REPORT C9756
APRIL 2023

PRELIMINARY APPRAISAL REPORT (DESKTOP STUDY)
Incorporating Coal Mining Risk Assessment and Contaminated Land Assessment

for
LAND OFF HEMINGFIELD ROAD, HEMINGFIELD

prepared for
PTARMIGAN LAND NORTH LTD

QA Sheet

REPORT TYPE:	Preliminary Appraisal Report (Desk Top Study)	**REPORT STATUS:**	Final
REPORT NUMBER:	C9756		
REPORT DATE:	April 2023		
SITE NAME:	Land off Hemingfield Road, Hemingfield		
PREPARED FOR:	Ptarmigan Land North Ltd		
PREPARED BY:	Sirius Geotechnical Ltd 4245 Park Approach Thorpe Park Leeds LS15 8GB	Tel: 0113 264 9960	
WRITTEN BY:	Adrian Grant *Principal Engineer*		
REVIEWED & APPROVED BY:	Rob Howells *Director*		

PRELIMINARY APPRAISAL REPORT (DESKTOP STUDY)

for

LAND OFF HEMINGFIELD ROAD, HEMINGFIELD, SOUTH YORKSHIRE

Prepared for

PTARMIGAN LAND NORTH LTD

CONTENTS

APPENDICES

APPENDIX A DRAWINGS

Drawing No.	Title	Scale
C9756/01	Site Location Plan	1:25,000 @ A4
C9756/02	Site Features Plan	Not to Scale (A3)
C9756/03	Recorded Shallow Coal Mine Workings Plan	1:2,000 @ A3
C9756/04	Preliminary Conceptual Site Model	Not to Scale (A3)

APPENDIX B ENVIROCHECK REPORT

APPENDIX C COAL AUTHORITY INFORMATION

APPENDIX D QUALITATIVE RISK ASSESSMENT METHODOLOGY

EXECUTIVE SUMMARY

Introduction	Sirius Geotechnical Ltd was commissioned by Ptarmigan Land North Ltd to undertake a preliminary appraisal report (desk top study) of land off Hemingfield Road, Hemingfield, South Yorkshire (the site). It is understood that consideration is being given to redevelopment of the site with low rise residential properties. No proposed development layout or levels had been provided at the time of writing.
National Grid Reference	439300, 401800.
Site Description	The site covers an area of c. 6.9 hectares. The majority of the site is occupied by a single field, which had a rapeseed crop at the time of the walkover survey. The eastern third of the site comprises an area of short grass, with the easternmost part divided into paddocks for horses. The only buildings and structures are within the south-western corner (Hill Top Farm). The easternmost building is a barn of breeze block and timber construction, with a suspected asbestos cement (AC) corrugated sheet roof, used for storage of various farming equipment, as well as a self-bunded fuel tank. The central buildings are barns of breeze block construction, with suspected AC sheet cladding and roofs, used for storage of farm machinery in the west, and timber planks in the east. There is a farm shop and café in the south-eastern corner. The westernmost buildings are former animal sheds, of timber construction with corrugated steel roofs, with some farm machinery stored within. The external areas surrounding the buildings are surfaced variously with concrete, asphalt and compacted gravel in the west. There is various old farm equipment and vehicles stored to the north and west of the buildings, as well as waste materials such as tyres and wooden pallets.
Site History	Historical maps indicate that the majority of the site has remained as undeveloped agricultural land. Buildings associated with Hill Top Farm are first shown in the south-western part of the site on maps dated from the 1970s, with additional buildings and extensions after then.
Anticipated Ground Conditions	Localised made ground is likely to be present associated with the developed area in the south-western part of the site. Geological maps show that the site is underlain by the Woolley Edge Rock (sandstone) of the Pennine Middle Coal Measures Formation. A geological fault is shown in the west of the site.
Mining & Quarrying	The Coal Authority (CA) records that shallow mine workings in the Meltonfield Coal are present in the north-east of the site. Furthermore, review of geological mapping indicates that the Meltonfield Coal could underlie the whole site at shallow depth, and therefore, it is possible that there are also unrecorded shallow coal mine workings beneath the site. **The risk to surface stability from recorded and unrecorded shallow coal mine workings should be investigated further prior to development.** Although there are no recorded mine entries beneath the site, due to the presence of recorded shallow and deep mine workings in several seams at the site, as well as the potential for unrecorded shallow mine workings across the whole site, it is possible that there are unrecorded mine entries within the site. Inspection of historical maps has not revealed any evidence of quarrying beneath the site. However, there are historical sandstone quarries in the wider Hemingfield area, and the possibility of encountering small unrecorded quarries cannot be wholly discounted.
Soakaways	Based on the anticipated ground conditions within the majority of the site, the use of soakaways may potentially be suitable. Should ground conditions be considered potentially viable for soakaway drainage, in situ infiltration tests should be completed to derive infiltration rates and aid drainage design.

Foundations	The nature and depth of foundations will be dependent on loadings, development levels and the detailed site ground conditions, including: • Location, thickness and geotechnical properties of any made ground. • Presence / extent of substructures (such as basements, old foundations, etc). • Proximity to existing structures, e.g., retaining walls, road embankment, etc. • Bearing capacity of the natural strata. • **Presence of shallow mine workings and unrecorded mine entries.** • Groundwater levels. • Proximity to trees, where potentially shrinkable soils are present. It is recommended that a site investigation is carried out in order to provide information regarding the soil profile and to allow foundations to be confirmed / designed.
Potential Ground Contamination	The preliminary conceptual site model indicates that contaminant linkages may be possible to a variety of receptors, although risks are likely to be limited in extent to areas of current development. Potential heavy metals, asbestos fibres, PAH, petroleum hydrocarbons and pesticides in made ground, topsoil and shallow natural soils may pose a potential risk to future residents and construction workers and controlled waters. A Phase 2 (intrusive) geoenvironmental investigation should be undertaken to confirm the presence or otherwise of contaminants sources and determine the risks to identified receptors.
Ground Gas Risk	A possible risk from hazardous gas sources exists, principally associated shallow coal mine workings. In addition, there are potential off-site sources of hazardous ground gases, including historical landfill site and backfilled opencast coal mines within 250m of the site. To confirm the situation regarding hazardous gases on site, from potential on-site and off-site sources, a hazardous gas investigation would be required to determine the need or otherwise for gas protection measures in future buildings. Radon protection measures are not required for the site.
Further Works	The following ground investigation works are recommended to inform the proposed low rise residential development scheme: • Trial pits and window sample boreholes to investigate shallow soil and groundwater conditions and allow the recovery of soil and groundwater samples for laboratory testing. • Should ground conditions be considered suitable for soakaways, in-situ infiltration tests should be undertaken to aid soakaway design. • Rotary drilling to determine the risk from recorded and unrecorded shallow coal mine workings. • Installation of gas/groundwater monitoring wells in selected boreholes. • Geotechnical and contamination testing at UKAS accredited testing laboratories to adequately characterise the made ground and shallow natural soils. • Sampling and analysis of the stockpile of road planings on the site to determine whether coal tar binder is present, to inform re-use / disposal options. • A programme of periodic ground gas monitoring. • Geoenvironmental Appraisal report. An asbestos survey of the existing buildings should be completed by an appropriately qualified surveyor prior to any / demolition works. A structural assessment of existing retaining walls should be completed by a qualified engineer.

The executive summary given above is an overview of the key findings and conclusions of the report. There may be other information contained within the body of the report which puts into context the findings of the executive summary. No reliance should be placed on the executive summary in isolation.

1. INTRODUCTION

Sirius Geotechnical Ltd (Sirius) was commissioned by Ptarmigan Land North Ltd to undertake a preliminary appraisal report (desk top study) of land off Hemingfield Road, Hemingfield, South Yorkshire (the "site").

It is understood that consideration is being given to redevelopment of the site with low rise residential properties, although no proposed development layout or levels had been provided at the time of writing.

The objectives of this appraisal were to:

- Establish the historical development of the site and surrounding area from a review of available historical Ordnance Survey (OS) maps;
- Establish the environmental setting of the site;
- Determine whether historical or current activities could give rise to significant ground contamination;
- Evaluate whether past mining or other extractive industries could have an influence on the site;
- Determine the potential risk to the development from hazardous ground gas sources, including radon;
- Where possible, make provisional recommendations for foundations and measures to deal with potential contamination; and,
- Provide recommendations for intrusive works required to confirm the ground conditions below the site and the contamination status of the shallow soils, and, from this, foundation solutions and measures to deal with any contamination.

This investigation includes an assessment of information provided by the Landmark Information Group (Envirocheck report), the British Geological Survey (BGS), the Coal Authority (CA), and online information available from the Environment Agency (EA).

A site inspection (walkover survey) was undertaken by a Sirius Geoenvironmental Engineer on 29th March 2023.

This report presents and interprets the factual information reviewed during this investigation and presents a preliminary conceptual site model (PCSM) from which ground-related hazards and risks have been assessed.

It has been assumed in the production of this report that the site is to be redeveloped for a low rise residential end use (with private gardens). In addition, it is assumed that ground levels will not change significantly from those currently present. If this is not the case, then amendments to the recommendations made in this report may be required.

Where the report refers to the potential presence of invasive plants or asbestos-containing materials, such observations are for information only and should be verified by a suitably qualified expert.

This report has been prepared for the sole use of Ptarmigan Land North Ltd. No other third party may rely upon or reproduce the contents of this report without the written approval of Sirius. If any unauthorised third party comes into possession of this report, they rely on it entirely at their own risk and the authors do not owe them any Duty of Care or Skill.

2. SITE DETAILS AND DESCRIPTION

Table 2.1 Current Site Overview

Location	The site comprises an approximately rectangular parcel of land, located to the north of the village of Hemingfield, c. 6km south-east of Barnsley town centre. A site location plan is included as Drawing No. C9756/01, within Appendix A.
National Grid Reference	439300, 401800.
Topography	Overall, the site topography is a slope down from south-west (high point of c. 85m above Ordance Datum (AOD)) to north-east (low point of c. 65m), with gradients up to c. 1 in 10.
Site Features	The majority of the site is occupied by a single field, which had a rapeseed crop at the time of the walkover survey. There is a farm track and hedgerow along the eastern boundary of this field, with a public footpath on the eastern side. The track leads to an underpass that provides access to farm machinery and pedestrians to the northern side of the Dearne Valley Parkway. The eastern third of the site comprises an area of short grass, with the easternmost part divided into paddocks for horses, with electric fences at their boundaries. The only buildings and structures within the site are within the south-western corner (Hill Top Farm). The easternmost building is a barn of breeze block and timber construction, with a suspected asbestos cement (AC) corrugated sheet roof, used for storage of various farming equipment, as well as a self-bunded fuel tank. There is a breeze block retaining wall, c. 1.2m high, retaining the building from the land to the north. The central buildings are barns of breeze block construction, with suspected AC sheet cladding and roofs, and used for storage of farm machinery in the west, and timber planks in the east. There is a farm shop and café in the south-eastern corner.

	The westernmost buildings are former animal sheds, of timber construction with corrugated steel roofs, with some farm machinery stored within. The external areas surrounding the buildings are surfaced variously with concrete, asphalt, and compacted gravel in the west. There is a breeze block retaining wall, c. 1.2m high, retaining the concrete slab to the north of the main buildings from the land to the north. There is various old farm equipment and vehicles stored to the north and west of the buildings, as well as waste materials such as tyres and wooden pallets in places. There is a pile of asphalt road planings, and a pile of sandstone blocks, to the south of the buildings. There is a low vegetated mound, possibly containing soil and sandstone cobbles and boulders, to the north of the buildings.
Buried Services	A manhole cover was noted in the western part of the main field of the site. A water meter was noted just inside the site entrance off Hemingfield Road to the farm buildings. It is assumed that the buildings are connected to the usual electricity, water, sewage and telecommunications services.
Approximate Site Area	6.9 hectares.
Site Boundaries and Adjoining Land Uses	The site is bound to the north and north-west by the embankment to the A6195 Dearne Valley Parkway and Hemingfield Road, which is vegetated by semimature trees, bushes and shrubs. The eastern boundary is formed by a hedgerow, beyond which lies similar paddocks for horses. Part of the western boundary, and the western half of the southern boundary, is formed by a sandstone block retaining wall, up to c. 1.5m high, retaining the footpath to Hemingfield Road from the site. The eastern half of the southern boundary is partially formed from a newer sandstone block wall, which may partially act as a retaining wall, retaining the footpath to Briery Meadows from the site, and a

	fence and hedge, beyond which lies a public footpath and residential properties on Briery Meadows.
Invasive Plant Species	None noted during the walkover survey. However, Sirius are not qualified ecologists, and the walkover was undertaken outside the growing season. It is recommended that an invasive plant species survey is undertaken by a suitably qualified ecologist prior to development.

Pertinent site features are shown on Drawing No. C9756/02 within Appendix A.

3. ENVIRONMENTAL SETTING

3.1. Introduction

Published environmental, geological and historical data relating to the site has been reviewed. A summary of relevant information is provided below and a copy of the Envirocheck report is included as Appendix B.

3.2. Site History

Table 3.1 presents a summary of the site history from 1855 to 2023, as illustrated on historic OS maps and recent aerial imagery. Only features within 500m that may affect the site are listed.

Table 3.1 Site History (all distances are approximate)

Map Dates	On-Site Features	Off-Site Features
1855	The site is shown to comprise open fields.	Hill Top (hamlet) is shown immediately south-west of the site. Wells are recorded to the south of the site. There is a Quarry (Sandstone) 400m east of the site.
1892-3	No significant changes shown, although a footpath is recorded to cross the site.	There are four Wells and a Pump within 100m of the site. Lundhill Colliery is recorded 400m north-east of the site.
1903-5	No significant changes shown.	There is a railway within a rock cutting, 30m west of the site. Lundhill Colliery is now labelled as Old Coal Pit. The sandstone quarry east of the site is shown as disused. There is an Old Quarry 200m south-east of the site.
1930-8	A small, unlabelled building, is shown in the south-western part of the site.	No significant changes shown.
1948	No significant changes shown.	No significant changes shown.
1956 – 1966	The small building within the site is no longer shown.	No significant changes shown.
1978 – 1980	Hill Top Farm is located in the south-western part of the site.	No significant changes shown.
1989 – 1993	Additional building at Hill Top Farm.	No significant changes shown.
2000	Additional / extended building at Hill Top Farm.	The Dearne Valley Parkway runs along the northern boundary, on an embankment, which also stretches

Map Dates	On-Site Features	Off-Site Features
		part way down the western site boundary.
2023	No significant changes shown.	Residential properties on Briery Meadows immediately south of the site.

3.3. Published Geological Information

A summary of available published geological information is provided in Table 3.2 below.

Table 3.2 Geological Summary

Sources of Information	BGS 1:50,000 scale geological map (Sheet 87 - Barnsley), Bedrock and Superficial Deposits edition (2008). Geological Survey of Great Britain, 1:10,000 scale geological map Sheet SE30SE (1981). Geological Survey of England & Wales, 1:10,560 scale County Series geological map Sheet 283 NW (1931). Geological Survey of Great Britain geological memoir: *Geology of the Country around Barnsley* (1947). BGS online borehole records. Envirocheck report (see Appendix B). CA Consultants Coal Mining Report (see Appendix C).
Made Ground	None recorded on the published maps, although some made ground is likely to be locally present, associated with the developed area in the south-west of the site.
Drift Geology	None recorded to affect the site.
Solid Geology	The site is shown to be underlain by the Woolley Edge Rock, a named sandstone unit of the Pennine Middle Coal Measures Formation, of Carboniferous age. The County Series map shows a conjectured fault with an approximate north-south trace in the west of the site; the eastern side is downthrown.

Coal Seams	The shallowest coal seam that is likely to underlie the site is the Meltonfield Coal, which outcrops c. 120m south of the site. The geological mapping records the thickness of the seam as ranging between 0 and 1.4m. Within the geological memoir, there is mention of the seam being worked at various locations within Barnsley area, although Hemingfield is not specifically referenced. The next shallowest seam is the Two Foot Coal, which is shown to lie c. 11m below the Meltonfield Coal on the generalised vertical section on the 1:50,000 scale geological map, and 0.1 to 2.1m thick. On the 1:10,000 scale geological map, there is a shaft section for Lundhill Colliery (c. 450m north-east of the site), which states that the vertical separation between the Meltonfield Coal and Two-foot Coal is c. 13m. The geological memoir states that the seam was occasionally worked in the north of the Barnsley area (i.e., not including the site area).
Coal Mining	<u>Consultants Coal Mining Report</u> Pertinent points are summarised below: - There are recorded shallow mine workings beneath the site in the Meltonfield Coal. The workings are stated to be from Lundhill Colliery, with the last year of working being 1900. The depth of working stated is 25m. The extraction thickness was 1.17m and the seam dipped 5.7 degrees to the north-east. - There are recorded mine workings in eight other coal seams beneath the site, with the next shallowest worked seam being the Kent Thick, at a depth of 92m. The latest date of working beneath the site is 1969. - There are no recorded mine entries beneath the site or within 100m of the site, although it is possible that unrecorded mine entries are present. - The site is not recorded to be affected by opencast coal mining. There are historical opencast mines recorded c. 200m to the south-east and south-west of the site, corresponding to the outcrop of the Meltonfield Coal.

	Interactive Map Viewer According to the CA Interactive Map Viewer, the north-eastern corner of the site is in a high-risk development area, due to the presence of recorded shallow coal mine workings. Mine Abandonment Plan Records The CA was instructed by Sirius to undertake a search of its mine abandonment plan catalogue for recorded shallow mine workings and opencast mine workings that affect the site. The response was that one plan existed, for underground mine workings in the Meltonfield Coal seam (CA ref. 3280/02, a copy of which is included in Appendix C). The abandonment plan is dated 1895 and shows that there are workings in the Meltonfield Coal seam in the north-eastern corner of the site (only). There are no depths or levels of the workings shown on the plan. The extent of recorded mine workings shown on the abandonment plan, superimposed on to the current site boundary, is shown on Drawing No. C9756/03, in Appendix A. There is a shaft section on the plan (presumably from one of the four mine shafts shown on the plan that are located c. 400m north-east of the site), which shows that the Meltonfield Coal is 1.17m thick and is overlain by 1.75m of 'bind with ironstone', i.e., clay / shale / mudstone with ironstone.
Quarrying	Within the Envirocheck report, there is one BGS Recorded Mineral Site within 250m of the site, located 192m to the west, and listed as a ceased opencast extraction of Woolley Edge Rock sandstone.
BGS Borehole Records	No records within the site, or in proximity to the site.

3.4. Hydrology and Hydrogeology

A summary of available information pertaining to hydrology and hydrogeology is presented in Tables 3.3 and 3.4, below.

Table 3.3 Hydrology and Surface Water Features

	Presence/location	Comments
EA Classified Watercourses	The site is situated within the *'Knoll Beck from Source to River Dearne'* Water Body. The nearest named water course to the site is Knoll Beck, located c. 550m south of the site.	Data from the EA indicates that the site has an ecological classification of "*Moderate*" and a chemical Classification of "*Fail*" as of 2019[1].
Unclassified Watercourses	There are un-named land drains located c. 250m north of, and c. 350m south of, the site.	
Licensed Surface Water Abstractions (within 1 km)	None recorded.	
Other Surface Water Features (Canals, Ponds, Lakes, etc.) (within 500 m)	The Elsecar Canal runs alongside Knoll Beck, c. 500m south of the site.	There is a pond (historically a reservoir) located c. 225m north of the site.
Flood Risk Status	The site is recorded by the EA to be located within Flood Zone 1.	This is the lowest risk category within the EA's classification system.

[1] https://environment.data.gov.uk/catchment-planning/WaterBody/GB104027057470

Table 3.4 Hydrogeological Features

	Presence/location	Comments
Aquifer Classification	The solid strata underlying the site are classified as a Secondary A Aquifer.	These are defined by the EA as, *"permeable layers that can support local water supplies, and may form an important source of base flow to rivers".*
Licensed Abstractions **(within 1 km)**	None recorded.	
Source Protection Zones **(within 1 km)**	None recorded.	
Groundwater Flooding	The site is shown as lying within an area with limited potential for groundwater to occur.	

3.5. Landfilling and Waste Management

Table 3.5 Waste Management Activities

	Presence / Location
Historical Landfill Sites **(within 500m)**	There is a historical landfill located 241m north of the site, named Wombwell Foundry. The first date of waste input was 1977. Two entries for a Registered Landfill Site for the same landfill state that the permit was active, as of 1997 (although the site is now partially occupied by a housing development). The authorised waste types include boiler clinker, foundry slag, general foundry debris, industrial non-hazardous waste, refractory bricks and sand, broken asbestos sheets, detergent and oily waste.
Other Licensed Waste Management Facilities **(within 500m)**	None recorded.

	Presence / Location
Evidence of Landfilling **(within 250m)**	The Dearne Valley Parkway and Hemingfield Road adjacent to the north of the site lie upon an embankment, up to c. 10m high. The plan with the CA Consultants Mining Report shows that there are two backfilled opencast coal mines, located c. 200m south-west and c. 200m south-east of the site.
Walkover Evidence of Fly-Tipping on Site?	None noted, although various waste items are stored around the buildings in the south-west of the site, e.g., tyres and pallets.
Ground Gas Risk Assessment Required?	Yes, due to the presence of recorded shallow coal mine workings and potential for unrecorded shallow mine workings on the site.

3.6. Radon Risk

According to the Envirocheck Report, the site lies within an area in which no radon protective measures are required.

3.7. Unexploded Ordnance (UXO)

Reference to maps published by Zetica indicates that the site is classified as lying within a low risk area for unexploded bombs.

3.8. Other

Other potentially contaminative activities or environmental constraints identified within the Envirocheck report are listed below. The entries relate to activities within 250m of the site, with the exception of COMAH facilities where the assessment is extended to a distance of 1km from the site.

- Six Contemporary Trade Directory Entries are located within the 250m of the site. The closest active entry is situated 66m to the south-east, for ‘cleaning services – domestic’.
- There is an area of Ancient Woodland located 123m to the north-west of the site.
- An area of Adopted Greenbelt is located immediately north of the site.
- The site is located within a nitrate vulnerable zone.

3.9. Minerals Safeguarding Areas

Reference to the Barnsley MBC online Local Plan indicates that the site is not located within a mineral safeguarding area[2].

3.10. Local Authority Planning Portal

A review of the Barnsley MBC online Planning Explorer[3] did not identify any planning applications on or adjacent to the site that had any site investigation information available to view online.

[2] https://www.barnsley.gov.uk/barnsley-maps/local-plan/
[3] https://www.barnsley.gov.uk/barnsley-maps/planning-applications/

4. PRELIMINARY CONCEPTUAL SITE MODEL

Based on the desk study information and walkover survey observations, a preliminary conceptual site model (PCSM) was developed for the proposed future land use (low rise residential with gardens). This summarises the understanding of surface and sub-surface features, the potential contaminant sources, transport pathways and receptors to assess potential contaminant linkages.

A qualitative risk assessment has also been made of each contaminant linkage operating following the methodology described in Appendix D.

The preliminary CSM is presented in schematic form as Drawing No. C9756/04 in Appendix A.

In summary, the following potential contaminant linkages have been assessed as posing a potentially unacceptable level of risk (defined as being greater than 'low' risk) in the proposed end-use:

- Heavy metals, polycyclic aromatic hydrocarbons (PAH) and pesticides in topsoil and made ground, and localised (i.e., in and around the existing farm buildings) hydrocarbons from oil / fuel spillages are considered to pose a **moderate risk** to future residents and construction workers via dermal, ingestion and dust / vapour inhalation pathways.

- Inhalation of asbestos fibres released from asbestos-contaminated shallow made ground and natural soils, posing a **moderate risk** to future residents and construction workers via dust inhalation pathways.

- Damage to construction materials (concrete) by sulphates and low pH in soils and groundwater; these are considered to pose a **low to moderate risk** to the built environment via direct contact pathways.

- Phytotoxic effects of heavy metals (e.g., copper and zinc) within made ground and shallow natural soils on planting and landscaping within the proposed development, posing a **low to moderate risk**.

- Possible leachable / mobile metals, pesticides, and / or organic contaminants in perched / shallow groundwater, posing a **low to moderate risk** to the underlying Secondary A Aquifer.

- Migration of hazardous ground gases (e.g., methane and carbon dioxide) into buildings and confined spaces (e.g., excavations) from on-site and adjoining shallow coal mine workings, posing a **moderate risk** to future residents and construction workers.

The above assessment does not include potential asbestos containing materials (ACMs) within the infrastructure of existing buildings on-site. These are considered to pose a low risk to future site users and construction workers based on the assumption that a suitable asbestos survey is carried out by a specialist prior to demolition / redevelopment commencing at the site and that any identified ACMs are appropriately identified and removed from site.

5. CONCLUSIONS AND RECOMMENDATIONS

5.1. General

This preliminary appraisal report (desk top study) has been performed for land off Hemingfield Road, Hemingfield, South Yorkshire. It is understood that consideration is being given to redevelopment of the site with low rise residential properties, although no proposed development layout or levels had been provided at the time of writing.

In preparation of this report, it has been assumed that ground levels will not change significantly from those currently present. If this is not the case, then amendments to the interpretation and conclusions in this report may be required.

5.2. Flood Risk

The Envirocheck report shows that the site lies within Flood Zone 1. However, as the site is larger than 1 hectare in area, a flood risk assessment is likely to be required to support a planning application for development of the site.

5.3. Geotechnical

Mining and Quarrying

The CA records that shallow mine workings in the Meltonfield Coal are present in the north-east of the site. Furthermore, review of geological mapping indicates that the Meltonfield Coal could underlie the whole site at shallow depth, and therefore, it is possible that there are also unrecorded shallow coal mine workings beneath the site.

The risk to surface stability from recorded and unrecorded shallow coal mine workings should be investigated further prior to development.

Although there are no recorded mine entries beneath the site, due to the presence of recorded shallow and deep mine workings in several seams at the site, as well as the potential for unrecorded shallow mine workings across the whole site, it is possible that there are unrecorded mine entries present. The CA states that construction over, or within the influencing distance of, a mine entry, should be avoided wherever possible.

Inspection of historical OS plans has not revealed any evidence of quarrying beneath the site. However, there are historical sandstone quarries within the Woolley Edge Rock in the wider Hemingfield area, and the possibility of encountering small unrecorded quarries cannot be wholly discounted. It is recommended that excavations be examined for evidence of such features. If evidence of an infilled quarry is suspected, works should cease and the advice sought of a suitably qualified consultant.

Foundations

The nature and depth of foundations will be dependent on loadings, development levels and the detailed site ground conditions, including:

- Location, thickness and geotechnical properties of any made ground.
- Presence / extent of substructures (such as basements, old foundations, etc).
- Proximity to existing structures, e.g., retaining walls, road embankment, etc.
- Bearing capacity of the natural strata.
- **Presence of shallow mine workings and unrecorded mine entries.**
- Groundwater levels.
- Proximity to trees, where potentially shrinkable soils are present.

It is recommended that a site investigation is carried out in order to provide information regarding the soil profile and to allow foundations to be confirmed / designed.

Retaining Walls

A number of retaining walls are located within and along site boundaries. A structural assessment of existing retaining features should be completed by a qualified engineer, where these are to be retained within the proposed development.

5.4. Soakaways

Based on the anticipated ground conditions within the majority of the site (i.e., weathered sandstone at shallow depth), the use of soakaways may potentially be suitable. Site specific ground conditions should be investigated further through site investigation.

Should ground conditions be considered potentially viable for soakaway drainage, in situ infiltration tests should be completed to derive infiltration rates and aid drainage design.

5.5. Contamination

Risk Evaluation for the Proposed Land Use (Residential with Gardens)

The preliminary conceptual site model indicates that contaminant linkages may be possible to a variety of receptors, although risks are likely to be limited in extent to areas of current development. Potential heavy metals, asbestos fibres, PAH, petroleum hydrocarbons and pesticides in made ground, topsoil and shallow natural soils may pose a potential risk to future residents and construction workers and controlled waters. Risks related to these potential linkages are currently given qualitative assessments of **low to moderate**, through to **moderate**.

A Phase 2 (intrusive) geoenvironmental investigation should be undertaken to confirm the presence or otherwise of contaminants sources and determine the risks to identified receptors.

5.6. Asbestos

A pre-demolition asbestos survey would be required prior to any demolition of the existing buildings and structures on site.

The possibility of asbestos sheeting, used as shuttering, and / or fragments of asbestos-containing materials within made ground or shallow soils cannot be discounted. The potential presence of asbestos within site soils should be investigated further through intrusive site investigation and laboratory analysis.

5.7. Ground Gas

A possible risk from hazardous gas sources exists following development, principally associated with recorded and potential unrecorded shallow coal mine workings, with migration pathways including potential unrecorded mine entries and crown holes, as well as via joints and fractures within the sandstone strata underlying the site.

To confirm the situation regarding hazardous gases on site, a hazardous ground gas investigation (i.e., installation of monitoring wells within boreholes, followed by a programme of periodic ground gas monitoring) would be required to determine the need or otherwise for gas protection measures in future buildings.

According to the Envirocheck report, radon protective measures are not required for the site.

5.8. Invasive Plants

Invasive plant species were not identified during the site inspection. However, it is recommended that a survey is carried out by a specialist ecologist, to confirm the presence or absence of invasive plant species, and the implications thereof.

6. FURTHER INVESTIGATION

The following ground investigation works are recommended to inform the proposed residential development of the site:

- Trial pits and window sample boreholes to investigate shallow ground and groundwater conditions and allow the recovery of soil and groundwater samples for laboratory testing.
- Should ground conditions be considered potentially suitable for soakaways, in-situ infiltration tests should be undertaken to aid soakaway design.
- Rotary drilling to determine the risk from recorded and unrecorded shallow coal mine workings.
- Installation of gas / groundwater monitoring wells in selected boreholes.
- Geotechnical and contamination testing at UKAS accredited testing laboratories to adequately characterise the made ground and shallow natural soils.
- Sampling and analysis of the stockpile of road planings on the site to determine whether coal tar binder is present, to inform re-use / disposal options.
- A programme of periodic ground gas monitoring.
- Geoenvironmental Appraisal report.

Intrusive ground investigation works should be undertaken by a suitably qualified geoenvironmental consultant.

An asbestos survey of the existing buildings should be completed by an appropriately qualified surveyor prior to any / demolition works.

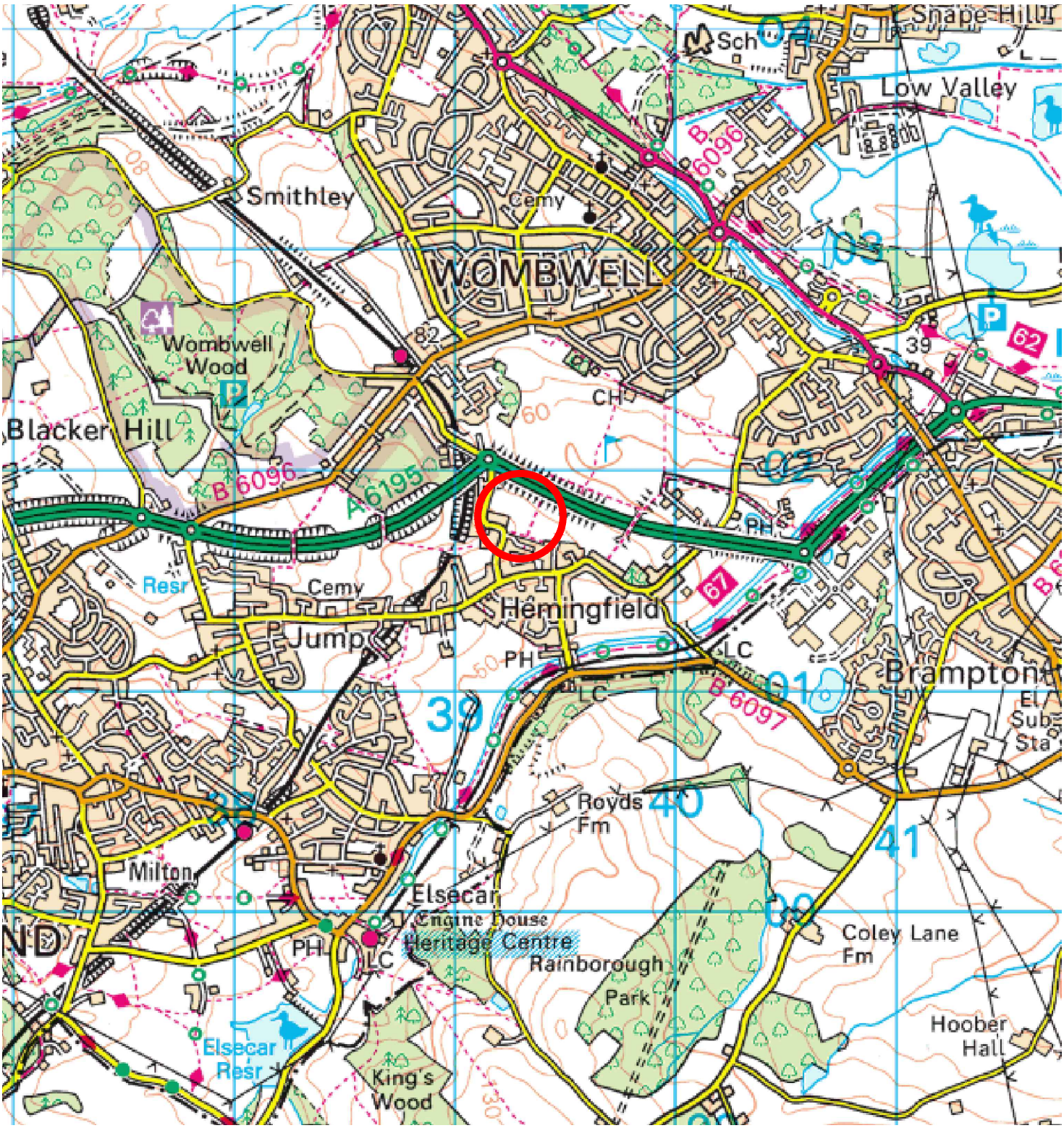
A structural assessment of existing retaining walls should be completed by a qualified engineer.

7. REGULATORY APPROVALS

The conclusions and recommendations presented above are considered reasonable based on the findings of the Preliminary Appraisal. However, these cannot be guaranteed to gain regulatory approval and, therefore, the report should be passed to the appropriate regulatory authorities and / or other organisations for their comment and approval prior to undertaking any works on site.

APPENDIX A

DRAWINGS



NOTES

Site Location

REVISION	
0	For Information
A	>>
B	>>
C	>>
D	>>

SIRIUS GEOTECHNICAL LTD
4245 Park Approach, Thorpe Park, Leeds LS15 8GB
www.thesiriusgroup.com
TEL: 0113 264 9960
FAX: 0113 264 9962

CLIENT	DRAWING NO.	REVISION NO.
Ptarmigan Land North Ltd	C9756/01	0
SITE: Land off Hemingfield Road, Hemingfield	DRAWN BY: JF	APPROVED BY: AMG
DRAWING TITLE: Site Location Plan	DATE: March 2023	SCALE: 1:25,000

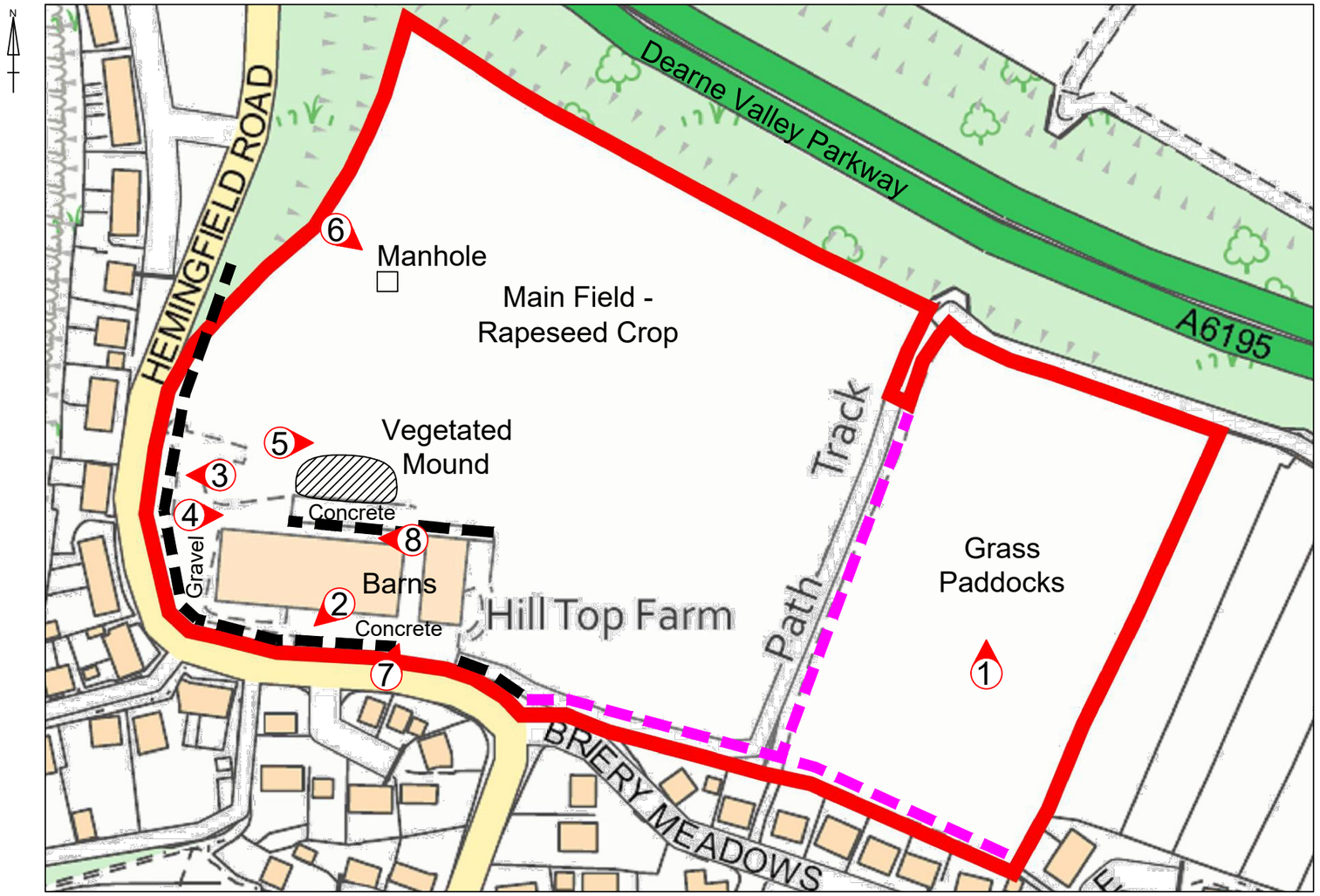
A4

1. Paddock area, underpass beneath A6195 in distance

2. Piles of road planings and sandstone blocks

3. Retaining wall retaining Hemingfield Road from the site

4. Rear of site buildings



5. Vegetated mound to north of buildings

6. Main field planted with rapeseed crop, manhole in foreground

7. Farm buildings from site entrance

8. Machinery and waste storage to rear of buildings

KEY

- Site Boundary
- Retaining Walls
- Public Footpath
- 5 Photograph Location and Direction

Notes

1. This drawing should not be viewed in isolation from the accompanying report.
2. All exploratory hole locations are approximate and based on handheld GPS coordinates unless stated otherwise on the exploratory hole logs.
3. The locations of services shown on this drawing are approximate and are based on utility plans provided by the client. Locations of services are given for the purposes of indicating constraints to the site investigation only. Reference should be made to original utility plans and HSG47 for locating of services within the site.
4. All marked site features (including historical features, mining features (ie, opencast boundaries and mineshafts), potential contaminant constraints, and any other potential constraint or feature of note) shown on this drawing are given for indicative purposes only. This drawing should not be underlaid in isolation to determine proposed development layouts. Reference should be made to the accompanying report for commentary on the potential location of these features including coordinates if available and any further works required to locate features if required.

REVISION		BY	DATE
0	For Information	MF	30/03/23
A	>>	>>	>>
B	>>	>>	>>
C	>>	>>	>>
D	>>	>>	>>

SIRIUS
GEOTECHNICAL LTD
4245 Park Approach,
Thorpe Park,
Leeds
LS15 8GB
www.thesiriusgroup.com
TEL: 0113 264 9960
FAX: 0113 264 9962

CLIENT

Ptarmigan Land North Ltd

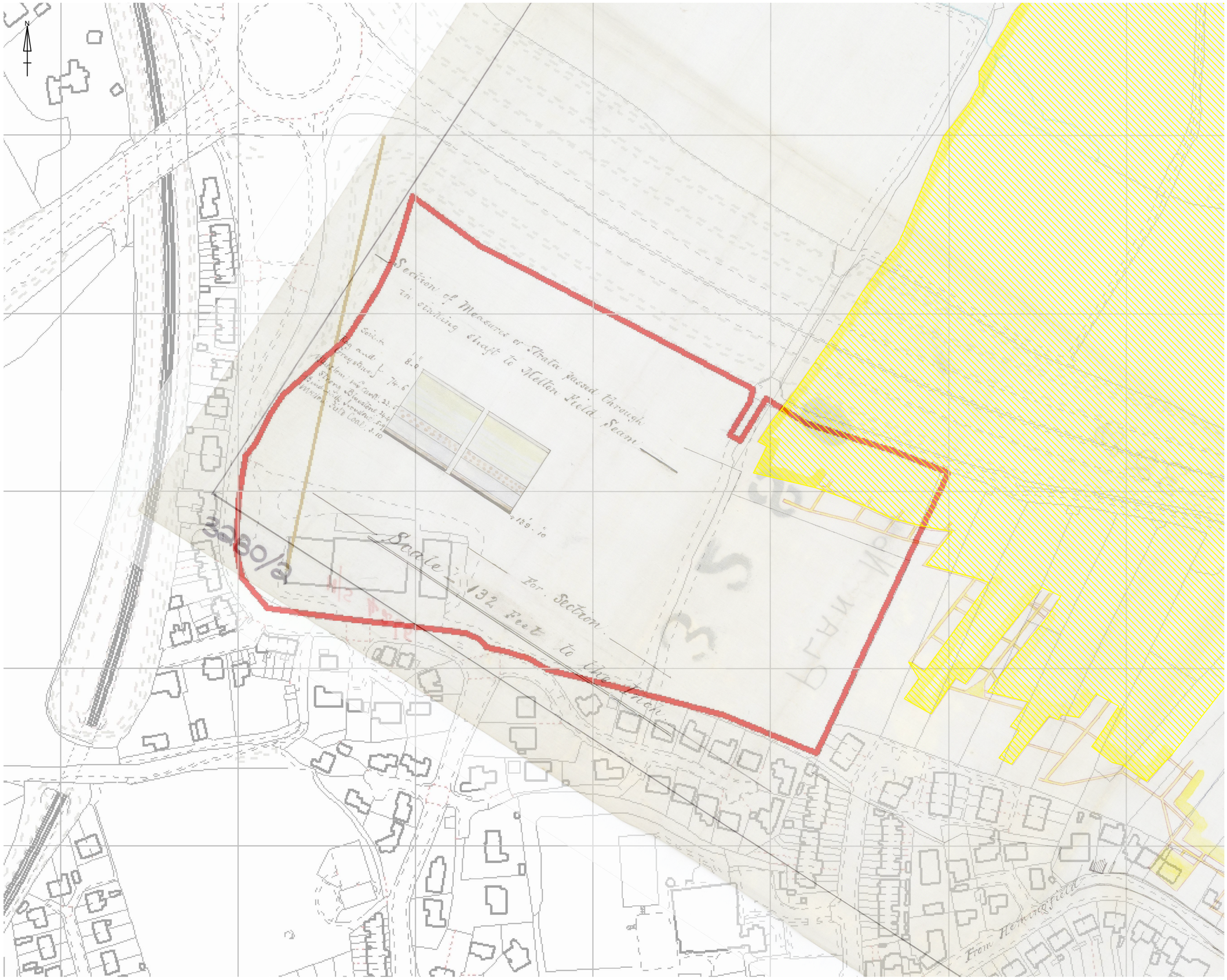
SITE

Land off Hemingfield Road, Hemingfield

DRAWING TITLE

Site Features Plan

DRAWING NO.	REVISION NO.
C9756/02	0
DRAWN BY: MF	APPROVED BY: AMG
DATE: March 2023	SCALE: NTS
PAPER SIZE: A3	



NOTES

Site Boundary

Recorded Mine Workings in the Meltonfield Coal Seam

Recorded Mine Headings in the Meltonfield Coal Seam

Notes

1. This drawing should not be viewed in isolation from the accompanying report.
2. All marked site features (including historical features, mining features (ie, opencast boundaries and mineshafts), potential contaminant constraints, and any other potential constraint or feature of note) shown on this drawing are given for indicative purposes only. This drawing should not be underlaid in isolation to determine proposed development layouts. Reference should be made to the accompanying report for commentary on the potential location of these features including coordinates if available and any further works required to locate features if required.

REVISION		BY	DATE
0	For Information	MF	03/04/23
A	>>	>>	>>
B	>>	>>	>>
C	>>	>>	>>
D	>>	>>	>>

SIRIUS
GEOTECHNICAL LTD
4245 Park Approach,
Thorpe Park,
Leeds
LS15 8GB
www.thesiriusgroup.com
TEL: 0113 264 9960
FAX: 0113 264 9962

CLIENT

Ptarmingan Land North Ltd

SITE

Land off Hemingfield Road, Hemingfield

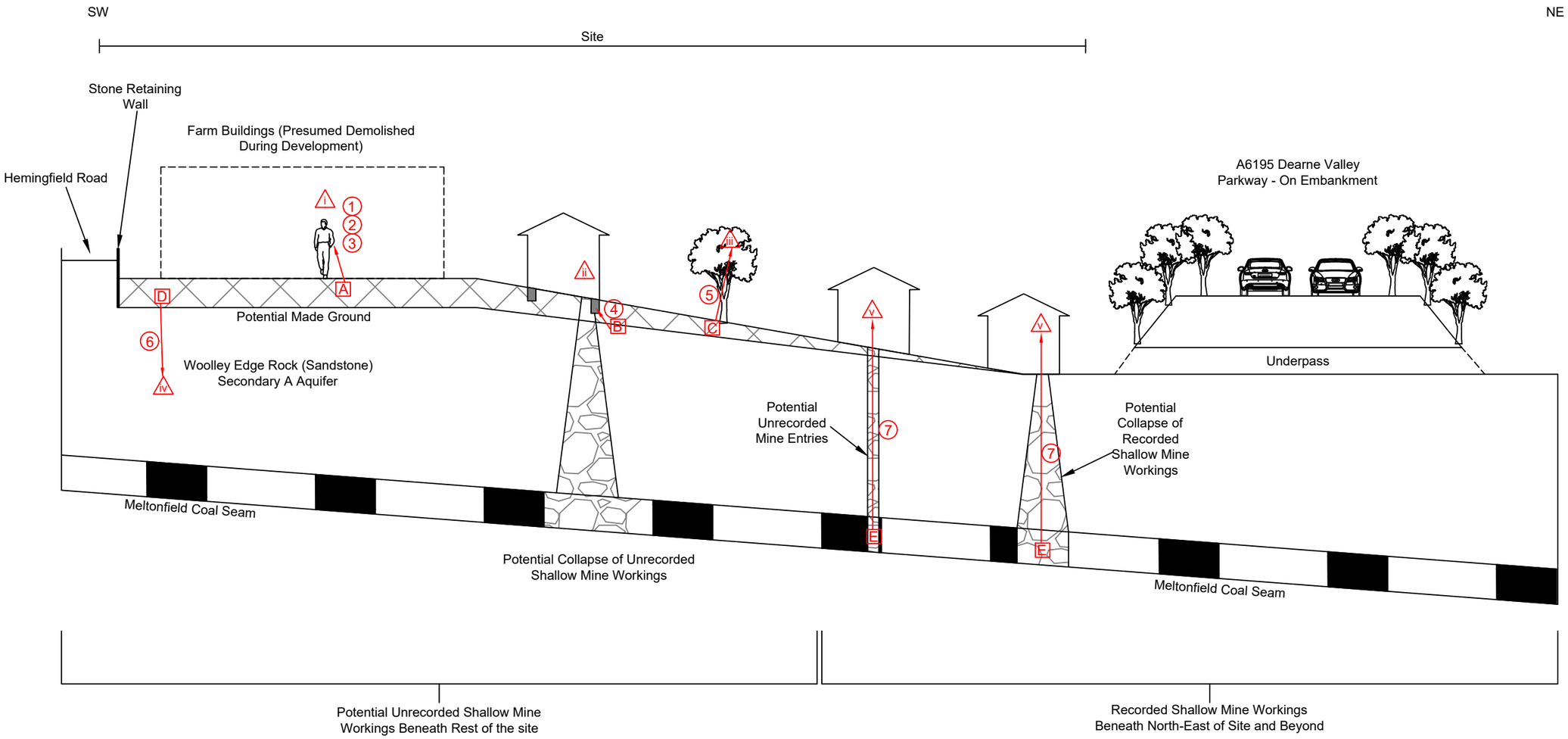
DRAWING TITLE

Recorded Shallow Mine Workings Plan

DRAWING NO.	REVISION NO.
C9756/03	0

DRAWN BY	APPROVED BY
MF	AMG

DATE	SCALE	PAPER SIZE
April 2023	1:2,000	A3



Contamination Source	Contamination Pathway	Potential Receptors	Risk of Significant Contaminant Linkage
A – Heavy metals, PAH, petroleum hydrocarbons, asbestos and pesticides within made ground / shallow natural soils	1. Direct and indirect ingestion of soil 2. Inhalation of contaminated particles and dust 3. Dermal contact	i – Future residents / construction workers	Moderate Moderate Moderate
B – Low pH and sulphates within shallow soils and groundwater	4. Damage from chemical reactions	ii – Concrete substructures	Low to Moderate
C – Phytotoxic elements within made ground	5. Plant uptake	iii - Landscaping	Low to Moderate
D – Heavy metals, PAH, petroleum hydrocarbons and pesticides within made ground and shallow groundwater	6. Leaching and migration within groundwater	iv – Controlled waters (Woolley Edge Rock Secondary A Aquifer)	Low to Moderate
E – Hazardous ground gases from recorded and potential unrecorded shallow mine workings	7. Gas migration (including via preferential pathways such as unrecorded mine entries / inhalation / accumulation	v – Future residents / construction workers	Moderate

Notes
1. This drawing should not be viewed in isolation from the accompanying report.
2. All marked site features (including historical features, mining features (e.g., opencast boundaries and mine shafts), potential contaminant constraints, and any other potential constraint or feature of note) shown on this drawing are given for indicative purposes only. This drawing should not be underlaid in isolation to determine proposed development layouts. Reference should be made to the accompanying report for commentary on the potential location of these features including coordinates if available and any further works required to locate features if required.

REVISION		BY	DATE
0	For Information	MF	06/04/23
A	>>	>>	>>
B	>>	>>	>>
C	>>	>>	>>
D	>>	>>	>>

SIRIUS GEOTECHNICAL LTD
4245 Park Approach,
Thorpe Park,
Leeds
LS15 8GB
www.thesiriusgroup.com
TEL: 0113 264 9960
FAX: 0113 264 9962

CLIENT

Ptarmigan Land North Ltd

SITE

Land Off Hemingfield Road, Hemingfield

DRAWING TITLE

Preliminary Conceptual Site Model

DRAWING NO.	REVISION NO.
C9756/04	0
DRAWN BY: MF	APPROVED BY: AMG
DATE: April 2023	SCALE: NTS / PAPER SIZE: A3

APPENDIX B

ENVIROCHECK REPORT

Historical Mapping Legends

Ordnance Survey County Series 1:10,560

Gravel Pit
Sand Pit
Other Pits
Quarry
Shingle
Orchard
Osiers
Reeds
Marsh
Mixed Wood
Deciduous
Brushwood
Fir
Furze
Rough Pasture
Arrow denotes flow of water
Trigonometrical Station
Site of Antiquities
Bench Mark
Pump, Guide Post, Signal Post
Well, Spring, Boundary Post
·285 Surface Level
Sketched Contour
Instrumental Contour
Main Roads
Fenced
Un-Fenced
Minor Roads
Fenced
Un-Fenced
Sunken Road
Raised Road
Road over Railway
Railway over River
Railway over Road
Level Crossing
Road over River or Canal
Road over Stream
Road over Stream
County Boundary (Geographical)
County & Civil Parish Boundary
Administrative County & Civil Parish Boundary
Co. Boro. Bdy. County Borough Boundary (England)
Co. Burgh Bdy. County Burgh Boundary (Scotland)
R.D. Bdy. Rural District Boundary
Civil Parish Boundary

Ordnance Survey Plan 1:10,000

Chalk Pit, Clay Pit or Quarry
Gravel Pit
Sand Pit
Disused Pit or Quarry
Refuse or Slag Heap
Lake, Loch or Pond
Dunes
Boulders
Coniferous Trees
Non-Coniferous Trees
Orchard
Scrub
Coppice
Bracken
Heath
Rough Grassland
Marsh
Reeds
Saltings
Building
Direction of Flow of Water
Shingle
Sand
Glasshouse
Pylon
Pylon
Electricity Transmission Line
Sloping Masonry
Cutting
Embankment
Standard Gauge Multiple Track
Road Under
Road Over
Level Crossing
Foot Bridge
Standard Gauge Single Track
Siding, Tramway or Mineral Line
Narrow Gauge
Geographical County
Administrative County, County Borough or County of City
Municipal Borough, Urban or Rural District, Burgh or District Council
Borough, Burgh or County Constituency
Shown only when not coincident with other boundaries
Civil Parish
Shown alternately when coincidence of boundaries occurs

BP, BS	Boundary Post or Stone	Pol Sta	Police Station
Ch	Church	PO	Post Office
CH	Club House	PC	Public Convenience
F E Sta	Fire Engine Station	PH	Public House
FB	Foot Bridge	SB	Signal Box
Fn	Fountain	Spr	Spring
GP	Guide Post	TCB	Telephone Call Box
MP	Mile Post	TCP	Telephone Call Post
MS	Mile Stone	W	Well

1:10,000 Raster Mapping

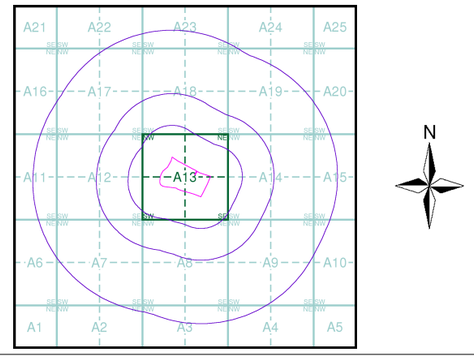
Gravel Pit
Refuse tip or slag heap
Rock
Rock (scattered)
Boulders
Boulders (scattered)
Shingle
Mud
Mud
Sand
Sand
Sand Pit
Slopes
Top of cliff
General detail
Underground detail
Overhead detail
Narrow gauge railway
Multi-track railway
Single track railway
County boundary (England only)
Civil, parish or community boundary
District, Unitary, Metropolitan, London Borough boundary
Constituency boundary
Area of wooded vegetation
Non-coniferous trees
Non-coniferous trees (scattered)
Coniferous trees
Coniferous trees (scattered)
Positioned tree
Orchard
Coppice or Osiers
Rough Grassland
Heath
Scrub
Marsh, Salt Marsh or Reeds
Water feature
Flow arrows
MHW(S) Mean high water (springs)
MLW(S) Mean low water (springs)
Telephone line (where shown)
Electricity transmission line (with poles)
BM 123.45 m Bench mark (where shown)
Triangulation station
Point feature (e.g. Guide Post or Mile Stone)
Pylon, flare stack or lighting tower
Site of (antiquity)
Glasshouse
General Building
Important Building

sirius

Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Yorkshire	1:10,560	1854 - 1855	2
Yorkshire	1:10,560	1893	3
Yorkshire	1:10,560	1894	4
Yorkshire	1:10,560	1905 - 1907	5
Yorkshire	1:10,560	1931	6
Yorkshire	1:10,560	1938	7
Yorkshire	1:10,560	1938 - 1948	8
Yorkshire	1:10,560	1948	9
Ordnance Survey Plan	1:10,000	1956	10
Ordnance Survey Plan	1:10,000	1966 - 1967	11
Ordnance Survey Plan	1:10,000	1980	12
Ordnance Survey Plan	1:10,000	1989	13
10K Raster Mapping	1:10,000	2000	14
Street View	Variable		15

Historical Map - Slice A



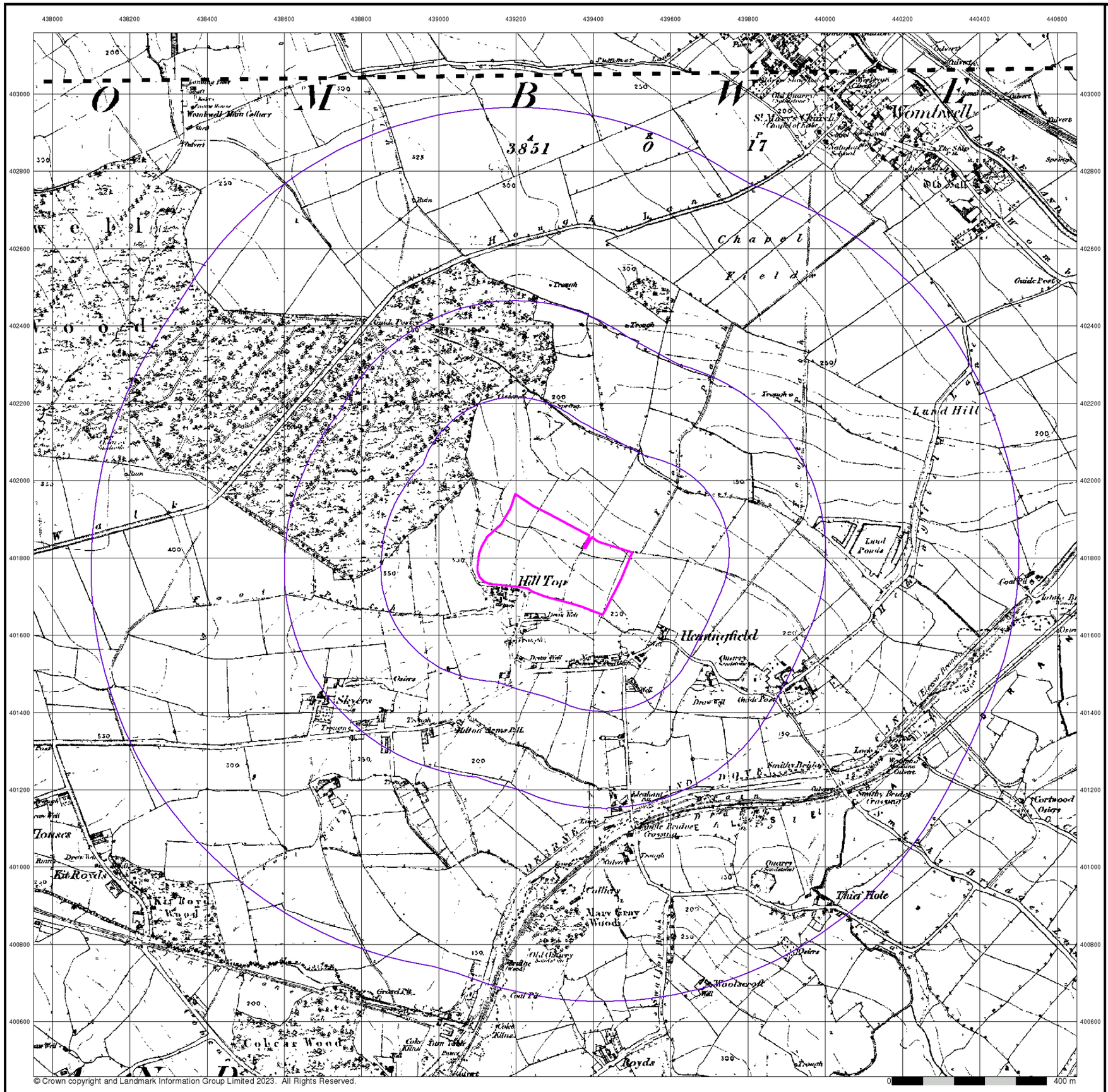
Order Details

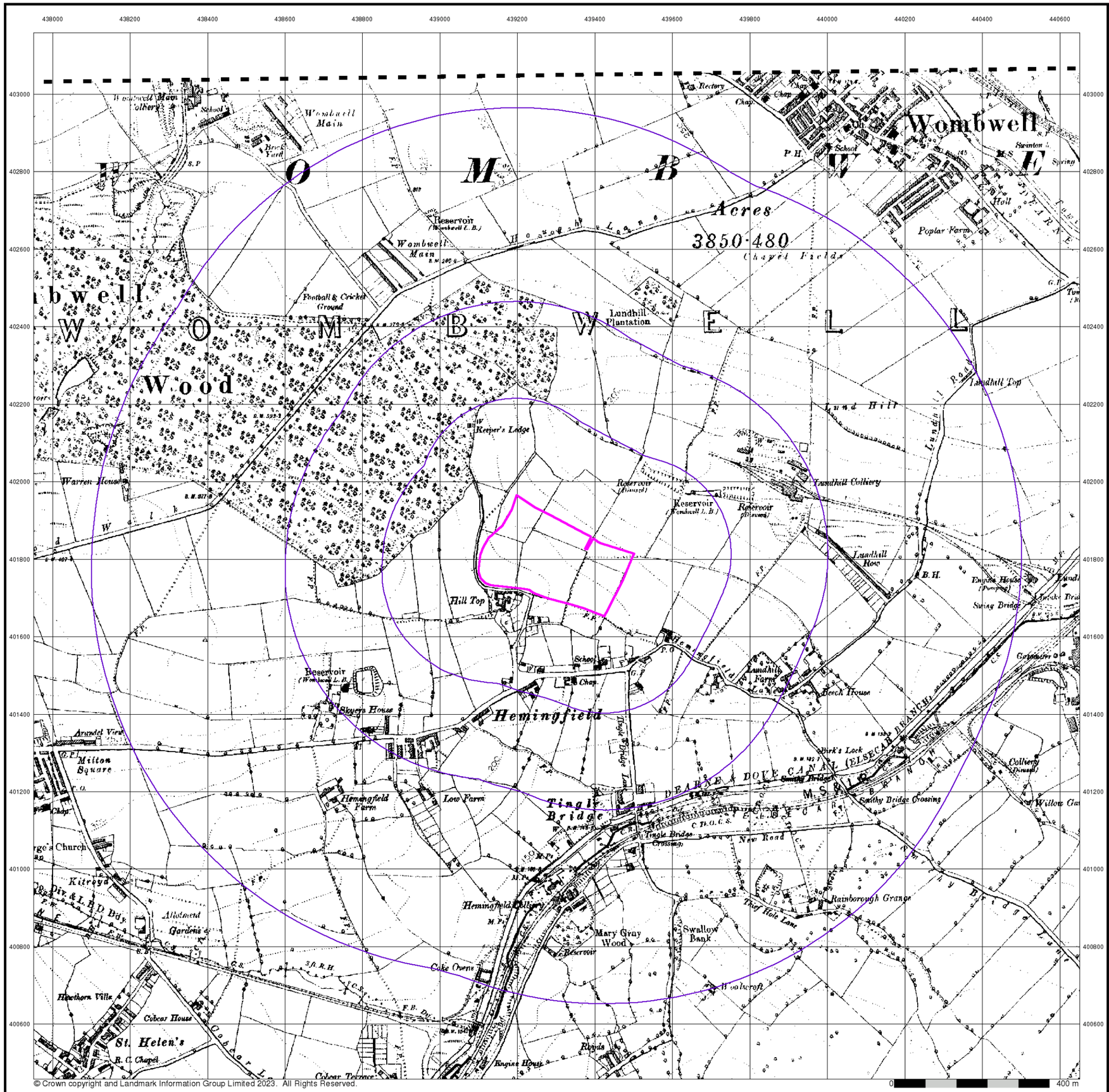
Order Number: 308931115_1_1
Customer Ref: C9756
National Grid Reference: 439300, 401800
Slice: A
Site Area (Ha): 6.85
Search Buffer (m): 1000

Site Details

Land off Hemingfield Road, Hemingfield, BARNSLEY, S73 0PZ

Landmark INFORMATION GROUP
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk


438000
438200
438400
438600
438800
439000
439200
439400
439600
439800
440000
440200
440400
440600
403000
402800
402600
402400
402200
402000
401800
401600
401400
401200
401000
400800
400600
Wombwell Main Colliery
Wombwell
Old Hall
Chapel Field
Lund Hill
Lund Ponds
Hill Top
Hemingfield
Skyers
Tonges
Kit Royds
Kit Royd Wood
Colcar Wood
Royds
Mary Gray Wood
Old Quarry
Quarry
Trough
Guide Post
Spring
Culvert
Colliery
Thick Hole
Woolscroft
Hortwood
Smithy Bridge
Smithy Bridge Crossing
Hollow Lane
Hollow Lane Farm
Hemingfield Road
Summer Lane
Old Hall Lane
Wombwell Lane
Dyke Lane
Barnsley Road
Coal Pit
Gravel Pit
Clay Pit
Kiln
Old Quarry (Disused)
Chapel of Ease
St. Mary's Church
Natl. Schools
Pump
Sluice
Drain
Drove Wall
Ditch
Track
Footpath
Boundary Stone
Tramway
Osiers
Sand Pit
Ash
Elm
Willow
Oak
Trees
Wood
Brook
Beck
Dyke
Lane
Road
Hall
Farm
Cottages
Mill
Pond
Ponds
Quarry
Colliery
Chapel
Church
Vicarage
Rectory
Parsonage
Inn
Public House
Post Office
Telegraph Office
Railway
Station
Bridge
Tunnel
Embankment
Cutting
Level Crossing
Signal Box
Goods Station
Passenger Station
Engine Shed
Turntable
Water Tank
Water Crane
Coal Staithes
Wharf
Dock
Basin
Lock
Weir
Sluice
Aqueduct
Viaduct
Tunnel
Cutting
Embankment



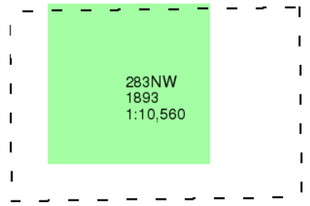
Yorkshire

Published 1893

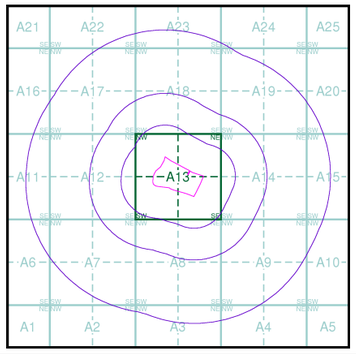
Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940`s, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



Historical Map - Slice A



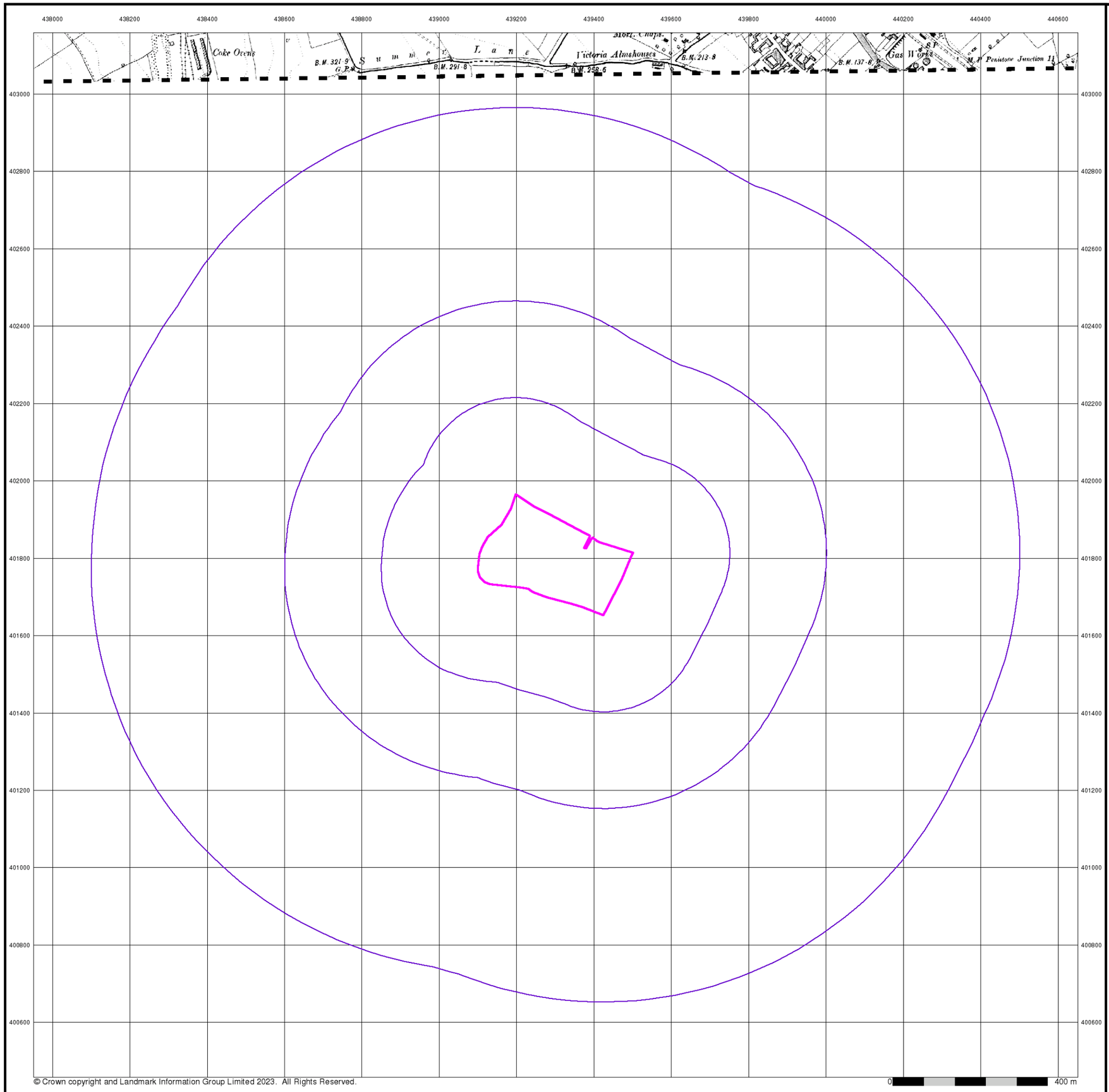
Order Details

Order Number:	308931115_1_1
Customer Ref:	C9756
National Grid Reference:	439300, 401800
Slice:	A
Site Area (Ha):	6.85
Search Buffer (m):	1000

Site Details

Land off Hemingfield Road, Hemingfield, BARNSLEY, S73 0PZ

Landmark INFORMATION GROUP
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



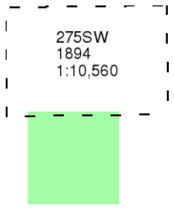
Yorkshire

Published 1894

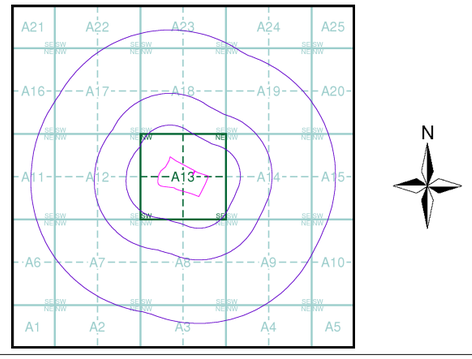
Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940`s, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)



Historical Map - Slice A



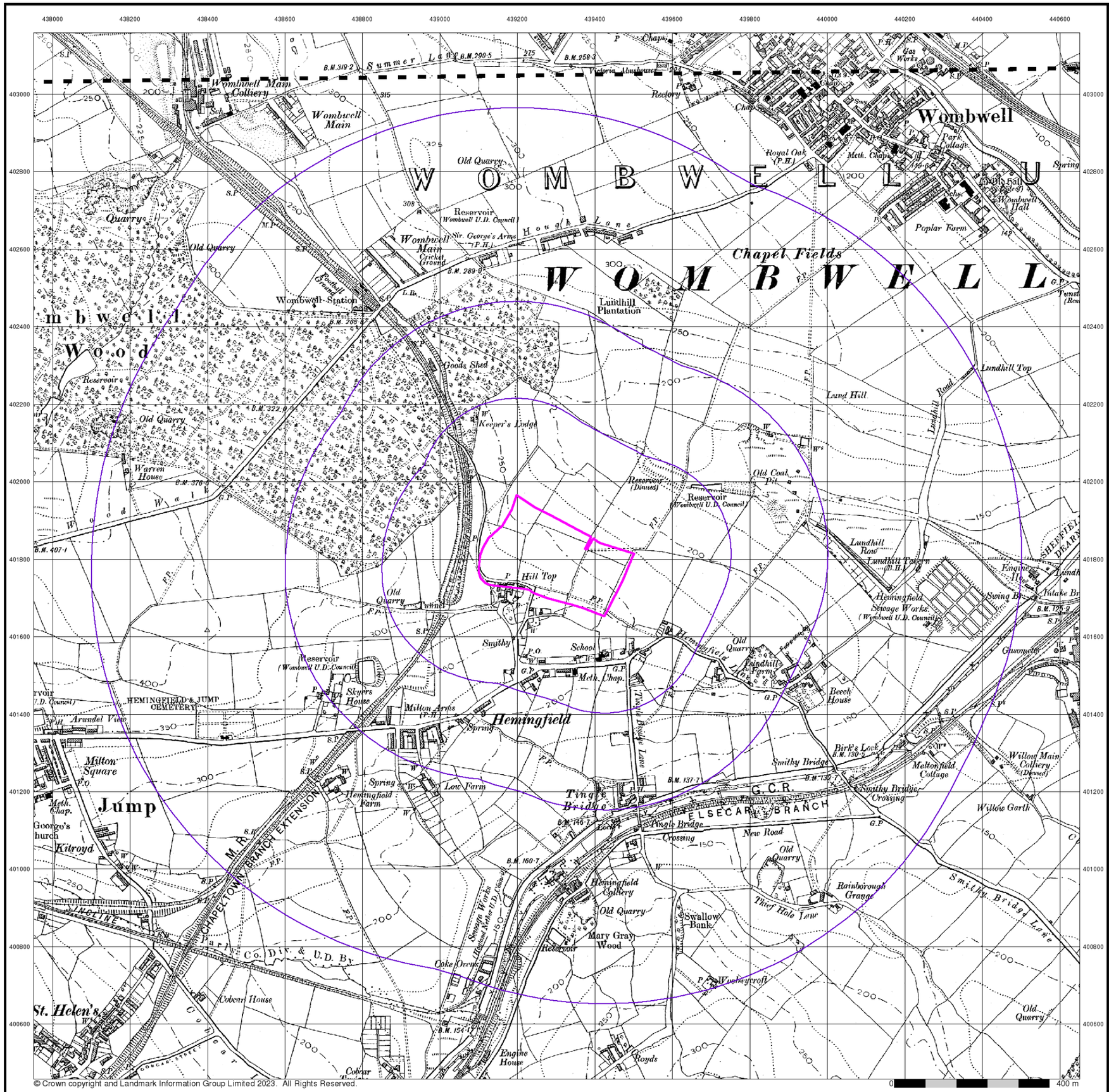
Order Details

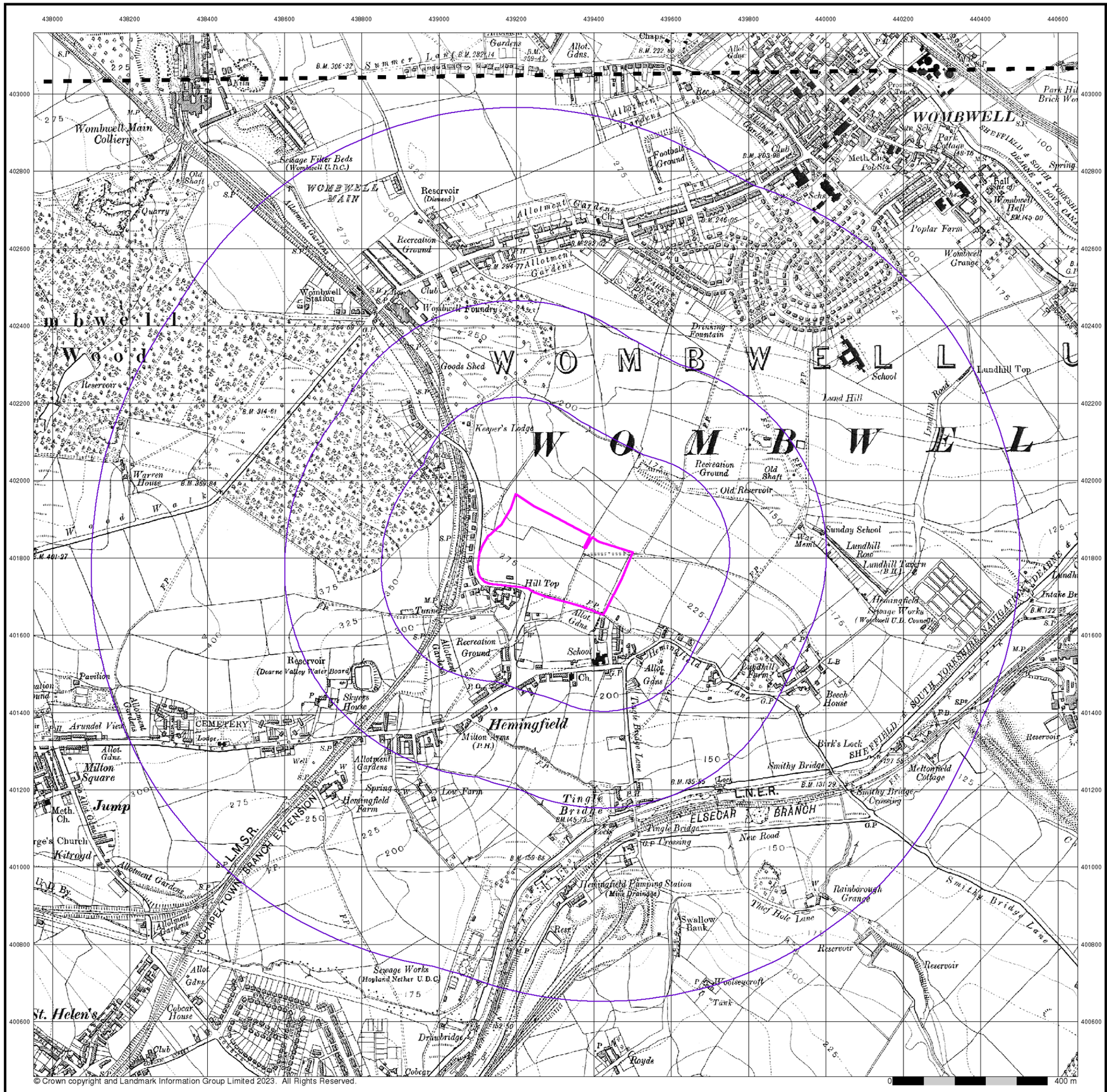
Order Number:	308931115_1_1
Customer Ref:	C9756
National Grid Reference:	439300, 401800
Slice:	A
Site Area (Ha):	6.85
Search Buffer (m):	1000

Site Details

Land off Hemingfield Road, Hemingfield, BARNSLEY, S73 0PZ

Landmark INFORMATION GROUP
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk


W O M B W E L L
Wombwell
Wombwell Main Colliery
Wombwell Main
Old Quarry
Reservoir (Wombwell U.D. Council)
Houghton Lane
Wombwell Main Cricket Ground
Football Ground
Wombwell Station
Lundhill Plantation
Chapel Fields
Goods Shed
Keeper's Lodge
Lundhill Top
Land Hill
Lundhill Road
Old Coal Pit
Reservoirs (Disused)
Reservoir (Wombwell U.D. Council)
Lundhill Row
Lundhill Tavern (P.H.)
Hemingfield Sewage Works (Wombwell U.D. Council)
Hill Top
Old Quarry Tunnel
Smithy
School
Reservoir (Wombwell U.D. Council)
Skyers House
HEMINGFIELD & JUMP CEMETERY
Milton Arms (P.H.)
Hemingfield
Spring
Arundel View
Milton Square
Jump
Meth. Chap.
George's Church
Kitroyd
Love Farm
Hemingfield Farm
Tingle Bridge
Tingle Bridge Lane
Tingle Bridge Crossing
Smithy Bridge
Smithy Bridge Crossing
Birk's Lock
Meltonfield Cottage
Willow Garth
New Road
Old Quarry
Rainborough Grange
Thief Hole Low
Smithy Bridge Lane
Hemingfield Colliery
Old Quarry
Mary Gray Wood
Swallow Bank
Woolleycroft
Old Quarry
Coke Ovens
Sewage Works (Hoyland Milton U.D. Council)
Engine House
Royds
Cobcar House
Cobcar
St. Helen's
Old Quarry
Hemingfield Road
Hemingfield Sewage Works (Wombwell U.D. Council)
Beech House
Lindhill Farm
Meth. Chap.
Old Quarry
Guidepost
Poplar Farm
Park Cottage
Wombwell Hall
Royal Oak (P.H.)
Meth. Chap.
Victoria Almshouses
Rectory
Gas Works
Spring
Reservoir (Wombwell U.D. Council)
Quarry
Old Quarry
Warren House
Old Quarry
Reservoir
Wombwell Wood
Old Quarry
Quarry
Old Quarry
Old Quarry
Old



Yorkshire

Published 1931

Source map scale - 1:10,560

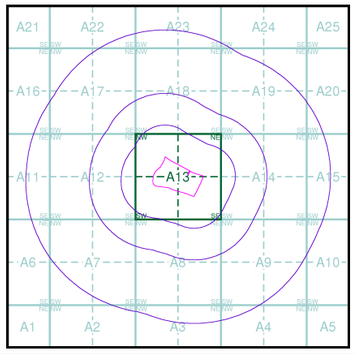
The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840`s. In 1854 the 1:2,500 scale was adopted for mapping urban areas; these maps were used to update the 1:10,560 maps. The published date given therefore is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas. In the late 1940`s, a Provisional Edition was produced, which updated the 1:10,560 mapping from a number of sources. The maps appear unfinished - with all military camps and other strategic sites removed. These maps were initially overprinted with the National Grid. In 1970, the first 1:10,000 maps were produced using the Transverse Mercator Projection. The revision process continued until recently, with new editions appearing every 10 years or so for urban areas.

Map Name(s) and Date(s)

275SW
1931
1:10,560

283NW
1931
1:10,560

Historical Map - Slice A



Order Details

Order Number:	308931115_1_1
Customer Ref:	C9756
National Grid Reference:	439300, 401800
Slice:	A
Site Area (Ha):	6.85
Search Buffer (m):	1000

Site Details

Land off Hemingfield Road, Hemingfield, BARNSLEY, S73 0PZ

Landmark INFORMATION GROUP
Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk