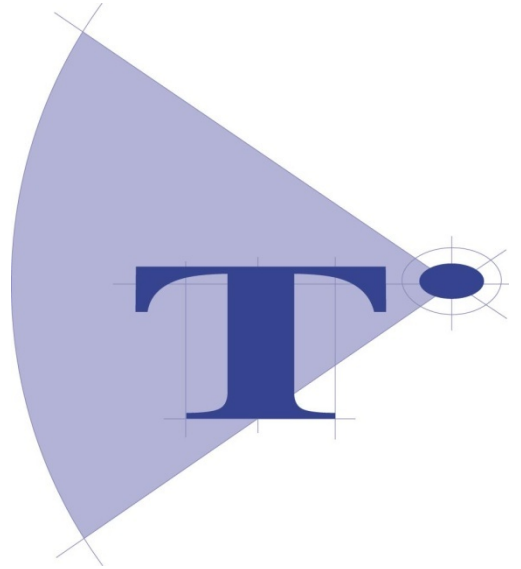




A PRELIMINARY RISK ASSESSMENT FOR THE FORMER CRONTON COLLIERY

ISSUE 1.2

TE1163PRA1

13 AUGUST 2020

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Project No : TE1163PRA1

Page No : i of vi

Engineer: Alex Preston

Date: 13/08/2020

**A PRELIMINARY RISK
ASSESSMENT FOR THE FORMER
CRONTON COLLIERY**

CONTENTS

1.	INTRODUCTION	1
2.	SITE DETAILS AND DESCRIPTION	3
3.	ENVIRONMENTAL SETTING	4
3.1.	Site History	4
3.2.	Geology	6
3.3.	Mining and Quarrying	7
3.4.	Hydrogeology.....	8
3.5.	Hydrology	9
3.6.	Ecological Features	10
3.7.	Landfill and Waste Management Activity.....	11
3.8.	Local Potentially Contaminative Activities.....	12
3.9.	Radon Risk	13
3.10.	Summary	13
4.	PREVIOUS INVESTIGATION FINDINGS AND COAL MINING RISK ASSESSMENT.....	15
4.1.	Previous Investigation	15
4.2.	Coal Mining Risk Assessment.....	15
5.	PROPOSED DEVELOPMENT.....	19
6.	PRELIMINARY CONCEPTUAL MODEL	20
6.1.	Justification	20
6.2.	Uncertainties.....	22



Project No : TE1163PRA1

Page No : ii of vi

Engineer: Alex Preston

Date: 13/08/2020

**A PRELIMINARY RISK
ASSESSMENT FOR THE FORMER
CRONTON COLLIERY**

7.	POTENTIAL GEO-ENVIRONMENTAL DEVELOPMENT CONSTRAINTS...	24
7.1.	General	24
7.2.	Potential Contamination	24
7.3.	Clean Cover System / Off-Site Disposal.....	24
7.4.	Waste Soils	24
7.5.	Upgraded Water Pipes	25
7.6.	Gas Protection Measures	25
7.7.	Regrading Works.....	25
7.8.	Foundations	26
7.9.	Obstructions.....	26
7.10.	Slope Stability.....	26
7.11.	Surface Water Drainage	26
7.12.	Southern Access Road	27
7.13.	Existing Services.....	27
7.14.	Shallow Coal Mineworkings	27
7.15.	Mine Entries	27
7.16.	Tree Survey.....	28
8.	REGULATORY APPROVALS.....	29
9.	REFERENCES.....	30



Project No : TE1163PRA1
Page No : iii of vi
Engineer: Alex Preston
Date: 13/08/2020

**A PRELIMINARY RISK
ASSESSMENT FOR THE FORMER
CRONTON COLLIERY**

TABLES

Table 2.1. Current Site Overview.	3
Table 3.1. Site History.	4
Table 3.2. Geological Summary.	6
Table 3.3. Coal Mining Activities.	7
Table 3.4. Other Extractive Industries.	7
Table 3.5. Groundwater Occurrence and Abstraction.	8
Table 3.6. Surface Water Features.	9
Table 3.7. Ecological Features.	10
Table 3.8. Waste Management Activities.	11
Table 3.9. Other Potentially Contaminative Processes in the Locality.	12
Table 3.10. Radon Risk Status.	13
Table 4.1 Past Recorded Underground Coal Mining Beneath the Site.	16
Table 6.1. Preliminary Assessment of Potential Pollutant Linkages.	23



**A PRELIMINARY RISK
ASSESSMENT FOR THE FORMER
CRONTON COLLIERY**

Project No : TE1163PRA1
Page No : iv of vi
Engineer: Alex Preston
Date: 13/08/2020

APPENDICES

APPENDIX A – FIGURES AND DRAWINGS

APPENDIX B – GLOSSARY OF TERMS

APPENDIX C – PHOTOGRAPHS TAKEN DURING SITE WALKOVER

APPENDIX D – DEFINITION OF SOURCE PROTECTION ZONES AND GROUNDWATER
VULNERABILITY ASSESSMENTS

APPENDIX E – DEFINITIONS OF TERMS USED IN QUALITATIVE AND QUANTITATIVE
RISK ASSESSMENTS

APPENDIX F – GROUNDSURE REPORT

APPENDIX G – PREVIOUS INVESTIGATION REPORT

APPENDIX H – CONSULTANTS COAL MINING REPORT (COAL AUTHORITY)



Project No : TE1163PRA1

Page No : v of vi

Engineer: Alex Preston

Date: 13/08/2020

A PRELIMINARY RISK ASSESSMENT FOR THE FORMER CRONTON COLLIERY

EXECUTIVE SUMMARY

Introduction	Tier Environmental was commissioned by Tritax Symmetry to undertake a geo-environmental appraisal of the former Cronton Colliery. The purpose of the investigation was undertake a desk study and Phase I Preliminary Risk Assessment to support the planning application for the proposed commercial/industrial development.
Site location	The site is located at Former Cronton Colliery Site, Fox's Bank Lane, Cronton, L35 3SU.
Site history	The earliest available OS maps indicate that the site was occupied with agricultural land with pockets of woodland and hedgerows. OS maps from 1925 show that the southern and central areas of the Site were occupied by buildings, railway lines and spoil heaps associated with Cronton Colliery. It is understood that Cronton Colliery was operational between 1913 and 1984. The 2002 OS map indicates the presence of spoil heaps across the southern and eastern areas of the Site indicating regrading works were undertaken in the southern area of the Site. It is understood that in 1995, the site was partially restored by removing the colliery infrastructure and major earthworks, and then mixing colliery spoil with paper mill crumb and sewage cake to create soils to support woodland planting.
Probable Ground conditions	The southern area of the Site is understood to underlain in part by Made Ground comprising manufactured topsoil (blend of colliery spoil, paper mill crumb and sewage cake). Superficial Deposits beneath the majority of the site are anticipated to comprise Till, with Alluvium locally within the eastern and southern areas of the site and in the vicinity of the proposed southern access road. The superficial deposits are underlain by the Pennine Middle Coal Measures Formation in the western half of the Site comprising mudstone, siltstone and sandstone and the Kinnerton Sandstone Formation comprising sandstones in the eastern half of the Site. The southern area of the Site is shown to be underlain by the Etruria Formation comprising mudstone, sandstone and conglomerate. The nature and thickness of the Made Ground and superficial deposits is likely to be significant in determining the final foundation design. The superficial stratum beneath the majority of the site (Till) is designated as a Secondary (undifferentiated) Aquifer, with the Alluvium along the eastern and south-eastern areas of the site designated as Secondary (A) Aquifer. The bedrock of the Pennine Middle Coal Measures Formation beneath the majority of the Site and the Etruria Formation in the south of the Site are designated as Secondary (A) Aquifers and the Kinnerton Formation beneath the eastern area of the Site is designated as a Principal Aquifer.
Possible Foundations and floor slabs	Based on the published geological information and the proposed regrading works, there is the potential for poor ground to be present beneath the Site, notably Made Ground. These deposits are unlikely to provide a suitable foundation platform and, as such, the geotechnical investigation should determine the depth of these units. There is the potential that piled, raft or ground improvement foundation solutions may be required at the site, depending on the finalised design and anticipated loads of the properties. An earthworks exercise is also currently planned so it is likely material will need to be reengineered sufficiently, such as in accordance with Specification for Highways Work Series 600, to ensure economic floor slab and foundation design. In the event that contamination is identified at the Site, care must be taken to avoid creating vertical preferential pathways, although it is noted that the deeper aquifer systems are of low sensitivity.
Sulphate Risk	It is considered that, due to the presence of colliery spoil and Pennine Middle Coal Measures Formation at possible shallow depth, there is potential for upgraded concrete to be required for all surface and below ground structures. The ground conditions should be classified in accordance with BRE SD1.
Potential Soil and Groundwater Contamination	Tier Environmental has reviewed the historic information and there is evidence of potential contamination at the site within the shallow soils associated with the Site's former use as a colliery, brick works and sewage works; however, further site investigation would be required to assess this. In addition, it is considered that Made Ground may contain metals, PAHs, phenol, asbestos, sulphate and VOCs / SVOCs associated with the site's historic land uses and inherent concentrations within the Made Ground soils. There may be a requirement for further Detailed Quantitative Risk Assessment to fully establish potential risks to human health or controlled waters. In the event that potentially significant risks to future site users are identified from the risks assessment, then there is a potential for abnormal development costs associated with the implementation of a

A PRELIMINARY RISK ASSESSMENT FOR THE FORMER CRONTON COLLIERY

	suitable cover system in soft landscaped areas or excavation and disposal of impacted soils to break potential direct contact, vapour and ingestion pathways.
Potential for gas protection	There is a potential for hazardous ground gases associated with the historic mine workings, shallow coal seam(s), mine entries, colliery spoil, Made Ground and former infilled ponds/reservoir. Upon completion of ground gas monitoring and assessment at the Site, it is considered likely that measured concentrations of potentially hazardous ground gases may be reported at concentrations and flow rates that present a potentially significant risk to the future site users. In this case, it may be that gas protection measures may be required as specified in BS8485:2015+A1:2019. These protection measures may include passive or active systems such as venting or membrane systems dependant on the outcome of the ground gas assessment which may present an abnormal development cost.
Regrading works	It is understood that significant regrading works will be required to provide a suitable platform for the proposed development. It is understood that the regrading works will generally comprise the cut of materials from the eastern area of the site (likely to be colliery spoil from beneath unit DBS4 and cohesive Till deposit from beneath unit DBS3) and placement of these materials beneath units DBS1 (up to 8m of fill) and DBS2 (between 1m and 6m of fill). The proposed intrusive ground investigation will need to determine whether the proposed cut materials will be suitable for reuse and compaction as general fill (with or without material conditioning).
Slope stability	The regrading works are likely to result in slopes integrated into the development layout, notably to the west of unit DBS1 and to the south of DBS2. It is recommended that slope stability analyses are undertaken during the design phase; the results of the analyses may affect the unit dimensions, foundation solutions and floor slab designs for the proposed units. Retaining structures may also be required locally, notably to the west of unit DBS1 to maximise the floor area of this unit and minimise potential impact on the adjacent 'ancient woodland'.
Surface water drainage	Surface water runoff within historic coal mining areas are often acidic and can contain elevated concentrations of metals, notably iron that can result in ochrous discharges into watercourses if not treated. The site is currently drained through a network of ditches/open watercourses flowing in a general southwest direction, following the local gradient. It is understood that surface water attenuation ponds are to be incorporated into the proposed development. It is considered at this stage that soakaways are unlikely to be suitable across the majority of the Site due to the likely presence of low permeability strata and the potential risk of causing unacceptable settlements within the colliery spoil and fill materials.
Historic mineworkings	The Coal Authority Mining Report states that the south-western area of the Site is located in an area that could be affected by historic shallow mineworkings. The stabilisation of shallow coal mineworkings may be required beneath the proposed structures (units DBS1 and DBS2), highways and infrastructure to minimise the risk of potential settlements affecting the proposed development. It is considered at this stage that there is a low risk of the recorded mine workings affecting the proposed development across the majority of the site.
Mine entries	There are 3 No. recorded mine entries recorded within the site boundary. It is understood that these mine entries will not be disturbed during the proposed development and that their management will be remain the responsibility of the Coal Authority. It is recommended that the land ownership of the fenced-off areas around these shafts be retained by the current owner/Coal Authority. Additional unrecorded mine entries should be anticipated, notably in the south-western area of the site. The areas around all mine entries should be assumed to have a high risk of collapse until the treatment status can be proven.



Project No : TE1163PRA1

Page No : vii of vi

Engineer: Alex Preston

Date: 13/08/2020

**A PRELIMINARY RISK
ASSESSMENT FOR THE FORMER
CRONTON COLLIERY**

Further works	It is recommended that intrusive ground investigation works be undertaken to determine the following: • Determine the ground conditions beneath the site, notably the depth of Made Ground, potential obstructions and potential contaminated soils/groundwater; • Determine the geotechnical suitability of the soil materials that are proposed to be reused in the proposed regrading works; • Determine the most economic foundation and floor slab solution for the proposed units; • Probe drilling to investigate potential mineworkings, notably within the south-western area of the site; • Trial trenching/probe drilling to investigate potential unrecorded mine entries, notably within the south-western area of the site; and, • Slope stability assessments for the proposed slopes within the development area.
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Project No : TE1163PRA1
Page No : 1 of 31
Engineer: Alex Preston
Date: 13/08/2020

A PRELIMINARY RISK ASSESSMENT FOR THE FORMER CRONTON COLLIERY

1. INTRODUCTION

Tier Environmental was commissioned by Tritax Symmetry Ltd to undertake a desk study and Phase I Preliminary Risk Assessment of Former Cronton Colliery Site, Fox's Bank Lane, Cronton, L35 3SU (the "Site").

Taking into account the planned future use of the Site, the objectives of this appraisal were:

- To determine the land use history from review of available historical documentation and maps.
- To establish the environmental setting of the Site.
- To determine the likely soil and groundwater conditions, including whether significant contamination could have resulted from past or current land use(s).
- To determine the potential risks posed by any ground contamination and provide recommendations on potential remedial measures to manage such risks.
- To determine the potential for risks posed to the Site from hazardous ground gases.
- To evaluate whether past mining or other extractive industries could have an influence on the Site.
- To provide advice relating to potential geotechnical issues associated with the Site.
- To provide information relating to potential foundation recommendations.
- To provide information relating to the potential for waste soil management issues.

The desk-study part of this investigation included the assessment of information provided by Groundsure (Appendix F), the Coal Authority (Appendix H) and the British Geological Survey.

This report, which was designed to meet the requirements of all relevant current guidance including the remaining CLR reports, presents the factual information available during this appraisal, interpretation of the data obtained and recommendations relevant to the defined objectives.

It has been assumed in the production of this report that the Site is to be redeveloped into 4 No. industrial warehouses each with associated car parking areas, infrastructure, areas of soft landscaping and surface water attenuation ponds in the south-eastern area of the Site. A large scale earthworks exercise is proposed to provide the appropriate development platforms and highway gradients.

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

The comments and opinions presented in this report are based on the findings of the desk study. There may be other conditions prevailing on the Site which have not been revealed by this investigation and which have not been taken into account by this report.



Project No : TE1163PRA1
Page No : 2 of 31
Engineer: Alex Preston
Date: 13/08/2020

**A PRELIMINARY RISK
ASSESSMENT FOR THE FORMER
CRONTON COLLIERY**

Responsibility cannot be accepted for any conditions not revealed by this investigation. Any diagram or opinion on the possible configuration of the findings is conjectural and given for guidance only. Confirmation of intermediate ground conditions should be undertaken if deemed necessary.

This report has been prepared for the sole use of Tritax Symmetry Ltd. No other third party may rely upon or reproduce the contents of this report without the written approval of Tier Environmental. 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.



Project No : TE1163PRA1
Page No : 3 of 31
Engineer: Alex Preston
Date: 13/08/2020

A PRELIMINARY RISK ASSESSMENT FOR THE FORMER CRONTON COLLIERY

2. SITE DETAILS AND DESCRIPTION

Table 2.1. Current Site Overview.

Site name	Former Cronton Colliery Site
Site address	Fox's Bank Lane, Cronton, L35 3SU. A site location plan is included as Drawing No. TE1163PRA1 within Appendix A.
National Grid Reference	347086, 389467
Location description	The Site is located in a rural area adjacent to the M62 motorway 7km southwest of St Helens. The residential area of Halsnead Park is located approximately 280m north of the Site.
Site shape	The Site is irregular in shape.
General topography and ground levels	The Site is generally undulating with ground levels in the north of the site ranging from 44m AOD in the east to 24m AOD in the west. The southern area of the site is a plateau at 34m AOD with a steep slope towards the south to 25m AOD. Ground levels in the eastern area of the site generally decrease from 48m AOD in the centre to 40m AOD in the west and 34m AOD in the east and south.
Current land use	The Site is currently unoccupied with no above ground structures. The northern area of the Site is currently occupied by grazing and agricultural land. The southern and eastern areas of the Site are currently occupied by immature woodland on the regraded colliery spoil slopes. The area of the southern access road is covered with concrete hardstanding with bridge/embankment structure.
Existing structures	None present
Sub-surface structures	Relict structures associated with historic site use as a colliery may be present in the southern area of the site. Additional unrecorded services should be anticipated.
Fly Tipping	No fly tipping was observed during a Site walkover.
Invasive plant species	None were identified during the site walkover on 6 th December 2018. An invasive plant survey should be conducted by a specialist ecologist.

The location of the Site is shown on Drawing No. TE1163PRA1 within Appendix A. Relevant Site photographs are presented in Appendix C.

3. ENVIRONMENTAL SETTING

3.1. Site History

Extracts of Ordnance Survey (OS) plans dated from 1849 to 2014 were reviewed. These were obtained as part of the GroundSure report for the Site, which is presented in Appendix F. The Site boundary has since changed after the GroundSure report had been ordered. Historic Maps have been reviewed using the Site boundary displayed on Drawing No. 18128_F0010F presented within Appendix A, and not the boundaries as indicated on the historical maps.

Table 3.1 presents a summary of the main aspects of the Site from 1849 to 2014 relevant to the current and proposed future end uses. It is not the intention of this report to describe in detail all of the changes that have occurred on or adjacent to the Site, where these are not relevant to the land use.

Table 3.1. Site History.

Source (Map edition, scale)	On-Site features	Off-Site features
1849-1850, 1:10,560	The Site is shown to be mainly fields with pockets of trees and hedgerows. Buildings are displayed to the northeast of the Site.	- A small pond is observed approximately 100m north of the Site. - A pond referred to as Sour Hey Pit is displayed along the south-western boundary of the Site. - Numerous other ponds are observed between approximately 250m and 500m of the Site to the north, east and south. - A pump station is displayed approximately 450m east of the Site.
1891, 1:10,560	No significant changes.	No significant changes.
1892, 1:2,500	No significant changes.	No significant changes.
1892-1893, 1:2,500	No significant changes.	No significant changes.
1905-1906, 1:10,560	No significant changes.	No significant changes.
1907, 1:2,500	No significant changes.	No significant changes.
1925, 1:10,560	Cranton Colliery is displayed to the southeast and centre of the Site comprising numerous buildings, railway lines and spoil heaps.	- Railway lines are displayed immediately south of the Site, trending towards the northwest. - A reservoir is shown along the southern boundary of the Site (to the east of the proposed access road) with an associated pump house.
1927, 1:2,500	3 No. mining shafts are displayed in the east of the Site associated with Cranton Colliery. - A small pond is displayed to the northeast of the Site.	Circa 6 No. tanks associated with Cranton Colliery are displayed 20m to 60m east of the Site.

A PRELIMINARY RISK ASSESSMENT FOR THE FORMER CRANTON COLLIERY

1937, 1:2,500	- Sewage works are displayed towards the east of the Site. 3 No additional buildings are displayed to the southwest of the Site. - Additional railway lines are displayed to the south of the Site. - A baths and other buildings are indicated in the central east of the site (south of Old Halsnead).	No significant changes.
1938, 1:10,560	3 No additional buildings are displayed to the. Centre of the Site.	No significant changes.
1947, 1:10,560	2 buildings to the centre of the Site are no longer displayed. - A brick works is located to the South of the Site.	A large spoil heap is displayed 80m southeast of the Site.
1956, 1:10,560	No significant changes.	No significant changes.
1958, 1:2,500	No significant changes.	No significant changes.
1967, 1:10,560	- An additional spoil heap is displayed to the south of the Site. - The small pond to the northeast of the Site is no longer displayed.	No significant changes.
1969, 1:2,500	No significant changes.	No significant changes.
1975-1978, 1:2,500	No significant changes.	No significant changes.
1975-1980, 1:2,500	No significant changes.	4 No. ponds are displayed approximately 50m south of the Site. - The pond observed approximately 100m north of the Site is no longer observed.
1978, 1:10,000	3 No. buildings to the southwest of the Site are no longer displayed. - The railway lines to the south of the Site are no longer displayed.	- Railway lines south of the Site are no longer displayed. - The M62 is shown along the northern boundary of the Site. - The pond referred to as Sour Hey Pit along the south-western boundary of the Site is no longer displayed.
1980, 1:2,500	A pond is displayed in the east of the Site.	2 No. additional ponds are displayed approximately 50m south of the Site.
1980-1985, 1:2,500	No significant changes.	No significant changes.
1986-1989, 1:2,500	No significant changes.	No significant changes.
1988-1989, 1:2,500	Cranton Colliery is no longer displayed.	No significant changes.
1990, 1:10,000	Cranton Colliery is no longer displayed including all on Site buildings, railway lines to the southeast and spoil heaps to the south of the Site.	- Railway lines 160m west of the Site which trended northwest are now labelled as dismantled. - The spoil heap 80m south of the Site has increased in size and infilled half of the reservoir along the southern boundary of the Site.
1992-1993, 1:2,500	Water within the sunken pond area to the east of the Site is no longer displayed but the pit is still displayed.	No significant changes.
2002, 1:10,000	Colliery spoil is displayed covering the southern half of the Site, presumably	2 No. ponds approximately 50m south of the Site are no longer displayed.

A PRELIMINARY RISK ASSESSMENT FOR THE FORMER CRONTON COLLIERY

	associated with the regrading of the colliery spoil heap to the south of the site.	A Quarry is now labelled approximately 350m south of the Site with an associated pond.
2010, 1:10,000	No significant changes	- The reservoir along the southern boundary of the Site is no longer displayed. 1 No. pond approximately 50m south of the Site is no longer displayed and 1 No pond has significantly reduced in size.
2014, 1:10,000	No significant changes	- The pond which was observed to reduce in size in 2010 is no longer displayed. - The quarry approximately 350m south of the Site is no longer displayed.

It is understood that in 1995, the site was partially restored by removing both the colliery infrastructure and major earthworks, and then reclaiming colliery spoil by mixing it with paper mill crumb and sewage cake to create soils for successful woodland planting.

3.2. Geology

Table 3.2. Geological Summary.

Maps and publications referenced	Groundsure report BGS 1:10,000 scale artificial ground map BGS 1:10,000 scale superficial deposits map Baker Barnett coal mining risk assessment report Coal Authority interactive map BGS Geoindex interactive map BGS Borehole records Wildlife Trust website
Made Ground	There are no BGS records of Made Ground within 500m of the Site. Historical maps and Site reconnaissance suggest the southern section of the Site is likely to be underlain by colliery spoil. There is also evidence of infilled ponds and historic regrading works when former colliery infrastructure was removed and woodland planting was introduced. Wildlife Trust website records manufactured topsoil present across the Site comprising a blend of colliery spoil, paper mill crumb and sewage cake.
Drift geology	BGS records show Till comprising Diamicton underlies the majority of the Site. A small portion of the site is underlain by Alluvium comprising Sand and Gravel in the northeast of the Site. Local historic borehole records from the BGS indicate drift deposits to be roughly 4m thick across the Site.
Solid geology	BGS records indicate the western half of the site is underlain by Pennine Middle Coal Measures of Bolsovian age comprising mudstone, siltstone and sandstone, and the eastern half of the Site is underlain by the Kinnerton Sandstone Formation of Triassic age comprising sandstone. The southern area of the Site is shown to be underlain by the Etruria Formation comprising mudstone, sandstone and conglomerate. The thickness of these deposits is shown on the BGS lexicon to be up to 200m for the Pennine Middle Coal Measures Formation and up to 150m for the Kinnerton Sandstone Formation
Dip of solid strata	Records indicate a general dip of approximately 12° towards the southwest.

A PRELIMINARY RISK ASSESSMENT FOR THE FORMER CRANTON COLLIERY

Faults	4 No. normal faults have been identified on Site. Generally with a north-south trend or a northwest – southeast trend. A second cluster of normal faults is located 120m west of the site. These faults have a similar trend to the faults located on Site.
Coal seams	1 No. coal seam (the Worsley Four Feet Coal) is shown to subcrop in the south-western area of the Site. The seam has a northwest – southeast trend with a dip of approximately 12° to the southwest. The BGS plans indicate it has been cross cut by the north – south trending normal faults in the centre of the Site. Multiple coal seams have been identified to subcrop under the Site between depths of 85m and 550m. 3 No. further coal seams are inferred to outcrop between 280m and 330m north of the Site.

3.3. Mining and Quarrying

Table 3.3. Coal Mining Activities.

	Yes/No	Comments
Is the Site in an area of potential shallow coal workings?	Yes	13 No. worked coal seams have been recorded beneath the Site in the Coal Authority Report from a depth of between 85m and 550m bgl.
Are there any known shafts, adits, tips, lagoons, or opencast workings likely to affect the Site?	No	3 No. mine shafts are located within the south-eastern area of the site (associated with the former Cranton Colliery). It is understood that the area of the shafts will not be disturbed or developed and their management will be retained by the Coal Authority. It is considered likely that unrecorded mine entries related to historic mining may be present, notably in the south-western area of the site.
Is exploratory work required to investigate the potential risk from shallow mining or quarrying?	Yes	Multiple open hole rotary boreholes across the site are advised to determine the extent to which the site is at risk from shallow mining.

Table 3.4. Other Extractive Industries.

	Yes/No	Comments
Superficial drift deposits		
Evidence of extraction on or within 250m of the Site?	No	
Action required?	No	
Solid Strata		
Any evidence of mineral extraction on or within 250m of the Site?	Yes	In the south of the Site sporadic vein mineral mining may have occurred. Potential for difficult ground conditions are considered unlikely and localised and are at a level where they need not be considered.
Action required?	No	

A PRELIMINARY RISK ASSESSMENT FOR THE FORMER CRONTON COLLIERY

Other, undocumented mineral workings on or close to the Site cannot be completely dismissed.

3.4. Hydrogeology

Table 3.5. Groundwater Occurrence and Abstraction.

	Presence/location	Comments
On Site aquifer designations	On Site – within superficial deposits (Till). Likely to cover the majority of the Site.	Secondary (undifferentiated) Aquifer
	Along eastern site boundary and in south of Site – within superficial deposits (Alluvium and River Terrace Deposits)	Secondary A Aquifer: Permeable layers capable of supporting water supplies at a local rather than strategic scale. Formerly classified as minor aquifers.
	On Site – within bedrock (Pennine Middle Coal Measures Formation) and Etruria Formation	Secondary A Aquifers: Permeable layers capable of supporting water supplies at a local rather than strategic scale. Formerly classified as minor aquifers.
	Eastern area of the site – within bedrock (Kinnerton Sandstone Formation)	Principal Aquifer: geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale.
Off Site aquifer designations	Surrounding the Site - within superficial deposits (Till).	Secondary (undifferentiated) Aquifer
	Between 0m and circa 400m east of the Site – within superficial deposits (River Terrace Deposits, Alluvium and Glaciofluvial Deposits)	Secondary A Aquifer: Permeable layers capable of supporting water supplies at a local rather than strategic scale. Formerly classified as minor aquifers.
	278m west of the Site – within superficial deposits (Alluvium)	Secondary A Aquifer: Permeable layers capable of supporting water supplies at a local rather than strategic scale. Formerly classified as minor aquifers.
	North, west and south of the Site – within bedrock (Pennine Middle Coal Measures Formation).	Secondary A Aquifer: Permeable layers capable of supporting water supplies at a local rather than strategic scale. Formerly classified as minor aquifers.
	North, northeast, east and southeast of the Site – within bedrock (Kinnerton Sandstone Formation).	Principal Aquifer: geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale.
Direction of flow	Not determined.	Likely to be towards the south towards multiple unspecified watercourses.
Licensed abstractions	No recorded groundwater abstractions within 1km of the Site. Surface water abstraction located 450m southwest of the Site.	
Private wells	NR within 1km of the Site.	
Source Protection Zones	Eastern area of the Site	Total catchment (Zone 3).
	322m north of the Site.	Total catchment (Zone 3).
Springs	NR	

NR - none recorded.

A PRELIMINARY RISK ASSESSMENT FOR THE FORMER CRONTON COLLIERY

For definition of Source Protection Zones, see Appendix D.

3.5. Hydrology

Table 3.6. Surface Water Features.

	Presence/location	Comments
Environment Agency GQA classified watercourses	450m southwest of the Site.	River name: Ditton Bk Biological quality grade (2005 to 2009): E
Unclassified watercourse(s)	On Site rivers to the east, southwest and adjacent/below the proposed southern access road.	Name: Unspecified and Fox's Bank Brook Type of watercourse: Inland river not influenced by normal tidal action. Catchment area: Ditton Permanence: Contains water year round.
	Numerous rivers surrounding the Site. - Unspecified: Between 10m and 480m surrounding the Site. - Fox's Bank Brook: Between 69m south and 459m southwest of the Site. - Chapel Brook: Between 321m southwest and 418m west of the Site. - Orchre Brook: Between 371m and 460m southwest of the Site.	Name: Unspecified, Fox's Bank Brook, Chapel Brook and Orchre Brook. Type of watercourse: Inland river not influenced by normal tidal action. Catchment area: Ditton Permanence: Contains water year round.
	Numerous lakes/lochs/reservoirs surrounding the Site. - Unspecified: Between 321m and 407m north, between 306m and 321m northeast, 485m east, between 94m and 100m south and 80m west of the Site. - Big Water: 197m north of the Site.	Name: Unspecified/Big Water. Type of watercourse: Lake, loch or reservoir. Catchment area: Ditton Permanence: Contains water year round.
Licensed abstractions	450m southwest of the Site.	Status: Historical. Licence No: 2569028018 Details: Spray irrigation – Direct. Direct Source: "Surface, non-tidal – North West region" Annual Volume: 2098m ³ Name: T H Critchley & Son
	943m southwest of the Site.	Status: Active. Licence No: 2569028018 Details: Spray irrigation – Direct. Direct Source: "Surface, non-tidal – North West region" Annual Volume: 2098m ³ Name: Belpool Developments Ltd.
Flood risk status	On-site.	River and coastal zone 2 floodplain in the vicinity of the proposed southern access road. Annual

A PRELIMINARY RISK ASSESSMENT FOR THE FORMER CRONTON COLLIERY

		probability of flooding between 0.1% and 1% from rivers and between 0.1% and 0.5% from the sea. (Environment Agency). A separate Flood Risk Assessment has been undertaken for the proposed development.
	In southern area of the Site.	River and coastal zone 3 floodplain in the vicinity of the proposed southern access road. Annual probability of flooding is 1% or greater from rivers and 0.5% or greater from the sea. (Environment Agency).
	In southern area of the Site.	The highest risk of flooding on Site is medium from rivers and the sea (Environmental Agency RoFRaS database).
	Within 50m boundary of the Site.	A British Geological Survey groundwater flooding susceptibility area has been identified within a 50m boundary of the Site. The highest susceptibility to groundwater flooding has been identified as a potential at the surface for superficial deposits flooding. The British Geological Survey gives a high confidence rating in this result.
Biological Quality Grade	450m southwest	Ditton Brook was classified as 'E' (Poor) between 2005 and 2009
Surface run-off and Site drainage	On Site.	Surface run-off is considered to be via the unspecified inland rivers identified on-Site.

NR - none recorded

Environment Agency GQA assessments: A = very good to F = poor

3.6. Ecological Features

Table 3.7. Ecological Features.

	Presence/location	Comments
Designated locations	0m west and 91m north of the Site.	The Old Wood is designated ancient woodland and may restrict ground level changes along the western site boundary.
Other sensitive locations	NR within 2km of the Site.	
Land use controls	NR within 2km of the Site.	
Invasive plants	NR recorded on Site.	A survey by a qualified invasive plant consultant is required to confirm the absence or extent of invasive species.
Trees and shrubs	On Site	Areas of woodland on Site.
Other features	NR.	

NR - none recorded



A PRELIMINARY RISK ASSESSMENT FOR THE FORMER CRONTON COLLIERY

Project No : TE1163PRA1
Page No : 11 of 31
Engineer: Alex Preston
Date: 13/08/2020

3.7. Landfill and Waste Management Activity

Table 3.8. Waste Management Activities.

	Presence/location	Comments
Environment Agency recorded landfills	60m south of the Site.	Address: Cronton Quarry, Dacre's Bridge Lane, Tarbock, Prescott, L35 1QZ. Landfill Reference: 400986.0 Environmental Permitting Regulations (Waste) Reference: WAL168 Landfill Type: LO5 - Inert. Operator: Grundy and Co Excavations Ltd.
Environment Agency recorded historic landfills	NR within 250m of the Site.	
BGS recorded landfills	NR within 250m of the Site.	
Local authority and historical mapping identified landfills	NR within 250m of the Site.	
Other licensed waste management facilities within 250m	NR	
Is there evidence of other landfilling on or within 250m of Site?	NR	
Walkover evidence of fly-tipping on Site?	NR during a Site Walkover.	
Is a landfill/ground gas risk assessment required?	Yes	Potential sources of hazardous ground gases include potential shallow mine workings; deeper mine workings and upward gas migration along geological faults; colliery spoil; the 3 No. recorded mine shafts associated with the former Cronton Colliery; potential unrecorded mine entries; any potential hydrocarbon impacted soils and/or groundwater and potential infilled ponds and/or drainage ditches.

NR - none recorded

A PRELIMINARY RISK ASSESSMENT FOR THE FORMER CRONTON COLLIERY

3.8. Local Potentially Contaminative Activities

Other potentially contaminative activities are shown in Table 3.9. The entries relate to activities within *circa* 250 m of the Site, with the exception of COMAH facilities where the assessment is extended to a distance of *circa* 500m from the Site.

Table 3.9. Other Potentially Contaminative Processes in the Locality.

	Location	Comments
Discharge Consents	On Site.	Receiving water: Fox's Bank Brook. Effluent type: Sewage discharges Status: New consent. Issue date: 30/05/2001 Permit number: 016993406
	77m east of the Site.	Receiving water: Fox's Bank Brook. Effluent type: Sewage discharges Status: Revoked – unspecified. Effective date: 09/08/1991 Permit number: 016990204
	130m east of the Site.	Receiving water: Fox's Bank Brook. Effluent type: Sewage discharges Status: Post NRA legislation where issue date >31/08/1989. Effective date: 01/01/1995 Permit number: 0165/38
	219m east of the Site.	Receiving water: Fox's Bank Brook. Effluent type: Trade discharges – process effluent Status: Revoked – unspecified. Effective date: 26/02/1988 Permit number: 016990205
	254m south of the Site.	Receiving water: Tributary of Fox's Bank Brook. Effluent type: Sewage discharges – treated effluent. Status: Modified. Issue date: 27/02/2006 Permit number: 016993405
Prosecutions relating to controlled waters	NR	
Substantiated pollution incidents	NR within 250m of the Site.	
IPPC permits/air pollution controls	Sewage discharges	
Registered radioactive substances	NR.	
Prosecutions relating to authorised processes	NR.	
Enforcement and prohibition notices	NR within 500m of the Site.	

A PRELIMINARY RISK ASSESSMENT FOR THE FORMER CRONTON COLLIERY

Planning - hazardous substances consents and enforcements	NR within 500m of the Site	
COMAH sites	NR within 500m of the Site.	
NIHHS sites	NR within 500m of the Site.	
Fuel station entries	NR within 500m of the Site.	
Pertinent contemporary trade directory entries	On Site, 106m north, 155m north, 3m southwest and 241m east of the Site.	Electricity pylons.
	22m north, 113m east and 128m west of the Site.	Gantry.
	30m south and 232m southeast of the Site.	Slag heap.
	150m north of the Site.	Tank (generic).

NR - none recorded

COMAH – Control of Major Accident Hazards (regulations); NIHHS – Notification of Installations Handling Hazardous Substances (regulations)

3.9. Radon Risk

Table 3.10. Radon Risk Status.

	Radon protection measures required? (Yes/No)	Comments
BRE (1999), Report 211	No	The property is in a Radon Affected Area, as between 1 and 3% of properties are above the Action Level. However, no radon protection measures are required as outlined by BR211 by the Building Research Establishment.
BGS Site-specific report	Not Requested	

3.10. Summary

- The Site is currently unoccupied with no above ground structures. The northern area of the Site is currently occupied by agricultural land. The southern area of the Site is currently occupied by immature woodland over regraded colliery spoil.
- The earliest available OS maps indicate that the site was occupied with agricultural land with pockets of woodland and hedgerows. OS maps from 1925 show that the southern and central areas of the Site were occupied by buildings, railway lines and spoil heaps associated with Cronton Colliery. It is understood that Cronton Colliery was operational between 1913 and 1984. The 2002 OS map indicates the presence of spoil heaps across the southern and eastern areas of the Site indicating regrading works were undertaken in the southern area of the Site. It is understood that in 1995, the site was partially restored by removing the colliery infrastructure and major earthworks, and then mixing colliery spoil with paper mill crumb and sewage cake to create soils to support woodland planting.



Project No : TE1163PRA1

Page No : 14 of 31

Engineer: Alex Preston

Date: 13/08/2020

A PRELIMINARY RISK ASSESSMENT FOR THE FORMER CRONTON COLLIERY

- Pertinent surrounding current and historic land uses include brick works, sewage works, a colliery and associated infrastructure, a pumping house, multiple unspecified pits, a reservoir (potentially infilled) and multiple potentially infilled ponds.
- The southern area of the Site is understood to underlain in part by Made Ground comprising manufactured topsoil (blend of colliery spoil, paper mill crumb and sewage cake). Superficial Deposits beneath the majority of the site are anticipated to comprise Till, with Alluvium locally within the eastern area of the site and in the vicinity of the proposed southern access road. The superficial deposits are underlain by the Pennine Middle Coal Measures Formation in the western half of the Site comprising mudstone, siltstone and sandstones and the Kinnerton Sandstone Formation in the eastern half of the Site comprising sandstones. The nature and thickness of the Made Ground and superficial deposits is likely to be significant in determining the final foundation design.
- The superficial stratum beneath the majority of the site (Till) is designated as a Secondary (undifferentiated) Aquifer, with the Alluvium along the eastern and south-eastern areas of the site designated as Secondary (A) Aquifer. The bedrock of the Pennine Middle Coal Measures Formation beneath the majority of the Site and the Etruria Formation in the south are designated as Secondary (A) Aquifers and the Kinnerton Formation beneath the eastern area of the Site is designated as a Principal Aquifer.
- The eastern area of the Site lies within a Source Protection Zone (Total Catchment – Zone 3).
- Groundwater flow is likely to be in a southerly direction. There are no licensed groundwater abstractions within 1km of the Site.
- Watercourses are present within the site that are within the catchment for Ditton Brook. On this basis, the controlled waters sensitivity is considered by Tier Environmental to be moderate.
- Multiple discharge consents are recorded up to 250m south and east of the Site. Effluent type is recorded as sewage.
- The flood risk in the southern area of the Site is considered to be moderate. The probability of flooding is considered to be 1% or greater from rivers and 0.5% or greater from the sea. It is understood a separate flood risk assessment has been completed.
- The Old Wood located adjacent to the western site boundary is designated as ancient woodland; changing ground levels in the vicinity of The Old Wood is likely to require agreement from Natural England through the planning process.
- A landfill is located 60m south of the Site recorded as accepting inert waste.
- Numerous potential sources of hazardous ground gases include potential shallow mine workings, deeper mine workings and upward gas migration along geological faults, colliery spoil, the 3 No. recorded mine shafts associated with the former Cronton Colliery, any potential hydrocarbon impacted soils and/or groundwater and potentially infilled ponds and/or drainage ditches
- The Site is not located in an area where radon protection measures are required.



A PRELIMINARY RISK ASSESSMENT FOR THE FORMER CRONTON COLLIERY

Project No : TE1163PRA1
Page No : 15 of 31
Engineer: Alex Preston
Date: 13/08/2020

4. PREVIOUS INVESTIGATION FINDINGS AND COAL MINING RISK ASSESSMENT

4.1. Previous Investigation

A Coal Mining Risk Assessment Report (CMRA) was produced by Baker Barnett Ltd (Ref. 15/NSB/SB/2572 dated 12th June 2015) on behalf of the Land Trust for the area of the former Cronton Colliery, i.e. the southern area of the proposed development area. The CMRA report is presented in Appendix G.

The Baker Barnett Ltd CMRA concluded:

- Due to the depth and date of the recorded workings that have taken place under the site [Cronton Colliery], we consider that there is no significant risk of coal mining subsidence, from known coal mine workings, affecting the proposed development [as a country park];
- There is a possibility of shallow un-charted coal mine workings being present, from close to the surface of the 3FT seam outcrop, extending some 140m to the southwest of the outcrop;
- Probe drilling was recommended if it is proposed to construct any buildings or structures in the area where shallow workings may be present. The probe drilling should be to a depth of 30m to prove the coal seam and also check for any voids;
- There are no mine shafts or adits recorded on the site other than the 3 no. shafts of the former Cronton Colliery;
- There may be unrecorded mine shafts (bell pits) or adits near the outcrop of the 3FT Seam;
- It was recommended that the ground should be checked visually for anomalies and signs of bell pits, old mine shafts or adits during the topsoil strip and excavations; and,
- Provided the vents remain in place over the 3 No. Coal Authority mine shafts, there should be little or no risk to the proposed development due to methane or carbon dioxide.

4.2. Coal Mining Risk Assessment

Tier Environmental has obtained a Consultant Coal Mining Report (Ref. 51001982527001) from the Coal Authority (Appendix H). Extracts of which are provided below.

Historic Mining

The Coal Mining Report identifies 34 No. worked coal seams beneath the site. Seam thicknesses vary from 0.9cm to 3.3m and depths range from 85m to 558m below ground level, with the last recorded mining undertaken between the years 1875 and 1962. Pertinent seams include the Rushy Park, the Plodder seam, the Haigh Yard seam, the Wigan Five Feet, the Wigan Four Feet, the Higher Florida, the St Helens Yard, the Crombouke, the Higher Pigeon House and the London Delph. A full table of mine entries found beneath the site is presented in Table 4.1 below. Based on the anticipated depths and age of the above recorded workings, it is considered at this



Project No : TE1163PRA1

Page No : 16 of 31

Engineer: Alex Preston

Date: 13/08/2020

A PRELIMINARY RISK ASSESSMENT FOR THE FORMER CRONTON COLLIERY

stage that there is a low risk to the proposed development across the majority of the site; this will need to be confirmed by intrusive probe drilling.

The Coal Authority stated that there are potential unrecorded shallow mineworkings beneath the site. The Worsley Four Feet coal seam (named as the 3FT Seam in the Baker Barnett CMRA) is shown to outcrop in the western area of the site, is stated as being a workable seam and has a bearing of 132° at outcrop. It is considered at this stage that there is a moderate to high risk to the proposed development in the south-western area of the site; this will need to be confirmed by intrusive probe drilling prior to the proposed regrading works.

No opencast mines or Coal Authority managed tips are recorded by the Coal Authority within 500m of the Site.

Table 4.1 Past Recorded Underground Coal Mining Beneath the Site

Colliery	Seam	Coal Authority reference	Depth (m)	Dipping rate of seam worked (degrees)	Dipped direction of seam worked	Extraction thickness (cm)	Year last mined
Unnamed	LONDON DELPH (BIN)	302N	85	13.1	South-West	180	1925
Unnamed	LONDON DELPH (BIN)	302M	94	13.1	South-West	180	1922
Unnamed	ST. HELENS YARD	302X	102	11.3	South-West	90	1931
unnamed	RAMS	3033	128	12.7	South-West	180	1958
Unnamed	HIGHER FLORIDA	3036	132	12.3	South-West	180	1924
unnamed	LOWER FLORIDA	303M	154	13.6	South-West	130	1941
unnamed	HIGHER FLORIDA	3037	154	11.5	South-West	180	1921
CRONTON	CROMBOUKE	302R	166	13.4	South-West	190	1917
unnamed	LONDON DELPH (BIN)	302O	173	12.9	South-West	180	1930
unnamed	HIGHER PIGEON HOUSE (PIGEON HOUSE)	303T	180	8.5	South-West	140	1936
unnamed	CROMBOUKE	302S	183	13.5	South-West	190	1939
unnamed	ST. HELENS YARD	302Y	200	13.4	South-West	90	1937
unnamed	HIGHER FLORIDA	3038	202	15.5	South-West	180	1921
unnamed	HIGHER FLORIDA	3039	224	12.8	South-West	180	1929
CRONTON	HIGHER FLORIDA	3035	224	11.3	South	180	1875
Unnamed	LOWER FLORIDA	303O	266	12.8	South-West	130	1956
unnamed	WIGAN FIVE FEET	303U	267	11.8	South-West	110	1948
Unnamed	WIGAN FOUR FEET	303Z	278	9.9	South-West	170	1944
Unnamed	WIGAN FIVE FEET	303V	300	12.3	South-West	110	1952
unnamed	HAIGH YARD	304F	370	13.7	South-West	120	1949
unnamed	HAIGH YARD	304G	412	12.3	South	120	1930
unnamed	RUSHY PARK	304M	415	10.9	South-West	130	1946
unnamed	RUSHY PARK	304J	423	12.0	South	130	1889
unnamed	PLODDER	304D	430	11.6	South-West	330	1930
unnamed	RUSHY PARK	304L	435	13.4	South-West	130	1896
unnamed	RUSHY PARK	304K	446	12.0	South	130	1896
unnamed	PLODDER	304C	446	11.6	South-West	330	1958



Project No : TE1163PRA1

Page No : 17 of 31

Engineer: Alex Preston

Date: 13/08/2020

A PRELIMINARY RISK ASSESSMENT FOR THE FORMER CRONTON COLLIERY

unnamed	HAIGH YARD	304E	448	9.6	South-West	120	1943
unnamed	HAIGH YARD	304H	450	12.3	South	120	1952
unnamed	RUSHY PARK	304N	454	9.6	South-West	130	1939
unnamed	HAIGH YARD	30CJ	465	11.4	South-West	120	1942
Unnamed	RUSHY PARK	304I	483	9.5	South	130	1889
unnamed	RUSHY PARK	30CL	520	11.2	South-West	130	1935
unnamed	RUSHY PARK	30CM	558	9.1	South-West	130	1962

Mine Entries

A total of 3 No. shaft mine entries are recorded within the Site (347389-001, 347389-002 and 347389-003). The Coal Authority records indicate that shafts 347389-001 and 347389-002 were filled, grouted and capped by the National Coal Board in 1985. The Coal Authority records also state that shaft 347389-003 was filled in September 1969 and later grouted and capped by the National Coal Board in 1985. All three shafts are monitored on a two monthly basis for gas by, or on behalf of, the Coal Authority. It is considered that the risk of these recorded shafts affecting the proposed development is likely to be low.

There is the possibility of unrecorded mine entries within the site, notably in the south-western area associated with the shallow Worsley Four Feet (3FT) seam. It is considered at this stage that there is a moderate/high risk of unrecorded shafts affecting the proposed development within the south-western area of the site.

Opencast Mines

The Coal Authority stated that there are no recorded opencast coal mines within 500 metres of the enquiry boundary.

Investigation and Remedial Works

No remedial or investigative work is recorded by the Coal Authority within 50m of the Site.

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.

Coal Authority Mine Gas Management

Passive vent stacks have been installed within the 3 No. mine entries within the south-eastern area of the site.



Project No : TE1163PRA1
Page No : 18 of 31
Engineer: Alex Preston
Date: 13/08/2020

**A PRELIMINARY RISK
ASSESSMENT FOR THE FORMER
CRONTON COLLIERY**

It is understood that the area of the shafts will not be disturbed or developed and their management will be retained by the Coal Authority. It is therefore considered that the risk to the proposed development is likely to be low.

It is recommended that discussions with the Coal Authority are undertaken with regard to the potential utilisation of the mine gas emissions from the 3 No. shafts if an energy centre (gas engine) is proposed within the development, subject to gas volumes and quality.



**A PRELIMINARY RISK
ASSESSMENT FOR THE FORMER
CRONTON COLLIERY**

Project No : TE1163PRA1
Page No : 19 of 31
Engineer: Alex Preston
Date: 13/08/2020

5. PROPOSED DEVELOPMENT

It has been assumed in the production of this report that the Site is to be redeveloped into 4 No. industrial warehouses each with associated car parking areas, infrastructure, areas of soft landscaping and surface water attenuation ponds in the south-eastern area of the Site. A large scale earthworks exercise is proposed to provide the appropriate development platforms and highway gradients.

The proposed layout of the Site is presented in UMC Architects Drawing No. 18128-P0006 Rev F, which is included within Appendix A to this report.



A PRELIMINARY RISK ASSESSMENT FOR THE FORMER CRONTON COLLIERY

6. PRELIMINARY CONCEPTUAL MODEL

Based on the desk study, a combined preliminary conceptual site model and conceptual exposure model has been developed for the proposed future land use. This summarises the understanding of surface and sub-surface features, the potential contaminant sources, transport pathways and receptors. In assessing the likely contaminants present at the Site, reference has also been made to Defra and Environment Agency supporting documentation. A preliminary qualitative risk assessment has also been made of the likelihood of the linkage operating and its potential significance.

The potential pollutant linkages identified and the qualitative risk assessment for these are presented in Table 6.1. The terms used in the preliminary qualitative risk assessment are defined in Appendix E.

6.1. Justification

The following factors are considered pertinent in defining the conceptual model.

Land Use

- The Site is currently unoccupied with no above ground structures. The northern area of the Site is currently occupied by agricultural land. The southern area of the Site is currently occupied by immature woodland over regraded colliery spoil.
- The earliest available OS maps indicate that the site was occupied with agricultural land with pockets of woodland and hedgerows. OS maps from 1925 show that the southern and central areas of the Site were occupied by buildings, railway lines and spoil heaps associated with Cronton Colliery. It is understood that Cronton Colliery was operational between 1913 and 1984. The 2002 OS map indicates the presence of spoil heaps across the southern and eastern areas of the Site indicating regrading works were undertaken in the southern area of the Site. It is understood that in 1995, the site was partially restored by removing the colliery infrastructure and major earthworks, and then mixing colliery spoil with paper mill crumb and sewage cake to create soils to support woodland planting.
- Pertinent surrounding current and historic land uses include brick works, sewage works, a colliery and associated infrastructure, a pumping house, multiple unspecified pits, a potentially in-filled reservoir and multiple potentially in-filled ponds.
- The southern area of the Site is understood to underlain in part by Made Ground comprising manufactured topsoil (blend of colliery spoil, paper mill crumb and sewage cake). Superficial Deposits beneath the majority of the site are anticipated to comprise Till, with Alluvium locally within the eastern area of the site and in the vicinity of the proposed southern access road. The superficial deposits are underlain by the Pennine Middle Coal Measures Formation in the western half of the Site comprising mudstone, siltstone and sandstones and the Kinnerton Sandstone Formation in the eastern half of the Site comprising sandstones. The nature and thickness of the Made Ground and superficial deposits is likely to be significant in determining the final foundation design.
- The superficial stratum beneath the majority of the site (Till) is designated as a Secondary (undifferentiated) Aquifer, with the Alluvium along the eastern and south-eastern areas of the site designated as Secondary (A) Aquifer. The bedrock of the



Project No : TE1163PRA1

Page No : 21 of 31

Engineer: Alex Preston

Date: 13/08/2020

A PRELIMINARY RISK ASSESSMENT FOR THE FORMER CRONTON COLLIERY

Pennine Middle Coal Measures Formation beneath the majority of the Site and the Etruria Formation in the south of the Site are designated as Secondary (A) Aquifers and the Kinnerton Formation beneath the eastern area of the Site is designated as a Principal Aquifer.

- The eastern area of the Site lies within a Source Protection Zone (Total Catchment – Zone 3).
- Groundwater flow is likely to be in a southerly direction. There are no licensed groundwater abstractions within 1km of the Site.
- Watercourses are present within the site that are within the catchment for Ditton Brook. On this basis, the controlled waters sensitivity is considered by Tier Environmental to be moderate.
- Multiple discharge consents are recorded up to 250m south and east of the Site. Effluent type is recorded as sewage.
- The flood risk in the southern area of the Site is considered to be moderate. The probability of flooding is considered to be 1% or greater from rivers and 0.5% or greater from the sea. It is understood a separate flood risk assessment is being undertaken.
- The Old Wood located adjacent to the western site boundary is designated as ancient woodland; changing ground levels in the vicinity of The Old Wood is likely to require agreement from Natural England through the planning process.
- A landfill is located 60m south of the Site recorded as accepting inert waste.
- Numerous potential sources of hazardous ground gases include potential shallow mine workings, deeper mine workings and upward gas migration along geological faults, colliery spoil, the 3 No. recorded mine shafts associated with the former Cronton Colliery, any potential hydrocarbon impacted soils and/or groundwater and potentially infilled ponds and/or drainage ditches
- The Site is not located in an area where radon protection measures are required.

Potential Sources

- Metals, PAHs, phenol, petroleum hydrocarbons, sulphate, and asbestos fibres and or/asbestos containing materials in the on and off-site Made Ground.
- Potential hazardous ground gas generation from coal seams/historic workings, mine entries, colliery spoil and potentially infilled ponds/reservoirs.

Potential Pathways

- Dermal contact, ingestion and inhalation of contaminants on site.
- Migration of ground gas/explosion.



A PRELIMINARY RISK ASSESSMENT FOR THE FORMER CRONTON COLLIERY

Project No : TE1163PRA1
Page No : 22 of 31
Engineer: Alex Preston
Date: 13/08/2020

- Lateral and/or vertical migration of mobile contaminants within shallow groundwater.
- Leaching and migration of mobile contaminants from Made Ground soils to adjacent sites along services and conduits.
- Contaminated dust migration during construction.
- Migration via water pipes.

Potential Receptors

- Future users of the site and proposed buildings following redevelopment of the site.
- Users of adjacent areas due to the potential for off-site migration of gases, vapours or contaminated dust during redevelopment.
- Site investigation, construction and ground workers (during the investigation and redevelopment of the site), and future underground service maintenance workers, from hazardous short term exposure.
- Principal and Secondary Aquifers located beneath the Site.
- On-site surface water courses.

6.2. Uncertainties

The following uncertainties exist in the preliminary conceptual model.

- Any potential sources of contamination not highlighted from the historical maps during the desk based third party investigation of the Site.
- Any unrecorded geological features.
- Any unrecorded pollution events during the Site's history.



**A PRELIMINARY RISK
ASSESSMENT FOR THE FORMER
CRONTON COLLIERY**

Project No : TE1163PRA1
Page No : 23 of 31
Engineer: Alex Preston
Date: 13/08/2020

Table 6.1. Preliminary Assessment of Potential Pollutant Linkages.

Pollutant linkage				Qualitative risk assessment
	Source	Pathway(s)	Receptor(s)	
1	Possible metals, PAH, TPH, phenol, sulphate, VOCs/SVOCs and asbestos contamination of on-site Made Ground from previous on- and off-site uses.	Dermal contact, ingestion and inhalation of contaminants including contaminated dust migration. Migration via water or fuel pipes	Future site users (commercial)	Medium x Low Likelihood = Moderate/Low Risk
			Adjacent site users (commercial)	Medium x Low Likelihood = Moderate/Low Risk
			Ground workers/Future maintenance workers	Medium x Low Likelihood = Moderate/Low Risk
		Migration of mobile contaminants from Made Ground soils to adjacent sites along services and conduits.	Adjacent site users (commercial)	Medium x Low Likelihood = Moderate/Low Risk
		Lateral and/or vertical migration of mobile contaminants.	Principal and Secondary aquifer located beneath the Site	Medium x Likely = Moderate Risk
			Ditton Brook	Medium x Low Likelihood = Moderate/Low Risk
2	Potential hazardous soil and gas generation.	Inhalation (indoor and outdoor).	Future site users (commercial)	Medium x Likely = Moderate Risk
			Adjacent site users (commercial)	Medium x Low Likelihood = Moderate/Low Risk
			Future maintenance workers	Medium x Likely = Moderate Risk
		Migration of ground gas / explosion.	Buildings and services	Severe x Low Likelihood = Moderate Risk

For definition of the terms used in the qualitative risk assessment, please see Appendix E



A PRELIMINARY RISK ASSESSMENT FOR THE FORMER CRONTON COLLIERY

Project No : TE1163PRA1
Page No : 24 of 31
Engineer: Alex Preston
Date: 13/08/2020

7. POTENTIAL GEO-ENVIRONMENTAL DEVELOPMENT CONSTRAINTS

7.1. General

This geo-environmental appraisal has been performed for the future development of land located at the former Cronton Colliery site, Fox's Bank Lane, Cronton, L35 SU.

It is understood that the Site will be redeveloped for commercial/industrial land use.

7.2. Potential Contamination

Tier Environmental have reviewed the historic information and there is evidence of potential contamination at the site within the shallow soils associated with the Site's former use as a colliery, brick works and sewage works; however, further site investigation would be required to assess this.

In addition, it is considered that Made Ground may contain metals, PAHs, phenol, asbestos, sulphate and VOCs / SVOCs associated with the site's historic land use and inherent concentrations within the Made Ground soils.

7.3. Clean Cover System / Off-Site Disposal

There is potential, given the previous Site use as a colliery, for the observed Made Ground and natural ground to be contaminated which presents a potentially significant risk to human health / controlled waters. This would be established via site investigation works that would include soil sampling for laboratory chemical analysis and human health/controlled waters risk assessment undertaken in accordance with current guidance. There may be a requirement for further Detailed Quantitative Risk Assessment to fully establish potential risks to human health or controlled waters.

In the event that potentially significant risks to future site users are identified from the risks assessment, then there is a potential for an abnormal cost to be realised associated with the implementation of a suitable cover system in soft landscaped areas or excavation and disposal of impacted soils to break potential direct contact, vapour and ingestion pathways.

One potential abnormal cost would be associated with any unknown underground storage tanks or associated infrastructure. It is recommended that trial pitting works are undertaken to establish the presence or otherwise of such structures; however, please note that there would remain a risk that other structures may exist in areas outside suspected zones. This risk could only ever be fully mitigated via a whole site turnover which is why focussed investigations in suspected areas are considered preferable.

7.4. Waste Soils

It is anticipated at this stage that the most sustainable solution for the site will be the retention/reuse of all site won soils within the site during the preparatory works, subject to confirmatory testing.

If soil arisings are disposed off-site, then material exported from the site to landfill should be hauled by a registered waste carrier in accordance with Duty of Care Regulations, 1991 and the Hazardous Waste Regulations, 2005.



A PRELIMINARY RISK ASSESSMENT FOR THE FORMER CRONTON COLLIERY

Characterisation of soils for waste will be required prior to off Site disposal. This provides a preliminary assessment of whether a material is potentially either inert / non-hazardous or hazardous waste, with the final outcome being determined by Waste Acceptance Criteria (WAC) testing. Final categorisation is the responsibility of the producer or holder of the waste.

There will be a requirement for the waste producer to provide appropriate WAC testing of the soils for disposal to ensure that the soils are appropriately classified and that the landfill is licensed to receive such soils. In the event that asbestos is identified within Made Ground soils, then the nature and extent of the asbestos should be determined along with the content by weight in order to assist with final waste classification. Any asbestos content recorded in excess of 0.1% w/w should be classified as hazardous waste.

7.5. Upgraded Water Pipes

The measured concentrations of determinands in the soil should be assessed to determine the potential for upgraded water pipes to protect human health from migration of contaminants in the future water supply. Laboratory chemical analysis results, applicable for the materials in which the water pipes will be laid, should be compared against the UK Water Industry Research (UKWIR) 'Guidance for the Selection of Water Supply Pipes to be used in Brownfield Sites' (10/WM/03/21).

As a further measure, it is recommended that the results of laboratory chemical testing are provided to the appropriate utility companies to determine the necessity for service protection, due to the fact that utility companies commonly refer to their own proprietary Assessment Criteria. The results of this could be that upgraded water pipes including barrier pipes or polyethylene pipes are required at the Site which may present an abnormal cost to the development works.

7.6. Gas Protection Measures

There is a potential for hazardous ground gases associated with the historic mine workings, shallow coal seam(s), mine entries, colliery spoil, Made Ground and former infilled ponds/reservoir.

Upon completion of ground gas monitoring and assessment at the Site, it is considered likely that measured concentrations of potentially hazardous ground gases may be reported at concentrations and flow rates that present a potentially significant risk to the future site users. In this case, it may be that gas protection measures may be required as specified in BS8485:2015+A1:2019. These protection measures may include passive or active systems such as venting or membrane systems dependant on the outcome of the ground gas assessment which may present an abnormal development cost.

7.7. Regrading Works

It is understood that significant regrading works will be required to provide a suitable platform for the proposed development. It is understood that the cut/fill works will generally comprise the regrading of the Site to provide suitable development platforms for the proposed units and the construction of the surface water attenuation ponds.

The proposed intrusive ground investigation will need to determine whether the proposed cut materials will be suitable for reuse and compaction as general fill (with or without material conditioning).



A PRELIMINARY RISK ASSESSMENT FOR THE FORMER CRONTON COLLIERY

Additional excavation and filling works may be required beneath the proposed development to minimise the risk of unacceptable total and/or differential settlements affecting the integrity/serviceability of the structures, notably any ground bearing floor slabs, drainage and utilities.

7.8. Foundations

Based on the published geological information and the proposed regrading works, there is the potential for poor ground to be present beneath the Site, notably Made Ground. These deposits are unlikely to provide a suitable foundation platform and, as such, the geotechnical investigation should determine the depth of these units. There is the potential that piled, raft or ground improvement foundation solutions may be required at the site, depending on the finalised design and anticipated loads of the properties.

An earthworks exercise is also currently planned so it is likely material will need to be reengineered sufficiently, such as in accordance with Specification for Highways Work Series 600, to ensure economic floor slab and foundation design. In the event that contamination is identified at the Site, care must be taken to avoid creating vertical preferential pathways, although it is noted that the deeper aquifer systems are of low sensitivity.

7.9. Obstructions

Based on the site history and information obtained during the Site walkover, where large areas of concrete hardstanding have been retained to the south of the site, there is a risk of foundations, drainage, pipework and other associated structures related to the former use of the southern and eastern areas of the site as a colliery, brickworks and sewage works and colliery.

These relict structures may impede the installation of foundations and/or infrastructure.

7.10. Slope Stability

The regrading works are likely to result in slopes integrated into the development layout, notably to the west of unit DBS1 and to the south of DBS2.

It is recommended that slope stability analyses are undertaken during the design phase; the results of the analyses may affect the unit dimensions, foundation solutions and floor slab designs for the proposed units. Retaining structures may also be required locally, notably to the west of unit DBS1 to maximise the floor area of this unit and minimise potential impact on the adjacent 'ancient woodland'.

7.11. Surface Water Drainage

Surface water runoff within historic coal mining areas are often acidic and can contain elevated concentrations of metals, notably iron that can result in ochrous discharges into watercourses if not treated.

The site is currently drained through a network of ditches/open watercourses flowing in a general southwest direction, following the local gradient.



Project No : TE1163PRA1
Page No : 27 of 31
Engineer: Alex Preston
Date: 13/08/2020

A PRELIMINARY RISK ASSESSMENT FOR THE FORMER CRONTON COLLIERY

It is understood that surface water attenuation ponds are to be incorporated into the south-eastern area of the proposed development.

It is considered at this stage that soakaways are unlikely to be suitable across the majority of the Site due to the likely presence of low permeability strata and the potential risk of causing unacceptable settlements within the colliery spoil and fill materials.

7.12. Southern Access Road

It is understood that one of the access options for the proposed development is across an existing bridge/embankment or through the infilled reservoir. It is understood that the existing embankment is likely to be replaced due to current width restrictions and potential structural instability (existing vertical crack above the culvert). If the access road passes through the infilled reservoir, the excavation of and replacement of materials is likely to be required. Alternatively, geogrids may be the preferred option to minimise unacceptable settlements of the access road.

7.13. Existing Services

An overhead electricity power line currently traverses the northern area of the Site in an approximate east-west direction. The proposed regrading works and location of units will need to consider the presence of these power lines and any associated easements/restrictions.

The nature and extent of underground services (and associated easements) at the Site should be confirmed with the appropriate service providers prior to undertaking the proposed intrusive ground investigations and development works.

The proximity of any existing services may preclude the use of some ground improvement techniques and/or foundation solutions, such as dynamic compaction or driven precast concrete piles due to potential detrimental vibration effects.

7.14. Shallow Coal Mineworkings

The Coal Authority Mining Report (see Appendix H) states that the south-western area of the Site is located in an area that could be affected by historic shallow mineworkings. The stabilisation of shallow coal mineworkings may be required beneath the proposed structures, highways and infrastructure to minimise the risk of potential settlements affecting the proposed development.

It is considered at this stage that there is a low risk of the recorded mine workings affecting the proposed development across the majority of the site.

7.15. Mine Entries

There are 3 No. recorded mine entries recorded within the site boundary. It is understood that these mine entries will not be disturbed during the proposed development and that their management will remain the responsibility of the Coal Authority. It is recommended that the land ownership of the fenced-off areas around these shafts be retained by the current owner/Coal Authority.

Additional unrecorded mine entries should be anticipated, notably in the western area of the site.

The areas around all mine entries should be assumed to have a high risk of collapse until the treatment status can be proven.



**A PRELIMINARY RISK
ASSESSMENT FOR THE FORMER
CRONTON COLLIERY**

Project No : TE1163PRA1
Page No : 28 of 31
Engineer: Alex Preston
Date: 13/08/2020

7.16. Tree Survey

Numerous trees and hedging are present across the Site therefore foundations should be designed in accordance with BRE and/or CIRIA guidance with regard to shrinkable cohesive soils.



**A PRELIMINARY RISK
ASSESSMENT FOR THE FORMER
CRONTON COLLIERY**

Project No : TE1163PRA1
Page No : 29 of 31
Engineer: Alex Preston
Date: 13/08/2020

8. REGULATORY APPROVALS

The conclusions and recommendations presented above are considered reasonable based on the findings of the site investigation. 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.

It is recommended that conditions placed on any planning permission are discharged prior to commencement of site works.



Project No : TE1163PRA1
Page No : 30 of 31
Engineer: Alex Preston
Date: 13/08/2020

A PRELIMINARY RISK ASSESSMENT FOR THE FORMER CRONTON COLLIERY

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Project No : TE1163PRA1
Page No : 31 of 31
Engineer: Alex Preston
Date: 13/08/2020

A PRELIMINARY RISK ASSESSMENT FOR THE FORMER CRONTON COLLIERY

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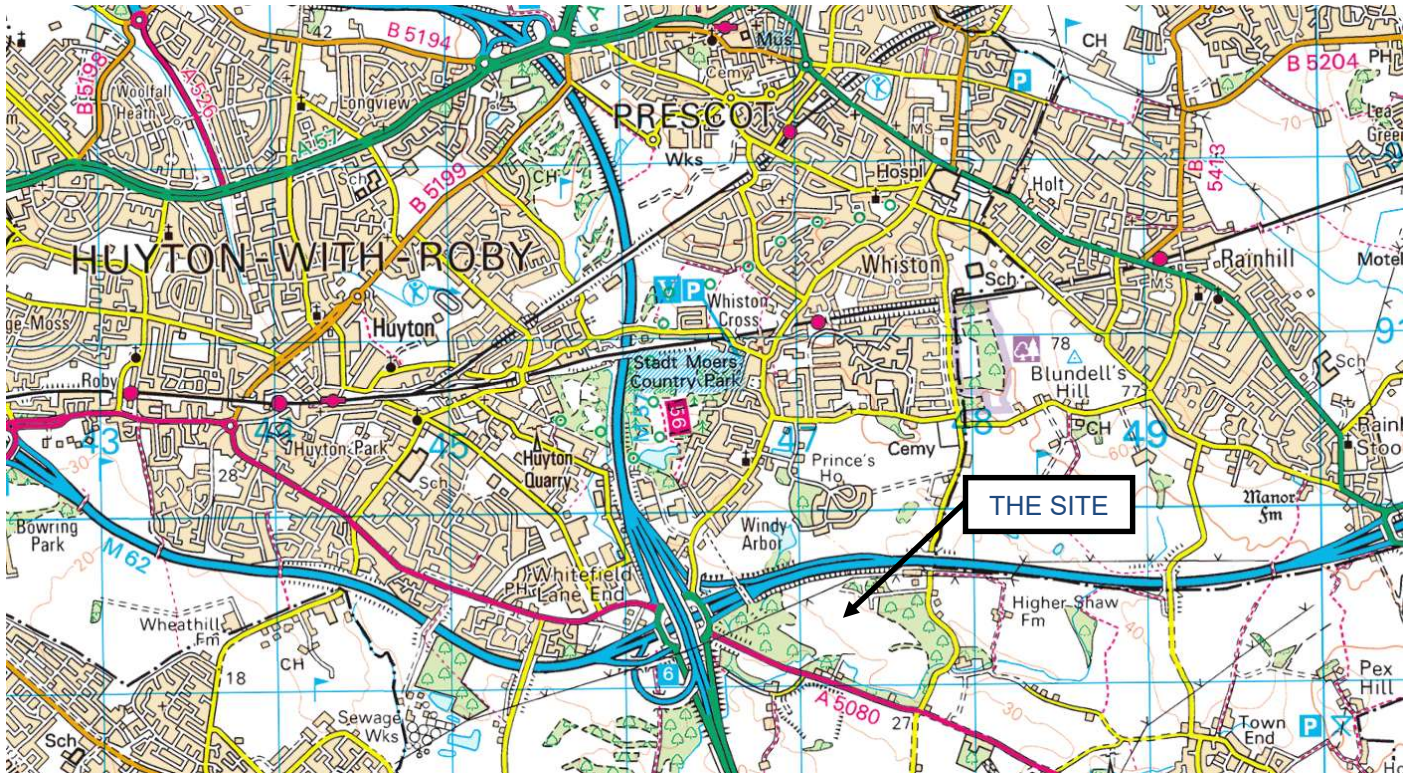
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APPENDIX A - FIGURES AND DRAWINGS



Site Location Plan

Contract Number	TE1163
Contract	Former Cronton Colliery Site
Client	Tritax Symmetry Limited



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Scale	NTS	
Drawn by	JS	Approved SL
Drawing Number	TE1163PRA1	



- Dimensions are in millimeters, unless stated otherwise.
- Scaling of this drawing is not recommended.
- It is the recipient's responsibility to print this document to the correct scale.
- All relevant drawings and specifications should be read in conjunction with this drawing.

SCHEDULE OF ACCOMMODATION (Gross Internal Area unless otherwise stated)

FULL APPLICATION

Unit 01	
Warehouse Area	- 153,100 sq ft (14,223m ²)
Office (2 storey)	- 8,500 sq ft (790m ²)
(Incl. GF Core)	
Transport Office	- 2,500 sq ft (232m ²)
Gatehouse	- 300 sq ft (28m ²)
Total Area (GIA)	- 164,400 sq ft (15,273m²)
Total Area (GEA)	- 168,525 sq ft (15,656m²)

Loading Docks	- 15
Level Access	- 4
HGV Parking	- 37
Car Parking	- 154 (Inc. 8 No. Acc + 8 EV)
Motorcycle Parking	- 8

- Application Boundary
Extent of Full Application

rev	amendments	by	ckd	date
-----	------------	----	-----	------

Symmetry Park, Merseyside

Illustrative Masterplan

TRITAX SYMMETRY
A TRITAX BIG BOX COMPANY

umc
architects
3rd Floor, Manchester Club, 81 King Street, Manchester, M2 4AH
t. +44 (0)161 413 0590 e. info@umcarchitects.com

Drawing Status:	Preliminary
Drawn / Checked:	MY / DEB
Date:	07/08/2019
Scale:	1:2000@ A1
Drawing no:	Revision:
18128 P0006	F

Illustrative Masterplan

10m SCALE 1:2000

APPENDIX B - GLOSSARY OF TERMS

ACEC	Aggressive Chemical Environment for Concrete (classification)
aOD	Above Ordnance Datum
bgl	Below ground level
BGS	British Geological Survey
BRE	Building Research Establishment
CBR	California Bearing Ratio (test)
COMAH	Control of Major Accident Hazards (regulations)
Designated location	Site (and the ecosystem on that site) protected under national or international legislation. A potential ecological receptor to be considered as part of the assessment of land contamination. Example designated locations include SSSIs (q.v.), SACs (q.v.), national nature reserves, Ramsar sites and bird special protection areas.
DQA	Data Quality Assessment
DQO	Data Quality Objective
DQRA	Detailed Quantitative Risk Assessment
DWS	Drinking Water Standard
EQS	Environmental Quality Standard
GAC	Generic Assessment Criterion
GQA	General Quality Assessment (Environment Agency)
GSV	Gas Screening Value
HCV	Health Criteria Value
IPPC	Integrated Pollution Prevention and Control (regulations)
K _{ow}	Octanol-water partition coefficient
LEL	Lower Explosive Limit
LL	Liquid Limit
LoD	Limit of Detection (analytical)
LoQ	Limit of Quantification (analytical)
Mean Value Test	Statistical test (described in CLR7) to estimate the mean value of a normally distributed population of data at a given level of confidence. Normally for contaminated land assessment, the 95th percentile (referred to as the 95%UCL or US95) is applied as a reasonable but conservative estimate of the mean concentration for comparison with the relevant assessment criteria.
Maximum Value Test	Statistical test (described in CLR7) to identify whether an elevated concentration within a normally distributed data set forms part of the underlying population from which it has been sampled or whether it is an outlier (such as a localised area of contamination) that merits further consideration.
MC	Moisture Content
NGR	National Grid Reference
NIHHS	Notification of Installations Handling Hazardous Substances (regulations)
OS	Ordnance Survey
PI	Plasticity Index
PID	Photoionisation Detector
PL	Plastic Limit
ppm	Parts per million
ppmv	Parts per million by volume
QA	Quality Assurance
QC	Quality Control
SAC	Special Area of Conservation
SOM	Soil Organic Matter
SPT	Standard Penetration Test
SPZ	Source Protection Zone (see Appendix E)
SSAC	Site-Specific Assessment Criterion
SSSI	Site of Special Scientific Interest
SVOC	Semi-Volatile Organic Compound

TEF	Toxicity Equivalent Factor
TPH	Total Petroleum Hydrocarbons
TWA	Time Weighted Average
US95	95 th percentile estimate of the true mean value of a data population (also known as 95%UCL).
VOC	Volatile Organic Compound

APPENDIX C - PHOTOGRAPHS TAKEN DURING SITE WALKOVER

Photograph 1: Northern area of site, looking towards the northwest (proposed DBS1 and DBS3).



Photograph 2: Vent stacks associated with the recorded mine shafts in the southeast of the site.



Photograph 3: Vegetated and sloping ground in the east of the site (proposed DBS4).



Photograph 4: Vegetated and sloping ground in the southwest of the site (proposed DBS2).



Photograph 5: Bridge/embankment structure with vertical crack along the line of the potential southern access road.



APPENDIX D - DEFINITION OF SOURCE PROTECTION ZONES AND GROUNDWATER VULNERABILITY ASSESSMENTS

Source Protection Zones

Source Protection Zones (SPZs) are defined by the Environment Agency (for England and Wales), SEPA (Scotland) and the Environment and Heritage Service (Northern Ireland) for groundwater sources such as wells, boreholes and springs that are used for public drinking water supply. The zones show the risk of contamination from activities that might cause groundwater pollution in the area. The size and shape of a zone depends upon subsurface conditions, how the groundwater is removed, and other environmental factors.

SPZs are classified into four categories:

- **Zone 1 (Inner protection zone).** Any pollution that can travel to the abstraction point within 50 days from any point within the zone is classified as being inside Zone 1. This applies at and below the groundwater table. This zone also has a minimum 50 m protection radius around the abstraction point. These criteria are designed to protect against the transmission of toxic chemicals and water-borne disease.
- **Zone 2 (Outer protection zone).** The outer zone covers pollution that takes up to 400 days to travel to the abstraction point, or 25% of the total catchment area, whichever area is the largest. This travel time is the minimum period over which the Environment Agency considers that pollutants need to be diluted, reduced in strength or delayed by the time they reach the abstraction point.
- **Zone 3 (Total catchment).** This is the total area needed to support removal of water from the abstraction point, and to support any discharge from this.
- **Zone of special interest.** This may occasionally be defined as a special case. This is usually where local conditions mean that industrial sites and other potential sources of contamination could affect the groundwater source, even though they are outside the normal catchment area.

Groundwater Vulnerability Assessments

From 1 April 2010 The Environment Agency Groundwater Protection Policy began to use aquifer designations which are consistent with the Water Framework Directive. These designations reflect the importance of aquifers in terms of groundwater as a resource (drinking water supply) but also their role in supporting surface water flows and wetland ecosystems.

The aquifer designation data is based on geological mapping provided by the British Geological Survey. It is updated regularly to reflect their ongoing programme of improvements to these maps. The maps are split into two different type of aquifer designation:

- Superficial (Drift) - permeable unconsolidated (loose) deposits. For example, sands and gravels.
- Bedrock -solid permeable formations e.g. sandstone, chalk and limestone.

The maps display the following aquifer designations:

Table 1. Aquifer Classification ("Geological Classification").

Classification	Definition
Principal Aquifers (Highly Permeable)	These are layers of rock or drift deposits that have high intergranular and/or fracture permeability - meaning they usually provide a high level of water storage. They may support water supply and/or river base flow on a strategic scale. In most cases, principal aquifers are aquifers previously designated as major aquifer.
Secondary A Aquifers	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers.
Secondary B Aquifers	Predominantly lower permeability layers which may store and yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering. These are generally the water-bearing parts of the former non-aquifers.
Secondary Undifferentiated Aquifers	This has been assigned in cases where it has not been possible to attribute either category A or B to a rock type. In most cases, this means that the layer in question has previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type.
Unproductive Strata	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow.

APPENDIX E - DEFINITIONS OF TERMS USED IN QUALITATIVE AND QUANTITATIVE RISK ASSESSMENTS

For the qualitative and quantitative assessment of risks posed by potential pollutant linkages to all receptors, a common terminology has been employed throughout this report.

Evaluated significance of pollutant linkage	Definition
Very High	There is a high probability that severe harm or pollution by the identified contaminant could arise at the identified receptor unless appropriate remedial action is taken.
High	It is probable that harm to, or pollution of, the identified receptor by the identified contaminant could occur unless appropriate remedial action is taken.
Moderate	It is possible that harm to, or pollution of, the identified receptor by the identified contaminant could occur unless appropriate remedial action is taken. However, it is relatively unlikely that the consequences would be severe.
Low	It is possible that harm to, or pollution of, the identified receptor by the identified contaminant could occur. However, if any harm is realised it is likely that any effects will be mild.
Negligible	The presence of an identified contaminant will not cause significant harm or pollution to the identified receptor <i>via</i> the specified pathway(s).

APPENDIX F - GROUNDSURE REPORT



TIER ENVIRONMENTAL

SUIT 513, CHADWICK HOUSE, WARRINGTON
ROAD,
WARRINGTON, WA3 6AE

Groundsure
Reference:

GS-5672874

Your Reference: TE1163_-_PE02796

Report Date 6 Dec 2018

Report Delivery Method: Email - pdf

Enviro Insight

Address: HALSNEAD FARM, HALSNEAD FARM, FOXS BANK LANE, CRONTON, L35 3SU

Dear Sir/ Madam,

Thank you for placing your order with Groundsure. Please find enclosed the **Groundsure Enviro Insight** as requested.

If you need any further assistance, please do not hesitate to contact our helpline on 08444 159000 quoting the above Groundsure reference number.

Yours faithfully,

Managing Director
Groundsure Limited

Enc.
Groundsure Enviroinsight

Address: HALSNEAD FARM, HALSNEAD FARM, FOXS BANK LANE, CRONTON, L35 3SU
Date: 6 Dec 2018
Reference: GS-5672874
Client: TIER ENVIRONMENTAL



Aerial Photograph Capture date: 21-Apr-2016
Grid Reference: 347086,389467
Site Size: 28.96ha

Report Reference: GS-5672874
Client Reference: TE1163_-_PE02796

Contents Page

Contents Page	3
Overview of Findings	6
Using this report	10
1. Historical Land Use	11
1. Historical Industrial Sites	12
1.1 Potentially Contaminative Uses identified from 1:10,000 scale Mapping	12
1.2 Additional Information – Historical Tank Database	14
1.3 Additional Information – Historical Energy Features Database	15
1.4 Additional Information – Historical Petrol and Fuel Site Database	15
1.5 Additional Information – Historical Garage and Motor Vehicle Repair Database	16
1.6 Historical military sites	16
1.7 Potentially Infilled Land	16
2. Environmental Permits, Incidents and Registers Map	21
2. Environmental Permits, Incidents and Registers	22
2.1 Industrial Sites Holding Licences and/or Authorisations	22
2.1.1 Records of historic IPC Authorisations within 500m of the study site	22
2.1.2 Records of Part A(1) and IPPC Authorised Activities within 500m of the study site	22
2.1.3 Records of Red List Discharge Consents (potentially harmful discharges to controlled waters) within 500m of the study site	22
2.1.4 Records of List 1 Dangerous Substances Inventory Sites within 500m of the study site	22
2.1.5 Records of List 2 Dangerous Substance Inventory Sites within 500m of the study site	22
2.1.6 Records of Part A(2) and Part B Activities and Enforcements within 500m of the study site	23
2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations	23
2.1.8 Records of Licensed Discharge Consents within 500m of the study site	23
2.1.9 Records of Water Industry Referrals (potentially harmful discharges to the public sewer) within 500m of the study site	25
2.1.10 Records of Planning Hazardous Substance Consents and Enforcements within 500m of the study site	25
2.2 Dangerous or Hazardous Sites	25
2.3 Environment Agency/Natural Resources Wales Recorded Pollution Incidents	25
2.3.1 Records of National Incidents Recording System, List 2 within 500m of the study site	25
2.3.2 Records of National Incidents Recording System, List 1 within 500m of the study site	26
2.4 Sites Determined as Contaminated Land under Part 2A EPA 1990	26
3. Landfill and Other Waste Sites Map	27
3. Landfill and Other Waste Sites	28
3.1 Landfill Sites	28
3.1.1 Records from Environment Agency/Natural Resources Wales landfill data within 1000m of the study site	28
3.1.2 Records of Environment Agency/Natural Resources Wales historic landfill sites within 1500m of the study site	28
3.1.3 Records of BGS/DoE non-operational landfill sites within 1500m of the study site	30
3.1.4 Records of Landfills from Local Authority and Historical Mapping Records within 1500m of the study site	30
3.2 Other Waste Sites	30
3.2.1 Records of waste treatment, transfer or disposal sites within 500m of the study site	30
3.2.2 Records of Environment Agency/Natural Resources Wales licensed waste sites within 1500m of the study site	30
4. Current Land Use Map	34
4. Current Land Uses	35
4.1 Current Industrial Data	35
4.2 Petrol and Fuel Sites	35
4.3 National Grid High Voltage Underground Electricity Transmission Cables	36
4.4 National Grid High Pressure Gas Transmission Pipelines	36

5. Geology	37
5.1 Artificial Ground and Made Ground.....	37
5.2 Superficial Ground and Drift Geology	37
5.3 Bedrock and Solid Geology	37
6 Hydrogeology and Hydrology	39
6a. Aquifer Within Superficial Geology	39
6b. Aquifer Within Bedrock Geology and Abstraction Licences	40
6c. Hydrogeology – Source Protection Zones and Potable Water Abstraction Licences	41
6d. Hydrogeology – Source Protection Zones within confined aquifer	42
6e. Hydrology – Watercourse Network and River Quality	43
6.Hydrogeology and Hydrology	44
6.1 Aquifer within Superficial Deposits.....	44
6.2 Aquifer within Bedrock Deposits.....	44
6.3 Groundwater Abstraction Licences.....	45
6.4 Surface Water Abstraction Licences.....	48
6.5 Potable Water Abstraction Licences.....	49
6.6 Source Protection Zones.....	51
6.7 Source Protection Zones within Confined Aquifer.....	51
6.8 Groundwater Vulnerability and Soil Leaching Potential.....	52
6.9 River Quality.....	53
6.9.1 Biological Quality:.....	53
6.9.2 Chemical Quality:.....	53
6.10 Ordnance Survey MasterMap Water Network.....	53
6.11 Surface Water Features.....	71
7a. Environment Agency/Natural Resources Wales Flood Map for Planning (from rivers and the sea)	72
7b. Environment Agency/Natural Resources Wales Risk of Flooding from Rivers and the Sea (RoFRaS)	73
Map	73
7 Flooding	74
7.1 River and Coastal Zone 2 Flooding.....	74
7.2 River and Coastal Zone 3 Flooding.....	74
7.3 Risk of Flooding from Rivers and the Sea (RoFRaS) Flood Rating.....	75
7.4 Flood Defences.....	75
7.5 Areas benefiting from Flood Defences.....	75
7.6 Areas benefiting from Flood Storage.....	75
7.7 Groundwater Flooding Susceptibility Areas.....	75
7.8 Groundwater Flooding Confidence Areas.....	76
8. Designated Environmentally Sensitive Sites Map	77
8. Designated Environmentally Sensitive Sites	78
8.1 Records of Sites of Special Scientific Interest (SSSI) within 2000m of the study site:.....	78
8.2 Records of National Nature Reserves (NNR) within 2000m of the study site:.....	78
8.3 Records of Special Areas of Conservation (SAC) within 2000m of the study site:.....	78
8.4 Records of Special Protection Areas (SPA) within 2000m of the study site:.....	78
8.5 Records of Ramsar sites within 2000m of the study site:.....	78
8.6 Records of Ancient Woodland within 2000m of the study site:	79
8.7 Records of Local Nature Reserves (LNR) within 2000m of the study site:.....	79
8.8 Records of World Heritage Sites within 2000m of the study site:.....	79
8.9 Records of Environmentally Sensitive Areas within 2000m of the study site:	79
8.10 Records of Areas of Outstanding Natural Beauty (AONB) within 2000m of the study site:	79
8.11 Records of National Parks (NP) within 2000m of the study site:	79
8.12 Records of Nitrate Sensitive Areas within 2000m of the study site:.....	80
8.13 Records of Nitrate Vulnerable Zones within 2000m of the study site:.....	80

8.14 Records of Green Belt land within 2000m of the study site:.....	80
9. Natural Hazards Findings.....	81
9.1 Detailed BGS GeoSure Data.....	81
9.1.1 Shrink Swell.....	81
9.1.2 Landslides.....	81
9.1.3 Soluble Rocks.....	81
9.1.4 Compressible Ground.....	82
9.1.5 Collapsible Rocks.....	82
9.1.6 Running Sand.....	82
9.2 Radon.....	83
9.2.1 Radon Affected Areas.....	83
9.2.2 Radon Protection.....	83
10. Mining.....	84
10.1 Coal Mining.....	84
10.2 Non-Coal Mining.....	84
10.3 Brine Affected Areas	84
Contact Details.....	85
Standard Terms and Conditions.....	87

Overview of Findings

For further details on each dataset, please refer to each individual section in the main report as listed. Where the database has been searched a numerical result will be recorded. Where the database has not been searched '-' will be recorded.

Section 1: Historical Industrial Sites	On-site	0-50	51-250	251-500
1.1 Potentially Contaminative Uses identified from 1:10,000 scale mapping	48	13	26	21
1.2 Additional Information – Historical Tank Database	11	8	10	2
1.3 Additional Information – Historical Energy Features Database	2	3	0	0
1.4 Additional Information – Historical Petrol and Fuel Site Database	0	0	0	0
1.5 Additional Information – Historical Garage and Motor Vehicle Repair Database	0	0	0	0
1.6 Historical military sites	0	0	0	0
1.7 Potentially Infilled Land	36	17	49	72
Section 2: Environmental Permits, Incidents and Registers	On-site	0-50m	51-250	251-500
2.1 Industrial Sites Holding Environmental Permits and/or Authorisations				
2.1.1 Records of historic IPC Authorisations	0	0	0	0
2.1.2 Records of Part A(1) and IPPC Authorised Activities	0	0	0	0
2.1.3 Records of Red List Discharge Consents	0	0	0	0
2.1.4 Records of List 1 Dangerous Substances Inventory sites	0	0	0	0
2.1.5 Records of List 2 Dangerous Substances Inventory sites	0	0	0	0
2.1.6 Records of Part A(2) and Part B Activities and Enforcements	0	0	0	0
2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations	0	0	0	0
2.1.8 Records of Licensed Discharge Consents	1	0	6	7
2.1.9 Records of Water Industry Referrals	0	0	0	0
2.1.10 Records of Planning Hazardous Substance Consents and Enforcements within 500m of the study site	0	0	0	0
2.2 Records of COMAH and NIHHS sites	0	0	0	0
2.3 Environment Agency/Natural Resources Wales Recorded Pollution Incidents				
2.3.1 National Incidents Recording System, List 2	0	0	0	2
2.3.2 National Incidents Recording System, List 1	0	0	0	0
2.4 Sites Determined as Contaminated Land under Part 2A EPA 1990	0	0	0	0

Section 3: Landfill and Other Waste Sites	On-site	0-50m	51-250	251-500	501-1000	1000-1500
3.1 Landfill Sites						
3.1.1 Environment Agency/Natural Resources Wales Registered Landfill Sites	0	0	1	0	0	Not searched
3.1.2 Environment Agency/Natural Resources Wales Historic Landfill Sites	0	0	0	0	1	7
3.1.3 BGS/DoE Landfill Site Survey	0	0	0	0	0	1
3.1.4 Records of Landfills in Local Authority and Historical Mapping Records	0	0	0	0	1	1
3.2 Landfill and Other Waste Sites Findings						
3.2.1 Operational and Non-Operational Waste Treatment, Transfer and Disposal Sites	0	0	0	0	Not searched	Not searched
3.2.2 Environment Agency/Natural Resources Wales Licensed Waste Sites	0	0	0	1	1	10

Section 4: Current Land Use	On-site	0-50m	51-250	251-500
4.1 Current Industrial Sites Data	5	3	4	Not searched
4.2 Records of Petrol and Fuel Sites	0	0	0	0
4.3 National Grid Underground Electricity Cables	0	0	0	0
4.4 National Grid Gas Transmission Pipelines	0	0	0	0

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

Section 6: Hydrogeology and Hydrology				0-500m		
6.1 Records of Strata Classification in the Superficial Geology within 500m of the study site				Identified		
6.2 Records of Strata Classification in the Bedrock Geology within 500m of the study site				Identified		
	On-site	0-50m	51-250	251-500	501-1000	1000-2000
6.3 Groundwater Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	20
6.4 Surface Water Abstraction Licences (within 2000m of the study site)	0	0	0	3	1	0
6.5 Potable Water Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	11
6.6 Source Protection Zones (within 500m of the study site)	1	0	0	1	Not searched	Not searched
6.7 Source Protection Zones within Confined Aquifer	0	0	0	0	Not searched	Not searched
6.8 Groundwater Vulnerability and Soil Leaching Potential (within 500m of the study site)	4	0	#250GWV #	#500GWV #	Not searched	Not searched

Section 6: Hydrogeology and Hydrology

0-500m

	On-site	0-50m	51-250	251-500	501-1000	1000-1500
6.9 Environment Agency/Natural Resources Wales information on river quality within 1500m of the study site	No	No	No	Yes	No	No
6.10 Ordnance Survey MasterMap Water Network entries within 500m of the site	14	10	78	108	Not searched	Not searched
6.11 Surface water features within 250m of the study site	Yes	Yes	Yes	Not searched	Not searched	Not searched

Section 7: Flooding

7.1 Environment Agency Zone 2 floodplains within 250m of the study site	Identified					
7.2 Environment Agency/Natural Resources Wales Zone 3 floodplains within 250m of the study site	Identified					
7.3 Risk of flooding from Rivers and the Sea (RoFRaS) rating for the study site	Very Low					
7.4 Flood Defences within 250m of the study site	None identified					
7.5 Areas benefiting from Flood Defences within 250m of the study site	None identified					
7.6 Areas used for Flood Storage within 250m of the study site	None identified					
7.7 Maximum BGS Groundwater Flooding susceptibility within 50m of the study site	Potential at Surface					
7.8 BGS confidence rating for the Groundwater Flooding susceptibility areas	High					

Section 8: Designated Environmentally Sensitive Sites

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

Section 8: Designated Environmentally Sensitive Sites	On-site	0-50m	51-250	251-500	501-1000	1000-2000
8.10 Records of Areas of Outstanding Natural Beauty (AONB)	0	0	0	0	0	0
8.11 Records of National Parks	0	0	0	0	0	0
8.12 Records of Nitrate Sensitive Areas	0	0	0	0	0	0
8.13 Records of Nitrate Vulnerable Zones	1	0	0	1	0	1
8.14 Records of Green Belt land	0	2	0	1	1	0

Section 9: Natural Hazards	
9.1 Maximum risk of natural ground subsidence	Moderate
9.1.1 Maximum Shrink-Swell hazard rating identified on the study site	Very Low
9.1.2 Maximum Landslides hazard rating identified on the study site	Low
9.1.3 Maximum Soluble Rocks hazard rating identified on the study site	Negligible
9.1.4 Maximum Compressible Ground hazard rating identified on the study site	Moderate
9.1.5 Maximum Collapsible Rocks hazard rating identified on the study site	Very Low
9.1.6 Maximum Running Sand hazard rating identified on the study site	Low
9.2 Radon	
9.2.1 Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level?	The site is in a Radon Affected Area, as between 1 and 3% of properties are above the Action Level.
9.2.2 Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment?	No radon protective measures are necessary.

Section 10: Mining	
10.1 Coal mining areas within 75m of the study site	Identified
10.2 Non-Coal Mining areas within 50m of the study site boundary	Identified
10.3 Brine affected areas within 75m of the study site	None identified

Using this report

The following report is designed by Environmental Consultants for Environmental Professionals bringing together the most up-to-date market leading environmental data. This report is provided under and subject to the Terms & Conditions agreed between Groundsure and the Client. The document contains the following sections:

1. Historical Industrial Sites

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

2. Environmental Permits, Incidents and Registers

Provides information on Regulated Industrial Activities and Pollution Incidents as recorded by Regulatory Authorities, and sites determined as Contaminated Land. This search is conducted using radii up to 500m.

3. Landfills and Other Waste Sites

Provides information on landfills and other waste sites that may pose a risk to the study site. This search is conducted using radii up to 1500m.

4. Current Land Uses

Provides information on current land uses that may pose a risk to the study site in terms of potential contamination from activities or processes. These searches are conducted using radii of up to 500m. This includes information on potentially contaminative industrial sites, petrol stations and fuel sites as well as high pressure gas pipelines and underground electricity transmission lines.

5. Geology

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

6. Hydrogeology and Hydrology

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

7. Flooding

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

8. Designated Environmentally Sensitive Sites

Provides information on the Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR), Special Areas of Conservation (SAC), Special Protection Areas (SPA), Ramsar sites, Local Nature Reserves (LNR), Areas of Outstanding Natural Beauty (AONB), National Parks (NP), Environmentally Sensitive Areas, Nitrate Sensitive Areas, Nitrate Vulnerable Zones and World Heritage Sites and Scheduled Ancient Woodland. These searches are conducted using radii of up to 2000m.

9. Natural Hazards

Provides information on a range of natural hazards that may pose a risk to the study site. These factors include natural ground subsidence and radon..

10. Mining

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

11. Contacts

This section of the report provides contact points for statutory bodies and data providers that may be able to provide further information on issues raised within this report. Alternatively, Groundsure provide a free Technical Helpline (08444 159000) for further information and guidance.

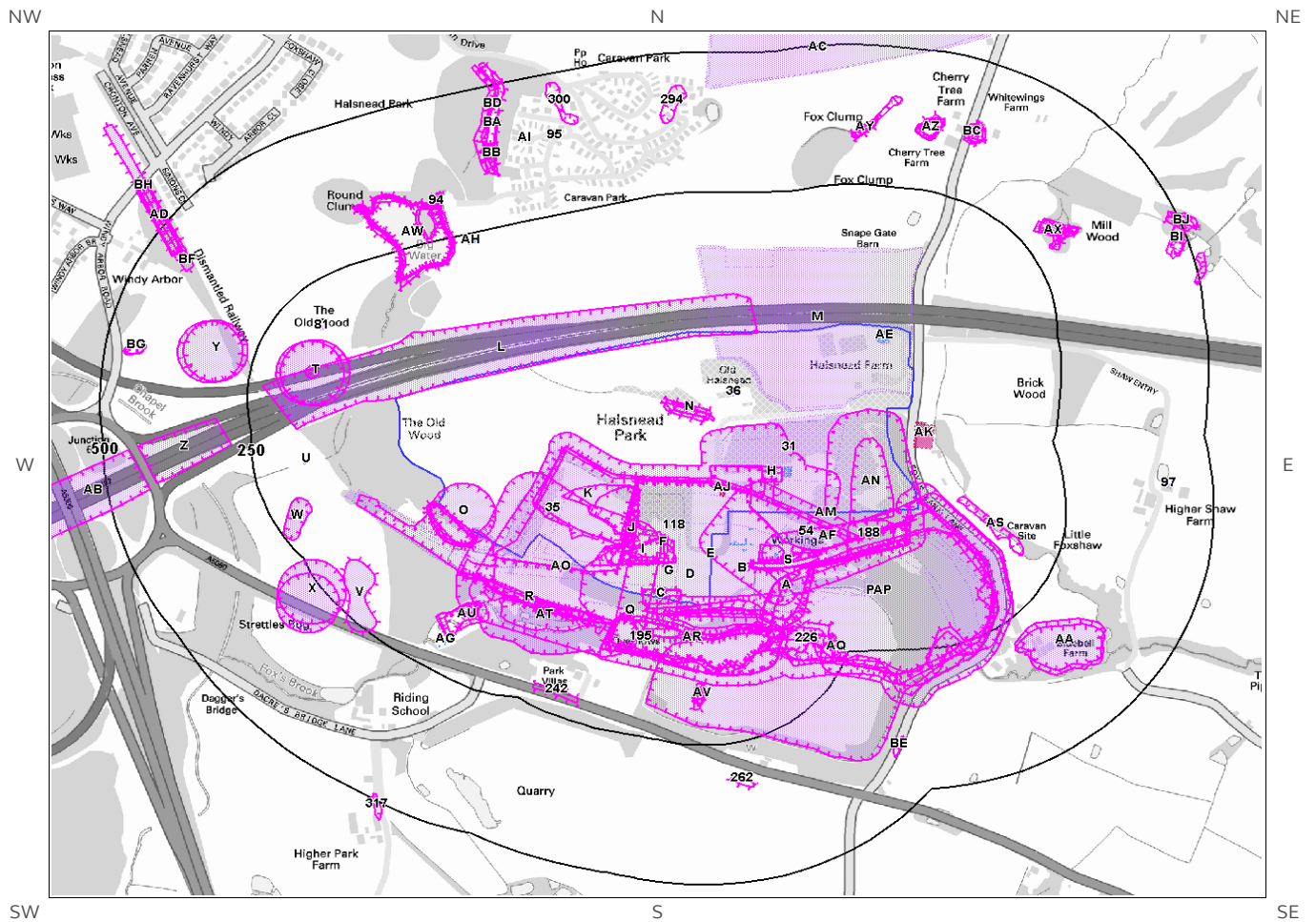
Note: Maps

Only certain features are placed on the maps within the report. All features represented on maps found within this search are given an identification number. This number identifies the feature on the mapping and correlates it to the additional information provided below. This identification number precedes all other information and takes the following format -Id: 1, Id: 2, etc. Where numerous features on the same map are in such close proximity that the numbers would obscure each other a letter identifier is used instead to represent the features. (e.g. Three features which overlap may be given the identifier "A" on the map and would be identified separately as features 1A, 3A, 10A on the data tables provided).

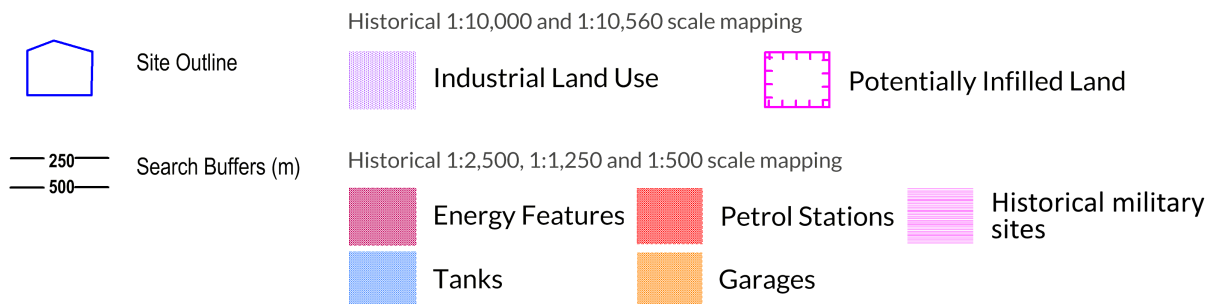
Where a feature is reported in the data tables to a distance greater than the map area, it is noted in the data table as "Not Shown".

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

1. Historical Land Use



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1. Historical Industrial Sites

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

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

Records of sites with a potentially contaminative past land use within 500m of the search boundary: 108

ID	Distance [m]	Direction	Use	Date
1P	0	On Site	Refuse Heap	1950
2AP	0	On Site	Refuse Heap	1947
3A	0	On Site	Colliery	1947
4A	0	On Site	Colliery	1950
5B	0	On Site	Unspecified Mine	1975
6B	0	On Site	Unspecified Mine	1967
7B	0	On Site	Unspecified Works	1967
8AF	0	On Site	Railway Sidings	1975
9C	0	On Site	Refuse Heap	1938
10C	0	On Site	Refuse Heap	1938
11D	0	On Site	Colliery	1938
12D	0	On Site	Colliery	1938
13AM	0	On Site	Colliery	1989
14E	0	On Site	Railway Sidings	1950
15AN	0	On Site	Unspecified Pits	1989
16E	0	On Site	Railway Sidings	1947
17G	0	On Site	Colliery	1925
18F	0	On Site	Railway Sidings	1967
19F	0	On Site	Refuse Heap	1950
20I	0	On Site	Refuse Heap	1947
21G	0	On Site	Railway Sidings	1925
22H	0	On Site	Sewage Works	1947
23H	0	On Site	Unspecified Tank	1967
24H	0	On Site	Unspecified Tank	1975
25H	0	On Site	Unspecified Tank	1947
26F	0	On Site	Railway Sidings	1938
27I	0	On Site	Refuse Heap	1925
28I	0	On Site	Refuse Heap	1938
29I	0	On Site	Refuse Heap	1938
30J	0	On Site	Refuse Heap	1967
31	0	On Site	Unspecified Works	1967
32J	0	On Site	Refuse Heap	1975
33K	0	On Site	Brick Works	1950
34K	0	On Site	Brick Works	1947

35	0	On Site	Chimney	1967
36	0	On Site	Pump	1851
37N	0	On Site	Unspecified Pit	1950
38AE	0	On Site	Unspecified Tank	1989
39M	0	On Site	Nursery	1950
40L	0	On Site	Cuttings	1989
41L	0	On Site	Cuttings	1975
42O	0	On Site	Unspecified Pit	1891
43M	0	On Site	Nursery	1947
44N	0	On Site	Unspecified Ground Workings	1947
45AO	0	On Site	Unspecified Pit	1950
46A	0	On Site	Refuse Heap	1938
47A	0	On Site	Refuse Heap	1938
48AL	0	On Site	Refuse Heap	1925
49O	4	SW	Unspecified Pit	1938
50O	4	SW	Unspecified Pit	1938
51O	4	SW	Unspecified Pit	1925
52O	4	SW	Unspecified Pit	1947
53O	4	SW	Unspecified Pit	1906
54	6	S	Railway Sidings	1989
55P	9	S	Refuse Heap	1967
56Q	34	S	Pumping House	1950
57P	37	S	Refuse Heap	1975
58AQ	40	S	Refuse Heap	1989
59Q	41	S	Pumping House	1938
60Q	42	S	Pumping House	1947
61Q	42	S	Pumping House	1925
62R	58	S	Refuse Heap	1967
63R	62	SW	Refuse Heap	1938
64R	62	SW	Refuse Heap	1938
65R	62	SW	Refuse Heap	1925
66R	62	SW	Refuse Heap	1947
67S	67	SE	Refuse Heap	1938
68S	67	SE	Refuse Heap	1938
69S	74	S	Refuse Heap	1938
70S	74	S	Refuse Heap	1938
71T	84	W	Unspecified Pits	1950
72T	84	W	Unspecified Pits	1967
73T	93	W	Unspecified Pits	1947
74T	93	W	Unspecified Pits	1925
75T	138	W	Unspecified Pits	1938
76T	138	W	Unspecified Pits	1938
77U	156	W	Unspecified Tank	1938
78U	159	W	Unspecified Tank	1925
79V	166	SW	Unspecified Pits	1938

80V	166	SW	Unspecified Pits	1938
81	173	NW	Sandstone Delf	1851
82W	181	SW	Unspecified Pits	1938
83W	181	SW	Unspecified Pits	1938
84X	210	SW	Unspecified Pits	1950
85X	232	SW	Unspecified Pits	1906
86X	232	SW	Unspecified Pits	1947
87X	232	SW	Unspecified Pits	1891
88Y	261	W	Unspecified Pits	1891
89Y	269	W	Unspecified Pits	1906
90AA	282	SE	Unspecified Heap	1950
91Z	283	W	Cuttings	1989
92Z	283	W	Cuttings	1975
93AA	289	SE	Unspecified Heap	1947
94	311	N	Boat House	1906
95	383	N	Pump	1851
96BF	415	NW	Cuttings	1989
97	422	E	Pump	1851
98AB	429	W	Cuttings	1989
99AB	429	W	Cuttings	1975
100AC	435	N	Nursery	1955
101AC	435	N	Nursery	1975
102AC	435	N	Nursery	1966
103AC	440	N	Nursery	1947
104AD	446	NW	Cuttings	1925
105AD	446	NW	Cuttings	1947
106AD	446	NW	Cuttings	1950
107BH	450	NW	Cuttings	1938
108AD	450	NW	Cuttings	1989

1.2 Additional Information – Historical Tank Database

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

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

31

ID	Distance (m)	Direction	Use	Date
109H	0	On Site	Unspecified Tank	1980
110H	0	On Site	Unspecified Tank	1980
111H	0	On Site	Unspecified Tank	1980
112H	0	On Site	Unspecified Tank	1980
113H	0	On Site	Tanks	1980
114H	0	On Site	Unspecified Tank	1980

115AE	0	On Site	Unspecified Tank	1980
116H	0	On Site	Unspecified Tank	1958
117AE	0	On Site	Unspecified Tank	1996
118	0	On Site	Unspecified Tank	1937
119AE	0	On Site	Unspecified Tank	1989
120AF	16	SE	Unspecified Tank	1980
121AF	16	S	Unspecified Tank	1937
122AF	29	S	Unspecified Tank	1980
123AF	29	S	Unspecified Tank	1980
124AF	29	S	Unspecified Tank	1958
125AF	30	E	Unspecified Tank	1937
126AF	36	SE	Unspecified Tank	1937
127AF	41	SE	Unspecified Tank	1937
128S	74	S	Unspecified Tank	1927
129S	81	S	Unspecified Tank	1937
130AG	193	SW	Unspecified Tank	1984
131AG	195	SW	Unspecified Tank	1978
132AG	206	SW	Unspecified Tank	1937
133AH	230	N	Unspecified Tank	1958
134AH	231	N	Unspecified Tank	1980
135AH	231	N	Unspecified Tank	1989
136AH	231	N	Unspecified Tank	1980
137AH	233	N	Unspecified Tank	1996
138AI	389	N	Unspecified Tank	1907
139AI	389	N	Unspecified Tank	1892

1.3 Additional Information – Historical Energy Features Database

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

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

5

ID	Distance (m)	Direction	Use	Date
140AJ	0	On Site	Electricity Substation	1980
141AJ	0	On Site	Electricity Substation	1980
142AK	27	SE	Electricity Substation	1980
143AK	27	SE	Electricity Substation	1989
144AK	30	SE	Electricity Substation	1980

1.4 Additional Information – Historical Petrol and Fuel Site Database

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

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

Database searched and no data found.

1.5 Additional Information – Historical Garage and Motor Vehicle Repair Database

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

Records of historical garage and motor vehicle repair sites within 500m of the search boundary: 0

Database searched and no data found.

1.6 Historical military sites

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

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

Database searched and no data found.

1.7 Potentially Infilled Land

Records of Potentially Infilled Features from 1:10,000 scale mapping within 500m of the study site: 174

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

ID	Distance(m)	Direction	Use	Date
145K	0	On Site	Brick Works	1950
146O	0	On Site	Pond	1967
147O	0	On Site	Pond	1950
148H	0	On Site	Sewage Works	1947
149L	0	On Site	Cuttings	1975
150N	0	On Site	Unspecified Ground Workings	1947
151N	0	On Site	Unspecified Pit	1950
152N	0	On Site	Pond	1975
153L	0	On Site	Cuttings	1989
154G	0	On Site	Colliery	1925
155D	0	On Site	Colliery	1938
156D	0	On Site	Colliery	1938

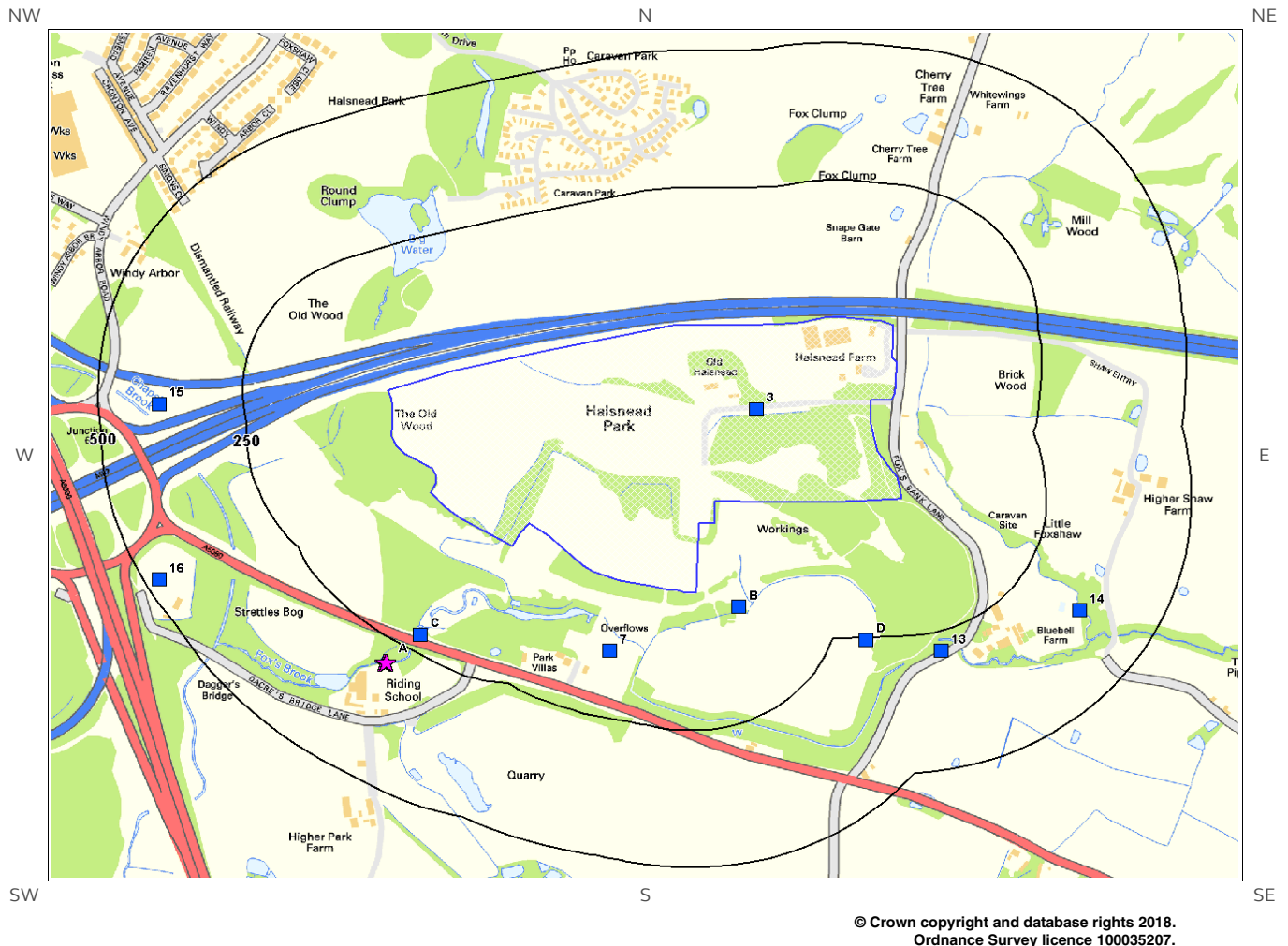
157B	0	On Site	Unspecified Mine	1967
158J	0	On Site	Refuse Heap	1975
159A	0	On Site	Colliery	1947
160J	0	On Site	Refuse Heap	1967
161A	0	On Site	Colliery	1950
162I	0	On Site	Refuse Heap	1947
163I	0	On Site	Refuse Heap	1925
164I	0	On Site	Refuse Heap	1938
165I	0	On Site	Refuse Heap	1938
166I	0	On Site	Refuse Heap	1950
167AL	0	On Site	Refuse Heap	1925
168C	0	On Site	Refuse Heap	1938
169C	0	On Site	Refuse Heap	1938
170AL	0	On Site	Refuse Heap	1938
171AL	0	On Site	Refuse Heap	1938
172P	0	On Site	Refuse Heap	1947
173K	0	On Site	Brick Works	1947
174B	0	On Site	Unspecified Mine	1975
175AM	0	On Site	Colliery	1989
176AN	0	On Site	Unspecified Pits	1989
177O	0	On Site	Unspecified Pit	1891
178P	0	On Site	Refuse Heap	1950
179AO	0	On Site	Unspecified Pit	1950
180O	0	SW	Pond	1851
181O	4	SW	Unspecified Pit	1938
182O	4	SW	Unspecified Pit	1938
183O	4	SW	Unspecified Pit	1925
184O	4	SW	Unspecified Pit	1947
185O	4	SW	Unspecified Pit	1906
186O	4	SW	Pond	1891
187P	9	S	Refuse Heap	1967
188	16	S	Pond	1989
189AR	36	S	Reservoir	1950
190AP	37	S	Refuse Heap	1975
191AQ	40	S	Refuse Heap	1989
192AR	43	S	Reservoir	1925
193AR	43	S	Reservoir	1947
194AR	44	S	Reservoir	1938
195	45	S	Reservoir	1989
196AR	47	S	Pond	1975
197AR	47	S	Pond	1967
198S	58	E	Pond	1989
199R	58	S	Refuse Heap	1967
200R	62	SW	Refuse Heap	1938
201R	62	SW	Refuse Heap	1938
202R	62	SW	Refuse Heap	1925

203R	62	SW	Refuse Heap	1947
204AS	66	E	Pond	1967
205AS	66	E	Pond	1975
206S	67	SE	Refuse Heap	1938
207S	67	SE	Refuse Heap	1938
208AT	67	S	Ponds	1989
209AT	67	S	Ponds	1975
210S	74	S	Refuse Heap	1938
211S	74	S	Refuse Heap	1938
212T	84	W	Unspecified Pits	1950
213T	84	W	Unspecified Pits	1967
214T	93	W	Unspecified Pits	1947
215T	93	W	Unspecified Pits	1925
216AU	103	SW	Ponds	1967
217AU	103	SW	Ponds	1975
218AU	103	SW	Ponds	1989
219AU	105	SW	Water Body	1938
220AU	105	SW	Pond	1925
221T	138	W	Unspecified Pits	1938
222T	138	W	Unspecified Pits	1938
223AV	141	S	Pond	1967
224AV	141	S	Pond	1950
225AV	141	S	Pond	1975
226	142	E	Water Body	1925
227AV	149	S	Pond	1947
228V	166	SW	Unspecified Pits	1938
229V	166	SW	Unspecified Pits	1938
230W	181	SW	Unspecified Pits	1938
231W	181	SW	Unspecified Pits	1938
232AW	188	N	Water Body	1851
233AW	197	N	Pond	1989
234AW	197	N	Water Body	1938
235AW	198	N	Water Body	1975
236AW	199	N	Water Body	1891
237AW	199	N	Water Body	1947
238AW	199	N	Water Body	1925
239AW	199	N	Water Body	1906
240AW	199	N	Water Body	1950
241AW	199	N	Pond	1967
242	205	S	Ponds	1851
243X	210	SW	Unspecified Pits	1950
244X	232	SW	Unspecified Pits	1947
245X	232	SW	Unspecified Pits	1906
246X	232	SW	Unspecified Pits	1891
247Y	261	W	Unspecified Pits	1891
248Y	269	W	Unspecified Pits	1906

249AX	277	NE	Ponds	1891
250AA	282	SE	Unspecified Heap	1950
251Z	283	W	Cuttings	1989
252Z	283	W	Cuttings	1975
253AX	286	NE	Ponds	1906
254AX	286	NE	Ponds	1925
255AX	286	NE	Ponds	1947
256AA	289	SE	Unspecified Heap	1947
257AX	290	NE	Ponds	1950
258AX	290	NE	Ponds	1975
259AX	290	NE	Ponds	1967
260AX	290	NE	Ponds	1989
261AX	298	NE	Pond	1938
262	309	S	Pond	1851
263AY	332	N	Pond	1947
264AY	332	N	Pond	1925
265AY	332	N	Pond	1906
266AY	332	N	Pond	1891
267AY	335	N	Pond	1938
268AY	336	N	Ponds	1990
269AY	336	N	Ponds	1966
270AY	336	N	Ponds	1975
271AY	336	N	Ponds	1955
272AZ	340	N	Pond	1947
273AZ	340	N	Pond	1906
274AZ	340	N	Pond	1925
275AZ	340	N	Pond	1891
276AZ	342	N	Pond	1938
277AZ	345	N	Pond	1851
278BA	345	N	Water Body	1851
279AZ	345	N	Pond	1955
280AZ	345	N	Pond	1990
281AZ	345	N	Pond	1966
282AZ	345	N	Pond	1975
283BB	346	N	Pond	1967
284BA	347	N	Water Body	1891
285BB	348	N	Pond	1975
286BC	352	N	Pond	1891
287BC	356	N	Pond	1925
288BC	356	N	Pond	1947
289BC	357	N	Pond	1906
290BC	362	N	Pond	1990
291BC	362	N	Pond	1955
292BC	362	N	Pond	1966
293BB	364	N	Pond	1989
294	376	N	Pond	1975

295BD	396	N	Pond	1990
296BD	396	N	Pond	1966
297BD	396	N	Pond	1975
298BE	402	SE	Pond	1938
299BE	402	SE	Pond	1925
300	404	N	Ponds	1955
301BF	415	NW	Cuttings	1989
302AB	429	W	Cuttings	1975
303AB	429	W	Cuttings	1989
304BG	432	W	Pond	1950
305BG	434	W	Pond	1947
306AD	446	NW	Cuttings	1947
307AD	446	NW	Cuttings	1925
308AD	446	NW	Cuttings	1950
309BH	450	NW	Cuttings	1938
310AD	450	NW	Cuttings	1989
311BI	458	E	Ponds	1891
312BI	467	E	Pond	1950
313BJ	479	NE	Pond	1851
314BJ	484	NE	Pond	1967
315BJ	484	NE	Pond	1975
316BJ	484	NE	Pond	1989
317	491	SW	Pond	1891
318	492	E	Ponds	1891

2. Environmental Permits, Incidents and Registers Map



- | | | | | | |
|---|-----------------------------|---|---------------------------------------|---|--|
|  | Site Outline |  | Recorded Pollution Incident |  | RAS 3 & 4 Authorisations |
|  | 250 |  | Dangerous Substances (List 1) |  | Part A(1) Authorised Processes and Historic IPC Authorisations |
|  | 500 |  | Dangerous Substances (List 2) |  | Part A(2) and Part B Authorised Processes |
|  | Water Industry Referrals |  | Licenced Discharge Consents |  | COMAH / NIHHS Sites |
|  | Red List Discharge Consents |  | Sites Determined as Contaminated Land |  | Hazardous Substance Consents and Enforcements |

2. Environmental Permits, Incidents and Registers

2.1 Industrial Sites Holding Licences and/or Authorisations

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

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

0

Database searched and no data found.

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

0

Database searched and no data found.

2.1.3 Records of Red List Discharge Consents (potentially harmful discharges to controlled waters) within 500m of the study site:

0

Database searched and no data found.

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

0

Database searched and no data found.

2.1.5 Records of List 2 Dangerous Substance Inventory Sites within 500m of the study site:

0

Database searched and no data found.

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

0

Database searched and no data found.

2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations:

0

Database searched and no data found.

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

14

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

ID	Distance (m)	Direction	NGR	Details
3	0	On Site	347530 389510	Address: HALSNEAD PROPERTIES, CRONTON COLLIERY (DISUSED), CRONTON ROAD, KNOWSLEY, MERSEYSIDE Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: 016993406 Permit Version: 1 Receiving Water: FOXES BANK BROOK (TRIB OF) Status: NEW CONSENT (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 30/05/2001 Effective Date: 30-May-2001 Revocation Date:
4B	77	E	347500 389150	Address: CRONTON COLLIERY, CRONTON ROAD, CRONTON, NEAR WIDNES, MERSEYSIDE Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: 016990204 Permit Version: 2 Receiving Water: FOXES BANK BROOK Status: REVOKED - UNSPECIFIED Issue date: Effective Date: 09-Aug-1991 Revocation Date: 01/10/1991
5B	77	E	347500 389150	Address: CRONTON COLLIERY, CRONTON ROAD, CRONTON, NEAR WIDNES, MERSEYSIDE Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: 016990204 Permit Version: 1 Receiving Water: FOXES BANK BROOK Status: REVOKED - UNSPECIFIED Issue date: Effective Date: 01-Jun-1980 Revocation Date: 08/08/1991
6B	77	E	347500 389150	Address: CRONTON COLLIERY, CRONTON ROAD, CRONTON, NEAR WIDNES, MERSEYSIDE Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: 016990204 Permit Version: 3 Receiving Water: FOXES BANK BROOK Status: SURRENDERED UNDER EPR 2010 Issue date: Effective Date: 02-Oct-1991 Revocation Date: 26/10/2015
7	130	S	347278 389070	Address: CRONTON COLLIERY TE, WHISTON, NEAR PRESCOT, MERSEYSIDE Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Receiving Water: FOX'S BANK BROOK Status: POST NRA LEGISLATION WHERE ISSUE DATE > 31-AUG-89 (HISTORIC ONLY) Issue date:

ID	Distance (m)	Direction	NGR	Details	
				Permit Number: 0165/38 Permit Version: 2	Effective Date: 01-Jan-1995 Revocation Date:
8C	219	SW	346950 389100	Address: CRONTON COLLIERY SPOIL HEAPS, CRONTON ROAD, PRESCOT, LIVERPOOL, MERSEYSIDE Effluent Type: TRADE DISCHARGES - PROCESS EFFLUENT - NOT WATER COMPANY Permit Number: 016990205 Permit Version: 2	Receiving Water: FOXES BANK BROOK Status: REVOKED - UNSPECIFIED Issue date: Effective Date: 26-Feb-1988 Revocation Date: 23/03/1991
9C	219	SW	346950 389100	Address: CRONTON COLLIERY SPOIL HEAPS, CRONTON ROAD, PRESCOT, LIVERPOOL, MERSEYSIDE Effluent Type: TRADE DISCHARGES - PROCESS EFFLUENT - NOT WATER COMPANY Permit Number: 016990205 Permit Version: 1	Receiving Water: FOXES BANK BROOK Status: REVOKED - UNSPECIFIED Issue date: Effective Date: 01-Jun-1980 Revocation Date: 25/02/1988
10D	254	S	347720 389090	Address: PARK VILLA PROPERTIES, CRONTON COLLIERY (DISUSED), CRONTON ROAD, CRONTON, KNOWSLEY Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: 016993405 Permit Version: 3	Receiving Water: FOXES BANK BROOK (TRIB OF) Status: MODIFIED - (WRA 91 SCHED 10 - AS AMENDED BY ENV ACT 1995) Issue date: 27/02/2006 Effective Date: 01-Sep-2006 Revocation Date:
11D	254	S	347720 389090	Address: PARK VILLA PROPERTIES, CRONTON COLLIERY (DISUSED), CRONTON ROAD, CRONTON, KNOWSLEY Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: 016993405 Permit Version: 1	Receiving Water: FOXES BANK BROOK (TRIB OF) Status: NEW CONSENT (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 30/05/2001 Effective Date: 30-May-2001 Revocation Date: 03/12/2003
12D	254	S	347720 389090	Address: PARK VILLA PROPERTIES, CRONTON COLLIERY (DISUSED), CRONTON ROAD, CRONTON, KNOWSLEY Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: 016993405 Permit Version: 2	Receiving Water: FOXES BANK BROOK (TRIB OF) Status: CONSENT REVOKED OR REVISED - NEW CONSENT ISSUED (37(1)) Issue date: 04/12/2003 Effective Date: 04-Dec-2003 Revocation Date: 31/08/2006
13	286	S	347850 389070	Address: HANSNEAD COTTAGES, CRONTON COLLIERY, CRONTON, NEAR WIDNES, CHESHIRE Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: 016890810 Permit Version: 1	Receiving Water: FOXES BANK BROOK Status: REVOKED - UNSPECIFIED Issue date: Effective Date: 05-Sep-1986 Revocation Date: 19/05/2003
14	368	SE	348088 389144	Address: LIVERPOOL SUN AND AIR SOCIETY, SUNNYSIDE, FOX'S BANK LANE, WHISTON, PRESCOT, MERSEYSIDE, L35 3ST Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: EPRHB3396EE Permit Version: 1	Receiving Water: TRIBUTARY OF FOX'S BANK BROOK Status: NEW ISSUED UNDER EPR 2010 Issue date: 26/02/2018 Effective Date: 26-Feb-2018 Revocation Date:
15	395	W	346500 389520	Address: LAING O'ROURKE INFRASTRUCTURE LTD, M62 JNT6 IMPROVMENT OFFICE, WINDY ARBOUR ROAD, TARBOCK, MERSEYSIDE, L35 1RB Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER	Receiving Water: LOGWOOD MILL BROOK Status: NEW CONSENT (WRA 91, S88 & SCHED 10 AS AMENDED BY ENV ACT 1995) Issue date: 03/05/2007 Effective Date: 03-May-2007

ID	Distance (m)	Direction	NGR	Details	
16	476	SW	346500 389200	COMPANY Permit Number: 016993930 Permit Version: 1	
				Revocation Date:	
				Address: CRONTON COLLIERY TREATMENT PLANT, CRONTON ROAD, CRONTON, LIVERPOOL, MERSEYSIDE Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: 016992597 Permit Version: 1	
				Receiving Water: TRIB DITTON BROOK Status: POST NRA LEGISLATION WHERE ISSUE DATE > 31-AUG-89 (HISTORIC ONLY) Issue date: Effective Date: 28-Jan-1994 Revocation Date:	

2.1.9 Records of Water Industry Referrals (potentially harmful discharges to the public sewer) within 500m of the study site:

0

Database searched and no data found.

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

0

Database searched and no data found.

2.2 Dangerous or Hazardous Sites

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

0

Database searched and no data found.

2.3 Environment Agency/Natural Resources Wales Recorded Pollution Incidents

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

2

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

ID	Distance (m)	Direction	NGR	Details	
1A	292	SW	346891 389049	Incident Date: 25-Feb-2002 Incident Identification: 60847 Pollutant: Oils and Fuel Pollutant Description: Other Oil or Fuel	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 3 (Minor)
2A	294	SW	346887	Incident Date: 24-Feb-2002	Water Impact: Category 3 (Minor)

ID	Distance (m)	Direction	NGR	Details
			389049	Incident Identification: 60203 Pollutant: Oils and Fuel Pollutant Description: Other Oil or Fuel Land Impact: Category 4 (No Impact) Air Impact: Category 3 (Minor)

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

0

Database searched and no data found.

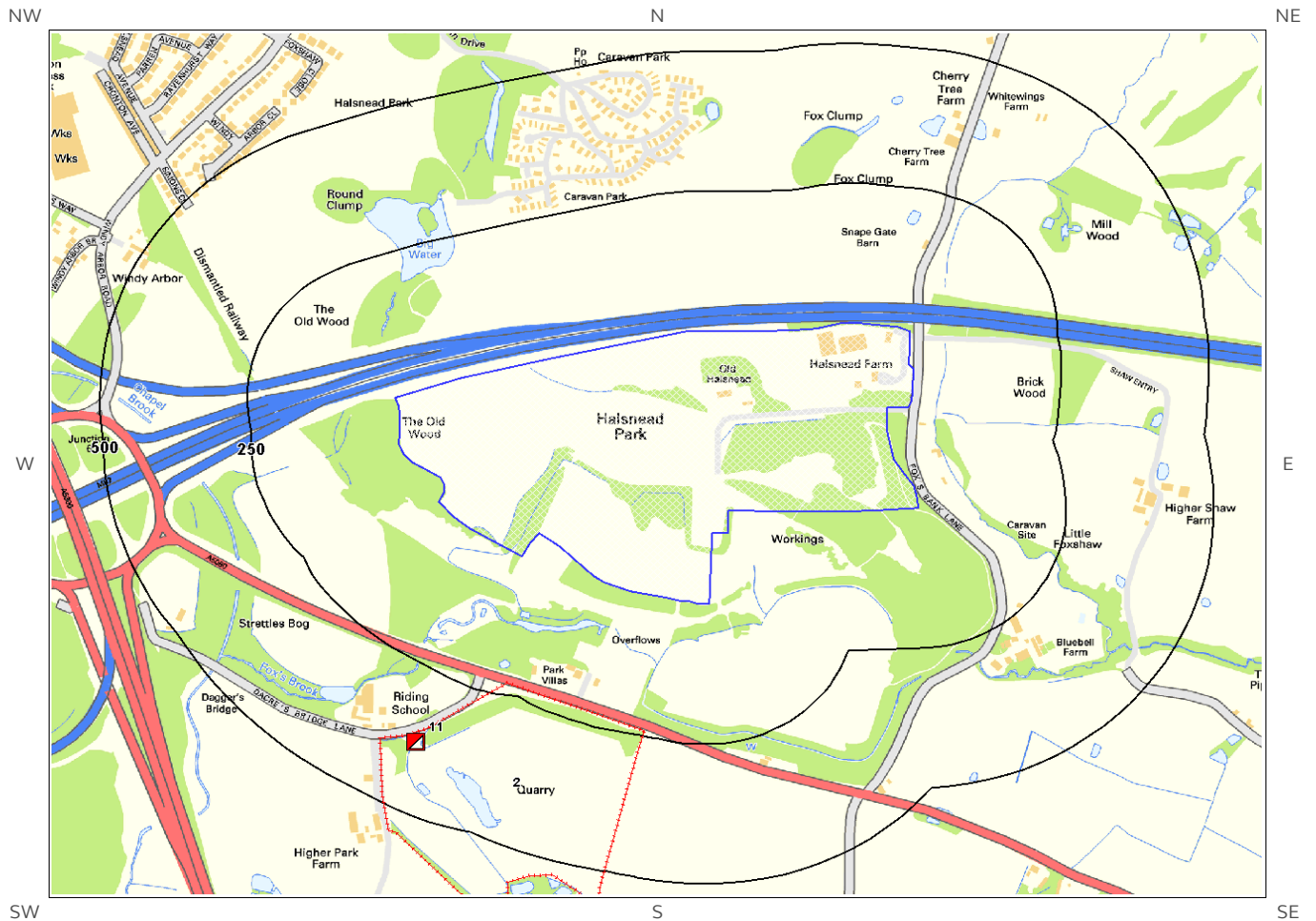
2.4 Sites Determined as Contaminated Land under Part 2A EPA 1990

Records of sites determined as contaminated land under Section 78R of the Environmental Protection Act 1990 are there within 500m of the study site

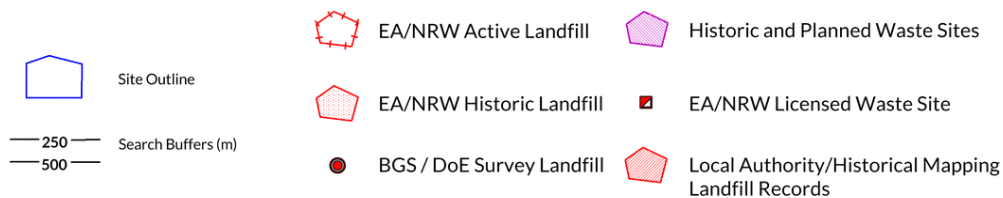
0

Database searched and no data found.

3. Landfill and Other Waste Sites Map



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3. Landfill and Other Waste Sites

3.1 Landfill Sites

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

1

The following Environment Agency/Natural Resources Wales landfill records are represented as polygons on the Landfill and Other Waste Sites map:

ID	Distance (m)	Direction	NGR	Details
2	226	S	346930 388930	Address: Cronton Quarry, Dacre's Bridge Lane, Tarbock, Prescot, Merseyside, L35 1QZ Landfill Reference: 400986.0 Environmental Permitting Regulations (Waste) Reference: WAL168 Landfill Type: L05: Inert LF Operator: Grundy And Co Excavations Limited Status: Modified IPPC Reference: EPR Reference:

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

8

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

ID	Distance (m)	Direction	NGR	Details
Not shown	892	NW		Site Address: Coalgate Lane Landfill Site, Ellis Ashton Street, Huyton, Knowsley, Merseyside Waste Licence: - Site Reference: R13/01, GDO 017, GDO M019, GDO 020 Waste Type: Inert, Industrial, Commercial, Household, Liquid sludge Environmental Permitting Regulations (Waste) Reference: - Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: Huyton Urban District Council and Merseyside County Council Licence Holder: Huyton Urban District Council and Merseyside County Council First Recorded: 01-Jan-1972 Last Recorded: 01-Jan-1983
Not shown	1093	N		Site Address: Coalgate Lane Wimpeym, Tushingham's Quarry, Paradise Lane, Stadt-Moers Park, Knowsley, Merseyside Waste Licence: - Site Reference: GDO M017, 026/01 Waste Type: Industrial Environmental Permitting Regulations (Waste) Reference: - Licence Issue: Licence Surrendered: Licence Holder Address: Bridle Road, Bootle Operator: G Wimpey and Company Limited Licence Holder: G Wimpey and Company Limited First Recorded: 31-Dec-1976

ID	Distance (m)	Direction	NGR	Details
Last Recorded: 01-Jan-1979				
Not shown	1112	N		Site Address: Whiston Tip, St Helens, Lancashire Waste Licence: - Site Reference: - Waste Type: - Environmental Permitting Regulations (Waste) Reference: - Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: Central Electricity Generating Board - North Western Region Licence Holder: - First Recorded: 07-Jan-1967 Last Recorded: -
Not shown	1128	NE		Site Address: Deans Farm, Blundells Lane, Rainhill, St. Helens, Merseyside Waste Licence: - Site Reference: 165/01, GDO M064 Waste Type: Inert, Industrial, Commercial Environmental Permitting Regulations (Waste) Reference: - Licence Issue: Licence Surrendered: Licence Holder Address: Harrison Street, Widnes, Cheshire Operator: K G B and M E Limited Licence Holder: K G B and M E Limited First Recorded: 01-Jan-1961 Last Recorded: -
Not shown	1133	SE		Site Address: George's Hall Farm, Cronton, Knowsley, Merseyside Waste Licence: Yes Site Reference: 135A/01, GDO M143 Waste Type: Inert, Industrial Environmental Permitting Regulations (Waste) Reference: - Licence Issue: 05-Sep-1984 Licence Surrendered: Licence Holder Address: 1st Floor, Midland Bank Chambers, Ulverston, Cumbria Operator: Emitcart Limited Licence Holder: Emitcourt Limited First Recorded: 01-Oct-1984 Last Recorded: 01-Sep-1985
Not shown	1143	N		Site Address: Tushingham's Quarry, Coalgate Lane, Paradise Lane, Stadt-Moers Park, Whiston, Merseyside, Knowsley Waste Licence: Yes Site Reference: 026/01, GDO 020 Waste Type: Commercial Environmental Permitting Regulations (Waste) Reference: - Licence Issue: 27-May-1977 Licence Surrendered: Licence Holder Address: Bridle Road, Bootle, Merseyside Operator: W F Doyle and Company Limited Licence Holder: George Wimpey and Company Limited First Recorded: 01-Apr-1976 Last Recorded: 31-Dec-1979
Not shown	1392	NW		Site Address: Brickfields, Knowsley, Merseyside Waste Licence: - Site Reference: GDO M209 Waste Type: Inert Environmental Permitting Regulations (Waste) Reference: - Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: Tushingham Metallic Brick Works Licence Holder: Tushingham Metallic Brick Works First Recorded: - Last Recorded: -
Not shown	1471	N		Site Address: Whiston Tip, Knowsley, Merseyside Waste Licence: - Site Reference: 088 Waste Type: - Environmental Permitting Regulations (Waste) Reference: - Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: - Licence Holder: Whiston Rural District Council - Prescott Urban District Council - Huyton Urban District Council First Recorded: - Last Recorded: -

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

1

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

ID	Distance (m)	Direction	NGR	Details
Not shown	1286	N	346600.0 390800.0	Address: Whiston Tip, St Helens, Lancs BGS Number: 2786.0 Risk: No risk to aquifer Waste Type: N/A

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

2

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

ID	Distance (m)	Direction	NGR	Site Address	Source	Data Type
Not shown	962	NW	346511 390465	Refuse Tip	1997 mapping	Polygon
Not shown	1025	N	346511 390514	Refuse Tip	1994 mapping	Polygon

3.2 Other Waste Sites

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

0

Database searched and no data found.

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

12

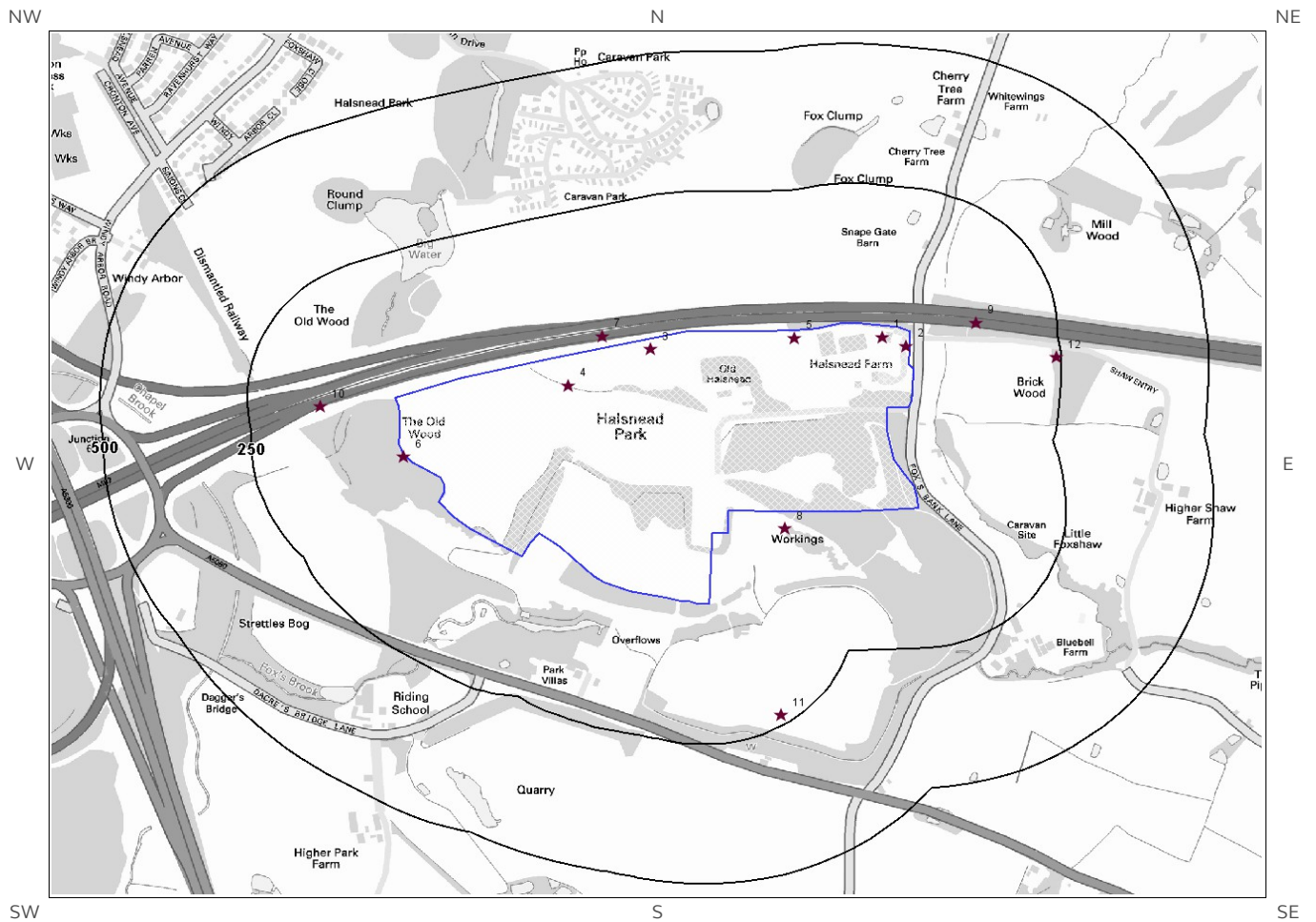
The following waste treatment, transfer or disposal sites records are represented as points on the Landfill and Other Waste Sites map:

ID	Distance (m)	Direction	NGR	Details
11	377	SW	346930 388930	Site Address: Cronton Quarry, Dacre's Bridge Lane, Tarbock, Prescot, Merseyside, L35 1QZ Type: Inert LF Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: WAL168 Issue Date: 03/04/2014 Effective Date: - Modified: 05/08/2014 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified

ID	Distance (m)	Direction	NGR	Details
				EPR reference: EA/EPR/AB3909FA/V002 Operator: Grundy And Co Excavations Limited Waste Management licence No: 400986 Annual Tonnage: 20000.0 Site Name: Cronton Quarry Correspondence Address: -
Not shown	962	W	345981 389846	Site Address: Stretton Way Depot, Stretton Way, Huyton, Knowsley, Merseyside, L36 6JF Type: 75kte HCl Waste Transfer Station Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: KNO020 EPR reference: EA/EPR/EP3491LE/A001 Operator: Knowsley Metropolitan Borough Council Waste Management licence No: 101122 Annual Tonnage: 0.0 Issue Date: 03/11/2009 Effective Date: - Modified: - Surrendered Date: 19/06/2015 Expiry Date: - Cancelled Date: - Status: Surrendered Site Name: Stretton Way Bulking Station Correspondence Address: -
Not shown	1094	NW	345900 390000	Site Address: Stretton Way, Huyton Ind Est, Huyton, Merseyside, L36 6JF Type: Household, Commercial & Industrial Waste T Stn Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: FCC004 EPR reference: EA/EPR/JB3633RP/V002 Operator: F C C Recycling (U K) Limited Waste Management licence No: 104504 Annual Tonnage: 120000.0 Issue Date: 23/07/2012 Effective Date: - Modified: 18/12/2012 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: Arpley 2 Correspondence Address: -
Not shown	1094	NW	345900 390000	Site Address: Stretton Way, Huyton Ind Est, Huyton, Merseyside, L36 6JF Type: 75kte HCl Waste TS + treatment Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: FCC004 EPR reference: EA/EPR/JB3633RP/A001 Operator: F C C Recycling (U K) Limited Waste Management licence No: 104504 Annual Tonnage: 74999.0 Issue Date: 23/07/2012 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Stretton Way Correspondence Address: -
Not shown	1094	NW	345900 390000	Site Address: Arpley 2, Stretton Way, Huyton Ind Est, Huyton, Merseyside, L36 6JF Type: Household, Commercial & Industrial Waste T Stn Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: FCC004 EPR reference: EA/EPR/JB3633RP/V003 Operator: F C C Recycling (U K) Limited Waste Management licence No: 104504 Annual Tonnage: 120000.0 Issue Date: 23/07/2012 Effective Date: - Modified: 08/06/2016 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: To PPC Site Name: Arpley 2 Correspondence Address: -
Not shown	1156	NW	345870 390080	Site Address: Land/premises At, Stretton Way, Huyton, Liverpool, Merseyside, L36 6JF Type: Physical Treatment Facility Size: >= 25000 tonnes < 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: ORC009 EPR reference: EA/EPR/DP3794ST/V004 Operator: Orchid Environmental Ltd Waste Management licence No: 50487 Annual Tonnage: 49999.0 Issue Date: 10/05/2007 Effective Date: 14/01/2009 Modified: 24/09/2010 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: Materials Recycling And Recovery Centre Correspondence Address: -
Not shown	1156	NW	345870 390080	Site Address: Land/premises At, Stretton Way, Huyton, Liverpool, Merseyside, L36 6JF Type: Physical Treatment Facility Issue Date: 10/05/2007 Effective Date: 14/01/2009 Modified: 24/09/2010 Surrendered Date: -

ID	Distance (m)	Direction	NGR	Details	
				Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: ORC009 EPR reference: EA/EPR/DP3794ST/V004 Operator: Orchid Environmental Ltd Waste Management licence No: 50487 Annual Tonnage: 49999.0	Expiry Date: - Cancelled Date: - Status: Modified Site Name: Materials Recycling And Recovery Centre Correspondence Address: -
Not shown	1156	NW	345870 390080	Site Address: M W D A Treatment Facility, Stretton Way, Huyton, Nr Liverpool, Merseyside, L36 6JF Type: Physical Treatment Facility Size: >= 25000 tonnes < 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: FAI011 EPR reference: - Operator: Fairport Engineering Ltd Waste Management licence No: 50487 Annual Tonnage: 0.0	Issue Date: 10/05/2007 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: M W D A Treatment Facility Correspondence Address: Market Place, Adlington, Nr Chorley, Lancashire, PR7 4EZ
Not shown	1182	W	345735 389774	Site Address: Huyton Ind Est, Wilson Road, Huyton, Knowsley, Merseyside, L36 6AD Type: 75kte Non-hazardous & hazardous HWA Site Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: VEO167 EPR reference: EA/EPR/DB3833DK/A001 Operator: Veolia E S Merseyside & Halton Ltd Waste Management licence No: 103677 Annual Tonnage: 74999.0	Issue Date: 12/12/2011 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Huyton H W R C Correspondence Address: -
Not shown	1259	NW	345848 390245	Site Address: Huyton W T S, Ellis Ashton Street, Huyton Ind Est, Liverpool, Merseyside, L36 6BN Type: Household, Commercial & Industrial Waste T Stn Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: VEO092 EPR reference: EA/EPR/EP3695SH/V006 Operator: Veolia Environmental Services Merseyside & Halton Ltd Waste Management licence No: 53645 Annual Tonnage: 500000.0	Issue Date: 15/09/1995 Effective Date: 11/11/2009 Modified: 15/05/2013 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: Huyton Waste Transfer Station Correspondence Address: -
Not shown	1338	NW	345740 390220	Site Address: Ellis Ashton Street, Huyton, Liverpool, Merseyside, L36 6BJ Type: Special Waste Transfer Station Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: MWA006 EPR reference: - Operator: Mersey Waste Holdings Ltd Waste Management licence No: 53645 Annual Tonnage: 6250.0	Issue Date: 15/09/1995 Effective Date: - Modified: 22/03/2002 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: Huyton Waste Transfer Station & Waste Reception Centre Correspondence Address: Huyton Waste Transfer Station, Ellis Ashton Street, Huyton, Liverpool, Merseyside, L36 6BJ
Not shown	1338	NW	345740 390220	Site Address: Ellis Ashton Street, Huyton, Liverpool, Merseyside, L36 6BJ Type: Household, Commercial & Industrial Waste T Stn Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: MWA006 EPR reference: - Operator: Mersey Waste Holdings Ltd Waste Management licence No: 53645 Annual Tonnage: 6250.0	Issue Date: 15/09/1995 Effective Date: - Modified: 20/07/2006 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: Huyton W T S / H W R C Correspondence Address: Port Of Liverpool Buildings, 2nd Floor, Pierhead, Liverpool, Merseyside, L3 1BY

4. Current Land Use Map



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4. Current Land Uses

4.1 Current Industrial Data

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

12

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

ID	Distance (m)	Direction	Company	NGR	Address	Activity	Category
1	0	On Site	Tank	347720 389654	Merseyside, L35	Tanks (Generic)	Industrial Features
2	0	On Site	Pylon	347760 389638	Merseyside, L35	Electrical Features	Infrastructure and Facilities
3	0	On Site	Pylon	347327 389633	Merseyside, L35	Electrical Features	Infrastructure and Facilities
4	0	On Site	Pylon	347187 389568	Merseyside, L35	Electrical Features	Infrastructure and Facilities
5	0	On Site	Pylon	347570 389653	Merseyside, L35	Electrical Features	Infrastructure and Facilities
6	3	SW	Pylon	346908 389440	Merseyside, L35	Electrical Features	Infrastructure and Facilities
7	22	N	Gantry	347246 389656	Merseyside, L35	Travelling Cranes and Gantries	Industrial Features
8	30	S	Slag Heap	347554 389312	Merseyside, L35	Refuse Disposal Facilities	Infrastructure and Facilities
9	113	E	Gantry	347878 389680	Merseyside, L35	Travelling Cranes and Gantries	Industrial Features
10	128	W	Gantry	346767 389530	Merseyside, L35	Travelling Cranes and Gantries	Industrial Features
11	232	SE	Slag Heap	347549 388979	Merseyside, L35	Refuse Disposal Facilities	Infrastructure and Facilities
12	241	E	Pylon	348014 389618	Merseyside, L35	Electrical Features	Infrastructure and Facilities

4.2 Petrol and Fuel Sites

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

0

Database searched and no data found.

4.3 National Grid High Voltage Underground Electricity Transmission Cables

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

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

0

Database searched and no data found.

4.4 National Grid High Pressure Gas Transmission Pipelines

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

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

0

Database searched and no data found.

5. Geology

5.1 Artificial Ground and Made Ground

Database searched and no data found.

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

5.2 Superficial Ground and Drift Geology

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

Lex Code	Description	Rock Type
ALV-XCZSV	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL
TILLD-DMTN	TILL, DEVENSIAN	DIAMICTON
GFDUD-XSV	GLACIOFLUVIAL DEPOSITS, DEVENSIAN	SAND AND GRAVEL

5.3 Bedrock and Solid Geology

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

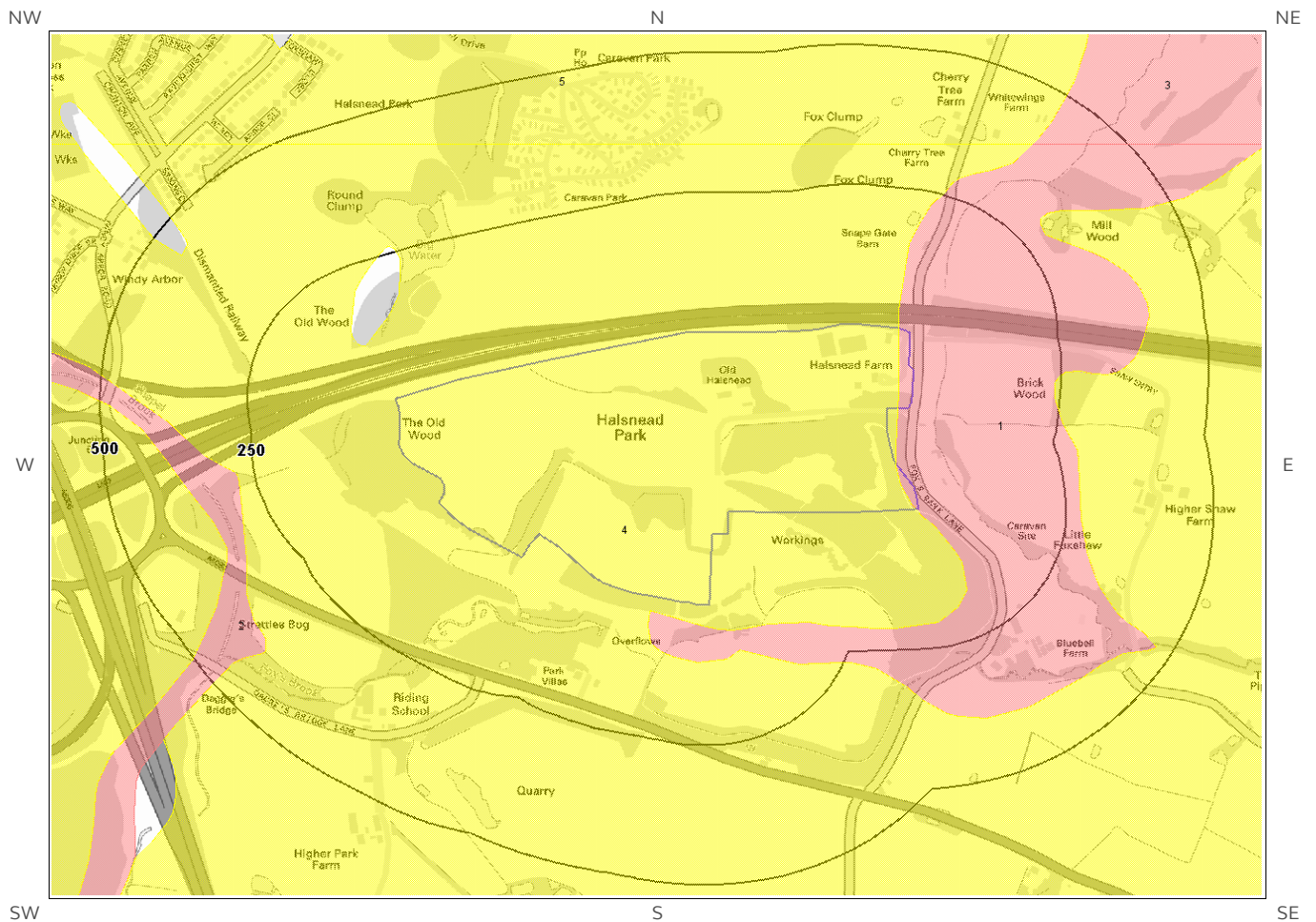
Lex Code	Description	Rock Type
PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION	MUDSTONE, SILTSTONE AND SANDSTONE
PMCM-SDST	PENNINE MIDDLE COAL MEASURES FORMATION	SANDSTONE
PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION	MUDSTONE, SILTSTONE AND SANDSTONE
PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION	MUDSTONE, SILTSTONE AND SANDSTONE
PMCM-SDST	PENNINE MIDDLE COAL MEASURES FORMATION	SANDSTONE
PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION	MUDSTONE, SILTSTONE AND SANDSTONE
PMCM-SDST	PENNINE MIDDLE COAL MEASURES FORMATION	SANDSTONE
PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION	MUDSTONE, SILTSTONE AND SANDSTONE
PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION	MUDSTONE, SILTSTONE AND SANDSTONE
PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION	MUDSTONE, SILTSTONE AND SANDSTONE
KNSF-SDST	KINNERTON SANDSTONE FORMATION	SANDSTONE

Lex Code	Description	Rock Type
ETM-MDSC	ETRURIA FORMATION	MUDSTONE, SANDSTONE AND CONGLOMERATE
PMCM-SDST	PENNINE MIDDLE COAL MEASURES FORMATION	SANDSTONE

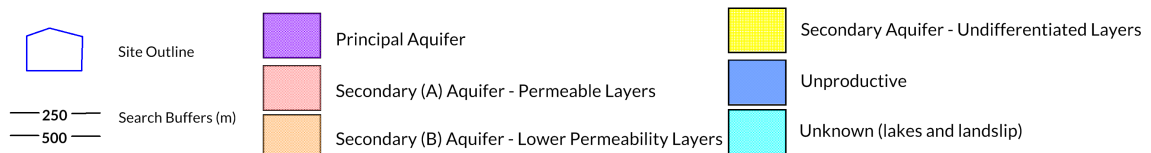
(Derived from the BGS 1:50,000 Digital Geological Map of Great Britain)

6 Hydrogeology and Hydrology

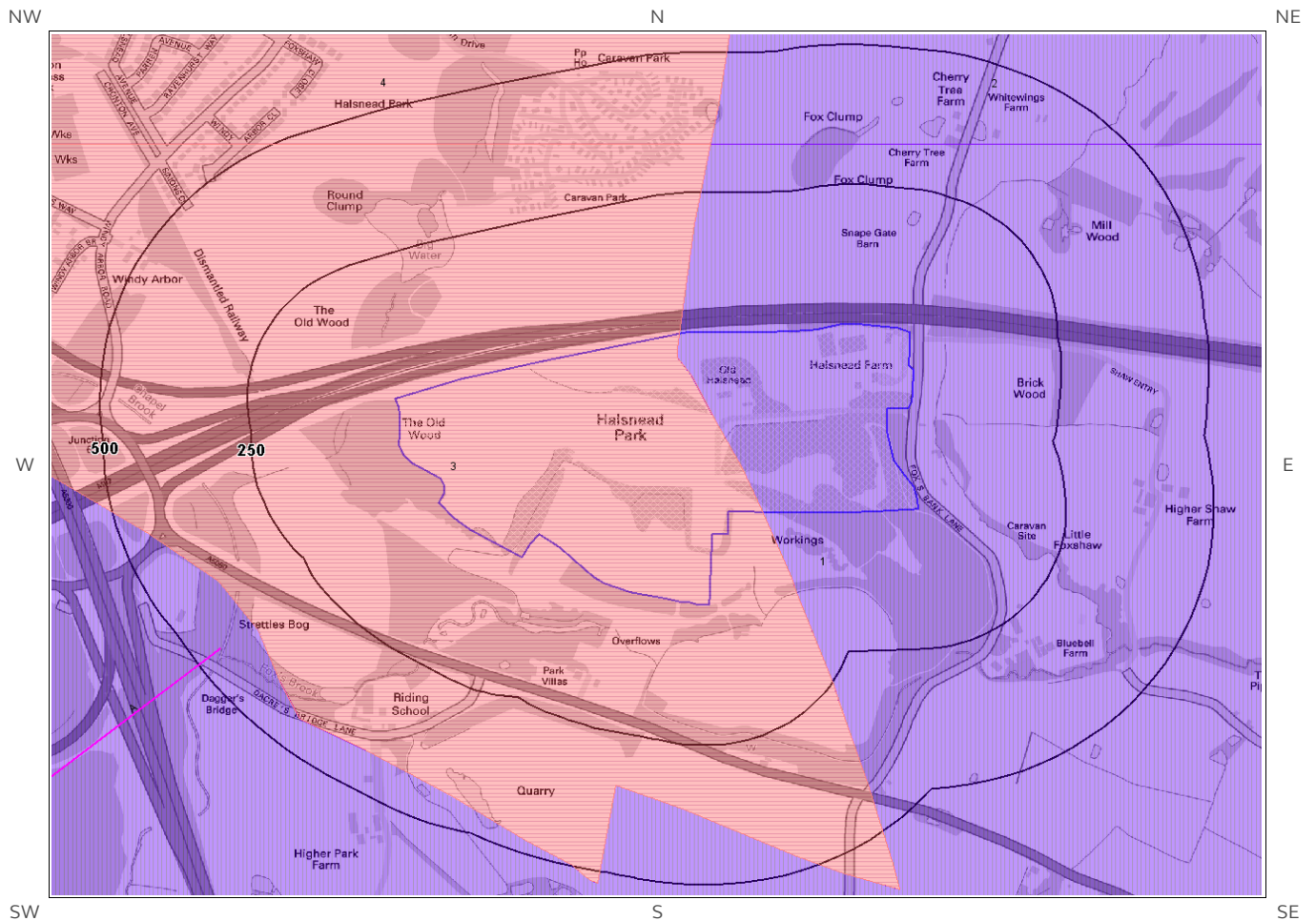
6a. Aquifer Within Superficial Geology



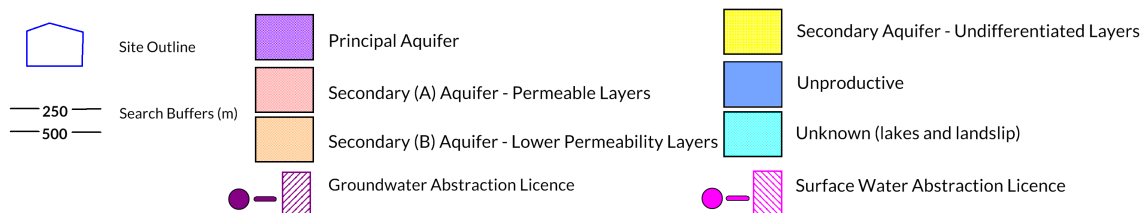
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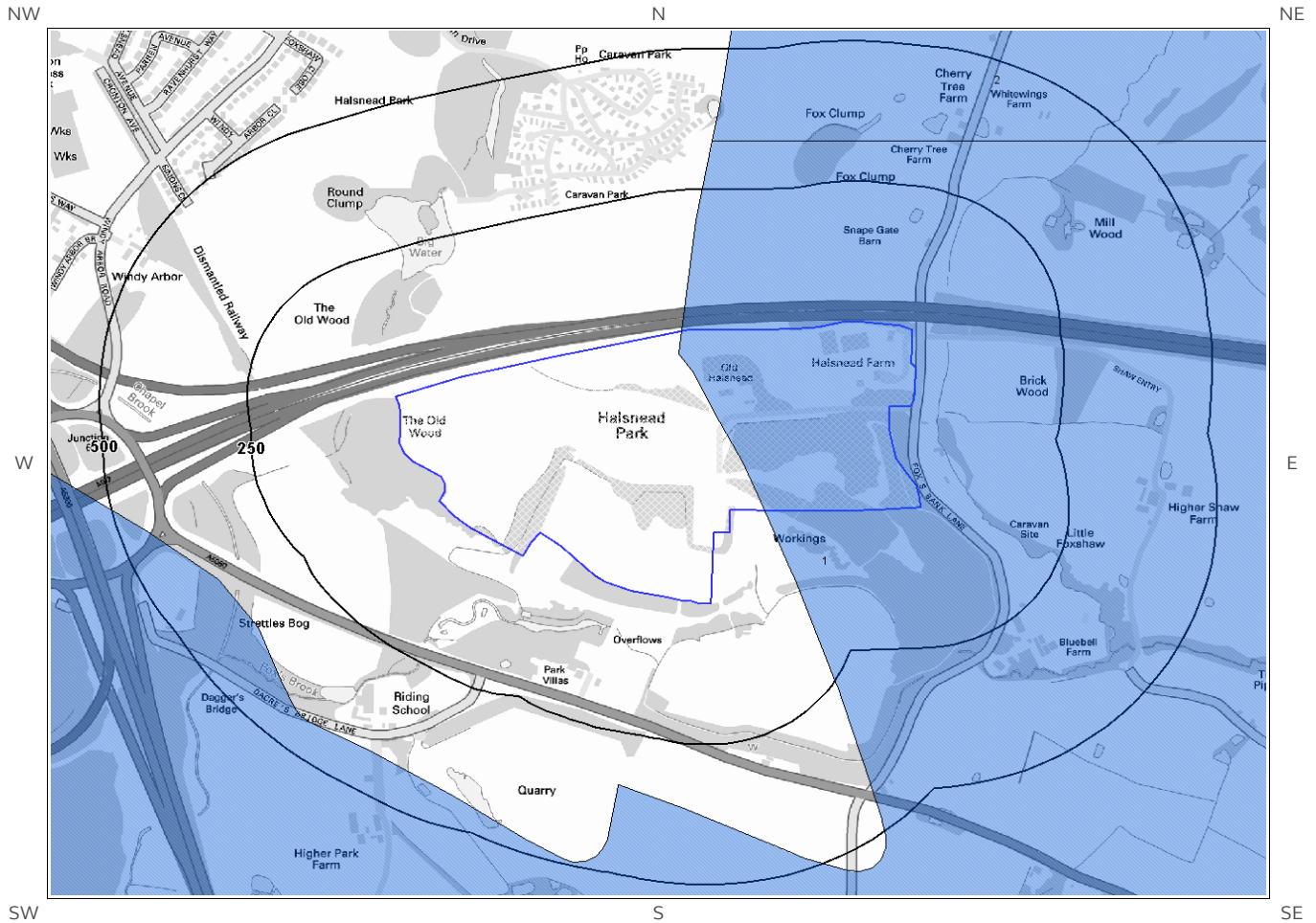
6b. Aquifer Within Bedrock Geology and Abstraction Licences



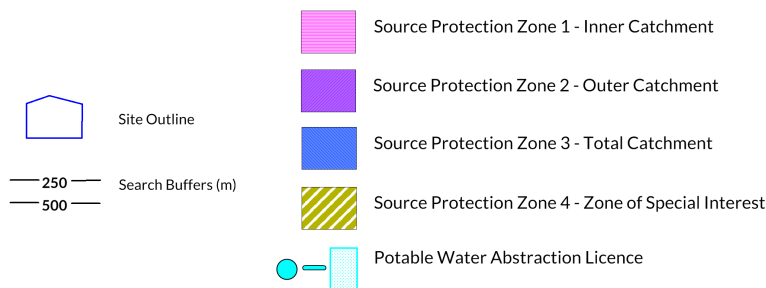
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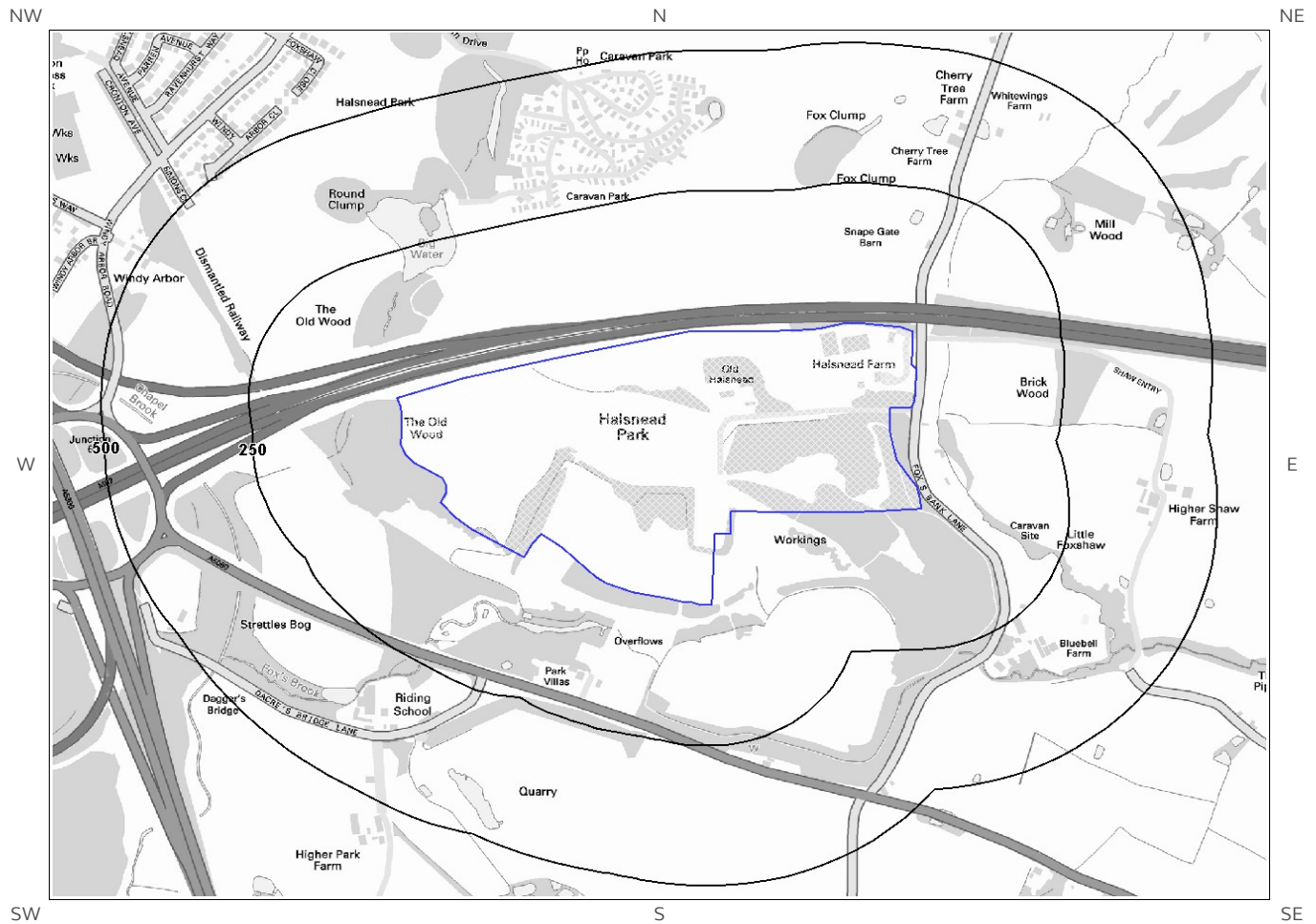
6c. Hydrogeology – Source Protection Zones and Potable Water Abstraction Licences



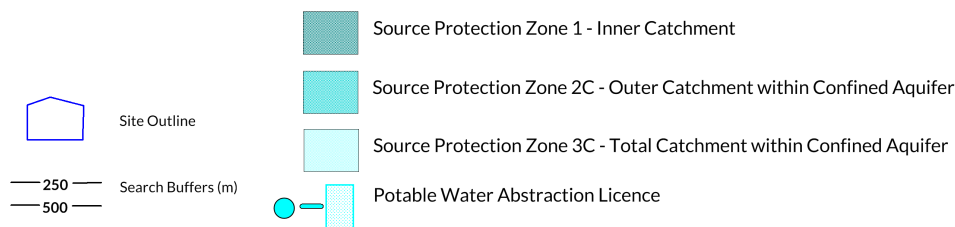
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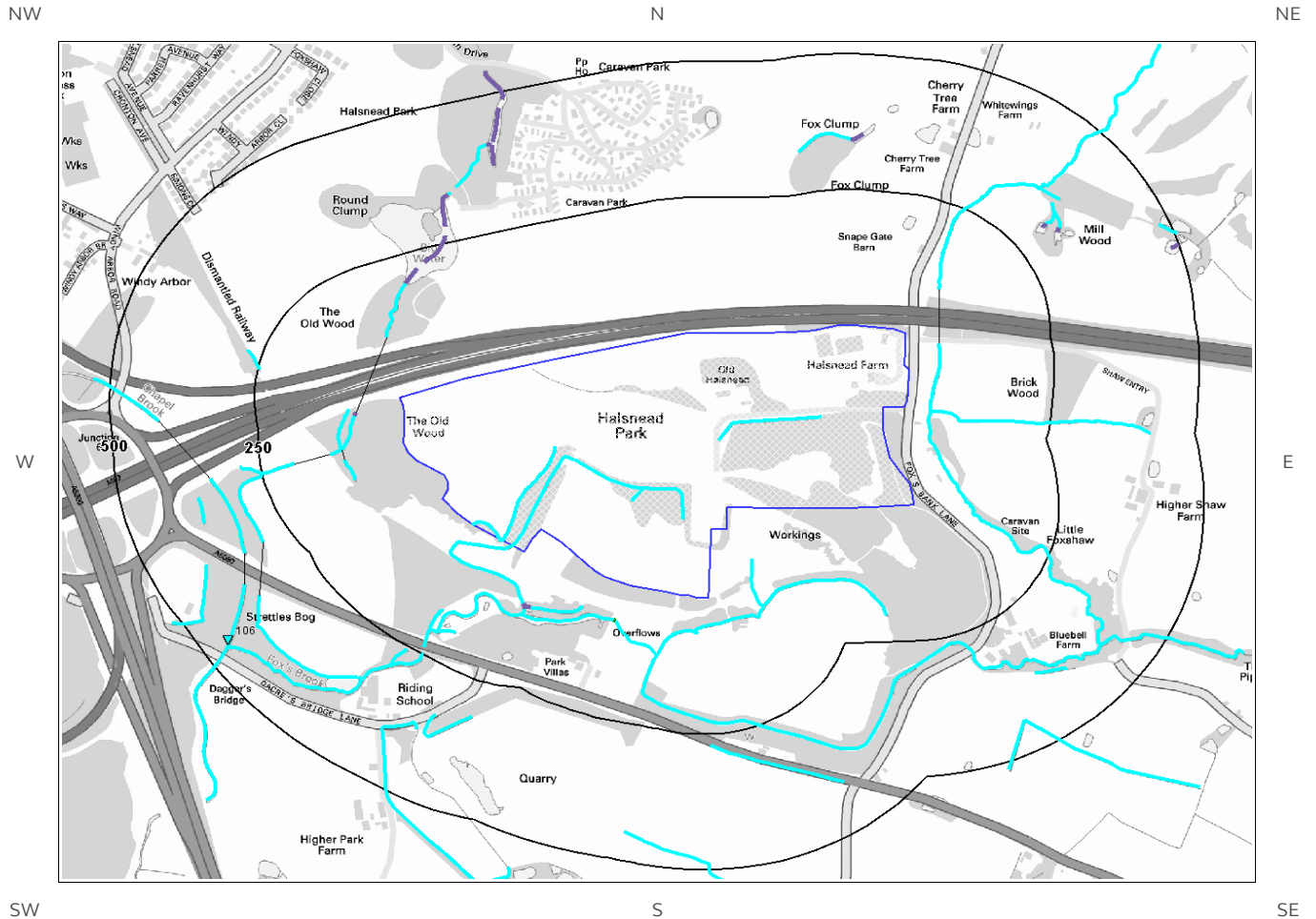
6d. Hydrogeology – Source Protection Zones within confined aquifer



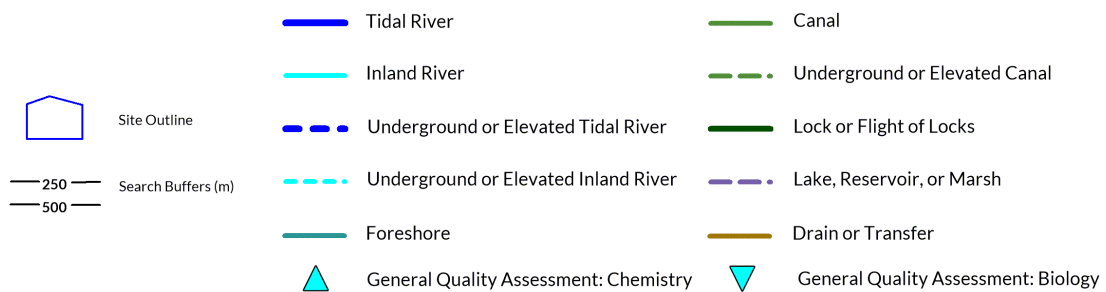
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6e. Hydrology – Watercourse Network and River Quality



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6. Hydrogeology and Hydrology

6.1 Aquifer within Superficial Deposits

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

From 1 April 2010, the Environment Agency/Natural Resources Wales's Groundwater Protection Policy has been using aquifer designations consistent with the Water Framework Directive. For further details on the designation and interpretation of this information, please refer to the Groundsure Enviro Insight User Guide.

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

ID	Distance (m)	Direction	Designation	Description
1	0	On Site	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
4	0	On Site	Secondary (undifferentiated)	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type
2	278	W	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
5	322	N	Secondary (undifferentiated)	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type
3	395	NE	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers

6.2 Aquifer within Bedrock Deposits

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

From 1 April 2010, the Environment Agency/Natural Resources Wales's Groundwater Protection Policy has been using aquifer designations consistent with the Water Framework Directive. For further details on the designation and interpretation of this information, please refer to the Groundsure Enviro Insight User Guide.

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

ID	Distance (m)	Direction	Designation	Description
1	0	On Site	Principal	Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale. Generally principal aquifers were previously major aquifers
3	0	On Site	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
2	322	N	Principal	Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale. Generally principal aquifers were previously major aquifers

ID	Distance (m)	Direction	Designation	Description
4	336	N	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers

6.3 Groundwater Abstraction Licences

Groundwater Abstraction Licences within 2000m of the study site

Identified

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

ID	Distance (m)	Direction	NGR	Details
Not shown	1035	NE	348550 390340	Status: Historical Licence No: 2569028021 Details: "Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services" Direct Source: Ground Water - North West Region Point: "B/HOLE AT BLUNDELLS HILL GOLF CLUB, BLUNDELLS LANE, RAINHILL" Data Type: Point Name: BLUNDELLS HILL GOLF CLUB LTD Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: - Original Start Date: 06/09/1994 Expiry Date: - Issue No: 101 Version Start Date: 19/02/2001 Version End Date:
Not shown	1035	NE	348550 390340	Status: Historical Licence No: 2569028021 Details: Spray Irrigation - Direct Direct Source: Ground Water - North West Region Point: "B/HOLE AT BLUNDELLS HILL GOLF CLUB, BLUNDELLS LANE, RAINHILL" Data Type: Point Name: BLUNDELLS HILL GOLF CLUB LTD Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: - Original Start Date: 06/09/1994 Expiry Date: - Issue No: 101 Version Start Date: 19/02/2001 Version End Date:
Not shown	1035	NE	348550 390340	Status: Active Licence No: 2569028021 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Ground Water - North West Region Point: B/HOLE AT BLUNDELLS HILL GOLF CLUB, BLUNDELLS LANE, RAINHILL Data Type: Point Name: BLUNDELLS HILL GOLF CLUB LTD Annual Volume (m³): 21966.9 Max Daily Volume (m³): 191.81 Original Application No: - Original Start Date: 06/09/1994 Expiry Date: - Issue No: 102 Version Start Date: 11/02/2007 Version End Date:
Not shown	1035	NE	348550 390340	Status: Active Licence No: 2569028021 Details: Spray Irrigation - Direct Direct Source: Ground Water - North West Region Point: B/HOLE AT BLUNDELLS HILL GOLF CLUB, BLUNDELLS LANE, RAINHILL Data Type: Point Name: BLUNDELLS HILL GOLF CLUB LTD Annual Volume (m³): 21966.9 Max Daily Volume (m³): 191.81 Original Application No: - Original Start Date: 06/09/1994 Expiry Date: - Issue No: 102 Version Start Date: 11/02/2007 Version End Date:

ID	Distance (m)	Direction	NGR	Details	
Not shown	1330	S	347880 387926	Status: Historical Licence No: 2569028024 Details: General Use Relating To Secondary Category (Medium Loss) Direct Source: Ground Water - North West Region Point: BOREHOLE AT ALDER LANE, CRONTON, WIDNES Data Type: Point Name: MORPHET	Annual Volume (m³): 34000 Max Daily Volume (m³): 108.97 Original Application No: - Original Start Date: 03/12/2002 Expiry Date: 31/03/2015 Issue No: 2 Version Start Date: 01/02/2007 Version End Date:
Not shown	1330	S	347880 387926	Status: Historical Licence No: 2569028024 Details: Water Bottling Direct Source: Ground Water - North West Region Point: BOREHOLE AT ALDER LANE, CRONTON, WIDNES Data Type: Point Name: MORPHET	Annual Volume (m³): 34000 Max Daily Volume (m³): 108.97 Original Application No: - Original Start Date: 03/12/2002 Expiry Date: 31/03/2015 Issue No: 2 Version Start Date: 01/02/2007 Version End Date:
Not shown	1330	S	347880 387926	Status: Active Licence No: 2569028024R01 Details: General Use Relating To Secondary Category (Medium Loss) Direct Source: Ground Water - North West Region Point: BOREHOLE AT ALDER LANE, CRONTON, WIDNES Data Type: Point Name: MORPHET	Annual Volume (m³): 34000 Max Daily Volume (m³): 110 Original Application No: - Original Start Date: 01/04/2015 Expiry Date: 31/03/2028 Issue No: 1 Version Start Date: 01/04/2015 Version End Date:
Not shown	1330	S	347880 387926	Status: Active Licence No: 2569028024R01 Details: Water Bottling Direct Source: Ground Water - North West Region Point: BOREHOLE AT ALDER LANE, CRONTON, WIDNES Data Type: Point Name: MORPHET	Annual Volume (m³): 34000 Max Daily Volume (m³): 110 Original Application No: - Original Start Date: 01/04/2015 Expiry Date: 31/03/2028 Issue No: 1 Version Start Date: 01/04/2015 Version End Date:
Not shown	1336	S	347880 387920	Status: Historical Licence No: 2569028024 Details: Water Bottling Direct Source: Ground Water - North West Region Point: BOREHOLE AT ALDER LANE, CRONTON, WIDNES Data Type: Point Name: MORPHET	Annual Volume (m³): 34000 Max Daily Volume (m³): 108.97 Original Application No: - Original Start Date: 03/12/2002 Expiry Date: 31/03/2015 Issue No: 2 Version Start Date: 01/02/2007 Version End Date:
Not shown	1336	S	347880 387920	Status: Historical Licence No: 2569028024 Details: Water Bottling Direct Source: Ground Water - North West Region Point: "BOREHOLE AT ALDER LANE, CRONTON, WIDNES" Data Type: Point Name: C S MORPHET & SONS LTD	Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: - Original Start Date: 03/12/2002 Expiry Date: 31-Mar-15 Issue No: 1 Version Start Date: 03/12/2002 Version End Date:

ID	Distance (m)	Direction	NGR	Details	
Not shown	1336	S	347880 387920	Status: Historical Licence No: 2569028024 Details: General Use Relating To Secondary Category (Medium Loss) Direct Source: Ground Water - North West Region Point: BOREHOLE AT ALDER LANE, CRONTON, WIDNES Data Type: Point Name: MORPHET	Annual Volume (m³): 34000 Max Daily Volume (m³): 108.97 Original Application No: - Original Start Date: 03/12/2002 Expiry Date: 31/03/2015 Issue No: 2 Version Start Date: 01/02/2007 Version End Date:
Not shown	1336	S	347880 387920	Status: Historical Licence No: 2569028023 Details: General use relating to Secondary Category (Medium Loss) Direct Source: Ground Water - North West Region Point: BOREHOLE AT ALDER LANE, CRONTON, WIDNES Data Type: Point Name: C S MORPHET & SONS LTD	Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: - Original Start Date: - Expiry Date: 31/03/2005 Issue No: 1 Version Start Date: 10/03/2000 Version End Date:
Not shown	1336	S	347880 387920	Status: Historical Licence No: 2569028024 Details: General use relating to Secondary Category (Medium Loss) Direct Source: Ground Water - North West Region Point: "BOREHOLE AT ALDER LANE, CRONTON, WIDNES" Data Type: Point Name: C S MORPHET & SONS LTD	Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: - Original Start Date: 03/12/2002 Expiry Date: 31-Mar-15 Issue No: 1 Version Start Date: 03/12/2002 Version End Date:
Not shown	1422	S	346700 387900	Status: Historical Licence No: 2569028011 Details: Potable Water Supply - Direct Direct Source: Ground Water - North West Region Point: "B/HOLES (2) AT WATER LA PUMPING STATION, WHISTON, MERSEYSIDE" Data Type: Point Name: UNITED UTILITIES WATER PLC	Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: - Original Start Date: 23/03/1966 Expiry Date: - Issue No: 101 Version Start Date: 01/09/2001 Version End Date:
Not shown	1422	S	346700 387900	Status: Active Licence No: 2569028011 Details: Potable Water Supply - Direct Direct Source: Ground Water - North West Region Point: B/HOLES (2) AT WATER LA PUMPING STATION, WHISTON, MERSEYSIDE Data Type: Point Name: UNITED UTILITIES WATER LTD	Annual Volume (m³): 1.75e+006 Max Daily Volume (m³): 11400 Original Application No: - Original Start Date: 23/03/1966 Expiry Date: - Issue No: 101 Version Start Date: 01/09/2001 Version End Date:
Not shown	1667	N	348100 391300	Status: Historical Licence No: 2569028008 Details: Potable Water Supply - Direct Direct Source: Ground Water - North West Region Point: 2 WELLS + CONNECTING B/HOLES, CUMBER LA, WHISTON, MERSEYSIDE Data Type: Point Name: NORTH WEST WATER LTD	Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: - Original Start Date: 16/03/1966 Expiry Date: - Issue No: 100 Version Start Date: 16/03/1966 Version End Date:

ID	Distance (m)	Direction	NGR	Details
Not shown	1765	N	348100 391400	Status: Historical Licence No: 2569028020 Details: Laundry Use Direct Source: Ground Water - North West Region Point: "BOREHOLE AT STONEY LANE, RAINHILL" Data Type: Point Name: THE SUNLIGHT SERVICES GROUP LTD Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: - Original Start Date: 01/06/1993 Expiry Date: - Issue No: 101 Version Start Date: 24/10/1996 Version End Date:
Not shown	1765	N	348100 391400	Status: Active Licence No: 2569028020 Details: Laundry Use Direct Source: Ground Water - North West Region Point: BOREHOLE AT STONEY LANE, RAINHILL Data Type: Point Name: Berendsen UK Limited Annual Volume (m³): 118182 Max Daily Volume (m³): 545.46 Original Application No: - Original Start Date: 01/06/1993 Expiry Date: - Issue No: 102 Version Start Date: 22/07/2013 Version End Date:
Not shown	1846	SE	348200 387500	Status: Historical Licence No: 2569028009 Details: Potable Water Supply - Direct Direct Source: Ground Water - North West Region Point: "BOREHOLES (3) AT STOCKSWELL PUMPING STATION, WHISTON" Data Type: Point Name: UNITED UTILITIES WATER PLC Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: - Original Start Date: 23/03/1966 Expiry Date: - Issue No: 101 Version Start Date: 01/09/2002 Version End Date:
Not shown	1846	SE	348200 387500	Status: Active Licence No: 2569028009 Details: Potable Water Supply - Direct Direct Source: Ground Water - North West Region Point: BOREHOLES (3) AT STOCKSWELL PUMPING STATION, WHISTON Data Type: Point Name: UNITED UTILITIES WATER LTD Annual Volume (m³): 3.36e+006 Max Daily Volume (m³): 10900 Original Application No: - Original Start Date: 23/03/1966 Expiry Date: - Issue No: 101 Version Start Date: 01/09/2002 Version End Date:

6.4 Surface Water Abstraction Licences

Surface Water Abstraction Licences within 2000m of the study site

Identified

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

ID	Distance (m)	Direction	NGR	Details
25A	450	SW	346600 389100	Status: Historical Licence No: 2569028018 Details: Spray Irrigation - Direct Direct Source: "Surface, Non-Tidal - North West Region" Point: "OCHRE & DOG CLOG BRKS, TARBOCK HALL FARM, TARBOCK, PRESCOT" Data Type: Line Name: T H CRITCHLEY & SON Annual Volume (m³): - Max Daily Volume (m³): - Application No: - Original Start Date: 13/05/1976 Expiry Date: - Issue No: 100 Version Start Date: 01/04/1993 Version End Date:
26A	450	SW	346600 389100	Status: Historical Licence No: 2569028018 Details: Spray Irrigation - Direct Direct Source: Surface, Non-Tidal - North West Region Point: OCHRE & DOG CLOG BRKS, TARBOCK HALL FARM, TARBOCK, PRESCOT Annual Volume (m³): - Max Daily Volume (m³): - Application No: - Original Start Date: 13/05/1976 Expiry Date: - Issue No: 100 Version Start Date: 01/04/1993

ID	Distance (m)	Direction	NGR	Details
				Data Type: Line Name: T H CRITCHLEY & SON Version End Date:
27A	450	SW	346600 389100	Status: Historical Licence No: 2569028018 Details: Spray Irrigation - Direct Direct Source: Surface, Non-Tidal - North West Region Point: OCHRE AND DOG CLOG BROOKS TARBOCK HALL FARM PRESCOT Data Type: Line Name: T H CRITCHLEY & SON Annual Volume (m³): 2098 Max Daily Volume (m³): 636 Application No: - Original Start Date: 13/05/1976 Expiry Date: - Issue No: 100 Version Start Date: 01/04/1993 Version End Date:
Not shown	943	SW	346400 388600	Status: Active Licence No: 2569028018 Details: Spray Irrigation - Direct Direct Source: Surface, Non-Tidal - North West Region Point: OCHRE AND DOG CLOG BROOKS TARBOCK HALL FARM PRESCOT Data Type: Line Name: BELPOOL DEVELOPMENTS LTD Annual Volume (m³): 2098 Max Daily Volume (m³): 636 Application No: - Original Start Date: 13/05/1976 Expiry Date: - Issue No: 102 Version Start Date: 31/01/2011 Version End Date:

6.5 Potable Water Abstraction Licences

Potable Water Abstraction Licences within 2000m of the study site

Identified

The following Potable Water Abstraction Licences records are represented as points, lines and regions on the SPZ and Potable Water Abstraction Licences Map (6c):

ID	Distance (m)	Direction	NGR	Details
Not shown	1035	NE	348550 390340	Status: Historical Licence No: 2569028021 Details: "Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services" Direct Source: Ground Water - North West Region Point: "B/HOLE AT BLUNDELLS HILL GOLF CLUB, BLUNDELLS LANE, RAINHILL" Data Type: Point Name: BLUNDELLS HILL GOLF CLUB LTD Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: - Original Start Date: 06/09/1994 Expiry Date: - Issue No: 101 Version Start Date: Version End Date:
Not shown	1035	NE	348550 390340	Status: Active Licence No: 2569028021 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Ground Water - North West Region Point: B/HOLE AT BLUNDELLS HILL GOLF CLUB, BLUNDELLS LANE, RAINHILL Data Type: Point Name: BLUNDELLS HILL GOLF CLUB LTD Annual Volume (m³): 21966.9 Max Daily Volume (m³): 191.81 Original Application No: - Original Start Date: 06/09/1994 Expiry Date: - Issue No: 102 Version Start Date: Version End Date:
Not shown	1330	S	347880 387926	Status: Historical Licence No: 2569028024 Details: Water Bottling Direct Source: Ground Water - North West Region Point: BOREHOLE AT ALDER LANE, CRANTON, WIDNES Data Type: Point Name: MORPHET Annual Volume (m³): 34000 Max Daily Volume (m³): 108.97 Original Application No: - Original Start Date: 03/12/2002 Expiry Date: 31/03/2015 Issue No: 2 Version Start Date: Version End Date:

ID	Distance (m)	Direction	NGR	Details
Not shown	1330	S	347880 387926	Status: Active Licence No: 2569028024R01 Details: Water Bottling Direct Source: Ground Water - North West Region Point: BOREHOLE AT ALDER LANE, CRONTON, WIDNES Data Type: Point Name: MORPHET Annual Volume (m³): 34000 Max Daily Volume (m³): 110 Original Application No: - Original Start Date: 01/04/2015 Expiry Date: 31/03/2028 Issue No: 1 Version Start Date: Version End Date:
Not shown	1336	S	347880 387920	Status: Historical Licence No: 2569028024 Details: Water Bottling Direct Source: Ground Water - North West Region Point: BOREHOLE AT ALDER LANE, CRONTON, WIDNES Data Type: Point Name: MORPHET Annual Volume (m³): 34000 Max Daily Volume (m³): 108.97 Original Application No: - Original Start Date: 03/12/2002 Expiry Date: 31/03/2015 Issue No: 2 Version Start Date: Version End Date:
Not shown	1336	S	347880 387920	Status: Historical Licence No: 2569028024 Details: Water Bottling Direct Source: Ground Water - North West Region Point: "BOREHOLE AT ALDER LANE, CRONTON, WIDNES" Data Type: Point Name: C S MORPHET & SONS LTD Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: - Original Start Date: 03/12/2002 Expiry Date: 31-Mar-15 Issue No: 1 Version Start Date: Version End Date:
Not shown	1422	S	346700 387900	Status: Historical Licence No: 2569028011 Details: Potable Water Supply - Direct Direct Source: Ground Water - North West Region Point: "B/HOLES (2) AT WATER LA PUMPING STATION, WHISTON, MERSEYSIDE" Data Type: Point Name: UNITED UTILITIES WATER PLC Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: - Original Start Date: 23/03/1966 Expiry Date: - Issue No: 101 Version Start Date: Version End Date:
Not shown	1422	S	346700 387900	Status: Active Licence No: 2569028011 Details: Potable Water Supply - Direct Direct Source: Ground Water - North West Region Point: B/HOLES (2) AT WATER LA PUMPING STATION, WHISTON, MERSEYSIDE Data Type: Point Name: UNITED UTILITIES WATER LTD Annual Volume (m³): 1.75e+006 Max Daily Volume (m³): 11400 Original Application No: - Original Start Date: 23/03/1966 Expiry Date: - Issue No: 101 Version Start Date: Version End Date:
Not shown	1667	N	348100 391300	Status: Historical Licence No: 2569028008 Details: Potable Water Supply - Direct Direct Source: Ground Water - North West Region Point: 2 WELLS + CONNECTING B/HOLES, CUMBER LA, WHISTON, MERSEYSIDE Data Type: Point Name: NORTH WEST WATER LTD Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: - Original Start Date: 16/03/1966 Expiry Date: - Issue No: 100 Version Start Date: Version End Date:
Not shown	1846	SE	348200 387500	Status: Historical Licence No: 2569028009 Details: Potable Water Supply - Direct Direct Source: Ground Water - North West Region Point: "BOREHOLES (3) AT STOCKSWELL PUMPING STATION, WHISTON" Data Type: Point Name: UNITED UTILITIES WATER PLC Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: - Original Start Date: 23/03/1966 Expiry Date: - Issue No: 101 Version Start Date: Version End Date:
Not shown	1846	SE	348200 387500	Status: Active Licence No: 2569028009 Annual Volume (m³): 3.36e+006 Max Daily Volume (m³): 10900

ID	Distance (m)	Direction	NGR	Details
				Details: Potable Water Supply - Direct Direct Source: Ground Water - North West Region Point: BOREHOLES (3) AT STOCKSWELL PUMPING STATION, WHISTON Data Type: Point Name: UNITED UTILITIES WATER LTD Original Application No: - Original Start Date: 23/03/1966 Expiry Date: - Issue No: 101 Version Start Date: Version End Date:

6.6 Source Protection Zones

Source Protection Zones within 500m of the study site

Identified

The following Source Protection Zones records are represented on the SPZ and Potable Water Abstraction Map (6c):

ID	Distance (m)	Direction	Zone	Description
1	0	On Site	3	Total catchment
2	322	N	3	Total catchment

6.7 Source Protection Zones within Confined Aquifer

Source Protection Zones within the Confined Aquifer within 500m of the study site

None identified

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

Database searched and no data found.

6.8 Groundwater Vulnerability and Soil Leaching Potential

Environment Agency/Natural Resources Wales information on groundwater vulnerability and soil leaching potential within 500m of the study site Identified

Distance (m)	Direction	Classification	Soil Vulnerability Category	Description
0	On Site	Major Aquifer/Low Leaching Potential	L	Soils in which pollutants are unlikely to penetrate the soil layer because either water movement is largely horizontal, or they have the ability to attenuate diffuse pollutants.
0	On Site	Minor Aquifer/High Leaching Potential	HU	Soil information for urban areas and restored mineral workings. These soils are therefore assumed to be highly permeable in the absence of site-specific information.
0	On Site	Minor Aquifer/Low Leaching Potential	L	Soils in which pollutants are unlikely to penetrate the soil layer because either water movement is largely horizontal, or they have the ability to attenuate diffuse pollutants.
0	On Site	Major Aquifer/High Leaching Potential	HU	Soil information for urban areas and restored mineral workings. These soils are therefore assumed to be highly permeable in the absence of site-specific information.
82	SW	Minor Aquifer/Low Leaching Potential	L	Soils in which pollutants are unlikely to penetrate the soil layer because either water movement is largely horizontal, or they have the ability to attenuate diffuse pollutants.
188	N	Major Aquifer/High Leaching Potential	H3	Coarse textured or moderately shallow soils which readily transmit non-adsorbed pollutants and liquid discharges but have some ability to attenuate adsorbed pollutants because of their clay or organic matter content.
322	N	Major Aquifer/Low Leaching Potential	L	Soils in which pollutants are unlikely to penetrate the soil layer because either water movement is largely horizontal, or they have the ability to attenuate diffuse pollutants.
412	NE	Major Aquifer/Low Leaching Potential	L	Soils in which pollutants are unlikely to penetrate the soil layer because either water movement is largely horizontal, or they have the ability to attenuate diffuse pollutants.
494	NW	Minor Aquifer/High Leaching Potential	HU	Soil information for urban areas and restored mineral workings. These soils are therefore assumed to be highly permeable in the absence of site-specific information.
498	SW	Major Aquifer/High Leaching Potential	H1	Soils which readily transmit liquid discharges because they are shallow or susceptible to rapid flow directly to rock, gravel or groundwater.

6.9 River Quality

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

6.9.1 Biological Quality:

Biological Quality data describes water quality in terms of 83 groups of macroinvertebrates, some of which are pollution sensitive. The results are graded from A ('Very Good') to F ('Bad').

The following Biological Quality records are shown on the Hydrology Map (6e):

ID	Distance (m)	Direction	NGR	River Quality Grade	Biological Quality Grade				
					2005	2006	2007	2008	2009
106	450	SW	346600 389100	River Name: Ditton Bk Reach: Prescott Stw To Fox's Bank Bk. End/Start of Stretch: End of Stretch NGR	E	E	E	E	E

6.9.2 Chemical Quality:

Database searched and no data found.

6.10 Ordnance Survey MasterMap Water Network

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

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

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

ID	Distance/Direction	Name	Type of Watercourse	Additional Details
1	0 On Site	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
2	0 On Site	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
3	0 On Site	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions)

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
				conditions) Average Width in Watercourse Section (m): Not Provided
4	0 On Site	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
5	0 On Site	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
6	0 On Site	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
7	0 On Site	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
23	0 On Site	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
24	0 On Site	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
25	0 On Site	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
26	0 On Site	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
27	0 On Site	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
28	0 On Site	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
29	0 On Site	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
8	10 SW	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
30	10 SW	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
9	41 E	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
31	41 E	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
10	45 SE	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
11	45 SE	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
32	45 SE	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
33	45 SE	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
12	50 S	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
34	50 S	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
13	58 E	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: Not provided Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
35	58 E	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: Not provided Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
14	61 W	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: Not provided Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
36	61	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: Not provided

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
	W			Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
15	65 SW	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
37	65 SW	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
16	69 S	Fox's Bank Brook	Manmade watercourse for water transfer.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse may not contain water year round. Average Width in Watercourse Section (m): Not Provided
17	69 S	Fox's Bank Brook	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
18	69 S	Fox's Bank Brook	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
38	69 S	Fox's Bank Brook	Manmade watercourse for water transfer.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse may not contain water year round. Average Width in Watercourse Section (m): Not Provided
39	69 S	Fox's Bank Brook	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
40	69 S	Fox's Bank Brook	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
19	70 SE	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
20	70 S	Fox's Bank Brook	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
41	70 SE	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
42	70 S	Fox's Bank Brook	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
21	72 S	Fox's Bank Brook	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 6.1
43	72 S	Fox's Bank Brook	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 6.1
22	80 W	Not Specified	Lake, loch or reservoir.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.9
44	80 W	Not Specified	Lake, loch or reservoir.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.9
23	84 SW	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
45	84 SW	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
24	90 W	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
46	90 W	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
25	94 S	Not Specified	Lake, loch or reservoir.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 5.1
47	94 S	Not Specified	Lake, loch or reservoir.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 5.1
26	97 E	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
48	97 E	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
27	100	Fox's Bank Brook	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
	SW			Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 6.0
28	100 NE	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
29	100 S	Not Specified	Lake, loch or reservoir.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 5.1
30	100 S	Not Specified	Lake, loch or reservoir.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 8.7
49	100 SW	Fox's Bank Brook	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 6.0
50	100 NE	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
51	100 S	Not Specified	Lake, loch or reservoir.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 5.1
52	100 S	Not Specified	Lake, loch or reservoir.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 8.7
31	102 SW	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
53	102 SW	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
32	106 W	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: Not provided Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
33	106 S	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
54	106 W	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: Not provided Permanence: Watercourse contains water year round (in normal conditions)

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
				Average Width in Watercourse Section (m): Not Provided
55	106 S	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
34	107 W	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
56	107 W	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
35	113 N	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
57	113 N	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
36	119 S	Fox's Bank Brook	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
58	119 S	Fox's Bank Brook	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
37	123 N	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.3
59	123 N	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.3
38	128 W	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: Not provided Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
60	128 W	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: Not provided Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
39	162 SW	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
61	162 SW	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
40	165 S	Fox's Bank Brook	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.3
62	165 S	Fox's Bank Brook	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.3
41	182 N	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
63	182 N	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
42	186 SW	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
64	186 SW	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
43	191 W	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
65	191 W	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
44	195 S	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
66	195 S	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
45	197 N	Big Water	Lake, loch or reservoir.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 34.7
67	197	Big Water	Lake, loch or reservoir.	Catchment Area: Ditton Relationship to Ground Level: On ground surface

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
	N			Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 34.7
46	198 SW	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.5
68	198 SW	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.5
47	200 SW	Fox's Bank Brook	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.3
69	200 SW	Fox's Bank Brook	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.3
48	203 SW	Fox's Bank Brook	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.2
70	203 SW	Fox's Bank Brook	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.2
49	213 SW	Fox's Bank Brook	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
71	213 SW	Fox's Bank Brook	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
50	247 W	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
72	247 W	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
51	250 SW	Fox's Bank Brook	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
73	250 SW	Fox's Bank Brook	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions)

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
				Average Width in Watercourse Section (m): 2.0
52	251 W	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
53	251 W	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
74	251 W	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
75	251 W	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
54	255 SW	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
76	255 SW	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
55	262 S	Fox's Bank Brook	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.1
56	262 S	Fox's Bank Brook	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
77	262 S	Fox's Bank Brook	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.1
78	262 S	Fox's Bank Brook	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
57	271 S	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
79	271 S	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
58	274 E	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
80	274 E	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
59	278 S	Fox's Bank Brook	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
81	278 S	Fox's Bank Brook	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
60	287 S	Fox's Bank Brook	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.1
82	287 S	Fox's Bank Brook	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.1
61	294 SW	Fox's Bank Brook	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
83	294 SW	Fox's Bank Brook	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
62	299 SW	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: Not provided Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
84	299 SW	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: Not provided Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
63	306 NE	Not Specified	Lake, loch or reservoir.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
85	306 NE	Not Specified	Lake, loch or reservoir.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
64	307	Fox's Bank Brook	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: Underground

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
	SW			Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
86	307 SW	Fox's Bank Brook	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
65	310 SW	Fox's Bank Brook	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.4
87	310 SW	Fox's Bank Brook	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.4
66	316 NE	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
88	316 NE	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
67	317 S	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
89	317 S	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
68	321 SW	Chapel Brook	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.4
69	321 NE	Not Specified	Lake, loch or reservoir.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
90	321 SW	Chapel Brook	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.4
91	321 NE	Not Specified	Lake, loch or reservoir.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
70	326 N	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions)

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
				Average Width in Watercourse Section (m): 1.7
Not shown	326 N	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.7
71	329 NE	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
93	329 NE	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
72	336 N	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
94	336 N	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
73	338 SW	Chapel Brook	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: Not provided Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
95	338 SW	Chapel Brook	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: Not provided Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
74	340 W	Chapel Brook	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: Not provided Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
75	340 NE	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	340 W	Chapel Brook	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: Not provided Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
97	340 NE	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
76	342 SW	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
77	342 SW	Fox's Bank Brook	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.9
78	342 N	Not Specified	Lake, loch or reservoir.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
98	342 SW	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
99	342 SW	Fox's Bank Brook	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.9
Not shown	342 N	Not Specified	Lake, loch or reservoir.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
79	344 SW	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
101	344 SW	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
80	353 NE	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
81	353 NE	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
102	353 NE	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
103	353 NE	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
82	360 N	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
104	360	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
	N			Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
83	366 W	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	366 W	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
84	368 SW	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
106	368 SW	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
85	370 N	Not Specified	Lake, loch or reservoir.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 9.9
Not shown	370 N	Not Specified	Lake, loch or reservoir.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 9.9
86	371 SW	Ochre Brook	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 4.1
Not shown	371 SW	Ochre Brook	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 4.1
87	373 SE	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
109	373 SE	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
88	377 SE	Fox's Bank Brook	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
110	377 SE	Fox's Bank Brook	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions)

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
				Average Width in Watercourse Section (m): Not Provided
89	379 N	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	379 N	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
90	382 N	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	382 N	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
91	391 E	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	391 E	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
92	403 SW	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	403 SW	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
93	407 N	Not Specified	Lake, loch or reservoir.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
94	407 N	Not Specified	Lake, loch or reservoir.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 10.4
Not shown	407 N	Not Specified	Lake, loch or reservoir.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
Not shown	407 N	Not Specified	Lake, loch or reservoir.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 10.4

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
95	410 SE	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.5
Not shown	410 SE	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.5
96	411 SE	Fox's Bank Brook	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.8
97	411 SE	Fox's Bank Brook	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.8
Not shown	411 SE	Fox's Bank Brook	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.8
Not shown	411 SE	Fox's Bank Brook	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.8
98	418 W	Chapel Brook	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.2
Not shown	418 W	Chapel Brook	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.2
99	439 SE	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
100	439 SE	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.2
121	439 SE	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
122	439 SE	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.2
101	446	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
	S			Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	446 S	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
102	459 SW	Fox's Bank Brook	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.2
Not shown	459 SW	Fox's Bank Brook	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.2
103	460 SW	Ochre Brook	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.2
Not shown	460 SW	Ochre Brook	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.2
104	480 NE	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	480 NE	Not Specified	Inland river not influenced by normal tidal action.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
105	485 E	Not Specified	Lake, loch or reservoir.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 12.4
Not shown	485 E	Not Specified	Lake, loch or reservoir.	Catchment Area: Ditton Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 12.4

6.11 Surface Water Features

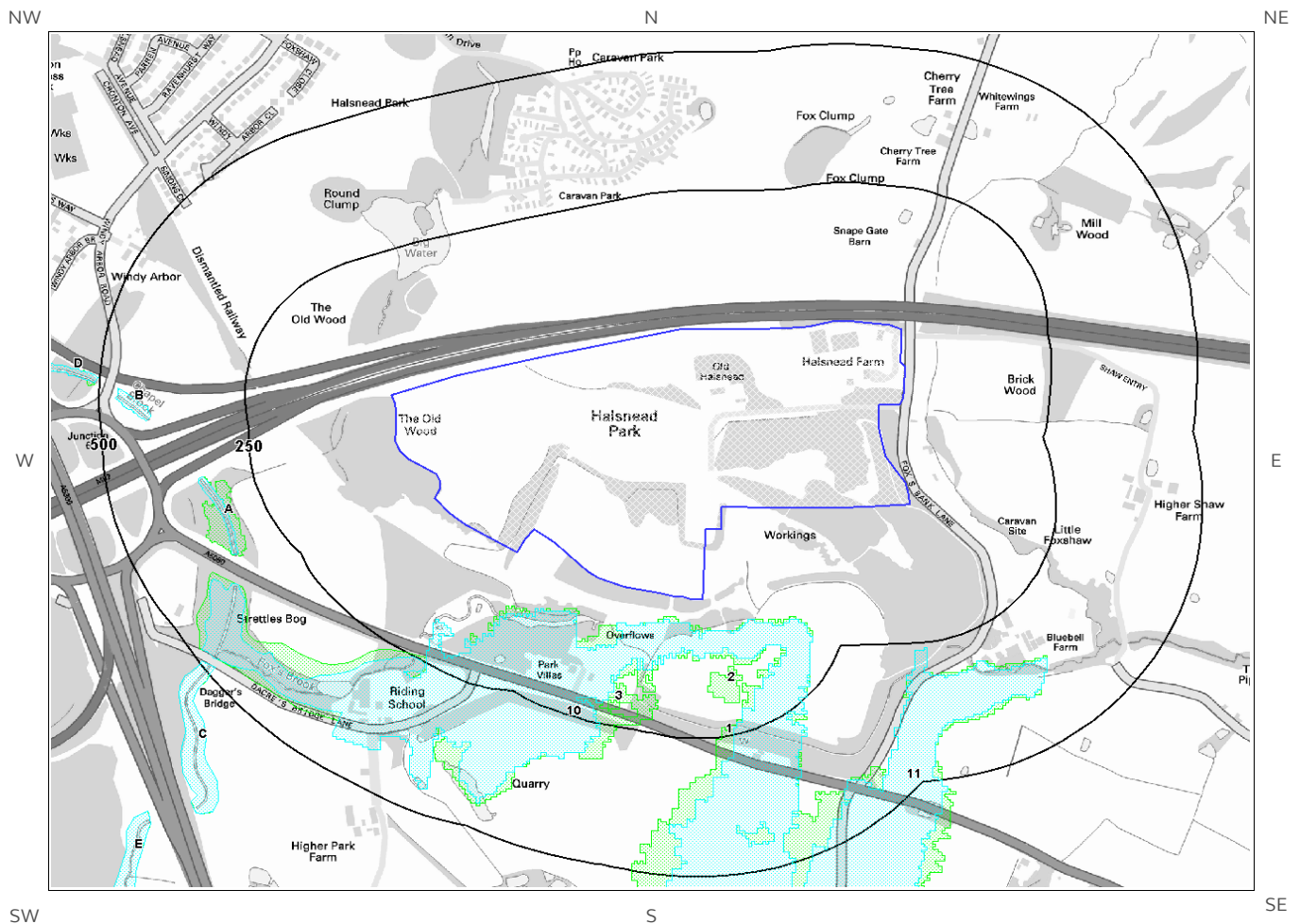
Surface water features within 250m of the study site

Identified

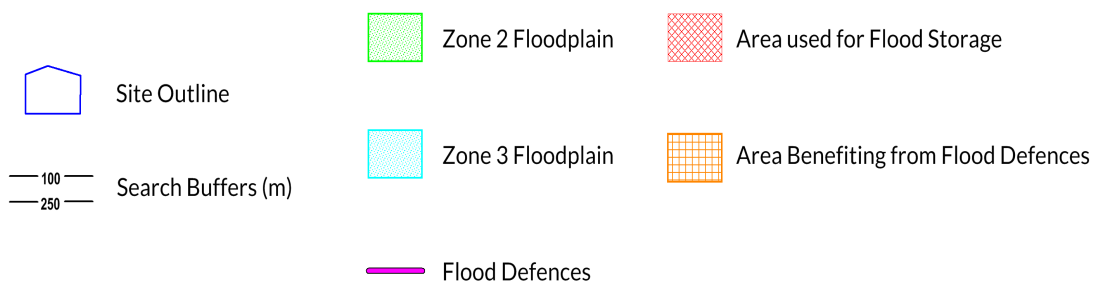
The following surface water records are not represented on mapping:

Distance (m)	Direction
0	On Site
0	On Site
0	On Site
0	On Site
0	On Site
43	E
49	S
54	E
65	SW
69	S
69	S
70	SE
84	SW
90	W
94	S
97	E
100	NE
103	SW
104	SW
113	N
115	W
119	S
122	NE
123	N
162	SW
164	S
186	SW
191	W
196	N
247	W
249	SW

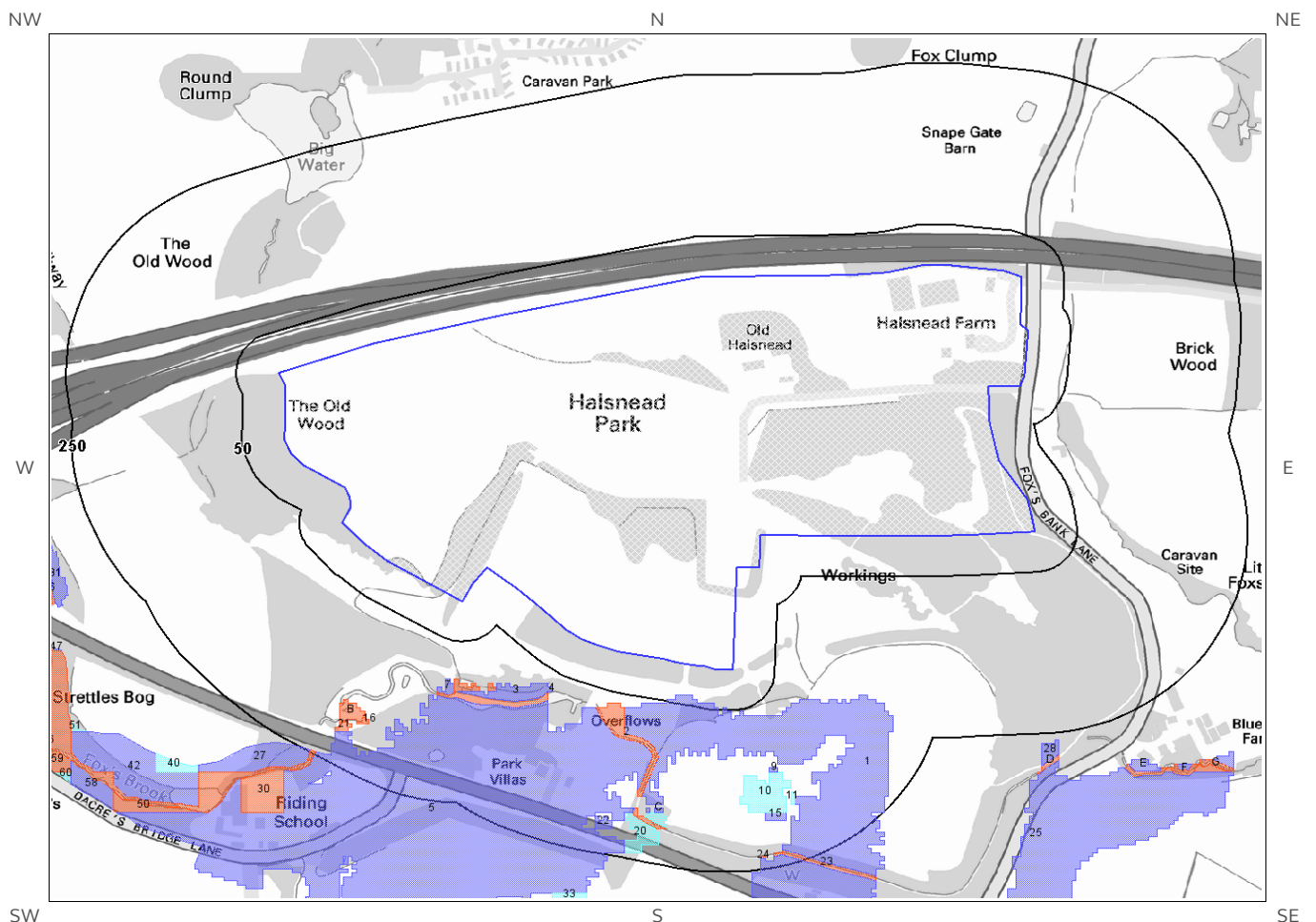
7a. Environment Agency/Natural Resources Wales Flood Map for Planning (from rivers and the sea)



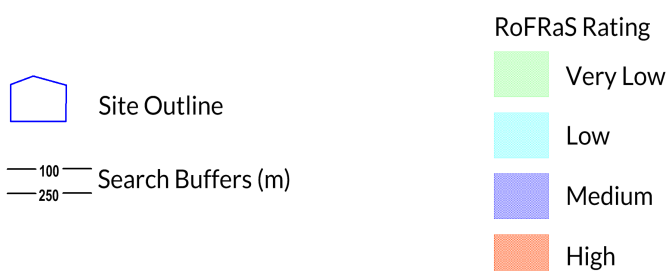
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7b. Environment Agency/Natural Resources Wales Risk of Flooding from Rivers and the Sea (RoFRaS) Map



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7 Flooding

7.1 River and Coastal Zone 2 Flooding

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

Identified

Environment Agency/Natural Resources Wales Zone 2 floodplains estimate the annual probability of flooding as between 1 in 1000 (0.1%) and 1 in 100 (1%) from rivers and between 1 in 1000 (0.1%) and 1 in 200 (0.5%) from the sea. Any relevant data is represented on Map 7a – Flood Map for Planning:

ID	Distance (m)	Direction	Update	Type
1	36	S	15-Oct-2018	Zone 2 - (Fluvial /Tidal Models)
2	129	S	15-Oct-2018	Zone 2 - (Fluvial /Tidal Models)
3	203	S	15-Oct-2018	Zone 2 - (Fluvial /Tidal Models)

7.2 River and Coastal Zone 3 Flooding

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

Identified

Zone 3 shows the extent of a river flood with a 1 in 100 (1%) or greater chance of occurring in any year or a sea flood with a 1 in 200 (0.5%) or greater chance of occurring in any year. Any relevant data is represented on Map 7a – Flood Map for Planning.

ID	Distance (m)	Direction	Update	Type
1	41	S	15-Oct-2018	Zone 3 - (Fluvial Models)

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

Highest risk of flooding onsite

Very Low

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

RoFRaS data for the study site indicates the property is in an area with a Very Low (less than 1 in 1000) chance of flooding in any given year.

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

ID	Distance (m)	Direction	RoFRaS flood Risk
1	37.0	S	Medium

7.4 Flood Defences

Flood Defences within 250m of the study site

None identified

Database searched and no data found.

7.5 Areas benefiting from Flood Defences

Areas benefiting from Flood Defences within 250m of the study site

None identified

7.6 Areas benefiting from Flood Storage

Areas used for Flood Storage within 250m of the study site

None identified

7.7 Groundwater Flooding Susceptibility Areas

7.7.1 British Geological Survey groundwater flooding susceptibility areas within 50m of the boundary of the study site

Identified

Clearwater Flooding or Superficial Deposits Flooding

Superficial Deposits Flooding

Notes: Groundwater flooding may either be associated with shallow unconsolidated sedimentary aquifers which overlie unproductive aquifers (Superficial Deposits Flooding), or with unconfined aquifers (Clearwater Flooding).

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

Potential at Surface

Where potential for groundwater flooding to occur at surface is indicated, this means that given the geological conditions in the area groundwater flooding hazard should be considered in all land-use planning decisions. It is recommended that other relevant information e.g. records of previous incidence of groundwater flooding, rainfall, property type, and land drainage information be investigated in order to establish relative, but not absolute, risk of groundwater flooding.

7.8 Groundwater Flooding Confidence Areas

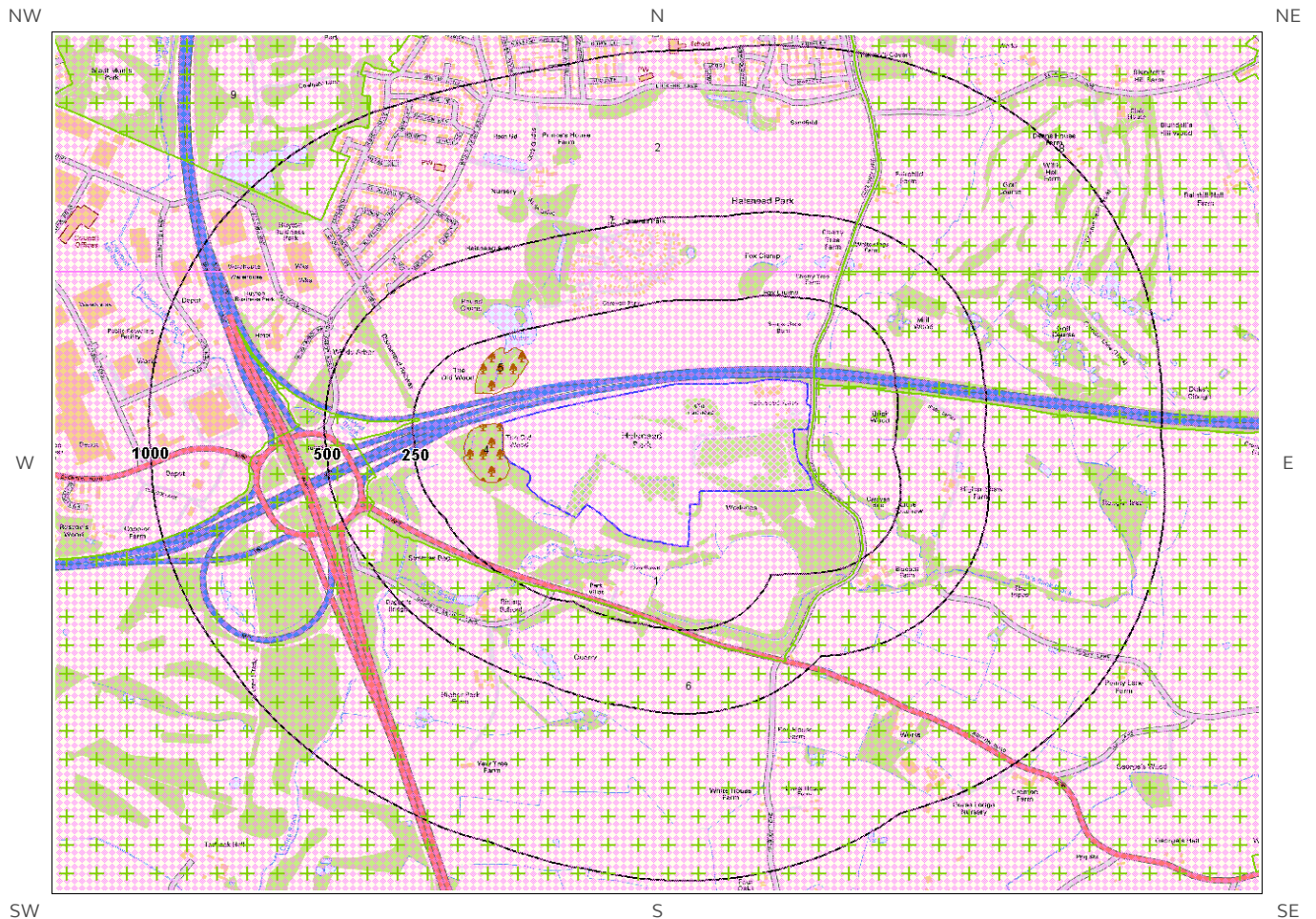
British Geological Survey confidence rating in this result

High

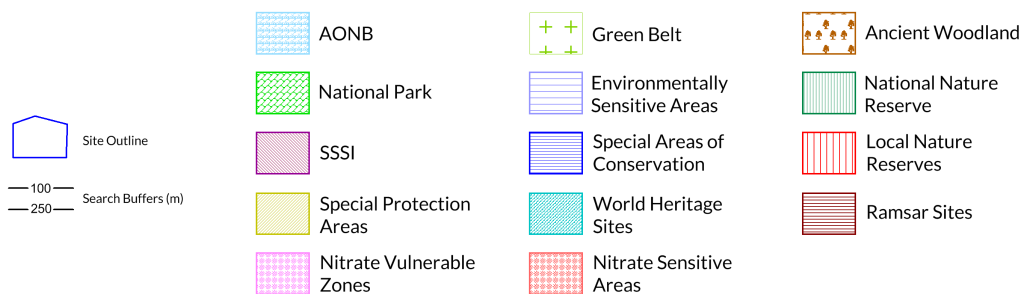
Notes: Groundwater flooding is defined as the emergence of groundwater at the ground surface or the rising of groundwater into man-made ground under conditions where the normal range of groundwater levels is exceeded.

The confidence rating is on a threefold scale - Low, Moderate and High. This provides a relative indication of the BGS confidence in the accuracy of the susceptibility result for groundwater flooding. This is based on the amount and precision of the information used in the assessment. In areas with a relatively lower level of confidence the susceptibility result should be treated with more caution. In other areas with higher levels of confidence the susceptibility result can be used with more confidence.

8. Designated Environmentally Sensitive Sites Map



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8. Designated Environmentally Sensitive Sites

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

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

2

The following records of Designated Ancient Woodland provided by Natural England/Natural Resources Wales are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	Ancient Woodland Name	Data Source
4	0	On Site	THE OLD WOOD	Ancient and Semi-Natural Woodland
5	91	N	THE OLD WOOD	Ancient and Semi-Natural Woodland

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

3

The following Nitrate Vulnerable Zone records produced by DEFRA are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	NVZ Name	Data Source
1	0	On Site	Existing	DEFRA
2	322	N	Existing	DEFRA
Not shown	1644	NE	Existing	DEFRA

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

4

Green Belt data contains Ordnance Survey data © Crown copyright and database right [2015].

ID	Distance	Direction	Green Belt Name	Local Authority Name
6	10	E	Liverpool, Manchester and West Yorks Greenbelt	Knowsley
7	26	NE	Liverpool, Manchester and West Yorks Greenbelt	St. Helens District (B)
8	349	N	Liverpool, Manchester and West Yorks Greenbelt	St. Helens District (B)
9	794	NW	Liverpool, Manchester and West Yorks Greenbelt	Knowsley

9. Natural Hazards Findings

9.1 Detailed BGS GeoSure Data

BGS GeoSure Data has been searched to 50m. The data is included in tabular format. If you require further information on geology and ground stability, please obtain a **Groundsure Geo Insight**, available from our [website](#). The following information has been found:

9.1.1 Shrink Swell

Maximum Shrink-Swell** hazard rating identified on the study site Very Low

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

Hazard
Ground conditions predominantly low plasticity. No special actions required to avoid problems due to shrink-swell clays. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with shrink-swell clays.

9.1.2 Landslides

Maximum Landslide* hazard rating identified on the study site Low

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

Hazard
Possibility of slope instability problems after major changes in ground conditions. Consideration should be given to stability if changes to drainage or excavations take place. Possible increase in construction cost to reduce potential slope stability problems. Existing property no significant increase in insurance risk due to natural slope instability problems.

9.1.3 Soluble Rocks

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

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

Hazard
Soluble rocks are present, but unlikely to cause problems except under exceptional conditions. No special actions required to avoid problems due to soluble rocks. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with soluble rocks.

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

9.1.4 Compressible Ground

Maximum Compressible Ground* hazard rating identified on the study site

Moderate

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

Hazard
Significant potential for compressibility problems. Avoid large differential loadings of ground. Do not drain or de-water ground near the property without technical advice. For new build consider possibility of compressible ground in ground investigation, construction and building design. Consider effects of groundwater changes. Extra construction costs are likely. For existing property possible increase in insurance risk from compressibility, especially if water conditions or loading of the ground change significantly.

9.1.5 Collapsible Rocks

Maximum Collapsible Rocks* hazard rating identified on the study site

Very Low

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

Hazard
Deposits with potential to collapse when loaded and saturated are unlikely to be present. No special ground investigation required or increased construction costs or increased financial risk due to potential problems with collapsible deposits.

9.1.6 Running Sand

Maximum Running Sand** hazard rating identified on the study site

Low

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

Hazard
Possibility of running sand problems after major changes in ground conditions. Normal maintenance to avoid leakage of water-bearing services or water bodies (ponds, swimming pools) should reduce likelihood of problems due to running sand. For new build consider possibility of running sand into trenches or excavations if water table is high or sandy strata are exposed to water. Avoid concentrated water inputs to site. Unlikely to be an increase in construction costs due to potential for running sand. For existing property no significant increase in insurance risk due to running sand problems is likely.

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

9.2 Radon

9.2.1 Radon Affected Areas

Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level? The site is in a Radon Affected Area, as between 1 and 3% of properties are above the Action Level.

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

9.2.2 Radon Protection

Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment? No radon protective measures are necessary.

10. Mining

10.1 Coal Mining

Coal mining areas within 75m of the study site

Identified

The following coal mining information provided by the Coal Authority is not represented on Mapping:

Distance (m)	Direction	Details
0	On Site	The study site is located within the specified search distance of an identified mining area. Further details concerning this can be obtained from the Coal Authority Helpline on 0845 762 6848.

10.2 Non-Coal Mining

Non-Coal Mining areas within 50m of the study site boundary

Identified

The following non-coal mining information is provided by the BGS:

Distance (m)	Direction	Name	Commodity	Assessment of likelihood
27.0	S	Not available	Vein Mineral	Sporadic underground mining of restricted extent may have occurred. Potential for difficult ground conditions are unlikely and localised and are at a level where they need not be considered

Past underground mine workings are uncommon, localised and of limited area. The rock types present in this area are such that minor mineral veins may be present within them on which it is possible that there have been attempts to work these by underground methods and/or it is possible that small scale underground extraction of other materials may have occurred. All such occurrences are likely to be restricted in size and infrequent. It should be noted, however, that there is always the possibility of the existence of other sub-surface excavations, such as wells, cess pits, follies, air raid shelters/bunkers and other military structures etc. that could affect surface ground stability but which are outside the scope of this dataset. However, if in a coalfield area you should still consider a Coal Authority mining search for the area of interest.

10.3 Brine Affected Areas

Brine affected areas within 75m of the study site

None identified

Guidance: No Guidance Required.

Contact Details

Groundsure Helpline
Telephone: 08444 159 000
info@groundsure.com

British Geological Survey Enquiries

Kingsley Dunham Centre
Keyworth, Nottingham NG12 5GG
Tel: 0115 936 3143.
Fax: 0115 936 3276.
Email:

Web: www.bgs.ac.uk

BGS Geological Hazards Reports and general geological enquiries:
enquiries@bgs.ac.uk

Environment Agency

National Customer Contact Centre, PO Box 544
Rotherham, S60 1BY
Tel: 03708 506 506

Web: www.environment-agency.gov.uk

Email: enquiries@environment-agency.gov.uk

Public Health England

Public information access office
Public Health England, Wellington House
133-155 Waterloo Road, London, SE1 8UG
www.gov.uk/phe

Email: enquiries@phe.gov.uk
Main switchboard: 020 7654 8000

The Coal Authority

200 Lichfield Lane
Mansfield
Notts NG18 4RG
Tel: 0345 7626 848
DX 716176 Mansfield 5
www.coal.gov.uk

Ordnance Survey

Adanac Drive, Southampton
SO16 0AS
Tel: 08456 050505

Local Authority

Authority: Knowsley Metropolitan Borough Council
Phone: 0151 489 6000

Web: <http://www.knowsley.gov.uk/>

Address: Municipal Buildings, Cherryfield Drive, Knowsley, L32 1TX

Gemapping PLC

Virginia Villas, High Street, Hartley Witney,
Hampshire RG27 8NW
Tel: 01252 845444



Acknowledgements: Site of Special Scientific Interest, National Nature Reserve, Ramsar Site, Special Protection Area, Special Area of Conservation data is provided by, and used with the permission of, Natural England/Natural Resources Wales who retain the Copyright and Intellectual Property Rights for the data.

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

TIER ENVIRONMENTAL

SUIT 513, CHADWICK HOUSE, WARRINGTON
ROAD,
WARRINGTON, WA3 6AE

Groundsure
Reference:

GS-5672875

Your Reference: TE1163_-_PE02796

Report Date 6 Dec 2018

Report Delivery Method: Email - pdf

Geo Insight

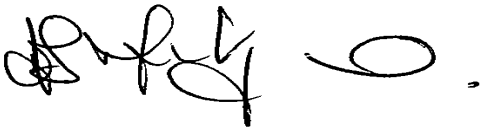
Address: HALSNEAD FARM, HALSNEAD FARM, FOXS BANK LANE, CRONTON, L35 3SU

Dear Sir/ Madam,

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

If you need any further assistance, please do not hesitate to contact our helpline on 08444 159000 quoting the above Groundsure reference number.

Yours faithfully,



Managing Director
Groundsure Limited

Enc.
Groundsure Geo Insight

Address: HALSNEAD FARM, HALSNEAD FARM, FOXS BANK LANE,
CRONTON, L35 3SU

Date: 6 Dec 2018

Reference: GS-5672875

Client: TIER ENVIRONMENTAL

NW N NE



SW S SE

Aerial Photograph Capture date: 21-Apr-2016
Grid Reference: 347086,389467
Site Size: 28.96ha

Contents Page

Contents Page.....	3
Overview of Findings.....	5
1:10,000 Scale Availability.....	8
Availability of 1:10,000 Scale Geology Mapping.....	9
1 Geology (1:10,000 scale).....	10
1.1 Artificial Ground map (1:10,000 scale).....	10
1. Geology 1:10,000 scale.....	11
1.1 Artificial Ground.....	11
1.2 Superficial Deposits and Landslips map (1:10,000 scale).....	12
1.2 Superficial Deposits and Landslips.....	13
1.2.1 Superficial Deposits/ Drift Geology.....	13
1.2.2 Landslip.....	13
1.3 Bedrock and linear features map (1:10,000 scale).....	14
1.3 Bedrock and linear features.....	15
1.3.1 Bedrock/ Solid Geology.....	15
1.3.2 Linear features.....	16
2 Geology 1:50,000 Scale.....	17
2.1 Artificial Ground map.....	17
2. Geology 1:50,000 scale.....	18
2.1 Artificial Ground.....	18
2.1.1 Artificial/ Made Ground	18
2.1.2 Permeability of Artificial Ground.....	18
2.2 Superficial Deposits and Landslips map (1:50,000 scale).....	19
2.2 Superficial Deposits and Landslips.....	20
2.2.1 Superficial Deposits/ Drift Geology.....	20
2.2.2 Permeability of Superficial Ground	20
2.2.3 Landslip.....	20
2.2.4 Landslip Permeability.....	21
2.3 Bedrock and linear features map (1:50,000 scale).....	22
2.3 Bedrock, Solid Geology & linear features.....	23
2.3.1 Bedrock/Solid Geology.....	23
2.3.2 Permeability of Bedrock Ground.....	24
2.3.3 Linear features.....	24
3 Radon Data.....	26
3.1 Radon Affected Areas.....	26
3.2 Radon Protection.....	26
4 Ground Workings map.....	27
4 Ground Workings.....	28
4.1 Historical Surface Ground Working Features derived from Historical Mapping.....	28
4.2 Historical Underground Working Features derived from Historical Mapping.....	30
4.3 Current Ground Workings.....	32
5 Mining, Extraction & Natural Cavities.....	35
5.1 Historical Mining.....	35
5.2 Coal Mining.....	37
5.3 Johnson Poole and Bloomer.....	37
5.4 Non-Coal Mining.....	37
5.5 Non-Coal Mining Cavities.....	38
5.6 Natural Cavities.....	38
5.7 Brine Extraction.....	38
5.8 Gypsum Extraction.....	38
5.9 Tin Mining.....	38
5.10 Clay Mining.....	39
6 Natural Ground Subsidence.....	40
6.1 Shrink-Swell Clay map.....	40
6.2 Landslides map.....	41
6.3 Ground Dissolution of Soluble Rocks map.....	42
6.4 Compressible Deposits map.....	43
6.5 Collapsible Deposits map.....	44
6.6 Running Sand map.....	45

6 Natural Ground Subsidence.....	46
6.1 Shrink-Swell Clays.....	46
6.2 Landslides.....	46
6.3 Ground Dissolution of Soluble Rocks.....	47
6.4 Compressible Deposits.....	47
6.5 Collapsible Deposits.....	47
6.6 Running Sands.....	48
7 Borehole Records.....	50
8 Estimated Background Soil Chemistry.....	58
9 Railways and Tunnels map.....	59
9 Railways and Tunnels.....	60
9.1 Tunnels	60
9.2 Historical Railway and Tunnel Features	60
9.3 Historical Railways.....	61
9.4 Active Railways.....	61
9.5 Railway Projects.....	62

Overview of Findings

The Groundsure Geo Insight provides high quality geo-environmental information that allows geo-environmental professionals and their clients to make informed decisions and be forewarned of potential ground instability problems that may affect the ground investigation, foundation design and possibly remediation options that could lead to possible additional costs.

The report is based on the BGS 1:50,000 and 1:10,000 Digital Geological Map of Great Britain, BGS Geosure data; BRITPITS database; Non-coal mining data and Borehole Records, Coal Authority data including brine extraction areas, PBA non-coal mining and natural cavities database, Johnson Poole and Bloomer mining data and Groundsure's unique database including historical surface ground and underground workings.

For further details on each dataset, please refer to each individual section in the report as listed. Where the database has been searched a numerical result will be recorded. Where the database has not been searched '-' will be recorded.

Section 1: Geology 1:10,000 Scale

1.1 Artificial Ground	1.1 Is there any Artificial Ground/ Made Ground present beneath the study site at 1:10,000 scale?	No
1.2 Superficial Geology and Landslips	1.2.1 Is there any Superficial Ground/Drift Geology present beneath the study site at 1:10,000 scale?*	Yes
	1.2.2 Are there any records of landslide within 500m of the study site boundary at 1:10,000 scale?	No
1.3 Bedrock, Solid Geology and linear features	1.3.1 For records of Bedrock and Solid Geology beneath the study site* see the detailed findings section.	
	1.3.2 Are there any records of linear features within 500m of the study site boundary at 1:10,000 scale?	Yes

Section 2: Geology 1:50,000 Scale

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

Section 2: Geology 1:50,000 Scale

2.3 Bedrock, Solid Geology and linear features

2.3.1 For records of Bedrock and Solid Geology beneath the study site* see the detailed findings section.

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

Yes

2.3.3 Are there any records of linear features within 500m of the study site boundary?

Yes

Section 3: Radon

3. Radon

3.1 Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level?

The property is in a Radon Affected Area, as between 1 and 3% of properties are above the Action Level.

3.2 Radon Protection

No radon protective measures are necessary.

Section 4: Ground Workings

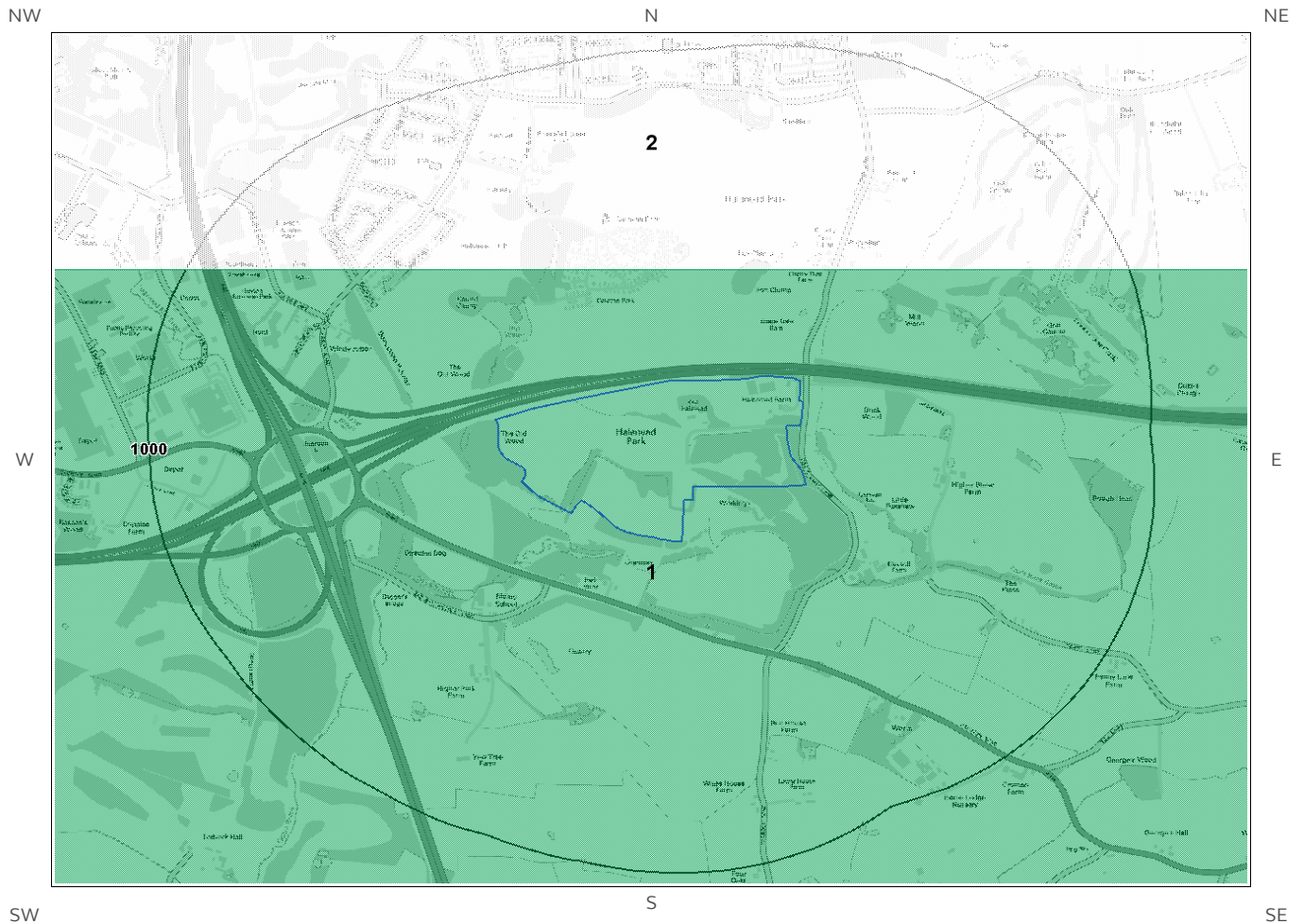
	On-site	0-50m	51-250	251-500	501-1000
4.1 Historical Surface Ground Working Features from Small Scale Mapping	21	14	25	Not Searched	Not Searched
4.2 Historical Underground Workings from Small Scale Mapping	4	0	0	0	39
4.3 Current Ground Workings	0	0	1	2	15

Section 5: Mining, Extraction & Natural Cavities

	On-site	0-50m	51-250	251-500	501-1000
5.1 Historical Mining	4	0	0	0	39
5.2 Coal Mining	1	0	0	0	0
5.3 Johnson Poole and Bloomer Mining Area	0	0	0	0	0
5.4 Non-Coal Mining*	0	1	0	0	1
5.5 Non-Coal Mining Cavities	0	0	0	0	0
5.5 Natural Cavities	0	0	0	0	0

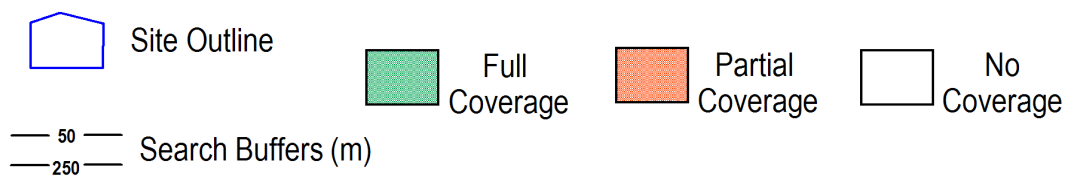
Section 5: Mining, Extraction & Natural Cavities	On-site	0-50m	51-250	251-500	501-1000
5.6 Brine Extraction	0	0	0	0	0
5.7 Gypsum Extraction	0	0	0	0	0
5.8 Tin Mining	0	0	0	0	0
5.9 Clay Mining	0	0	0	0	0
Section 6: Natural Ground Subsidence	On-site				
6.1 Shrink-Swell Clay	Very Low				
6.2 Landslides	Low				
6.3 Ground Dissolution of Soluble Rocks	Negligible				
6.4 Compressible Deposits	Moderate				
6.5 Collapsible Deposits	Very Low				
6.5 Running Sand	Low				
Section 7: Borehole Records	On-site	0-50m	51-250		
7 BGS Recorded Boreholes	11	44	54		
Section 8: Estimated Background Soil Chemistry	On-site	0-50m	51-250		
8 Records of Background Soil Chemistry	25	7	0		
Section 9: Railways and Tunnels	On-site	0-50m	51-250	250-500	
9.1 Tunnels	0	0	0	Not Searched	
9.2 Historical Railway and Tunnel Features	13	1	0	Not Searched	
9.3 Historical Railways	0	0	0	Not Searched	
9.4 Active Railways	0	0	0	Not Searched	
9.5 Railway Projects	0	0	0	0	

1:10,000 Scale Availability



1_10,000 Availability Legend

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Availability of 1:10,000 Scale Geology Mapping

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

ID	Distance	Artificial Coverage	Superficial Coverage	Bedrock Coverage	Mass Movement Coverage
1	0.0	No deposits are mapped	Full	Full	No coverage
2	322.0	No deposits are mapped	No coverage	No coverage	No coverage
N3	1895.0	No deposits are mapped	Full	Full	No coverage

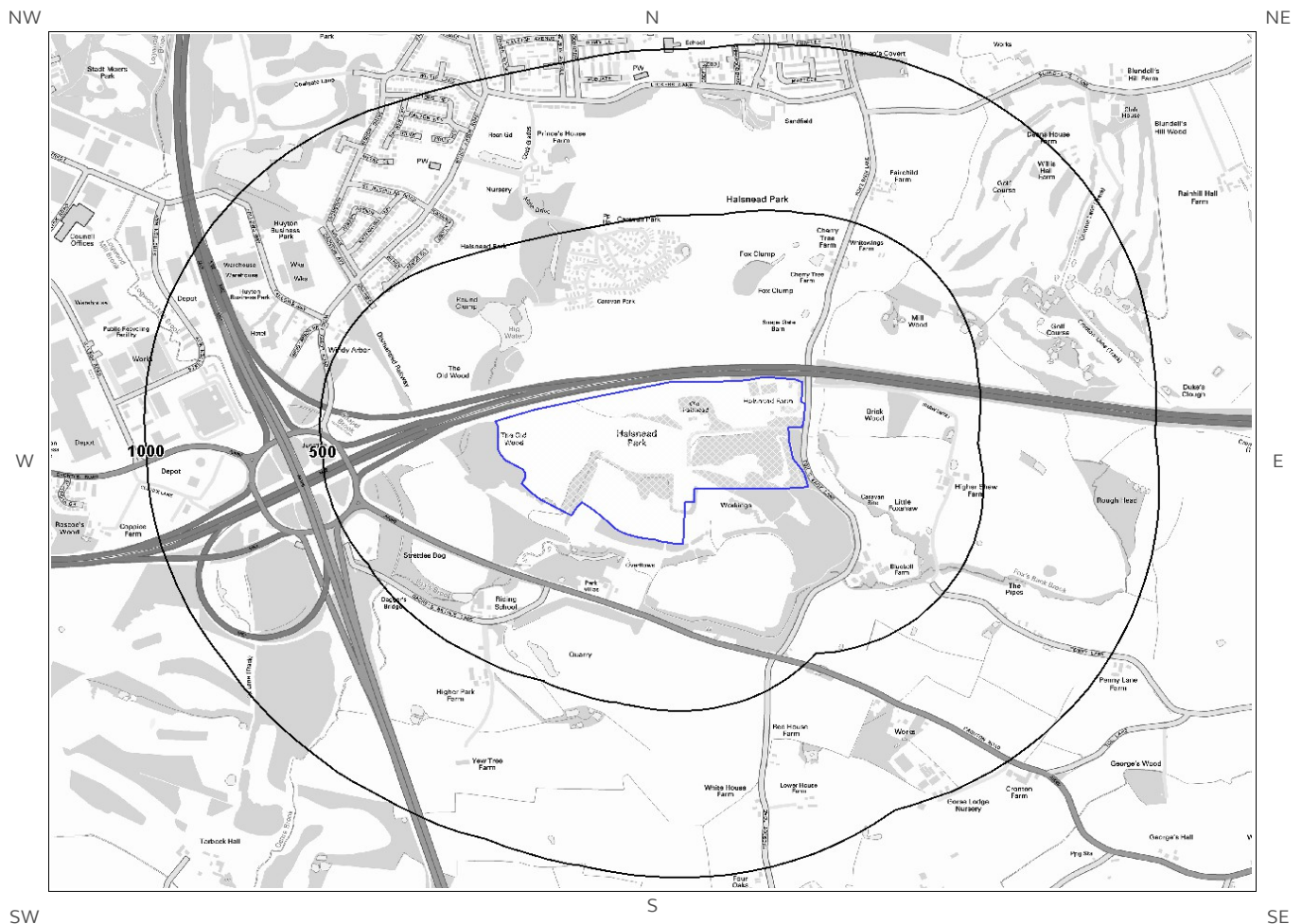
Guidance: The 1:10,000 scale geological interpretation is the most detailed generally available from BGS and is the scale at which most geological surveying is carried out in the field. The database is presented as four types of geology (artificial, mass movement, superficial and bedrock), although not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

The definitions of coverage are as follows:

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

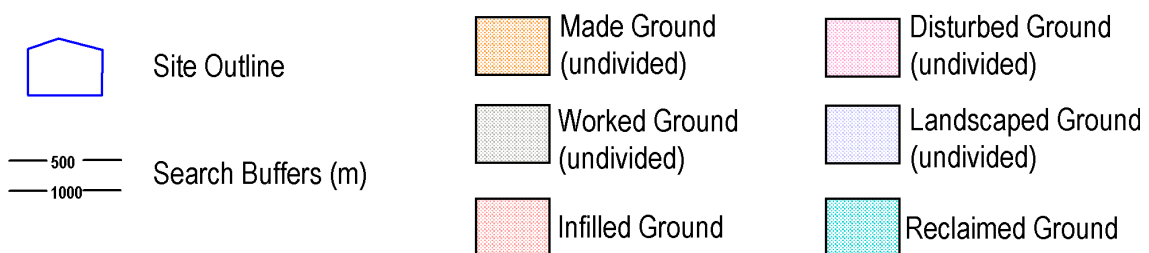
1 Geology (1:10,000 scale).

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



Artificial Ground Legend

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1. Geology 1:10,000 scale

1.1 Artificial Ground

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

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

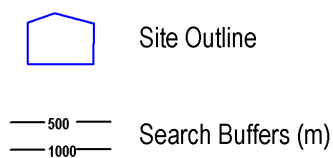
Database searched and no data found.

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



Artificial Ground Legend

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1.2 Superficial Deposits and Landslips

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

1.2.1 Superficial Deposits/ Drift Geology

Are there any records of Superficial Deposits/ Drift Geology within 500m of the study site boundary at 1:10,000 scale? Yes

ID	Distance (m)	Direction	LEX Code	Description	Rock Description
1	0.0	On Site	TILLD-DMTN	Till, Devensian - Diamicton	Diamicton
2	0.0	On Site	RTD1-XSV	River Terrace Deposits, 1 - Sand And Gravel	Sand And Gravel
3	8.0	E	ALV-XCZSV	Alluvium - Clay, Silt, Sand And Gravel	Clay, Silt, Sand And Gravel
4	47.0	E	GFDUD-XSV	Glaciofluvial Deposits, Devensian - Sand And Gravel	Sand And Gravel
5	77.0	S	TILLD-DMTN	Till, Devensian - Diamicton	Diamicton
6	217.0	N	GFDUD-XSV	Glaciofluvial Deposits, Devensian - Sand And Gravel	Sand And Gravel
7	261.0	E	RTD1-XSV	River Terrace Deposits, 1 - Sand And Gravel	Sand And Gravel

1.2.2 Landslip

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

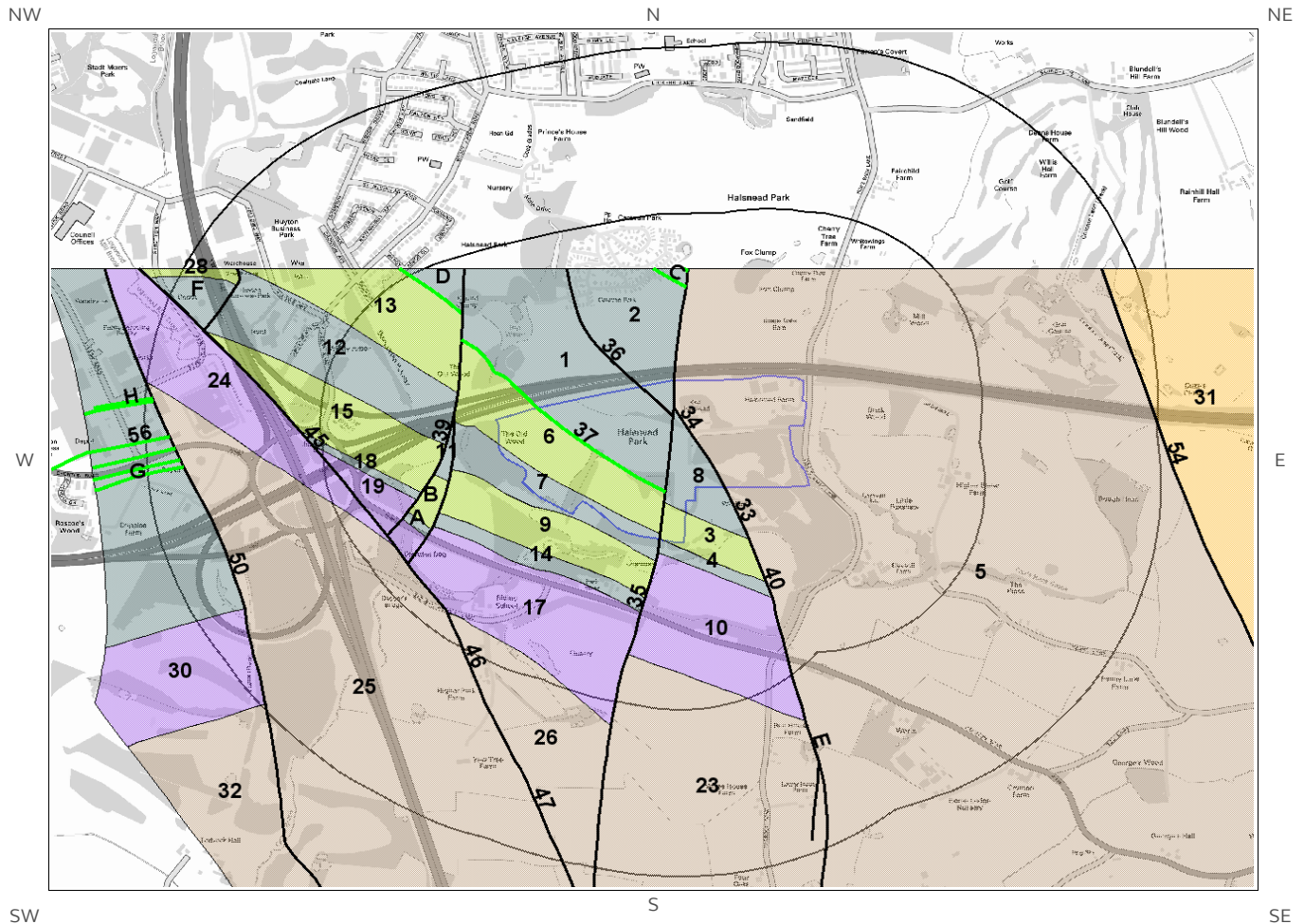
No

Database searched and no data found.

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

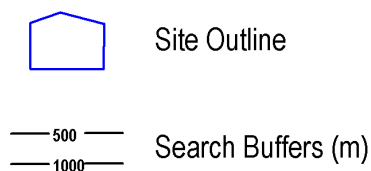
This Geology shows the main components as discrete layers, these are: Artificial / Made Ground, Superficial / Drift Geology and Landslips. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

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



Bedrock and linear features Legend

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1.3 Bedrock and linear features

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

1.3.1 Bedrock/ Solid Geology

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

ID	Distance (m)	Direction	LEX Code	Description	Rock Age
1	0.0	On Site	PMCM-MDSS	Pennine Middle Coal Measures Formation - Mudstone, Siltstone And Sandstone	Bolsovian Sub-age - Duckmantian Sub-age
2	0.0	On Site	PMCM-MDSS	Pennine Middle Coal Measures Formation - Mudstone, Siltstone And Sandstone	Bolsovian Sub-age - Duckmantian Sub-age
3	0.0	On Site	PMCM-SDST	Pennine Middle Coal Measures Formation - Sandstone	Bolsovian Sub-age - Duckmantian Sub-age
4	0.0	On Site	PMCM-MDSS	Pennine Middle Coal Measures Formation - Mudstone, Siltstone And Sandstone	Bolsovian Sub-age - Duckmantian Sub-age
5	0.0	On Site	KNSF-SDST	Kinnerton Sandstone Formation - Sandstone	Early Triassic Epoch
6	0.0	On Site	PMCM-SDST	Pennine Middle Coal Measures Formation - Sandstone	Bolsovian Sub-age - Duckmantian Sub-age
7	0.0	On Site	PMCM-MDSS	Pennine Middle Coal Measures Formation - Mudstone, Siltstone And Sandstone	Bolsovian Sub-age - Duckmantian Sub-age
8	0.0	On Site	PMCM-MDSS	Pennine Middle Coal Measures Formation - Mudstone, Siltstone And Sandstone	Bolsovian Sub-age - Duckmantian Sub-age
9	7.0	SW	PMCM-SDST	Pennine Middle Coal Measures Formation - Sandstone	Bolsovian Sub-age - Duckmantian Sub-age
10	40.0	S	ETM-MDSC	Etruria Formation - Mudstone, Sandstone And Conglomerate	Westphalian Age
11	121.0	W	PMCM-MDSS	Pennine Middle Coal Measures Formation - Mudstone, Siltstone And Sandstone	Bolsovian Sub-age - Duckmantian Sub-age
12	122.0	W	PMCM-MDSS	Pennine Middle Coal Measures Formation - Mudstone, Siltstone And Sandstone	Bolsovian Sub-age - Duckmantian Sub-age
13	137.0	NW	PMCM-SDST	Pennine Middle Coal Measures Formation - Sandstone	Bolsovian Sub-age - Duckmantian Sub-age
14	138.0	S	PMCM-MDSS	Pennine Middle Coal Measures Formation - Mudstone, Siltstone And Sandstone	Bolsovian Sub-age - Duckmantian Sub-age
15	149.0	W	PMCM-SDST	Pennine Middle Coal Measures Formation - Sandstone	Bolsovian Sub-age - Duckmantian Sub-age
16B	172.0	SW	PMCM-SDST	Pennine Middle Coal Measures Formation - Sandstone	Bolsovian Sub-age - Duckmantian Sub-age
17	183.0	S	ETM-MDSC	Etruria Formation - Mudstone, Sandstone And Conglomerate	Westphalian Age
18	255.0	SW	PMCM-MDSS	Pennine Middle Coal Measures Formation - Mudstone, Siltstone And Sandstone	Bolsovian Sub-age - Duckmantian Sub-age
19	279.0	SW	ETM-MDSC	Etruria Formation - Mudstone, Sandstone And Conglomerate	Westphalian Age
20A	294.0	SW	PMCM-MDSS	Pennine Middle Coal Measures Formation - Mudstone, Siltstone And Sandstone	Bolsovian Sub-age - Duckmantian Sub-age
21A	318.0	SW	ETM-MDSC	Etruria Formation - Mudstone, Sandstone And Conglomerate	Westphalian Age

ID	Distance (m)	Direction	LEX Code	Description	Rock Age
22D	331.0	N	PMCM-MDSS	Pennine Middle Coal Measures Formation - Mudstone, Siltstone And Sandstone	Bolsovian Sub-age - Duckmantian Sub-age
23	353.0	S	KNSF-SDST	Kinnerton Sandstone Formation - Sandstone	Early Triassic Epoch
24	407.0	SW	ETM-MDSC	Etruria Formation - Mudstone, Sandstone And Conglomerate	Westphalian Age
25	408.0	SW	KNSF-SDST	Kinnerton Sandstone Formation - Sandstone	Early Triassic Epoch
26	425.0	SW	KNSF-SDST	Kinnerton Sandstone Formation - Sandstone	Early Triassic Epoch

1.3.2 Linear features

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

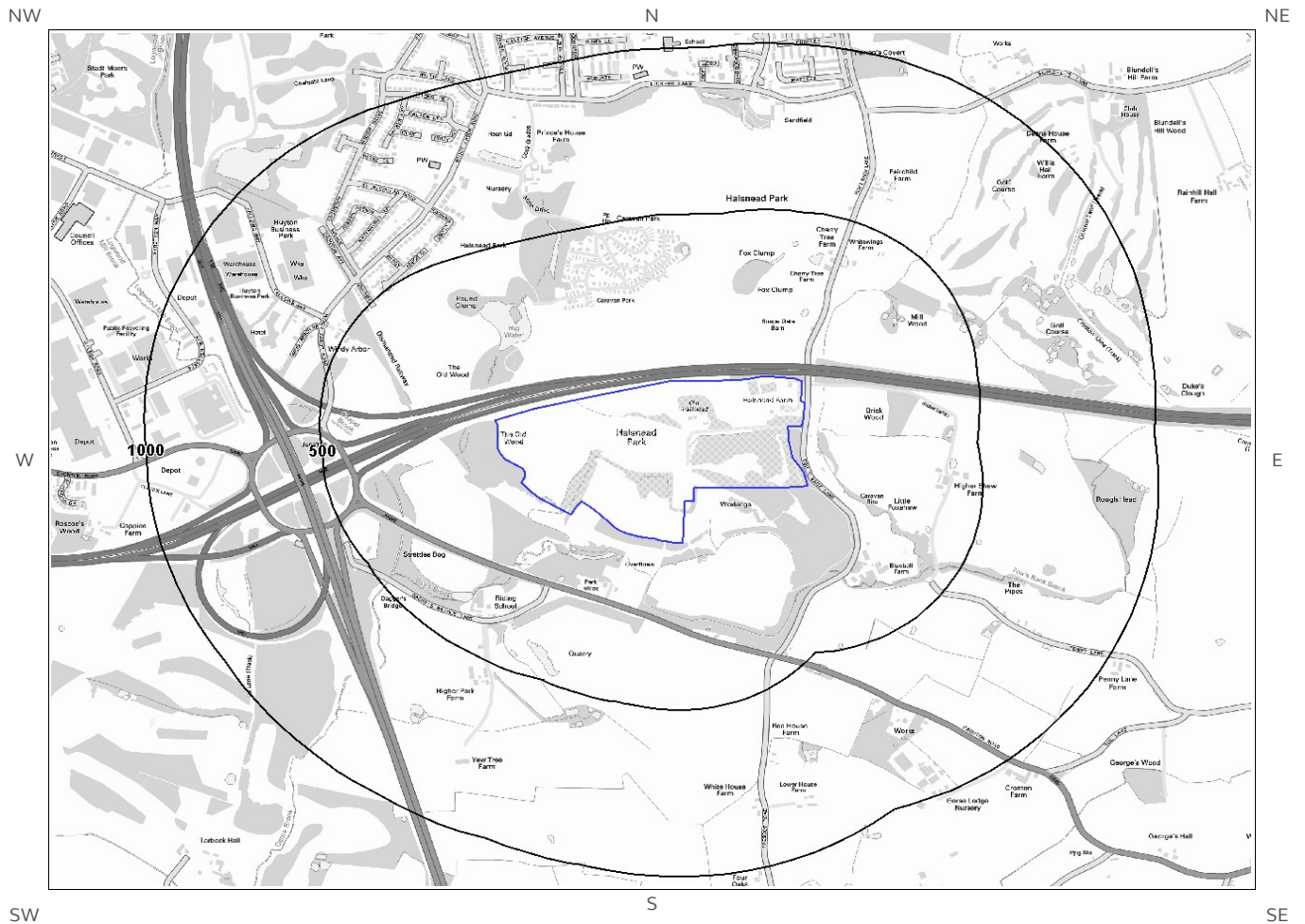
ID	Distance (m)	Direction	Category Description	Feature Description
33	0.0	On Site	FAULT	Normal fault, observed; crossmark on downthrow side
34	0.0	On Site	FAULT	Normal fault, inferred; crossmarks on downthrow side
35	0.0	On Site	FAULT	Normal fault, observed; crossmark on downthrow side
36	0.0	On Site	FAULT	Normal fault, observed; crossmark on downthrow side
37	0.0	On Site	ROCK	Coal seam, observed (Coal_Obs+BedRock)
38B	121.0	W	FAULT	Normal fault, observed; crossmark on downthrow side
39	122.0	W	FAULT	Normal fault, observed; crossmark on downthrow side
40	132.0	S	FAULT	Normal fault, inferred; crossmarks on downthrow side
41C	280.0	N	ROCK	Coal seam, inferred (None)
42C	327.0	N	ROCK	Coal seam, inferred (None)
43D	331.0	N	ROCK	Coal seam, inferred (Coal_Inf+BedRock)
44E	334.0	SE	FAULT	Normal fault, observed; crossmark on downthrow side
45	407.0	SW	FAULT	Normal fault, inferred; crossmarks on downthrow side
46	431.0	SW	FAULT	Normal fault, observed; crossmark on downthrow side

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

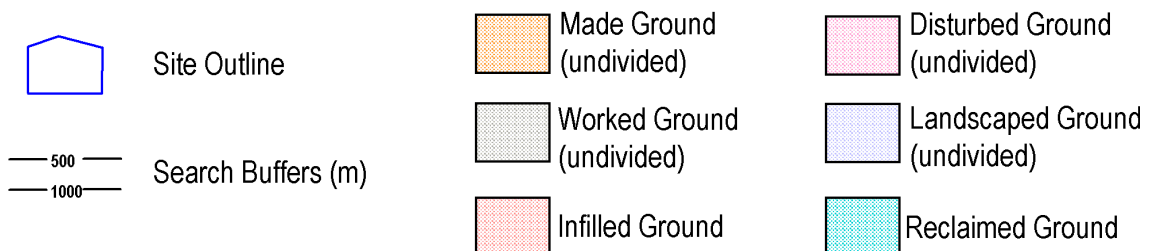
This Geology shows the main components as discrete layers, these are: Bedrock/ Solid Geology and linear features such as faults. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

2 Geology 1:50,000 Scale

2.1 Artificial Ground map



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2. Geology 1:50,000 scale

2.1 Artificial Ground

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No: 097

2.1.1 Artificial/ Made Ground

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

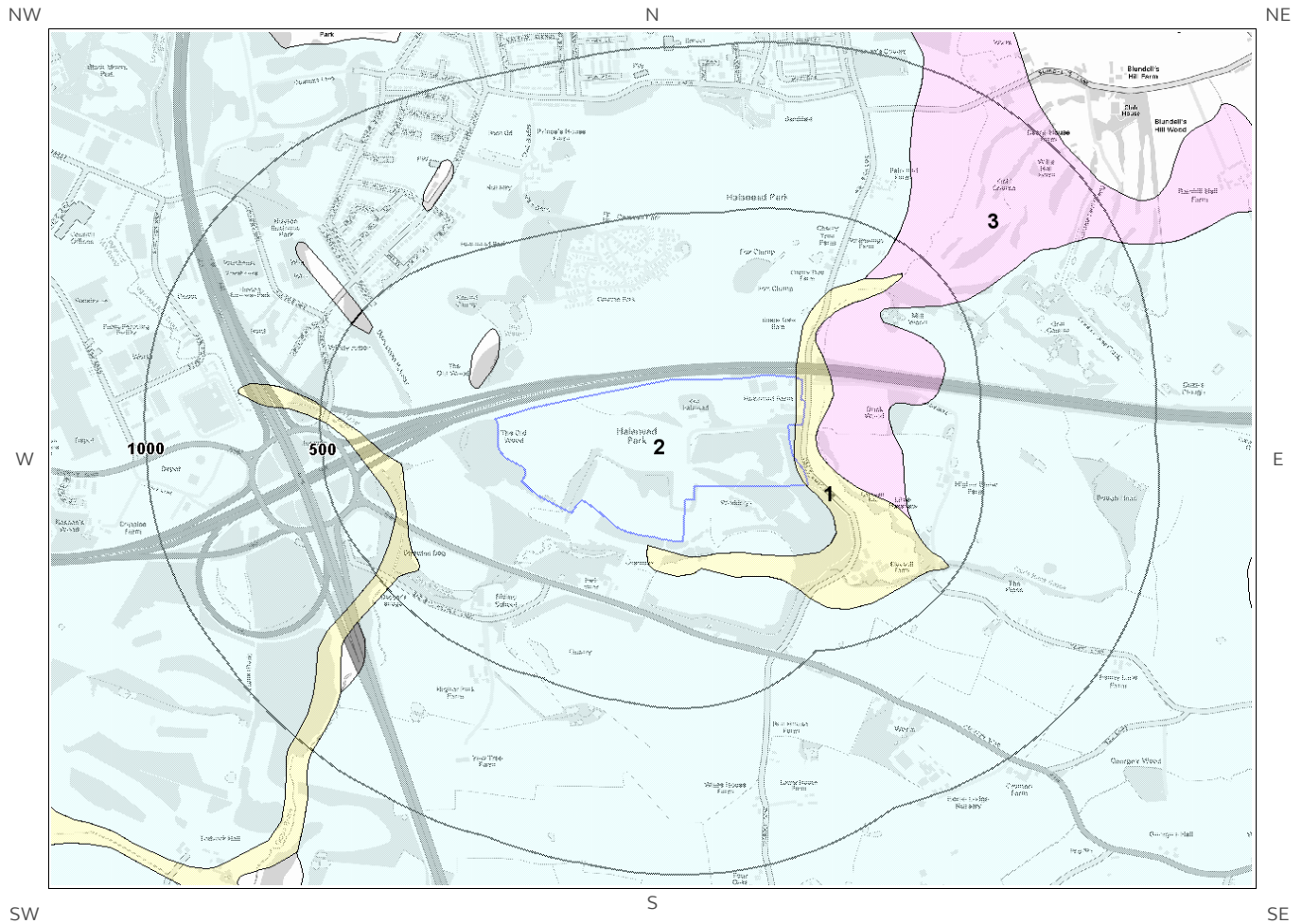
Database searched and no data found.

2.1.2 Permeability of Artificial Ground

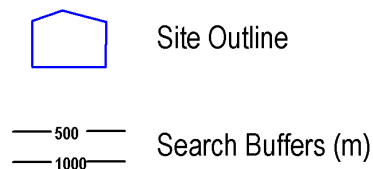
Are there any records relating to permeability of artificial ground within the study site boundary? No

Database searched and no data found.

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



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2.2 Superficial Deposits and Landslips

2.2.1 Superficial Deposits/ Drift Geology

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

ID	Distance	Direction	LEX Code	Description	Rock Description
1	0.0	On Site	ALV-XCZSV	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL
2	0.0	On Site	TILLD-DMTN	TILL, DEVENSIAN	DIAMICTON
3	45.0	E	GFDUD-XSV	GLACIOFLUVIAL DEPOSITS, DEVENSIAN	SAND AND GRAVEL
4	278.0	W	ALV-XCZSV	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL

2.2.2 Permeability of Superficial Ground

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

Distance (m)	Direction	Flow Type	Maximum Permeability	Minimum Permeability
0.0	On Site	Intergranular	High	Very Low
0.0	On Site	Mixed	High	Low
45.0	E	Intergranular	Very High	High

2.2.3 Landslip

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

Database searched and no data found.

The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of Great Britain at 1:50,000 scale.

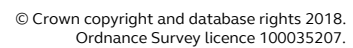
This Geology shows the main components as discrete layers, there are: Artificial/ Made Ground, Superficial/ Drift Geology and Landslips. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

2.2.4 Landslip Permeability

Are there any records relating to permeability of landslips within the study site boundary?

No

Database searched and no data found.



2.3 Bedrock, Solid Geology & linear features

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No: 097

2.3.1 Bedrock/Solid Geology

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

ID	Distance	Direction	LEX Code	Rock Description	Rock Age
1	0.0	On Site	PMCM-SDST	PENNINE MIDDLE COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
2B	0.0	On Site	PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
3	0.0	On Site	PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
4	0.0	On Site	PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
5	0.0	On Site	PMCM-SDST	PENNINE MIDDLE COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
6	0.0	On Site	PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
7	0.0	On Site	PMCM-SDST	PENNINE MIDDLE COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
8	0.0	On Site	PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
9	0.0	On Site	PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
10D	0.0	On Site	PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
11	0.0	On Site	KNSF-SDST	KINNERTON SANDSTONE FORMATION - SANDSTONE	-
12	27.0	S	ETM-MDSC	ETRURIA FORMATION - MUDSTONE, SANDSTONE AND CONGLOMERATE	WESTPHALIAN
13	38.0	SW	PMCM-SDST	PENNINE MIDDLE COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
14	115.0	S	PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
15	120.0	W	PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
16	121.0	W	PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
17	158.0	NW	PMCM-SDST	PENNINE MIDDLE COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
18C	165.0	SW	PMCM-SDST	PENNINE MIDDLE COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN

ID	Distance	Direction	LEX Code	Rock Description	Rock Age
19	167.0	W	PMCM-SDST	PENNINE MIDDLE COAL MEASURES FORMATION - SANDSTONE	WESTPHALIAN
20	169.0	SW	ETM-MDSC	ETRURIA FORMATION - MUDSTONE, SANDSTONE AND CONGLOMERATE	WESTPHALIAN
21	252.0	SW	PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
22A	284.0	SW	PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
23A	288.0	SW	ETM-MDSC	ETRURIA FORMATION - MUDSTONE, SANDSTONE AND CONGLOMERATE	WESTPHALIAN
24A	328.0	SW	ETM-MDSC	ETRURIA FORMATION - MUDSTONE, SANDSTONE AND CONGLOMERATE	WESTPHALIAN
25	344.0	S	KNSF-SDST	KINNERTON SANDSTONE FORMATION - SANDSTONE	-
26E	359.0	N	PMCM-MDSS	PENNINE MIDDLE COAL MEASURES FORMATION - MUDSTONE, SILTSTONE AND SANDSTONE	WESTPHALIAN
27	381.0	SW	KNSF-SDST	KINNERTON SANDSTONE FORMATION - SANDSTONE	-
28	386.0	SW	ETM-MDSC	ETRURIA FORMATION - MUDSTONE, SANDSTONE AND CONGLOMERATE	WESTPHALIAN
29	430.0	SW	KNSF-SDST	KINNERTON SANDSTONE FORMATION - SANDSTONE	-

2.3.2 Permeability of Bedrock Ground

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

Distance	Direction	Flow Type	Maximum Permeability	Minimum Permeability
0.0	On Site	Fracture	Moderate	Low
0.0	On Site	Fracture	Moderate	Low
0.0	On Site	Fracture	High	Moderate
0.0	On Site	Intergranular	High	High
0.0	On Site	Fracture	High	Moderate
27.0	S	Fracture	Moderate	Low
38.0	SW	Fracture	High	Moderate

2.3.3 Linear features

Are there any records of linear features within 500m of the study site boundary? Yes

ID	Distance	Direction	Category Description	Feature Description
39	0.0	On Site	FAULT	Fault, observed
40	0.0	On Site	FAULT	Fault, observed
41B	0.0	On Site	ROCK	Coal seam, inferred
42	0.0	On Site	FOSSIL_HORIZON	Marine band
43	0.0	On Site	FAULT	Fault, observed

ID	Distance	Direction	Category Description	Feature Description
44	0.0	On Site	FAULT	Fault, observed
45	120.0	W	FAULT	Fault, observed
46C	121.0	W	FAULT	Fault, inferred, displacement unknown
47	287.0	N	ROCK	Coal seam, inferred
48D	333.0	N	ROCK	Coal seam, inferred
49E	359.0	N	ROCK	Coal seam, inferred
50	381.0	SW	FAULT	Fault, inferred
51	386.0	SW	FAULT	Fault, inferred
52D	396.0	N	ROCK	Coal seam, inferred
53E	414.0	N	FOSSIL_HORIZON	Marine band
54	467.0	N	ROCK	Coal seam, inferred

The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of Great Britain at 1:50,000 scale.

This Geology shows the main components as discrete layers, these are: Bedrock/Solid Geology and linear features such as faults. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nation wide coverage.

3 Radon Data

3.1 Radon Affected Areas

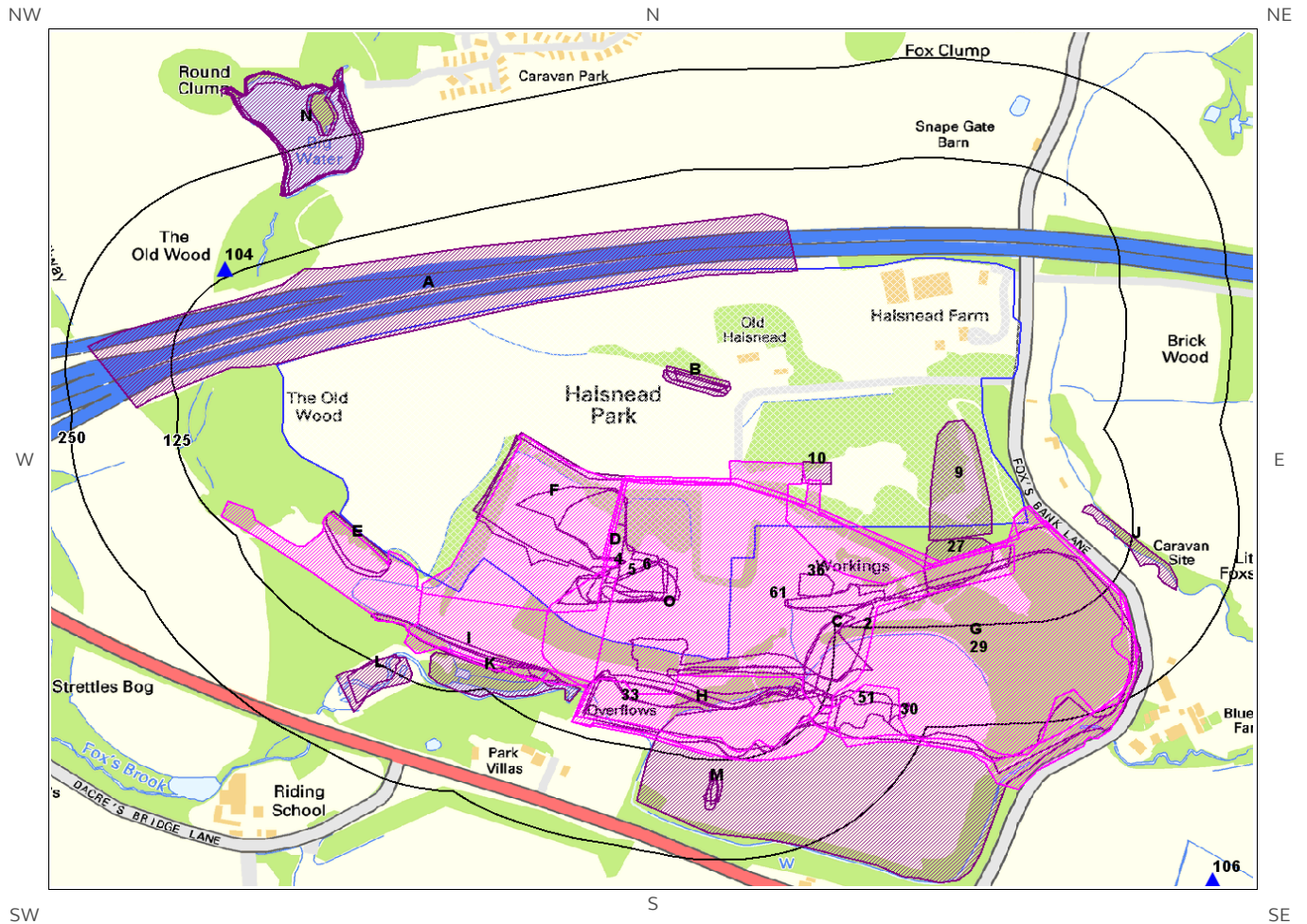
Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level? The property is in a Radon Affected Area, as between 1 and 3% of properties are above the Action Level.

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

3.2 Radon Protection

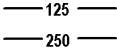
Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment? No radon protective measures are necessary.

4 Ground Workings map



Ground Workings Legend

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- | | | | |
|---|--------------------|---|----------------------------------|
|  | Site Outline |  | Historic Surface Ground Workings |
|  | Search Buffers (m) |  | Historic Underground Workings |
| | |  | Current Ground Workings |

4 Ground Workings

4.1 Historical Surface Ground Working Features derived from Historical Mapping

This dataset is based on Groundsure's unique Historical Land Use Database derived from 1:10,560 and 1:10,000 scale historical mapping

Are there any Historical Surface Ground Working Features within 250m of the study site boundary? Yes

ID	Distance (m)	Direction	NGR	Use	Date
1G	0.0	On Site	347633 389127	Refuse Heap	1947
2	0.0	On Site	347598 389226	Refuse Heap	1925
3D	0.0	On Site	347298 389318	Refuse Heap	1967
4	0.0	On Site	347293 389296	Refuse Heap	1925
5	0.0	On Site	347306 389272	Refuse Heap	1947
6	0.0	On Site	347326 389281	Refuse Heap	1949
7E	0.0	On Site	346992 389323	Pond	1949
8F	0.0	On Site	347178 389341	Brick Works	1949
9	0.0	On Site	347703 389400	Unspecified Pits	1989
10	0.0	On Site	347532 389410	Sewage Works	1947
11A	0.0	On Site	347090 389612	Cuttings	1989
12A	0.0	On Site	347090 389612	Cuttings	1975
13B	0.0	On Site	347389 389522	Unspecified Ground Workings	1947
14B	0.0	On Site	347393 389526	Unspecified Pit	1949
15B	0.0	On Site	347396 389525	Pond	1975
16C	0.0	On Site	347560 389208	Colliery	1947
17O	0.0	On Site	347298 389238	Colliery	1925
18C	0.0	On Site	347481 389289	Colliery	1949
19D	0.0	On Site	347273 389319	Refuse Heap	1975
20E	0.0	On Site	346992 389323	Pond	1967
21F	0.0	On Site	347217 389372	Brick Works	1947

ID	Distance (m)	Direction	NGR	Use	Date
22E	4.0	SW	346988 389319	Pond	1891
23E	4.0	SW	346988 389319	Unspecified Pit	1925
24E	4.0	SW	346988 389319	Unspecified Pit	1947
25E	4.0	SW	346988 389319	Unspecified Pit	1906
26G	9.0	S	347635 389196	Refuse Heap	1967
27	16.0	S	347701 389298	Pond	1989
28H	36.0	S	347403 389112	Reservoir	1949
29	37.0	S	347717 389174	Refuse Heap	1975
30	40.0	S	347613 389104	Refuse Heap	1989
31H	43.0	S	347398 389106	Reservoir	1947
32H	43.0	S	347397 389106	Reservoir	1925
33	45.0	S	347329 389120	Reservoir	1989
34H	47.0	S	347393 389108	Pond	1967
35H	47.0	S	347393 389108	Pond	1975
36	58.0	E	347532 389270	Pond	1989
37I	58.0	S	347131 389186	Refuse Heap	1967
38I	62.0	SW	347101 389190	Refuse Heap	1925
39I	62.0	SW	347119 389187	Refuse Heap	1947
40J	66.0	E	347903 389317	Pond	1975
41J	66.0	E	347903 389317	Pond	1967
42K	67.0	S	347164 389155	Ponds	1989
43K	67.0	S	347164 389155	Ponds	1975
44L	103.0	SW	347016 389151	Ponds	1989
45L	103.0	SW	347016 389151	Ponds	1967
46L	103.0	SW	347016 389151	Ponds	1975
47L	105.0	SW	347004 389147	Pond	1925
48M	141.0	S	347414 389015	Pond	1967
49M	141.0	S	347414 389015	Pond	1949
50M	141.0	S	347414 389015	Pond	1975

ID	Distance (m)	Direction	NGR	Use	Date
51	142.0	E	347598 389110	Water Body	1925
52M	149.0	S	347408 389008	Pond	1947
53N	197.0	N	346917 389832	Pond	1989
54N	198.0	N	346912 389832	Water Body	1975
55N	199.0	N	346909 389834	Water Body	1947
56N	199.0	N	346909 389834	Water Body	1891
57N	199.0	N	346909 389834	Water Body	1906
58N	199.0	N	346909 389834	Water Body	1925
59N	199.0	N	346913 389837	Water Body	1949
60N	199.0	N	346913 389837	Pond	1967

4.2 Historical Underground Working Features derived from Historical Mapping

This data is derived from the Groundsure unique Historical Land Use Database. It contains data derived from 1:10,000 and 1:10,560 historical Ordnance Survey Mapping and includes some natural topographical features (Shake Holes for example) as well as manmade features that may have implications for ground stability. Underground and mining features have been identified from surface features such as shafts. The distance that these extend underground is not shown.

Are there any Historical Underground Working Features within 1000m of the study site boundary? Yes

The following Historical Underground Working Features are provided by Groundsure:

ID	Distance (m)	Direction	NGR	Use	Date
61	0.0	On Site	347474 389254	Unspecified Mine	1967
62C	0.0	On Site	347481 389289	Colliery	1949
63O	0.0	On Site	347298 389238	Colliery	1925
64C	0.0	On Site	347560 389208	Colliery	1947
Not shown	596.0	NW	346525 390078	Old Colliery	1906
Not shown	597.0	NW	346260 390259	Disused Colliery	1925
Not shown	597.0	NW	346260 390259	Disused Colliery	1947
Not shown	602.0	NW	346513 390079	Old Colliery	1891
Not shown	618.0	NW	346514 390037	Unspecified Disused Shafts	1966
Not shown	622.0	NW	346532 390057	Unspecified Disused Shafts	1966

ID	Distance (m)	Direction	NGR	Use	Date
Not shown	624.0	NW	346528 390054	Unspecified Old Shafts	1925
Not shown	624.0	NW	346528 390054	Unspecified Old Shafts	1947
Not shown	625.0	NW	346530 390056	Unspecified Old Shaft	1947
Not shown	634.0	NW	346563 390092	Unspecified Disused Shafts	1966
Not shown	636.0	NW	346559 390088	Unspecified Old Shafts	1947
Not shown	636.0	NW	346559 390088	Unspecified Old Shafts	1925
Not shown	636.0	NW	346561 390091	Unspecified Old Shaft	1947
Not shown	642.0	NW	346596 390120	Unspecified Disused Shafts	1966
Not shown	645.0	NW	346590 390118	Unspecified Old Shafts	1925
Not shown	645.0	NW	346590 390118	Unspecified Old Shafts	1947
Not shown	646.0	NW	346593 390119	Unspecified Old Shaft	1947
Not shown	666.0	SW	346471 388861	Disused Delf	1967
Not shown	666.0	SW	346471 388861	Disused Delf	1975
Not shown	666.0	SW	346471 388861	Disused Delf	1989
Not shown	666.0	SW	346471 388861	Disused Delf	1949
Not shown	667.0	NW	346519 390099	Unspecified Old Shaft	1947
Not shown	679.0	SW	346474 388853	Disused Delf	1905
Not shown	679.0	SW	346474 388853	Disused Delf	1938
Not shown	679.0	SW	346474 388853	Disused Delf	1925
Not shown	679.0	SW	346474 388853	Delf	1891
Not shown	734.0	NW	346326 390266	Colliery	1891
Not shown	746.0	NW	346361 390283	Disused Colliery	1906
Not shown	836.0	NW	346351 390316	Unspecified Disused Mine	1966
Not shown	899.0	NW	346370 390282	Unspecified Disused Shaft	1966
Not shown	906.0	NW	346363 390282	Unspecified Old Shafts	1947
Not shown	906.0	NW	346363 390282	Unspecified Old Shafts	1925
Not shown	906.0	NW	346364 390283	Unspecified Old Shaft	1947
Not shown	912.0	NW	346369 390298	Unspecified Disused Shaft	1966
Not shown	914.0	NW	346351 390283	Unspecified Shafts	1891

ID	Distance (m)	Direction	NGR	Use	Date
Not shown	918.0	NW	346366 390299	Unspecified Old Shaft	1947
Not shown	918.0	NW	346364 390298	Unspecified Old Shafts	1947
Not shown	918.0	NW	346364 390298	Unspecified Old Shafts	1925
Not shown	920.0	NW	346326 390292	Unspecified Old Shaft	1947

4.3 Current Ground Workings

This dataset is derived from the BGS BRITPITS database covering active; inactive mines; quarries; oil wells; gas wells and mineral wharves; and rail deposits throughout the British Isles.

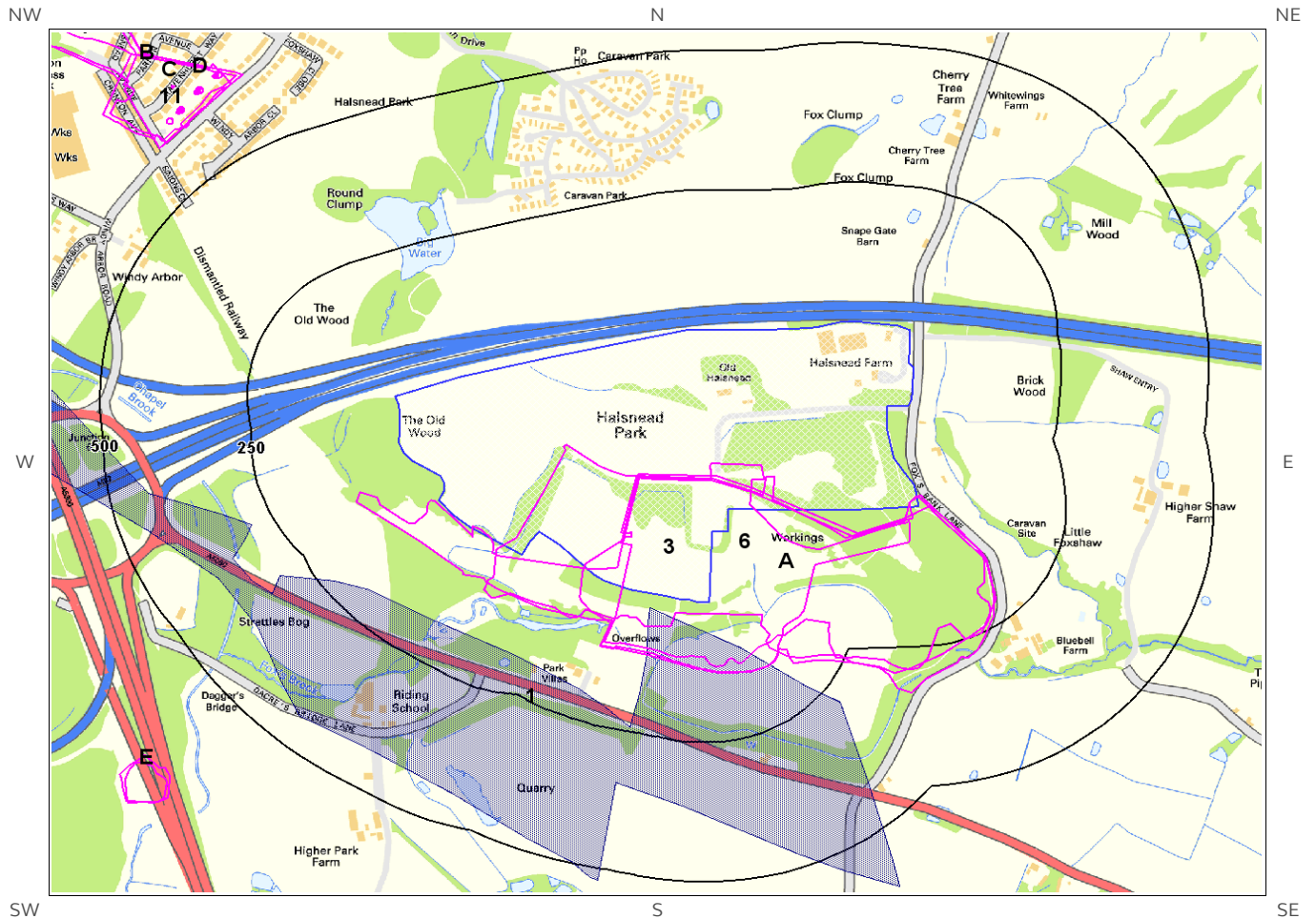
Are there any BGS Current Ground Workings within 1000m of the study site boundary? Yes

The following Current Ground Workings information is provided by British Geological Survey:

ID	Distance (m)	Direction	NGR	Commodity Produced	Pit Name	Type of working	Status
104	134.0	NW	346833 389664	Sandstone	The Old Delf	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	413.0	S	347111 388825	Clay & Shale	Cronton Claypit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Active
106	498.0	SE	348000 388900	Sandstone	Fox's Bank	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	623.0	NW	346514 390038	Coal, Deep	Halsnead Colliery, Bye Pit	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	628.0	NW	346530 390056	Coal, Deep	Halsnead Colliery, No. 1 Pit	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	638.0	NW	346562 390089	Coal, Deep	Halsnead Colliery, No. 2 Pit	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	649.0	NW	346596 390121	Coal, Deep	Halsnead Colliery, No. 3 Pit	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	700.0	SW	346477 388861	Sandstone	Bank Hey Delf	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	860.0	NW	346486 390301	Coal, Deep	Hig Hey Colliery Coal Pit	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased

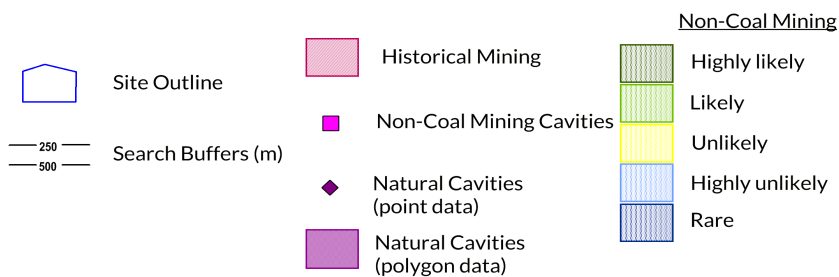
ID	Distance (m)	Direction	NGR	Commodity Produced	Pit Name	Type of working	Status
Not shown	904.0	NW	346494 390355	Coal, Deep	Hig Hey Colliery Coal Pit	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	907.0	NW	346364 390280	Coal, Deep	Houghton's Hey Colliery	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	917.0	NW	346367 390295	Coal, Deep	Halsnead Colliery Shaft No 5	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	932.0	NW	346327 390284	Coal, Deep	Houghton's Hey Colliery Shaft	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	948.0	N	347960 390595	Silica Sand	Parren's Covert Sand Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	949.0	N	347261 390604	Sandstone	Stone Quarry Plantation	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	971.0	NW	346370 390362	Coal, Deep	Hig Hey Colliery Shaft	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	973.0	N	348046 390597	Sand	Parren's Covert Sand Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	980.0	NW	346371 390373	Coal, Deep	Hig Hey Colliery Shaft	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased

5 Mining, Extraction & Natural Cavities map



Mining, Extraction and Natural Cavities Legend

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5 Mining, Extraction & Natural Cavities

5.1 Historical Mining

This dataset is derived from Groundsure unique Historical Land-use Database that are indicative of mining or extraction activities.

Are there any Historical Mining areas within 1000m of the study site boundary? Yes

The following Historical Mining information is provided by Groundsure:

ID	Distance (m)	Direction	NGR	Details	Date
3	0.0	On Site	347298 389238	Colliery	1925
4A	0.0	On Site	347560 389208	Colliery	1947
5A	0.0	On Site	347481 389289	Colliery	1949
6	0.0	On Site	347474 389254	Unspecified Mine	1967
7C	596.0	NW	346525 390078	Old Colliery	1906
8B	597.0	NW	346260 390259	Disused Colliery	1947
9B	597.0	NW	346260 390259	Disused Colliery	1925
10C	602.0	NW	346513 390079	Old Colliery	1891
11	618.0	NW	346514 390037	Unspecified Disused Shafts	1966
12C	622.0	NW	346532 390057	Unspecified Disused Shafts	1966
13C	624.0	NW	346528 390054	Unspecified Old Shafts	1947
14C	624.0	NW	346528 390054	Unspecified Old Shafts	1925
15C	625.0	NW	346530 390056	Unspecified Old Shaft	1947
16D	634.0	NW	346563 390092	Unspecified Disused Shafts	1966
17D	636.0	NW	346559 390088	Unspecified Old Shafts	1925
18D	636.0	NW	346559 390088	Unspecified Old Shafts	1947
19D	636.0	NW	346561 390091	Unspecified Old Shaft	1947
20D	642.0	NW	346596 390120	Unspecified Disused Shafts	1966
21D	645.0	NW	346590 390118	Unspecified Old Shafts	1947
22D	645.0	NW	346590 390118	Unspecified Old Shafts	1925

ID	Distance (m)	Direction	NGR	Details	Date
23D	646.0	NW	346593 390119	Unspecified Old Shaft	1947
24E	666.0	SW	346471 388861	Disused Delf	1967
25E	666.0	SW	346471 388861	Disused Delf	1975
26E	666.0	SW	346471 388861	Disused Delf	1989
27E	666.0	SW	346471 388861	Disused Delf	1949
28C	667.0	NW	346519 390099	Unspecified Old Shaft	1947
29E	679.0	SW	346474 388853	Disused Delf	1905
30E	679.0	SW	346474 388853	Disused Delf	1925
31E	679.0	SW	346474 388853	Disused Delf	1938
32E	679.0	SW	346474 388853	Delf	1891
33F	734.0	NW	346326 390266	Colliery	1891
34F	746.0	NW	346361 390283	Disused Colliery	1906
Not shown	836.0	NW	346351 390316	Unspecified Disused Mine	1966
Not shown	899.0	NW	346370 390282	Unspecified Disused Shaft	1966
Not shown	906.0	NW	346363 390282	Unspecified Old Shafts	1925
Not shown	906.0	NW	346363 390282	Unspecified Old Shafts	1947
Not shown	906.0	NW	346364 390283	Unspecified Old Shaft	1947
Not shown	912.0	NW	346369 390298	Unspecified Disused Shaft	1966
Not shown	914.0	NW	346351 390283	Unspecified Shafts	1891
Not shown	918.0	NW	346366 390299	Unspecified Old Shaft	1947
Not shown	918.0	NW	346364 390298	Unspecified Old Shafts	1925
Not shown	918.0	NW	346364 390298	Unspecified Old Shafts	1947
Not shown	920.0	NW	346326 390292	Unspecified Old Shaft	1947

5.2 Coal Mining

This dataset provides information as to whether the study site lies within a known coal mining affected area as defined by the coal authority.

Are there any Coal Mining areas within 1000m of the study site boundary? Yes

The following Coal Mining information provided by the Coal Authority is not represented on Mapping:

Distance (m)	Direction	Details
0.0	On Site	The study site is located within the specified search distance of an identified mining area. Further details concerning this can be obtained from the Coal Authority Helpline on 0845 762 6848.

5.3 Johnson Poole and Bloomer

This dataset provides information as to whether the study site lies within an area where JPB hold information relating to mining.

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

The following information provided by JPB is not represented on mapping: Database searched and no data found.

5.4 Non-Coal Mining

This dataset provides information as to whether the study site lies within an area which may have been subject to non-coal historic mining.

Are there any Non-Coal Mining areas within 1000m of the study site boundary? Yes

The following non-coal mining information is provided by the BGS:

ID	Distance (m)	Direction	Name	Commodity	Assessment of likelihood
1	27.0	S	Not available	Vein Mineral	Sporadic underground mining of restricted extent may have occurred. Potential for difficult ground conditions are unlikely and localised and are at a level where they need not be considered
Not shown	861.0	SW	Not available	Vein Mineral	Sporadic underground mining of restricted extent may have occurred. Potential for difficult ground conditions are unlikely and localised and are at a level where they need not be considered

5.5 Non-Coal Mining Cavities

This dataset provides information from the Peter Brett Associates (PBA) mining cavities database (compiled for the national study entitled “Review of mining instability in Great Britain, 1990” PBA has also continued adding to this database) on mineral extraction by mining.

Are there any Non-Coal Mining cavities within 1000m of the study site boundary? No

Database searched and no data found.

5.6 Natural Cavities

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

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

Database searched and no data found.

5.7 Brine Extraction

This data provides information from the Cheshire Brine Subsidence Compensation Board.

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

Database searched and no data found.

5.8 Gypsum Extraction

This dataset provides information on Gypsum extraction from British Gypsum records.

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

Database searched and no data found.

5.9 Tin Mining

This dataset provides information on tin mining areas and is derived from tin mining records. This search is based upon postcode information to a sector level..

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

Database searched and no data found.

5.10 Clay Mining

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

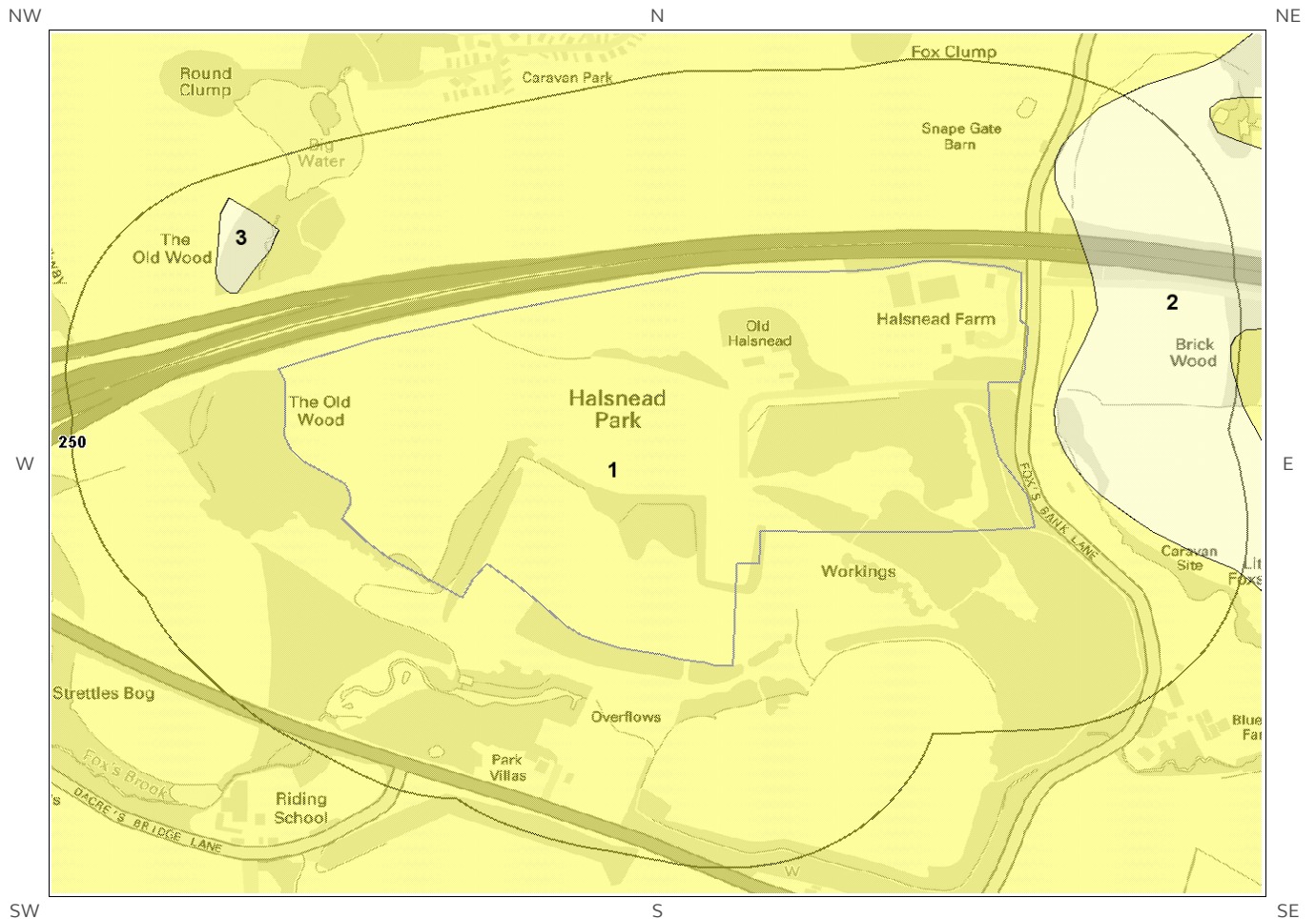
Are there any Clay Mining areas within 1000m of the study site boundary?

No

Database searched and no data found.

6 Natural Ground Subsidence

6.1 Shrink-Swell Clay map

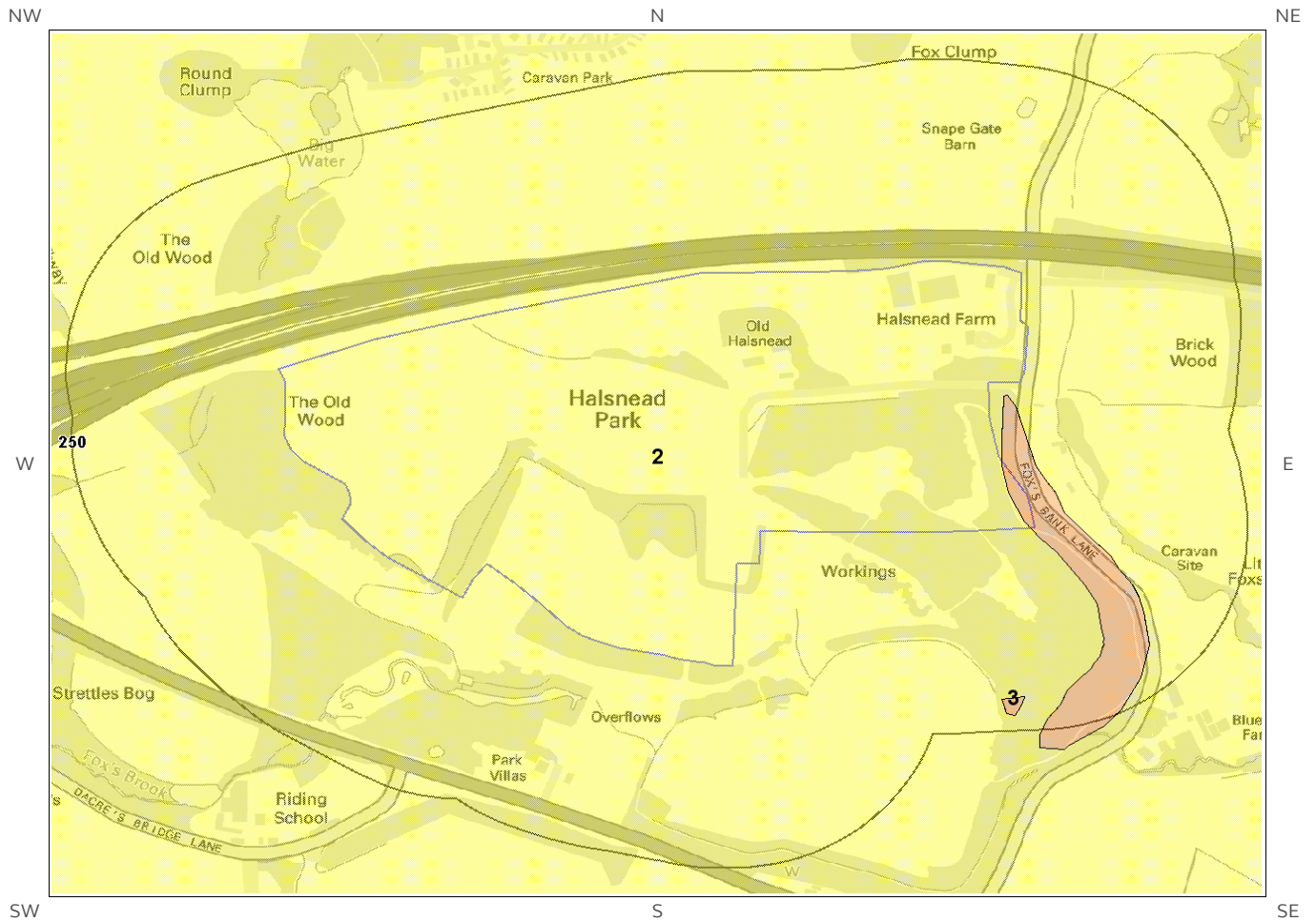


Shrink Swell Clay Legend

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6.2 Landslides map

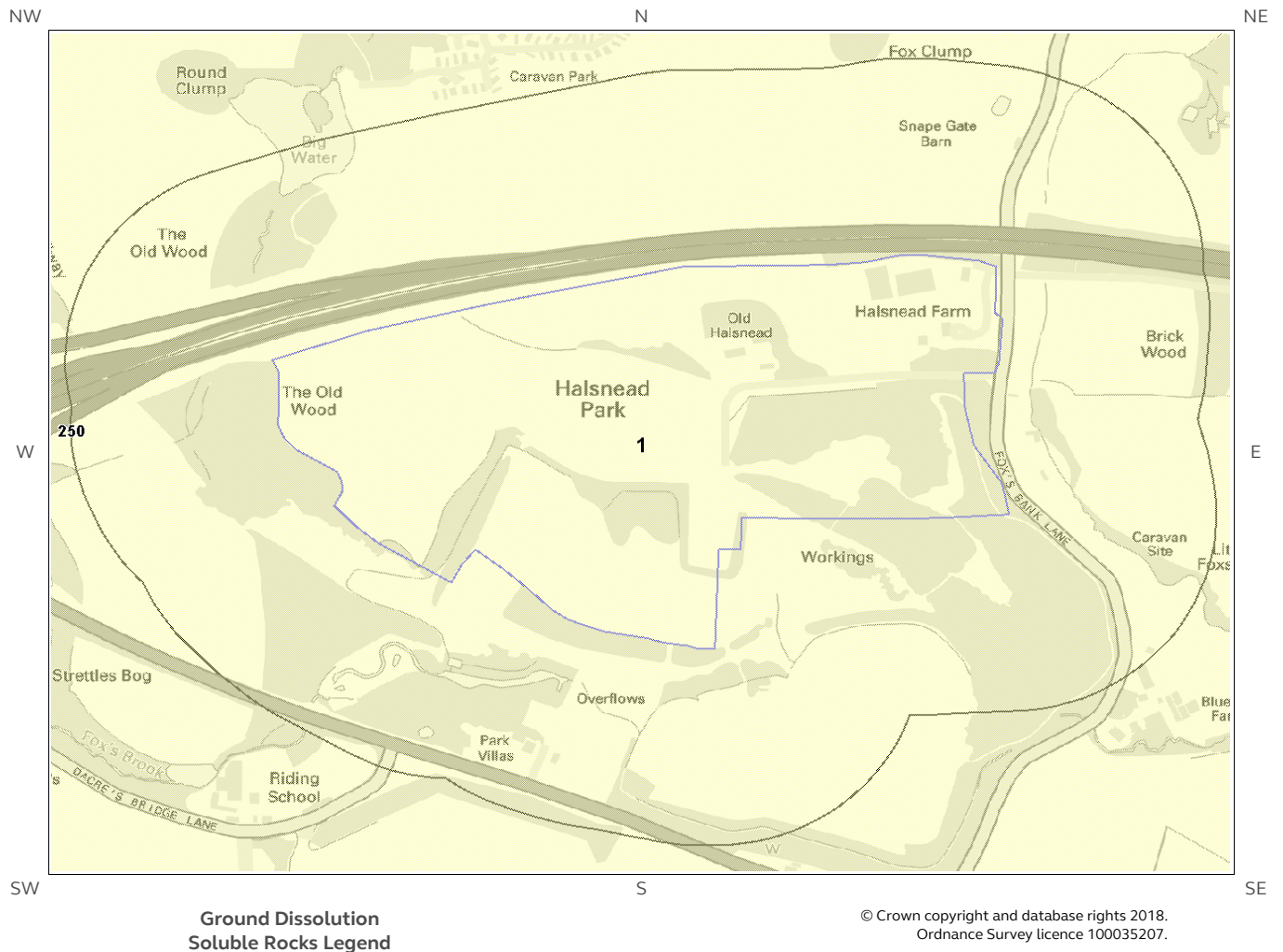


Landslides Legend

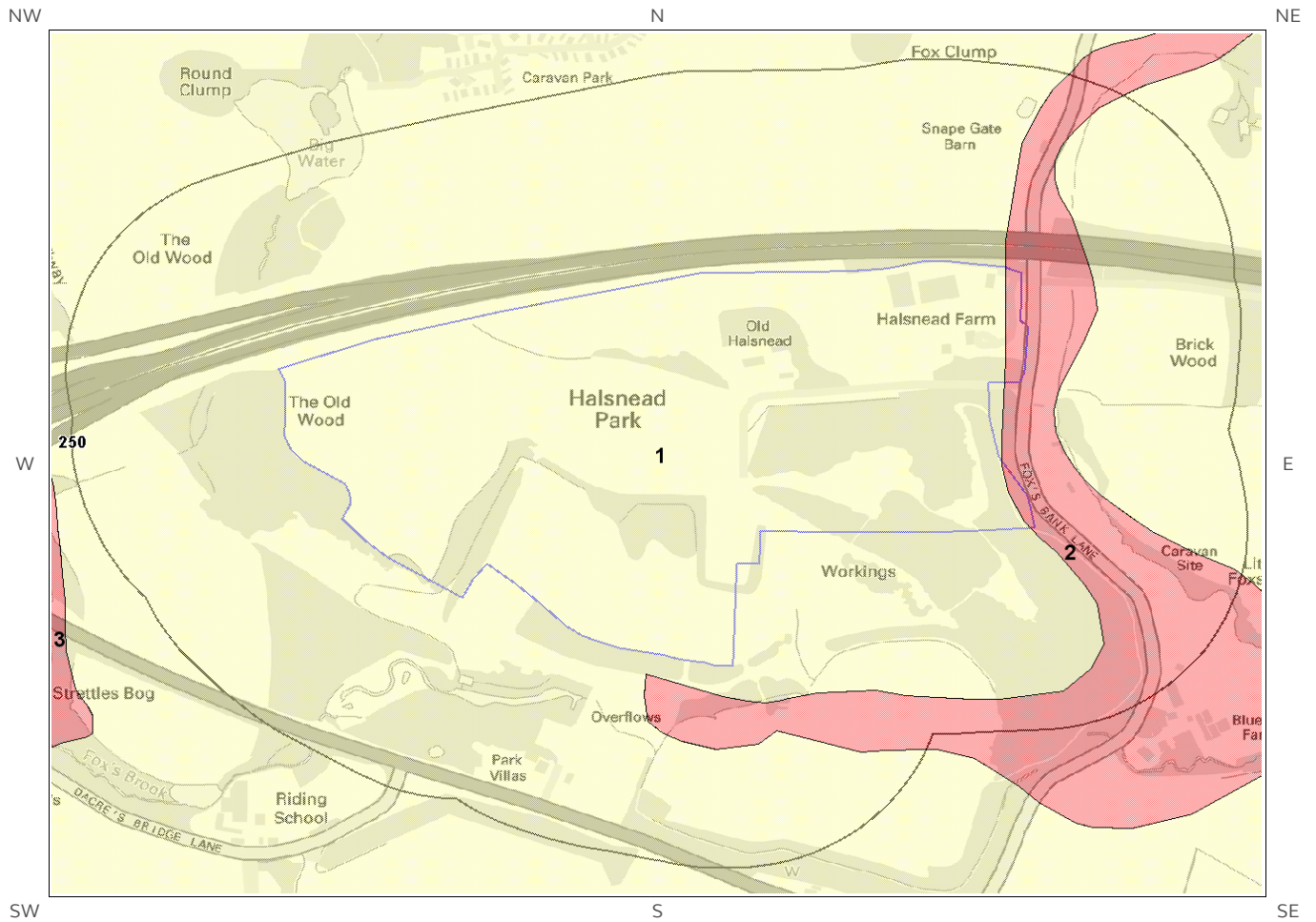
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6.3 Ground Dissolution of Soluble Rocks map



6.4 Compressible Deposits map

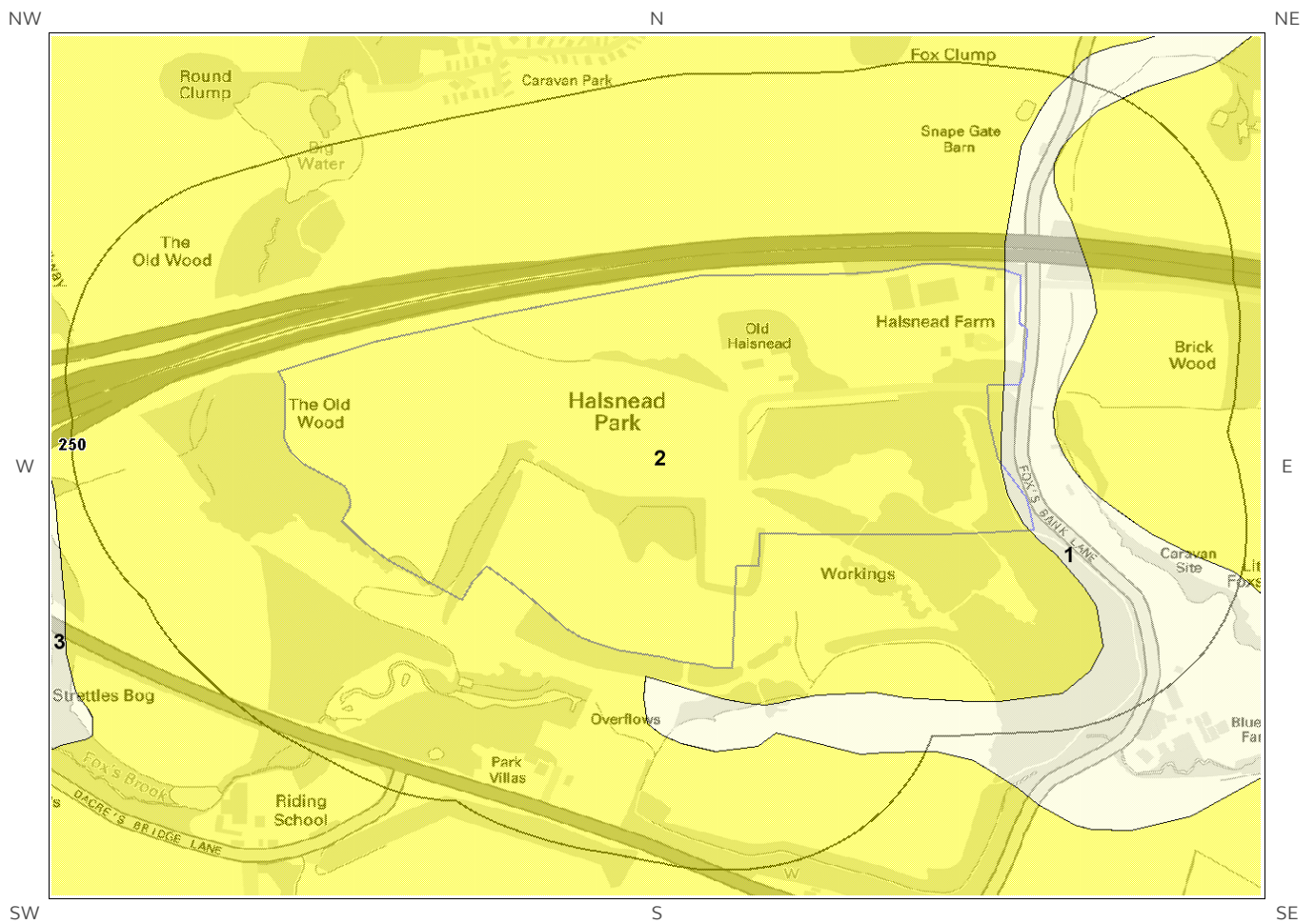


Compressible Deposits Legend

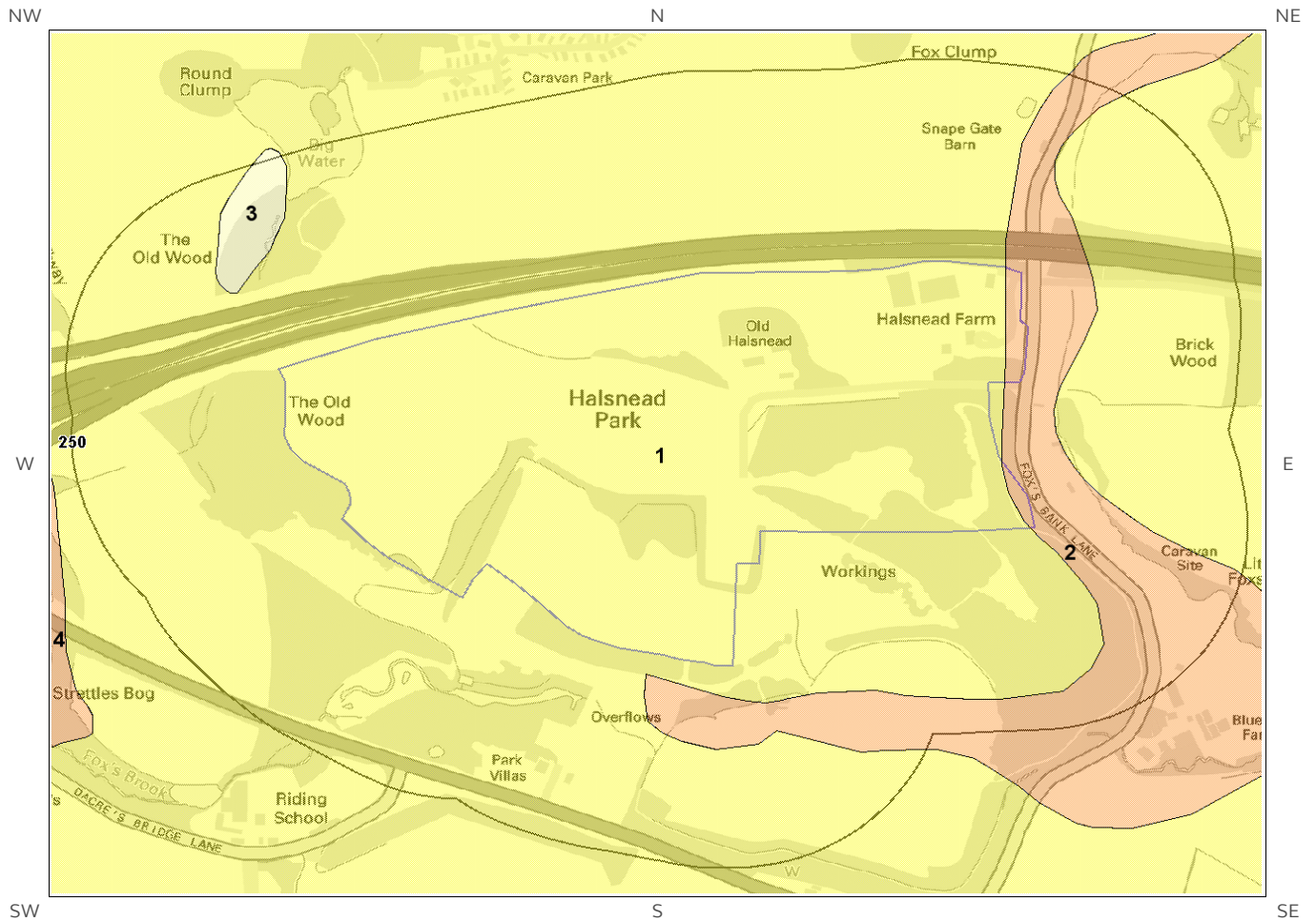
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6.5 Collapsible Deposits map



6.6 Running Sand map



Running Sand Legend

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6 Natural Ground Subsidence

The National Ground Subsidence rating is obtained through the 6 natural ground stability hazard datasets, which are supplied by the British Geological Survey (BGS).

The following GeoSure data represented on the mapping is derived from the BGS Digital Geological map of Great Britain at 1:50,000 scale.

What is the maximum hazard rating of natural subsidence within the study site** boundary? **Moderate**

6.1 Shrink-Swell Clays

The following Shrink Swell information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Ground conditions predominantly low plasticity. No special actions required to avoid problems due to shrink-swell clays. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with shrink-swell clays.
2	45.0	E	Negligible	Ground conditions predominantly non-plastic. No special actions required to avoid problems due to shrink-swell clays. No special ground investigation required, and increased construction costs or increased financial risks are unlikely likely due to potential problems with shrink-swell clays.

6.2 Landslides

The following Landslides information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Low	Possibility of slope instability problems after major changes in ground conditions. Consideration should be given to stability if changes to drainage or excavations take place. Possible increase in construction cost to reduce potential slope stability problems. Existing property - no significant increase in insurance risk due to natural slope instability problems.
2	0.0	On Site	Very Low	Slope instability problems are unlikely to be present. No special actions required to avoid problems due to landslides. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with landslides.

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

6.3 Ground Dissolution of Soluble Rocks

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

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	Soluble rocks are present, but unlikely to cause problems except under exceptional conditions. No special actions required to avoid problems due to soluble rocks. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with soluble rocks.

6.4 Compressible Deposits

The following Compressible Deposits information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	No indicators for compressible deposits identified. No special actions required to avoid problems due to compressible deposits. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with compressible deposits.
2	0.0	On Site	Moderate	Significant potential for compressibility problems. Avoid large differential loadings of ground. Do not drain or de-water ground near the property without technical advice. For new build - consider possibility of compressible ground in ground investigation, construction and building design. Consider effects of groundwater changes. Extra construction costs are likely. For existing property - possible increase in insurance risk from compressibility, especially if water conditions or loading of the ground change significantly.

6.5 Collapsible Deposits

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

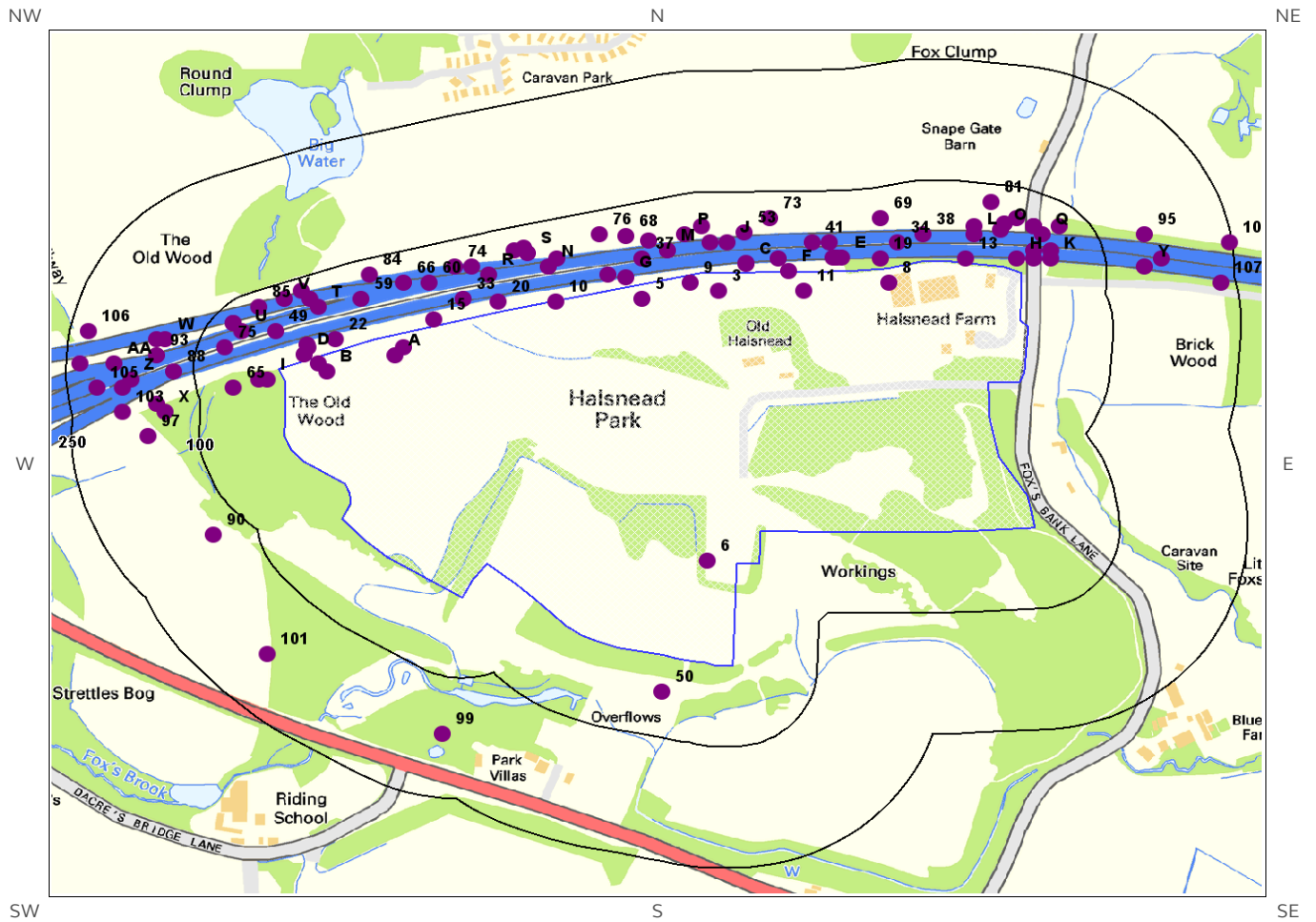
ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	No indicators for collapsible deposits identified. No actions required to avoid problems due to collapsible deposits. No special ground investigation required, or increased construction costs or increased financial risk due to potential problems with collapsible deposits.
2	0.0	On Site	Very Low	Deposits with potential to collapse when loaded and saturated are unlikely to be present. No special ground investigation required or increased construction costs or increased financial risk due to potential problems with collapsible deposits.

6.6 Running Sands

The following Running Sands information provided by the British Geological Survey:

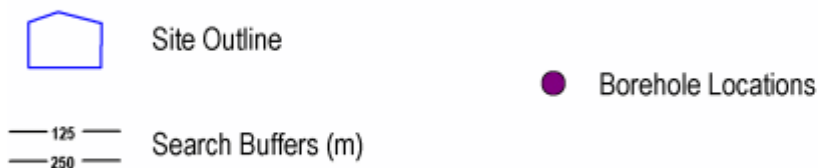
ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Very low potential for running sand problems if water table rises or if sandy strata are exposed to water. No special actions required, to avoid problems due to running sand. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with running sand.
2	0.0	On Site	Low	Possibility of running sand problems after major changes in ground conditions. Normal maintenance to avoid leakage of water-bearing services or water bodies (ponds, swimming pools) should reduce likelihood of problems due to running sand. For new build - consider possibility of running sand into trenches or excavations if water table is high or sandy strata are exposed to water. Avoid concentrated water inputs to site. Unlikely to be an increase in construction costs due to potential for running sand. For existing property - no significant increase in insurance risk due to running sand problems is likely.

7 Borehole Records map



Borehole Records Legend

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7 Borehole Records

The systematic analysis of data extracted from the BGS Borehole Records database provides the following information.

Records of boreholes within 250m of the study site boundary:

109

ID	Distance (m)	Direction	NGR	BGS Reference	Drilled Length	Borehole Name
1B	0.0	On Site	346950 389540	SJ48NE324	8.38	M62 IMPROVEMENT JUNCTION 6 TO 7
2A	0.0	On Site	347030 389560	SJ48NE325	8.63	M62 IMPROVEMENT JUNCTION 6 TO 7
3	0.0	On Site	347410 389640	SJ48NE398	2.2	M62 IMPROVEMENT JUNCTION 6 TO 7 TRIAL PIT TN35
4A	0.0	On Site	347040 389570	SJ48NE396	0.8	M62 IMPROVEMENT JUNCTION 6 TO 7 TRIAL PIT TN31
5	0.0	On Site	347320 389630	SJ48NE397	2.4	M62 IMPROVEMENT JUNCTION 6 TO 7 TRIAL PIT TN34
6	0.0	On Site	347397 389306	SJ48NE10	515.34	CRONTON COLLIERY 2
7B	0.0	On Site	346940 389550	SJ48NE395	1.9	M62 IMPROVEMENT JUNCTION 6 TO 7 TRIAL PIT TN30
8	0.0	On Site	347610 389650	SJ48NE400	1.4	M62 IMPROVEMENT JUNCTION 6 TO 7 TRIAL PIT TN37
9	0.0	On Site	347377 389650	SJ48NE491	3.6	M62 PACKAGE 1 (FOX'S BACK LANE TO J6) DS/M62/1/4
10	0.0	On Site	347219 389627	SJ48NE492	2.5	M62 PACKAGE 1 (FOX'S BACK LANE TO J6) DS/M62/1/6
11	0.0	On Site	347510 389640	SJ48NE399	1.25	M62 IMPROVEMENT JUNCTION 6 TO 7 TRIAL PIT TN36
12F	1.0	N	347493 389665	SJ48NE489	1.4	M62 PACKAGE 1 (FOX'S BACK LANE TO J6) DS/M62/1/02
13	4.0	N	347700 389680	SJ48NE401	4.0	M62 IMPROVEMENT JUNCTION 6 TO 7 TRIAL PIT TN38
14D	7.0	N	346924 389561	SJ48NE495	0.5	M62 PACKAGE 1 (FOX'S BACK LANE TO J6) DS/M62/1/11
15	8.0	N	347076 389605	SJ48NE493	0.55	M62 PACKAGE 1 (FOX'S BACK LANE TO J6) DS/M62/1/8
16C	10.0	N	347443 389674	SJ48NE490	0.6	M62 PACKAGE 1 (FOX'S BACK LANE TO J6) DS/M62/1/3A

ID	Distance (m)	Direction	NGR	BGS Reference	Drilled Length	Borehole Name
17C	11.0	N	347443 389675	SJ48NE509	1.0	M62 PACKAGE 1 (FOX'S BACK LANE TO J6) WS/M62/1/3
18G	11.0	N	347302 389657	SJ48NE510	0.8	M62 PACKAGE 1 (FOX'S BACK LANE TO J6) WS/M62/1/5
19	12.0	N	347600 389680	SJ48NE82	5.18	LANCS/YORKS M/WAY TARBOCK-CROFT B51
20	13.0	N	347152 389627	SJ48NE511	0.5	M62 PACKAGE 1 (FOX'S BACK LANE TO J6) WS/M62/1/7
21H	13.0	N	347760 389680	SJ48NE321	10.44	M62 IMPROVEMENT JUNCTION 6 TO 7
22	14.0	N	346960 389580	SJ48NE67	3.4	LANCS/YORKS M/WAY TARBOCK-CROFT B39
23D	14.0	N	346928 389570	SJ48NE494	0.8	M62 PACKAGE 1 (FOX'S BACK LANE TO J6) DS/M62/1/10
24E	15.0	N	347555 389681	SJ48NE507	0.3	M62 PACKAGE 1 (FOX'S BACK LANE TO J6) WS/M62/1/1B
25E	15.0	N	347549 389681	SJ48NE505	0.7	M62 PACKAGE 1 (FOX'S BACK LANE TO J6) WS/M62/1/1
26E	16.0	N	347547 389681	SJ48NE506	0.7	M62 PACKAGE 1 (FOX'S BACK LANE TO J6) WS/M62/1/1A
27E	16.0	N	347545 389681	SJ48NE508	0.7	M62 PACKAGE 1 (FOX'S BACK LANE TO J6) WS/M62/1/1C
28F	16.0	N	347480 389680	SJ48NE79	4.17	LANCS/YORKS M/WAY TARBOCK-CROFT B48
29D	18.0	N	346927 389574	SJ48NE512	0.55	M62 PACKAGE 1 (FOX'S BACK LANE TO J6) WS/M62/1/9
30G	19.0	N	347280 389660	SJ48NE75	10.67	LANCS/YORKS M/WAY TARBOCK-CROFT B44
31I	19.0	SW	346880 389530	SJ48NE62	30.48	LANCS/YORKS M/WAY TARBOCK-CROFT B36A
32H	21.0	NE	347780 389680	SJ48NE322	11.65	M62 IMPROVEMENT JUNCTION 6 TO 7
33	25.0	N	347110 389630	SJ48NE71	12.5	LANCS/YORKS M/WAY TARBOCK-CROFT 5728/2
34	28.0	N	347620 389700	SJ48NE360	0.7	M62 IMPROVEMENT JUNCTION 6 TO 7
35I	28.0	SW	346870 389530	SJ48NE323	7.42	M62 IMPROVEMENT JUNCTION 6 TO 7
36H	30.0	NE	347780 389690	SJ48NE87	5.79	LANCS/YORKS M/WAY TARBOCK-CROFT 5727/3
37	30.0	N	347320 389680	SJ48NE357	2.7	M62 IMPROVEMENT JUNCTION 6 TO 7
38	32.0	N	347650 389710	SJ48NE83	4.19	LANCS/YORKS M/WAY TARBOCK-CROFT B52
39M	34.0	N	347350 389690	SJ48NE76	6.1	LANCS/YORKS M/WAY TARBOCK-CROFT B45
40E	35.0	N	347540 389700	SJ48NE80	13.11	LANCS/YORKS M/WAY TARBOCK-CROFT B49
41	35.0	N	347520 389700	SJ48NE359	1.2	M62 IMPROVEMENT JUNCTION 6 TO 7

ID	Distance (m)	Direction	NGR	BGS Reference	Drilled Length	Borehole Name
42L	35.0	N	347710 389710	SJ48NE84	2.74	LANCS/YORKS M/WAY TARBOCK-CROFT B53
43J	36.0	N	347420 389700	SJ48NE358	1.9	M62 IMPROVEMENT JUNCTION 6 TO 7
44J	37.0	N	347400 389700	SJ48NE77	9.45	LANCS/YORKS M/WAY TARBOCK-CROFT B46
45K	37.0	NE	347800 389680	SJ48NE402	3.8	M62 IMPROVEMENT JUNCTION 6 TO 7 TRIAL PIT TN39
46N	43.0	N	347210 389670	SJ48NE73	4.88	LANCS/YORKS M/WAY TARBOCK-CROFT B42
47K	43.0	NE	347800 389690	SJ48NE88	4.34	LANCS/YORKS M/WAY TARBOCK-CROFT 5727/4
48O	44.0	N	347742 389716	SJ48NE499	2.1	M62 PACKAGE 1 (FOX'S BACK LANE TO J6) DS/M62/1/17
49	45.0	N	346890 389590	SJ48NE65	9.14	LANCS/YORKS M/WAY TARBOCK-CROFT B37
50	45.0	S	347344 389144	SJ48NE519	-1.0	CRONTON 4
51L	45.0	N	347710 389720	SJ48NE361	4.2	M62 IMPROVEMENT JUNCTION 6 TO 7
52R	47.0	N	347140 389660	SJ48NE72	6.71	LANCS/YORKS M/WAY TARBOCK-CROFT B41
53	48.0	N	347441 389712	SJ48NE515	2.4	M62 PACKAGE 1 (FOX'S BACK LANE TO J6) WS/M62/1/21
54P	50.0	N	347370 389710	SJ48NE302	3.21	M62 IMPROVEMENT JUNCTION 6 TO 7
55M	50.0	N	347328 389702	SJ48NE514	1.7	M62 PACKAGE 1 (FOX'S BACK LANE TO J6) WS/M62/1/19
56N	51.0	N	347220 389680	SJ48NE356	4.3	M62 IMPROVEMENT JUNCTION 6 TO 7
57Q	52.0	NE	347790 389710	SJ48NE86	3.66	LANCS/YORKS M/WAY TARBOCK-CROFT 5727/2
58O	52.0	N	347746 389724	SJ48NE500	2.8	M62 PACKAGE 1 (FOX'S BACK LANE TO J6) DS/M62/1/18
59	52.0	N	346990 389630	SJ48NE68	5.03	LANCS/YORKS M/WAY TARBOCK-CROFT B40
60	54.0	N	347070 389650	SJ48NE69	5.03	LANCS/YORKS M/WAY TARBOCK-CROFT B40A
61P	57.0	N	347391 389720	SJ48NE502	1.9	M62 PACKAGE 1 (FOX'S BACK LANE TO J6) DS/M62/1/22
62Q	58.0	N	347780 389720	SJ48NE85	7.16	LANCS/YORKS M/WAY TARBOCK-CROFT 5727/1
63Q	58.0	N	347780 389720	SJ48NE304	10.62	M62 IMPROVEMENT JUNCTION 6 TO 7
64T	58.0	N	346940 389620	SJ48NE66	6.1	LANCS/YORKS M/WAY TARBOCK-CROFT B38
65	60.0	SW	346840 389520	SJ48NE394	3.9	M62 IMPROVEMENT JUNCTION 6 TO 7 TRIAL PIT TN29
66	60.0	N	347040 389650	SJ48NE354	1.5	M62 IMPROVEMENT JUNCTION 6 TO 7
67O	60.0	N	347760 389730	SJ48NE303	10.16	M62 IMPROVEMENT JUNCTION 6 TO 7

ID	Distance (m)	Direction	NGR	BGS Reference	Drilled Length	Borehole Name
68	61.0	N	347302 389708	SJ48NE501	3.0	M62 PACKAGE 1 (FOX'S BACK LANE TO J6) DS/M62/1/20
69	61.0	N	347600 389730	SJ48NE81	3.42	LANCS/YORKS M/WAY TARBOCK-CROFT B50
70R	62.0	N	347120 389670	SJ48NE355	2.9	M62 IMPROVEMENT JUNCTION 6 TO 7
71U	64.0	NW	346850 389590	SJ48NE298	2.45	M62 IMPROVEMENT JUNCTION 6 TO 7
72S	64.0	N	347186 389687	SJ48NE513	0.4	M62 PACKAGE 1 (FOX'S BACK LANE TO J6) WS/M62/1/15
73	66.0	N	347470 389730	SJ48NE78	3.96	LANCS/YORKS M/WAY TARBOCK-CROFT B47
74	66.0	N	347100 389670	SJ48NE70	12.19	LANCS/YORKS M/WAY TARBOCK-CROFT 5728/1
75	69.0	W	346830 389570	SJ48NE61	12.19	LANCS/YORKS M/WAY TARBOCK-CROFT B36
76	70.0	N	347270 389710	SJ48NE74	8.84	LANCS/YORKS M/WAY TARBOCK-CROFT B43
77S	70.0	N	347170 389690	SJ48NE301	4.47	M62 IMPROVEMENT JUNCTION 6 TO 7
78T	71.0	N	346930 389630	SJ48NE353	0.9	M62 IMPROVEMENT JUNCTION 6 TO 7
79Q	71.0	NE	347810 389720	SJ48NE362	3.3	M62 IMPROVEMENT JUNCTION 6 TO 7
80S	72.0	N	347182 389694	SJ48NE498	1.7	M62 PACKAGE 1 (FOX'S BACK LANE TO J6) DS/M62/1/16
81	77.0	N	347730 389750	SJ48NE429	50.0	FOX'S BANK LANE, CRONTON
82U	78.0	NW	346840 389600	SJ48NE64	35.05	LANCS/YORKS M/WAY TARBOCK-CROFT B26C
83U	78.0	NW	346840 389600	SJ48NE351	3.4	M62 IMPROVEMENT JUNCTION 6 TO 7
84	79.0	N	347000 389660	SJ48NE300	18.37	M62 IMPROVEMENT JUNCTION 6 TO 7
85	79.0	N	346870 389620	SJ48NE352	4.4	M62 IMPROVEMENT JUNCTION 6 TO 7
86V	80.0	N	346900 389630	SJ48NE63	30.48	LANCS/YORKS M/WAY TARBOCK-CROFT B36B
87V	83.0	N	346920 389640	SJ48NE299	29.83	M62 IMPROVEMENT JUNCTION 6 TO 7
88	125.0	W	346770 389540	SJ48NE60	3.66	LANCS/YORKS M/WAY TARBOCK-CROFT B35
89W	139.0	W	346760 389580	SJ48NE305	2.85	M62 IMPROVEMENT JUNCTION 6 TO 7
90	140.0	SW	346817 389338	SJ48NE496	1.8	M62 PACKAGE 1 (FOX'S BACK LANE TO J6) DS/M62/1/12
91X	142.0	W	346760 389490	SJ48NE393	3.1	M62 IMPROVEMENT JUNCTION 6 TO 7 TRIAL PIT TN28
92Y	144.0	E	347910 389670	SJ48NE403	3.8	M62 IMPROVEMENT JUNCTION 6 TO 7 TRIAL PIT TN40
93	145.0	W	346750 389560	SJ48NE349	1.4	M62 IMPROVEMENT JUNCTION 6 TO 7

ID	Distance (m)	Direction	NGR	BGS Reference	Drilled Length	Borehole Name
94W	149.0	W	346750 389580	SJ48NE350	3.7	M62 IMPROVEMENT JUNCTION 6 TO 7
95	151.0	E	347910 389710	SJ48NE363	1.3	M62 IMPROVEMENT JUNCTION 6 TO 7
96X	151.0	W	346750 389500	SJ48NE59	7.32	LANCS/YORKS M/WAY TARBOCK-CROFT 5729/6
97	161.0	W	346740 389460	SJ48NE320	11.36	M62 IMPROVEMENT JUNCTION 6 TO 7
98Y	164.0	E	347930 389680	SJ48NE90	2.74	LANCS/YORKS M/WAY TARBOCK-CROFT B55
99	171.0	S	347086 389092	SJ48NE12	140.21	A3/8/2 WHITEFIELD LANE
100Z	175.0	W	346720 389530	SJ48NE57	7.62	LANCS/YORKS M/WAY TARBOCK-CROFT 5729/4
101	183.0	SW	346880 389190	SJ48NE42	4.57	LANCS/YORKS M/WAY TARBOCK-CROFT B31
102Z	186.0	W	346710 389520	SJ48NE392	2.7	M62 IMPROVEMENT JUNCTION 6 TO 7 TRIAL PIT TN27
103	192.0	W	346710 389490	SJ48NE58	7.92	LANCS/YORKS M/WAY TARBOCK-CROFT 5729/5
104A A	195.0	W	346700 389550	SJ48NE55	7.62	LANCS/YORKS M/WAY TARBOCK-CROFT 5729/2
105	216.0	W	346680 389520	SJ48NE56	2.74	LANCS/YORKS M/WAY TARBOCK-CROFT 5729/3
106	229.0	W	346670 389590	SJ48NE306	11.37	M62 IMPROVEMENT JUNCTION 6 TO 7
107	232.0	E	348000 389650	SJ48NE419	3.9	M62 IMPROVEMENT JUNCTION 6 TO 7 TRIAL PIT TN61
108A A	235.0	W	346660 389550	SJ48NE54	15.24	LANCS/YORKS M/WAY TARBOCK-CROFT 5729/1
109	246.0	E	348010 389700	SJ48NE364	3.1	M62 IMPROVEMENT JUNCTION 6 TO 7

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

#1B: scans.bgs.ac.uk/sobi_scans/boreholes/164099
 #2A: scans.bgs.ac.uk/sobi_scans/boreholes/164100
 #3: scans.bgs.ac.uk/sobi_scans/boreholes/164173
 #4A: scans.bgs.ac.uk/sobi_scans/boreholes/164171
 #5: scans.bgs.ac.uk/sobi_scans/boreholes/164172
 #6: scans.bgs.ac.uk/sobi_scans/boreholes/163785
 #7B: scans.bgs.ac.uk/sobi_scans/boreholes/164170
 #8: scans.bgs.ac.uk/sobi_scans/boreholes/164175
 #9: scans.bgs.ac.uk/sobi_scans/boreholes/18913248
 #10: scans.bgs.ac.uk/sobi_scans/boreholes/18913249
 #11: scans.bgs.ac.uk/sobi_scans/boreholes/164174
 #12F: scans.bgs.ac.uk/sobi_scans/boreholes/18913246
 #13: scans.bgs.ac.uk/sobi_scans/boreholes/164176
 #14D: scans.bgs.ac.uk/sobi_scans/boreholes/18913252
 #15: scans.bgs.ac.uk/sobi_scans/boreholes/18913250
 #16C: scans.bgs.ac.uk/sobi_scans/boreholes/18913247
 #17C: scans.bgs.ac.uk/sobi_scans/boreholes/18913266
 #18G: scans.bgs.ac.uk/sobi_scans/boreholes/18913267
 #19: scans.bgs.ac.uk/sobi_scans/boreholes/163857
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 #23D: scans.bgs.ac.uk/sobi_scans/boreholes/18913251
 #24E: scans.bgs.ac.uk/sobi_scans/boreholes/18913264
 #25E: scans.bgs.ac.uk/sobi_scans/boreholes/18913262
 #26E: scans.bgs.ac.uk/sobi_scans/boreholes/18913263
 #27E: scans.bgs.ac.uk/sobi_scans/boreholes/18913265
 #28F: scans.bgs.ac.uk/sobi_scans/boreholes/163854
 #29D: scans.bgs.ac.uk/sobi_scans/boreholes/18913269
 #30G: scans.bgs.ac.uk/sobi_scans/boreholes/163850
 #31I: scans.bgs.ac.uk/sobi_scans/boreholes/163837
 #32H: scans.bgs.ac.uk/sobi_scans/boreholes/164097
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 #35I: scans.bgs.ac.uk/sobi_scans/boreholes/164098
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 #40E: scans.bgs.ac.uk/sobi_scans/boreholes/163855
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 #43J: scans.bgs.ac.uk/sobi_scans/boreholes/164133
 #44J: scans.bgs.ac.uk/sobi_scans/boreholes/163852
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 #46N: scans.bgs.ac.uk/sobi_scans/boreholes/163848
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 #48O: scans.bgs.ac.uk/sobi_scans/boreholes/18913256
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 #51L: scans.bgs.ac.uk/sobi_scans/boreholes/164136
 #52R: scans.bgs.ac.uk/sobi_scans/boreholes/163847
 #53: scans.bgs.ac.uk/sobi_scans/boreholes/18913272
 #54P: scans.bgs.ac.uk/sobi_scans/boreholes/164077
 #55M: scans.bgs.ac.uk/sobi_scans/boreholes/18913271
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#58O: scans.bgs.ac.uk/sobi_scans/boreholes/18913257
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#61P: scans.bgs.ac.uk/sobi_scans/boreholes/18913259
#62Q: scans.bgs.ac.uk/sobi_scans/boreholes/163860
#63Q: scans.bgs.ac.uk/sobi_scans/boreholes/164079
#64T: scans.bgs.ac.uk/sobi_scans/boreholes/163841
#65: scans.bgs.ac.uk/sobi_scans/boreholes/164169
#66: scans.bgs.ac.uk/sobi_scans/boreholes/164129
#67O: scans.bgs.ac.uk/sobi_scans/boreholes/164078
#68: scans.bgs.ac.uk/sobi_scans/boreholes/18913258
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#70R: scans.bgs.ac.uk/sobi_scans/boreholes/164130
#71U: scans.bgs.ac.uk/sobi_scans/boreholes/164073
#72S: scans.bgs.ac.uk/sobi_scans/boreholes/18913270
#73: scans.bgs.ac.uk/sobi_scans/boreholes/163853
#74: scans.bgs.ac.uk/sobi_scans/boreholes/163845
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#76: scans.bgs.ac.uk/sobi_scans/boreholes/163849
#77S: scans.bgs.ac.uk/sobi_scans/boreholes/164076
#78T: scans.bgs.ac.uk/sobi_scans/boreholes/164128
#79Q: scans.bgs.ac.uk/sobi_scans/boreholes/164137
#80S: scans.bgs.ac.uk/sobi_scans/boreholes/18913255
#81: scans.bgs.ac.uk/sobi_scans/boreholes/164204
#82U: scans.bgs.ac.uk/sobi_scans/boreholes/163839
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#86V: scans.bgs.ac.uk/sobi_scans/boreholes/163838
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#88: scans.bgs.ac.uk/sobi_scans/boreholes/163835
#89W: scans.bgs.ac.uk/sobi_scans/boreholes/164080
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#91X: scans.bgs.ac.uk/sobi_scans/boreholes/164168
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#95: scans.bgs.ac.uk/sobi_scans/boreholes/164138
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#100Z: scans.bgs.ac.uk/sobi_scans/boreholes/163832
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#102Z: scans.bgs.ac.uk/sobi_scans/boreholes/164167
#103: scans.bgs.ac.uk/sobi_scans/boreholes/163833
#104AA: scans.bgs.ac.uk/sobi_scans/boreholes/163830
#105: scans.bgs.ac.uk/sobi_scans/boreholes/163831
#106: scans.bgs.ac.uk/sobi_scans/boreholes/164081
#107: scans.bgs.ac.uk/sobi_scans/boreholes/164194
#108AA: scans.bgs.ac.uk/sobi_scans/boreholes/163829
#109: scans.bgs.ac.uk/sobi_scans/boreholes/164139

8 Estimated Background Soil Chemistry

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

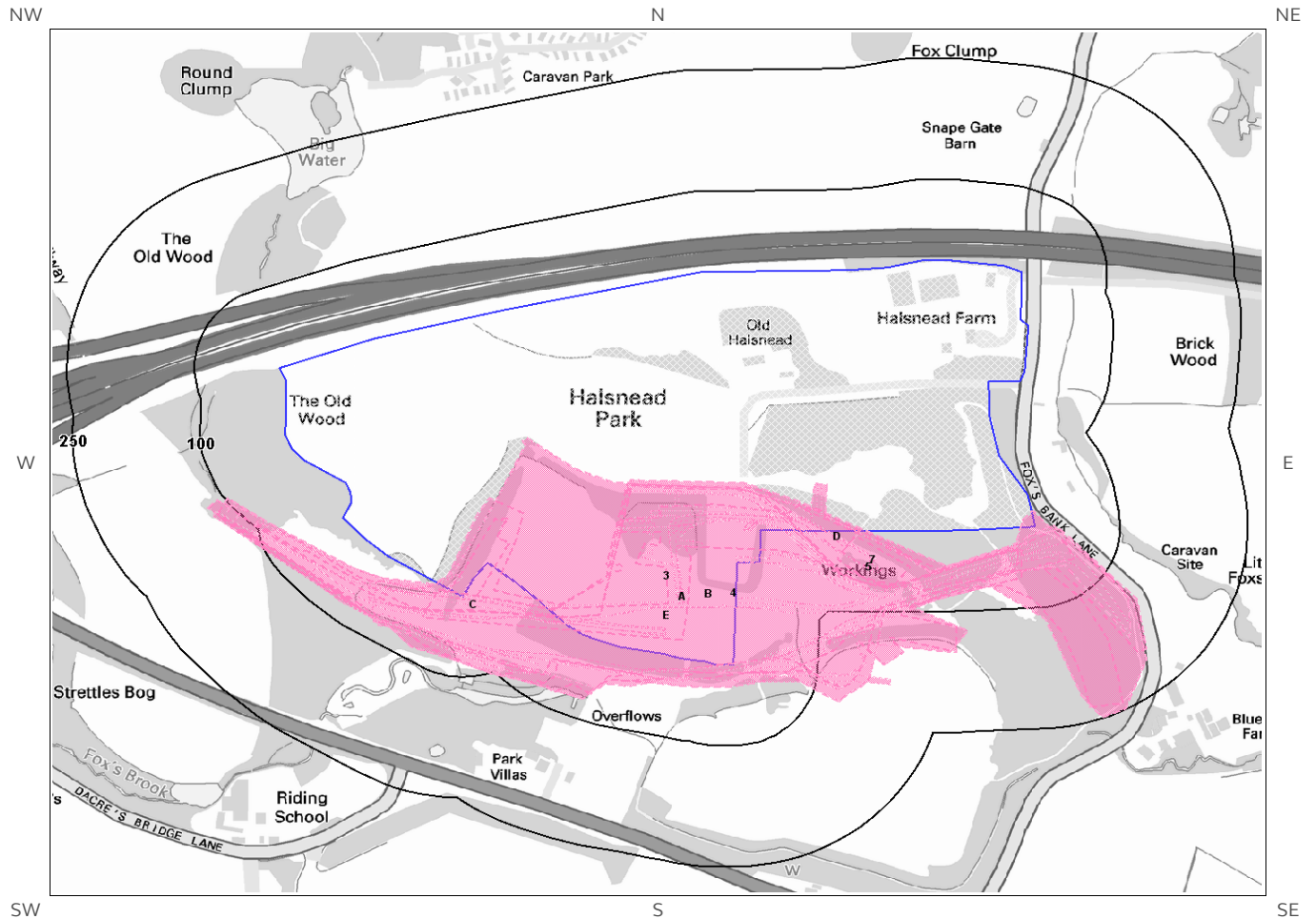
32

For further information on how this data is calculated and limitations upon its use, please see the Groundsure Geo Insight User Guide, available on request.

Distance (m)	Direction	Sample Type	Arsenic (As)	Cadmium (Cd)	Chromium (Cr)	Nickel (Ni)	Lead (Pb)
0.0	On Site	RuralSoil	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	100 - 200 mg/kg
0.0	On Site	RuralSoil	<15 mg/kg	<1.8 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg	100 - 200 mg/kg
0.0	On Site	RuralSoil	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	100 - 200 mg/kg
0.0	On Site	RuralSoil	<15 mg/kg	<1.8 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg	100 - 200 mg/kg
0.0	On Site	RuralSoil	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	100 - 200 mg/kg
0.0	On Site	RuralSoil	<15 mg/kg	<1.8 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg	100 - 200 mg/kg
0.0	On Site	RuralSoil	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	200 - 300 mg/kg
0.0	On Site	RuralSoil	<15 mg/kg	<1.8 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg	100 - 200 mg/kg
0.0	On Site	RuralSoil	<15 mg/kg	<1.8 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg	100 - 200 mg/kg
0.0	On Site	RuralSoil	<15 mg/kg	<1.8 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg	100 - 200 mg/kg
0.0	On Site	RuralSoil	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	100 - 200 mg/kg
0.0	On Site	RuralSoil	<15 mg/kg	<1.8 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg	100 - 200 mg/kg
0.0	On Site	RuralSoil	<15 mg/kg	<1.8 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg	100 - 200 mg/kg
0.0	On Site	RuralSoil	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	100 - 200 mg/kg
0.0	On Site	RuralSoil	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	100 - 200 mg/kg
0.0	On Site	RuralSoil	<15 mg/kg	<1.8 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg	200 - 300 mg/kg
0.0	On Site	RuralSoil	<15 mg/kg	<1.8 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg	100 - 200 mg/kg
0.0	On Site	RuralSoil	<15 mg/kg	<1.8 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg	100 - 200 mg/kg
0.0	On Site	RuralSoil	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	100 - 200 mg/kg
0.0	On Site	RuralSoil	<15 mg/kg	<1.8 mg/kg	40 - 60 mg/kg	<15 mg/kg	200 - 300 mg/kg
0.0	On Site	RuralSoil	<15 mg/kg	<1.8 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg	100 - 200 mg/kg
0.0	On Site	RuralSoil	<15 mg/kg	<1.8 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg	100 - 200 mg/kg
0.0	On Site	RuralSoil	<15 mg/kg	<1.8 mg/kg	40 - 60 mg/kg	<15 mg/kg	100 - 200 mg/kg
27.0	S	RuralSoil	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	100 - 200 mg/kg
27.0	S	RuralSoil	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	100 - 200 mg/kg
37.0	SW	RuralSoil	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	100 - 200 mg/kg
45.0	E	RuralSoil	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	200 - 300 mg/kg
45.0	SW	RuralSoil	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	100 - 200 mg/kg
47.0	N	RuralSoil	<15 mg/kg	<1.8 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg	200 - 300 mg/kg
50.0	SE	RuralSoil	<15 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	100 - 200 mg/kg

*As this data is based upon underlying 1:50,000 scale geological information, a 50m buffer has been added to the search radius.

9 Railways and Tunnels map



Railways and Tunnels Legend

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	Underground or Partially Underground Railway / Subway System		Railway Track (OpenStreetMap)
	Railway Tunnel (OS Mapping)		High Speed 2
	Abandoned or Dismantled Railway (OpenStreetMap)		High Speed 2 Revised Proposed Route
	Railway Track (OS Mapping)		Crossrail 1
	Railway and/or Tunnel Feature from Historical Mapping		
	Site Outline		
	250 Search Buffers (m)		
	500 Search Buffers (m)		

9 Railways and Tunnels

9.1 Tunnels

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

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

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

Database searched and no data found.

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

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

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

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

Database searched and no data found.

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

9.2 Historical Railway and Tunnel Features

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

Have any historical railway or tunnel features been identified within the study site boundary? Yes

Have any historical railway or tunnel features been identified within 250m of the study site boundary? Yes

ID	Distance (m)	Direction	NGR	Details	Date
1A	0	On Site	347298 389265	Railway Sidings	1925
2B	0	On Site	347407 389263	Railway Sidings	1947
3	0	On Site	347387 389237	Railway Sidings	1967
4	0	On Site	347376 389258	Railway Sidings	1950
5	0	On Site	347363 389284	Railway Sidings	1975
6A	0	On Site	347384 389275	Railway Sidings	1938

ID	Distance (m)	Direction	NGR	Details	Date
8B	0	On Site	347447 389282	Railway Sidings	1958
9C	0	On Site	347103 389248	Railway Sidings	1980
10D	0	On Site	347358 389308	Railway Sidings	1980
11C	0	On Site	347174 389246	Railway Sidings	1980
12D	0	On Site	347359 389308	Railway Sidings	1980
13E	0	On Site	347568 389272	Railway Sidings	1927
14E	0	On Site	346972 389274	Railway Sidings	1937
7	6	S	347592 389304	Railway Sidings	1989

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

9.3 Historical Railways

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

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

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

Database searched and no data found.

Multiple sections of the same track may be listed in the detail above

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

9.4 Active Railways

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

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

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

Database searched and no data found.

Multiple sections of the same track may be listed in the detail above

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

9.5 Railway Projects

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

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

Is the study site within 500m of the route of the Crossrail 1 rail project? No

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

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

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

Contact Details

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Keyworth, Nottingham NG12 5GG
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Fax: 0115 936 3276.
Email: enquiries@bgs.ac.uk
Web: www.bgs.ac.uk



BGS Geological Hazards Reports and general geological enquiries

British Gypsum

British Gypsum Ltd
East Leake
Loughborough
Leicestershire
LE12 6HX



The Coal Authority

200 Lichfield Lane
Mansfield
Notts NG18 4RG
Tel: 0345 7626 848
DX 716176 Mansfield 5
www.coal.gov.uk



Public Health England

Public information access office
Public Health England, Wellington House
133-155 Waterloo Road, London, SE1 8UG
<https://www.gov.uk/government/organisations/public-health-england>
Email: enquiries@phe.gov.uk
Main switchboard: 020 7654 8000



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FARM, FOXS BANK LANE,
CRONTON, L35 3SU

Client Ref: TE1163_-PE02796
Report Ref: GS-5672876
Grid Ref: 347338, 389427

Map Name: County Series

Map date: 1849-1850

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1847
Revised N/A
Edition 1850
Copyright N/A
Levelled N/A

Surveyed 1846
Revised N/A
Edition 1849
Copyright N/A
Levelled N/A

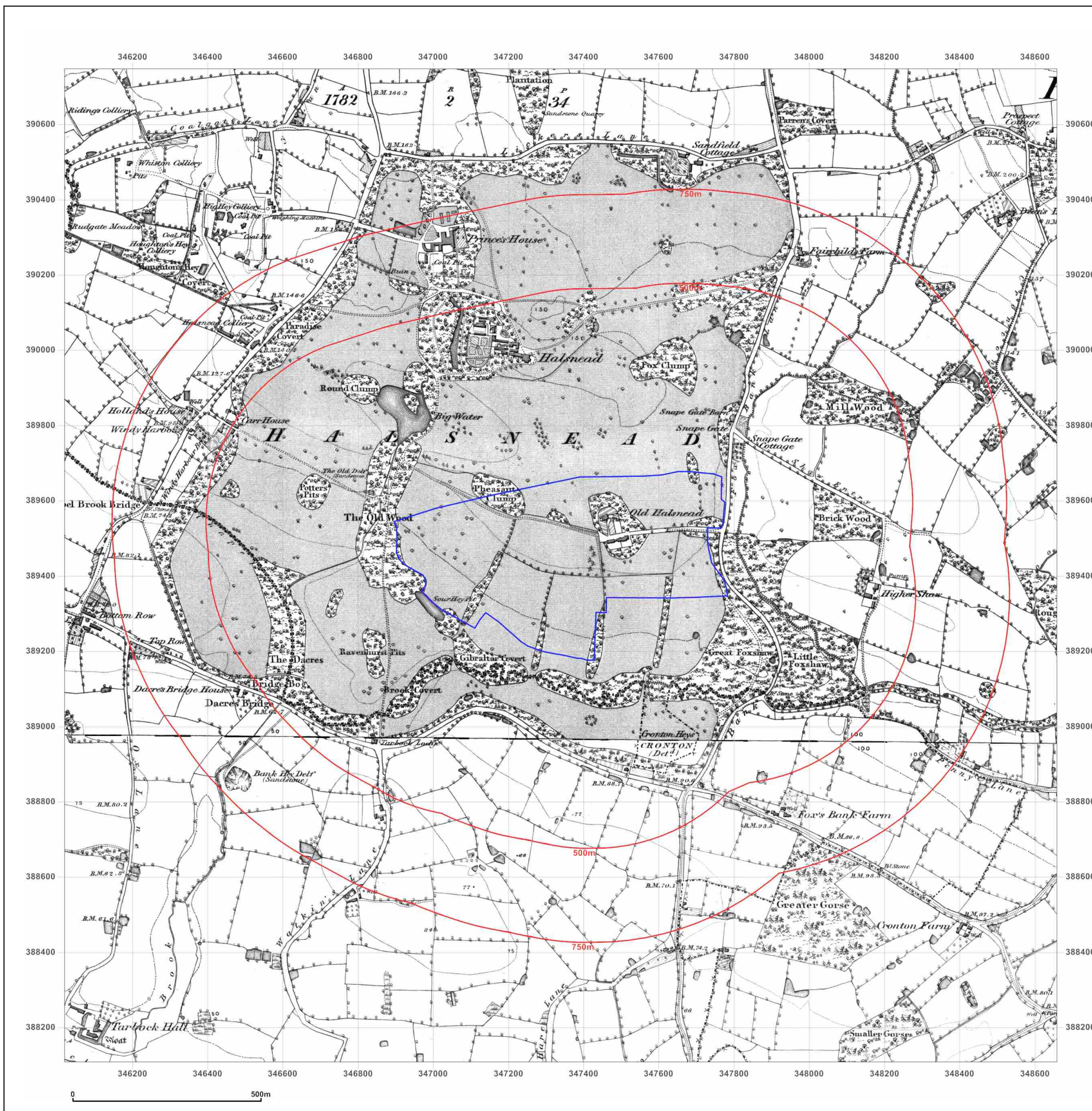


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CRONTON, L35 3SU

Client Ref: TE1163_-PE02796
Report Ref: GS-5672876
Grid Ref: 347338, 389427

Map Name: County Series

Map date: 1891

Scale: 1:10,560

Printed at: 1:10,560



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

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

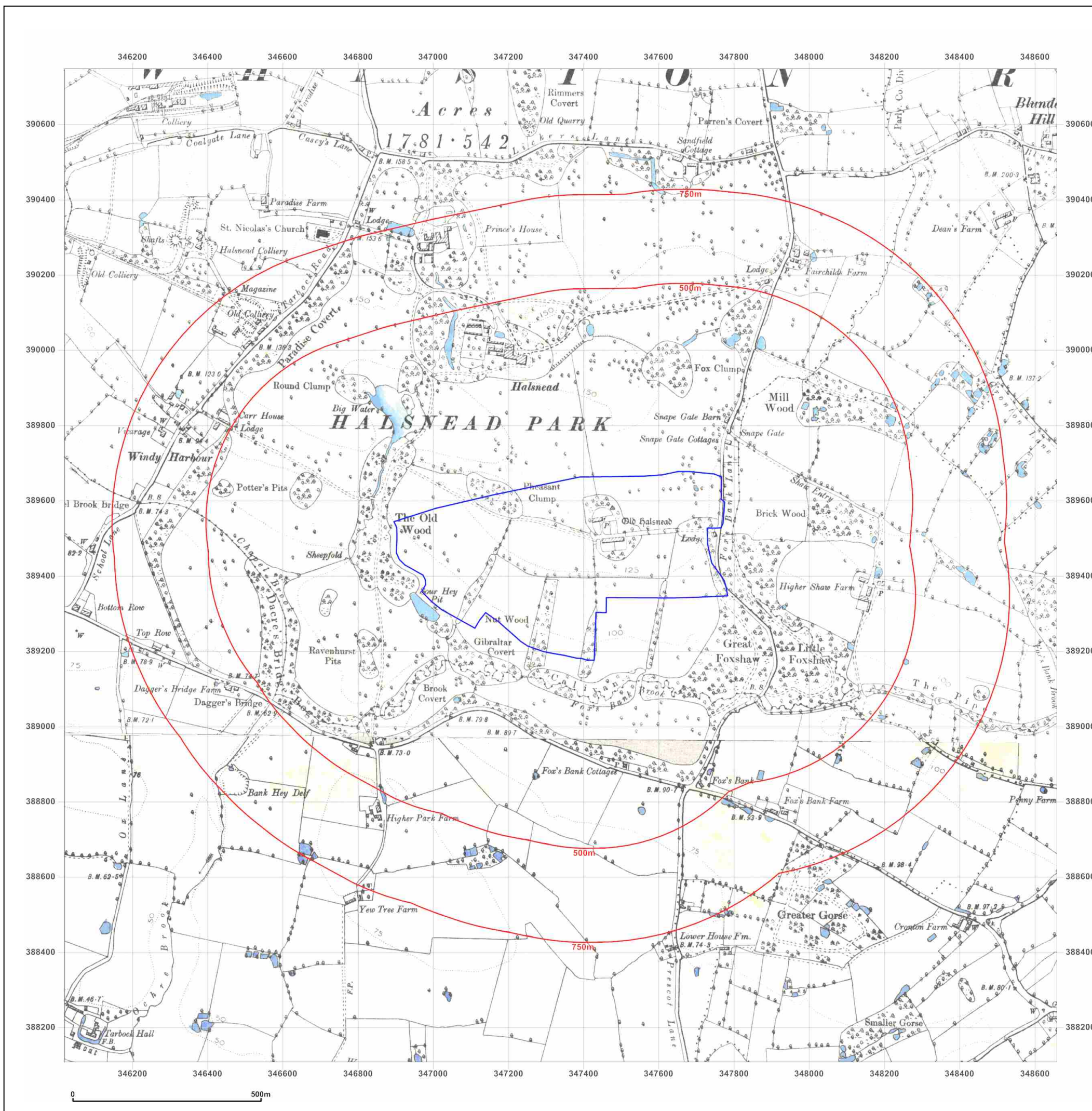


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CRONTON, L35 3SU

Client Ref: TE1163_-PE02796
Report Ref: GS-5672876
Grid Ref: 347338, 389427

Map Name: County Series

Map date: 1905-1906

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1891
Revised 1906
Edition N/A
Copyright N/A
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Surveyed 1891
Revised 1905
Edition N/A
Copyright N/A
Levelled N/A

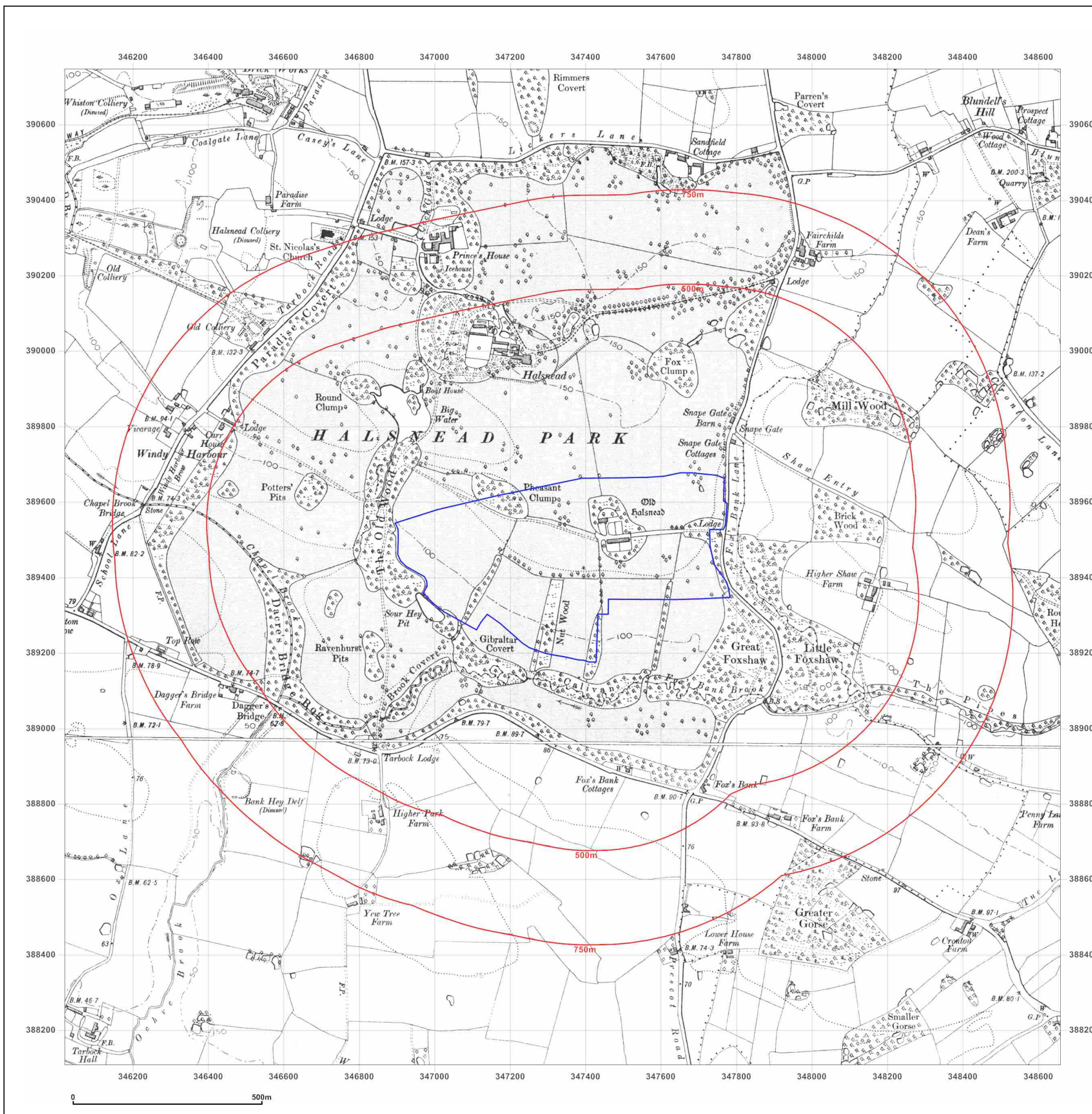


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CRONTON, L35 3SU

Client Ref: TE1163_-PE02796
Report Ref: GS-5672876
Grid Ref: 347338, 389427

Map Name: County Series

Map date: 1925

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1846
Revised 1925
Edition N/A
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Surveyed 1846
Revised 1925
Edition N/A
Copyright N/A
Levelled N/A

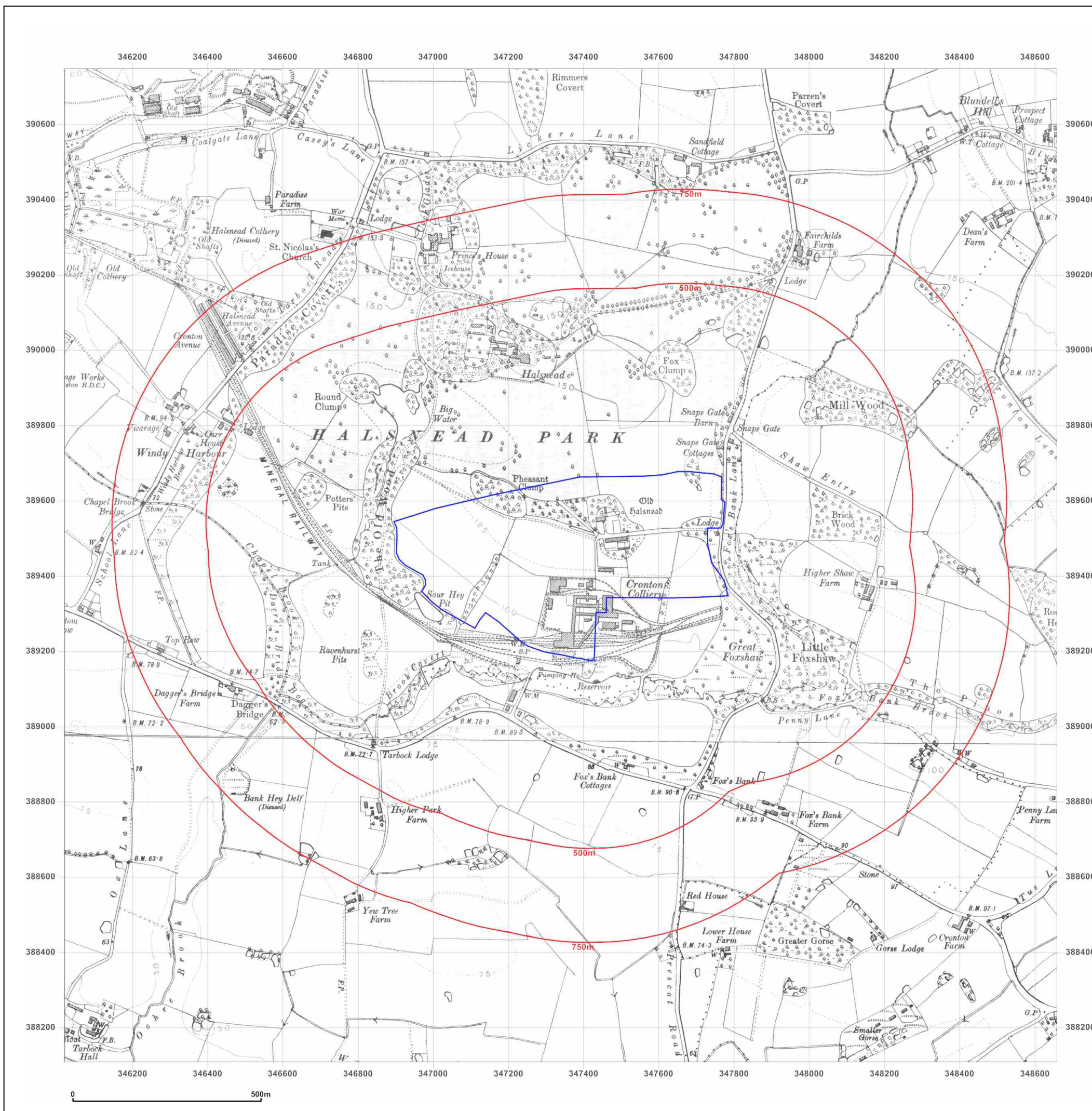


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CRONTON, L35 3SU

Client Ref: TE1163_-PE02796
Report Ref: GS-5672876
Grid Ref: 347338, 389427

Map Name: County Series

Map date: 1938

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1846
Revised 1938
Edition 1938
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Revised 1938
Edition N/A
Copyright N/A
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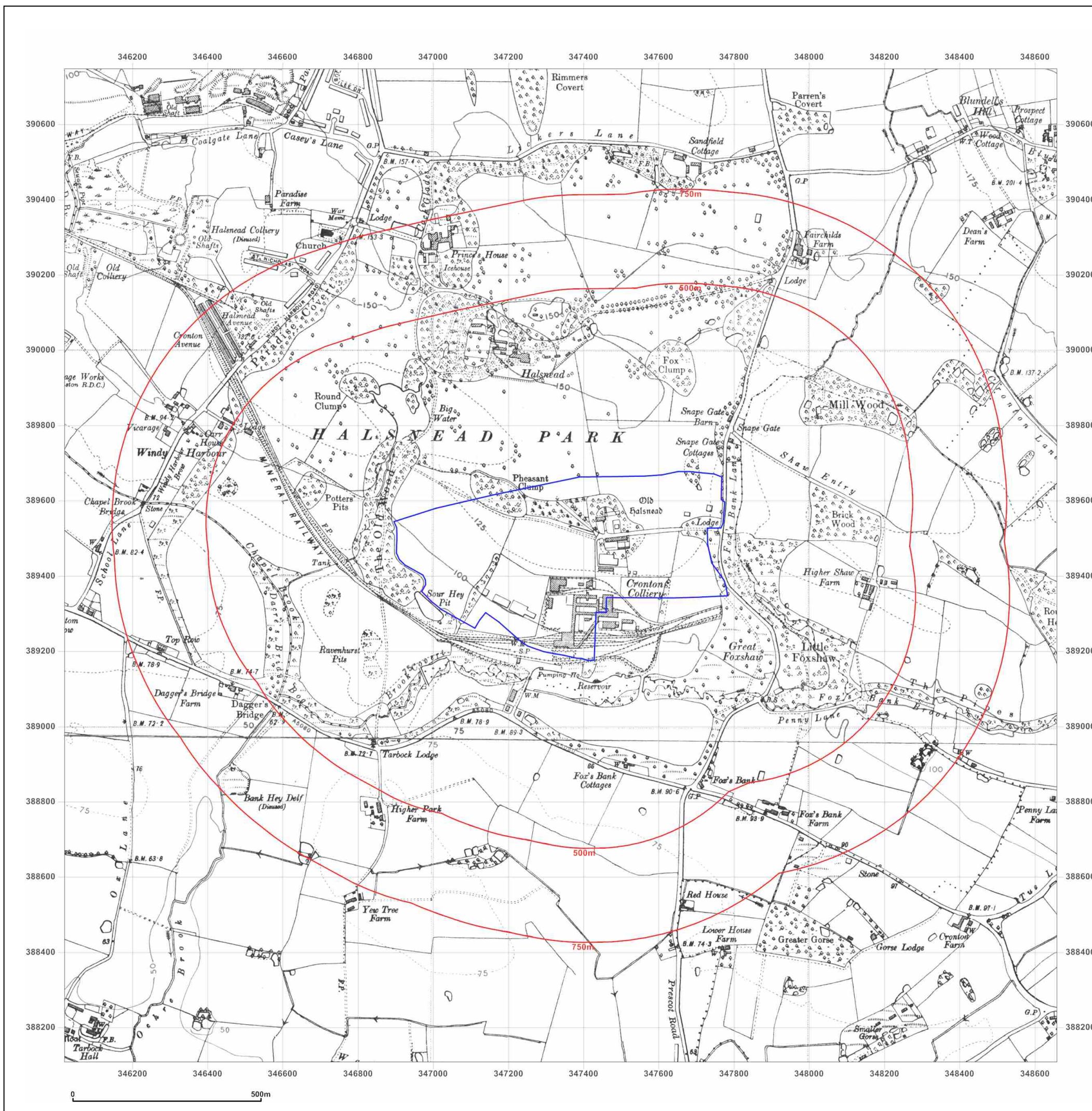


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CRONTON, L35 3SU

Client Ref: TE1163_-PE02796
Report Ref: GS-5672876
Grid Ref: 347338, 389427

Map Name: County Series

Map date: 1947

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1846
Revised 1947
Edition N/A
Copyright N/A
Levelled N/A

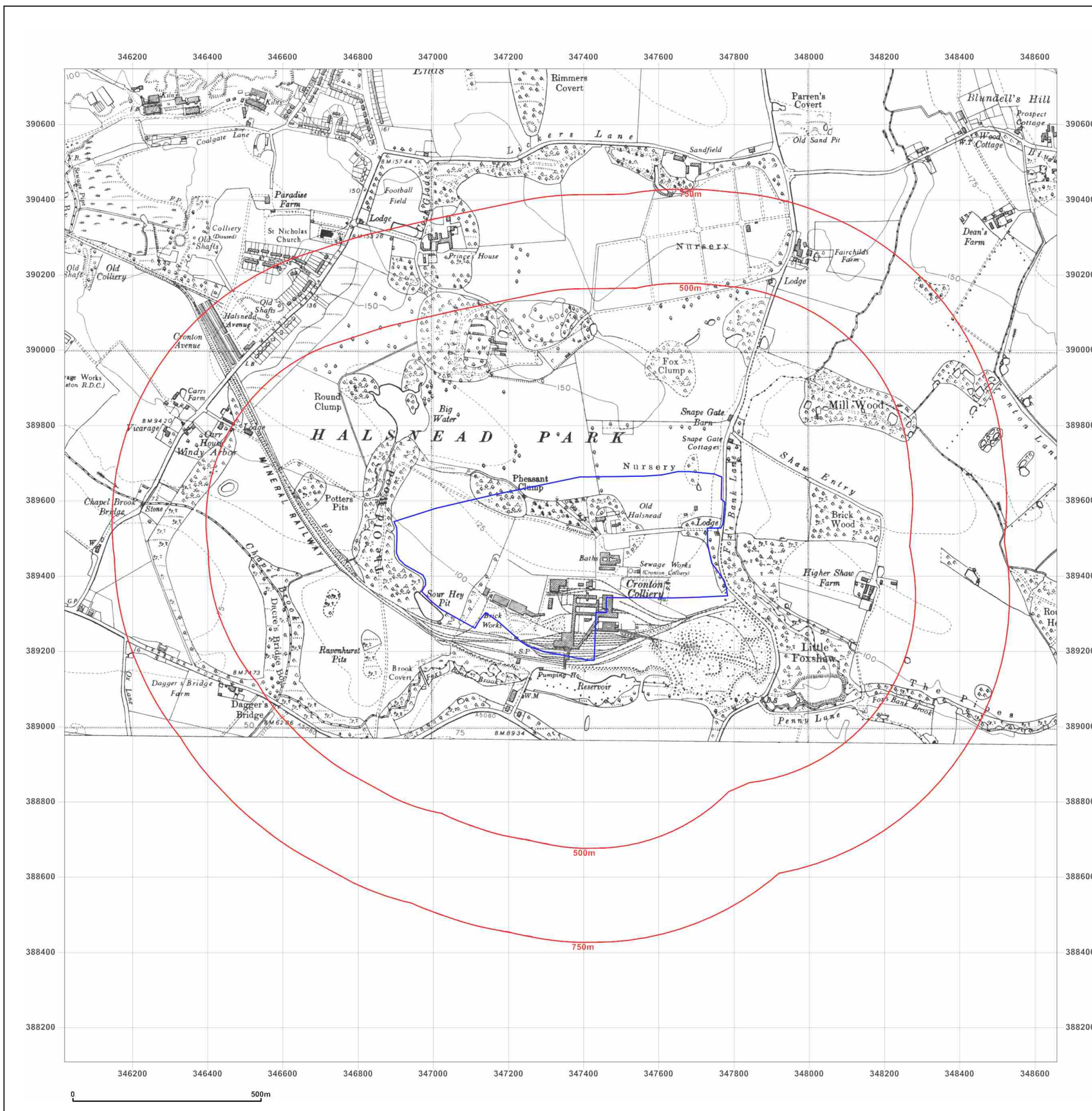


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Client Ref: TE1163_-PE02796
Report Ref: GS-5672876
Grid Ref: 347338, 389427

Map Name: Provisional

Map date: 1955-1956

Scale: 1:10,560

Printed at: 1:10,560



Surveyed 1947
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Edition 1956
Copyright N/A
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Surveyed N/A
Revised 1955
Edition N/A
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Levelled N/A

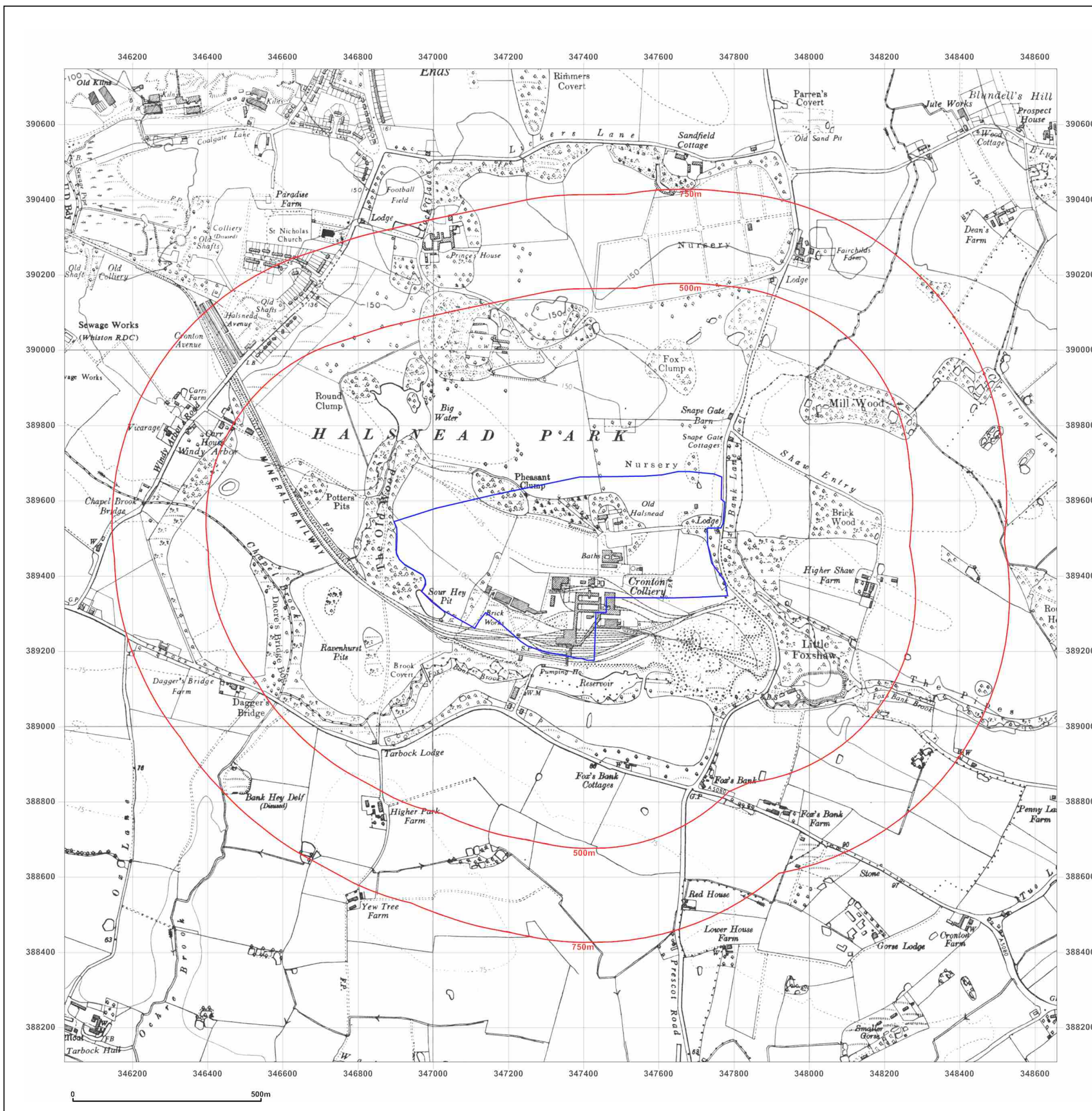


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CRONTON, L35 3SU

Client Ref: TE1163_-_PE02796
Report Ref: GS-5672876
Grid Ref: 347338, 389427

Map Name: Provisional

Map date: 1966-1967

Scale: 1:10,560

Printed at: 1:10,560



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

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

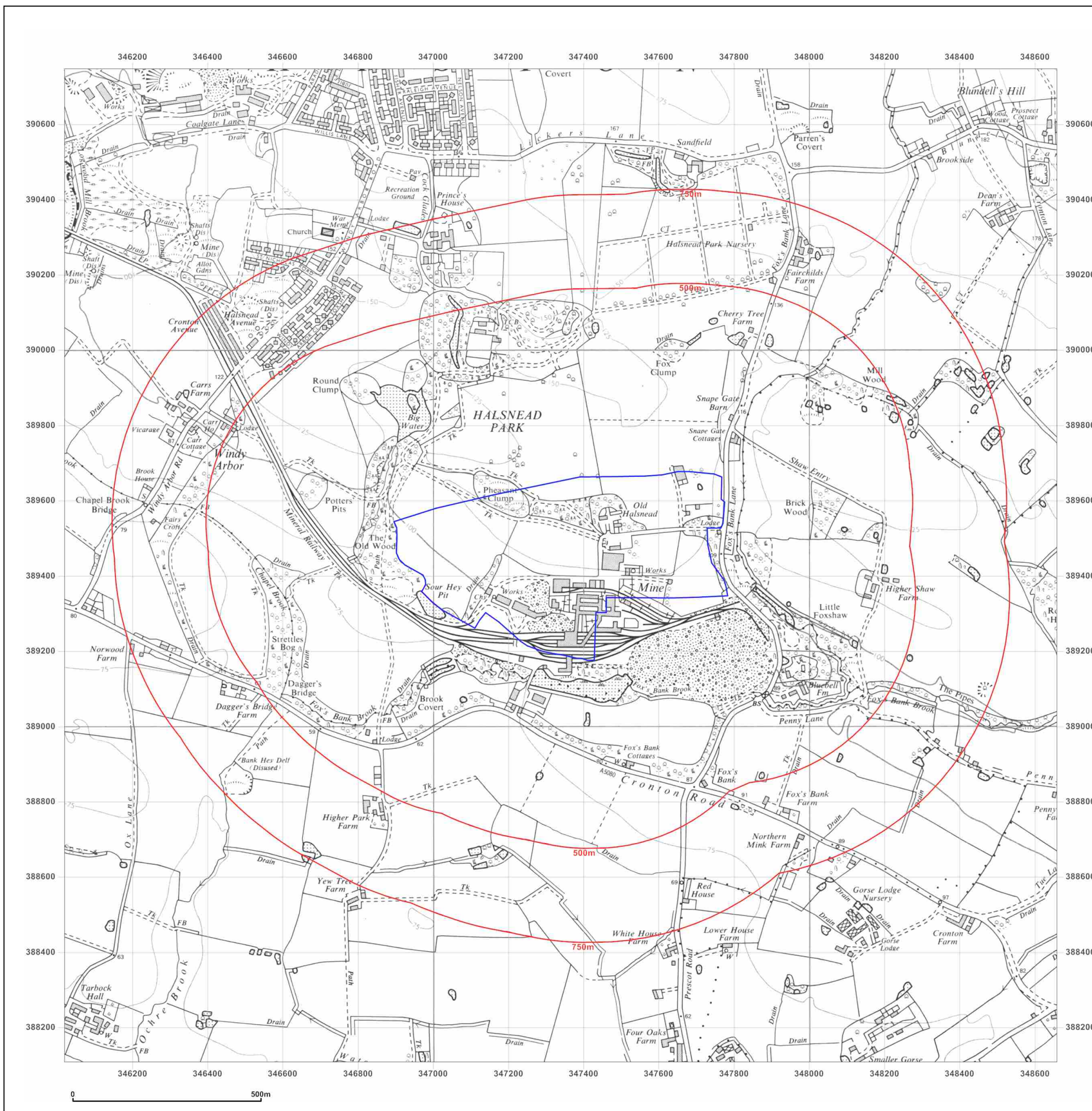


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Client Ref: TE1163_-_PE02796
Report Ref: GS-5672876
Grid Ref: 347338, 389427

Map Name: National Grid

Map date: 1977-1978

Scale: 1:10,000

Printed at: 1:10,000



Surveyed 1975
Revised 1978
Edition N/A
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Levelled 1964

Surveyed 1975
Revised 1977
Edition N/A
Copyright 1977
Levelled 1964

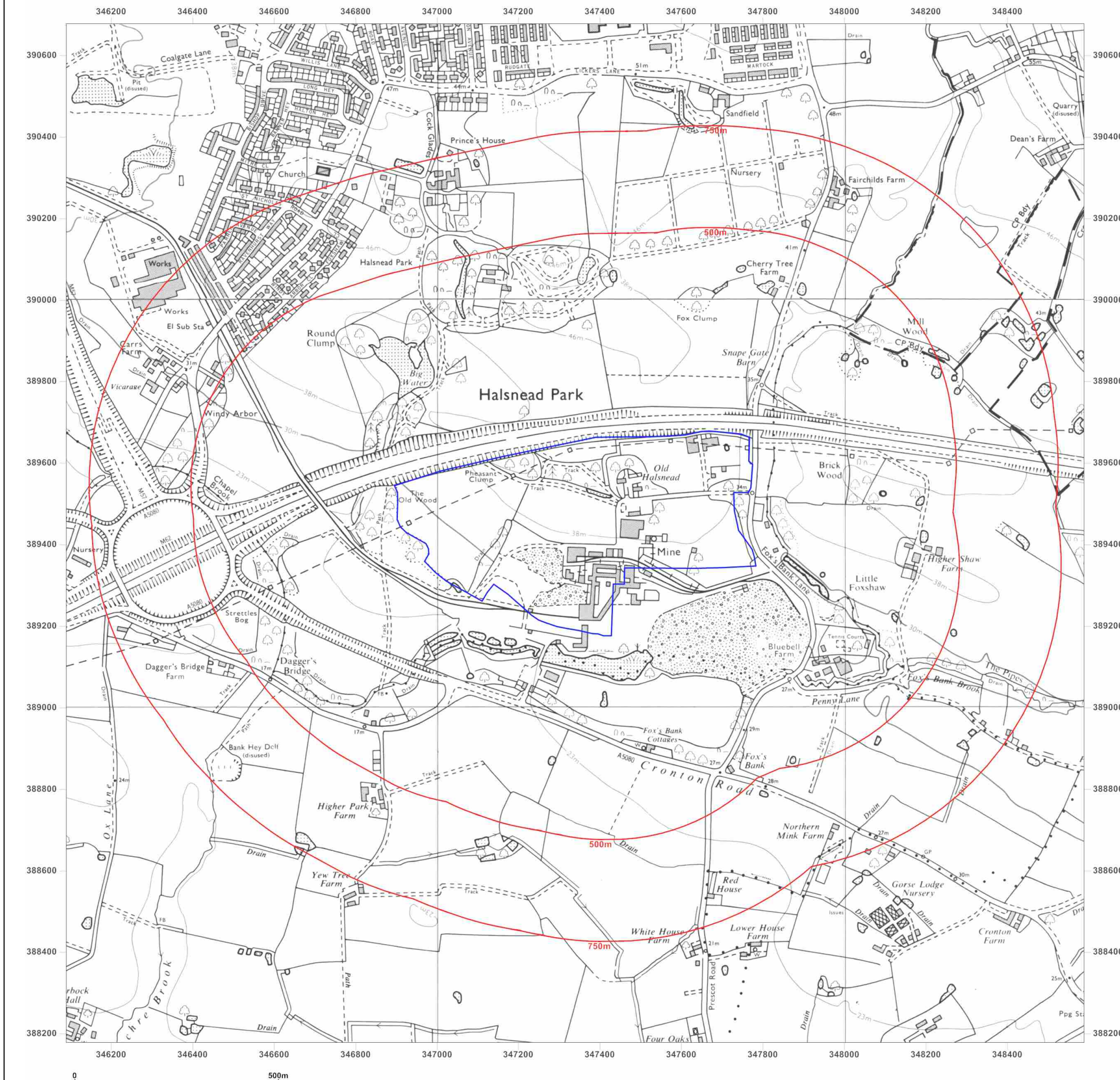


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Client Ref: TE1163_-_PE02796
Report Ref: GS-5672876
Grid Ref: 347338, 389427

Map Name: National Grid

Map date: 1989-1990

Scale: 1:10,000

Printed at: 1:10,000



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Revised 1989
Edition N/A
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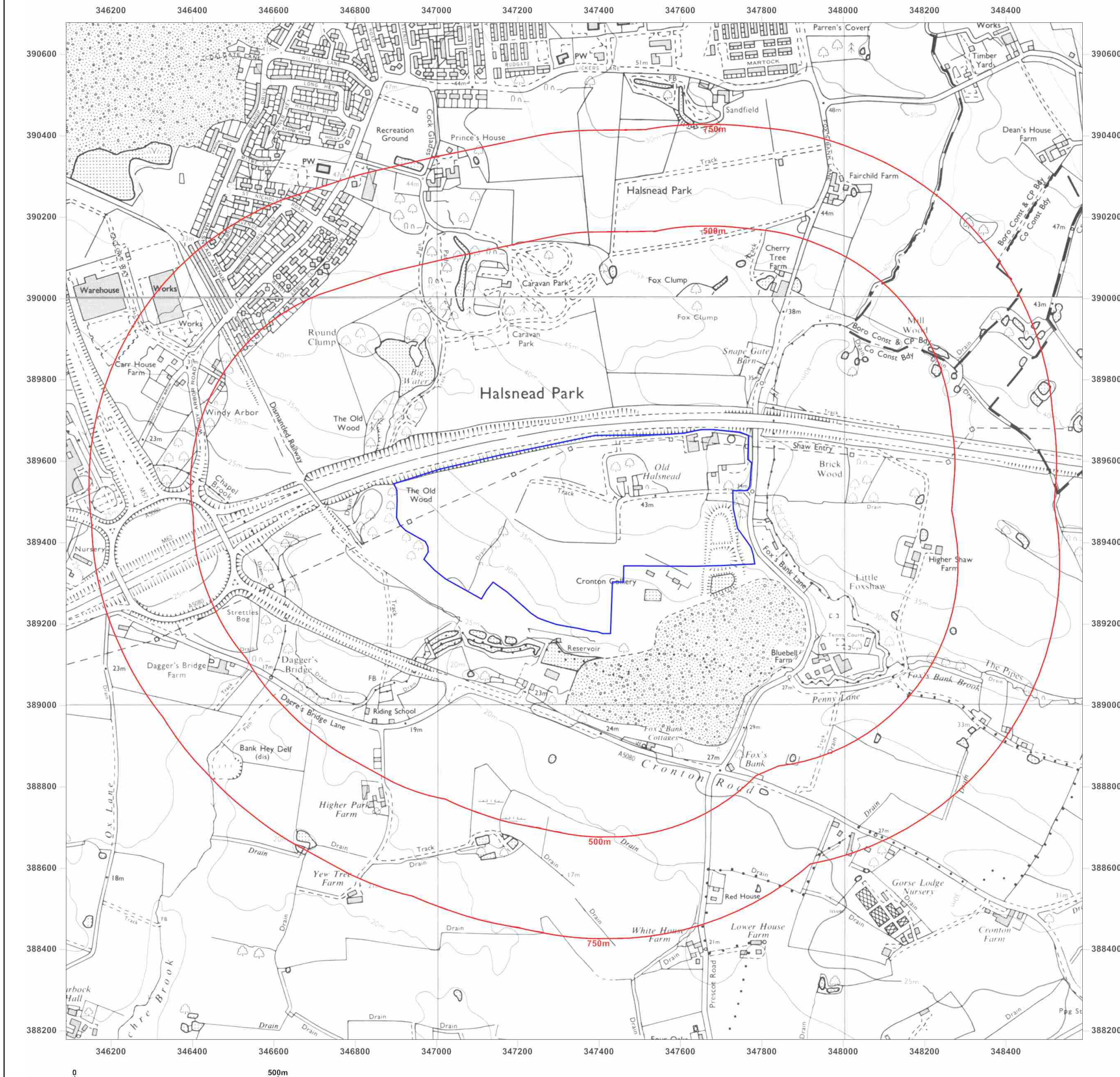


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CRONTON, L35 3SU

Client Ref: TE1163_-_PE02796
Report Ref: GS-5672876
Grid Ref: 347338, 389427

Map Name: 1:10,000 Raster

Map date: 2002

Scale: 1:10,000

Printed at: 1:10,000



2002

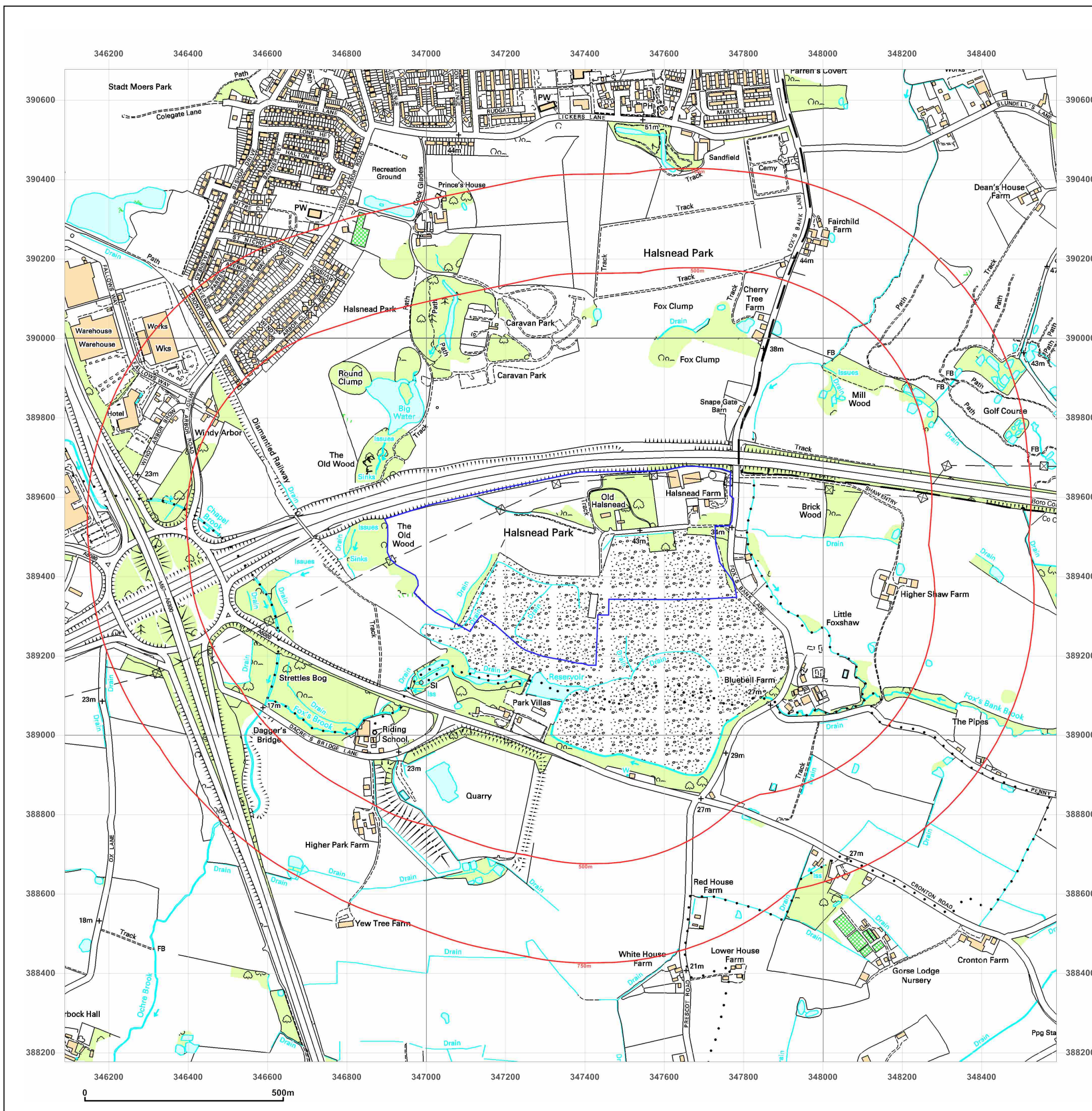


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Client Ref: TE1163_-_PE02796
Report Ref: GS-5672876
Grid Ref: 347338, 389427

Map Name: National Grid

Map date: 2014

Scale: 1:10,000

Printed at: 1:10,000



2014

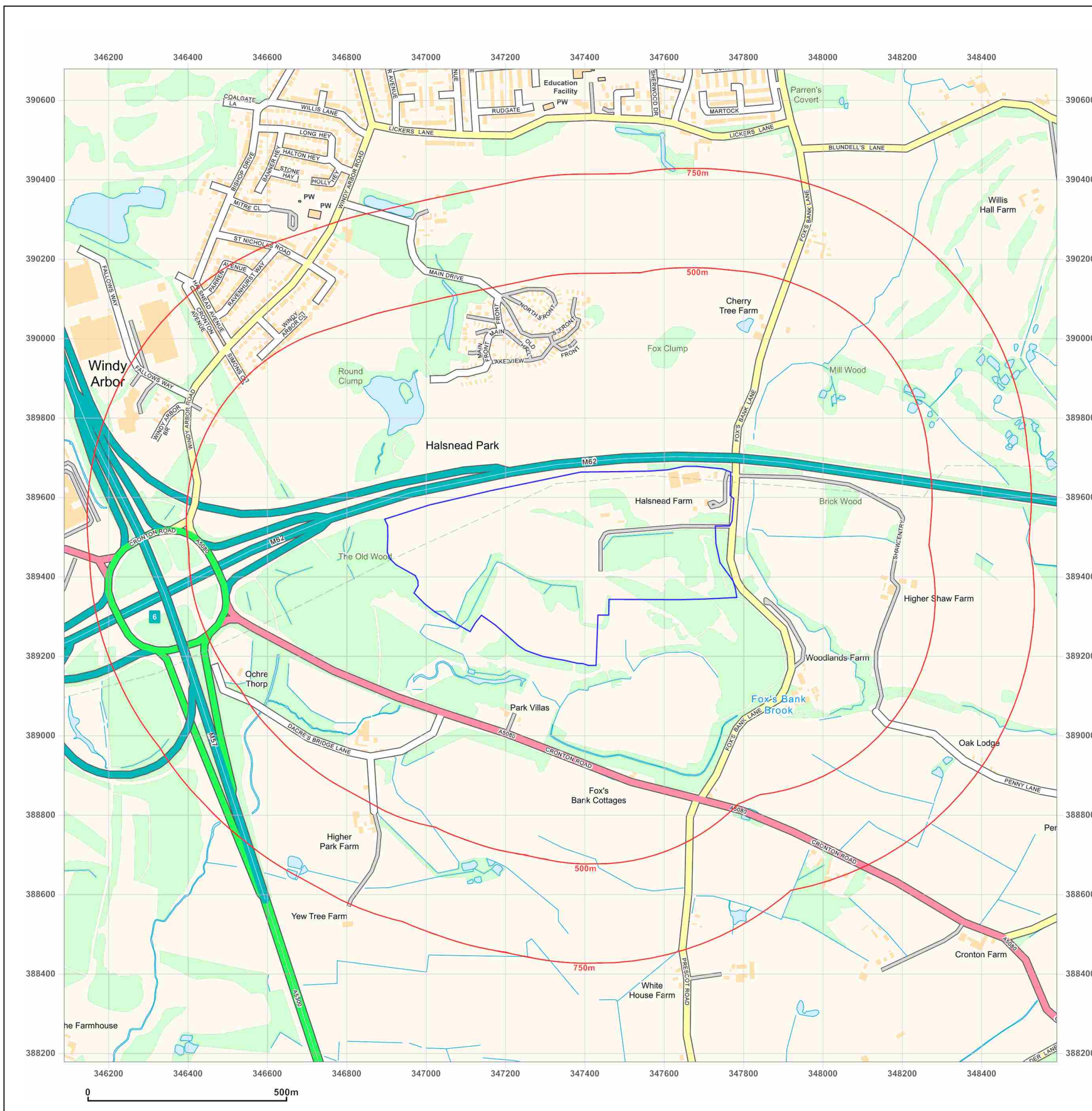


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Production date: 06 December 2018

Map legend available at:
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County Series 1:2,500 scale

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



Historical Map Pack Legend

GENERAL FEATURES

Wood, Marsh, Reeds, Fir, Mixed Wood, Brush Wood, Osiers, Orchard, Bush, Rough Pasture, Furze, Ford, Stepping Stones, Ferry, Sloping Masonry, Flat Rock, Lock, Waterfall, Quarry, Sand Pit, Refuse Heap, Clay Pit, Shingle, Gravel Pit

Trigonometrical Station, 507 Altitude at Trigonometrical Station, B.M. 325.9 Bench Mark, 342 Surface Level, Permanent Traverse Station, Antiquities (site of), Arrow denotes flow of water

SL Sluice, Tr. Trough, Sp. Spring, W. Well, M.R. Mooring Ring, M.P. Mooring Post, B.S. Boundary Stone, B.P. Boundary Post

GENERAL FEATURES

Non-coniferous Trees, Coniferous Trees, Surveyed Trees, Orchard Trees, Coppice, Osier, Scrub, Bracken, Heath, Rough Grassland, Marsh, Saltings, Reeds, Slopes, Cliff, Cave Entrance, Rock, Boulders, Sloping Masonry, Roofed Building, Glasshouse, Archway, Change of boundary mering, AREA notes, Antiquity (site of), Culvert, Direction of water flow, Electricity Pylon, Electricity Transmission Line, Triangulation Station, Traverse Station (permanent), Bench Mark, Surface Level, Revision Point (instrumentally fixed), Revision Point & Bench Mark coincident

Top, Slopes, Quarry, Refuse Heap, Sloping Masonry, Flat Rock, Sand, Sand Pit, Culvert, Archway, Shingle, Boulders, Gravel Pit, Cliff Face, Glazed Roof Building

BOUNDARIES

England & Wales

County Boundary (geographical), County & Civil Parish Boundary coterminous, Admin County or County Borough Boundary, London Borough Boundary, County District Boundaries based on civil parish

England, Wales & Scotland

Civil Parish Boundary, Parly & Ward Boundaries based on civil parish, Parly & Ward Boundaries not based on civil parish

Scotland

County Boundary (geographical), County Council Boundary, County of the City Boundary, Burgh Boundary, District Council Boundary

* Not with parish, † Coincident with parish

ROADS

Road over single stream, Road crossing railway, Road over River or Canal

RAILWAYS

Railway crossing River or Canal, Railway crossing Road, Level Crossing, Embankment, Cutting

ABBREVIATIONS

Trigonometrical Station, 507 Altitude at Trigonometrical Station, B.M. 325.9 Bench Mark, 342 Surface Level, Permanent Traverse Station, Antiquities (site of), Arrow denotes flow of water

SL Sluice, Tr. Trough, Sp. Spring, W. Well, M.R. Mooring Ring, M.P. Mooring Post, B.S. Boundary Stone, B.P. Boundary Post

ABBREVIATIONS

Beer House, Bench Mark, Boundary Post, Boundary Stone, Crane, Club House, Chimney, Capstan, Drinking Fountain, Dock, Electricity Pillar or Post, Electricity Transmission Line, Fire Alarm, Fire Alarm Pillar, Filter Bed, Foot Bridge, Fundamental Bench Mark, Flagstaff, Fire Station, Guide Post, Gas Valve Compound, Hydrant or Hydraulic, Hectares, Letter Box, Lifeboat Station, Level Crossing, Loading Gauge, Lighthouse, Lighting Tower, Metres, Mean High Water, Mean High Water Springs, Mean Low Water, Mean Low Water Springs, Mile or Mooring Post, Mail Pick-up, Mile Stone, National Trust, Normal Tidal Limit, National Trust for Scotland, Pillar, Pole or Post, Public Convenience, Public House, Post Office, Pump, Police Telephone Pillar, Reservoir, Road House, Revision Point, Stone, Signal Box, Signal Light, Sluice, Signal Post, Spring, Signal Station, Telephone Call Box, Telephone Call Post, Tank or Track, Trough, Traverse Station, Well, Weighbridge, Wind Pump, Works, Water Point, Water Tap

County Series 1:1,250 scale

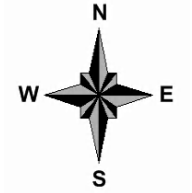
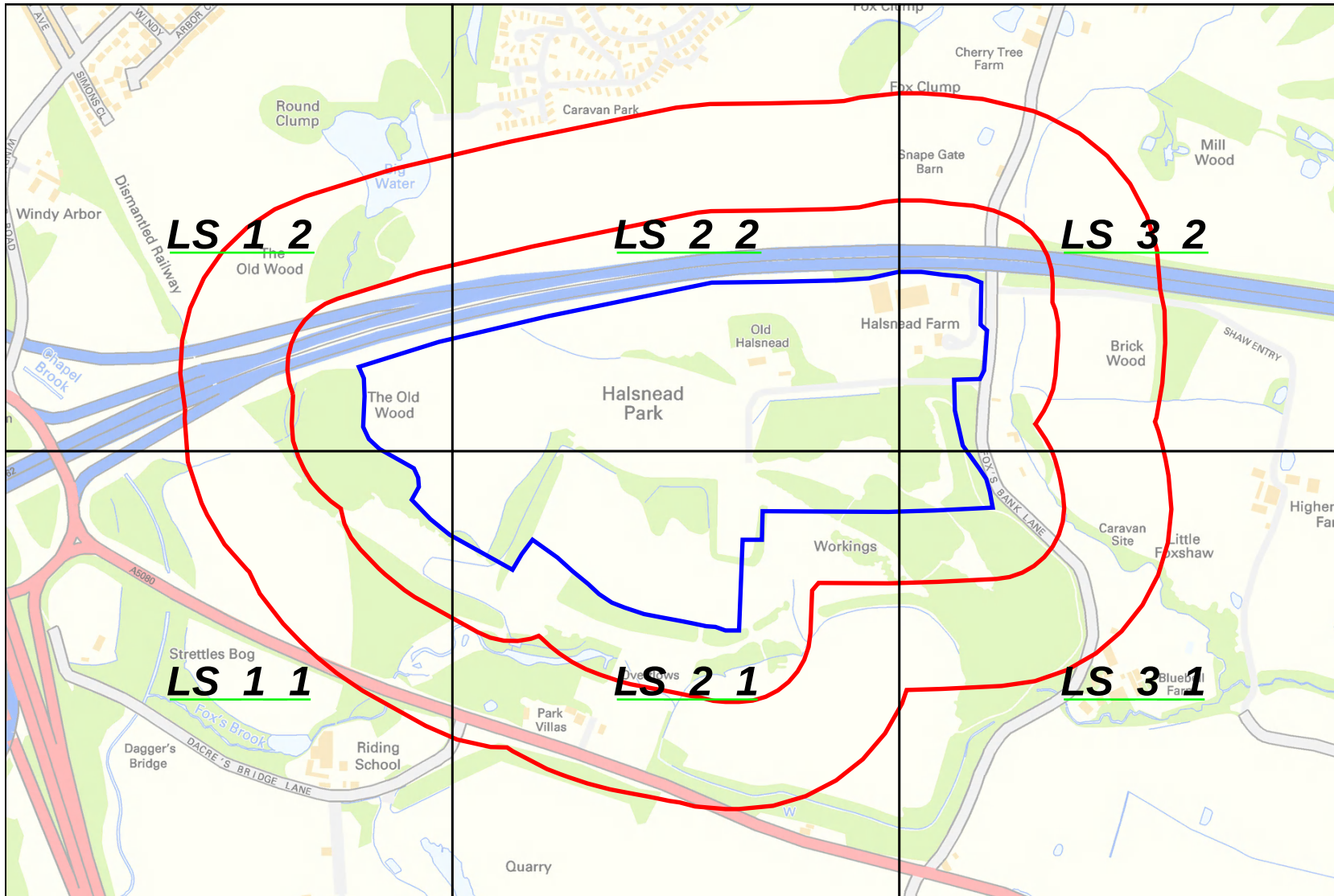
County Series & National Grid 1:2,500 scale

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1:2500 Scale Grid Index

Site Details:

HALSNEAD FARM, HALSNEAD
FARM, FOXS BANK LANE,
CRONTON, L35 3SU

Client Ref: TE1163_-_PE02796
Report Ref: GS-5672876_LS_1_1
Grid Ref: 346713, 389114

Map Name: County Series

Map date: 1892-1893

Scale: 1:2,500

Printed at: 1:2,500



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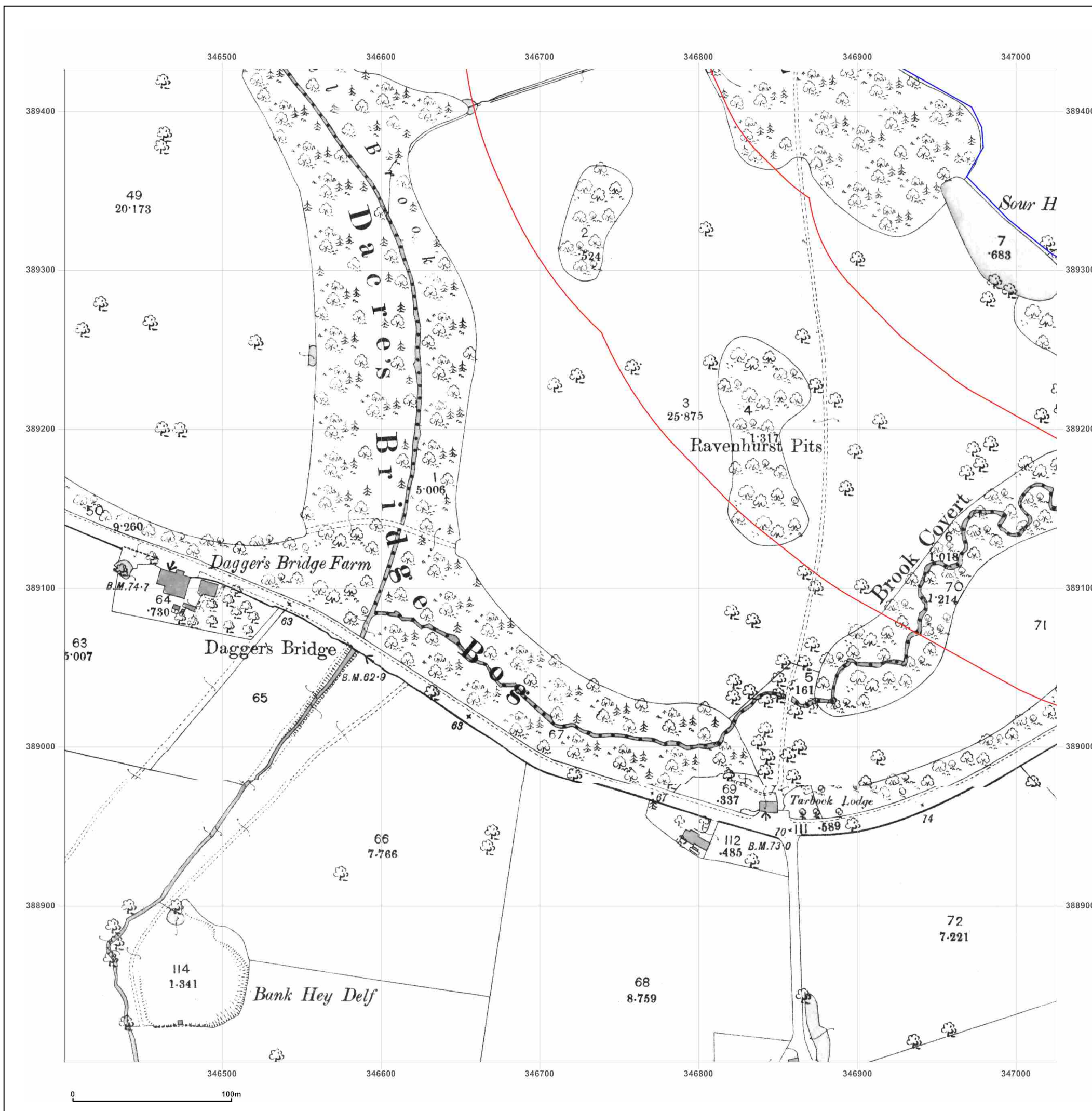


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Client Ref: TE1163_-_PE02796
Report Ref: GS-5672876_LS_1_1
Grid Ref: 346713, 389114

Map Name: County Series

Map date: 1907

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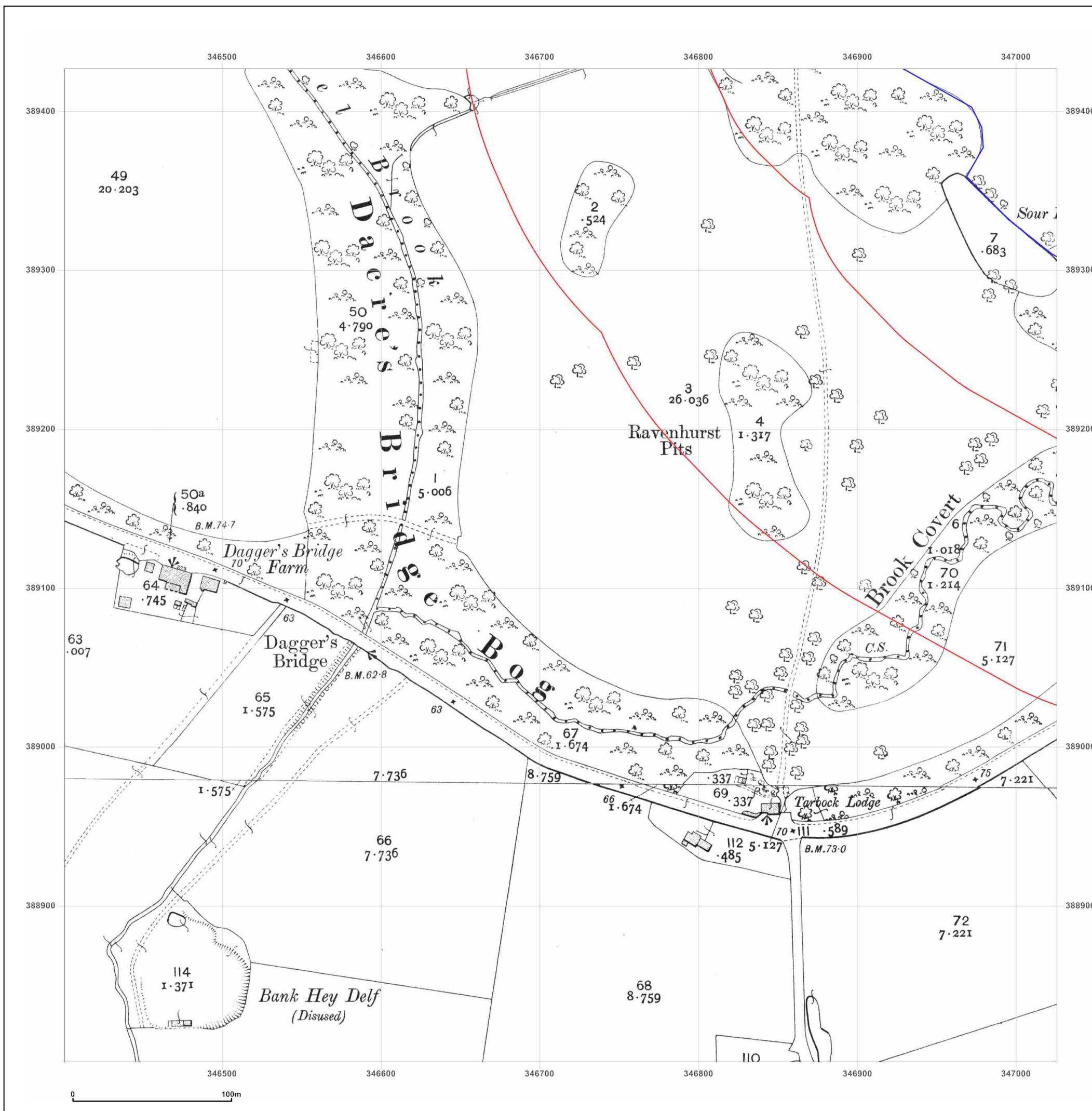


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Client Ref: TE1163_-PE02796
Report Ref: GS-5672876_LS_1_1
Grid Ref: 346713, 389114

Map Name: County Series

Map date: 1927

Scale: 1:2,500

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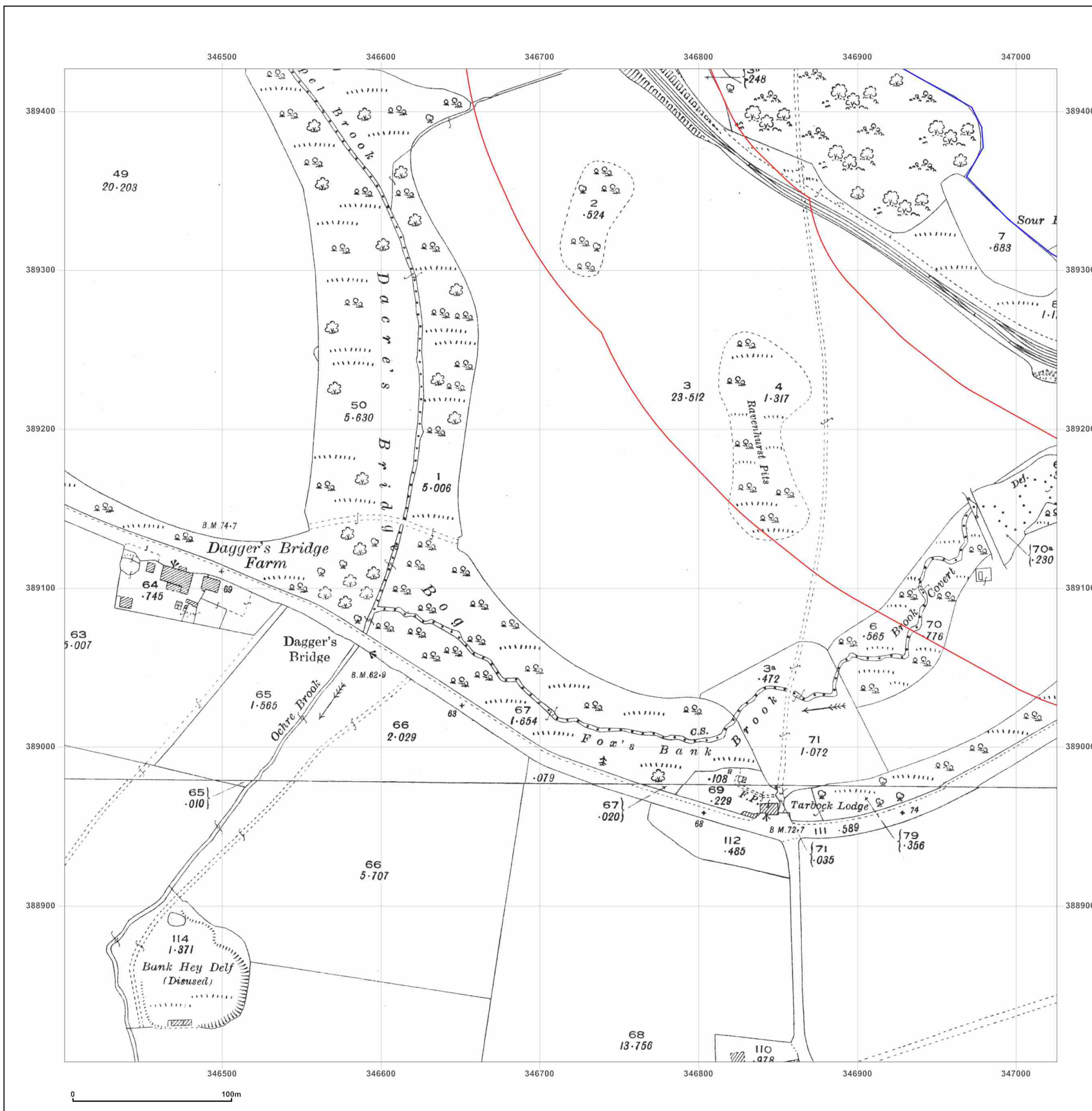


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Client Ref: TE1163_-PE02796
Report Ref: GS-5672876_LS_1_1
Grid Ref: 346713, 389114

Map Name: County Series

Map date: 1937

Scale: 1:2,500

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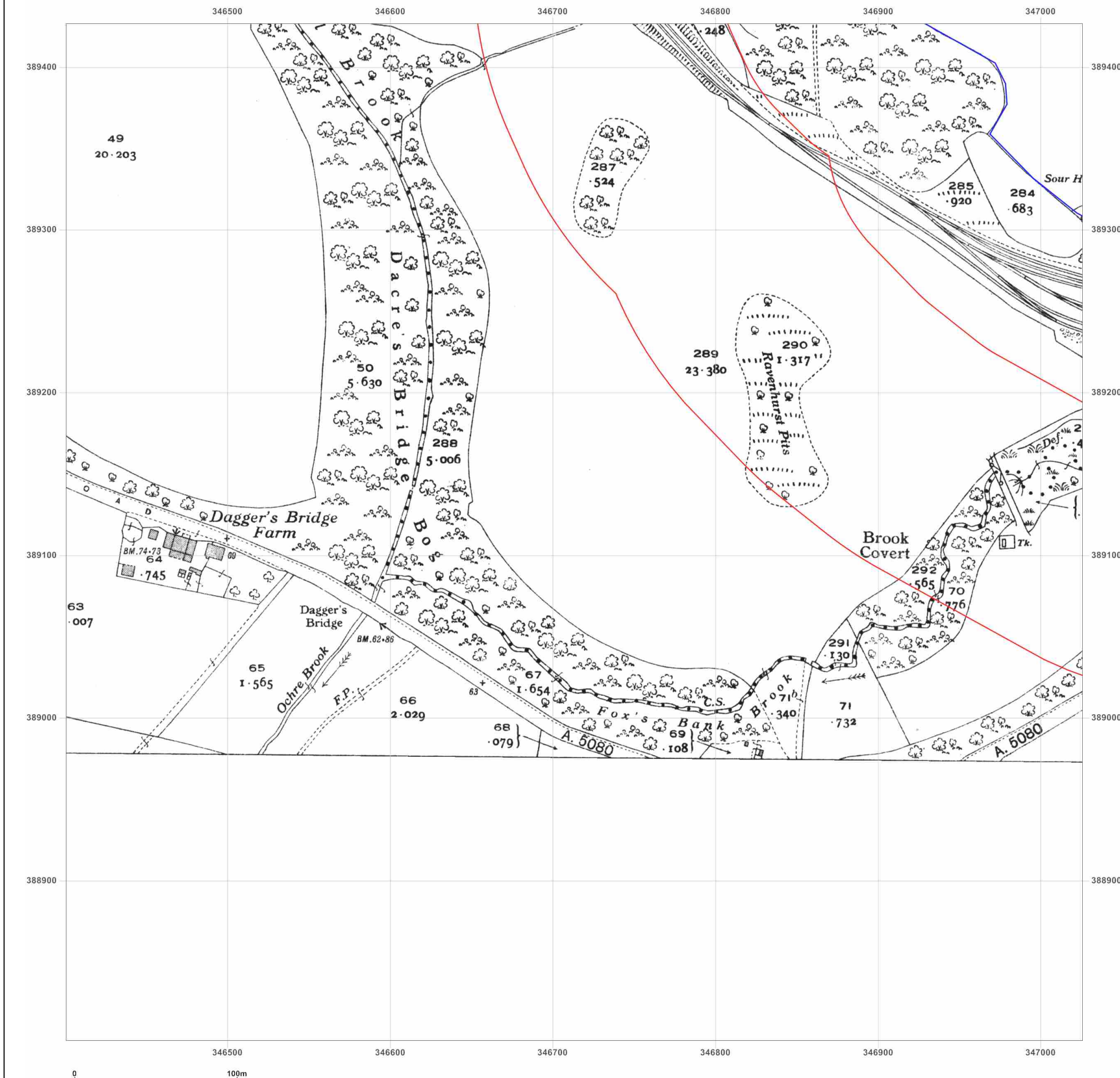


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Client Ref: TE1163_-PE02796
Report Ref: GS-5672876_LS_1_1
Grid Ref: 346713, 389114

Map Name: National Grid

Map date: 1958

Scale: 1:2,500

Printed at: 1:2,500



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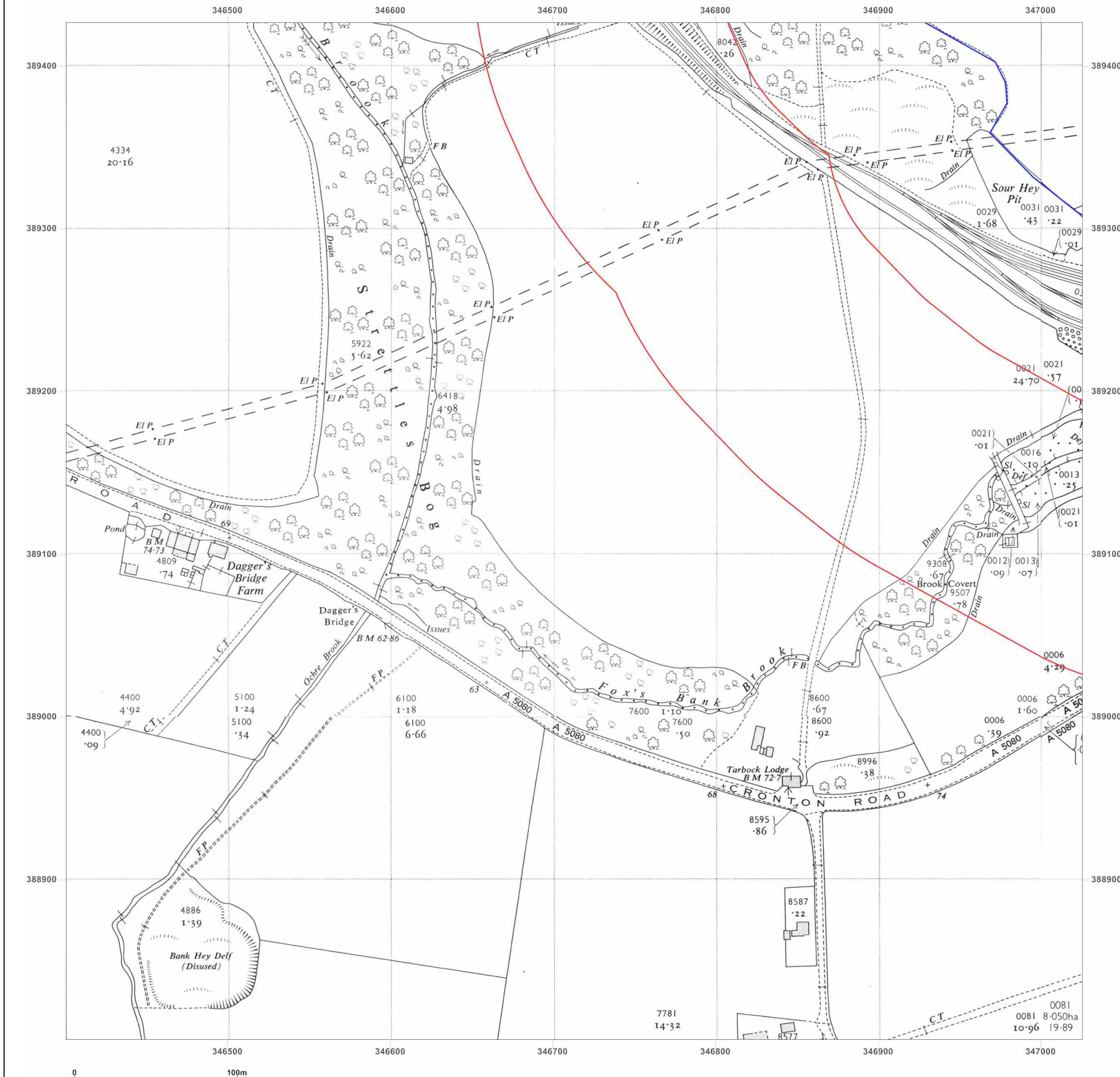


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Client Ref: TE1163_-PE02796
Report Ref: GS-5672876_LS_1_1
Grid Ref: 346713, 389114

Map Name: National Grid

Map date: 1975-1978

Scale: 1:2,500

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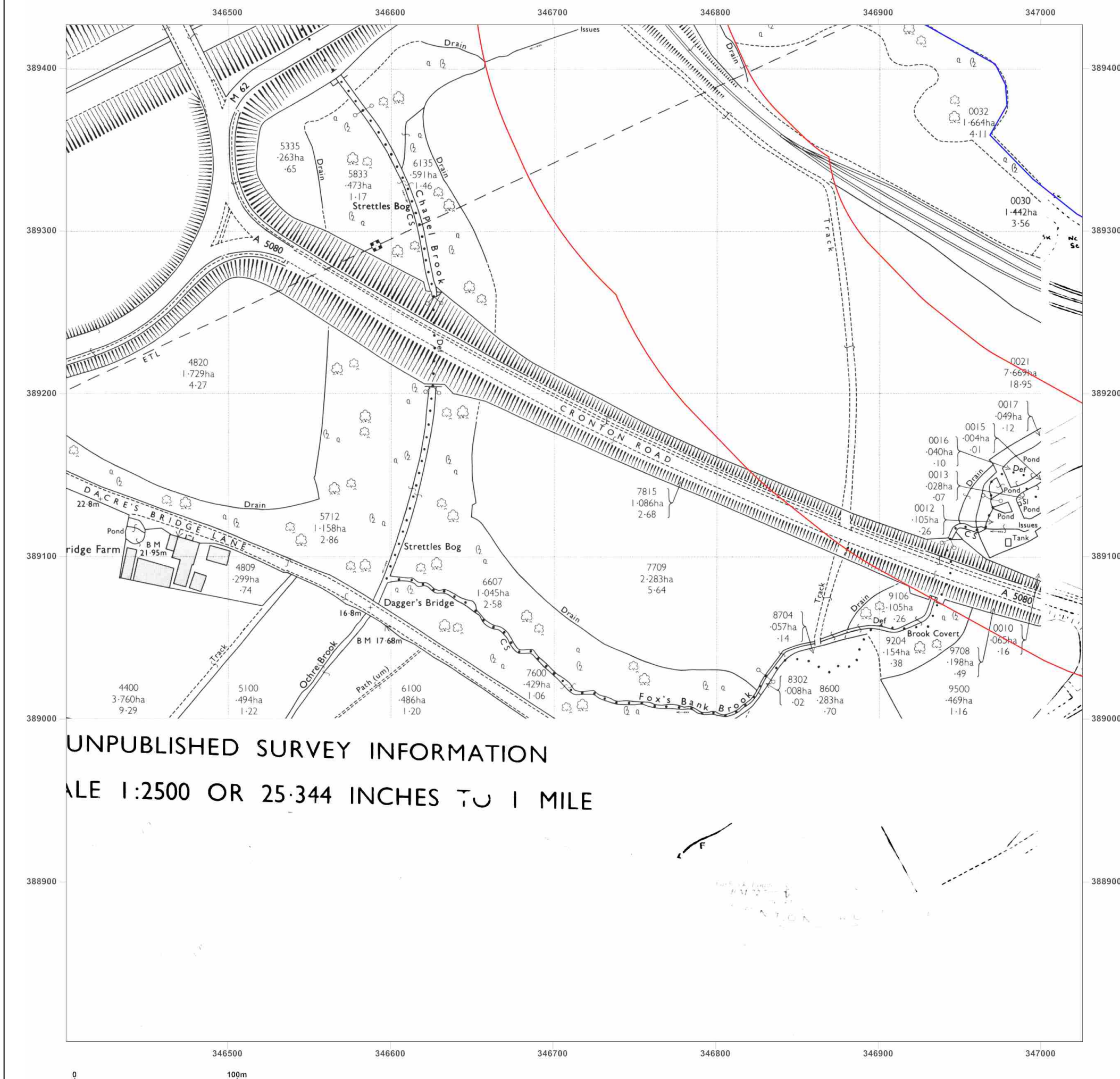


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Client Ref: TE1163_-_PE02796
Report Ref: GS-5672876_LS_1_1
Grid Ref: 346713, 389114

Map Name: National Grid

Map date: 1980-1984

Scale: 1:2,500

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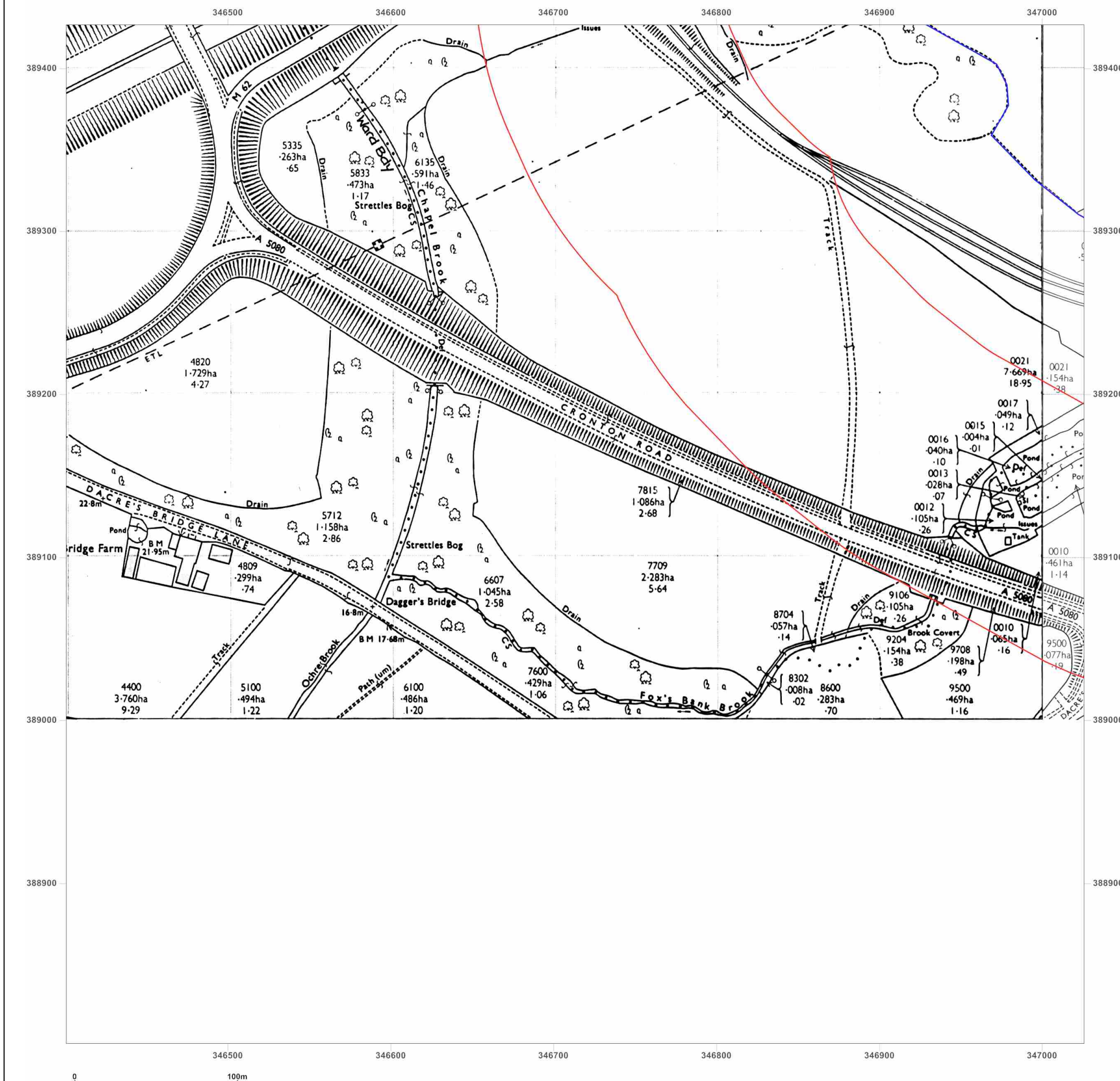


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Client Ref: TE1163_-PE02796
Report Ref: GS-5672876_LS_1_1
Grid Ref: 346713, 389114

Map Name: National Grid

Map date: 1988-1989

Scale: 1:2,500

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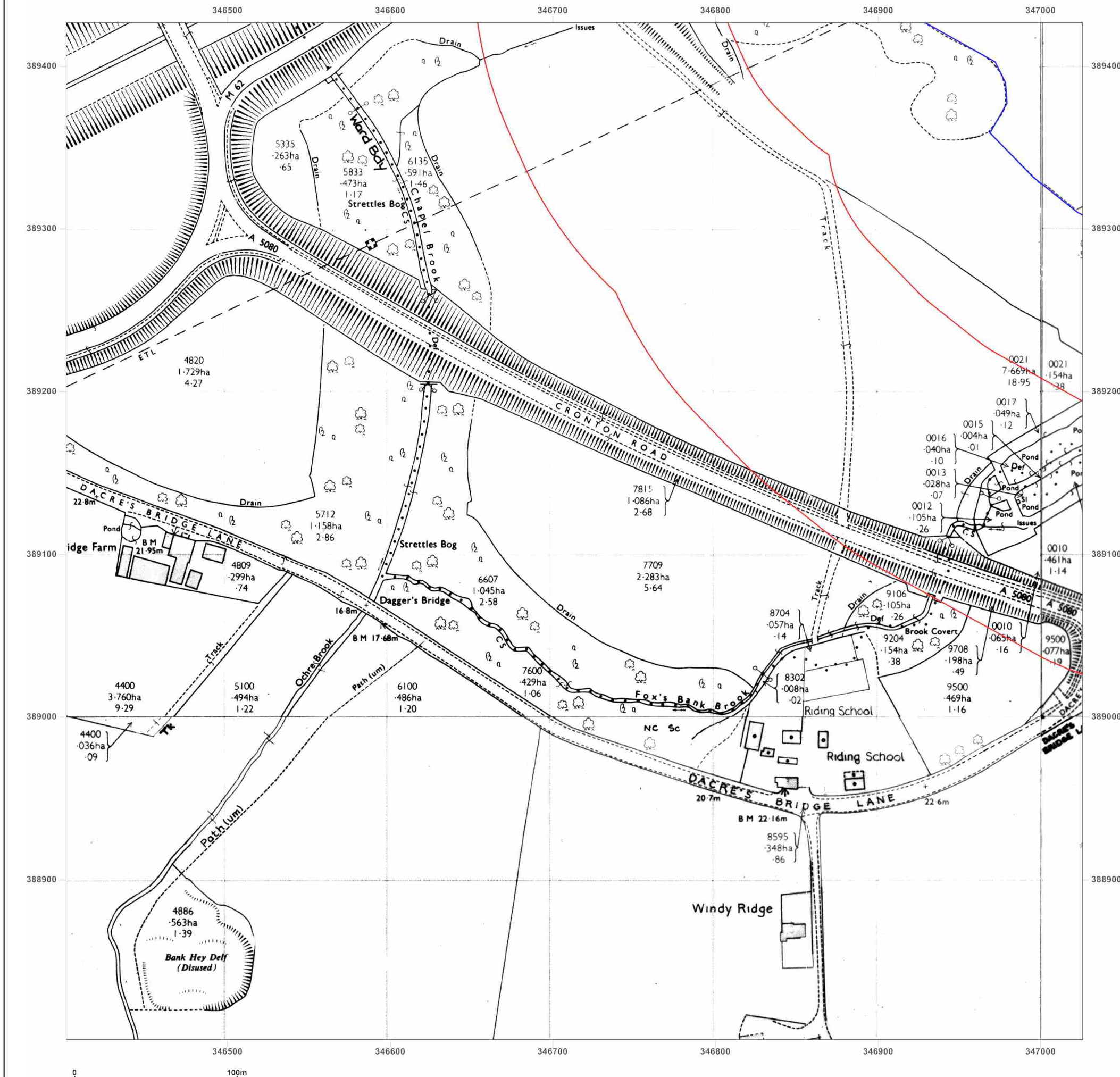


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Map Name: National Grid

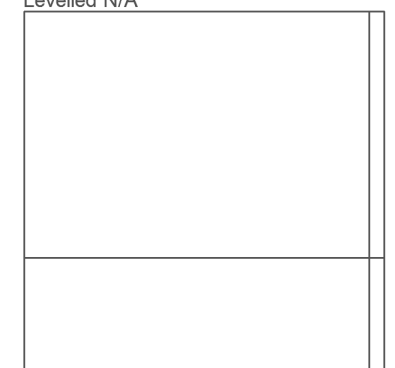
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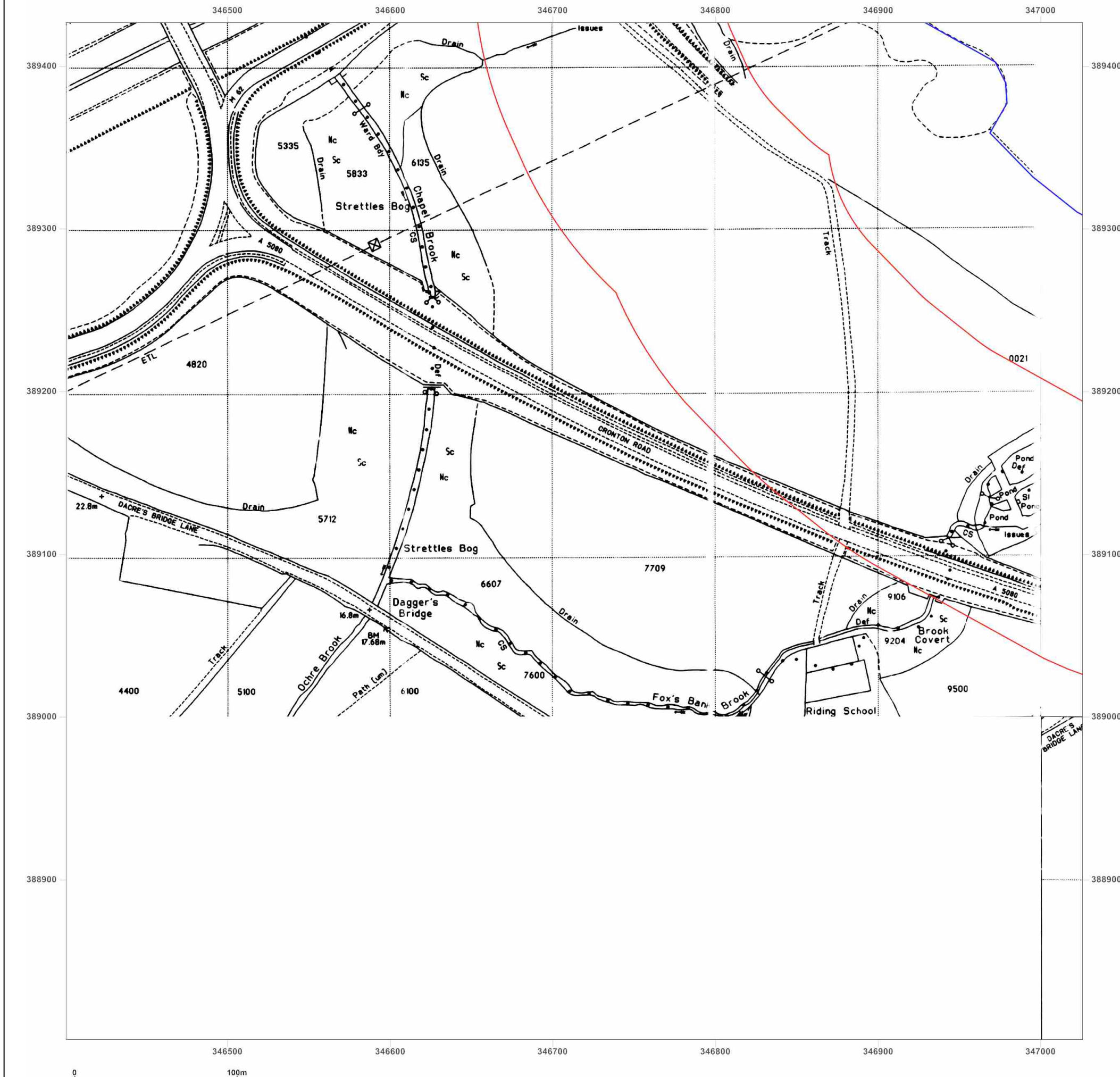


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Client Ref: TE1163_-PE02796
Report Ref: GS-5672876_LS_1_1
Grid Ref: 346713, 389114

Map Name: National Grid

Map date: 1992-1993

Scale: 1:2,500

Printed at: 1:2,500



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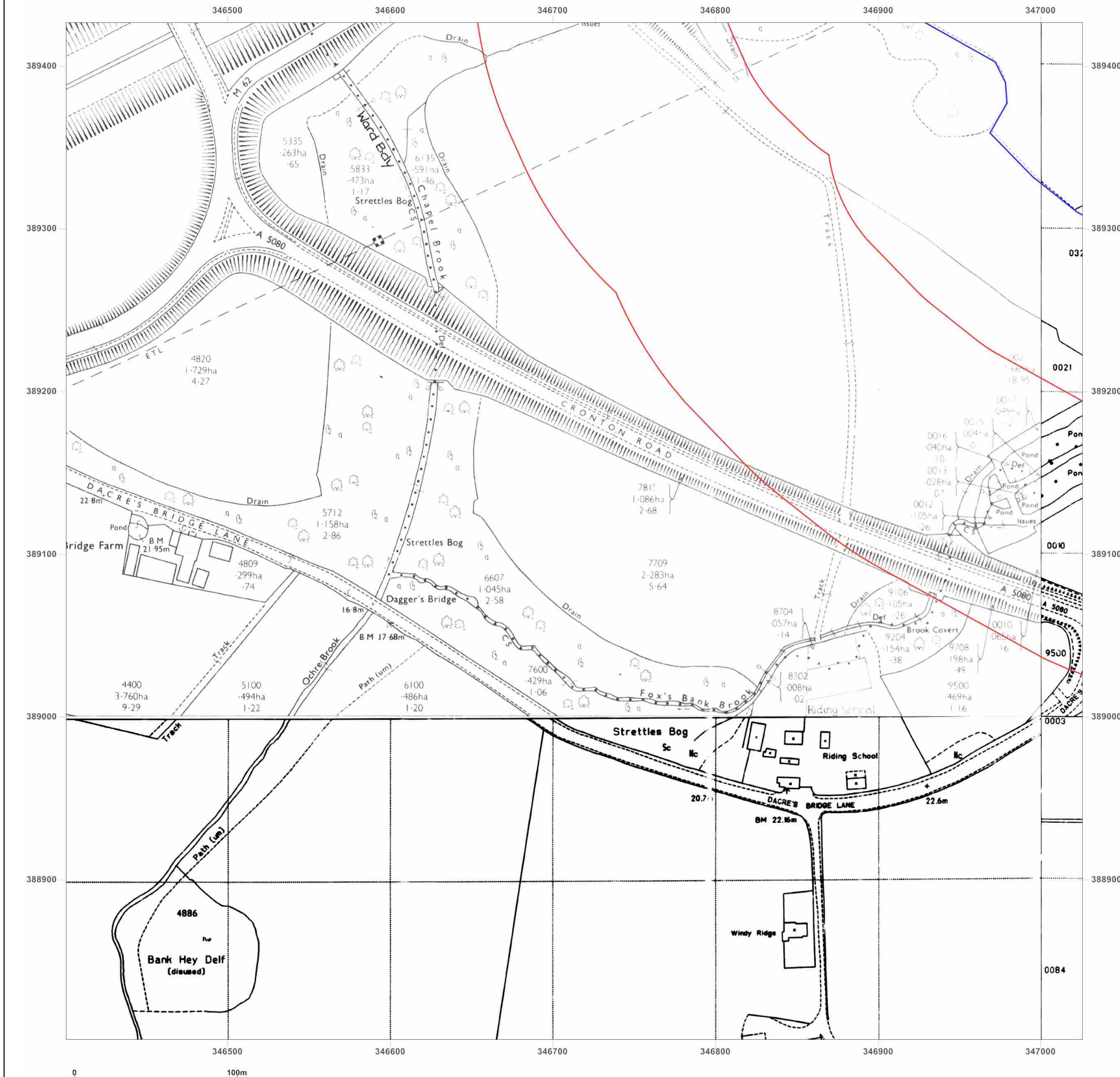


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Client Ref: TE1163_-_PE02796
Report Ref: GS-5672876_LS_1_2
Grid Ref: 346713, 389739

Map Name: County Series

Map date: 1892

Scale: 1:2,500

Printed at: 1:2,500



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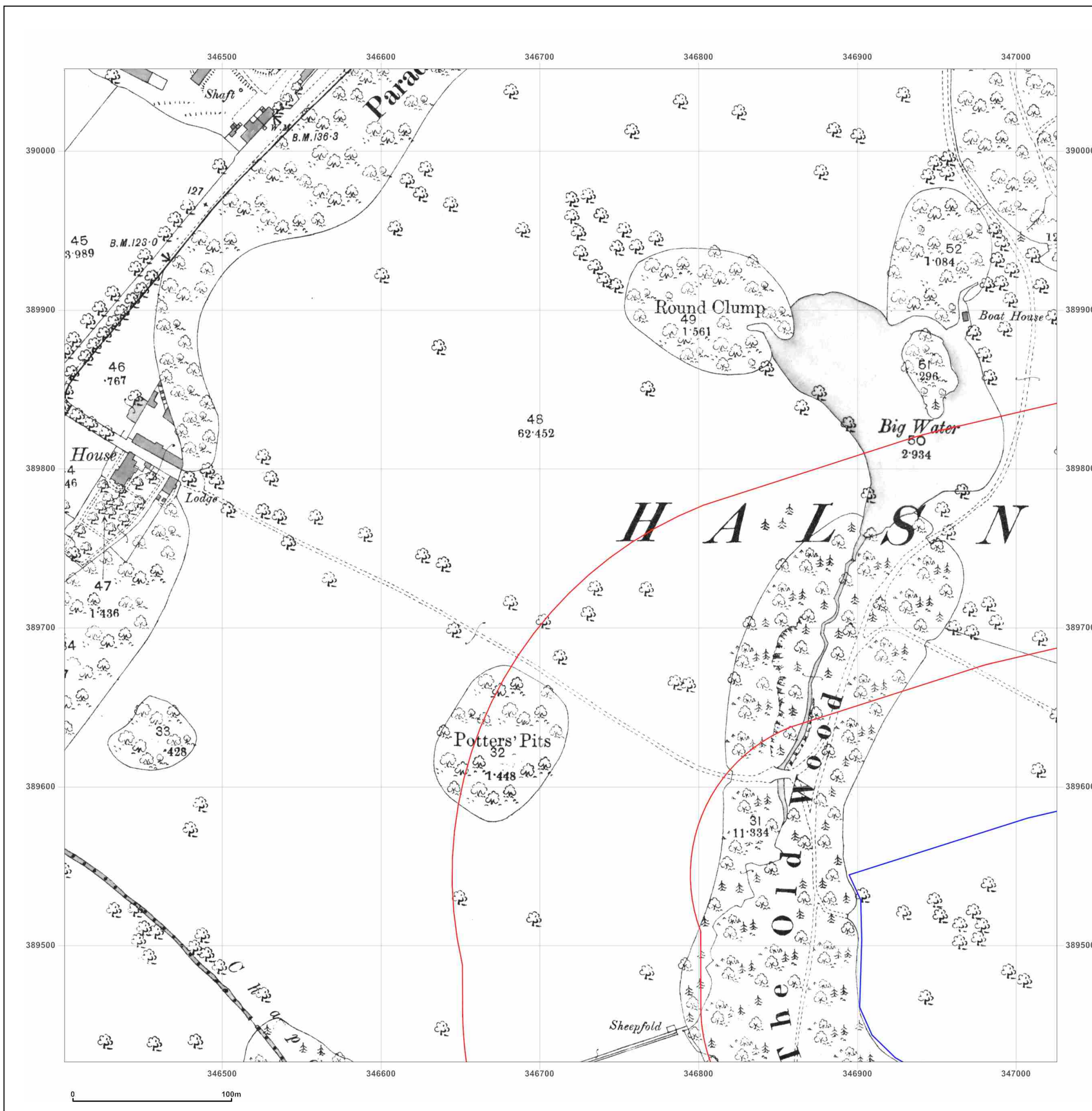


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Client Ref: TE1163_-_PE02796
Report Ref: GS-5672876_LS_1_2
Grid Ref: 346713, 389739

Map Name: County Series

Map date: 1907

Scale: 1:2,500

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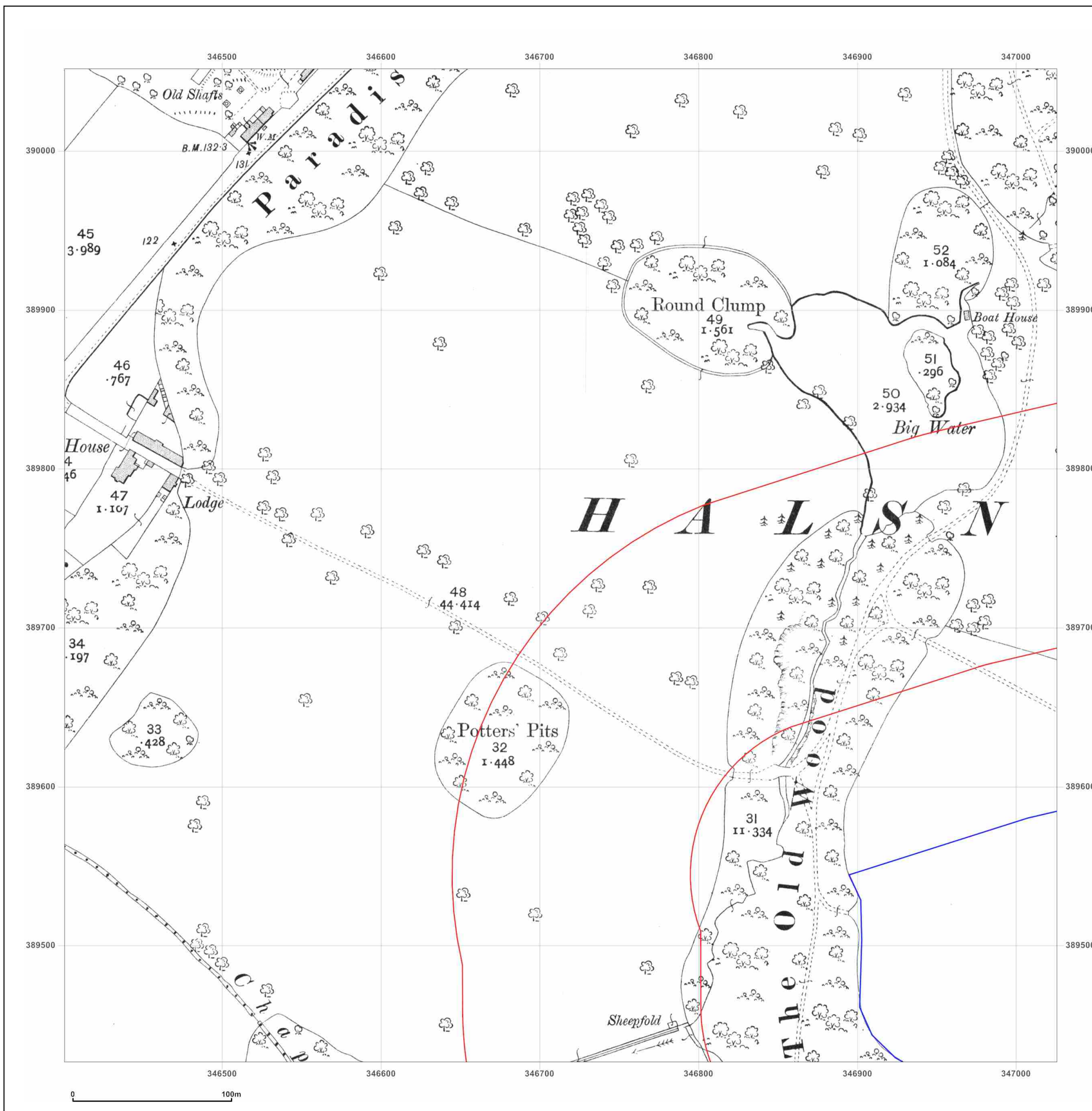


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Client Ref: TE1163_-_PE02796
Report Ref: GS-5672876_LS_1_2
Grid Ref: 346713, 389739

Map Name: County Series

Map date: 1927

Scale: 1:2,500

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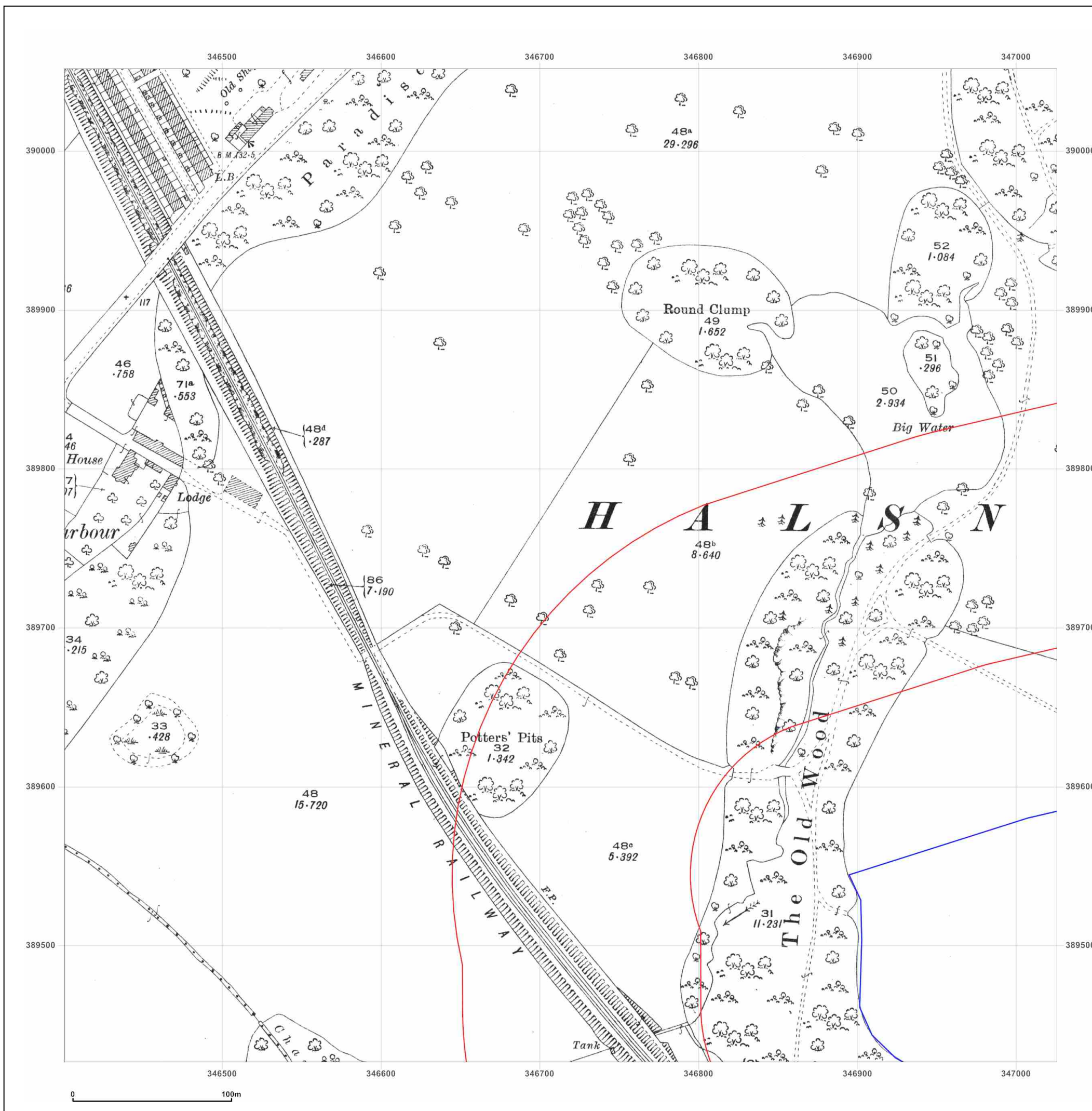


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CRONTON, L35 3SU

Client Ref: TE1163_-_PE02796
Report Ref: GS-5672876_LS_1_2
Grid Ref: 346713, 389739

Map Name: County Series

Map date: 1937

Scale: 1:2,500

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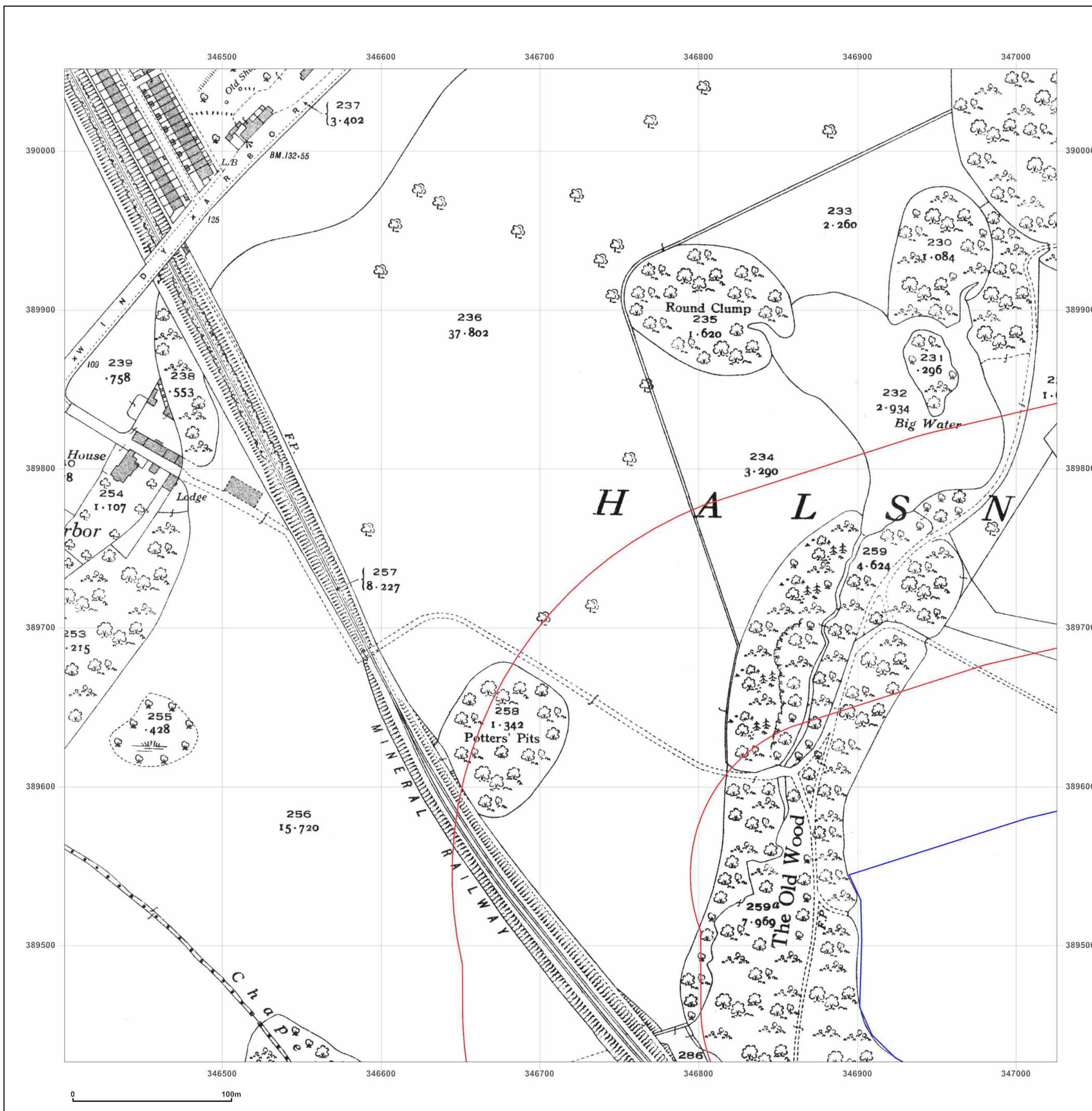


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Client Ref: TE1163_-PE02796
Report Ref: GS-5672876_LS_1_2
Grid Ref: 346713, 389739

Map Name: National Grid

Map date: 1958

Scale: 1:2,500

Printed at: 1:2,500



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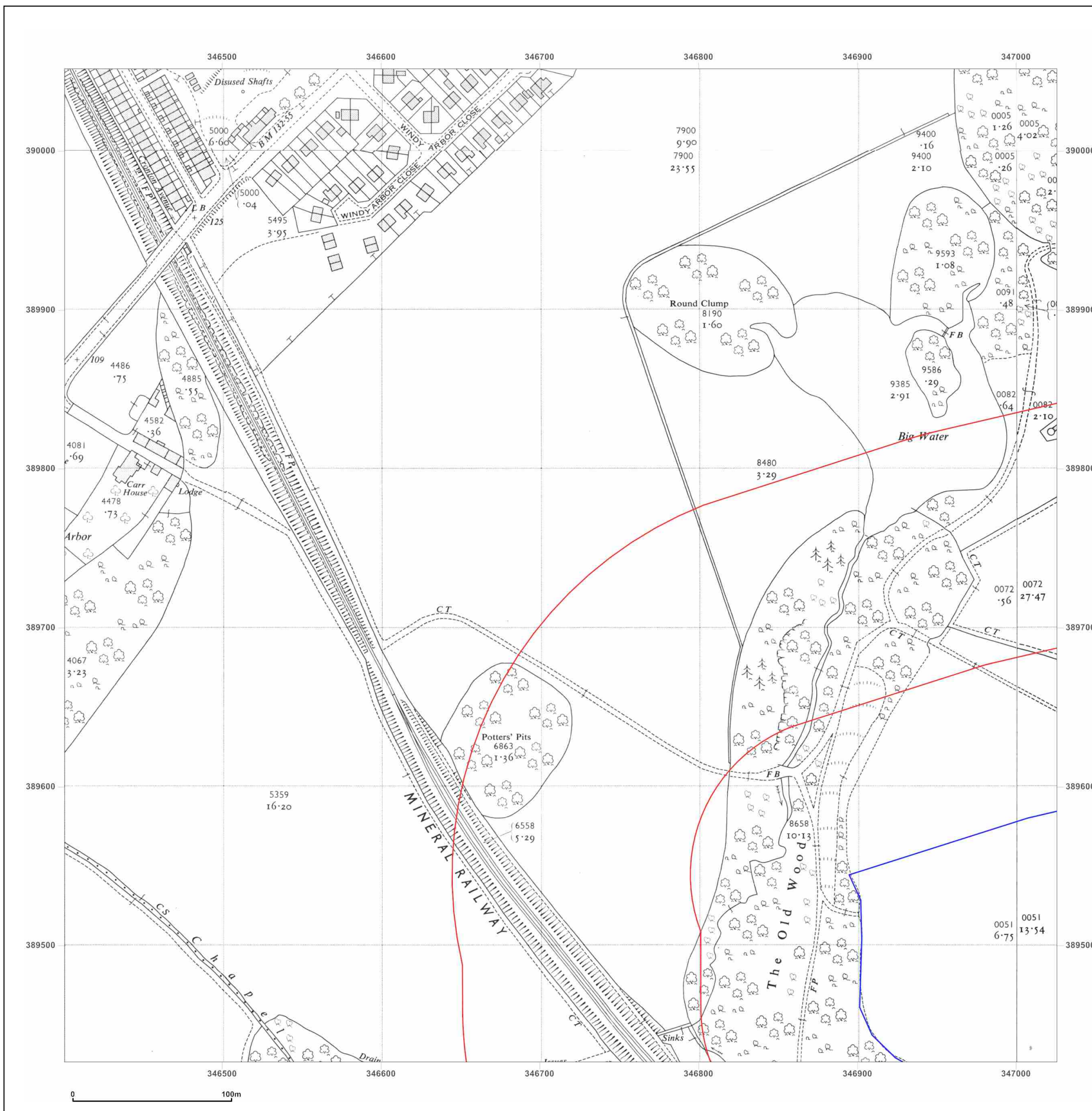


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Client Ref: TE1163_-_PE02796
Report Ref: GS-5672876_LS_1_2
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Map Name: National Grid

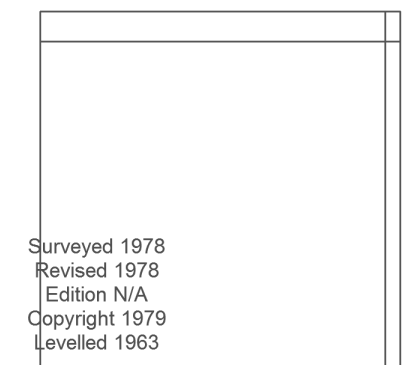
Map date: 1975-1978

Scale: 1:2,500

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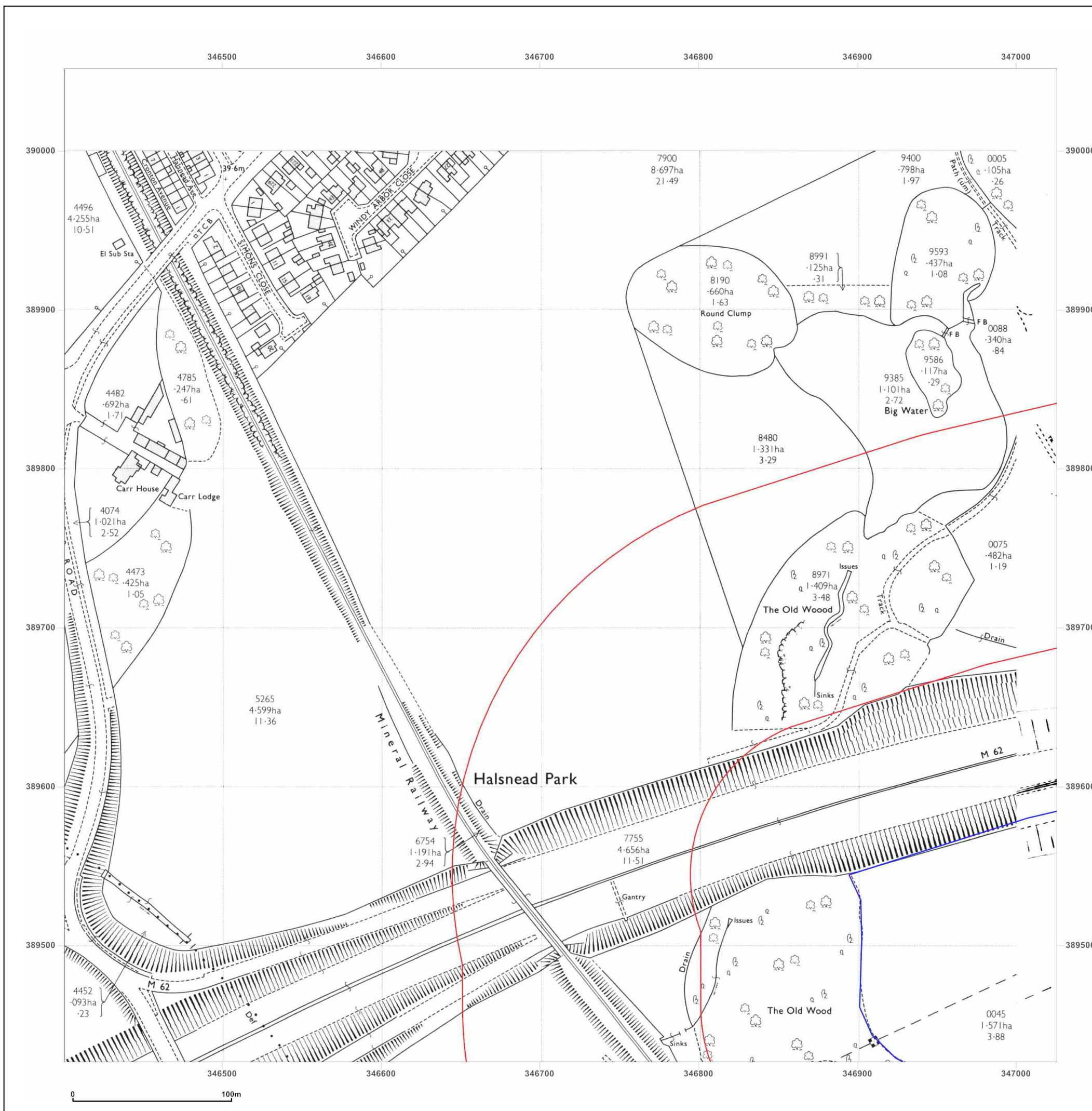


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CRONTON, L35 3SU

Client Ref: TE1163_-PE02796
Report Ref: GS-5672876_LS_1_2
Grid Ref: 346713, 389739

Map Name: National Grid

Map date: 1980-1985

Scale: 1:2,500

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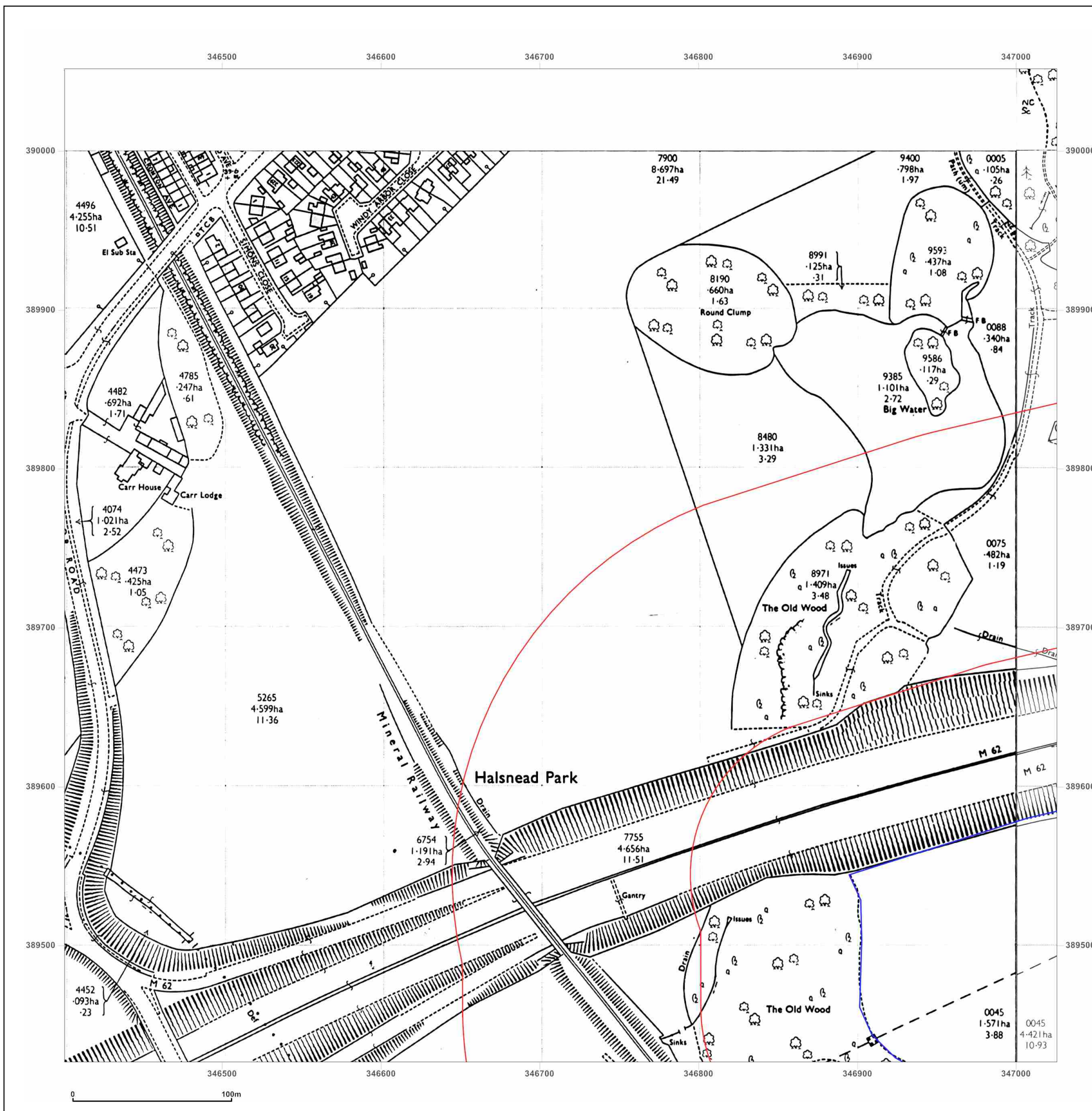


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Report Ref: GS-5672876_LS_1_2
Grid Ref: 346713, 389739

Map Name: National Grid

Map date: 1986-1989

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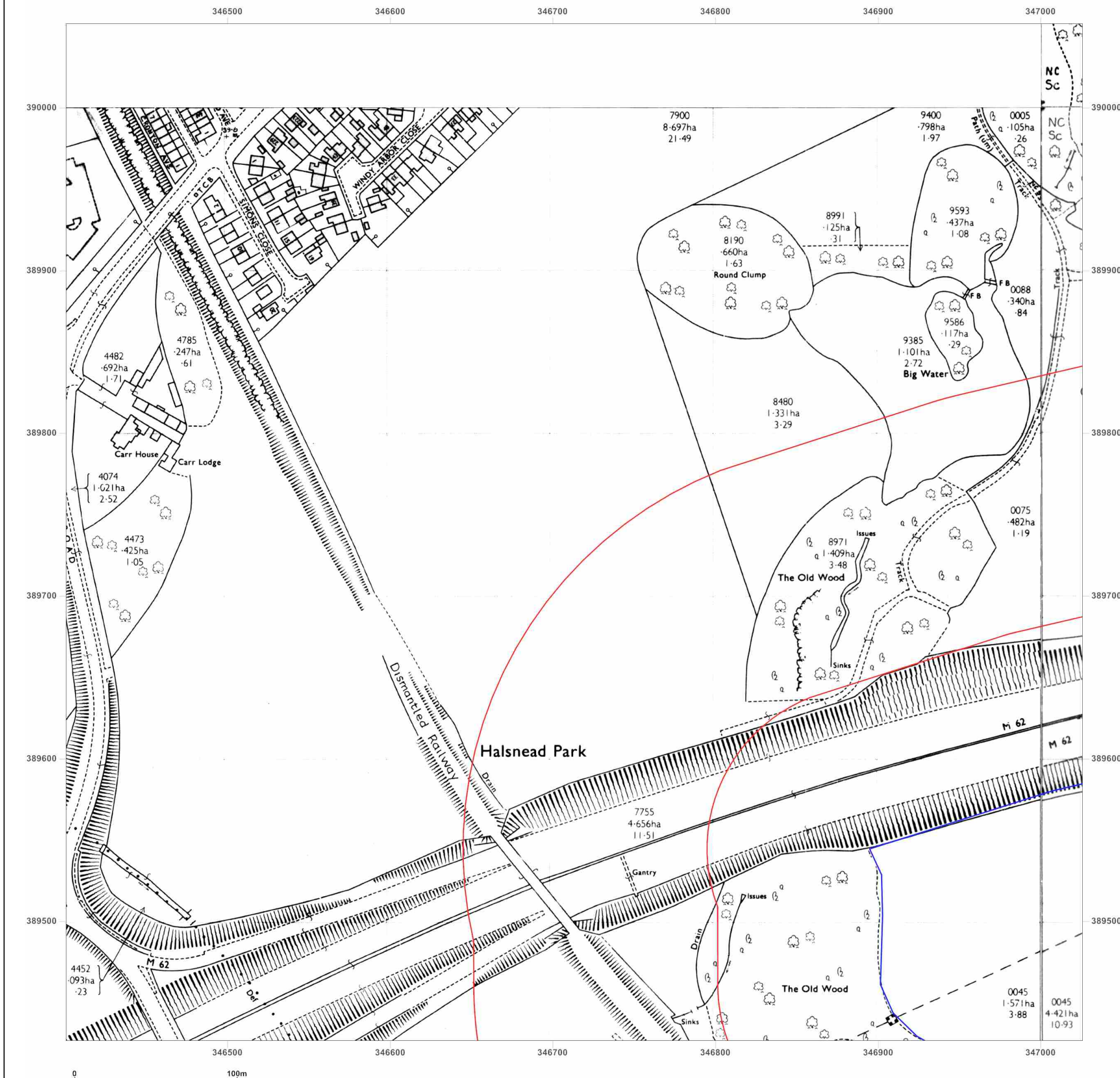


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Client Ref: TE1163_-PE02796
Report Ref: GS-5672876_LS_1_2
Grid Ref: 346713, 389739

Map Name: National Grid

Map date: 1993

Scale: 1:2,500

Printed at: 1:2,500



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CRONTON, L35 3SU

Client Ref: TE1163_-_PE02796
Report Ref: GS-5672876_LS_1_2
Grid Ref: 346713, 389739

Map Name: National Grid

Map date: 1992-1993

Scale: 1:2,500

Printed at: 1:2,500



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Revised N/A
Edition N/A
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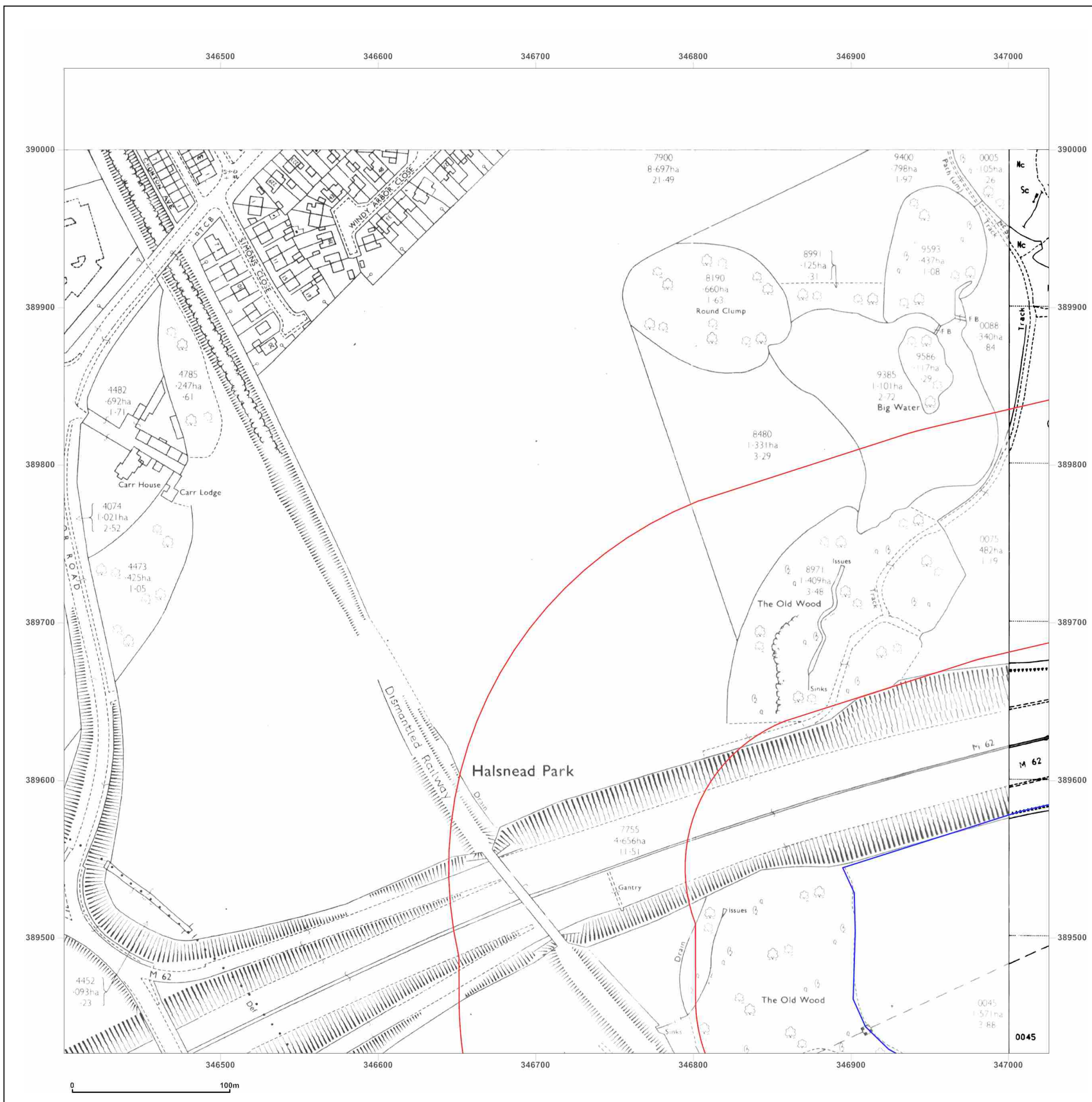


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CRONTON, L35 3SU

Client Ref: TE1163_-_PE02796
Report Ref: GS-5672876_LS_2_1
Grid Ref: 347338, 389114

Map Name: County Series

Map date: 1892-1893

Scale: 1:2,500

Printed at: 1:2,500



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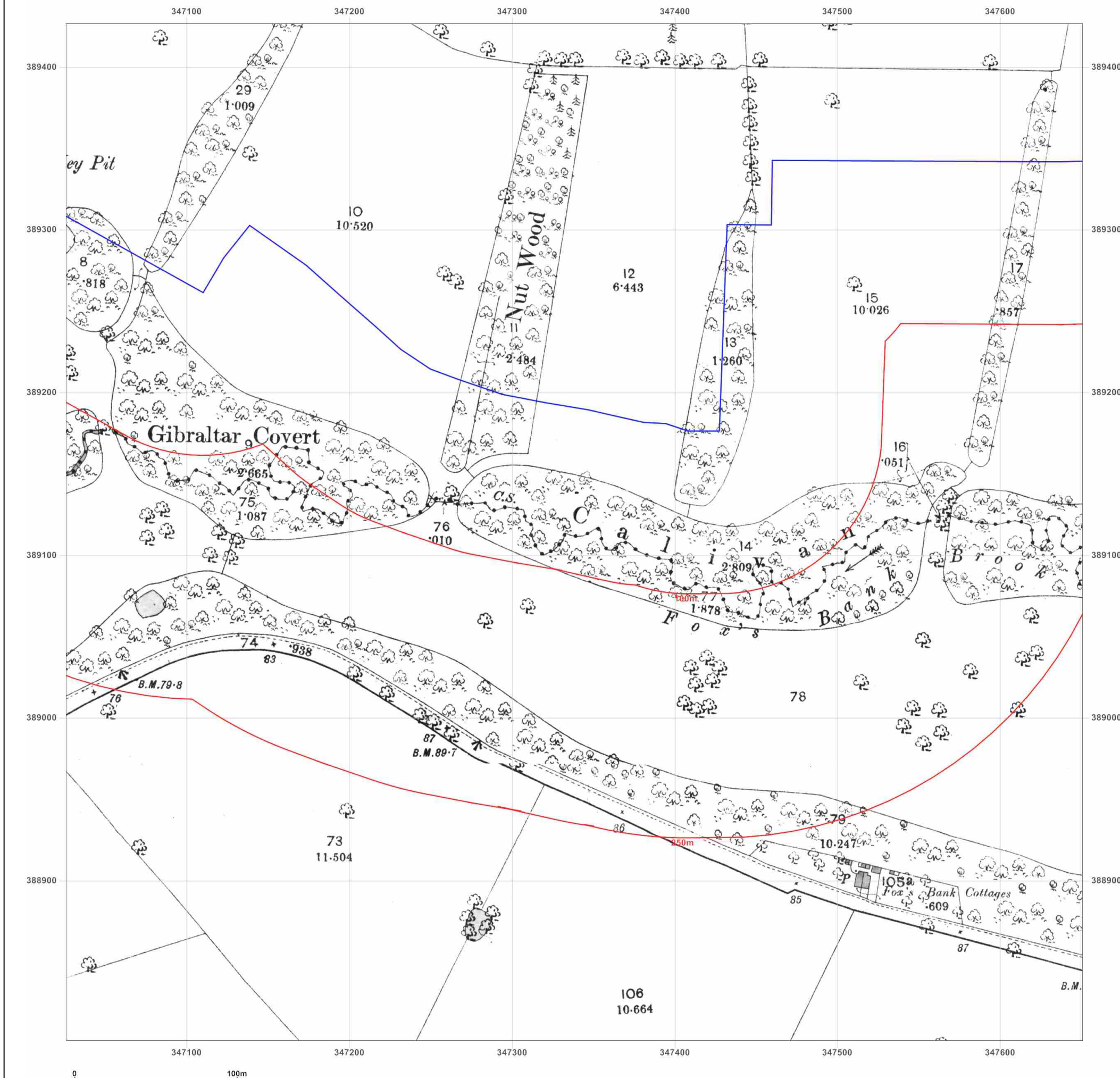


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CRONTON, L35 3SU

Client Ref: TE1163_-PE02796
Report Ref: GS-5672876_LS_2_1
Grid Ref: 347338, 389114

Map Name: County Series

Map date: 1907

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1907
Revised 1907
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1907
Revised 1907
Edition N/A
Copyright N/A
Levelled N/A

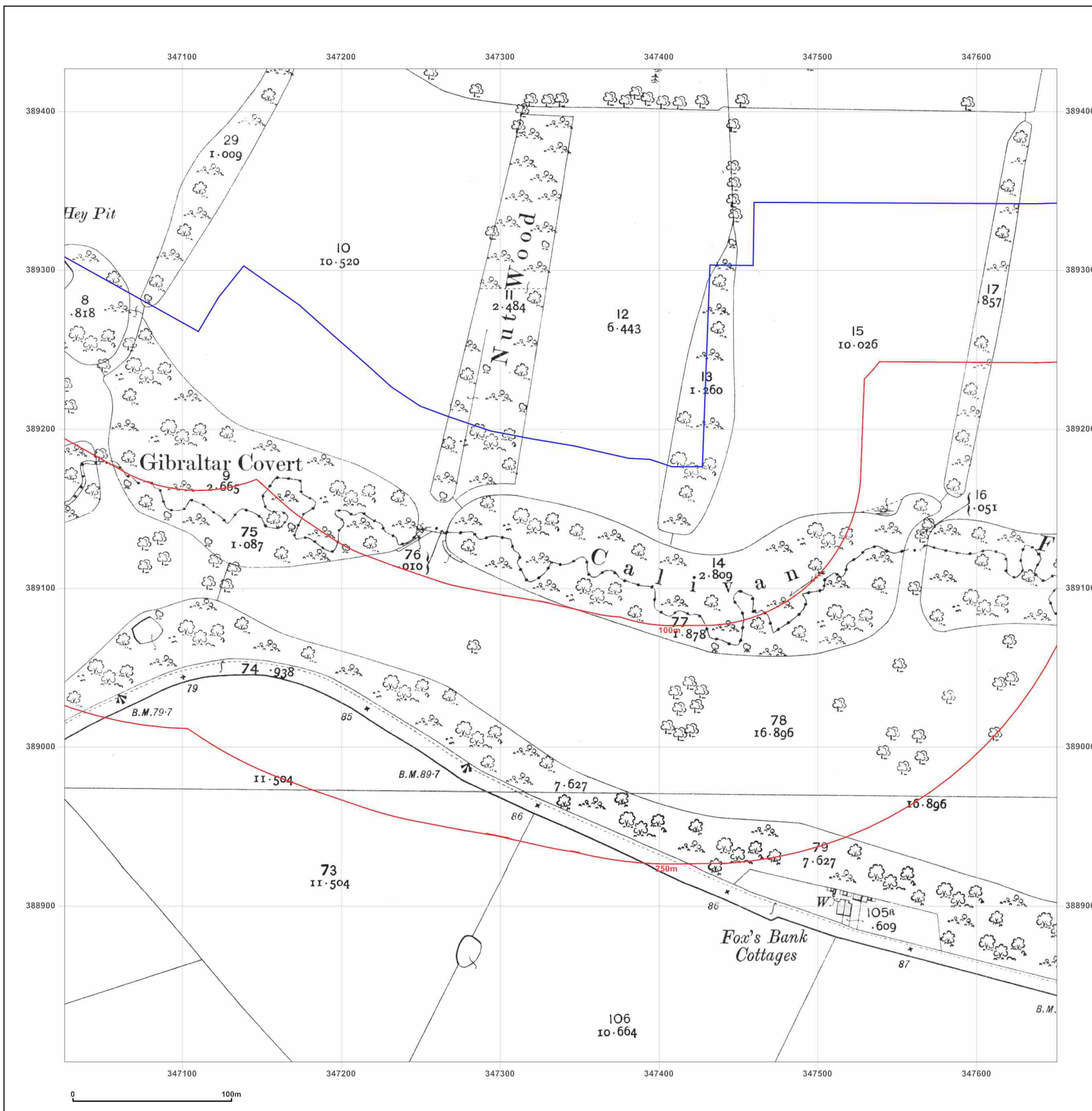


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Site Details:

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FARM, FOXS BANK LANE,
CRONTON, L35 3SU

Client Ref: TE1163_-PE02796
Report Ref: GS-5672876_LS_2_1
Grid Ref: 347338, 389114

Map Name: County Series

Map date: 1927

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1927
Revised 1927
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1927
Revised 1927
Edition N/A
Copyright N/A
Levelled N/A

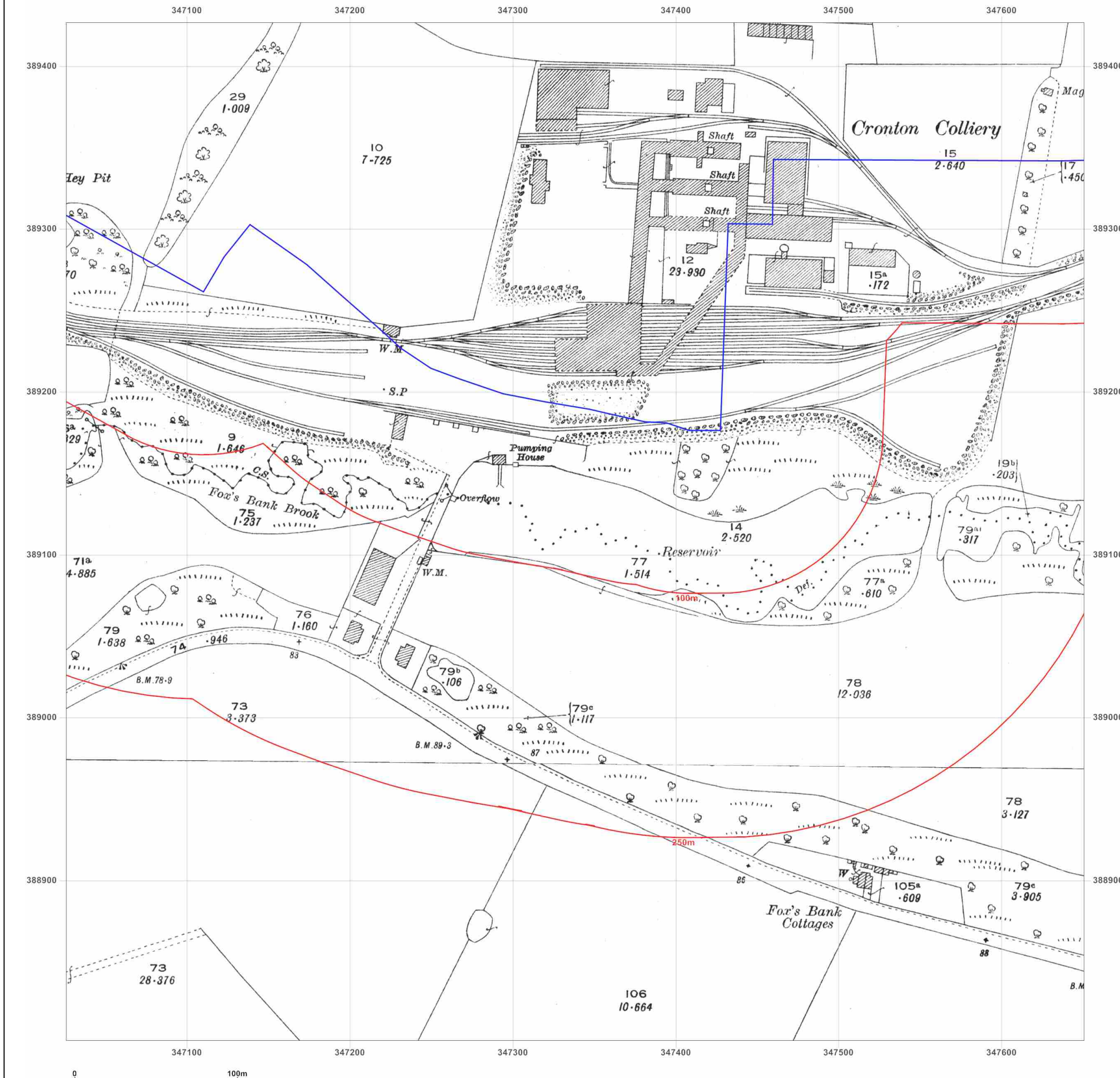


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CRANTON, L35 3SU

Client Ref: TE1163_-PE02796
Report Ref: GS-5672876_LS_2_1
Grid Ref: 347338, 389114

Map Name: County Series

Map date: 1937

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1937
Revised 1937
Edition N/A
Copyright N/A
Levelled N/A

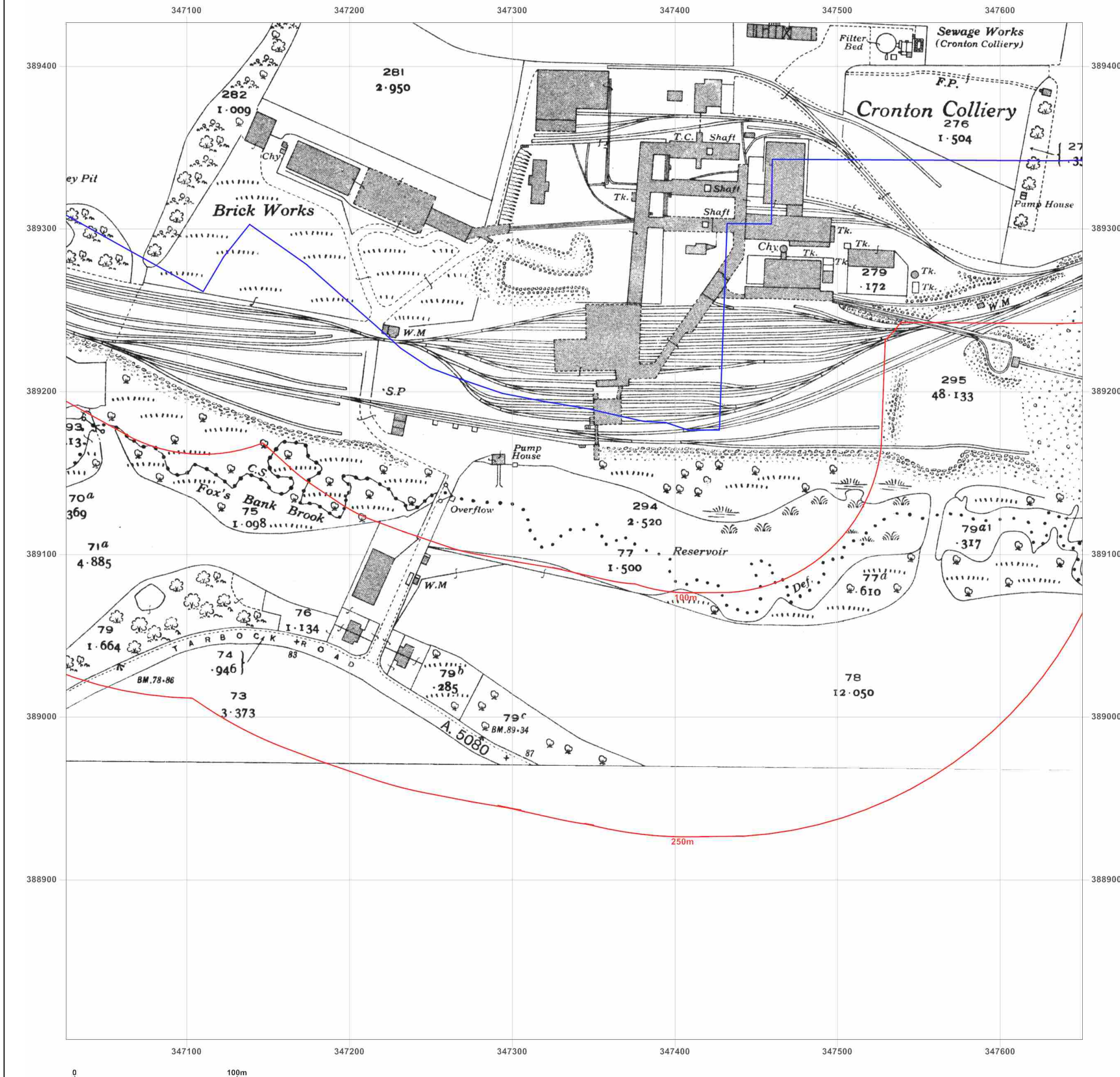


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CRONTON, L35 3SU

Client Ref: TE1163_-PE02796
Report Ref: GS-5672876_LS_2_1
Grid Ref: 347338, 389114

Map Name: National Grid

Map date: 1958

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1958
Revised 1958
Edition N/A
Copyright 1959
Levelled 1957

Surveyed 1958
Revised 1958
Edition N/A
Copyright 1959
Levelled 1957

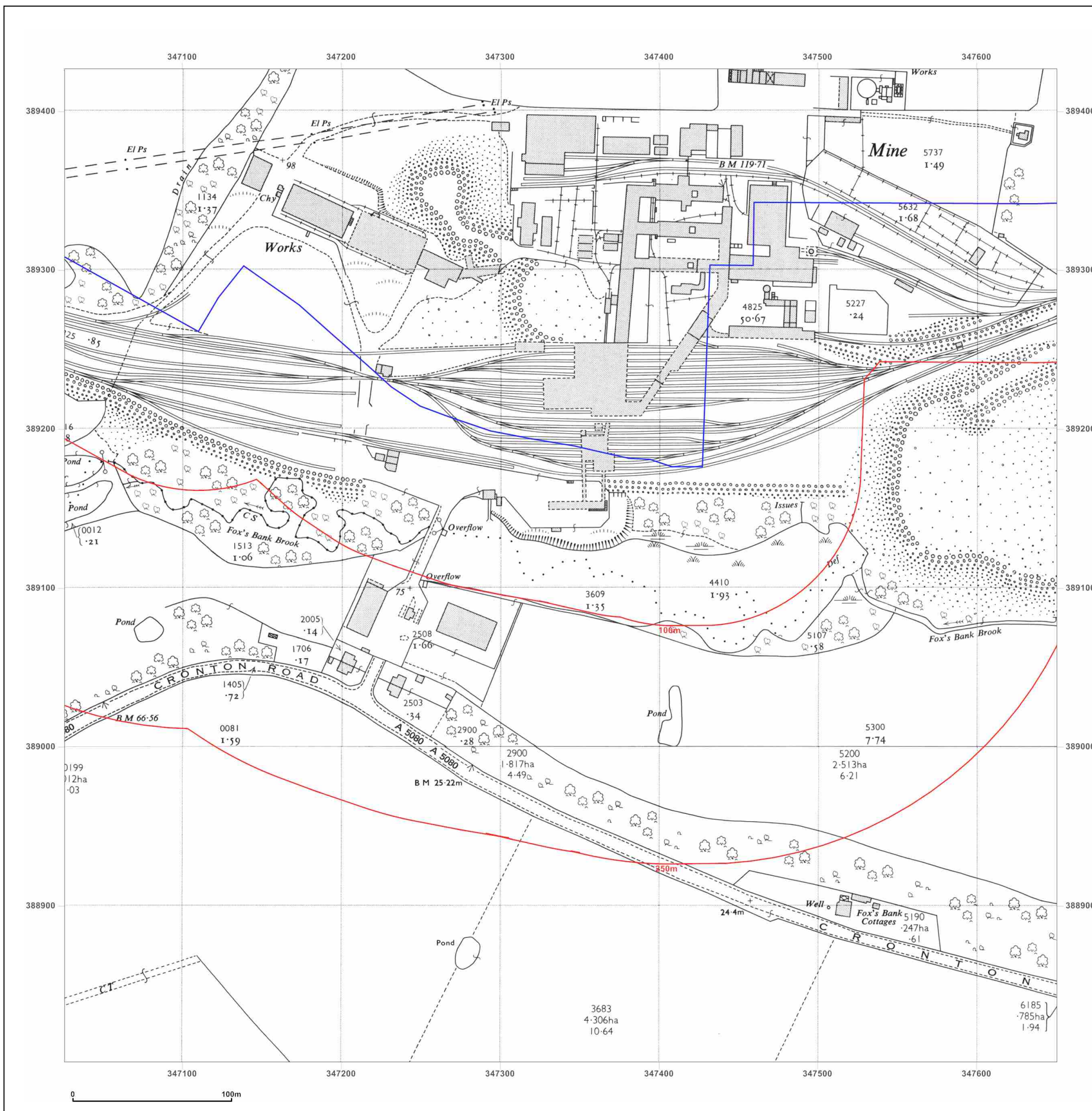


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CRONTON, L35 3SU

Client Ref: TE1163_-_PE02796
Report Ref: GS-5672876_LS_2_1
Grid Ref: 347338, 389114

Map Name: National Grid

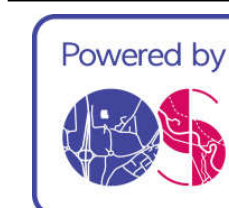
Map date: 1958

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1958
Revised 1958
Edition 1958
Copyright N/A
Levelled 1957

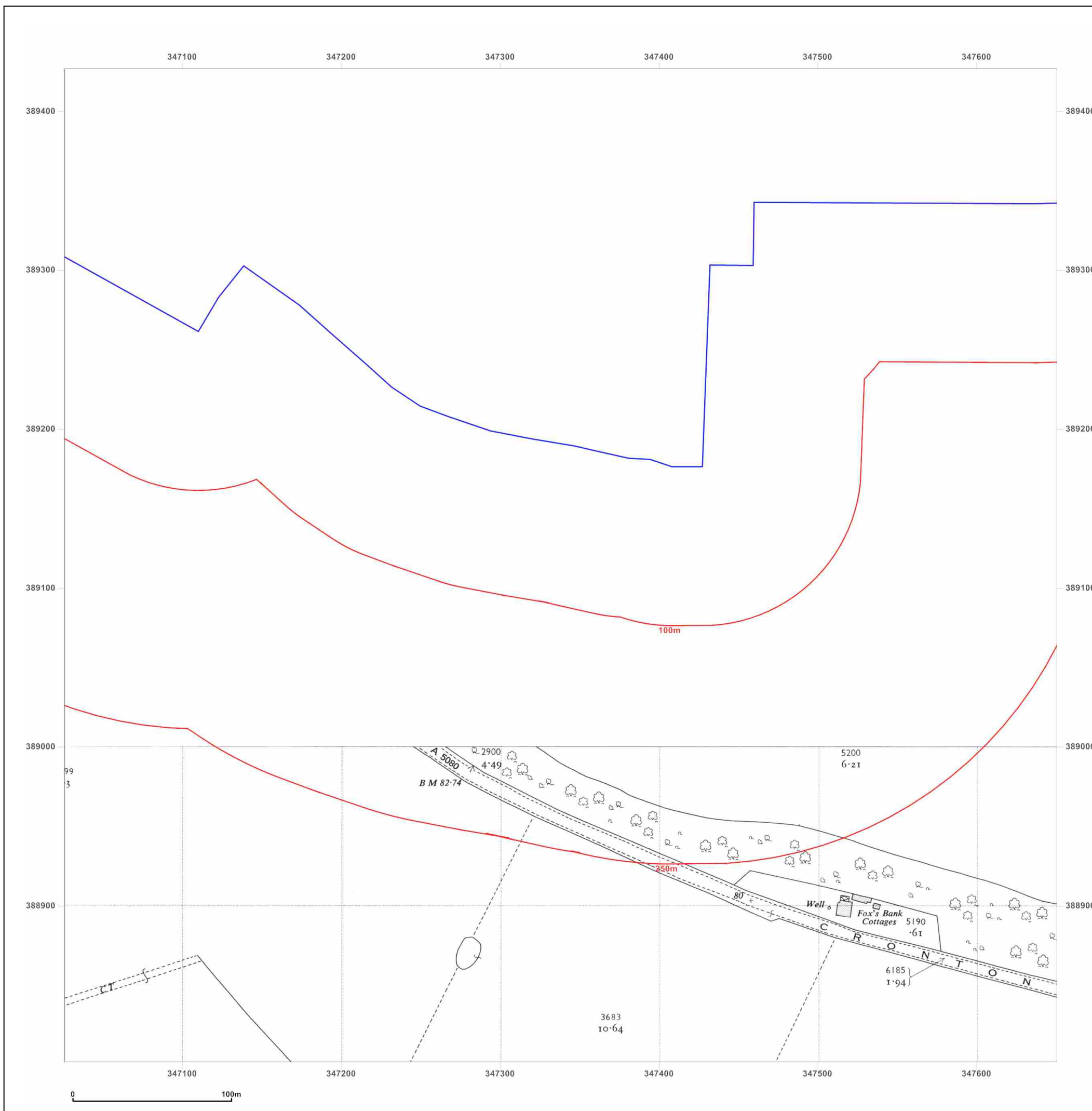


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CRONTON, L35 3SU

Client Ref: TE1163_-_PE02796
Report Ref: GS-5672876_LS_2_1
Grid Ref: 347338, 389114

Map Name: National Grid

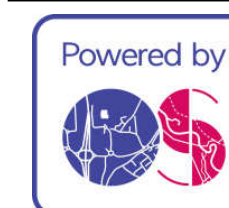
Map date: 1975

Scale: 1:2,500

Printed at: 1:2,500



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

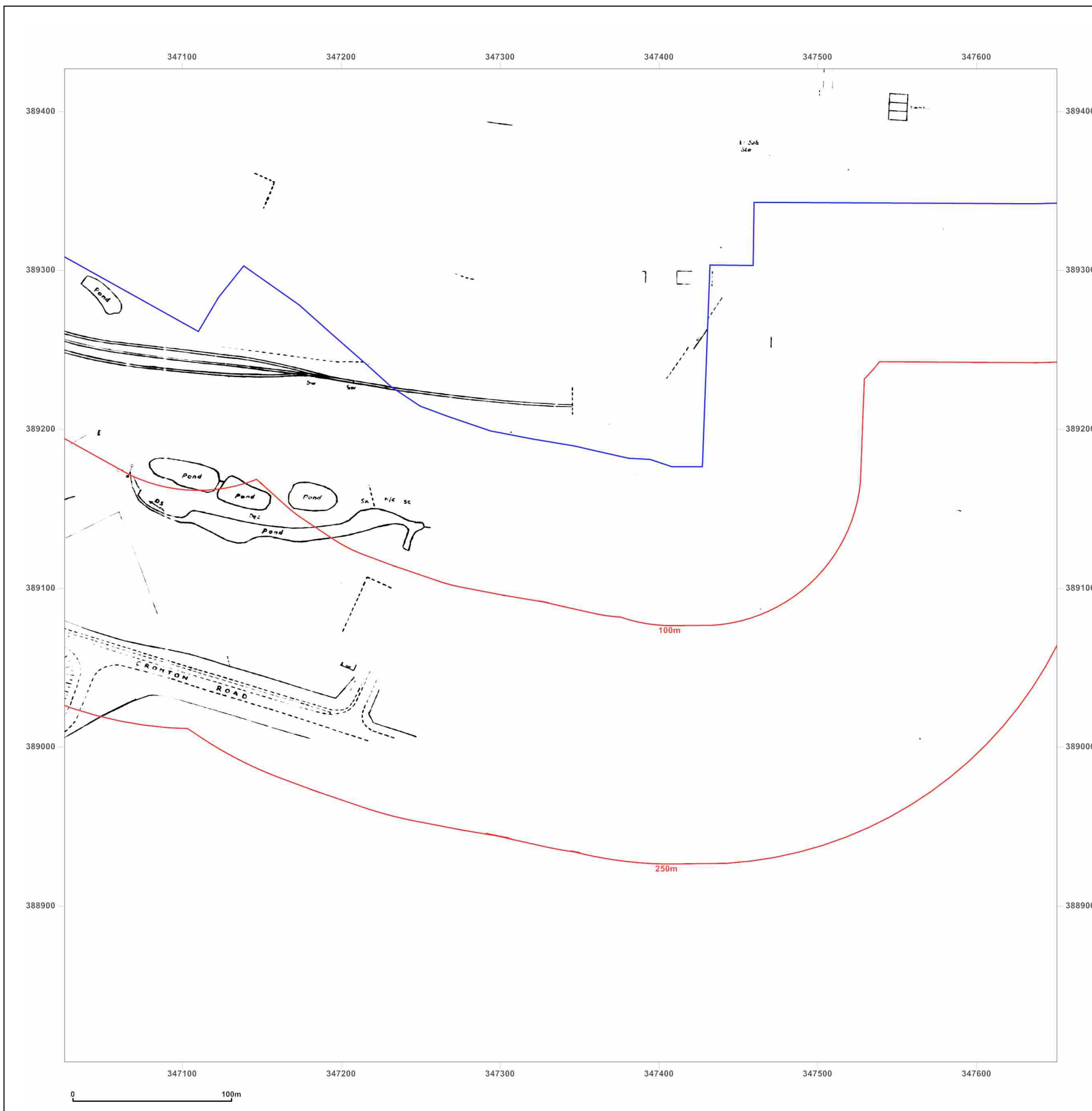


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CRONTON, L35 3SU

Client Ref: TE1163_-_PE02796
Report Ref: GS-5672876_LS_2_1
Grid Ref: 347338, 389114

Map Name: National Grid

Map date: 1980

Scale: 1:2,500

Printed at: 1:2,500



Surveyed N/A
Revised N/A
Edition N/A
Copyright 1980
Levelled 1963

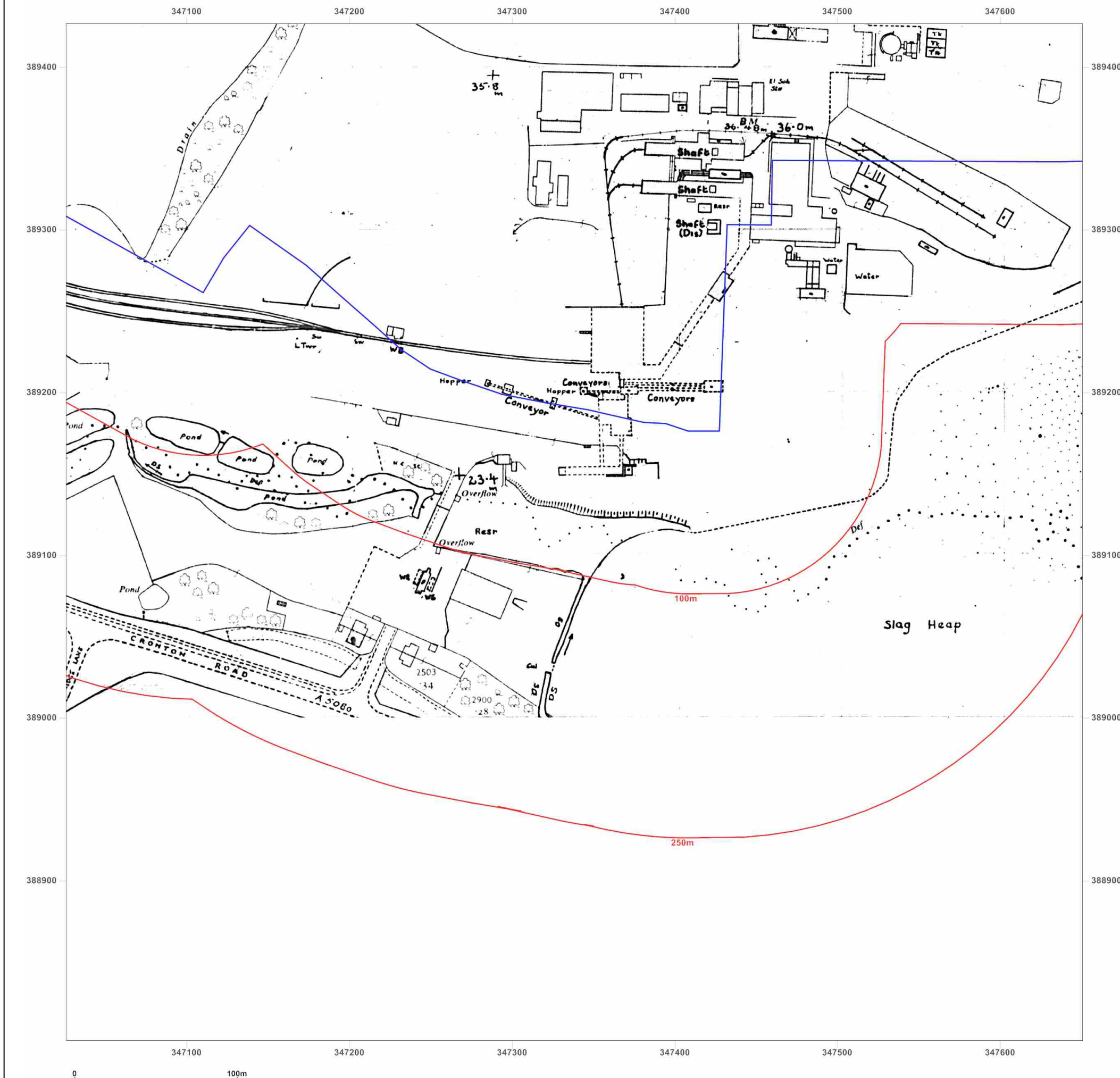


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CRONTON, L35 3SU

Client Ref: TE1163_-PE02796
Report Ref: GS-5672876_LS_2_1
Grid Ref: 347338, 389114

Map Name: National Grid

Map date: 1980

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1980
Revised 1980
Edition N/A
Copyright 1981
Levelled 1963

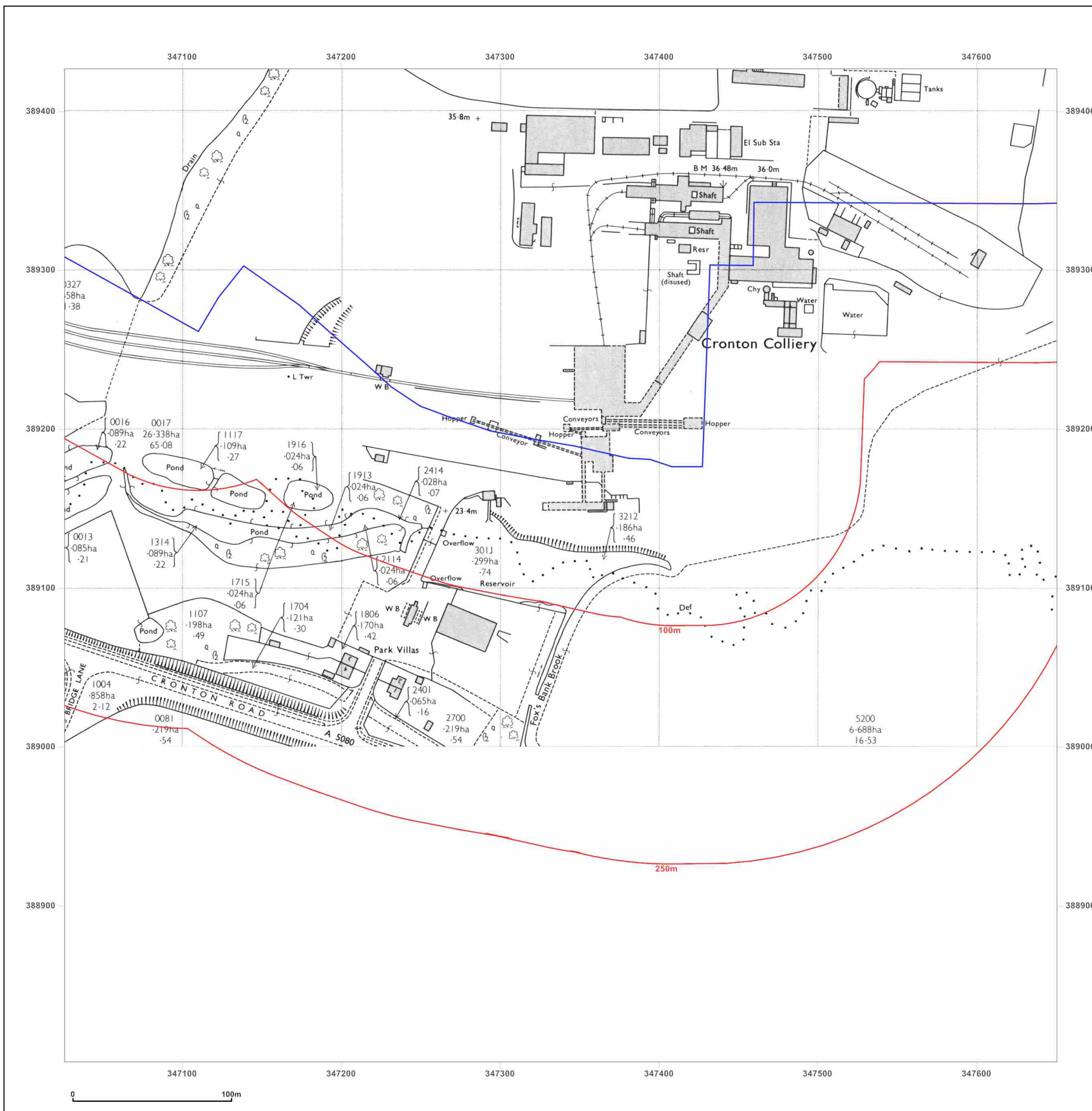


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CRONTON, L35 3SU

Client Ref: TE1163_-PE02796
Report Ref: GS-5672876_LS_2_1
Grid Ref: 347338, 389114

Map Name: National Grid

Map date: 1988-1989

Scale: 1:2,500

Printed at: 1:2,500



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

Surveyed 1968
Revised 1988
Edition N/A
Copyright 1988
Levelled 1968

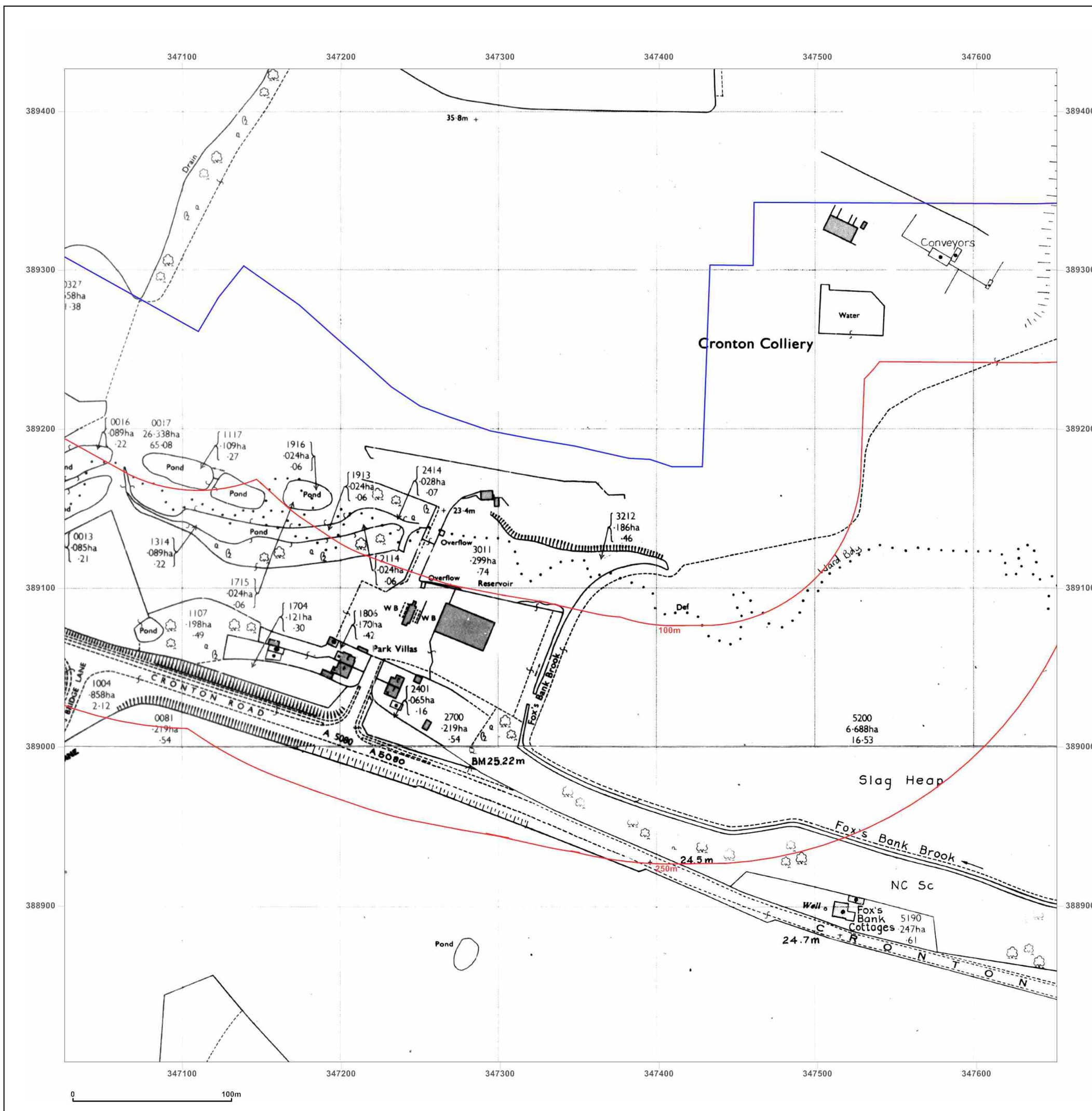


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CRONTON, L35 3SU

Client Ref: TE1163_-_PE02796
Report Ref: GS-5672876_LS_2_1
Grid Ref: 347338, 389114

Map Name: National Grid

Map date: 1992-1993

Scale: 1:2,500

Printed at: 1:2,500



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

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

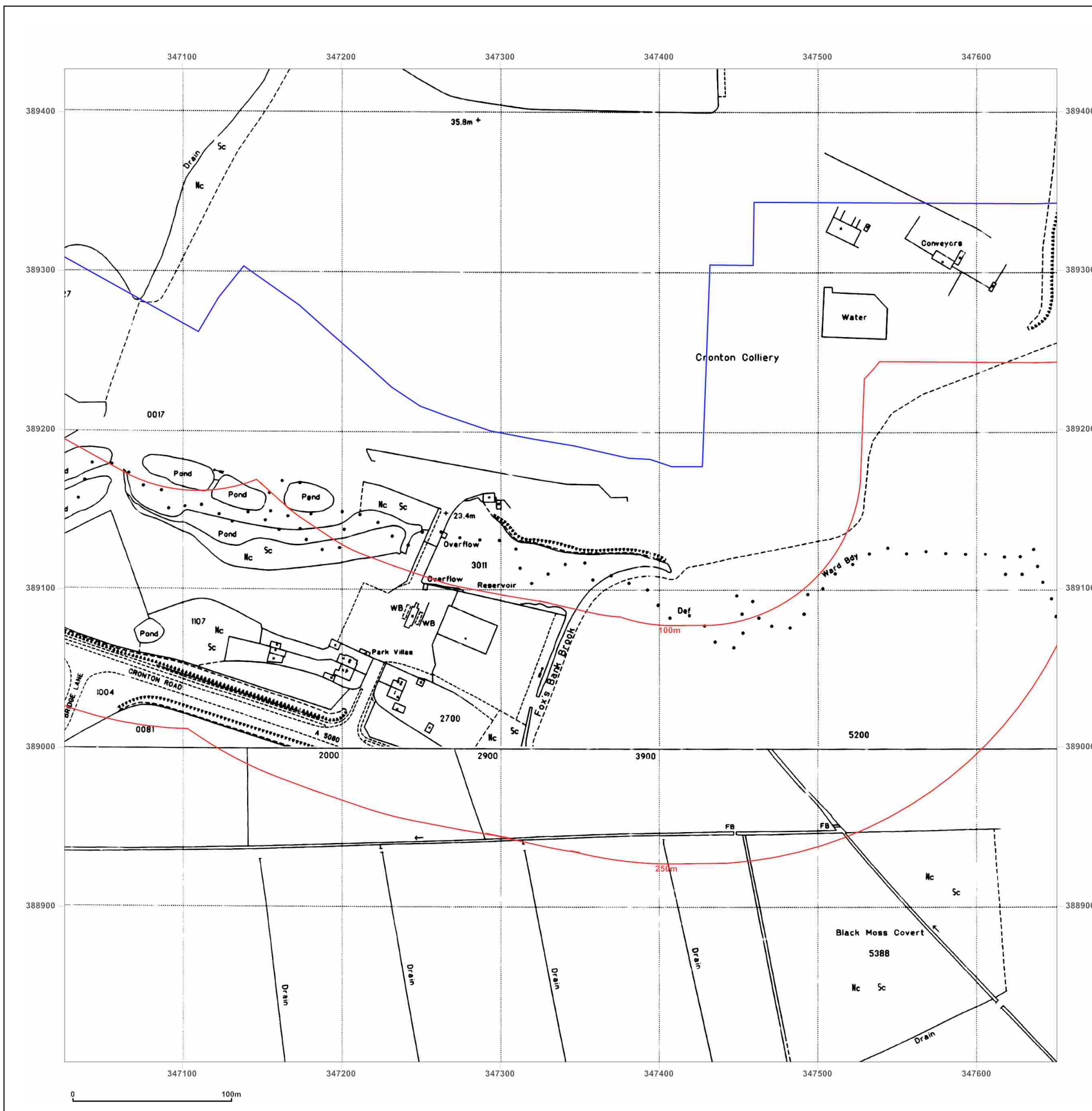


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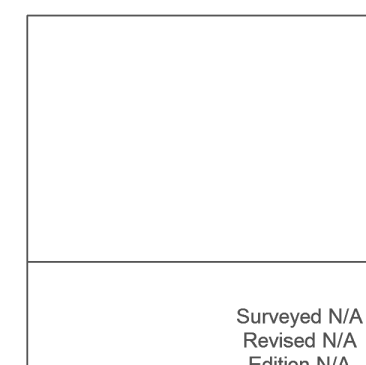
Client Ref: TE1163_-_PE02796
Report Ref: GS-5672876_LS_2_1
Grid Ref: 347338, 389114

Map Name: National Grid

Map date: 1993

Scale: 1:2,500

Printed at: 1:2,500



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

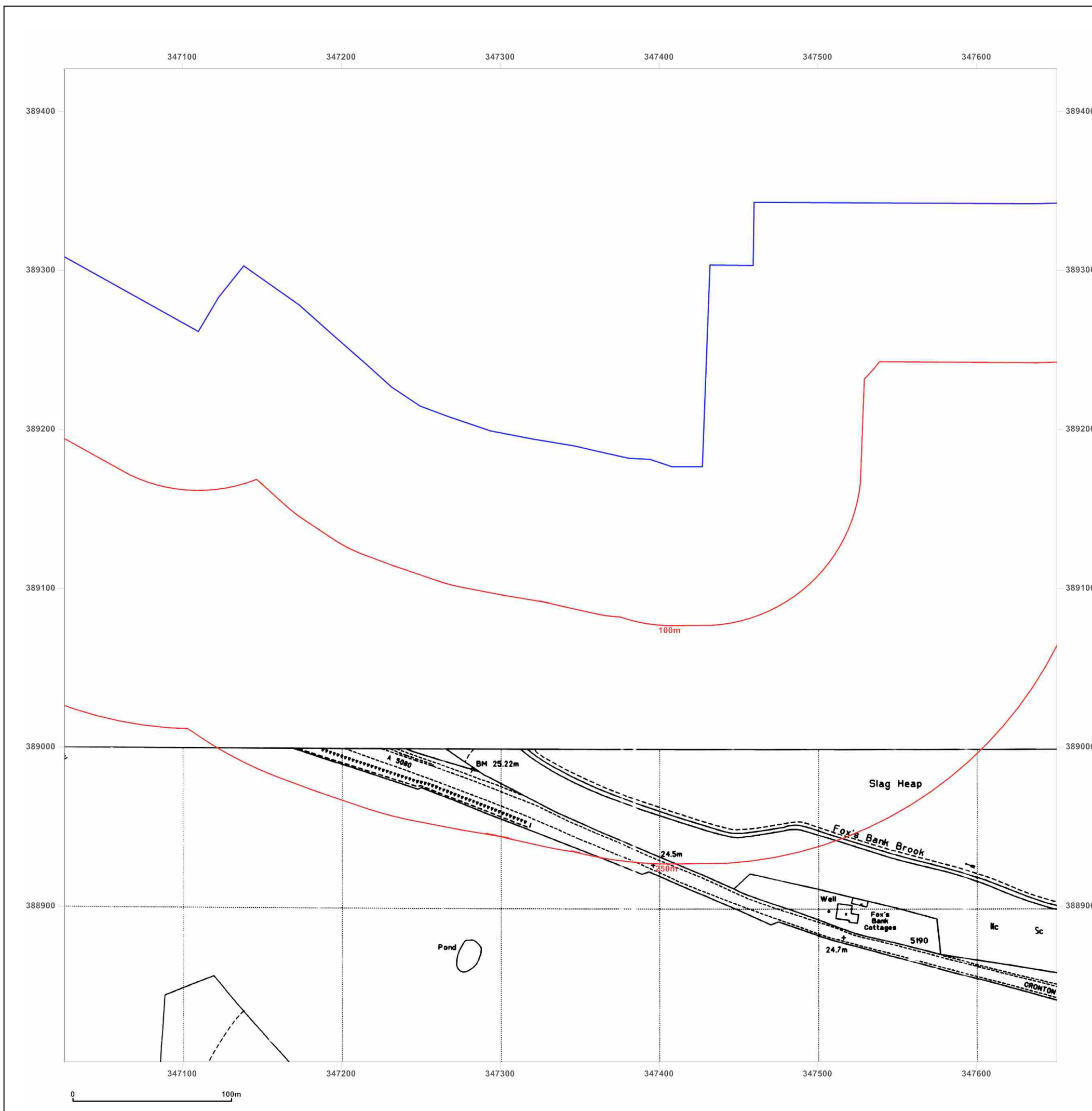


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CRONTON, L35 3SU

Client Ref: TE1163_-_PE02796
Report Ref: GS-5672876_LS_2_2
Grid Ref: 347338, 389739

Map Name: County Series

Map date: 1892

Scale: 1:2,500

Printed at: 1:2,500



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

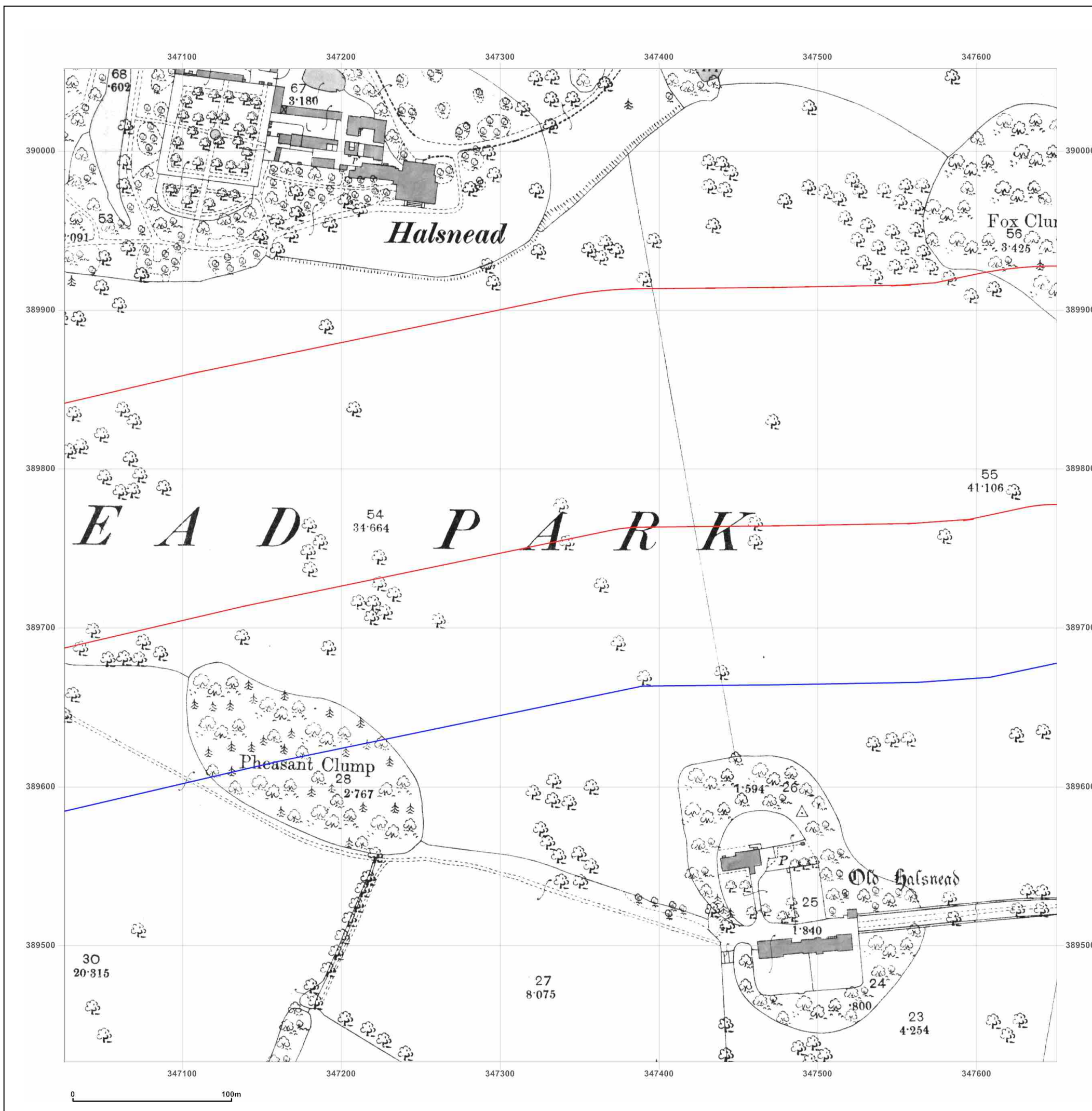


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Client Ref: TE1163_-_PE02796
Report Ref: GS-5672876_LS_2_2
Grid Ref: 347338, 389739

Map Name: County Series

Map date: 1907

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1907
Revised 1907
Edition N/A
Copyright N/A
Levelled N/A

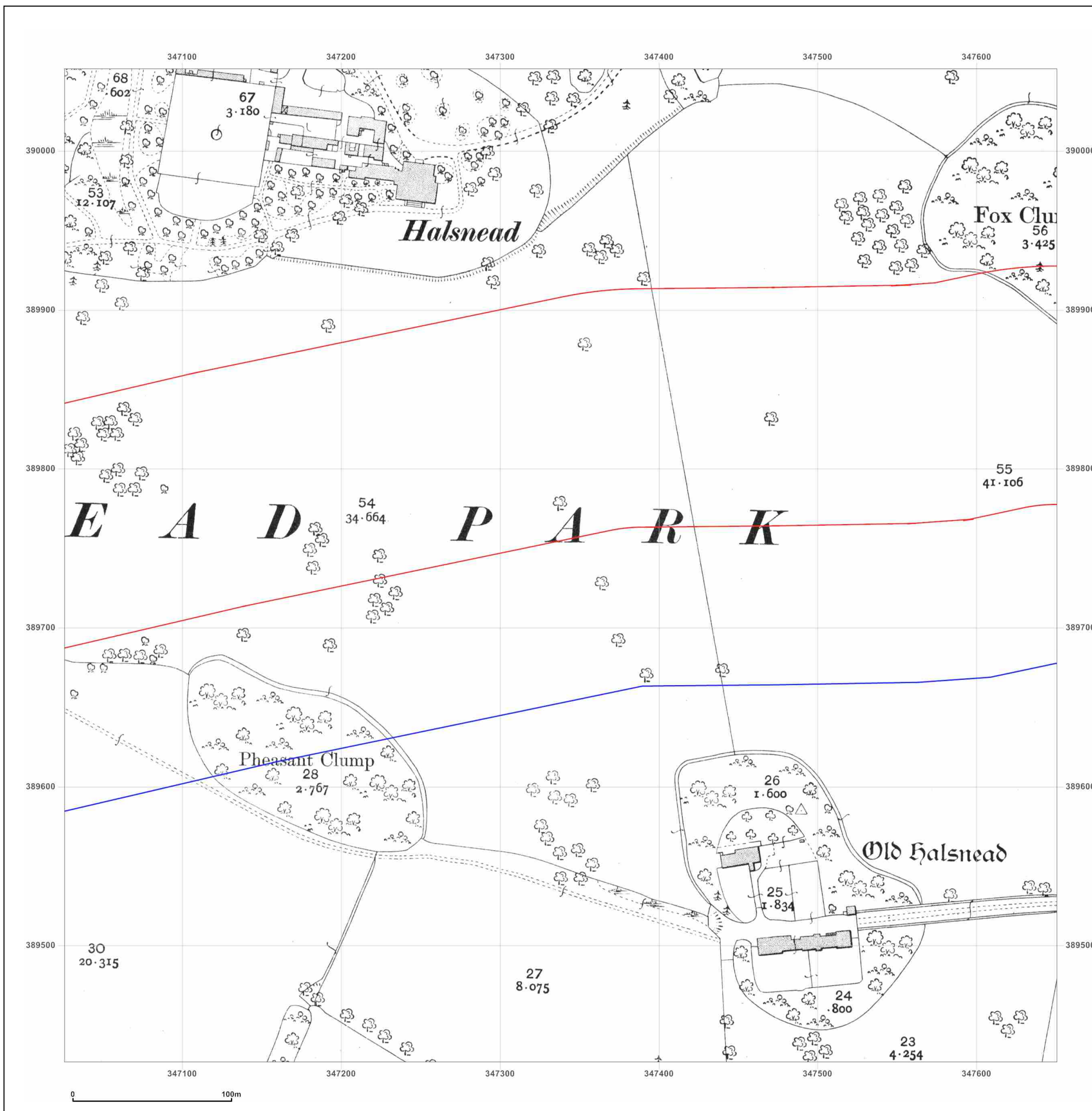


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CRONTON, L35 3SU

Client Ref: TE1163_-_PE02796
Report Ref: GS-5672876_LS_2_2
Grid Ref: 347338, 389739

Map Name: County Series

Map date: 1927

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1927
Revised 1927
Edition N/A
Copyright N/A
Levelled N/A

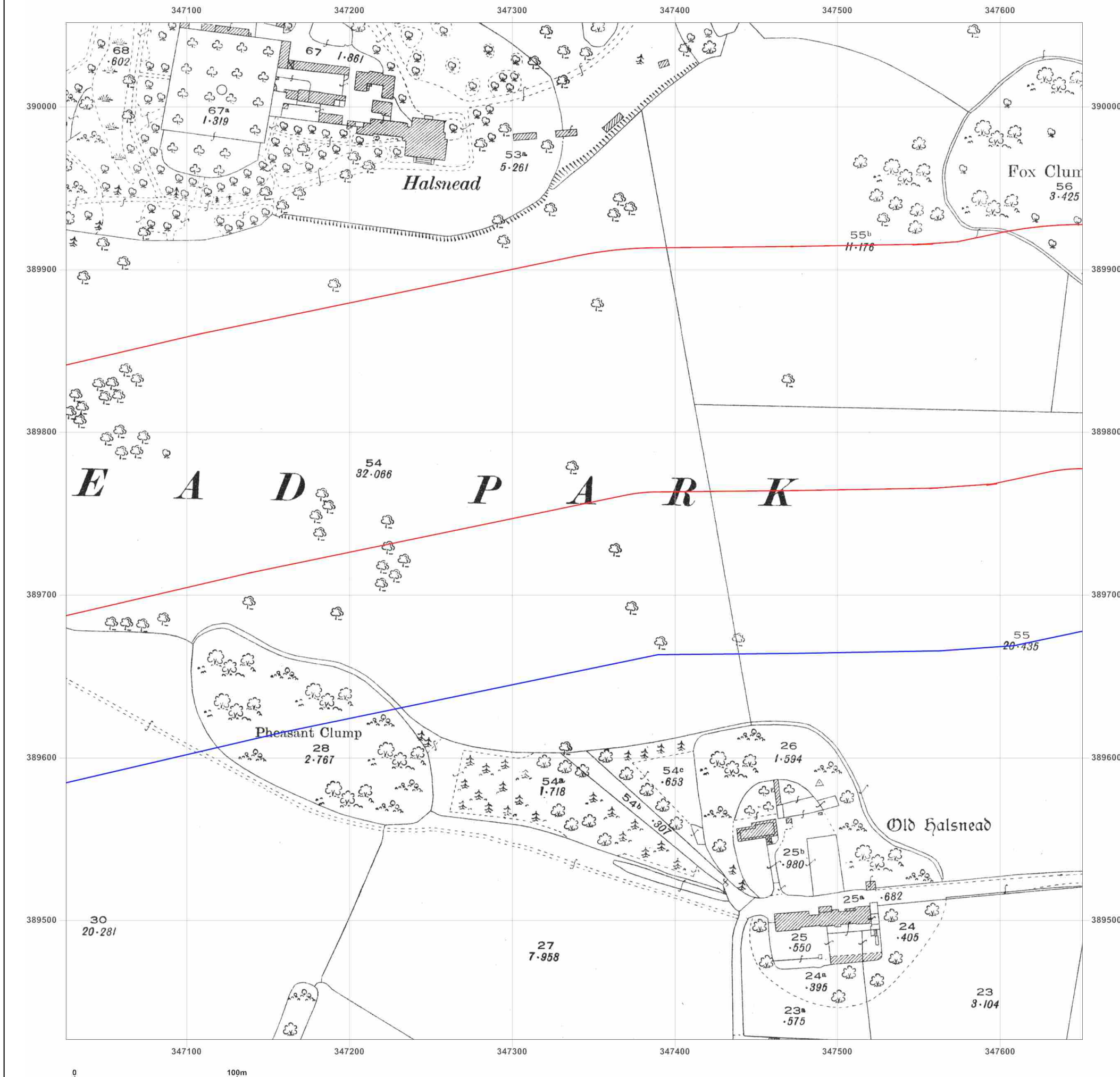


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FARM, FOXS BANK LANE,
CRONTON, L35 3SU

Client Ref: TE1163_-_PE02796
Report Ref: GS-5672876_LS_2_2
Grid Ref: 347338, 389739

Map Name: County Series

Map date: 1937

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1937
Revised 1937
Edition N/A
Copyright N/A
Levelled N/A

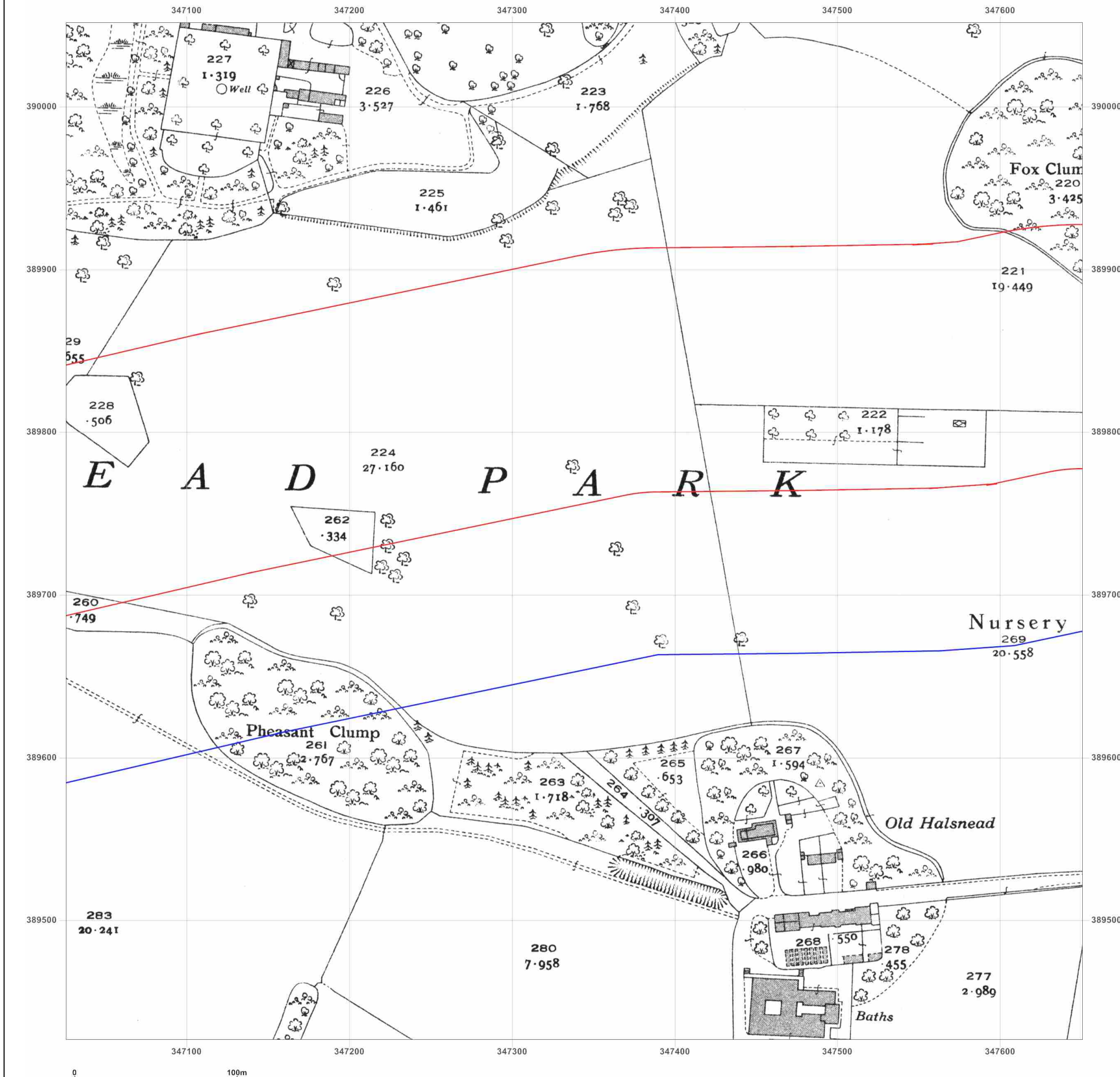


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FARM, FOXS BANK LANE,
CRONTON, L35 3SU

Client Ref: TE1163_-PE02796
Report Ref: GS-5672876_LS_2_2
Grid Ref: 347338, 389739

Map Name: National Grid

Map date: 1958

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1958
Revised 1958
Edition N/A
Copyright 1959
Levelled 1926

Surveyed 1958
Revised 1958
Edition N/A
Copyright 1959
Levelled 1957

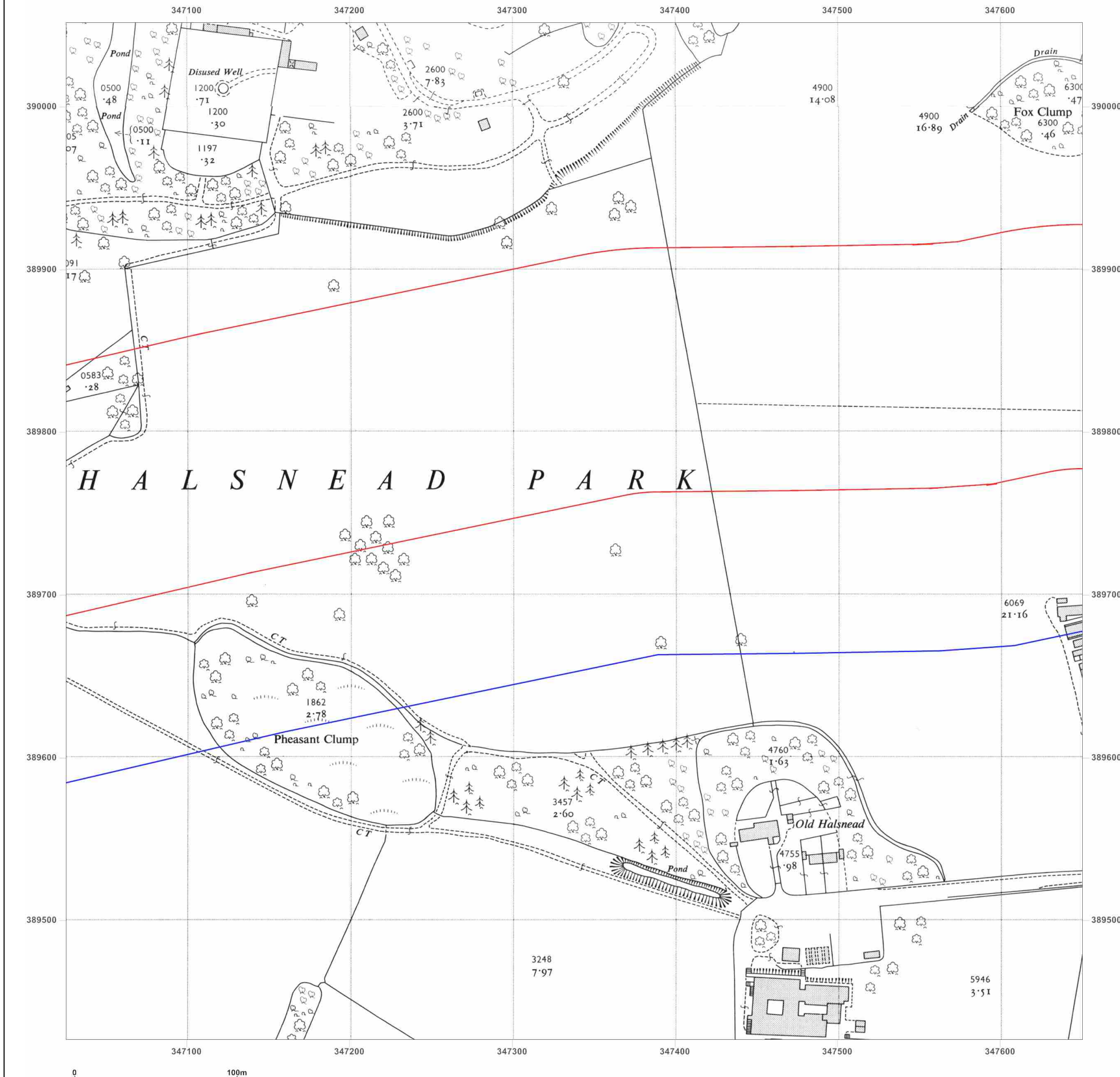


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CRONTON, L35 3SU

Client Ref: TE1163_-_PE02796
Report Ref: GS-5672876_LS_2_2
Grid Ref: 347338, 389739

Map Name: National Grid

Map date: 1975

Scale: 1:2,500

Printed at: 1:2,500



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

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

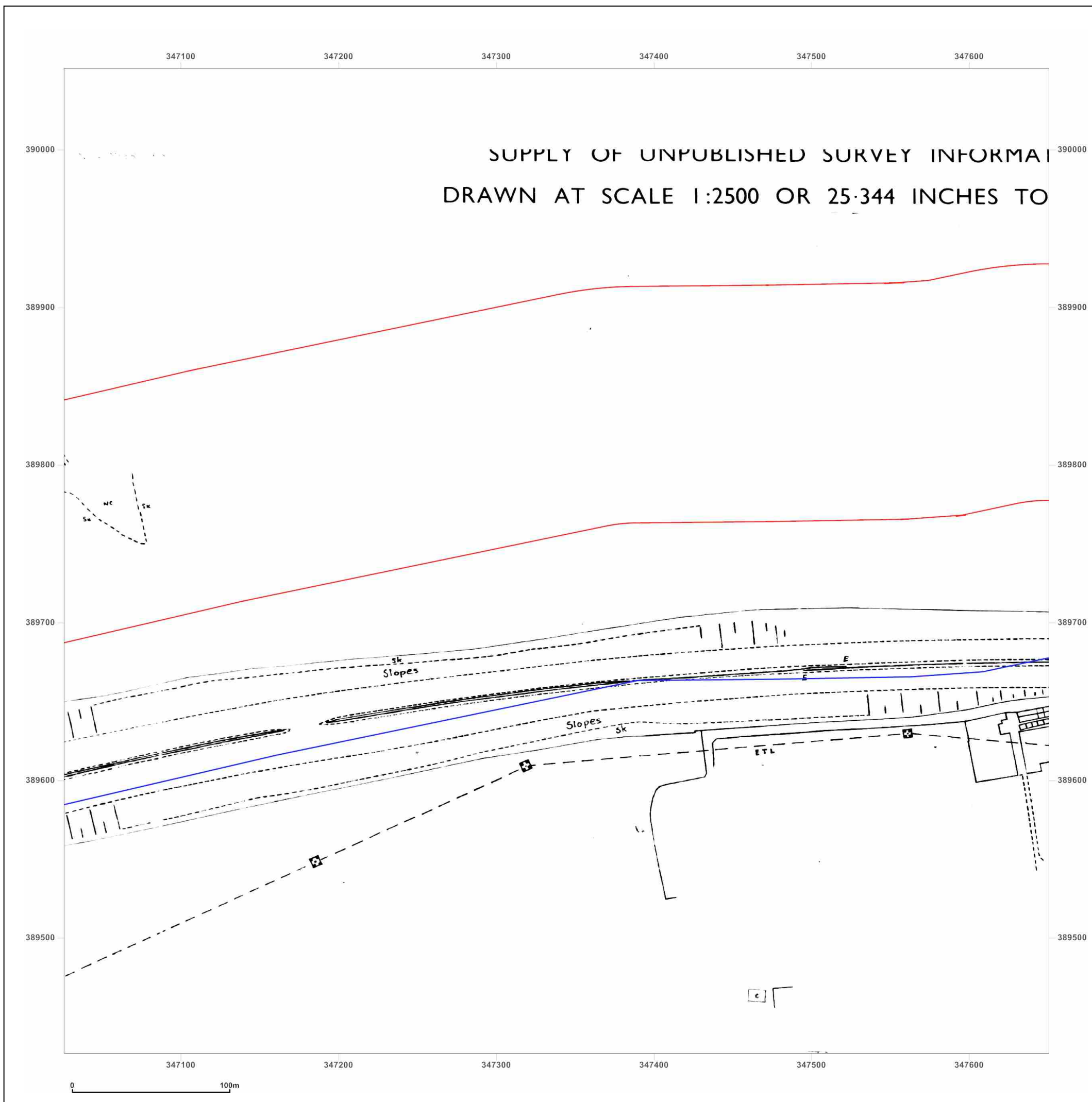


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CRONTON, L35 3SU

Client Ref: TE1163_-_PE02796
Report Ref: GS-5672876_LS_2_2
Grid Ref: 347338, 389739

Map Name: National Grid

Map date: 1980

Scale: 1:2,500

Printed at: 1:2,500



Surveyed N/A
Revised N/A
Edition N/A
Copyright 1980
Levelled 1963

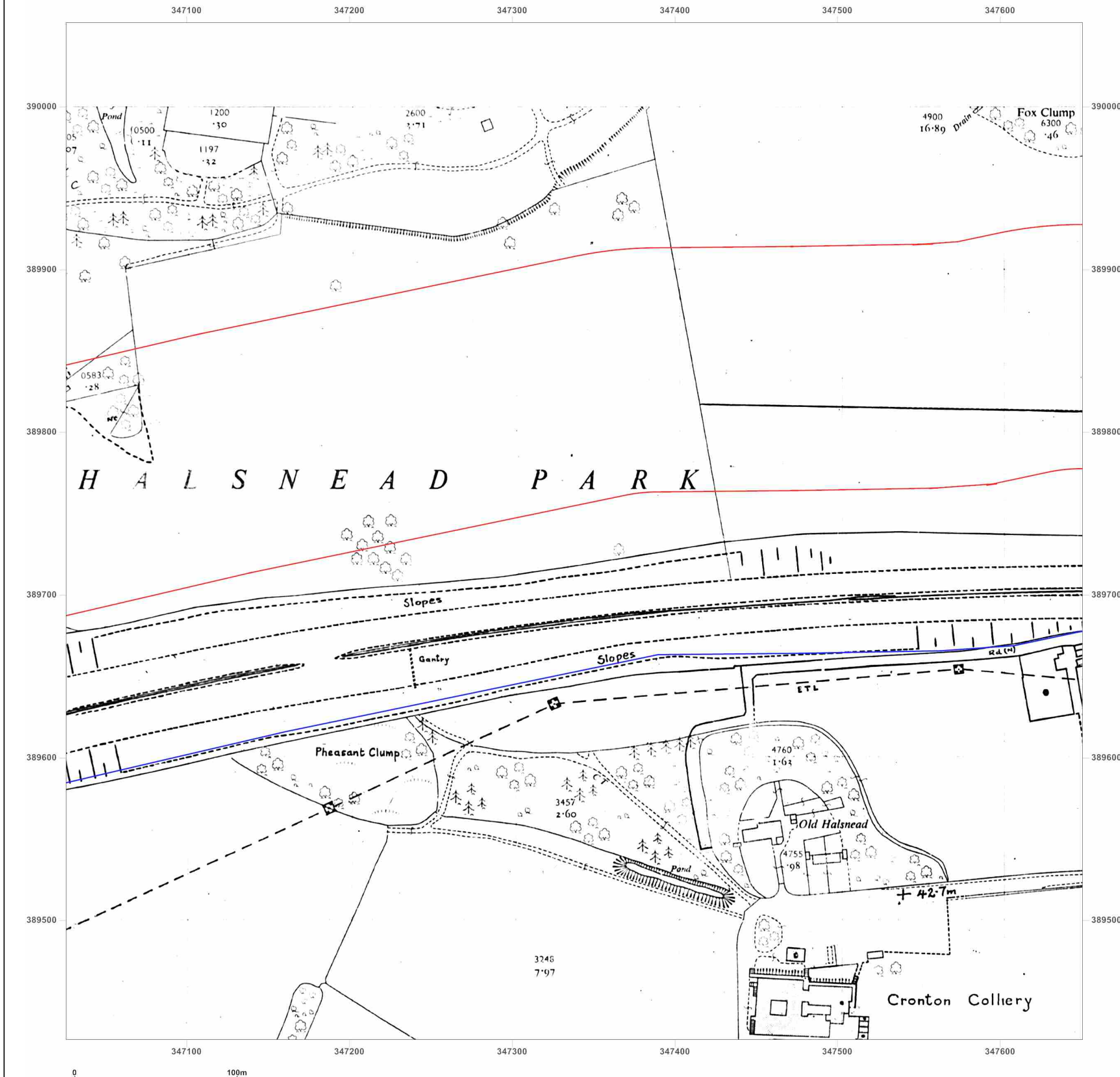


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Client Ref: TE1163_-PE02796
Report Ref: GS-5672876_LS_2_2
Grid Ref: 347338, 389739

Map Name: National Grid

Map date: 1980-1985

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1963
Revised 1985
Edition N/A
Copyright 1985
Levelled 1963

Surveyed 1980
Revised 1980
Edition N/A
Copyright 1981
Levelled 1963



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CRONTON, L35 3SU

Client Ref: TE1163_-PE02796
Report Ref: GS-5672876_LS_2_2
Grid Ref: 347338, 389739

Map Name: National Grid

Map date: 1986-1989

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1963
Revised 1986
Edition N/A
Copyright 1986
Levelled 1963

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

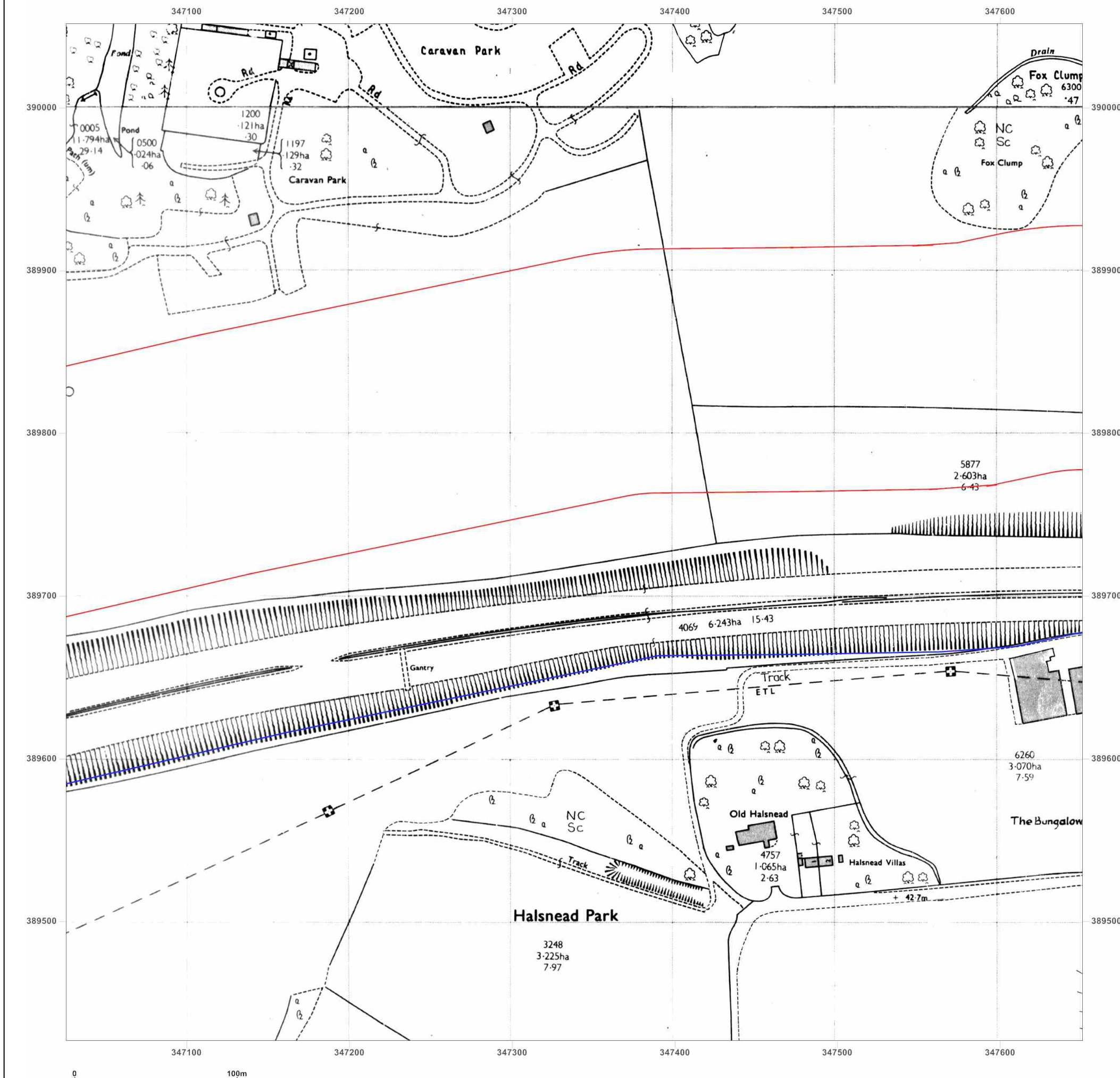


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CRONTON, L35 3SU

Client Ref: TE1163_-_PE02796
Report Ref: GS-5672876_LS_2_2
Grid Ref: 347338, 389739

Map Name: National Grid

Map date: 1993

Scale: 1:2,500

Printed at: 1:2,500



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

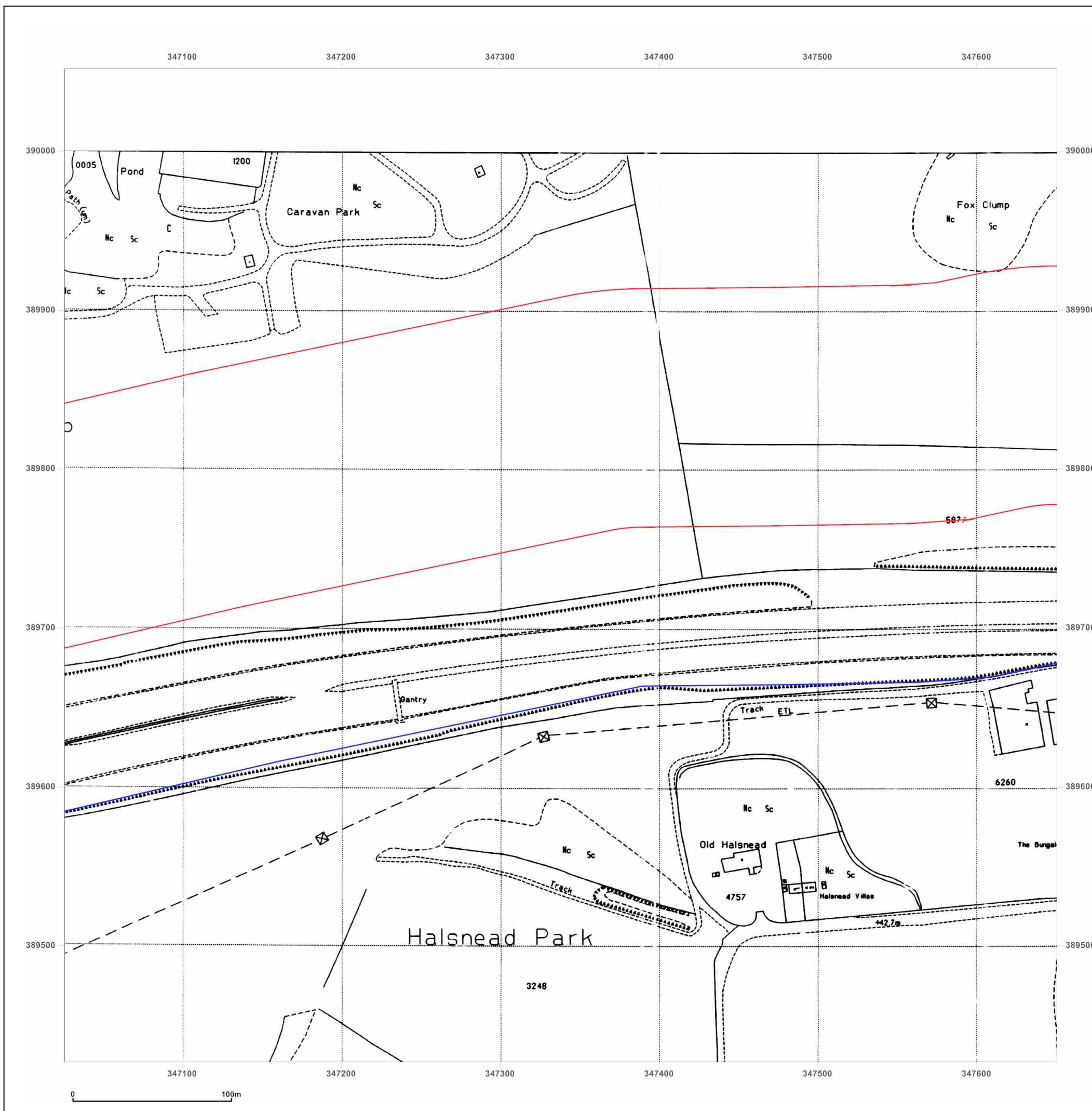


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CRONTON, L35 3SU

Client Ref: TE1163_-_PE02796
Report Ref: GS-5672876_LS_3_1
Grid Ref: 347964, 389114

Map Name: County Series

Map date: 1892-1893

Scale: 1:2,500

Printed at: 1:2,500



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

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

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

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

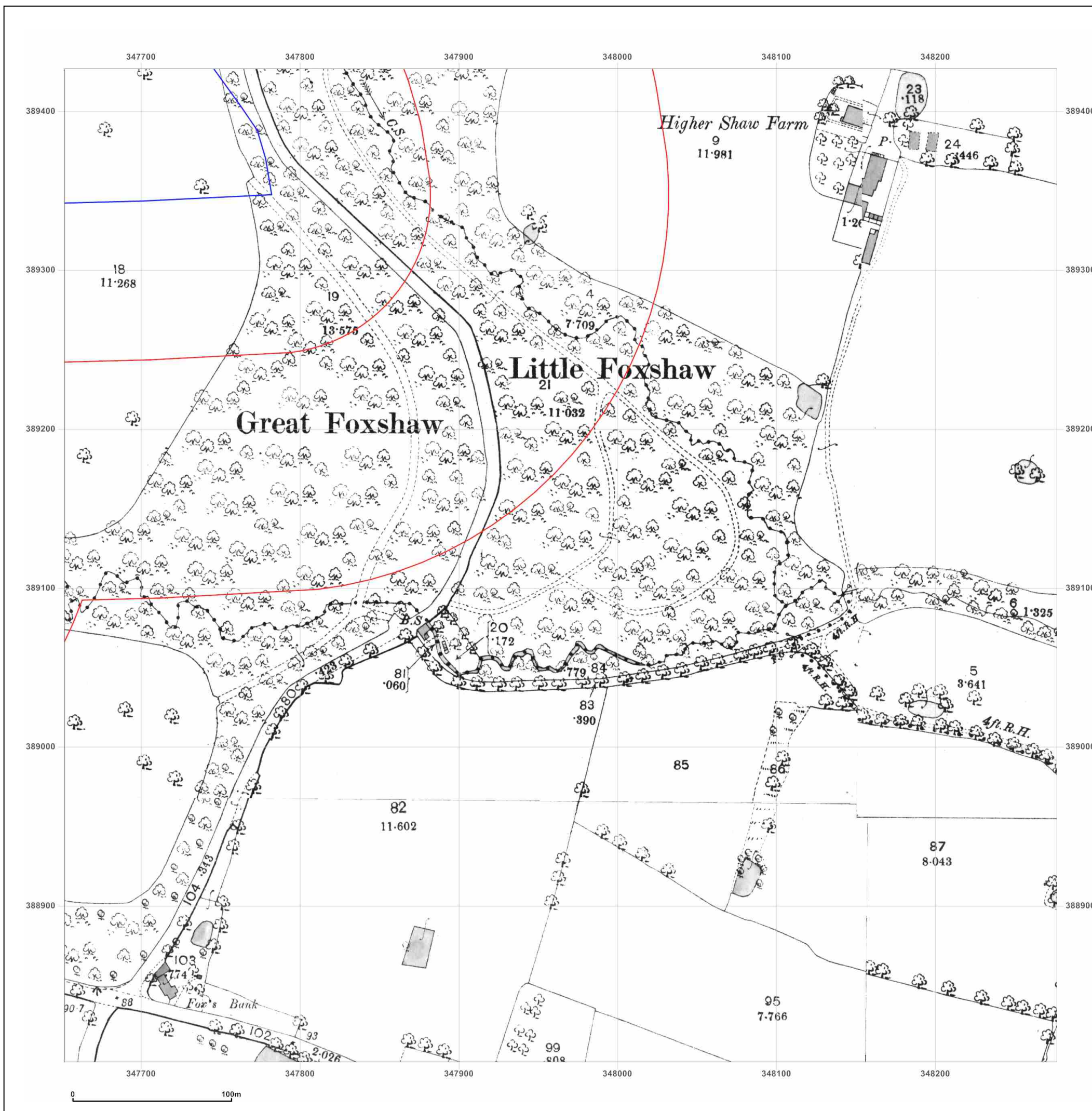


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CRONTON, L35 3SU

Client Ref: TE1163_-PE02796
Report Ref: GS-5672876_LS_3_1
Grid Ref: 347964, 389114

Map Name: County Series

Map date: 1907

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1907
Revised 1907
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1907
Revised 1907
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1907
Revised 1907
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1907
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Edition N/A
Copyright N/A
Levelled N/A

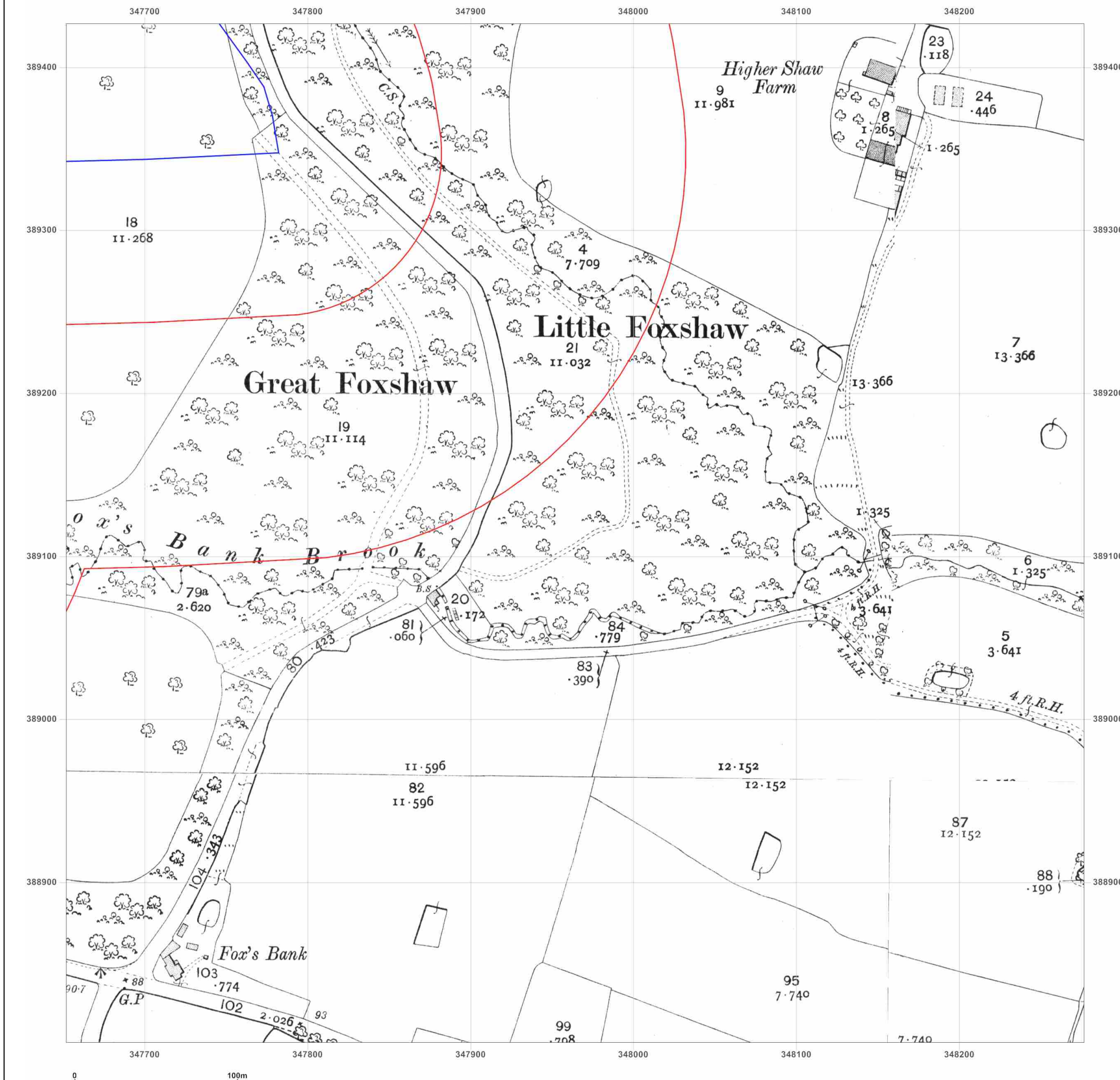


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CRONTON, L35 3SU

Client Ref: TE1163_-PE02796
Report Ref: GS-5672876_LS_3_1
Grid Ref: 347964, 389114

Map Name: County Series

Map date: 1927

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1927
Revised 1927
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1927
Revised 1927
Edition N/A
Copyright N/A
Levelled N/A

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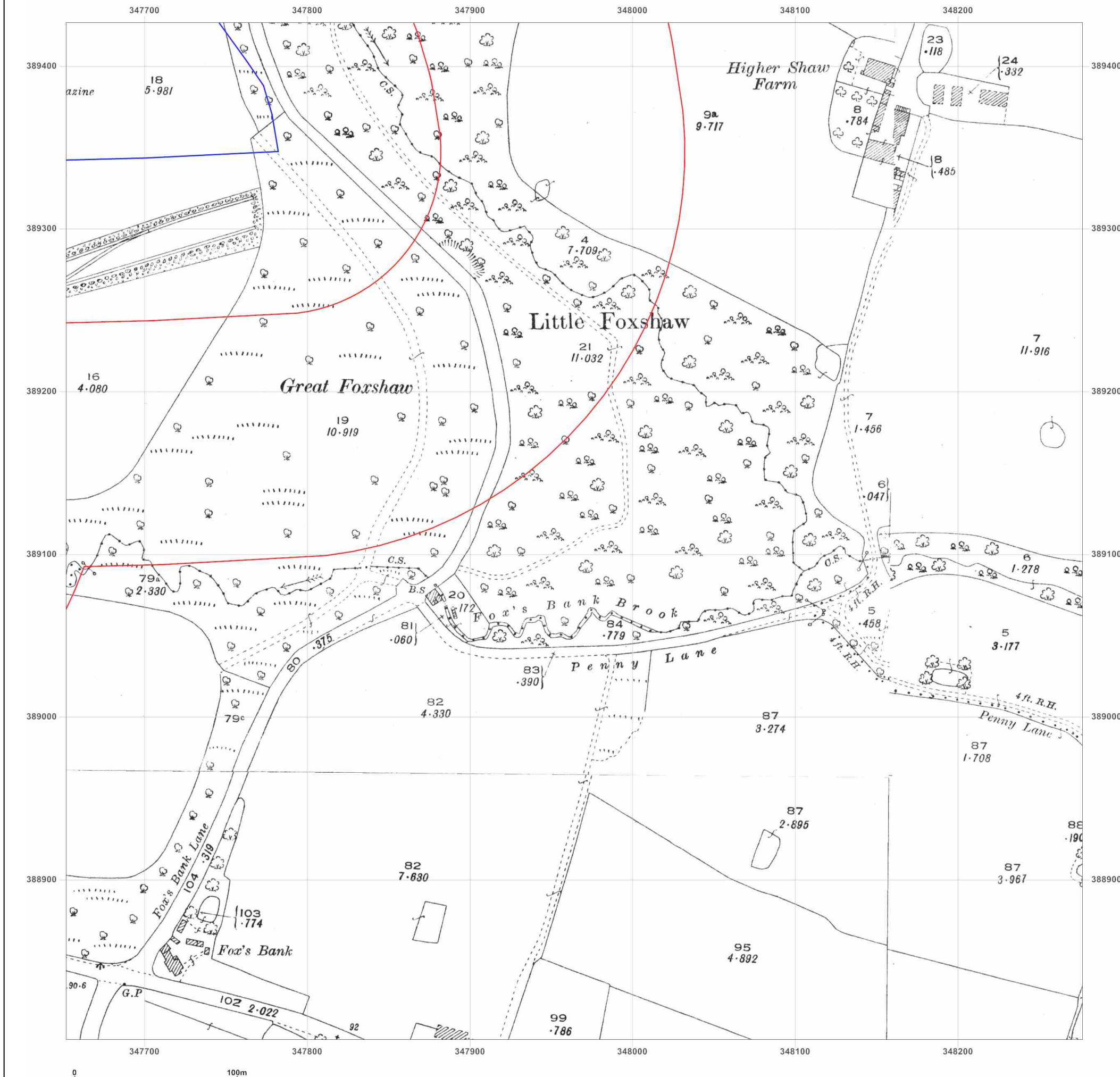


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Site Details:

HALSNEAD FARM, HALSNEAD
FARM, FOXS BANK LANE,
CRONTON, L35 3SU

Client Ref: TE1163_-_PE02796
Report Ref: GS-5672876_LS_3_1
Grid Ref: 347964, 389114

Map Name: County Series

Map date: 1937-1938

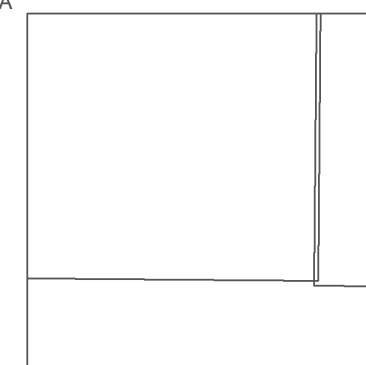
Scale: 1:2,500

Printed at: 1:2,500



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Revised 1937
Edition N/A
Copyright N/A
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Surveyed 1938
Revised 1938
Edition N/A
Copyright N/A
Levelled N/A

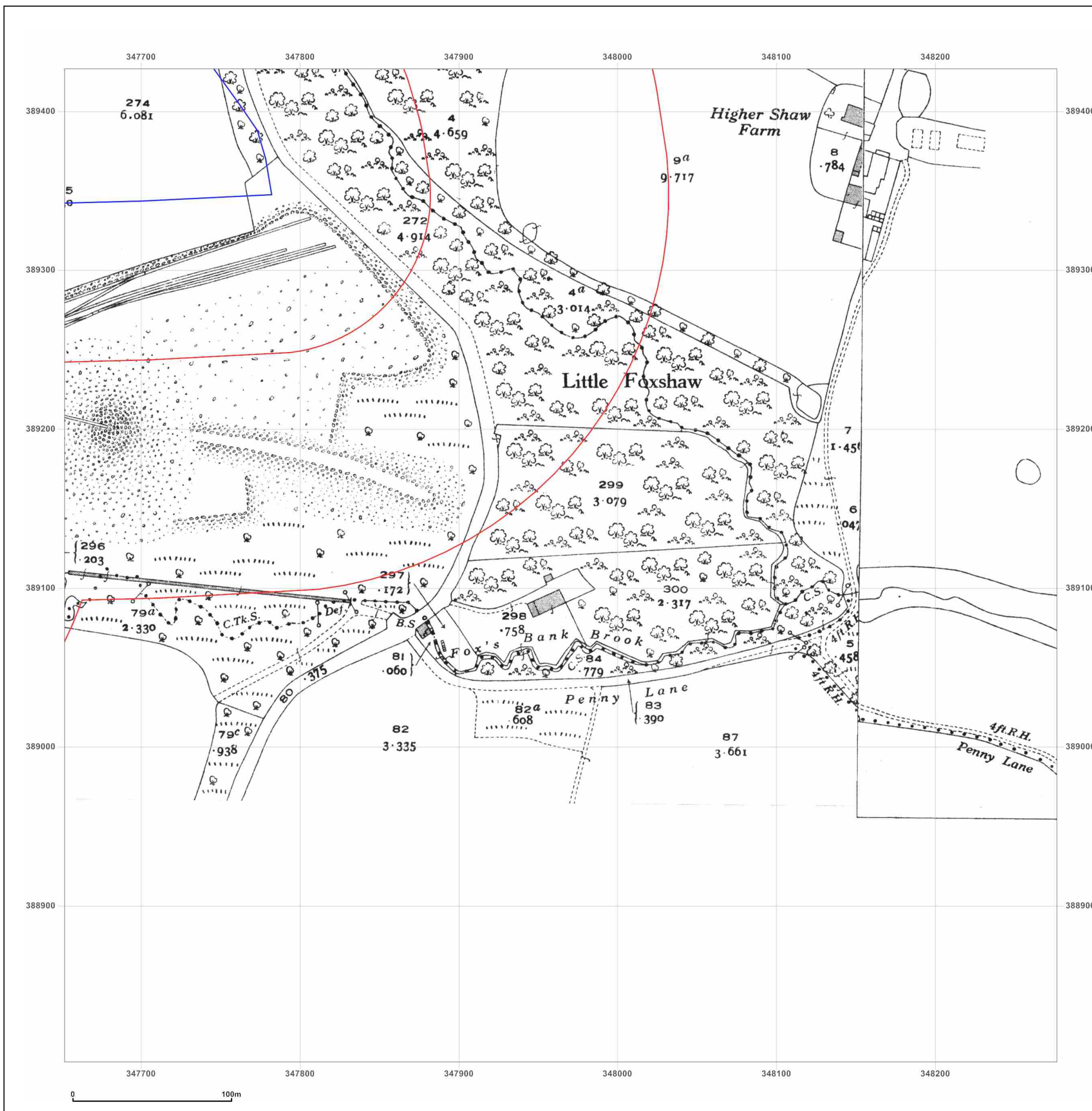


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FARM, FOXS BANK LANE,
CRONTON, L35 3SU

Client Ref: TE1163_-_PE02796
Report Ref: GS-5672876_LS_3_1
Grid Ref: 347964, 389114

Map Name: National Grid

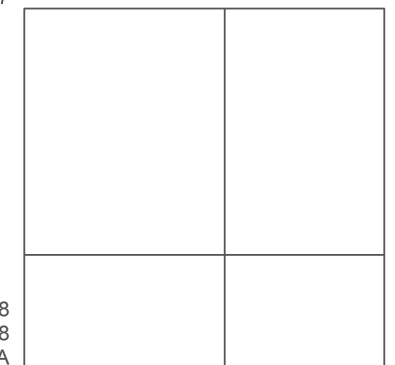
Map date: 1958

Scale: 1:2,500

Printed at: 1:2,500



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Client Ref: TE1163_-_PE02796
Report Ref: GS-5672876_LS_3_1
Grid Ref: 347964, 389114

Map Name: National Grid

Map date: 1958

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1958
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Edition 1958
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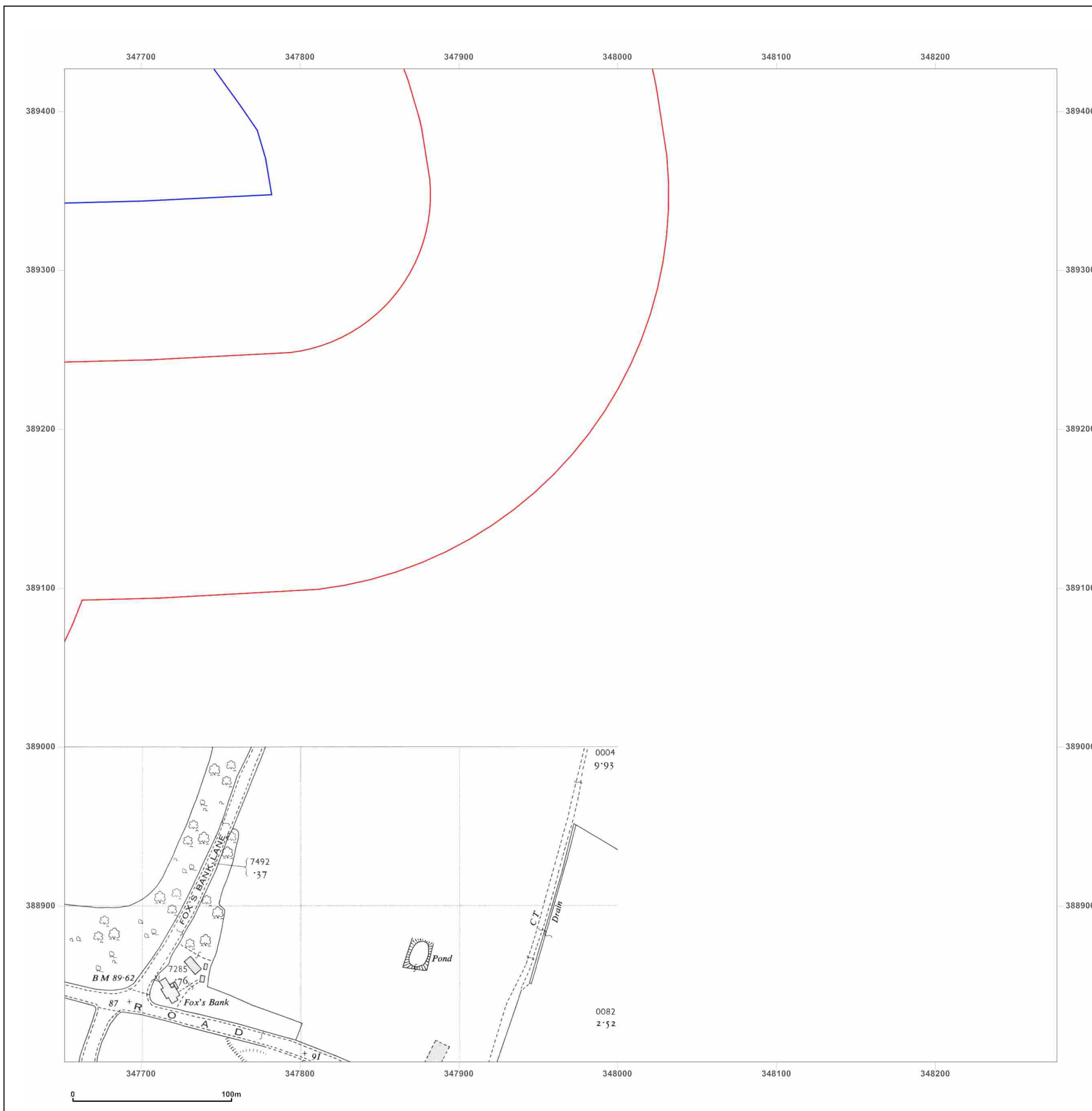


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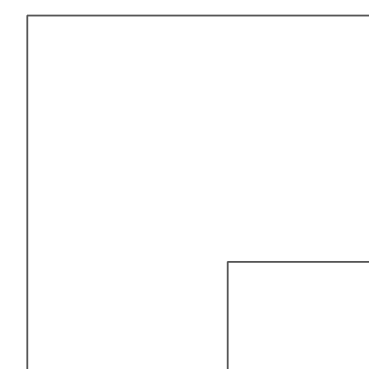
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Report Ref: GS-5672876_LS_3_1
Grid Ref: 347964, 389114

Map Name: National Grid

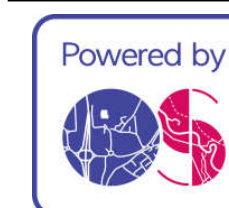
Map date: 1969

Scale: 1:2,500

Printed at: 1:2,500



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

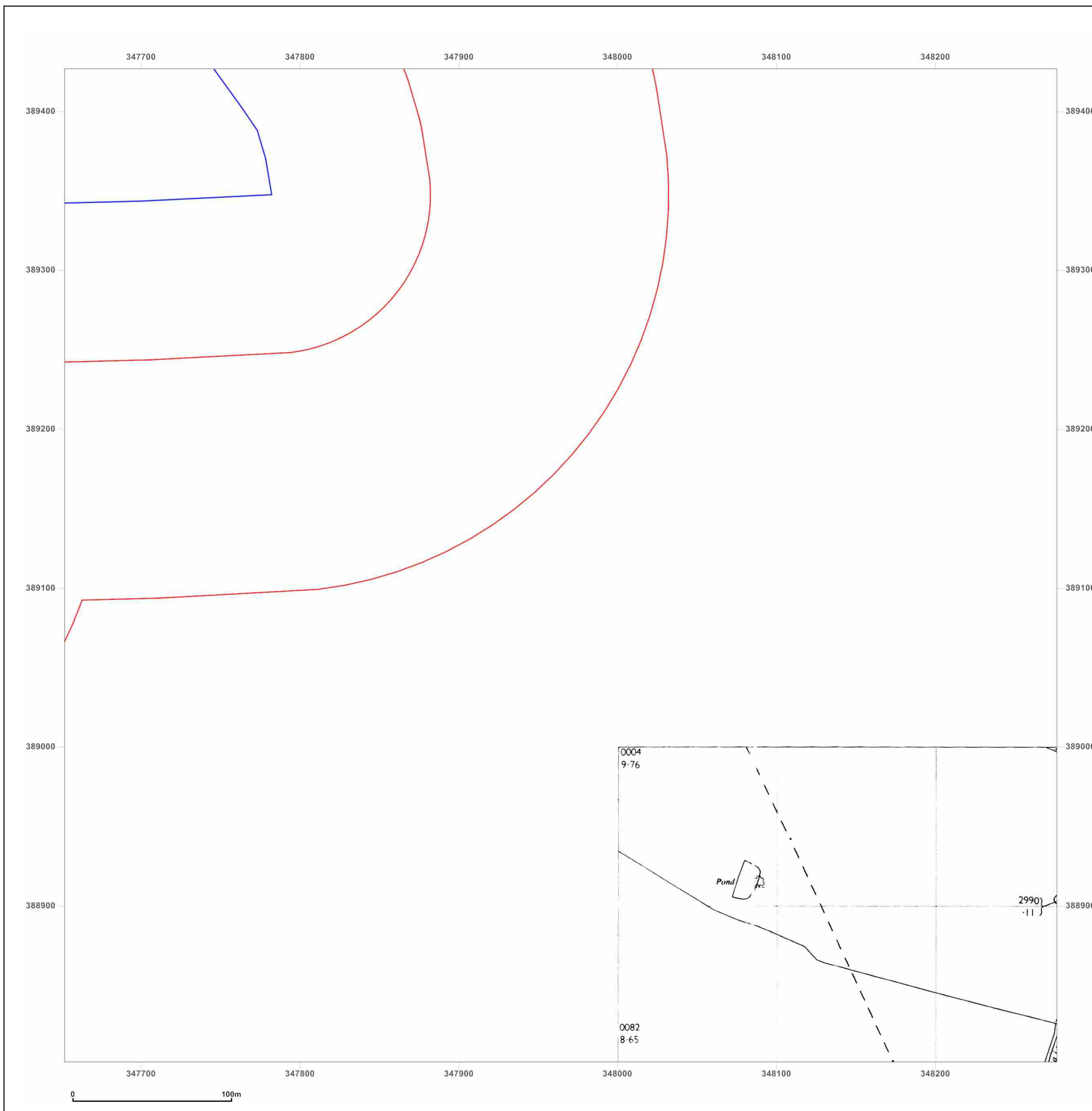


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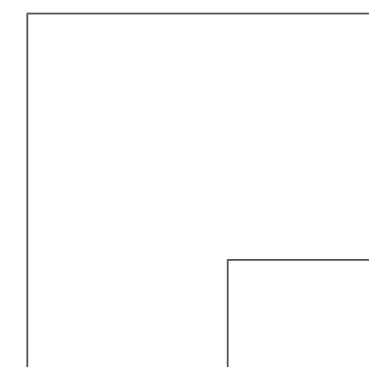
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Report Ref: GS-5672876_LS_3_1
Grid Ref: 347964, 389114

Map Name: National Grid

Map date: 1969

Scale: 1:2,500

Printed at: 1:2,500



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

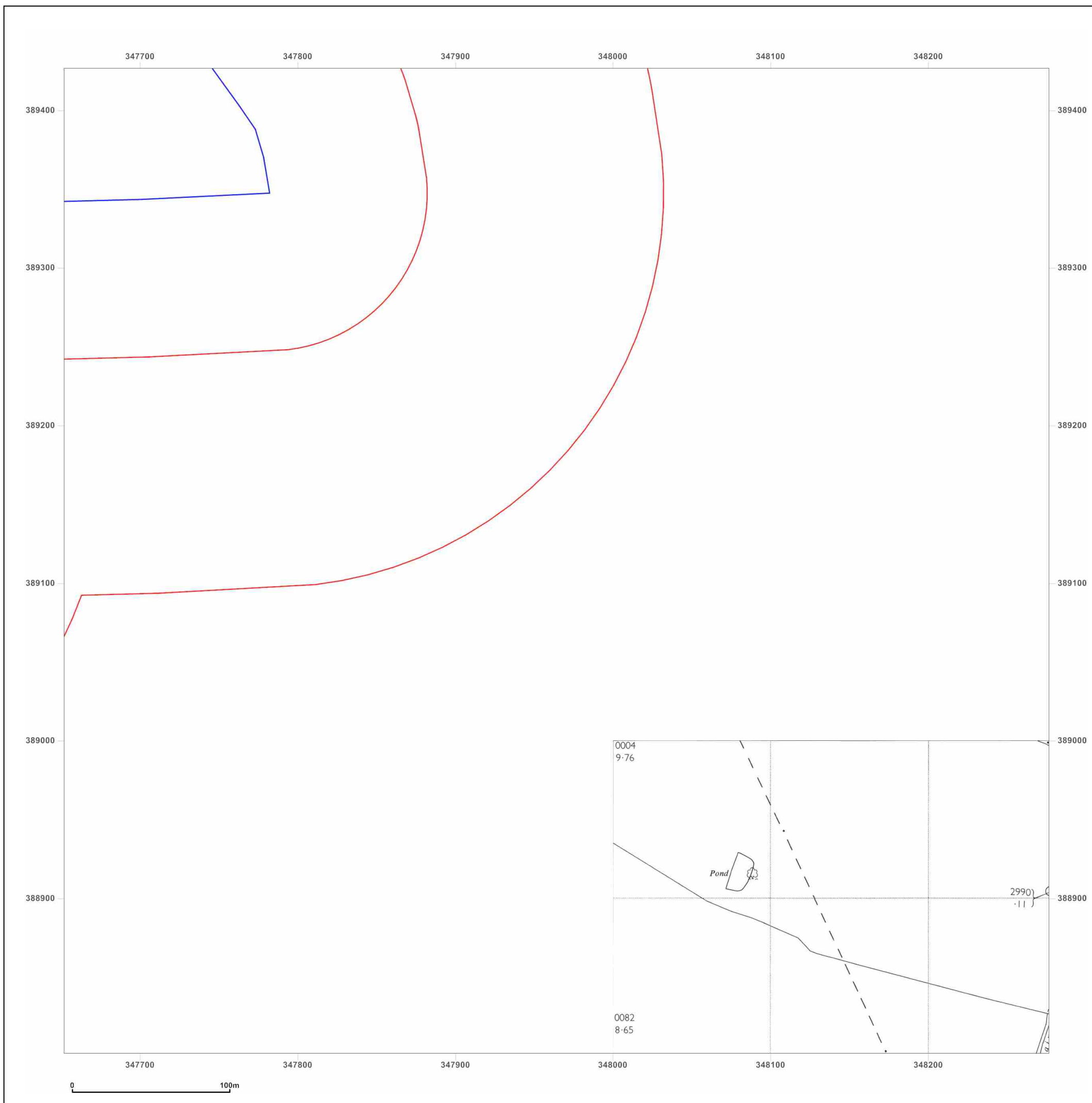


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CRONTON, L35 3SU

Client Ref: TE1163_-_PE02796
Report Ref: GS-5672876_LS_3_1
Grid Ref: 347964, 389114

Map Name: National Grid

Map date: 1975

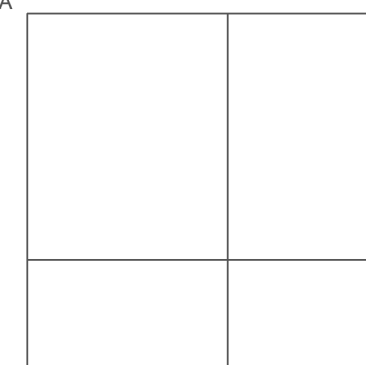
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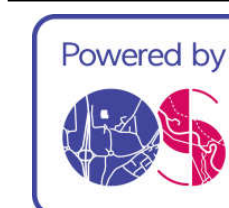


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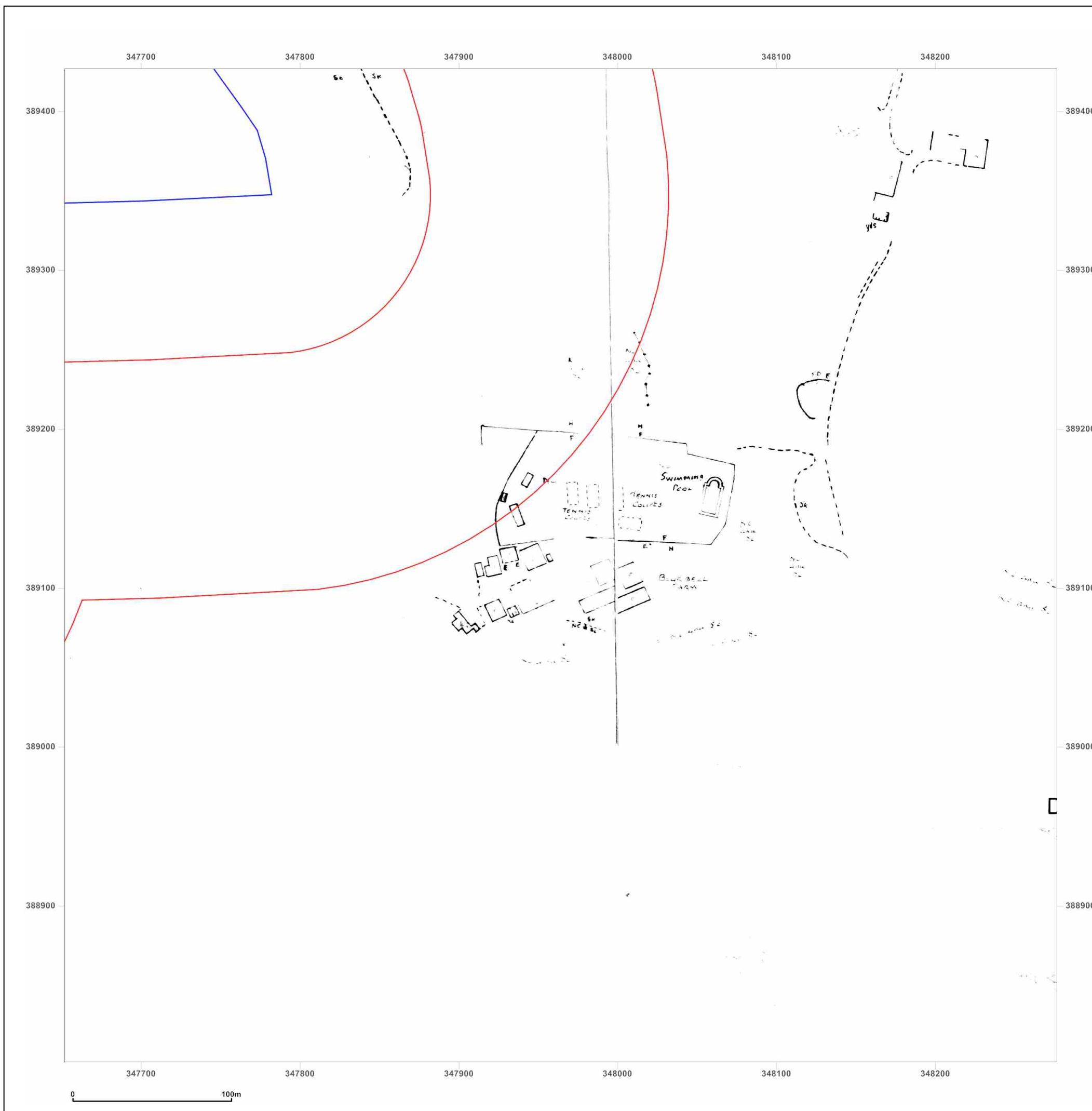


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CRONTON, L35 3SU

Client Ref: TE1163_-PE02796
Report Ref: GS-5672876_LS_3_1
Grid Ref: 347964, 389114

Map Name: National Grid

Map date: 1975-1980

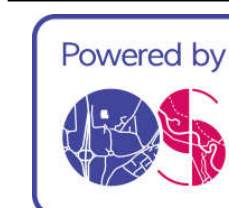
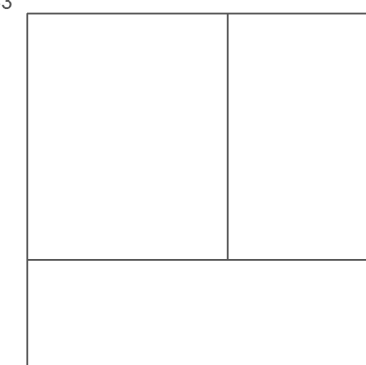
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Surveyed 1975
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Client Ref: TE1163_-_PE02796
Report Ref: GS-5672876_LS_3_1
Grid Ref: 347964, 389114

Map Name: National Grid

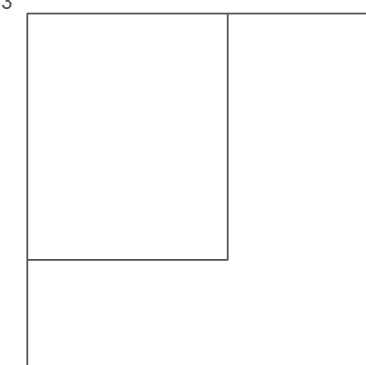
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Scale: 1:2,500

Printed at: 1:2,500



Surveyed N/A
Revised N/A
Edition N/A
Copyright 1980
Levelled 1963

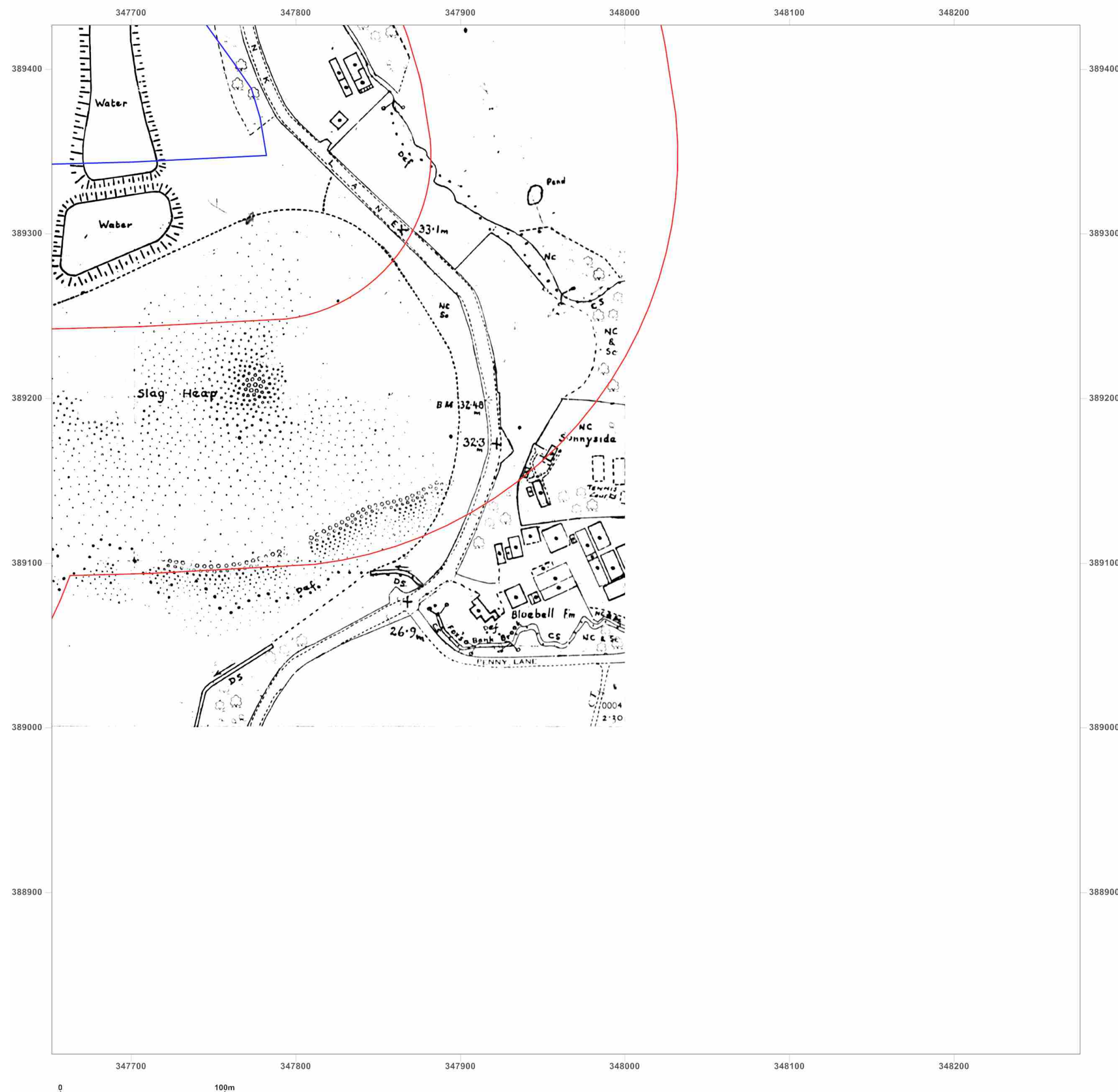


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Client Ref: TE1163_-_PE02796
Report Ref: GS-5672876_LS_3_1
Grid Ref: 347964, 389114

Map Name: National Grid

Map date: 1988-1993

Scale: 1:2,500

Printed at: 1:2,500



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Surveyed 1993
Revised N/A
Edition N/A
Copyright 1993
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CRONTON, L35 3SU

Client Ref: TE1163_-_PE02796
Report Ref: GS-5672876_LS_3_1
Grid Ref: 347964, 389114

Map Name: National Grid

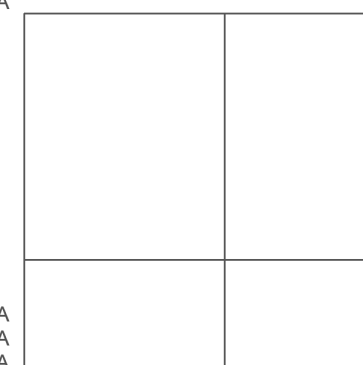
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Printed at: 1:2,500

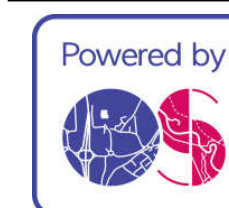


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Edition N/A
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Edition N/A
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Copyright 1989
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CRONTON, L35 3SU

Client Ref: TE1163_-_PE02796
Report Ref: GS-5672876_LS_3_1
Grid Ref: 347964, 389114

Map Name: National Grid

Map date: 1993

Scale: 1:2,500

Printed at: 1:2,500



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Revised N/A
Edition N/A
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Edition N/A
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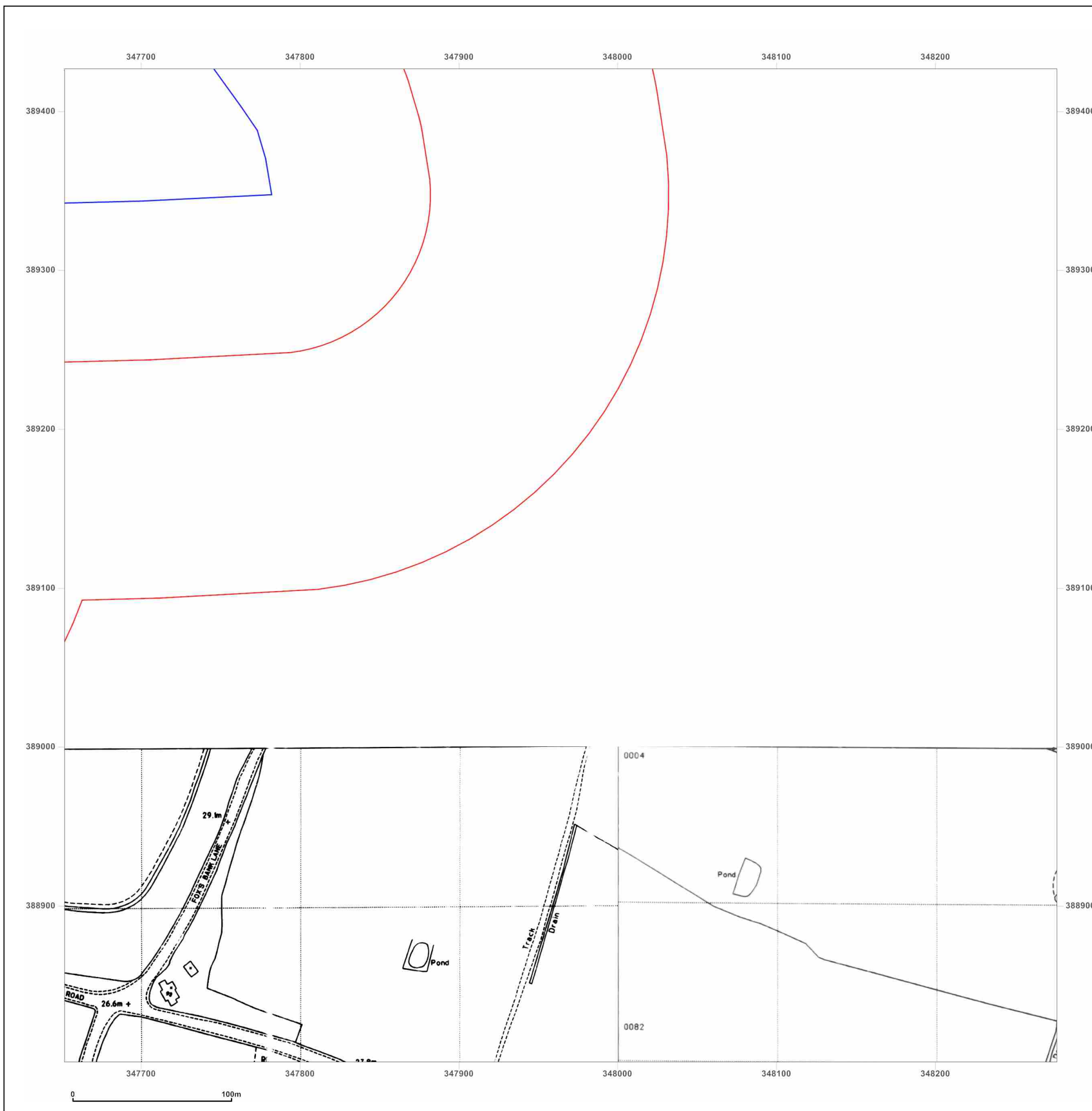


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FARM, FOXS BANK LANE,
CRONTON, L35 3SU

Client Ref: TE1163_-_PE02796
Report Ref: GS-5672876_LS_3_2
Grid Ref: 347964, 389739

Map Name: County Series

Map date: 1892

Scale: 1:2,500

Printed at: 1:2,500



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Surveyed 1892
Revised 1892
Edition N/A
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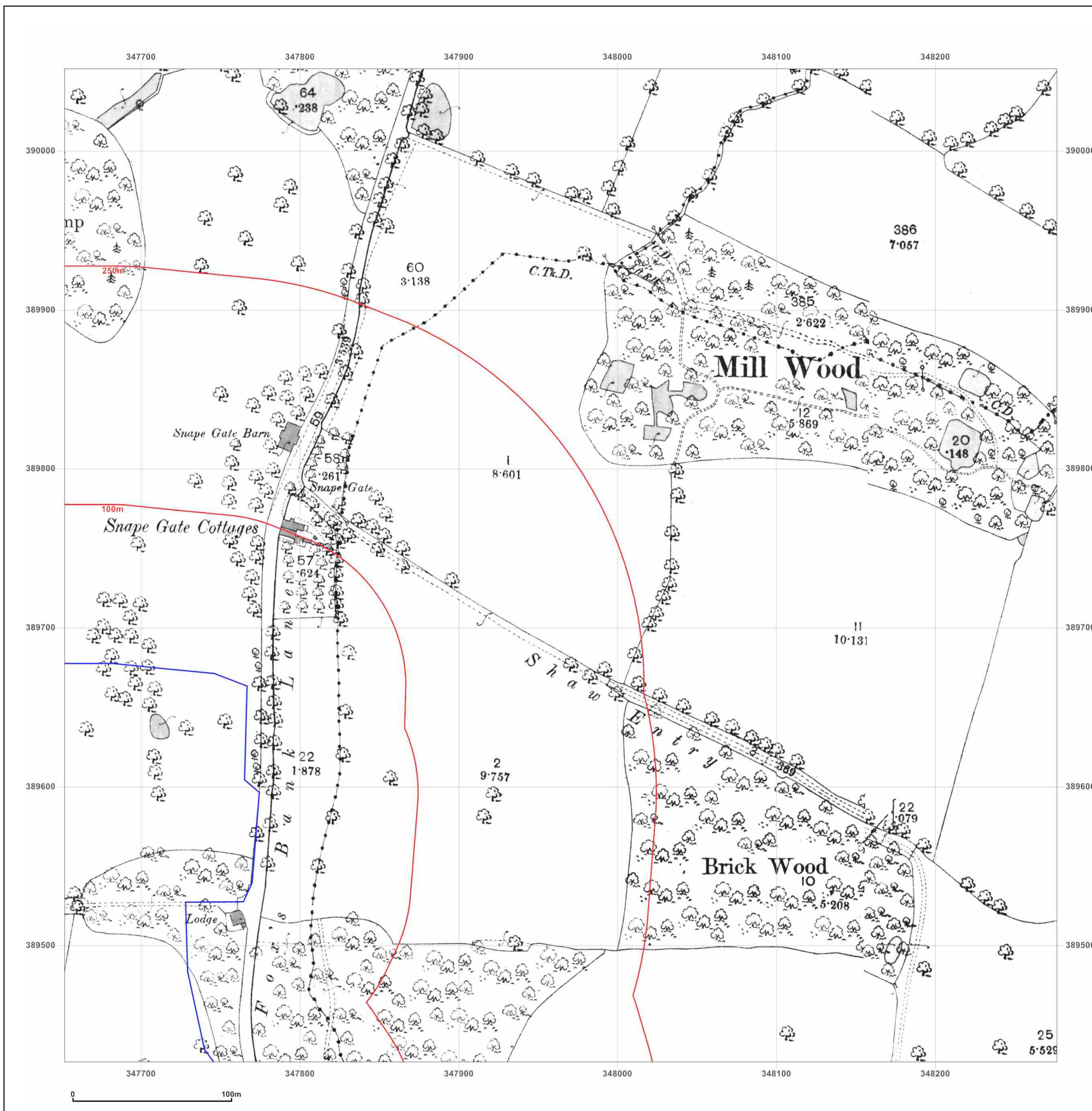


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CRONTON, L35 3SU

Client Ref: TE1163_-_PE02796
Report Ref: GS-5672876_LS_3_2
Grid Ref: 347964, 389739

Map Name: County Series

Map date: 1907

Scale: 1:2,500

Printed at: 1:2,500



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Edition N/A
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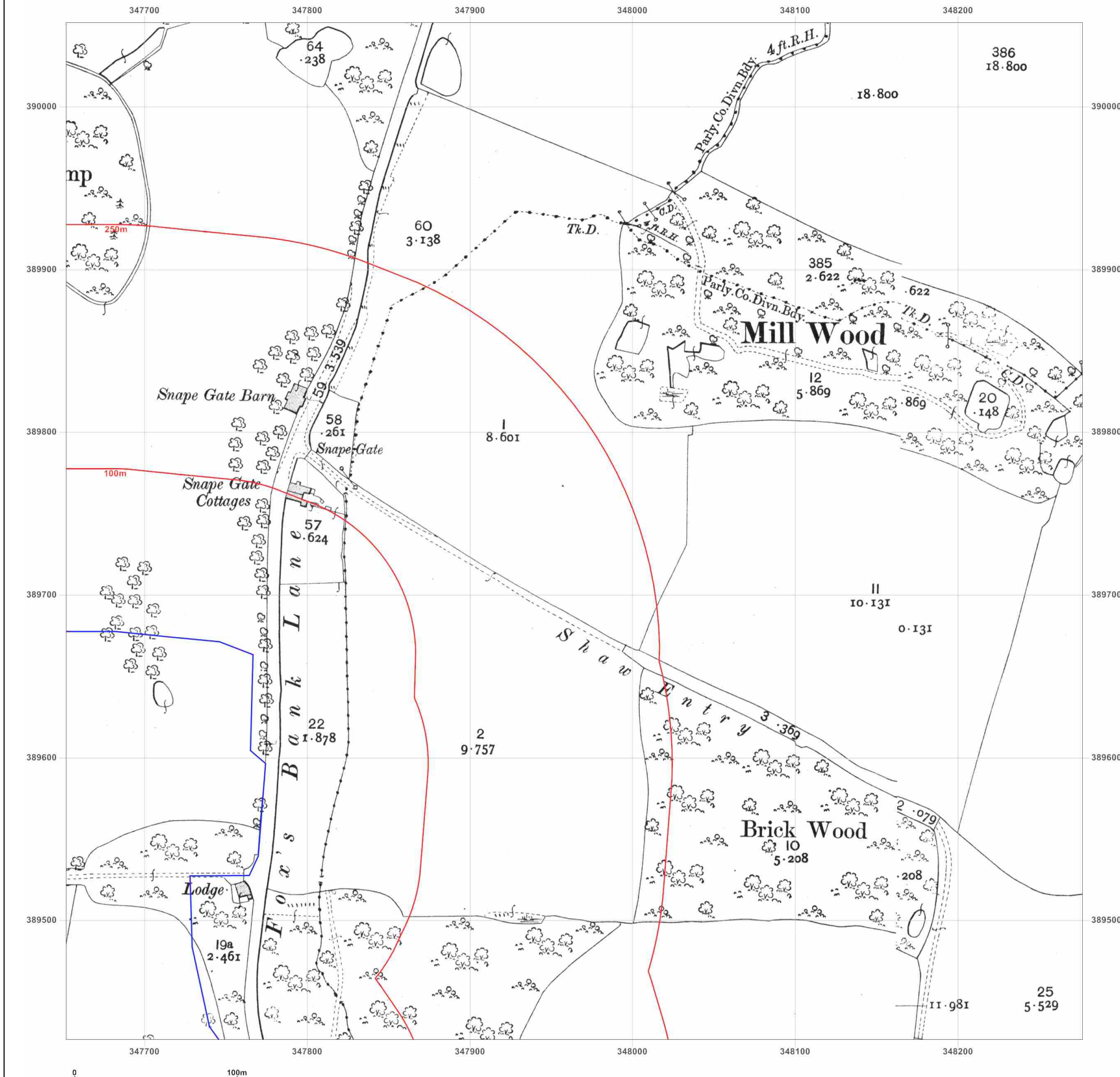


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CRONTON, L35 3SU

Client Ref: TE1163_-_PE02796
Report Ref: GS-5672876_LS_3_2
Grid Ref: 347964, 389739

Map Name: County Series

Map date: 1927

Scale: 1:2,500

Printed at: 1:2,500



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Edition N/A
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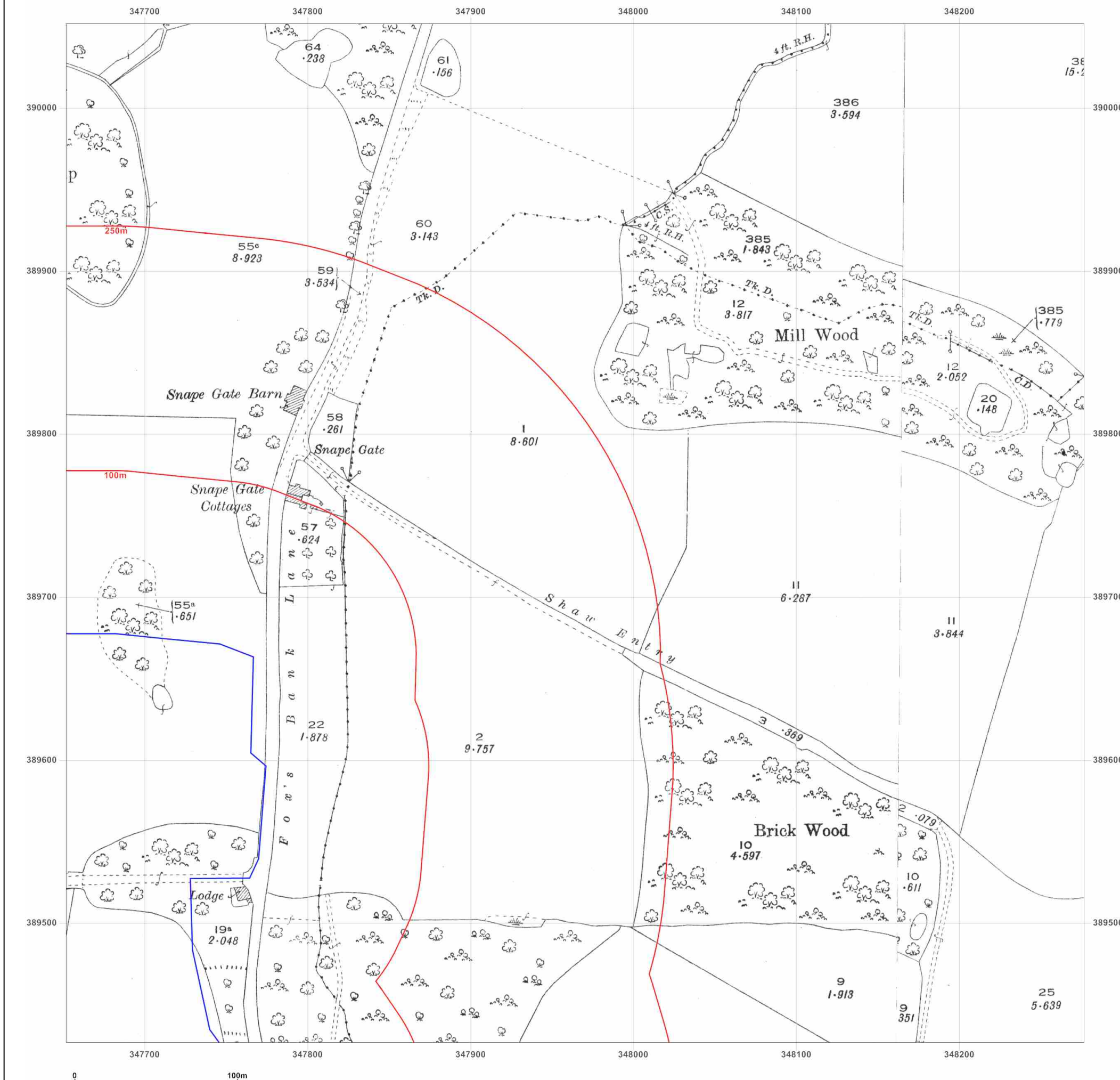


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Client Ref: TE1163_-PE02796
Report Ref: GS-5672876_LS_3_2
Grid Ref: 347964, 389739

Map Name: County Series

Map date: 1937-1938

Scale: 1:2,500

Printed at: 1:2,500



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Edition N/A
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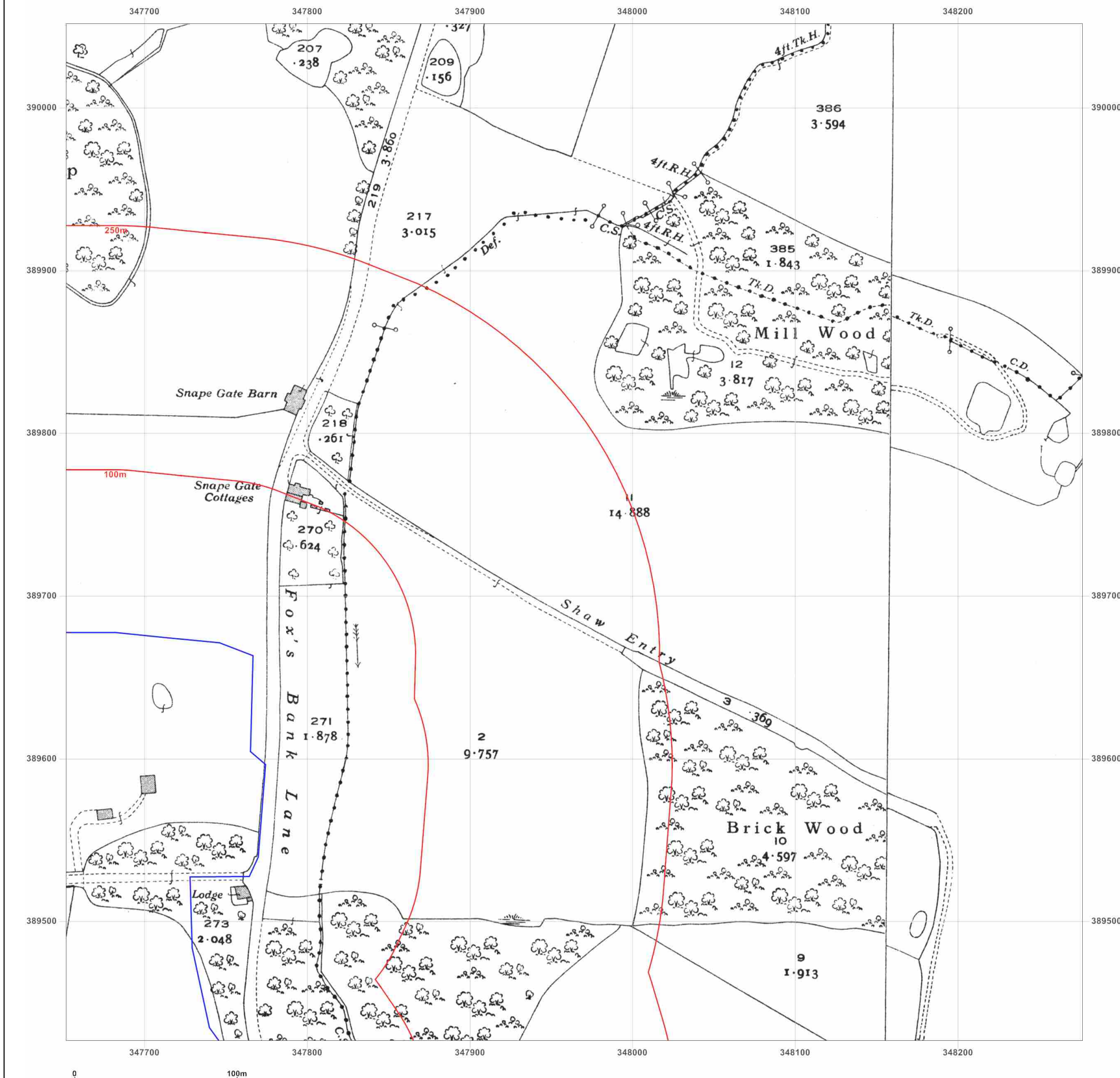


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CRONTON, L35 3SU

Client Ref: TE1163_-_PE02796
Report Ref: GS-5672876_LS_3_2
Grid Ref: 347964, 389739

Map Name: National Grid

Map date: 1958

Scale: 1:2,500

Printed at: 1:2,500



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CRONTON, L35 3SU

Client Ref: TE1163_-_PE02796
Report Ref: GS-5672876_LS_3_2
Grid Ref: 347964, 389739

Map Name: National Grid

Map date: 1975

Scale: 1:2,500

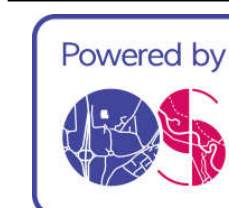
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Revised N/A
Edition N/A
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Revised N/A
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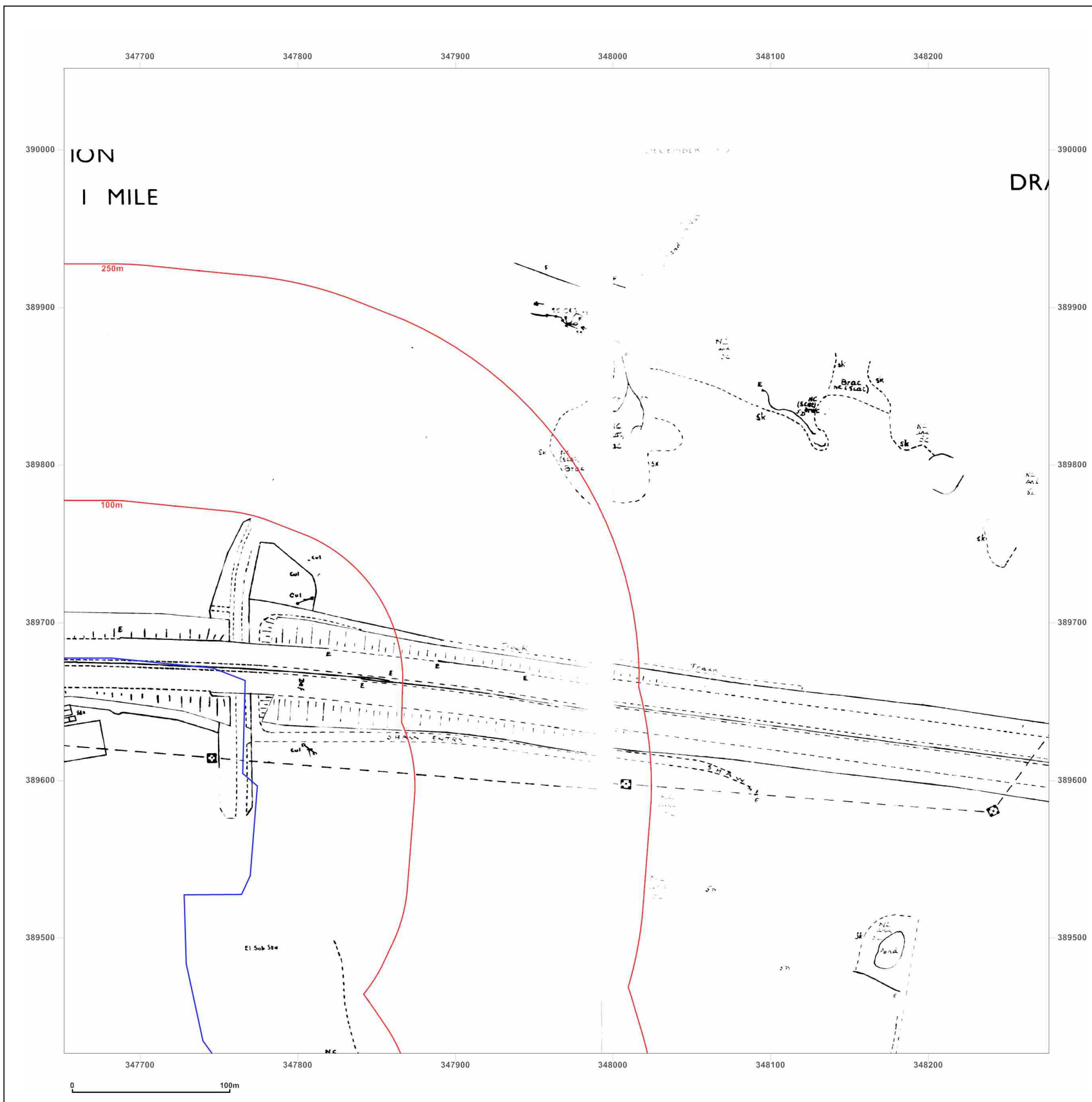


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CRONTON, L35 3SU

Client Ref: TE1163_-PE02796
Report Ref: GS-5672876_LS_3_2
Grid Ref: 347964, 389739

Map Name: National Grid

Map date: 1975-1980

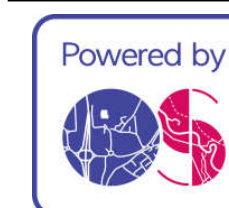
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Printed at: 1:2,500



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Edition N/A
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Levelled 1963

Surveyed 1975
Revised 1975
Edition N/A
Copyright 1976
Levelled 1963

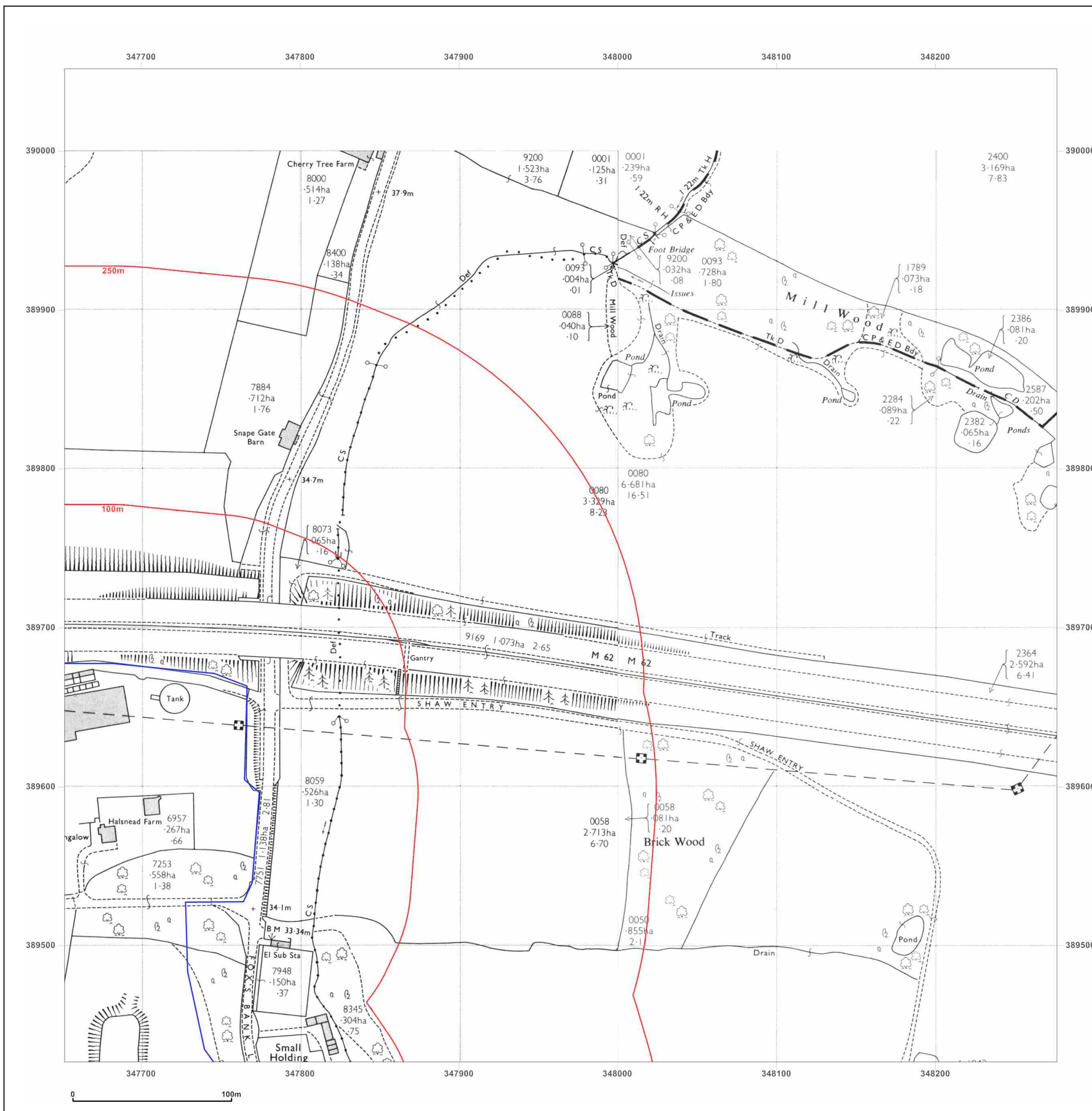


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FARM, FOXS BANK LANE,
CRONTON, L35 3SU

Client Ref: TE1163_-_PE02796
Report Ref: GS-5672876_LS_3_2
Grid Ref: 347964, 389739

Map Name: National Grid

Map date: 1980-1985

Scale: 1:2,500

Printed at: 1:2,500



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Edition N/A
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Copyright 1980
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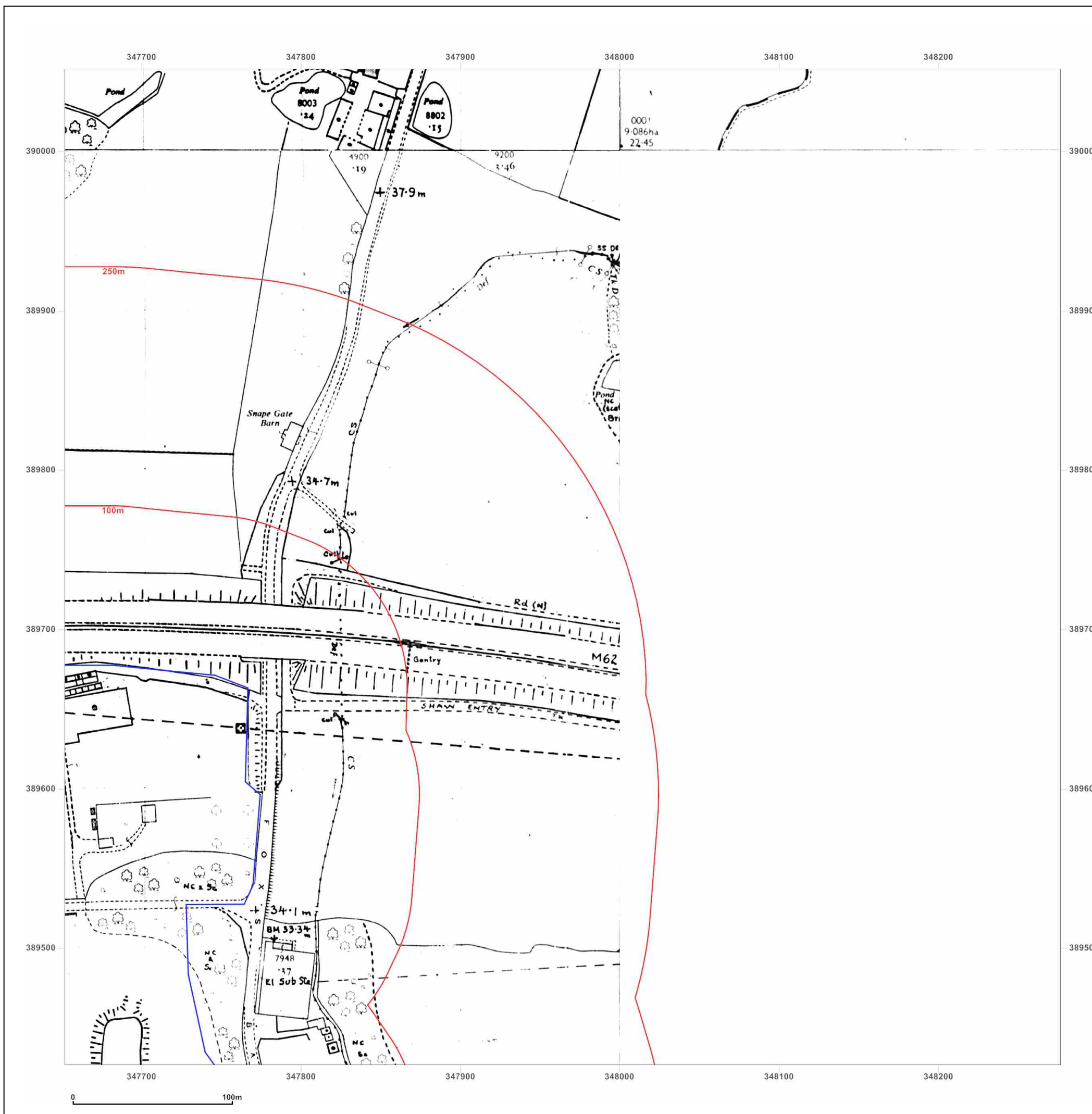


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Site Details:

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FARM, FOXS BANK LANE,
CRONTON, L35 3SU

Client Ref: TE1163_-_PE02796
Report Ref: GS-5672876_LS_3_2
Grid Ref: 347964, 389739

Map Name: National Grid

Map date: 1985-1989

Scale: 1:2,500

Printed at: 1:2,500



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

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Revised 1989
Edition N/A
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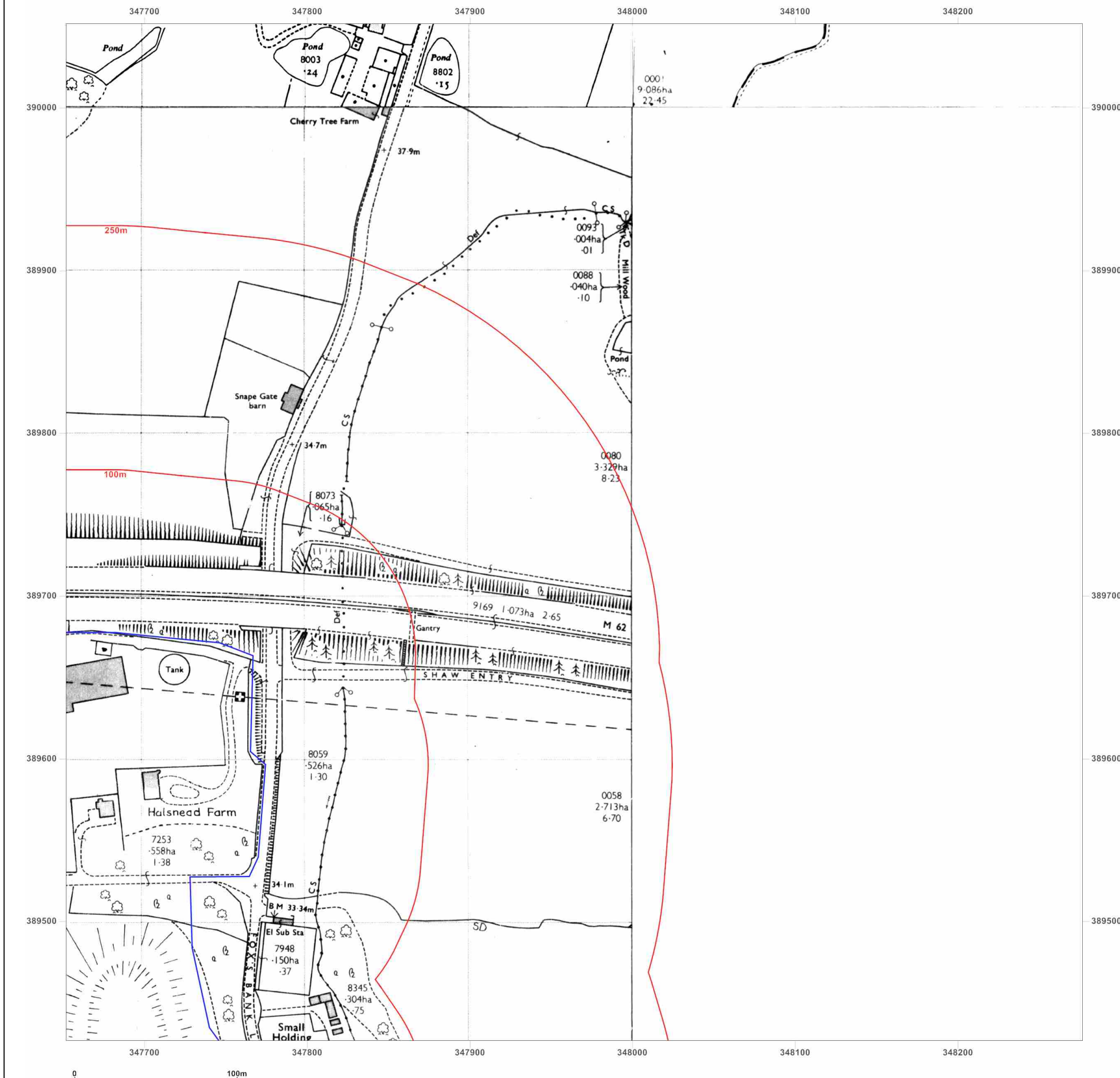


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FARM, FOXS BANK LANE,
CRONTON, L35 3SU

Client Ref: TE1163_-_PE02796
Report Ref: GS-5672876_LS_3_2
Grid Ref: 347964, 389739

Map Name: National Grid

Map date: 1993

Scale: 1:2,500

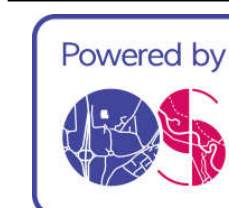
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Revised N/A
Edition N/A
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Levelled N/A

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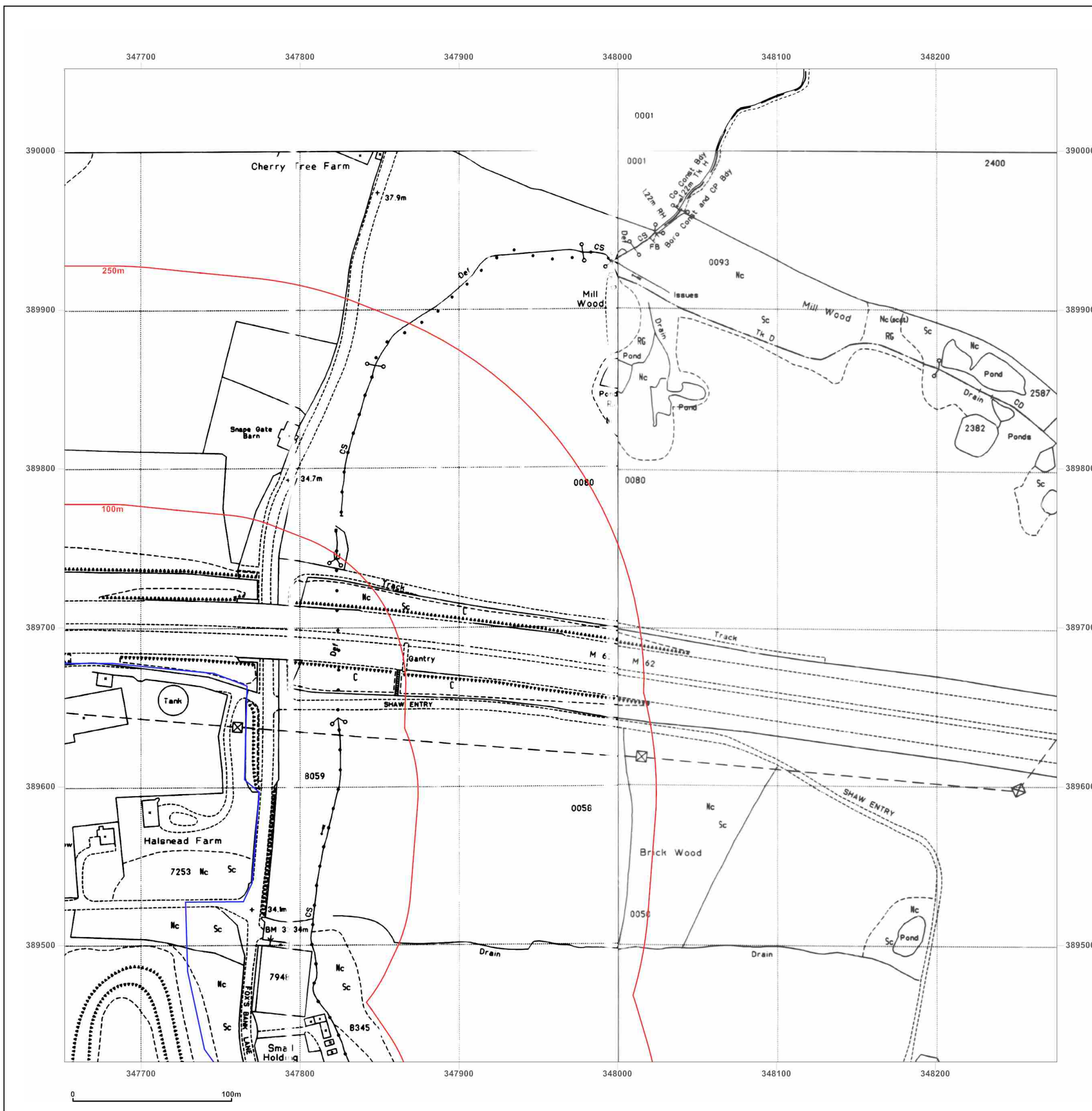


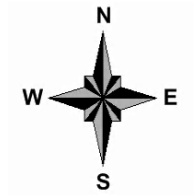
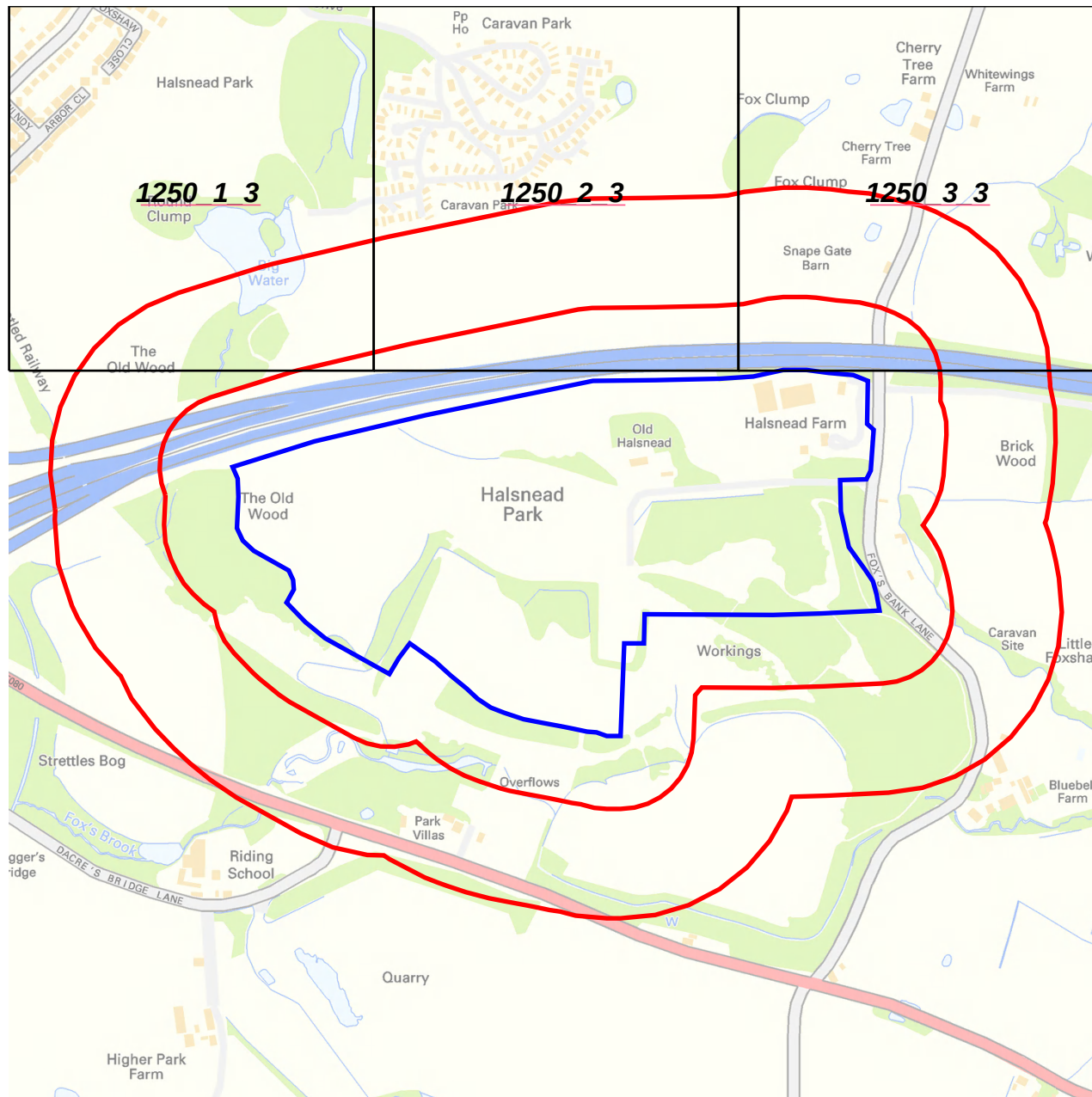
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1:1250 Scale Grid Index

Site Details:

HALSNEAD FARM, HALSNEAD
FARM, FOXS BANK LANE,
CRONTON, L35 3SU

Client Ref: TE1163_-_PE02796
Report Ref: GS-5672876_1250scale_1_3
Grid Ref: 346838, 389927

Map Name: National Grid

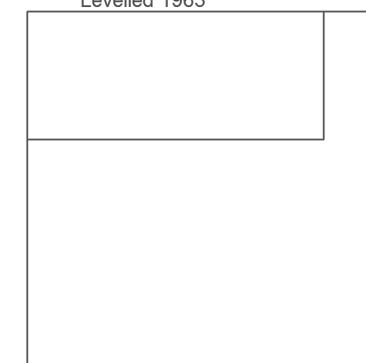
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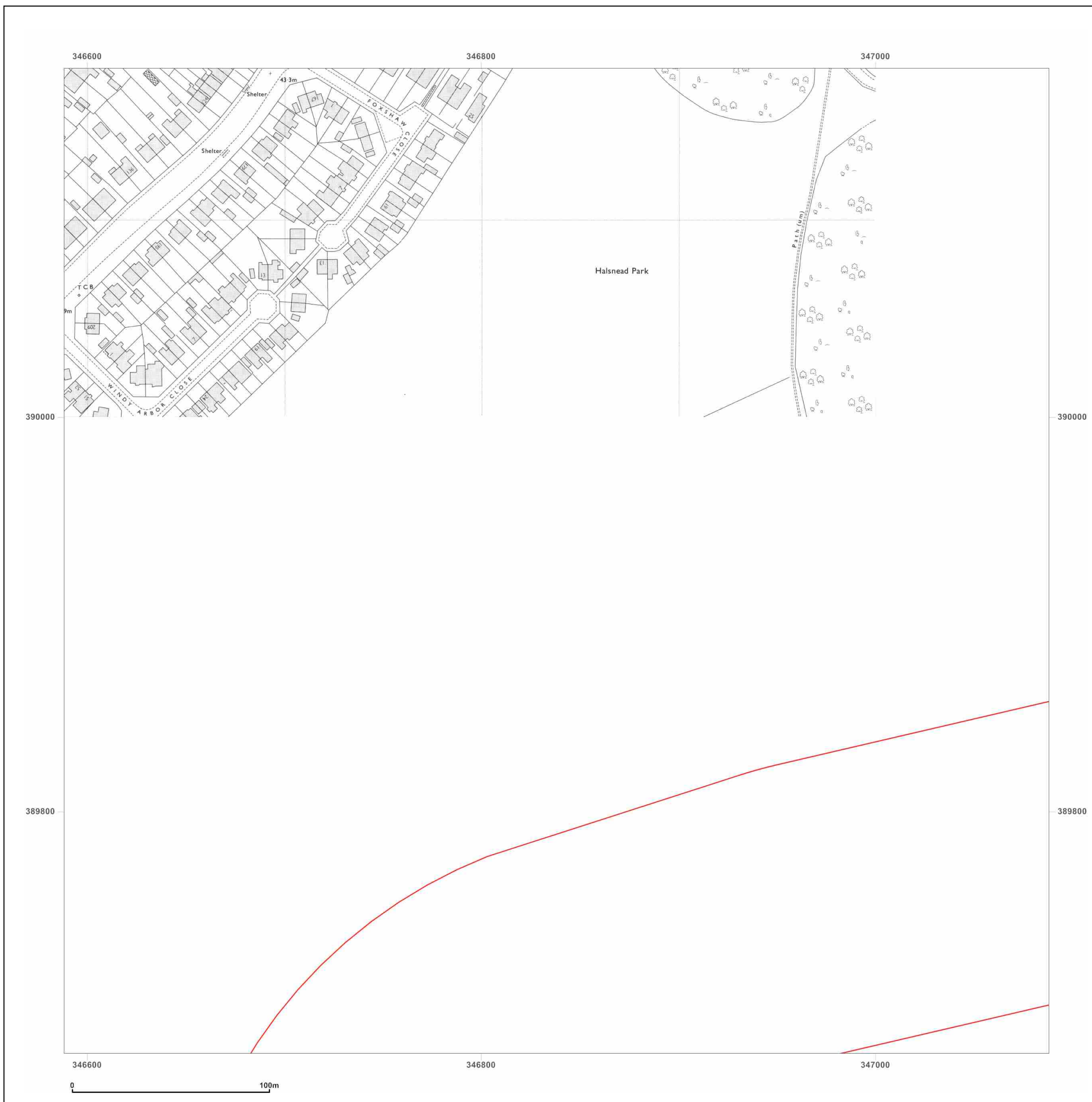


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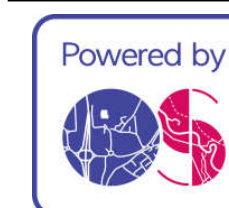
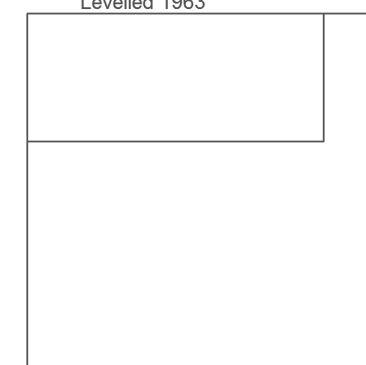
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Surveyed 1963
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Edition N/A
Copyright 1984
Levelling 1963

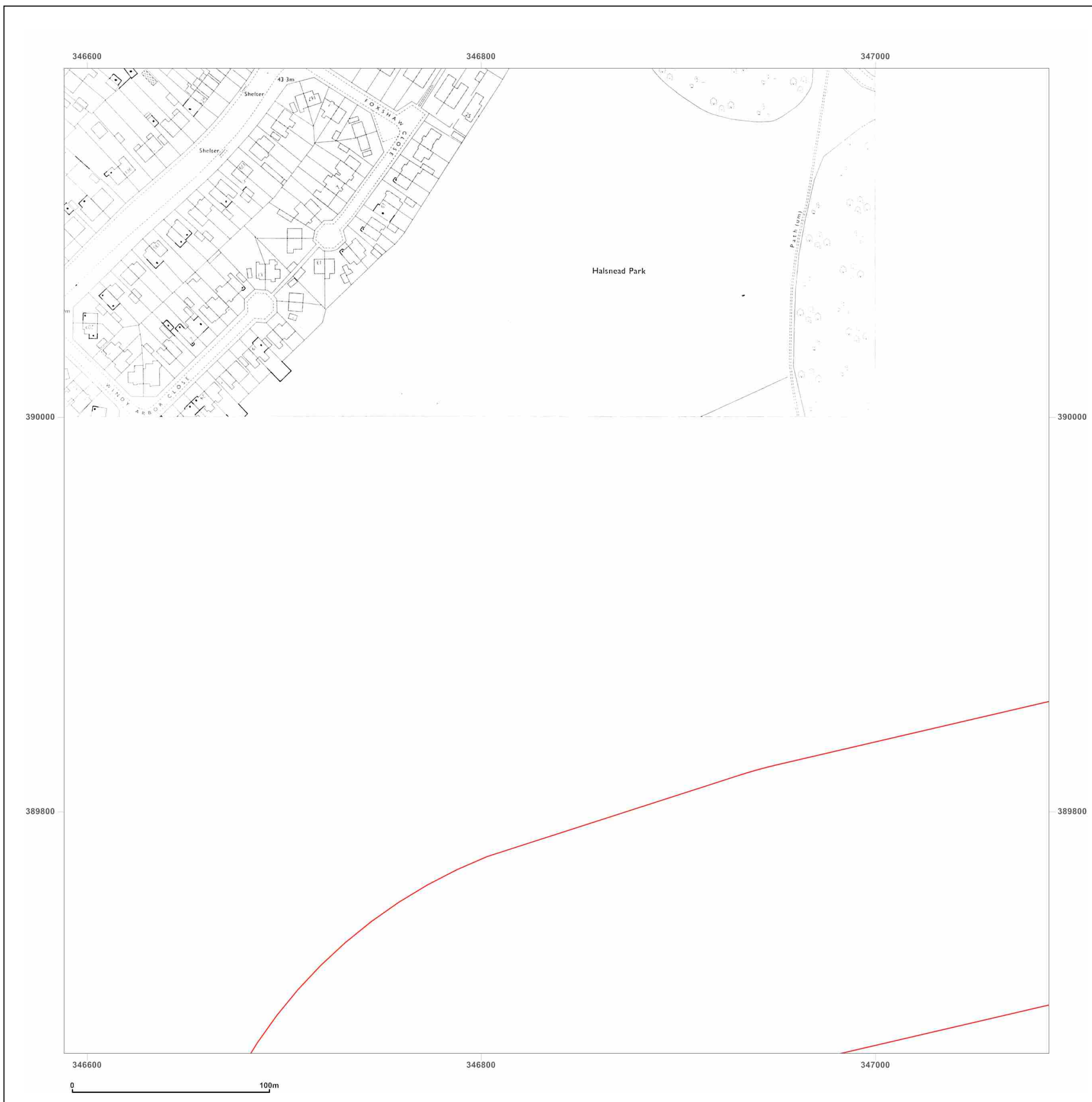


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Report Ref: GS-5672876_1250scale_1_3
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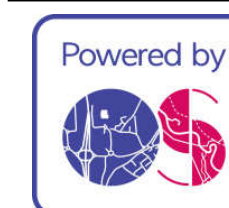
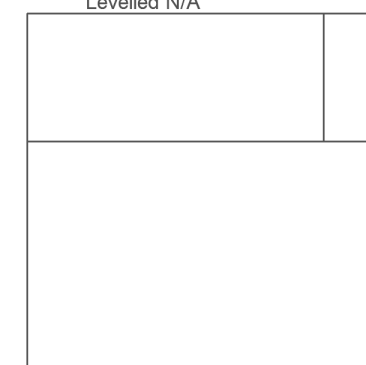
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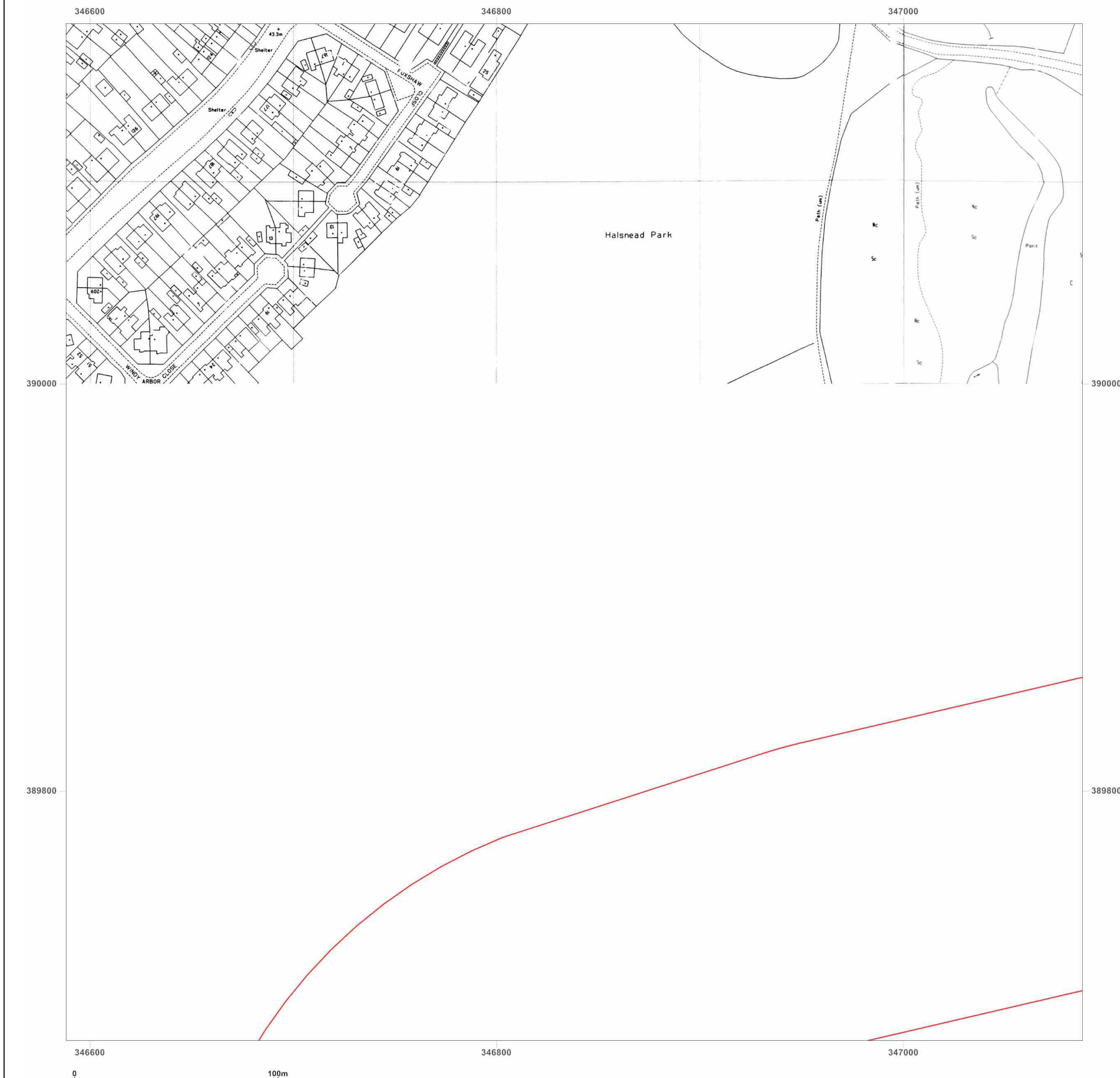


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CRONTON, L35 3SU

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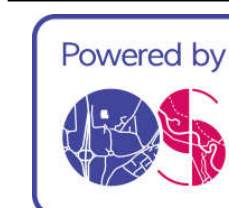
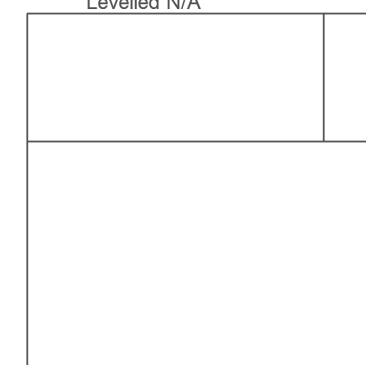
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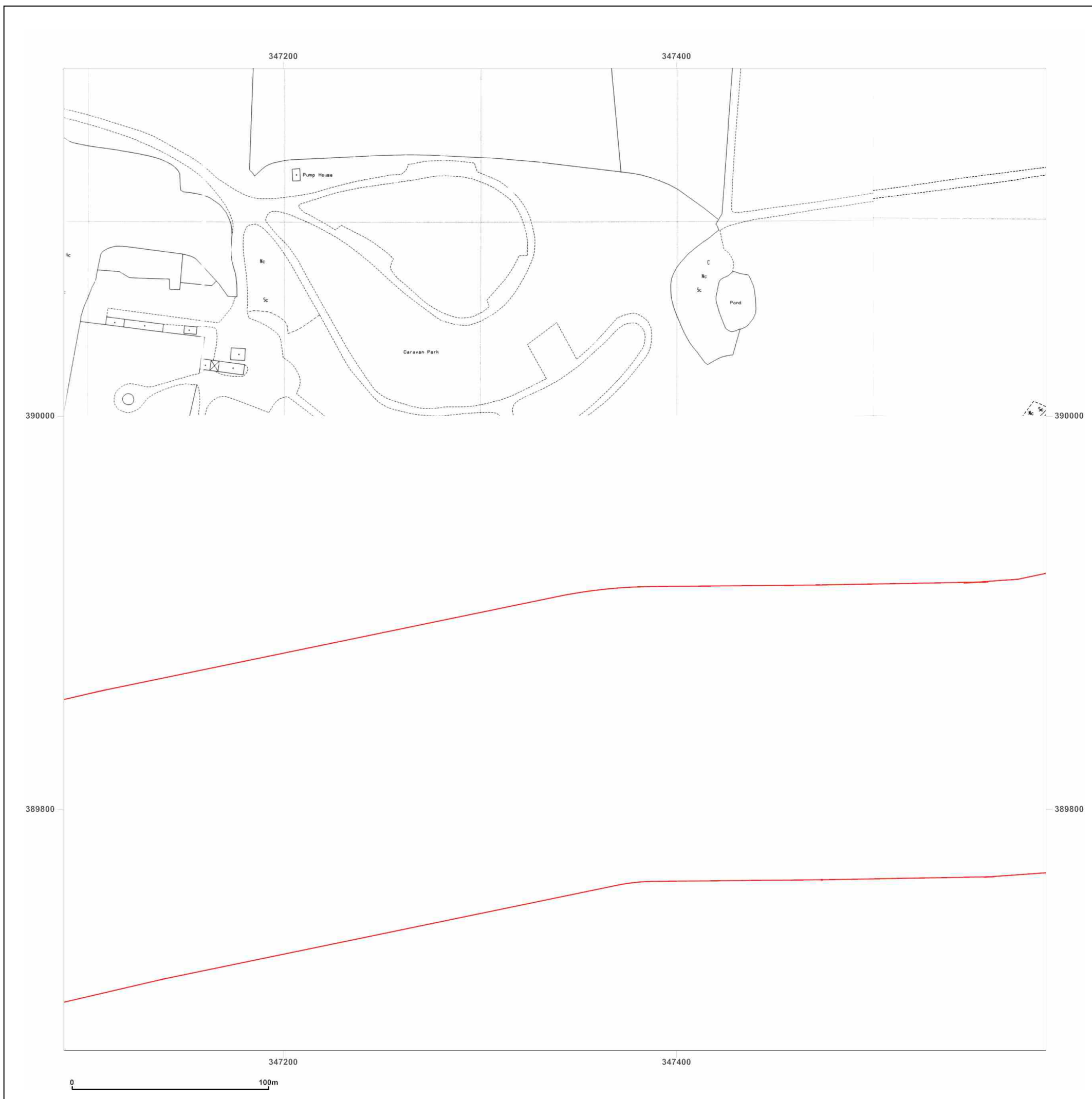


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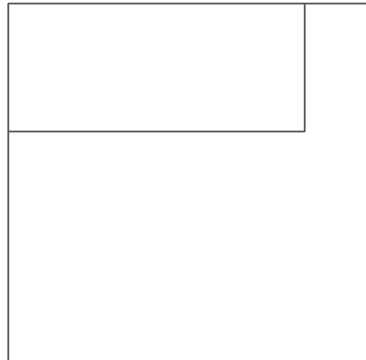
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CRONTON, L35 3SU

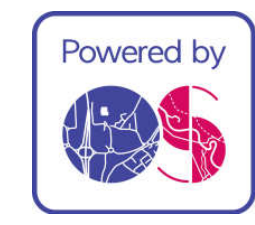
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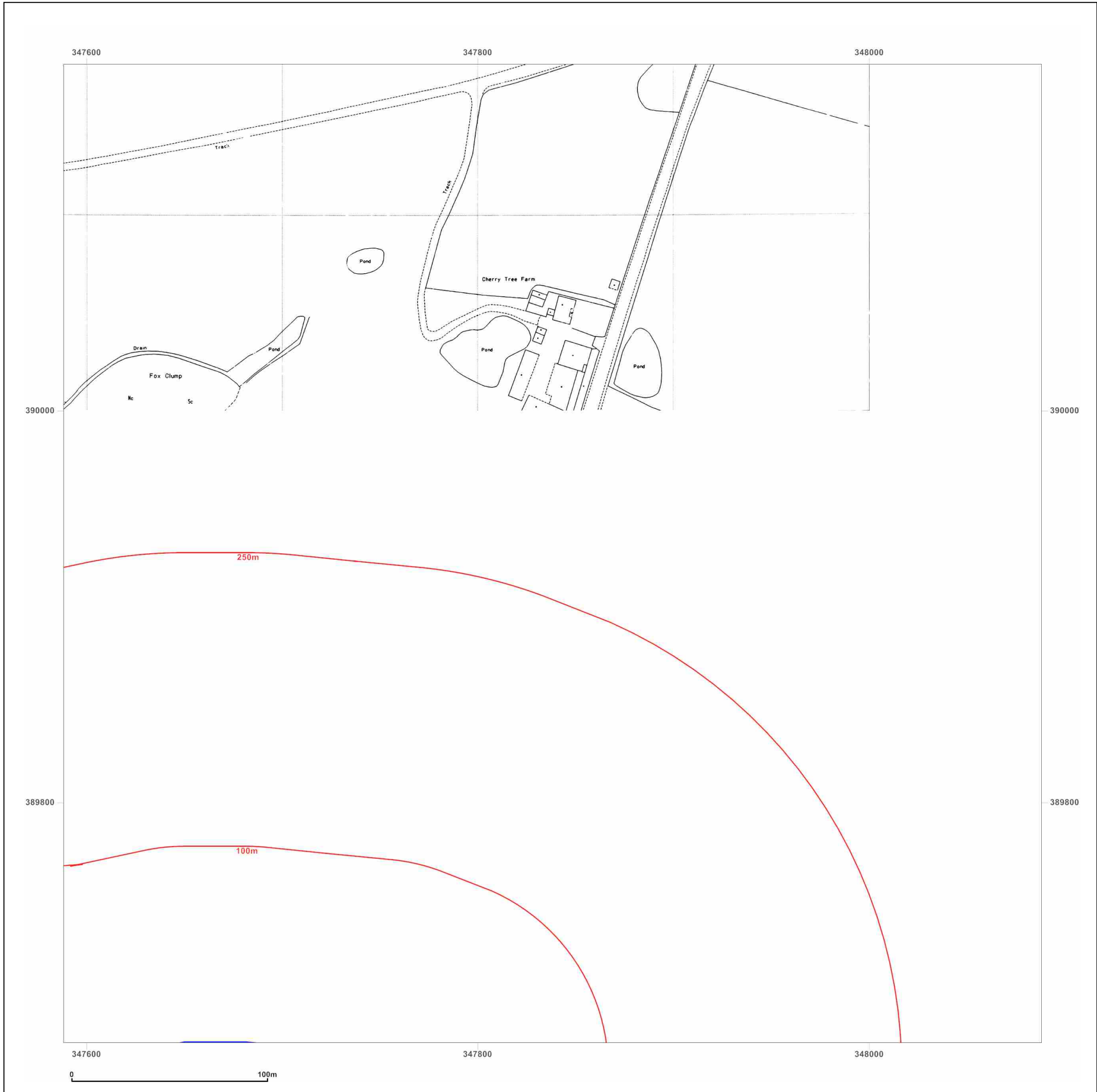


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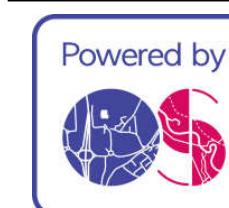
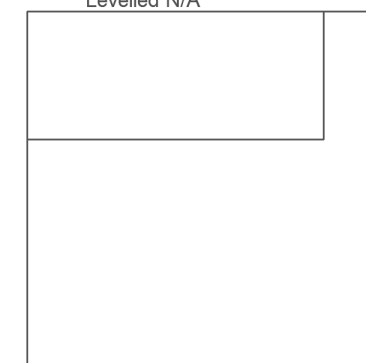
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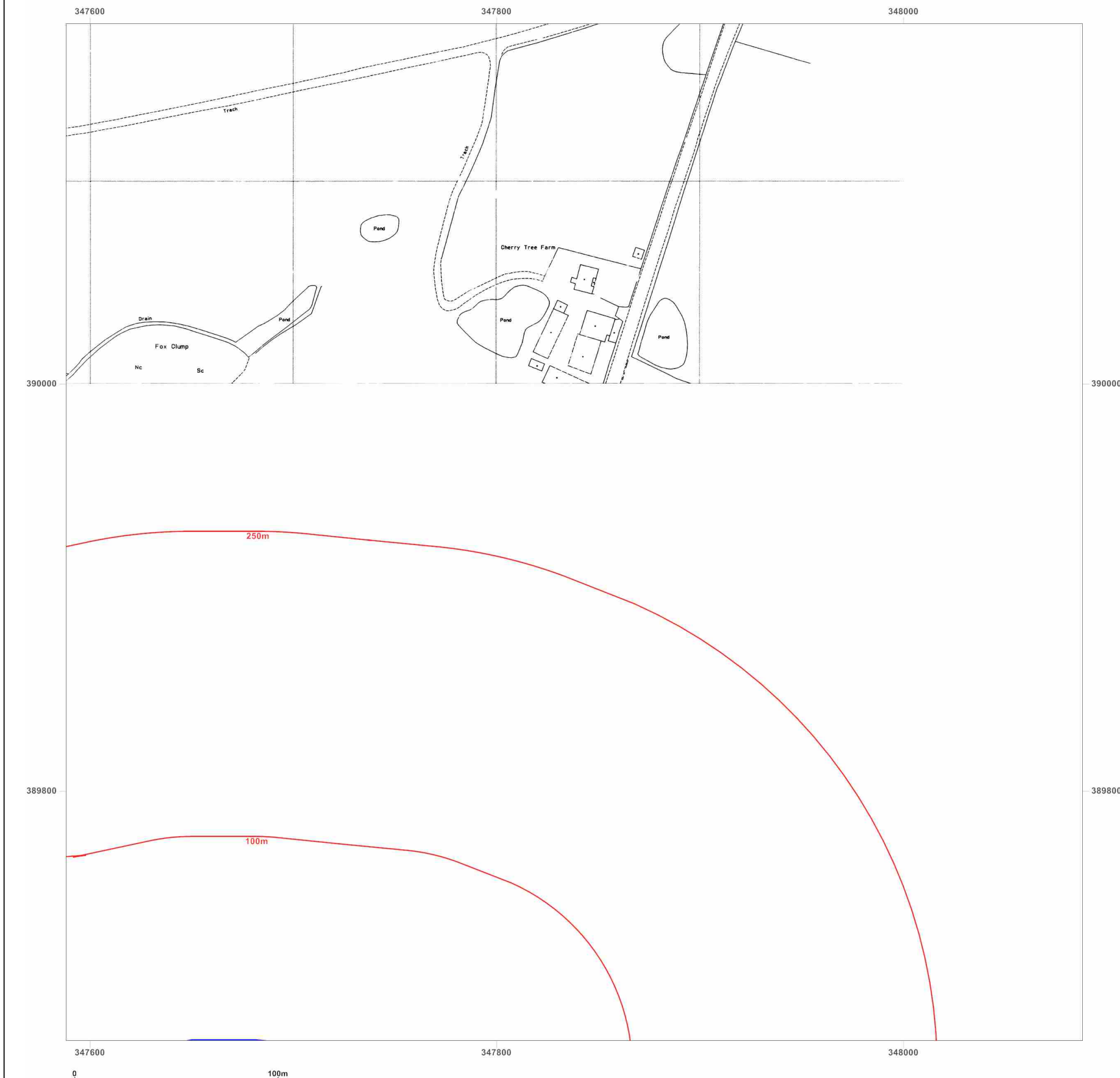


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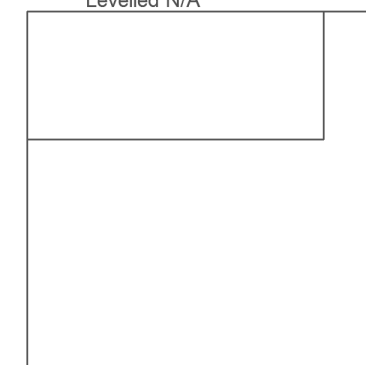
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Copyright 1994
Levelled N/A

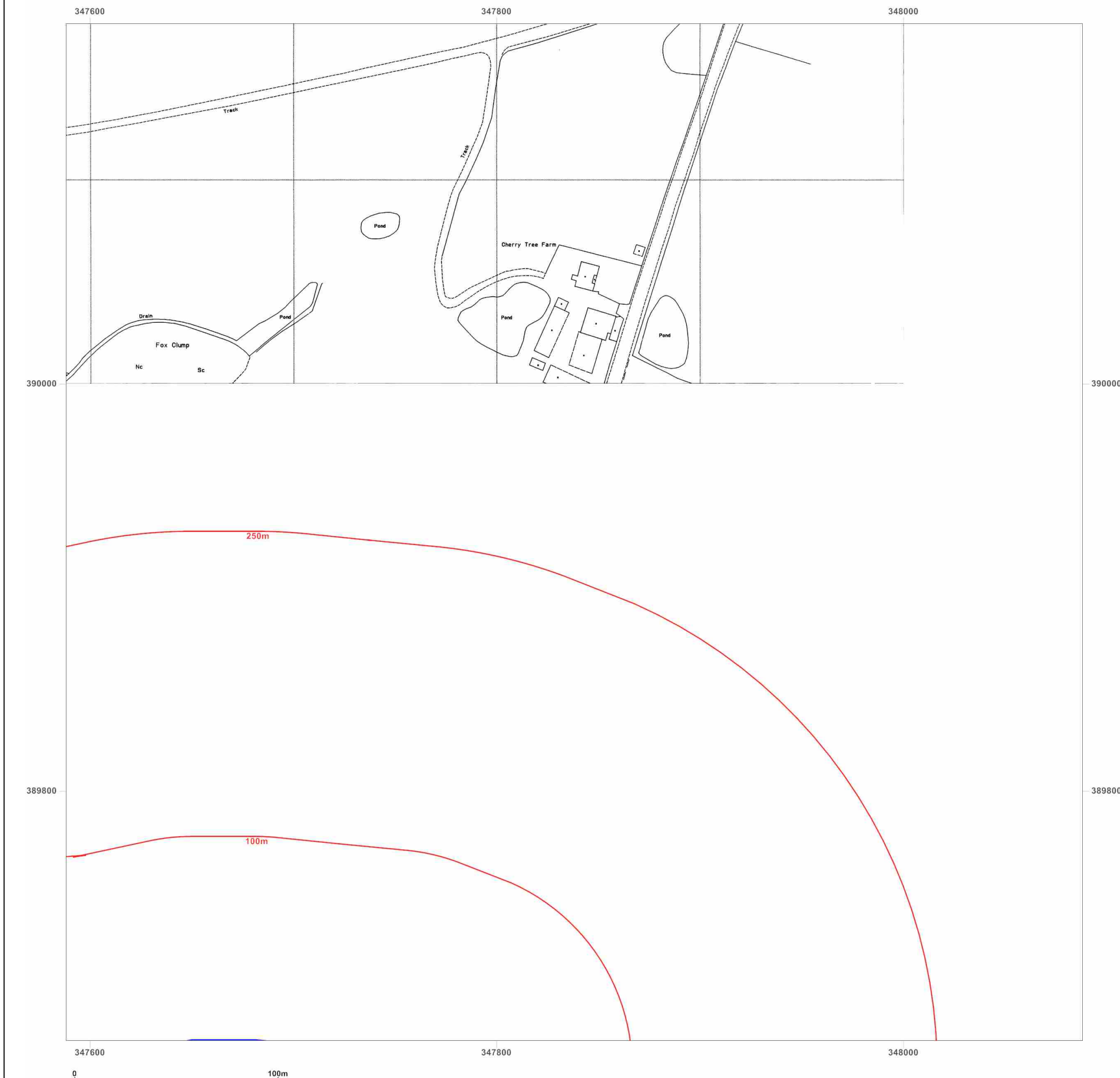


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APPENDIX G - PREVIOUS INVESTIGATION REPORT



Baker Barnett

Architectural & Surveying Services

Our Ref: 15/NSB/SB/2572

COAL MINING – RISK ASSESSMENT REPORT

for the Proposed Development to form a Country Park on land
situated at

THE FORMER CRONTON COLLIERY
CRONTON ROAD
CRONTON
L35 1QR

for the Employer

THE LAND TRUST
7 BIRCHWOOD ONE
DEWHURST ROAD
BIRCHWOOD
WARRINGTON
WA3 7GB

*on the written instructions received from the Employer
on the 4 June 2015*



Baker Barnett Limited
Unit 10, Markham Vale Environment Centre, Markham Lane,
Markham Vale, Chesterfield S44 5HY
Tel: 01246 276868 • Fax: 01246 555283
• E-mail: info@baker-barnett.co.uk • Web: www.baker-barnett.co.uk •

Managing Director & Secretary:
Neil S. Baker, MRICS, C.Build E FCABE

Company Reg. No.: 4615855

VAT Reg. No.: 657 9483 75



Chartered Association
of Building Engineers

CONTENTS

1. Limitations and Scope of the Coal Mining - Risk Assessment Report
2. The Coal Mining Risk Assessment
3. Conclusion and Mitigation Strategy Proposed

Appendices

- Appendix A Non-Residential Coal Authority Mining Report, reference
51000903234001, dated 8 June 2015

1. **LIMITATIONS AND SCOPE OF THE COAL MINING – RISK ASSESSMENT REPORT**

This Coal Mining Risk Assessment is to be used as part of the Employer's application for planning permission in respect of the proposed development described on the front page of this report.

This report has been produced for the sole use of the Employer and the Local Authority Planning Officers and the relevant Building Control Officers.

This report should not be used or relied upon by other parties without the express written authority of Baker Barnett Limited. Baker Barnett Limited does not accept any liability to third parties. Any other people/parties who rely upon any of the contents of this report, do so entirely at their own risk.

We have not carried a full Phase 1 Desk Top Study or any form of physical site investigation, neither have we made any enquiries regarding buried services, which may be present within the land.

2. **THE COAL MINING RISK ASSESSMENT**

2a Baker Barnett Limited has been asked to prepare a Coal Mining Risk Assessment for use as part of a planning application in respect of the proposed development described on the front page of this report.

2b The site is shown edged in red on the plan below. The approximate National Grid Co-ordinates of the centre of the main part of site are: 347 500m E, 389 200m N.



2c Coal Mining Report

- 2.c.i We have been provided with a Non-Residential Coal Authority Mining Report, reference 51000903234001, dated 8 June 2015, extracts of which are reproduced, below.

Underground coal mining

Past

The property is in the likely zone of influence from workings in 12 seams of coal at 100m to 670m depth, and last worked in 1976.

Any ground movement from these coal workings should have stopped by now.

In addition the property is in an area where the Coal Authority believe there is coal at or close to the surface. This coal may have been worked at some time in the past. The potential presence of coal workings at or close to the surface should be considered prior to any site works or future development activity. Your attention is drawn to the Comments on Coal Authority Information section of the report.

Present

The property is not in the likely zone of influence of any present underground coal workings.

Future

The property is not in an area for which the Coal Authority is determining whether to grant a licence to remove coal using underground methods.

The property is not in an area for which a licence has been granted to remove or otherwise work coal using underground methods.

The property is not in an area that is likely to be affected at the surface from any planned future workings.

However, reserves of coal exist in the local area which could be worked at some time in the future.

No notice of the risk of the land being affected by subsidence has been given under section 46 of the Coal Mining Subsidence Act 1991.

Mine entries

Within, or within 20 metres of, the boundary of the property there are 3 mine entries, the approximate positions of which are shown on the attached plan.

Our records disclose the following information:

347389-002. This shaft was filled grouted and capped by the National Coal Board in 1985.

347389-003. This shaft was filled in September 1969 and later grouted and capped by the National Coal Board in 1985.

347389-001. This shaft was filled grouted and capped by the National Coal Board in 1985.

Records may be incomplete. Consequently, there may exist in the local area mine entries of which the Coal Authority has no knowledge.

Coal mining geology

The Authority is not aware of any evidence of damage arising due to geological faults or other lines of weakness that have been affected by coal mining.

Opencast coal mining

Past

The property is not within the boundary of an opencast site from which coal has been removed by opencast methods.

Present

The property does not lie within 200 metres of the boundary of an opencast site from which coal is being removed by opencast methods.

Future

The property is not within 800 metres of the boundary of an opencast site for which the Coal Authority is determining whether to grant a licence to remove coal by opencast methods.

The property is not within 800 metres of the boundary of an opencast site for which a licence to remove coal by opencast methods has been granted.

Coal mining subsidence

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

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

The 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

The property has been subject to remedial works, by or on behalf of the Authority, associated with a mine gas investigation.

Hazards related to coal mining

The property has not been subject to remedial works, by or on behalf of the Authority, under its Emergency Surface Hazard Call Out procedures.

Comments on Coal Authority information

The attached plan shows the approximate location of the disused mine entry/entries referred to in this report. For reasons of clarity, mine entry symbols may not be drawn to the same scale as the plan.

Property owners have the benefit of statutory protection (under the Coal Mining Subsidence act 1991). This contains provision for the making good, to the reasonable satisfaction of the owner, of physical damage from disused coal mine workings including disused coal mine entries. A leaflet setting out the rights and the obligations of either the Coal Authority or other responsible persons under the 1991 Act can be obtained by telephoning 0345 762 6848 or online at www.coal.decc.gov.uk/en/coal/cms/services/claims.*

In view of the mining circumstances a prudent developer would seek appropriate technical advice before any works are undertaken.

Therefore if development proposals are being considered, technical advice relating to both the investigation of coal and former coal mines and their treatment should be obtained before beginning work on site. All proposals should apply good engineering practice developed for mining areas. No development should be undertaken that intersects, disturbs or interferes with any coal or mines of coal without the permission of the Coal Authority. Developers should be aware that the investigation of coal seams/former mines of coal may have the potential to generate and/or displace underground gases and these risks both under and adjacent to the development should be fully considered in developing any proposals. The need for effective measures to prevent gases entering into public properties either during investigation or after development also needs to be assessed and properly addressed. This is necessary due to the public safety implications of any development in these circumstances.

2.c.ii Mine gas:

Below is the site as seen from the Google earth view.



The 3 mine shafts are located here.

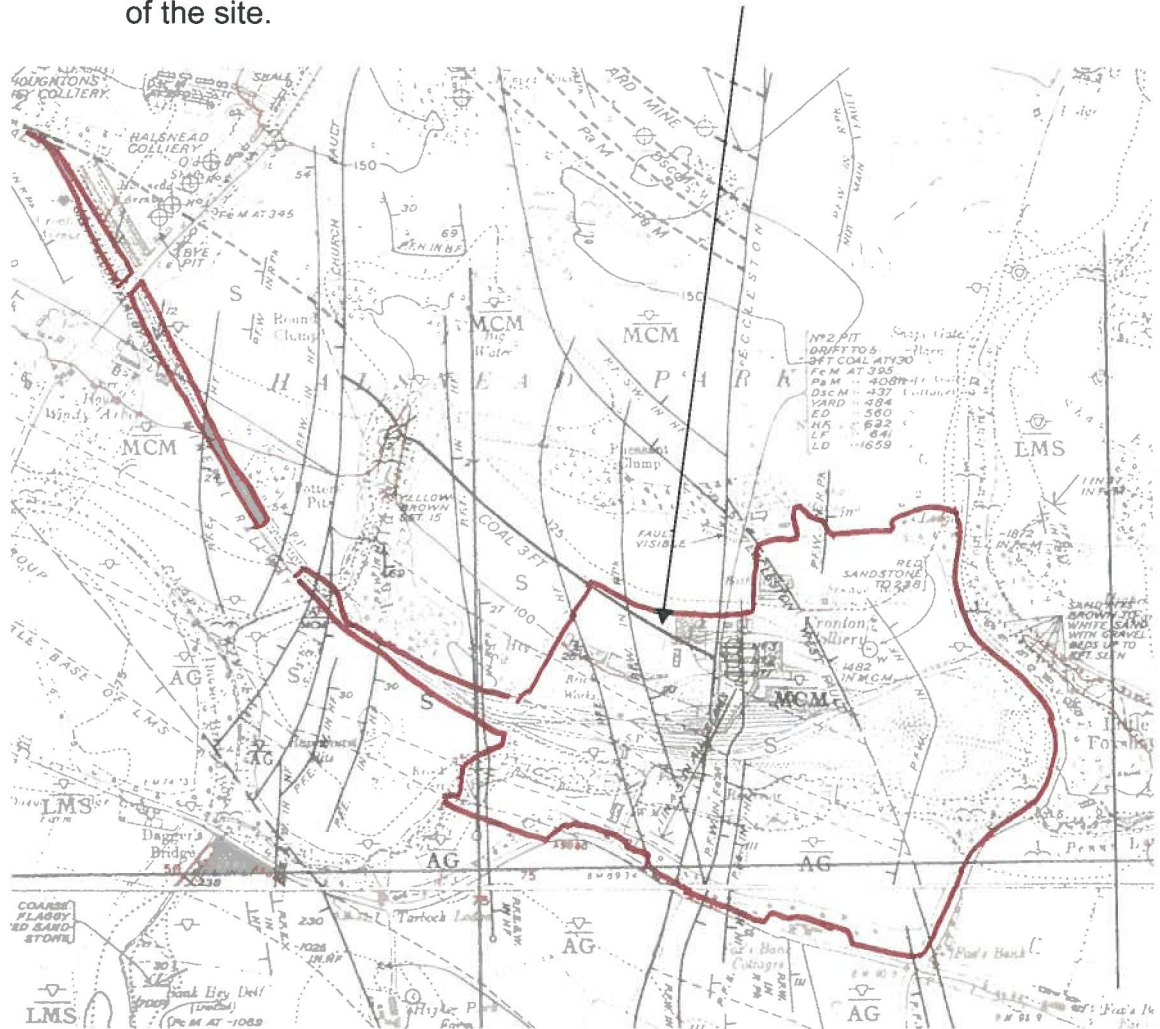
Each shaft is situated within a fenced compound and there is a steel tube through each shaft cap, which is used to vent mine gas, containing methane, to the atmosphere. The fenced compounds are located on land belonging to the Coal Authority. The Coal Authority is responsible for looking after abandoned mines and mine entries. No. 3 shaft is the most northerly of the three shafts.

2d Sources of Information Used to Compile This Report

2.d.i Geological Map Records

We, on behalf of the Employer, have purchased a copy of the geological maps, which cover the proposed development area. Those sheets are County 6" to 1 mile Lancashire 107 SE and 114 NE. Below is an extract from those geological sheets combined together, with the proposed development site superimposed and edged in red.

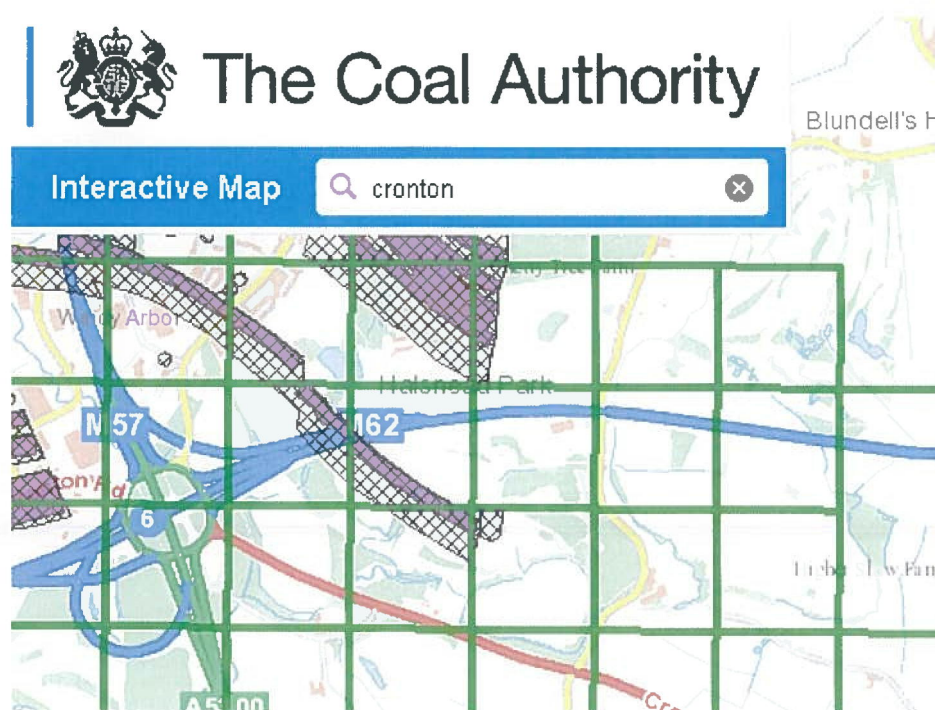
A coal seam, marked on the plan as the "3FT", outcrops close through part of the site.



It is possible that the 3FT seam may have been worked in the past by shallow un-charted coal mine workings, extending some 140m from the outcrop to the south-west. By referring to shallow workings as being less than 30 m deep, the distance of 140m is derived from the dip of the seams of 1 in 4.5, shown on the geological plan, x a vertical dimension of 30m + 5m to account for the ground surface not being level.

$$\text{i.e. } (4.5 \times 30) + 5 = 140\text{m}$$

The area where shallow old mine workings may exist is classed by the Coal Authority as a “development high risk area” which is cross-hatched on the image below, taken from the Coal Authority’s Interactive Map viewer. The 3FT coal seam outcrop is indicated by a thick purple line.



2.d.ii Coal Authority Abandoned Mine Plans

A visit to the Coal Authority Mines Records Office in Mansfield, was undertaken on the 9 June 2015. The Coal Authority abandoned mine plan records were examined and digital copies of the abandoned mine plans were viewed for recorded mine workings, within the vicinity of this site:

Abandoned Mine Plan Catalogue No. 10416 (1 plan)

Yard seam at No. 1 Pit, plan completed up to 6 February 1931.

Abandoned Mine Plan Catalogue No. 10958 (1 plan)

Felcroft seam at No. 1 Pit, plan completed up to 4 March 1933

Abandoned Mine Plan Catalogue No. 11564 (4 plans)

- 1 of 4 Burcy seam at No. 2 Pit, plan completed up to 16 April 1928
- 2 of 4 Pasture seam at No. 1 Pit, plan completed to 11 December 1917
- 3 of 4 Earthy Delph seam at No. 1 Pit, plan completed up to 1 March 1923
- 4 of 4 Prescott Main Delph seam at No. 2 Pit, plan completed to 14 April 1931

Abandoned Mine Plan Catalogue No. 11793 (1 plan)

Cheshire seam, plan completed up to 15 February 1936

Abandoned Mine Plan Catalogue No. 12635 (1 plan)

No. 1 Pit - Crumbouke seam, plan complete to 22 December 1939

Abandoned Mine Plan Catalogue No. 14155 (1 plan)

Crombouke seam

Abandoned Mine Plan Catalogue No. 14187 (1 plan)

Earthy Delph seam workings closed 22 May 1959

Abandoned Mine Plan Catalogue No. 14235 (1 plan)

No. 2 Pit – Rushy Park seam

Abandoned Mine Plan Catalogue No. 16566 (2 plans)

- 1 of 2 Cronton Colliery Spoil Heap plan
- 2 of 2 Cronton Colliery Spoil Heap plan

Abandoned Mine Plan Catalogue No. NW174 (2 plans)

- 1 of 2 London Delph or Felcroft seam, workings completed 15 August 1952
- 2 of 2 Wigan 5ft seam

Abandoned Mine Plan Catalogue No. NW201 (1 plan)

Yard seam No. 1 Pit, abandoned 12 November 1955

Abandoned Mine Plan Catalogue No. NW368 (2 plans)

- 1 of 2 Crombouke seam, plan dated 19 August 1960
- 2 of 2 Ince 6 Feet seam, plan dated 19 August 1960

Abandoned Mine Plan Catalogue No. NW495 (1 plan)

Haigh Yard seam, plan dated 22 October 1963

Abandoned Mine Plan Catalogue No. NW535 (1 plan)

Higher Florida or Higher Bug seam, plan dated 18 October 1965

Abandoned Mine Plan Catalogue No. NW593 (1 plan)

London Delph or Felcroft seam, plan dated 27 April 1967 - Abandoned 1966.

A barrier against old workings from Halsnead Colliery, to the north-west is shown on the plan



Waterlogged workings are shown on this plan, which has been shown under the location plan.

Abandoned Mine Plan Catalogue No. NW636 (1 plan)

Lower Florida, dated 29 January 1968

Abandoned Mine Plan Catalogue No. NW637 (1 plan)

Pigeon House or Cheshire seam, dated 29 January 1968

Abandoned Mine Plan Catalogue No. NW638 (1 plan)

Rushy Park seam, dated 29 January 1968

Abandoned Mine Plan Catalogue No. NW689 (1 plan)

Wigan 5 Feet seam, dated 3 December 1972

Abandoned Mine Plan Catalogue No. NW690 (1 plan)

Wigan 4 Feet seam, dated 3 December 1972

Abandoned Mine Plan Catalogue No. 695 (1 plan)

Plodder (Prescot Main Delph) seam, workings up to 13 February 1973

Abandoned Mine Plan Catalogue No. 727 (6 standard mine plans plus 1 key plan)

High Florida seam, deposited with Mines Records 5 December 1981

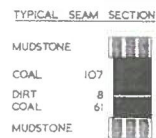
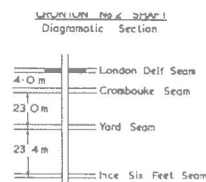
Abandoned Mine Plan Catalogue No. 756 (9 standard mine plans)

As with record NW 593, this plan shows the London Delph seam, abandoned 1984, plan deposited 28 August 1984 together with:

- 4 Crombouke seam overlays
- 7 Methane drainage overlays
- 1 overlay plan Quaker seam
- 3 Yard Seam overlays

Below, is the London Delph seam plan





No.1 SHAFT

E 347418	N 389300	
INTERNAL DIA SHAFT TOP	4.57m	
SURFACE LEVEL	+33.1	
LONDON DELF LEVEL	96.2	
CROMBOUKE LEVEL	100.2	
FLORIDA INSET LEVEL	168.2	
SHAFT BOTTOM LEVEL	187.3	

— CRONTON COLLIERY —

No.2 SHAFT

E 347421	N 389324	
INTERNAL DIA SHAFT TOP	6.40m	
SURFACE LEVEL	+33.5	
LONDON DELF LEVEL	89.7	
CROMBOUKE LEVEL	93.7	
FLORIDA INSET LEVEL	161.8	
RUSHY PARK INSET LEVEL	436.5	
SHAFT BOTTOM LEVEL	483.3	

SEE OVERLAY PLAN Sheet No. SJ 4689 CROMBOUKE SEAM & YARD SEAM
which form part of this WORKING PLAN in compliance with Regulation 8(1)
Coal Mines (Surveyors & Plans) Regulations 1956

Abandoned Mine Plan Catalogue No. NW757

Ince Six Feet seam, deposited 28 August 1984 (3 standard mine plans)
Higher Florida seam, deposited 28 August 1984 (6 standard mine plans)
Lower Florida seam, deposited 28 August 1984 (5 standard mine plans)
3 Yard seam overlays, deposited 28 August 1984

Abandoned Mine Plan Catalogue No. NW803

Higher Bug Coal or Higher Florida seam (see earlier reference) – No. 1 Pit
– Cronton Colliery



Abandoned Mine Plan Catalogue No. SFE307 (Additional to 3070) – 2 plans

- 1 of 2 Cronton Colliery Surface plan
- 2 of 2 Colliery Curtilage plan

Abandoned Mine Plan Catalogue No. 2739 (6 plans and Abandoned Mines form 13/7/189_)

Halsnead Colliery, West of Cronton – the workings on these old plans are shown on the Cronton Standard Mine plans.

General commentsCronton No. 1 Pit Shaft Section from Record NW201 & NW368

Surface level	10126.18
London Delph seam level	9684.35
Crombouke level	9671.25
Yard seam	9595.65
Florida Inset level	9448.20
Inset level	9448.13
Higher Florida (or Higher Bug) Seam	9447.75

Depth of shaft 241.08 yards.

The levels in the table above are calculated to 10 000 feet below Ordnance Datum (O.D.), in the table below those levels are reduced to metres above or below O.D.

	feet to 10 000 BOD	m AOD	Depth in m
Surface level	10126.18	38.46	
London Delph seam level	9684.35	-96.21	134.67
Crombouke level	9671.25	-100.20	138.66
Yard seam	9595.65	-123.25	161.71
Florida Inset level	9448.2	-168.19	206.65
Higher Florida level	9447.75	-168.33	206.79
	yards		
Depth of shaft	241.08		220.44

No 1 & No. 2 Shaft Sections from Record 756— CRANTON COLLIERY —No 1 SHAFT

E 347418 N 389300
 INTERNAL DIA SHAFT TOP 4.57m
 SURFACE LEVEL +33.1
 LONDON DELF LEVEL 96.2
 CROMBOUKE LEVEL 100.2
 FLORIA INSET LEVEL 168.2
 SHAFT BOTTOM LEVEL 187.3

No 2 SHAFT

E 347421 N 389324
 INTERNAL DIA SHAFT TOP 6.40m
 SURFACE LEVEL +33.5
 LONDON DELF LEVEL 89.7
 CROMBOUKE LEVEL 93.7
 FLORIDA INSET LEVEL 161.8
 RUSHY PARK INSET LEVEL 436.5
 SHAFT BOTTOM LEVEL 483.3

2g Risk of Collapse of mine entries (shafts and adits);

There are no mine shafts or adits recorded on the site other than the three shafts of the former Cronton Colliery, which are within fenced compounds on land belonging to the Coal Authority. Those shafts should not be disturbed as part of the proposed works to form a Country Park.

There may be un-recorded mine shafts (bell-pits) or adits near the outcrop of the 3FT seam.

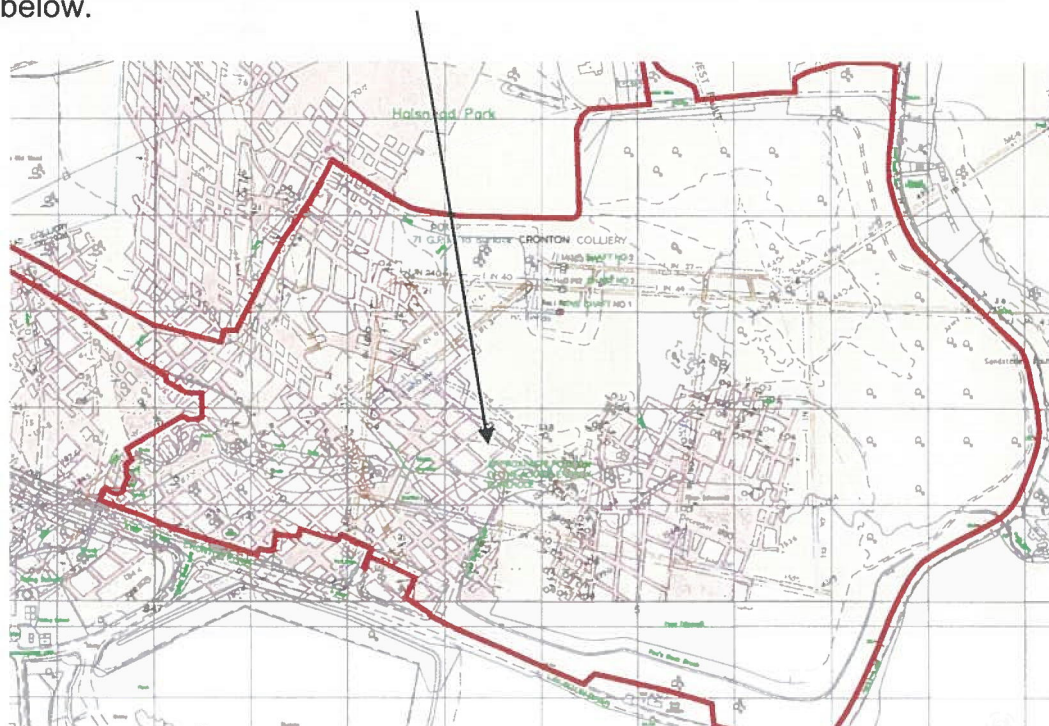
If any earth moving or landscaping works, are to take place within the vicinity of the 3FT coal seam outcrop, we would recommend that whilst the top-soil is being stripped and excavations are being carried out, the ground should be checked visually for anomalies and signs of bell pits, old mine shafts or adits.

Provided the above mitigation measure is carried out, we consider that there should be no unacceptable risk to the proposed development from hazards of this type.

2h Risk of Gas emissions from coal mines including methane and carbon dioxide;

The mine workings are known to be flooded. The water level in the workings was measured in September 2013, at a depth of 119m below ground level, in a borehole drilled down to the London Delph Seam horizon, on the site, by Alkane Energy.

The position of that borehole is shown on the extract of the location plan, below.



The surface level of the borehole is about 29m A.O.D., which would put the water level in September 2013 at 90m below O.D.

The London Delph Seam is the uppermost seam recorded as having been worked at Cronton Colliery. The London Delph seam is recorded in No.1 shaft 96.2m below O.D. Therefore, the water level was recorded as being about 6.2m above the seam level at No.1 shaft.

In No. 2 shaft the London Delph is at 89.7m B.O.D.

In No. 3 shaft (the most northerly of the 3 shafts) the London Delph is at 84.1m B.O.D.



One would expect the water to continue to rise until a stable water table is reached, at a level above the Delph seam, in each of the shafts.

Any methane pushed out from the workings by rising mine water or emitting from the coal left underground by atmospheric pressure should be safely vented to the general air by the steel tubes through the mine shaft caps; the same can be said for carbon dioxide gas, which is likely to be present above the mine water.

The mining report states *"The property has been subject to remedial works, by or on behalf of the Authority, associated with a mine gas investigation"*

Therefore, provided the vents remain in place over the 3 Coal Authority mine shafts, there should be little or no risk to the proposed development due to methane or carbon dioxide emitting from abandoned mine workings.

2i Risk of Spontaneous combustion or ignition of coal which may lead to the production of carbon monoxide;

Provided that the 3FT coal seam is not exposed at the surface, there should be no risk of spontaneous combustion or ignition of coal which may lead to the production of carbon monoxide, which would affect the proposed development.

However if coal is found in the ground, during excavation, landscaping or earthworks, it should not be exposed, until the advice of a suitably qualified person has been sought.

You should note that the Coal Authority's consent must also be obtained before any coal is excavated, disturbed or intersected.

2j Transmission of gases into adjacent properties from underground sources through ground fractures;

The site is not within an area which is known to be affected by fissures or fractures at the surface. Therefore, we consider that there is no appreciable risk to the proposed development from hazards of this type.

2k Water emissions from coal mine workings.

We consider that there is no appreciable risk of water emissions from coal mine workings affecting the proposed development site or any land in the immediate vicinity of it.

However, it would be prudent for the developer and owner of the site to liaise with the Coal Authority to check the level of the minewater, over time until it stabilises.

3. **CONCLUSION AND MITIGATION STRATEGY PROPOSED**

3.1 There is no active coal mining in the vicinity of the site and in our opinion, due to the depth and date of the recorded workings that have taken place under the site, we consider that there is no significant risk of coal mining subsidence, from known coal mine workings, affecting the proposed development.

3.2 There is a possibility of shallow un-charted coal mine workings being present, from close to the surface of the 3FT seam outcrop, extending some 140m to the south-west of the outcrop.

If it is proposed to construct any buildings or structures in the area where shallow workings may be present, we would recommend that the area is drilled to a depth of 30m, to prove the coal seam. The probe drilling should also check for voids, which could indicate the presence of unrecorded workings.

The Coal Authority's consent will be required for any such drilling operations.

3.3 There are no mine shafts or adits recorded on the site other than the three shafts of the former Cronton Colliery, which are within fenced compounds on land belonging to the Coal Authority. Those shafts should not be disturbed as part of the proposed works to form a Country Park.

There may be un-recorded mine shafts (bell-pits) or adits near the outcrop of the 3FT seam. If any earth moving or landscaping works, are to take place within the vicinity of the 3FT coal seam outcrop, we would recommend that whilst the top-soil is being stripped and excavations are being carried out, the ground should be checked visually for anomalies and signs of bell pits, old mine shafts or adits.

3.4 If coal is found in the ground, during excavation, landscaping or earthworks, it should not be exposed, until the advice of a suitably qualified person has been sought.

3.5 You should note that the Coal Authority's consent must also be obtained before any coal is excavated, disturbed or intersected.

3.6 Therefore, provided the vents remain in place over the 3 Coal Authority mine shafts, there should be little or no risk to the proposed development due to methane or carbon dioxide emitting from abandoned mine workings. It would be prudent for the developer and owner of the site to liaise with the Coal Authority to check the level of the minewater, over time until it stabilises.

- 3.7 From a coal mining risk assessment point of view, provided that the mitigation strategy set out above is followed, we consider there is no reason why the proposed development should not go ahead.

Signature of Surveyor:



**Neil S. Baker, MRICS, FCABE,
MQB Mine Surveyor's Certificate No. 6371
Chartered Minerals Surveyor and
Fellow of the Association of Building Engineers**

Date of Report:

12 June 2015



The Coal
Authority

Issued by:

The Coal Authority, Property Search Services, 200 Lichfield Lane, Berry Hill, Mansfield, Nottinghamshire, NG18 4RG
Website: www.groundstability.com Phone: 0345 762 6848 DX 716176 MANSFIELD 5

BAKER BARNETT LIMITED
MARKHAM VALE ENVIRONMENT
CENTRE
MARKHAM LANE
MARKHAM VALE
CHESTERFIELD
S44 5HY

Our reference:	51000903234001
Your reference:	Cronton
Date of your enquiry:	08 June 2015
Date we received your enquiry:	08 June 2015
Date of issue:	08 June 2015

This report is for the property described in the address below and the attached plan.

Non-Residential Coal Authority Mining Report

SITE OF CRONTON COLLIERY, CRONTON ROAD, CRONTON, L35 1QR

This report is based on and limited to the records held by, the Coal Authority, and the Cheshire Brine Subsidence Compensation Board's records, at the time we answer the search.

Coal mining	See comments below
Brine Compensation District	No

Information from the Coal Authority

Underground coal mining

Past

The property is in the likely zone of influence from workings in 12 seams of coal at 100m to 670m depth, and last worked in 1976.

Any ground movement from these coal workings should have stopped by now.

In addition the property is in an area where the Coal Authority believe there is coal at or close to the surface. This coal may have been worked at some time in the past. The potential presence of coal workings at or close to the surface should be considered prior to any site works or future development activity. Your attention is drawn to the Comments on Coal Authority Information section of the report.

Present

The property is not in the likely zone of influence of any present underground coal workings.

Future

The property is not in an area for which the Coal Authority is determining whether to grant a licence to remove coal using underground methods.

The property is not in an area for which a licence has been granted to remove or otherwise work coal using underground methods.

The property is not in an area that is likely to be affected at the surface from any planned future workings.

However, reserves of coal exist in the local area which could be worked at some time in the future.

No notice of the risk of the land being affected by subsidence has been given under section 46 of the Coal Mining Subsidence Act 1991.

Mine entries

Within, or within 20 metres of, the boundary of the property there are 3 mine entries, the approximate positions of which are shown on the attached plan.

Our records disclose the following information:

347389-002. This shaft was filled grouted and capped by the National Coal Board in 1985.

347389-003. This shaft was filled in September 1969 and later grouted and capped by the National Coal Board in 1985..

347389-001. This shaft was filled grouted and capped by the National Coal Board in 1985.

Records may be incomplete. Consequently, there may exist in the local area mine entries of which the Coal Authority has no knowledge.

For an additional fee, the Coal Authority will provide a supplementary Mine Entry Interpretive Report. The report will provide a separate assessment for the mine entry (entries) referred to in this report. It will give details based on information in the Coal Authority's possession, together with an opinion on the likelihood of mining subsidence damage arising from ground movement as a consequence of the existence of the mine entry/entries. It will also give details of the remedies available for subsidence damage where the mine entry was sunk in connection with coal mining. Please note that it may not be possible to produce a report if the main building to the property cannot be identified from Coal Authority plans (ie. for development sites and new build).

For further advice on how to order this additional information visit www.groundstability.com or telephone 0345 7626 848.

Coal mining geology

The Authority is not aware of any evidence of damage arising due to geological faults or other lines of weakness that have been affected by coal mining.

Opencast coal mining

Past

The property is not within the boundary of an opencast site from which coal has been removed by opencast methods.

Present

The property does not lie within 200 metres of the boundary of an opencast site from which coal is being removed by opencast methods.

Future

The property is not within 800 metres of the boundary of an opencast site for which the Coal Authority is determining whether to grant a licence to remove coal by opencast methods.

The property is not within 800 metres of the boundary of an opencast site for which a licence to remove coal by opencast methods has been granted.

Coal mining subsidence

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

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

The 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

The property has been subject to remedial works, by or on behalf of the Authority, associated with a mine gas investigation.

Hazards related to coal mining

The property has not been subject to remedial works, by or on behalf of the Authority, under its Emergency Surface Hazard Call Out procedures.

Withdrawal of support

The property is in an area for which notices of entitlement to withdraw support were published in 1976, 1979.

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

Working facilities orders

The property is not in an area for which an Order has been made under the provisions of the Mines (Working Facilities and Support) Acts 1923 and 1966 or any statutory modification or amendment thereof.

Payments to owners of former copyhold land

The property is not in an area for which a relevant notice has been published under the Coal Industry Act 1975/Coal Industry Act 1994.

Comments on Coal Authority information

The attached plan shows the approximate location of the disused mine entry/entries referred to in this report. For reasons of clarity, mine entry symbols may not be drawn to the same scale as the plan.

Property owners have the benefit of statutory protection (under the Coal Mining Subsidence act 1991*). This contains provision for the making good, to the reasonable satisfaction of the owner, of physical damage from disused coal mine workings including disused coal mine entries. A leaflet setting out the rights and the obligations of either the Coal Authority or other responsible persons under the 1991 Act can be obtained by telephoning 0345 762 6848 or online at www.coal.decc.gov.uk/en/coal/cms/services/claims.

If you wish to discuss the relevance of any of the information contained in this report you should seek the advice of a qualified mining engineer or surveyor. If you or your adviser wish to examine the source plans from which the information has been taken these are normally available at our Mansfield office, free of charge, by prior appointment, telephone 01623 637235. Should you or your adviser wish to carry out any physical investigations that may enter, disturb or interfere with any disused mine entry the prior permission of the owner must be sought. For coal mine entries the owner will normally be the Coal Authority.

The Coal Authority, regardless of responsibility and in conjunction with other public bodies, provide an emergency call out facility in coalfield areas to assess the public safety implications of mining features (including disused mine entries). Our emergency telephone number at all times is 01623 646333.

*Note, this Act does not apply where coal was worked or gotten by virtue of the grant of a gale in the Forest of Dean, or any other part of the Hundred of St. Briavels in the county of Gloucester.

In view of the mining circumstances a prudent developer would seek appropriate technical advice before any works are undertaken.

Therefore if development proposals are being considered, technical advice relating to both the investigation of coal and former coal mines and their treatment should be obtained before beginning work on site. All proposals should apply good engineering practice developed for mining areas. No development should be undertaken that intersects, disturbs or interferes with any coal or mines of coal without the permission of the Coal Authority. Developers should be

aware that the investigation of coal seams/former mines of coal may have the potential to generate and/or displace underground gases and these risks both under and adjacent to the development should be fully considered in developing any proposals. The need for effective measures to prevent gases entering into public properties either during investigation or after development also needs to be assessed and properly addressed. This is necessary due to the public safety implications of any development in these circumstances.

Information from the Cheshire Brine Subsidence Compensation Board

The property lies outside the Cheshire Brine Compensation District.

Additional Remarks

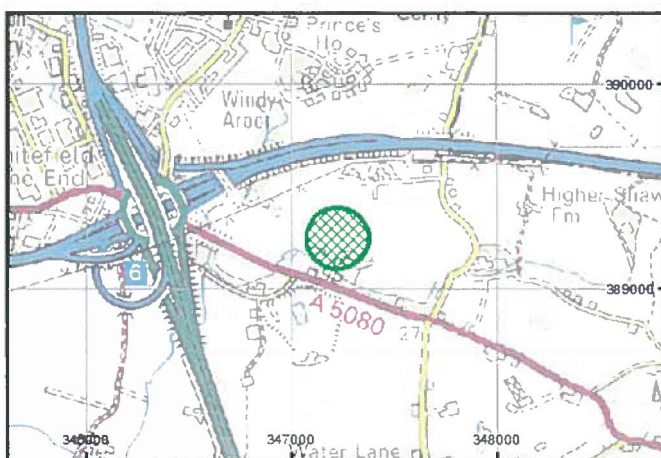
Information provided by the Coal Authority in this report is compiled in response to the Law Society's Con29M Coal Mining and Brine Subsidence Claim enquiries. The said enquiries are protected by copyright owned by the Law Society of 113 Chancery Lane, London WC2A 1PL. Please note that Brine Subsidence Claim enquiries are only relevant for England and Wales. This report is prepared in accordance with the Law Society's Guidance Notes 2006, the User Guide 2006 and the Coal Authority and Cheshire Brine Board's Terms and Conditions applicable at the time the report was produced.

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Issued by:	The Coal Authority, 200 Lichfield Lane, Mansfield, Nottinghamshire, NG18 4RG
Tax Point Date:	08 June 2015
Issued to:	BAKER BARNETT LIMITED MARKHAM VALE ENVIRONMENT CENTRE MARKHAM LANE MARKHAM VALE CHESTERFIELD S44 5HY
Property Search for:	SITE OF CRONTON COLLIERY, CRONTON ROAD, CRONTON, L35 1QR
Reference Number:	51000903234001
Date of Issue:	08 June 2015
Cost:	£177.00
VAT @ 20%:	£35.40
Total Received:	£212.40
VAT Registration	598 5850 68

Map images are being sent under separate cover

Approximate
position of
property

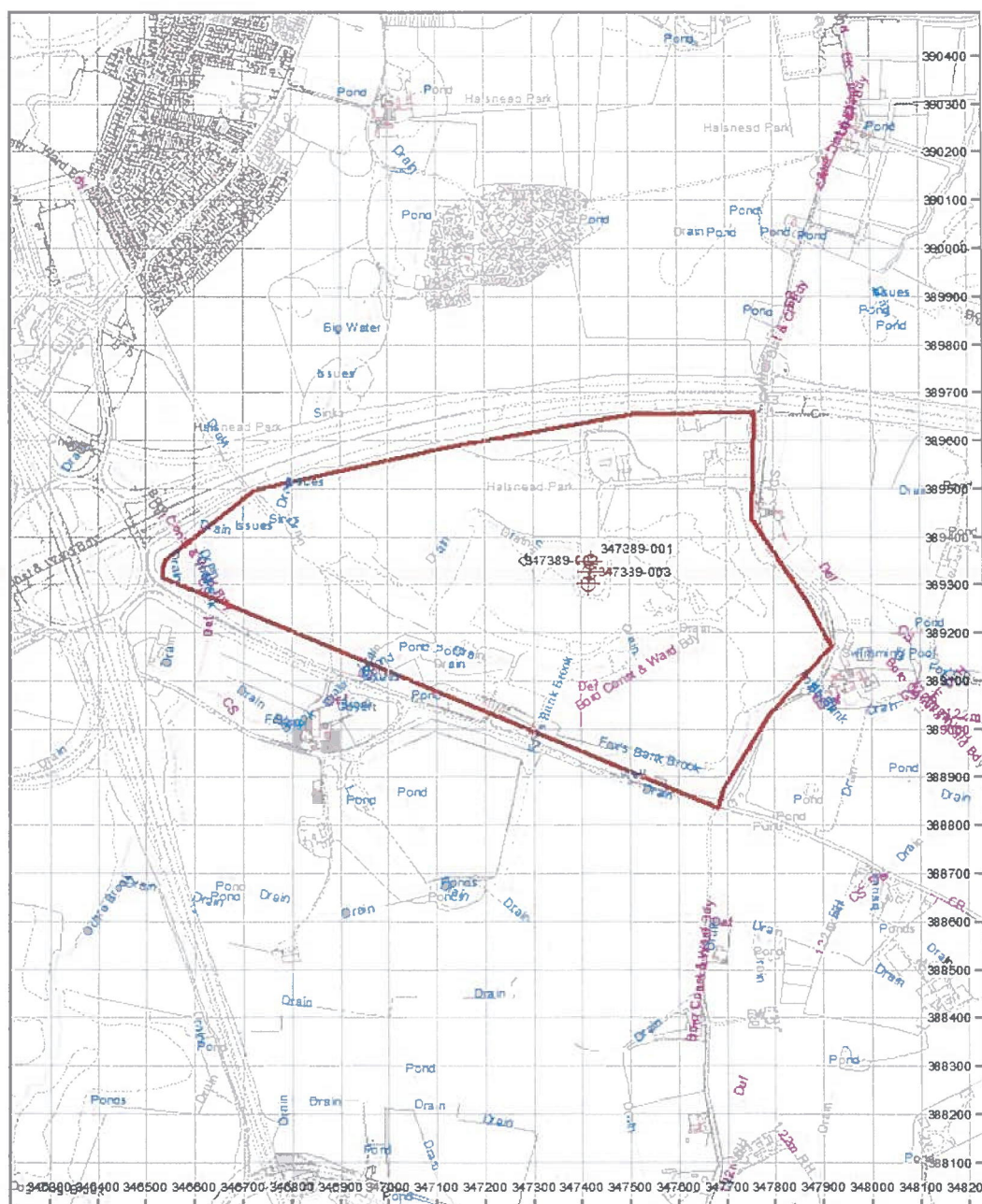


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Key

Approximate position of enquiry boundary shown

Disused Adit or Mineshaft



APPENDIX H - CONSULTANTS COAL MINING REPORT (COAL AUTHORITY)

[illegible][illegible][illegible]

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

Tier Environmental

Enquiry address

The Former Site Cronton Colliery Site
Cronton Road
Cronton
Knowsley
L35 1QR

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



Approximate position of property



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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
unnamed	LONDON DELPH (BIN)	Coal	302N	85	Beneath Property	13.1	South-West	180	1925
unnamed	LONDON DELPH (BIN)	Coal	302M	94	Beneath Property	13.1	South-West	180	1922
unnamed	ST. HELENS YARD	Coal	302X	102	Beneath Property	11.3	South-West	90	1931
unnamed	RAMS	Coal	3033	128	Beneath Property	12.7	South-West	180	1958
unnamed	HIGHER FLORIDA	Coal	3036	132	Beneath Property	12.3	South-West	180	1924
unnamed	LOWER FLORIDA	Coal	303M	154	Beneath Property	13.6	South-West	130	1941
unnamed	HIGHER FLORIDA	Coal	3037	154	Beneath Property	11.5	South-West	180	1921
CRONTON	CROMBOUK E	Coal	302R	166	Beneath Property	13.4	South-West	190	1917
unnamed	LONDON DELPH (BIN)	Coal	302O	173	East	12.9	South-West	180	1930
unnamed	HIGHER PIGEON HOUSE (PIGEON HOUSE)	Coal	303T	180	Beneath Property	8.5	South-West	140	1936
unnamed	CROMBOUK E	Coal	302S	183	East	13.5	South-West	190	1939
unnamed	ST. HELENS YARD	Coal	302Y	200	South-East	13.4	South-West	90	1937
unnamed	HIGHER FLORIDA	Coal	3038	202	Beneath Property	15.5	South-West	180	1921
unnamed	HIGHER FLORIDA	Coal	3039	224	Beneath Property	12.8	South-West	180	1929
CRONTON	HIGHER FLORIDA	Coal	3035	224	West	11.3	South	180	1875
unnamed	LOWER FLORIDA	Coal	303O	266	South-East	12.8	South-West	130	1956
unnamed	WIGAN FIVE FEET	Coal	303U	267	Beneath Property	11.8	South-West	110	1948
unnamed	WIGAN FOUR FEET	Coal	303Z	278	Beneath Property	9.9	South-West	170	1944
unnamed	WIGAN FIVE FEET	Coal	303V	300	Beneath Property	12.3	South-West	110	1952
unnamed	HAIGH YARD	Coal	304F	370	Beneath Property	13.7	South-West	120	1949
unnamed	HAIGH YARD	Coal	304G	412	North-East	12.3	South	120	1930

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
unnamed	RUSHY PARK	Coal	304M	415	Beneath Property	10.9	South-West	130	1946
unnamed	RUSHY PARK	Coal	304J	423	North	12.0	South	130	1889
unnamed	PLODDER	Coal	304D	430	Beneath Property	11.6	South-West	330	1930
unnamed	RUSHY PARK	Coal	304L	435	North-East	13.4	South-West	130	1896
unnamed	RUSHY PARK	Coal	304K	446	North	12.0	South	130	1896
unnamed	PLODDER	Coal	304C	446	South-West	11.6	South-West	330	1958
unnamed	HAIGH YARD	Coal	304E	448	Beneath Property	9.6	South-West	120	1943
unnamed	HAIGH YARD	Coal	304H	450	South	12.3	South	120	1952
unnamed	RUSHY PARK	Coal	304N	454	Beneath Property	9.6	South-West	130	1939
unnamed	HAIGH YARD	Coal	30CJ	465	South	11.4	South-West	120	1942
unnamed	RUSHY PARK	Coal	304I	483	North-West	9.5	South	130	1889
unnamed	RUSHY PARK	Coal	30CL	520	South	11.2	South-West	130	1935
unnamed	RUSHY PARK	Coal	30CM	558	South-East	9.1	South-West	130	1962

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	347389-001	347423 389347	This shaft was filled grouted and capped by the National Coal Board in 1985 and is monitored on a two monthly basis for gas by The Coal Authority or a representative thereof	Coal	
Shaft	347389-002	347421 389324	This shaft was filled grouted and capped by the National Coal Board in 1985 and is monitored on a two monthly basis for gas by The Coal Authority or a representative thereof	Coal	
Shaft	347389-003	347418 389300	This shaft was filled in September 1969 and later grouted and capped by the National Coal Board in 1985. It is monitored on a two monthly basis for gas by The Coal Authority or a representative thereof	Coal	

Abandoned mine plan catalogue numbers

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

NW368	NW727	NW803
3671	NW638	11793
16566	12635	NW822

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
WORSLEY FOUR FEET	Coal	Yes	Within	N/A	132

Geological faults, fissures and breaklines

Please refer to the 'Summary of findings' map (on separate sheet) for details of any geological faults, fissures or breaklines either within or intersecting the enquiry boundary.

Faults under or close to the property recorded.

Opencast mines

None recorded within 500 metres of the enquiry boundary.

Coal Authority managed tips

None recorded within 500 metres of the enquiry boundary.

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
3.8	North
1.1	South
14.4	East

See Section 4 for further information.

Mine water treatment schemes

None recorded within 500 metres of the enquiry boundary.

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 in an area where a notice to withdraw support was given in 1976.

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.

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.

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.

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.

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.

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 (Conjectured) 
- Geological faults 
- Mine gas remedial works 

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