GEO Environmental Engineering

PHASE 1: DESK TOP STUDY REPORT

(PRELIMINARY ENVIRONMENTAL RISK ASSESSMENT)

PROPOSED RESIDENTIAL DWELLING

VALE VIEW, EGREMONT

CUMBRIA

FOR

ALEXA TAYLOR

GEO Environmental Engineering

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1.0 Introduction

1.1 Instruction

Geo Environmental Engineering Ltd (GEO) have been commissioned by Consultant, Day Cummins on behalf of the Client, Alexa Taylor to undertake a Phase 1: Desk Top Study Report (Preliminary Environmental Risk Assessment) for land at Vale View in Egremont, Cumbria to determine any potential geohazards that may affect the development of the site.

It is understood that the Client is considering developing the site for a residential end use. Further details relating to the scope of development are included in Section 2.1.

This Phase 1: Desk Top Study Report is suitable for submission to the Local Authority as part of a planning application.

1.2 Objectives

The main objective of this Phase 1: Desk Top Study (DTS) Report is to assess the geological and environmental sensitivity of the development area and the surrounding environs to determine any potential geohazards that may impact the proposed development. Particular attention is made to any potentially contaminative industries or processes that may have taken place on site or immediately adjacent which may be considered as potentially posing a risk of ground/groundwater contamination and ground gas that could negatively affect the proposed end users, adjacent sites and controlled waters. This Phase 1: Desk Top Study Report has been completed in accordance with the following documents:

- Land Contamination Risk Management Stages 1 to 4 (LCRM – www.gov.uk) – April 2021.
- CLR11: Model Procedures for the Management of Land Contamination. DEFRA/EA, 2004.
- BS10175: 2017: Code of Practice for the Investigation of Potentially Contaminated Sites.
- BS5930: 2020: Code of Practice for Site Investigations.
- UK Specification for Ground Investigation, 2nd Edition. Site Investigation Steering Group, 2011.
- Effective Site Investigation. Site Investigation Steering Group, 2013.

1.3 Third Party Data Sources

During the completion of this DTS, information has been obtained and reviewed from the following sources:

- British Geological Survey (BGS) Geological Mapping Data
- Environment Agency (EA).
- Enviro+Geo Insight Ground Sure Report – (GSR – Appendix II).
- Ordnance Survey Historical Maps (Appendix III).
- The Coal Authority Online Database.
- British Broadcasting Corporation (BBC) - https://www.bbc.co.uk/news/uk-england-cumbria-19407971

A site walkover was completed in March 2022. A summary of the site walkover is included in Section 2.0 and photographs of the site are presented in Appendix I.

1.4 Limitations of Use

The information, assessments, conclusions and recommendations presented within this Phase 1: Desk Top Study (DTS) Report are solely based on, and are limited to, the boundaries of the site, the immediate area and the historical use(s) as described.

This DTS has been completed using information relating to the physical and environmental setting of the development area, highlighting, where possible, any potential geohazards that might be encountered with respect to the proposed Commercial end use (i.e. “Best Fit” CLEA classification of *Residential)*.

Therefore, if a change in the proposed end use is envisaged, then a reassessment of the development area should be carried out.

Consequently, any comments, opinions, diagrams, cross sections and/or sketches contained within the DTS, and/or any configuration of the findings is purely conjectural and given for guidance only as no intrusive investigation works have been completed by Geo Environmental Engineering Ltd and it is recommended that confirmation of the anticipated ground conditions should be considered before development proceeds.

The conclusions and recommendations presented within this report are considered reasonable based on the available information. However, these cannot be guaranteed to gain regulatory approval. Therefore, the report should be passed to the appropriate regulatory authorities and/ or other key stakeholders in order to seek their approval of the findings prior to undertaking any works on site.

Reliance on the report is for the named client only. Agreement for the use or copying of this report by any Third Party must be obtained in writing from Geo Environmental Engineering Ltd. Reliance on the report is strictly in accordance with the Geo Environmental Engineering Ltd Standard Terms and Conditions, copies of which are available on request.

2.0 Site Location and Development Proposals

2.1 Development Proposal

It is understood that the site will be developed for residential end use. A proposed site layout plan has not been provided, however, it is anticipated that the development will comprise a single residential property with associated infrastructure and areas of soft landscaping.

Further details relating to the proposed development should be obtained from the Consultant.

2.2 Site Location

The site, occupying an area of c.0.04ha is located in the southeast of Egremont as indicated on the Site Location Plan included in Appendix I. Access to the site is from Vale View which runs parallel to the southern boundary.

- National Grid Reference: 301173, 510374
- Post Code: CA22 2RE (approximate only)

2.3 Site Description and Levels

A site walkover was completed in March 2022 and a selection of photographs of the site are included in Appendix I.

The site is currently an undeveloped piece of land covered by gravel surfacing with a gate located on the southern boundary. Large boulders are noted along the southern boundary to inhibit access with the northern boundary comprising a wall which backs on to the River Ehan which borders the site.

There was no evidence of any previous structures on site although the site is known to have been historically developed with further information below and in Section 3.5.

The site was noted to be relatively level although no topographical survey has been provided at this stage.

The Consultant has made it aware to GEO that a property was once present in the east of the site before having to be demolished in August 2012 following a partial collapse following a period of heavy rain which in turn led to an increase in the force of water in the adjacent river that caused the problem. This was then followed by a period of “controlled demolition”.

2.4 Surrounding Land Uses

The surrounding land is predominantly residential properties with areas of allotment gardens and undeveloped land as well as road infrastructure. The River Ehan is adjacent to the northern boundary.

2.5 Existing Infrastructure and Utilities

During the site walkover (March 2022), no visible utilities or service covers were noted on site although given the historical development of the site and the adjacent properties it is viable to suggest that some utilities are present below the site.

It is recommended that all utility plans are reviewed prior to commencing any intrusive site works.

3.0 Geo-Environmental Setting

This section is based principally upon a search of information available on public registers and obtained through the Ground Sure Report (GSR) to determine any environmental or geological constraints to the proposed development.

- Sections 3.1 to 3.4 refer to the Enviro+Geo Insight Ground Sure Report contained in Appendix II.
- Section 3.5 refers to the Historical Map Extracts contained in Appendix III.

3.1 Development Area Geology

A geological review of the site has been undertaken using information provided on published geological maps (BGS Sheet 37 Gosforth, Solid and Drift Edition, 1:50,000 scale) and the Ground Sure Report (GSR) contained in Appendix II.

An extract of the geological map is included below as Figure 1.

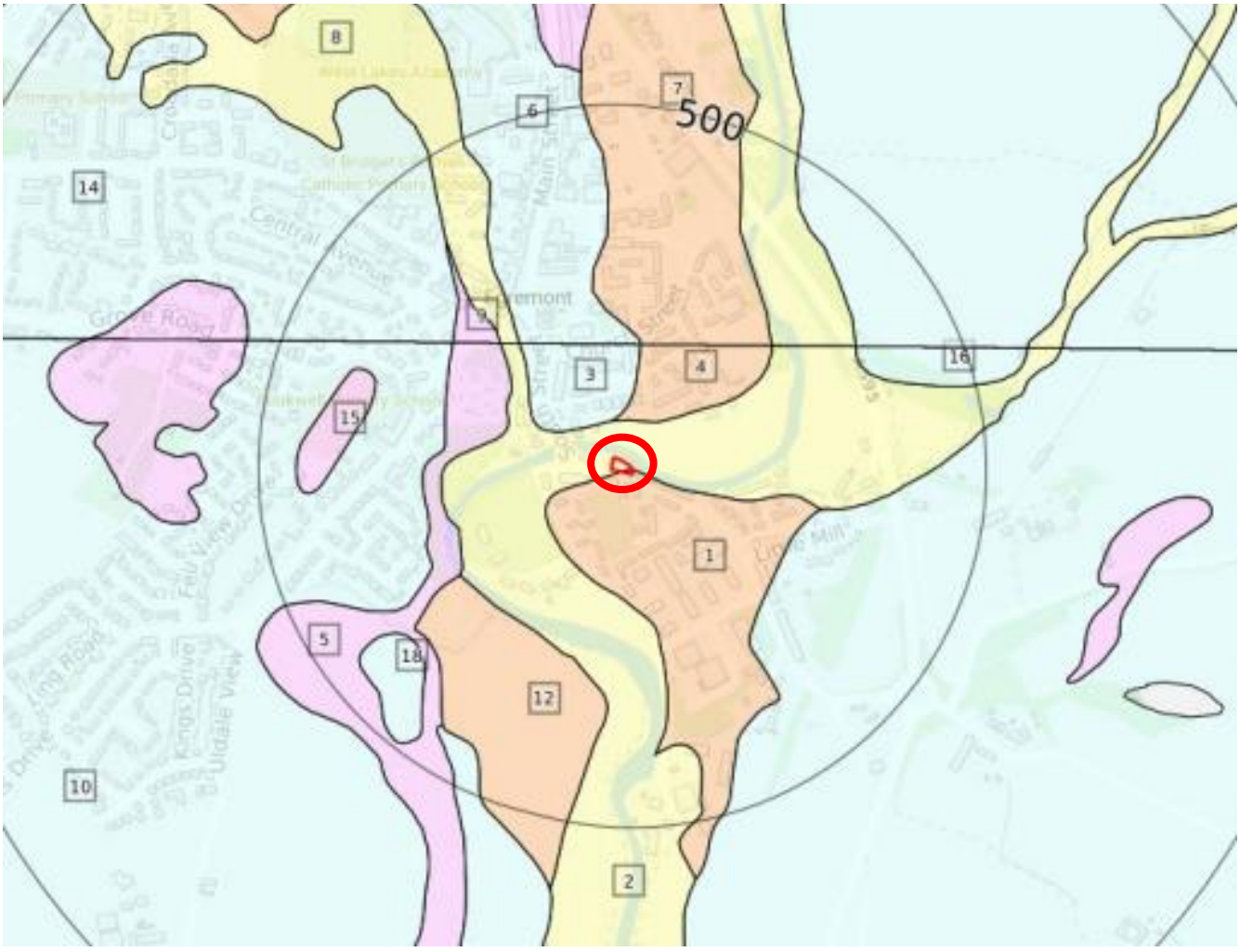


Figure 1. Geological Map Extract (red circle denotes approximate site location)

3.1.1 Made Ground

A review of the published geological map and the GSR does not indicate any made ground on the site, however, given the historical development of the site which has seen structures on site from at least c.1861 with a Tannery noted from at least c.1863 followed by possible residential properties (c.1960's)

and then a double residential garage structure adjacent to the western boundary of the site by c.1989 which remains until at least c.2011 (street imagery). Some disturbed ground and possible ground slabs and former foundations may also remain below the east of the site where the once present residential property once stood, until August c.2012.

Given that this is the case, made ground is expected across the site as a whole as well as the potential for former foundations and floor slabs. Any made ground present may increase in thickness towards the river which borders the northern boundary.

Made ground associated with the former land uses included those of significance (i.e. a Tannery) should be expected across the site. Reference has been made to the documents titled "Department of the Environment – Animal and animal products processing works" which covers the sites use as a Tannery with an overview of this document in Section 3.1.2.

No areas of significant made ground are recorded within c.250m of the site boundary.

3.1.2 Overview of "Department of the Environment – Animal and animal products processing works"

A summary of the DoE document identifies the following.

Background

- Tanneries included the tanning and leather dressing and fellmongering.
- A tannery is the conversion of putrescible raw hides and skins into finished leather. Fellmongering involves the removal of wool from sheepskins. All can be completed by the Tannery.
- Tanin acid from vegetable sources dates back to 400 BC and by the early 11th Century, vegetable extracts oil and potash alum were utilised. Towards the end of the 19th Century, chrome salt was discovered and in c.1893, single bath chrome tannage was introduced.
- Synthetic organic tans have been in use since c.1911 with early tans having utilised phenols, cresols, and later naphthalene.
- A good source of clean water was necessary for the tanning process.

Activities

- Processing of hides and skins for tanning by using solvents, lime and sodium sulphide, arsenic sulphides, acidic ammonium salts and diluted sulphuric acid.
- Solvent degreasing leads to waste product of grease and solvents.
- Tanning agents include Chromium (III) sulphate, vegetable and synthetic tans as well as formaldehyde and fish oils.
- Originally, the tanning process was undertaken in submerged tanning pots.
- Surface coatings comprised dyes or pigments dispersed in a binder such as casein or acrylic polymer.

Waste Handling

- Aqueous effluents containing suspended and dissolved organic matter, curing salt and grease and unused process chemicals.
- Any hide trimmings and flesh may also have been produced.
- Tannery wastes are mostly liquid effluent with a typical BOD of 3g/l which requires treatmentprior to discharge to sewers. If treated on site, large volumes of sludge is usually obtained.

Contamination

- The range of contaminants present on site depends on the processes undertaken on site and therefore it is recommended that an appropriate site investigation is completed to determine the exact nature of the contamination present.
- The drying of hides may have lead to run-off water contaminated with biocides entering the soil.
- Drums of chemicals as well as pits or tanks employed for tanning of hides may have leaked contaminants in to the ground.
- Metallic wastes such as Chromium, are generally limited to sites where tanning has taken place and are likely associated with sludge tanks, drying beds or open storage areas on permeable ground. Trivalent chromium and hydrated chromium oxides may be present.
- Arsenic preservatives were used to preserve raw skins.

Migration and Persistence of Contaminants

- The risk of encountering pathogens on land formerly used for animal processing diminishes with time and although some may persist over a period of several years the length of time since its closure should be taken in to account when assessing the site.
- In addition, the monitoring of the presence of organisms is recommended since this may be more helpful than relying on the ageing process to remove the risk.
- Biocides, heavy metals and pathogens remain for variable periods of time.
- The presence of solvents and fuel oils can remain for long periods of time and can provide on-going sources of water pollution, long after the original source has been removed.

A previous site investigation has been completed which incorporated some intrusive works with details given in Section 3.1.5.

3.1.3 Drift Geological Deposits

A review of the published geological map and the GSR indicates that the majority of the site is underlain by Alluvium which typically comprises varying deposits of clay, silt, sand and gravel as well as the potential for organic rich deposits including peat. An area of River Terrace Deposits is shown to encroach on to the southern boundary.

The GSR indicates the following geohazards and associated preliminary level of risk:

- Shrink-swell clays — very low risk
- Landslides — very low risk.
- Collapsible deposits — very low risk.
- Running sands — low risk.
- Compressible deposits — moderate risk – Compressibility and uneven settlement hazards are probably present based on the expected ground conditions.

The drift deposits are classified as a Secondary A Aquifer.

Phase 2: Ground Investigation works would be prudent to aid the design of foundations and any retaining structures or roads, should they be deemed necessary by the Design Team.

3.1.4 Bedrock Deposits

Reference to the published geological map and the GSR indicates the site is underlain by the St Bees Sandstone Member. This typically comprises red-brown very fine to medium grained cross-bedded sandstones which are devoid of coal seams.

The solid strata is classified as a Principal Aquifer.

The GSR indicates a negligible risk associated with the dissolution of soluble rocks.

3.1.5 Historical Investigation Records

GEO have been provided the following memo report which has been utilised to complete this DTS report, a copy is included in the Appendix.

- Atkins Geo Environmental Report (Memo) for the proposed river / replacement works on a length of wall bordering the River Ehen, Egremont (dated 6th March 2013).

The above memo notes the following.

- A desk top study had previously been completed by Atkins which concluded that there was a medium to high risk of widespread contamination at the site due to the current and historical use of the adjacent land as a tannery, saw mill, funeral services and garage.
- Intrusive investigation works were undertaken during January 2013 by Resource and Environmental Consultants (REC) and supervised by Volker Stevin, following instruction by Atkins
- Site works comprised 6 no. hand pits to a maximum depth of c.1.20m.
- PID analysis was completed on samples with chosen samples also targeted for laboratory analysis.
- Soil samples were targeted for a wide range of analytes by the testing regime which included heavy metals, PAH's, TPH's, phenols, asbestos, SVOC's and VOC's.
- Soil leachate and water samples from the River Ehan.
- No visual or olfactory evidence of potential contamination were observed during the ground investigation.
- Alluvial deposits were only identified in TP-C at a depth of c.1.10m which was shown to comprise sandy clayey gravel with occasional bands of peat.
- Groundwater was not encountered in any exploratory holes.
- In total, 11 no. samples were scheduled for analysis with only one elevated result (BaP) being identified at TPB (located off the development area) with no other elevated levels being recorded although the assessment was based on a Commercial end use.
- Elevated leachate results were noted in the soil samples recovered from TP's A, B, C, D and G which included Lead, several PAH's and Phenols.
- The results indicates that the re-use of site won materials (made ground) primarily from TP-B (off the site) may pose an unacceptable risk to controlled waters, primarily the River Ehan.
- The 2 no. water samples taken from the adjacent river have not exceeded relevant target concentrations which suggests that the potential leachable contaminants from the site are not migrating to, or significantly impacting the River Ehan although a DQRA may be required to fully dismiss the potential risk.

Although 6 no. pit locations were completed along the river wall it has been determined that only two of these are located on or directly adjacent to the site (TP's F & G). At these locations the ground conditions noted the following.

- TP-F (directly adjacent to the site) identified made ground to at least c.1.20m with a mix of clay with variable gravel content and sandy clayey gravel with of sandstone, siltstone, ceramic, glass, timber, brick and plastic. Occasional black staining was noted below c.0.75m. A layer of asphalt was noted from c.0.65m to c.0.75m.

- TP-G (on site) recorded made ground to at least c.2.00m and comprised gravel including sandstone, siltstone, mudstone, brick, plastic, glass, asphalt, fabric and ceramic.

- No visual or olfactory evidence of potential contamination were observed during the ground investigation.
- An elevated leachable result for Phenols was identified at TP-G on the soil sample recovered from c.1.20m. Although the logs do not record anything of concern and the report notes that the elevated result could be due to the historical use of the site.
- Various TPH bands were recorded within TP-F on the sample recovered from c.0.50m. Again the logs do not note anything of concern although a layer of asphalt is noted from c.0.65m which could be the source of the elevated TPH values.

3.1.6 Geological Features

No geological faults are recorded on or within close proximity to the site.

3.1.7 Coal Mining Assessment

Reference to the published geological map and the GSR indicates the site is underlain by the St Bees Sandstone Member which is devoid of coal seams. No coal seams are recorded as sub-cropping within c.1km of the site.

Reference to The Coal Authority online database and the GSR indicate that the site is not located within a coal mining referral area.

Based on the information presented above, the risk to the site and the proposed development from coal mining is considered negligible.

3.1.8 Non-Coal Mining and Quarrying Assessment

The GSR indicates that the site is located in an area where mineral veins are known to have been mined with the report including the following comment with regards to mineral vein mining:

> *"Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered."*

However, as the site is shown to be underlain by the St. Bees Sandstone which is devoid of these mineral veins their presence is not considered to extend below the site at influencing depth. Possible vein workings are recorded to the north of the site.

GEO is not responsible for third party information and records may be inaccurate or incomplete. Consequently, GEO recommends that care and consideration of potential mining features should be made by the developer during construction.

Historical plans have not identified any quarrying features or extraction features within c.250m of the site and therefore a lack of significant gas sources are located within a plausible distance of the site.

Information presented within the GSR suggests that there is no risk to the development from brine extraction, tin mining, clay mining and gypsum extraction. The GSR also notes that the site is not at risk of natural cavities.

3.1.9 Radon Gas Assessment

The GSR indicates that the development site is not located within a Radon Affected Area as defined by the British Geological Survey and Public Health England, as less than 1% of properties are above the action level. The plan provided in the GSR indicates that there no radon affected areas within c.250m of the site. Consequently, in accordance with the British Geological Survey and Public Health England, radon protection measures are not necessary.

3.2 Development Area Hydrogeology (Groundwater)

3.2.1 Made Ground/Soils

Any made ground/topsoil materials on site are likely to be classified as high permeability (i.e. worst-case scenario assumed until proven otherwise).

3.2.2 Drift Geology

The drift deposits beneath the site are classified as a Secondary A Aquifer (formerly Minor Aquifer).

3.2.3 Solid Geology

The underlying bedrock (St Bees Sandstone Member) is designated a Principal Aquifer status. This is typically strata 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.

3.3 Development Area Hydrology

3.3.1 Groundwater

Given the topography, the anticipated ground conditions as well as the River Ehan which borders the northern boundary, shallow groundwater should be expected and will be in hydraulic continuity with the river.

A review of the Hydrology information in the GSR indicates the following:

- No active groundwater abstractions are recorded within c.1km of the site.
- No surface water abstractions are recorded within c.1km of the site.
- No active potable water abstraction licences are located within c.1km of the site.
- The site is recorded as being within Type 3 Source Protection Zone.

3.3.2 Surface Water Features

The River Ehen is present directly adjacent to the northern boundary with Skirting Beck c.113m west and Black Beck c.214m east of the site.

3.3.3 Current Surface Water Run-off

Given the anticipated ground conditions as noted from the previous investigation works where predominantly gravel fill was noted, it is likely that any surface water will infiltrate directly into the shallow soils with some overland flow likely during heavy rainfall events.

3.4 Development Area Environmental Sensitivity

3.4.1 Site Ecology

No environmental designations (Sites of Special Scientific Interest, Special Area of Conservation, etc…) are present within c.250m. For further details, please refer to Section 10 of the GSR in Appendix II.

3.4.2 Authorisations, Incidents and Registers

The nearest Licensed pollutant Release (Part A(2)/B) is located c.150m southeast at Bridge End Garage. The nearest Licensed Discharge to Controlled Waters is located c.106m west at Syphon which is associated with sewage discharge in to the River Ehen. Others are located between c.137m and c.230m of the site all associated with sewage discharge.

Ten Pollutant Incidents are located within c.250m of the site with the closest located c.18m south of the site which is associated with oil and fuel contaminants. Other entries include sewage, biodegradable materials, crude sewage and contaminated water. The designated impact was noted to be “minor” and “no impact”.

No other Authorisations, Incidents and Registers are recorded within c.250m. The Design Team should refer to Section 4.0 of the GSR in Appendix II.

3.4.3 Determination of Contaminated Land (Part IIA)

A review of the GSR indicates that the site is not currently recorded as being considered as Contaminated Land under Part IIA EPA 1990. In addition, no sites are determined as Contaminated Land under Part IIA EPA 1990 within c.500m of the proposed development area.

3.4.4 Historical Industrial Land Uses

A review of Section 1.0 in the GSR indicates the following historical land uses:

- Potentially Contaminative Uses (PCU) – The GSR indicates a Tannery on site as PCUs on site. Offsite, PCUs include varied Mills, Grave Yard, unspecified ground workings and a Smithy.
- Historical Tanks – None noted within c.250m.
- Potentially Infilled Land – Although the site is not shown to be an area of infilled land, given the proximity of the site to the river and the previous investigation works having identified at least c.2.00m of made ground, the site may have historically been “raised” to aid in development as well as improving any potential flood issues.
- Historical Energy Features – Three are recorded within c.250m, the nearest is c.218m southeast.
- Historical Petrol and Fuel Site Database – None noted within c.250m.
- Historical Garage and Motor Vehicle Repair Database – The nearest garage was located c.31m west with another located c.118m southeast.

3.4.5 Current Industrial Land Uses

No entries are recorded on site although numerous are noted within c.250m of the site with these entries including a petrol filling station, an industrial estate, construction supplier, tool hire and electricity substations.

3.4.6 Fuel Station Entries

An “active” fuel filling station is located c.145m southeast.

3.4.7 Landfill and Waste Regulation/Management – Landfill Sites

No historical or active landfill sites are recorded within c.250m of the site.

A series of waste exemptions are present within c.250m all of which are located c.26m west and are located at Volkerstevin Bridge with varying uses although these are not considered to impact the site. Further details are provided in Section 3.0 of the GSR in Appendix II.

3.5 Development Area Historical Plan Appraisal

This section is based on historical Ordnance Survey map data and provides a summary of the site history, highlighting any industries, processes or activities that may be considered as Geohazards. Copies of historical maps which date back to 1861 are provided in Appendix III and a summary of the site history is included below.

The earliest map shows the site having been developed with numerous structures with the 1863 plan detailing the site to be a Tannery which potentially extends off the site to the west. The River Ehen is shown to be adjacent to the northern boundary and several Mill buildings (i.e. corn and saw mills) located c.80m northwest and c.120m northeast. A mill race is shown to "feed" these mills.

An area noted as "Pits" is located c.119m west with the remains of a Castle c.153m northwest.

By 1899, the buildings remain present on site although it is unknown of this remains the Tannery. A further Saw Mill is present adjacent to the eastern boundary with continued development of Egremont being recorded. The surrounding area continues to be developed.

No further or significant changes are recorded although the buildings on site may have been residential properties. A large structure is present adjacent to the western boundary of the site and may form part of a Garage. The Saw Mill to the east is no longer recorded.

By 1969, the possible residential buildings on site are no longer recorded. No. 3 property remains in the far east of the site.

A small square structure with online photographs appearing to show that it is possibly a residential garage remains until at least 2011 (street imagery). The existing property (No. 3) remains until 2012 when it is demolished.

During the site walkover (March 2022) the site was covered by gravel surfacing with no structures present.

3.5.1 Summary and Potential Contamination Sources

The surrounding area has been developed with numerous Mills, a Smithy and general properties (i.e. residential, churches, public houses, etc.).

On site, the site has been utilised as a Tannery, possibly residential properties and most recently a residential garage structure.

As discussed in Section 3.1.2, the overview of the DoE has detailed the processes that may have taken place on site as well as potential contaminants which potentially represent a risk to the future end users (i.e. residents) as well as controlled waters (i.e. River Ehen & the underlying Principal Aquifer).

As identified in the previous investigation works, up to at least c.2.00m of made ground has been identified on site which comprised clay and gravel containing sandstone, siltstone, ceramic, glass, timber,

brick, fabric and plastic with occasional black staining. A layer of asphalt was noted from c.0.65m to c.0.75m. No visual or olfactory evidence of potential contamination were observed during the ground investigation.

The samples from TP-G (previous site works) has not identified any elevated levels based on a commercial end use but given the period since this assessment was undertaken (c.2013) and the fact that the site is now to be redeveloped for a more sensitive end use (i.e. residential) further assessments will be required to determine any potential risks to the future end users.

With respect to the risk to controlled waters, leachable levels of Phenols as well as various TPH bandings which may have represented a risk to off site receptors including rivers, becks and the underlying Principal Aquifer.

With respect to ground gas risks, given that made ground has been identified on site (up to at least c.2.00m) as well as the alluvial deposits encountered off site noting the presence of peat bands there is a very low to low risk of ground gas.

The potential for hydrocarbons can also not be dismissed at this stage and therefore the presence of any hydrocarbon contamination potentially represents a source of hydrocarbon vapours and a potential gas risk.

4.0 Conceptual Site Model

A Conceptual Site Model (CSM) has been designed using the information presented within this DTS to provide a model of the anticipated ground, groundwater and ground gas conditions below the development area (Existing Site CSM).

The CSM utilises the established *Source – Pathway – Receptor* pollutant linkage model and is designed to provide an improved understanding of the site characteristics. This ensures adequate and appropriate Phase 2: Ground Investigation (P2 GI) Works are designed and undertaken for wide spread and targeted investigations, should they be deemed necessary.

Depending on the results of the ground investigation, the CSM can be refined based upon the outcomes of the intrusive works to ensure that appropriate remediation (if required) is completed to ensure the development area is "fit for purpose" in relation to the proposed residential end use.

The preliminary CSM is presented in the matrix on the following page and considers the anticipated *Source – Pathway – Receptor* pollutant linkage model derived for this site.

SOURCE-PATHWAY-RECEPTOR POLLUTANT LINKAGE MODEL
Sources:
S1 = Made Ground. Historical information indicates that the site has been developed since at least c.1861 with a Tannery recorded on site from at least c.1863 but possibly earlier. Possible residential properties and most recently a residential garage and no. 3 property prior to demolition works. Previous field works completed in 2013 have identified made ground on site with varied anthropogenic debris and in some cases "black staining". As such, made ground is known to be present on site although the base and thickness is not known with the made ground being a potential source of contamination with the risk to human health on a residential development is considered low to moderate.
S2 = Ground Gas - Potential Sources Identified. Made ground is known to be present on site (to at least c.2.00m) which could be a potential source of ground gas and the risk is further enhanced by the potential for possible hydrocarbons and organic rich soils (i.e. peat) with a low to moderate risk is anticipated at this stage until a period of monitoring determines otherwise. It would be prudent to confirm the risk by recording the levels of carbon dioxide and methane within the ground by completing a period of monitoring. Samples of soils recovered on site should also be targeted with the use of a PID to determine the presence of any volatiles.
Pathways:
P1 = Inhalation of air (wind-blown particles, vapours, gasses)
P2 = Dermal/direct contact (risk is low to moderate based on proposed end use)
P3 = Ingestion (risk is low to moderate based on proposed end use)
P4 = Migration through services (potable water supply)
P5 = Direct contact with building materials (aggressive ground conditions for buried concrete)
P6 = Surface Run-off (risk to surface water courses)
P7 = Leaching from Soils (to underlying Principal Aquifer and River Ehen)
Receptors:
R1 = Human Health (Residents and Construction Workforce)
R2 = Controlled Waters (Principal Aquifer and surface water courses)
R3 = Building Materials and Buried Utilities

5.0 Preliminary Qualitative Risk Assessment

5.1 Qualitative Geotechnical Risk Assessment – Risk Meter

The preliminary Geotechnical Risk Meter below indicates the potential level of geotechnical risk associated with the proposed development. The risk meter takes into account past development, geology, mining and other geotechnical factors which have been discussed earlier in the report.

Geotechnical:						
RISK =	NEGLIGIBLE	VERY LOW	LOW	MODERATE	HIGH	VERY HIGH

A risk level of MODERATE to HIGH is determined appropriate for this development area for the following reasons:

- The site has been developed since at least c.1861 with site uses shown to have included a Tannery, possible residential properties and a residential garage structure.
- Relict foundations, floor slabs and utilities should be expected across the site.
- In accordance with the DoE industry profile, depending on the actual processes undertaken at the Tannery, pits or tanks may have been employed for tanning of hides and therefore these structures may be present below the site.
- Given the presence of the retaining wall on the northern boundary, any proposed development should determine the presence of any existing foundations and heel of this wall so not to disturb these existing foundations to maintain the structural integrity of this wall.
- Previous investigation works have recorded made ground to at least c.2.00m.
- Geological records indicate that the site is underlain by Alluvial deposits which can be variable in nature and may comprise clay, silt, sand and gravels with the potential for highly organic deposits (i.e. peat). The previous investigation identified alluvial deposits (off site) which recorded bands of peat. As such, there is a potential for some variable ground conditions.
- If deep made ground as well as geotechnically poor deposits are identified below the site a piled foundation may be required for any proposed structures.
- Information suggests that the site is not at risk of coal or iron ore mining related geohazards.
- Given the close proximity of the River Ehen adjacent to the northern boundary, a shallow continuous groundwater surface should be expected which will be in hydraulic continuity with the River Ehen
- Where clay soils are present, their soil shrinkability could be affected by mature vegetation such as trees.
- The GSR indicates that mineral vein mining has historically taken place in close-proximity to the site although the geological setting suggests that the site is underlain by the St. Bees sandstone which is devoid of these mineral veins. However, GEO is not responsible for third party information and records may be inaccurate or incomplete. Consequently, GEO recommends that care and consideration of potential mining features should be made by the developer during construction.

Consequently, it would be prudent to complete a Phase 2: Ground Investigation to confirm the underlying ground conditions (i.e. the presence of any made ground and the drift deposits) and to allow samples to be recovered for geotechnical laboratory analysis to aid the design of foundations, highways and drainage.

5.2 Qualitative Contamination Risk Assessment – Risk Meter

The following Risk Meter determines the potential level of risk associated with the development with respect to ground contamination, groundwater contamination and ground gas. The risk meter takes into account the anticipated *Sources – Pathways – Receptors* within the pollutant linkage model and CSM.

Ground Contamination: ⇩						
RISK =	NEGLIGIBLE	VERY LOW	LOW	MODERATE	HIGH	VERY HIGH
Groundwater Contamination: ⇩						
RISK =	NEGLIGIBLE	VERY LOW	LOW	MODERATE	HIGH	VERY HIGH
Ground Gas: *(Carbon Dioxide and Methane)* ⇩						
RISK =	NEGLIGIBLE	VERY LOW	LOW	MODERATE	HIGH	VERY HIGH
Radon Gas: ⇩						
	<1%	**1%-3%**	**3%-5%**	**5%-10%**	**10%-30%**	**>30%***
	Estimated Percentage of Dwellings Exceeding the Radon Action Level					

Ground Contamination: A risk level of LOW to MODERATE is currently determined appropriate for this development with respect to ground contamination. In summary, the site has seen previous developments including a Tannery from at least the early 1860's, residential properties and a residential garage structure.

It has been shown by the previous investigation that deep made ground is present on site to a depth of at least c.2.00m which comprised gravel including sandstone, siltstone, mudstone, brick, plastic, glass, asphalt, fabric and ceramic and occasional black staining which could be a source of possible contamination including metals, hydrocarbons and asbestos. However, free-phase petroleum hydrocarbon contamination, i.e. fuels or oils are considered unlikely.

Given that contaminants are likely to be present within the made ground given the historical development of the site, the risk to human health on a residential development is considered low to moderate as the pathway will be present where areas of soft landscaping are present. The risk would be minimised in areas of hardstanding and buildings.

At this stage, since there is a potential pathway where soils are exposed at or close to the surface in areas of possible soft landscaping, it is possible that a remediation scheme such as a clean cover system would need to be introduced.

It is recommended that intrusive investigations are completed to confirm the shallow ground conditions. Samples should be recovered to allow for chemical laboratory screening to determine if the made ground and topsoil materials are suitable for re-use in a commercial context as part of a Human Health risk assessment.

It is recommended that the materials are screened for a generic suite of contaminants that should include: Metals, Metalloids, pH, Water Soluble Sulphate, Total Organic Carbon, Asbestos, Speciated PAH,

Speciated TPH, BTEX, MTBE, SVOC's, VOC's and Phenols. The use of a PID should also be utilised to determine the presence of any volatiles present in the soils at the time of any intrusive fieldworks.

In addition and in line with the DoE industry profile, biocides and pathogens may be present given that they remain for variable periods of time. However, given the time since the site was used as a Tannery (the early 1960's), these may no longer remain, but it may be prudent to target samples for these additional analytes to prove their presence or absence on site.

If, during the ground investigation, evidence of further potential contamination is identified, it may be necessary to increase the range of contaminant screening depending on the nature and type of contaminants encountered although the above range of analytic testing is considered to be comprehensive.

In addition to the above, a watching brief should be implemented during the development works to ensure that if any visual/olfactory evidence of potential contamination (i.e. fuel/oil) are identified then works should be stopped, the Local Authority notified and advice should be sought from an appropriately qualified and experienced Geo-Environmental Engineer.

Groundwater Contamination: Although made ground is known to be present on site originating from the historical land uses along with the presence of the River Ehen immediately adjacent to the northern boundary there is a potential risk from leachable contaminants present on site. However, this is considered to be very low risk based on the findings of the previous intrusive works since although leachable levels were detected in the soil samples, the water samples obtained from the river indicated no elevated levels and therefore it appeared that the materials present, although leachable were not negatively impacting the River Ehen.

Given that this assessment was undertaken during 2013 and with the materials having remained insitu the levels present are considered likely to have diminished further and therefore pose a lower level of risk to sensitive receptors (i.e. controlled waters) although to satisfy regulatory bodies it would be prudent to allow for a series of leachate and ground water sampling.

A testing regime similar to the human health assessment should be targeted for both leachate and groundwater analysis.

In addition, during any intrusive site works and proposed construction, care should be taken to prevent any made ground materials or soils from entering the River Ehen. As such, silt traps may be required to prevent wash off from site entering the river.

Ground Gas: A risk level of LOW to MODERATE is currently considered appropriate for the site with respect to potential harmful ground gas since deep made ground is known to be on site as well as the potential for hydrocarbon and volatile contaminants which may be a source of potential ground gas and vapours. In addition, given the site is underlain by alluvial deposits with the previous works identifying shallow organic deposits (i.e. peat) these may also represent a source of ground gas.

Therefore, it is recommended that a phase of gas and water monitoring is carried out as part an intrusive ground investigation. Given the proposed end use (residential), the gas monitoring must comprise at least 9 visits over a minimum period of 6 months. During any future intrusive works, if a lack of any hydrocarbons, volatiles and organic rich soils are identified this may allow the period and visits to be reassessed and reduced.

Radon Gas: The site is not located within a Radon Affected Area as defined by the British Geological Survey and Public Health England, as less than 1% of properties are above the action level. The plan provided in the GSR indicates that there no radon affected areas within c.250m of the site. Consequently, radon protection measures are not necessary.

6.0 Conclusions

When considering the results of this DTS report, the following can be seen:

- The development site is currently considered to represent a moderate to high geotechnical risk.
- The site is currently considered to pose a low to moderate risk to the proposed end users from ground contamination.
- The site is currently considered to pose a very low risk to adjacent sites (the surrounding environment) and controlled waters with respect to potential ground/groundwater contamination.
- The site is currently considered to pose a low to moderate risk to the proposed end users from ground gas.

It is recommended to complete a programme of Ground Investigation works to fully characterise the ground/groundwater conditions and ground gas regime below the site. The resulting information should be suitable for submission to the Local Authority for planning purposes and for the appointed design team.

In summary, the site works should include, but not limited to:

- Mini percussion boreholes and trial pits to determine the nature and in-situ strength of the underlying ground conditions across the development site.
- Given alluvial deposits are present below the site, if poor deposits are identified it may be necessary to undertake deeper boreholes (i.e. cable percussion) to identify a suitable founding horizon.
- Foundation inspection pits may be required on the existing retaining wall depending where any future structures re to be positioned.
- Soil logging by a suitably qualified and experienced Geo-Environmental Engineer.
- In-situ testing to aid foundation design.
- Laboratory geotechnical testing and chemical screening of soil samples.
- Installation of ground gas monitoring wells.
    - Ground gas monitoring to allow a minimum 9 visits over 6 months unless intrusive works allow the risk to be reduced.
- Level 1 Generic Quantitative Risk Assessment (GQRA) for Human Health in relation to contamination and ground gas.

Laboratory screening of soil samples will be required to determine the risk to potential receptors, namely proposed residents (human health).

GEO recommends that a “watching brief” and “observational technique” be applied to this site to ensure that if ground conditions appear to vary from those inferred within this investigation report then advice should be sought from a suitably qualified and experienced Geo-Environmental Engineer. In the event that made ground is identified during works on site then sampling of those materials should be completed by an appropriate Geo-Environmental Engineer to facilitate contamination screening and a Human Health Risk Assessment.

GEO is not responsible for the accuracy and completeness of third-party information and cannot be held responsible for any errors or omissions that may occur. The contents of this report have been specifically requested by the client and therefore any items not specifically mentioned cannot be assumed to be covered.

The conclusions and recommendations presented within this report are considered reasonable based on the available information. However, these cannot be guaranteed to gain regulatory approval. Therefore, the report should be passed to the appropriate Regulatory Authorities and/ or other key stakeholders in

order to seek their approval of the findings prior to finalising any land values as part of a site acquisition or prior to undertaking any construction or redevelopment works on site.

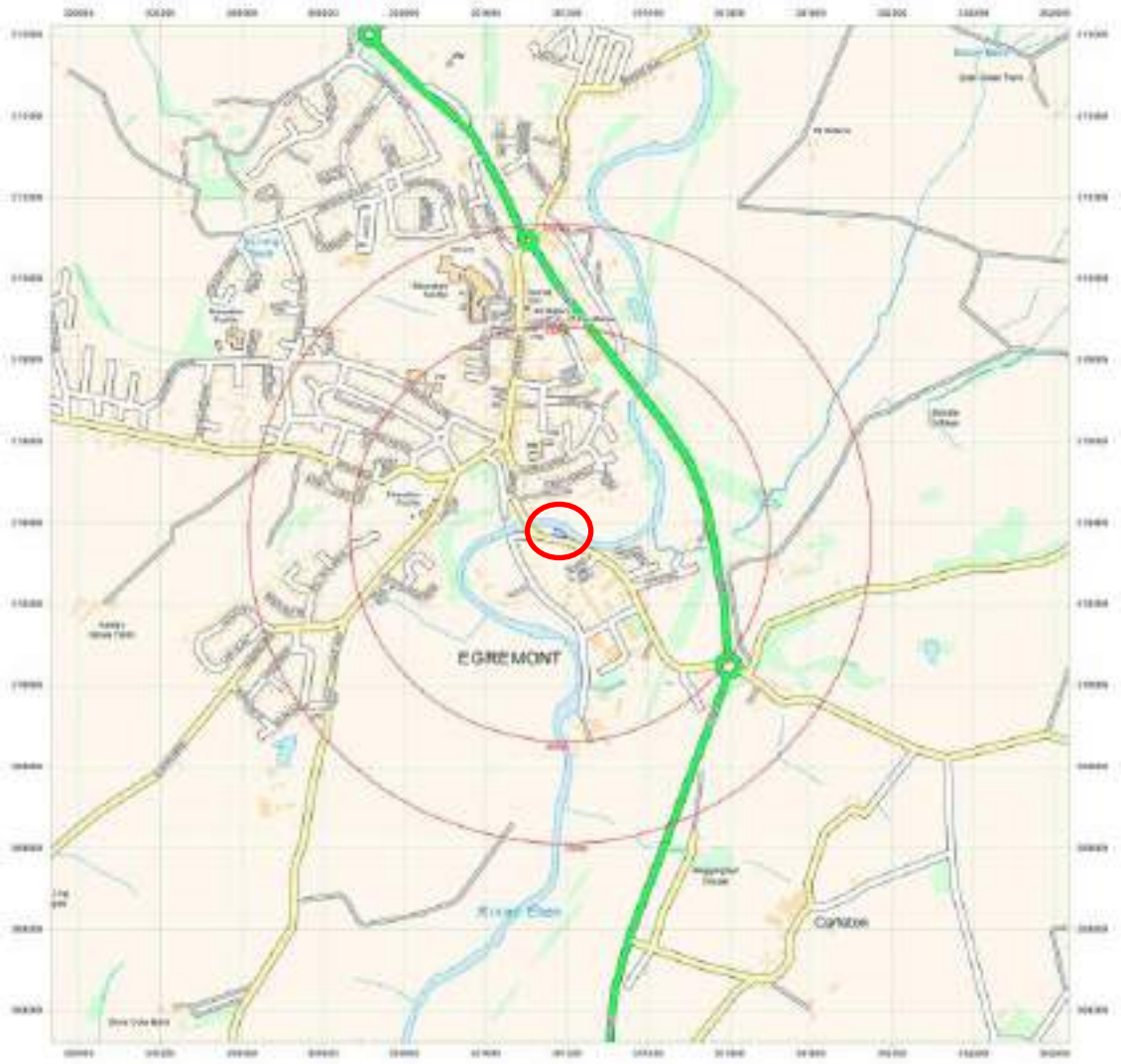
End of Report

Appendix I

- Site Location Plan
- Aerial Photograph Extract
- Existing Site Layout Plan
- Site Images (March 2022)

GEO
Environmental Engineering

GEO2021-5014: Site Location Plan



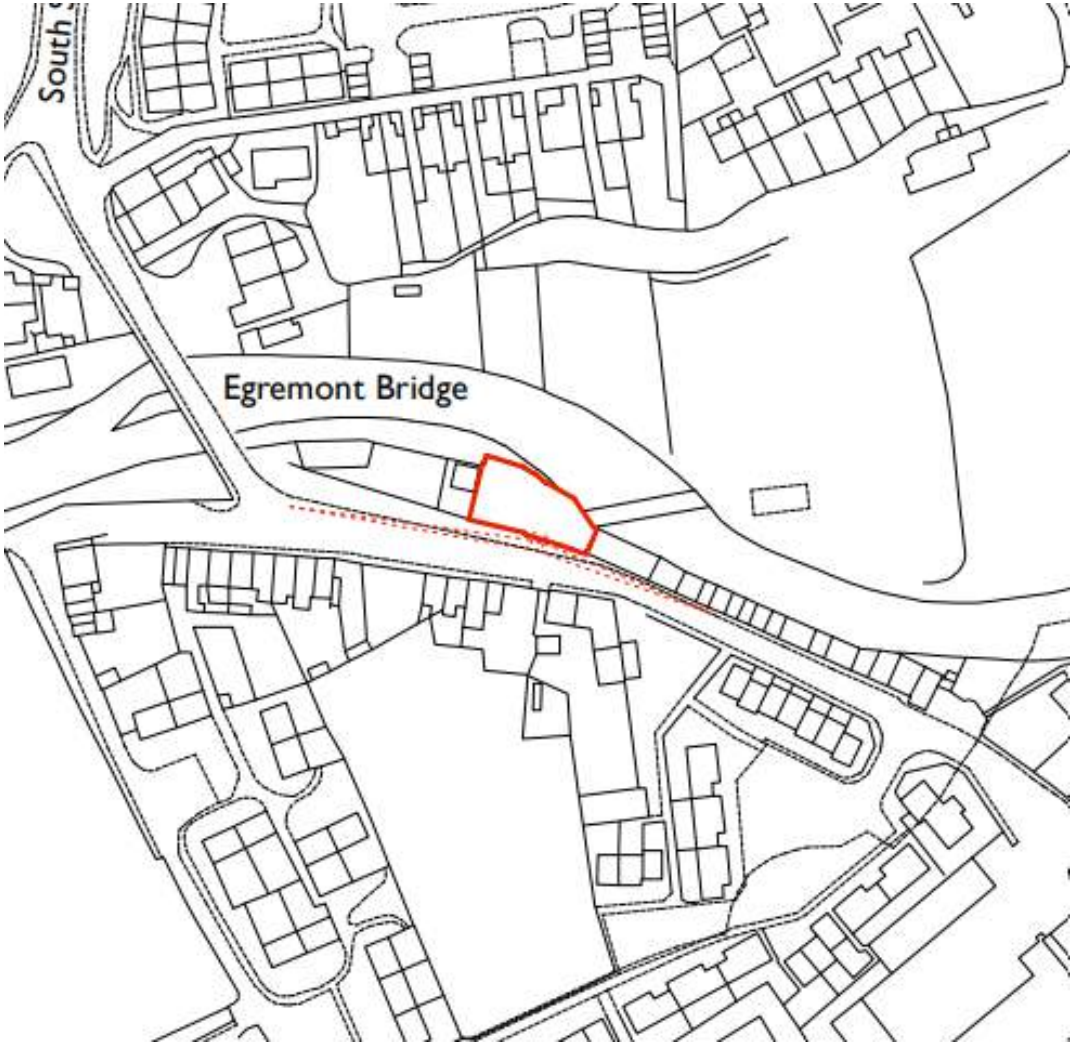
Website: www.geoenvironmentalengineering.com
Email: info@geoenvironmentalengineering.com
Telephone: 08456 768 895

GEO
Environmental Engineering

GEO2022-5330: Aerial Photograph Extract

Website: www.geoenvironmentalengineering.com
Email: info@geoenvironmentalengineering.com
Telephone: 08456 768 895

GEO2021-5014: Existing Site Layout Plan



Website: www.geoenvironmentalengineering.com
Email: info@geoenvironmentalengineering.com
Telephone: 08456 768 895

GEO2021-5014: Site Walkover Photographs (March 2022)

Website: www.geoenvironmentalengineering.com
Email: info@geoenvironmentalengineering.com
Telephone: 08456 768 895

Appendix II

- Ground Sure Report (GSR – GeoInsight and EnviroInsight)

Groundsure
LOCATION INTELLIGENCE

Enviro+Geo Insight

Order Details

Date: 06/07/2022

Your ref: EMS_792970_984021

Our Ref: EMS-792970_1022444

Site Details

Location: 301181 510373

Area: 0.04 ha

Authority: Copeland Borough Council

Contact us with any questions at:
info@groundsure.com
08444 159 000

Summary of findings

Page	Section	Past land use	On site	0-50m	50-250m	250-500m	500-2000m
13	1.1	Historical industrial land uses	1	2	9	44	-
16	1.2	Historical tanks	0	0	0	12	-
16	1.3	Historical energy features	0	0	3	15	-
17	1.4	Historical petrol stations	0	0	0	0	-
18	1.5	Historical garages	0	1	3	3	-
18	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
19	2.1	Historical industrial land uses	1	2	10	50	-
22	2.2	Historical tanks	0	0	0	17	-
23	2.3	Historical energy features	0	0	4	27	-
24	2.4	Historical petrol stations	0	0	0	0	-
24	2.5	Historical garages	0	1	5	6	-
Page	Section	Waste and landfill	On site	0-50m	50-250m	250-500m	500-2000m
26	3.1	Active or recent landfill	0	0	0	0	-
26	3.2	Historical landfill (BGS records)	0	0	0	0	-
27	3.3	Historical landfill (LA/mapping records)	0	0	0	0	-
27	3.4	Historical landfill (EA/NRW records)	0	0	0	1	-
27	3.5	Historical waste sites	0	0	0	0	-
27	3.6	Licensed waste sites	0	0	0	2	-
28	3.7	Waste exemptions	0	17	0	7	-
Page	Section	Current industrial land use	On site	0-50m	50-250m	250-500m	500-2000m
31	4.1	Recent industrial land uses	0	0	12	-	-
32	4.2	Current or recent petrol stations	0	0	1	0	-
33	4.3	Electricity cables	0	0	0	0	-
33	4.4	Gas pipelines	0	0	0	0	-
33	4.5	Sites determined as Contaminated Land	0	0	0	0	-

33	4.6	Control of Major Accident Hazards (COMAH)	0	0	0	0	-
33	4.7	Regulated explosive sites	0	0	0	0	-
34	4.8	Hazardous substance storage/usage	0	0	0	0	-
34	4.9	Historical licensed industrial activities (IPC)	0	0	0	0	-
34	4.10	Licensed industrial activities (Part A(1))	0	0	0	0	-
34	**4.11**	**Licensed pollutant release (Part A(2)/B)**	0	0	1	0	-
35	4.12	Radioactive Substance Authorisations	0	0	0	0	-
35	**4.13**	**Licensed Discharges to controlled waters**	0	0	11	10	-
38	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
38	4.15	Pollutant release to public sewer	0	0	0	0	-
38	4.16	List 1 Dangerous Substances	0	0	0	0	-
39	4.17	List 2 Dangerous Substances	0	0	0	0	-
39	**4.18**	**Pollution Incidents (EA/NRW)**	0	1	9	4	-
40	4.19	Pollution inventory substances	0	0	0	0	-
41	4.20	Pollution inventory waste transfers	0	0	0	0	-
41	4.21	Pollution inventory radioactive waste	0	0	0	0	-

Page	Section	Hydrogeology	On site	0-50m	50-250m	250-500m	500-2000m
42	**5.1**	**Superficial aquifer**	Identified (within 500m)				
44	**5.2**	**Bedrock aquifer**	Identified (within 500m)				
46	**5.3**	**Groundwater vulnerability**	Identified (within 50m)				
47	**5.4**	**Groundwater vulnerability- soluble rock risk**	Identified (within 0m)				
47	5.5	Groundwater vulnerability- local information	None (within 0m)				
48	**5.6**	**Groundwater abstractions**	0	0	0	0	10
51	5.7	Surface water abstractions	0	0	0	0	0
51	**5.8**	**Potable abstractions**	0	0	0	0	4
52	**5.9**	**Source Protection Zones**	1	0	0	0	-
52	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-

Page	Section	Hydrology	On site	0-50m	50-250m	250-500m	500-2000m
53	**6.1**	**Water Network (OS MasterMap)**	0	1	11	-	-

55	6.2	Surface water features	1	0	1	-	-
55	6.3	WFD Surface water body catchments	1	-	-	-	-
55	6.4	WFD Surface water bodies	0	1	0	-	-
56	6.5	WFD Groundwater bodies	1	-	-	-	-
Page	Section	River and coastal flooding	On site	0-50m	50-250m	250-500m	500-2000m
57	7.1	Risk of flooding from rivers and the sea	High (within 50m)				
58	7.2	Historical Flood Events	3	3	2	-	-
59	7.3	Flood Defences	0	0	0	-	-
59	7.4	Areas Benefiting from Flood Defences	0	2	1	-	-
59	7.5	Flood Storage Areas	0	0	0	-	-
60	7.6	Flood Zone 2	Identified (within 50m)				
61	7.7	Flood Zone 3	Identified (within 50m)				
Page	Section	Surface water flooding					
62	8.1	Surface water flooding	1 in 30 year, Greater than 1.0m (within 50m)				
Page	Section	Groundwater flooding					
64	9.1	Groundwater flooding	Moderate (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	1	2
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	0
67	10.8	Biosphere Reserves	0	0	0	0	0
67	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	0	0	0
68	10.12	Proposed Ramsar sites	0	0	0	0	0

68	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
68	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	0
70	**10.17**	**SSSI Impact Risk Zones**	1	-	-	-	-
71	**10.18**	**SSSI Units**	0	0	0	1	4
Page	Section	Visual and cultural designations	On site	0-50m	50-250m	250-500m	500-2000m
74	11.1	World Heritage Sites	0	0	0	-	-
75	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
75	11.3	National Parks	0	0	0	-	-
75	**11.4**	**Listed Buildings**	0	0	6	-	-
76	**11.5**	**Conservation Areas**	0	0	1	-	-
76	**11.6**	**Scheduled Ancient Monuments**	0	0	1	-	-
77	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	Agricultural designations	On site	0-50m	50-250m	250-500m	500-2000m
78	**12.1**	**Agricultural Land Classification**	Grade 3 (within 250m)				
79	12.2	Open Access Land	0	0	0	-	-
79	**12.3**	**Tree Felling Licences**	0	0	1	-	-
79	**12.4**	**Environmental Stewardship Schemes**	0	0	1	-	-
80	**12.5**	**Countryside Stewardship Schemes**	0	0	1	-	-
Page	Section	Habitat designations	On site	0-50m	50-250m	250-500m	500-2000m
81	**13.1**	**Priority Habitat Inventory**	0	0	6	-	-
82	13.2	Habitat Networks	0	0	0	-	-
82	13.3	Open Mosaic Habitat	0	0	0	-	-
82	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
83	**14.1**	**10k Availability**	Identified (within 500m)				
84	14.2	Artificial and made ground (10k)	0	0	0	0	-
85	14.3	Superficial geology (10k)	0	0	0	0	-

85	14.4	Landslip (10k)	0	0	0	0	-
86	14.5	Bedrock geology (10k)	0	0	0	0	-
86	14.6	Bedrock faults and other linear features (10k)	0	0	0	0	-
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	0	0	-
88	15.3	Artificial ground permeability (50k)	0	0	-	-	-
89	**15.4**	**Superficial geology (50k)**	2	0	9	7	-
90	**15.5**	**Superficial permeability (50k)**	Identified (within 50m)				
91	15.6	Landslip (50k)	0	0	0	0	-
91	15.7	Landslip permeability (50k)	None (within 50m)				
92	**15.8**	**Bedrock geology (50k)**	1	0	3	3	-
93	**15.9**	**Bedrock permeability (50k)**	Identified (within 50m)				
93	**15.10**	**Bedrock faults and other linear features (50k)**	0	0	3	5	-
Page	Section	Boreholes	On site	0-50m	50-250m	250-500m	500-2000m
95	**16.1**	**BGS Boreholes**	0	0	29	-	-
Page	Section	Natural ground subsidence					
97	**17.1**	**Shrink swell clays**	Very low (within 50m)				
98	**17.2**	**Running sands**	Low (within 50m)				
100	**17.3**	**Compressible deposits**	Moderate (within 50m)				
102	**17.4**	**Collapsible deposits**	Very low (within 50m)				
103	**17.5**	**Landslides**	Very low (within 50m)				
104	**17.6**	**Ground dissolution of soluble rocks**	Negligible (within 50m)				
Page	Section	Mining, ground workings and natural cavities	On site	0-50m	50-250m	250-500m	500-2000m
106	18.1	Natural cavities	0	0	0	0	-
107	18.2	BritPits	0	0	0	0	-
107	**18.3**	**Surface ground workings**	0	0	3	-	-
107	**18.4**	**Underground workings**	0	0	0	4	2
108	18.5	Historical Mineral Planning Areas	0	0	0	0	-

108	**18.6**	**Non-coal mining**	1	0	2	4	1
109	**18.7**	**Mining cavities**	0	0	0	0	5
110	18.8	JPB mining areas	None (within 0m)				
110	18.9	Coal mining	None (within 0m)				
110	18.10	Brine areas	None (within 0m)				
110	18.11	Gypsum areas	None (within 0m)				
110	18.12	Tin mining	None (within 0m)				
111	18.13	Clay mining	None (within 0m)				

Page	Section	Radon					
112	**19.1**	**Radon**	Less than 1% (within 0m)				

Page	Section	Soil chemistry	On site	0-50m	50-250m	250-500m	500-2000m
113	**20.1**	**BGS Estimated Background Soil Chemistry**	2	0	-	-	-
113	20.2	BGS Estimated Urban Soil Chemistry	0	0	-	-	-
113	20.3	BGS Measured Urban Soil Chemistry	0	0	-	-	-

Page	Section	Railway infrastructure and projects	On site	0-50m	50-250m	250-500m	500-2000m
114	21.1	Underground railways (London)	0	0	0	-	-
114	21.2	Underground railways (Non-London)	0	0	0	-	-
114	21.3	Railway tunnels	0	0	0	-	-
114	21.4	Historical railway and tunnel features	0	0	0	-	-
114	21.5	Royal Mail tunnels	0	0	0	-	-
115	21.6	Historical railways	0	0	0	-	-
115	21.7	Railways	0	0	0	-	-
115	21.8	Crossrail 1	0	0	0	0	-
115	21.9	Crossrail 2	0	0	0	0	-
115	21.10	HS2	0	0	0	0	-

Recent aerial photograph

Capture Date: 10/10/2018

Site Area: 0.04ha

Recent site history - 2008 aerial photograph

Capture Date: 05/10/2008

Site Area: 0.04ha

Recent site history - 2000 aerial photograph

Capture Date: 16/06/2000

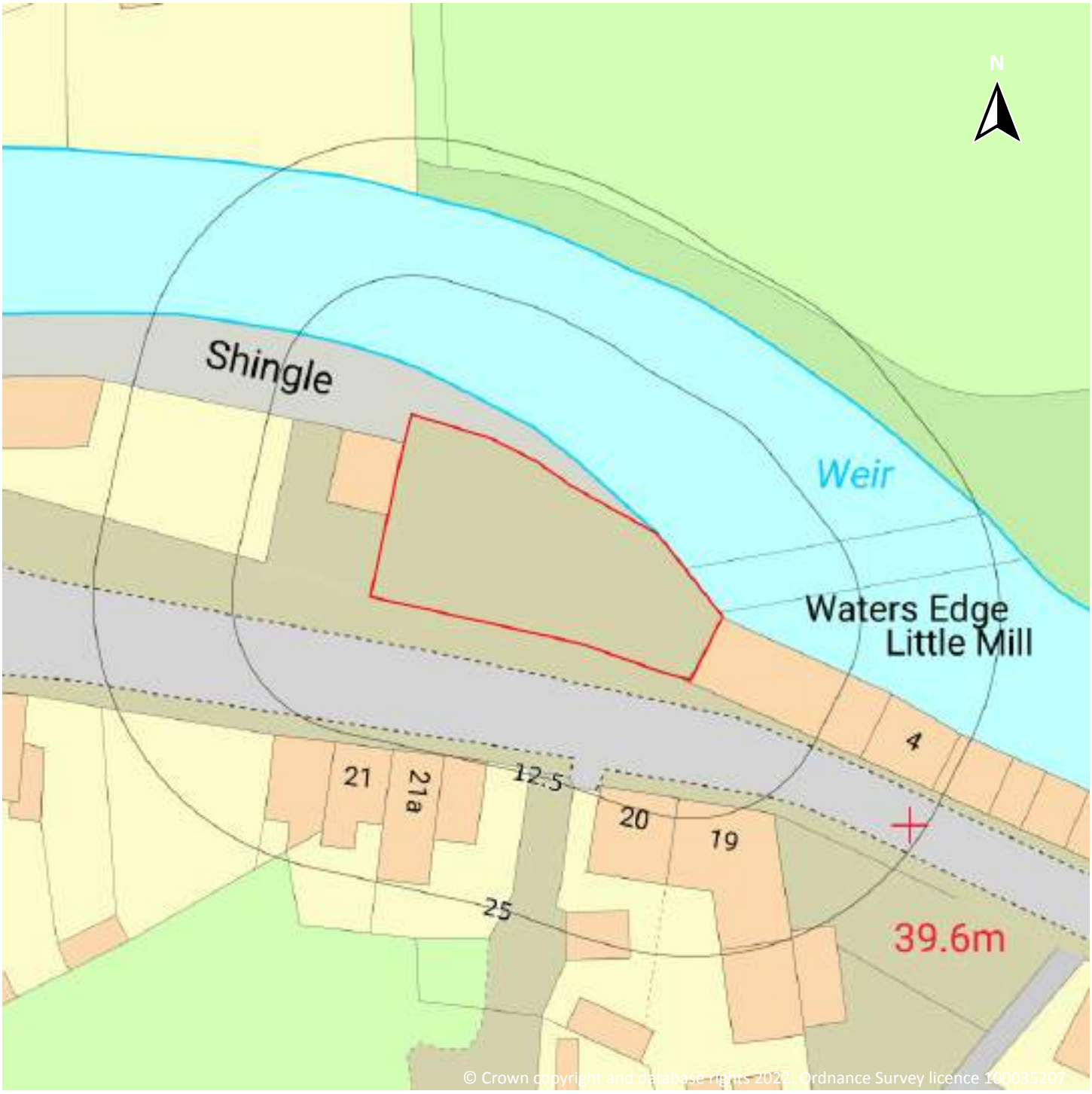
Site Area: 0.04ha

Recent site history - 1999 aerial photograph

Capture Date: 26/07/1999

Site Area: 0.04ha

OS MasterMap site plan



Site Area: 0.04ha

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	56

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 13**

ID	Location	Land use	Dates present	Group ID
1	**On site**	**Tannery**	**1861**	**579394**

ID	Location	Land use	Dates present	Group ID
A	9m NW	Unspecified Mill	1948	589849
A	49m NW	Corn Mill	1861	553773
A	59m NW	Unspecified Mill	1926	632312
B	70m NE	Sawmill	1948	638419
2	72m W	Police Station	1898	580950
B	81m NE	Sawmill	1898 - 1926	623974
B	112m NE	Flint Mill	1861	576816
3	119m W	Unspecified Pits	1861	554836
4	159m N	Grave Yard	1861	557211
D	199m E	Unspecified Ground Workings	1926	581264
E	233m E	Corn Mill	1861	553774
6	259m W	Smithy	1898	580574
7	260m NW	Tannery	1861	579393
E	274m E	Unspecified Mill	1948	592517
E	275m E	Unspecified Mill	1898 - 1926	623187
8	318m W	Flax Mill	1861	576807
F	320m N	Gas Works	1898	603005
G	327m E	Cuttings	1948	605669
H	328m E	Cuttings	1948	633502
H	330m SE	Cuttings	1926	548065
H	331m SE	Cuttings	1898	593540
G	334m E	Cuttings	1926	597352
G	336m E	Cuttings	1898	639056
F	342m N	Gas Works	1861	637357
F	344m N	Gas Works	1926	624370
F	349m N	Unspecified Tanks	1948	570301
9	350m E	Railway Sidings	1948	586564
F	353m N	Gasometer	1898 - 1926	609962

ID	Location	Land use	Dates present	Group ID
F	365m N	Unspecified Tank	1898	550976
F	369m N	Gasometer	1926	553286
10	372m N	Unspecified Disused Pit	1948	548653
F	372m NE	Gasometer	1861	553288
G	373m NE	Refuse Heap	1926 - 1948	634780
G	380m E	Unspecified Old Shaft	1948	586833
G	389m E	Unspecified Old Shaft	1926	586834
J	399m N	Unspecified Pit	1898 - 1926	626462
J	410m N	Railway Sidings	1898	586549
J	411m N	Mineral Railway Sidings	1926	580876
K	413m NE	Tannery	1861	579395
12	417m SE	Cuttings	1951	629773
K	418m NE	Disused Tannery	1898	554803
13	420m N	Unspecified Disused Mine	1948	567557
14	421m S	Unspecified Depot	1994	554061
L	425m S	Unspecified Mill	1898	627510
L	427m S	Woollen Mill	1926 - 1951	637311
15	437m NE	Unspecified Mine	1898	591659
L	437m S	Unspecified Factory	1971 - 1981	613399
L	437m S	Unspecified Mill	1994	620671
L	458m S	Paper Mill	1861	556561
J	464m N	Unspecified Mine	1926	595755
J	470m N	Railway Sidings	1861 - 1898	638153
16	484m N	Brewery	1861	560645
N	493m SE	Iron Ore Pit	1948	612014
N	497m SE	Tramway Sidings	1926	558362
N	497m SE	Iron Ore Pit	1926	620905

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 13**

ID	Location	Land use	Dates present	Group ID
F	344m N	Gas Works	1924 - 1968	77112
F	346m N	Gas Works	1863 - 1899	77446
F	350m N	Gasometer	1899 - 1924	76485
F	357m N	Gas Works	1982	76843
F	363m N	Gasometer	1899	75421
F	369m N	Gasometer	1924	77533
F	369m N	Gasometer	1968 - 1982	77071
F	370m N	Unspecified Tank	1961	72860
F	375m N	Gasometer	1863	75422
F	393m N	Gasometer	1968 - 1982	76574
F	394m N	Unspecified Tank	1961	72862
K	452m NE	Unspecified Tank	1899	72861

This data is sourced from Ordnance Survey / Groundsure.

1.3 Historical energy features

Records within 500m	18

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 13**

ID	Location	Land use	Dates present	Group ID
5	218m SE	Electricity Substation	1995	42075
D	231m SE	Electricity Substation	1995	43612
D	233m SE	Electricity Substation	1993 - 1994	43261
F	344m N	Gas Works	1924 - 1968	43200
F	346m N	Gas Works	1899	43034
F	350m N	Gasometer	1899 - 1924	43643
F	356m N	Gas Works	1863	43263
F	357m N	Gas Works	1982	42765
F	357m N	Electricity Substation	1994 - 1995	43037
I	362m S	Electricity Substation	1993 - 1994	43422
I	363m S	Electricity Substation	1995	42957
F	363m N	Gasometer	1899	42576
I	367m S	Electricity Substation	1990 - 1993	43010
F	369m N	Gasometer	1924	42778
F	369m N	Gasometer	1968 - 1982	43140
G	373m E	Electricity Substation	1982 - 1995	42674
F	375m N	Gasometer	1863	42577
F	393m N	Gasometer	1968 - 1982	42788

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	7

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 13**

ID	Location	Land use	Dates present	Group ID
A	31m W	Garage	1961	13604
C	118m SE	Garage	1982 - 1994	14289
C	118m SE	Garage	1995	13799
C	119m SE	Garage	1968	13780
11	388m N	Garage	1995	13950
M	452m N	Garage	1995	13771
M	453m N	Garage	1968 - 1994	14179

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	63

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 19**

ID	Location	Land Use	Date	Group ID
1	**On site**	**Tannery**	**1861**	**579394**
A	9m NW	Unspecified Mill	1948	589849
A	49m NW	Corn Mill	1861	553773

ID	Location	Land Use	Date	Group ID
A	59m NW	Unspecified Mill	1926	632312
B	70m NE	Sawmill	1948	638419
2	72m W	Police Station	1898	580950
B	81m NE	Sawmill	1926	623974
B	81m NE	Sawmill	1898	623974
B	112m NE	Flint Mill	1861	576816
3	119m W	Unspecified Pits	1861	554836
4	159m N	Grave Yard	1861	557211
D	199m E	Unspecified Ground Workings	1926	581264
E	233m E	Corn Mill	1861	553774
6	259m W	Smithy	1898	580574
7	260m NW	Tannery	1861	579393
E	274m E	Unspecified Mill	1948	592517
E	275m E	Unspecified Mill	1926	623187
E	275m E	Unspecified Mill	1898	623187
8	318m W	Flax Mill	1861	576807
F	320m N	Gas Works	1898	603005
G	327m E	Cuttings	1948	605669
H	328m E	Cuttings	1948	633502
H	330m SE	Cuttings	1926	548065
H	331m SE	Cuttings	1898	593540
G	334m E	Cuttings	1926	597352
G	336m E	Cuttings	1898	639056
F	342m N	Gas Works	1861	637357
F	344m N	Gas Works	1926	624370
F	349m N	Unspecified Tanks	1948	570301
9	350m E	Railway Sidings	1948	586564
F	353m N	Gasometer	1926	609962

ID	Location	Land Use	Date	Group ID
F	353m N	Gasometer	1898	609962
F	365m N	Unspecified Tank	1898	550976
F	369m N	Gasometer	1926	553286
10	372m N	Unspecified Disused Pit	1948	548653
F	372m NE	Gasometer	1861	553288
G	373m NE	Refuse Heap	1948	634780
G	380m E	Unspecified Old Shaft	1948	586833
G	381m NE	Refuse Heap	1926	634780
G	389m E	Unspecified Old Shaft	1926	586834
J	399m N	Unspecified Pit	1926	626462
J	410m N	Unspecified Pit	1898	626462
J	410m N	Railway Sidings	1898	586549
J	411m N	Mineral Railway Sidings	1926	580876
K	413m NE	Tannery	1861	579395
12	417m SE	Cuttings	1951	629773
K	418m NE	Disused Tannery	1898	554803
13	420m N	Unspecified Disused Mine	1948	567557
14	421m S	Unspecified Depot	1994	554061
L	425m S	Unspecified Mill	1898	627510
L	427m S	Woollen Mill	1926	637311
L	428m S	Woollen Mill	1951	637311
15	437m NE	Unspecified Mine	1898	591659
L	437m S	Unspecified Factory	1971	613399
L	437m S	Unspecified Factory	1981	613399
L	437m S	Unspecified Mill	1994	620671
L	458m S	Paper Mill	1861	556561
J	464m N	Unspecified Mine	1926	595755
J	470m N	Railway Sidings	1898	638153

ID	Location	Land Use	Date	Group ID
16	484m N	Brewery	1861	560645
N	493m SE	Iron Ore Pit	1948	612014
N	497m SE	Tramway Sidings	1926	558362
N	497m SE	Iron Ore Pit	1926	620905

This data is sourced from Ordnance Survey / Groundsure.

2.2 Historical tanks

Records within 500m	**17**

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 19**

ID	Location	Land Use	Date	Group ID
F	344m N	Gas Works	1968	77112
F	345m N	Gas Works	1924	77112
F	346m N	Gas Works	1899	77446
F	350m N	Gasometer	1924	76485
F	352m N	Gasometer	1899	76485
F	356m N	Gas Works	1863	77446
F	357m N	Gas Works	1982	76843
F	363m N	Gasometer	1899	75421
F	369m N	Gasometer	1924	77533
F	369m N	Gasometer	1982	77071
F	370m N	Gasometer	1968	77071
F	370m N	Unspecified Tank	1961	72860
F	375m N	Gasometer	1863	75422
F	393m N	Gasometer	1982	76574
F	394m N	Gasometer	1968	76574
F	394m N	Unspecified Tank	1961	72862

ID	Location	Land Use	Date	Group ID
K	452m NE	Unspecified Tank	1899	72861

This data is sourced from Ordnance Survey / Groundsure.

2.3 Historical energy features

Records within 500m	**31**

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 19**

ID	Location	Land Use	Date	Group ID
5	218m SE	Electricity Substation	1995	42075
D	231m SE	Electricity Substation	1995	43612
D	233m SE	Electricity Substation	1993	43261
D	233m SE	Electricity Substation	1994	43261
F	344m N	Gas Works	1968	43200
F	345m N	Gas Works	1924	43200
F	346m N	Gas Works	1899	43034
F	350m N	Gasometer	1924	43643
F	352m N	Gasometer	1899	43643
F	356m N	Gas Works	1863	43263
F	357m N	Gas Works	1982	42765
F	357m N	Electricity Substation	1995	43037
F	361m N	Electricity Substation	1994	43037
I	362m S	Electricity Substation	1993	43422
I	362m S	Electricity Substation	1994	43422
I	363m S	Electricity Substation	1995	42957
F	363m N	Gasometer	1899	42576
I	367m S	Electricity Substation	1990	43010
I	367m S	Electricity Substation	1990	43010

ID	Location	Land Use	Date	Group ID
I	367m S	Electricity Substation	1993	43010
I	367m S	Electricity Substation	1993	43010
F	369m N	Gasometer	1924	42778
F	369m N	Gasometer	1982	43140
F	370m N	Gasometer	1968	43140
G	373m E	Electricity Substation	1982	42674
G	373m E	Electricity Substation	1993	42674
G	373m E	Electricity Substation	1994	42674
G	373m E	Electricity Substation	1995	42674
F	375m N	Gasometer	1863	42577
F	393m N	Gasometer	1982	42788
F	394m N	Gasometer	1968	42788

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	12

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'.

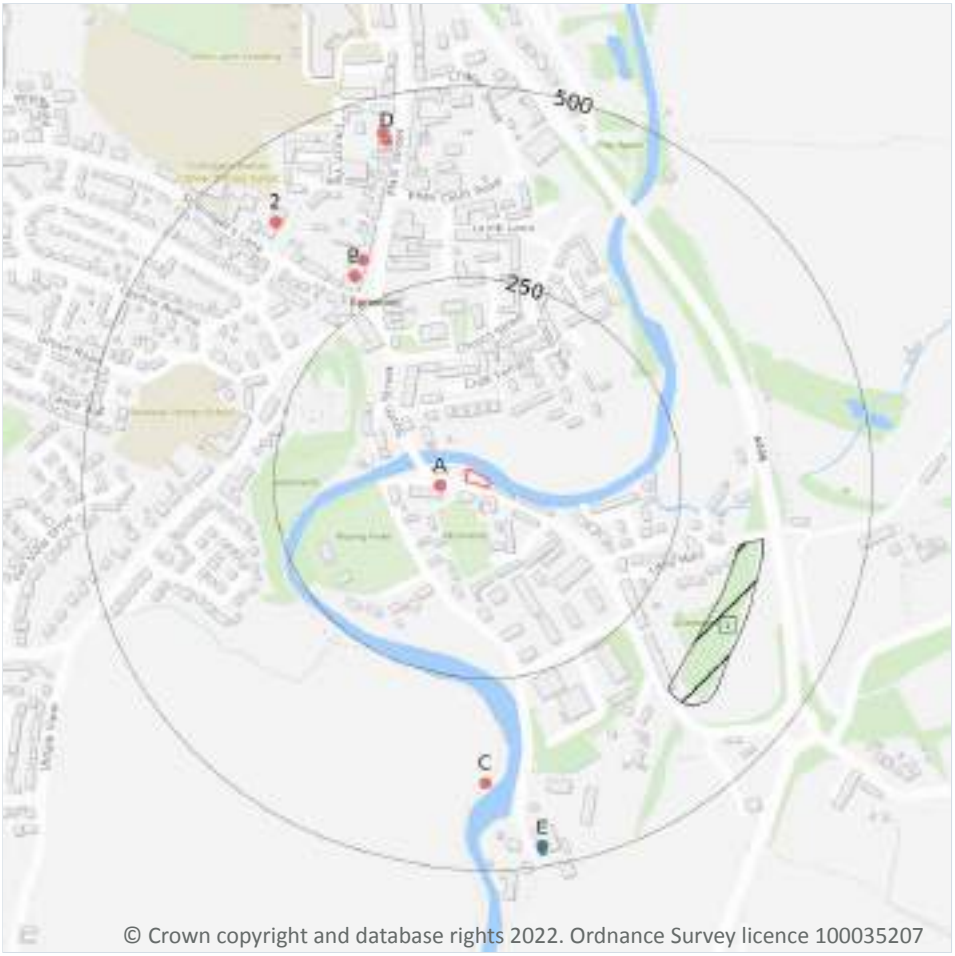
Features are displayed on the Past land use - un-grouped map on **page 19**

ID	Location	Land Use	Date	Group ID
A	31m W	Garage	1961	13604

ID	Location	Land Use	Date	Group ID
C	118m SE	Garage	1982	14289
C	118m SE	Garage	1993	14289
C	118m SE	Garage	1994	14289
C	118m SE	Garage	1995	13799
C	119m SE	Garage	1968	13780
11	388m N	Garage	1995	13950
M	452m N	Garage	1995	13771
M	453m N	Garage	1982	14179
M	453m N	Garage	1993	14179
M	453m N	Garage	1994	14179
M	453m N	Garage	1968	14179

This data is sourced from Ordnance Survey / Groundsure.

3 Waste and landfill



Site Outline

Search buffers in metres (m)

Historical landfill (EA/NRW)

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	1

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 26**

ID	Location	Details		
1	334m E	Site Address: Disused Railway Cuttings, Egremont Bypass, St Thomas's Cross, Egremont, Cumbria Licence Holder Address: Hooton, South Wirral, Cheshire	Waste Licence: Yes Site Reference: 164 Waste Type: Inert Environmental Permitting Regulations (Waste) Reference: - Licence Issue: 10/12/1991 Licence Surrender: 11/03/1993	Operator: - Licence Holder: Alfred McAlpine Construction Limited First Recorded 01/10/1991 Last Recorded: 31/10/1991

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

3.5 Historical waste sites

Records within 500m	0

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

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

3.6 Licensed waste sites

Records within 500m	2

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

Features are displayed on the Waste and landfill map on **page 26**

ID	Location	Details		
E	476m S	Site Name: J. M. Skips Brownriggs Yard Site Address: J. M. Skips Brownriggs Yard, Ennerdale Mill, Egremont, Cumbria, CA22 2PN Correspondence Address: -	Type of Site: 75kte HCI Waste Transfer Station Size: >= 25000 tonnes 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: JAC099 EPR reference: EA/EPR/AB3806LV/A001 Operator: Jacksons Marine Limited Waste Management licence No: 402645 Annual Tonnage: 74999	Issue Date: 03/09/2015 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued
E	476m S	Site Name: J. M. Skips Brownriggs Yard Site Address: J. M. Skips Brownriggs Yard, Ennerdale Mill, Egremont, Cumbria, CA22 2PN Correspondence Address: -	Type of Site: 75kte HCI Waste Transfer Station Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: JAC099 EPR reference: EA/EPR/AB3806LV/A001 Operator: Jacksons Marine Limited Waste Management licence No: 402645 Annual Tonnage: 74999	Issue Date: 03/09/2015 Effective Date: - Modified: - 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 **24**

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 26**

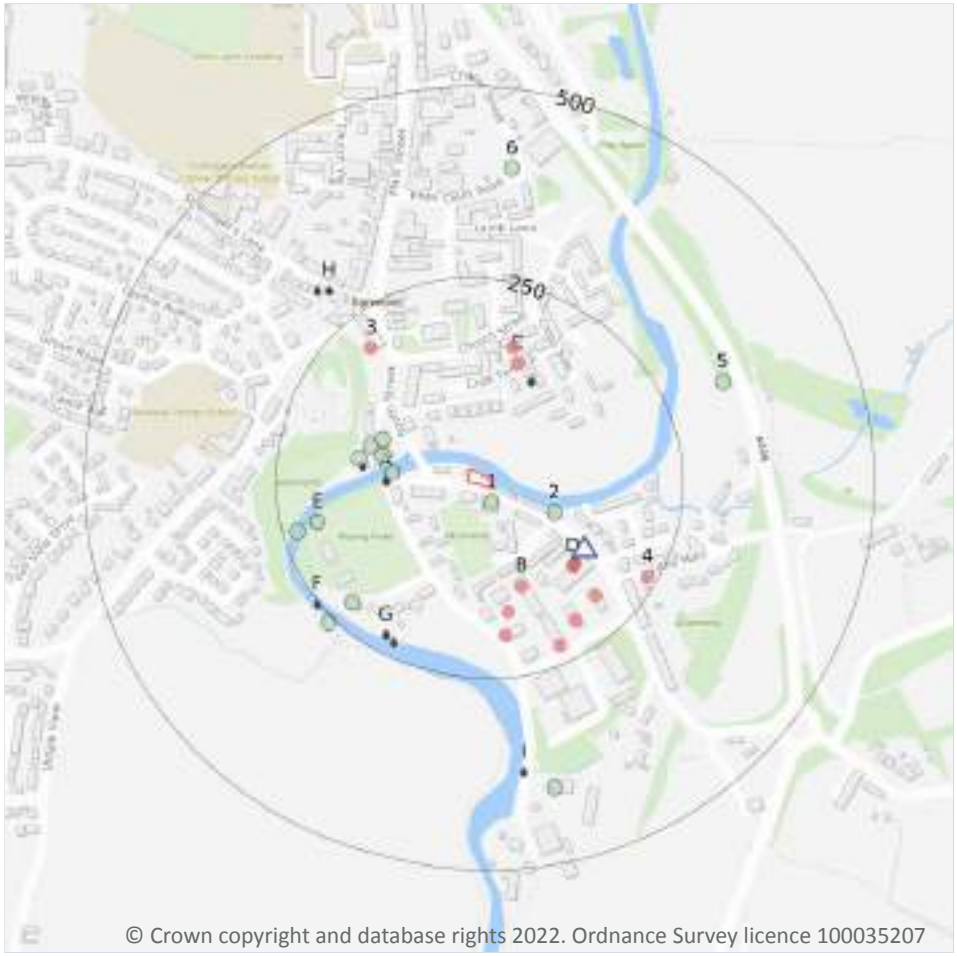
ID	Location	Site	Reference	Category	Sub-Category	Description
A	34m W	VolkerStevin Site Bridge End Cumbria CA22 2RE	EPR/CE5755ED/A001	Disposing of waste exemption	Non-Agricultural Waste Only	Deposit of waste from dredging of inland waters
A	34m W	VolkerStevin Site Bridge End Cumbria CA22 2RE	EPR/CE5755ED/A001	Disposing of waste exemption	Non-Agricultural Waste Only	Burning waste in the open

ID	Location	Site	Reference	Category	Sub-Category	Description
A	34m W	VolkerStevin Site Bridge End Cumbria CA22 2RE	EPR/CE5755ED/A001	Storing waste exemption	Non-Agricultural Waste Only	Storage of waste in secure containers
A	34m W	VolkerStevin Site Bridge End Cumbria CA22 2RE	EPR/CE5755ED/A001	Storing waste exemption	Non-Agricultural Waste Only	Storage of waste in a secure place
A	34m W	VolkerStevin Site Bridge End Cumbria CA22 2RE	EPR/CE5755ED/A001	Treating waste exemption	Non-Agricultural Waste Only	Treatment of waste aerosol cans
A	34m W	VolkerStevin Site Bridge End Cumbria CA22 2RE	EPR/CE5755ED/A001	Treating waste exemption	Non-Agricultural Waste Only	Treatment of waste at a water treatment works
A	34m W	VolkerStevin Site Bridge End Cumbria CA22 2RE	EPR/CE5755ED/A001	Treating waste exemption	Non-Agricultural Waste Only	Recovery of waste at a waste water treatment works
A	34m W	VolkerStevin Site Bridge End Cumbria CA22 2RE	EPR/CE5755ED/A001	Treating waste exemption	Non-Agricultural Waste Only	Preparatory treatments (baling, sorting, shredding etc)
A	34m W	VolkerStevin Site Bridge End Cumbria CA22 2RE	EPR/CE5755ED/A001	Treating waste exemption	Non-Agricultural Waste Only	Screening and blending of waste
A	34m W	VolkerStevin Site Bridge End Cumbria CA22 2RE	EPR/CE5755ED/A001	Treating waste exemption	Non-Agricultural Waste Only	Treatment of waste wood and waste plant matter by chipping, shredding, cutting or pulverising
A	34m W	VolkerStevin Site Bridge End Cumbria CA22 2RE	EPR/CE5755ED/A001	Using waste exemption	Non-Agricultural Waste Only	Use of waste in construction
A	34m W	VolkerStevin Site Bridge End Cumbria CA22 2RE	EPR/CE5755ED/A001	Using waste exemption	Non-Agricultural Waste Only	Spreading waste on non-agricultural land to confer benefit

ID	Location	Site	Reference	Category	Sub-Category	Description
A	34m W	VolkerStevin Site Bridge End Cumbria CA22 2RE	EPR/CE5755ED/A001	Using waste exemption	Non-Agricultural Waste Only	Use of mulch
A	34m W	VolkerStevin Site Bridge End Cumbria CA22 2RE	EPR/CE5755ED/A001	Using waste exemption	Non-Agricultural Waste Only	Spreading of plant matter to confer benefit
A	34m W	VolkerStevin Site Bridge End Cumbria CA22 2RE	EPR/CE5755ED/A001	Using waste exemption	Non-Agricultural Waste Only	Use of baled end-of-life tyres in construction
A	34m W	VolkerStevin Site Bridge End Cumbria CA22 2RE	EPR/CE5755ED/A001	Using waste exemption	Non-Agricultural Waste Only	Use of waste derived biodiesel as fuel
A	34m W	VolkerStevin Site Bridge End Cumbria CA22 2RE	EPR/CE5755ED/A001	Using waste exemption	Non-Agricultural Waste Only	Use of waste for a specified purpose
B	292m NW	31 Market Place Egremont Cumbria CA22 2AG	EPR/DF0932LY/A001	Treating waste exemption	Non-Agricultural Waste Only	Sorting and de-naturing of controlled drugs for disposal
B	305m NW	31, MARKET PLACE, EGREMONT, CA22 2AG	WEX058401	Treating waste exemption	Not on a farm	Sorting and de-naturing of controlled drugs for disposal
C	387m S	-	WEX134330	Using waste exemption	Not on a farm	Use of waste in construction
C	387m S	-	WEX133054	Disposing of waste exemption	Not on a farm	Deposit of waste from dredging of inland waters
2	409m NW	ST. BRIDGETS LANE, EGREMONT, CA22 2BD	WEX095446	Treating waste exemption	Not on a farm	Sorting and de-naturing of controlled drugs for disposal
D	442m N	66, MAIN STREET, EGREMONT, CA22 2DB	WEX128265	Treating waste exemption	Not on a farm	Sorting and de-naturing of controlled drugs for disposal
D	452m N	66 Main Street EGREMONT Cumbria CA22 2DB	EPR/TE5281YA/A001	Treating waste exemption	Non-Agricultural Waste Only	Sorting and de-naturing of controlled drugs for disposal

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

4 Current industrial land use



Site Outline

Search buffers in metres (m)

Recent industrial land uses

Current or recent petrol stations

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

Licensed Discharges to controlled waters

Pollution Incidents (EA/NRW)

4.1 Recent industrial land uses

Records within 250m	12

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on **page 31**

ID	Location	Company	Address	Activity	Category
B	135m S	West Cumbria Storage Ltd	Unit 6, Bridge End Industrial Estate, Egremont, Cumbria, CA22 2RD	Container and Storage	Transport, Storage and Delivery
D	149m SE	B P Car Wash	Bridge End, Egremont, Cumbria, CA22 2RQ	Vehicle Cleaning Services	Personal, Consumer and Other Services

ID	Location	Company	Address	Activity	Category
D	149m SE	BP Service Station	Bridgeend Garagehenry Graham, Bridge End, Egremont, Cumbria, Cumbria, CA22 2RQ	Petrol and Fuel Stations	Road and Rail
C	151m N	Electricity Sub Station	Cumbria, CA22	Electrical Features	Infrastructure and Facilities
B	164m S	Industrial Estate	Cumbria, CA22	Business Parks and Industrial Estates	Industrial Features
C	168m N	Hartleys Ice Cream	24, Church Street, Egremont, Cumbria, CA22 2AW	Dairy Products	Foodstuffs
B	195m S	Delkia	Unit 2g, Bridge End Industrial Estate, Egremont, Cumbria, CA22 2RD	Electrical and Electronic Engineers	Engineering Services
D	197m SE	Lloyds British Testing Plc	Unit 7b, Bridge End Industrial Estate, Egremont, Cumbria, CA22 2RD	Lifting and Handling Equipment	Industrial Products
3	205m NW	Demounters	48-49, South Street, Egremont, Cumbria, CA22 2AY	General Construction Supplies	Industrial Products
D	206m SE	Sunbelt Rentals Ltd	Unit 8 Bridge End Industrial Estate, Bridge End Road, Egremont, Cumbria, Cumbria, CA22 2RD	Construction and Tool Hire	Hire Services
D	227m SE	Electricity Sub Station	Cumbria, CA22	Electrical Features	Infrastructure and Facilities
4	237m SE	Electricity Sub Station	Cumbria, CA22	Electrical Features	Infrastructure and Facilities

This data is sourced from Ordnance Survey.

4.2 Current or recent petrol stations

Records within 500m	**1**

Open, closed, under development and obsolete petrol stations.

Features are displayed on the Current industrial land use map on **page 31**

ID	Location	Company	Address	LPG	Status
D	145m SE	BP	Bridge End, Egremont, Cumbria, CA22 2RQ	No	Open

This data is sourced from Experian.

4.3 Electricity cables

Records within 500m	0

High voltage underground electricity transmission cables.

This data is sourced from National Grid.

4.4 Gas pipelines

Records within 500m	0

High pressure underground gas transmission pipelines.

This data is sourced from National Grid.

4.5 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.

4.6 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.

4.7 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.

4.8 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.

4.9 Historical licensed industrial activities (IPC)

Records within 500m	0

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.

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

4.10 Licensed industrial activities (Part A(1))

Records within 500m	0

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

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

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

Records within 500m	1

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 31**

ID	Location	Address	Details	
D	150m SE	Bridge End Garage, Egremont, Cumbria, CA22 2RQ	Process: Unloading of Petrol into Storage at Service Stations Status: Current Permit Permit Type: Part B	Enforcement: No Enforcements Notified Date of enforcement: No Enforcements Notified Comment: No Enforcements Notified

This data is sourced from Local Authority records.

4.12 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.

4.13 Licensed Discharges to controlled waters

Records within 500m	21

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 31**

ID	Location	Address	Details	
A	106m W	SYPHON, EGREMONT, COPELAND, CUMBRIA	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01COP0026 Permit Version: 1 Receiving Water: RIVER EHEN	Status: POST NRA LEGISLATION WHERE ISSUE DATE > 31-AUG-89 (HISTORIC ONLY) Issue date: - Effective Date: 01/01/1995 Revocation Date: 02/09/2010
A	106m W	SYPHON, EGREMONT, COPELAND, CUMBRIA	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01COP0026 Permit Version: 2 Receiving Water: RIVER EHEN	Status: SURRENDERED UNDER EPR 2010 Issue date: 03/09/2010 Effective Date: 03/09/2010 Revocation Date: 11/04/2014
C	137m NE	EGREMONT ULLCOATS STW, CUMBRIA	Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - WATER COMPANY Permit Number: 017470026 Permit Version: 1 Receiving Water: TRIB KIRK BECK	Status: REVOKED - UNSPECIFIED Issue date: - Effective Date: 28/12/1979 Revocation Date: 30/01/1985
C	137m NE	EGREMONT ULLCOATS STW, CUMBRIA	Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - WATER COMPANY Permit Number: 017470026 Permit Version: 2 Receiving Water: TRIB KIRK BECK	Status: REVOKED - UNSPECIFIED Issue date: - Effective Date: 31/01/1985 Revocation Date: 31/10/1985
C	137m NE	EGREMONT ULLCOATS STW, CUMBRIA	Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - WATER COMPANY Permit Number: 017470026 Permit Version: 3 Receiving Water: TRIB KIRK BECK	Status: PRE NRA LEGISLATION WHERE ISSUE DATE 01-SEP-89 (HISTORIC ONLY) Issue date: - Effective Date: 01/11/1985 Revocation Date: -

ID	Location	Address	Details	
A	138m W	OLD BRIDGE, EGREMONT, CUMBRIA	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01COP0070 Permit Version: 1 Receiving Water: -	Status: REVOKED - UNSPECIFIED Issue date: - Effective Date: 01/04/1991 Revocation Date: 31/12/1994
A	138m W	OLD BRIDGE, EGREMONT, CUMBRIA	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01COP0070 Permit Version: 2 Receiving Water: UNKNOWN	Status: REVOKED - UNSPECIFIED Issue date: 01/01/1995 Effective Date: 01/01/1995 Revocation Date: 21/06/2005
G	225m SW	EHEN LODGE & HERON GARTH, BLEACH GREEN, EGREMONT, CUMBRIA, CA22 2NL	Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: 017490376 Permit Version: 1 Receiving Water: GROUNDWATER & EHEN	Status: NEW CONSENT (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 31/03/2003 Effective Date: 31/03/2003 Revocation Date: -
G	225m SW	EHEN LODGE & HERON GARTH, BLEACH GREEN, EGREMONT, CUMBRIA, CA22 2NL	Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: 017490376 Permit Version: 1 Receiving Water: GROUNDWATER & EHEN	Status: NEW CONSENT (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 31/03/2003 Effective Date: 31/03/2003 Revocation Date: -
G	230m SW	EHEN LODGE & HERON GARTH, BLEACH GREEN, EGREMONT, CUMBRIA, CA22 2NL	Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: 017490376 Permit Version: 1 Receiving Water: GROUNDWATER & EHEN	Status: NEW CONSENT (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 31/03/2003 Effective Date: 31/03/2003 Revocation Date: -
G	230m SW	EHEN LODGE & HERON GARTH, BLEACH GREEN, EGREMONT, CUMBRIA, CA22 2NL	Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: 017490376 Permit Version: 1 Receiving Water: GROUNDWATER & EHEN	Status: NEW CONSENT (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 31/03/2003 Effective Date: 31/03/2003 Revocation Date: -
F	252m SW	BARNEY SCAR, EGREMONT, COPELAND, CUMBRIA	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01COP0025 Permit Version: 1 Receiving Water: RIVER EHEN	Status: POST NRA LEGISLATION WHERE ISSUE DATE > 31-AUG-89 (HISTORIC ONLY) Issue date: - Effective Date: 01/01/1995 Revocation Date: 02/09/2010

ID	Location	Address	Details	
F	252m SW	BARNEY SCAR, EGREMONT, COPELAND, CUMBRIA	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01COP0025 Permit Version: 2 Receiving Water: RIVER EHEN	Status: SURRENDERED UNDER EPR 2010 Issue date: 03/09/2010 Effective Date: 03/09/2010 Revocation Date: 11/04/2014
H	298m NW	ST BRIDGETS LANE CSO, ST BRIDGETS LANE (THORN HOW), EGREMONT, COPELAND, CUMBRIA, CA22 8BB	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01COP0027 Permit Version: 3 Receiving Water: CULV'T'D SECT OF SKIRTING BECK	Status: VARIED UNDER EPR 2010 Issue date: 17/07/2017 Effective Date: 17/07/2017 Revocation Date: -
H	308m NW	ST BRIDGETS LANE CSO, ST BRIDGETS LANE (THORN HOW), EGREMONT, COPELAND, CUMBRIA, CA22 8BB	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01COP0027 Permit Version: 1 Receiving Water: RIVER EHEN	Status: POST NRA LEGISLATION WHERE ISSUE DATE > 31-AUG-89 (HISTORIC ONLY) Issue date: - Effective Date: 01/01/1995 Revocation Date: 02/09/2010
H	308m NW	ST BRIDGETS LANE CSO, ST BRIDGETS LANE (THORN HOW), EGREMONT, COPELAND, CUMBRIA, CA22 8BB	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01COP0027 Permit Version: 2 Receiving Water: RIVER EHEN	Status: VARIED UNDER EPR 2010 Issue date: 03/09/2010 Effective Date: 03/09/2010 Revocation Date: 16/07/2017
I	374m S	BRIDGE END IND ESTATE PS, ENNERDALE MILL, OFF BRIDGE END INDUSTRIAL ESTATE, EGREMONT, CUMBRIA, CA22 2PN	Effluent Type: MISCELLANEOUS DISCHARGES - EMERGENCY DISCHARGES Permit Number: 01COP0016 Permit Version: 1 Receiving Water: RIVER EHEN	Status: POST NRA LEGISLATION WHERE ISSUE DATE > 31-AUG-89 (HISTORIC ONLY) Issue date: 01/01/1995 Effective Date: 01/01/1995 Revocation Date: 22/09/2005
I	374m S	BRIDGE END IND ESTATE PS, ENNERDALE MILL, OFF BRIDGE END INDUSTRIAL ESTATE, EGREMONT, CUMBRIA, CA22 2PN	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01COP0016 Permit Version: 2 Receiving Water: RIVER EHEN	Status: CONSENT CURRENTLY UNDER APPEAL Issue date: 23/09/2005 Effective Date: 23/09/2005 Revocation Date: 09/10/2018
I	374m S	BRIDGE END IND ESTATE PS, ENNERDALE MILL, OFF BRIDGE END INDUSTRIAL ESTATE, EGREMONT, CUMBRIA, CA22 2PN	Effluent Type: SEWAGE DISCHARGES - PUMPING STATION - WATER COMPANY Permit Number: 01COP0016 Permit Version: 2 Receiving Water: RIVER EHEN	Status: CONSENT CURRENTLY UNDER APPEAL Issue date: 23/09/2005 Effective Date: 23/09/2005 Revocation Date: 09/10/2018

ID	Location	Address	Details	
I	374m S	BRIDGE END IND ESTATE PS, ENNERDALE MILL, OFF BRIDGE END INDUSTRIAL ESTATE, EGREMONT, CUMBRIA, CA22 2PN	Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01COP0016 Permit Version: 3 Receiving Water: RIVER EHEN	Status: VARIED UNDER EPR 2010 Issue date: 10/10/2018 Effective Date: 10/10/2018 Revocation Date: -
I	374m S	BRIDGE END IND ESTATE PS, ENNERDALE MILL, OFF BRIDGE END INDUSTRIAL ESTATE, EGREMONT, CUMBRIA, CA22 2PN	Effluent Type: SEWAGE DISCHARGES - PUMPING STATION - WATER COMPANY Permit Number: 01COP0016 Permit Version: 3 Receiving Water: RIVER EHEN	Status: VARIED UNDER EPR 2010 Issue date: 10/10/2018 Effective Date: 10/10/2018 Revocation Date: -

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

4.14 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.

4.15 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.

4.16 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.

4.17 List 2 Dangerous Substances

Records within 500m	0

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.

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

4.18 Pollution Incidents (EA/NRW)

Records within 500m	14

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 31**

ID	Location	Details	
1	18m S	Incident Date: 24/02/2002 Incident Identification: 60232 Pollutant: Oils and Fuel Pollutant Description: Unidentified Oil	Water Impact: Category 4 (No Impact) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
2	90m SE	Incident Date: 06/08/2001 Incident Identification: 22356 Pollutant: General Biodegradable Materials and Wastes Pollutant Description: Other General Biodegradable Material or Waste	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
A	98m W	Incident Date: 17/10/2002 Incident Identification: 115293 Pollutant: Sewage Materials Pollutant Description: Grey Water	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
A	115m W	Incident Date: 06/06/2002 Incident Identification: 83135 Pollutant: Oils and Fuel Pollutant Description: Diesel	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
A	120m W	Incident Date: 20/09/2002 Incident Identification: 109415 Pollutant: Oils and Fuel Pollutant Description: Diesel	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
A	133m W	Incident Date: 11/07/2002 Incident Identification: 90692 Pollutant: Oils and Fuel Pollutant Description: Unidentified Oil	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 3 (Minor)

ID	Location	Details	
A	144m W	Incident Date: 17/07/2001 Incident Identification: 16882 Pollutant: Sewage Materials Pollutant Description: Crude Sewage	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
E	202m W	Incident Date: 05/06/2003 Incident Identification: 163640 Pollutant: Contaminated Water Pollutant Description: Suspended Solids	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
F	216m SW	Incident Date: 22/12/2001 Incident Identification: 49369 Pollutant: Sewage Materials Pollutant Description: Storm Sewage	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
E	231m W	Incident Date: 03/05/2003 Incident Identification: 155808 Pollutant: Sewage Materials Pollutant Description: Storm Sewage	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
F	257m SW	Incident Date: 16/05/2003 Incident Identification: 158877 Pollutant: Sewage Materials Pollutant Description: Crude Sewage	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
5	329m NE	Incident Date: 20/05/2004 Incident Identification: 258433 Pollutant: Atmospheric Pollutants and Effects Pollutant Description: Effects on Humans	Water Impact: Category 4 (No Impact) Land Impact: Category 4 (No Impact) Air Impact: Category 2 (Significant)
6	397m N	Incident Date: 16/03/2002 Incident Identification: 64384 Pollutant: Oils and Fuel Pollutant Description: Mixed/Waste Oils	Water Impact: Category 3 (Minor) Land Impact: Category 3 (Minor) Air Impact: Category 3 (Minor)
I	400m S	Incident Date: 24/04/2002 Incident Identification: 74285 Pollutant: Atmospheric Pollutants and Effects Pollutant Description: Smoke	Water Impact: Category 4 (No Impact) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)

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

4.19 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.

4.20 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.

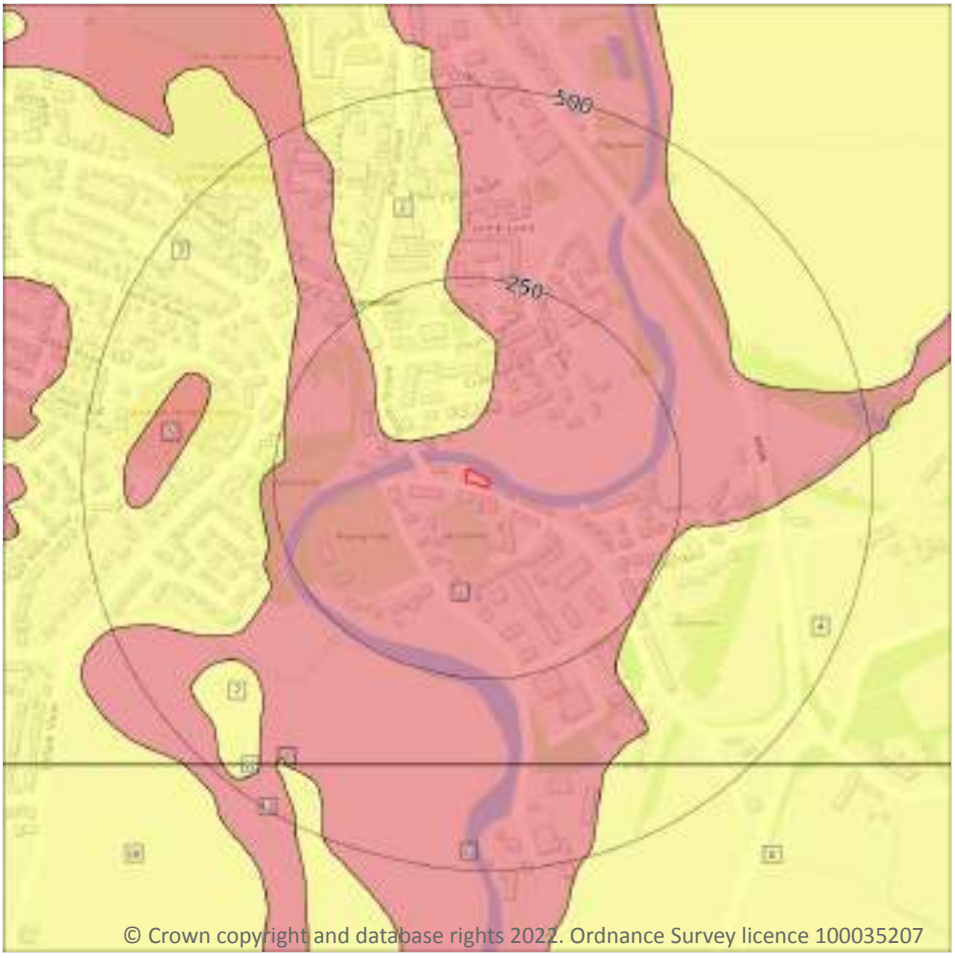
4.21 Pollution inventory radioactive waste

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



Site Outline

Search buffers in metres (m)

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

5.1 Superficial aquifer

Records within 500m	12

Aquifer status of groundwater held within superficial geology.

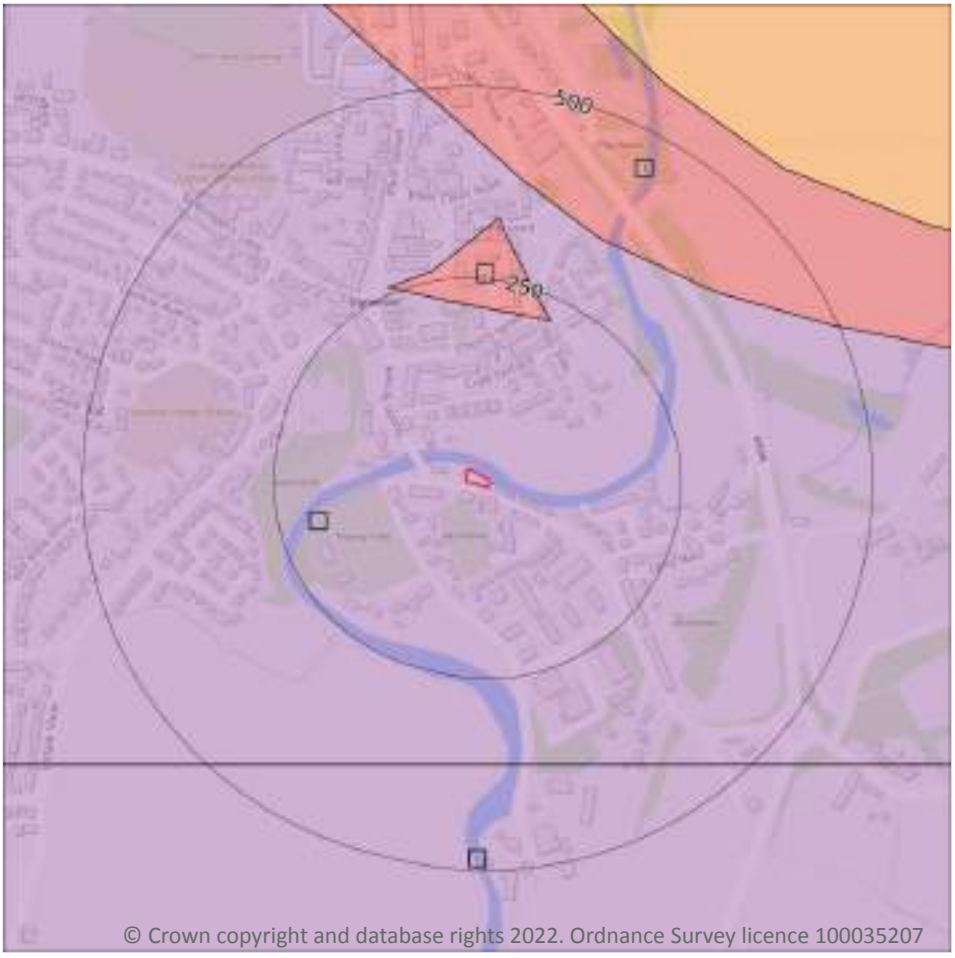
Features are displayed on the Hydrogeology map on **page 42**

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	52m N	Secondary Undifferentiated	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type

ID	Location	Designation	Description
3	238m W	Secondary Undifferentiated	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type
4	243m SE	Secondary Undifferentiated	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type
5	352m 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
6	362m S	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
7	371m SW	Secondary Undifferentiated	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type
8	395m SE	Secondary Undifferentiated	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type
9	433m SW	Secondary Undifferentiated	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type
10	436m SW	Secondary Undifferentiated	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type
11	444m SW	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
12	456m SW	Secondary Undifferentiated	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type

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	4

Aquifer status of groundwater held within bedrock geology.

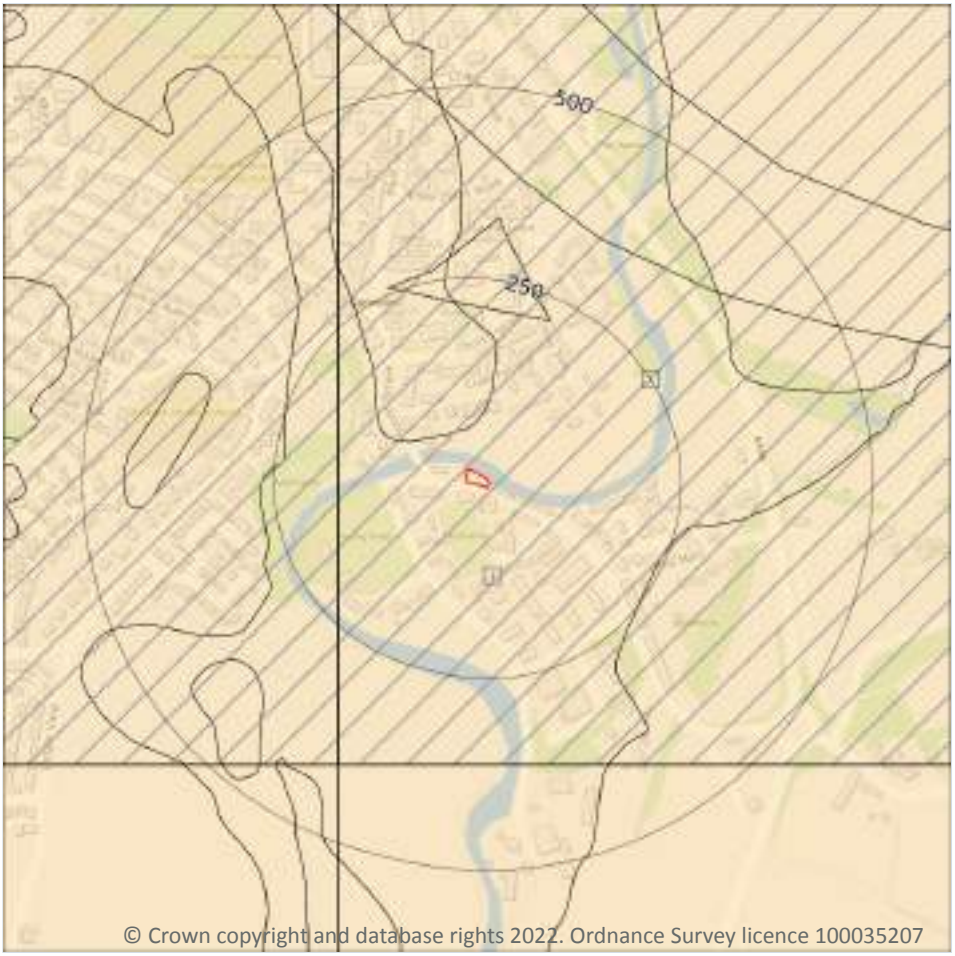
Features are displayed on the Bedrock aquifer map on **page 44**

ID	Location	Designation	Description
1	**On site**	**Principal**	**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. Generally principal aquifers were previously major aquifers**
2	211m N	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

ID	Location	Designation	Description
3	346m NE	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
4	362m S	Principal	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. Generally principal aquifers were previously major 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 46**

ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
1	On site	**Summary Classification: Secondary superficial aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer**	**Leaching class: High Infiltration value: >70% Dilution value: >550mm/year**	**Vulnerability: High Aquifer type: Secondary Thickness: >10m Patchiness value: >90% Recharge potential: High**	**Vulnerability: Low Aquifer type: Principal 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	**1**

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

ID	Maximum soluble risk category	Percentage of grid square covered by maximum risk
2	**Significant soluble rocks are likely to be present. Problems unlikely except with considerable surface or subsurface water flow.**	**14.000000000000002%**

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	10

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 48**

ID	Location	Details	
A	506m E	Status: Historical Licence No: 2774005010 Details: General Cooling (Existing Licences Only) (Low Loss) Direct Source: Ground Water - North West Region Point: "FLORENCE MINE AT EGREMONT,CUMBRIA" Data Type: Point Name: BRITISH NUCLEAR FUELS PLC Easting: 301700 Northing: 510300	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 28/11/1987 Expiry Date: - Issue No: 100 Version Start Date: 28/11/1987 Version End Date: -
A	506m E	Status: Historical Licence No: 2774005010 Details: Transfer between sources Direct Source: Ground Water - North West Region Point: "FLORENCE MINE AT EGREMONT,CUMBRIA" Data Type: Point Name: BRITISH NUCLEAR FUELS PLC Easting: 301700 Northing: 510300	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 28/11/1987 Expiry Date: - Issue No: 100 Version Start Date: 28/11/1987 Version End Date: -
A	506m E	Status: Historical Licence No: 2774005010 Details: "Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services" Direct Source: Ground Water - North West Region Point: "FLORENCE MINE AT EGREMONT,CUMBRIA" Data Type: Point Name: BRITISH NUCLEAR FUELS PLC Easting: 301700 Northing: 510300	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 28/11/1987 Expiry Date: - Issue No: 100 Version Start Date: 28/11/1987 Version End Date: -
A	506m E	Status: Historical Licence No: 2774005010 Details: Process water Direct Source: Ground Water - North West Region Point: "FLORENCE MINE AT EGREMONT,CUMBRIA" Data Type: Point Name: BRITISH NUCLEAR FUELS PLC Easting: 301700 Northing: 510300	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 28/11/1987 Expiry Date: - Issue No: 100 Version Start Date: 28/11/1987 Version End Date: -
A	506m E	Status: Historical Licence No: 2774005010 Details: Process water Direct Source: Ground Water - North West Region Point: FLORENCE MINE AT EGREMONT,CUMBRIA Data Type: Point Name: NUCLEAR DECOMMISSIONING AUTHORITY Easting: 301700 Northing: 510300	Annual Volume (m^3): 4830125 Max Daily Volume (m^3): 15911 Original Application No: - Original Start Date: 28/11/1987 Expiry Date: - Issue No: 101 Version Start Date: 01/04/2006 Version End Date: -

ID	Location	Details	
A	506m E	Status: Historical Licence No: 2774005010 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Ground Water - North West Region Point: FLORENCE MINE AT EGREMONT,CUMBRIA Data Type: Point Name: NUCLEAR DECOMMISSIONING AUTHORITY Easting: 301700 Northing: 510300	Annual Volume (m^3): 4830125 Max Daily Volume (m^3): 15911 Original Application No: - Original Start Date: 28/11/1987 Expiry Date: - Issue No: 101 Version Start Date: 01/04/2006 Version End Date: -
A	506m E	Status: Historical Licence No: 2774005010 Details: General Cooling (Existing Licences Only) (Low Loss) Direct Source: Ground Water - North West Region Point: FLORENCE MINE AT EGREMONT,CUMBRIA Data Type: Point Name: NUCLEAR DECOMMISSIONING AUTHORITY Easting: 301700 Northing: 510300	Annual Volume (m^3): 4830125 Max Daily Volume (m^3): 15911 Original Application No: - Original Start Date: 28/11/1987 Expiry Date: - Issue No: 101 Version Start Date: 01/04/2006 Version End Date: -
A	506m E	Status: Historical Licence No: 2774005010 Details: Transfer between Sources (Pre Water Act 2003) Direct Source: Ground Water - North West Region Point: FLORENCE MINE AT EGREMONT,CUMBRIA Data Type: Point Name: NUCLEAR DECOMMISSIONING AUTHORITY Easting: 301700 Northing: 510300	Annual Volume (m^3): 4830125 Max Daily Volume (m^3): 15911 Original Application No: - Original Start Date: 28/11/1987 Expiry Date: - Issue No: 101 Version Start Date: 01/04/2006 Version End Date: -
-	1113m SW	Status: Active Licence No: NW/074/0005/003 Details: Potable Water Supply - Direct Direct Source: Ground Water - North West Region Point: GULLEY FLATTS - EGREMONT BOREHOLE C Data Type: Point Name: United Utilities Water Ltd Easting: 300222 Northing: 509780	Annual Volume (m^3): 3,650,000 Max Daily Volume (m^3): 11,000 Original Application No: NPS/WR/035035 Original Start Date: 21/07/2015 Expiry Date: 31/03/2026 Issue No: 3 Version Start Date: 04/02/2021 Version End Date: -
-	1410m SW	Status: Active Licence No: NW/074/0005/003 Details: Potable Water Supply - Direct Direct Source: Ground Water - North West Region Point: BLACK LING - EGREMONT BOREHOLE D Data Type: Point Name: United Utilities Water Ltd Easting: 299975 Northing: 509615	Annual Volume (m^3): 3,650,000 Max Daily Volume (m^3): 11,000 Original Application No: NPS/WR/035035 Original Start Date: 21/07/2015 Expiry Date: 31/03/2026 Issue No: 3 Version Start Date: 04/02/2021 Version End Date: -

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

5.7 Surface water abstractions

Records within 2000m	0

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.

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

5.8 Potable abstractions

Records within 2000m	4

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.

Features are displayed on the Abstractions and Source Protection Zones map on **page 48**

ID	Location	Details	
A	506m E	Status: Historical Licence No: 2774005010 Details: "Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services" Direct Source: Ground Water - North West Region Point: "FLORENCE MINE AT EGREMONT,CUMBRIA" Data Type: Point Name: BRITISH NUCLEAR FUELS PLC Easting: 301700 Northing: 510300	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 28/11/1987 Expiry Date: - Issue No: 100 Version Start Date: 28/11/1987 Version End Date: -
A	506m E	Status: Historical Licence No: 2774005010 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Ground Water - North West Region Point: FLORENCE MINE AT EGREMONT,CUMBRIA Data Type: Point Name: NUCLEAR DECOMMISSIONING AUTHORITY Easting: 301700 Northing: 510300	Annual Volume (m^3): 4830125 Max Daily Volume (m^3): 15911 Original Application No: - Original Start Date: 28/11/1987 Expiry Date: - Issue No: 101 Version Start Date: 01/04/2006 Version End Date: -

ID	Location	Details	
-	1113m SW	Status: Active Licence No: NW/074/0005/003 Details: Potable Water Supply - Direct Direct Source: Ground Water - North West Region Point: GULLEY FLATTS - EGREMONT BOREHOLE C Data Type: Point Name: United Utilities Water Ltd Easting: 300222 Northing: 509780	Annual Volume (m^3): 3,650,000 Max Daily Volume (m^3): 11,000 Original Application No: NPS/WR/035035 Original Start Date: 21/07/2015 Expiry Date: 31/03/2026 Issue No: 3 Version Start Date: 04/02/2021 Version End Date: -
-	1410m SW	Status: Active Licence No: NW/074/0005/003 Details: Potable Water Supply - Direct Direct Source: Ground Water - North West Region Point: BLACK LING - EGREMONT BOREHOLE D Data Type: Point Name: United Utilities Water Ltd Easting: 299975 Northing: 509615	Annual Volume (m^3): 3,650,000 Max Daily Volume (m^3): 11,000 Original Application No: NPS/WR/035035 Original Start Date: 21/07/2015 Expiry Date: 31/03/2026 Issue No: 3 Version Start Date: 04/02/2021 Version End Date: -

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

5.9 Source Protection Zones

Records within 500m	**1**

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

Features are displayed on the Abstractions and Source Protection Zones map on **page 48**

ID	Location	Type	Description
1	**On site**	**3**	**Total catchment**

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

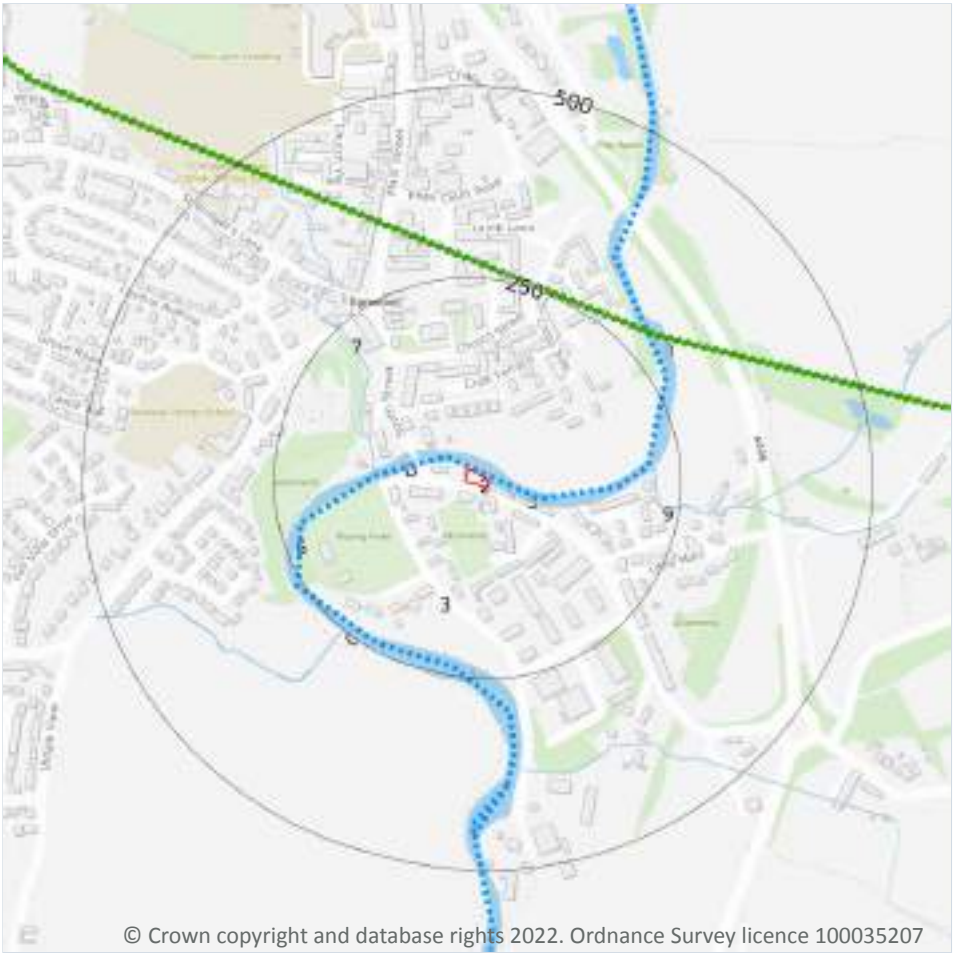
5.10 Source Protection Zones (confined aquifer)

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	**12**

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 53**

ID	Location	Type of water feature	Ground level	Permanence	Name
5	9m NE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	River Ehen

ID	Location	Type of water feature	Ground level	Permanence	Name
B	80m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
B	91m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	River Ehen
6	113m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	River Ehen
B	113m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Skirting Beck
B	129m W	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	Skirting Beck
B	131m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Skirting Beck
7	149m W	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	Skirting Beck
8	214m E	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	River Ehen
9	214m E	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Black Beck
A	234m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	River Ehen
C	244m SW	Inland river not influenced by normal tidal action.	Not provided	Watercourse contains water year round (in normal circumstances)	-

This data is sourced from the Ordnance Survey.

6.2 Surface water features

Records within 250m	2

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 53**

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 53**

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
2	**On site**	**River**	**Ehen (lower)**	**GB112074069980**	**Ehen-Calder**	**South West Lakes**

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 53**

ID	Location	Type	Name	Water body ID	Overall rating	Chemical rating	Ecological rating	Year
4	3m NE	River	Ehen (lower)	GB112074069980	Moderate	Fail	Good	2019

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

6.5 WFD Groundwater bodies

Records on site	1

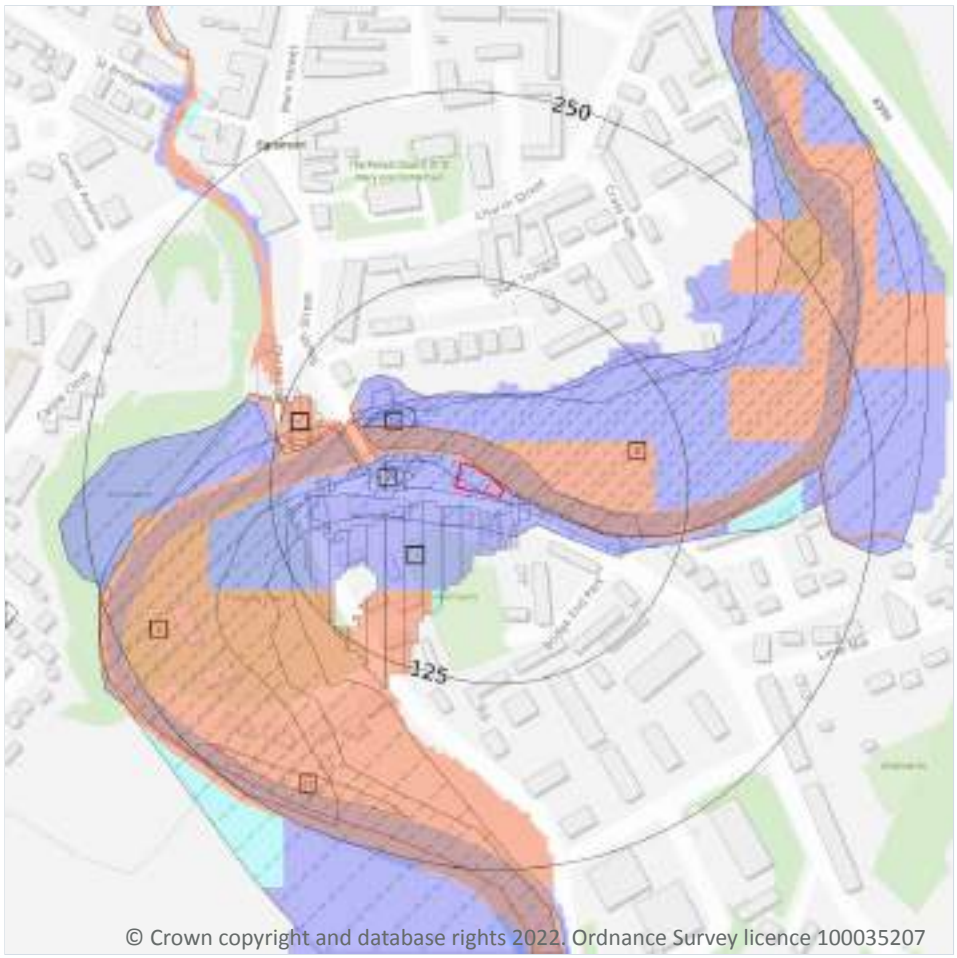
Groundwater bodies are also covered by the Directive and the same regime of objectives and reporting detailed in the previous section is in place. Click on the water body ID in the table to visit the EA Catchment Explorer to find out more about each groundwater body listed.

Features are displayed on the Hydrology map on **page 53**

ID	Location	Name	Water body ID	Overall rating	Chemical rating	Quantitative	Year
3	**On site**	**West Cumbria Permo-Triassic sandstone aquifers**	**GB41201G102000**	**Good**	**Good**	**Good**	**2019**

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

7 River and coastal flooding



Site Outline

Search buffers in metres (m)

River and coastal flooding:

High

Medium

Low

Very Low

Historical Flood Events

Areas Used for Flood Storage

Areas Benefiting from Flood Defences

Flood Defences

7.1 Risk of flooding from rivers and the sea

Records within 50m	4

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).

Features are displayed on the River and coastal flooding map on **page 57**

Distance	Flood risk category
On site	**High**
0 - 50m	High

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

7.2 Historical Flood Events

Records within 250m	**8**

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.

Features are displayed on the River and coastal flooding map on **page 57**

ID	Location	Event name	Date of flood	Flood source	Flood cause	Type of flood
A	**On site**	**Egremont November 2009 Flooding**	**2009-11-19 2009-11-22**	**Main river**	**Channel capacity exceeded (no raised defences)**	**Fluvial**
B	**On site**	**Flooding 05_11_1999**	**1999-11-05 1999-11-05**	**Main river**	**Channel capacity exceeded (no raised defences)**	**Fluvial**
C	**On site**	**Egremont 11_10_2005**	**2005-10-10 2005-10-12**	**Main river**	**Channel capacity exceeded (no raised defences)**	**Fluvial**
B	0m NE	Egremont 26_09_2000	2000-09-26 2000-09-27	Main river	Unknown	Fluvial
D	37m NW	Mill Cottage, Egremont 10 October 2008	2008-10-10 2008-10-10	Main river	Channel capacity exceeded (no raised defences)	Fluvial
D	39m NW	11/10/2017 Fluvial Flood Event - Egremont	2017-10-11 2017-10-12	Main river	Unknown	Fluvial
5	62m W	Egremont 11_10_2005	2005-10-10 2005-10-12	Main river	Channel capacity exceeded (no raised defences)	Fluvial
12	214m S	Egremont 20_08_2009	2009-08-19 2009-08-20	Main river	Channel capacity exceeded (no raised defences)	Fluvial

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	3

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.

Features are displayed on the River and coastal flooding map on **page 57**

ID	Location	
3	8m SE	Area benefiting from flood defences
4	13m W	Area benefiting from flood defences
7	94m W	Area benefiting from flood defences

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

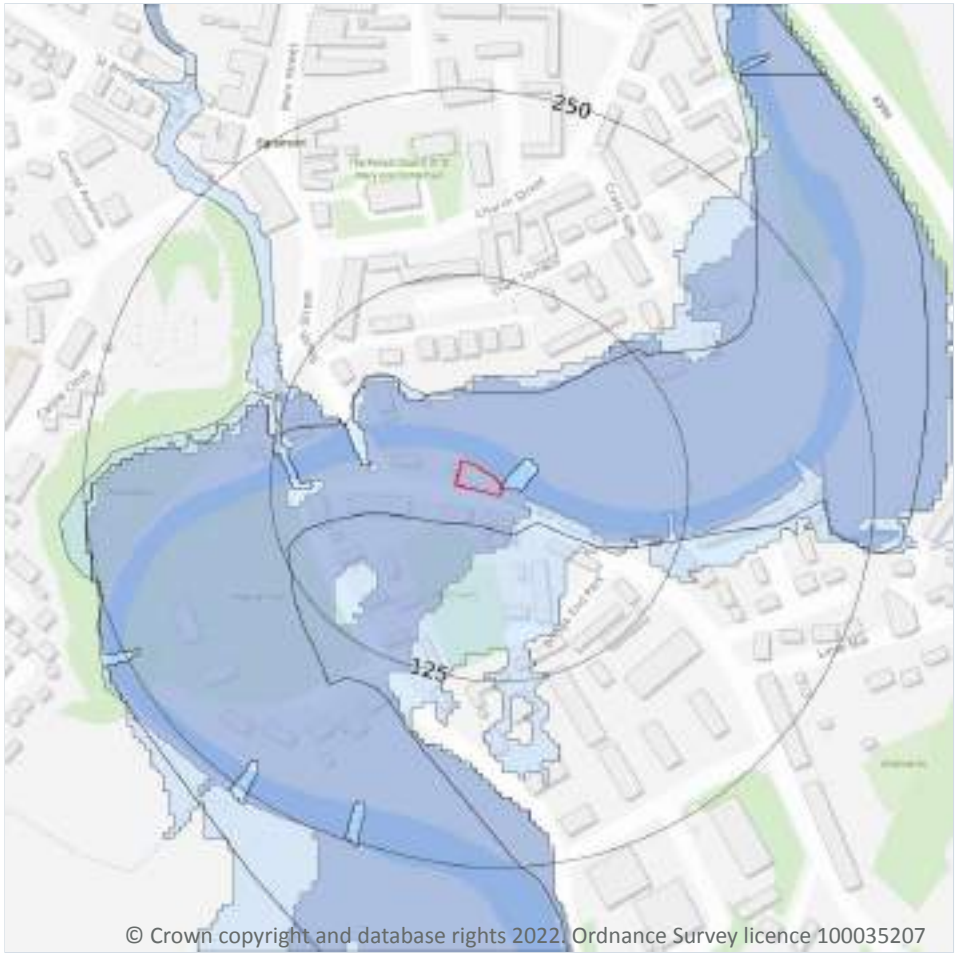
7.5 Flood Storage Areas

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



Site Outline

Search buffers in metres (m)

Flood zone 2

Flood zone 3

7.6 Flood Zone 2

Records within 50m	1

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.

Features are displayed on the River and coastal flooding map on **page 57**

Location	Type
On site	**Zone 2 - (Fluvial /Tidal Models)**

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

7.7 Flood Zone 3

Records within 50m	1

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.

Features are displayed on the River and coastal flooding map on **page 57**

Location	Type
On site	**Zone 3 - (Fluvial Models)**

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	**1 in 30 year, 0.3m - 1.0m**
Highest risk within 50m	**1 in 30 year, Greater than 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	Greater than 1.0m
1 in 250 year	Greater than 1.0m
1 in 100 year	Greater than 1.0m
1 in 30 year	Between 0.3m and 1.0m

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

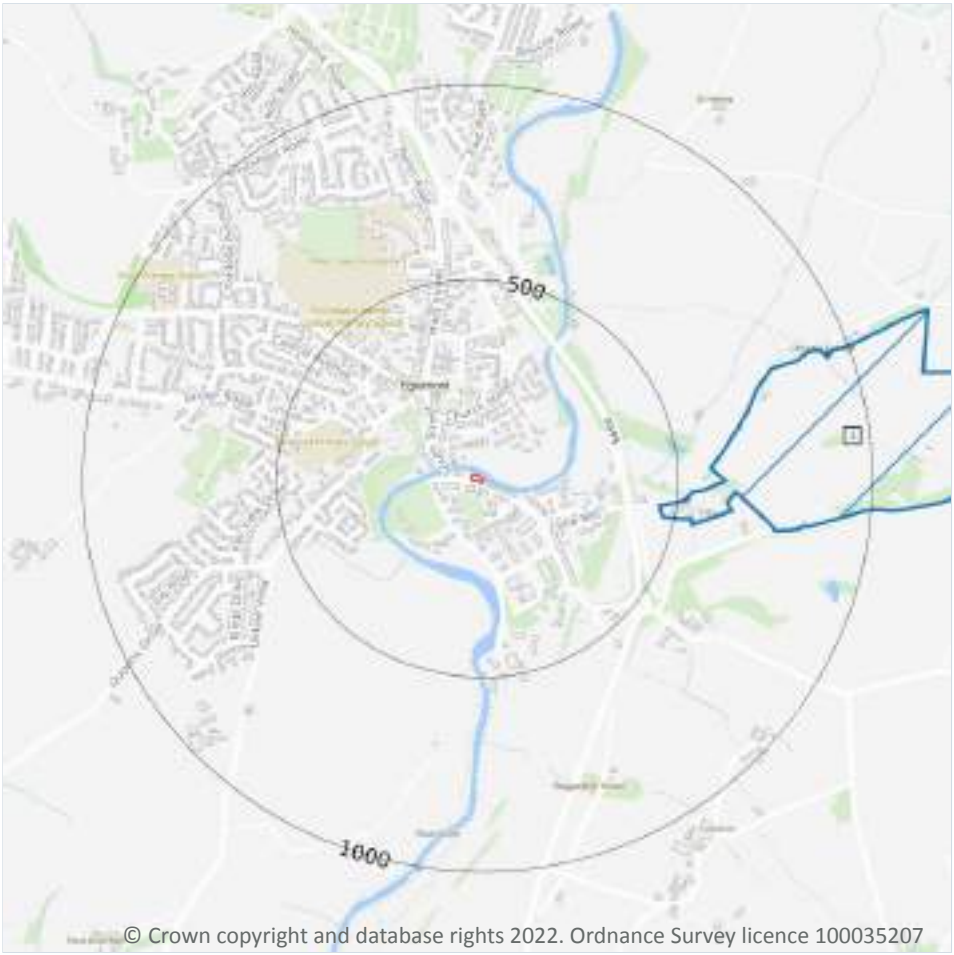
Highest risk on site	**Moderate**
Highest risk within 50m	**Moderate**

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



Site Outline

Search buffers in metres (m)

Sites of Special Scientific Interest (SSSI)

10.1 Sites of Special Scientific Interest (SSSI)

Records within 2000m	3

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.

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

ID	Location	Name	Data source
1	458m E	Florence Mine	Natural England

ID	Location	Name	Data source
-	1532m E	Black Moss	Natural England
-	1715m N	Clints Quarry	Natural England

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	0

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.

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	0

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

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.

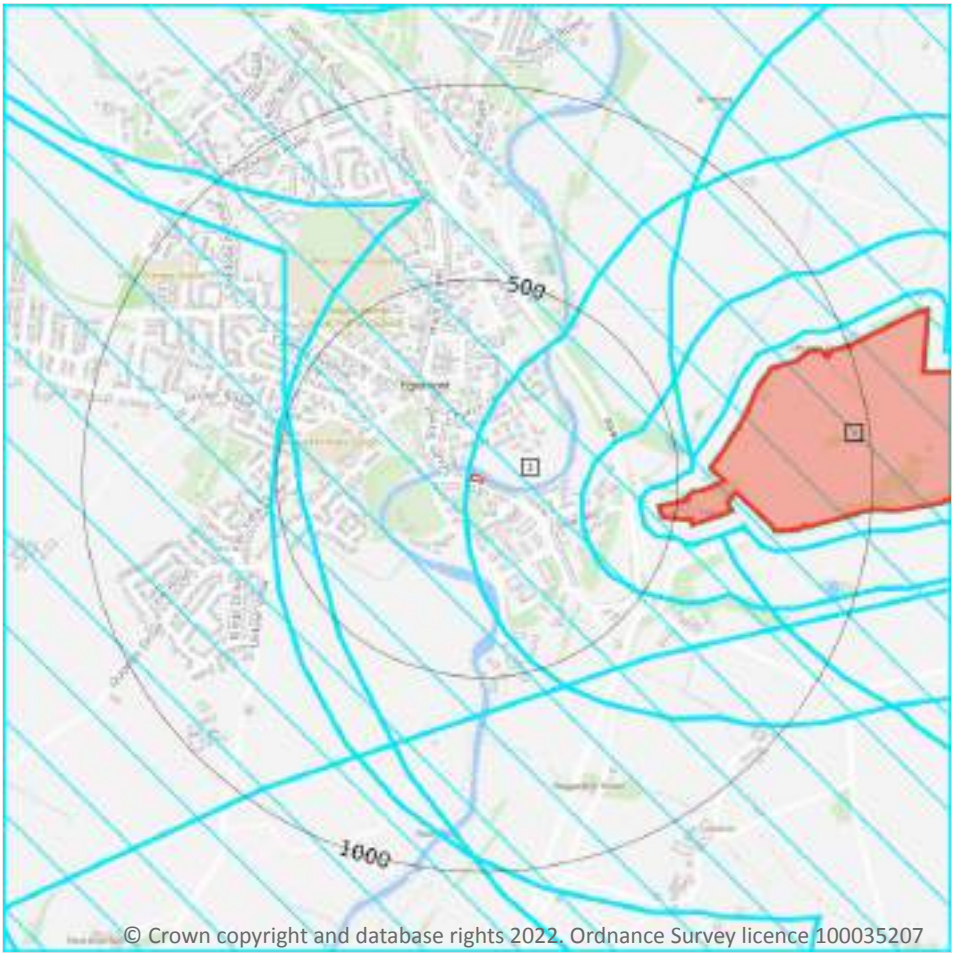
10.16 Nitrate Vulnerable Zones

Records within 2000m	0

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.

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	1

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 70**

ID	Location	Type of developments requiring consultation
1	On site	**Infrastructure - Pipelines, pylons and overhead cables. any transport proposal including road, rail and by water (excluding routine maintenance). airports, helipads and other aviation proposals. Minerals, Oil and Gas - Planning applications for quarries, including: new proposals, review of minerals permissions (romp), extensions, variations to conditions etc. oil & gas exploration/extraction. Air pollution - Any development that could cause air pollution (incl: industrial/commercial processes, livestock & poultry units, slurry lagoons & digestate stores, manure stores). Combustion - All general combustion processes. incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion. Waste - Mechanical and biological waste treatment, inert landfill, non-hazardous landfill, hazardous landfill, household civic amenity recycling facilities construction, demolition and excavation waste, other waste management. Composting - Any composting proposal. incl: open windrow composting, in-vessel composting, anaerobic digestion, other waste management. Water supply - Large infrastructure such as warehousing / industry where total net additional gross internal floorspace following development is 1,000m² or more.**

This data is sourced from Natural England.

10.18 SSSI Units

Records within 2000m	**5**

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.

Features are displayed on the SSSI Impact Zones and Units map on **page 70**

ID: A
Location: 458m E
SSSI name: Florence Mine
Unit name: 1
Broad habitat: Earth Heritage
Condition: Destroyed
Reportable features:

Feature name	Feature condition	Date of assessment
EU - Mineralogy	Destroyed	09/01/2009

ID: -
Location: 1532m E
SSSI name: Black Moss
Unit name: 1
Broad habitat: Bogs - Lowland
Condition: Unfavourable - Declining
Reportable features:

Feature name	Feature condition	Date of assessment
Raised bog (lowland)	Unfavourable - Declining	22/06/2021

ID: -
Location: 1715m N
SSSI name: Clints Quarry
Unit name: 2
Broad habitat: Earth Heritage
Condition: Unfavourable - Recovering
Reportable features:

Feature name	Feature condition	Date of assessment
ED - Dinantian	Unfavourable - Recovering	26/03/2008
Lowland calcareous grassland (CG7)	Not Recorded	01/01/1900
Lowland dry acid grassland (U1b,c,d,f)	Not Recorded	01/01/1900
Upland neutral grassland (MG3)	Not Recorded	01/01/1900

ID: -
Location: 1736m E
SSSI name: Black Moss
Unit name: 2
Broad habitat: Neutral Grassland - Lowland
Condition: Favourable
Reportable features:

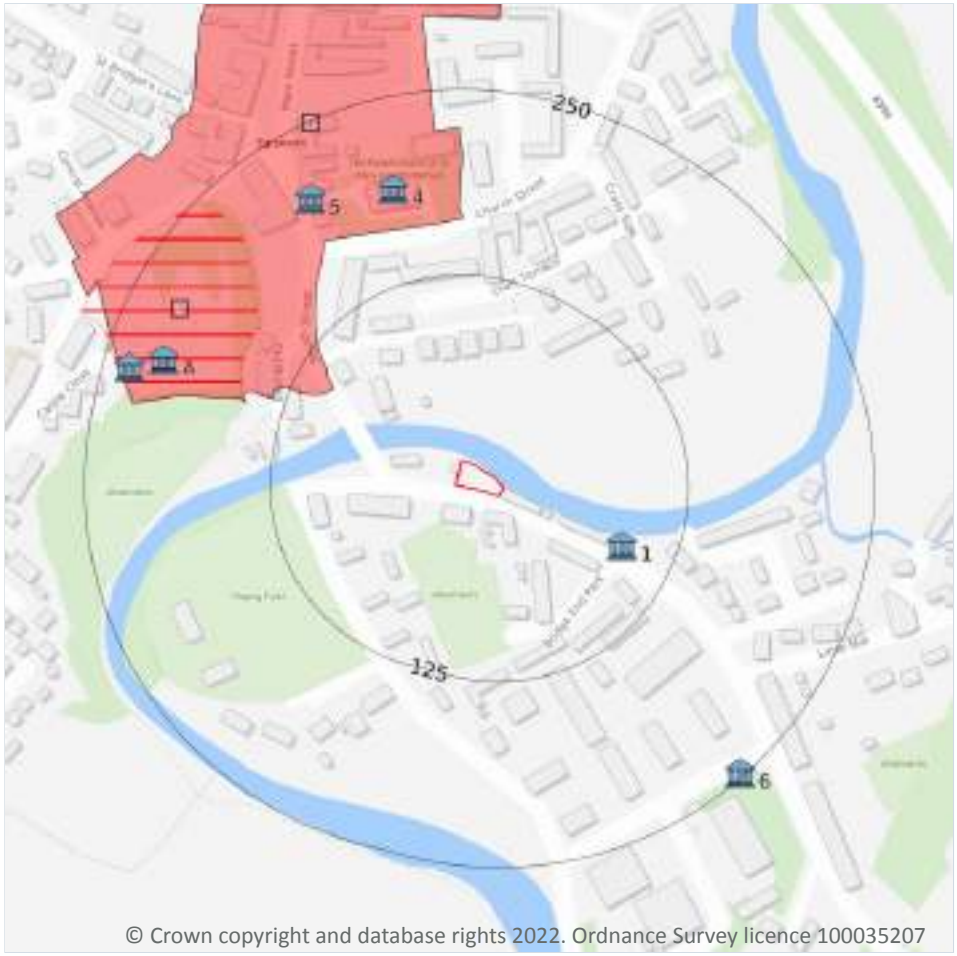
Feature name	Feature condition	Date of assessment
Raised bog (lowland)	Favourable	16/08/2011

ID: -
Location: 1849m N
SSSI name: Clints Quarry
Unit name: 1
Broad habitat: Earth Heritage
Condition: Favourable
Reportable features:

Feature name	Feature condition	Date of assessment
ED - Dinantian	Favourable	12/07/2021
Lowland calcareous grassland (CG2)	Favourable	30/01/2013
Lowland calcareous grassland (CG7)	Not Recorded	01/01/1900

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

11 Visual and cultural designations



Site Outline

Search buffers in metres (m)

Listed buildings

Conservation areas

Conservation areas - no data

National Parks

Areas of Outstanding Natural Beauty

Registered parks and gardens

Scheduled Monuments

World Heritage Sites

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	6

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.

Features are displayed on the Visual and cultural designations map on **page 74**

ID	Location	Name	Grade	Reference Number	Listed date
1	89m SE	17, Bridge End, Egremont, Copeland, Cumbria, CA22	II	1137128	09/08/1984
4	188m N	Church of St Mary and St Michael, Egremont, Copeland, Cumbria, CA22	II	1086711	09/03/1967
5	204m NW	Entrance Gates, Walls and Railings To Churchyard of St Mary and St Michael, Egremont, Copeland, Cumbria, CA22	II	1137244	09/08/1984
A	212m W	Egremont Castle, Egremont, Copeland, Cumbria, CA22	I	1137138	09/03/1967

ID	Location	Name	Grade	Reference Number	Listed date
A	232m W	Sundial To West of Castle's Western Gatehouse, Egremont, Copeland, Cumbria, CA22	II	1335999	09/08/1984
6	247m SE	K6 Telephone Kiosk, Egremont, Copeland, Cumbria, CA22	II	1336031	18/07/1988

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

11.5 Conservation Areas

Records within 250m	**1**

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.

Features are displayed on the Visual and cultural designations map on **page 74**

ID	Location	Name	District	Date of designation
2	99m NW	Egremont	Copeland	1986

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

11.6 Scheduled Ancient Monuments

Records within 250m	**1**

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.

Features are displayed on the Visual and cultural designations map on **page 74**

ID	Location	Ancient monument name	Reference number
3	153m W	Egremont Castle	1020455

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	1

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 78**

ID	Location	Classification	Description
1	On site	Grade 3	**Good to moderate quality agricultural land. Land with moderate limitations which affect the choice of crops, timing and type of cultivation, harvesting or the level of yield. Where more demanding crops are grown yields are generally lower or more variable than on land in Grades 1 and 2.**

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	1

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.

Features are displayed on the Agricultural designations map on **page 78**

ID	Location	Description	Reference	Application date
2	249m W	Clear Fell (Conditional)	010/97/13-14	10/01/2014

This data is sourced from the Forestry Commission.

12.4 Environmental Stewardship Schemes

Records within 250m	1

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.

Location	Reference	Scheme	Start Date	End date
249m SW	AG00332635	Entry Level plus Higher Level Stewardship	01/05/2009	30/04/2019

This data is sourced from Natural England.

12.5 Countryside Stewardship Schemes

Records within 250m	**1**

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.

Location	Reference	Scheme	Start Date	End Date
244m SW	822200	Countryside Stewardship (Middle Tier)	01/01/2020	31/12/2024

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	6

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 81**

ID	Location	Main Habitat	Other habitats
1	115m W	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
2	150m W	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
A	208m W	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
A	215m W	Deciduous woodland	Main habitat: DWOOD (INV > 50%)

ID	Location	Main Habitat	Other habitats
3	226m W	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
4	249m W	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	1

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 83**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	On site	No coverage	No coverage	No coverage	No coverage	NoCov

This data is sourced from the British Geological Survey.

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

14.2 Artificial and made ground (10k)

Records within 500m	0

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.

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

14.5 Bedrock geology (10k)

Records within 500m	0

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.

This data is sourced from the British Geological Survey.

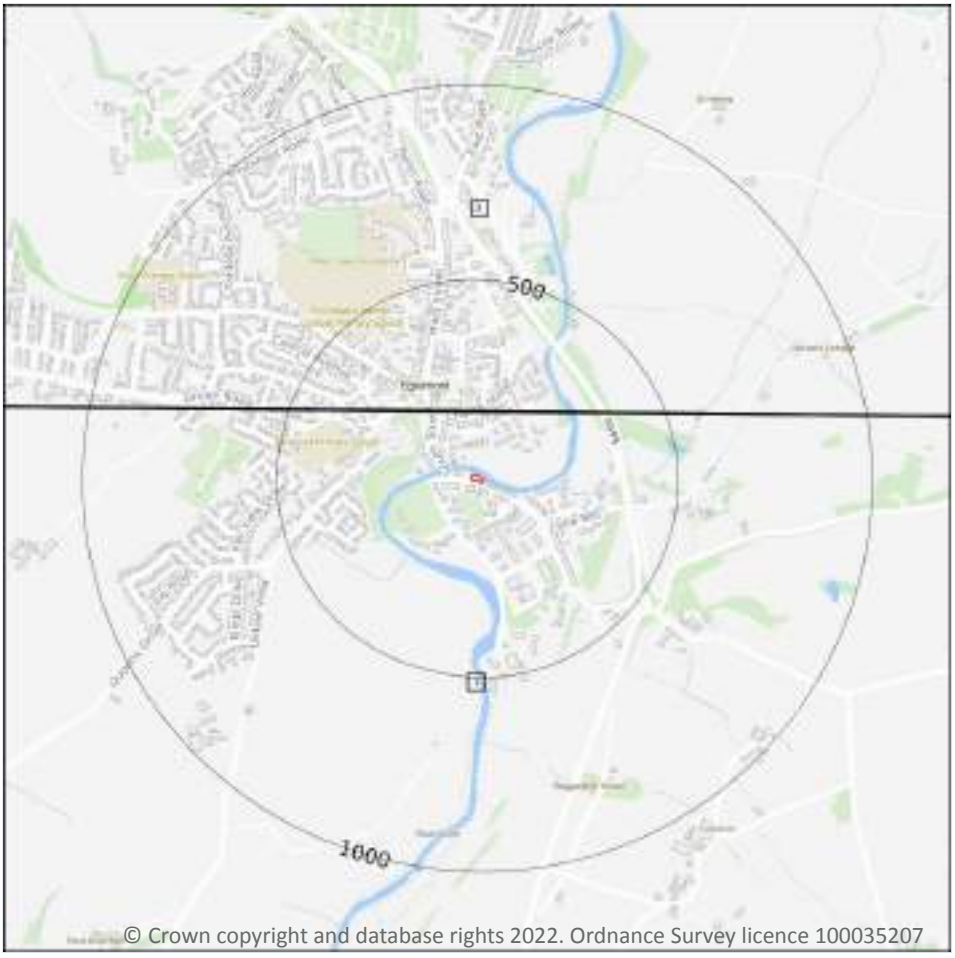
14.6 Bedrock faults and other linear features (10k)

Records within 500m	0

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.

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	2

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**	**EW037_gosforth_v4**
2	161m N	Full	Full	Full	Full	EW028_whitehaven_v4

This data is sourced from the British Geological Survey.

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

15.2 Artificial and made ground (50k)

Records within 500m	0

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.

This data is sourced from the British Geological Survey.

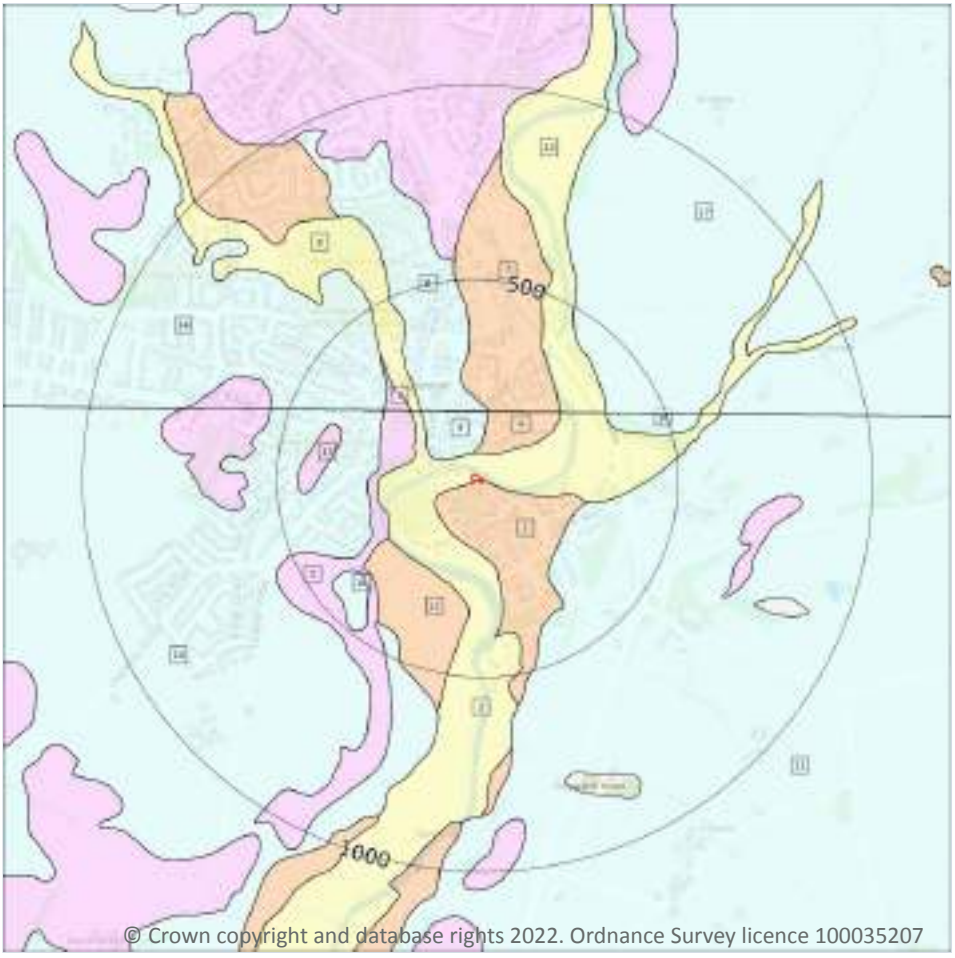
15.3 Artificial ground permeability (50k)

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



Site Outline

Search buffers in metres (m)

Landslip (50k)

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

15.4 Superficial geology (50k)

Records within 500m **18**

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.

Features are displayed on the Geology 1:50,000 scale - Superficial map on **page 89**

ID	Location	LEX Code	Description	Rock description
1	**On site**	**RTDU-XSV**	**RIVER TERRACE DEPOSITS (UNDIFFERENTIATED)**	**SAND AND GRAVEL**
2	**On site**	**ALV-XCZSV**	**ALLUVIUM**	**CLAY, SILT, SAND AND GRAVEL**
3	52m N	TILLD-DMTN	TILL, DEVENSIAN	DIAMICTON
4	52m N	RTDU-XSV	RIVER TERRACE DEPOSITS (UNDIFFERENTIATED)	SAND AND GRAVEL

ID	Location	LEX Code	Description	Rock description
5	157m W	GFDUD-XSV	GLACIOFLUVIAL DEPOSITS, DEVENSIAN	SAND AND GRAVEL
6	161m N	TILLD-DMTN	TILL, DEVENSIAN	DIAMICTON
7	165m N	RTDU-XCSV	RIVER TERRACE DEPOSITS (UNDIFFERENTIATED)	CLAY, SAND AND GRAVEL
8	211m NW	ALV-XCZSV	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL
9	229m NW	GFDUD-XSV	GLACIOFLUVIAL DEPOSITS, DEVENSIAN	SAND AND GRAVEL
10	238m W	TILLD-DMTN	TILL, DEVENSIAN	DIAMICTON
11	243m SE	TILLD-DMTN	TILL, DEVENSIAN	DIAMICTON
12	251m SW	RTDU-XSV	RIVER TERRACE DEPOSITS (UNDIFFERENTIATED)	SAND AND GRAVEL
13	264m NE	ALV-XCZSV	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL
14	281m NW	TILLD-DMTN	TILL, DEVENSIAN	DIAMICTON
15	352m W	GFDUD-XSV	GLACIOFLUVIAL DEPOSITS, DEVENSIAN	SAND AND GRAVEL
16	354m NE	TILLD-DMTN	TILL, DEVENSIAN	DIAMICTON
17	361m NE	TILLD-DMTN	TILL, DEVENSIAN	DIAMICTON
18	371m SW	TILLD-DMTN	TILL, DEVENSIAN	DIAMICTON

This data is sourced from the British Geological Survey.

15.5 Superficial permeability (50k)

Records within 50m	**2**

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).

Location	Flow type	Maximum permeability	Minimum permeability
On site	**Intergranular**	**Very High**	**High**
On site	**Intergranular**	**High**	**Very Low**

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.

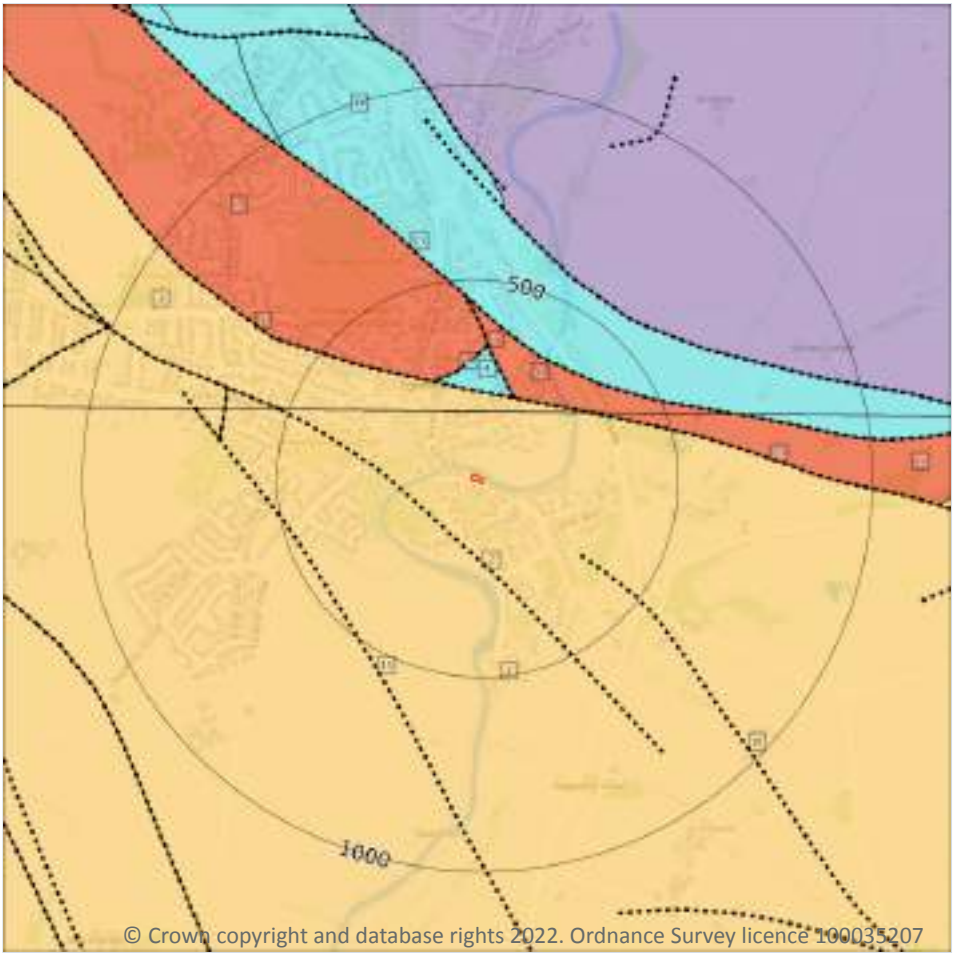
15.7 Landslip permeability (50k)

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 **7**

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 92**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**SBS-SDST**	**ST BEES SANDSTONE MEMBER - SANDSTONE**	**-**
3	161m N	SBS-SDST	ST BEES SANDSTONE MEMBER - SANDSTONE	-
4	211m N	FRLI-LMST	FRIZINGTON LIMESTONE FORMATION - LIMESTONE	VISEAN
6	220m NE	BK-BREC	BROCKRAM - BRECCIA	-

ID	Location	LEX Code	Description	Rock age
8	259m N	BK-BREC	BROCKRAM - BRECCIA	-
12	325m NE	BK-BREC	BROCKRAM - BRECCIA	-
14	346m NE	FRLI-LMST	FRIZINGTON LIMESTONE FORMATION - LIMESTONE	VISEAN

This data is sourced from the British Geological Survey.

15.9 Bedrock permeability (50k)

Records within 50m	**1**

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	**Mixed**	**High**	**Moderate**

This data is sourced from the British Geological Survey.

15.10 Bedrock faults and other linear features (50k)

Records within 500m	**8**

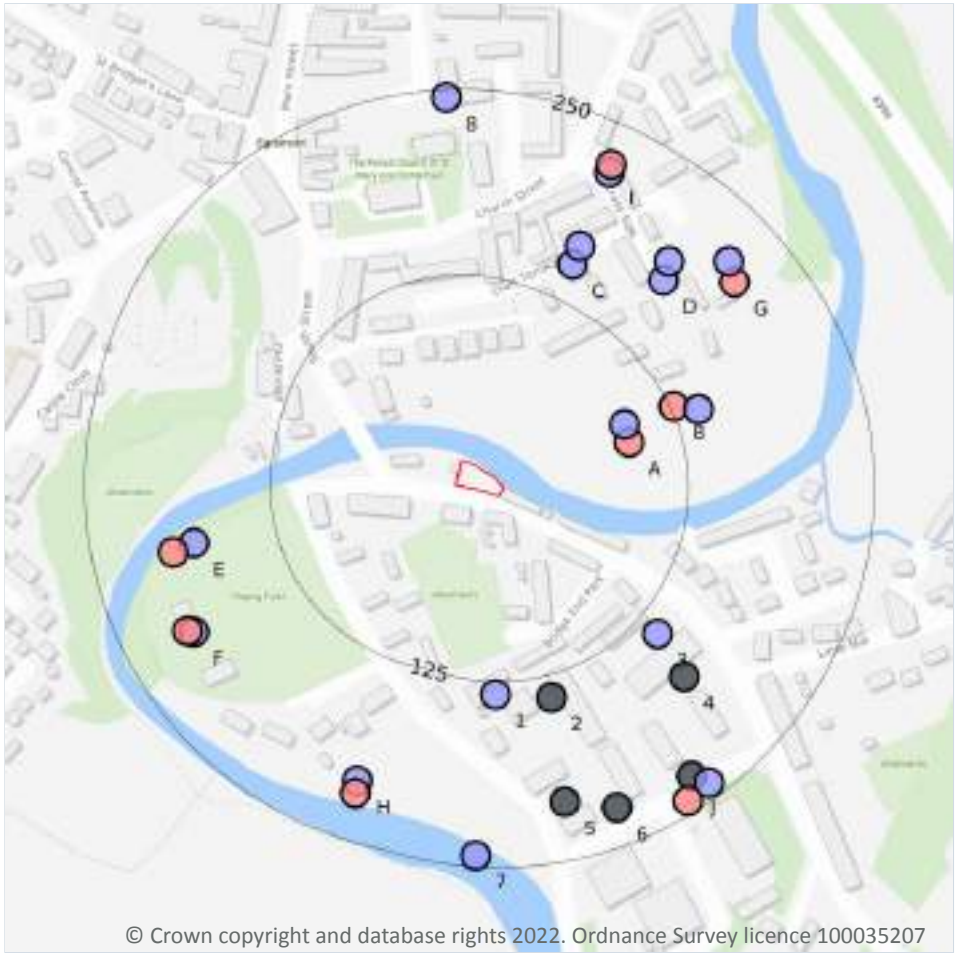
Linear features at the ground or bedrock surface at 1:50,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 92**

ID	Location	Category	Description
2	138m SW	FAULT	Fault, inferred, displacement unknown
5	211m N	FAULT	Fault, inferred, displacement unknown
7	220m NE	FAULT	Fault, inferred, displacement unknown
9	259m N	FAULT	Fault, inferred, displacement unknown
10	314m SE	FAULT	Fault, inferred, displacement unknown
11	325m NE	FAULT	Fault, inferred, displacement unknown
13	346m NE	FAULT	Fault, inferred, displacement unknown
15	461m SW	FAULT	Fault, inferred, displacement unknown

This data is sourced from the British Geological Survey.

16 Boreholes



Site Outline

Search buffers in metres (m)

Confidential

0 - 10m

10 - 30m

30m+

Unknown

16.1 BGS Boreholes

Records within 250m	29

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.

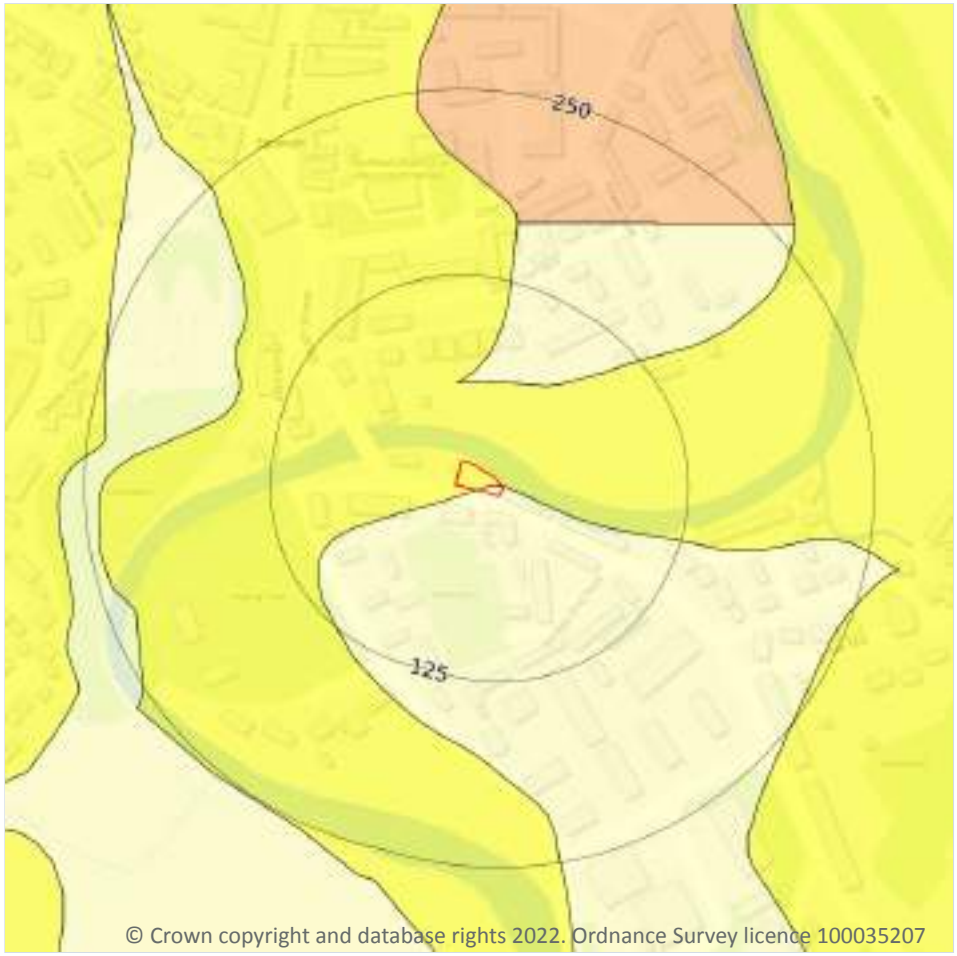
Features are displayed on the Boreholes map on **page 95**

ID	Location	Grid reference	Name	Length	Confidential	Web link
A	90m E	301283 510398	HOWBANK 3	187.6	N	896501
A	92m NE	301280 510410	WYNDHAM W47	-2.0	N	896997
B	127m NE	301313 510422	WYNDHAM MINES 43	272.49	N	896485

ID	Location	Grid reference	Name	Length	Confidential	Web link
1	134m S	301193 510228	BRIDGE END EGREMONT 2	4.0	N	20006509
2	140m S	301231 510226	BRIDGE END EGREMONT	-	Y	N/A
3	141m SE	301302 510269	BRIDGE END EGREMONT 3	1.2	N	20006510
B	142m E	301330 510420	GILLFOOT G43	-2.0	N	897047
C	151m NE	301245 510518	BSC 949 WYNDHAM W 49	-2.0	N	896841
C	164m NE	301250 510530	WYNDHAM W49	-2.0	N	897188
4	174m SE	301320 510240	BRIDGE END EGREMONT	-	Y	N/A
D	174m NE	301306 510507	BSC 952 WYNDHAM W 52	-2.0	N	896842
E	181m W	300990 510330	GILLFOOT G41	-2.0	N	897045
D	187m NE	301310 510520	WYNDHAM W52	-2.0	N	896999
E	196m W	300976 510324	WYNDHAM MINES 41	293.52	N	896483
F	202m SW	300990 510270	HARRIMANS ROYALTY NO.1	-2.0	N	896979
F	205m SW	300986 510271	BH 1 HARRIMANS (CROSS SECTION)	306.0	N	896556
G	208m NE	301354 510506	WYNDHAM MINES 50	154.63	N	896487
H	210m S	301100 510170	MILLOM XM29	-2.0	N	897175
5	211m S	301240 510156	BRIDGE END EGREMONT 1	-	Y	N/A
G	214m NE	301350 510520	WYNDHAM W50	-2.0	N	896998
I	217m NE	301270 510580	WYNDHAM W46	-2.0	N	896996
H	218m S	301099 510162	BSC 679 MILLOM XM 29 EGREMONT	308.0	N	896813
I	222m NE	301271 510585	BH.46W WYNDHAM	118.87	N	896494
6	224m S	301275 510152	BRIDGE END EGREMONT	-	Y	N/A
J	229m SE	301325 510173	BRIDGE END EGREMONT	-	Y	N/A
J	239m SE	301337 510169	BRIDGE END EGREMONT 4	1.1	N	20006511
J	241m SE	301323 510157	BRIDGEND TRIAL	102.0	N	897033
7	242m S	301180 510120	BRIDGEND	-2.0	N	897036
8	245m N	301160 510630	WYNDHAM W9	-2.0	N	897004

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	2

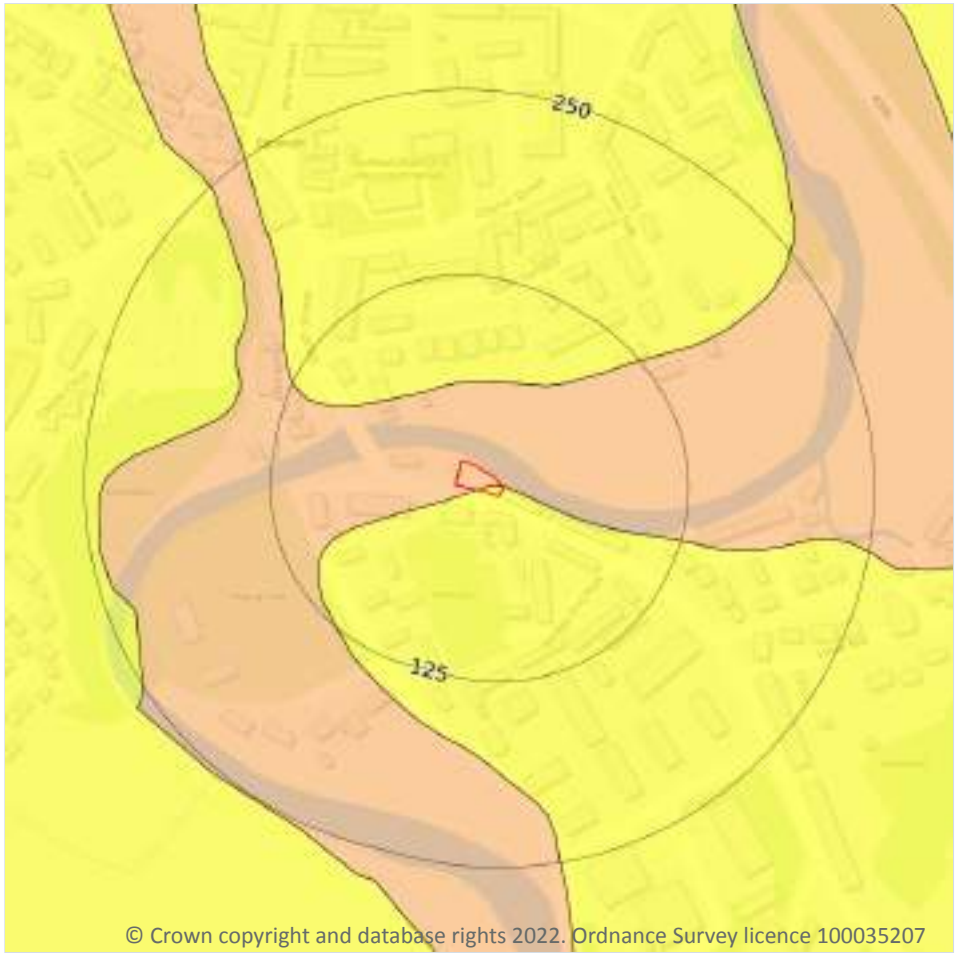
The potential hazard presented by soils that absorb water when wet (making them swell), and lose water as they dry (making them shrink). This shrink-swell behaviour is controlled by the type and amount of clay in the soil, and by seasonal changes in the soil moisture content (related to rainfall and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

Features are displayed on the Natural ground subsidence - Shrink swell clays map on **page 97**

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

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	2

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.

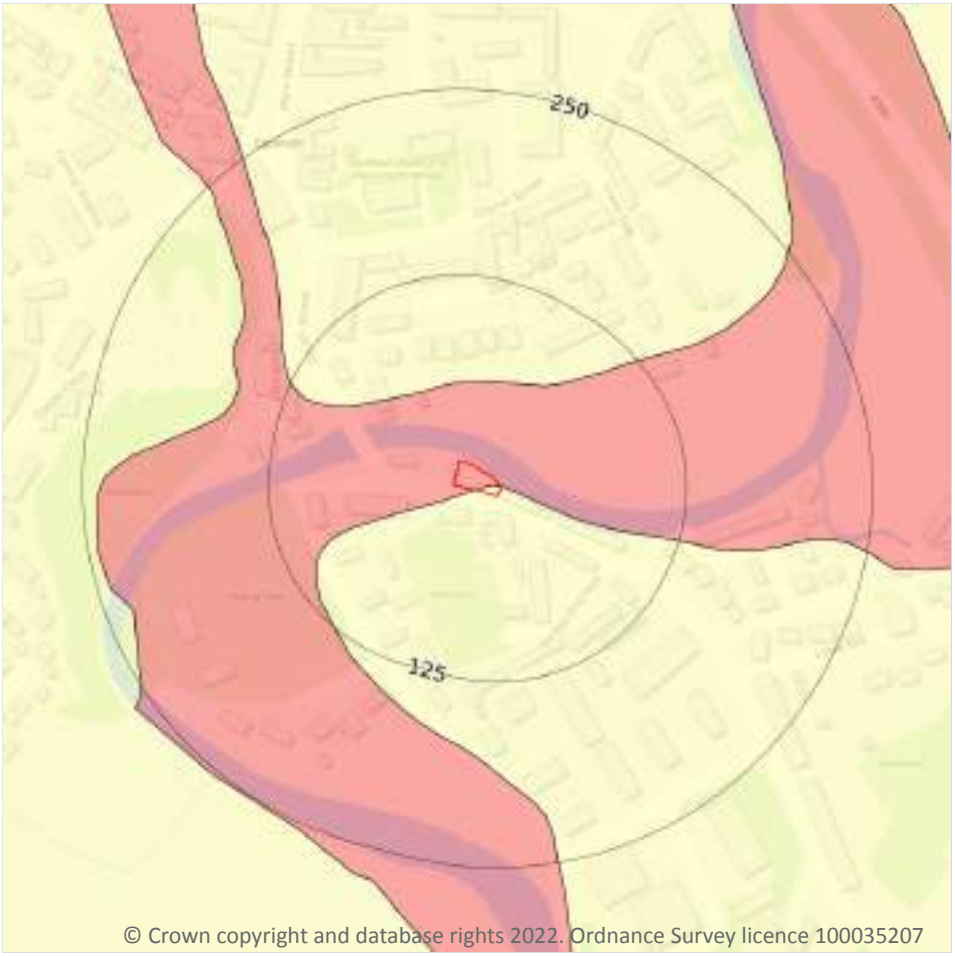
Features are displayed on the Natural ground subsidence - Running sands map on **page 98**

Location	Hazard rating	Details
On site	**Very low**	**Running sand conditions are unlikely. No identified constraints on land use due to running conditions unless water table rises rapidly.**

Location	Hazard rating	Details
On site	**Low**	**Running sand conditions may be present. Constraints may apply to land uses involving excavation or the addition or removal of water.**

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	2

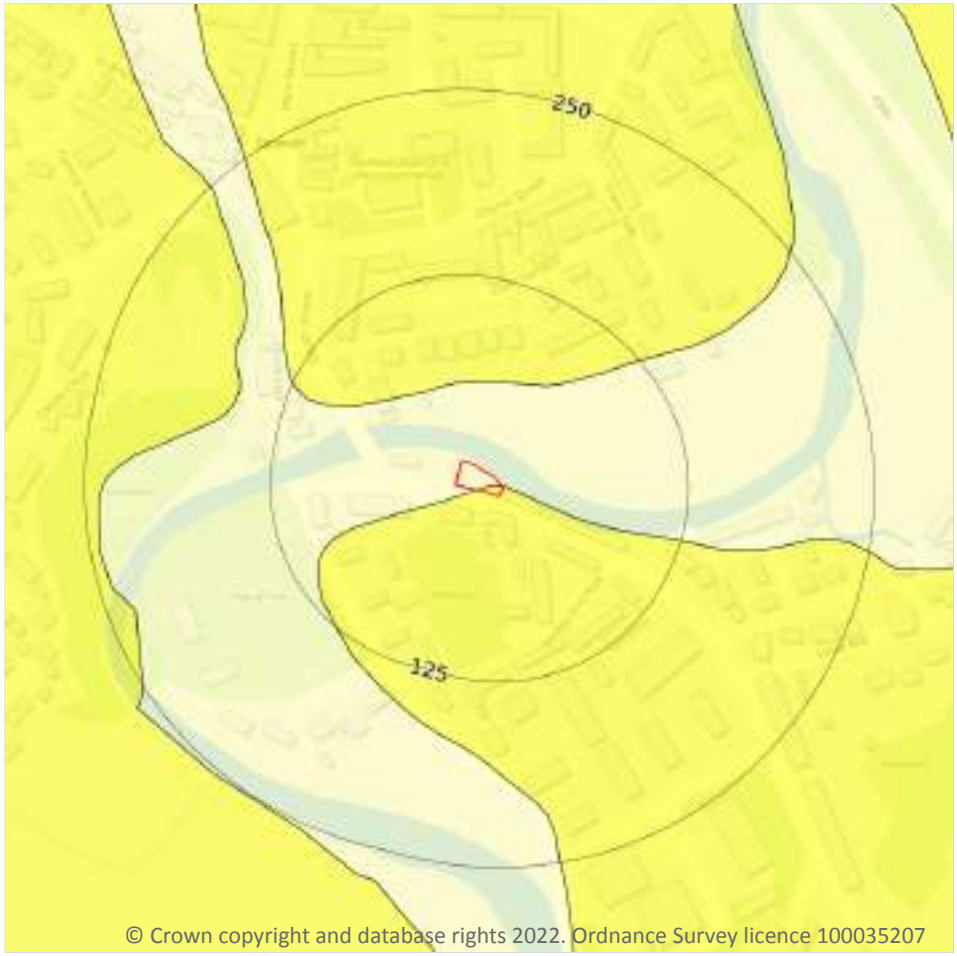
The potential hazard presented by types of ground that may contain layers of very soft materials like clay or peat and may compress if loaded by overlying structures, or if the groundwater level changes, potentially resulting in depression of the ground and disturbance of foundations.

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

Location	Hazard rating	Details
On site	**Negligible**	**Compressible strata are not thought to occur.**
On site	**Moderate**	**Compressibility and uneven settlement hazards are probably present. Land use should consider specifically the compressibility and variability of the site.**

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	2

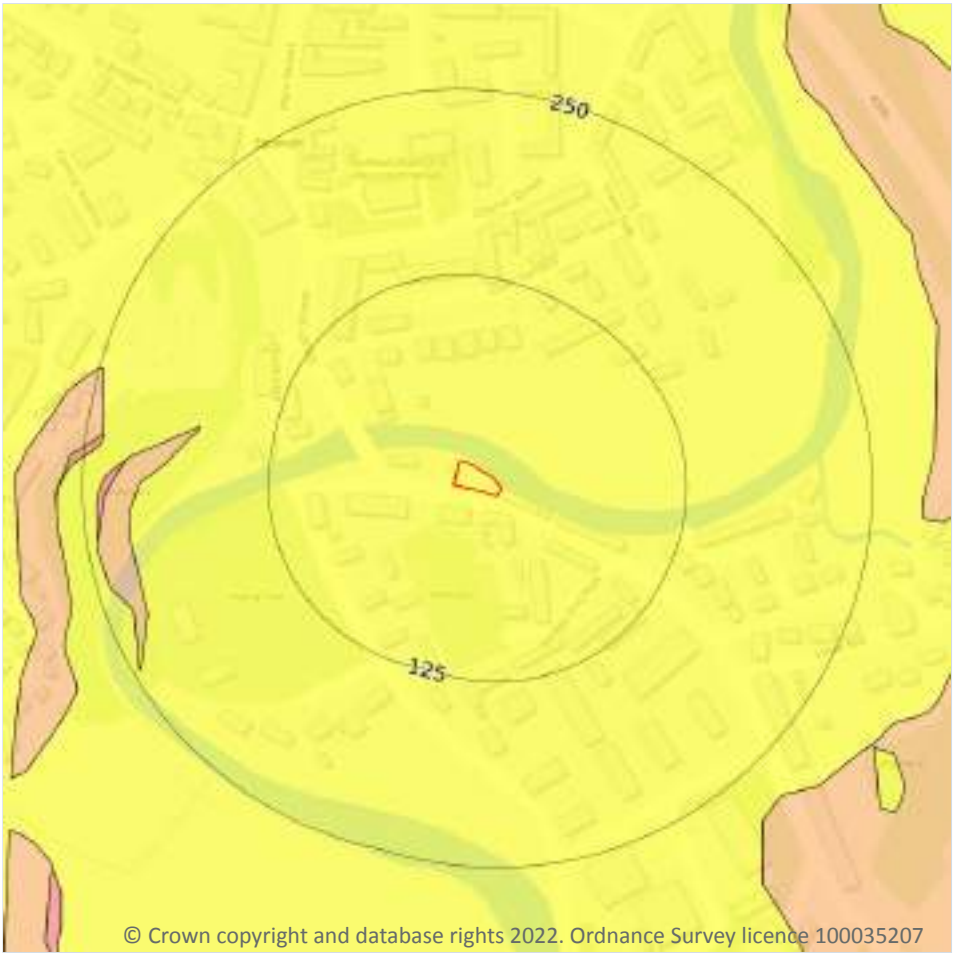
The potential hazard presented by natural deposits that could collapse when a load (such as a building) is placed on them or they become saturated with water.

Features are displayed on the Natural ground subsidence - Collapsible deposits map on **page 102**

Location	Hazard rating	Details
On site	**Negligible**	**Deposits with potential to collapse when loaded and saturated are believed not to be present.**
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	1

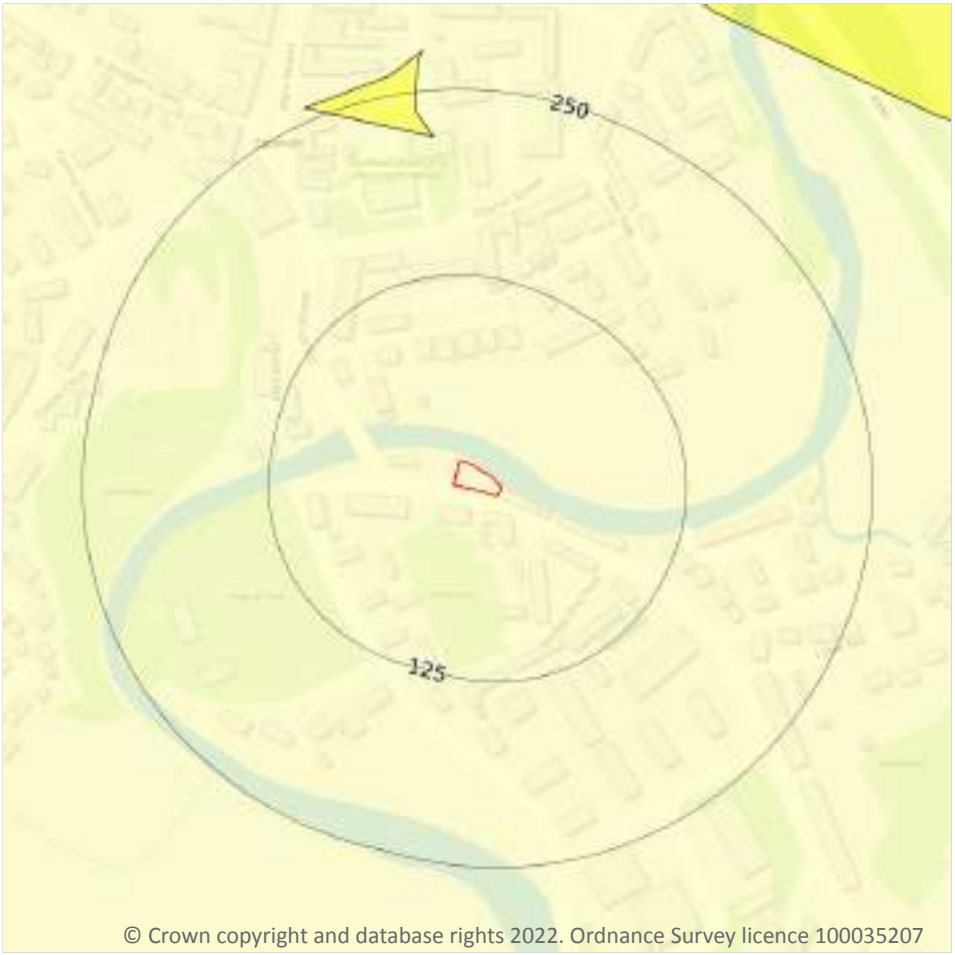
The potential for landsliding (slope instability) to be a hazard assessed using 1:50,000 scale digital maps of superficial and bedrock deposits, combined with information from the BGS National Landslide Database and scientific and engineering reports.

Features are displayed on the Natural ground subsidence - Landslides map on **page 103**

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.**

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

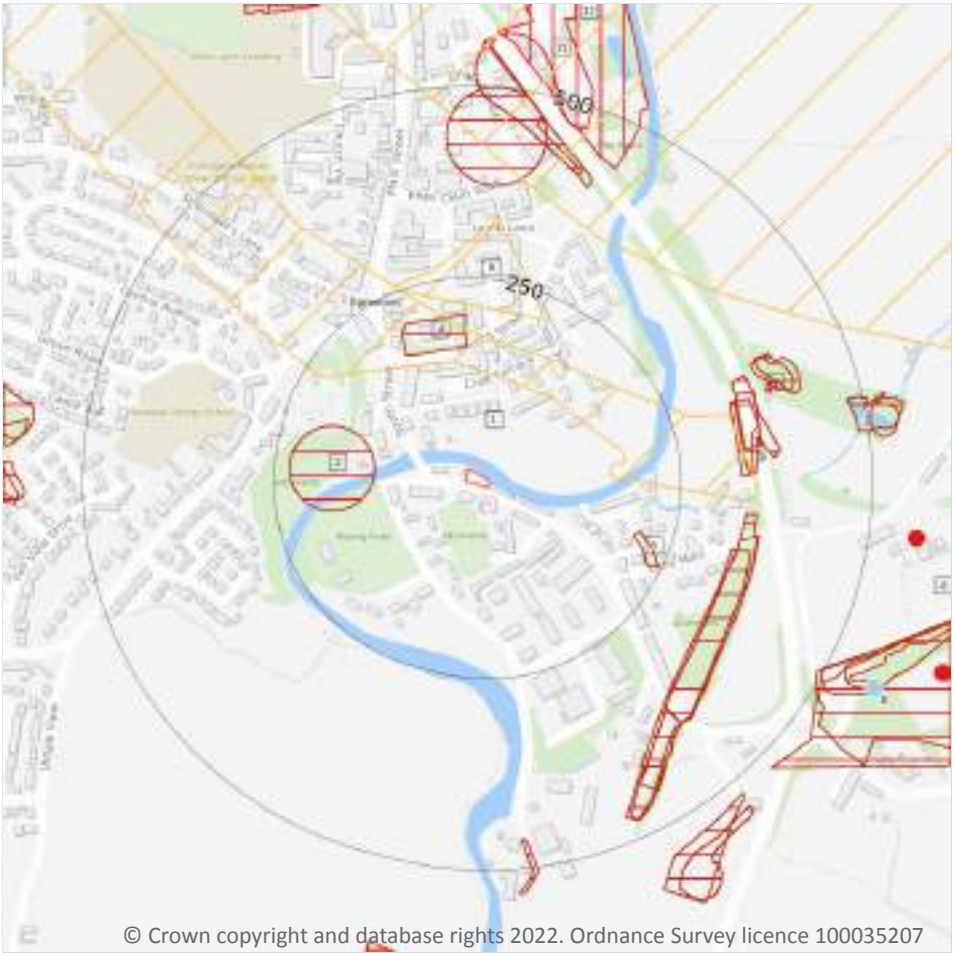
The potential hazard presented by ground dissolution, which occurs when water passing through soluble rocks produces underground cavities and cave systems. These cavities reduce support to the ground above and can cause localised collapse of the overlying rocks and deposits.

Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on **page 104**

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, ground workings and natural cavities



Site Outline

Search buffers in metres (m)

Natural cavities (Area)

Natural cavities (Point)

BritPits

Surface ground workings

Underground workings

Historical Mineral Planning Areas

Mining Cavities

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 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.

18.2 BritPits

Records within 500m	0

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.

This data is sourced from the British Geological Survey.

18.3 Surface ground workings

Records within 250m	3

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, ground workings and natural cavities map on **page 106**

ID	Location	Land Use	Year of mapping	Mapping scale
2	119m W	Unspecified Pits	1861	1:10560
4	159m N	Grave Yard	1861	1:10560
5	199m E	Unspecified Ground Workings	1926	1:10560

This is data is sourced from Ordnance Survey/Groundsure.

18.4 Underground workings

Records within 1000m	6

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

Features are displayed on the Mining, ground workings and natural cavities map on **page 106**

ID	Location	Land Use	Year of mapping	Mapping scale
A	380m E	Unspecified Old Shaft	1948	1:10560
A	389m E	Unspecified Old Shaft	1926	1:10560
13	437m NE	Unspecified Mine	1898	1:10560
15	464m N	Unspecified Mine	1926	1:10560
19	637m N	Unspecified Mine Quarry	1898	1:10560
-	792m NW	Old Coal Shaft	1926	1:10560

This is data is sourced from Ordnance Survey/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	8

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).

Features are displayed on the Mining, ground workings and natural cavities map on **page 106**

ID	Location	Name	Commodity	Class	Likelihood
1	**On site**	**Not available**	**Iron Ore (Non Vein)**	**E**	**Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered**
3	125m N	Not available	Iron Ore (Non Vein)	B	Localised small scale underground mining may have occurred. Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered
6	211m N	Not available	Vein Mineral	B	Localised small scale underground mining may have occurred. Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered
7	299m W	Not available	Iron Ore (Non Vein)	E	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered
8	325m E	Not available	Iron Ore (Non Vein)	E	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered

ID	Location	Name	Commodity	Class	Likelihood
9	346m NE	Not available	Vein Mineral	B	Localised small scale underground mining may have occurred. Potential for difficult ground conditions are unlikely or localised and are at a level where they need not be considered
11	409m SE	Not available	Iron Ore (Non Vein)	E	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered
-	817m SE	Not available	Iron Ore (Non Vein)	E	Underground mining is known to have occurred within or very close to the area. Potential for difficult ground conditions should be investigated. Potential for localised subsidence is at a level where it should be considered

This data is sourced from the British Geological Survey.

18.7 Mining cavities

Records within 1000m	**5**

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.

Features are displayed on the Mining, ground workings and natural cavities map on **page 106**

ID	Location	Mine Address	Mineral	Data source	Publisher
E	569m SE	Florence Mine, Cumbria	Hematite	CATALOGUE OF MINING INFORMATION (OTHER THAN COAL, FIRECLAY & SLATE) FOR THE L.D	BGS
-	717m NW	Helder, Cumbria	Hematite	LISTING OF NEW MINERAL RECORDS OFFICE CATALOGUE.	UNPUBLISHED/DRAFT
-	805m NE	St Helena, Cumbria	Bornite, Chalcocite, Copper, Malachite, Native Copper, Tetrahedrite	SHEET 26, WOLSINGHAM, 1:50 000	BRITISH GEOLOGICAL SURVEY
-	882m SE	Ullbank Mine, Cumbria	Hematite	CATALOGUE OF MINING INFORMATION (OTHER THAN COAL, FIRECLAY & SLATE) FOR THE L.D	BGS
-	914m S	Florence, Cumbria	Hematite	DIRECTORY OF MINES AND QUARRIES	BRITISH GEOLOGICAL SURVEY

This data is sourced from Stantec UK Ltd.

18.8 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.

18.9 Coal mining

Records on site	0

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

This data is sourced from the Coal Authority.

18.10 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.

18.11 Gypsum areas

Records on site	0

Generalised areas that may be affected by gypsum extraction.

This data is sourced from British Gypsum.

18.12 Tin mining

Records on site	0

Generalised areas that may be affected by historical tin mining.

This data is sourced from Groundsure.

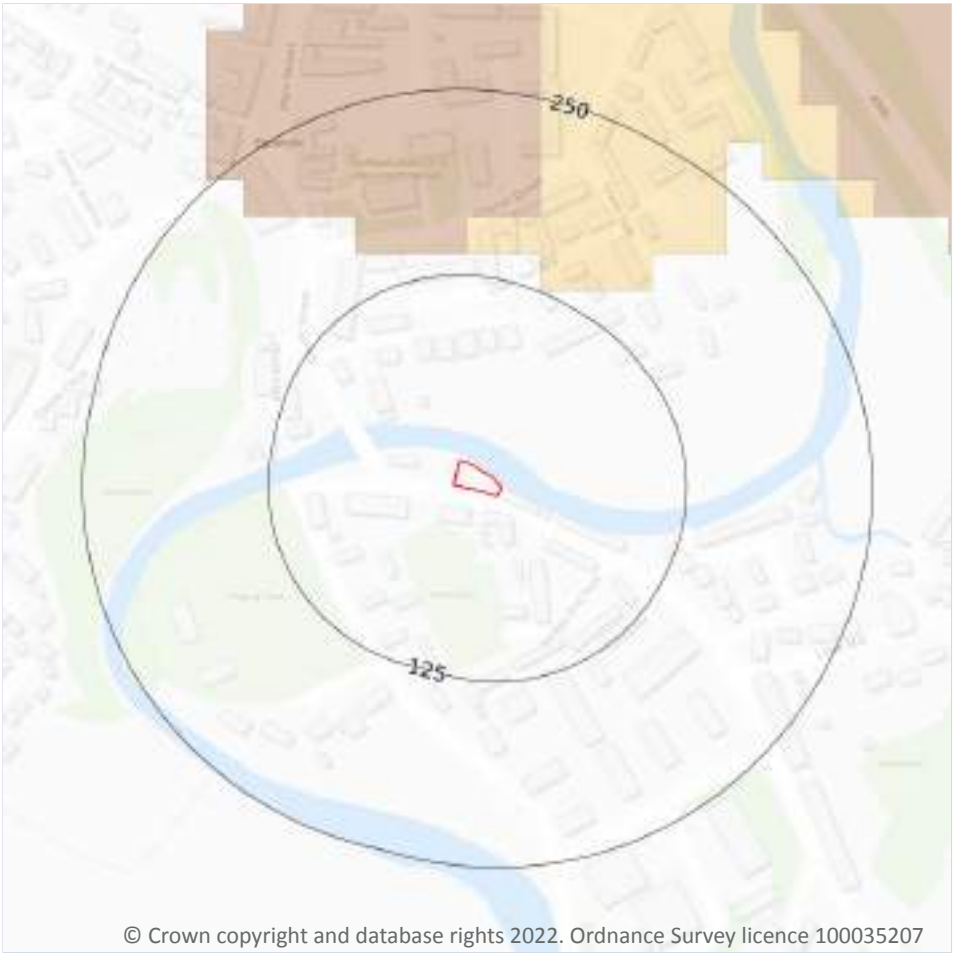
18.13 Clay mining

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 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%

19.1 Radon

Records on site	1

Estimated percentage of dwellings exceeding the Radon Action Level. This data is the highest resolution radon dataset available for the UK and is produced to a 75m level of accuracy to allow for geological data accuracy and a 'residential property' buffer. The findings of this section should supersede any estimations derived from the Indicative Atlas of Radon in Great Britain. The data was derived from both geological assessments and long term measurements of radon in more than 479,000 households.

Features are displayed on the Radon map on **page 112**

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

This data is sourced from the British Geological Survey and Public Health England.

20 Soil chemistry

20.1 BGS Estimated Background Soil Chemistry

Records within 50m	2

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 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 - 30 mg/kg**
On site	**15 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**90 - 120 mg/kg**	**15 mg/kg**

This data is sourced from the British Geological Survey.

20.2 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.

20.3 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.

21 Railway infrastructure and projects

21.1 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.

21.2 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.

21.3 Railway tunnels

Records within 250m	0

Railway tunnels taken from contemporary Ordnance Survey mapping.

This data is sourced from the Ordnance Survey.

21.4 Historical railway and tunnel features

Records within 250m	0

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.

This data is sourced from Ordnance Survey/Groundsure.

21.5 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.

21.6 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.

21.7 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.

21.8 Crossrail 1

Records within 500m	0

The Crossrail railway project links 41 stations over 100 kilometres from Reading and Heathrow in the west, through underground sections in central London, to Shenfield and Abbey Wood in the east.

This data is sourced from publicly available information by Groundsure.

21.9 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.

21.10 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

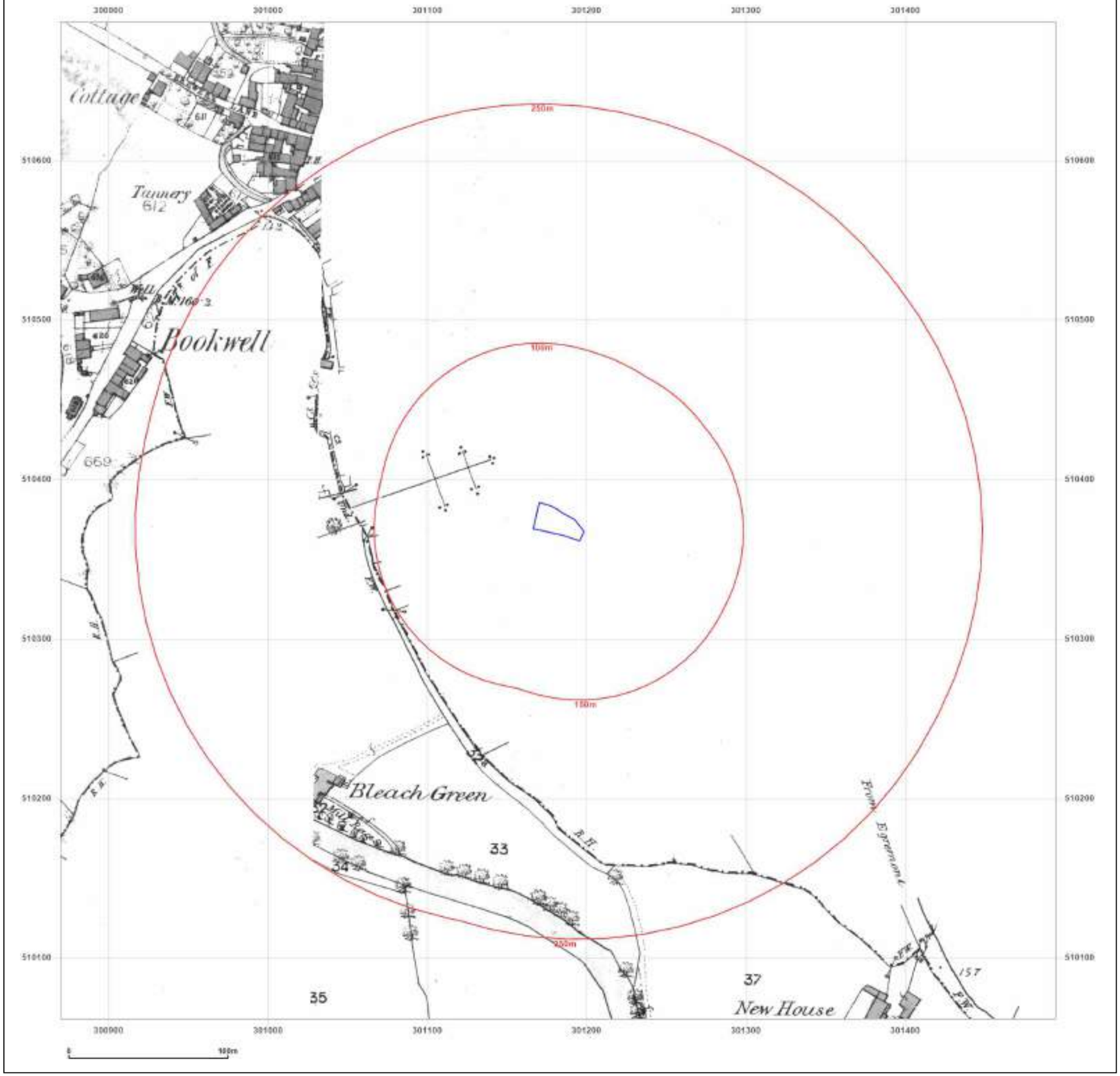
Groundsure works with respected data providers to bring you the most relevant and accurate information. To find out who they are and their areas of expertise see https://www.groundsure.com/sources-reference.

Terms and conditions

Groundsure's Terms and Conditions can be accessed at this link: https://www.groundsure.com/terms-and-conditions-jan-2020/.

Appendix III

- Ground Sure Report Historical Map Extracts (GSR – Mapinsight)



emapsite™

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Report Ref: EMS-792970_1022443
Grid Ref: 301182, 510374

Map Name: County Series
Map date: **1863**
Scale: 1:2,500
Printed at: 1:2,500

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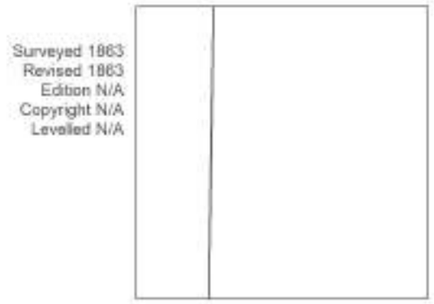

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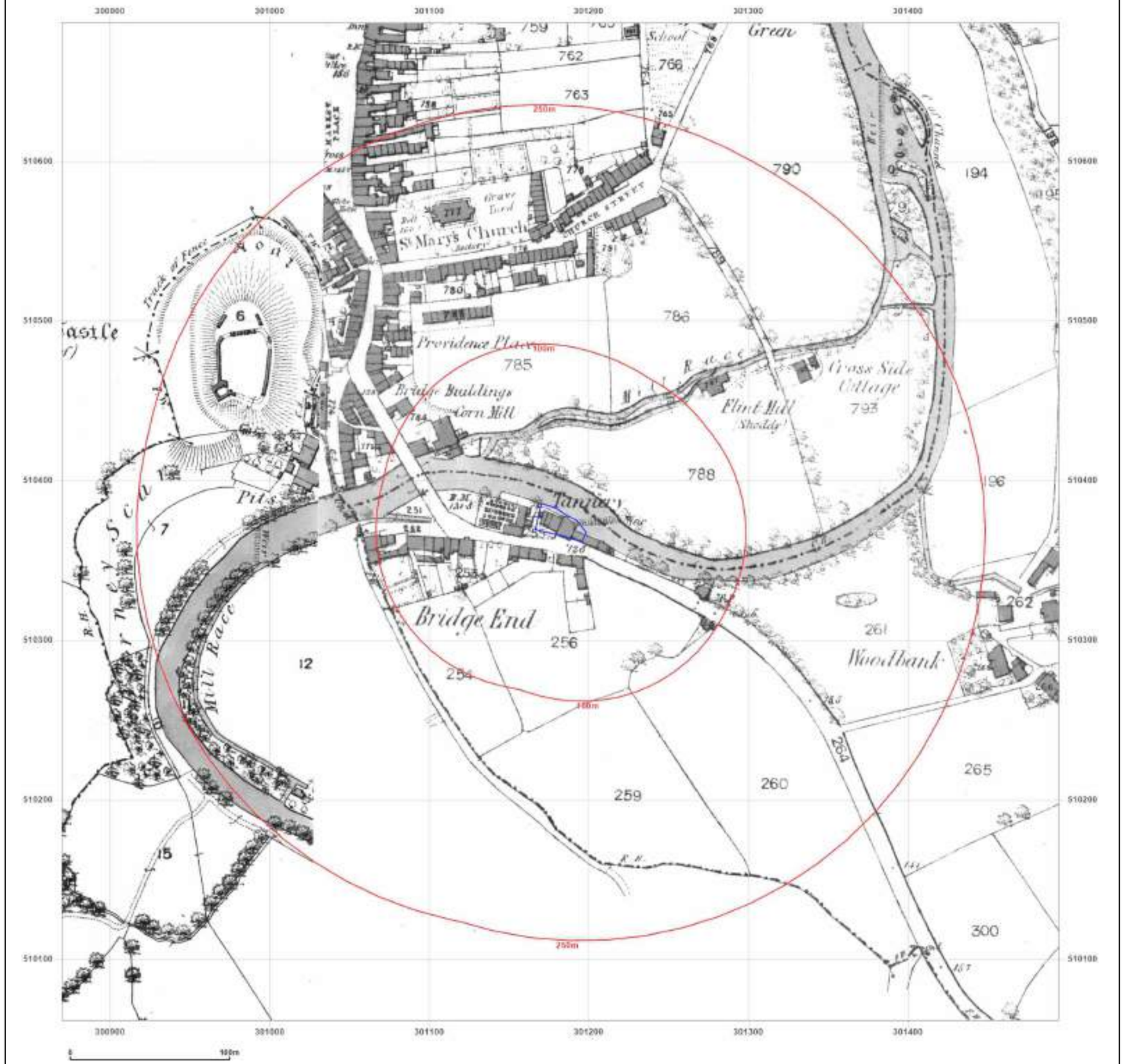
Production date: 06 July 2022

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



emapsite™

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Grid Ref: 301182, 510374

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Scale: 1:2,500
Printed at: 1:2,500

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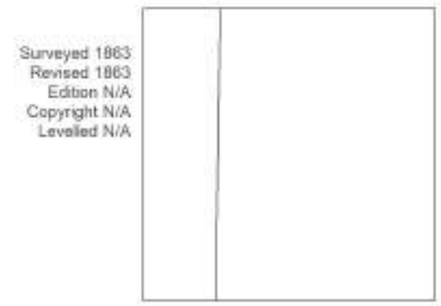

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Map legend available at:
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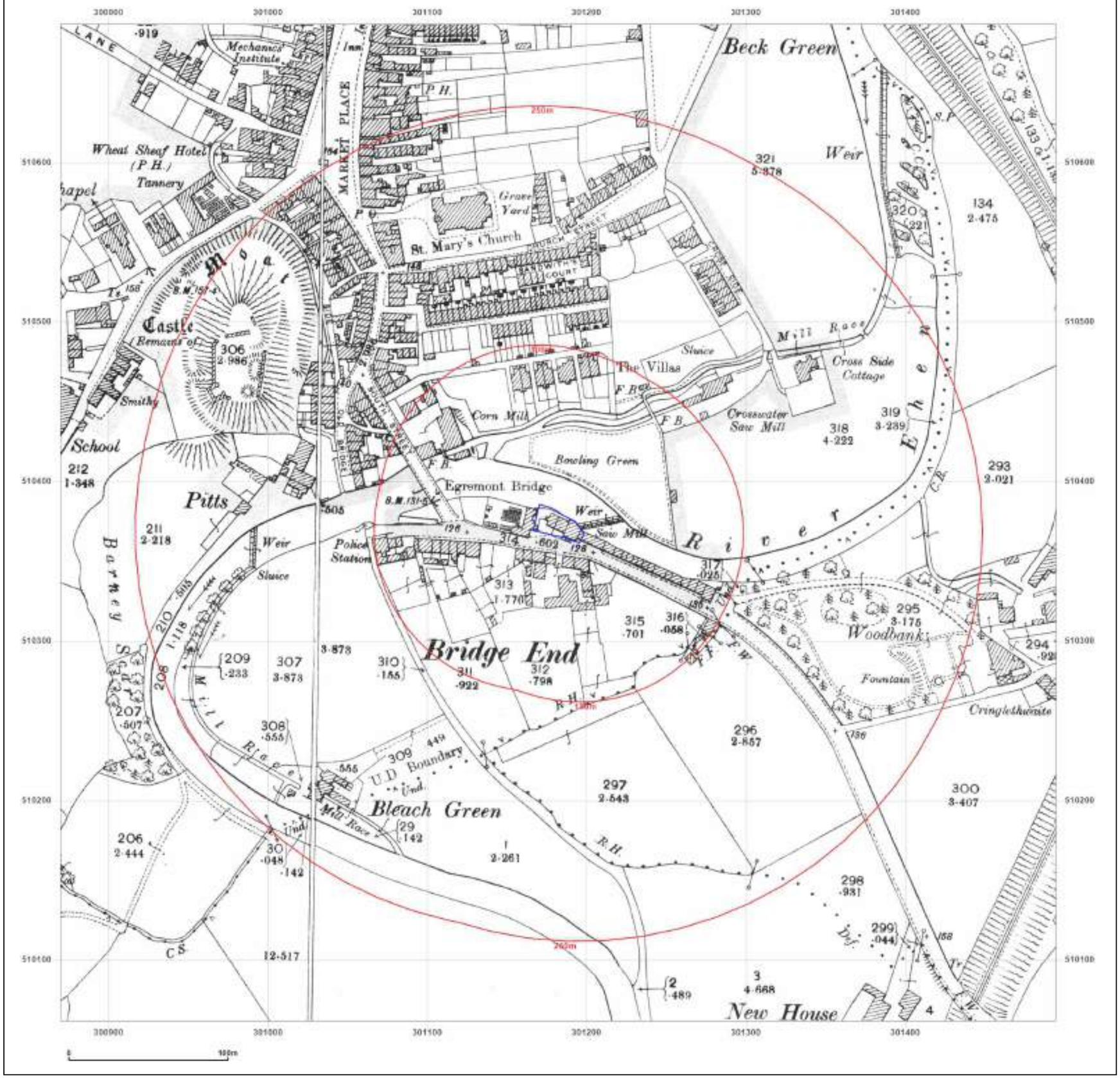

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Grid Ref: 301182, 510374

Map Name: County Series
Map date: **1899**
Scale: 1:2,500
Printed at: 1:2,500

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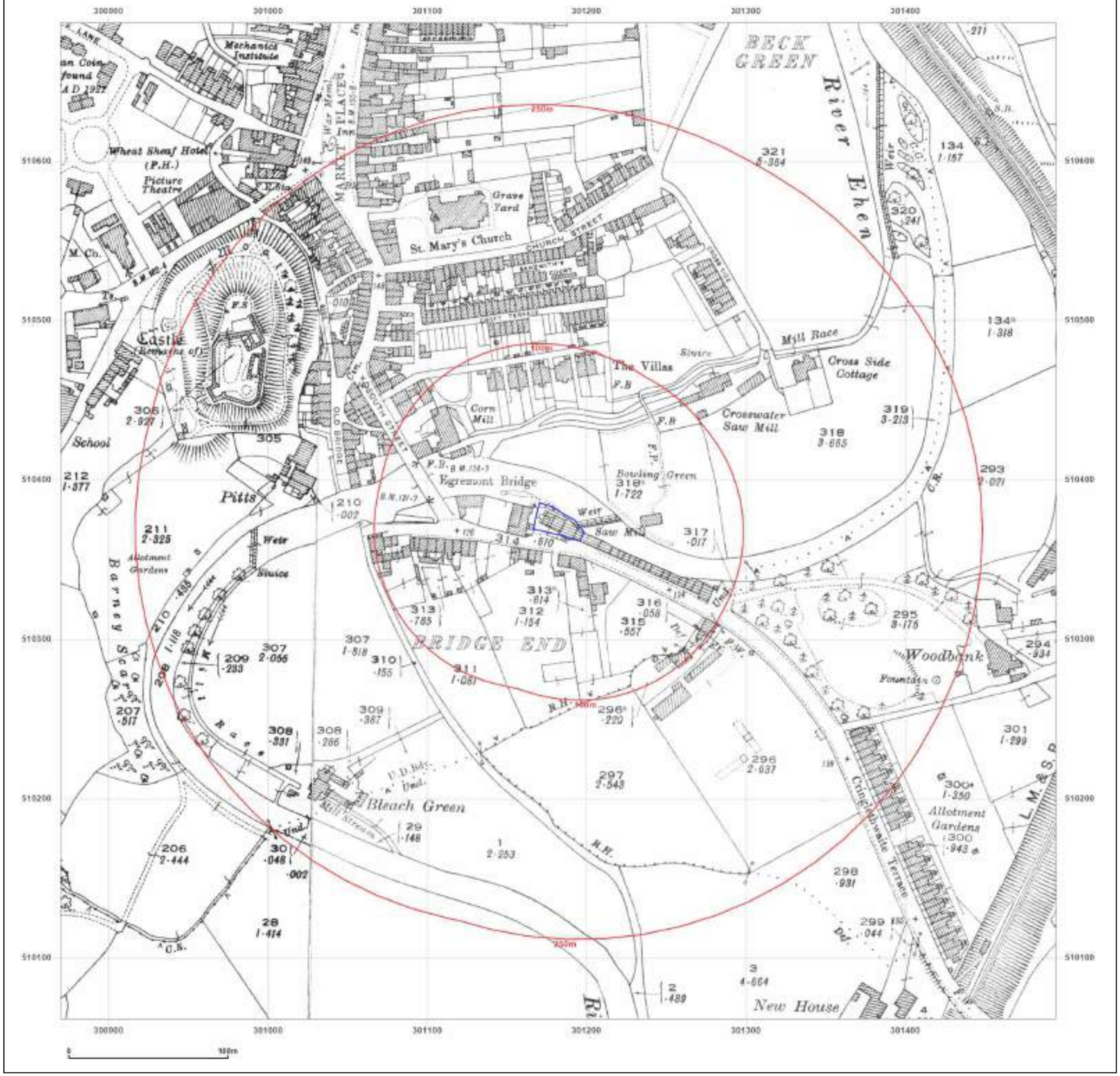

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Site Details:

Client Ref: EMS_792970_984021
Report Ref: EMS-792970_1022443
Grid Ref: 301182, 510374

Map Name: County Series
Map date: **1924**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S

Surveyed 1924
Revised 1924
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1924
Revised 1924
Edition N/A
Copyright N/A
Levelled N/A

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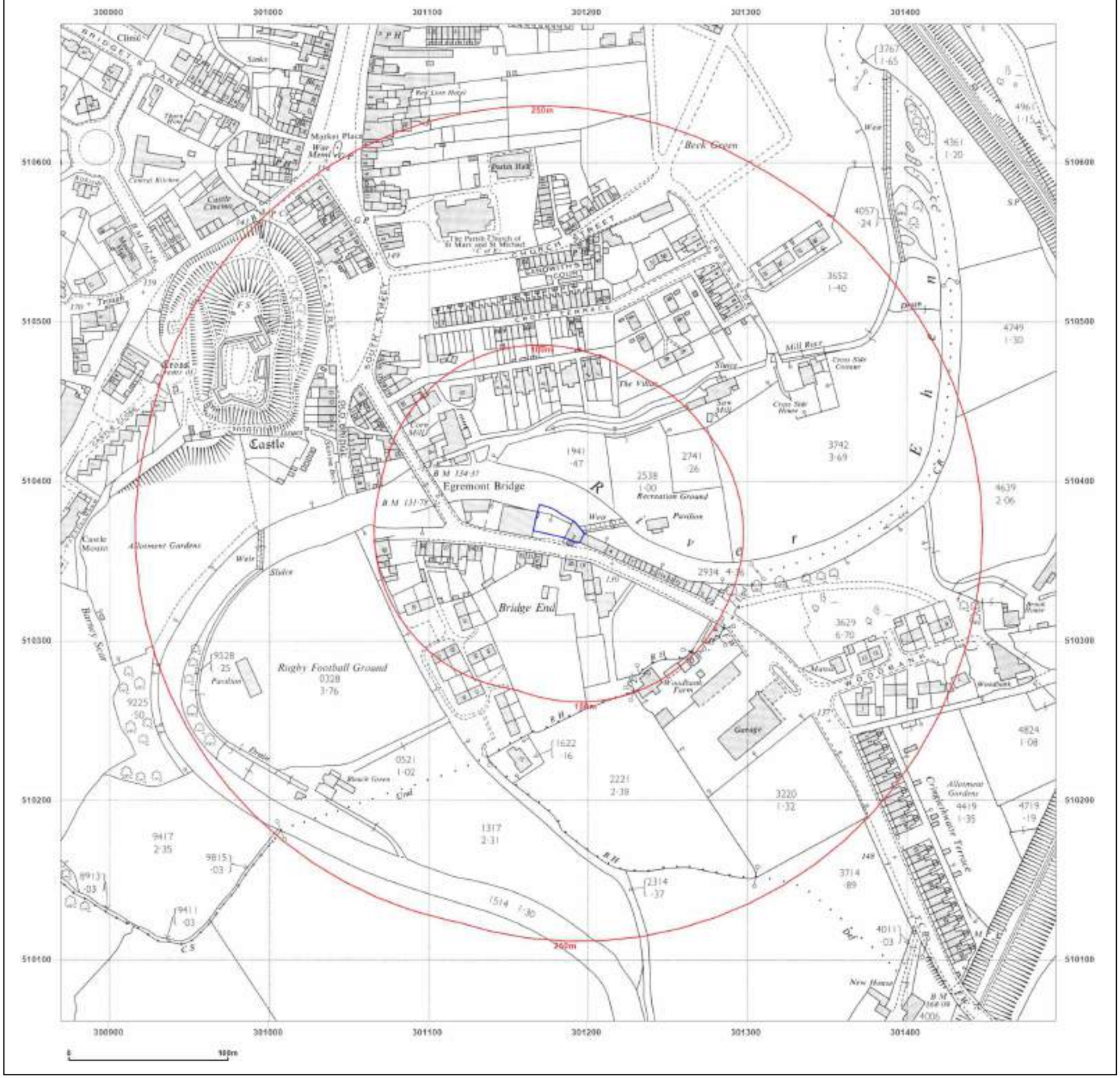

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Site Details:

Client Ref: EMS_792970_984021
Report Ref: EMS-792970_1022443
Grid Ref: 301182, 510374

Map Name: National Grid

Map date: **1969**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1968
Revised 1968
Edition N/A
Copyright 1969
Levelled 1953

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Site Details:

Client Ref: EMS_792970_984021
Report Ref: EMS-792970_1022443
Grid Ref: 301182, 510374

Map Name: National Grid

Map date: **1969**

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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Site Details:

Client Ref: EMS_792970_984021
Report Ref: EMS-792970_1022443
Grid Ref: 301182, 510374

Map Name: National Grid

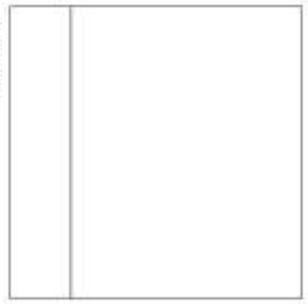
Map date: **1982**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1965
Revised 1982
Edition N/A
Copyright 1982
Levelled 1965



Surveyed 1965
Revised 1982
Edition N/A
Copyright 1982
Levelled 1965

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Site Details:

Client Ref: EMS_792970_984021
Report Ref: EMS-792970_1022443
Grid Ref: 301182, 510374

Map Name: National Grid
Map date: **1989-1993**
Scale: 1:2,500
Printed at: 1:2,500

N
W E
S

Surveyed 1965	Surveyed N/A
Revised 1989	Revised N/A
Edition N/A	Edition N/A
Copyright 1989	Copyright 1993
Levelled 1965	Levelled 1965

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Site Details:

Client Ref: EMS_792970_984021
Report Ref: EMS-792970_1022443
Grid Ref: 301182, 510374

Map Name: National Grid

Map date: **1990-1994**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed N/A
Revised N/A
Edition N/A
Copyright 1990
Levelled 1965

Surveyed 1994
Revised N/A
Edition N/A
Copyright 1994
Levelled N/A

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Site Details:

Client Ref: EMS_792970_984021
Report Ref: EMS-792970_1022443
Grid Ref: 301182, 510374

Map Name: National Grid

Map date: **1989-1994**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1965
Revised 1989
Edition N/A
Copyright 1989
Levelled 1965

Surveyed 1994
Revised 1994
Edition N/A
Copyright 1994
Levelled N/A

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Site Details:

Client Ref: EMS_792970_984021
Report Ref: EMS-792970_1022443
Grid Ref: 301182, 510374

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

N
W E
S

Surveyed 1965
Revised 1993
Edition N/A
Copyright 1993
Levelled 1965

Surveyed 1995
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

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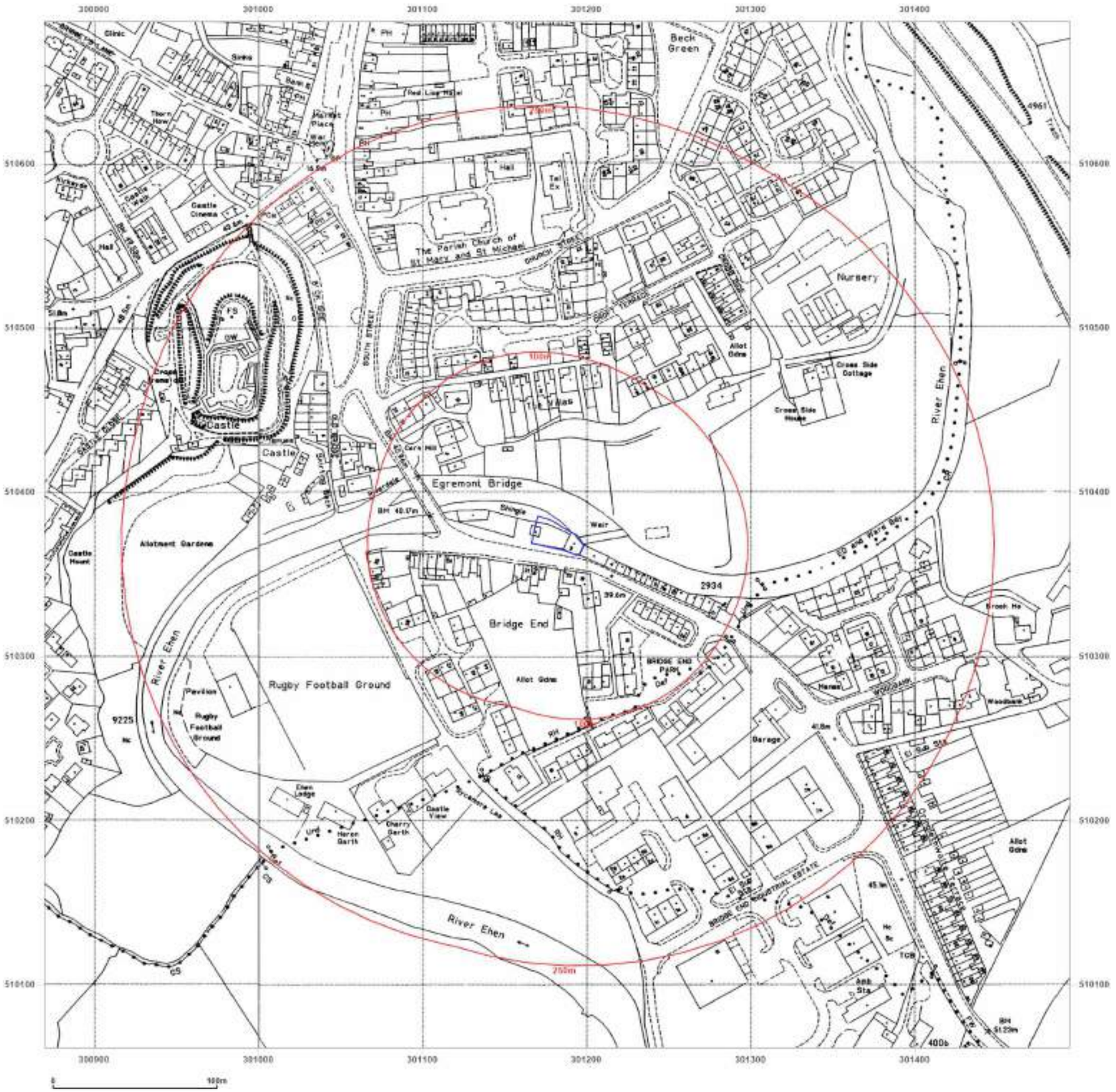

Site Details:

Client Ref: EMS_792970_984021
Report Ref: EMS-792970_1022443
Grid Ref: 301182, 510374

Map Name: National Grid

Map date: **1994-1995**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1994
Revised N/A
Edition N/A
Copyright 1994
Levelled N/A

Surveyed 1995
Revised N/A
Edition N/A
Copyright 1995
Levelled N/A

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Site Details:

Client Ref: EMS_792970_984021
Report Ref: EMS-792970_1022443
Grid Ref: 301182, 510374

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

N
W E
S

2003

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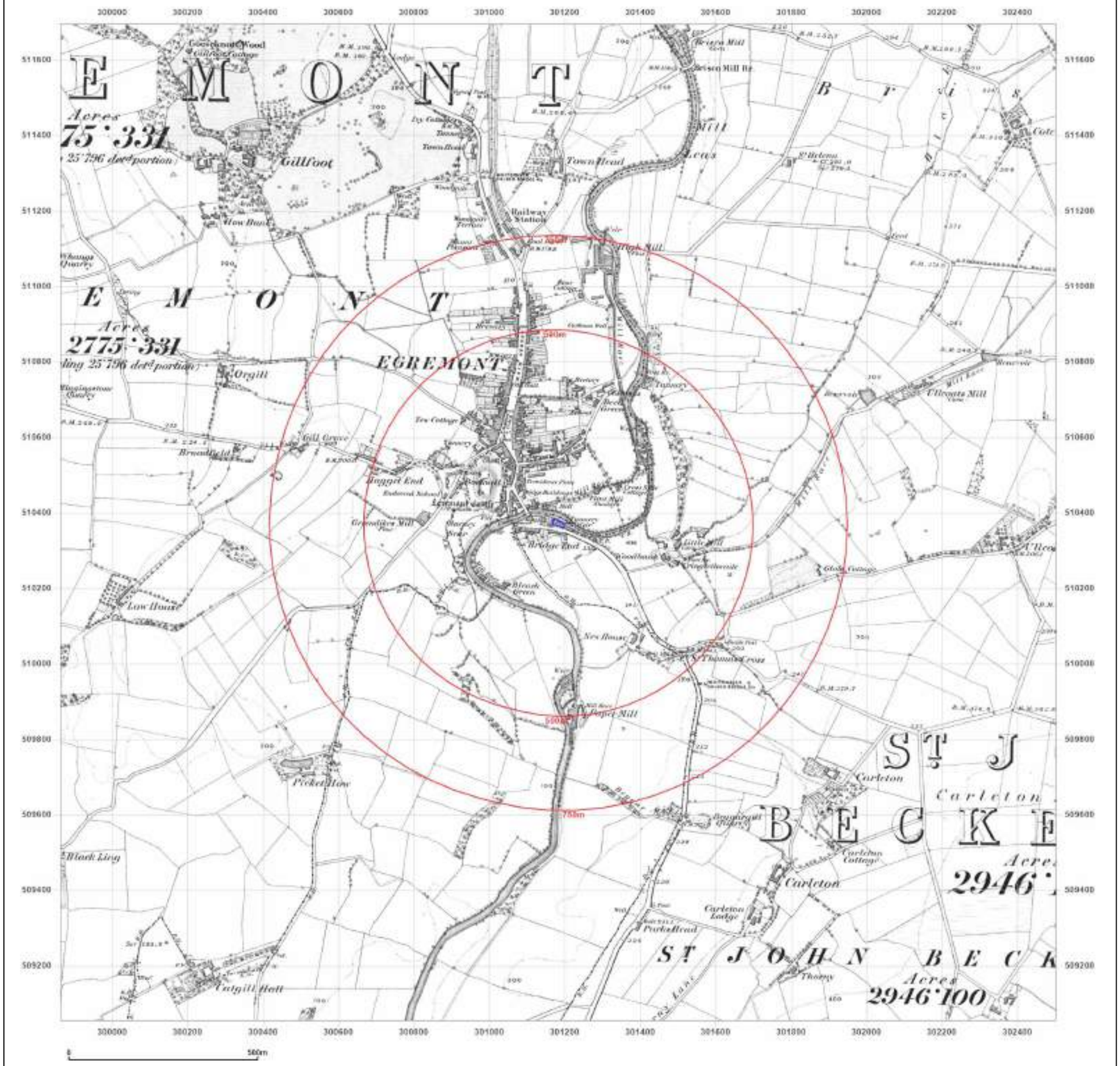

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Site Details:

Client Ref: EMS_792970_984021
Report Ref: EMS-792970_1022443
Grid Ref: 301182, 510374

Map Name: County Series
Map date: 1861
Scale: 1:10,560
Printed at: 1:10,560

N
W E
S

Surveyed 1861
Revised 1861
Edition N/A
Copyright N/A
Levelled N/A

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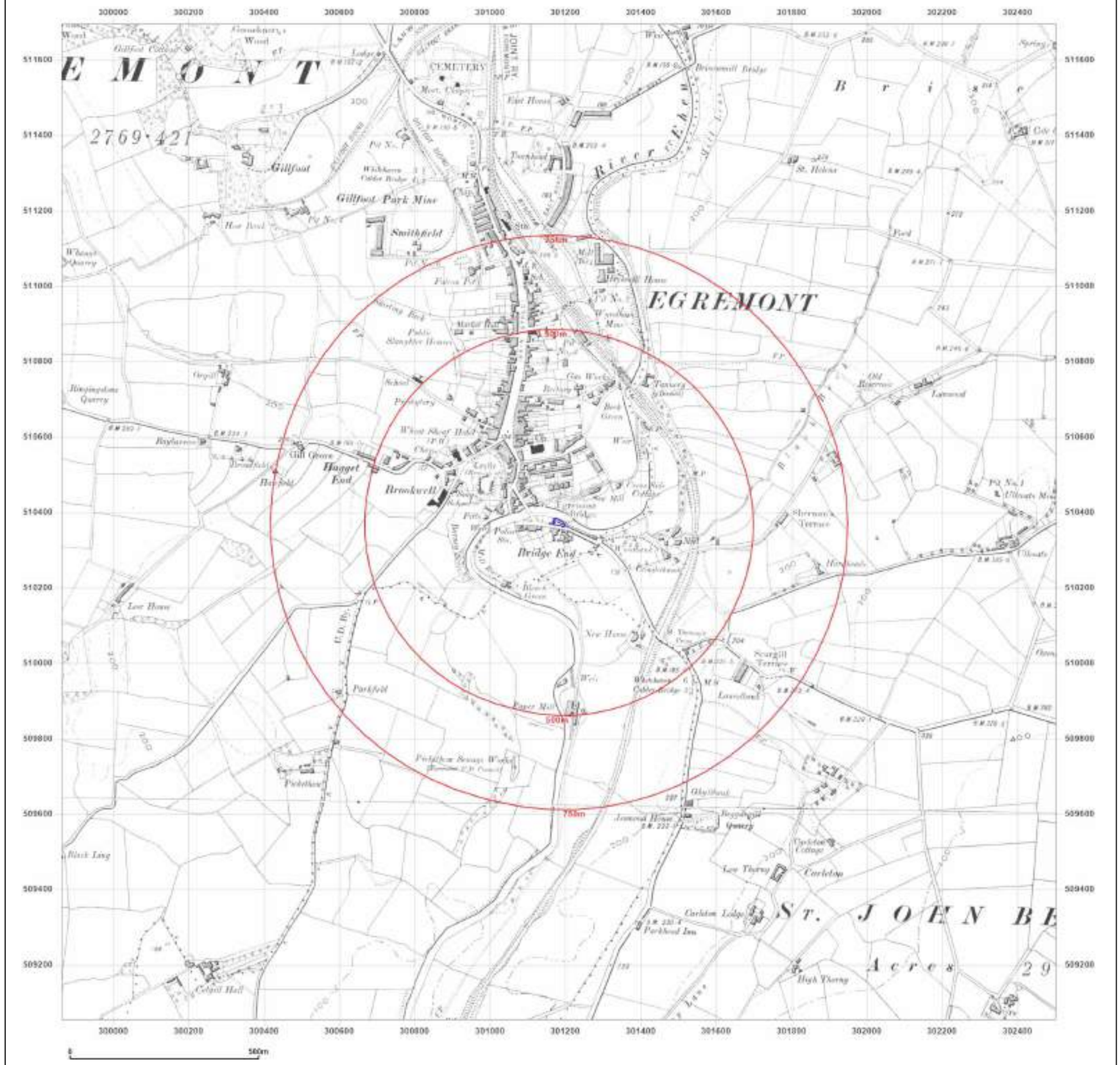

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Site Details:

Client Ref: EMS_792970_984021
Report Ref: EMS-792970_1022443
Grid Ref: 301182, 510374

Map Name: County Series

Map date: **1898**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

Surveyed 1860
Revised 1898
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1863
Revised 1898
Edition N/A
Copyright N/A
Levelled N/A

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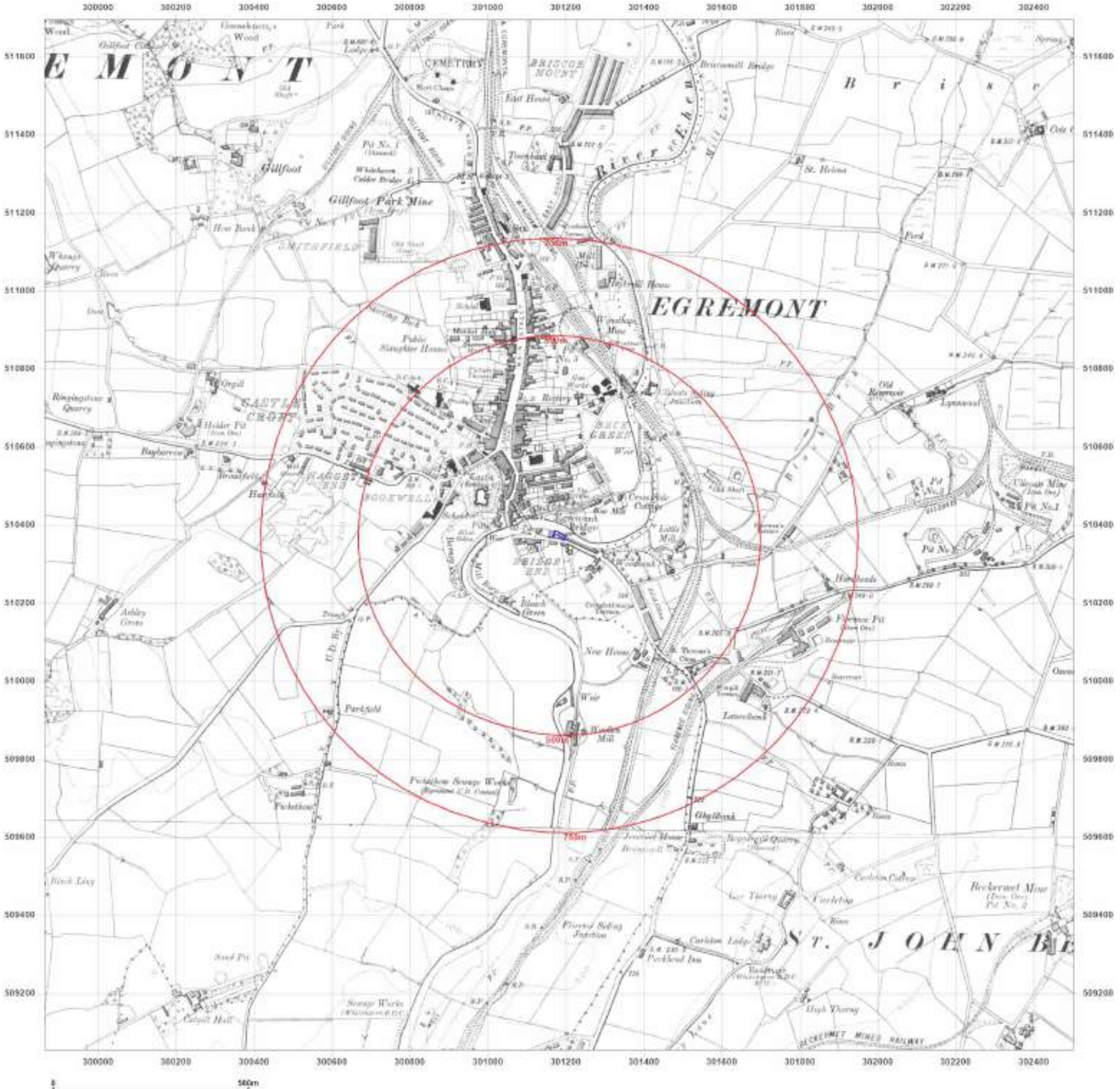

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Site Details:

Client Ref: EMS_792970_984021
Report Ref: EMS-792970_1022443
Grid Ref: 301182, 510374

Map Name: County Series

Map date: **1926**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

Surveyed 1860
Revised 1926
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1863
Revised 1926
Edition N/A
Copyright N/A
Levelled N/A

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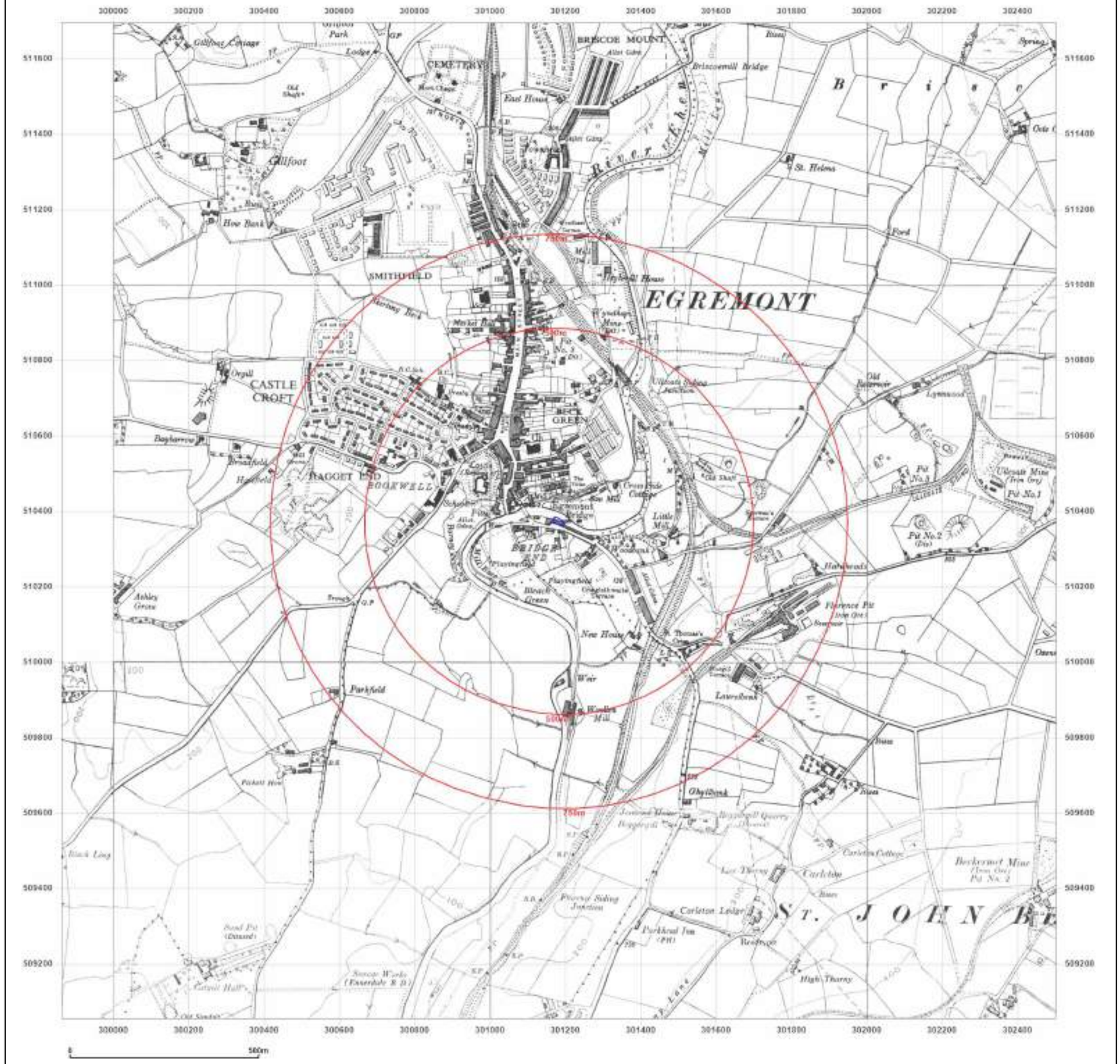

Site Details:

Client Ref: EMS_792970_984021
Report Ref: EMS-792970_1022443
Grid Ref: 301182, 510374

Map Name: Provisional
Map date: **1951-1956**
Scale: 1:10,560
Printed at: 1:10,560

N
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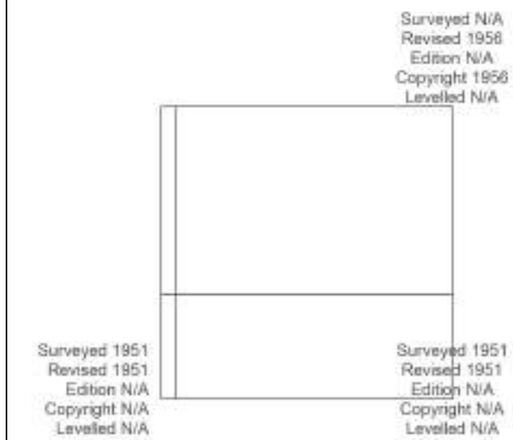

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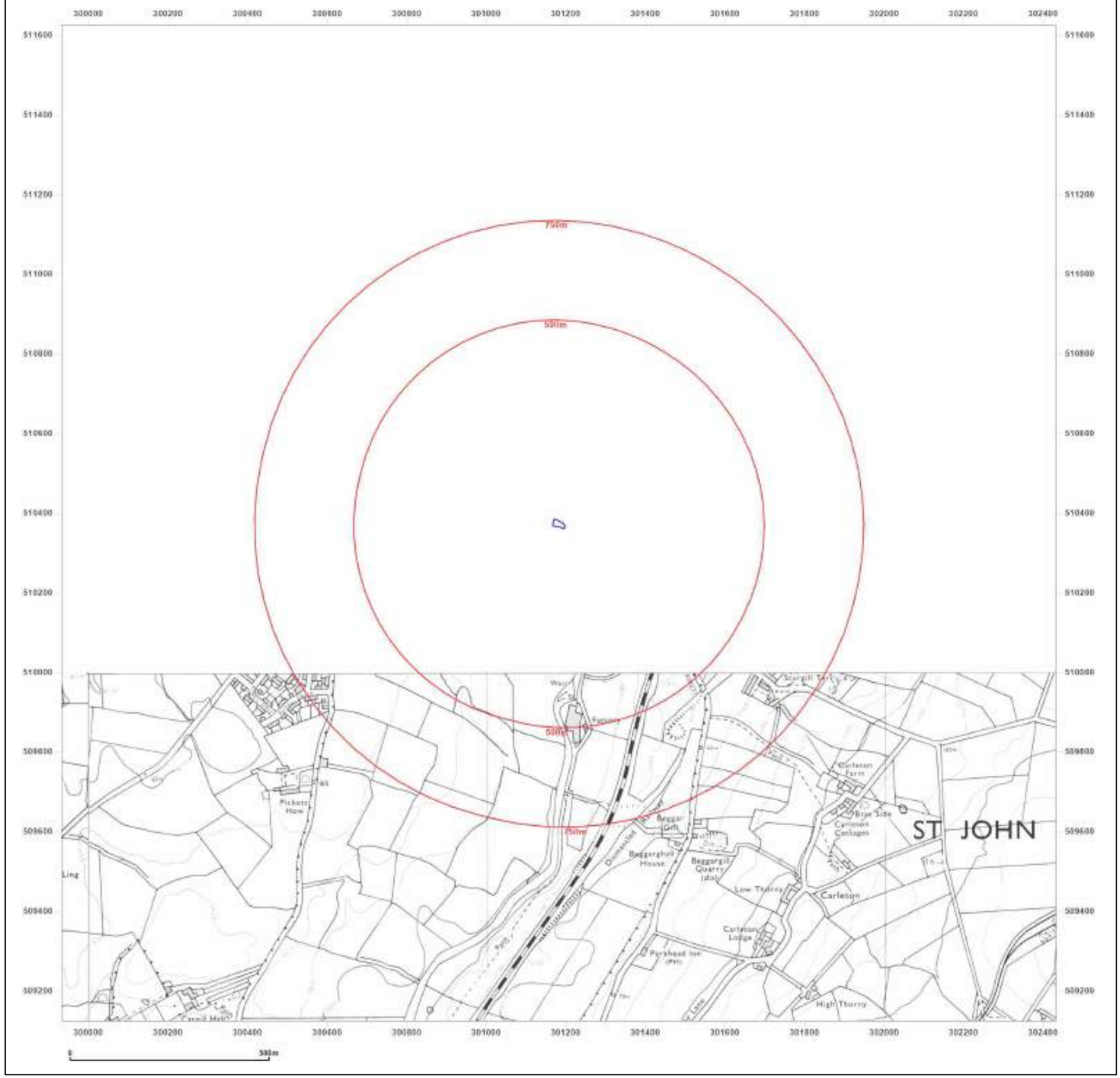

Site Details:

Client Ref: EMS_792970_984021
Report Ref: EMS-792970_1022443
Grid Ref: 301182, 510374

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

N
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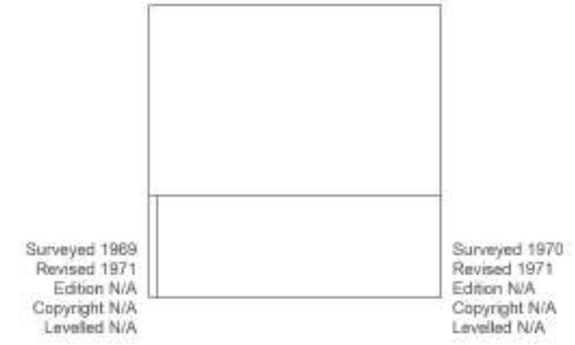
S



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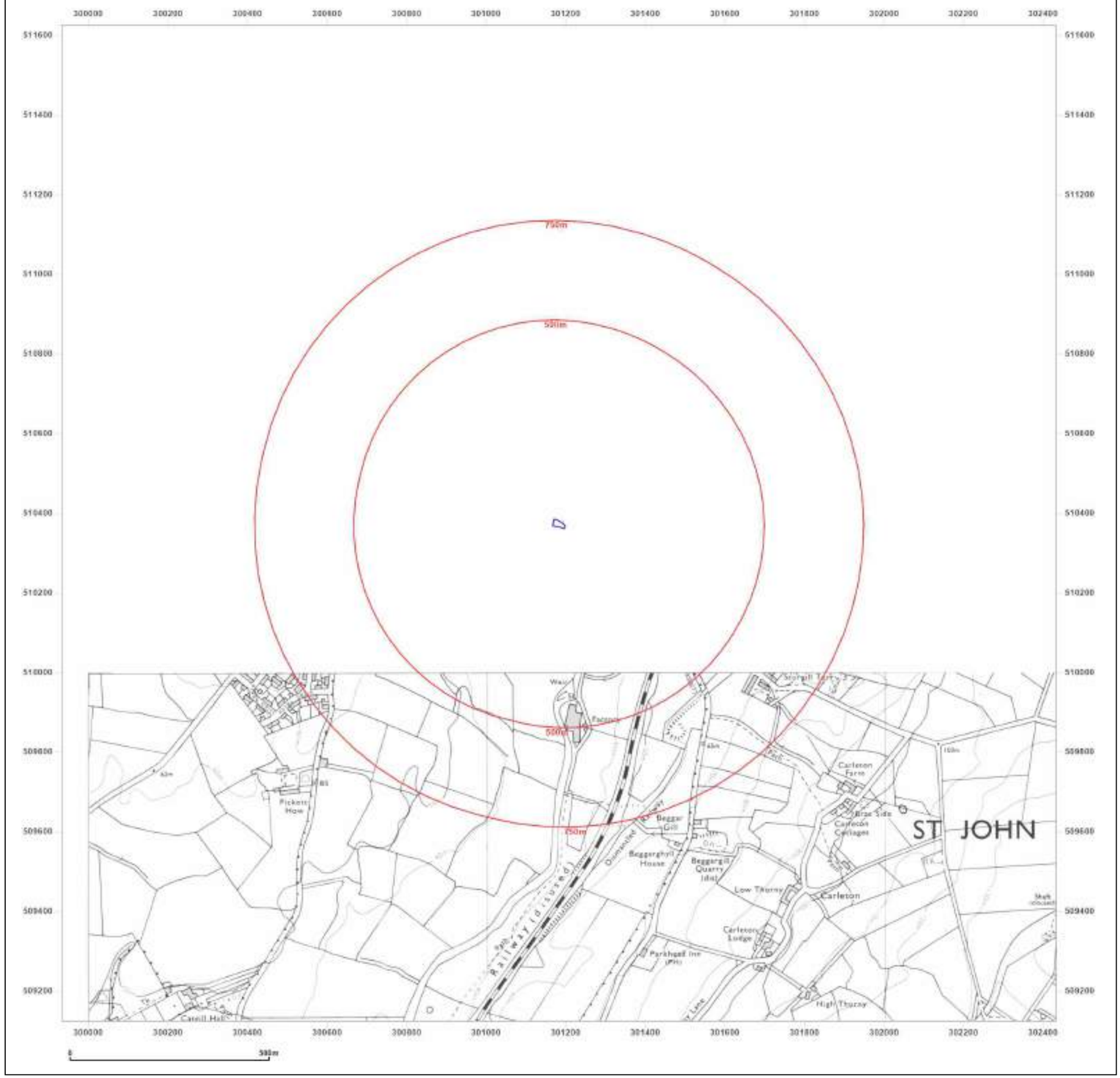

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Site Details:

Client Ref: EMS_792970_984021
Report Ref: EMS-792970_1022443
Grid Ref: 301182, 510374

Map Name: National Grid
Map date: **1981**
Scale: 1:10,000
Printed at: 1:10,000

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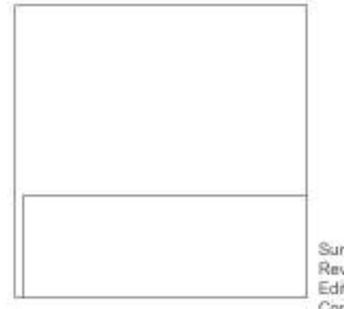

Surveyed 1970
Revised 1981
Edition N/A
Copyright N/A
Levelled N/A

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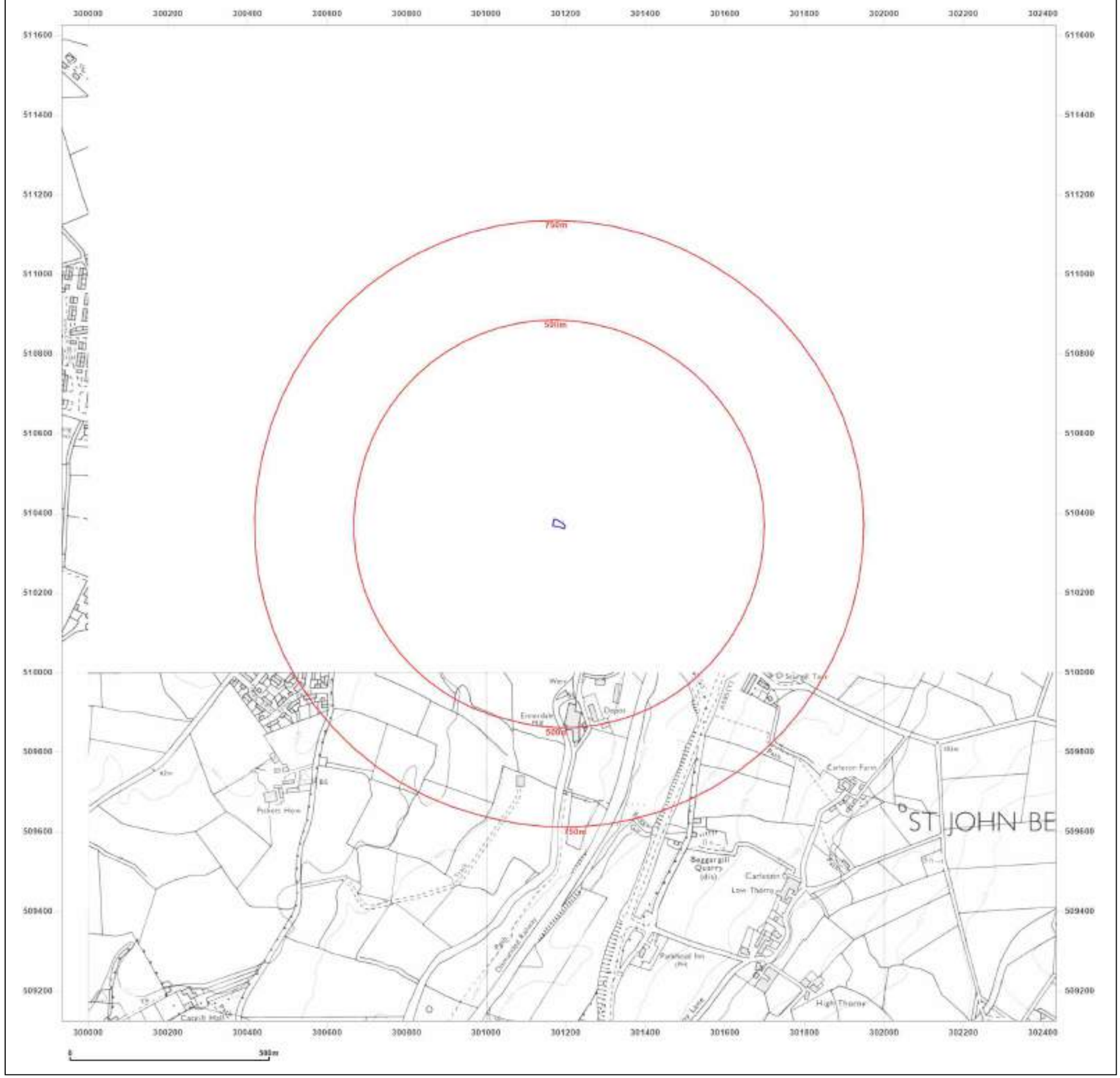

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Site Details:

Client Ref: EMS_792970_984021
Report Ref: EMS-792970_1022443
Grid Ref: 301182, 510374

Map Name: National Grid
Map date: **1993-1994**
Scale: 1:10,000
Printed at: 1:10,000

N
W E
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Surveyed 1990
Revised 1993
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1968
Revised 1994
Edition N/A
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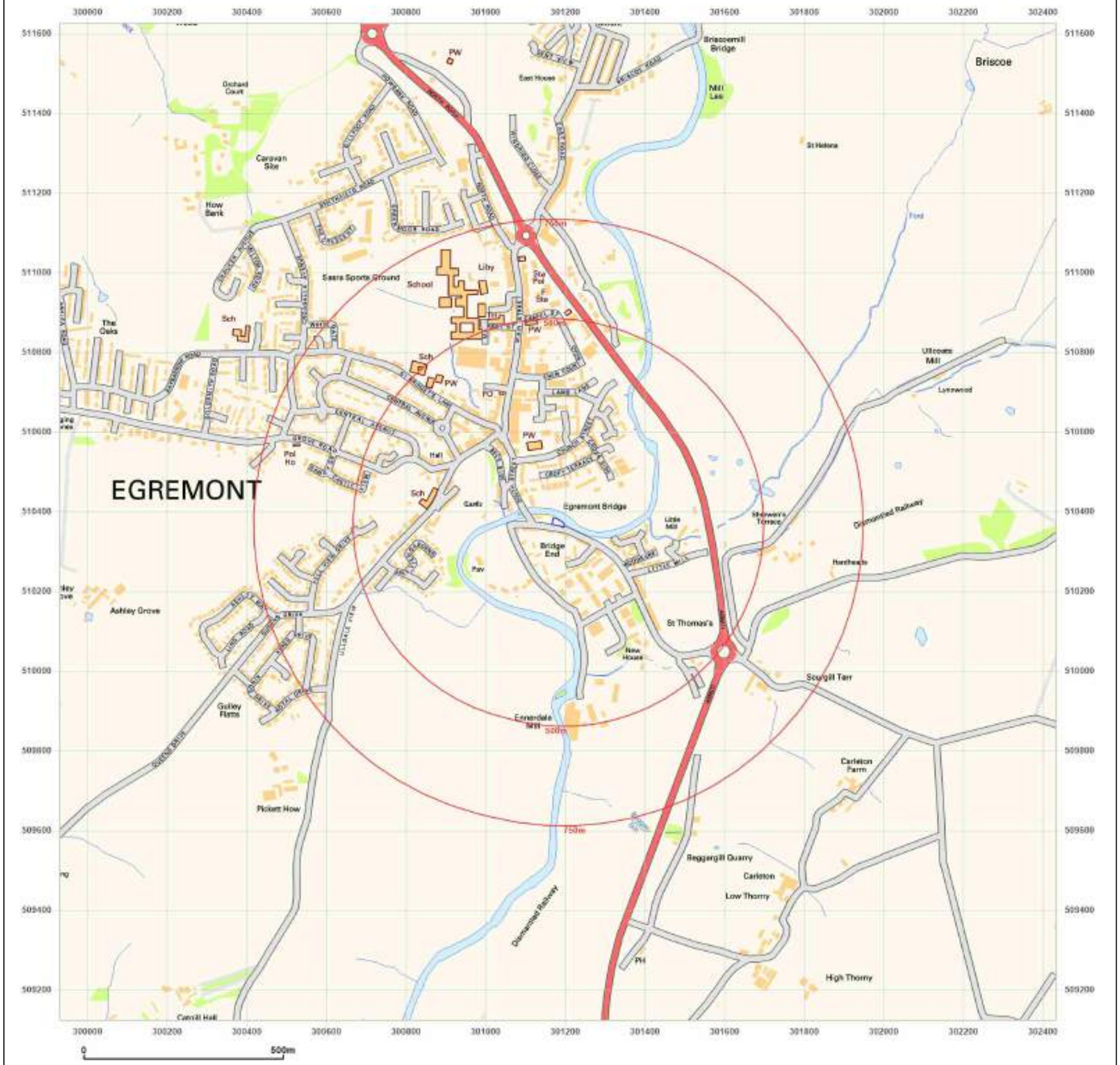

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Site Details:

Client Ref: EMS_792970_984021
Report Ref: EMS-792970_1022443
Grid Ref: 301182, 510374

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

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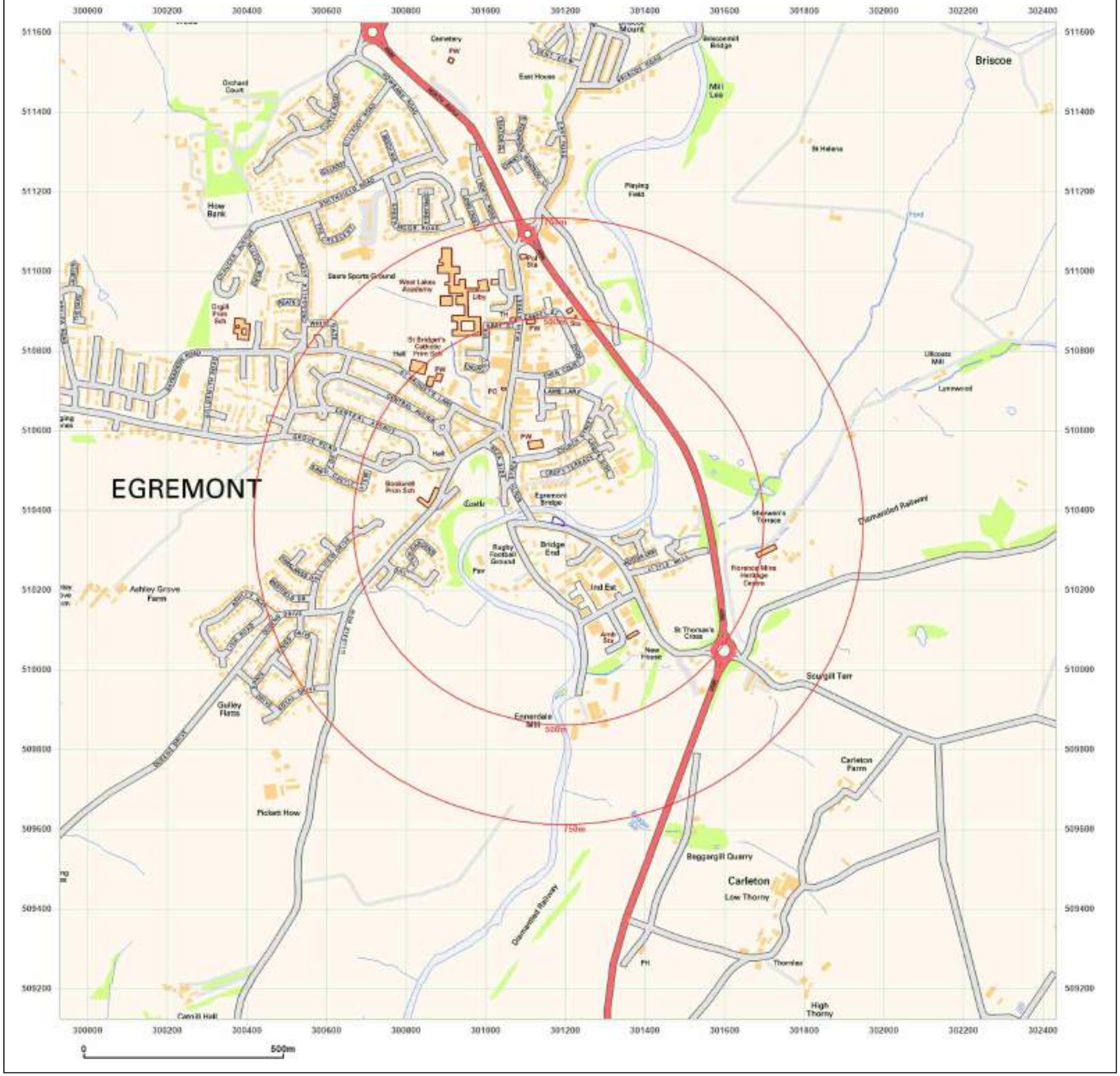

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Site Details:

Client Ref: EMS_792970_984021
Report Ref: EMS-792970_1022443
Grid Ref: 301182, 510374

Map Name: National Grid

Map date: **2010**

Scale: 1:10,000

Printed at: 1:10,000

N
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2010

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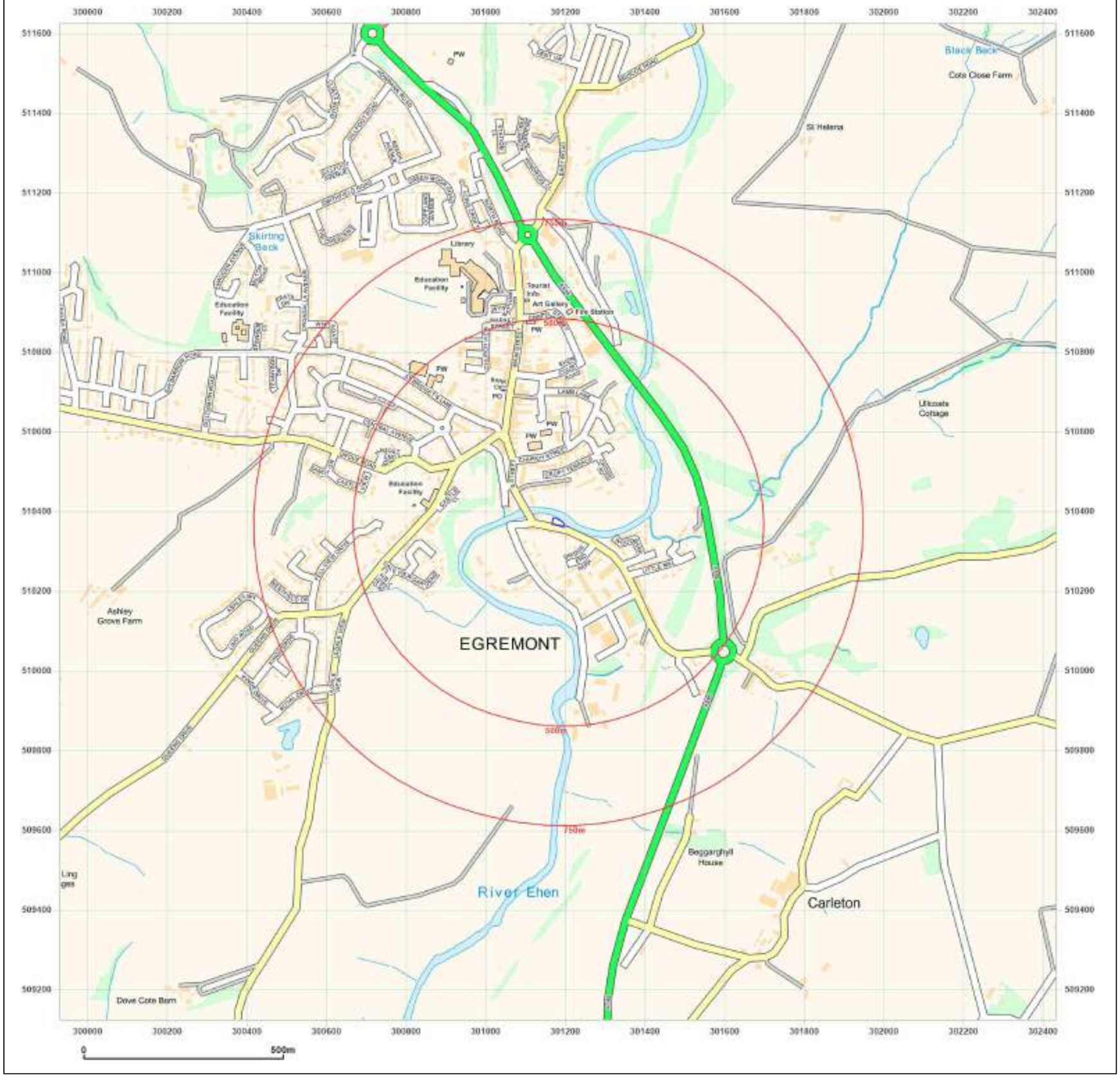

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Site Details:

Client Ref: EMS_792970_984021
Report Ref: EMS-792970_1022443
Grid Ref: 301182, 510374

Map Name: National Grid
Map date: **2022**
Scale: 1:10,000
Printed at: 1:10,000

N
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2022

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County Series 1:10,560 scale

VEGETATION

Fir Wood

Deciduous Wood

Mixed Wood

Brushwood

Orchard

Reeds

Rough Pasture

Furze

Marsh

Osiers

ROADS

Railway over Road

Road over Railway

Road over River or Canal

Level Crossing

Railway over River

Road over Stream

Sunken Road

Raised Road

RAILWAYS

Double Lines of Railway

Single Lines of Railway and Tramway

GENERAL FEATURES

Gravel Pit

Sand Pit

Quarry

Shingle

Other Pits

Antiquities, Site of

Arrow, showing direction of flow of water

Trigonometrical Station

BOUNDARIES

County Boundary

Parliamentary Division Boundary

Parish Boundary

Union Boundary

200 Contours

Rural District Boundary

National Grid 1:10,000 scale

HEIGHTS (METRES)

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

Surface heights determined by: ground survey • 163m; air survey

Bench marks and their values are shown on large scale maps, and bench mark lists containing fuller and possibly later levelling information are obtainable from the Director General, Ordnance Survey.

Contours are at 5 metres vertical interval.

ROCK FEATURES

Loose rock

Boulders

Outcrop

Scree

Vertical face

CONVERSION SCALE

Metres - Feet

2000 Metres – 6500 Feet

6000

5000

1500

4000

ABBREVIATIONS

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

ROADS

Road

Track (Where unfenced shown by pecked lines.)

Path

RAILWAYS

Cutting, Embankment, Road over, Road under, Level crossing, Foot Bridge

Multiple track

Single track

Siding, tramway or mineral line

Standard gauge

Narrow gauge

GENERAL FEATURES

Antiquity, (site of)

Boulders

Building

Pylon

Pole

Electricity transmission line

Glasshouse

Triangulation station

Direction of flow of water

Lake, loch or pond

Sloping masonry

Chalk pit, clay pit or quarry

Gravel pit

Sand pit

Refuse or slag heap

Shingle

Sand

VEGETATION

Bracken, rough grassland

Scrub

Heath

Marsh

Saltings

Reeds

Coppice

Orchard

Coniferous trees

Non-coniferous trees

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

GroundSure

Historical Map Pack Legend

County Series & National Grid

1:10,560 scale

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

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

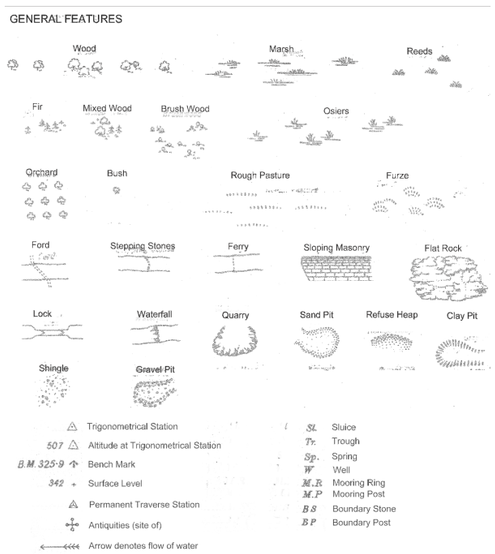
Technical Helpline

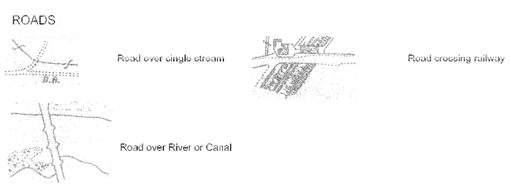
Tel 08444159000

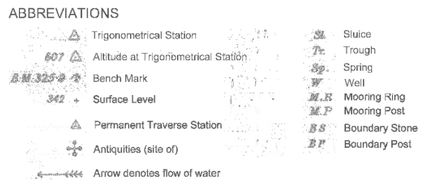
groundsureinsight@groundsure.com

www.groundsure.com

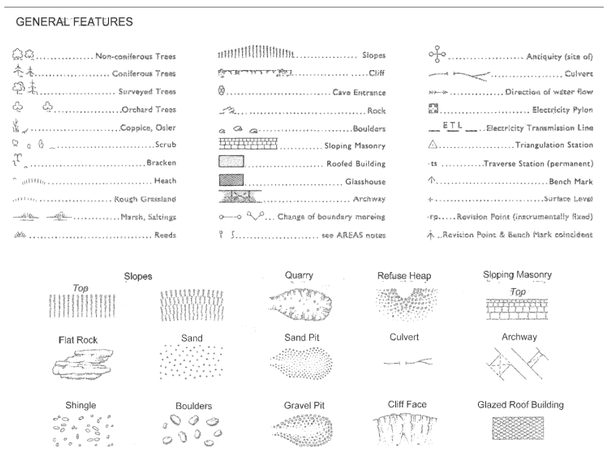
County Series 1:2,500 scale

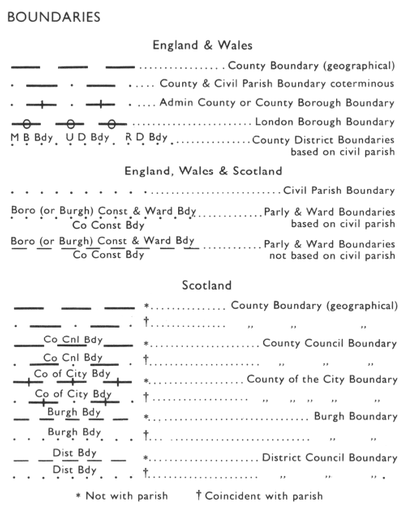


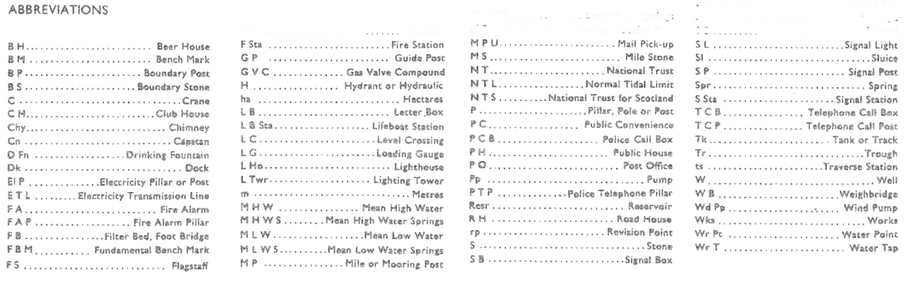




National Grid 1:2,500 / 1:1,250 scale







GroundSure

Historical Map Pack Legend

County Series

1:1,250 scale

~

County Series & National Grid

1:2,500 scale

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

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

Technical Helpline:

Tel 08444159000

groundsureinsight@groundsure.com
www.groundsure.com

Appendix IV

- Previous Technical Report

Memo

Project:	Egremont Contract – River Retaining Wall Repairs and Replacement: Ground Contamination Preliminary Risk Assessment	To:	Tom Fitzpatrick (Atkins Rivers and Coastal)
Subject:	Geo-Environmental Report	From:	Richard Collin (Atkins Land and Development (L&D))
Date:	8th March 2013	cc:	Jo Driffield (Atkins Rivers and Coastal) Liz Pearce (Atkins L&D)

1. Introduction

Atkins is currently preparing a Project Appraisal Report (PAR) for proposed repair / replacement works on a length of wall bordering the River Ehen at Egremont in Cumbria. The wall is not continuous, comprising three sections approximately 40m, 5m and 58m in length.

The site is located on the southern bank of the River Ehen, approximately 150m southeast of the centre of Egremont, at approximate National Grid Reference NY 011 103

The site comprises three sections of wall that retain the left hand bank of the River Ehen.

The three sections are indicated on Figure EGR-001 Rev: AA appended to this memo and for the purpose of this assessment will be referred to as sections 1, 2 and 3. The table below presents details of the wall and Figure EGR-001 Rev. AA shows the adjacent landuses.

Table 1 – Site Description

Section	NGR (from east to west)		Length (Approx.)	Description
1	NY 01190 10378	NY 01142 10385	58m	Section 1 is generally aligned in a north-west southeast orientation and connects a funeral services to what was formerly No 3 Vale View (which has recently been demolished). At its mid point the wall deviates southwards away from the river where it meets with the north-western corner of a garage
2	NY 01123 10386	NY 01115 10386	8m	Section 2 connects the western corner of the funeral services building to Egremont Bridge
3	NY 01109 10377	NY 01072 10376	40m	Section 3 runs from Egremont Bridge in a straight alignment in a westerly direction

The surrounding land use to the north of the wall is the right hand river bank and the River Ehen, beyond this are residential properties and their associated gardens. To the east lies residential housing on Vale View immediately to the south lies a funeral home and old hardstanding, a former garage (all demolished) with Vale View (road) and Bridge End (road) running in an east - west orientation beyond this area.
To the west lies the open river bank of the River Ehen, which meanders to the southwest away from the site. A bridge that crosses the River Ehen is located immediately to the west of the former funeral home area

A desk study has been completed previously by Atkins for the site. This concluded that there was a medium to high risk of widespread contamination at the site due to the current and historical use of the adjacent land as a tannery, saw mill, funeral services & garage. However this is subject to confirmation via ground investigation, sampling and appropriate environmental laboratory analysis

A ground investigation was recommended to inform the design of works and assess the material for its suitability for re-use within the final scheme design.

The aims and objectives of the investigation were:

- Provide sufficient data to carry out a generic quantitative risk assessment (GQRA), screening soil and soil leachate data against generic criteria to give a preliminary indication of re-use potential of materials to help avoid off-site disposal.
- Provide sufficient data to carryout preliminary waste characterisation by screening data using CATWASTE[TM] to indicate whether materials are likely to be hazardous or not.
- Determine the geochemical nature of soils on site.

2. Recent Ground Investigation

The ground investigation was carried out on the 22nd January 2013 by Resource and Environmental Consultants (REC) and supervised by Volker Stevin, following instruction by Atkins. The ground investigation comprised the following:

- Six hand excavated trial pits (TPA, TPB, TPC, TPD, TPF & TPG) to a maximum depth of 1.20m below ground level (bgl).
- Use of a PID to screen environmental samples taken during the site investigation to inform environmental laboratory analysis, and,
- Recovery of soil and water samples for environmental laboratory analysis.

Details of the ground investigation logs were provided by Volker Stevin, in order for Atkins L&D to schedule the appropriate analysis. Ground Investigation logs, survey drawing, and laboratory analysis results are included in the Volker Stevin report which is attached as Appendix A. Environmental laboratory testing was undertaken as part of this investigation, the results of which are discussed in the following sections.

Atkins accepts no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known, other than within the terms of the contract.

2.1. Environmental Sampling and Laboratory Analysis

Environmental soil samples were recovered from exploratory holes by the contractor's site Engineer. All soil samples were placed into clearly labelled jars and tubs provided by the testing laboratory, Scientific Analysis Laboratories Limited (SAL Ltd), a UKAS and MCERTS accredited laboratory to undertake chemical analysis. Sample jars were temporarily secured in cool boxes prior to transfer to the laboratory, in accordance with chain of custody procedures.

Soil samples were submitted for analysis for one or more of the following suites of contaminants of concern (CoC):

- metals / metalloids (arsenic, water soluble boron, cadmium, total and hexavalent chromium, copper, lead, mercury, nickel, selenium and zinc);
- pH;
- 2:1 soluble sulphate;
- total and free cyanide;
- PAHs – 16 speciated polycyclic aromatic hydrocarbons (PAHs);
- TPH CWG and BTEX – Total Petroleum Hydrocarbons showing Criteria Working group Speciation;
- total phenols;
- ashestos screen (quantification if ACM detected);

- volatile organic compounds (VOCs)
- semi-volatile organic compounds (SVOCs); and;
- soil organic matter (SOM)

VOCs and SVOCS were only to be analysed on samples that recorded elevated PID readings or had odours noted during recovery / excavation

In addition, soil-derived leachate tests were carried out on selected soil samples for the same analysis as above (with the exception of SOM, VOCs SVOCs and asbestos screening).

Two samples of water from the adjacent River Ehen were taken and analysed for the same analysis suite as the leachate samples, with the addition of hardness analysis.

Results of laboratory analysis carried out on samples of soil and soil leachate are presented in Appendix A

2.2 Ground & Groundwater Conditions

The ground conditions are summarised in the tables below.

For detailed descriptions of the site specific geology, please refer to the logs in Appendix A

Table 1.3: Summary of Ground Conditions

Stratum	Range of Depths of Stratum Encountered (m bgl)	Proven Thickness Range (m)
Granular Made Ground – sandy clayey gravel	GL – 1.20*	0.40 – 1.20
Cohesive Made Ground – sandy gravelly clay	GL – 1.20*	0.05 – 1.20
Gravel – Alluvium (TPC only)	0.10 – 1.20	0.10

* extended total depth (1.20m) in TPB only

extended total depth (1.20m) in TPG only

Groundwater was not encountered in any of the exploratory holes during excavation.

The Made Ground encountered on the site predominantly consisted of sandy gravelly clay, or sandy clayey gravel with glass, wood, plastic, brick, timber, ceramic, asphalt, concrete and fabric fragments

In TPC only, Alluvium was encountered below the Made Ground. The Alluvium comprised sandy clayey gravel with occasional bands of peat. The remainder of the trial pits terminated in the Made Ground strata

2.3. Visual and Olfactory Indicators of Soil Contamination

The majority of the PID readings taken by the REC site engineer were recorded as 0ppm with the exception of a sample recovered from TPD at 0.05m bgl which had a PID reading of 8.9ppm and at 0.30m bgl which had a reading of 0.10ppm. These two samples were scheduled for VOC and SVOC analysis to try and determine the source of the elevated PID readings

The Made Ground encountered in all the trial pits included gravel sized fragments of glass, wood, plastic, brick, timber, ceramic, asphalt and fabric, along with a black colouring. No odours were recorded on the logs

No other visual or olfactory indicators of potential contamination were observed during the ground investigation.

The contractor's logs do not indicate any evidence of the presence of asbestos being encountered during the site works. This was confirmed by the laboratory analysis screening which did not encounter any asbestos containing materials in the fourteen samples submitted.

3. Generic Quantitative Risk Assessment (Re-use of Site Won Materials Assessment)

3.1. Introduction

Atkins have used the information obtained during the ground investigation to assess the potential risk from contaminant source-pathway-receptors identified in the conceptual site model (CSM) developed during the desk study. Contaminant concentrations in soil and soil-derived leachate from the exploratory holes have been screened against appropriate generic assessment criteria (GAC).

The GQRA will enable the risk posed by potential contamination to be identified and provide an indication of re-use potential. The results of the GQRA screen are attached to this memo in Appendix B.

3.2. Human Health GQRA

The GAC selected for the site are the Atkins' derived Soil Screening Values (SSVs). SSVs are selected on the most likely scenario for the end-use of the site, which in this case includes former commercial areas / predominantly hardstanding areas. Therefore the SSV's for Commercial have been used. Based on the observed ground conditions and the reported soil organic matter (SOM) values, the 6% SOM SSVs (sandy loam soils) have been adopted.

Potential short term risks to construction workers / future maintenance contractors (excavating) are not considered in this assessment as health and safety risk assessments by the contractor will be required for this purpose to establish appropriate safe systems of work, which would also include the use of appropriate PPE.

Of the eleven samples scheduled for laboratory analysis one exceedance of benzo(a)pyrene was reported above the SSV from 1.20m bgl in TP6. The recorded concentration was 17 mg/kg, which is above the SSV of 14.4 mg/kg.

The remaining CoC's analysed were below the SSVs and therefore will not be considered further in this assessment.

The material tested is unlikely to be pose a potential risk to human health if it is re-used in an area which is planned to be a commercial land use, i.e. buried under hardstanding. The assessment is based on the assumption that commercial land use will continue at the site. If this is not the case then this risk assessment may not be appropriate and the risks will need to be considered further and a re-assessment of the soil sample data may be required.

3.3. Controlled Water GQRA

The primary controlled waters receptor is considered to be the adjacent River Eden and the underlying Principal Aquifer (St Bees Sandstone).

Detected concentrations in soil-derived leachate give an indication of the concentration at which contaminants might leach from the Made Ground. The GACs selected are freshwater / inland values applicable under the Water Framework Directive (WFD) to allow assessment of risk posed to the River Eden. In the absence of a WFD value, a Drinking Water Standard (DWS) has been selected. Hardness (as $CaCO_3$) was tested in two water samples taken from the River to inform the GAC selection (as some water standards are hardness dependent). The resulting hardness was an average of 84.5mg/l $CaCO_3$. The water samples were also analysed for the same CoCs as the soils and soil-derived leachate in order to determine if the river was being significantly impacted by any of the contaminants identified in the Made Ground at the site.

The following contaminants were recorded at concentrations that exceed their respective GAC:

Table 2.2 – Leachate concentrations in excess of GAC

CoC	Freshwater EQS (µg/l)	DWS (µg/l)	Minimum Concentration (µg/l)	Maximum Concentration (µg/l)	Number of samples tested	Exceedances
Dissolved Lead	7.2	10	<0.3	10.0	8	1 (EQS – TPA@0.5m)
Fluoranthene	0.1	-	<0.01	0.22	8	1 (EQS – TPD @ 0.5m)
Benzo(b&k)Fluoranthene	0.03	-	<0.01	0.29	8	1 (EQS – TPB @ 0.5m)
Benzo(a)Pyrene	0.05	0.01	<0.01	0.23	8	2 (EQS & DWS - TPB @ 0.5m)
Indeno(1,2,3-cd)Pyrene & Benzo(ghi)Perylene	0.002	-	<0.01	0.27	8	1 (EQS – TPB @ 0.5m)
Sum of 4 PAHs*	-	0.1	<0.30	0.82	8	1 (DWS – TPB @ 0.5m)
Total Phenols	7.7	0.5	<0.5	3.4	8	5 (DWS – TPA@ 0.5m TPB @ 0.5m TPC @ 0.3m, TPD @ 0.3m, TPG @ 1.2m

* Sum of benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(ghi)perylene, indeno(1,2,3cd)pyrene

The results indicate an exceedance of the total PAH assessment criteria in TPB. Ground condition descriptions on the logs do not give any indication to the origin of the elevated PAHs. However fragments of coal were recorded in the Made Ground material, which could be a potential source of the PAH. No other olfactory of visual indications were noted.

The elevated lead and phenols concentrations recorded could be due to the historical use of the adjacent area as a garage and / or funeral home and prior to that a tannery in the 1800's. Again the logs do not indicate a specific reason why this material contains elevated concentrations of the respected CoCs and no other olfactory of visual indications of contamination were noted from the ground investigation.

The soil-derived leachate sample results for lead marginally exceed the EQS value (and is equal to the DWS value). It is likely that natural dilution within the alluvium and Secondary A Aquifer would reduce these concentrations further and as such lead is unlikely to pose an unacceptable risk to the controlled water receptor.

SSVs are not available for TPH, however where they have been detected above method detection limit (MDL) they have been considered in this assessment. TPHs in soil-derived leachate were recorded above MDL in TPF at 0.5m bgl in the following TPH bands - aliphatic – C16 to 21, C21 to 35 and C35 to 44 and aromatics C1 to 21 and C21 to 35. Ground condition descriptions in the logs do not give any indication to the origin of these heavy end fractions. However a layer of asphalt is noted as being present between 0.65m and 1.20m bgl in TPF, which could be the source of the elevated TPH fractions. The soil results for TPF did not indicate any exceedences or elevated concentrations in TPH.

All other compounds analysed for soil-derived leachate were either below the selected GAC or below MDL.

The generic screen indicates the re-use of site won materials (Made Ground), primarily from TPB, may pose an unacceptable risk to controlled waters, primarily the River Ehen (surface water receptor). The remaining material should not pose a significant risk to controlled waters.

Results of the two surface water samples obtained from the River Ehen do not exceed EQS or DWS GACs. This suggests that potential leachable contaminants from the site are not migrating to, or significantly impacting the River Ehen (controlled waters receptor). The EA should be consulted to determine whether etc etc then feed into below

However, without undertaking a detailed quantitative risk assessment (DQRA) the level of risk cannot be robustly eliminated. This could comprise statistical analysis of a larger data set and / or modelling contaminant transportation (which considers the effects of dispersion and attenuation of contaminants during its movement through the ground). Whereas the generic screening exercise undertaken herein necessarily assumes that the leachate is already present in the watercourse at risk, a DQRA would consider the flow path that the leachate would move along before reaching the receptor, and may also incorporate additional considerations to apply pragmatism

3.4. Waste Classification

Working in partnership with the McArdle Group, Atkins has developed the Waste Soils Characterisation Assessment Tool (CAT-WASTE^{SOIL}). The tool follows current regulations / guidance and provides an indication of whether or not soils are likely to be hazardous waste.

Reported concentrations of contaminants from the nine soil samples analysed were entered into the CAT WASTE^{SOIL} tool. The results indicate the majority of samples tested would not be classified as hazardous.

Two samples, TPA at 0.5m bgl and TPB at 1.2m bgl, are classified as being hazardous. The CAT-WASTE^{SOIL} tool based this on the concentrations of lead and zinc, making the sample ecotoxic, i.e. very toxic to aquatic organism and may cause long-term effects to the aquatic environment.

It should be noted that the CAT-WASTE^{SOIL} tool assessment only provides an indication of the likely classification of soils for off-site disposal based on the chemical laboratory analysis results. It should be noted that the tool does not provide an assessment based on the presence or content of asbestos in the soil. Further testing and assessment of spoil generated during the excavation phase of the construction works including waste acceptance criteria (WAC) tests, are required to fully characterise the soils for the purposes of removing soils off-site to appropriately permitted facilities for treatment or disposal.

The results of the CAT-WASTE^{SOIL} assessment are provided in Appendix C.

4. Summary and Recommendations

The key findings of the preliminary materials re-use assessment and waste characterisation are:

RE-USE:

The majority of site won Made Ground material may be suitable for re-use, with the exception of the material from TPB, as the GQRA indicates the potential for unacceptable risk to receptors in this location.

The human health and controlled water GQRA indicates that the majority of the site material could be re-used. However, the material form TPB might pose an unacceptable risk to controlled waters and to human health due to the recorded exceedences.

The level of risk cannot be robustly eliminated without carrying out further investigation and detailed assessment (DQRA). However, it is likely that it would be more cost effective to dispose of the material from this area, rather than re-use at the site.

DISPOSAL:

CAT WASTE^{SOIL} indicates the majority of the material tested is unlikely to be classed as hazardous waste, with the exception of samples from TPA at 0.5m bgl and TPB at 1.2m bgl, which were classed as hazardous waste. This is due to the recorded levels of lead and zinc in the material analysed. Further sampling will be required once materials have been excavated to confirm their waste classification (this could include WAC tests and asbestos quantification if appropriate based upon the composition of the excavated materials).

Provision for Flood gate

Legend

Flood Wall

High Ground

Culvert Reality

Works required will include:

1. Visual inspection
2. Topo survey
3. Recommendations for intrusive survey (ie. coring, etc.)
4. Appraisal of structural stability of existing structures to act as formal flood defences
5. If not, outline design options to upgrade level or simple repairs/ strengthening if appropriate
6. Outline design for flood gate located on Cockermouth

KW ASSET RECONDITIONING EA
FOREFRONT SCHEME

5113353

EGR - 001

ATKINS

Environment Agency

VolkerStevin

Memo

ATKINS

We trust that this report meets with your current requirements. If you have any queries, please do not hesitate to contact us

Originator	Checker	Reviewer	Authoriser
Richard Collin Geo-Environmental Engineer	**Tom Fairweather** Graduate Environmental Consultant	**Liz Pearce** Senior Geoenvironmental Consultant	**Brad Balmer** Associate Director

Enc

Figure EGR-001 Rev AA

Appendix A: REC Draft Report (Egremont- 44786)

Appendix B: GQRA screen

Appendix C: CAT-WASTE^{SPA} assessment

APPENDIX A

REC Ltd
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Broadway
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+44 (0)161 950 1000
post@recltd.co.uk
http://www.recltd.co.uk

Ref: P/44/788

Date: 24th January 2013

Simon Barlon
VolkerStevin Ltd.
The Lancashire Hub,
Preston City Park
Bluebell Way,
Preston,
PR2 5PE

BY Email and Post (Simon.Barlon@volkerstevin.co.uk)

Dear Mr Barlon,

Environmental Sampling
River Ehen – Egremont

Background

REC Ltd has recently been commissioned to undertake a phase of sampling located on the southern side of the River Ehen in Egremont. Atkins were acting as site supervisor to ensure that the methodologies outlined in the Technical Note dated 7th January 2013. Volker Stevin were the appointed site works contractor, responsible for the advancement of the trial pits to the specific depths as per the Atkins specification.

Environmental Sampling

An REC engineer attended site on 22nd January 2013 to retrieve soil samples, carry out on-site PID screening, and log all exploratory locations. A total of 6 No. trial pits were excavated by Volker Stevin. Atkins specified the trial pit locations, names and sample depths. REC were also instructed to retrieve water samples from both up stream and down-stream of the site.

All excavation activities were be supervised each day by an REC engineer, with the logging of samples in accordance with BS EN ISO 14688 -1 Identification of Soil and BS EN ISO 14688 -2 Classification of Soil. Exploratory logs and REC drawing 44788-01-001 (Exploratory Location Plan) are attached to this letter.

On-site PID analysis was undertaken within all of the soil samples collected to ascertain the extent of any potentially volatile compounds. The results of all PID headspace analysis are presented in Table 1 overleaf.

The PID headspace analysis was carried out using the following methodology:

- For every soil sample taken, an additional sample container was half filled, immediately covered over with aluminium foil and the lid screwed tightly on to ensure a good seal;
- Headspace development was allowed for approximately 20 minutes within a warm environment;
- Subsequent to headspace development, the lid was removed and the foil punctured with the instrument probe to circa halfway into the headspace development and the maximum concentration recorded. Using this method, the maximum concentration should occur within 2-5 seconds, and,
- Prior to analysis the PID field instrument was calibrated in accordance with the manufacturer's specifications

Table 1 – On-site PID Data

Sample Location	Depth (m bgl)	PID (ppm)
TP-A	0.05	<0.10
TP-A	0.30	<0.10
TP-A	0.50	<0.10
TP-A	1.20	<0.10
TP-B	0.05	<0.10
TP-B	0.30	<0.10
TP-B	0.50	<0.10
TP-B	1.20	<0.10
TP-C	0.30	<0.10
TP-C	0.50	<0.10
TP-C	1.20	<0.10
TP-D	0.05	8.90
TP-D	0.30	0.10
TP-D	0.50	<0.10
TP-D	1.20	<0.10
TP-F	0.30	<0.10
TP-F	0.50	<0.10
TP-F	1.20	<0.10
TP-G	0.30	<0.10
TP-G	0.50	<0.10
TP-G	1.20	<0.10

Samples were also submitted to SAL Ltd of Manchester for chemical analysis in accordance with their UKAS accreditation where. Completed Chain of Custody forms are enclosed for subsequent scheduling of samples by Atkins.

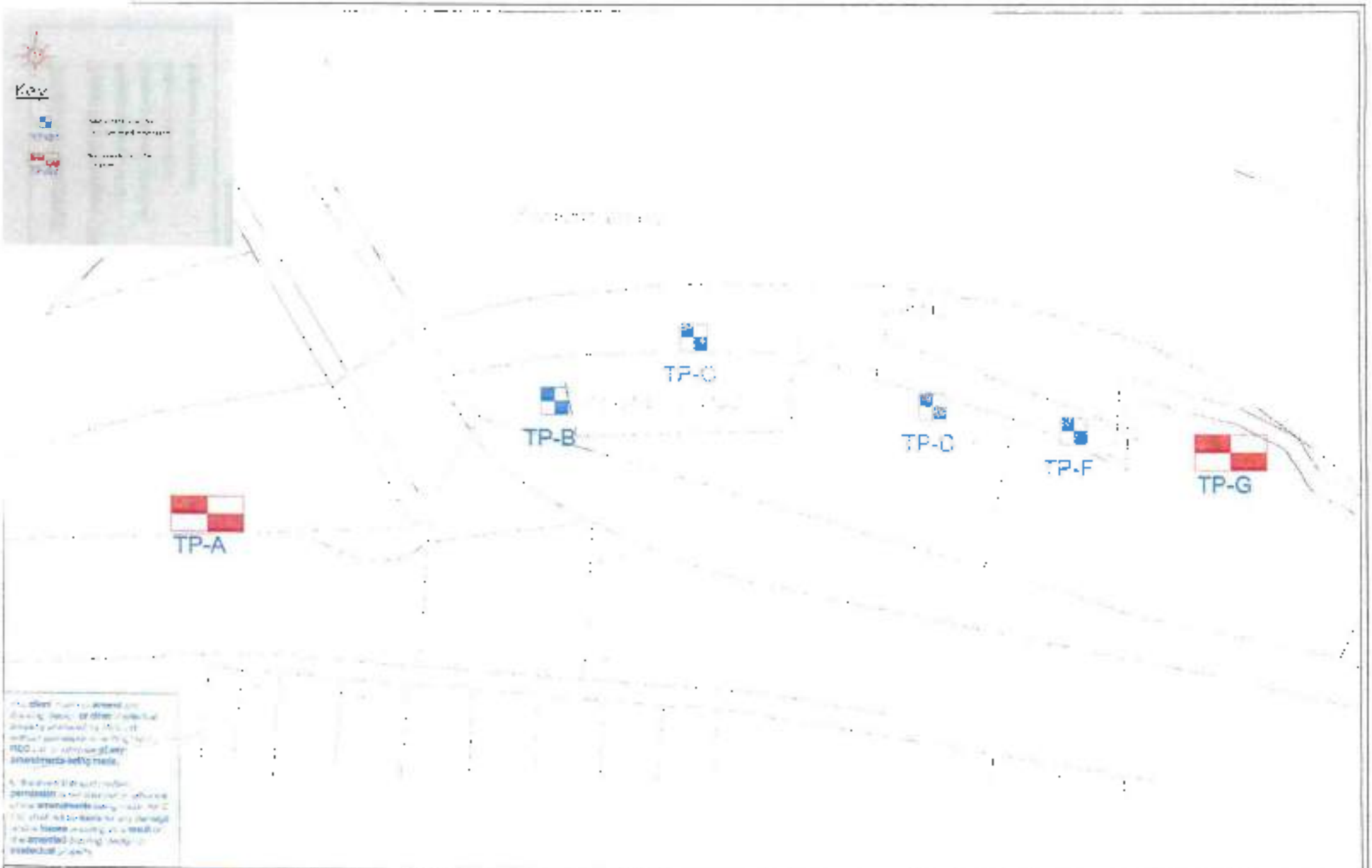
I trust that the information outlined above is sufficient to allay any concerns, and should you have any queries please do not hesitate to contact me.

Yours sincerely,
For and on behalf of REC Ltd

Daniel Cox
Senior Consultant

Enc:

Exploratory Location Plan 44788-01-001
Exploratory Logs
Sample Chain of Custody



REC

Resource and Environmental Consultants Ltd
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Manchester, M50 2UE
Tel: 0161 848 1300
Fax: 0161 886 1301
E-mail: sales@rec-ltd.co.uk
Website: www.rec-ltd.co.uk

Job Title: Egremont

Client: VolkerStevin

Job No: 44758

Drawn by: D Gr

Date: 07/

Status:

Drawing No: 44758-01-001

Exploratory Hole Location Plan

Trial Pit Record

Trial Pit Number: TP-A

Project Number: 44732

Contract Name: Egremont

Client: Volker Stevin

Engineer: N Medved

Date Started: 23/01/2013

Date Completed: 23/01/2013

Elevation AOD (m): N/A

Co-ordinates: N/A

Excavation Method: JCB 3CX

REC
Ltd
Environmental
Consultants
Derby Office
Pastel Way
Derby
DE21 4ZF
Tel: 01332 668 550 Fax: 01332 668 551
www.rec-ltd.co.uk

SUBSURFACE PROFILE				SAMPLES AND IN-SITU TESTING				
Depth (mbgl)	Legend	Description	Depth of Strata (mbgl)	Type	Depth (m bgl)	Water Level (mbgl)	PID (ppm) 0 25 50 7500	Field / Laboratory Testing
		MADE GROUND: Soft to firm dark brown mottled yellow black sandy gravelly clay. Gravel is fine to medium, sub-angular to sub-rounded of sandstone, mudstone, ceramic, plastic and glass.	0.30	ES	0.00		0	
				ES	0.20		0	
				ES	0.50		0	
1.0		MADE GROUND: Soft to firm dark brown mottled yellow black sandy gravelly clay. Gravel is fine to medium, sub-angular to sub-rounded of sandstone, mudstone, ceramic, plastic, asphalt and glass.	1.15	ES	1.20		5	
2.0		MADE GROUND: Yellow brown slightly sandy gravel. Gravel is fine to medium, sub-angular to sub-rounded of sandstone, mudstone and occasional brick.						
		Trial Pit complete at 1.20m bgl.						
3.0								
4.0								
5.0								
6.0								

Key

B: Bulk (Bag)
W: Water
U100: 100mm Undisturbed
U38: 38mm Undisturbed Sample
SPT: Standard Penetration Test
D: Disturbed
G: Amber Glass Jar / Bottle
CPT: Cone Penetration Test
L100: Bucket (Recovery 100)
V: 40ml Glass Vial
T: Plastic Tub
N: 'N' Value
HV: Hand Shear Vane
PID: Photoionisation Detector
ES: Environmental Sample

Notes

Dimensions: 2.00m bgl

Services: Prior to excavation the trial pit location was scanned with a Cable Avoidance Tool (CAT).

Stability: Stable

Groundwater: Not encountered

Date: 24/01/2013

Status: Final

Trial Pit Record

Trial Pit Number: TP-B

Project Number: 44708

Contract Name: Egremont

Client: Walker Slazir

Engineer: K. Wetzler

Date Started: 22/01/2013

Date Completed: 22/01/2013

Elevation AOD (m): N/A

Co-ordinates: N/A

Excavation Method: Hand Excavated

REC
Ground Investigation
Rydal Road
Ambergate
DE56 2QE
Tel: 01773 852 200 Fax: 01773 852 201
www.rec.co.uk

SUBSURFACE PROFILE				SAMPLES AND IN-SITU TESTING				
Depth (m bgl)	Legend	Description	Depth of Strata (m bgl)	Type	Depth (m bgl)	Water Level (m bgl)	PID (ppm)	Field / Laboratory Testing
		MADE GROUND: Black brown mottled white gravelly clay. Gravel is fine to coarse, sub-angular to sub-rounded of brick, siltstone, sandstone, ceramic, plastic, glass and occasional coal fragments.	0.50	ES	0.05		0	
				ES	0.30		0	
				ES	0.50		0	
1.0		MADE GROUND: Black brown mottled white slightly sandy gravelly clay. Gravel is fine to coarse, sub-angular to sub-rounded of brick, siltstone, sandstone and occasional coal fragments	1.20	ES	1.20		0	
		Trial Pit complete at 1.2m bgl.						
2.0								
3.0								
4.0								
5.0								
6.0								

Key

B: Bulk (bag)
W: Water
U100: 100mm Undisturbed Liner
U38: 38mm Undisturbed Sample
SPT: Standard Penetration Test
D: Disturbed
G: Amber Glass Jar / Sample
CPT: Cone Penetration Test
U100: Blows (Recovery mm)
V: Small Glass Vial
T: Plastic Tub
N: 'N' Value
HV: Hand Shear Vane
PID: Photo Ionisation Detector
ES: Environmental Sample

Notes

Dimensions: 1.20m Lgl

Services: Prior to excavation the trial pit location was scanned with a Cable Avoidance Tool (CAT).

Stability: Stable

Groundwater: Not encountered

Date: 24/1/2013

Status: Final

Trial Pit Record

Trial Pit Number: TP-C

Project Number: 45798

Contract Name: Egremont

Client: Volker Stevin

Engineer: N. Modawi

Date Started: 22-01-2013

Date Completed: 22-01-2013

Elevation AOD (m): N/A

Co-ordinates: N/A

Excavation Method: Hand Excavated

REC
Unit 6, Hulme
Park, Duke
Broadway
Worsley, M27 7XE
Tel: 0161 794 7331 Fax: 0161 727 9...
www.rec...

SUBSURFACE PROFILE				SAMPLES AND IN-SITU TESTING				
Depth (mbgl)	Legend	Description	Depth of Strata (mbgl)	Type	Depth (mbgl)	Water Level (mbgl)	PID (ppm) (0 25 50 75 100)	Field / Laboratory Testing
1.0		MADE GROUND: Black brown mottled white, orange slightly sandy clayey gravel. Gravel is fine to coarse, sub-angular to sub-rounded of siltstone, sandstone, plastic, ceramic and concrete. Occasional sandstone cobbles present.	1.10	ES	0.30		0	
				ES	0.50		0	
				ES	1.20		0	
		Black brown sandy clayey GRAVEL. Gravel is fine to coarse, sub-angular to sub-rounded of sandstone, shale and siltstone. Occasional bands of peat present.						
		Trial Pit complete at 1.20m bgl.						
2.0								
3.0								
4.0								
5.0								
6.0								

Key

B. Bulk (Bag)
W. Water
U100. 100mm Undisturbed
U38. 38mm Undisturbed Sample
SPT. Standard Penetration Test
D. Disturbed
G. Amber Glass Jar / Brown
CPT. Cone Penetration Test
D100. Diatz (Recovery mm)
V. 40ml Glass Vial
T. Plastic Tub
N. 'N' Value
HV. Hand Shear Vane
PID. Photo-ionisation Detector
ES. Environmental Sample

Notes

Dimensions: 1.20m bgl

Services: Prior to excavation the trial pit location was scanned with a Cable Avoidance Tool (CAT).

Stability: Stable

Groundwater: Not encountered

Date: 24-1-2013

Status: Final

Trial Pit Record

Trial Pit Number: TP-D

Project Number: 44738

Contract Name: Egremont

Client: Wolter Sievin

Engineer: N Wrdlaw

Date Started: 23/01/2013

Date Completed: 23/01/2013

Elevation AOD (m): N/A

Co-ordinates: N/A

Excavation Method: Hand excavated

REC Environmental Consultants

Cleary House
Park Drive
Sheffield
Wakefield WS1 2QS
Tel: (01) 673 (0)1 - Fax: (01) 673 (0)1
www.rec.com

SUBSURFACE PROFILE				SAMPLES AND IN-SITU TESTING				
Depth (m bgl)	Legend	Description	Depth to Strata (m bgl)	Type	Depth (m bgl)	Water Level (mbgl)	PID (ppm) 0 25 50 75 100	Field / Laboratory Testing
		MADE GROUND: Grey brown mottled orange sandy gravelly clay. Gravel is fine to coarse, sub-angular to sub-rounded of sandstone, siltstone, mudstone, asphalt and concrete.	0.40	ES	0.05		0	
				ES	0.30		0	
				ES	0.50		1	
1.0		MADE GROUND: Orange brown mottled black slightly silty sandy gravel. Gravel is fine to coarse, sub-angular to sub-rounded of sandstone, siltstone, ash and brick.	1.20	ES	1.20		0	
		Trial Pit completed at 1.20m bgl						
2.0								
3.0								
4.0								
5.0								

Key

B: Bulk (Bag)
W: Water
U100: 100mm Undisturbed
U38: 38mm Undisturbed Sample
SPT: Standard Penetration Test

D: Disturbed
G: Amber Glass Jar / Bottle
CPT: Cone Penetration Test
D100: Down (Recovery) m
V: 40ml Glass Vial

T: Plastic Tub
N: N Value
HV: Hand Shear Vane
PID: Photo Ionisation Detector
ES: Environmental Sample

Notes

Dimensions: 1.20m bgl

Services: Prior to excavation the trial pit location was scanned with a Cable Avoidance Tool (CAT).

Stability: Stable

Groundwater: Not encountered

Date: 24/01/2013

Status: Final

Trial Pit Record

Trial Pit Number: TP-F

Project Number: 44788

Contact Name: Egremont

Client: Walker Slipway

Engineer: N Madden

Date Started: 23/01/2013

Date Completed: 23/01/2013

Elevation AOD (m): N/A

Co-Ordinates: N/A

Excavation Method: Hand excavated

REC
Environmental Consultants
Clayton House
Parkway Court
Ellesmere
Manchester M17 1LE
t: 0161 886 0101 f: 0161 886 0102
www.recltd.com

SUBSURFACE PROFILE				SAMPLES AND IN-SITU TESTING				
Depth (m)	Legend	Description	Depth of Strata (mbgl)	Type	Depth (mbgl)	Water Level (mbgl)	PID (ppm)	Field / Laboratory Testing
0.0		MADE GROUND: Soft brown mottled white slightly sandy gravelly clay. Gravel is fine to coarse, sub-angular to sub rounded of sandstone, siltstone and mudstone	0.10					
		MADE GROUND: Dark brown slightly sandy gravelly clay. Gravel is fine to coarse, sub-angular to sub rounded of sandstone, siltstone, glass, wood and plastic	0.60	DS -S	0.40 0.50		0 0	
1.0		MADE GROUND: Asphalt	1.20	ES	1.20		0	
		MADE GROUND: grey brown with occasional black slightly sandy clayey gravel. Gravel is fine to coarse, sub-angular to sub-rounded of sandstone, siltstone, cement, glass, timber brick and plastic.						
		Trial Pit complete at 1.20m bgl.						
2.0								
3.0								
4.0								
5.0								
6.0								

Key

B: Bulk (Bag)
W: Water
U100: 100mm Undisturbed
U58: 58mm Undisturbed Sample
SPT: Standard Penetration Test
D: Disturbed
G: Amber Glass Jar / Bottle
CPT: Cone Penetration Test
J100: Bowl (Recovery mm)
V: 40ml Glass Vial
T: Plastic Tub
N: 'N' Value
HV: Hand Shear Vane
PID: Photo Ionisation Detector
ES: Environmental Sample

Notes

Dimensions: 1.20m bgl

Services: Prior to excavation the trial pit location was scanned with a CaTs Avoidance Tool (CAT).

Stability: Stable

Groundwater: Not encountered

Date: 24/01/2013

Status: Final

Trial Pit Record

Trial Pit Number: TP-G

Project Number: 44783

Contract Name: Egremont

Client: Walker Slater

Engineer: N Mostafa

Date Started: 22/01/2013

Date Completed: 22/01/2013

Elevation AOD (m): N/A

Co-ordinates: N/A

Excavation Method: JCB 3CX

REC
Ltd
Carlisle, Cumbria
Parkhouse
Broadway
Carlisle CA3 0JE
Tel: 01228 526700 Fax: 01228 526701
www.rec.uk.com

SUBSURFACE PROFILE				SAMPLES AND IN-SITU TESTING				
Depth (mbgl)	Legend	Description	Depth of Strata (mbgl)	Type	Depth (mbgl)	Water Level (mbgl)	PID (ppm) 0 25 50 75(+)	Field / Laboratory Testing
0.0		MADE GROUND: Red brown slightly sandy slightly silty gravel. Gravel is fine to coarse subangular to subrounded of sandstone, siltstone, mudstone and brick.	0.50	ES	0.30		0	
				ES	0.60		0	
1.0		MADE GROUND: Red brown mottled white slightly silty sandy gravel. Gravel is fine to coarse, subangular to subrounded of sandstone, siltstone, mudstone, brick, plastic, glass and asphalt.	1.20	PS	1.20		0	
2.0		MADE GROUND: Dark brown clayey sandy gravel. Gravel is fine to coarse, subangular to subrounded of sandstone, siltstone, mudstone, brick, plastic, glass and ash fill.	2.00					
3.0		MADE GROUND: Red brown mottled white clayey sandy gravel. Gravel is fine to coarse, subangular to subrounded of sandstone, siltstone, mudstone, brick, plastic, glass, asphalt, fabric and ceramic.						
4.0		Trial Pit complete at 2.00m bgl						
5.0								
6.0								

Key

B: Bulk (Bag)
W: Water
U100, 100mm: Undisturbed
U38: 38mm Undisturbed Sample
SPT: Standard Penetration Test
D: Disturbed
G: Amber Glass Jar / Bottle
CPT: Cone Penetration Test
U100: Gouge (Recovery only)
V: 40ml Glass Vial
T: Plastic Tub
N: N Value
Hv: Hand Shear Vane
PID: Photo Ionisation Detector
ES: Environmental Sample

Notes

Dimensions: 2.00m bgl

Services: Prior to excavation the trial pit location was scanned with a Cable Avoidance Tool (CAT).

Stability: Stable

Groundwater: Not encountered

Date: 24/1/2013

Status: Final

Scientific Analysis Laboratories Ltd.

Page [illegible] of [illegible]

Sampling and chain of custody record

SAL Ltd
Hadfield House,
Hadfield Street,
Old Trafford
Manchester M16 9FE

Tel. 0161 874 2400
Fax. 0161 874 2444

CUSTOMER NAME [illegible] MANCHESTER
ADDRESS

PROJECT CODE: [illegible]
ORDER NUMBER:
PROJECT MANAGER: [illegible]
TEL NUMBER [illegible]

Date	Customer ID	SAL Ref	Matrix Soil Water Other	Analysis requested												Comments	Samplers Signature
[illegible]	[illegible]		[illegible]														
[illegible]	[illegible]		[illegible]														
[illegible]	[illegible]		[illegible]														
[illegible]	[illegible]		[illegible]														
[illegible]	[illegible]		[illegible]														
[illegible]	[illegible]		[illegible]														
	[illegible]																

Customer Details				
Relinquished.	Name:	Time:	Date:	Sign.
	[illegible]		[illegible]	[illegible]

For SAL use only		
Received at Lab (Signature)	(Date)	(Time)

Scientific Analysis Laboratories Ltd.

Sampling and chain of custody record

SAL Ltd
Hartford House
Hartford Street,
Old Trafford,
Manchester M16 9FE
Tel: 0161 874 2400
Fax: 0161 874 2444

CUSTOMER NAME	PROJECT CODE:
ADDRESS	ORDER NUMBER:
	PROJECT MANAGER:
	TEL NUMBER:

Matrix	Analysis requested											Comments	Samplers Signature
Soil Water Other													

Date	Customer ID	SAL Ref

Customer Details				
Relinquished:	Name:	Time:	Date:	Sign:

For SAL use only			
Received at Lab (Signature):	(Date)	(Time)	

Hadfield House
Hadfield Street
Cornbrook
Manchester
M15 4LE
Tel: 0161 874 2400
Fax: 0161 874 2468

Scientific Analysis Laboratories Ltd

Certificate of Analysis

Report Number: Supplement to 313601-1

Date of Report: 25-Feb-2013

Customer: VolkerSlevin Ltd
Cockermouth Site Office
Egremont

Customer Contact: Mr Simon Baron

Customer Job Reference: 44735
Customer Purchase Order: 7652/C10795/SB
Customer Site Reference: River Ehen Egremont, Cumbria
Date Job Received at SAL: 24-Jan-2013
Date Analysis Started: 29 Jan 2013
Date Analysis Completed: 08-Feb-2013

The results reported relate to samples received in the laboratory
Opinions and interpretations expressed herein are outside the scope of UKAS accreditation
This report should not be reproduced except in full without the written approval of the laboratory
Tests covered by this certificate were conducted in accordance with SAL SOPs
All results have been reviewed in accordance with QP22

1549

Report checked
and authorised by :
Mr Ross Walker
Customer Services Manager
(Land)

Issued by :
Annie Hennis
Project Manager

SAL Reference: 31560
Project Site: [illegible]
Customer Reference: [illegible]

Soil
[illegible]
WSERTS Preparation

SAL Reference	313601 002	313601 004	313601 006	313601 008	313601 010	313601 012
Customer Sample Reference	TP-B at 0.50	TP-B at 1.20	TP-C at 0.30	TP-F at 0.50	TP-F at 1.20	TP-G at 1.20
Depth	0.50	1.20	0.30	0.50	1.20	1.20
Date Sampled	22-JAN-2013	22-JAN-2013	22-JAN-2013	22-JAN-2013	22-JAN-2013	22-JAN-2013
Type	Sandy Soil	Sandy Soil	Sandy Soil	Clay	Sandy Soil	Sandy Soil

Determinand	Method	Test Sample	LOD	Units					
Moisture	[illegible]	AR	0.1	%	11	16	16	22	13	12
Moisture @ 35 C	[illegible]	AR	0.1	%	11	16	17	25	14	11

SAL Reference: 31560
Project Site: [illegible]
Customer Reference: [illegible]

Soil
[illegible]
WSERTS Preparation

SAL Reference	313601 014	313601 016	313601 018	313601 020	313601 022
Customer Sample Reference	TP-G at 0.50	TP-H at 0.35	TP-I at 0.40	TP-J at 0.05	TP-J at 0.30
Depth	0.50	0.35	0.40	0.05	0.30
Date Sampled	22-JAN-2013	22-JAN-2013	22-JAN-2013	22-JAN-2013	22-JAN-2013
Type	Sandy Soil	Topsoil	Topsoil	Sandy Soil	Clay

Determinand	Method	Test Sample	LOD	Units					
Moisture	[illegible]	AR	0.1	%	8.7	28	20	35	21
Moisture @ 35 C	[illegible]	AR	0.1	%	8.4	30	23	33	35

SAL Reference: 31560
Project Site: [illegible]
Customer Reference: [illegible]

Soil
[illegible]
Metals

SAL Reference	313601 003	313601 005	313601 007	313601 009	313601 011	313601 013
Customer Sample Reference	TP-B at 0.50	TP-B at 1.20	TP-C at 0.30	TP-F at 0.50	TP-F at 1.20	TP-G at 1.20
Depth	0.50	1.20	0.30	0.50	1.20	1.20
Date Sampled	22-JAN-2013	22-JAN-2013	22-JAN-2013	22-JAN-2013	22-JAN-2013	22-JAN-2013
Type	Sandy Soil	Sandy Soil	Sandy Soil	Clay	Sandy Soil	Sandy Soil

Determinand	Method	Test Sample	LOD	Units						
Arsenic	TM	M40	2	mg/kg	24	24	31	19	18	21
Boron (water soluble)	TM	M40	1	mg/kg	<1	<1	<1	<1	<1	<1
Cadmium	TM	M40	1	mg/kg	<1	<1	<1	<1	<1	<1
Chromium	TM	M40	1	mg/kg	23	25	19	22	17	19
Chromium VI	TM	AR	1	mg/kg	<1	<1	<1	<1	<1	<1
Copper	TM	M40	1	mg/kg	34	130	55	65	82	70
Lead	TM	M40	1	mg/kg	67	2200	410	46	150	190
Mercury	TM	M40	1	mg/kg	<1	1	<1	<1	<1	<1
Nickel	TM	M40	1	mg/kg	33	40	33	32	25	27
Selenium	TM	M40	1	mg/kg	<3	<3	<3	<3	<3	<3
Zinc	TM	M40	1	mg/kg	440	450	250	120	120	130

SAL Reference: 13601

Project Site: [illegible]

Customer Reference: 44138

Soil Analysis Set

Metals

SAL Reference	13601 012	13601 014	13601 015	13601 019	13601 019
Customer Sample Reference	TP-G at 3.50	TP-A at 0.35	TP-A at 3.10	TP-D at 0.05	TP-D at 0.30
Depth	3.50	0.35	0.50	0.05	0.30
Date Sampled	22-JAN-2013	23-JAN-2013	23-JAN-2013	23-JAN-2013	23-JAN-2013
Type	Sandy Soil	Topsoil	Topsoil	Sandy Soil	Clay

Determinand	Method	Test Sample	LOD	Units					
Arsenic	AS	7430	2	mg/kg	22	15	55	17	20
Water Soluble Boron	TG	HP	1	mg/kg	<1	<1	<1	<1	<1
Cadmium	TS	M40	1	mg/kg	<1	<1	<1	<1	<1
Chromium	TS	M40	1	mg/kg	15	15	36	19	20
Hexavalent Chromium	TS	AR	1	mg/kg	<1	<1	<1	<1	<1
Copper	TS	M40	1	mg/kg	50	27	120	35	39
Lead	TS	M40	1	mg/kg	230	160	2900	140	140
Mercury	TS	M40	1	mg/kg	<1	<1	<1	<1	
Nickel	TS	M40	1	mg/kg	28	23	110	29	27
Selenium	TS	M40	1	mg/kg	<1	<1	<1	<1	<1
Zinc	TS	M40	1	mg/kg	120	130	410	120	150

SAL Reference: 13601

Project Site: [illegible]

Customer Reference: [illegible]

Soil Analysis Set

Miscellaneous

SAL Reference	13601 002	13601 003	13601 005	13601 009	13601 010	13601 011
Customer Sample Reference	TP-B at 0.20	TP-B at 1.20	TP-C at 0.10	TP-F at 0.50	TP-F at 1.20	TP-G at 1.20
Depth	0.20	1.20	0.10	0.50	1.20	1.20
Date Sampled	22-JAN-2013	22-JAN-2013	22-JAN-2013	23-JAN-2013	23-JAN-2013	23-JAN-2013
Type	Sandy Soil	Sandy Soil	Sandy Soil	Clay	Sandy Soil	Sandy Soil

Determinand	Method	Test Sample	LOD	Units						
Cyanide (Total)	TS4-	AR	1	mg/kg	<1	1	<1	1	1	<1
Organic Matter	TS40	AR	1	g/kg	<1	<1	<1	5	<1	<1
pH	TP	AR			7.5	8.1	8.1	7.8	8.3	8.3
Soil Organic Matter	TS97	Mod	0.1	%	10	10	6.5	4.4	5.5	3.9
Total Phenols	TS	AR	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

SAL Reference: 13601

Project Site: Prior Site Egremont Cumbria

Customer Reference: 44138

Soil Analysis Set

Miscellaneous

SAL Reference	13601 013	13601 016	13601 016	13601 018	13601 019
Customer Sample Reference	TP-G at 0.50	TP-A at 0.05	TP-A at 0.50	TP-D at 0.35	TP-D at 0.50
Depth	0.50	0.05	0.50	0.35	0.50
Date Sampled	23-JAN-2013	23-JAN-2013	23-JAN-2013	23-JAN-2013	23-JAN-2013
Type	Sandy Soil	Topsoil	Topsoil	Sandy Soil	Clay

Determinand	Method	Test Sample	LOD	Units					
Cyanide (Total)	TS4-	AR	1	mg/kg	<1	<1	1	<1	<1
Organic Matter	TS40	AR	1	mg/kg	<1	<1	<1	<1	<1
pH	TP	AR			8.6	7.4	8.1	7.5	7.8
Soil Organic Matter	TS97	Mod	0.1	%	3.7	2.1	1.7	3.6	2.4
Total Phenols	TS	AR	0.1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1

SAL Reference: 313031

Project Site: [illegible]

Customer Reference: 4783

Soil — Accredited as per

Volatile Organic Compounds (USEPA 524) (WCA 9151)

					SAL Reference	313031 018	313031 019
					Customer Sample Reference	TP-D 31 0.60	TP-D 31 0.20
					Depth	0.60	0.20
					Date Sampled	23-JAN-2013	23-JAN-2013
					Type	Sandy Silty Clay	Clay
Determinand	MCERTS	Test Sample	LOD	Units			
1,1,1,2-Tetrachloroethane	TM59	W108	50	ug/kg	<50	<50
1,1,1-Trichloroethane	TM59	W108	50	ug/kg	<50	<50
1,1,2,2-Tetrachloroethane	TM59	W108	50	ug/kg	<50	<50
1,1,2-Trichloroethane	TM59	W108	50	ug/kg	<50	<50
1,1-Dichloroethene	TM59	W108	50	ug/kg	<50	<50
1,2-Dichlorobenzene	TM59	W108	50	ug/kg	<50	<50
1,2-Dichloroethane	TM59	W108	50	ug/kg	<50	<50
1,2,4-Trichlorobenzene	TM59	W108	50	ug/kg	<50	<50
1,3,5-Trimethylbenzene	TM59	W108	50	ug/kg	<50	<50
1,3-Dichlorobenzene	TM59	W108	50	ug/kg	<50	<50
1,3-Dichloropropane	TM59	W108	50	ug/kg	<50	<50
1,4-Dichlorobenzene	TM59	W108	50	ug/kg	<50	<50
2,2-Dichloropropane	TM59	W108	50	ug/kg	<50	<50
2-Chlorotoluene	TM59	W108	50	ug/kg	<50	<50
4-Chlorotoluene	TM59	W108	50	ug/kg	<50	<50
Benzene	TM59	W108	50	ug/kg	<50	<50
Bromobenzene	TM59	W108	50	ug/kg	<50	<50
Bromochloromethane	TM59	W108	50	ug/kg	<50	<50
Bromodichloromethane	TM59	W108	50	ug/kg	<50	<50
Bromoform	TM59	W108	50	ug/kg	<50	<50
Bromomethane	TM59	W108	50	ug/kg	<50	<50
Carbon tetrachloride	TM59	W108	50	ug/kg	<50	<50
Chlorobenzene	TM59	W108	50	ug/kg	<50	<50
Chloroethane	TM59	W108	50	ug/kg	<50	<50
Chloroform	TM59	W108	50	ug/kg	<50	<50
Chloromethane	TM59	W108	50	ug/kg	<50	<50
cis-1,2-Dichloroethene	TM59	W108	50	ug/kg	<50	<50
cis-1,3-Dichloropropene	TM59	W108	50	ug/kg	<50	<50
Dibromochloromethane	TM59	W108	50	ug/kg	<50	<50
Dichlorodifluoromethane	TM59	W108	50	ug/kg	<50	<50
Ethylbenzene	TM59	W108	50	ug/kg	<50	<50
Hexachlorobutadiene	TM59	W108	50	ug/kg	<50	<50
Isopropylbenzene	TM59	W108	50	ug/kg	<50	<50
Methyl tert-butyl ether	TM59	W108	50	ug/kg	<50	<50
Methylene chloride	TM59	W108	50	ug/kg	<50	<50
n-Propylbenzene	TM59	W108	50	ug/kg	<50	<50
Naphthalene	TM59	W108	50	ug/kg	<50	<50
n-Butylbenzene	TM59	W108	50	ug/kg	<50	<50
p-Isopropyltoluene	TM59	W108	50	ug/kg	<50	<50
sec-Butylbenzene	TM59	W108	50	ug/kg	<50	<50
Styrene	TM59	W108	50	ug/kg	<50	<50
tert-Butylbenzene	TM59	W108	50	ug/kg	<50	<50
Tetrachloroethene	TM59	W108	50	ug/kg	<50	<50
Toluene	TM59	W108	50	ug/kg	<50	<50
Trans-1,2-Dichloroethene	TM59	W108	50	ug/kg	<50	<50
Trans-1,3-Dichloropropene	TM59	W108	50	ug/kg	<50	<50
Trichloroethene	TM59	W108	50	ug/kg	<50	<50
Trichlorofluoromethane	TM59	W108	50	ug/kg	<50	<50
Vinyl chloride	TM59	W108	50	ug/kg	<50	<50

SAL Reference: 312601
Project Site: [illegible]
Customer Reference: 14702

Soil Analysed as Soil
Semi-Volatile Organic Compounds (USEPA 625)

				SAL Reference	312601 018	312601 019
				Customer Sample Reference	TP-D at 0.05	TP-D at 0.30
				Depth	0.05	0.30
				Date Sampled	23-JAN-2013	23-JAN-2013
				Type	Sandy Soil	Clay
Determinand	**Method**	**Test Sample**	**LOD**	**Units**		
1,2,4-Trichlorobenzene	T207	M105	0.1	mg/kg	<0.1	<0.1
1,2-Dichlorobenzene	T207	M105	0.1	mg/kg	<0.1	<0.1
1,3-Dichlorobenzene	T207	M105	0.1	mg/kg	<0.1	<0.1
1,4-Dichlorobenzene	T207	M105	0.1	mg/kg	<0.1	<0.1
2,4,5-Trichlorophenol	T207	M105	0.1	mg/kg	<0.1	<0.1
2,4,6-Trichlorophenol	T207	M105	0.1	mg/kg	<0.1	<0.1
2,4-Dichlorophenol	T207	M105	0.1	mg/kg	<0.1	<0.1
2,4-Dimethylphenol	T207	M105	0.1	mg/kg	<0.1	<0.1
2,4-Dinitrophenol	T207	M105	0.1	mg/kg	<0.1	<0.1
2,4-Dinitrotoluene	T207	M105	0.1	mg/kg	<0.1	<0.1
2,6-Dinitrotoluene	T207	M105	0.1	mg/kg	<0.1	<0.1
2-Chloronaphthalene	T207	M105	0.1	mg/kg	<0.1	<0.1
2-Chlorophenol	T207	M105	0.1	mg/kg	<0.1	<0.1
2-Methylphenol	T207	M105	0.1	mg/kg	<0.1	<0.1
2-Methylnaphthalene	T207	M105	0.1	mg/kg	<0.1	0.2
2-Nitroaniline	T207	M105	0.1	mg/kg	<0.1	<0.1
2-Nitrophenol	T207	M105	0.1	mg/kg	<0.1	<0.1
3-Nitroaniline	T207	M105	0.1	mg/kg	<0.1	<0.1
3&4-Methylphenol	T207	M105	0.1	mg/kg	<0.1	<0.1
4-Bromophenyl phenylether	T207	M105	0.1	mg/kg	<0.1	<0.1
4-Chloro-3-methylphenol	T207	M105	0.1	mg/kg	<0.1	<0.1
4-Chloroaniline	T207	M105	0.1	mg/kg	<0.1	<0.1
4-Chlorophenyl phenylether	T207	M105	0.1	mg/kg	<0.1	<0.1
4-Nitroaniline	T207	M105	0.1	mg/kg	<0.1	<0.1
4-Nitrophenol	T207	M105	0.1	mg/kg	<0.1	<0.1
Acenaphthene	T207	M105	0.1	mg/kg	<0.1	<0.1
Acenaphthylene	T207	M105	0.1	mg/kg	<0.1	<0.1
Anthracene	T207	M105	0.1	mg/kg	0.3	0.3
Azobenzene	T207	M105	0.1	mg/kg	<0.1	<0.1
Benzo(a)anthracene	T207	M105	0.1	mg/kg	0.9	1.2
Benzo(a)pyrene	T207	M105	0.1	mg/kg	0.9	1.1
Benzo(b)fluoranthene	T207	M105	0.1	mg/kg	1.2	2.6
Benzo(ghi)perylene	T207	M105	0.1	mg/kg	0.5	1.0
Bis(2-chloroethoxy)methane	T207	M105	0.1	mg/kg	<0.1	<0.1
Bis(2-chloroethyl)ether	T207	M105	0.1	mg/kg	<0.1	<0.1
Bis(2-chloroisopropyl)ether	T207	M105	0.1	mg/kg	<0.1	<0.1
Bis(2-ethylhexyl)phthalate	T207	M105	0.1	mg/kg	<0.1	<0.1
Butylbenzylphthalate	T207	M105	0.1	mg/kg	<0.1	<0.1
Carbazole	T207	M105	0.1	mg/kg	<0.1	<0.1
Chrysene	T207	M105	0.1	mg/kg	1.0	1.2
Di-n-butylphthalate	T207	M105	0.1	mg/kg	<0.1	<0.1
Di-n-octylphthalate	T207	M105	0.1	mg/kg	<0.1	<0.1
Dibenzo(ah)anthracene	T207	M105	0.1	mg/kg	<0.1	0.2
Dibenzofuran	T207	M105	0.1	mg/kg	<0.1	<0.1
Diethylphthalate	T207	M105	0.1	mg/kg	<0.1	<0.1
Dimethylphthalate	T207	M105	0.1	mg/kg	<0.1	<0.1
Fluoranthene	T207	M105	0.1	mg/kg	2.1	2.6
Fluorene	T207	M105	0.1	mg/kg	<0.1	<0.1
Hexachlorobenzene	T207	M105	0.1	mg/kg	<0.1	<0.1
Hexachlorobutadiene	T207	M105	0.1	mg/kg	<0.1	<0.1
Hexachlorocyclopentadiene	T207	M105	0.1	mg/kg	<0.1	<0.1
Hexachloroethane	T207	M105	0.1	mg/kg	<0.1	<0.1
Indeno(123cd)pyrene	T207	M105	0.1	mg/kg	0.4	0.8
Isophorone	T207	M105	0.1	mg/kg	<0.1	<0.1
Naphthalene	T207	M105	0.1	mg/kg	<0.1	0.2
Nitrobenzene	T207	M105	0.1	mg/kg	<0.1	<0.1
Pentachlorophenol	T207	M105	0.1	mg/kg	<0.1	<0.1
Phenanthrene	T207	M105	0.1	mg/kg	1.0	1.5

SAL Reference: 21361

Project Site: Rose Brae, Bowdon, Cheshire

Customer Reference: 11746

Soil Analysed as: As

Semi Volatile Organic Compounds (USEPA 625)

SAL Reference	21361 018	21361 019
Customer Sample Reference	TP-2 at 0.05	TP-2 at 0.20
Depth	0.05	0.20
Date Sampled	22-JAN-2013	22-JAN-2013
Type	Sandy Soil	Clay

Determinand	Method	Test Sample	LOD	Units		
Phenol	1220	4F01	<0.1	mg/kg	<0.1	<0.1
Pyridine	1202	4F35	0.1	mg/kg	1.3	8.2

SAL Reference: 21361

Project Site: Rose Brae, Bowdon, Cheshire

Customer Reference: 11746

Water Leachate: As Received Water

Microorganisms:

SAL Reference	21361 002	21361 005	21361 009	21361 011	21361 016	21361 017
Customer Sample Reference	TP-1 at 0.05	TP-1 at 0.20	TP-2 at 0.50	TP-3 at 1.20	TP-4 at 0.20	TP-4 at 0.70
Depth	0.05	0.20	0.50	1.20	0.20	0.70
Date Sampled	22-JAN-2013	22-JAN-2013	22-JAN-2013	22-JAN-2013	22-JAN-2013	22-JAN-2013
Type	Sandy Soil	Sandy Soil	Clay	Sandy Soil	Topsoil	Clay

Determinand	Method	Test Sample	LOD	Units						
Total Cyanide	1220	4C01	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Thiocyanate	1220	4C01	0.05	mg/kg	<0.05	0.09	<0.05	<0.05	<0.05	<0.05
Complex Cyanide	1220	4C01	0.05	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
pH	1220	4C01			7.6	6.6	7.7	8.0	7.6	7.8

SAL Reference: 21361

Project Site: Rose Brae, Bowdon, Cheshire

Customer Reference: 11746

Water Leachate: As Received Water

Microorganisms:

SAL Reference	21361 015	21361 018
Customer Sample Reference	Upstream south of the well	Downstream TP-6
Depth		
Date Sampled	22-JAN-2013	22-JAN-2013
Type		

Determinand	Method	Test Sample	LOD	Units		
Escherichia coli (MUG) Colilert	T3	AR	10	mpn	66	82
Coliforms Colilert	T3	AR	0.00	mpn	>2419.6	>2419.6
Enterococci Test	T3	AR	0.01	mpn	<0.01	<0.01
Clostridium perfringens	T3	AR	0.05	mpn	<0.05	<0.05
pH	T3	AR			7.7	7.5

SAL Reference: 21[illegible]

Project Site: [illegible]

Customer Reference: 44795

Leachate, Water — Acidified as Received

Metals

SAL Reference	21360-002	21360-004	21360-009	21360-012	21360-016	21360-019
Customer Sample Reference	TP @ 0.30	TP-C @ 0.30	TP-F @ 0.50	TP-G @ 1.20	TP-I @ 0.50	TP-D @ 0.30
Depth	0.30	0.30	0.50	1.20	0.50	0.30
Date Sampled	22-JAN-2015	22-JAN-2015	22-JAN-2015	22-JAN-2015	22-JAN-2015	22-JAN-2015
Type	Sandy Soil	Sandy Soil	Clay	Sandy Soil	Topsoil	Clay

Determinand	Method	Test Sample	LOD	Units						
[illegible]	[illegible]	[illegible]	[illegible]	µg/l	3.1	3.6	6.2	1.5	4.2	1.4
[illegible]	[illegible]	[illegible]	[illegible]	mg/l	[illegible]	[illegible]	<0.01	<0.01	[illegible]	<0.01
[illegible]	[illegible]	[illegible]	[illegible]	µg/l	[illegible]	[illegible]	<1	<1	4	<1
[illegible]	[illegible]	[illegible]	[illegible]	mg/l	[illegible]	[illegible]	<0.001	[illegible]	0.001	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	µg/l	1.8	[illegible]	[illegible]	[illegible]	1.2	0.8
[illegible]	[illegible]	[illegible]	[illegible]	µg/l	3.3	1.4	0.3	0.4	[illegible]	1.6
[illegible]	[illegible]	[illegible]	[illegible]	µg/l	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	µg/l	<1	<1	<1	<1	<1	<1
[illegible]	[illegible]	[illegible]	[illegible]	µg/l	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	mg/l	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	µg/l	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

SAL Reference: 21[illegible]

Project Site: [illegible]

Customer Reference: 44795

Leachate, Water — Acidified as Received

Metals

SAL Reference	21360-024	21360-026
Customer Sample Reference	Upstream south of the well	Downstream TP-A
Depth		
Date Sampled	22-JAN-2015	22-JAN-2015
Type		

Determinand	Method	Test Sample	LOD	Units		
[illegible]	[illegible]	[illegible]	[illegible]	µg/l	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	mg/l	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	µg/l	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	mg/l	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	µg/l	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	µg/l	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	mg/l	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	µg/l	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	µg/l	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	µg/l	[illegible]	[illegible]

SAL Reference: 313611

Project Site: River Erpet, Eyebrook, Corby

Customer Reference: 4731

Leachate, Water — Analysis as Received

Total and Speciated USEPA 16 PAH

SAL Reference	313611.002	313611.005	313611.009	313611.017	313611.018	313611.019
Customer Sample Reference	TP-8 at 0.35	TP-9 at 0.10	TP-8 at 0.50	TP-9 at 1.20	TP-8 at 1.50	TP-9 at 0.50
Depth	0.35	0.10	0.50	1.20	1.50	0.50
Date Sampled	22-JAN-2013	23-JAN-2013	22-JAN-2013	23-JAN-2013	23-JAN-2013	23-JAN-2013
Type	Sandy Soil	Sandy Soil	Clay	Sandy Soil	Topsoil	Clay

Determinand	Method	Test Sample	LOD	Units					
Naphthalene	T149	AR	0.01	µg/l	0.02	<0.01	<0.01	<0.01	0.01
Acenaphthylene	T149	AR	0.01	µg/l	0.01	<0.01	<0.01	<0.01	<0.01
Acenaphthene	T149	AR	0.01	µg/l	0.06	<0.01	<0.01	<0.01	0.01
Fluorene	T149	AR	0.01	µg/l	0.02	<0.01	<0.01	<0.01	<0.01
Phenanthrene	T149	AR	0.01	µg/l	0.07	0.01	<0.01	<0.01	<0.01
Anthracene	T149	AR	0.01	µg/l	0.02	<0.01	<0.01	<0.01	<0.01
Fluoranthene	T149	AR	0.01	µg/l	0.25	0.01	<0.01	<0.01	<0.01
Pyrene	T149	AR	0.01	µg/l	0.19	<0.01	<0.01	<0.01	<0.01
Benzo(a)anthracene	T149	AR	0.01	µg/l	0.11	<0.01	<0.01	<0.01	<0.01
Chrysene	T149	AR	0.01	µg/l	0.14	<0.01	<0.01	<0.01	<0.01
Benzo(b)fluoranthene	T149	AR	0.01	µg/l	0.26	0.02	<0.01	<0.01	<0.01
Benzo(k)fluoranthene	T149	AR	0.01	µg/l	0.22	0.02	<0.01	<0.01	<0.01
Benzo(a)pyrene	T149	AR	0.01	µg/l	0.27	0.02	<0.01	<0.01	<0.01
Dibenz(a,h)anthracene	T149	AR	0.01	µg/l	0.03	0.01	<0.01	<0.01	<0.01
Benzo(g,h,i)perylene	T149	AR	0.01	µg/l	0.15	<0.01	<0.01	<0.01	<0.01
Indeno(1,2,3-c,d)Pyrene	T149	AR	0.01	µg/l	0.14	<0.01	<0.01	<0.01	<0.01

SAL Reference: 313621

Project Site: River Erpet, Eyebrook, Corby

Customer Reference: 4731

Leachate, Water — Analysis as Received

Total and Speciated USEPA 16 PAH

SAL Reference	313621.005	313621.026
Customer Sample Reference	Upstream south of the weir	Downstream TP-8
Depth		
Date Sampled	23-JAN-2013	23-JAN-2013
Type		

Determinand	Method	Test Sample	LOD	Units		
Naphthalene	T149	AR	0.01	µg/l	3.85	0.08
Acenaphthylene	T149	AR	0.01	µg/l	<0.01	<0.01
Acenaphthene	T149	AR	0.01	µg/l	<0.01	<0.01
Fluorene	T149	AR	0.01	µg/l	<0.01	<0.01
Phenanthrene	T149	AR	0.01	µg/l	<0.01	<0.01
Anthracene	T149	AR	0.01	µg/l	<0.01	<0.01
Fluoranthene	T149	AR	0.01	µg/l	<0.01	<0.01
Pyrene	T149	AR	0.01	µg/l	<0.01	<0.01
Benzo(a)anthracene	T149	AR	0.01	µg/l	<0.01	<0.01
Chrysene	T149	AR	0.01	µg/l	<0.01	<0.01
Benzo(b)fluoranthene	T149	AR	0.01	µg/l	<0.01	<0.01
Benzo(k)fluoranthene	T149	AR	0.01	µg/l	<0.01	<0.01
Benzo(a)pyrene	T149	AR	0.01	µg/l	<0.01	<0.01
Dibenz(a,h)anthracene	T149	AR	0.01	µg/l	<0.01	<0.01
Benzo(g,h,i)perylene	T149	AR	0.01	µg/l	<0.01	<0.01
PAH (sum)	T149	AR	0.01	µg/l	3.85	0.08

Index to symbols used in Supplement to 313601-1

Value	Description
M105	Analysis conducted on an "as received" aliquot. Results are reported on a dry weight basis where moisture content was determined by assisted drying of sample at 105C
AR	As Received
10:1	Leach ratio

M-n	Analysis conducted on sample received [illegible] more than 40C. Results are reported on a [illegible] basis
[illegible]	[illegible]
V	[illegible]
U	[illegible]
N	[illegible]

Notes

[illegible]

Method Index

Value	Description
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
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[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]
[illegible]	[illegible]

Accreditation Summary

Determinand	Method	Test Sample	LOD	Units	Symbol	SOP Reference
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Determinand	Method	Test Sample	LOD	Units	Symbol	SAL References
1,2,4-Trichlorobenzene	T207	M105	0.1	mg/kg	M	018-019
1,2-Dichlorobenzene	T207	M105	0.1	mg/kg	M	015-019
1,3-Dichlorobenzene	T207	M105	0.1	mg/kg	M	018-019
1,4-Dichlorobenzene	T207	M105	0.1	mg/kg	M	018-019
2,4,5-Trichlorophenol	T207	M105	0.1	mg/kg	L	015-019
2,4,6-Trichlorophenol	T207	M105	0.1	mg/kg	[illegible]	018-019
2,4-Dichlorophenol	T207	M105	0.1	mg/kg	U	018-019
2,4-Dimethylphenol	T207	M105	2	mg/kg	U	018-019
2,4-Dinitrophenol	T207	M105	0.1	mg/kg	I	015-019
2,4-Dinitrotoluene	T207	M105	0.1	mg/kg	M	018-019
2,6-Dinitrotoluene	T207	M105	0.1	mg/kg	U	015-019
2-Chloronaphthalene	T207	M105	0.1	mg/kg	M	015-019
2-Chlorophenol	T207	M105	0.1	mg/kg	M	018-019
2-Methylphenol	T207	M105	0.1	mg/kg	M	018-019
2-Methylnaphthalene	T207	M105	0.1	mg/kg	M	018-019
2-Nitroaniline	T207	M105	0.1	mg/kg	M	015-019
2-Nitrophenol	T207	M105	0.1	mg/kg	L	015-019
3-Nitroaniline	T207	M105	0.1	mg/kg	L	015-019
3&4-Methylphenol	T207	M105	0.1	mg/kg	M	018-019
4-Bromophenylphenylether	T207	M105	0.1	mg/kg	M	018-019
4-Chloro-3-methylphenol	T207	M105	1	mg/kg	M	018-019
4-Chloroaniline	T207	M105	0.1	mg/kg	U	018-019
4-Chlorophenylphenylether	T207	M105	2	mg/kg	M	018-019
4-Nitroaniline	T207	M105	4	mg/kg	U	016-019
4-Nitrophenol	T207	M105	0.1	mg/kg	U	018-019
Acenaphthene	T207	M105	0.1	mg/kg	M	015-019
Acenaphthylene	T207	M105	0.1	mg/kg	M	016-019
Anthracene	T207	M105	0.1	mg/kg	M	016-019
Azobenzene	T207	M105	0.1	mg/kg	M	016-019
Benzo(a)Anthracene	T207	M105	0.1	mg/kg	M	015-019
Benzo(a)Pyrene	T207	M105	0.1	mg/kg	M	018-019
Benzo(b/k)Fluoranthene	T207	M105	0.1	mg/kg	M	015-019
Benzo(g,h,i)Perylene	T207	M105	0.1	mg/kg	M	015-019
Bis(2-chloroethoxy)methane	T207	M105	0.1	mg/kg	M	015-019
Bis(2-chloroethyl)ether	T207	M105	0.1	mg/kg	M	018-019
Bis(2-chloroisopropyl)ether	T207	M105	0.1	mg/kg	M	018-019
Bis(2-ethylhexyl)phthalate	T207	M105	0.1	mg/kg	M	018-019
Butyl benzyl phthalate	T207	M105	0.1	mg/kg	L	018-019
Carbazole	T207	M105	1	mg/kg	L	018-019
Chrysene	T207	M105	0.1	mg/kg	M	018-019
Di-n-butylphthalate	T207	M105	0.1	mg/kg	M	018-019
Di-n-octylphthalate	T207	M105	0.1	mg/kg	M	018-019
Dibenzo(a,h)Anthracene	T207	M105	0.1	mg/kg	M	015-019
Dibenzofuran	T207	M105	0.1	mg/kg	M	015-019
Diethyl phthalate	T207	M105	0.1	mg/kg	U	015-019
Dimethyl phthalate	T207	M105	0.1	mg/kg	L	015-019
Fluoranthene	T207	M105	0.1	mg/kg	M	015-019
Fluorene	T207	M105	0.1	mg/kg	M	015-019
Hexachlorobenzene	T207	M105	0.1	mg/kg	M	015-019
Hexachlorobutadiene	T207	M105	0.1	mg/kg	M	015-019
Hexachlorocyclopentadiene	T207	M105	0.1	mg/kg	I	018-019
Hexachloroethane	T207	M105	0.1	mg/kg	L	018-019
Indeno(1,2,3-cd)Pyrene	T207	M105	0.1	mg/kg	M	018-019
Isophorone	T207	M105	0.1	mg/kg	U	018-019
Naphthalene	T207	M105	0.1	mg/kg	M	018-019
Nitrobenzene	T207	M105	0.1	mg/kg	M	018-019
Pentachlorophenol	T207	M105	0.1	mg/kg	U	018-019
Phenanthrene	T207	M105	0.1	mg/kg	M	015-019
Phenol	T207	M105	0.1	mg/kg	M	018-019
Pyrene	T207	M105	0.1	mg/kg	M	015-019
[illegible]	T6	AR	10	mg/l	N	025-025
[illegible]	T26	10:1	<0.02	ug/l	U	[illegible]
[illegible]	T251	AR	[illegible]	ug/l	[illegible]	025-025
Cyanide(Total)	T4	10:1	0.05	mg/l	U	[illegible]
Cyanide(Total)	T4	AR	0.05	mg/l	U	025-026
Cyanide(Free)	T4	10:1	0.05	mg/l	U	[illegible]
Cyanide(Free)	T4	AR	0.05	mg/l	U	025-025
pH	T7	10:1			U	[illegible]
pH	T7	AR			U	025-025
1,1,1,2-Tetrachloroethane	T209	M105	50	ug/kg	N	018-019

Determinand	Method	Test Sample	LOD	Units	Symbol	SAL References
1,1,1-Trichloroethane	T209	M105	50	µg/kg	M	016-019
1,1,2,2-Tetrachloroethane	T209	M105	50	µg/kg	U	016-019
1,1,2-Trichloroethane	T209	M105	50	µg/kg	M	016-019
1,1-Dichloroethane	T209	M105	50	µg/kg	M	016-019
1,1-Dichloroethylene	T209	M105	50	µg/kg	M	016-019
1,1-Dichloropropene	T209	M105	50	µg/kg	M	016-019
1,2,3-Trichloropropane	T209	M105	50	µg/kg	U	016-019
1,2,4-Trimethylbenzene	T209	M105	50	µg/kg	M	016-019
1,2-Dibromoethane	T209	M105	50	µg/kg	M	016-019
1,2-Dichlorobenzene	T209	M105	50	µg/kg	M	016-019
1,2-Dichloroethane	T209	M105	50	µg/kg	M	016-019
1,2-Dichloropropane	T209	M105	50	µg/kg	M	016-019
1,3,5-Trimethylbenzene	T209	M105	50	µg/kg	M	016-019
1,3-Dichlorobenzene	T209	M105	50	µg/kg	M	016-019
1,3-Dichloropropane	T209	M105	50	µg/kg	M	016-019
1,4-Dichlorobenzene	T209	M105	50	µg/kg	M	016-019
2,2-Dichloropropane	T209	M105	50	µg/kg	U	016-019
2-Chlorotoluene	T209	M105	50	µg/kg	U	016-019
4-Chlorotoluene	T209	M105	50	µg/kg	U	016-019
Benzene	T209	M105	10	µg/kg	M	016-019
Bromobenzene	T209	M105	50	µg/kg	M	016-019
Bromochloromethane	T209	M105	50	µg/kg	M	016-019
Bromodichloromethane	T209	M105	50	µg/kg	M	016-019
Bromoform	T209	M105	50	µg/kg	M	016-019
Bromomethane	T209	M105	50	µg/kg	U	016-019
Carbontetrachloride	T209	M105	50	µg/kg	M	016-019
Chlorobenzene	T209	M105	50	µg/kg	M	016-019
Chlorodibromomethane	T209	M105	50	µg/kg	M	016-019
Chloroethane	T209	M105	50	µg/kg	M	016-019
Chloroform	T209	M105	50	µg/kg	M	016-019
Chloromethane	T209	M105	50	µg/kg	U	016-019
Cis-1,2-Dichloroethene	T209	M105	50	µg/kg	M	016-019
Cis-1,3-Dichloropropene	T209	M105	50	µg/kg	M	016-019
Dibromomethane	T209	M105	50	µg/kg	M	016-019
Dichlorodifluoromethane	T209	M105	10	µg/kg	U	016-019
Dichloromethane	T209	M105	50	µg/kg	U	016-019
EthylBenzene	T209	M105	10	µg/kg	M	016-019
Isopropylbenzene	T209	M105	50	µg/kg	M	016-019
M/P Xylene	T209	M105	10	µg/kg	M	016-019
n-Propylbenzene	T209	M105	5	µg/kg	M	016-019
O Xylene	T209	M105	10	µg/kg	M	016-019
p-Isopropyltoluene	T209	M105	50	µg/kg	M	016-019
S-Butylbenzene	T209	M105	50	µg/kg	M	016-019
Styrene	T209	M105	50	µg/kg	U	016-019
T-Butylbenzene	T209	M105	50	µg/kg	M	016-019
Tetrachloroethene	T209	M105	50	µg/kg	M	016-019
Toluene	T209	M105	10	µg/kg	M	016-019
Trans-1,2-Dichloroethene	T209	M105	50	µg/kg	M	016-019
Trans-1,3-Dichloropropene	T209	M105	50	µg/kg	U	016-019
Trichloroethene	T209	M105	50	µg/kg	M	016-019
Trichlorofluoromethane	T209	M105	50	µg/kg	M	016-019
Vinylchloride	T209	M105	5	µg/kg	M	016-019
Naphthalene	T149	10:1	0.01	µg/l	U	002 005 009 011 016 019
Naphthalene	T149	AR	0.01	µg/l	U	025-026
Acenaphthylene	T149	10:1	0.01	µg/l	U	002 005 009 011 016 019
Acenaphthylene	T149	AR	0.01	µg/l	U	025-026
Acenaphthene	T149	10:1	0.01	µg/l	U	002 005 009 011 016 019
Acenaphthene	T149	AR	0.01	µg/l	U	025-026
Fluorene	T149	10:1	0.01	µg/l	U	002 005 009 011 016 019
Fluorene	T149	AR	0.01	µg/l	U	025-026
Phenanthrene	T149	10:1	0.01	µg/l	U	002 005 009 011 016 019
Phenanthrene	T149	AR	0.01	µg/l	U	025-026
Anthracene	T149	10:1	0.01	µg/l	U	002 005 009 011 016 019
Anthracene	T149	AR	0.01	µg/l	U	025-026
Fluoranthene	T149	10:1	0.01	µg/l	U	002 005 009 011 016 019
Fluoranthene	T149	AR	0.01	µg/l	U	025-026
Pyrene	T149	10:1	0.01	µg/l	U	002 005 009 011 016 019
Pyrene	T149	AR	0.01	µg/l	U	025-026
Benzo(a)Anthracene	T149	10:1	0.01	µg/l	U	002 005 009 011 016 019
Benzo(a)Anthracene	T149	AR	0.01	µg/l	U	025-026

APPENDIX B

Determinand	Method	Test Sample	LOD	Units	Symbol	SAL Reference
[illegible]	[illegible]	[illegible]	0.1	µg/l	J	[illegible]
Chrysene	[illegible]	AR	0.01	µg/l		[illegible]
Benzo(b)fluoranthene	[illegible]	[illegible]	0.01	µg/l		[illegible]
Benzo(k)fluoranthene	[illegible]	AR	0.01	µg/l	U	[illegible]
Benzo(a)Pyrene	[illegible]	AR	0.01	µg/l	U	[illegible]
Benzo(a)Pyrene	[illegible]	AR	0.01	µg/l	U	[illegible]
Indeno(123-cd)Pyrene	[illegible]	AR	0.01	µg/l	U	[illegible]
Indeno(123-cd)Pyrene	[illegible]	AR	0.01	µg/l	U	[illegible]
Dibenzo(ah/ac)anthracene	[illegible]	AR	0.01	µg/l	U	[illegible]
Benzo(ghi)Perylene	[illegible]	AR	0.01	µg/l	U	[illegible]
Benzo[ghi]Perylene	[illegible]	AR	0.1	µg/l	U	[illegible]
Benzo(ghi)Perylene	[illegible]	AR	0.01	µg/l		[illegible]
ASH in Soil	[illegible]	[illegible]	0.01	g/kg	J	[illegible]
Phenol	[illegible]	AR	0.01	µg/l	U	[illegible]
Moisture	[illegible]	AR	0.1	%	[illegible]	[illegible]
Moisture (2 mm)	[illegible]	AR	0	%	[illegible]	[illegible]

	Commercial (c):		Sample Id:											
Sample Name:	Screening Value		Depth:											
	using 6% SOM	Units:	Lab:											
Analytes														
Soil Organic Matter		%												
Arsenic		mg/kg												
Barium (Method 6010B)		mg/kg												
Cadmium		mg/kg												
Chromium		mg/kg												
Cobalt		mg/kg												
Copper		mg/kg												
Lead		mg/kg												
Mercury		mg/kg												
Nickel		mg/kg												
Selenium		mg/kg												
Silver		mg/kg												
Zinc		mg/kg												
Cyanide, Total		mg/kg												
Cyanide (Free)		mg/kg												
pH														
Soluble (1:2 Soil-to-water extract) pH		pH												
Benzene		ug/kg												
Toluene		ug/kg												
Ethylbenzene		ug/kg												
m,p-Xylenes		ug/kg												
o-Xylene		ug/kg												
Acenaphthene		mg/kg												
Acenaphthylene		mg/kg												
Anthracene		mg/kg												
Benzo(a)anthracene		mg/kg												
Benzo(a)pyrene		mg/kg												
Benzo(b)fluoranthene		mg/kg												
Benzo(ghi)perylene		mg/kg												
Benzo(k)fluoranthene		mg/kg												
Chrysene		mg/kg												
Dibenz(a,h)anthracene		mg/kg												
Fluoranthene		mg/kg												
Fluorene		mg/kg												
Indeno(1,2,3-cd)pyrene		mg/kg												
Naphthalene		mg/kg												
Phenanthrene		mg/kg												
Pyrene		mg/kg												
1,1,1,2-Tetrachloroethane		ug/kg												
1,1,1-Trichloroethane		ug/kg												
1,1,2,2-Tetrachloroethane		ug/kg												
1,1,2-Trichloroethane		ug/kg												
1,1-Dichloroethane		ug/kg												
1,1-Dichloroethene		ug/kg												
1,1-Dichloropropene		ug/kg												
1,2,3-Trichlorobenzene		ug/kg												
1,2,3-Trichloropropane		ug/kg												
1,2,4-Trichlorobenzene		ug/kg												
1,2,4-Trimethylbenzene		ug/kg												
1,2-Dibromo-3-chloropropane		ug/kg												
1,2-Dibromoethane		ug/kg												
1,2-Dichlorobenzene		ug/kg												
1,2-Dichloroethane		ug/kg												
1,2-Dichloropropane		ug/kg												
1,3,5-Trimethylbenzene		ug/kg												
1,3-Dichlorobenzene		ug/kg												
1,3-Dichloropropane		ug/kg												
1,4-Dichlorobenzene		ug/kg												
2,2-Dichloropropane		ug/kg												
2-Chlorotoluene		ug/kg												
4-Chlorotoluene		ug/kg												
Benzene		ug/kg												
Bromobenzene		ug/kg												
Bromochloromethane		ug/kg												
Bromodichloromethane		ug/kg												
Bromoform		ug/kg												
Bromomethane		ug/kg												
Carbon tetrachloride		ug/kg												
Chlorobenzene		ug/kg												
Chloroethane		ug/kg												
Chloroform		ug/kg												
Chloromethane		ug/kg												
cis-1,2-Dichloroethene		ug/kg												
cis-1,3-Dichloropropene		ug/kg												
Dibromochloromethane		ug/kg												
Dibromomethane		ug/kg												
Dichlorodifluoromethane		ug/kg												
Ethylbenzene		ug/kg												
Hexachlorobutadiene	0.0061	ug/kg												
Isopropylbenzene		ug/kg												

Appendix I: Laboratory Surface Water Screening Assessment

Sample ID			Screening Values											
Date	LOD	Units												
Hardness (expressed as CaCO3)	1	mg/l												
Cadmium (Dissolved)	0.01	ug/l												
Cyanide (Total)	0.05	mg/l												
Cyanide (Free)	0.05	mg/l												
pH														
As (Dissolved)	1	ug/l												
Boron	0.01	mg/l												
Cr (Dissolved)	1	ug/l												
Chromium (VI)	0.005	mg/l												
Cu (Dissolved)	0.5	ug/l												
Fe (Dissolved)	0.05	mg/l												
Hg (Dissolved)	0.005	ug/l												
Ni (Dissolved)	1	ug/l												
Se (Dissolved)	0.5	ug/l												
Sulphate	0.1	mg/l												
Zn (Dissolved)	1	ug/l												
Naphthalene	0.01	ug/l												
Acenaphthylene	0.01	ug/l												
Acenaphthene	0.01	ug/l												
Fluorene	0.01	ug/l												
Phenanthrene	0.01	ug/l												
Anthracene	0.01	ug/l												
Fluoranthene	0.01	ug/l												
Pyrene	0.01	ug/l												
Benzo(a)Anthracene	0.01	ug/l												
Chrysene	0.01	ug/l												
Benzo(b)Fluoranthene	0.01	ug/l												
Benzo(k)Fluoranthene	0.01	ug/l												
Indeno(1,2,3-cd) Pyrene	0.01	ug/l												
Dibenz(a,h) Anthracene	0.01	ug/l												
Benzo(g,h,i)perylene	0.01	ug/l												
PAH (Total)	0.01	ug/l												
MTBE (Methyl Tert Butyl Ether)		ug/l												
Benzene	1	ug/l												
Ethylbenzene	1	ug/l												
M/P Xylene	1	ug/l												
O Xylene	1	ug/l												
Toluene	1	ug/l												
TPH (C6-C8 aliphatic)	0.01	mg/l												
TPH (C8-C10 aliphatic)	0.01	mg/l												
TPH (C10-C12 aliphatic)	0.01	mg/l												
TPH (C12-C16 aliphatic)	0.01	mg/l												
TPH (C16-C21 aliphatic)	0.01	mg/l												
TPH (C21-C35 aliphatic)	0.01	mg/l												
TPH (C35-C44 aliphatic)	0.01	mg/l												
TPH (C5-C7 aromatic)	0.01	mg/l												
TPH (C7-C8 aromatic)	0.01	mg/l												
TPH (C8-C10 aromatic)	0.01	mg/l												
TPH (C10-C12 aromatic)	0.01	mg/l												
TPH (C12-C16 aromatic)	0.01	mg/l												
TPH (C16-C21 aromatic)	0.01	mg/l												
TPH (C21-C35 aromatic)	0.01	mg/l												
TPH (C35-C44 aromatic)	0.01	mg/l												
Total Phenols	0.5	ug/l												

Average hardness = 84.9
* EQS Freshwater
Tolerance Standard (Table 1)
** Sum of benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene, indeno(1,2,3-cd)pyrene

APPENDIX C

	Commercial / IA		Sample Ref	TP6	TP8	TP2	TP4	TP1	TP3	TP5	TP7	TP9	TP10	TP11
Determinand	Screening Value		Depth	0.5	1.2	1.5	0.5	1.5	1.2	0.15	0.15	1.5	0.15	1.5
			Date	4/15										

CAT-WASTE

Contaminated Land Waste Classification - Hazardous Waste Assessment Sheet

Arcadis ATKINS

Site Name	
Location	
Site ID	TP1
Job Number	
Date	
User Name	
Company Name	

Sample ID	Determinand	Assessment Method																		
TP8		A																		
TP8																				
TP8																				
TP8		A																		
TP8		A																		
TP8		M																		
TP8		M																		
TP8		M																		
TP8																				
TP8		M																		
TP8		A																		

GEO Environmental Engineering Ltd
Geotechnical
&
Environmental Drilling Experts
&
Consultants