Fox Aluminium Ltd

Wentworth Way

Tankersley

Coal Mining Risk Assessment

ECL.8822.R06.001 Rev: -

July 2021

Prepared for

Fox Aluminium Ltd
Wentworth Way
Tankersley
Barnsley
S75 3DH

Prepared by

Egniol Consulting Ltd
1st Floor
6 Canon Harnett Court
warren Park
Wolverton Mill
Milton Keynes
MK12 5NF

Document Review

Rev	Date	Prepared By	Reviewed By	Approved By
-	02/07/2021	Emma Small	Ruth Easterbrook	Mark Fletcher

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Assessment Summary

Assessment Result	**MEDIUM TO HIGH RISK**
Recommended Further Work	**INTRUSIVE SITE INVESTGATION AND FOUNDATION DESIGN**

T: 01248 355 996 W: www.egniol.com

Company no: 06668552

Offices:
Llys Onnen, Ffordd y Llyn, Parc Menai, Bangor LL57 4DF
West Barn, Rouge Farm, Bentley's Farm Lane, Higher Whitley WA4 4QW
6 Canon Harnett Court, Warren Park, Wolverton, Milton Keynes MK12 5NW
Office 4, Botanical Gardens Business Centre, 3 Southbourne Rd, Sheffield S10 2QN

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1.0 INTRODUCTION

1.0.1 Egniol Consulting Limited (Egniol) of Warren Park in Milton Keynes have been appointed by Fox Aluminium Ltd to carry out a Coal Mining Risk Assessment Report (CMRA) in relation to the proposed extensions at the existing Fox Aluminium Ltd warehouse off Wentworth Way.

1.0.2 Egniol have been commissioned to prepare a CMRA for the proposed extensions, to provide the Local Planning Authority and the Coal Authority (CA) with information with regards to coal mining and as assessment of its impact on land stability.

1.0.3 The CA have objected to the proposals due to fundamental concerns with regards to the coal mining risk at the site. The letter dated 14 May 2021 from Melanie Lindsley of the CA, in relation to planning reference 2021/0617 states that a CMRA is required to support the planning application.

1.0.4 The site has not been subject of a Phase I Desk Study Report or a subsequent Phase II Ground Investigation.

1.1 Site Location

1.1.1 The site is located to the north east of Wentworth Way in Tankersley. The site is centred at approximate co-ordinates 433992, 399669. The site has an approximate elevation of 160m AOD.

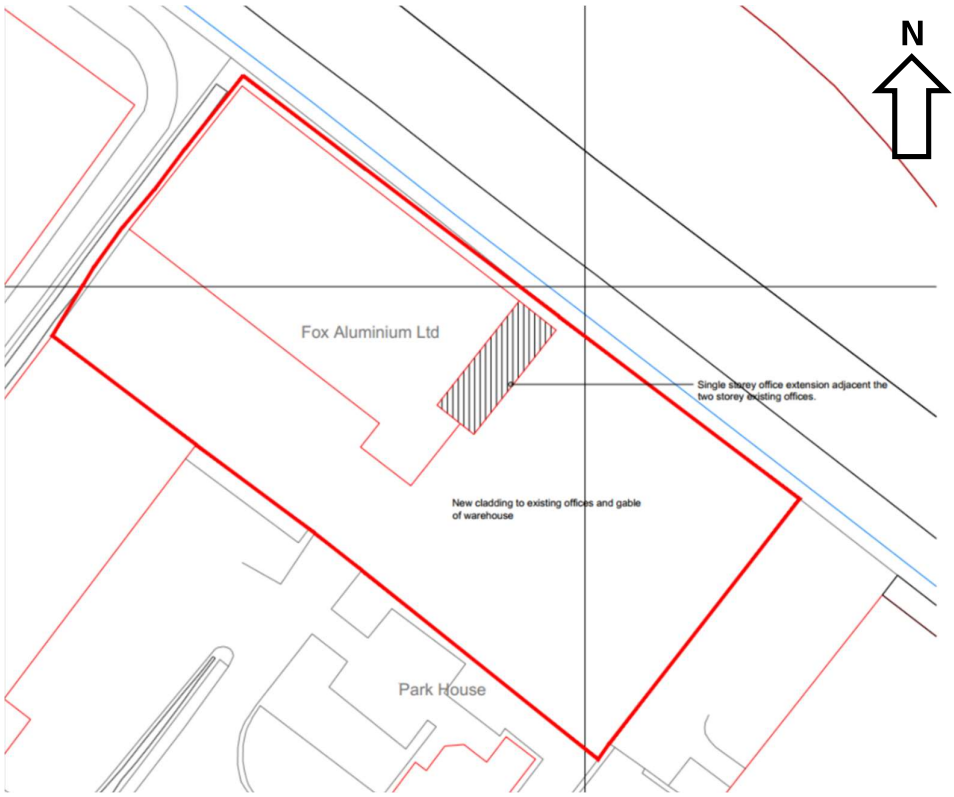
Figure 1 – Site Location Plan
Base Plan – Google Earth



1.2 Proposed Development

1.2.1 The proposed development comprises a two-storey extension joined to the eastern side of the existing building as shown in Figure 2 below, in an extract of the aba Architecture and Interiors Location and Site Block Plan referenced 2335.06/- dated April 2021.

Figure 2 – Proposed Site Plan
Base Plan – aba Site Block Plan



1.3 Scope of Coal Mining Risk Assessment

1.3.1 The aim of this CMRA is to:

- Provide a desk-based review of available information relating to coal mining issues relevant to the application site.
- Use the information available to identify and assess the risks to the proposed development from the coal mining legacy, including the cumulative impact of any identified issues.
- Set out appropriate mitigation measures to address the identified issues affecting the site including recommendations for intrusive investigations and possible remedial measures if required.
- Demonstrate to the Local Planning Authority and Coal Authority that the application site is or can be made safe and stable to meet requirements of the national planning policy relating to development on unstable land.

1.4 Sources of Information

1.4.1 The following sources of information have been used as part of this CMRA:

- The CA document: Risk Based Approach to Development Management – Guidance for Developers, Version 4, 2017.

- Historic Ordnance Survey mapping obtained from Groundsure (Appendix 1).
- British Geological Survey (BGS) mapping Sheet 87 'Barnsley'.
- BGS borehole records (available to view online via the GeoIndex website)
- Coal Authority Coal Mining Consultants Report (CMCR) for the site (Referenced GS-7937209 dated 9th June 2021) (Appendix 2).
- Coal Authority abandonment Plans (Appendix 3)
- Coal Authority Mine Gas Emission Report (Dated 14 June 2021) (Appendix 4).

1.5 Development Advice

1.5.1 The CMCR has confirmed that the site is within an area of historical coal mining activity and there are potential risks to the proposed development. This report considers the risks and provides recommendations for further works as considered to be required.

2.0 ASSESSMENT OF SITE SPECIFIC RISKS

2.1 Geology

2.1.1 The 1:50,000 BGS map, Sheet 87 'Barnsley' shows the site is underlain by the solid geology of the Pennine Lower Coal Measures. The dip direction is to the north east and is shown to be 5 in 1. The Tankersley Fault is shown beneath or very close to the site, the downthrow side of the fault is to the north east. The Tankersley (Musselband) Ironstone recorded to outcrop to the north east of the site.

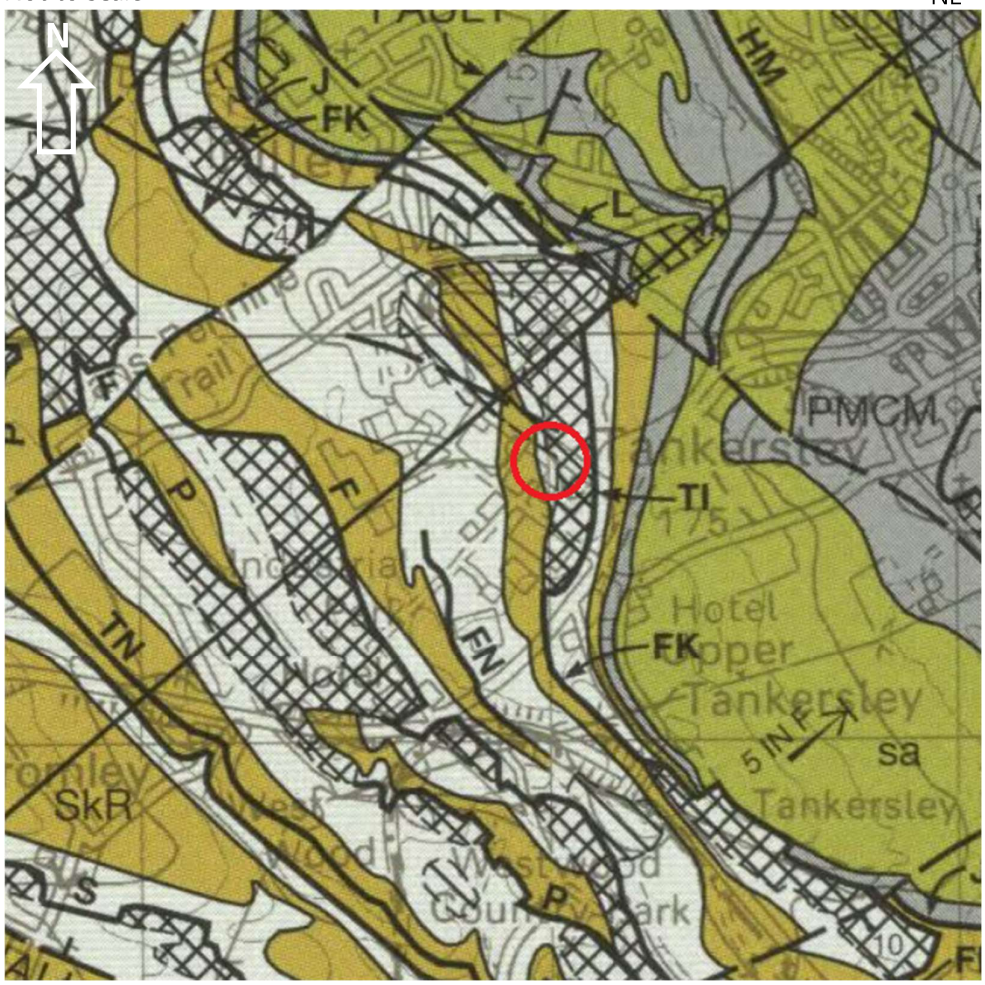
2.1.2 The site area and the area to the immediate north and east is recorded as Made Ground: Mainly colliery spoil and landfill and Infilled Ground: mainly restored open cast coal sites, pits and quarries.

2.1.3 Figures 3 to 6 below show extracts of Sheet 87 'Barnsley' (geology mapping, cross section and keys) with the red circle showing the approximate site location. The cross section shows the fault location and dip direction of the bedrock and is orientated south west to north east.

Figure 3 – BGS Sheet 87 'Barnsley' Mapping Extract

Not to scale

NE



SW

Figure 4 – BGS Sheet 87 'Barnsley' Cross Section Extract

Not to scale

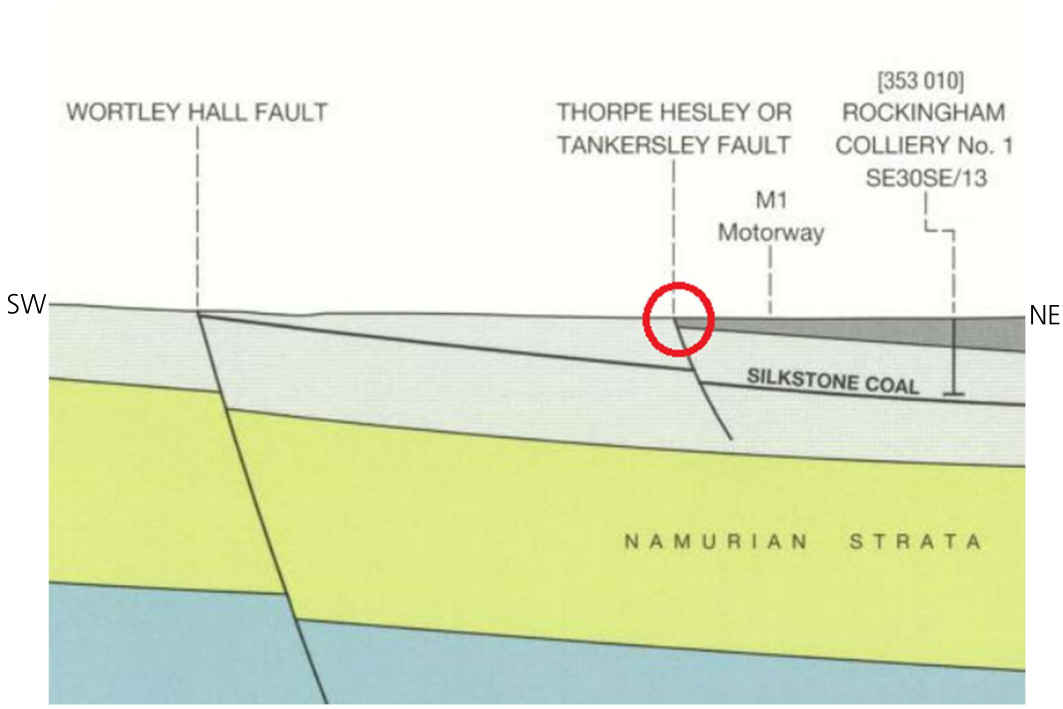


Figure 5 – BGS Sheet 87 'Barnsley' Artificial Ground Key

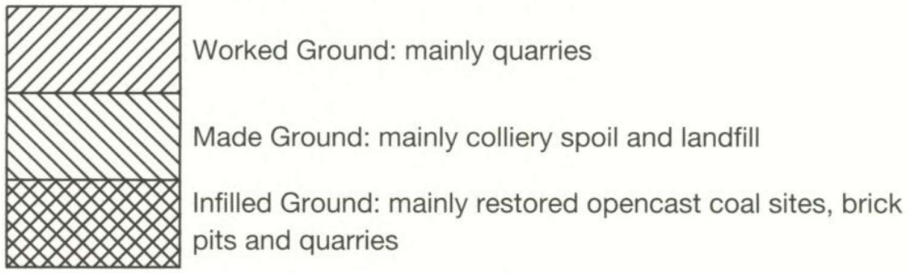


Figure 6 – BGS Sheet 87 'Barnsley' Bedrock Geology Key Extract



2.1.4 The geological mapping shows that coal seams outcrop to the north east and south west of the site with the closest being the Flockton thick Coal seam. Outcrops of the Flockton Thin (Top Deep Soft) Coal are present to the south west and may dip beneath the site at shallow depth. The Silkstone Four Foot Coal is recorded beneath the site as shown on the cross section in Figure 4, with a number of seams present above and potentially beneath the site at shallow depths.

2.1.5 A review of the BGS borehole records online shows several boreholes to the north west of the site, these are however confidential and could not be accessed. A single borehole is available to view on the BGS GeoIndex website, the borehole is located

to the north west of the site within the area of worked ground at grid reference SK 339 999. The borehole records 6ft of outset (pit fill) overlying earth and clay to 10ft (3.05m) bgl. The Flockton Thin Seam is recorded at 28.3ft (8.63m) bgl and is 4.3ft (1.31m) thick, with the High Fenton Coal at 97.9ft (29.84m) bgl recorded at 5.2ft (1.58m) thick and the Low Fenton Coal at 107.3ft (32.7m) bgl recorded at 5.6ft (1.71m) thick. Further seams include the Parkgate Seam at 182.2ft (55.5m). The Silkstone Seam (including the Thorncliffe Thin Coal and Silkstone Seam) and Whinmoor Seam , all recorded at depths of greater than 250ft (76.2m) bgl.

2.2 Outcrops

2.2.1 The CMCR indicates that the Flockton Thick seam outcrop is within the site boundary, on a bearing of 345.

2.3 Coal Mine Geology

2.3.1 The CMRA does not have a record of any fissures, faults or breaklines within the site boundary.

2.4 Site History

2.4.1 Historical mapping for the site were obtained from Groundsure with the aim of identify historical land uses and locations of interest in relation to historic coal mining activities on or close to the site. The maps are included within Appendix 1 of this report, with Table 1 below summarising key features identified on the mapping.

Table 1 – Summary of Key Features Identified on Historical Mapping

Mapping date	On Site	Off Site
1855	The site is part of a larger field, with a boundary present to the far east, which may be formed by a stream or drainage ditch.	A railway line is located to the north west, with Wharncliffe Silkstone Colliery immediately beyond approximately 150m from the site boundary. A wooded area denoted a 'Long Spring' is located approximately 100m west of the site, a circular feature is located along the edge 100m from the site. Upper Tankersley is located approximately 200m south of the site. Potter Holes Plantation is approximately 100m east and north east to the site. A circular feature is located along the edge of this area 200m from the site boundary. Ironstone pits are mapped beyond the railway line to the south west of the site.
1891-1894	No changes noted on site.	An air shaft is recorded approximately 10m to the east of the site boundary, with a second air shaft located 200m to the south. The two circular features noted previously are no longer mapped. A pumping shaft and depression are located approximately 200m north east of the site. Wharncliffe Silkstone Colliery has expanded further, with a number of railway sidings present to the north west and additional buildings, Coke Covens etc. A shaft is shows within a building approximately 150m north west of the site, with two further shafts indicated approximately 200m to the north west. Tankersley Colliery is mapped approximately 600m to the south of the site.

Mapping date	On Site	Off Site
1903-1905	No changes noted on site.	A railway siding is within 50m of the north western site boundary, with building sand gasometers beyond. A subway is located 125m to the north going under a railway line. Wharncliffe Silkstone Colliery has expanded further to include the features mentioned, and to the north west. A brick works and tramway are also shown.
1929-1931	A building is very close to and possibly encroaching into the site along the north western boundary, the building is associated with the adjacent Wharncliffe Silkstone Colliery. A new boundary crosses the site in a south west to north east orientation, in the north western area.	Wharncliffe Silkstone Colliery has expanded further and is now up to the north western edge of the site. A road to the south east has been widened.
1938-1966	No changes noted on site.	Wharncliffe Silkstone Colliery has expanded further. Ruins are recorded within the colliery north of the site. An area of ground approximately 100m north east appears to be excavated or worked, with railway sidings going into it. The air shaft/shaft located 10m east of the site is no longer shown on the 1965 map.
1970 (eastern half)	No changes noted on site.	An area to the north, located within 100m of the site is recorded as a Tip (disused). Westwood New Road is mapped 150m south east of the site.
1977-1981	The building along the north western boundary is no longer mapped. The site remains unchanged.	The colliery to the north west and railway line is no longer present. A large commercial building is located immediately north west of the site, a smaller one is present immediately south west and further smaller commercial type buildings beyond to the north west. Wentworth way is located to the south west. The discussed Tip to the north is still mapped and is within 50m of the site. Potter Holes Plantation is also shown as a disused tip to the north. Tankersley Colliery to the south is no longer present, disused shafts are recorded.
1987-1993	The site contains a commercial building in the north west covering approximately two thirds of the stie, a tank is show centrally along the northern edge in the location of the proposed extension.	Additional commercial type buildings are mapped to the south and east of the site. Two tanks are recorded to the north west of the site. The area of land immediately to the north is denoted as 'Disused Workings'.
2001-2021	No changes noted on site.	No significant changes noted off site.

2.5 Coal Mining

2.5.1 The CMCR included within Appendix 2 confirms that the site is within a zone of influence from recorded past underground mining as summarised in Table 2 below;

Table 2 – Summary of Past Underground Mining within 100m of ground level

Colliery	Seam	Depth (m)	Extraction thickness (m)
Wharncliffe	Top Fenton	53	1.40
Unnamed	Low Fenton	61	1.57
Rockingham	Low Fenton	62	1.52
Unnamed	Parkgate	79	1.60
Tankersley	Parkgate	84	1.60
Tankersley	Thorncliffe	97	68

2.5.2 The Rockingham Colliery is not indicated on the historic mapping obtained. The grid references indicate that it is located approximately 600m south east of the site, however, is not shown the mapping.

2.5.3 The CMCR indicates that there are probably unrecorded shallow workings beneath the site.

2.6 Mine Entries

2.6.1 A single mine entry is recorded within the CMCR report, the entry type is shaft and the grid reference is 434054, 399654. The grid reference refers to the air shaft recorded on the historic mapping approximately 10m east of the site.

2.7 Opencast Mines

2.7.1 The site is recorded to be within an area of unlicensed opencast mining sites. The area is shown on the Summary of Findings map included within Appendix 2 along with the CMCR.

2.8 Coal Authority Managed Tips

2.8.1 There are no CA managed tips recorded within 500m of the site.

2.9 Abandonment Plans

2.9.1 The CMCR indicates abandonment mine plans are available for the site, Egniol have obtained the most relevant plans within 75m of the surface as part of the searches, these are included within Appendix 3 of this report.

2.9.2 The abandonment plans obtained are for the Top Fenton Seam and Low Fenton Seams, and are the only plans available within 75m of the surface indicating the shallow seams have either not been worked or any workings are unrecorded.

2.9.3 The abandonment plan for the Top Fenton Seam shows extensive workings of this seam at an approximate depth of 72 yards (66m) at its shallowest depth noted on the plan as surface drift 43/3399/731675. The typical seam thickness is 61 inches (1.55m).

2.10 Mine Gas

2.10.1 There is one record for a mine gas incident/record located 180.3m west of the site. The CACR indicated that the site is within an area of previous interest. It is close to where the coal authority has previously undertaken investigation and subsequently remediation to mitigate the effects of mine or ground gas emissions following specific reported hazards.

2.10.2 The CACR indicates that the site requires further investigations and it is recommended that a Coal Authority Mine Gas Emission Report (CAMGER) is obtained to provide more detail of the hazard.

2.10.3 Egniol have obtained the CAMGER (Appendix 4). The report has confirmed that Wharncliffe Silkstone No 4 Shaft is located 180.3m west of the site and comprises a large vent fitted to the void. The vent was installed upon closure of the colliery to allow the safe discharge of mine gas to the atmosphere.

2.10.4 The results of the quarterly monitoring indicate less than 1% methane, with most readings below 1%. Fluctuating levels of carbon dioxide have been recorded up to 10%, with two peaks corresponding with lower atmospheric pressure events, although this isn't consistent with other low atmospheric pressure events recorded. The highest peak reading of 10% for carbon dioxide during February 2017 corresponds with the lowest reading for oxygen which of less than 10%. The records provided for oxygen concentrations are depleted for the duration of the monitoring from 2015 to 2021.

3.0 IDENTIFICATION AND ASSESSMENT COAL MINING THAT MAY AFFECT THE PROPOSED DEVELOPMENT

3.0.1 Table 3 below summarises the potential risks associated with coal mining based on the searches completed as detailed within this report.

Table 3 – Coal Mining within Influence and Risk

Coal Mining Feature	Risk Present		Risk Assessment	
	Yes	No	Comment	Rating
Underground mining recorded at shallow depth (less than 30m)	✓		None recorded. Seams present so risk of unrecorded mining at depths of less than 30m.	**Medium Risk**
Underground coal mining (probable at shallow depths)	✓		Possibility of unrecorded mining of shallow coal seams. Records show the Top and Low Fenton Seams have been mined locally and potentially beneath the site.	**Medium Risk**
Mine entries (shafts and adits)		✓	None within the site boundary. Closest is 10m east of the site, but at least 50m from the proposed area of the extension.	**Medium risk**
Coal mining geology (fissures)		✓	Non recorded	**Low risk**
Record of past mine gas emissions	✓		Mine gas emissions records off site, potential for mine gases beneath the site if a pathway exists. Gas levels recorded are low.	**Medium Risk**
Recorded coal mining surface hazard	✓		Potential for unrecorded opencast mining, or unrecorded shafts.	**High Risk**
Surface mining (opencast workings)	✓		Recorded as an unlicensed opencast area, however no indication of workings shown on historic mapping. Potentially worked prior to mapping available.	**High Risk**

4.0 PROPOSED MITIGATION STRETEGY

4.1 Site Investigation

4.1.1 Due to the potential of unrecorded shallow mining, and the indication of past opencast mining beneath the site, along with the nearby shaft and potential for unrecorded shafts, an intrusive site investigation will be required in the area of the proposed extension. It is recommended that 4No. rotary boreholes are carried out to target depths of 35m to confirm the absence of any mine workings, to include shallow sampling and testing for foundation design information. In addition, the consideration of mine gas emissions may be required if any shallow workings (30m or less) are encountered.

4.1.2 Due to difficulties in identifying coal gas hazards, it may be necessary to consider completing a gas risk assessment for the site. This may recommend basic gas protection measures within the foundation design, which are resistant to permanent gases (carbon dioxide, methane, carbon monoxide).

4.1.3 The occurrence of unrecorded mine entries across the site can't be ruled out or discounted, and in area of the proposed extension, a watching brief should be maintained throughout the site works to identify this risk. All site operatives should be made aware of the potential risks.

4.2 Coal Authority Permit

4.2.1 For any intrusive activities, including site investigation boreholes and any subsequent treatment of coal mine workings/coal mine entries for ground stability purposes requires written permission from the Coal Authority prior to proceeding.

5.0 CONCLUSIONS

5.0.1 This Coal Mining Risk Assessment report has identified that open cast and possible shallow workings of coal seams as occurred historically beneath the site, with the likelihood of unrecorded workings and mine entries also being present. The risk to the site from mining legacy features is considered to be medium to high.

5.0.2 The intrusive investigations recommended in Section 4.1 of this report should be undertaken to confirm any shallow coal mining features present and to provide remediation proposals if required.

5.0.3 It is advised that a detailed Gas Risk Assessment in the area of the proposed development is completed to identify and/or rule out any risk from mine related gas emissions.

Fox Aluminium Ltd

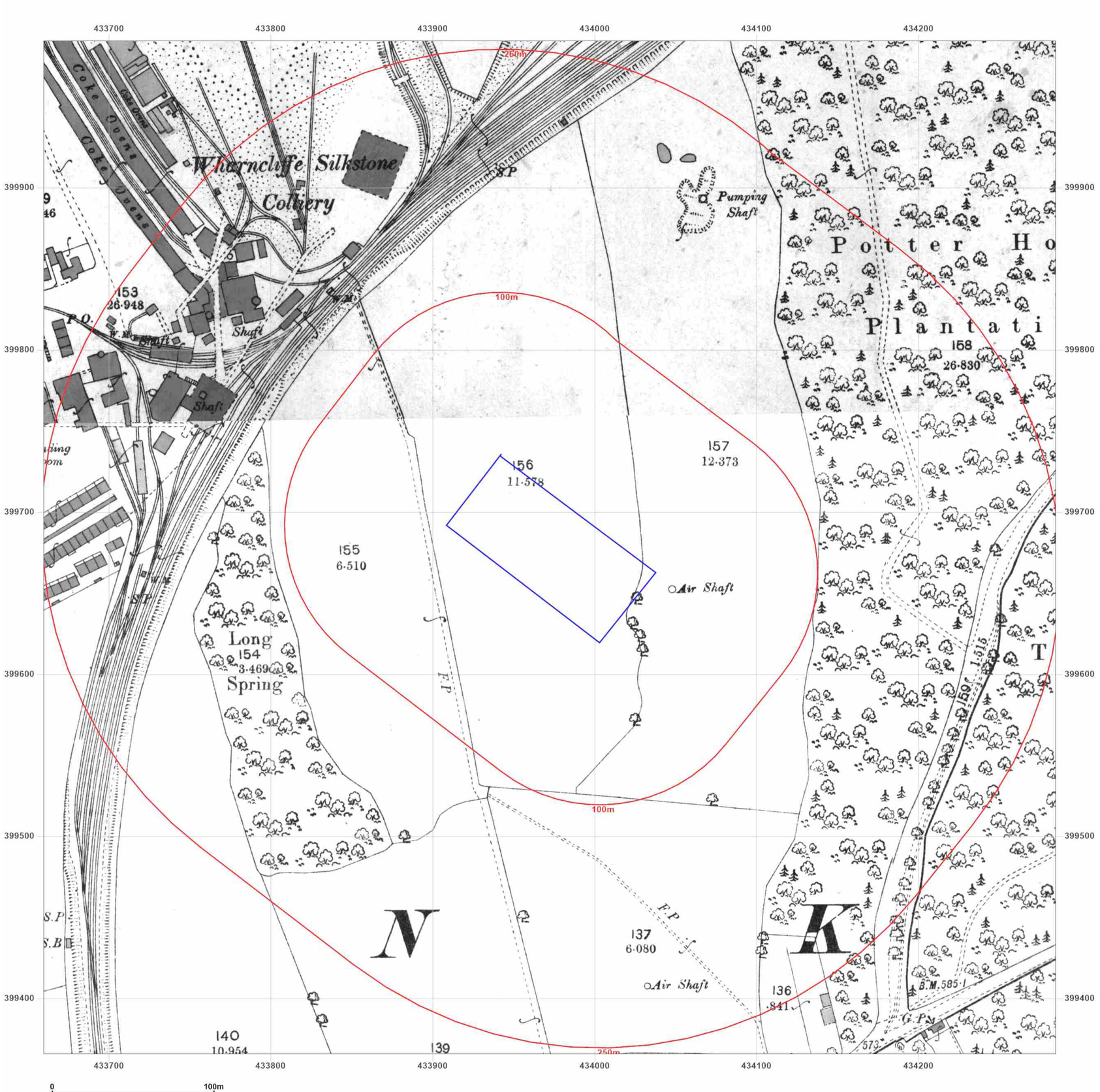
Wentworth Way
Tankersley

Coal Mining Risk Assessment
ECL.8822.R06.001 Rev -

July 2021

Appendix 1

Groundsure Historic Mapping



Groundsure INSIGHTS

Site Details:

FOX ALUMINIUM SYSTEMS
LTD, PARK WORKS,
WENTWORTH WAY,
TANKERSLEY, BARNSLEY, S75
3DH

Client Ref: 8822_Fox_Aluminum_Tankersley
Report Ref: GS-7937208
Grid Ref: 433972, 399678

Map Name: County Series

Map date: **1893**

Scale: 1:2,500

Printed at: 1:2,500

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Revised 1893
Edition N/A
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Edition N/A
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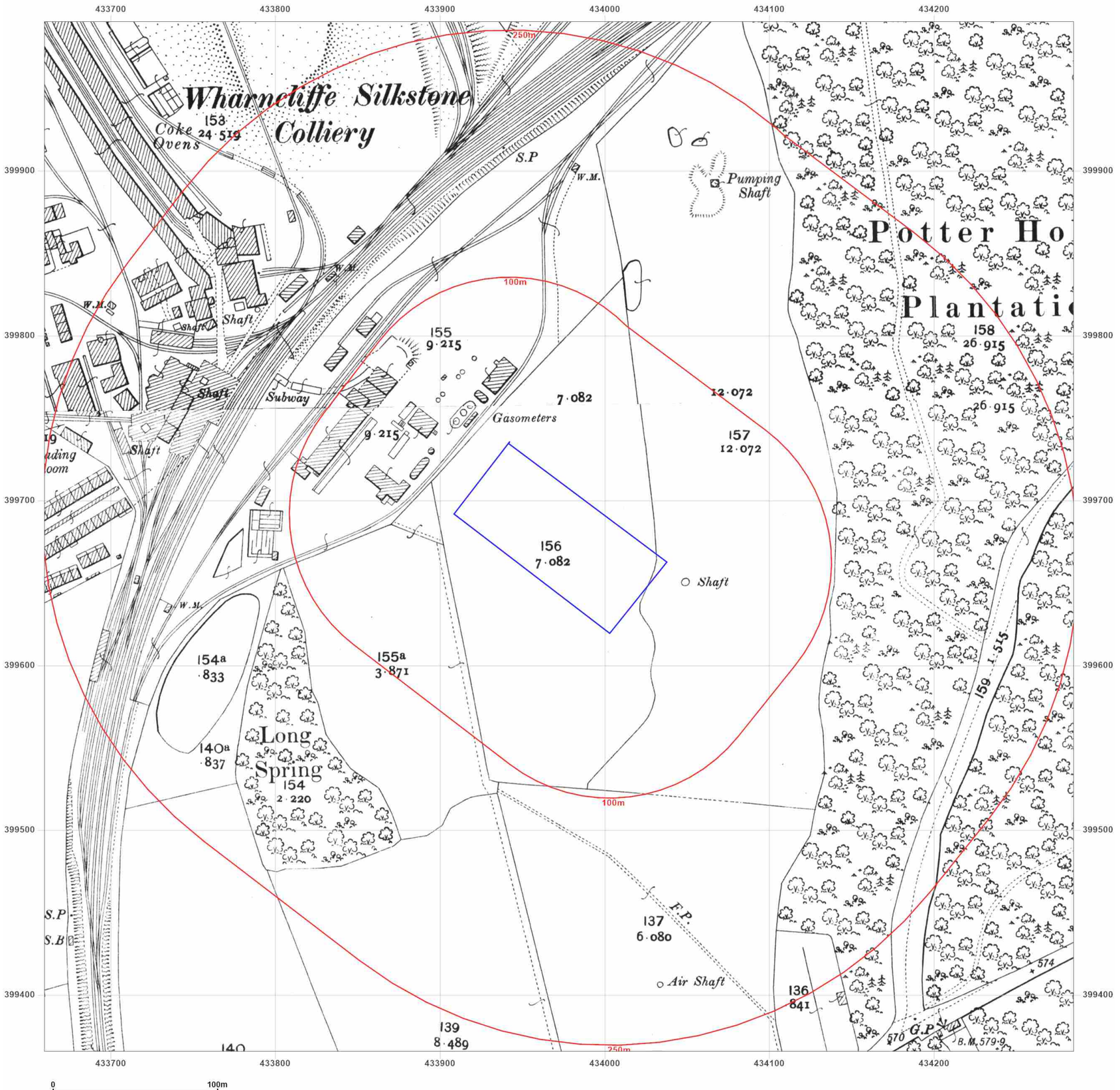
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Map legend available at:
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Groundsure INSIGHTS

Site Details:

FOX ALUMINIUM SYSTEMS LTD, PARK WORKS, WENTWORTH WAY, TANKERSLEY, BARNSLEY, S75 3DH

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Report Ref: GS-7937208
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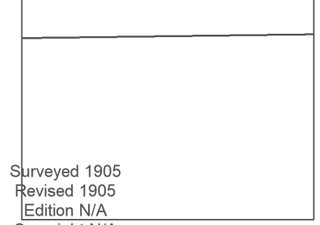
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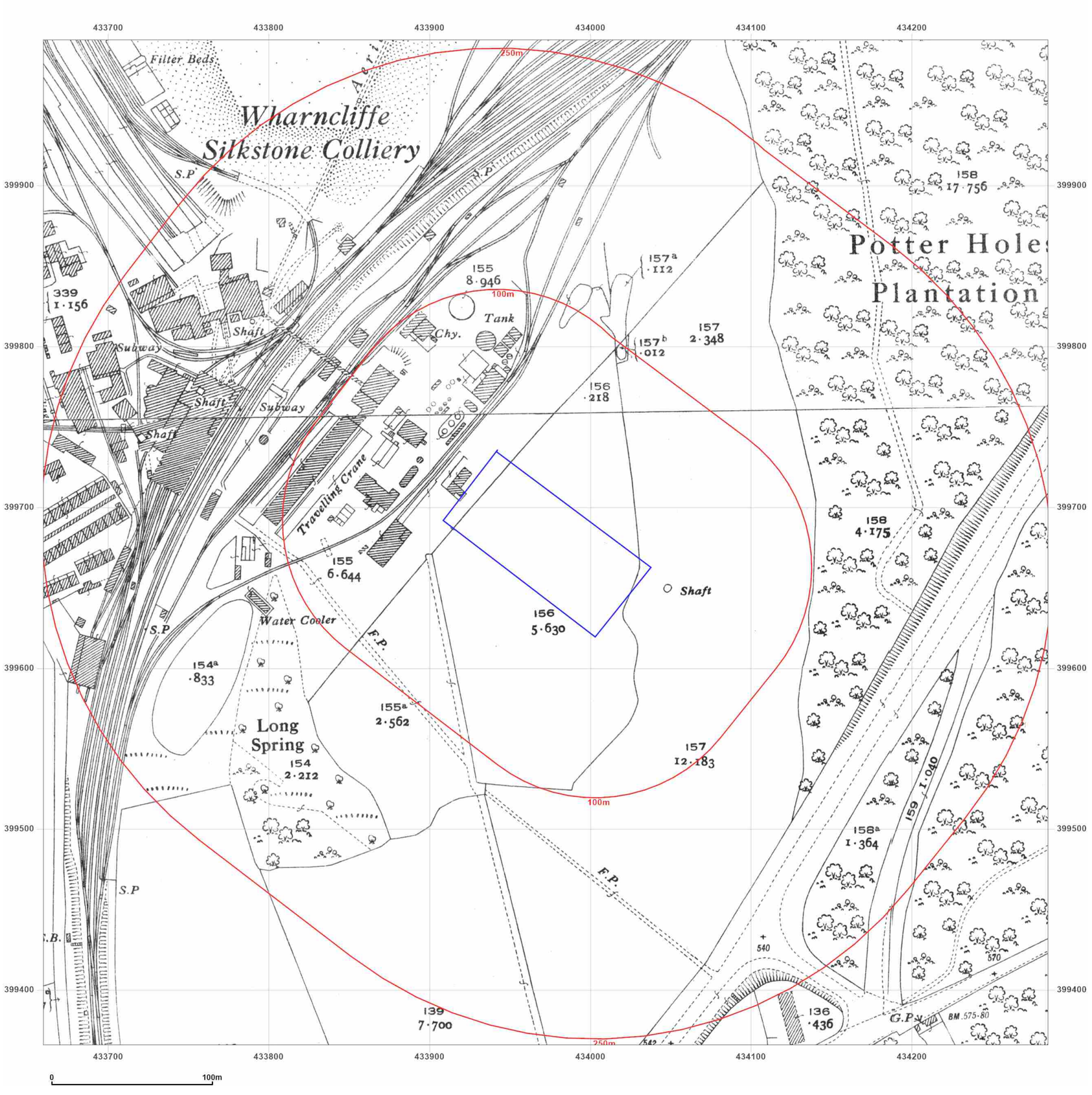
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Site Details:

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Report Ref: GS-7937208
Grid Ref: 433972, 399678

Map Name: County Series

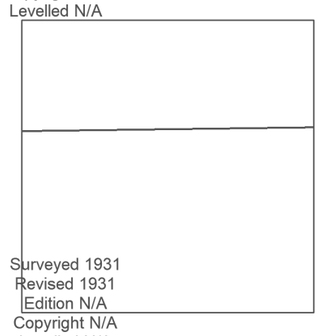
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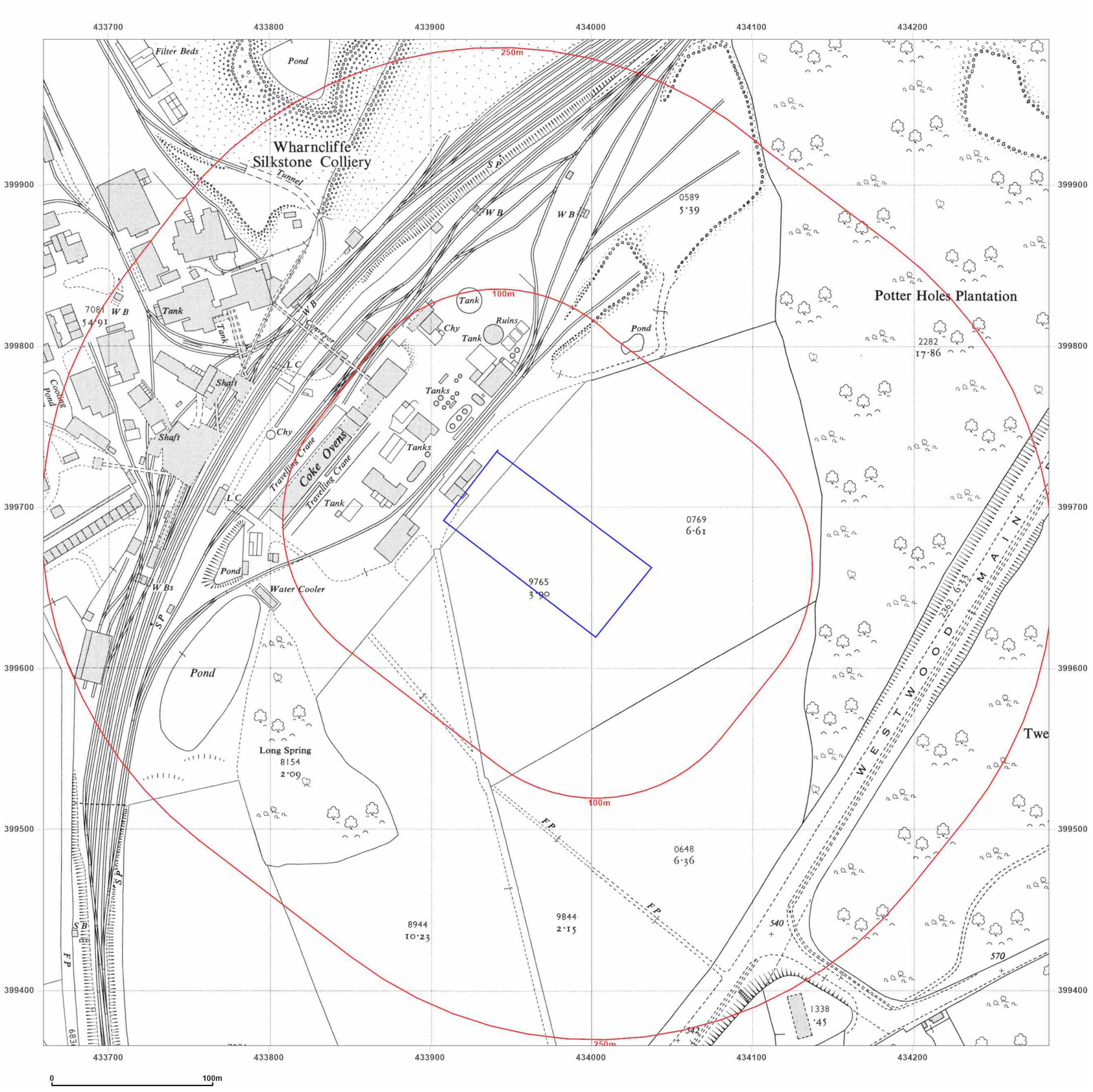
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TANKERSLEY, BARNSLEY, S75
3DH

Client Ref: 8822_Fox_Aluminum_Tankersley
Report Ref: GS-7937208
Grid Ref: 433972, 399678

Map Name: National Grid
Map date: **1956**
Scale: 1:2,500
Printed at: 1:2,500

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Revised 1956	Revised 1956
Edition N/A	Edition N/A
Copyright N/A	Copyright N/A
Levelled 1930	Levelled 1930

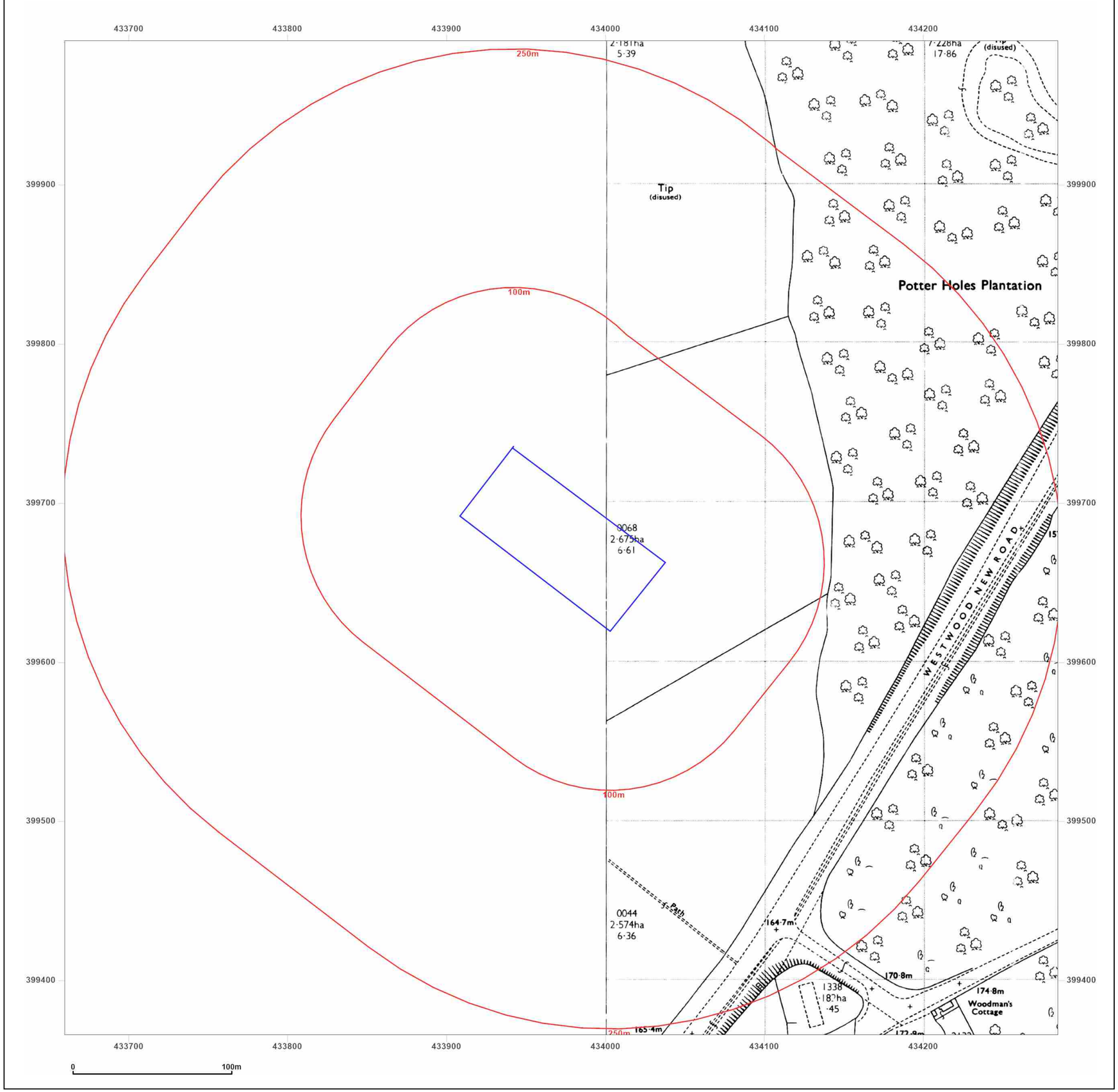
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3DH

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Grid Ref: 433972, 399678

Map Name: National Grid

Map date: **1970**

Scale: 1:2,500

Printed at: 1:2,500

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

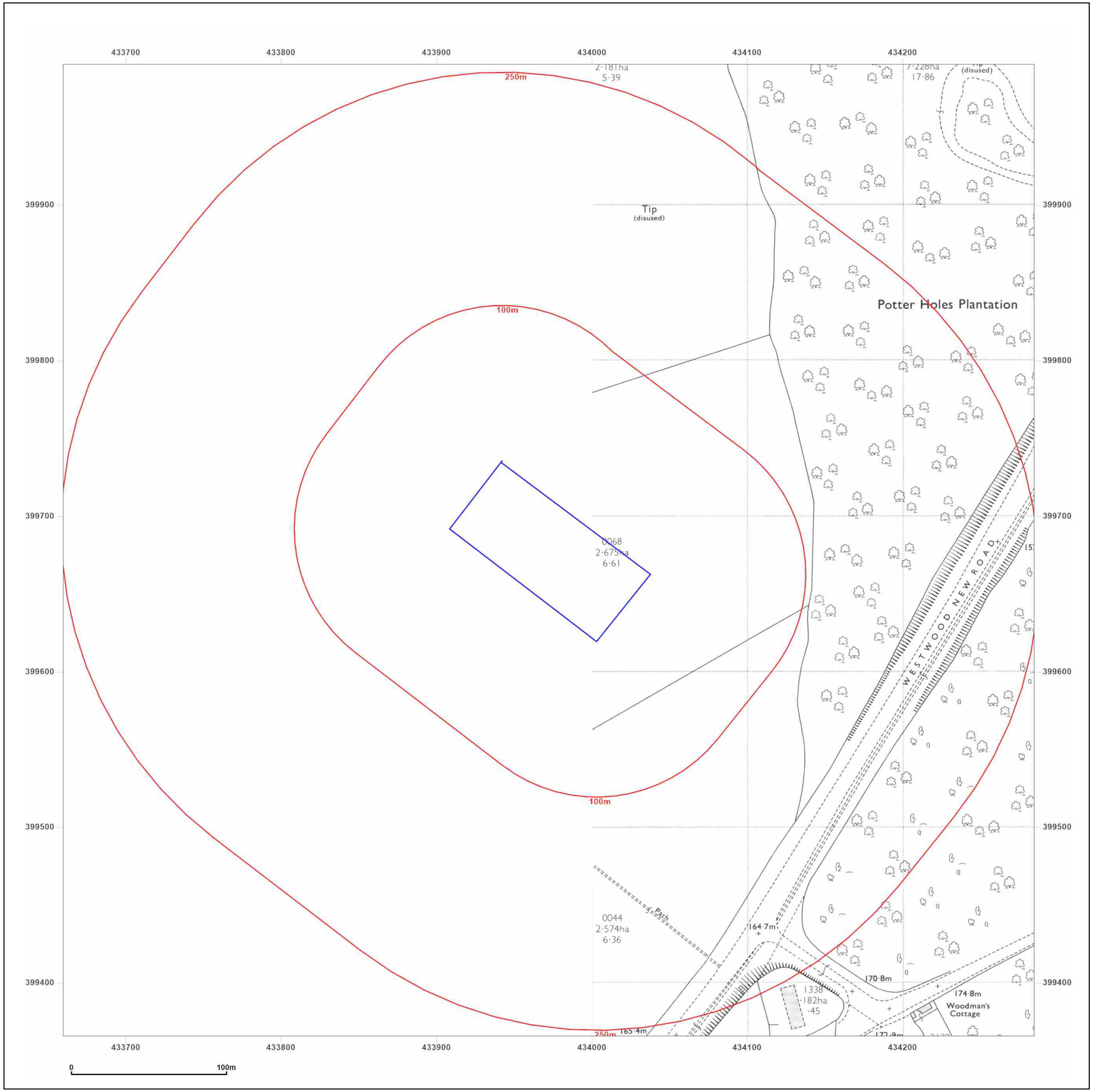
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Site Details:

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LTD, PARK WORKS,
WENTWORTH WAY,
TANKERSLEY, BARNSLEY, S75
3DH

Client Ref: 8822_Fox_Aluminum_Tankersley
Report Ref: GS-7937208
Grid Ref: 433972, 399678

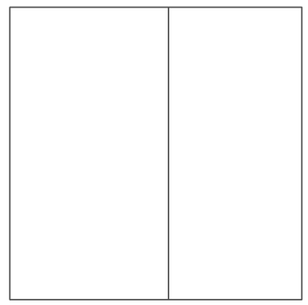
Map Name: National Grid

Map date: **1970**

Scale: 1:2,500

Printed at: 1:2,500

N
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Surveyed 1970
Revised 1970
Edition N/A
Copyright 1970
Levelled 1963

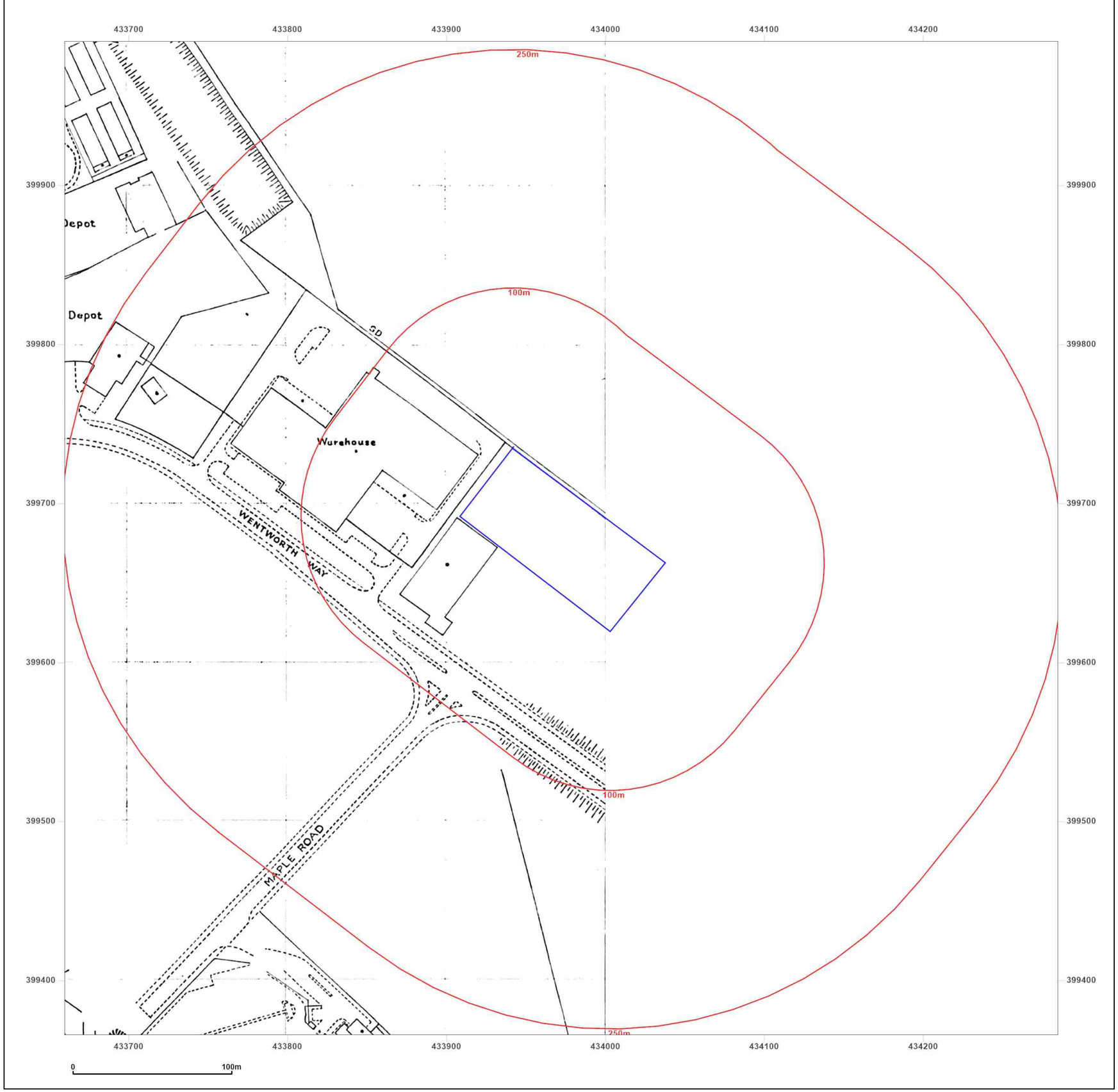
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Site Details:

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LTD, PARK WORKS,
WENTWORTH WAY,
TANKERSLEY, BARNSLEY, S75
3DH

Client Ref: 8822_Fox_Aluminum_Tankersley
Report Ref: GS-7937208
Grid Ref: 433972, 399678

Map Name: National Grid
Map date: **1981**
Scale: 1:2,500
Printed at: 1:2,500

N
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Surveyed N/A
Revised N/A
Edition N/A
Copyright 1981
Levelled 1963

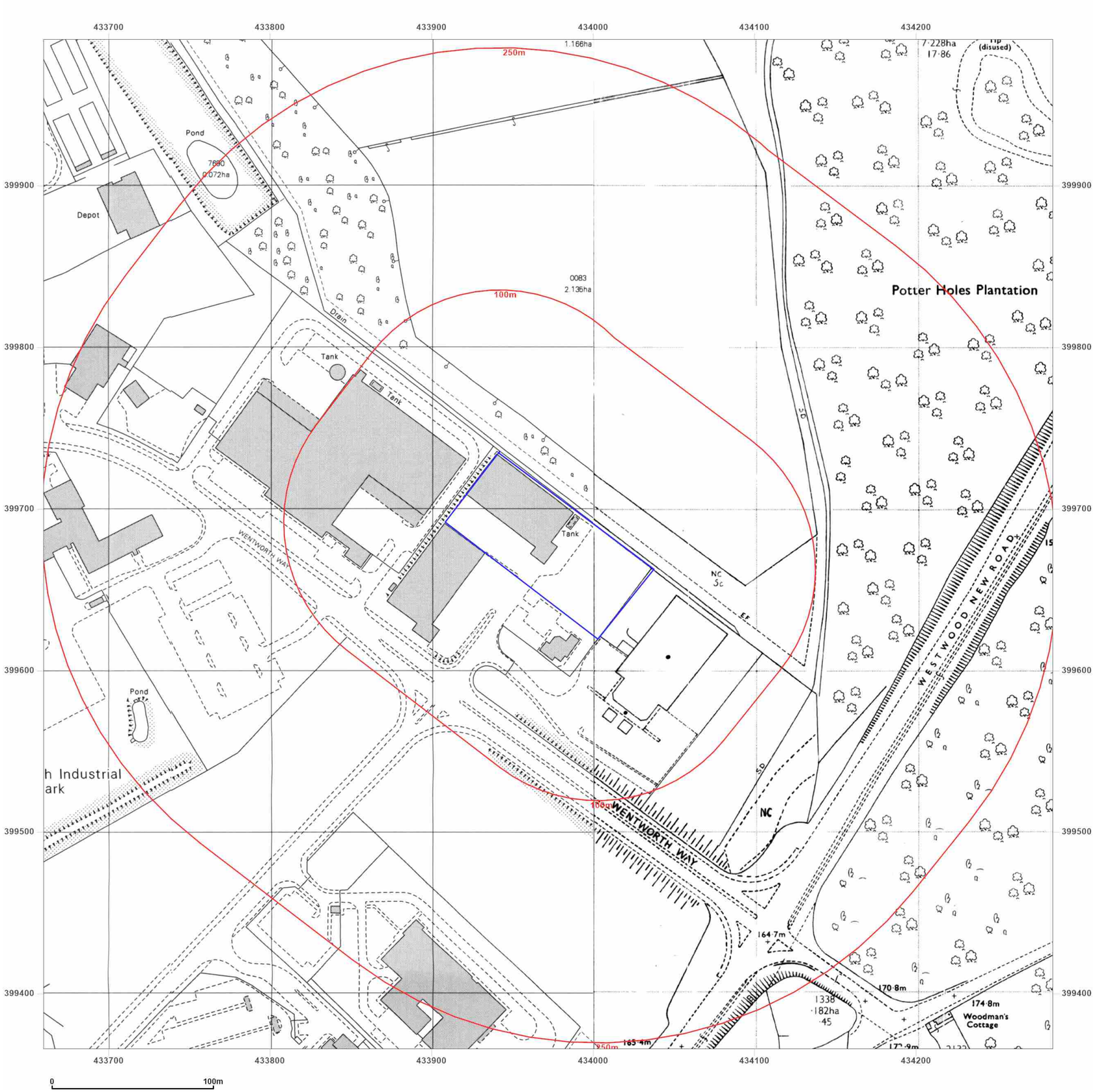
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Site Details:

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Client Ref: 8822_Fox_Aluminum_Tankersley
Report Ref: GS-7937208
Grid Ref: 433972, 399678

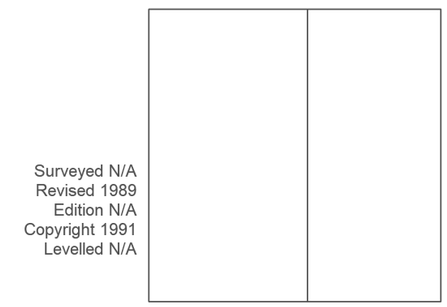
Map Name: National Grid

Map date: **1989**

Scale: 1:2,500

Printed at: 1:2,500

N
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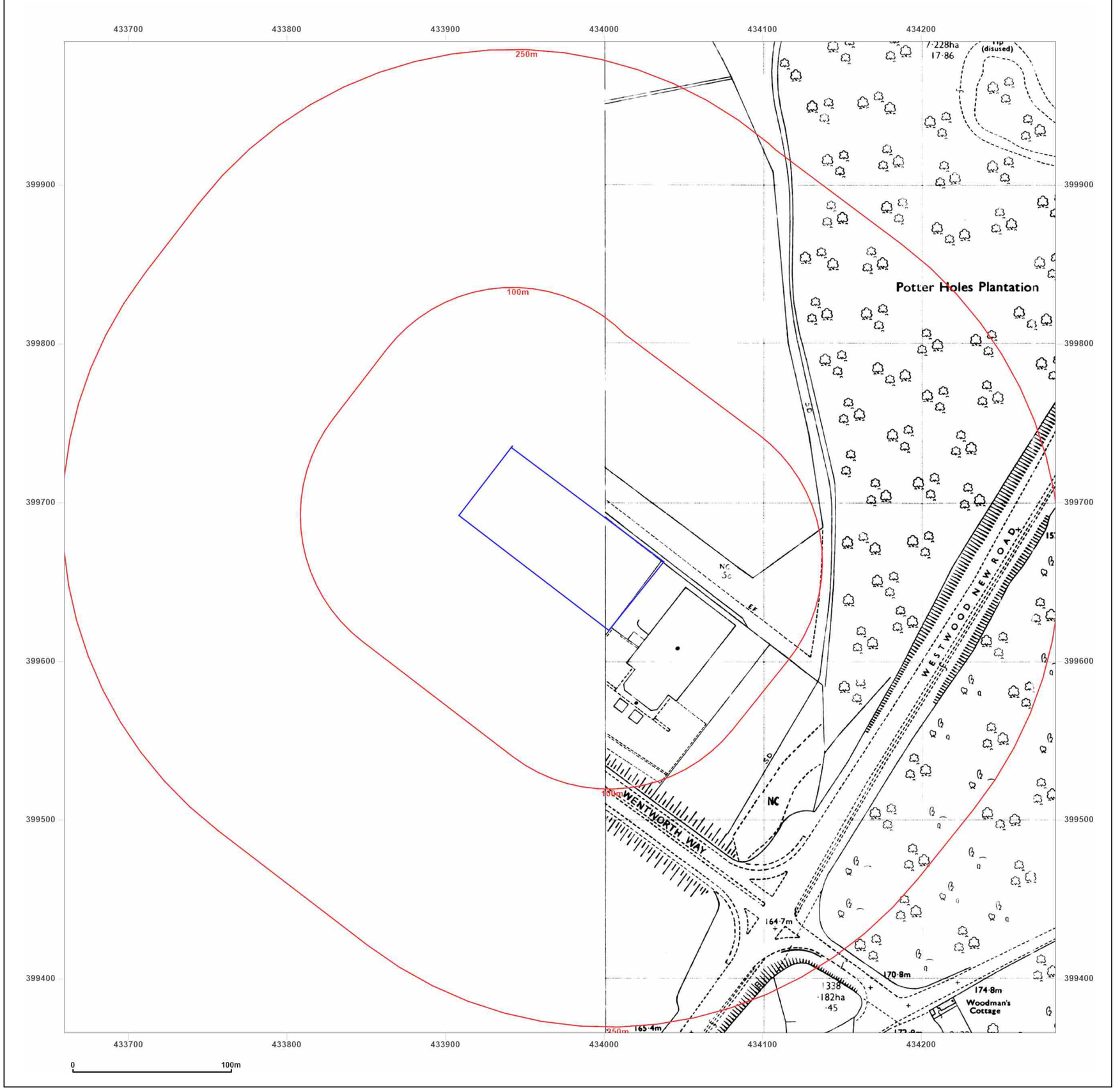
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TANKERSLEY, BARNSLEY, S75
3DH

Client Ref: 8822_Fox_Aluminum_Tankersley
Report Ref: GS-7937208
Grid Ref: 433972, 399678

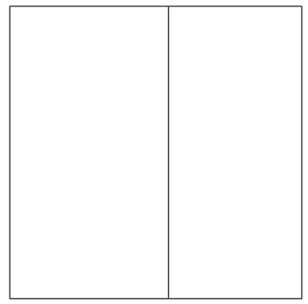
Map Name: National Grid

Map date: **1990**

Scale: 1:2,500

Printed at: 1:2,500

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

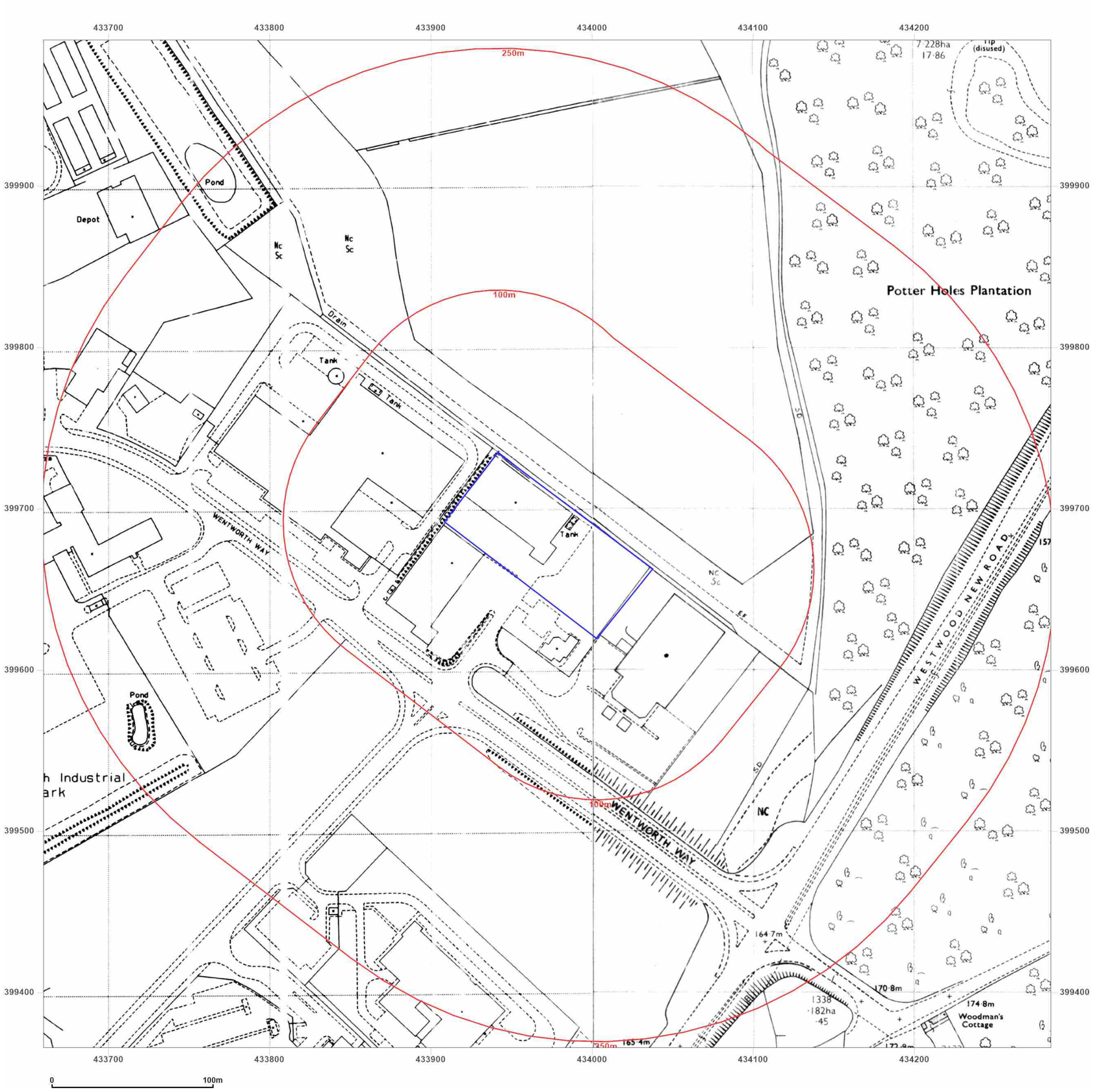
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TANKERSLEY, BARNSLEY, S75
3DH

Client Ref: 8822_Fox_Aluminum_Tankersley
Report Ref: GS-7937208
Grid Ref: 433972, 399678

Map Name: National Grid

Map date: **1989-1993**

Scale: 1:2,500

Printed at: 1:2,500

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

Surveyed 1963
Revised 1989
Edition N/A
Copyright 1989
Levelled 1963

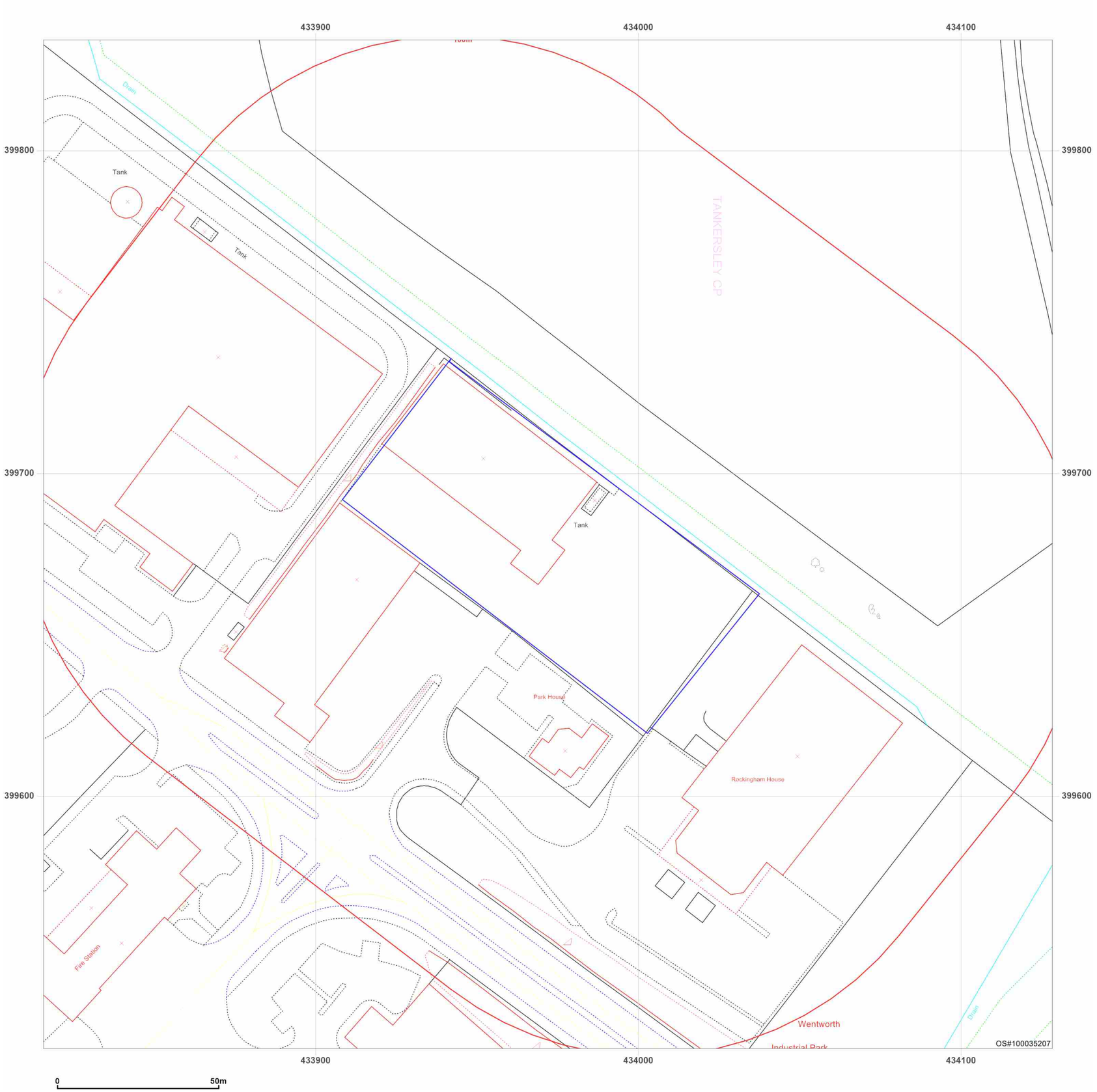
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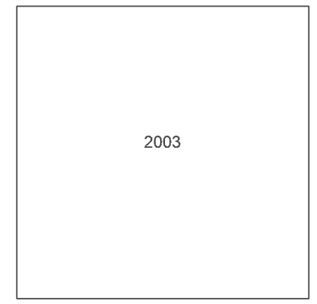
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FOX ALUMINIUM SYSTEMS
LTD, PARK WORKS,
WENTWORTH WAY,
TANKERSLEY, BARNSLEY, S75
3DH

Client Ref: 8822_Fox_Aluminum_Tankersley
Report Ref: GS-7937208
Grid Ref: 433972, 399678

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

N
W E
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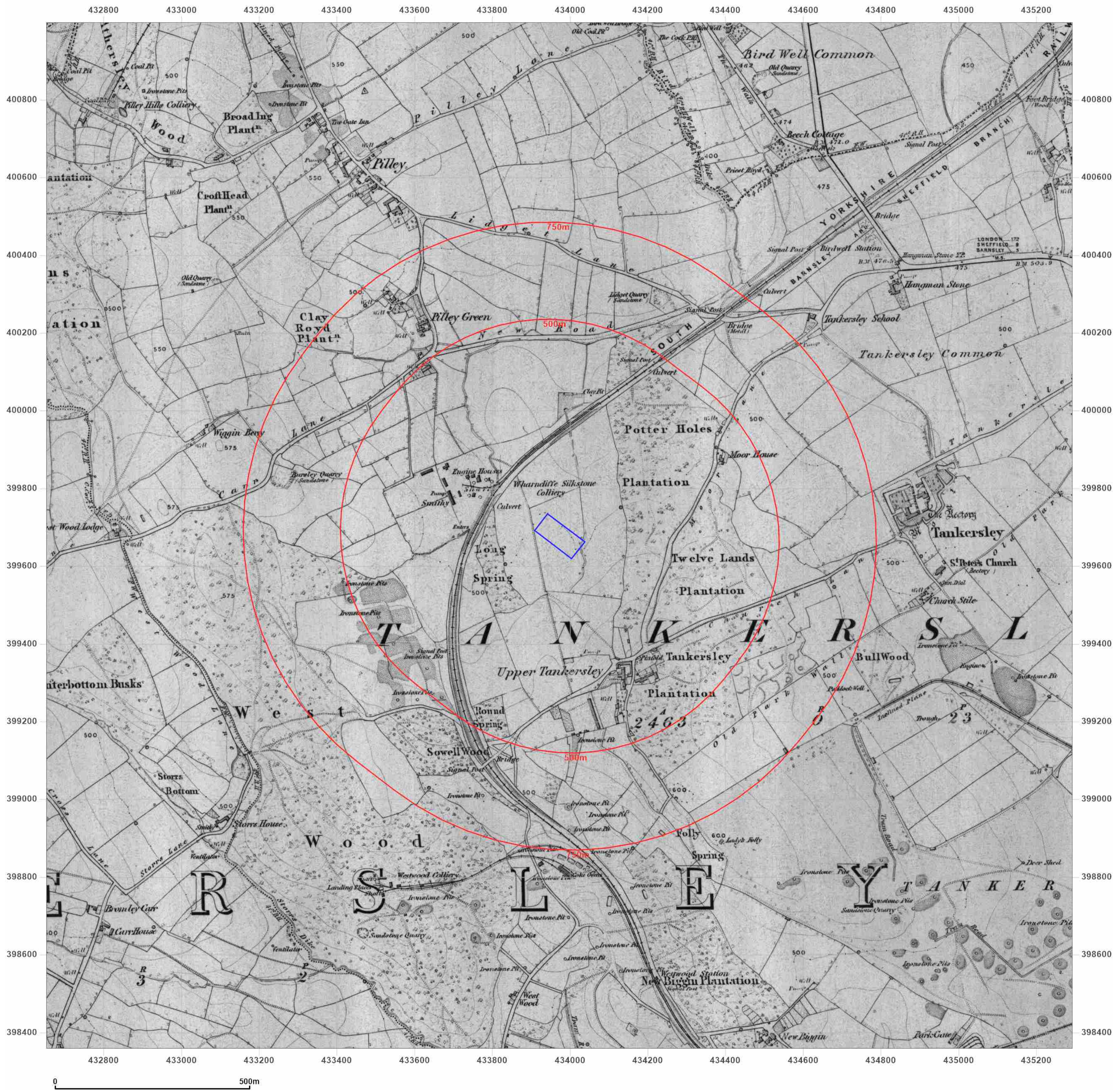
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Site Details:

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Client Ref: 8822_Fox_Aluminum_Tankersley
Report Ref: GS-7937208
Grid Ref: 433972, 399678

Map Name: County Series

Map date: **1855**

Scale: 1:10,560

Printed at: 1:10,560

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Surveyed 1851
Revised N/A
Edition 1855
Copyright N/A
Levelled N/A

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Client Ref: 8822_Fox_Aluminum_Tankersley
Report Ref: GS-7937208
Grid Ref: 433972, 399678

Map Name: County Series

Map date: **1891-1894**

Scale: 1:10,560

Printed at: 1:10,560

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

Surveyed 1891
Revised N/A
Edition 1894
Copyright N/A
Levelled N/A

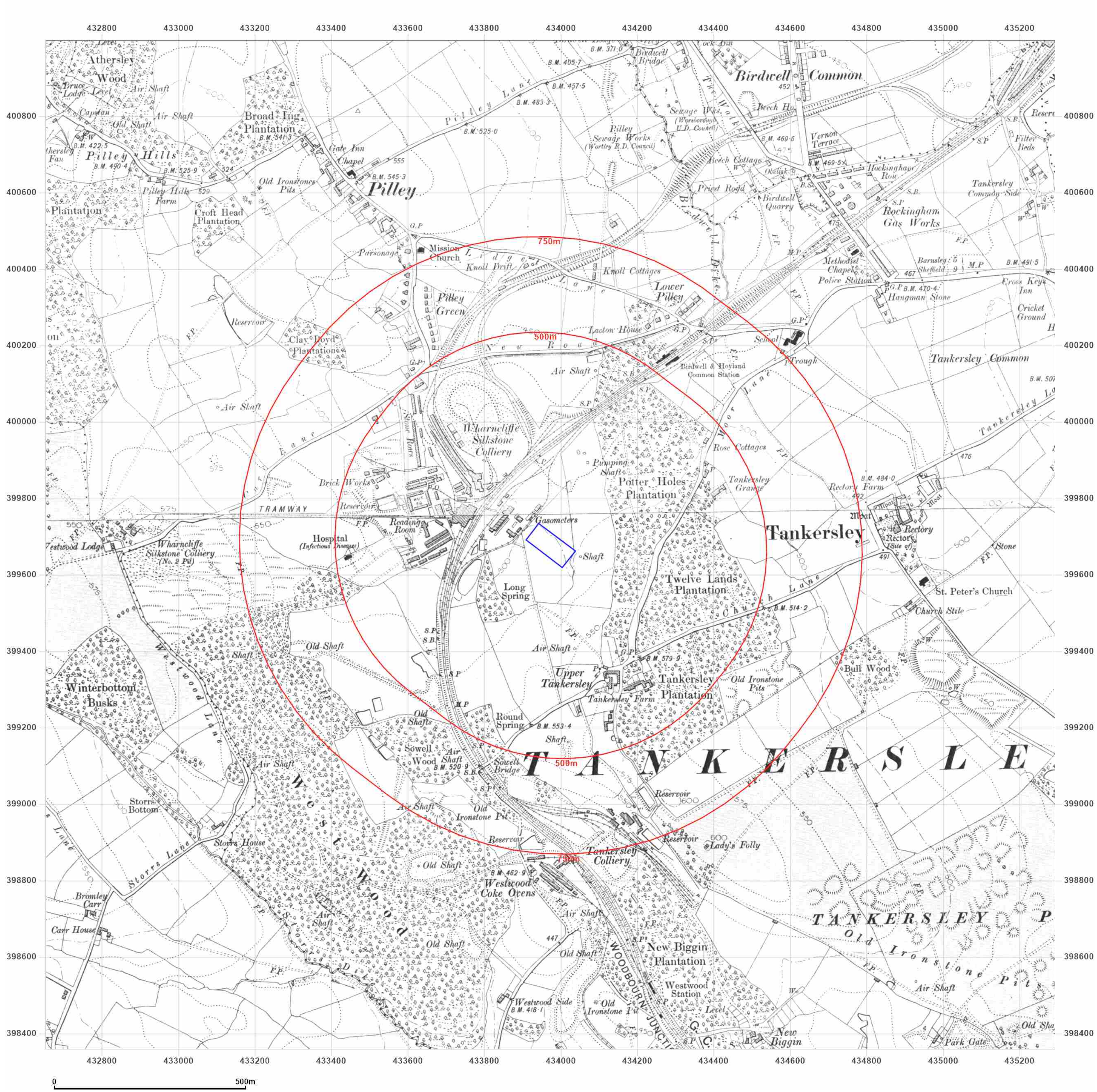
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3DH

Client Ref: 8822_Fox_Aluminum_Tankersley
Report Ref: GS-7937208
Grid Ref: 433972, 399678

Map Name: County Series

Map date: **1903**

Scale: 1:10,560

Printed at: 1:10,560

N
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Surveyed 1891
Revised 1903
Edition 1903
Copyright N/A
Levelled N/A

Surveyed 1891
Revised 1903
Edition 1903
Copyright N/A
Levelled N/A

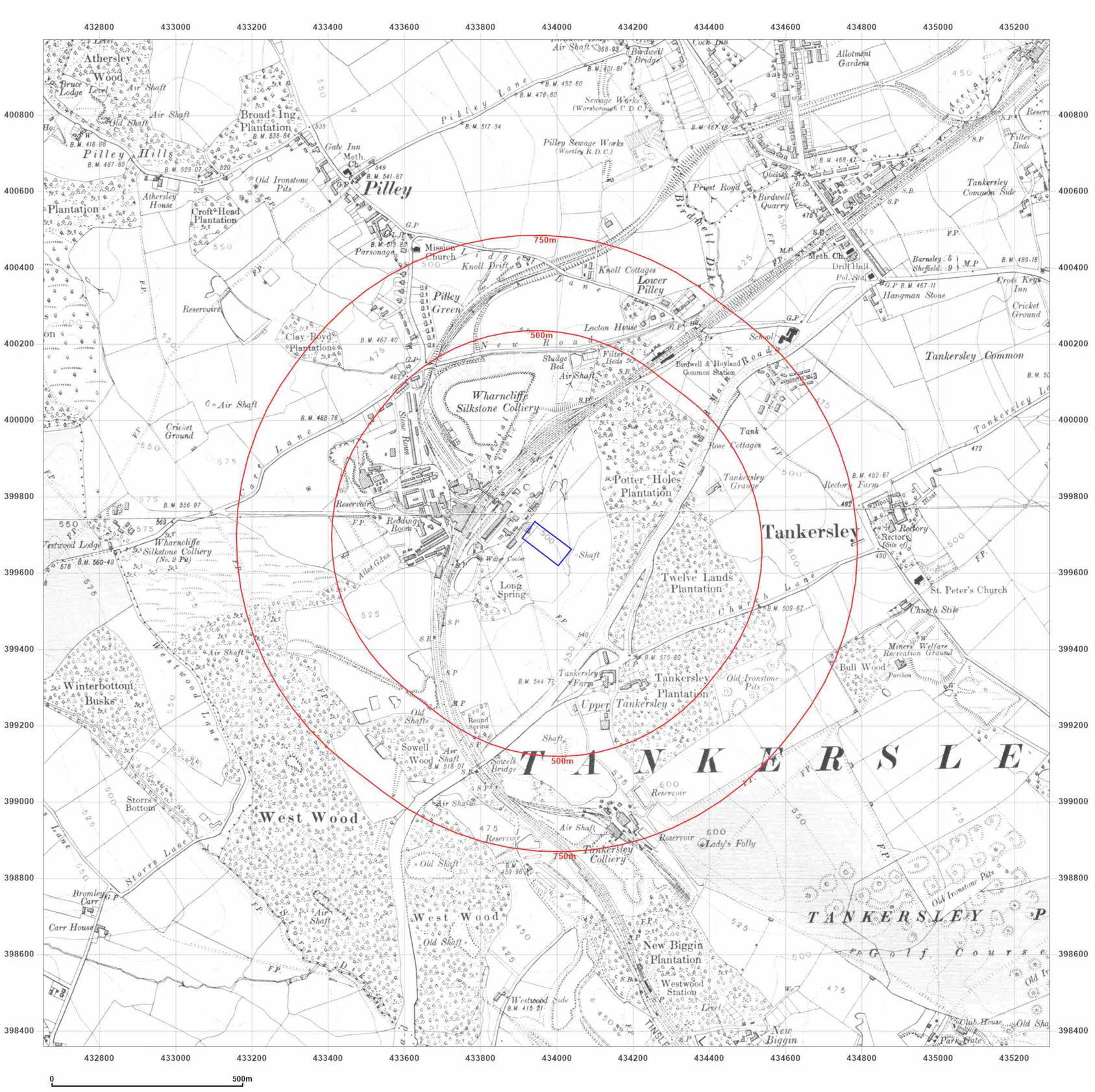
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3DH

Client Ref: 8822_Fox_Aluminum_Tankersley
Report Ref: GS-7937208
Grid Ref: 433972, 399678

Map Name: County Series

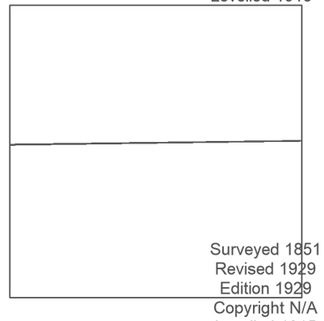
Map date: **1929**

Scale: 1:10,560

Printed at: 1:10,560

N
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Surveyed 1851
Revised 1929
Edition 1929
Copyright N/A
Levelled 1915



Surveyed 1851
Revised 1929
Edition 1929
Copyright N/A
Levelled 1915

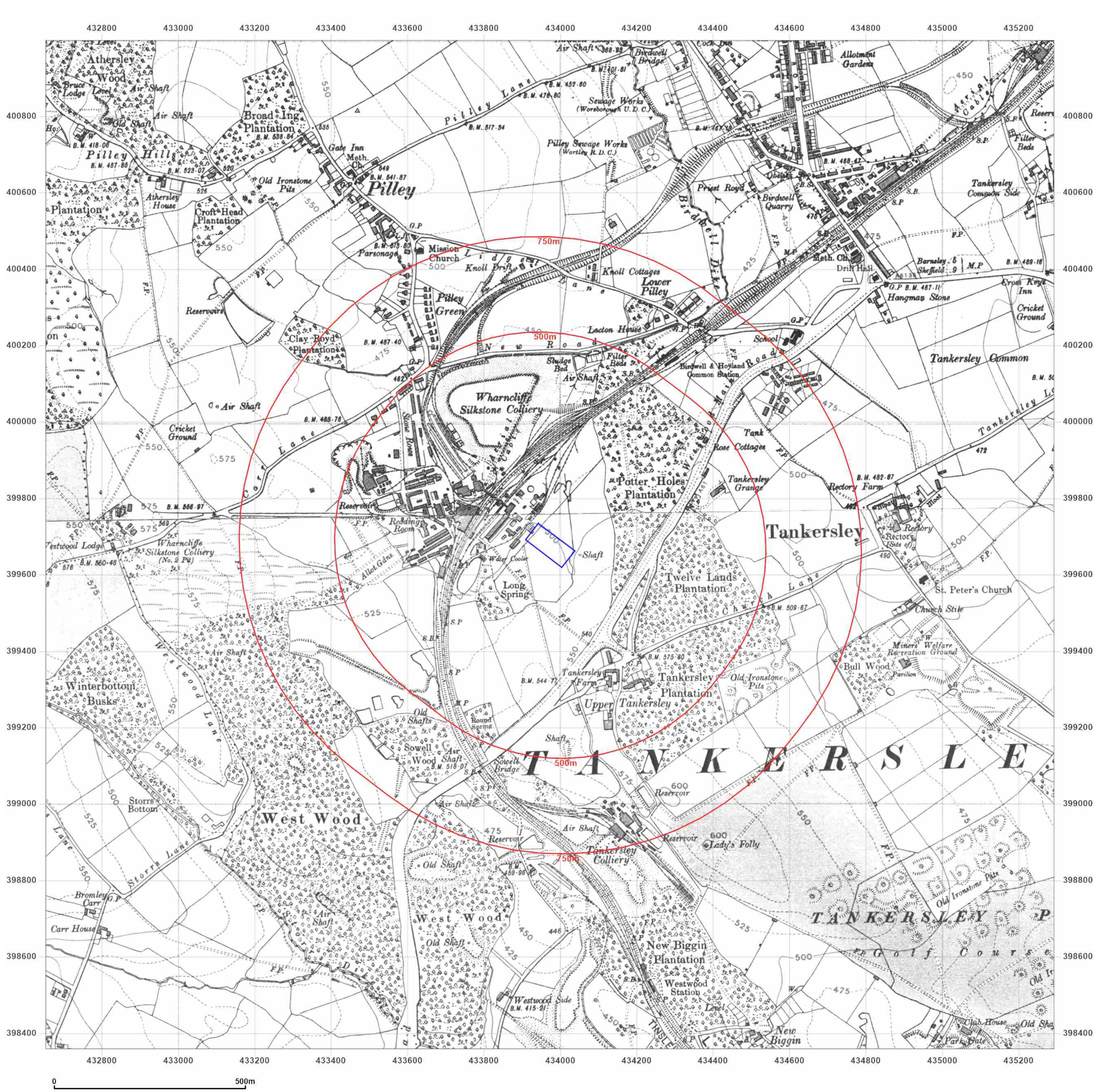
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Client Ref: 8822_Fox_Aluminum_Tankersley
Report Ref: GS-7937208
Grid Ref: 433972, 399678

Map Name: County Series

Map date: 1938

Scale: 1:10,560

Printed at: 1:10,560

N W E S

Surveyed 1851
Revised 1938
Edition 1938
Copyright N/A
Levelled 1929

Surveyed 1851
Revised 1938
Edition 1938
Copyright N/A
Levelled 1929

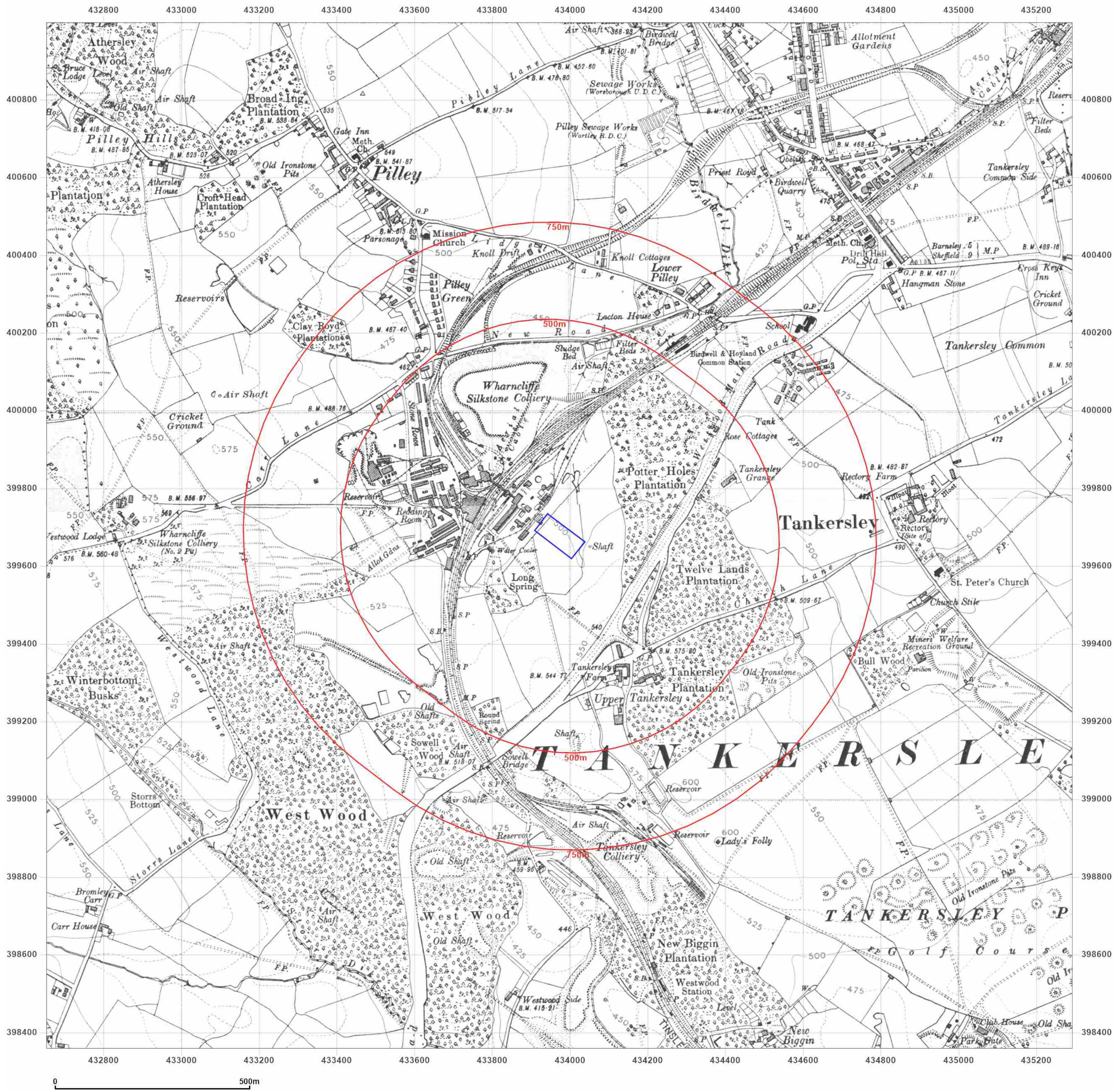
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Site Details:

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WENTWORTH WAY,
TANKERSLEY, BARNSLEY, S75
3DH

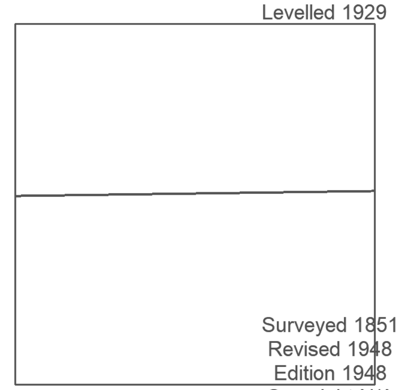
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Report Ref: GS-7937208
Grid Ref: 433972, 399678

Map Name: County Series

Map date: **1948**

Scale: 1:10,560

Printed at: 1:10,560

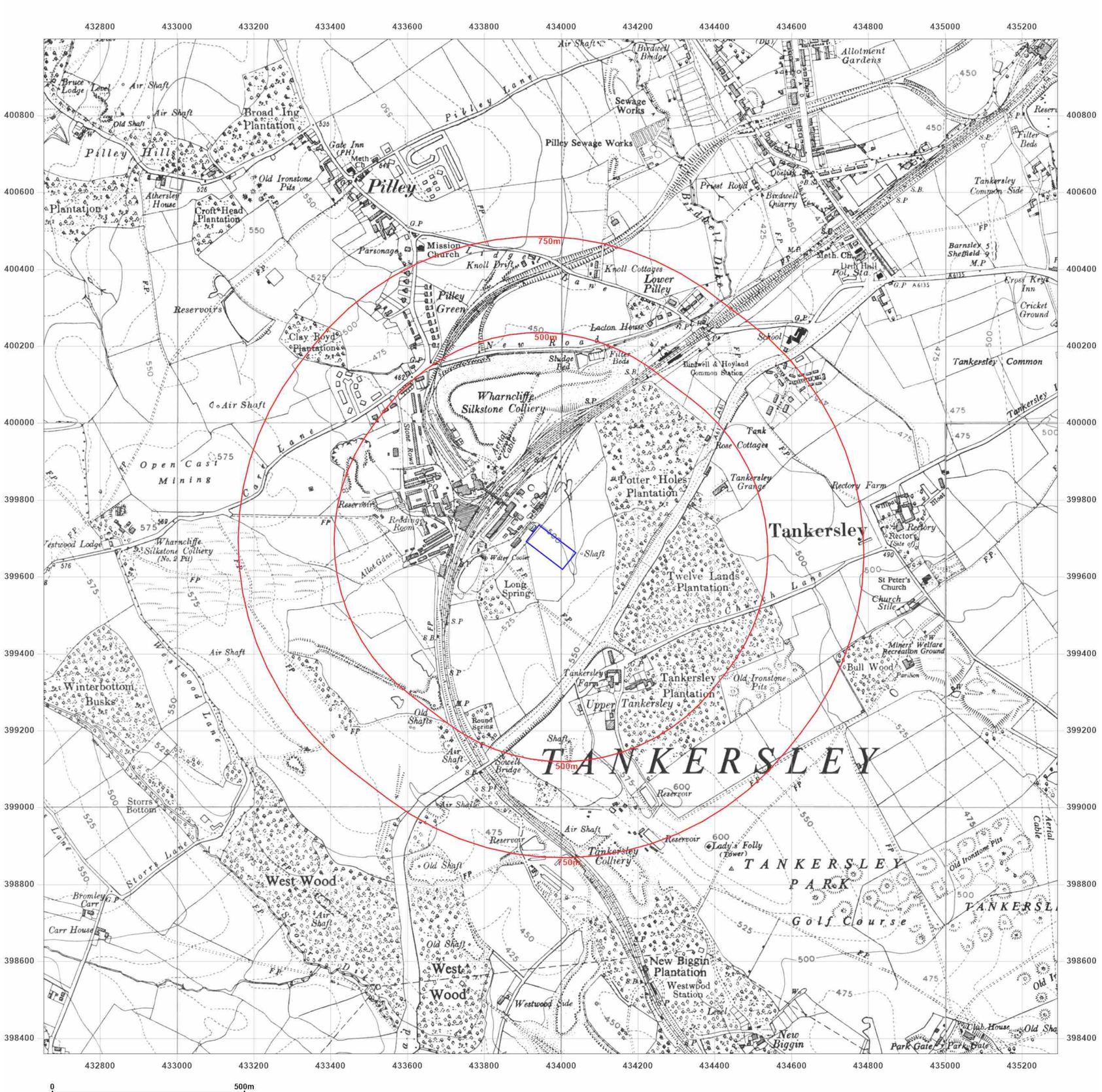


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Client Ref: 8822_Fox_Aluminum_Tankersley
Report Ref: GS-7937208
Grid Ref: 433972, 399678

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

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Surveyed N/A
Revised 1955
Edition N/A
Copyright 1956
Levelled N/A

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

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

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

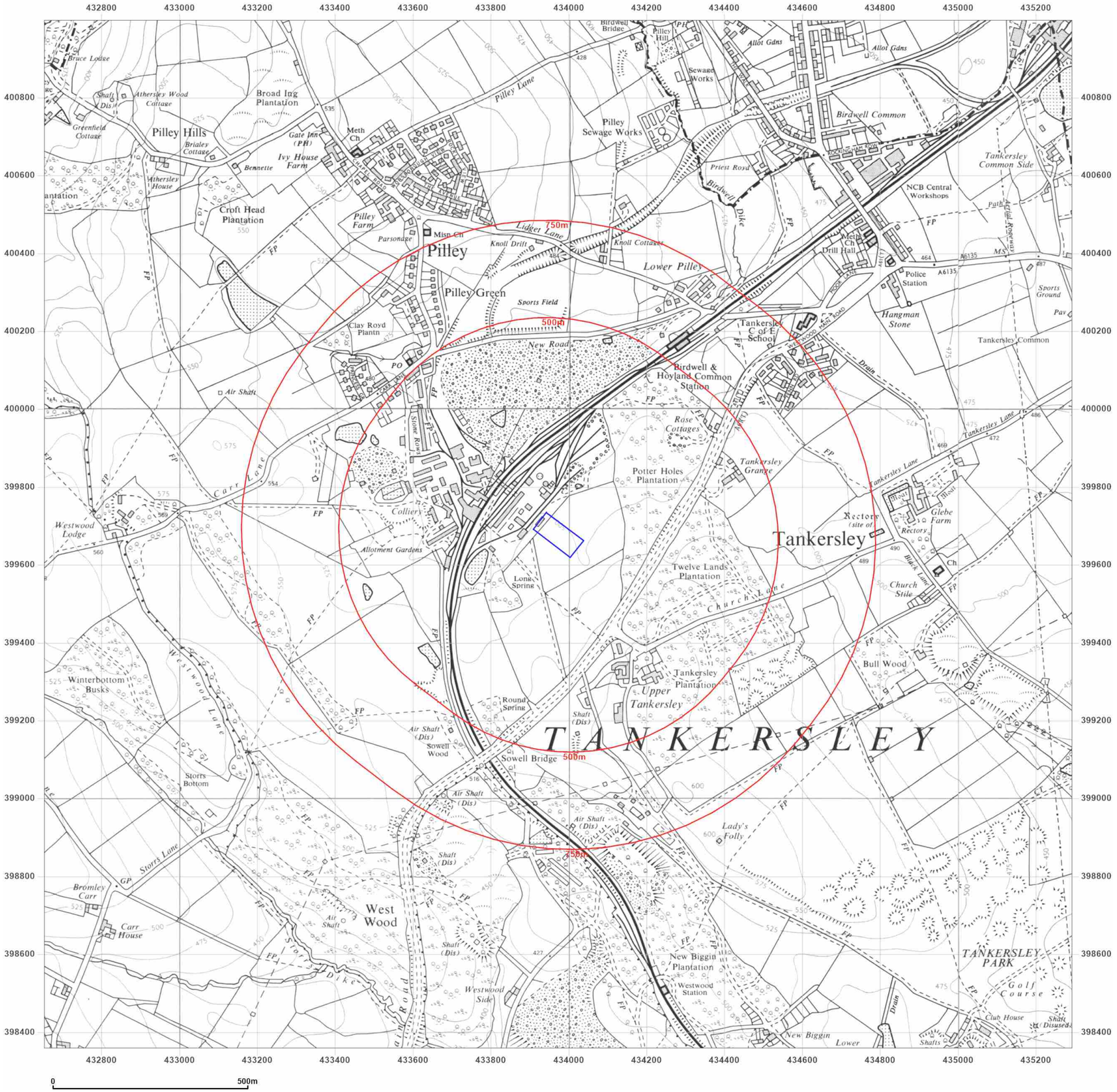
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Client Ref: 8822_Fox_Aluminum_Tankersley
Report Ref: GS-7937208
Grid Ref: 433972, 399678

Map Name: Provisional
Map date: **1965-1966**
Scale: 1:10,560
Printed at: 1:10,560

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

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

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

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

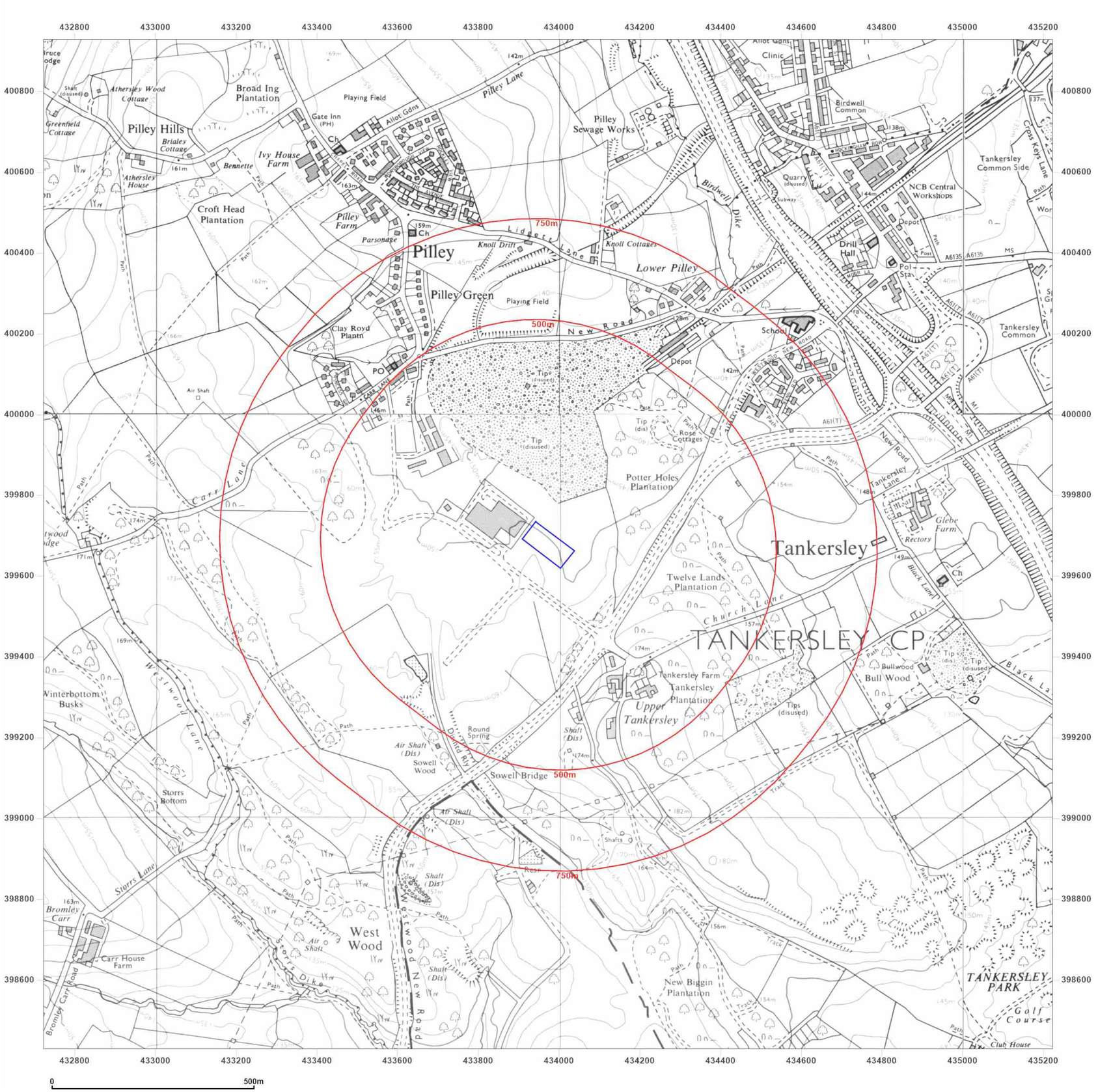
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TANKERSLEY, BARNSLEY, S75
3DH

Client Ref: 8822_Fox_Aluminum_Tankersley
Report Ref: GS-7937208
Grid Ref: 433972, 399678

Map Name: National Grid

Map date: **1977-1980**

Scale: 1:10,000

Printed at: 1:10,000

N
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Surveyed 1973
Revised 1977
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1976
Revised 1977
Edition N/A
Copyright 1978
Levelled 1978

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

Surveyed 1979
Revised 1980
Edition N/A
Copyright 1980
Levelled 1981

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Client Ref: 8822_Fox_Aluminum_Tankersley
Report Ref: GS-7937208
Grid Ref: 433972, 399678

Map Name: National Grid

Map date: **1987-1992**

Scale: 1:10,000

Printed at: 1:10,000

N
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Surveyed 1986
Revised 1987
Edition N/A
Copyright 1988
Levelled 1978

Surveyed 1991
Revised 1992
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1989
Revised 1991
Edition N/A
Copyright 1991
Levelled 1981

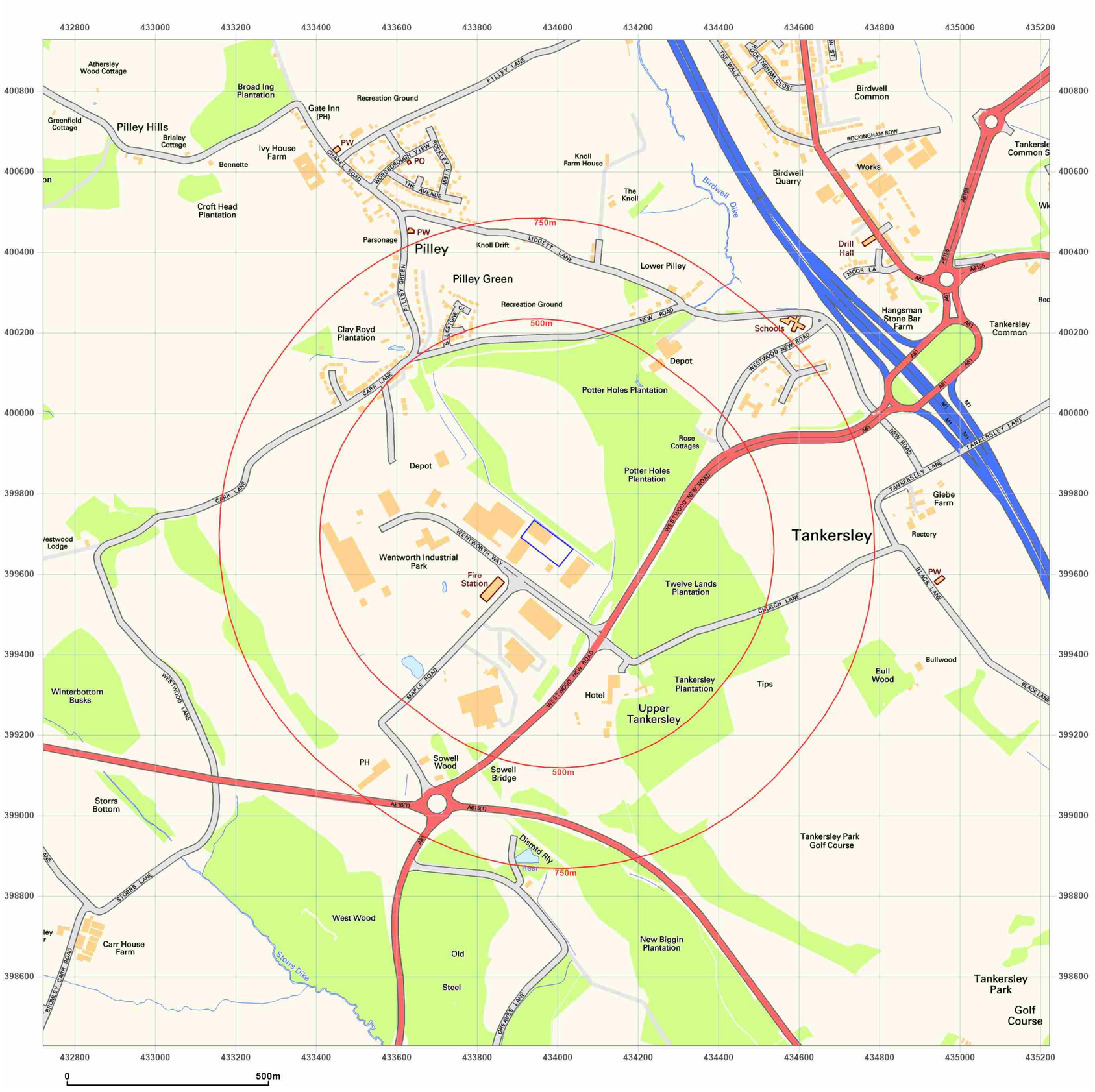
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Client Ref: 8822_Fox_Aluminum_Tankersley
Report Ref: GS-7937208
Grid Ref: 433972, 399678

Map Name: National Grid

Map date: **2001**

Scale: 1:10,000

Printed at: 1:10,000

N W E S

2001

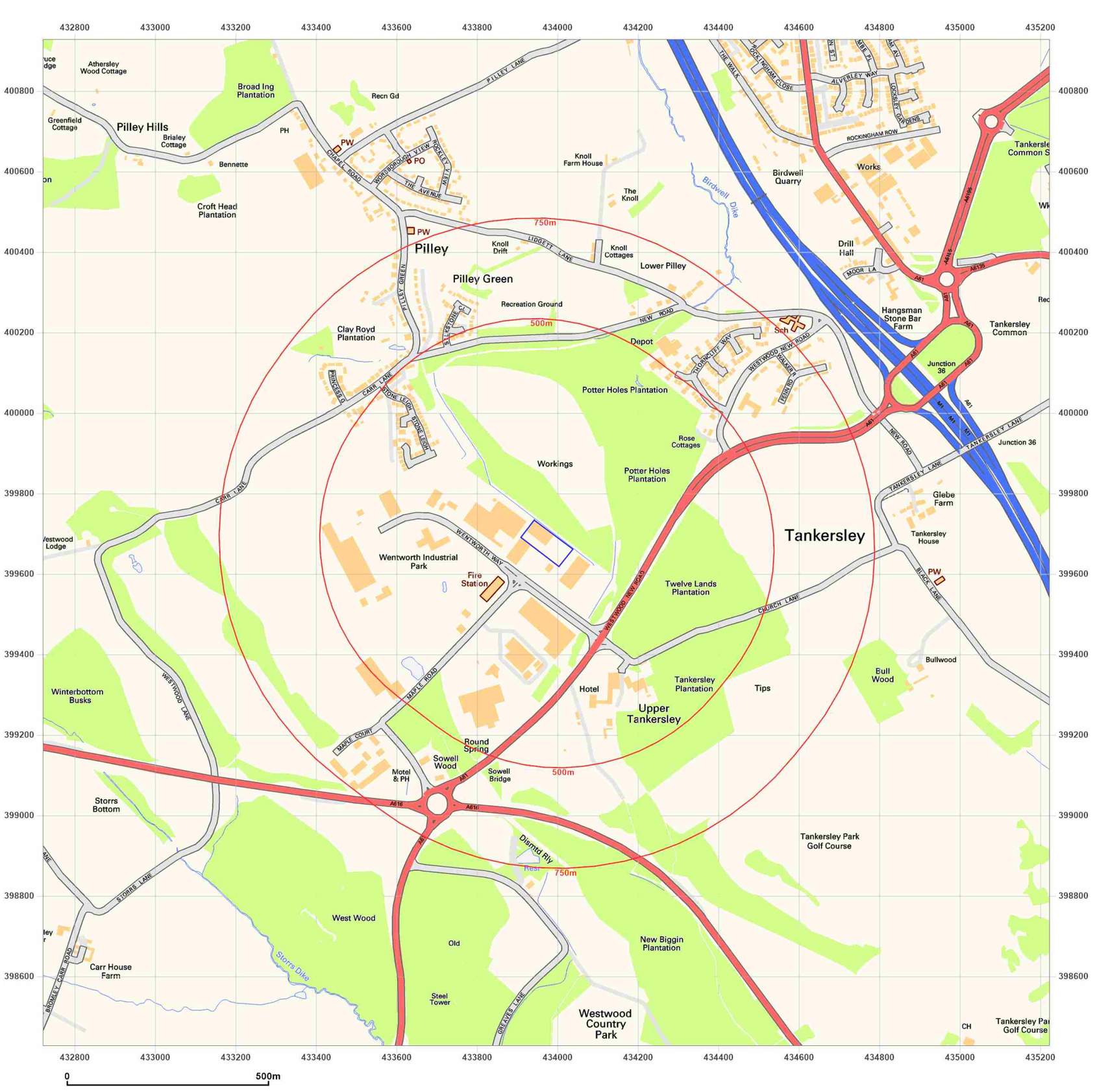
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Client Ref: 8822_Fox_Aluminum_Tankersley
Report Ref: GS-7937208
Grid Ref: 433972, 399678

Map Name: National Grid

Map date: **2010**

Scale: 1:10,000

Printed at: 1:10,000

N W E S

2010

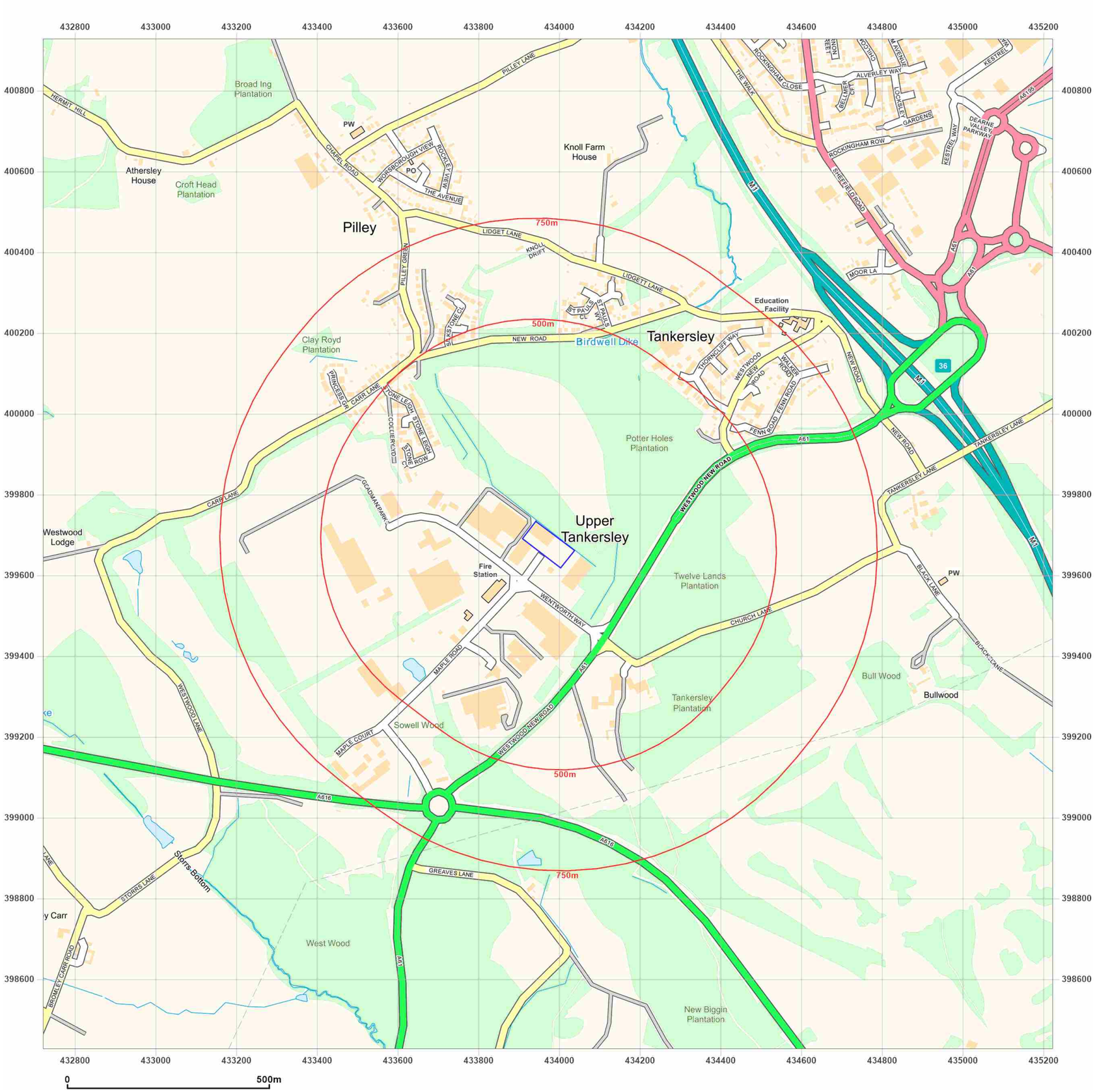
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Client Ref: 8822_Fox_Aluminum_Tankersley
Report Ref: GS-7937208
Grid Ref: 433972, 399678

Map Name: National Grid

Map date: **2021**

Scale: 1:10,000

Printed at: 1:10,000

N W E S

2021

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Production date: 09 June 2021

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

Fox Aluminium Ltd

Wentworth Way
Tankersley

Coal Mining Risk Assessment
ECL.8822.R06.001 Rev -

July 2021

Appendix 2

Coal Authority Coal Mining Consultants Report

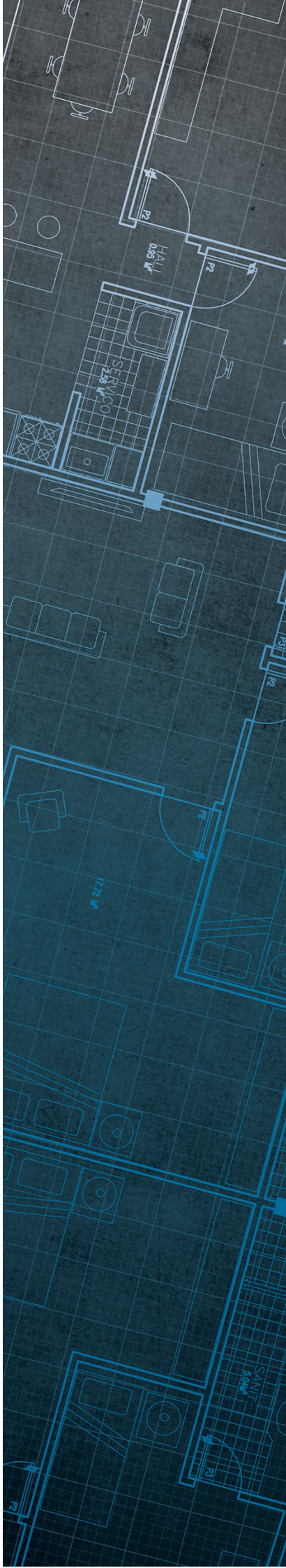
The Coal Authority

Consultants

Coal Mining Report

Fox Aluminium Systems Ltd, Park Works, Wentworth Way, Tankersley, Barnsley
South Yorkshire
S75 3DH

Date of enquiry:	**9 June 2021**
Date enquiry received:	**9 June 2021**
Issue date:	**9 June 2021**
Our reference:	**51002555199001**
Your reference:	**GS-7937209**



Consultants

Coal Mining Report

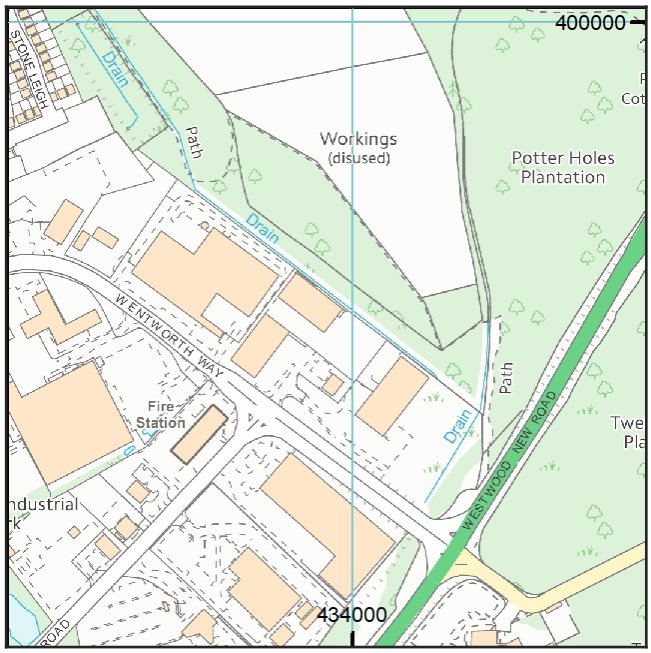
This report is based on and limited to the records held by the Coal Authority at the time the report was produced.

Client name

GROUNDSURE LIMITED

Enquiry address

Fox Aluminium Systems Ltd, Park Works,
Wentworth Way, Tankersley, Barnsley
South Yorkshire
S75 3DH



Approximate position of property

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How to contact us

0345 762 6848 (UK)
+44 (0)1623 637 000 (International)

200 Lichfield Lane
Mansfield
Nottinghamshire
NG18 4RG

www.groundstability.com

@coalauthority
/company/the-coal-authority
/thecoalauthority
/thecoalauthority

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Section 1 – Mining activity and geology

Past underground mining

Colliery	Seam	Mineral	Coal Authority reference	Depth (m)	Direction to working	Dipping rate of seam worked (degrees)	Dipped direction of seam worked	Extraction thickness (cm)	Year last mined
WHARNCLIFFE	TOP FENTON	Coal	6IZ5	53	Beneath Property	4.8	North-East	140	1961
unnamed	LOW FENTON	Coal	65R0	61	Beneath Property	5.4	North-East	157	1955
ROCKINGHAM	LOW FENTON	Coal	6XRN	62	Beneath Property	5.2	North-East	152	1955
unnamed	PARKGATE	Coal	65RE	79	Beneath Property	6.6	East	160	1896
TANKERSLEY	PARKGATE	Coal	6XRC	84	Beneath Property	3.5	East	160	1880
TANKERSLEY	THORNCLIFFE	Coal	65R1	97	Beneath Property	5.5	North-East	68	1886
unnamed	THORNCLIFFE	Coal	6620	101	Beneath Property	4.8	North-East	76	1895
unnamed	SILKSTONE	Coal	65RL	156	Beneath Property	5.2	East	170	1875
TANKERSLEY	SILKSTONE	Coal	6IZD	168	Beneath Property	4.5	East	180	1874
TANKERSLEY	WHINMOOR	Coal	65RB	219	Beneath Property	5.3	North-East	74	1915
TANKERSIDE	WHINMOOR	Coal	6XM0	222	Beneath Property	4.4	North-East	91	1918

Probable unrecorded shallow workings

Yes.

Spine roadways at shallow depth

No spine roadway recorded at shallow depth.

Mine entries

Entry type	Reference	Grid reference	Treatment description	Mineral	Conveyancing details
Shaft	434399-002	434054 399654		Coal	

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Abandoned mine plan catalogue numbers

The following abandoned mine plan catalogue numbers intersect with some, or all, of the enquiry boundary:

M668	M671	9356
SY90	SY92	NE853
8641	OC241	8642

Our records show we have more plans than those shown above which could affect the enquiry boundary.

Please contact us on 0345 762 6848 to determine the exact abandoned mine plans you require based on your needs.

Outcrops

Seam name	Mineral	Seam workable	Distance to outcrop (m)	Direction to outcrop	Bearing of outcrop
FLOCKTON THICK	Coal	Yes	Within	N/A	345

Geological faults, fissures and breaklines

No faults, fissures or breaklines recorded.

Opencast mines

Please refer to the “Summary of findings” map (on separate sheet) for details of any opencast areas within 500 metres of the enquiry boundary.

Coal Authority managed tips

None recorded within 500 metres of the enquiry boundary.

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Section 2 – Investigative or remedial activity

Please refer to the 'Summary of findings' map (on separate sheet) for details of any activity within the area of the site boundary.

Site investigations

None recorded within 50 metres of the enquiry boundary.

Remediated sites

None recorded within 50 metres of the enquiry boundary.

Coal mining subsidence

The Coal Authority has not received a damage notice or claim for the subject property, or any property within 50 metres of the enquiry boundary, since 31 October 1994.

There is no current Stop Notice delaying the start of remedial works or repairs to the property.

The Coal Authority is not aware of any request having been made to carry out preventive works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991.

Mine gas

Distance to gas incident/remediation (m)	Direction
180.3	West

See Section 4 for further information.

Mine water treatment schemes

None recorded within 500 metres of the enquiry boundary.

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Section 3 – Licensing and future mining activity

Future underground mining
None recorded.

Coal mining licensing
None recorded within 200 metres of the enquiry boundary.

Court orders
None recorded.

Section 46 notices
No notices have been given, under section 46 of the Coal Mining Subsidence Act 1991, stating that the land is at risk of subsidence.

Withdrawal of support notices
The property is not in an area where a notice to withdraw support has been given.

The property is not in an area where a notice has been given under section 41 of the Coal Industry Act 1994, cancelling the entitlement to withdraw support.

Payments to owners of former copyhold land
The property is not in an area where a relevant notice has been published under the Coal Industry Act 1975/Coal Industry Act 1994.

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Section 4 – Further information

The following potential risks have been identified and as part of your risk assessment should be investigated further.

Development advice

The site is within an area of historical coal mining activity. Should you require advice and/or support on understanding the mining legacy, its risks to your development or what next steps you need to take, please contact us.

Mine gas remedial works

The site is within an area of previous interest. It is close to where the Coal Authority has investigated and subsequently remediated the effects of mine or ground gas emissions following specific reported hazards.

The site requires further investigation and may influence your risk assessment. We recommend that you order the **Coal Authority Mine Gas Emission Report**, which will include more information about the hazard.

For further information on specific site or ground investigations in relation to any issues raised in Section 4, please call us on 0345 762 6848 or email us at groundstability@coal.gov.uk.

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Section 5 – Data definitions

The datasets used in this report have limitations and assumptions within their results. For more guidance on the data and the results specific to the enquiry boundary, please **call us on 0345 762 6848** or **email us at groundstability@coal.gov.uk.**

Past underground coal mining

Details of all recorded underground mining relative to the enquiry boundary. Only past underground workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination, will be included.

Probable unrecorded shallow workings

Areas where the Coal Authority believes there to be unrecorded coal workings that exist at or close to the surface (less than 30 metres deep).

Spine roadways at shallow depth

Connecting roadways either, working to working, or, surface to working, both in-seam and cross measures that exist at or close to the surface (less than 30 metres deep), either within or within 10 metres of the enquiry boundary.

Mine entries

Details of any shaft or adit either within, or within 100 metres of the enquiry boundary including approximate location, brief treatment details where known, the mineral worked from the mine entry and conveyance details where the mine entry has previously been sold by the Authority or its predecessors British Coal or the National Coal Board.

Abandoned mine plan catalogue numbers

Plan numbers extracted from the abandoned mines catalogue containing details of coal and other mineral abandonment plans deposited via the Mines Inspectorate in accordance with the Coal Mines Regulation Act and Metalliferous Mines Regulation Act 1872. A maximum of 9 plan extents that intersect with the enquiry boundary will be included. This does not infer that the workings and/or mine entries shown on the abandonment plan will be relevant to the site/property boundary.

Outcrops

Details of seam outcrops will be included where the enquiry boundary intersects with a conjectured or actual seam outcrop location (derived by either the British Geological Survey or the Coal Authority) or intersects with a defined 50 metres buffer on the coal (dip) side of the outcrop. An indication of whether the Coal Authority believes the seam to be of sufficient thickness and/or quality to have been worked will also be included.

Geological faults, fissures and breaklines

Geological disturbances or fractures in the bedrock. Surface fault lines (British Geological Survey derived data) and fissures and breaklines (Coal Authority derived data) intersecting with the enquiry boundary will be included. In some circumstances faults, fissures or breaklines have been known to contribute to surface subsidence damage as a consequence of underground coal mining.

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Opencast mines
Opencast coal sites from which coal has been removed in the past by opencast (surface) methods and where the enquiry boundary is within 500 metres of either the licence area, site boundary, excavation area (high wall) or coaling area.

Coal Authority managed tips
Locations of disused colliery tip sites owned and managed by the Coal Authority, located within 500 metres of the enquiry boundary.

Site investigations
Details of site investigations within 50 metres of the enquiry boundary where the Coal Authority has received information relating to coal mining risk investigation and/or remediation by third parties.

Remediated sites
Sites where the Coal Authority has undertaken remedial works either within or within 50 metres of the enquiry boundary following report of a hazard relating to coal mining under the Coal Authority's Emergency Surface Hazard Call Out procedures.

Coal mining subsidence
Details of alleged coal mining subsidence claims made since 31 October 1994 either within or within 50 metres of the enquiry boundary. Where the claim relates to the enquiry boundary confirmation of whether the claim was accepted, rejected or whether liability is still being determined will be given. Where the claim has been discharged, whether this was by repair, payment of compensation or a combination of both, the value of the claim, where known, will also be given.

Details of any current 'Stop Notice' deferring remedial works or repairs affecting the property/site, and if so the date of the notice.

Details of any request made to execute preventative works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991. If yes, whether any person withheld consent or failed to comply with any request to execute preventative works.

Mine gas
Reports of alleged mine gas emissions received by the Coal Authority, either within or within 500 metres of the enquiry boundary that subsequently required investigation and action by the Coal Authority to mitigate the effects of the mine gas emission.

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Mine water treatment schemes
Locations where the Coal Authority has constructed or operates assets that remove pollutants from mine water prior to the treated mine water being discharged into the receiving water body.

These schemes are part of the UK's strategy to meet the requirements of the Water Framework Directive. Schemes fall into 2 basic categories: Remedial – mitigating the impact of existing pollution or Preventative – preventing a future pollution incident.

Mine water treatment schemes generally consist of one or more primary settlement lagoons and one or more reed beds for secondary treatment. A small number are more specialised process treatment plants.

Future underground mining
Details of all planned underground mining relative to the enquiry boundary. Only those future workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination will be included.

Coal mining licensing
Details of all licenses issued by the Coal Authority either within or within 200 metres of the enquiry boundary in relation to the under taking of surface coal mining, underground coal mining or underground coal gasification.

Court orders
Orders in respect of the working of coal under the Mines (Working Facilities and Support) Acts of 1923 and 1966 or any statutory modification or amendment thereof.

Section 46 notices
Notice of proposals relating to underground coal mining operations that have been given under section 46 of the Coal Mining Subsidence Act 1991.

Withdrawal of support notices
Published notices of entitlement to withdraw support and the date of the notice. Details of any revocation notice withdrawing the entitlement to withdraw support given under Section 41 of the Coal Industry Act 1994.

Payment to owners of former copyhold land
Relevant notices which may affect the property and any subsequent notice of retained interests in coal and coal mines, acceptance or rejection notices and whether any compensation has been paid to a claimant.

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The Coal Authority

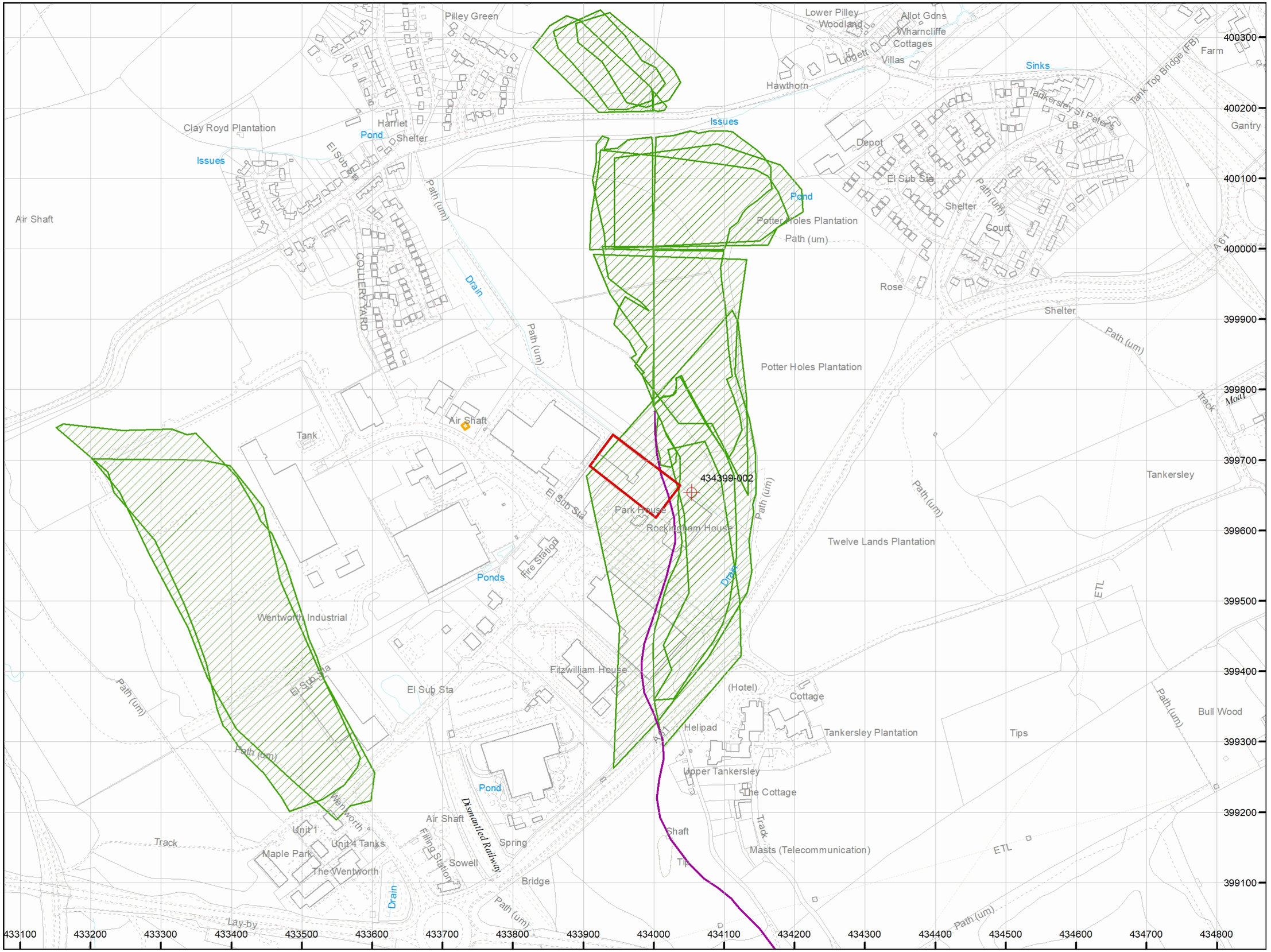
Summary of findings

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The map highlights any specific surface or subsurface features within or near to the boundary of the site.

Key

- Approximate position of the enquiry boundary shown
- Disused mine shaft
- Outcrop (Proven)
- Unlicensed opencast site
- Mine gas remedial works



How to contact us
0345 762 6848 (UK)
+44 (0)1623 637 000 (International)
www.groundstability.com

Fox Aluminium Ltd

Wentworth Way
Tankersley

Coal Mining Risk Assessment
ECL.8822.R06.001 Rev -

July 2021

Appendix 3

Coal Authority Abandonment Plans

NE 853.

This plan is a true copy of the working plan of the mine as completed up to 26-11-1977 and I certify after thorough examination and enquiry that to the best of my knowledge and belief it is an accurate plan of the mine.

Signed R. Shaw Surveyor
Date 3-2-81
Certificate N° 1802 Dated 30-9-1946

I hereby certify that no further working has taken place after the date of abandonment which would affect the accuracy of this plan.

Signed [illegible] Manager
Date 3.2.81
Certificate N° 8048 Dated 28-1-1960

NOTE
Contours shown on areas of Opencast workings are relative to the floor of the TOP FENTON seam and have been INTERPOLATED from the original levels which were presumed to refer to the Low Fenton seam.

	ROCKINGHAM COLLIERY		HOYLAND SILKSTONE SHAFT	SKIERS SPRING SHAFT
	No. 1 SHAFT	No. 2 SHAFT		
	44/3501/277005	44/3501/300036	44/3601/956483	43/3699/731189
SURFACE LEVEL	10421·10	10418·43	10465·00	10338·90
SWALLOW WOOD SEAM LEVEL	10352·44	10349·77	9916·00	10240·24
LIDGETT SEAM LEVEL	10145·99	10126·90		10047·41
JOAN SEAM LEVEL				
FLOCKTON THICK SEAM LEVEL	9922·89	9907·80		
FLOCKTON THIN SEAM LEVEL				
TOP FENTON SEAM LEVEL	9756·40	9741·31	9319·00	9711·41
LOW FENTON SEAM LEVEL	9746·00	9731·91	9311·00	
PARKGATE SEAM LEVEL	9685·92	9671·83	9254·00	9638·75
THORNCLIFFE THIN SEAM LEVEL	9587·52	9573·83	9168·00	9580·58
INSET LEVEL	9514·35			
SILKSTONE SEAM LEVEL	9418·60	9410·00	8940·00	9341·58
DEPTH OF SHAFT	355·27 yds.	336·14 yds.	508·33 yds.	348·70 yds.

	WHARNCLIFFE SILKSTONE COLLIERY			
	No. 1 SHAFT	No. 3 SHAFT	No. 4 SHAFT	SURFACE DRIFT
	43/3399/765774	43/3399/750811	43/3399/732750	43/3399/731675
SURFACE DECKING LEVEL	10504·40		10500·10	
SURFACE LEVEL	10484·90	10483·40	10488·40	10490·30
TOP FENTON INSET LEVEL	10373·00	10367·00	SEAM 10387·40	SEAM 10416·70
PARKGATE SEAM INSET LEVEL	10303·00	10297·00	SEAM 10314·90	
THORNCLIFFE THIN INSET LEVEL	10219·00	10213·40	10232·80	
SILKSTONE SEAM INSET LEVEL	10032·10		10044·70	
WHINMOOR SEAM LEVEL			9850·00	
WHINMOOR INSET LEVEL			9842·20	
DEPTH OF SHAFT	162·00 yds.	91·00 yds.	225·00 yds.	LENGTH 102·00 yds.

43/3299

ROCKINGHAM COLLIERY

INCORPORATING WHARNCLIFFE SILKSTONE COLLIERY AS FROM 1st. AUG. 1967

SCALE — 1/2500

DATUM FOR LEVELS
10,000 feet below ORDNANCE DATUM

SCALE OF METRES
100 50 0 100 200

100 0 100 300 500 700 900
SCALE OF FEET

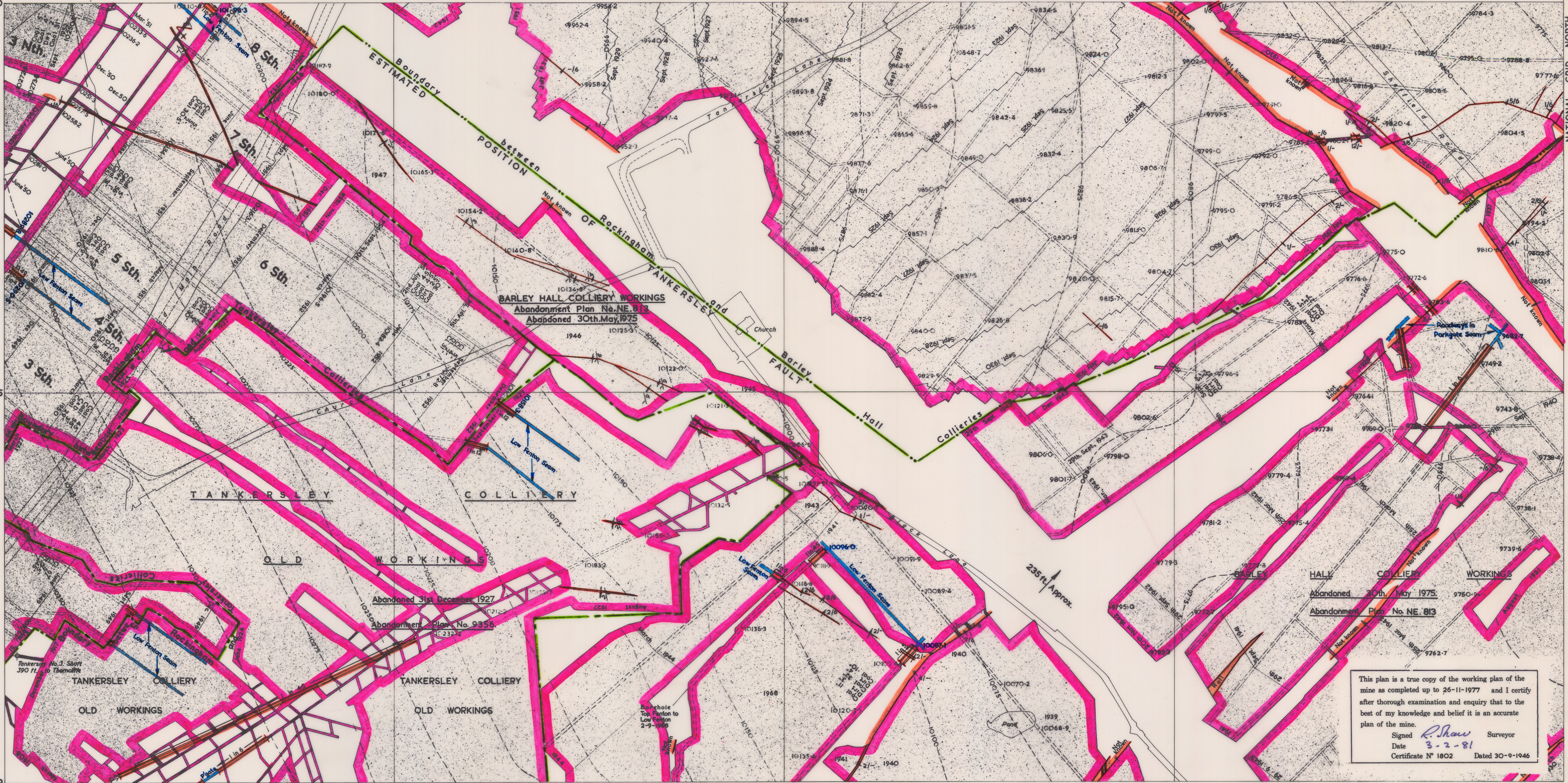
TYPICAL SECTION OF SEAM

BIND
COAL 5½"
COAL 5"
DIRT 1½"
COAL 30"
SPAVIN 15"
COAL 9"
IRONSTONE

TOP FENTON SEAM

DATE OF ABANDONMENT 26th NOVEMBER, 1977
DATE OF CONSTRUCTION AUGUST, 1955

NE 853.



This plan is a true copy of the working plan of the mine as completed up to 26-11-1977 and I certify after thorough examination and enquiry that to the best of my knowledge and belief it is an accurate plan of the mine.

Signed R. Shaw Surveyor
Date 3-2-81
Certificate Nº 1802 Dated 30-9-1946

	ROCKINGHAM COLLIERY No. 1 SHAFT 44/3501/277005	ROCKINGHAM COLLIERY No. 2 SHAFT 44/3501/300036	HOYLAND SILKSTONE SHAFT 44/3601/956483	SKIERS SPRING SHAFT 43/3699/731189
SURFACE LEVEL	10421·10	10418·43	10465·00	10338·90
SWALLOW WOOD SEAM LEVEL	10352·44	10349·77	9916·00	10240·24
LIDGETT SEAM LEVEL	10145·99	10126·90		10047·41
JOAN SEAM LEVEL				
FLOCKTON THICK SEAM LEVEL	9922·89	9907·80		
FLOCKTON THIN SEAM LEVEL				
TOP FENTON SEAM LEVEL	9756·40	9741·31	9319·00	9711·41
LOW FENTON SEAM LEVEL	9746·00	9731·91	9311·00	
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THORNCLIFFE THIN SEAM LEVEL	9587·52	9573·83	9168·00	9580·58
INSET LEVEL	9514·35			
SILKSTONE SEAM LEVEL	9418·60	9410·00	8940·00	9341·58
DEPTH OF SHAFT	355·27 yds	336·14 yds	508·33 yds	348·70 yds

WHARNCLIFFE SILKSTONE COLLIERY

	No. 1 SHAFT 43/3399/765774	No. 3 SHAFT 43/3399/750811	No. 4 SHAFT 43/3399/732750	SURFACE DRIFT 43/3399/731675
SURFACE DECKING LEVEL	10504·40		10500·10	
SURFACE LEVEL	10484·90	10483·40	10488·40	10490·30
TOP FENTON INSET LEVEL	10373·00	10367·00	SEAM 10387·40	SEAM 10418·70
PARKGATE SEAM INSET LEVEL	10303·00	10297·00	SEAM 10314·90	
THORNCLIFFE THIN INSET LEVEL	10219·00	10213·40	10232·80	
SILKSTONE SEAM INSET LEVEL	10032·10		10044·70	
WHINMOOR SEAM LEVEL			9850·00	
WHINMOOR INSET LEVEL			9842·20	
DEPTH OF SHAFT	162·00 yds	91·00 yds	225·00 yds	LENGTH 102·00 yds

ROCKINGHAM COLLIERY

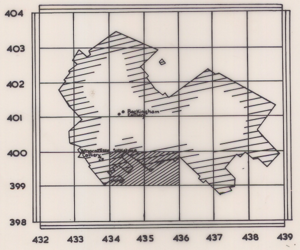
INCORPORATING WHARNCLIFFE SILKSTONE COLLIERY AS FROM 1st. AUG, 1967

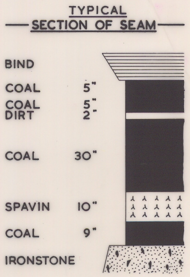
– SCALE – 1/2500 –

DATUM FOR LEVELS
10,000 feet below ORDNANCE DATUM

SCALE OF METRES: 100 50 0 100 200

SCALE OF FEET: 100 0 100 300 500 700 900





I hereby certify that no further working has taken place after the date of abandonment which would affect the accuracy of this plan.

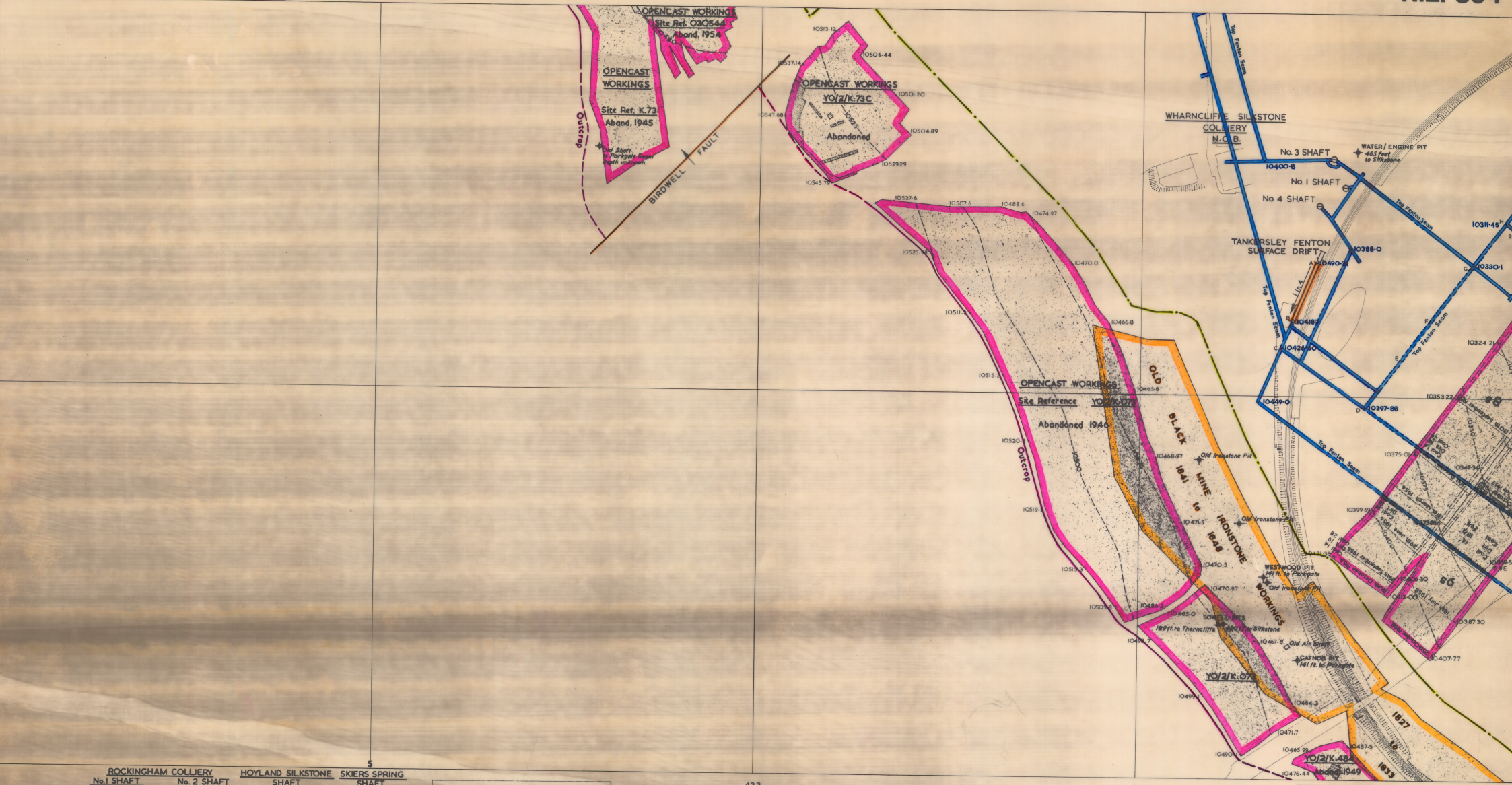
Signed [signature] Manager
Date 3. 2. 81
Certificate Nº 8048 Dated 28-1-1960

TOP FENTON SEAM

DATE OF ABANDONMENT 26th NOVEMBER
DATE OF CONSTRUCTION JUNE, 1955

43/3499

N.E. 854



ROCKINGHAM COLLIERY		HOYLAND SILKSTONE	SKIERS SPRING
No.1 SHAFT	No. 2 SHAFT	SHAFT	SHAFT
44/3501/277005	44/3501/300036	44/3601/956483	43/3699/731189
IFACE LEVEL 10421·10	10418·43	10465·00	10338·90
LLOW WOOD SEAM LEVEL 10352·44	10349·77	9916·00	10240·24
GETT SEAM LEVEL 10145·99	10126·90		10047·41
N SEAM LEVEL			
CKTON THICK SEAM LEVEL 9922·89	9907·80		
CKTON THIN SEAM LEVEL			
FENTON SEAM LEVEL 9756·40	9741·31	9319·00	9711·41
FENTON SEAM LEVEL 9746·00	9731·91	9311·00	
KGATE SEAM LEVEL 9685·92	9671·83	9254·00	9638·75
RNCLIFFE THIN SEAM LEVEL 9587·52	9573·83	9168·00	9580·58
T LEVEL 9514·35			
STONE SEAM LEVEL 9418·60	9410·00	8940·00	9341·58
TH OF SHAFT 355·27 yds	336·14 yds	508·33 yds	348·70 yds

WHARNCLIFFE SILKSTONE COLLIERY			
No.1 SHAFT	No. 3 SHAFT	No. 4 SHAFT	SURFACE DRIFT
43/3399/765774	43/3399/750811	43/3399/732750	43/3399/731675
FACE DECKING LEVEL 10504·40		10500·10	
FACE LEVEL 10484·90	10483·40	10488·40	10490·30
FENTON INSET LEVEL 10373·00	10367·00	SEAM 10387·40	SEAM 10418·70
KGATE SEAM INSET LEVEL 10303·00	10297·00	SEAM 10314·90	
RNCLIFFE THIN INSET LEVEL 10219·00	10213·40	10232·80	
STONE SEAM INSET LEVEL 10032·10		10044·70	
NMOOR SEAM LEVEL		9850·00	
NMOOR INSET LEVEL		9842·20	
TH OF SHAFT 162·00 yds	91·00 yds	225·00 yds	LENGTH 102·00 yds

43/3299

This plan is a true copy of the working plan of the mine as completed up to 20-11-1979 and I certify after thorough examination and enquiry that to the best of my knowledge and belief it is an accurate plan of the mine.

Signed R. Shaw Surveyor
Date 16-4-81
Certificate N° 1802 Dated 30-9-1946

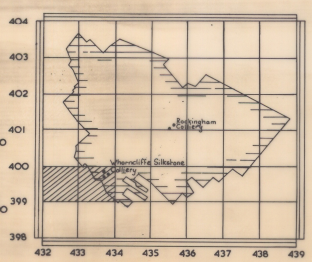
ROCKINGHAM COLLIERY INCORPORATING WHARNCLIFFE SILKSTONE COLLIERY AS FROM 1st. AUG. 1967

— SCALE — 1/2500 —

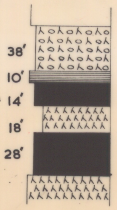
DATUM FOR LEVELS
10,000 ft. below ORDNANCE DATUM

SCALE OF METRES
100 50 0 100 200

SCALE OF FEET
100 0 100 300 500 700 900



TYPICAL
— SECTION OF SEAM —



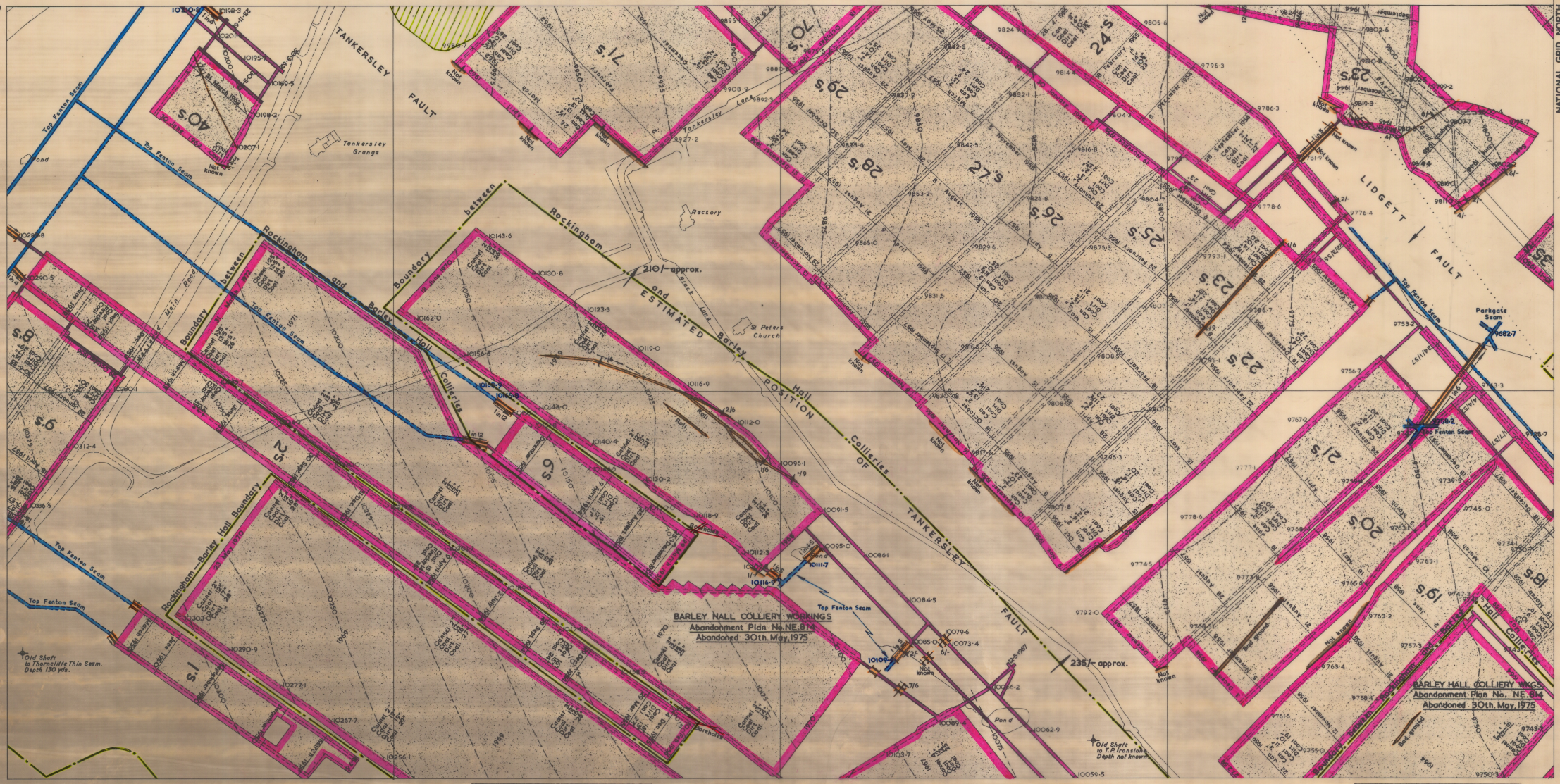
I hereby certify that no further working has taken place after the date of abandonment which would affect the accuracy of this plan.

Signed J. K. Baldwin Manager
Date 16. 4. 81
Certificate N° 8048 Dated 28-1-1960

LOW FENTON SEAM

DATE OF ABANDONMENT 20th NOVEMBER 1981
DATE OF CONSTRUCTION JANUARY 1958

N.E. 854



	ROCKINGHAM COLLIERY		HOYLAND SILKSTONE	SKIERS SPRING
	No. 1 SHAFT	No. 2 SHAFT	SHAFT	SHAFT
	44/3501/277005	44/3501/300036	44/3601/956483	43/3699/731189
SURFACE LEVEL	1042'-10	1041'-8-43	1046'-5-00	1033'-8-90
SWALLOW WOOD SEAM LEVEL	1035'-2-44	1034'-9-77	991'-6-00	1024'-0-24
LIDGETT SEAM LEVEL	1014'-5-99	1012'-6-90		1004'-7-41
JOAN SEAM LEVEL				
FLOCKTON THICK SEAM LEVEL	992'-2-89	990'-7-80		
FLOCKTON THIN SEAM LEVEL				
TOP FENTON SEAM LEVEL	975'-6-40	974'-1-31	931'-9-00	971'-1-41
LOW FENTON SEAM LEVEL	974'-6-00	973'-1-91	931'-1-00	
PARKGATE SEAM LEVEL	968'-5-92	967'-1-83	925'-4-00	963'-8-75
THORNCLIFFE THIN SEAM LEVEL	958'-7-52	957'-3-83	916'-8-00	958'-0-58
INSET LEVEL	951'-4-35			
SILKSTONE SEAM LEVEL	941'-8-60	941'-0-00	894'-0-00	934'-1-58
DEPTH OF SHAFT	355'-27 yds	336'-14 yds	508'-33 yds	348'-70 yds

	WHARNCLIFFE SILKSTONE COLLIERY			
	No. 1 SHAFT	No. 3 SHAFT	No. 4 SHAFT	SURFACE DRIFT
	43/3399/765774	43/3399/750811	43/3399/732750	43/3399/731675
SURFACE DECKING LEVEL	1050'-4-40		1050'-0-10	
SURFACE LEVEL	1048'-4-90	1048'-3-40	1048'-8-40	1049'-0-30
TOP FENTON INSET LEVEL	1037'-3-00	1036'-7-00	SEAM 1038'-7-40	SEAM 1041'-8-70
PARKGATE SEAM INSET LEVEL	1030'-3-00	1029'-7-00	SEAM 1031'-4-90	
THORNCLIFFE THIN INSET LEVEL	1021'-9-00	1021'-3-40	1023'-2-80	
SILKSTONE SEAM INSET LEVEL	1003'-2-10		1004'-4-70	
WHINMOOR SEAM LEVEL			985'-0-00	
WHINMOOR INSET LEVEL			984'-2-20	
DEPTH OF SHAFT	162'-00yds	91'-00yds	225'-00yds	LENGTH 102'-00yds

43/3499

This plan is a true copy of the working plan of the mine as completed up to 20-11-1979 and I certify after thorough examination and enquiry that to the best of my knowledge and belief it is an accurate plan of the mine.

Signed R. Shaw Surveyor
Date 16-4-81
Certificate N° 1802 Dated 30-9-1946

ROCKINGHAM COLLIERY

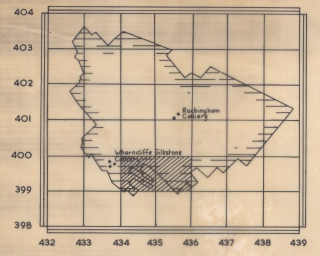
INCORPORATING WHARNCLIFFE SILKSTONE COLLIERY AS FROM 1st. AUG. 1967

— SCALE — 1/2500 —

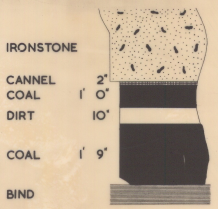
DATUM FOR LEVELS
10,000 feet below ORDNANCE DATUM

SCALE OF METRES
100 50 0 100 200

100 0 100 300 500 700 900
SCALE OF FEET



— TYPICAL SECTION OF SEAM —



I hereby certify that no further working has taken place after the date of abandonment which would affect the accuracy of this plan.

Signed M. Gledhill Manager
Date 16-4-81
Certificate N° 8048 Dated 28-1-1960

LOW FENTON SEAM

DATE OF ABANDONMENT 20th. NOVEMBER, 1980
DATE OF CONSTRUCTION 1958

Fox Aluminium Ltd

Wentworth Way
Tankersley

Coal Mining Risk Assessment
ECL.8822.R06.001 Rev -

July 2021

Appendix 4

Coal Authority Mine Gas Emissions Report

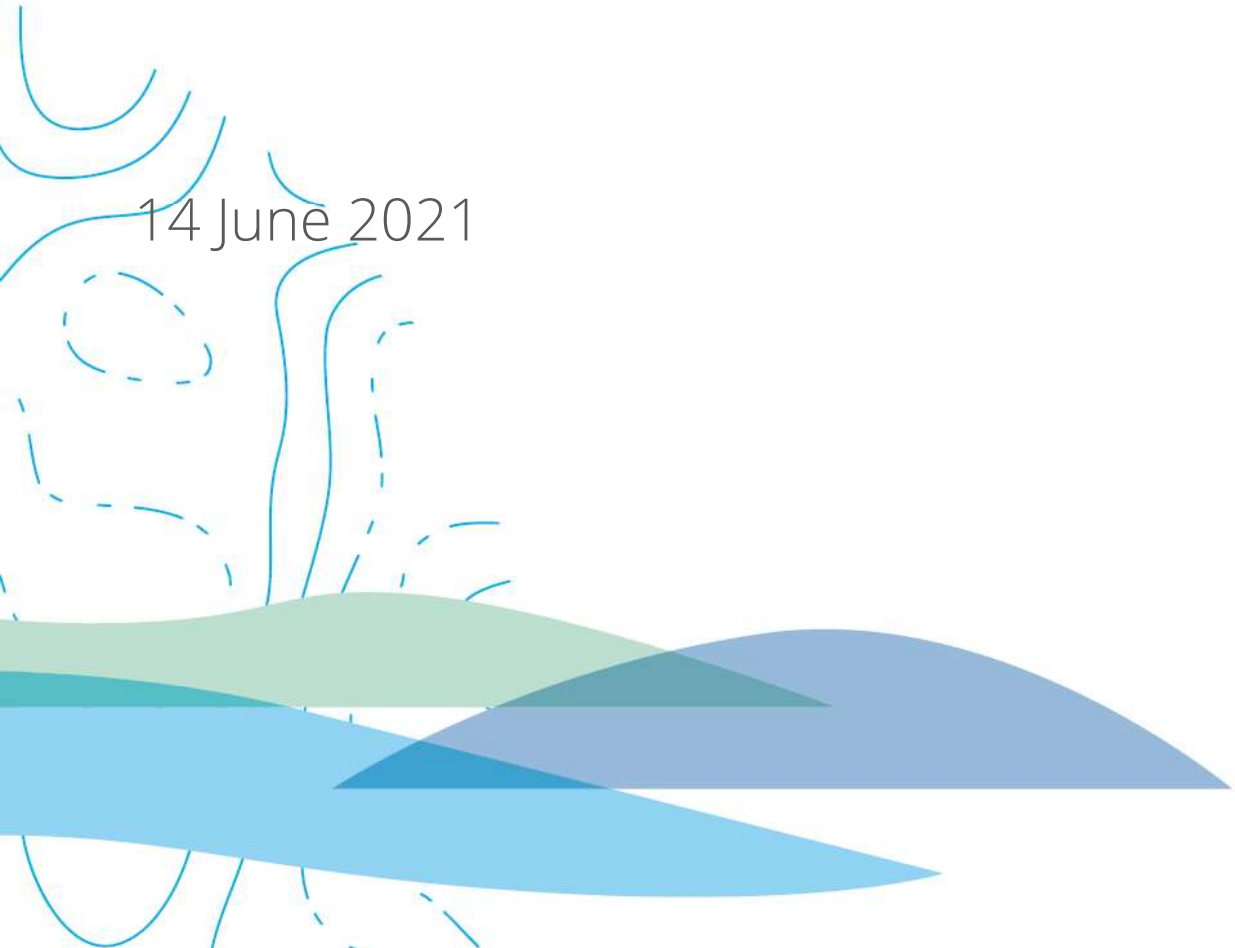
The Coal Authority

Mine Gas Emissions Report

FOX ALUMINIUM SYSTEMS LTD, PARK WORKS, WENTWORTH WAY, TANKERSLEY, BARNSLEY S75 3DH

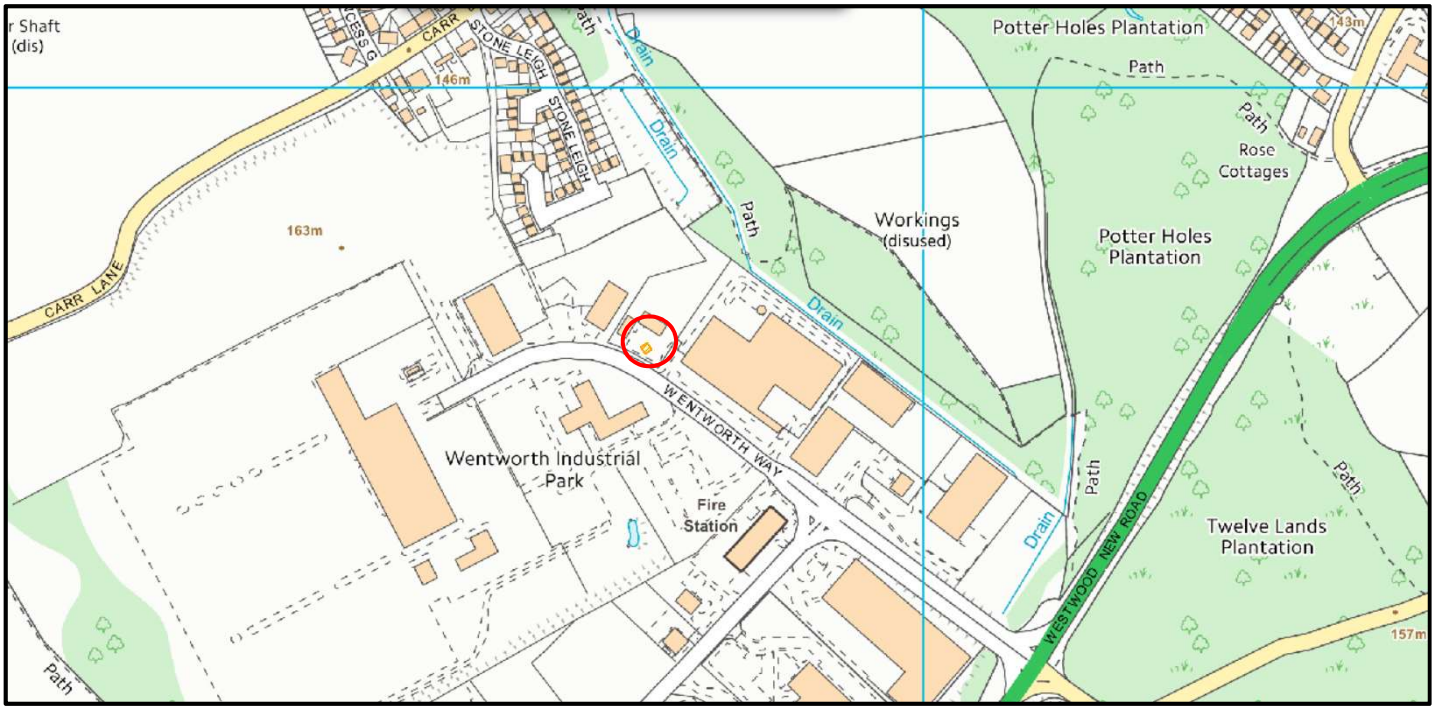
This report is based on and limited to the records held by the Coal Authority at the time the report was produced.

14 June 2021



Location

Plan





Sub sites

Coordinates	
L81 Wharncliffe Silkstone No 4 Shaft	433732E 399750N

L81 Wharncliffe Silkstone No 4 Shaft

Background

A large vent is fitted to the void Warncliffe Silkstone No 4 shaft. The vent was installed upon closure of the colliery to allow the safe discharge of mine gas to atmosphere.

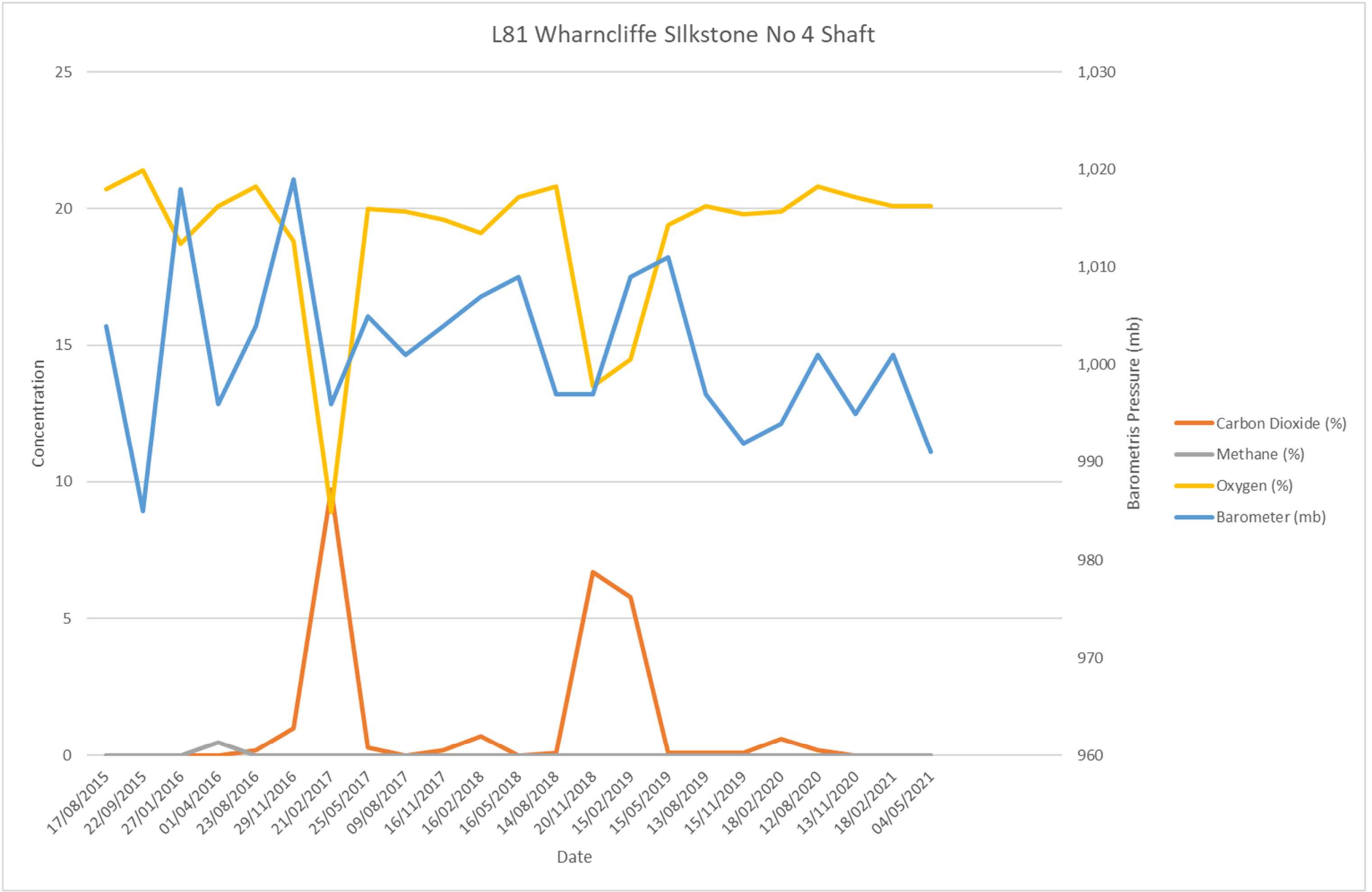
The site consists of a green pallisade fenced compound with a locked gate for access. Within the compound is a vent stack with flame arresters fitted to the sides and a sample tap for gas monitoring.

In front of the vent stack on the floor is a square plate which is secured down by seven bolts. The bolts and plate can be removed to gain access to the shaft for water level monitoring to be undertaken.

Monitoring

The site is visited on a quarterly basis by contractors on behalf of the Coal Authority. During these visits spot readings are taken and concentrations of oxygen, carbon dioxide and methane are recorded and latterly atmospheric pressure.

Data


L81 Wharncliffe SIlkstone No 4 Shaft
Concentration
Barometris Pressure (mb)
Date
25
20
15
10
5
0
1,030
1,020
1,010
1,000
990
980
970
960
17/08/2015
22/09/2015
27/01/2016
01/04/2016
23/08/2016
29/11/2016
21/02/2017
25/05/2017
09/08/2017
16/11/2017
16/02/2018
16/05/2018
14/08/2018
20/11/2018
15/02/2019
15/05/2019
13/08/2019
15/11/2019
18/02/2020
12/08/2020
13/11/2020
18/02/2021
04/05/2021
Carbon Dioxide (%)
Methane (%)
Oxygen (%)
Barometer (mb)