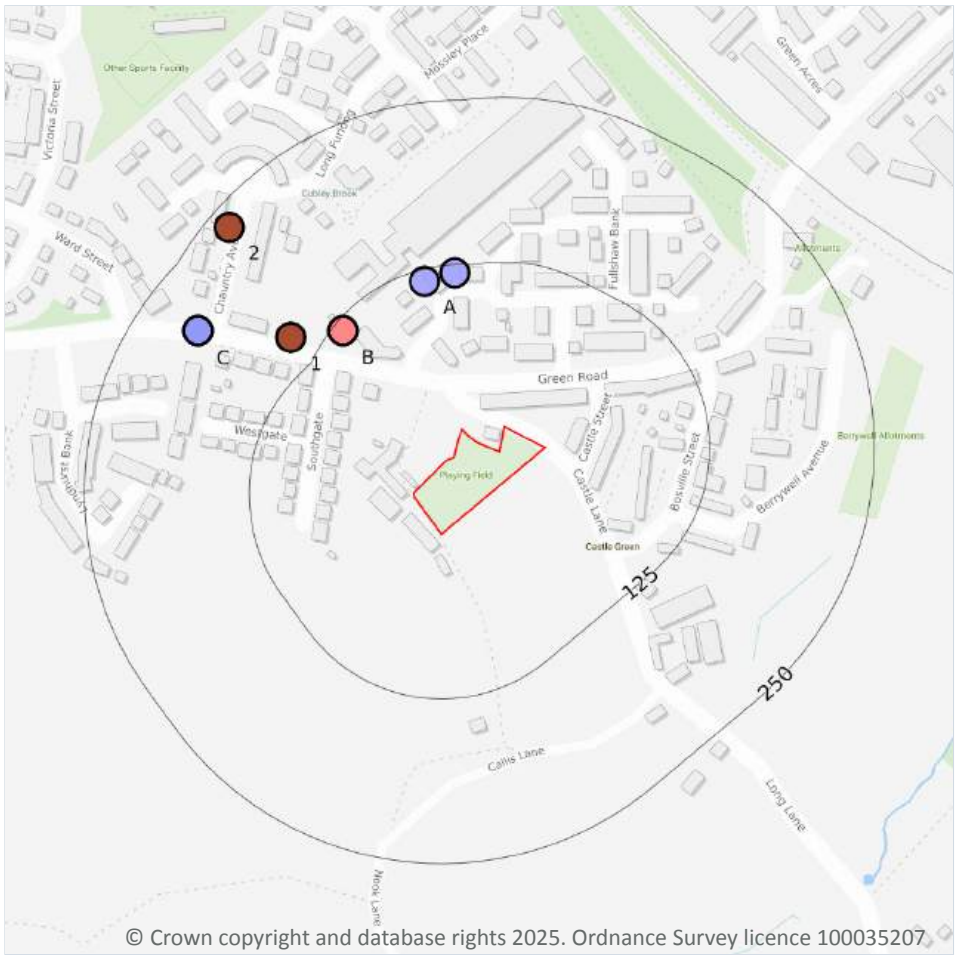
Linear features at the ground or bedrock surface at 1:50,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 91 >**

ID	Location	Category	Description
5	115m N	FAULT	Fault, inferred
7	145m NW	FAULT	Fault, inferred
9	177m SW	FAULT	Fault, inferred
11	212m NW	FAULT	Fault, inferred
16	356m NW	FAULT	Fault, inferred

This data is sourced from the British Geological Survey.

16 Boreholes



16.1 BGS Boreholes

Records within 250m	12

The Single Onshore Boreholes Index (SOBI); an index of over one million records of boreholes, shafts and wells from all forms of drilling and site investigation work held by the British Geological Survey. Covering onshore and nearshore boreholes dating back to at least 1790 and ranging from one to several thousand metres deep.

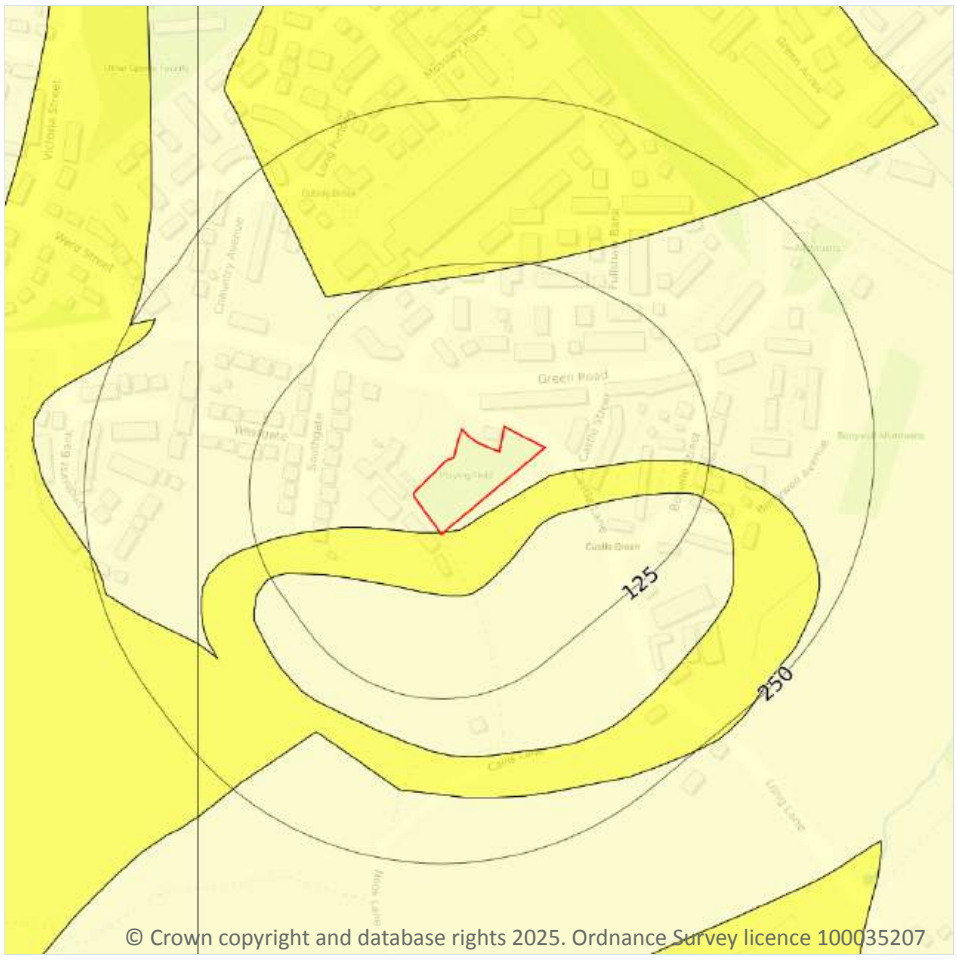
Features are displayed on the Boreholes map on **page 94 >**

ID	Location	Grid reference	Name	Length	Confidential	Web link
A	116m N	425172 402838	GREEN ROAD PENISTONE BARNSLEY 2	5.5	N	15019035 ↗
B	118m NW	425110 402800	CAMMELL LAIRD PENISTONE NO. 1	127.41	N	56375 ↗

ID	Location	Grid reference	Name	Length	Confidential	Web link
B	118m NW	425110 402800	CAMMELL LAIRD PENISTONE NO. 2	146.38	N	56376 ↗
B	118m NW	425110 402800	CAMMELL LAIRD PENISTONE NO. 3	171.6	N	56377 ↗
A	119m N	425195 402844	GREEN ROAD PENISTONE BARNSLEY 1	5.0	N	15019032 ↗
1	147m NW	425071 402795	CAMMELL LAIRD PENISTONE BHS	-1.0	N	56284 ↗
C	205m NW	425000 402800	CAMMELL LAIRD TRIAL NO. 1	7.47	N	607279 ↗
C	205m NW	425000 402800	CAMMELL LAIRD TRIAL BH/ NO. 2	7.92	N	607280 ↗
C	205m NW	425000 402800	CAMMELL LAIRD TRIAL NO. 4	11.28	N	607281 ↗
C	205m NW	425000 402800	CAMMELL LAIRD TRIAL NO. 5	8.08	N	607282 ↗
C	205m NW	425000 402800	CAMMELL LAIRD TRIAL NO. 6	9.91	N	607283 ↗
2	234m NW	425024 402879	CAMMELL LAIRD PENISTONE BHS	-1.0	N	56285 ↗

This data is sourced from the British Geological Survey.

17 Natural ground subsidence - Shrink swell clays



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.1 Shrink swell clays

Records within 50m	3

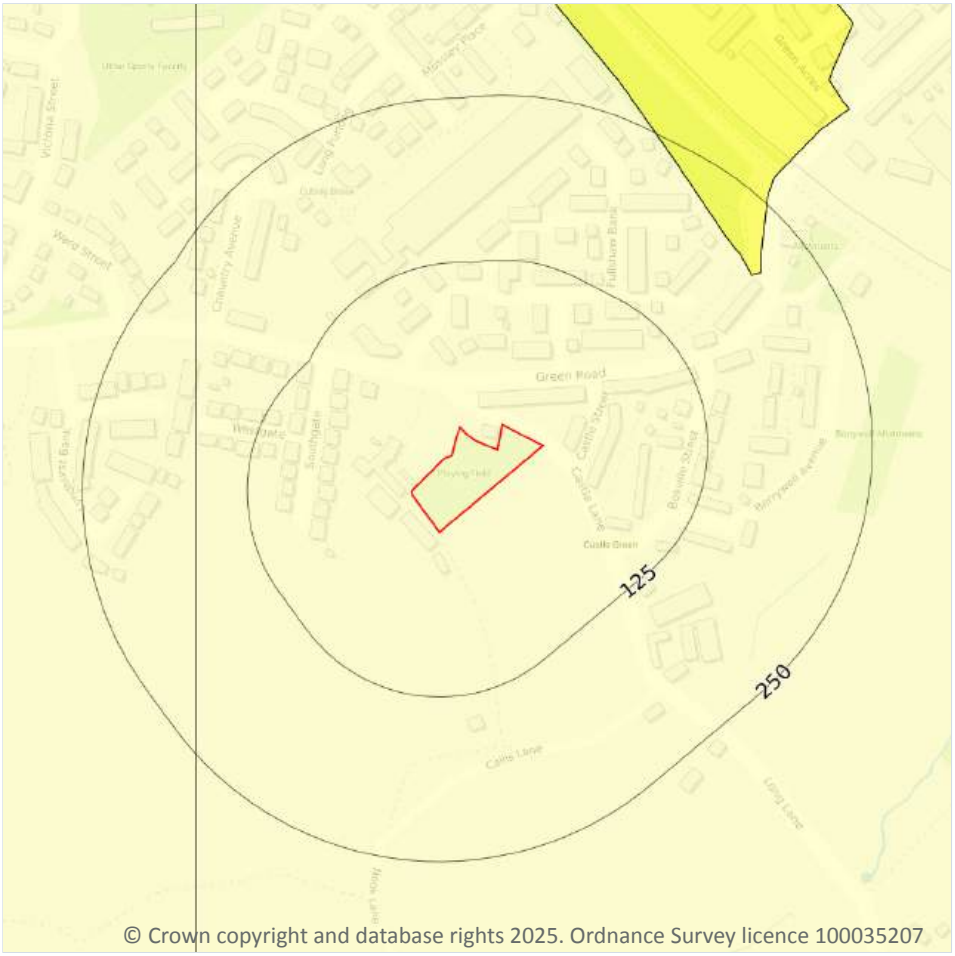
The potential hazard presented by soils that absorb water when wet (making them swell), and lose water as they dry (making them shrink). This shrink-swell behaviour is controlled by the type and amount of clay in the soil, and by seasonal changes in the soil moisture content (related to rainfall and local drainage).

Features are displayed on the Natural ground subsidence - Shrink swell clays map on **page 96 >**

Location	Hazard rating	Details
On site	**Negligible**	**Ground conditions predominantly non-plastic.**
On site	**Very low**	**Ground conditions predominantly low plasticity.**
43m SE	Negligible	Ground conditions predominantly non-plastic.

This data is sourced from the British Geological Survey.

Natural ground subsidence - Running sands



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.2 Running sands

Records within 50m	1

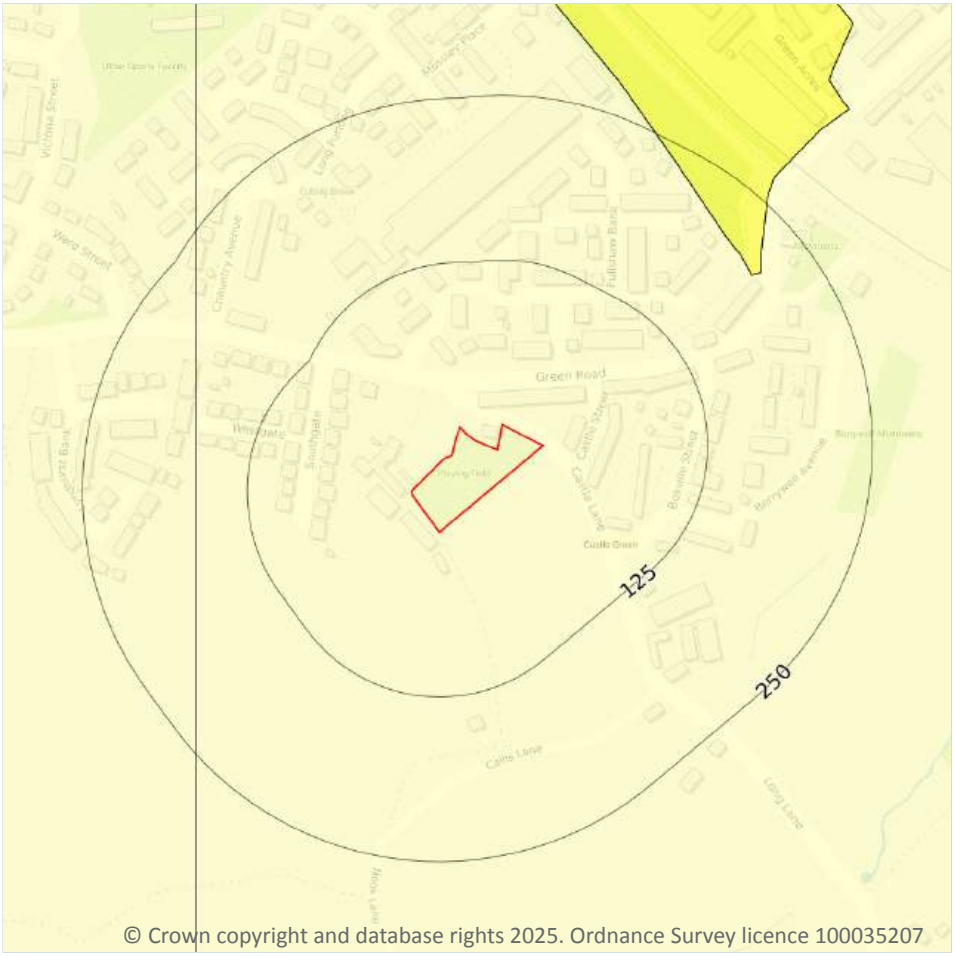
The potential hazard presented by rocks that can contain loosely-packed sandy layers that can become fluidised by water flowing through them. Such sands can 'run', removing support from overlying buildings and causing potential damage.

Features are displayed on the Natural ground subsidence - Running sands map on **page 98 >**

Location	Hazard rating	Details
On site	**Negligible**	**Running sand conditions are not thought to occur whatever the position of the water table. No identified constraints on lands use due to running conditions.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Compressible deposits



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.3 Compressible deposits

Records within 50m	1

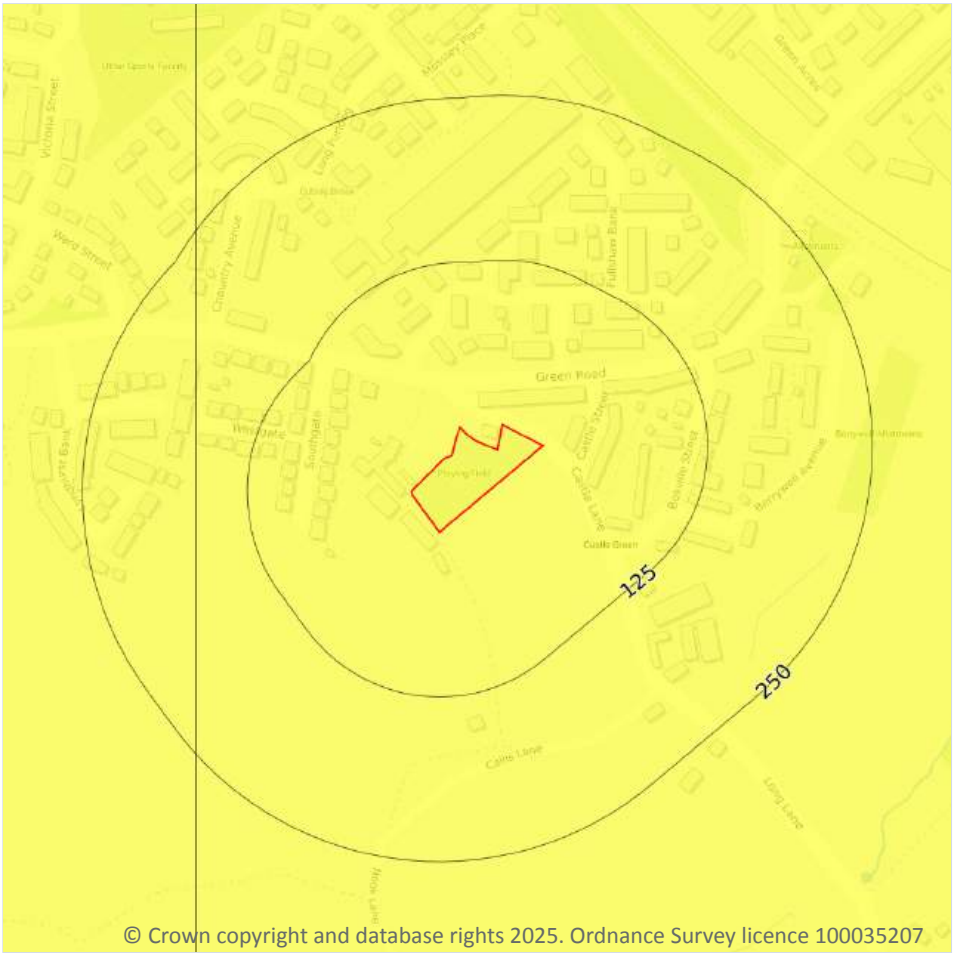
The potential hazard presented by types of ground that may contain layers of very soft materials like clay or peat and may compress if loaded by overlying structures, or if the groundwater level changes, potentially resulting in depression of the ground and disturbance of foundations.

Features are displayed on the Natural ground subsidence - Compressible deposits map on **page 99 >**

Location	Hazard rating	Details
On site	**Negligible**	**Compressible strata are not thought to occur.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Collapsible deposits



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.4 Collapsible deposits

Records within 50m	1

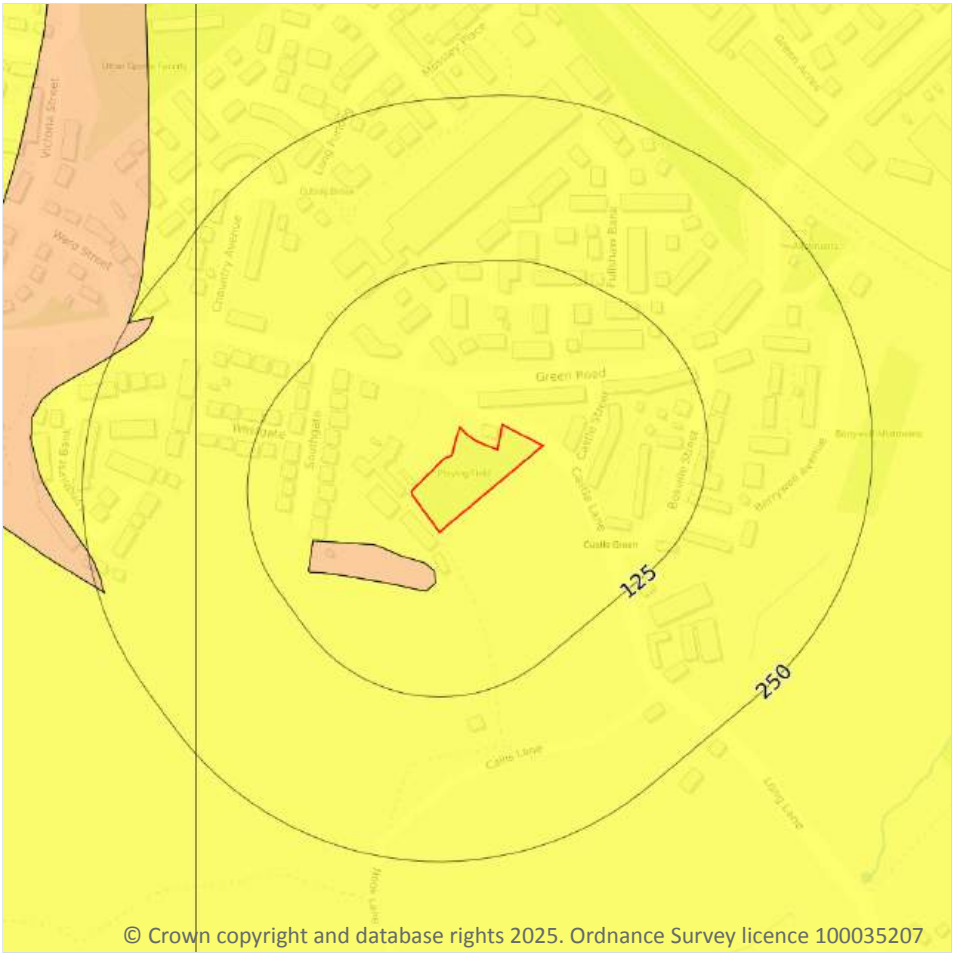
The potential hazard presented by natural deposits that could collapse when a load (such as a building) is placed on them or they become saturated with water.

Features are displayed on the Natural ground subsidence - Collapsible deposits map on **page 100 >**

Location	Hazard rating	Details
On site	**Very low**	**Deposits with potential to collapse when loaded and saturated are unlikely to be present.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Landslides



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.5 Landslides

Records within 50m	2

The potential for landsliding (slope instability) to be a hazard assessed using 1:50,000 scale digital maps of superficial and bedrock deposits, combined with information from the BGS National Landslide Database and scientific and engineering reports.

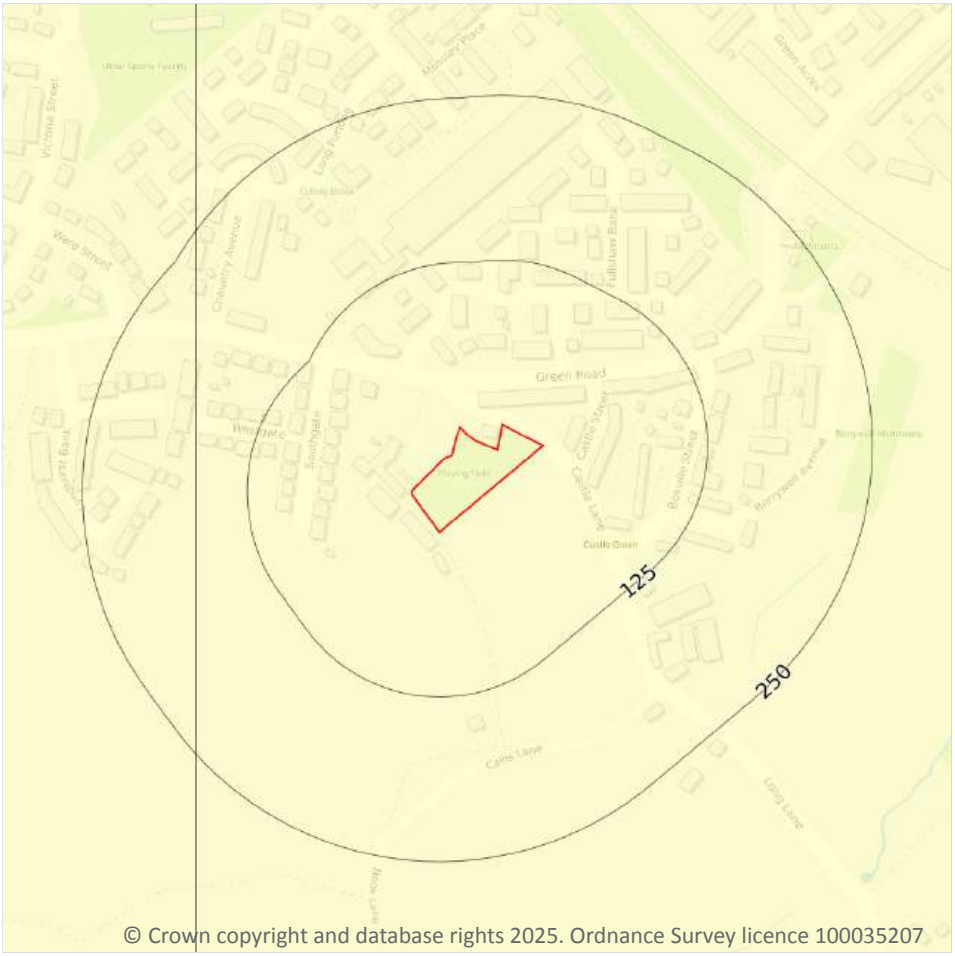
Features are displayed on the Natural ground subsidence - Landslides map on **page 101 >**

Location	Hazard rating	Details
On site	**Very low**	**Slope instability problems are not likely to occur but consideration to potential problems of adjacent areas impacting on the site should always be considered.**

Location	Hazard rating	Details
26m SW	Low	Slope instability problems may be present or anticipated. Site investigation should consider specifically the slope stability of the site.

This data is sourced from the British Geological Survey.

Natural ground subsidence - Ground dissolution of soluble rocks



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.6 Ground dissolution of soluble rocks

Records within 50m	1

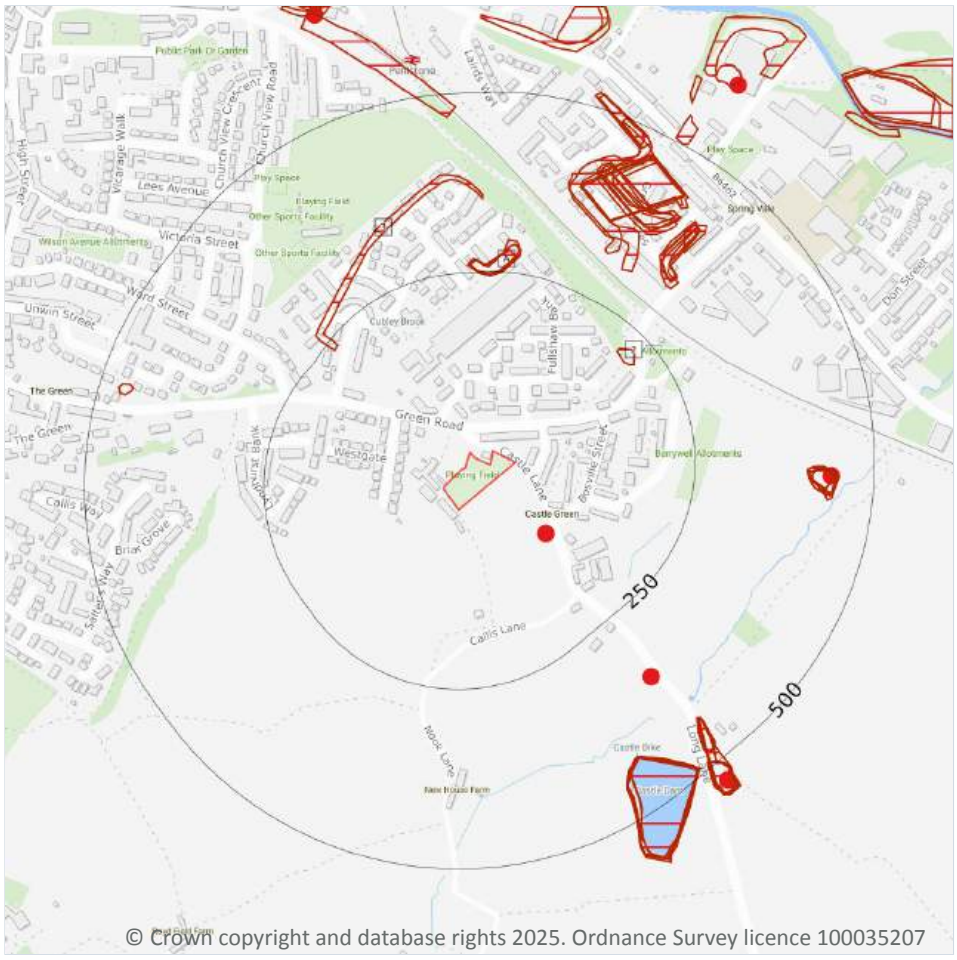
The potential hazard presented by ground dissolution, which occurs when water passing through soluble rocks produces underground cavities and cave systems. These cavities reduce support to the ground above and can cause localised collapse of the overlying rocks and deposits.

Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on **page 103 >**

Location	Hazard rating	Details
On site	**Negligible**	**Soluble rocks are either not thought to be present within the ground, or not prone to dissolution. Dissolution features are unlikely to be present.**

This data is sourced from the British Geological Survey.

18 Mining and ground workings



Site Outline

Search buffers in metres (m)

- BritPits
- Surface ground workings
- Underground workings
- Underground mining extents
- Historical mineral planning areas
- TCA non-coal mining

Non Coal Mining

- Sporadic underground mining of restricted extent possible
- Localised small scale underground mining possible
- Small scale mining possible
- Underground mining known or likely within or in close proximity
- Underground mining known within or in very close proximity

18.1 BritPits

Records within 500m	3

BritPits (an abbreviation of British Pits) is a database maintained by the British Geological Survey of currently active and closed surface and underground mineral workings. Details of major mineral handling sites, such as wharfs and rail depots are also held in the database.

Features are displayed on the Mining and ground workings map on **page 105 >**

ID	Location	Details	Description
1	103m SE	Name: Castle Green Quarry Address: Castle Lane, Castle Green, SHEFFIELD, South Yorkshire Commodity: Sandstone Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Delf, Delph, Gravel Pit, Sand Pit, Sand and Gravel Pit, Clay Pit, Pit, Opencast Coal Site or Surface Mine. It may be mapped as Worked Ground or Worked and Made Ground on BGS mapping. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.
4	350m SE	Name: Castle Lane Quarry Address: Castle Lane, Castle Green, PENISTONE, South Yorkshire Commodity: Sandstone Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Delf, Delph, Gravel Pit, Sand Pit, Sand and Gravel Pit, Clay Pit, Pit, Opencast Coal Site or Surface Mine. It may be mapped as Worked Ground or Worked and Made Ground on BGS mapping. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.
D	440m E	Name: Castle Dike Address: Castle Green, PENISTONE, South Yorkshire Commodity: Sandstone Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Delf, Delph, Gravel Pit, Sand Pit, Sand and Gravel Pit, Clay Pit, Pit, Opencast Coal Site or Surface Mine. It may be mapped as Worked Ground or Worked and Made Ground on BGS mapping. Status description: Site which has ceased to extract minerals. May be considered as 'Closed' by operator. May be considered to have 'Active', 'Dormant' or 'Expired' planning permissions by the Mineral Planning Authority.

This data is sourced from the British Geological Survey.

18.2 Surface ground workings

Records within 250m **6**

Historical land uses identified from Ordnance Survey mapping that involved ground excavation at the surface. These features may or may not have been subsequently backfilled.

Features are displayed on the Mining and ground workings map on **page 105 >**

ID	Location	Land Use	Year of mapping	Mapping scale
2	206m NE	Unspecified Heap	1891	1:10560
3	236m NW	Unspecified Ground Workings	1929	1:10560

ID	Location	Land Use	Year of mapping	Mapping scale
A	245m N	Unspecified Ground Workings	1938	1:10560
A	245m N	Unspecified Ground Workings	1938	1:10560
A	245m N	Gravel Pit	1948	1:10560
A	247m N	Gravel Pit	1951	1:10560

This is data is sourced from Ordnance Survey/Groundsure.

18.3 Underground workings

Records within 1000m	0

Historical land uses identified from Ordnance Survey mapping that indicate the presence of underground workings e.g. mine shafts.

This is data is sourced from Ordnance Survey/Groundsure.

18.4 Underground mining extents

Records within 500m	0

This data identifies underground mine workings that could present a potential risk, including adits and seam workings. These features have been identified from BGS Geological mapping and mine plans sourced from the BGS and various collections and sources.

This data is sourced from Groundsure.

18.5 Historical Mineral Planning Areas

Records within 500m	0

Boundaries of mineral planning permissions for England and Wales. This data was collated between the 1940s (and retrospectively to the 1930s) and the mid 1980s. The data includes permitted, withdrawn and refused permissions.

This data is sourced from the British Geological Survey.

18.6 Non-coal mining

Records within 1000m	0

The potential for historical non-coal mining to have affected an area. The assessment is drawn from expert knowledge and literature in addition to the digital geological map of Britain. Mineral commodities may be divided into seven general categories - vein minerals, chalk, oil shale, building stone, bedded ores, evaporites and 'other' commodities (including ball clay, jet, black marble, graphite and chert).

This data is sourced from the British Geological Survey.

18.7 JPB mining areas

Records on site	0

Areas which could be affected by former coal and other mining. This data includes some mine plans unavailable to the Coal Authority.

This data is sourced from Johnson Poole and Bloomer.

18.8 The Coal Authority non-coal mining

Records within 500m	0

This data provides an indication of the potential zone of influence of recorded underground non-coal mining workings. Any and all analysis and interpretation of Coal Authority Data in this report is made by Groundsure, and is in no way supported, endorsed or authorised by the Coal Authority. The use of the data is restricted to the terms and provisions contained in this report. Data reproduced in this report may be the copyright of the Coal Authority and permission should be sought from Groundsure prior to any re-use.

This data is sourced from The Coal Authority.

18.9 Researched mining

Records within 500m	0

This data indicates areas of potential mining identified from alternative or archival sources, including; BGS Geological paper maps, Lidar data, aerial photographs (from World War II onwards), archaeological data services, websites, Tithe maps, and various text/plans from collected books and reports. Some of this data is approximate and Groundsure have interpreted the resultant risk area and, where possible, specific areas of risk have been captured.

This data is sourced from Groundsure.

18.10 Mining record office plans

Records within 500m	0

This dataset is representative of Mining Record Office and/or plan extents held by Groundsure and should be considered approximate. Where possible, plans have been located and any specific areas of risk they depict have been captured.

This data is sourced from Groundsure.

18.11 BGS mine plans

Records within 500m	0

This dataset is representative of BGS mine plans held by Groundsure and should be considered approximate. Where possible, plans have been located and any specific areas of risk they depict have been captured.

This data is sourced from Groundsure.

18.12 Coal mining

Records on site	1

Areas which could be affected by past, current or future coal mining.

Location	Details
On site	**The site is located within a coal mining area as defined by the Coal Authority. A Consultants Coal Mining Report is recommended to further assess coal mining issues at the site. This can be ordered directly through Groundsure or your preferred search provider.**

This data is sourced from the Coal Authority.

18.13 Brine areas

Records on site	0

The Cheshire Brine Compensation District indicates areas that may be affected by salt and brine extraction in Cheshire and where compensation would be available where damage from this mining has occurred. Damage from salt and brine mining can still occur outside this district, but no compensation will be available.

This data is sourced from the Cheshire Brine Subsidence Compensation Board.

18.14 Gypsum areas

Records on site	0

Generalised areas that may be affected by gypsum extraction.

This data is sourced from British Gypsum.

18.15 Tin mining

Records on site	0

Generalised areas that may be affected by historical tin mining.

This data is sourced from Groundsure.

18.16 Clay mining

Records on site	0

Generalised areas that may be affected by kaolin and ball clay extraction.

This data is sourced from the Kaolin and Ball Clay Association (UK).

19 Ground cavities and sinkholes

19.1 Natural cavities

Records within 500m	0

Industry recognised national database of natural cavities. Sinkholes and caves are formed by the dissolution of soluble rock, such as chalk and limestone, gulls and fissures by cambering. Ground instability can result from movement of loose material contained within these cavities, often triggered by water.

This data is sourced from Stantec UK Ltd.

19.2 Mining cavities

Records within 1000m	0

Industry recognised national database of mining cavities. Degraded mines may result in hazardous subsidence (crown holes). Climatic conditions and water escape can also trigger subsidence over mine entrances and workings.

This data is sourced from Stantec UK Ltd.

19.3 Reported recent incidents

Records within 500m	0

This data identifies sinkhole information gathered from media reports and Groundsure's own records. This data goes back to 2014 and includes relative accuracy ratings for each event and links to the original data sources. The data is updated on a regular basis and should not be considered a comprehensive catalogue of all sinkhole events. The absence of data in this database does not mean a sinkhole definitely has not occurred during this time.

This data is sourced from Groundsure.

19.4 Historical incidents

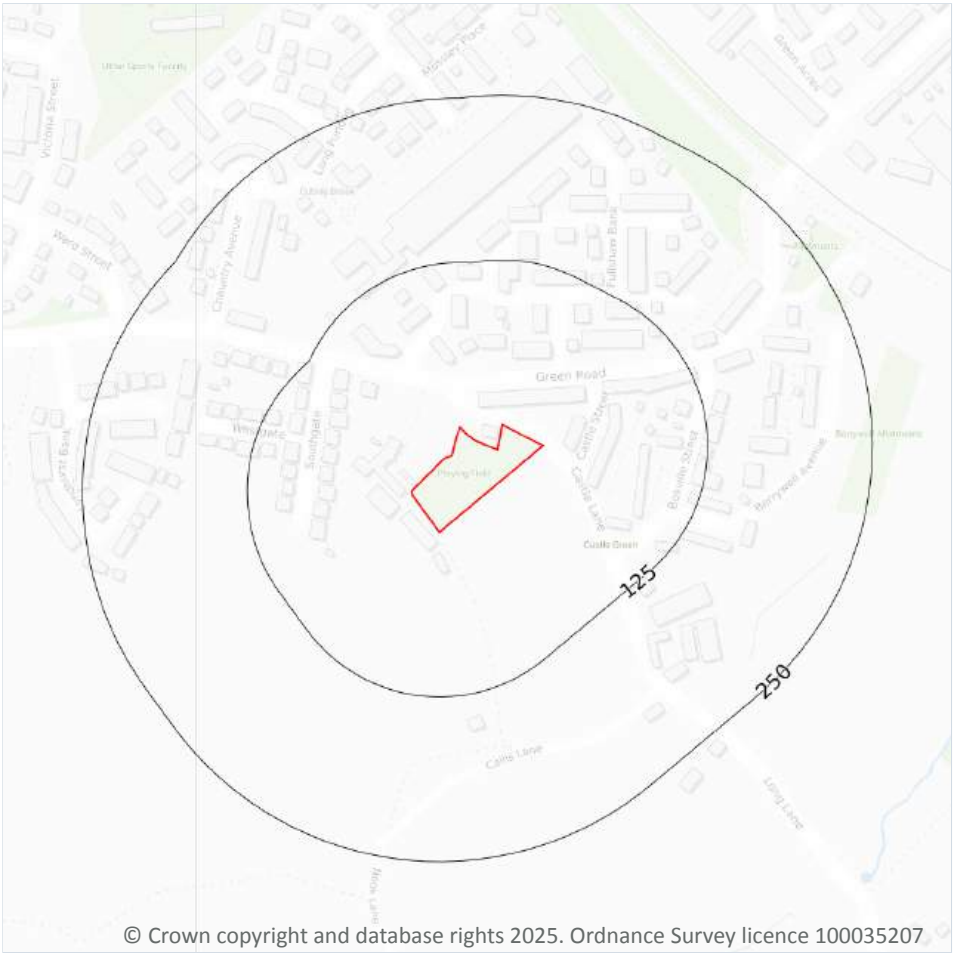
Records within 500m	0

This dataset comprises an extract of 1:10,560, 1:10,000, 1:2,500 and 1:1,250 scale historical Ordnance Survey maps held by Groundsure, dating back to the 1840s. It shows shakeholes, deneholes and other 'holes' as noted on these maps. Dene holes are medieval chalk extraction pits, usually comprising a narrow shaft with a number of chambers at the base of the shaft. Shakeholes are an alternative name for suffusion sinkholes, most commonly found in the limestone landscapes of North Yorkshire but also extensively noted around the Brecon Beacons National Park.

Not all 'holes' noted on Ordnance Survey mapping will necessarily be present within this dataset.

This data is sourced from Groundsure.

20 Radon



Site Outline

Search buffers in metres (m)

Greater than 30%

Between 10% and 30%

Between 5% and 10%

Between 3% and 5%

Between 1% and 3%

Less than 1%

20.1 Radon

Records on site	1

The Radon Potential data classifies areas based on their likelihood of a property having a radon level at or above the Action Level in Great Britain. The dataset is intended for use at 1:50,000 scale and was derived from both geological assessments and indoor radon measurements (more than 560,000 records). A minimum 50m buffer should be considered when searching the maps, as the smallest detectable feature at this scale is 50m. The findings of this section should supersede any estimations derived from the Indicative Atlas of Radon in Great Britain (1:100,000 scale).

Features are displayed on the Radon map on **page 113 >**

Location	Estimated properties affected	Radon Protection Measures required
On site	**Less than 1%**	**None**

This data is sourced from the British Geological Survey and UK Health Security Agency.

21 Soil chemistry

21.1 BGS Estimated Background Soil Chemistry

Records within 50m	3

The estimated values provide the likely background concentration of the potentially harmful elements Arsenic, Cadmium, Chromium, Lead and Nickel in topsoil. The values are estimated primarily from rural topsoil data collected at a sample density of approximately 1 per 2 km^2. In areas where rural soil samples are not available, estimation is based on stream sediment data collected from small streams at a sampling density of 1 per 2.5 km^2; this is the case for most of Scotland, Wales and southern England. The stream sediment data are converted to soil-equivalent concentrations prior to the estimation.

Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	**15 - 25 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**90 - 120 mg/kg**	**15 - 30 mg/kg**
40m W	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
47m S	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg

This data is sourced from the British Geological Survey.

21.2 BGS Estimated Urban Soil Chemistry

Records within 50m	0

Estimated topsoil chemistry of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc and bioaccessible Arsenic and Lead in 23 urban centres across Great Britain. These estimates are derived from interpolation of the measured urban topsoil data referred to above and provide information across each city between the measured sample locations (4 per km^2).

This data is sourced from the British Geological Survey.

21.3 BGS Measured Urban Soil Chemistry

Records within 50m	0

The locations and measured total concentrations (mg/kg) of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc in urban topsoil samples from 23 urban centres across Great Britain. These are collected at a sample density of 4 per km^2.

This data is sourced from the British Geological Survey.

22 Railway infrastructure and projects

Site Outline

Search buffers in metres (m)

- Crossrail 2 Stations
- Crossrail 2 Route
- Crossrail 2 Worksites
- Crossrail 2 Safeguarding
- Crossrail 2 Headhouses
- Railway stations
- Active railways
- Active tunnels
- Abandoned railways
- Historic railways
- Historic tunnels
- Underground stations
- Underground Lines
- Royal Mail tunnels
- HS2 optimised route
- HS2 Stations
- HS2 Depots
- HS2 Surface Safeguarding
- HS2 Subsurface Safeguarding

22.1 Underground railways (London)

Records within 250m	0

Details of all active London Underground lines, including approximate tunnel roof depth and operational hours.

This data is sourced from publicly available information by Groundsure.

22.2 Underground railways (Non-London)

Records within 250m	0

Details of the Merseyrail system, the Tyne and Wear Metro and the Glasgow Subway. Not all parts of all systems are located underground. The data contains location information only and does not include a depth assessment.

This data is sourced from publicly available information by Groundsure.

22.3 Railway tunnels

Records within 250m	0

Railway tunnels taken from contemporary Ordnance Survey mapping.

This data is sourced from the Ordnance Survey.

22.4 Historical railway and tunnel features

Records within 250m	13

Railways and tunnels digitised from historical Ordnance Survey mapping as scales of 1:1,250, 1:2,500, 1:10,000 and 1:10,560.

Features are displayed on the Railway infrastructure and projects map on **page 116 >**

Location	Land Use	Year of mapping	Mapping scale
38m N	Railway Sidings	1948	10560
39m N	Railway Sidings	1965	10560
39m N	Railway Sidings	1951	10560
45m N	Railway Sidings	1960	2500
45m N	Railway Sidings	1971	2500
109m NW	Railway Sidings	1987	10000
115m NW	Railway Sidings	1988	2500
136m N	Railway Sidings	1948	10560
179m N	Railway Sidings	1929	10560
179m NE	Railway Sidings	1929	10560
196m NW	Railway Sidings	1938	10560
216m NE	Railway Sidings	1891	10560
247m NE	Railway Sidings	1929	10560

This data is sourced from Ordnance Survey/Groundsure.

22.5 Royal Mail tunnels

Records within 250m	0

The Post Office Railway, otherwise known as the Mail Rail, is an underground railway running through Central London from Paddington Head District Sorting Office to Whitechapel Eastern Head Sorting Office. The line is 10.5km long. The data includes details of the full extent of the tunnels, the depth of the tunnel, and the depth to track level.

This data is sourced from Groundsure/the Postal Museum.

22.6 Historical railways

Records within 250m	0

Former railway lines, including dismantled lines, abandoned lines, disused lines, historic railways and razed lines.

This data is sourced from OpenStreetMap.

22.7 Railways

Records within 250m	0

Currently existing railway lines, including standard railways, narrow gauge, funicular, trams and light railways.

This data is sourced from Ordnance Survey and OpenStreetMap.

22.8 Crossrail 2

Records within 500m	0

Crossrail 2 is a proposed railway linking the national rail networks in Surrey and Hertfordshire via an underground tunnel through London.

This data is sourced from publicly available information by Groundsure.

22.9 HS2

Records within 500m	0

HS2 is a proposed high speed rail network running from London to Manchester and Leeds via Birmingham. Main civils construction on Phase 1 (London to Birmingham) of the project began in 2019, and it is currently anticipated that this phase will be fully operational by 2026. Construction on Phase 2a (Birmingham to Crewe) is anticipated to commence in 2021, with the service fully operational by 2027. Construction on Phase 2b (Crewe to Manchester and Birmingham to Leeds) is scheduled to begin in 2023 and be operational by 2033.

This data is sourced from HS2 ltd.

Data providers

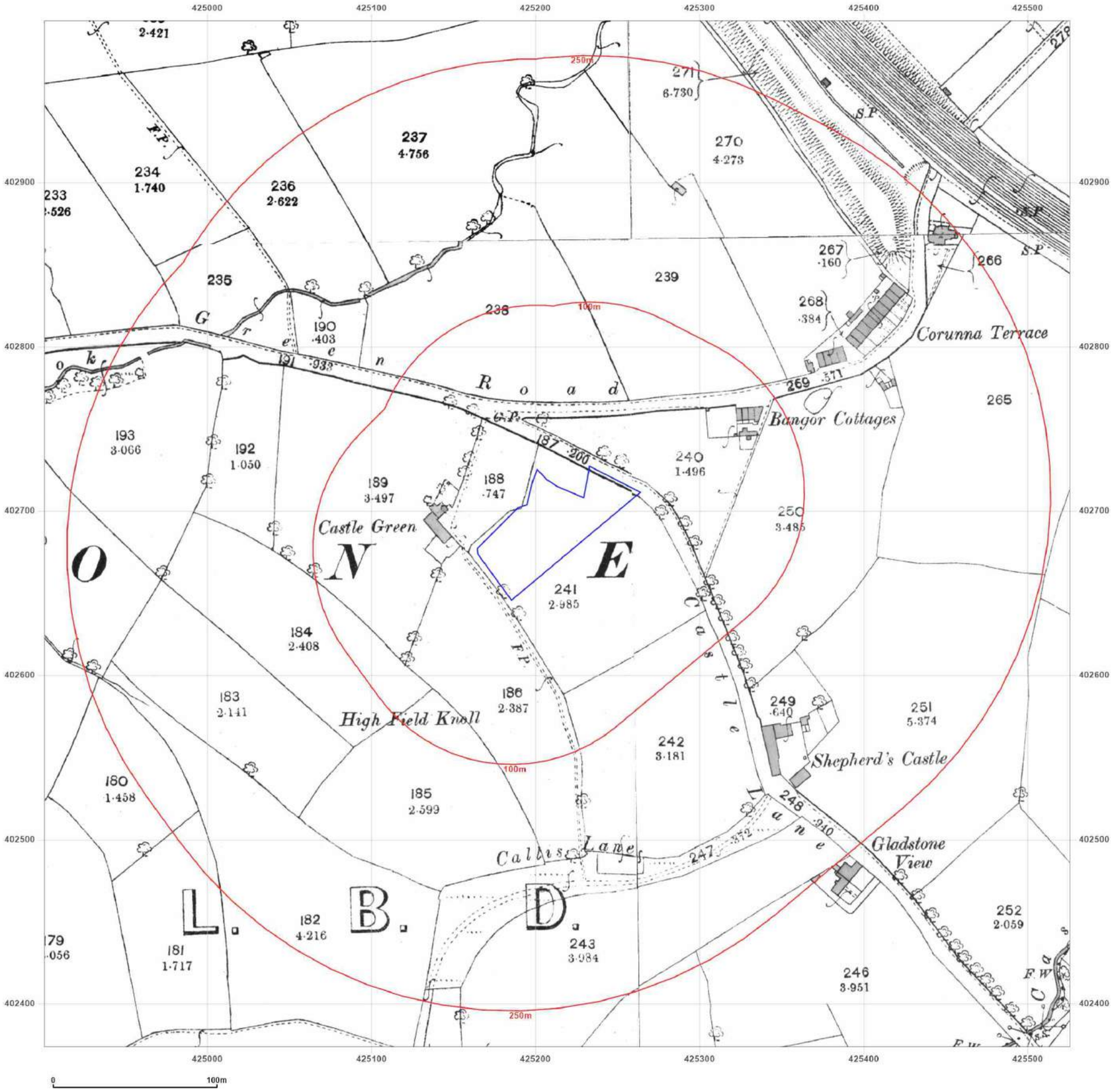
Groundsure works with respected data providers to bring you the most relevant and accurate information. To find out who they are and their areas of expertise see https://www.groundsure.com/sources-reference ↗.

Terms and conditions

Groundsure's Terms and Conditions can be accessed at this link: www.groundsure.com/terms-and-conditions-april-2023/ ↗.

Dice Environmental

APPENDIX C



EMAPSITE™

Site Details:

unspecified

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Report Ref: EMS-1039143_1311449
Grid Ref: 425213, 402686

Map Name: County Series
Map date: **1893**
Scale: 1:2,500
Printed at: 1:2,500

N
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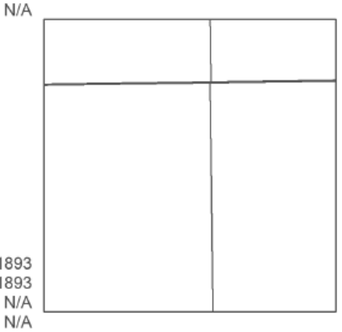
S

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

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



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

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

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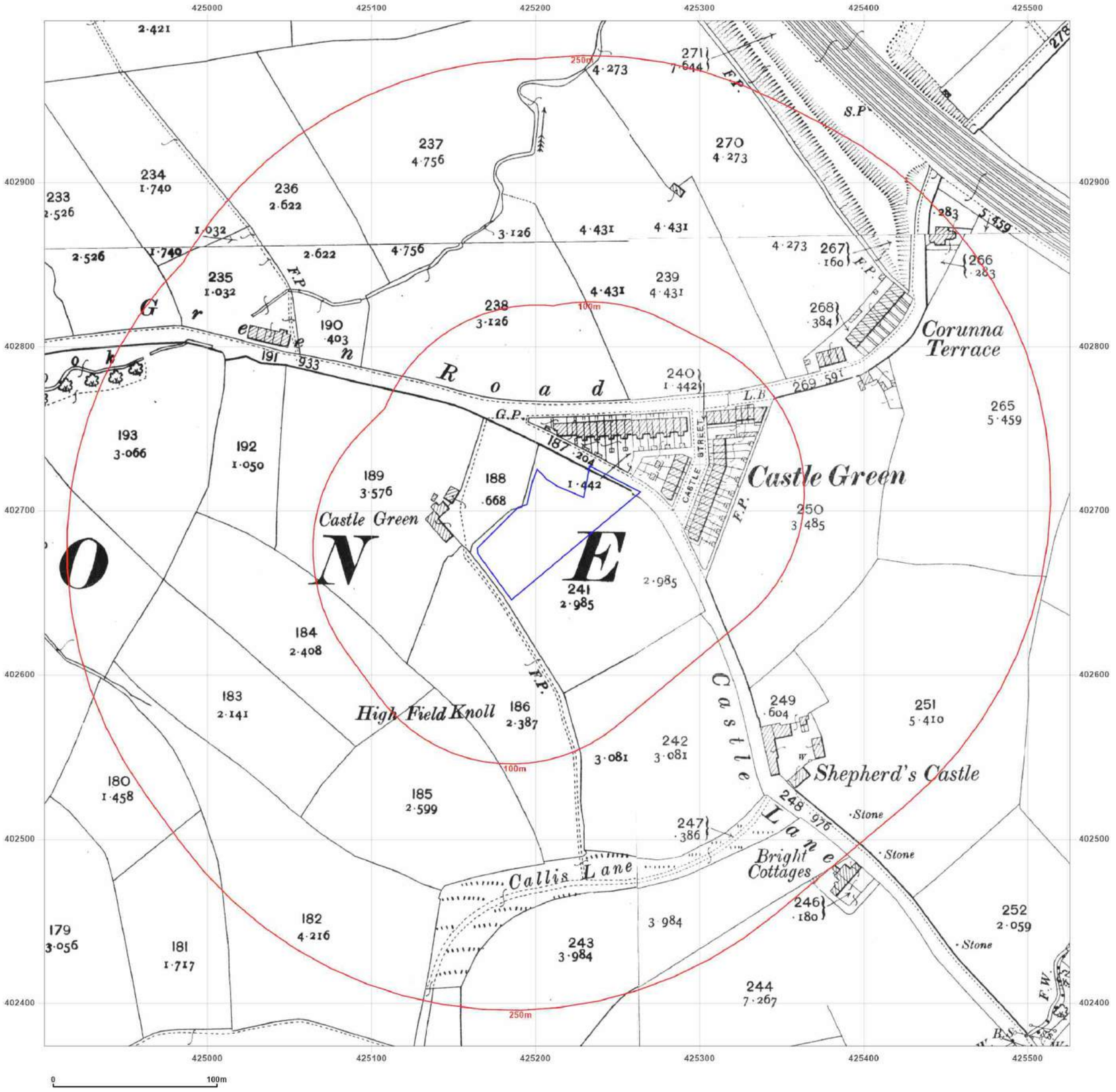

EMAPSITE™

Site Details:

unspecified

Client Ref: EMS_1039143_1299088
Report Ref: EMS-1039143_1311449
Grid Ref: 425213, 402686

Map Name: County Series
Map date: **1905-1906**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S

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

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

Surveyed 1905
Revised 1905
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1905
Revised 1905
Edition N/A
Copyright N/A
Levelled N/A

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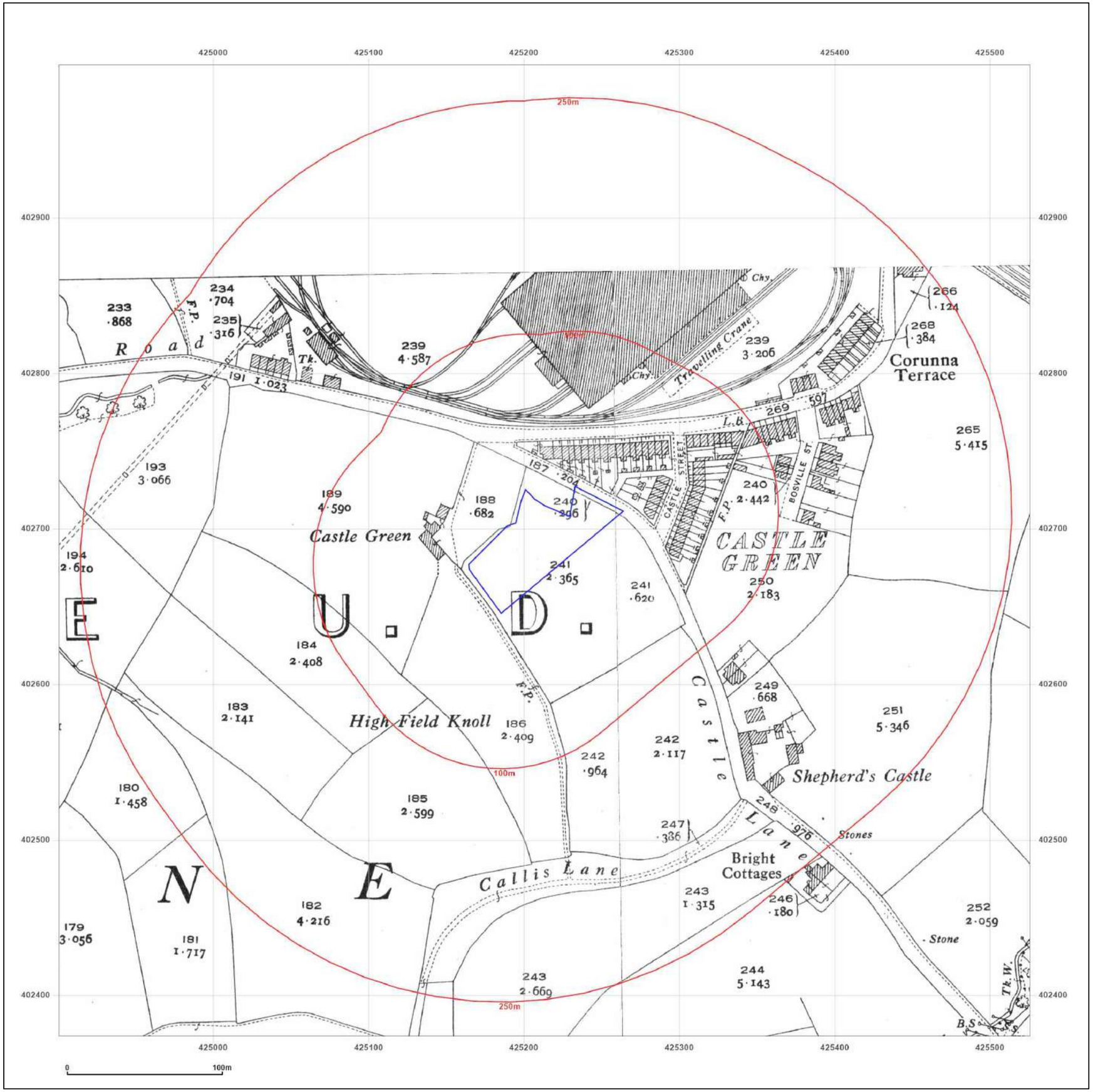


EMAPSITE™

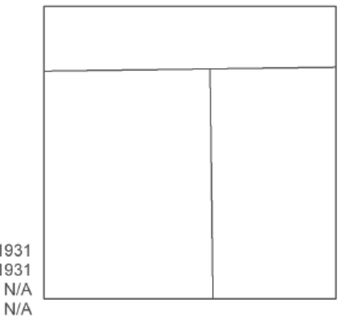
Site Details:

unspecified

Client Ref: EMS_1039143_1299088
Report Ref: EMS-1039143_1311449
Grid Ref: 425213, 402686

Map Name: County Series
Map date: **1931**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S



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

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

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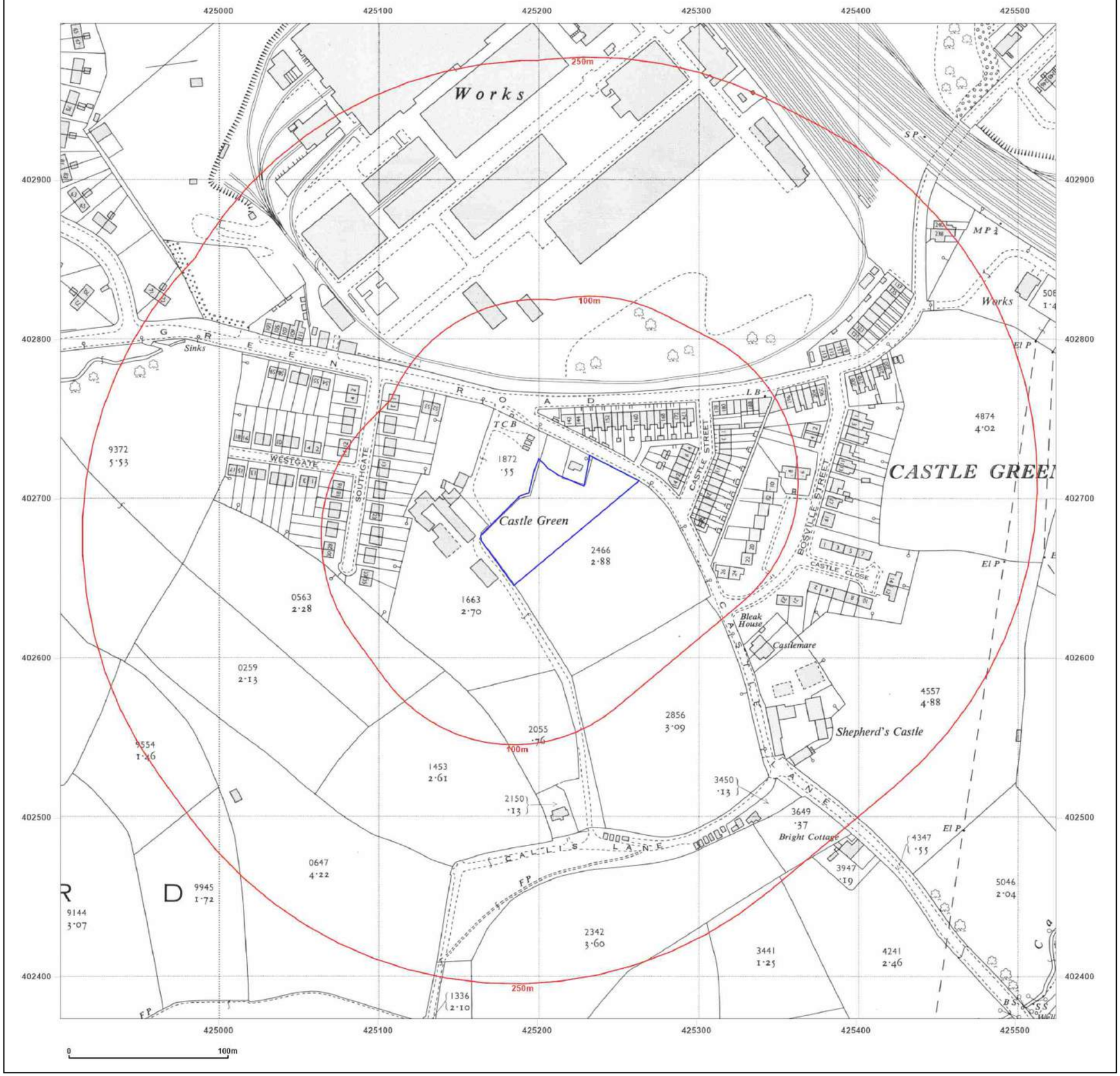

EMAPSITE™

Site Details:

unspecified

Client Ref: EMS_1039143_1299088
Report Ref: EMS-1039143_1311449
Grid Ref: 425213, 402686

Map Name: National Grid

Map date: **1960**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1959
Revised 1959
Edition N/A
Copyright 1960
Levelled 1930

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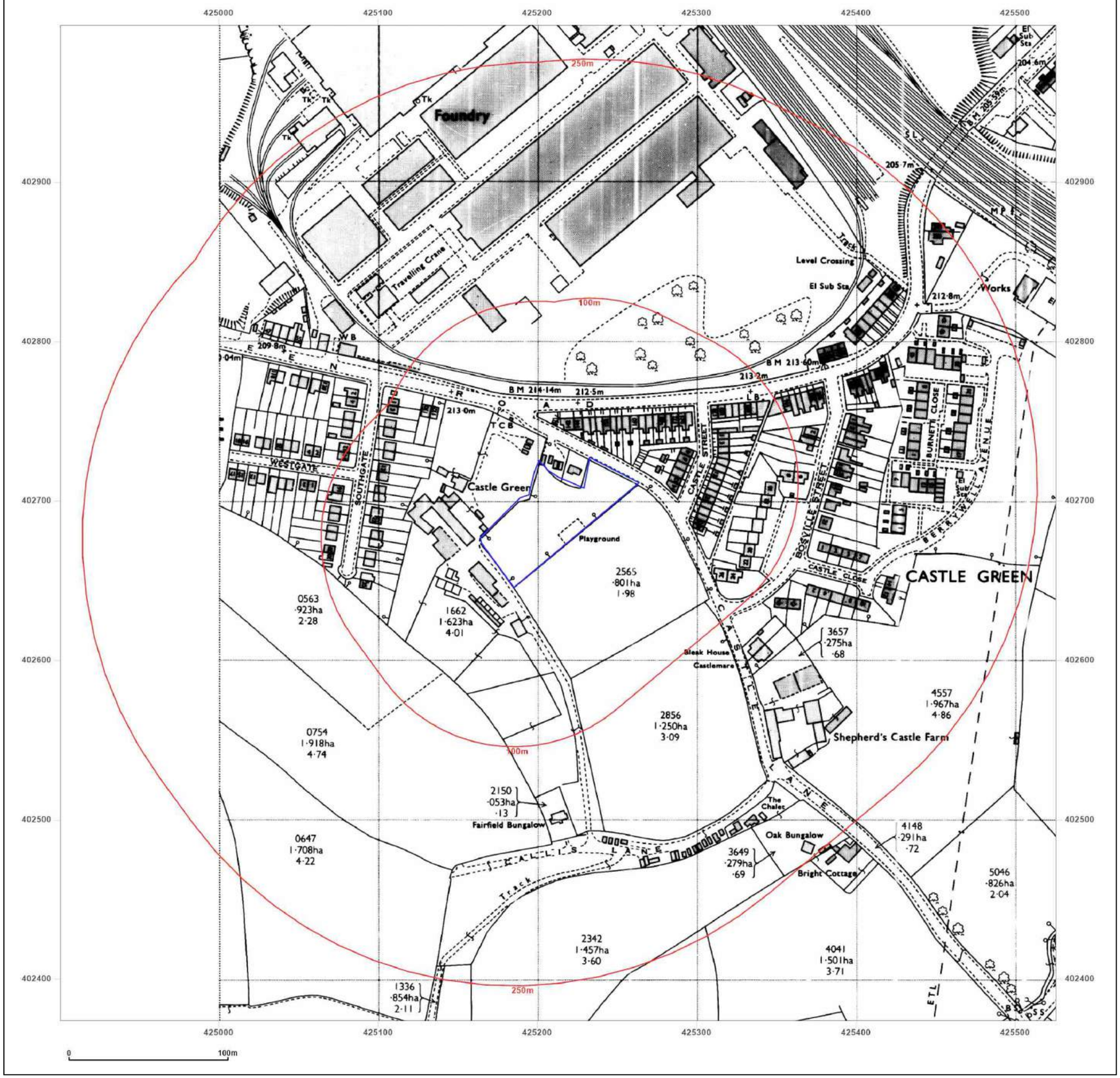

EMAPSITE™

Site Details:

unspecified

Client Ref: EMS_1039143_1299088
Report Ref: EMS-1039143_1311449
Grid Ref: 425213, 402686

Map Name: National Grid

Map date: **1971**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

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

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Production date: 25 July 2025

Map legend available at:
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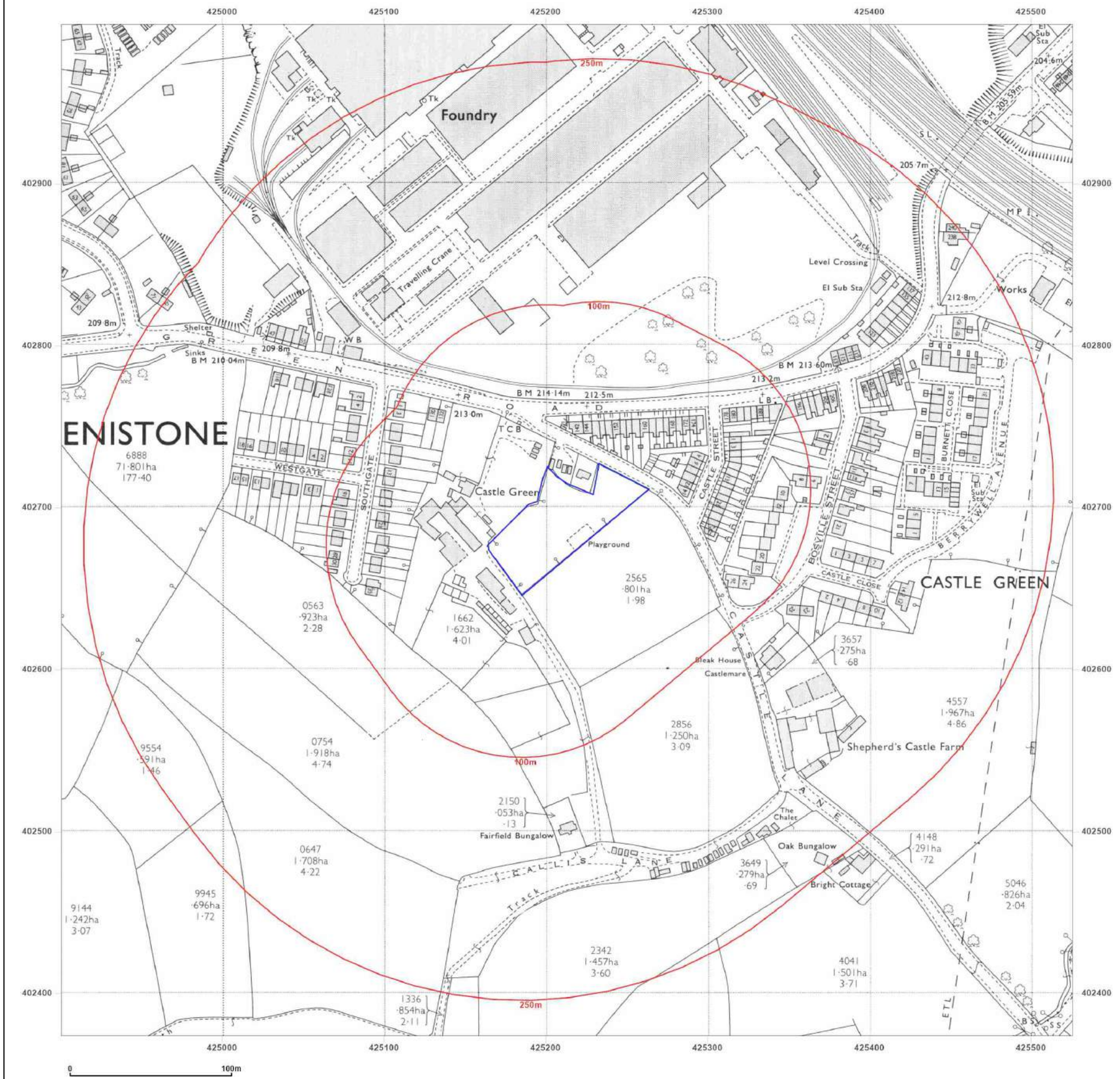

EMAPSITE™

Site Details:

unspecified

Client Ref: EMS_1039143_1299088
Report Ref: EMS-1039143_1311449
Grid Ref: 425213, 402686

Map Name: National Grid

Map date: **1971**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1970
Revised 1970
Edition N/A
Copyright 1971
Levelled 1959

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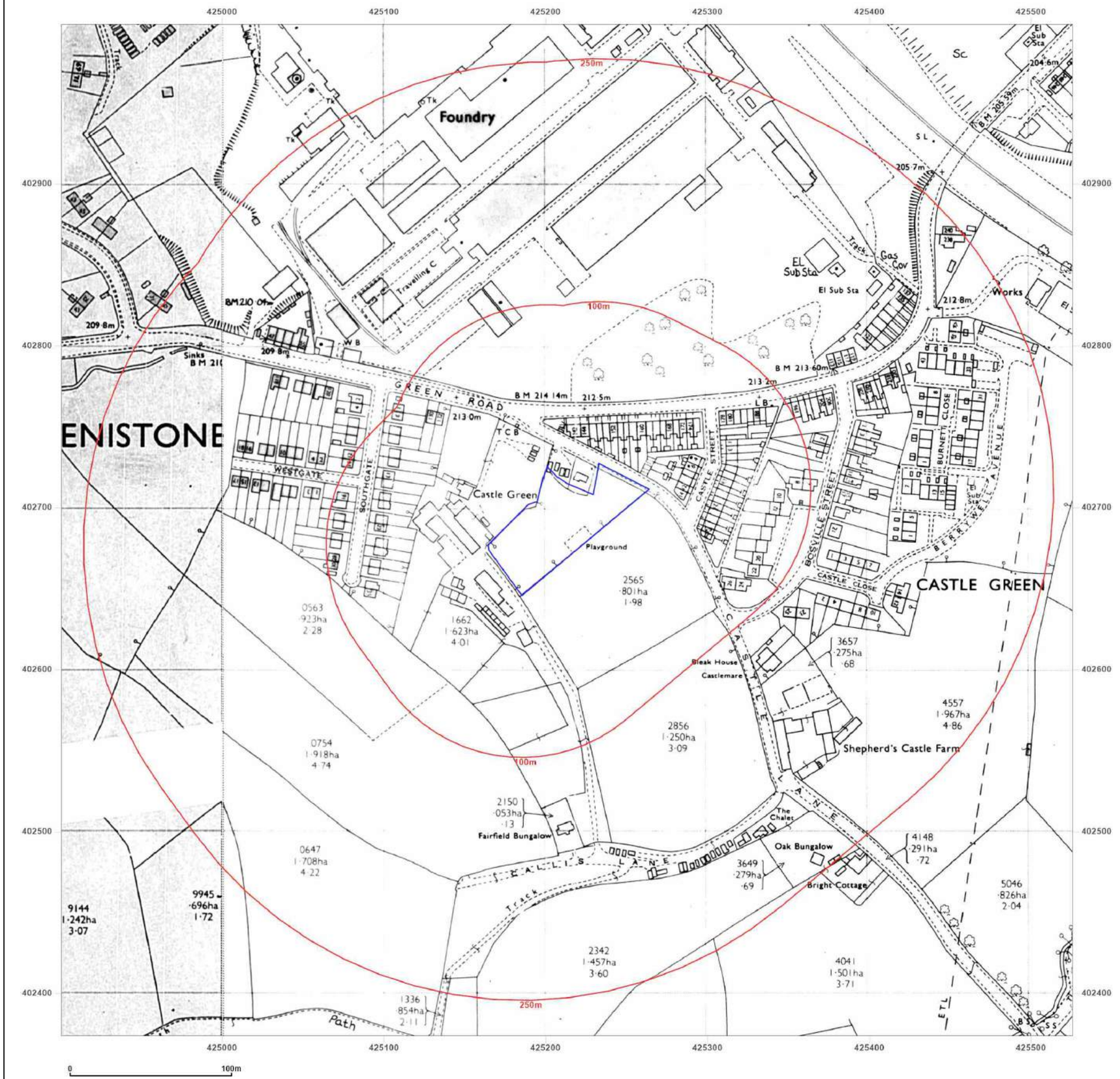

EMAPSITE™

Site Details:

unspecified

Client Ref: EMS_1039143_1299088
Report Ref: EMS-1039143_1311449
Grid Ref: 425213, 402686

Map Name: National Grid

Map date: **1985-1988**

Scale: 1:2,500

Printed at: 1:2,500

N
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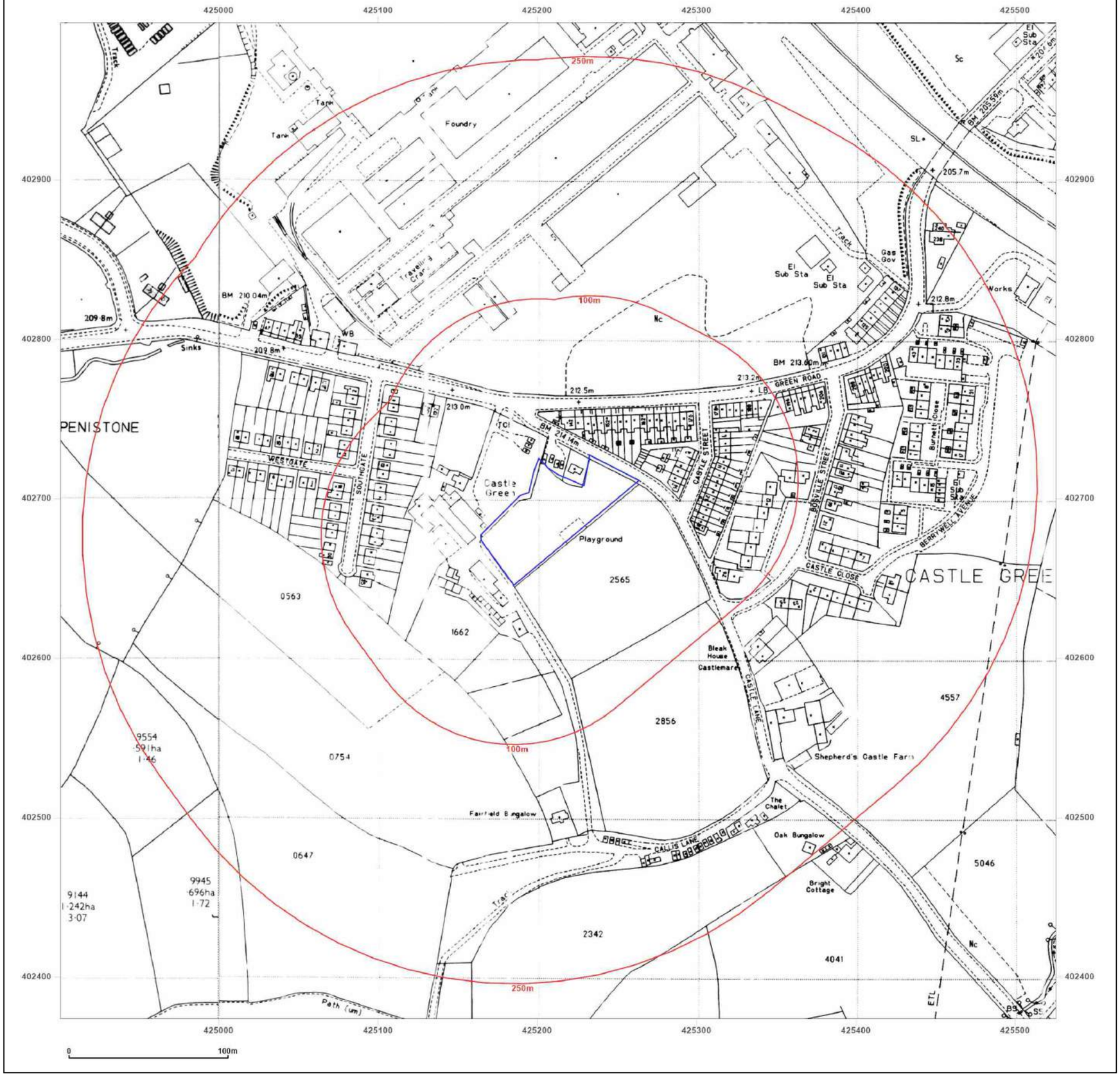

EMAPSITE™

Site Details:

unspecified

Client Ref: EMS_1039143_1299088
Report Ref: EMS-1039143_1311449
Grid Ref: 425213, 402686

Map Name: National Grid

Map date: **1988-1993**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1959
Revised 1988
Edition N/A
Copyright 1988
Levelled 1959

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

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Site Details:

unspecified

Client Ref: EMS_1039143_1299088
Report Ref: EMS-1039143_1311449
Grid Ref: 425213, 402686

Map Name: LandLine
Map date: **2003**
Scale: 1:1,250
Printed at: 1:1,250

N
W E
S

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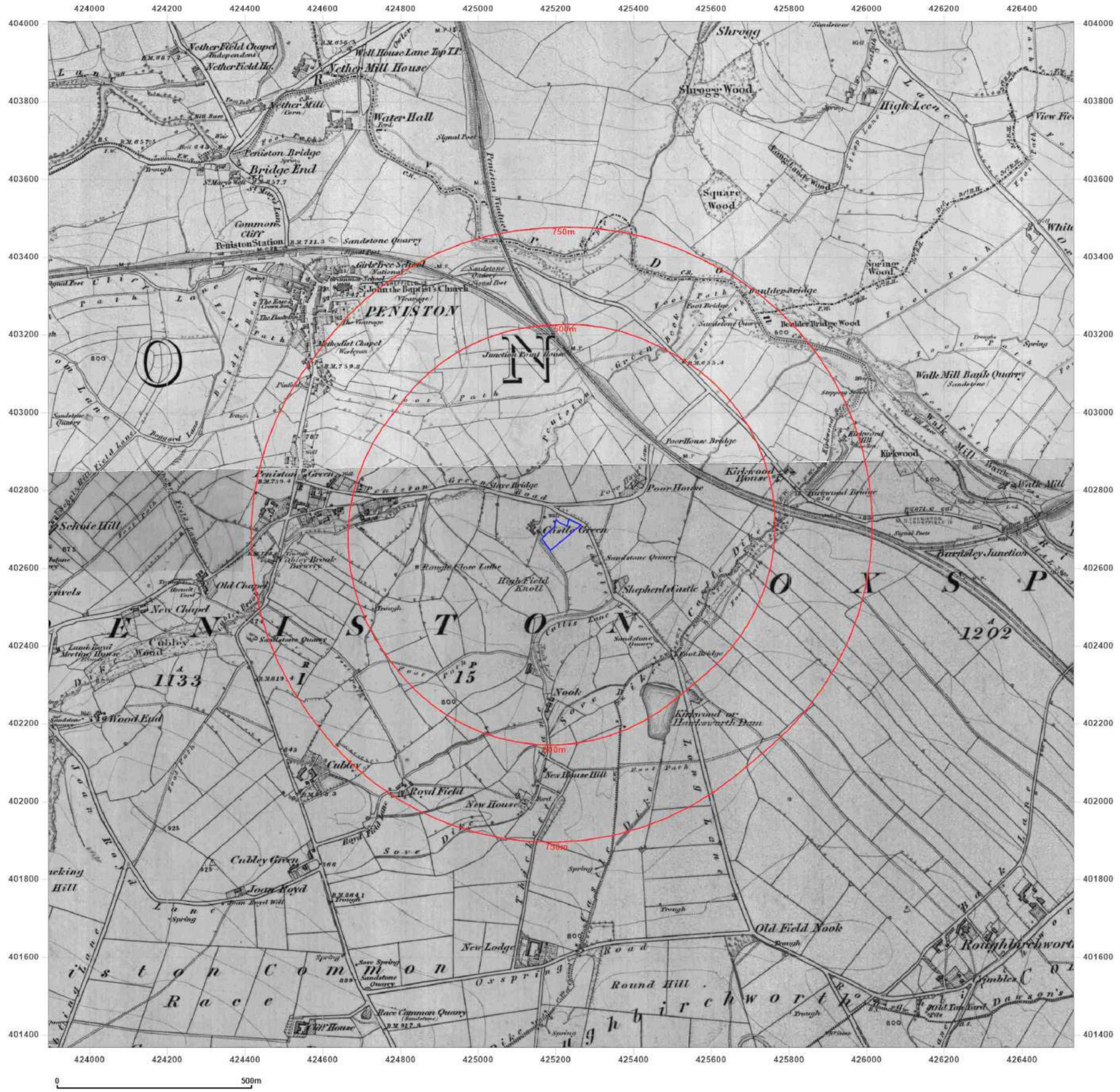

EMAPSITE™

Site Details:

unspecified

Client Ref: EMS_1039143_1299088
Report Ref: EMS-1039143_1311449
Grid Ref: 425213, 402686

Map Name: County Series

Map date: **1854**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

Surveyed 1850
Revised N/A
Edition 1854
Copyright N/A
Levelled N/A

Surveyed 1851
Revised N/A
Edition 1854
Copyright N/A
Levelled N/A

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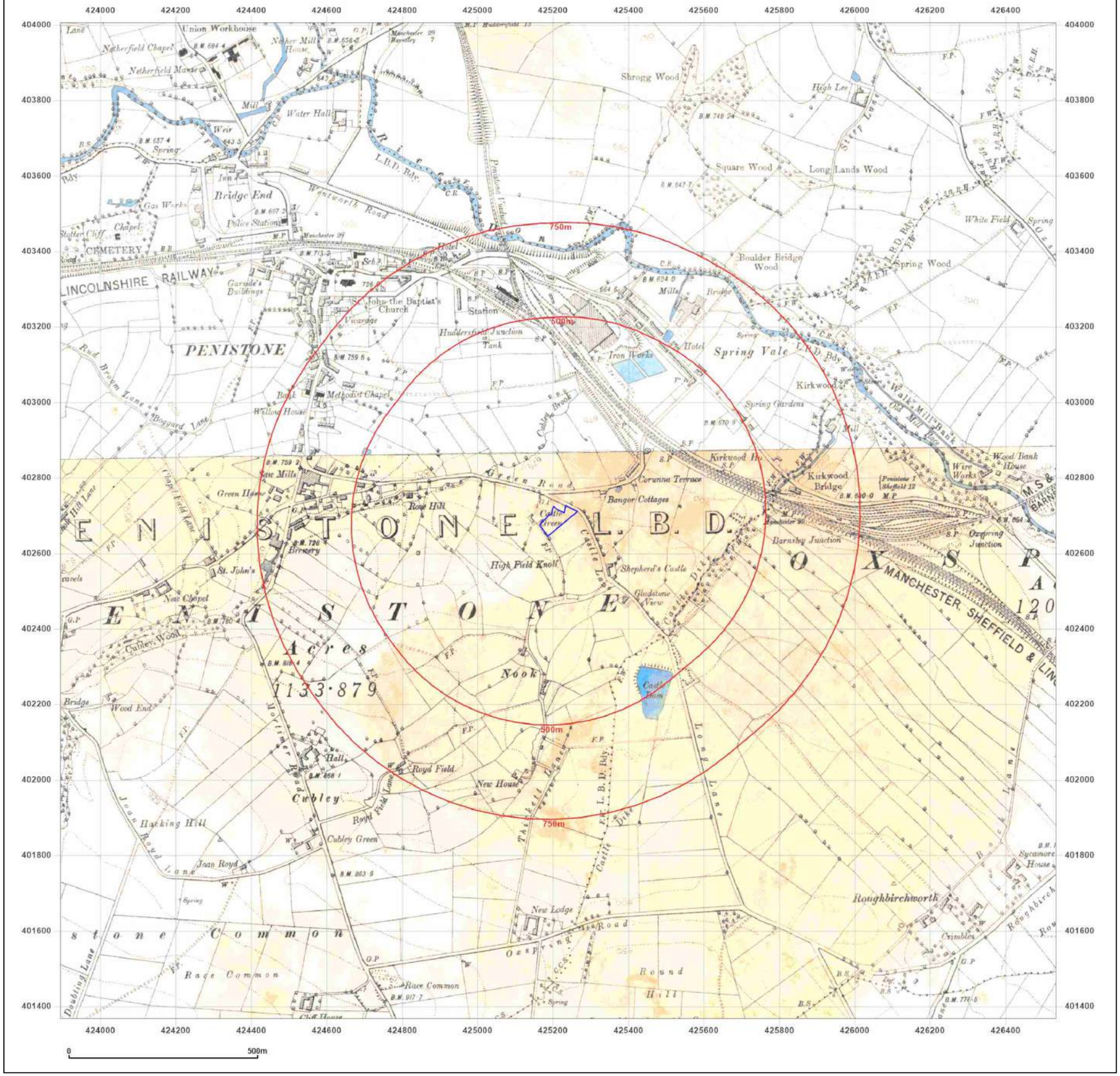

EMAPSITE™

Site Details:

unspecified

Client Ref: EMS_1039143_1299088
Report Ref: EMS-1039143_1311449
Grid Ref: 425213, 402686

Map Name: County Series

Map date: **1891**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

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

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

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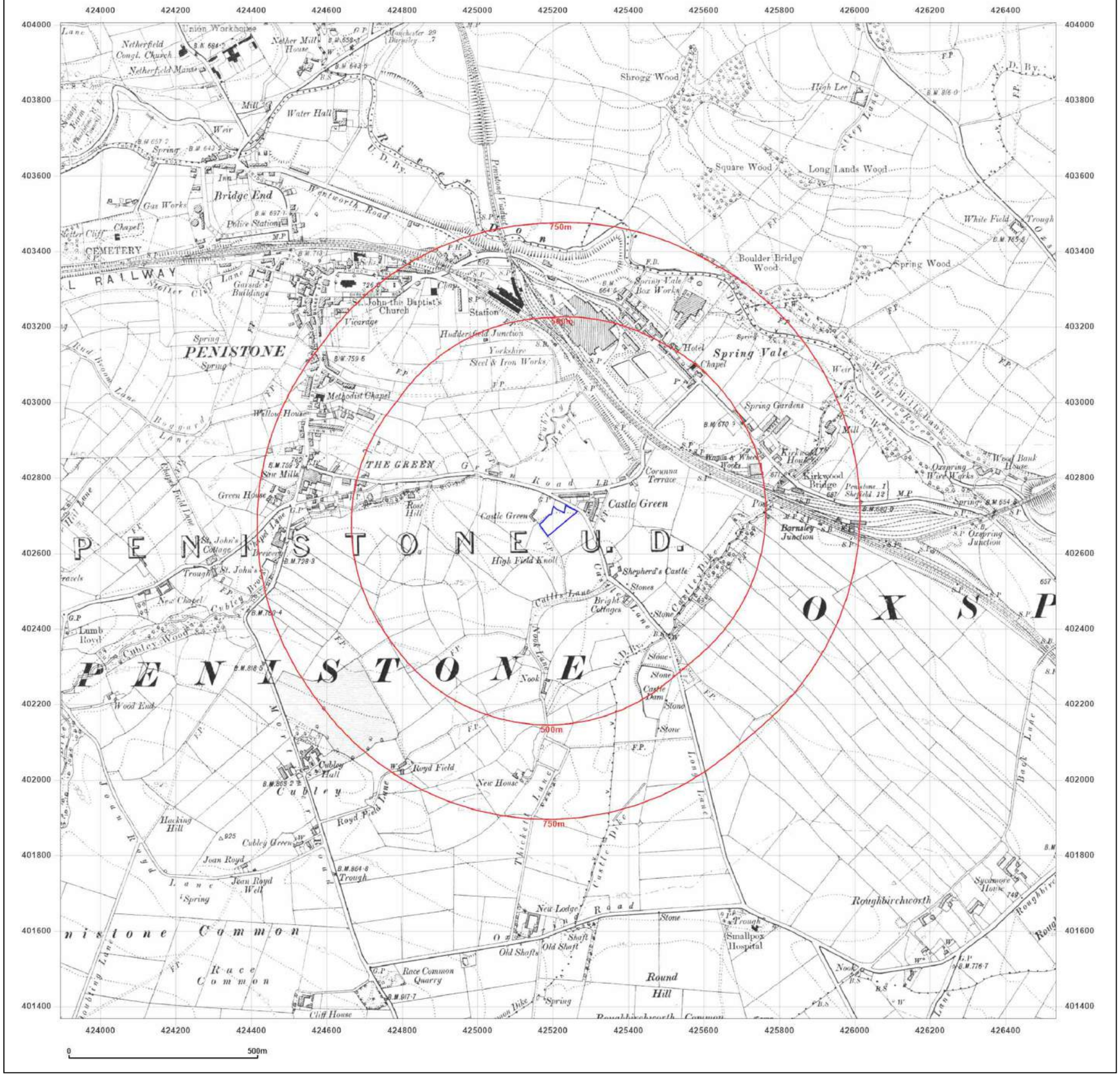

EMAPSITE™

Site Details:

unspecified

Client Ref: EMS_1039143_1299088
Report Ref: EMS-1039143_1311449
Grid Ref: 425213, 402686

Map Name: County Series

Map date: **1903-1904**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

Surveyed 1892
Revised 1903
Edition N/A
Copyright N/A
Levelled N/A

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

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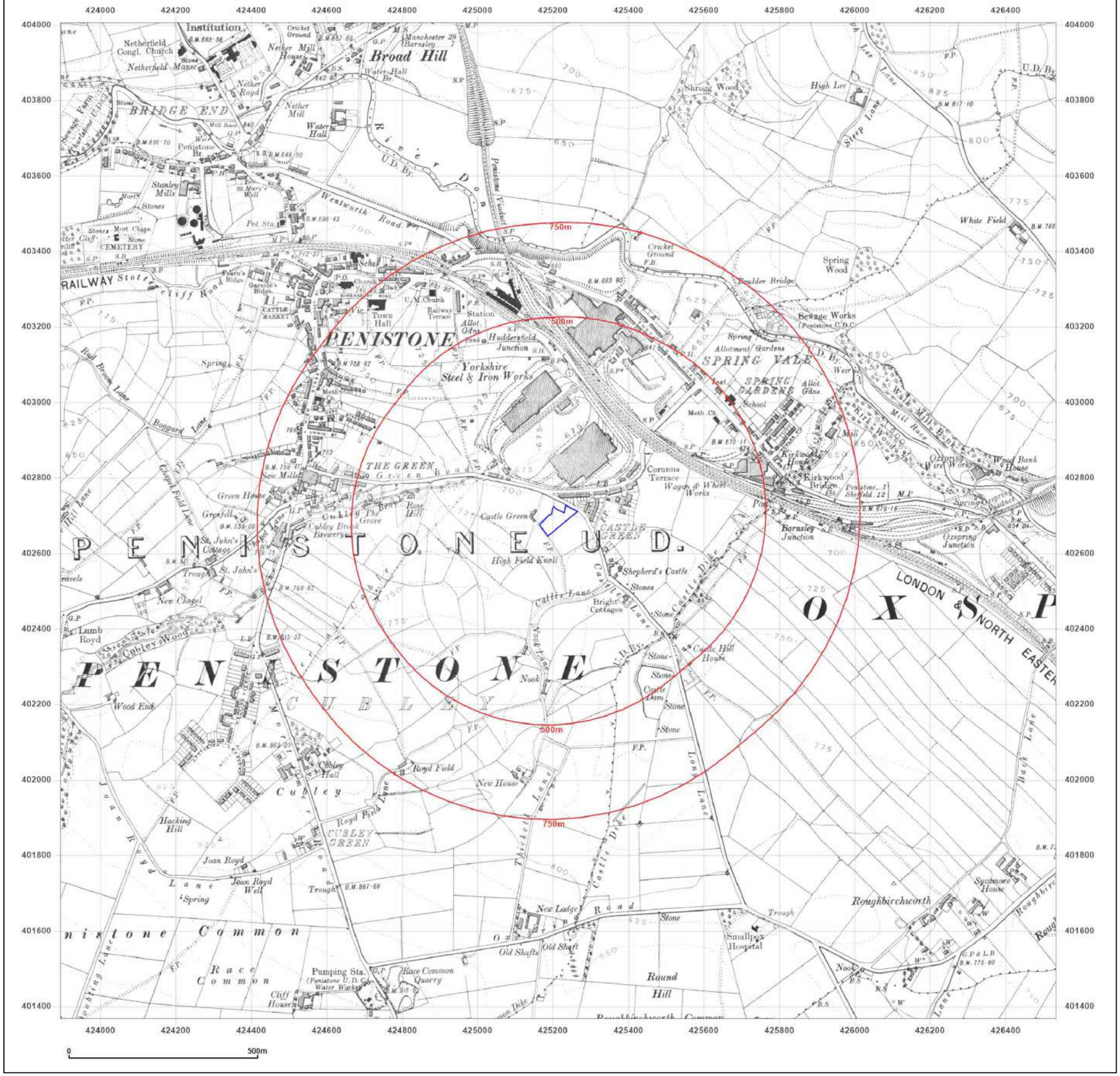

EMAPSITE™

Site Details:

unspecified

Client Ref: EMS_1039143_1299088
Report Ref: EMS-1039143_1311449
Grid Ref: 425213, 402686

Map Name: County Series

Map date: **1929**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

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

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

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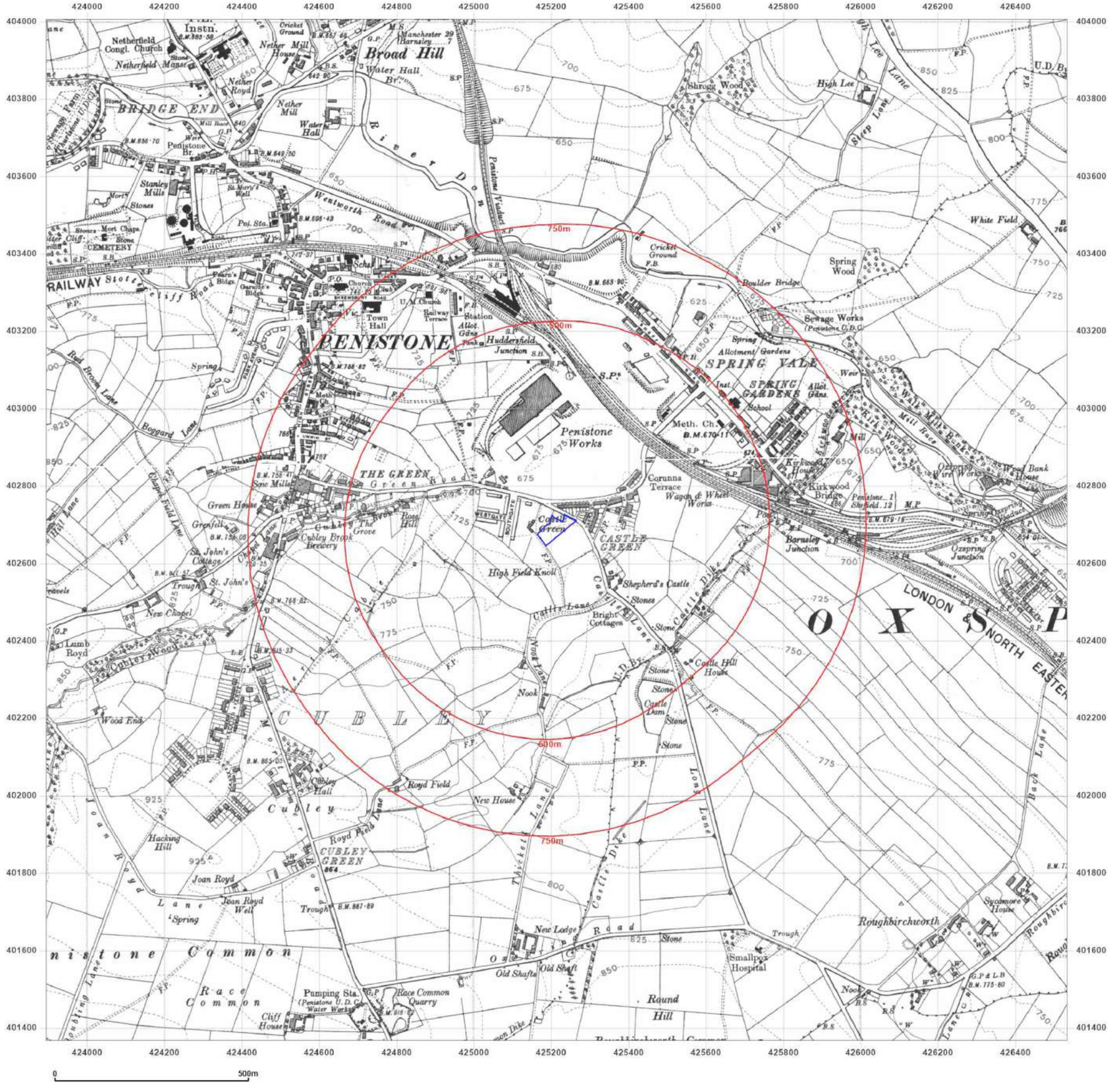


EMAPSITE™

Site Details:

unspecified

Client Ref: EMS_1039143_1299088
Report Ref: EMS-1039143_1311449
Grid Ref: 425213, 402686

Map Name: County Series

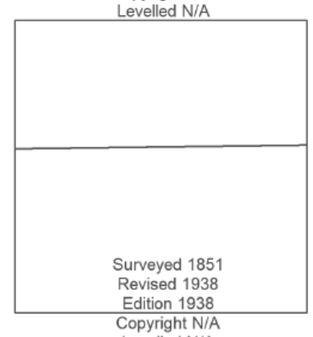
Map date: **1938**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

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



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

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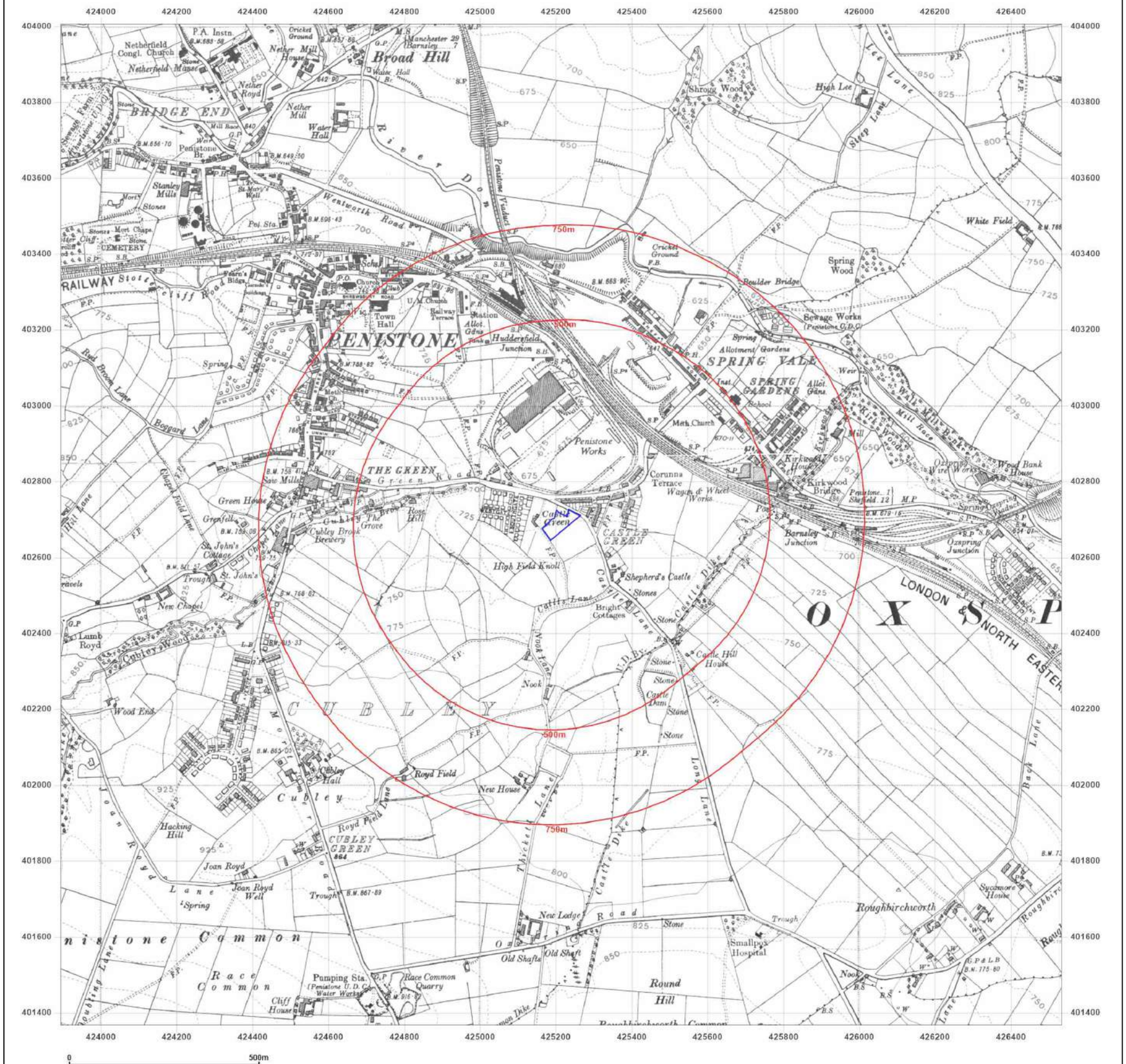

EMAPSITE™

Site Details:

unspecified

Client Ref: EMS_1039143_1299088
Report Ref: EMS-1039143_1311449
Grid Ref: 425213, 402686

Map Name: County Series

Map date: **1948**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

Surveyed 1851
Revised 1948
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1851
Revised 1948
Edition N/A
Copyright N/A
Levelled N/A

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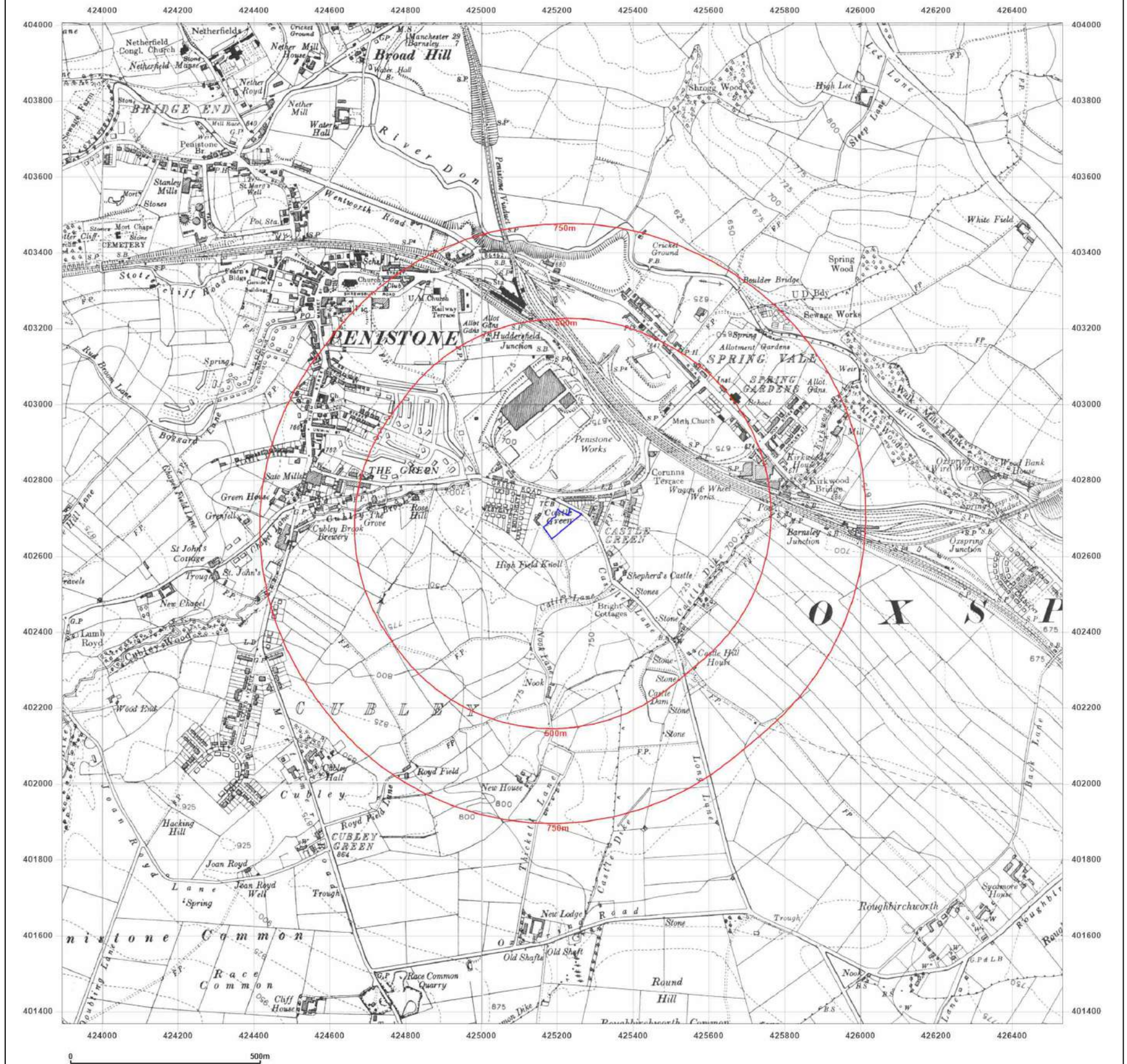

EMAPSITE™

Site Details:

unspecified

Client Ref: EMS_1039143_1299088
Report Ref: EMS-1039143_1311449
Grid Ref: 425213, 402686

Map Name: Provisional

Map date: **1951**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

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

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

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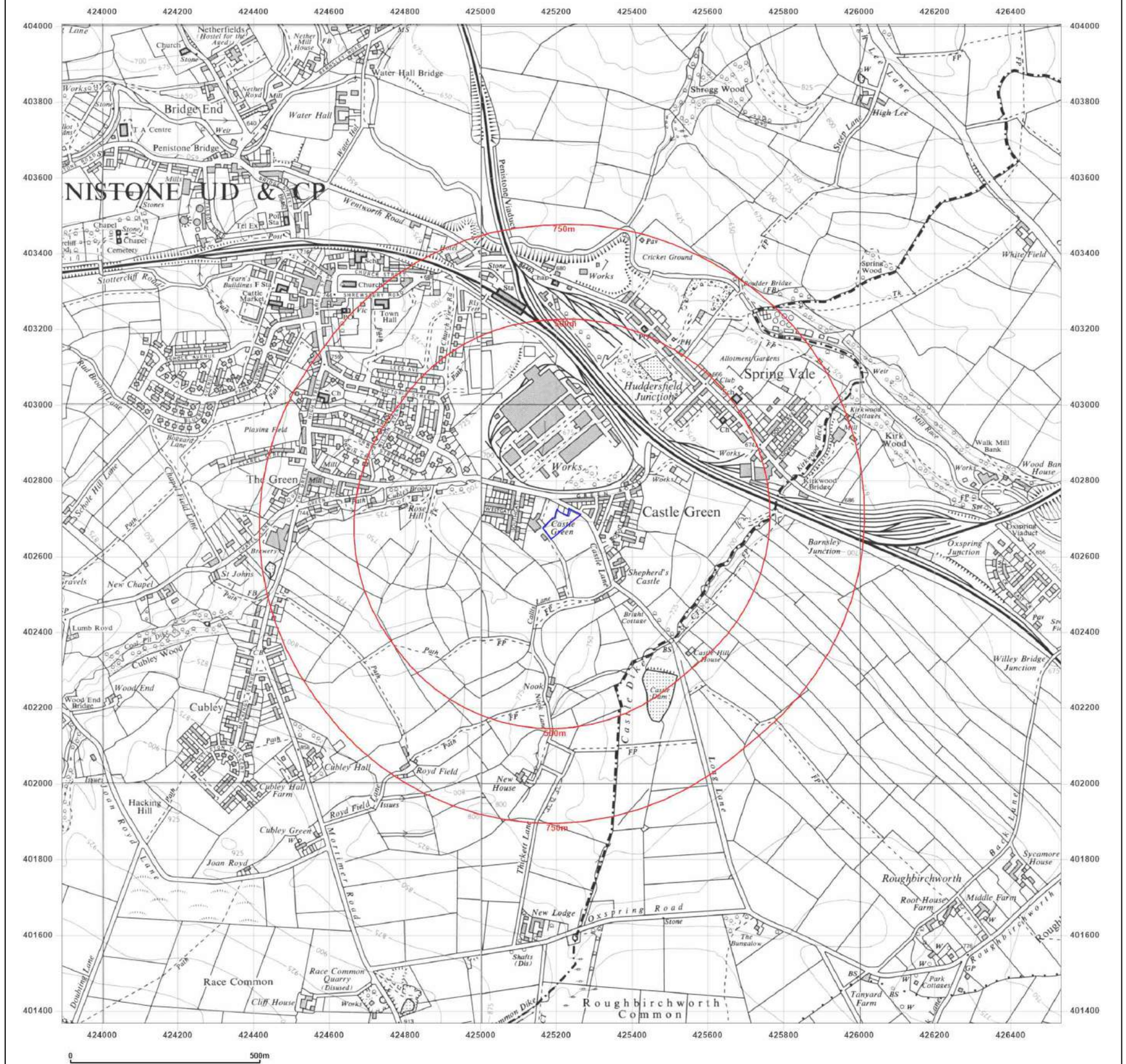

EMAPSITE™

Site Details:

unspecified

Client Ref:	EMS_1039143_1299088
Report Ref:	EMS-1039143_1311449
Grid Ref:	425213, 402686

Map Name:	Provisional
Map date:	**1965-1967**
Scale:	1:10,560
Printed at:	1:10,560

N
W E
S

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

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

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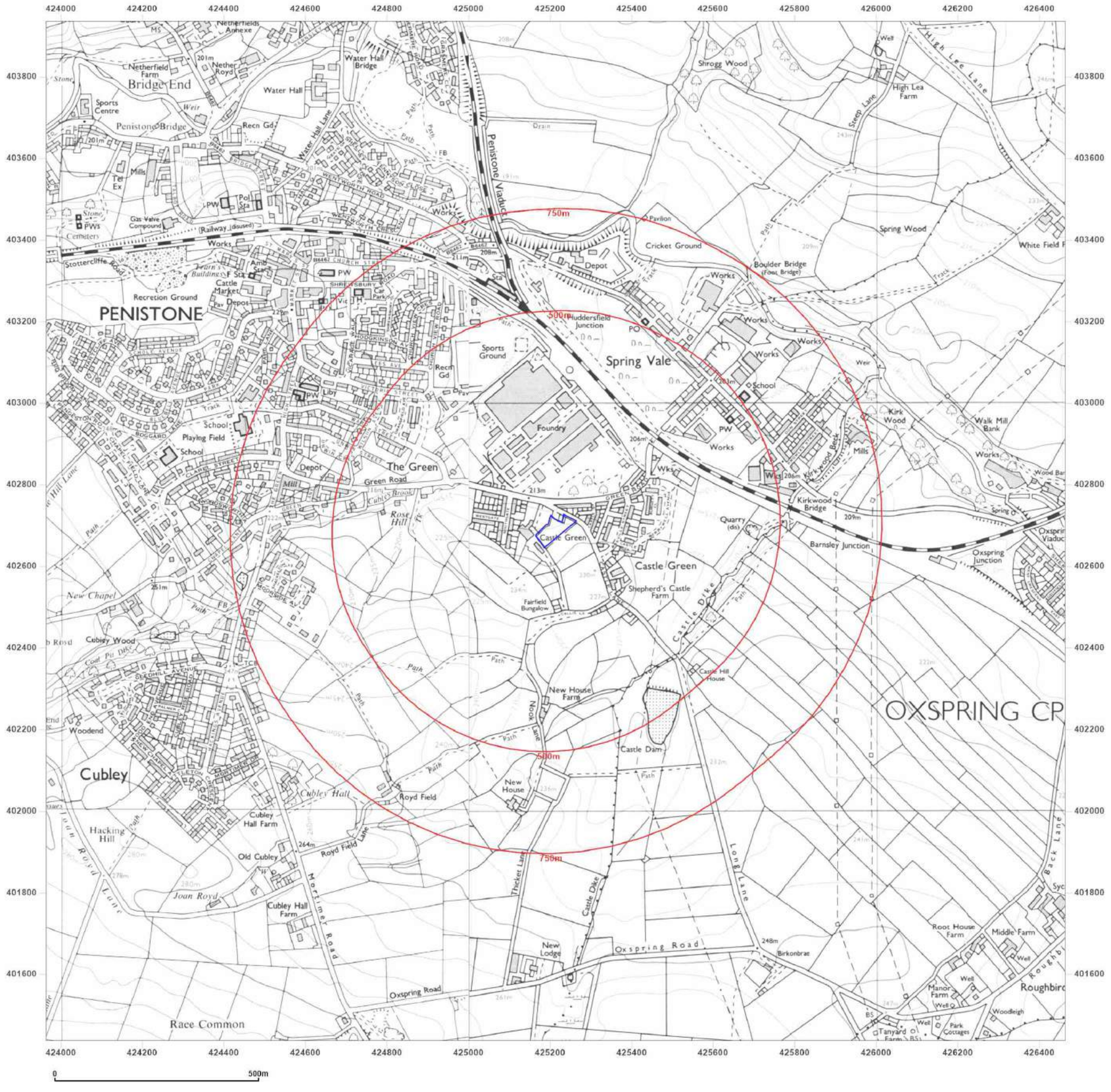

EMAPSITE™

Site Details:

unspecified

Client Ref: EMS_1039143_1299088
Report Ref: EMS-1039143_1311449
Grid Ref: 425213, 402686

Map Name: National Grid

Map date: **1987**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
S

Surveyed 1984
Revised 1987
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1984
Revised 1987
Edition N/A
Copyright N/A
Levelled N/A

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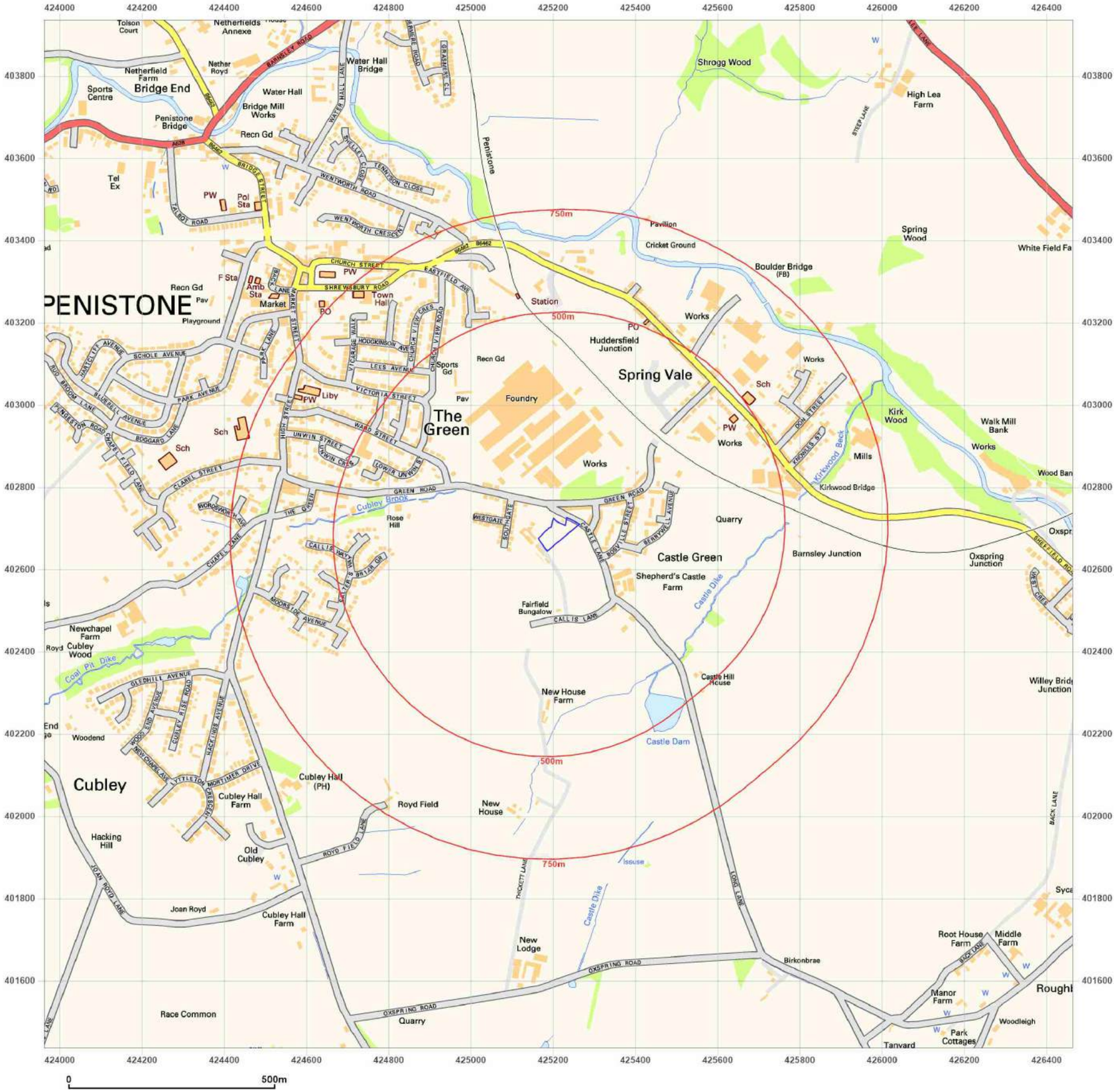

EMAPSITE™

Site Details:

unspecified

Client Ref: EMS_1039143_1299088
Report Ref: EMS-1039143_1311449
Grid Ref: 425213, 402686

Map Name: National Grid
Map date: 2001
Scale: 1:10,000
Printed at: 1:10,000

N
W E
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2001

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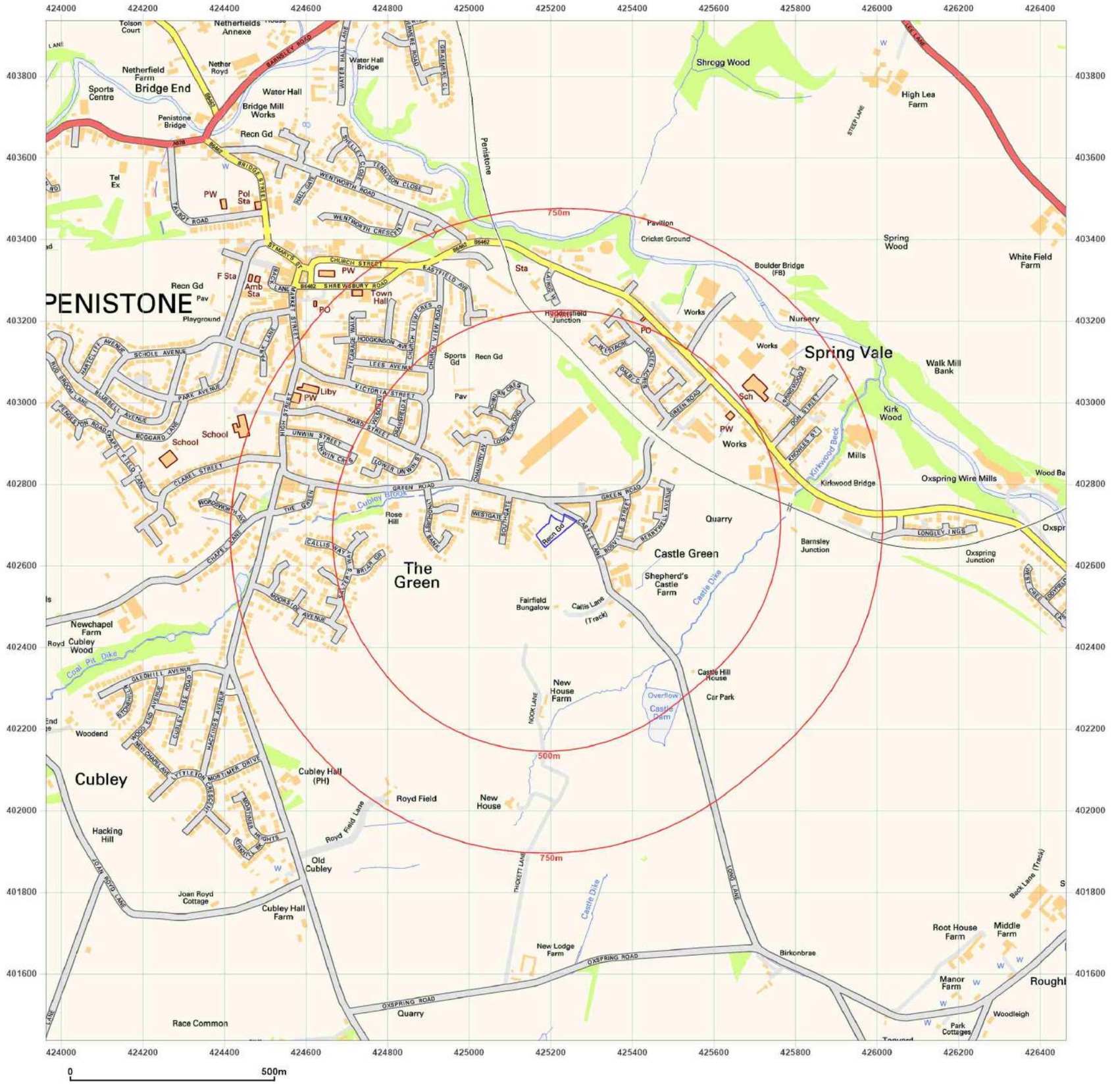

EMAPSITE™

Site Details:

unspecified

Client Ref: EMS_1039143_1299088
Report Ref: EMS-1039143_1311449
Grid Ref: 425213, 402686

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

N
W E
S

2010

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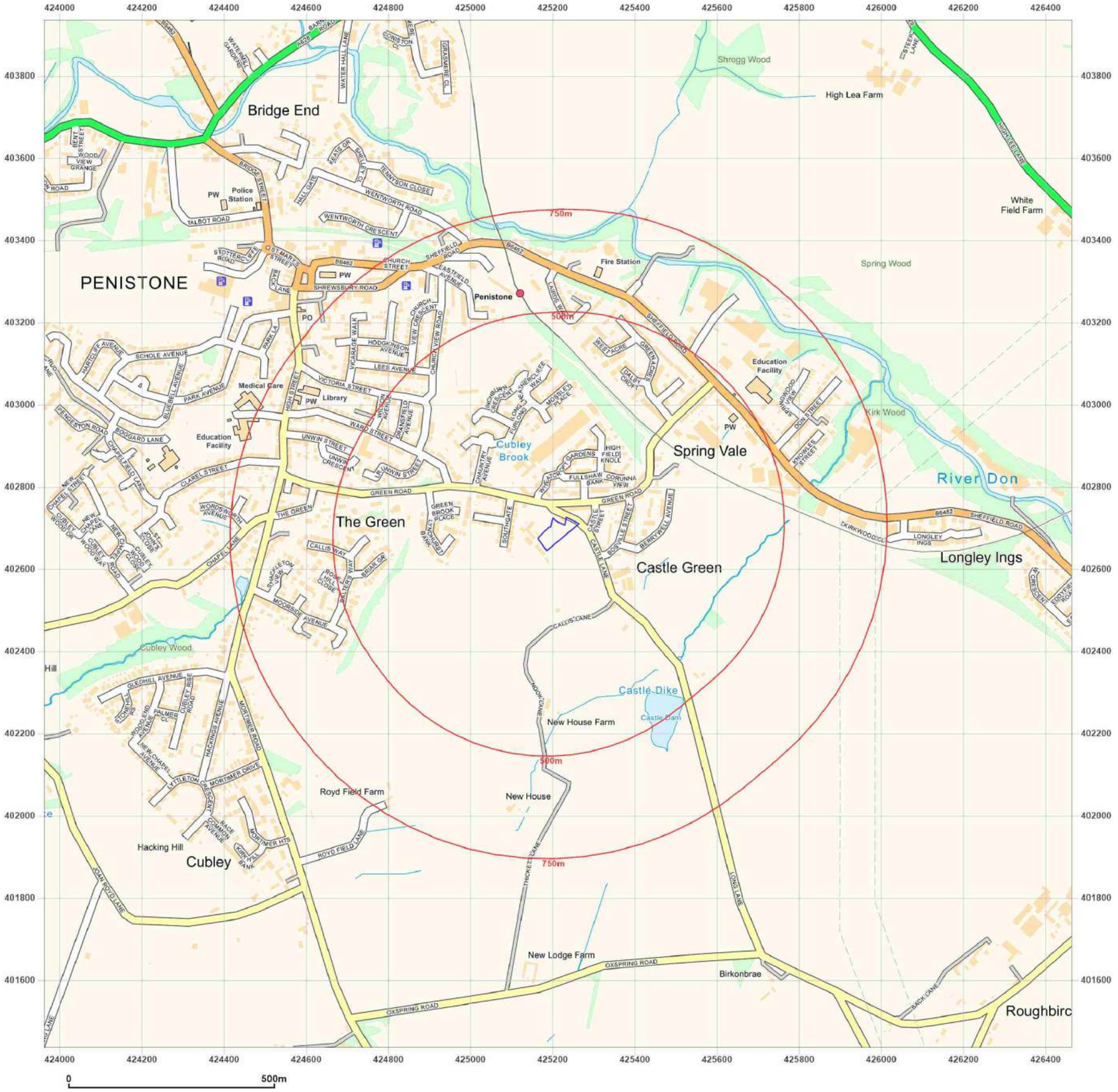

EMAPSITE™

Site Details:

unspecified

Client Ref: EMS_1039143_1299088
Report Ref: EMS-1039143_1311449
Grid Ref: 425213, 402686

Map Name: National Grid

Map date: **2025**

Scale: 1:10,000

Printed at: 1:10,000

N
W E
S

2025

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Dice Environmental

APPENDIX D


2002


2003


2009


2015


2016


2017


2018


2019


2021


2022


2025

Dice Environmental

APPENDIX E

Dice Environmental

Window Sample Borehole

Project Name: Castle Lane, Barnsley	Client: Halsall Lloyd Partnership	Date: 11/08/2025
Location: Penistone, Sheffield, S36 6AH	Contractor:	Co-ords: E425175.00 N402673.00
Project No. : 101722	Crew Name: Regional Drilling	Drilling Equipment: Window Sampler

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS01	WS	221.00m AoD	AD	1:10	Sheet 1 of 1

Well	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth (m)	Type	Results				
	0.20	ES		0.25	220.75		MADE GROUND: Brown sandy gravelly TOPSOIL with rootlets. Gravel is fine to coarse angular to subrounded mixed lithologies and ceramic tile.
							Dense orangish brown slightly clayey gravelly SAND. Gravel is fine to coarse angular to subrounded sandstone.
	0.80	D		0.60	220.40		Very stiff orangish brown mottled grey silty sandy CLAY with occasional lithorelics of friable sandstone and mudstone.
	1.00	SPT	N=50 (6,11/50 for 290mm)	1.00	220.00		End of Borehole at 1.00m

1

2

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

1. Beyond made ground, no significant visual or olfactory evidence of contamination was encountered.
2. No groundwater encountered.
3. Borehole backfilled with arisings upon completion.

AGS

Dice Environmental

Window Sample Borehole

Project Name: Castle Lane, Barnsley	Client: Halsall Lloyd Partnership	Date: 11/08/2025
Location: Penistone, Sheffield, S36 6AH	Contractor:	Co-ords: E425205.00 N402682.00
Project No. : 101722	Crew Name: Regional Drilling	Drilling Equipment: Window Sampler

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS02	WS	222.00m AoD	AD	1:10	Sheet 1 of 1

Well	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth (m)	Type	Results				
				0.20	221.80		MADE GROUND: Brown sandy slightly gravelly TOPSOIL with rootlets. Gravel is fine to coarse angular to subrounded mixed lithologies.
	0.50	ES					Yellowish brown slightly clayey slightly gravelly SAND. Gravel is fine to coarse angular to subrounded sandstone.
				0.65	221.35		Stiff orangish brown mottled grey silty sandy gravelly CLAY. Gravel is fine to coarse angular to subrounded sandstone and mudstone.
	0.75	D					
				0.80	221.20		Very weak orangish brown mottled grey MUDSTONE recovered as very stiff orangish brown mottled grey gravelly CLAY with mudstone lithorelics.
	1.00	SPT	50 (11,14/50 for 210mm)	1.00	221.00		End of Borehole at 1.00m

1

2

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

1. Beyond made ground, no significant visual or olfactory evidence of contamination was encountered.
2. No groundwater encountered.
3. Borehole backfilled with arisings upon completion.

AGS

Dice Environmental

Window Sample Borehole

Project Name: Castle Lane, Barnsley	Client: Halsall Lloyd Partnership	Date: 11/08/2025
Location: Penistone, Sheffield, S36 6AH	Contractor:	Co-ords: E425206.00 N402703.00
Project No. : 101722	Crew Name: Regional Drilling	Drilling Equipment: Window Sampler

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS03	WS	219.00m AoD	AD	1:15	Sheet 1 of 1

Well	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
	Depth (m)	Type	Results					
	0.15	ES		0.20	218.80		MADE GROUND: Brown sandy gravelly TOPSOIL with rootlets. Gravel is fine to coarse angular to subrounded mixed lithologies.	
				0.50	218.50		Medium dense to dense orangish brown slightly clayey gravelly SAND. Gravel is fine to coarse angular to subrounded sandstone.	
				0.70	218.30		Firm to stiff orangish brown mottled grey silty sandy gravelly CLAY. Gravel is fine to coarse angular to subrounded sandstone and mudstone.	
	1.00	SPT	N=30 (3,4/8,7,7,8)				Firm to stiff orangish brown mottled grey slightly silty slightly sandy CLAY with lithorelics of mudstone and occasional fragments of coal.	1
	1.50	D						
	1.80	D		1.70	217.30		Very weak brownish grey MUDSTONE recovered as very stiff slightly silty friable gravelly CLAY with lithorelics of mudstone.	
	2.00	SPT	N=50 (8,10/50 for 295mm)	2.00	217.00		End of Borehole at 2.00m	2
								3

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

1. Beyond made ground, no significant visual or olfactory evidence of contamination was encountered.
2. No groundwater encountered.
3. Borehole backfilled with arisings upon completion.

AGS

Dice Environmental

Window Sample Borehole

Project Name: Castle Lane, Barnsley	Client: Halsall Lloyd Partnership	Date: 11/08/2025
Location: Penistone, Sheffield, S36 6AH	Contractor:	Co-ords: E425237.00 N402704.00
Project No. : 101722	Crew Name: Regional Drilling	Drilling Equipment: Window Sampler

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS04	WS	220.00m AoD	AD	1:25	Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing Depth (m)	Type	Results	Depth (m)	Level (m)	Legend	Stratum Description
		0.30	ES		0.20	219.80		MADE GROUND: Brown sandy gravelly TOPSOIL with rootlets. Gravel is fine to coarse angular to subrounded mixed lithologies and ceramic tile.
					0.50	219.50		Medium dense orangish brown slightly clayey gravelly SAND. Gravel is fine to coarse angular to subrounded sandstone.
		1.00	SPT	N=7 (1,1/1,2,2,2)				Soft to firm grey mottled orangish brown slightly silty CLAY with occasional rootlets and coal fragments.
		1.20	D					
	▼	2.00	D		1.90	218.10		Stiff to very stiff dark grey slightly silty CLAY with frequent mudstone lithorelics.
		2.00	SPT	N=25 (3,4/5,6,7,7)				
		3.00	SPT	N=47 (6,6/9,12,13,13)				
		4.00	SPT	50 (25 for 125mm/50 for 190mm)	4.00	216.00		End of Borehole at 4.00m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

1. Beyond made ground, no significant visual or olfactory evidence of contamination was encountered.
2. Groundwater strike encountered at 2.0mbgl.
3. Borehole backfilled with arisings upon completion.

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Dice Environmental

Window Sample Borehole

Project Name: Castle Lane, Barnsley	Client: Halsall Lloyd Partnership	Date: 11/08/2025
Location: Penistone, Sheffield, S36 6AH	Contractor:	Co-ords: E425246.00 N402721.00
Project No. : 101722	Crew Name: Regional Drilling	Drilling Equipment: Window Sampler

Borehole Number	Hole Type	Level	Logged By	Scale	Page Number
WS05	WS	219.00m AoD	AD	1:20	Sheet 1 of 1

Well	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
	Depth (m)	Type	Results				
	0.10	ES					MADE GROUND: Brown sandy gravelly TOPSOIL with rootlets. Gravel is fine to coarse angular to subrounded mixed lithologies.
				0.40	218.60		Medium dense orangish brown slightly clayey gravelly SAND. Gravel is fine to coarse angular to subrounded sandstone.
				0.60	218.40		Firm grey mottled orangish brown slightly silty slightly gravelly CLAY with occasional rootlets. Gravel is fine to coarse angular to subrounded mudstone and rare coal fragments.
	1.00	D					
	1.00	SPT	N=16 (1,2/3,4,4,5)				
				1.30	217.70		Firm to stiff dark grey mottled orangish brown friable gravelly CLAY. Gravel is fine to coarse angular to subrounded mudstone.
	2.00	SPT	N=35 (7,8/9,8,9,9)				
				2.10	216.90		Stiff to very stiff dark grey occasionally brown gravelly CLAY with frequent mudstone lithorelics.
				2.60	216.40		Very weak dark grey MUDSTONE recovered as very dense slightly silty clayey sandy GRAVEL.
	3.00	SPT	50 (10,12/50 for 190mm)	3.00	216.00		End of Borehole at 3.00m

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks

1. Beyond made ground, no significant visual or olfactory evidence of contamination was encountered.
2. No groundwater encountered.
3. Borehole backfilled with arisings upon completion.

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Dice Environmental

Trial Pit Log

Project Name: Castle Lane, Barnsley	Client: Halsall Lloyd Partnership	Date: 12/08/2025
Location: Penistone, Sheffield, S36 6AH	Contractor:	Co-ords: E425194.00 N402692.00
Project No. : 101722	Crew Name: Maddocks Geotechnical Support	Equipment: 3ton Excavator

Location Number	Location Type	Level	Logged By	Scale	Page Number
TP01	TP	220.00m AoD	AD	1:10	Sheet 1 of 1

Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
Depth (m)	Type	Results				
						MADE GROUND: Brown sandy gravelly TOPSOIL with rootlets. Gravel is fine to coarse angular to subrounded mixed lithologies and ceramic tile.
			0.25	219.75		Medum dense orangish brown slightly clayey gravelly SAND. Gravel is fine to coarse angular to subrounded sandstone.
0.40	ES					
			0.50	219.50		Stiff orangish brown mottled grey slightly silty slightly sandy slightly gravelly CLAY. Gravel is fine to coarse angular to subrounded mudstone.
			1.50	218.50		End of Borehole at 1.50m

0.5
1.0
1.5
2.0

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks

Remarks

1. Beyond made ground, no significant visual or olfactory evidence of contamination was encountered.
2. No groundwater encountered.
3. Pit backfilled with arisings upon completion.

AGS

Dice Environmental

Trial Pit Log

Project Name: Castle Lane, Barnsley	Client: Halsall Lloyd Partnership	Date: 12/08/2025
Location: Penistone, Sheffield, S36 6AH	Contractor:	Co-ords: E425225.00 N402699.00
Project No. : 101722	Crew Name: Maddocks Geotechnical Support	Equipment: 3ton Excavator

Location Number	Location Type	Level	Logged By	Scale	Page Number
TP02	TP	221.00m AoD	AD	1:10	Sheet 1 of 1

Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
Depth (m)	Type	Results				
0.25	ES		0.30	220.70		MADE GROUND: Brown sandy gravelly TOPSOIL with rootlets. Gravel is fine to coarse angular to subrounded mixed lithologies and ceramic tile.
			0.60	220.40		Medium dense yellowish brown slightly clayey slightly gravelly SAND. Gravel is fine to coarse angular to subrounded mixed lithologies.
1.15	D		1.10	219.90		Very weak brown and grey SANDSTONE recovered as very dense sandy cobbly GRAVEL.
			1.30	219.70		Very weak grey MUDSTONE recovered as a very dense clayey slightly sandy cobbly GRAVEL with occasional coal staining.
						End of Borehole at 1.30m

0.5
1.0
1.5
2.0

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks

Remarks

1. Beyond made ground, no significant visual or olfactory evidence of contamination was encountered.
2. No groundwater encountered.
3. Pit backfilled with arisings upon completion.

AGS

Dice Environmental

Trial Pit Log

Project Name: Castle Lane, Barnsley	Client: Halsall Lloyd Partnership	Date: 12/08/2025
Location: Penistone, Sheffield, S36 6AH	Contractor:	Co-ords: E425195.00 N402668.00
Project No. : 101722	Crew Name: Maddocks Geotechnical Support	Equipment: 3ton Excavator

Location Number	Location Type	Level	Logged By	Scale	Page Number
SA01	TP	222.00m AoD	AD	1:10	Sheet 1 of 1

Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
Depth (m)	Type	Results				
			0.25	221.75		MADE GROUND: Brown sandy gravelly TOPSOIL with rootlets. Gravel is fine to coarse angular to subrounded mixed lithologies.
0.40	ES					Stiff to very stiff orangish brown mottled grey silty sandy CLAY with occasional lithorelics of friable sandstone and mudstone.
			0.50	221.50		Stiff to very stiff orangish brown mottled grey silty sandy CLAY with occasional lithorelics of friable sandstone and mudstone.
			1.40	220.60		End of Borehole at 1.40m

0.5
1.0
1.5
2.0

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
1.90	0.50						

Remarks

1. Beyond made ground, no significant visual or olfactory evidence of contamination was encountered.
2. No groundwater encountered.
3. Pit backfilled with arisings upon completion of soakaway testing.

AGS

Dice Environmental

Trial Pit Log

Project Name: Castle Lane, Barnsley	Client: Halsall Lloyd Partnership	Date: 12/08/2025
Location: Penistone, Sheffield, S36 6AH	Contractor:	Co-ords: E425204.00 N402724.00
Project No. : 101722	Crew Name: Maddocks Geotechnical Support	Equipment: 3ton Excavator

Location Number	Location Type	Level	Logged By	Scale	Page Number
SA02	TP	218.00m AoD	AD	1:10	Sheet 1 of 1

Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description
Depth (m)	Type	Results				
0.10	ES					MADE GROUND: Brown sandy gravelly TOPSOIL with rootlets. Gravel is fine to coarse brick, metal and plastic.
0.15	ES					
			0.25	217.75		Firm orangish brown mottled grey slightly sandy slightly silty slightly gravelly CLAY. Gravel is fine to coarse angular to subrounded mudstone.
			1.00	217.00		Stiff to very stiff dark grey slightly silty very gravelly CLAY with occasional coal fragments and rootlets. Gravel is angular to subrounded mudstone with frequent mudstone lithorelics
			1.40	216.60		Very weak dark grey MUDSTONE recovered as very dense clayey GRAVEL.
			1.60	216.40		End of Borehole at 1.60m

0.5
1.0
1.5
2.0

Dimensions		Trench Support and Comment			Pumping Data		
Pit Length	Pit Width	Pit Stability	Shoring Used	Remarks	Date	Rate	Remarks
1.90	0.60						

Remarks

1. Beyond made ground, no significant visual or olfactory evidence of contamination was encountered.
2. No groundwater encountered.
3. Pit backfilled with arisings upon completion of soakaway testing.

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Dice Environmental

APPENDIX F

Dice Environmental Ltd
9-13 Holbrook Lane
CV6 4AD

t: 7522421017

e: abbie.davies@diceenvironmental.co.uk

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

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 25-043099

Project / Site name:	Castle Lane, Barnsley	**Samples received on:**	13/08/2025
Your job number:	101722	**Samples instructed on/ Analysis started on:**	13/08/2025
Your order number:		**Analysis completed by:**	22/08/2025
Report Issue Number:	1	**Report issued on:**	28/08/2025
Samples Analysed:	10 soil samples		

Signed:

Anna Goc
PL Head of Reporting Team
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
air	- once the analysis is complete

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Retention period for records and reports is minimum 6 years from the date of issue of the final report.
Some records may be kept for longer according to other legal/best practice requirements.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 25-043099
Project / Site name: Castle Lane, Barnsley

Lab Sample Number				646584	646585	646586	646587	646588
Sample Reference				WS01 ES+O	WS02 ES	WS02 D(PI)	WS03 ES+O	WS03 D
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix				N/A	N/A	N/A	N/A	N/A
Depth (m)				0.20	0.50	0.75	0.15	1.80
Date Sampled				11/08/2025	11/08/2025	11/08/2025	11/08/2025	11/08/2025
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	12	9.1	10	10	9
Total mass of sample received	kg	0.1	NONE	0.6	0.6	0.5	0.7	0.5
Asbestos								
Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	-	Not-detected	-
Asbestos Analyst ID	N/A	N/A	N/A	KMC	KMC	-	WEM	-
Analysis completed	N/A	N/A	N/A	21/08/2025	21/08/2025	-	21/08/2025	-
General Inorganics								
pH (L099)	pH Units	N/A	MCERTS	7.1	6.4	6.5	7.3	7.2
Total Sulphate as SO_4	mg/kg	50	MCERTS	1100	380	-	610	-
Total Sulphate as SO_4	%	0.005	MCERTS	-	-	0.012	-	0.014
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	35	16	13	21	36
Water Soluble SO_4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	-	-	6.67	-	17.8
Water Soluble SO_4 16hr extraction (2:1)	mg/l	1.25	MCERTS	17.6	7.86	-	10.4	-
Total Sulphur	mg/kg	50	MCERTS	-	-	62	-	65
Total Sulphur	%	0.005	MCERTS	-	-	0.006	-	0.006
Organic Matter (automated)	%	0.1	MCERTS	6.9	1.5	-	3.6	-
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	4	0.9	-	2.1	-
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	0.08	-
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	-
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	-
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	-
Phenanthrene	mg/kg	0.05	MCERTS	0.35	< 0.05	-	0.11	-
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	< 0.05	-
Fluoranthene	mg/kg	0.05	MCERTS	0.92	< 0.05	-	0.2	-
Pyrene	mg/kg	0.05	MCERTS	0.87	< 0.05	-	0.18	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.46	< 0.05	-	0.08	-
Chrysene	mg/kg	0.05	MCERTS	0.52	< 0.05	-	0.11	-
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.76	< 0.05	-	0.13	-
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.43	< 0.05	-	< 0.05	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.68	< 0.05	-	0.1	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.45	< 0.05	-	0.06	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	0.09	< 0.05	-	< 0.05	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.49	< 0.05	-	0.07	-
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	6.02	< 0.80	-	1.1	-

Analytical Report Number: 25-043099
Project / Site name: Castle Lane, Barnsley

Lab Sample Number				646584	646585	646586	646587	646588
Sample Reference				WS01 ES+O	WS02 ES	WS02 D(PI)	WS03 ES+O	WS03 D
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix				N/A	N/A	N/A	N/A	N/A
Depth (m)				0.20	0.50	0.75	0.15	1.80
Date Sampled				11/08/2025	11/08/2025	11/08/2025	11/08/2025	11/08/2025
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**					
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	18	6.8	-	13	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	-	< 0.2	-
Chromium (hexavalent)	mg/kg	1.8	MCERTS	U/S *U/S g	< 1.8	-	U/S *U/S g	-
Chromium (VI) by IC	mg/kg	1.8	NONE	< 1.80	-	-	< 1.80	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	26	26	-	24	-
Copper (aqua regia extractable)	mg/kg	1	MCERTS	36	22	-	26	-
Lead (aqua regia extractable)	mg/kg	1	MCERTS	60	23	-	51	-
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	-	< 0.3	-
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	17	29	-	18	-
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	-	< 1.0	-
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	35	27	-	29	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	120	97	-	82	-
Petroleum Hydrocarbons								
TPHCWG - Aliphatic >EC5 - EC6 $_{HS\_1D\_AL}$	mg/kg	0.01	MCERTS	< 0.010	-	-	< 0.010	-
TPHCWG - Aliphatic >EC6 - EC8 $_{HS\_1D\_AL}$	mg/kg	0.01	MCERTS	< 0.010	-	-	< 0.010	-
TPHCWG - Aliphatic >EC8 - EC10 $_{HS\_1D\_AL}$	mg/kg	0.01	MCERTS	< 0.010	-	-	< 0.010	-
TPHCWG - Aliphatic >EC10 - EC12 $_{EH\_CU\_1D\_AL}$	mg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
TPHCWG - Aliphatic >EC12 - EC16 $_{EH\_CU\_1D\_AL}$	mg/kg	2	MCERTS	< 2.0	-	-	< 2.0	-
TPHCWG - Aliphatic >EC16 - EC21 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	< 8.0	-	-	< 8.0	-
TPHCWG - Aliphatic >EC21 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	< 8.0	-	-	< 8.0	-
TPHCWG - Aliphatic >EC35 - EC44 $_{EH\_CU\_1D\_AL}$	mg/kg	8.4	NONE	< 8.4	-	-	< 8.4	-
TPHCWG - Aliphatic >EC5 - EC35 $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	< 10	-	-	< 10	-
TPHCWG - Aliphatic >EC5 - EC44 $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	< 10	-	-	< 10	-
TPHCWG - Aromatic >EC5 - EC7 $_{HS\_1D\_AR}$	mg/kg	0.01	MCERTS	< 0.010	-	-	< 0.010	-
TPHCWG - Aromatic >EC7 - EC8 $_{HS\_1D\_AR}$	mg/kg	0.01	MCERTS	< 0.010	-	-	< 0.010	-
TPHCWG - Aromatic >EC8 - EC10 $_{HS\_1D\_AR}$	mg/kg	0.02	MCERTS	< 0.020	-	-	< 0.020	-
TPHCWG - Aromatic >EC10 - EC12 $_{EH\_CU\_1D\_AR}$	mg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
TPHCWG - Aromatic >EC12 - EC16 $_{EH\_CU\_1D\_AR}$	mg/kg	2	MCERTS	< 2.0	-	-	< 2.0	-
TPHCWG - Aromatic >EC16 - EC21 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	< 10	-	-	< 10	-
TPHCWG - Aromatic >EC21 - EC35 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	13	-	-	< 10	-
TPHCWG - Aromatic >EC35 - EC44 $_{EH\_CU\_1D\_AR}$	mg/kg	8.4	NONE	< 8.4	-	-	< 8.4	-
TPHCWG - Aromatic >EC5 - EC35 $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	13	-	-	< 10	-
TPHCWG - Aromatic >EC5 - EC44 $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	13	-	-	< 10	-
VOCs								
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	MCERTS	< 5.0	-	-	< 5.0	-
Benzene	µg/kg	5	MCERTS	< 5.0	-	-	< 5.0	-
Toluene	µg/kg	5	MCERTS	< 5.0	-	-	< 5.0	-
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	-	-	< 5.0	-
p & m-Xylene	µg/kg	8	MCERTS	< 8.0	-	-	< 8.0	-
o-Xylene	µg/kg	5	MCERTS	< 5.0	-	-	< 5.0	-
PCBs by GC-MS								
PCB Congener 118	mg/kg	0.001	MCERTS	-	-	-	-	-

Analytical Report Number: 25-043099
Project / Site name: Castle Lane, Barnsley

Lab Sample Number				646584	646585	646586	646587	646588
Sample Reference				WS01 ES+O	WS02 ES	WS02 D(PI)	WS03 ES+O	WS03 D
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix				N/A	N/A	N/A	N/A	N/A
Depth (m)				0.20	0.50	0.75	0.15	1.80
Date Sampled				11/08/2025	11/08/2025	11/08/2025	11/08/2025	11/08/2025
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**					
PCBs								
PCB Congener 077	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 081	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 105	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 114	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 118	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 123	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 126	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 156	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 157	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 167	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 169	mg/kg	0.001	NONE	-	-	-	-	-
PCB Congener 189	mg/kg	0.001	NONE	-	-	-	-	-
Total PCBs	mg/kg	0.012	NONE	-	-	-	-	-

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number: 25-043099
Project / Site name: Castle Lane, Barnsley

Lab Sample Number				646589	646590	646591	646592	646593
Sample Reference				WS04 ES+O	WS05 ES+O	SA2 ES+O	TP01 ES+O	TP02 ES+O
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix				N/A	N/A	N/A	N/A	N/A
Depth (m)				0.30	0.10	0.10	0.40	0.25
Date Sampled				11/08/2025	11/08/2025	12/08/2025	12/08/2025	12/08/2025
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	5.7
Moisture Content	%	0.01	NONE	12	13	15	11	9.5
Total mass of sample received	kg	0.1	NONE	0.8	0.6	0.8	0.8	0.7
Asbestos								
Asbestos in Soil Detected/Not Detected	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	WEM	WEM	WEM	WEM	WEM
Analysis completed	N/A	N/A	N/A	21/08/2025	21/08/2025	21/08/2025	21/08/2025	21/08/2025
General Inorganics								
pH (L099)	pH Units	N/A	MCERTS	6.7	5.8	6.6	6.7	7.2
Total Sulphate as SO_4	mg/kg	50	MCERTS	880	920	930	710	740
Total Sulphate as SO_4	%	0.005	MCERTS	-	-	-	-	-
Water Soluble Sulphate as SO_4 16hr extraction (2:1)	mg/kg	2.5	MCERTS	41	45	41	21	35
Water Soluble SO_4 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	-	-	-	-	-
Water Soluble SO_4 16hr extraction (2:1)	mg/l	1.25	MCERTS	20.6	22.5	20.5	10.7	17.3
Total Sulphur	mg/kg	50	MCERTS	-	-	-	-	-
Total Sulphur	%	0.005	MCERTS	-	-	-	-	-
Organic Matter (automated)	%	0.1	MCERTS	4.3	5.9	6.4	3.9	4.3
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	2.5	3.4	3.7	2.3	2.5
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.06	0.08	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	0.06	0.06	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	0.09	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	0.1	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.07	1.7	0.6	0.28	0.13
Anthracene	mg/kg	0.05	MCERTS	< 0.05	0.38	0.14	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.18	4.1	1.5	0.53	0.26
Pyrene	mg/kg	0.05	MCERTS	0.17	3.5	1.3	0.49	0.23
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.09	2	0.73	0.23	0.11
Chrysene	mg/kg	0.05	MCERTS	0.12	1.8	0.78	0.31	0.15
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.17	2.3	0.92	0.37	0.18
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.07	0.91	0.41	0.15	0.08
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.12	1.9	0.77	0.24	0.11
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.09	1	0.44	0.13	0.07
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	0.27	0.1	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.09	1.1	0.45	0.14	0.07
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	1.18	21.2	8.26	2.96	1.4

Analytical Report Number: 25-043099
Project / Site name: Castle Lane, Barnsley

Lab Sample Number				646589	646590	646591	646592	646593
Sample Reference				WS04 ES+O	WS05 ES+O	SA2 ES+O	TP01 ES+O	TP02 ES+O
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix				N/A	N/A	N/A	N/A	N/A
Depth (m)				0.30	0.10	0.10	0.40	0.25
Date Sampled				11/08/2025	11/08/2025	12/08/2025	12/08/2025	12/08/2025
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**					
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	15	20	16	15	13
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.3	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	U/S *U/S g	U/S *U/S g	U/S *U/S g	U/S *U/S g	U/S *U/S g
Chromium (VI) by IC	mg/kg	1.8	NONE	< 1.80	< 1.80	< 1.80	< 1.80	< 1.80
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	31	51	100	27	29
Copper (aqua regia extractable)	mg/kg	1	MCERTS	59	43	69	34	43
Lead (aqua regia extractable)	mg/kg	1	MCERTS	380	100	96	60	55
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	19	23	68	17	20
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	1	1.3
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	34	61	34	36	32
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	430	150	190	89	120
Petroleum Hydrocarbons								
TPHCWG - Aliphatic >EC5 - EC6 $_{HS\_1D\_AL}$	mg/kg	0.01	MCERTS	-	< 0.010	-	-	< 0.010
TPHCWG - Aliphatic >EC6 - EC8 $_{HS\_1D\_AL}$	mg/kg	0.01	MCERTS	-	< 0.010	-	-	< 0.010
TPHCWG - Aliphatic >EC8 - EC10 $_{HS\_1D\_AL}$	mg/kg	0.01	MCERTS	-	< 0.010	-	-	< 0.010
TPHCWG - Aliphatic >EC10 - EC12 $_{EH\_CU\_1D\_AL}$	mg/kg	1	MCERTS	-	< 1.0	-	-	< 1.0
TPHCWG - Aliphatic >EC12 - EC16 $_{EH\_CU\_1D\_AL}$	mg/kg	2	MCERTS	-	< 2.0	-	-	< 2.0
TPHCWG - Aliphatic >EC16 - EC21 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	-	< 8.0	-	-	< 8.0
TPHCWG - Aliphatic >EC21 - EC35 $_{EH\_CU\_1D\_AL}$	mg/kg	8	MCERTS	-	< 8.0	-	-	< 8.0
TPHCWG - Aliphatic >EC35 - EC44 $_{EH\_CU\_1D\_AL}$	mg/kg	8.4	NONE	-	< 8.4	-	-	< 8.4
TPHCWG - Aliphatic >EC5 - EC35 $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	-	< 10	-	-	< 10
TPHCWG - Aliphatic >EC5 - EC44 $_{EH\_CU+HS\_1D\_AL}$	mg/kg	10	NONE	-	< 10	-	-	< 10
TPHCWG - Aromatic >EC5 - EC7 $_{HS\_1D\_AR}$	mg/kg	0.01	MCERTS	-	< 0.010	-	-	< 0.010
TPHCWG - Aromatic >EC7 - EC8 $_{HS\_1D\_AR}$	mg/kg	0.01	MCERTS	-	< 0.010	-	-	< 0.010
TPHCWG - Aromatic >EC8 - EC10 $_{HS\_1D\_AR}$	mg/kg	0.02	MCERTS	-	< 0.020	-	-	< 0.020
TPHCWG - Aromatic >EC10 - EC12 $_{EH\_CU\_1D\_AR}$	mg/kg	1	MCERTS	-	< 1.0	-	-	< 1.0
TPHCWG - Aromatic >EC12 - EC16 $_{EH\_CU\_1D\_AR}$	mg/kg	2	MCERTS	-	< 2.0	-	-	< 2.0
TPHCWG - Aromatic >EC16 - EC21 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	-	< 10	-	-	< 10
TPHCWG - Aromatic >EC21 - EC35 $_{EH\_CU\_1D\_AR}$	mg/kg	10	MCERTS	-	23	-	-	< 10
TPHCWG - Aromatic >EC35 - EC44 $_{EH\_CU\_1D\_AR}$	mg/kg	8.4	NONE	-	< 8.4	-	-	< 8.4
TPHCWG - Aromatic >EC5 - EC35 $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	-	23	-	-	< 10
TPHCWG - Aromatic >EC5 - EC44 $_{EH\_CU+HS\_1D\_AR}$	mg/kg	10	NONE	-	23	-	-	< 10
VOCs								
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	5	MCERTS	-	< 5.0	-	-	< 5.0
Benzene	µg/kg	5	MCERTS	-	< 5.0	-	-	< 5.0
Toluene	µg/kg	5	MCERTS	-	< 5.0	-	-	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	-	< 5.0	-	-	< 5.0
p & m-Xylene	µg/kg	8	MCERTS	-	< 8.0	-	-	< 8.0
o-Xylene	µg/kg	5	MCERTS	-	< 5.0	-	-	< 5.0
PCBs by GC-MS								
PCB Congener 118	mg/kg	0.001	MCERTS	< 0.001	< 0.001	-	-	-

Analytical Report Number: 25-043099
Project / Site name: Castle Lane, Barnsley

Lab Sample Number				646589	646590	646591	646592	646593
Sample Reference				WS04 ES+O	WS05 ES+O	SA2 ES+O	TP01 ES+O	TP02 ES+O
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Water Matrix				N/A	N/A	N/A	N/A	N/A
Depth (m)				0.30	0.10	0.10	0.40	0.25
Date Sampled				11/08/2025	11/08/2025	12/08/2025	12/08/2025	12/08/2025
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**					
PCBs								
PCB Congener 077	mg/kg	0.001	NONE	< 0.001	< 0.001	-	-	-
PCB Congener 081	mg/kg	0.001	NONE	< 0.001	< 0.001	-	-	-
PCB Congener 105	mg/kg	0.001	NONE	< 0.001	< 0.001	-	-	-
PCB Congener 114	mg/kg	0.001	NONE	< 0.001	< 0.001	-	-	-
PCB Congener 118	mg/kg	0.001	NONE	< 0.001	< 0.001	-	-	-
PCB Congener 123	mg/kg	0.001	NONE	< 0.001	< 0.001	-	-	-
PCB Congener 126	mg/kg	0.001	NONE	< 0.001	< 0.001	-	-	-
PCB Congener 156	mg/kg	0.001	NONE	< 0.001	< 0.001	-	-	-
PCB Congener 157	mg/kg	0.001	NONE	< 0.001	< 0.001	-	-	-
PCB Congener 167	mg/kg	0.001	NONE	< 0.001	< 0.001	-	-	-
PCB Congener 169	mg/kg	0.001	NONE	< 0.001	< 0.001	-	-	-
PCB Congener 189	mg/kg	0.001	NONE	< 0.001	< 0.001	-	-	-
Total PCBs	mg/kg	0.012	NONE	< 0.012	< 0.012	-	-	-

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

Analytical Report Number : 25-043099
Project / Site name: Castle Lane, Barnsley

* 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 *
646584	WS01 ES+O	None Supplied	0.2	Brown loam and clay with gravel and vegetation
646585	WS02 ES	None Supplied	0.5	Brown loam and sand with gravel and vegetation
646586	WS02 D(PI)	None Supplied	0.75	Brown clay and sand
646587	WS03 ES+O	None Supplied	0.15	Brown loam and sand with gravel and vegetation
646588	WS03 D	None Supplied	1.8	Brown clay and sand
646589	WS04 ES+O	None Supplied	0.3	Brown loam and clay with gravel and vegetation
646590	WS05 ES+O	None Supplied	0.1	Brown loam and sand with gravel and vegetation
646591	SA2 ES+O	None Supplied	0.1	Brown loam and sand with gravel and vegetation
646592	TP01 ES+O	None Supplied	0.4	Brown loam and sand with gravel and vegetation
646593	TP02 ES+O	None Supplied	0.25	Brown loam and sand with gravel and vegetation

Analytical Report Number : 25-043099
Project / Site name: Castle Lane, Barnsley

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)
Final Sewage Effluent (FSE) Landfill Leachate (LL)

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 dispersion staining techniques	In-house method based on HSG 248, 2021	A001B	D	ISO 17025
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Total organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L009B	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
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.	L019B	D	NONE
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	L038B	D	MCERTS
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES	In-house method	L038B	D	MCERTS
Sulphate, water soluble, in soil (16hr extraction)	Sulphate, water soluble, in soil (16hr extraction)	In-house method	L038B	D	MCERTS
Cr(VI) in soils by Ion chromatography	Determination of hexavalent chromium in alkaline soil extract by use of ion chromatography with spectrophotometric detection	In-house method	L130B	W	NONE
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID in soil	Determination of total petroleum hydrocarbons in soil by GC-FID with carbon banding aliphatic and aromatic	In-house method	L076B	D	MCERTS
Total petroleum hydrocarbons with carbon banding by GC-FID/GC-MS HS in soil (Summed Bands)	Determination of total petroleum hydrocarbons in soil by GC-FID/GC-MS HS with carbon banding aliphatic and aromatic (Summed Bands).	Calculation	L076B/L088-PL	D/W	NONE
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry	In-house method	L080-PL	W	MCERTS
Total petroleum hydrocarbons with carbon banding by HS-GC/MS in soil	Determination of total petroleum hydrocarbons in soil by HS-GC/MS with carbon banding aliphatic and aromatic	In-house method	L088-PL	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement	In-house method	L099-PL	D	MCERTS

Analytical Report Number : 25-043099
Project / Site name: Castle Lane, Barnsley

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)
Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Soil Descriptions	Textural classification	In-house method	L019B	W	NONE
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES	In-house method	L038B	D	MCERTS
PCBs WHO 12 in soil	Determination of PCBs (WHO-12 Congeners) by GC-MS	In-house method based on USEPA 8082	L027B	D	NONE
PCB's By GC-MS in soil	Determination of PCB by extraction with hexane followed by GC-MS	In-house method based on USEPA 8082	L027B	D	MCERTS

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL' or 'B' 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.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Quality control parameter failure associated with individual result applies to calculated sum of individuals.
The result for sum should be interpreted with caution

*U/S g- Unsuitable for analysis due to high colour intensity.

Analytical Report Number : 25-043099
Project / Site name: Castle Lane, Barnsley

This deviation report indicates the sample and test deviations that apply to the samples submitted for analysis.Please note that the associated result(s) may be unreliable and should be interpreted with care.

Key: a - No sampling date b - Incorrect container/Insufficient material provided c - Holding time d - Headspace e - Temperature

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
TP02 ES+O	N/A	S	646593	b	BTEX and/or Volatile organic compounds in soil	L073B	b
WS01 ES+O	N/A	S	646584	b	BTEX and/or Volatile organic compounds in soil	L073B	b
WS03 ES+O	N/A	S	646587	b	BTEX and/or Volatile organic compounds in soil	L073B	b
WS05 ES+O	N/A	S	646590	b	BTEX and/or Volatile organic compounds in soil	L073B	b

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Analytical Report Number : 25-043104

Project / Site name:	Castle Lane, Barnsley	**Samples received on:**	13/08/2025
Your job number:	101722	**Samples instructed on/ Analysis started on:**	13/08/2025
Your order number:		**Analysis completed by:**	22/08/2025
Report Issue Number:	1	**Report issued on:**	22/08/2025
Samples Analysed:	2 soil samples - 2 2stage samples		

Signed:

Rafał Szczepańczyk
Technical Reviewer
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
air	- once the analysis is complete

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Retention period for records and reports is minimum 6 years from the date of issue of the final report.
Some records may be kept for longer according to other legal/best practice requirements.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 25-043104
Project / Site name: Castle Lane, Barnsley

Lab Sample Number				646594	646595
Sample Reference				SA1 ES+O	SA2 ES+O
Sample Number				None Supplied	None Supplied
Water Matrix				N/A	N/A
Depth (m)				0.40	0.15
Date Sampled				12/08/2025	12/08/2025
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**		
Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	12	12
Total mass of sample received	kg	0.1	NONE	1.1	1.1
General Inorganics					
pH (L005B)	pH Units	N/A	MCERTS	6.7	6.4
Total Organic Carbon (TOC) – Manual	%	0.1	MCERTS	0.5	2.3
Loss on Ignition @ 450°C	%	0.2	MCERTS	3.2	6.9
Acid Neutralisation Capacity	+/- mmol/kg	-9999	NONE	-3.7	-1.9
Speciated PAHs					
Naphthalene	mg/kg	0.05	MCERTS	0.09	0.06
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	0.72
Anthracene	mg/kg	0.05	MCERTS	< 0.05	0.18
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	1.7
Pyrene	mg/kg	0.05	MCERTS	< 0.05	1.5
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	0.82
Chrysene	mg/kg	0.05	MCERTS	< 0.05	0.88
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	1
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05	0.48
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	0.76
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	0.37
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	0.11
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	0.4
Coronene	mg/kg	0.05	NONE	< 0.05	< 0.05
Total PAH					
Total WAC-17 PAHs	mg/kg	0.85	NONE	< 0.85	9.08
Petroleum Hydrocarbons					
Mineral Oil (EC10 - EC40) EH_CU_1D_AL	mg/kg	10	NONE	< 10	26
VOCs					
Benzene	µg/kg	5	MCERTS	< 5.0	< 5.0
Toluene	µg/kg	5	MCERTS	< 5.0	< 5.0
Ethylbenzene	µg/kg	5	MCERTS	< 5.0	< 5.0
p & m-Xylene	µg/kg	8	MCERTS	< 8.0	< 8.0
o-Xylene	µg/kg	5	MCERTS	< 5.0	< 5.0
Total BTEX	µg/kg	10	MCERTS	< 10	< 10

Analytical Report Number: 25-043104
Project / Site name: Castle Lane, Barnsley

Lab Sample Number				646594	646595
Sample Reference				SA1 ES+O	SA2 ES+O
Sample Number				None Supplied	None Supplied
Water Matrix				N/A	N/A
Depth (m)				0.40	0.15
Date Sampled				12/08/2025	12/08/2025
Time Taken				None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Test Limit of detection**	**Test Accreditation Status**		
PCBs by GC-MS					
PCB Congener 28	mg/kg	0.001	MCERTS	< 0.001	< 0.001
PCB Congener 52	mg/kg	0.001	MCERTS	< 0.001	< 0.001
PCB Congener 101	mg/kg	0.001	MCERTS	< 0.001	< 0.001
PCB Congener 118	mg/kg	0.001	MCERTS	< 0.001	< 0.001
PCB Congener 138	mg/kg	0.001	MCERTS	< 0.001	< 0.001
PCB Congener 153	mg/kg	0.001	MCERTS	< 0.001	< 0.001
PCB Congener 180	mg/kg	0.001	MCERTS	< 0.001	< 0.001
Total PCBs	mg/kg	0.007	MCERTS	< 0.007	< 0.007

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected

i2 Analytical
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Waste Acceptance Criteria Analytical Results

Report No:	**25-043104**						
					Client:	**DICE ENVIRO**	
Location	**Castle Lane, Barnsley**						
Lab Reference (Sample Number)	646594				**Landfill Waste Acceptance Criteria Limits**		
Sampling Date	12.08.2025				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	SA1 ES+O						
Depth (m)	0.40						
Solid Waste Analysis							
TOC (%)**	0.5				3%	5%	6%
Loss on Ignition (%) **	3.2				--	--	10%
BTEX (µg/kg)**	< 10				6000	--	--
Sum of PCBs (mg/kg)**	< 0.007				1	--	--
Mineral Oil (mg/kg) EH_1D_CU_AL	< 10				500	--	--
Total PAH (WAC-17) (mg/kg)	< 0.85				100	--	--
pH (units)**	6.7				--	>6	--
Acid Neutralisation Capacity (mmol / kg)	-3.7				--	To be evaluated	To be evaluated
Eluate Analysis (BS EN 12457 - 3 preparation utilising end over end leaching procedure)	2:1	8:1		Cumulative 10:1	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)		
	mg/l	mg/l		mg/kg			
Arsenic *	< 0.0020	< 0.0020		< 0.020	0.5	2	25
Barium *	0.0077	0.013		0.12	20	100	300
Cadmium *	< 0.00010	< 0.00010		< 0.0010	0.04	1	5
Chromium *	0.0015	0.0025		0.024	0.5	10	70
Copper *	0.012	0.012		0.12	2	50	100
Mercury *	< 0.00070	< 0.0007		< 0.0070	0.01	0.2	2
Molybdenum *	< 0.0014	< 0.0014		< 0.014	0.5	10	30
Nickel *	< 0.00090	0.0015		0.015	0.4	10	40
Lead *	< 0.0017	< 0.0017		< 0.017	0.5	10	50
Antimony *	< 0.0020	< 0.0020		< 0.020	0.06	0.7	5
Selenium *	< 0.0050	< 0.0050		< 0.050	0.1	0.5	7
Zinc *	0.015	0.0057		0.068	4	50	200
Chloride *	< 4.0	< 4.0		< 15	800	15000	25000
Fluoride*	0.12	0.15		1.4	10	150	500
Sulphate *	13	4.4		54	1000	20000	50000
TDS*	27	17		180	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.16	< 0.13		< 0.50	1	-	-
DOC	9.13	10		101	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	1.1						
Dry Matter (%)	88						
Moisture (%)	12						
Stage 1							
Volume Eluate L2 (litres)	0.325						
Filtered Eluate VE1 (litres)	0.2						

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.
Where colour coding is used on this report, this is for guidance purposes only. This does not constitute a statement of conformity of pass or fail.
Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.

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Waste Acceptance Criteria Analytical Results

Report No:	**25-043104**						
					Client:	**DICE ENVIRO**	
Location	**Castle Lane, Barnsley**						
Lab Reference (Sample Number)	646595				**Landfill Waste Acceptance Criteria Limits**		
Sampling Date	12.08.2025				Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID	SA2 ES+O						
Depth (m)	0.15						
Solid Waste Analysis							
TOC (%)**	2.3				3%	5%	6%
Loss on Ignition (%) **	6.9				--	--	10%
BTEX (µg/kg)**	< 10				6000	--	--
Sum of PCBs (mg/kg)**	< 0.007				1	--	--
Mineral Oil (mg/kg) EH_1D_CU_AL	26				500	--	--
Total PAH (WAC-17) (mg/kg)	9.08				100	--	--
pH (units)**	6.4				--	>6	--
Acid Neutralisation Capacity (mmol / kg)	-1.9				--	To be evaluated	To be evaluated
Eluate Analysis (BS EN 12457 - 3 preparation utilising end over end leaching procedure)	2:1	8:1		Cumulative 10:1	Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg (mg/kg)		
	mg/l	mg/l		mg/kg			
Arsenic *	0.0028	< 0.0020		< 0.020	0.5	2	25
Barium *	0.018	0.014		0.15	20	100	300
Cadmium *	< 0.00010	< 0.00010		< 0.0010	0.04	1	5
Chromium *	0.0052	0.0022		0.025	0.5	10	70
Copper *	0.08	0.014		0.19	2	50	100
Mercury *	< 0.00070	< 0.0007		< 0.0070	0.01	0.2	2
Molybdenum *	0.0018	< 0.0014		< 0.014	0.5	10	30
Nickel *	0.013	0.0088		0.092	0.4	10	40
Lead *	0.02	0.0025		0.039	0.5	10	50
Antimony *	< 0.0020	< 0.0020		< 0.020	0.06	0.7	5
Selenium *	< 0.0050	< 0.0050		< 0.050	0.1	0.5	7
Zinc *	0.034	0.014		0.15	4	50	200
Chloride *	< 4.0	< 4.0		17	800	15000	25000
Fluoride*	0.24	0.27		2.7	10	150	500
Sulphate *	4.5	3.3		34	1000	20000	50000
TDS*	32	22		230	4000	60000	100000
Phenol Index (Monohydric Phenols) *	< 0.16	< 0.13		< 0.50	1	-	-
DOC	22.2	16		162	500	800	1000
Leach Test Information							
Stone Content (%)	< 0.1						
Sample Mass (kg)	1.1						
Dry Matter (%)	88						
Moisture (%)	12						
Stage 1							
Volume Eluate L2 (litres)	0.319						
Filtered Eluate VE1 (litres)	0.14						

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

*= UKAS accredited (liquid eluate analysis only)

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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. 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.
Where colour coding is used on this report, this is for guidance purposes only. This does not constitute a statement of conformity of pass or fail.
Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.

Analytical Report Number : 25-043104
Project / Site name: Castle Lane, Barnsley

* 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 *
646594	SA1 ES+O	None Supplied	0.4	Brown loam and clay with gravel and vegetation
646595	SA2 ES+O	None Supplied	0.15	Brown loam and sand with gravel and vegetation

Analytical Report Number : 25-043104
Project / Site name: Castle Lane, Barnsley

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)
Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
pH at 20°C in soil	Determination of pH in soil by addition of water followed by electrometric measurement	In-house method	L005B	W	MCERTS
Moisture Content	Moisture content, determined gravimetrically (up to 30°C)	In-house method	L019B	W	NONE
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.	L019B	D	NONE
Total organic carbon in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate (Walkley Black Method)	In-house method	L023B	D	MCERTS
PCB's By GC-MS in soil	Determination of PCB by extraction with hexane followed by GC-MS	In-house method based on USEPA 8082	L027B	D	MCERTS
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.	L031B	W	ISO 17025
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.	L033B	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.	L037B	W	NONE
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	L039B	W	ISO 17025
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	L039B	W	ISO 17025
Two stage WAC leachate preparation	Two stage batch test at a liquid to solid ratio of 2 L/kg and 8 L/kg	BS EN 12457-3-2002	L043B	W	ISO 17025
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	L046B	W	NONE
Loss on ignition of soil @ 450°C	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace	In-house method	L047-PL	D	MCERTS
Speciated PAHs and/or Semi-volatile organic compounds in soil	Determination of semi-volatile organic compounds (including PAH) in soil by extraction in dichloromethane and hexane followed by GC-MS	In-house method based on USEPA 8270	L064B	D	MCERTS
BTEX and/or Volatile organic compounds in soil	Determination of volatile organic compounds in soil by headspace GC-MS	In-house method based on USEPA 8260	L073B	W	MCERTS
Total petroleum hydrocarbons by GC-FID in soil	Determination of total petroleum hydrocarbons in soil by GC-FID	In-house method	L076B	D	NONE

Analytical Report Number : 25-043104
Project / Site name: Castle Lane, Barnsley

Water matrix abbreviations:
Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters Heating/Cooling (PrW) DI Process Water (DI PrW)
Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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	L080-PL	W	ISO 17025
Chloride in WAC leachate (BS EN 12457-3 Prep)	Determination of Chloride colorimetrically by discrete analyser	In-house based on MEWAM Method ISBN 0117516260	L082B	W	ISO 17025
Soil Descriptions	Textural classification	In-house method	L019B	W	NONE

For method numbers ending in 'UK' or 'A' analysis have been carried out in our laboratory in the United Kingdom (Watford).
For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).
For method numbers ending in 'PL' or 'B' 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.
Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

Quality control parameter failure associated with individual result applies to calculated sum of individuals.
The result for sum should be interpreted with caution

Sample Deviation Report

Analytical Report Number : 25-043104
Project / Site name: Castle Lane, Barnsley

This deviation report indicates the sample and test deviations that apply to the samples submitted for analysis.Please note that the associated result(s) may be unreliable and should be interpreted with care.

Key: a - No sampling date b - Incorrect container/Insufficient material provided c - Holding time d - Headspace e - Temperature

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
SA1 ES+O	N/A	2	646594	b	Two stage WAC leachate preparation	L043B	b
SA1 ES+O	N/A	S	646594	b	BTEX and/or Volatile organic compounds in soil	L073B	b
SA2 ES+O	N/A	2	646595	b	Two stage WAC leachate preparation	L043B	b
SA2 ES+O	N/A	S	646595	b	BTEX and/or Volatile organic compounds in soil	L073B	b

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS

Tested in Accordance with: BS EN ISO 17892-12:2018+A2:2022, cl 5.3 and 5.5, Fall Cone Method, 4 Pt Test, BS 1377-2:2022,cl 5.2 and 6

4041

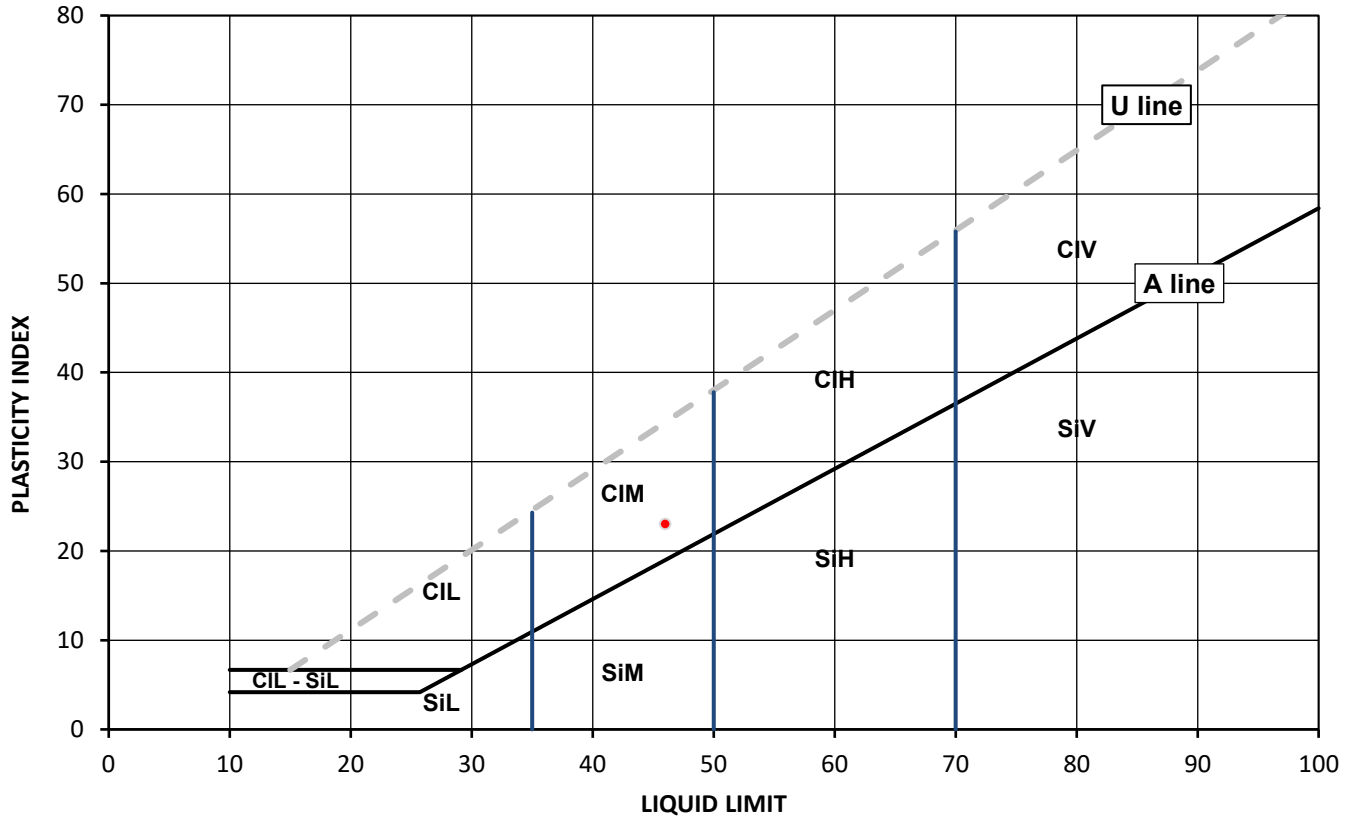
Client:	Dice Environmental Ltd	Client Reference:	101722
Client Address:		Job Number:	25-043430-1
	9-13 Holbrook Lane, CV6 4AD	Date Sampled:	11/08/2025
		Date Received:	15/08/2025
Contact:	Abbie Davies	Date Tested:	27/08/2025
Site Address:	Castle Lane, Barnsley	Sampled By:	Client

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	648329	Depth Top [m]:	1.50
Hole No.:	WS03 D(PI)	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	D
Sample Description:	Brownish grey slightly sandy CLAY		
Sample Preparation:	Tested in natural condition; The water content in the sample was increased		
Cone Type:	80g/30deg		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	Liquidity Index [IL] % #	Consistency Index [IC] % #	% Passing 425µm BS Test Sieve
13.9	46	23	23	-0.39	1.39	100



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS EN ISO 17892-1:2014+A1:2022, BS 1377-2:2022; # Non accredited

Remarks:

Signed:

Katarzyna Koziel
Geotechnical Reporting Team Leader
for and on behalf of i2 Analytical Ltd

 Date Reported: 16/09/2025 **GF 337.16**

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS

Tested in Accordance with: BS EN ISO 17892-12:2018+A2:2022, cl 5.3 and 5.5, Fall Cone Method, 4 Pt Test, BS 1377-2:2022,cl 5.2 and 6

4041

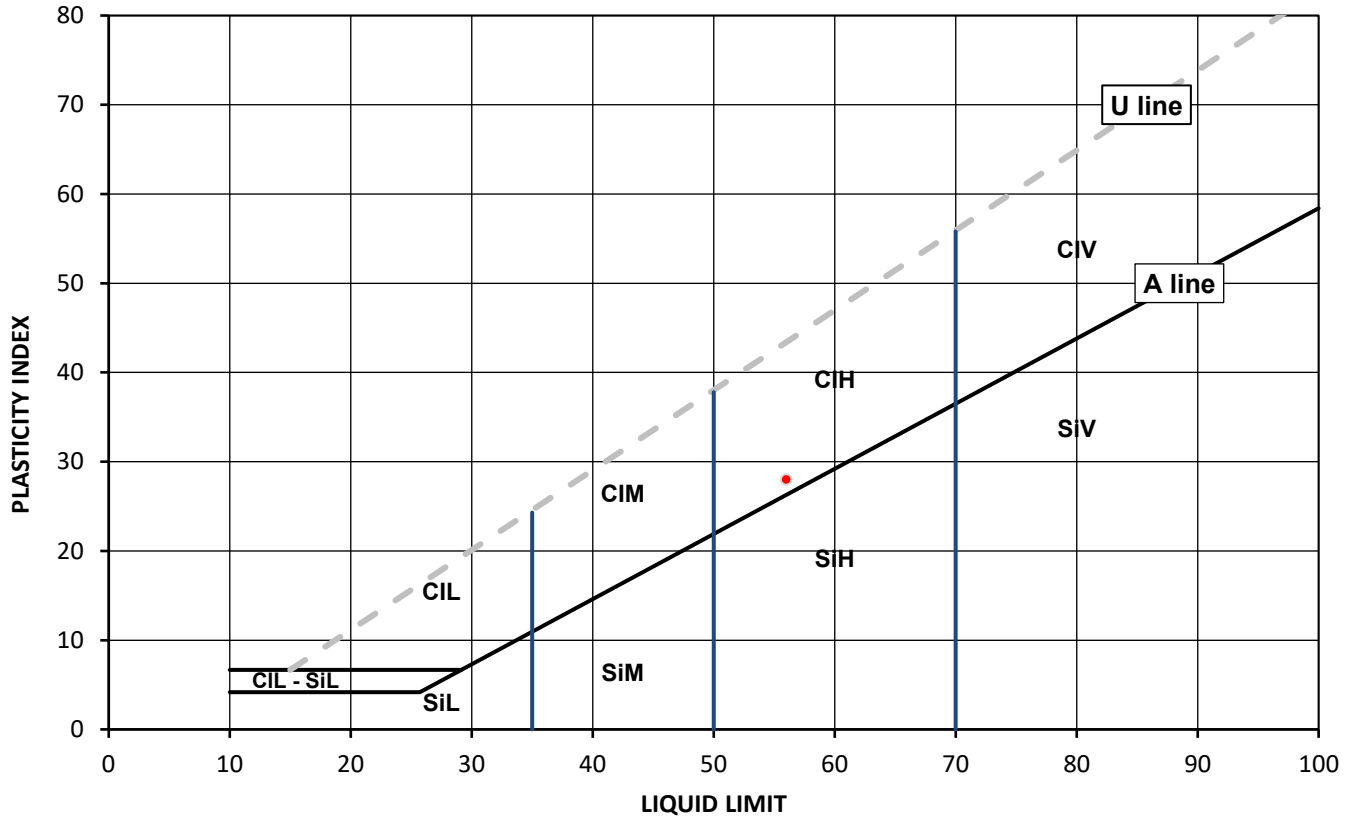
Client:	Dice Environmental Ltd	Client Reference:	101722
Client Address:		Job Number:	25-043430-1
	9-13 Holbrook Lane, CV6 4AD	Date Sampled:	11/08/2025
		Date Received:	15/08/2025
Contact:	Abbie Davies	Date Tested:	27/08/2025
Site Address:	Castle Lane, Barnsley	Sampled By:	Client

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	648330	Depth Top [m]:	1.20
Hole No.:	WS04 D (PI)	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	D
Sample Description:	Brownish grey slightly sandy silty CLAY		
Sample Preparation:	Tested in natural condition; The water content in the sample was increased		
Cone Type:	80g/30deg		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	Liquidity Index [IL] % #	Consistency Index [IC] % #	% Passing 425µm BS Test Sieve
28.5	56	28	28	0.04	0.96	100



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS EN ISO 17892-1:2014+A1:2022, BS 1377-2:2022; # Non accredited

Remarks:

Signed:

Katarzyna Koziel
Geotechnical Reporting Team Leader
for and on behalf of i2 Analytical Ltd

 Date Reported: 16/09/2025 **GF 337.16**

TEST CERTIFICATE

DETERMINATION OF LIQUID AND PLASTIC LIMITS

Tested in Accordance with: BS EN ISO 17892-12:2018+A2:2022, cl 5.3 and 5.5, Fall Cone Method, 4 Pt Test, BS 1377-2:2022,cl 5.2 and 6

4041

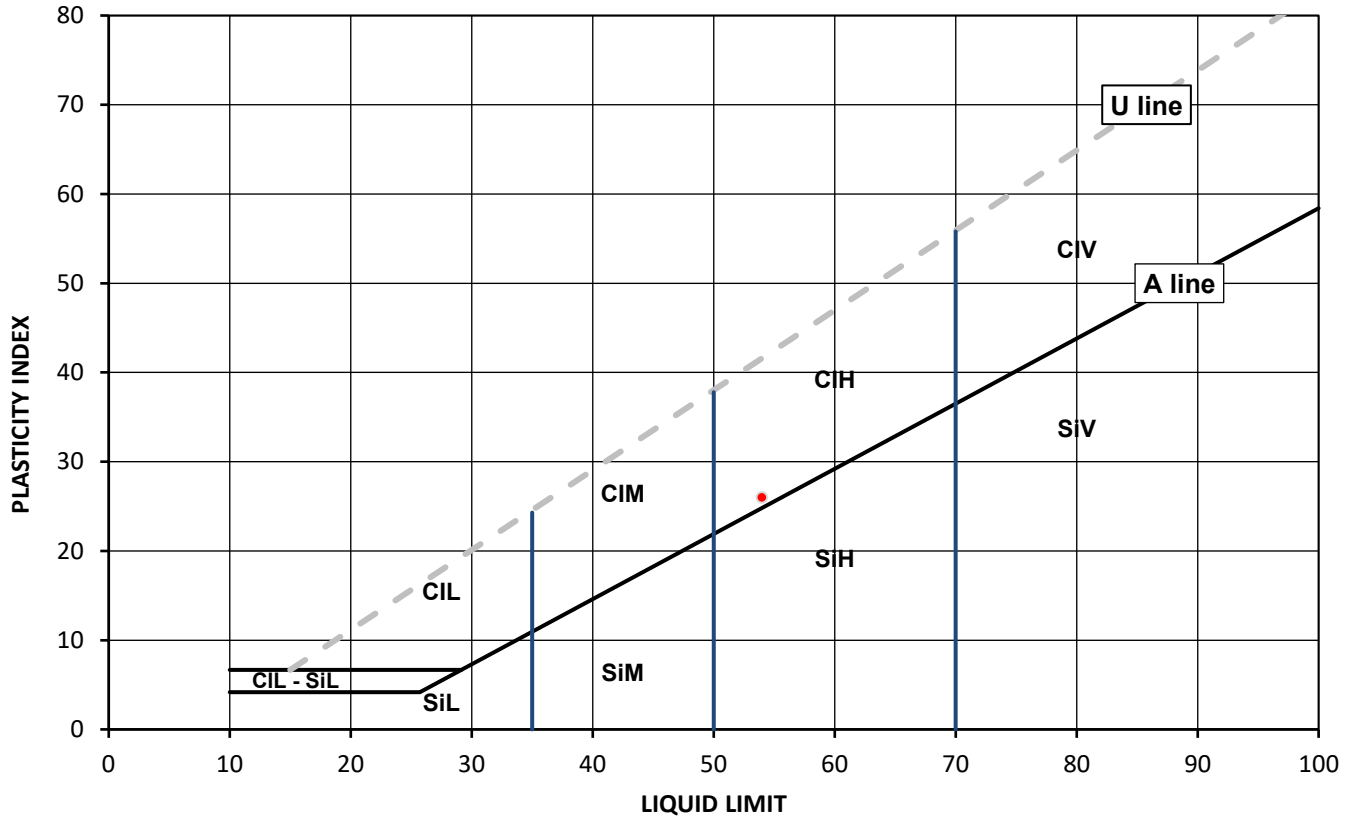
Client:	Dice Environmental Ltd	Client Reference:	101722
Client Address:		Job Number:	25-043430-1
	9-13 Holbrook Lane, CV6 4AD	Date Sampled:	11/08/2025
		Date Received:	15/08/2025
Contact:	Abbie Davies	Date Tested:	27/08/2025
Site Address:	Castle Lane, Barnsley	Sampled By:	Client

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	648331	Depth Top [m]:	1.00
Hole No.:	WS05 D(PI)	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	D
Sample Description:	Brownish grey slightly sandy CLAY		
Sample Preparation:	Tested in natural condition; The water content in the sample was increased		
Cone Type:	80g/30deg		

As Received Water Content [W] %	Liquid Limit [WL] %	Plastic Limit [Wp] %	Plasticity Index [Ip] %	Liquidity Index [IL] % #	Consistency Index [IC] % #	% Passing 425µm BS Test Sieve
23.6	54	28	26	-0.15	1.15	100



Legend, based on BS EN ISO 14688 2:2018 Geotechnical investigation and testing – Identification and classification of soil

		Plasticity		Liquid Limit
Cl	Clay	L	Low	below 35
Si	Silt	M	Medium	35 to 50
		H	High	50 to 70
		V	Very high	exceeding 70
		O	Organic	append to classification for organic material (eg ClHO)

Note: Water Content by BS EN ISO 17892-1:2014+A1:2022, BS 1377-2:2022; # Non accredited

Remarks:

Signed:

Katarzyna Koziel
Geotechnical Reporting Team Leader
for and on behalf of i2 Analytical Ltd

 Date Reported: 16/09/2025 **GF 337.16**

SUMMARY REPORT

SUMMARY OF CLASSIFICATION TEST RESULTS

Tested in Accordance with:

4041

Client: Dice Environmental Ltd

Client Address:

9-13 Holbrook Lane, CV6 4AD

Contact: Abbie Davies

Site Address: Castle Lane, Barnsley

BS EN ISO 17892-12:2018+A2:2022 cl 5.3 and 5.5, Fall Cone Method, 4 Pt Test, BS 1377-2:2022, cl 5.2 and 6. W by BS EN ISO 17892-1:2014+A1:2022.

Client Reference: 101722
Job Number: 25-043430-1
Date Sampled: 11/08/2025
Date Received: 15/08/2025
Date Tested: 27/08/2025
Sampled By: Client

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	W	Liquid & Plastic Limit							Density		
		Reference	Depth Top m	Depth Base m	Type			%	% Passing 425um %	WL* %	Correlation Factor	Wp %	Ip %	Cone type	Sample Preparation	bulk Mg/m3	dry Mg/m3	PD Mg/m3
648329	WS03 D(PI)	Not Given	1.50	Not Given	D	Brownish grey slightly sandy CLAY	Atterberg 4 Point	13.9	100	46	-	23	23	80g/30 deg	N / I			
648330	WS04 D (PI)	Not Given	1.20	Not Given	D	Brownish grey slightly sandy silty CLAY	Atterberg 4 Point	28.5	100	56	-	28	28	80g/30 deg	N / I			
648331	WS05 D(PI)	Not Given	1.00	Not Given	D	Brownish grey slightly sandy CLAY	Atterberg 4 Point	23.6	100	54	-	28	26	80g/30 deg	N / I			

Note: # Non accredited; NP - Non plastic; N - Tested in natural condition, R - Tested after >0,425mm removed by hand, WR - Tested after washing to remove >425mm; I - The water content in the sample was increased , D - The water content in the sample was decreased; * - One point liquid limit corrected as per the report Correlation Factor by Clayton C.R.I and Jukes A.W (1978)

Comments:

Signed:

Katarzyna Koziel
Geotechnical Reporting Team Leader
for and on behalf of i2 Analytical Ltd

Date Reported: 16/09/2025 **GF 362.17**

SUMMARY REPORT

DETERMINATION OF WATER CONTENT

Tested in Accordance with: BS EN ISO 17892-1:2014+A1:2022, BS 1377-2: 2022, clause 4.1

4041

Client: Dice Environmental Ltd

Client Address:

9-13 Holbrook Lane, CV6 4AD

Contact: Abbie Davies

Site Address: Castle Lane, Barnsley

Client Reference: 101722

Job Number: 25-043430-1

Date Sampled: 11/08/2025

Date Received: 15/08/2025

Date Tested: 27/08/2025

Sampled By: Client

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	WC											
		Reference	Depth Top m	Depth Base m	Type			%											
648329	WS03 D(PI)	Not Given	1.50	Not Given	D	Brownish grey slightly sandy CLAY		13.9											
648330	WS04 D (PI)	Not Given	1.20	Not Given	D	Brownish grey slightly sandy silty CLAY		28.5											
648331	WS05 D(PI)	Not Given	1.00	Not Given	D	Brownish grey slightly sandy CLAY		23.6											

Comments:

Signed:

Katarzyna Koziel
Geotechnical Reporting Team Leader
for and on behalf of i2 Analytical Ltd

Date Reported: 16/09/2025

GF 126.20

TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS EN ISO 17892-4:2016, BS 1377-2:2022 cl. 10

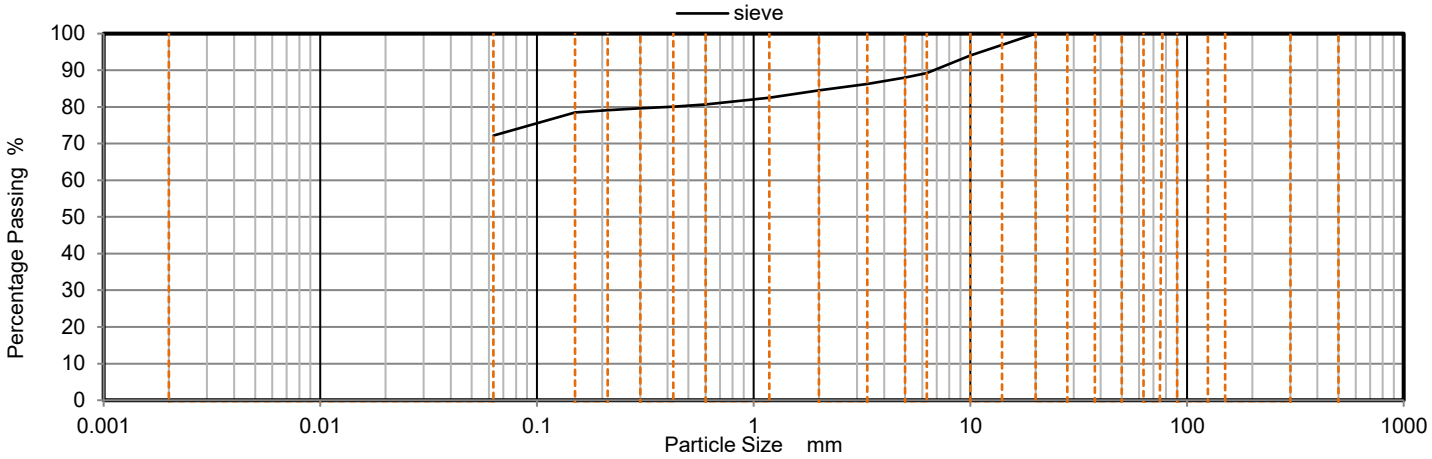
4041

Client:	Dice Environmental Ltd	Client Reference:	101722
Client Address:		Job Number:	25-043430-1
	9-13 Holbrook Lane, CV6 4AD	Date Sampled:	11/08/2025
		Date Received:	15/08/2025
Contact:	Abbie Davies	Date Tested:	27/08/2025
Site Address:	Castle Lane, Barnsley	Sampled By:	Client

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	648328	Depth Top [m]:	0.80
Hole No.:	WS01 D(PSD)	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	D
Sample Description:	Brownish grey slightly gravelly slightly sandy CLAY		
Sample Preparation:	Sample was whole tested, oven dried at 108.8 °C and broken down by hand.		



Sieving		Material Type 2A/2B General Cohesive Material			
Particle Size mm	% Passing	Material Specification			Pass or Fail
500	100				
300	100				
150	100				
125	100	100	-	100	PASS
90	100				
75	100				
63	100				
50	100				
37.5	100				
28	100				
20	100				
14	97				
10	94				
6.3	89				
5	88				
3.35	86				
2	85	80	-	100	PASS
1.18	83				
0.6	81				
0.425	80				
0.3	80				
0.212	79				
0.15	79				
0.063	72	15	-	100	PASS

Uniformity Coefficient [Cu]		
D60	mm	
D10	mm	

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Earthworks

Specification for Highway Works, Volume 1, Series 600, TABLE 6/3

Note: Tested in Accordance with ISO 17892 -4, by sieving on as received or wet sample

Remarks:

Signed:

Katarzyna Koziel
Geotechnical Reporting Team Leader
for and on behalf of i2 Analytical Ltd

Date Reported: 16/09/2025

GF 534.5

TEST CERTIFICATE

DETERMINATION OF PARTICLE SIZE DISTRIBUTION

Tested in Accordance with: BS EN ISO 17892-4:2016, BS 1377-2:2022 cl. 10

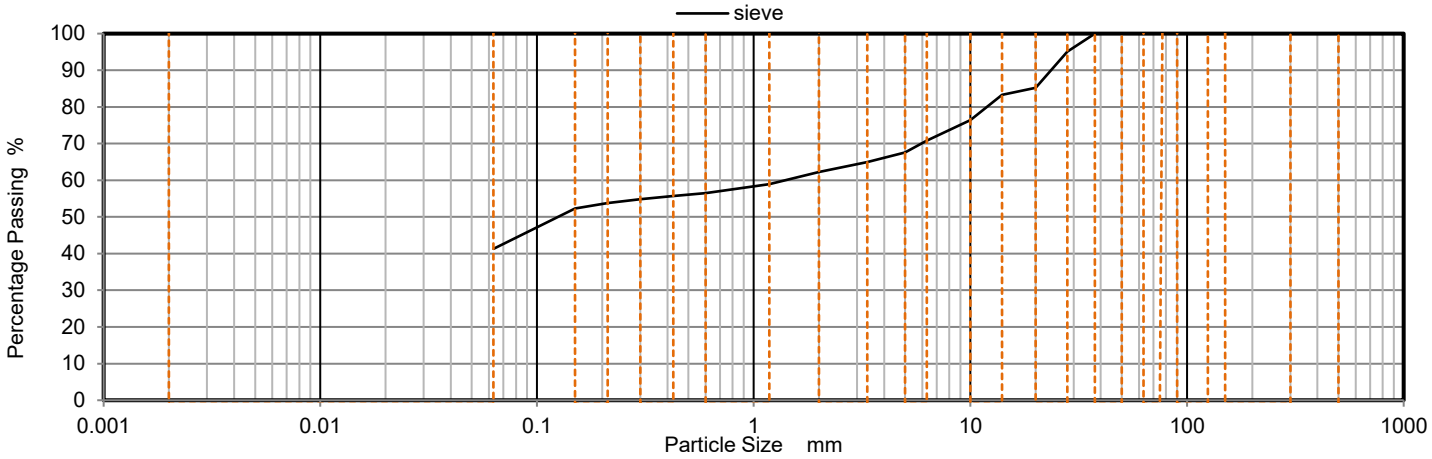
4041

Client:	Dice Environmental Ltd	Client Reference:	101722
Client Address:		Job Number:	25-043430-1
	9-13 Holbrook Lane, CV6 4AD	Date Sampled:	12/08/2025
		Date Received:	15/08/2025
Contact:	Abbie Davies	Date Tested:	27/08/2025
Site Address:	Castle Lane, Barnsley	Sampled By:	Client

Testing carried out at i2 Analytical Limited, ul. Pionierow, 41-711 Ruda Slaska, Poland

Test Results:

Laboratory Reference:	648332	Depth Top [m]:	1.15
Hole No.:	TP02 D(PSD)	Depth Base [m]:	Not Given
Sample Reference:	Not Given	Sample Type:	D
Sample Description:	Light brown gravelly slightly sandy CLAY		
Sample Preparation:	Sample was whole tested, oven dried at 108.8 °C and broken down by hand.		



Sieving		Material Type 2C Stony Cohesive Material			
Particle Size mm	% Passing	Material Specification			Pass or Fail
500	100				
300	100				
150	100				
125	100	100	-	100	PASS
90	100				
75	100				
63	100				
50	100				
37.5	100				
28	95				
20	85				
14	83				
10	76				
6.3	71				
5	68				
3.35	65				
2	62	15	-	80	PASS
1.18	59				
0.6	57				
0.425	56				
0.3	55				
0.212	54				
0.15	52				
0.063	41	15	-	80	PASS

Uniformity Coefficient [Cu]		
D60	mm	1.39
D10	mm	

Uniformity Coefficient calculated in accordance with BS EN ISO 14688-2:2018

Earthworks

Specification for Highway Works, Volume 1, Series 600, TABLE 6/2

Note: Tested in Accordance with ISO 17892 -4, by sieving on as received or wet sample

Remarks: The material submitted - fails to meet the minimum mass requirements as stated in BS EN ISO 17892-4:2016 Table 1.

Signed: Katarzyna Koziel

Katarzyna Koziel
Geotechnical Reporting Team Leader
for and on behalf of i2 Analytical Ltd

Date Reported: 16/09/2025

GF 534.5

Dice Environmental

APPENDIX G

Dice Environmental

Rational and full list of General Assessment Criteria used by Dice Environmental.

Determinand	Allotment	R_WHP	R_{WO}HP	Commercial/ Industrial	POSresi	POSpark
Metals						
Arsenic (**Inorganic**) [a, b, c]	43	37	40	640	79	170
Beryllium [a, b, d, e]	35	1.7	1.7	12	2.2	63
Boron [a, b, d]	45	290	11000	240000	21000	46000
Cadmium (**pH6-8**) [a, b, d, f]	1.9	11	85	190	120	560
Chromium (trivalent) [a, b, d, g]	18000	910	910	8600	1500	33000
Chromium (hexavalent) [a, b, c]	1.8[h]	6[i]	6[i]	33[i]	7.7[i]	220[i]
Copper [a, b, c]	520	2400	7100	68000	12000	44000
Mercury (elemental) [a, b, c, j]	21	1.2	1.2	58[vap] (25.8)	16	30[vap] (25.8)
Mercury (inorganic) [a, b, c]	19	40	56	1100	120	240
Methylmercury [a, b, c]	6	11	15	320	40	68
Nickel [a, b, c]	230[k]	180[e]	180[e]	980[e]	230[e]	3400[k]
Selenium [a, b, c]	88	250	430	12000	1100	1800
Vanadium [a, b, c, i, j]	91	410	1200	9000	2000	5000
Zinc [a, b, c]	620	3700	40000	730000	81000	170000
BTEX Compounds (SOM 1%/ 2.5%/ 6%)						
Benzene [a, b, l, m]	0.017/0.034/ 0.075	0.087/0.17/ 0.37	0.38/0.7/1.4	27 / 47 / 90	72 / 72 / 73	90 / 100 / 110
Toluene [a, b, l, m]	22 / 51 / 120	130 / 290 / 660	800[vap] (869) /1900/3900	56000[vap] (869) / 110000[vap] 1920)/ 180000[vap] (4360)	56000 / 56000 / 56000	87000[vap](869)/ 95000[vap](1920)/ 100000[vap](4360)
Ethylbenzene [a, b, l, m]	16 / 39 / 91	47 / 110 / 260	83 / 190 / 440	5700[vap] (518) / 13000[vap] (1220) / 27000[vap] (2840)	24000 / 24000 / 25000	17000[vap] (518) / 22000[vap](1220) / 27000[vap] (2840)
O – Xylene [a, b, l, m, n]	28 / 67 / 160	60 / 140 / 330	88 / 210 / 480	6600[sol] (478) / 15000[sol] (1120) / 33000[sol] (2620)	41000 / 42000 / 43000	17000[sol] (478) / 24000[sol] (1120) / 33000[sol] (2620)
M – Xylene [a, b, l, m, n]	31 / 74 / 170	59 / 140 / 320	82 / 190 / 450	6200[vap] (625) / 14000[vap] (1470) / 31000[vap] (3460)	41000 / 42000 / 43000	17000[vap] (625) / 24000[vap](1470) / 32000[vap] (3460)
P – Xylene [a, b, l, m, n]	29 / 69 / 160	56 / 130 / 310	79 / 180 / 430	5900[sol] (576) / 14000[sol] (1350) / 30000[sol] (3170)	41000 / 42000 / 43000	17000[sol] (576) / 23000[sol] (1350) / 31000[sol] (3170)
Polycyclic Aromatic Hydrocarbons (SOM 1%/ 2.5%/ 6%) [a, b, l, p]						
Acenaphthene	34 / 85 / 200	210 / 510 / 1100	3000[sol](57.0)/ 4700[sol](141)/ 6000[sol](336)	84000[sol] (57.0)/ 97000[sol] (141)/ 100000	15000 / 15000 / 15000	29000/ 30000/ 30000
Acenaphthylene	28 / 69 / 160	170 / 420 / 920	2900[sol](86.1)/ 4600[sol](212)/ 6000[sol](506)	83000[sol] (86.1)/ 97000[sol] (212)/ 100000	15000 / 15000 / 15000	29000 / 30000 / 30000
Anthracene	380 / 950 / 2200	2400 / 5400 / 11000	31000[sol](1.17 /35000/ 37000	520000/ 540000/ 540000	74000 / 74000 / 74000	150000 / 150000 / 150000
Benz(a)anthracene	2.9 / 6.5 / 13	7.2 / 11 / 13	11 / 14 / 15	170 / 170 / 180	29 / 29 / 29	49 / 56 / 62
Benzo(a)pyrene (Bap)	0.97 / 2.0 / 3.5	2.2 / 2.7 / 3.0	3.2 / 3.2 / 3.2	35 / 35 / 36	5.7/ 5.7/5.7	11 / 12 / 13
Benzo(b)fluoranthene	0.99 / 2.1 / 3.9	2.6 / 3.3 / 3.7	3.9 / 4.0 / 4.0	44 / 44 / 45	7.1/7.2/7.2	13 / 15 / 16
Benzo(g,h,i)perylene	290 / 470 / 640	320 / 340 / 350	360/360 / 360	3900/4000/ 4000	640/640/640	1400/1500/ 1600
Benzo(k)fluoranthene	37 / 75 / 130	77 / 93 / 100	110/ 110 / 110	1200/ 1200/1200	190/190/190	370 / 410 / 440
Chrysene	4.1 / 9.4 / 19	15 / 22 / 27	30 / 31 / 32	350 / 350 / 350	57 / 57 / 57	93 / 110 / 120
Dibenzo(ah)anthracene	0.14 / 0.27 / 0.43	0.24 / 0.28 / 0.3	0.31/0.32/ 0.32	3.5 / 3.6 / 3.6	0.57/0.57/0.58	1.1 / 1.3 / 1.4
Fluoranthene	52 / 130 / 290	280 / 560 / 890	1500/1600/ 1600	23000/23000/ 23000	3100/3100/ 3100	6300 / 6300 / 6400
Fluorene	27 / 67 / 160	170 / 400 / 860	2800[sol] (30.9) /3800[sol] (76.5) /4500[sol] (183)	63000[sol] (30.9) / 68000 / 71000	9900 / 9900 / 9900	20000 / 20000 / 20000
Indeno(1,2,3-cd)pyrene	9.5 / 21 / 39	27 / 36 / 41	45 / 46 / 46	500 / 510 / 510	82 / 82 / 82	150 / 170 / 180
Naphthalene [q]	4.1 / 10 / 24	2.3 / 5.6 / 13	2.3 / 5.6 / 13	190[sol] (76.4) / 460[sol] (183) / 1100[sol] (432)	4900/ 4900/ 4900	1200[sol] (76.4) / 1900[sol] (183) / 3000
Phenanthrene	15 / 38 / 90	95 / 220 / 440	1300[sol](36.0)/ 1500/1500	22000 / 22000 / 23000	3100 / 3100 / 3100	6200 / 6200 / 6300
Pyrene	110 / 270 / 620	620 / 1200 / 2000	3700 / 3800 / 3800	54000 / 54000 / 54000	7400 / 7400 / 7400	15000 / 15000 / 15000
Coal Tar (Bap as surrogate marker)	0.32 / 0.67 / 1.2	0.79 / 0.98 / 1.1	1.2 / 1.2 / 1.2	15 / 15 / 15	2.2 / 2.2 / 2.2	4.4 / 4.7 / 4.8
Explosives [a, b, l, p]						
2, 4, 6 Trinitrotoluene	0.24 / 0.58 / 1.40	1.6 / 3.7 / 8.0	65 / 66 / 66	1000/1000/1000	130/130 / 130	260 / 270 / 270
RDX (Royal Demolition Explosive $C_3H_6N_6O_6$)	17 / 38 / 85	120 / 250 / 540	13000 / 13000 / 13000	210000 / 210000 / 210000	26000/26000/ 27000	49000[sol] (18.7) / 51000 / 53000
HMX (High Melting Explosive $C_4H_8N_8O_8$)	0.86 / 1.9 / 3.9	5.7 / 13 / 26	6700 / 6700 / 6700	110000 / 110000 / 110000	13000 / 13000 / 13000	23000[vap] (0.35) /23000[vap] (0.39) /24000[vap] (0.48)

Dice Environmental

Determinand	Allotment	R_WHP	R_{WQ}HP	Commercial/ Industrial	POSresi	POSpark
Petroleum Hydrocarbons (SOM 1%/ 2.5%/ 6%) [a, b, l, m]						
Aliphatic EC 5-6	730 / 1700 / 3900	42 / 78 / 160	42 / 78 / 160	3200[sol] (304) / 5900[sol] (558) / 12000[sol] (1150)	570000[sol](304 590000 / 600000	95000[sol] (304) / 130000[sol] (558)/ 180000[sol](1150)
Aliphatic EC >6-8	2300 / 5600 / 13000	100 / 230 / 530	100 / 230 / 530	7800[sol] (144) / 17000[sol] (322) / 40000[sol] (736)	600000 / 610000 / 620000	150000[sol] (144) 220000[sol] (322)/ 320000[sol] (736)
Aliphatic EC >8-10	320 / 770 / 1700	27 / 65 / 150	27 / 65 / 150	2000[sol] (78) / 4800[vap] (190) / 11000[vap] (451)	13000 / 13000 / 13000	14000[sol] (78) / 18000[vap] (190) / 21000[vap] (451)
Aliphatic EC >10-12	2200 / 4400 / 7300	130v[ap] (48) / 330[vap] (118) / 760[vap] (283)	130v[ap] (48) / 330[vap] (118) / 770[vap] (283)	9700[sol] (48) / 23000[vap] (118) / 47000[vap] (283)	13000 / 13000 / 13000	21000[sol] (48) / 23000[vap] (118) / 24000[vap] (283)
Aliphatic EC >12-16	11000 / 13000 / 13000	1100[sol] (24) / 2400[sol] (59) / 4300[sol] (142)	1100[sol] (24) / 2400[sol] (59) / 4400[sol] (142)	59000[sol] (24) / 82000[sol] (59) / 90000[sol] (142)	13000 / 13000 / 13000	25000[sol] (24) / 25000[sol] (59) / 26000[sol] (142)
Aliphatic EC >16-35 °	260000 / 270000 / 270000	65000[sol](8.48 92000[sol] (21) 110000	65000[sol](8.48 92000[sol] (21) 110000	1600000 / 1700000 / 1800000	250000 / 250000 / 250000	450000 / 480000 / 490000
Aliphatic EC >35-44 °	260000 / 270000 / 270000	65000[sol](8.48 92000[sol] (21) / 110000	65000[sol](8.48 92000[sol] (21) 110000	1600000 / 1700000 / 1800000	250000 / 250000 / 250000	450000 / 480000 / 490000
Aromatic EC 5-7 (benzene)	13 / 27 / 57	70 / 140 / 300	370 / 690 / 1400	260000[sol] (1220) / 46000[sol] (2260) / 86000[sol] (4710)	56000 / 56000 / 56000	76000[sol] (1220) /84000[sol](2260)/ 92000[sol] (4710)
Aromatic EC >7-8 (toluene)	22 / 51 / 120	130 / 290 / 660	860 / 1800 / 3900	56000[vap] (869)/ 110000[sol] (1920)/ 180000[vap] (4360)	56000 / 56000 / 56000	87000[vap](869) / 95000[sol] (1920)/ 100000[vap](4360)
Aromatic EC >8-10	8.6 / 21 / 51	34 / 83 / 190	47 / 110 / 270	3500[vap] (613) / 8100[vap] (1500) / 17000[vap] (3580)	5000 / 5000 / 5000	7200[vap](613) / 8500[vap] (1500) / 9300[vap] (3580)
Aromatic EC >10-12	13 / 31 / 74	74 / 180 / 380	250 / 590 / 1200	16000[sol] (364) / 28000[sol] (899) / 34000[sol] (2150)	5000 / 5000 / 5000	9200[sol] (364) / 97000[sol] (899) / 10000
Aromatic EC >12-16	23 / 57 / 130	140 / 330 / 660	1800 / 2300[sol] (419) / 2500	36000[sol] (169) / 37000 / 38000	5100 / 5100 / 5000	10000 / 10000 / 10000
Aromatic EC >16-21 °	46 / 110 / 260	260 / 540 / 930	1900 / 1900 / 1900	28000 / 28000 / 28000	3800 / 3800 / 3800	7600 / 7700 / 7800
Aromatic EC >21-35 °	370 / 820 / 1600	1100 / 1500 / 1700	1900 / 1900 / 1900	28000 / 28000 / 28000	3800 / 3800 / 3800	7800 / 7800 / 7900
Aromatic EC >35-44 °	370 / 820 / 1600	1100 / 1500 / 1700	1900 / 1900 / 1900	28000 / 28000 / 28000	3800 / 3800 / 3800	7800 / 7800 / 7900
Aliphatic+Aromatic EC >44-70 °	1200 / 2100 / 3000	1600 / 1800 / 1900	1900 / 1900 / 1900	28000 / 28000 / 28000	3800 / 3800 / 3800	7800 / 7800 / 7900
Chloroalkanes & Chloroalkenes (SOM 1%/ 2.5%/ 6%) [a, b, l, p]						
1,2-Dichloroethane	0.0046 / 0.0083 / 0.016	0.0071 / 0.011 / 0.019	0.092 / 0.013 / 0.023	0.67 / 0.97 / 1.7	29 / 29 / 29	21 / 24 / 28
1,1,1 Trichloroethane (TCA)	48 / 110 / 240	8.8 / 18 / 39	9.0 / 18 / 40	660 / 1300 / 3000	140000 / 140000 / 140000	57000[vap](1425) 76000[vap](2915)/ 100000[vap](6392
1,1,1,2 Tetrachloroethane	0.79 / 1.9 / 4.4	1.2 / 2.8 / 6.4	1.5 / 3.5 / 8.2	110 / 250 / 560	1400 / 1400 / 1400	1500 / 1800 / 2100
1,1,2,2 Tetrachloroethane	0.41 / 0.89 / 2.0	1.6 / 3.4 / 7.5	3.9 / 8.0 / 17	270 / 550 / 1100	1400 / 1400 / 1400	1800 / 2100 / 2300
Tetrachloroethene (PCE)	0.65 / 1.5 / 3.6	0.18 / 0.39 / 0.90	0.18 / 0.4 / 0.92	19 / 42 / 95	1400 / 1400 / 1400	810[sol](424)/1100 [sol] (951)/1500
Tetrachloromethane (Carbon Tetrachloride)	0.45 / 1.0 / 2.4	0.026 / 0.056 / 0.13	0.026 / 0.056 / 0.13	2.9 / 6.3 / 14	890 / 920 / 950	190 / 270 / 400
Trichloroethene (TCE)	0.041 / 0.091 / 0.21	0.016 / 0.034 / 0.075	0.017 / 0.036 / 0.080	1.2 / 2.6 / 5.7	120 / 120 / 120	70 / 91 / 120
Trichloromethane (Chloroform)	0.42 / 0.83 / 1.7	0.91 / 1.7 / 3.4	1.2 / 2.1 / 4.2	99 / 170 / 350	2500 / 2500 / 2500	2600 / 2800 / 3100
Chloroethene (Vinyl Chloride)	0.00055/ 0.001/ 0.0018	0.00064 / 0.00087/ 0.0014	0.00077 / 0.001 / 0.0015	0.059 / 0.077 / 0.12	3.5 / 3.5 / 3.5	4.8 / 5.0 / 5.4
Phenol & Chlorophenols [a, b, l, p]						
Phenol	23 /42 / 83	120 / 200/380	440/690 /1200	440[dir] (26000) / 690[dir] (30000) / 1300[dir] (34000)	440[dir] (10000)/ 690[dir](10000) 1300[dir](10000)	440[dir] (7600) / 690[dir] (8300) / 1300[dir] (93000)
Chlorophenols (excluding PCP) [r]	0.13[s] / 0.3 / 0.7	0.87[s] / 2.0 / 4.5	94 / 150 / 210	3500 / 4000 / 4300	620/ 620 / 620	1100/1100/ 1100
Pentachlorophenol (PCP)	0.03 / 0.08 / 0.19	0.22/ 0.52 / 1.2	27[vap] (16.4) / 29 / 31	400 / 400 / 400	60 / 60 / 60	110 / 120 / 120
Other [a, b, l, p]						
Carbon Disulphide	4.8 / 10 / 23	0.14/0.29 /0.62	0.14/0.29 /0.62	11 / 22 / 47	11000 / 11000 / 12000	1300 / 1900 / 2700
Hexachlorobutadiene (HCBD)	0.25/0.61/1.4	0.29/0.7/1.6	0.32/0.78/1.8	31 / 66 / 120	25 / 25 / 25	48 / 50 / 51

Determinand	Allotment	R_WHP	$R_{WO}HP$	Commercial/ Industrial	POSresi	POSpark
Pesticides (SOM 1%/ 2.5%/ 6%) [a, b, l, p]						
Aldrin	3.2 / 6.1 / 9.6	5.7/ 6.6 /7.1	7.3 / 7.4 / 7.5	170 / 170 / 170	18 / 18 / 18	30 / 31 / 31
Atrazine	0.5 / 1.2 / 2.7	3.3/7.6/17.4	610/ 620 / 620	9300 / 9400 / 9400	1200/1200 /1200	2300 / 2400 / 2400
Dichlorvos	0.0049/0.010/ 0.022	0.032/0.066/ 0.14	6.4 / 6.5 / 6.6	140 / 140 / 140	16 / 16 / 16	26 / 26 / 27
Dieldrin	0.17/0.41/0.96	0.97/ 2 / 3.5	7.0 / 7.3 / 7.4	170 / 170 / 170	18 / 18 / 18	30 / 30 / 31
Alpha - Endosulfan	1.2 / 2.9 / 6.8	7.4 / 18 / 41	160[vap] (0.003)/ 280[vap] (0.007)/ 410[vap] (0.016)	5600[vap] (0.003) / 7400[vap] (0.007) / 8400[vap] (0.016)	1200 / 1200 / 1200	2400 / 2400 / 2500
Beta - Endosulfan	1.1 / 2.7 / 6.4	7.0 / 17 / 39	190[vap](0.00007) /320[vap](0.0002) /440[vap](0.0004)	6300[vap](0.00007) /7800[vap](0.0002) / 8700	1200 / 1200 / 1200	2400 / 2400 / 2500
Alpha-Hexachlorocyclohexane	0.035/0.087/ 0.21	0.23/0.55 / 1.2	6.9 / 9.2 / 11	170 / 180 / 180	24 / 24 / 24	47 / 48 / 48
Beta - Hexachlorocyclohexane	0.013/0.032/ 0.077	0.085 / 0.2/ 0.46	3.7 / 3.8 / 3.8	65 / 65 / 65	8.1 / 8.1 / 8.1	15 / 15 / 16
Gamma – Hexachlorocyclohexane	0.0092 / 0.023 / 0.054	0.06/0.14/ 0.33	2.9 / 3.3 / 3.5	67 / 69 / 70	8.2 / 8.2 / 8.2	14 / 15 / 15
Chlorobenzenes [a, b, l, p]						
Chlorobenzene	5.9 / 14 / 32	0.46 / 1.0 / 2.4	0.46 / 1.0 / 2.4	56 / 130 / 290	11000 / 13000 / 14000	1300[sol](675)/ 2000[sol](1520)/ 2900
1,2-dichlorobenzene (1,2-DCB)	94 / 230 / 540	23 / 55 / 130	24 / 57 / 130	2000[sol] (571) / 4800[sol] (1370) / 11000[sol] (3240)	90000 / 95000 / 98000	24000[sol] (571) / 36000[sol] (1370) /51000[sol] (3240)
1,3-dichlorobenzene (1,3-DCB)	0.25 / 0.6 / 1.5	0.4 / 1.0 / 2.3	0.44/1.1 / 2.5	30 / 73 / 170	300/ 300 / 300	390 / 440 / 470
1-4-dichlorobenzene (1,4-DCB)	15[i] / 37[i] / 88 [i]	61[q] / 150[q] /350 [q]	61[q]/150[q]/350[q]	4400[vap,q] (224) / 10000[vap,q] (540) / 25000[vap,q] (1280)	17000[i] / 17000[i] / 17000[i]	36000[vap,i] (224) 36000[vap, i](540)/ 36000[vap,i](1280)
1,2,3-Trichlorobenzene	4.7 / 12 / 28	1.5 / 3.6 / 8.6	1.5 / 3.7 / 8.8	102 / 250 / 590	1800 / 1800 / 1800	770[vap] (134) / 1100[vap] (330) / 1600[vap] (789)
1,2,4- Trichlorobenzene	55 / 140 / 320	2.6 / 6.4 / 15	2.6 / 6.4 / 15	220 / 530 / 1300	15000 / 17000 / 19000	1700[vap] (318) / 2600[vap] (786) / 4000[vap] (1880)
1,3,5- Trichlorobenzene	4.7 / 12 / 28	0.33 / 0.81 / 1.9	0.33 / 0.81 / 1.9	23 / 55 / 130	1700 / 1700 / 1800	380[vap] (36.7) / 580[vap] (90.8) / 860[vap] (217)
1,2,3,4-Tetrachlorobenzene	4.4 / 11 / 26	15 / 36 / 78	24 / 56 / 120	1700[vap] (122) / 3080[vap] (304) / 4400[vap] (728)	830 / 830 / 830	1500[vap] (122) / 1600 / 1600
1,2,3,5- Tetrachlorobenzene	0.38 / 0.90 / 2.2	0.66 / 1.6 / 3.7	0.75 / 1.9 / 4.3	49[vap] (39.4) / 120[vap] (98.1) / 240[vap] (235)	78 / 79 / 79	110[vap] (39) / 120 / 130
1,2,4,5- Tetrachlorobenzene	0.06 / 0.16 / 0.37	0.33 / 0.77 / 1.6	0.73 / 1.7 / 3.5	42[sol] (19.7) / 72[sol] (49.1) / 96	13 / 13 / 13	25 / 26 / 26
Pentachlorobenzene (P_ECB)	1.2 / 3.1 / 7.0	5.8 / 12 / 22	19 / 30 / 38	640[sol] (43.0) / 770[sol] (107) / 830	100 / 100 / 100	190 / 190 / 190
Hexachlorobenzene (HCB)	0.47 / 1.1 / 2.5	1.8[vap] (0.20) / 3.3[vap] (0.5) / 4.9	4.1[vap] (0.20) / 5.7[vap] (0.5) / 6.7[vap] (1.2)	110[vap] (0.20) / 120 / 120	16 / 16 / 16	30 / 30 / 30

R_WHP Residential with homegrown produce
$R_{WO}HP$ Residential without homegrown produce
POSresi public open spaces near residential housing
POSpark public open space for recreational use but not dedicated sports pitches
SOM Soil Organic Matter – ***the S4UL for all organic compounds will vary according to SOM***

a Based on a sandy loam soil as defined in SR3 (Environment Agency, 2009b) and 6% soil organic matter (SOM)
b Figures rounded to two significant figures
c Based only on a comparison of oral and dermal soil exposure with oral Index Dose
d The background ADE is limited to being no larger than the contribution from the relevant soil ADE
e Based on comparison of inhalation exposure with inhalation TDI only
f Based on a lifetime exposure via the oral, dermal and inhalation pathways
g Based on localised effects comparing inhalation exposure with inhalation ID only
h Based on comparison of inhalation exposure with inhalation ID
i Based on comparison of oral and dermal exposure with oral TDI
j Based on comparison of oral, dermal and inhalation exposure with inhalation TDI
k Based on comparison of all exposure pathways with oral TDI
l S4ULs assume that free phase contamination is not present
m S4ULs based on a sub-surface soil to indoor air correction factor of 10
n The HCV applied is based on the intake of total Xylene and therefore exposure should not consider an isomer in isolation
o Oral, dermal and inhalation exposure compared with oral HCV
p S4ULs based on a sub-surface soil to indoor air correction factor of 1
q Based on a comparison of inhalation exposure with the inhalation TDI for localised effects
r Based on 2,4-dichlorophenol unless otherwise stated
s Based on 2,3,4,6-tetrachlorophenol
vap S4UL presented exceeded the vapour saturation limit, which is presented in brackets
sol S4UL presented exceeds the solubility saturation limit, which is presented in brackets
dir S4ULs based on a threshold protective of direct skin contact, guideline in brackets based on the health effects following long term exposure
provided for illustration only

Category 4 Screening Levels (C4SL) – Table taken from SP1010: Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination – Policy Companion Document (Department for Environmental, Food and Rural Affairs December 2014).

	Residential (with home-grown produce)	Residential (without home-grown produce)	Allotments	Commercial	Public Open Space 1	Public Open Space 2
Arsenic	37	40	49	640	79	170
Benzene	0.87	3.3	0.18	98	140	230
Benzo(a)pyrene	5.0	5.3	5.7	77	10	21
Cadmium	22	150	3.9	410	220	880
Chromium VI	21	21	170	49	21	250
Lead	200	310	80	2300	630	1300

All in mg/kg
Public Open Space 1 – for grassed area adjacent to residential housing
Public Open Space 2 - Park Type Public Open Space Scenario

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APPENDIX H

INSITU SOAKAWAY TEST RESULTS

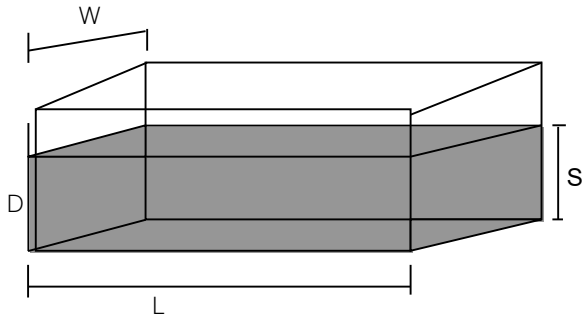
Trial pit No.: SA1

Soil Profile:

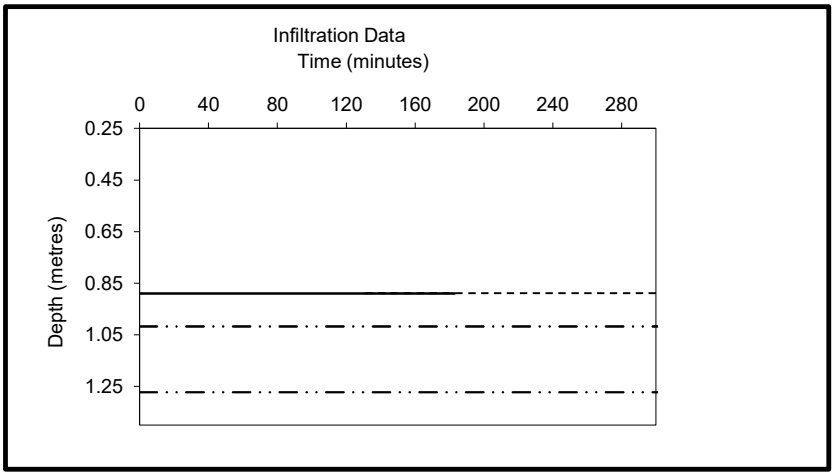
Depth (m) From:	To:	Description
0.00	0.25	MADE GROUND - topsoil
0.25	0.50	Slightly clayey gravelly SAND
0.50	1.40	Silty sandy CLAY.

Sketch plan of test zone

Not to scale
All dimensions in metres.
D = Depth of test pit = 1.4
W = Width of test pit = 0.5
L = Length of test pit = 1.9
S = Storage depth (of water) = 0.89



Soakaway Test Run 1 Test Date: 12/08/2025



Time (minutes)	Depth (m)
0	0.89
1	0.89
2	0.89
3	0.89
4	0.89
5	0.89
6	0.89
7	0.89
8	0.89
9	0.89
10	0.89
38	0.89
76	0.89
129	0.89
183	0.89

Notes:

Extrapolation of results indicate that the soakaway would fail to drain 75% of the start volume within a 24hr period.

Therefore, this test is considered to have failed, and soakaways are not considered to be viable in this location.

Test and analysis carried out in general accordance with BRE Digest 365

Job No.: 101722
Site: Castle Lane, Barnsley
Client: Halsall Lloyd Partnership

Dice Environmental

INSITU SOAKAWAY TEST RESULTS

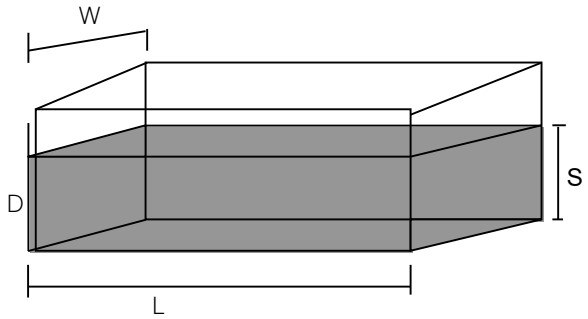
Trial pit No.: SA2

Soil Profile:

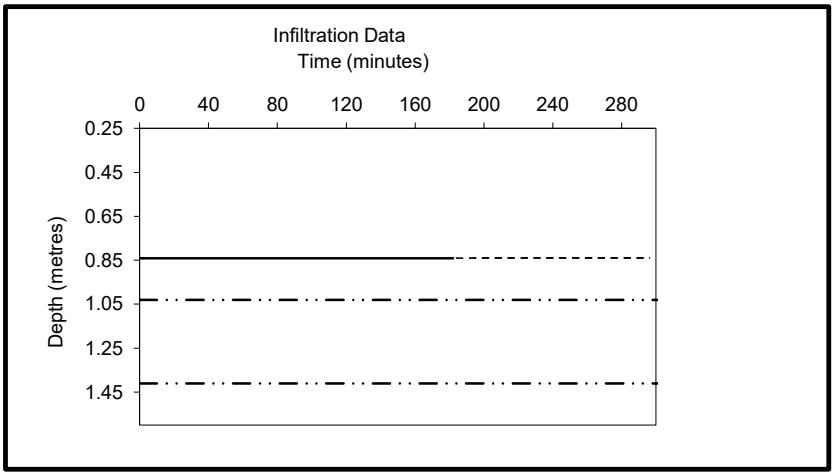
Depth (m) From:	To:	Description
0.00	0.25	MADE GROUND - topsoil
0.25	1.00	Slightly sandy slightly silty CLAY.
1.00	1.60	Dark grey slightly silty CLAY (becoming MUDSTONE)

Sketch plan of test zone

Not to scale
All dimensions in metres.
D = Depth of test pit = 1.6
W = Width of test pit = 0.6
L = Length of test pit = 1.9
S = Storage depth (of water) = 0.76



Soakaway Test Run 1 Test Date: 12/08/2025



Time (minutes)	Depth (m)
0	0.84
1	0.84
2	0.84
3	0.84
4	0.84
5	0.84
6	0.84
7	0.84
8	0.84
9	0.84
10	0.84
26	0.84
62	0.84
112	0.84
182	0.84

Notes:

Extrapolation of results indicate that the soakaway would fail to drain 75% of the start volume within a 24hr period.

Therefore, this test is considered to have failed, and soakaways are not considered to be viable in this location.

Test and analysis carried out in general accordance with BRE Digest 365

Job No.: 101722
Site: Castle Lane, Barnsley
Client: Halsall Lloyd Partnership

Dice Environmental