

**Sheerien Close, Barnsley
Desk Study Report
Yorkshire Housing**

Solmek Report Number S120835

September 2012

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Contract Number: S120835
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SECTION		PAGE
1.0	Introduction and Scope of Works	2
2.0	Regulatory and Planning Context	2
3.0	Site Description	3
4.0	Site History	3
5.0	Environmental Context	4
6.0	Geology, Groundwater and Surface Water	5
7.0	Geotechnical Assessment	7
8.0	Contamination Assessment	8
9.0	Phase 2: Intrusive Investigation	9
10.0	Preliminary Conceptual Model and Risk Assessment	9
11.0	Conclusions & Recommendations	11

TABLES

1	Summary of Site History	3
2	Pollution Linkages – Ground Gas	8
3	Preliminary Conceptual Model and Risk Assessment	10

APPENDICES

1	Figures and Plates
2	Historical Map Extracts
3	Envirocheck Report
4	Mining Report
5	Notes On Limitations

Status	Date	Prepared by	Checked by
Final	August 2012	P Finnimore Geotechnical Engineers	A Cutts Engineering Geologist
			

Sheerien Close, Barnsley

Desk Study Report

1 INTRODUCTION AND SCOPE OF WORKS

- 1.1 Solmek were instructed by Billinghamurst George and Partners on behalf of Yorkshire Housing to undertake a desk study on a parcel of land just to the rear of Sheerien Close, Barnsley, S71 3NQ.
- 1.2 The following steps may be required in the investigation and remediation of potentially contaminated land:
- Phase 1: Desk Study
 - Phase 2: Intrusive Investigation
 - Phase 3: Remediation Statement
 - Phase 4: Validation Reports
- 1.3 Phases 1 and 2 are generally required in the redevelopment of most sites. Phases 3 and 4 are subject to the findings of the initial stages. This report represents Phase 1 of the site investigation.
- 1.4 The objectives and planned outcomes of the desk study are:
- to assess the impact of local authority guidance on the investigation
 - to identify existing features on and near the site
 - to evaluate the historical and environmental setting of the site
 - to assess the likelihood of finding contamination, its nature and extent
 - to identify associated key contaminants
 - to identify sensitive receptors and define source – pathway – receptor relationships (conceptual model)
 - to identify relevant geotechnical parameters
 - to assess any potential sources of ground gas
 - to assess the potential risk of shallow mining
- 1.5 This assessment has been undertaken with due regard to contaminated land guidance, issued by the Royal Institution of Chartered Surveyors (RICS) and BS 10175: 2001, "Code of Practice for the Investigation of Potentially Contaminated Land". Selected elements of BS 5930: 1999 "Code of Practice for Site Investigations" have also been included.

2 REGULATORY AND PLANNING CONTEXT

- 2.1 The Town and Country Planning Regime is the principal means by which contamination is dealt with by the Local Authority. Contaminated land is a material planning consideration and contamination assessments are required on land that may be potentially contaminated.
- 2.2 The Buildings Regulations (2000) also state that "precautions shall be taken to avoid danger to health and safety caused by substances found on or in the ground covered by the building". A site investigation is frequently required to satisfy the requirements of building control.

3 SITE DESCRIPTION

- 3.1 The preliminary site inspection, as recommended in BS 5930 and BS 10175, was undertaken on Monday 3rd September 2012. Location maps and selected plates are presented in Appendix 1. The site is centred at the approximate Ordnance Survey Co-ordinates 434350E, 409980N and covers an area of approximately 0.78ha.
- 3.2 The site consists of a roughly rectangular parcel of land which is located within a housing estate, the northern quarter of the site drops by approximately 1m and the southeast corner of the site is raised by approximately 1-2m.
- 3.3 The majority of the site is covered with overgrown grass, small trees and bushes. A footpath crosses the eastern half of the site allowing access to the school to the south of the site. Houses mark the northern and western boundaries of the site.
- 3.4 The surrounding area consisted of mainly residential housing with a school located to the south of the site. There were no visual signs of contamination or services noted on the site during the site walkover.

4 SITE HISTORY

- 4.1 In order to determine the history of the site, previous editions of Historical Maps and Ordnance Survey Plans were inspected. Selected map extracts are presented in Appendix 2.
- 4.2 Table 1 presents a summary of the history of the area which includes plots from 1854 to 2012. The summary focuses on the historical land uses and changes relevant to the site and the proposed end use. Measurements are taken from the centre of the site and all distances quoted are approximate.

OS MAP	SCALE	ON SITE FEATURES	OFF SITE FEATURES
1854-55	1:10,560	The site is located within woodland.	The site is surrounded with woodland. A quarry is located 400m northwest of site.
1893	1:2,500	A footpath is noted in the east of site.	A railway line is present 100m west of the site.
1894	1:10,560	No changes.	East Gawber Hall Colliery is located 1km south and North Gawber Colliery 1km west of the site.
1907	1:10,560	No changes.	No significant changes.
1918	1:2,500	No changes.	Carlton Works (Bottle Mould) are located 230m southwest of the site.
1932	1:10,560	Trees appear to have been cleared and rough grass is indicated.	The woodland surrounding the site has been cleared. East Gawber Hall Colliery to the south is no longer indicated on the map.
1938	1:10,560	No apparent changes.	Some residential development noted 500m south of site
1955-56	1:10,000	Rough grass is no longer indicated on the site.	Woodland that surrounded the site has been cleared and residential development has extended within 400m to the south of the site.
1959	1:1,250	Site has been developed with Edward Sheerien Secondary School, the building is located to the south with a foot path and soft landscaping to the north of the site.	The immediate surrounding area has been developed with residential housing, Edward Sheerien Secondary and Lawrence Briggs Infant School extended 100m south of the site.

1965-66	1:2,500	No changes.	Works have been constructed 250m west of the site.
1980-84	1:10,000	No changes.	A school is noted 100m east with a library noted 200m southeast of site. Railway line to the west has been dismantled. Houses have been constructed 300m west and a large area noted as a refuse heap is located 800m southwest of the site.
1990-93	1:10,000	No changes.	A building has been constructed 100m east of the site.
2006	1:10,000	School has been demolished.	A new school has been constructed immediately south and the school to the east has been demolished. Colliery to the west has closed and land is used for industrial purposes.
2012	1:10,000	No changes.	No significant changes.
TABLE 1: SUMMARY OF THE SITE HISTORY			

- 4.3 The site was initially located within woodlands and these were cleared by the 1930's and rough grass land covered the site. The site was then developed with Edward Sheerien Secondary School, the school occupied the south of the site, and the north comprised footpaths and soft landscaping. The school was demolished in 2006 and the site was left undeveloped.
- 4.4 The earliest maps show the site to be surrounded with woodlands which were cleared by the 1930's. The only industrial developments noted were East Gawber Hall Colliery, 1km south which closed during the 1930's, North Gawber Colliery which closed by 2006 and works located 230m south and 250m west; both still present today. The most significant development was the construction of the surrounding houses with Edward Sheerien Secondary School and Lawrence Briggs Infant School located immediately south, these were demolished and rebuilt by 2006. The only other development was a large area, 800m southwest indicted as a refuse tip in 1980. This was later replaced by grass lands by the 2000's.

5 ENVIRONMENTAL CONTEXT

- 5.1 The services of Envirocheck were used to establish the pertinent environmental records relating to the site. This information, which is presented in Appendix 3, replaces much of the information traditionally provided by the Environment Agency. Selected relevant information is summarised as follows. Measurements are taken from the centre of the site and all distances quoted are approximate.

Landfill and Waste

- 5.2 The Envirocheck Report states that the closest Historical Landfill is located 139m west of the site and is named Subseal Works and deposited waste included inert, industrial, commercial and household waste between 1962 and 1994. The same site is listed as the closest Registered Landfill.
- 5.3 The report states that the closest Local Authority Landfill is located 149m west of the site however little information for the site is given.
- 5.4 There are no other Waste Management Facilities located within a 850m radius of the site.

Regulated Industries

- 5.5 There are no Prosecutions Relating to Authorised Processes, Explosive Sites, Contaminated Land Register Entries, Control of Major Accident Hazards Sites (COMAH), Registered Radioactive Substance, Substantiated Pollution Incident Register, Notification of Installations Handling Hazardous Substances (NIHHS) or Planning Hazardous Substance Enforcements or Consents within 900m of the site.
- 5.6 The Envirocheck Report lists three Local Authority Pollution Controls in place within a radius of 300m. The closest active control is an Air pollution Control for Walter Franks and Son Ltd who undertake aluminium processes at a location 292m southwest of site.

Industrial Land Use

- 5.7 The Envirocheck Report identifies current industrial land use in relation to the site. There are no active entries within 250m of the site. The closest active entry refers to a Print & Foil Services, a print company which is located 288m southwest of the site.
- 5.8 One Fuel Station entry is stated in the report and refers to Station Garage which is located 314m southwest of the site, however the station is listed as obsolete.

Environmentally Sensitive Areas.

- 5.9 No entries are shown under the heading of Environmentally Sensitive Areas, National Parks, Nitrate Sensitive Areas, Sites of Special Scientific Interest (S.S.S.I.), Ramsar Site and Special Protection Areas, or Areas of Outstanding Natural Beauty.
- 5.10 The report indicates that an Area of Adopted Green Belt is located 63m west of the site.
- 5.11 The site lies within a Nitrate Vulnerable Zone (NVZ).

6 GEOLOGY, GROUNDWATER & SURFACE WATER*Geology*

- 6.1 Inspection of British Geological Survey Sheet SE30NW Barnsley (1:10,000 Series: Solid and Drift Edition) was undertaken. The solid geology beneath the site is likely to comprise Middle Coal Measures of the Upper Carboniferous. The drift deposits are likely to be relatively thin and to comprise of weathered rock, sandy clays or clayey sands however boulder clay is noted to the south and east of the site.
- 6.2 The Swinton Pottery Coal Seam is shown to sub-crop across the centre of the site and dip beneath the site to the north. The Newhill coal seam is conjectured to outcrop 200m to the south of the site and dip beneath it.
- 6.3 The nearest fault is shown to lie approximately 60m to the south east. The downthrow is shown to be to the south east.
- 6.4 The Envirocheck Report lists no BGS Recorded Mineral Sites located within a 400m radius of the site. The closest entry refers to a site named Tipsey Lodge which extracted Sandstone at a location 403m northwest of the site, however operations have now ceased along with every site stated within the report.

Geological Hazards

- 6.5 The Envirocheck Report states that no risk is posed by ground dissolution and compressible ground. A very low risk is given for collapsible ground, running sand and landslide ground

stability hazards. A low risk is given for shrinking and swelling clay stability hazard. For full details see the Envirocheck Report (Appendix 3).

Radon Risk

- 6.6. In accordance with the procedure described in BRE Publication BR211 *Radon: Guidance on Protective Measures for New Dwellings*, basic radon protection measures are required for new buildings on the site as it lies in an area where between 5-10% of homes are above the radon action level.

Mining Situation

- 6.7 The Envirocheck Report indicates that the site is located within an area which is affected by coal mining. A coal mining search report was sourced from David Bellis Consulting Surveyors dated, 24th September 2012 and is presented in Appendix 4. The report highlights that the site is situated in an area of boulder clay over Middle Coal Measures, shales and mudstones.
- 6.8 The mining report indicates that there are three known worked coal seams below the site. The shallowest is named Kents Thick Coal Seam which is located at a depth of 153m adjacent to the site and has a cross section of 109cm.
- 6.9 In relation to opencast mining, the site is not within the boundary of an opencast mine where coal has been removed in the past, or within 200m of a currently operating opencast coal mine. No evidence of any coal mining related subsistence claims in relation to the property were noted within the past 10 years. There are no shafts or adits within 20m of the site.
- 6.10 The mining report also highlights that there are possibly ancient shallow coal mining workings beneath the site for which no accurate plans or records which exist. This is most likely to be the Swinton Pottery seam that is conjectured to cross the centre of the site.
- 6.11 The mining report concludes that it is unlikely that coal will be worked in the foreseeable future.

Ground and Surface Water

- 6.12 The Envirocheck Report shows that the underlying solid geology beneath the site is classified as a **Secondary Aquifer A**. These are 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.
- 6.13 The Envirocheck Report highlights that the soils of the site have a high leaching potential.
- 6.14 The Envirocheck Report lists the nearest surface water feature 523m east of the site.
- 6.15 The site does not lie in a Source Protection Zone.
- 6.16 The Envirocheck Report lists one active Discharge Consent within a 500m radius of the site. The site lies 492m south of the site and is operated by Yorkshire Water Services for a sewage discharge. Full details can be seen in the Envirocheck Report (Appendix 3).
- 6.17 The report lists Pollution Incidents to Control Waters, the closest entry is for an industrial premises which spilt diesel resulting in a minor incident (Category 2) at a location 600m west of the site.
- 6.18 The Envirocheck Report highlights that no water abstraction licences are held within 1km of the site.

Flooding

- 6.19 The Envirocheck Report states that the site has not been affected by previous flooding events.
- 6.20 There are no areas benefiting from flood defences or flood water storage areas within 1km of the site.

7 GEOTECHNICAL ASSESSMENT*Relict Foundations and Made Ground*

- 7.1 The information revealed from the historical maps and the site walkover indicates that the site was once developed with a school, this covered the southern half of the site which was noted to be slightly elevated compared to the rest of the site. The northern part of the site comprised paths and a garden area. Made ground is expected to comprise construction waste such as brick, concrete, glass, ash, and possibly asbestos, this is likely to be slightly deeper to the south of the site.
- 7.2 The client is advised to obtain full utility drawings for the site before commencing any ground works as good practice

Geotechnical Appraisal

- 7.3 The sites proposed end use is expected to be residential housing. From the initial evidence in the desk study, made ground is expected to cover the southern half of site. Underlying drift deposits are indicated as weathered rockhead (sandy clay) or possible boulder clay. Providing firm to stiff shallow clay or competent rockhead is proven then traditional strip footings may be appropriate, with deeper strips should made ground extend beyond 1.0m. However a full assessment cannot be made until a Phase 2: Site Investigation has been undertaken.

Excavations and Groundwater

- 7.4 Excavations should be easily achievable by means of a normal excavator through the natural deposits. A breaker will be required for areas of hand standing and if relict foundations are encountered.
- 7.5 Groundwater is unlikely to be encountered at shallow depths. However it should be noted that groundwater levels can be affected by rainfall and seasonal variations.

Mining

- 7.6 The mining report indicates that there are three known worked coal seams below the site. The shallowest is named Kents Thick Coal Seam which is located at a depth of 153m adjacent to the site and has a cross section of 109cm.
- 7.7 In relation to opencast mining, the site is not within the boundary of an opencast mine where coal has been removed in the past, or within 200m of a currently operating opencast coal mine. No evidence of any coal mining related subsistence claims in relation to the property were noted within the past 10 years.
- 7.8 The mining report also highlights that there are possibly ancient shallow coal mining workings beneath the site for which no accurate plans or records which exist. This is most likely to be the Swinton Pottery seam that is conjectured to cross the centre of the site.
- 7.9 The mining report concludes that it is unlikely that coal will be worked in the foreseeable future.

8 CONTAMINATION ASSESSMENT

- 8.1 The historical maps and Envirocheck Report has revealed that the site has **probably** been exposed to contamination from the construction and demolition of former buildings. Made ground is expected to contain construction waste such as brick, concrete, glass and ash with the possibility of asbestos.

Development Proposals

- 8.2 The proposed development is for the construction of residential housing with parking, access roads and front and rear gardens.

Potential Hazards from Ground Gases

- 8.3 Ground gases such as carbon dioxide and methane can be classed as a form of contamination. Potential sources of ground gases include:

- Made Ground
- Quarries, Infilled Clay Pits & Infilled Ponds
- Underlying Natural Strata (alluvium, peat and chalk)
- Petrol re-fuelling sites (which also includes Volatile Organic Compounds)
- Landfill (on and off-site)
- Coal measures

- 8.4 Based on historical map evidence and consideration of the sites environmental setting Table 2 shows a preliminary comparison of *consequence* against *probability* where ground gas is considered a potential threat to human health.

PRELIMINARY GROUND GAS ASSESSMENT		
<i>Potential Sources</i>	<i>Potential Pathway</i>	<i>Receptor</i>
Made Ground is expected from former school. (CO ₂ and CH ₄)	Ingress and Accumulation into buildings from vertical and horizontal migration	Future residents of site will include adults and infants.
Site is located within a mining area (CO ₂ and CH ₄)	Ingress and Accumulation into buildings from vertical and horizontal migration	Construction workers (in particular utility workers).
Preliminary Comparison of Consequence versus Probability		
<i>Probability</i>	<i>Classification</i>	<i>Justification</i>
(Based on Table 8.1, CIRIA C665, 2007)	LIKELY	Site is located within a mining area.
		Made ground is expected from the former school.
<i>Consequence</i>		
(Based on Table 8.2, CIRIA C665, 2007)	MEDIUM	Development of residential houses.
<i>Consequence vs. Probability</i>	<i>Risk</i>	<i>Details</i>
(Based on Table 8.3, CIRIA C665, 2007)	MODERATE RISK	It is possible that harm could arise to a designated receptor from an identified hazard, however, it is either relatively unlikely that any such harm would be severe, or if any harm were to occur it is more likely that the harm would be relatively mild.
		(Based on Table 8.4, CIRIA C665, 2007)
TABLE 2: POLLUTION LINKAGES - GROUND GAS		

- 8.5 Given the pollution linkages outlined above, it would be prudent to carry out full intrusive works to justify the above risk assumption; this would give the site a risk classification based on the recommendations given in CIRIA Report C665.

9 PHASE TWO – INTRUSIVE INVESTIGATION WORK

- 9.1 Based on the information collated in this desk study a Phase Two intrusive investigation is recommended. The investigation should comprise a series of boreholes, ideally within the footprint of the proposed buildings to investigate the nature of the superficial deposits underlying the site, the depth to rockhead (if encountered) and to carry out in-situ testing.
- 9.2 It is also recommended to undertake CBR tests where areas of hard standing are proposed.
- 9.3 Representative samples of the made ground and natural strata encountered should be taken at regular intervals. It is recommended that selected samples of the made ground undergo a suite of chemical contamination testing. Selected natural ground samples should be subject to geotechnical testing.
- 9.4 Testing requirements may vary depending on the thickness of the made ground encountered, the nature of the natural soils and the depth to rock head, if encountered.
- 9.5 Gas/groundwater monitoring pipes should be installed in at least three boreholes (in accordance with C665) to assess the shallow ground gas and water levels beneath the site. We would advise a minimum of three visits initially and if high or variable concentrations of ground gases are recorded, an extended period of monitoring may be necessary.
- 9.6 Due to the uncertainty associated with ancient unrecorded workings (potentially within the Swinton Pottery seam) under the site, it is recommended that a site investigation is carried out to determine if any coal workings or shallow voided areas are present beneath the proposed development. This should comprise a series of three open hole rotary boreholes drilled to 30m depth.
- 9.7 Site investigations are designed according to the type of development, the requirements of the client, and recommendations given in BS 5930 and BS 10175.

10 CONCEPTUAL MODEL AND RISK ASSESSMENT

- 10.1 The conceptual model (Table 3) collates the salient aspects of the site to form a model which should enable comparison after fieldwork and testing.
- 10.2 This model identifies the potential pollution linkages that may influence the proposed development and geotechnical considerations.
- 10.3 The risk ratings are based on the current potential liabilities and likely potential future liabilities. The information from the previous site investigation has also been included within the model.

CONTAMINATION ASSESSMENT					
SOURCES	DETAILS	RECEPTORS	PATHWAYS	DETAILS	RISK RATING
Contamination in the made ground.	Sources include: Construction and demolition waste expected on the site such as brick, concrete, ash and possibly asbestos. Potential ground gas as site is located within a mining area.	Future residents are likely to be adults and infants.	Dermal absorption	Front and rear gardens are proposed.	LOW-MOD
			Inhalation of soil/volatised compounds		
			Ingestion of soil		
			Contact with contaminated groundwater		
			Ground gas from vertical and horizontal migration		
		Construction workers and users of site during construction.	Dermal absorption	Made ground is expected on the site. Use appropriate PPE.	LOW-MOD
			Inhalation of soil/volatised compounds		
			Ingestion of soil		
			Contact with contaminated groundwater		
		Users of surrounding sites	Dermal absorption	Contact with wind blown dust during construction	LOW-MOD
			Inhalation of soil/volatised compounds		
			Ingestion of soil		
		Vegetation	Uptake via roots and leaf surfaces	Front and rear gardens are proposed.	LOW-MOD
Groundwater	Slow seepage or leaching of contaminants	Secondary A Aquifer.	LOW		
Surface Water	Slow seepage or leaching of contaminants	None within 500m radius of the site.	LOW		
	Accumulation of contaminated sediments				
Construction Materials	Direct contact	Relict and active utilities and services possible.	MOD		
GEOTECHNICAL ASSESSMENT					
FACTOR	ON SITE DESCRIPTION			RISK RATING	
MADE GROUND	Made ground is expected on the site			LOW-MOD	
NATURAL SOILS	Weathered rockhead, sandy clays or clayey sands			LOW	
SOLID GEOLOGY	Middle Coal Measures			LOW	
MINING	Possible ancient shallow unrecorded mine workings within Swinton Pottery seam.			HIGH	
RADON PROTECTION	Basic radon protection measures required			MOD-HIGH	
SUBSIDENCE /GROUND STABILITY	A very low risk is given for collapsible ground and landslide ground stability hazards. A low risk is given for shrinking and swelling clay.			LOW	
FLOODING SUCEPTIBILITY	The area is not at risk of flood or extreme flooding from river or sea defence.			LOW	
TABLE 3: CONCEPTUAL MODEL AND RISK ASSESSMENT					

11 CONCLUSIONS & RECOMMENDATIONS

- 11.1 The results of the desk study are presented in this report and Solmek can comment as follows:

Existing Features on and Near the Site

- 11.2 The site consists of a roughly rectangular parcel of land located within a housing estate. The northern quarter of the site drops by approximately 1m with the southeast corner of the site raised by approximately 1-2m. The majority of the site is covered with overgrown grass, small trees and bushes. A footpath crosses the eastern half of the site.
- 11.3 The surrounding area consisted of mainly residential housing with a school located to the south of the site.

Historical

- 11.4 The site was initially located within woodlands which were cleared by the 1930's and rough grass land covered the site. The site was then developed with Edward Sheerien Secondary School that occupied the south of the site, and the north comprised footpaths and soft landscaping. The school was demolished in 2006 and the site was left undeveloped.
- 11.5 The earliest maps show the site to be surrounded with woodlands which were cleared by the 1930's. The only industrial developments noted were East Gawber Hall Colliery, North Gawber Colliery now removed; and works located 230m south and 250m west; both still present today. The most significant development was the construction of the surrounding houses with Edward Sheerien Secondary School and Lawrence Briggs Infant School located immediately south, these were demolished and rebuilt by 2006. The only other development was a refuse tip 800m southwest in 1980. This was later replaced by grass lands by the 2000's.

Geology and Environmental Setting

- 11.6 The solid geology beneath the site is likely to comprise Woolley Edge Rock of the Middle Coal Measures and the drift deposits are likely to be relatively thin and to comprise of weathered rock, sandy clays or clayey sands however boulder clay is noted to the east of the site.
- 11.7 The Swinton Pottery Coal Seam is shown to sub-crop across the centre of the site, and dip beneath the site
- 11.8 The underlying solid geology beneath the site is classified as a **Secondary A Aquifer**.

Impact of Local Authority Guidance

- 11.9 Given the potential for the land on site to be contaminated it must be assessed with regards to Part 2A of the Environmental Protection Act (1990) and the local authority contaminated land strategy. The contamination status of the site will be considered as part of the planning process to ensure the site is suitable for the proposed use.

Proposed Development

- 11.10 The proposed development is for the construction of residential housing with parking, access roads and front and rear gardens.

Contamination

- 11.11 The historical maps and Envirocheck Report has revealed that the site has **probably** been exposed to contamination from construction and demolition of the former buildings. Made

ground is expected to contain construction waste such as brick, concrete, glass and ash with the possibility of asbestos.

Geotechnical

- 11.12 A full geotechnical assessment cannot be carried out until a Phase 2 Site Investigation has been undertaken. Initial indications show traditional strip or deep strip footings should be appropriate, depending on the depth of made ground and nature of the underlying natural ground.
- 11.13 The client is advised to obtain full utility drawings for the site before commencing any ground works as good practice.

Radon Risk

- 11.14 No radon protection measures are required for the development.

Mining

- 11.15 The mining report indicates that there are three known worked coal seams below the site. The shallowest is named Kents Thick Coal Seam which is located at a depth of 153m adjacent to the site and has a cross section of 109cm.
- 11.16 In relation to opencast mining, the site is not within the boundary of an opencast mine where coal has been removed in the past, or within 200m of a currently operating opencast coal mine. No evidence of any coal mining related subsistence claims in relation to the property were noted within the past 10 years.
- 11.17 The mining report also highlights that there are possibly ancient shallow coal mining workings beneath the site for which no accurate plans or records which exist. This is most likely to be the Swinton Pottery seam that is conjectured to cross the centre of the site.

Intrusive Investigation

- 11.18 A Phase 2 investigation should comprise a series of borehole across the site to establish shallow ground conditions. A series of CBR testing should also be carried out.
- 11.19 Selected samples of soil should be submitted for contamination and geotechnical testing.
- 11.20 Gas/groundwater monitoring pipes should be installed in at least three boreholes (in accordance with C665) to assess the shallow ground gas and water levels beneath the site. We would advise a minimum of three visits initially and if high or variable concentrations of ground gases are recorded, an extended period of monitoring may be necessary.
- 11.21 Three open hole rotary boreholes should be drilled to 30m depth to prove the presence, or otherwise of any shallow workings.
- 11.22 Site investigations are designed according to the type of development, the requirements of the client, and recommendations given in BS 5930 and BS 10175.

SOLMEK

APPENDIX 1: Figures & Plates



Figure 1: Site Location Plan

Client:	Yorkshire Housing	
Project:	Sheerien Close, Barnsley	
Title:	Site Location Plan	
Drawing No:	Figure 1	Scale: NTS
Date	September 2012	





Figure 2: Site Location Plan

Client:	Yorkshire Housing	
Project:	Sheerien Close, Barnsley	
Title:	Site Boundary Plan	
Drawing No:	Figure 2	Scale: NTS
Date	September 2012	



Plate 1: View looking north from the centre of the site.




Plate 2: View looking northeast from the centre of the site.

Client:	Yorkshire Housing	
Project:	Sheerien Close, Barnsley	
Title:	Site Photographs	
Drawing No:	Plates 1 & 2	Scale: NTS
Date	September 2012	

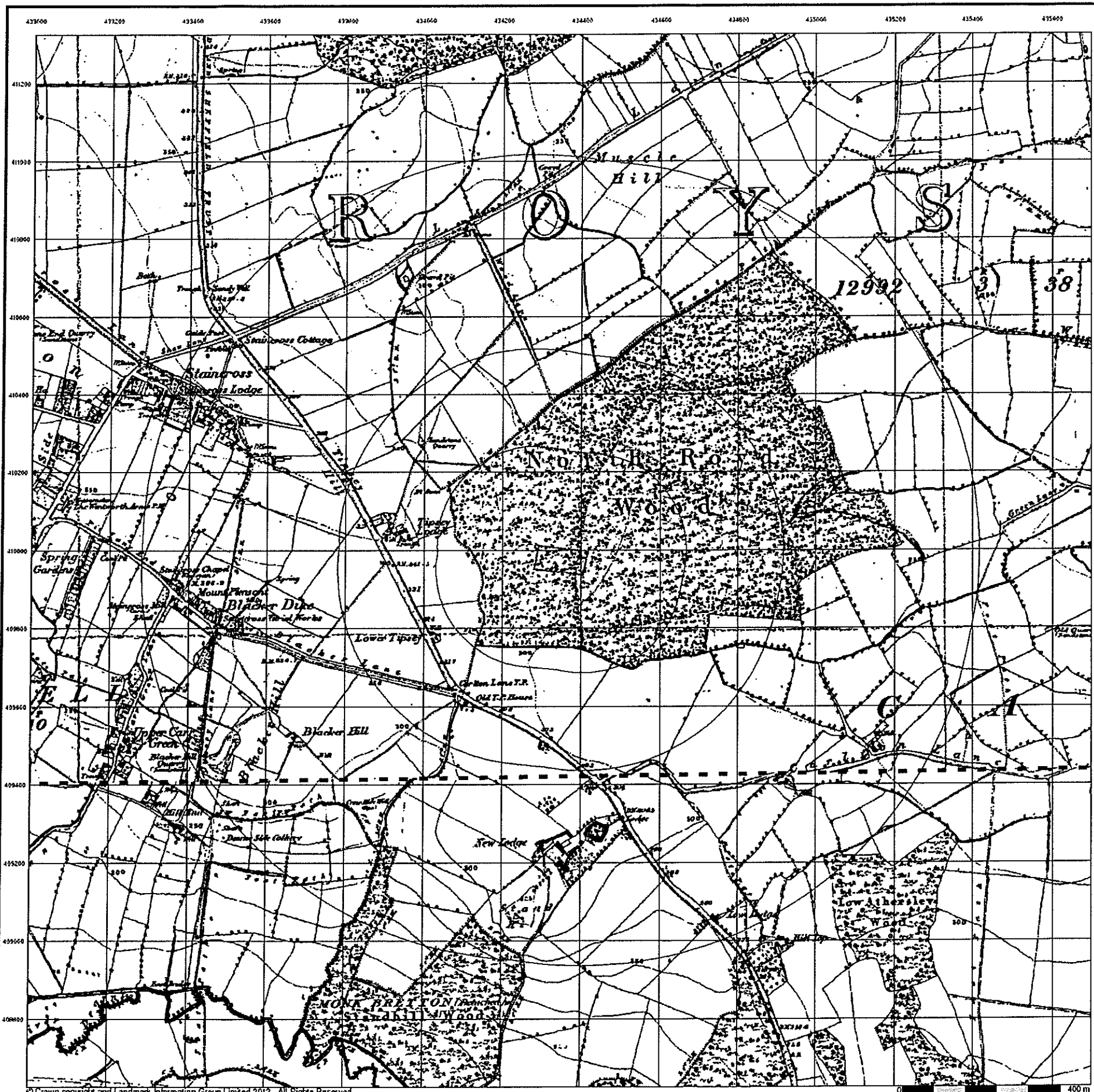




Plate 3: View looking northwest from the centre of the site.

Client:	Yorkshire Housing	
Project:	Sheerien Close, Barnsley	
Title:	Site Photographs	
Drawing No:	Plate 3	Scale: NTS
Date	September 2012	
		

**APPENDIX 2:
Historical Map Extracts**



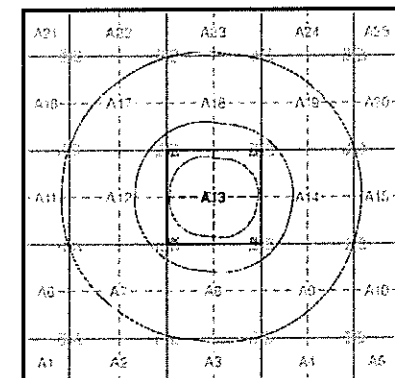
Yorkshire
Published 1854 - 1855
Source map scale - 1:10,560

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

Map Name(s) and Date(s)

26200	1854	1:10,560
27400	1855	1:10,560

Historical Map - Slice A



Order Details

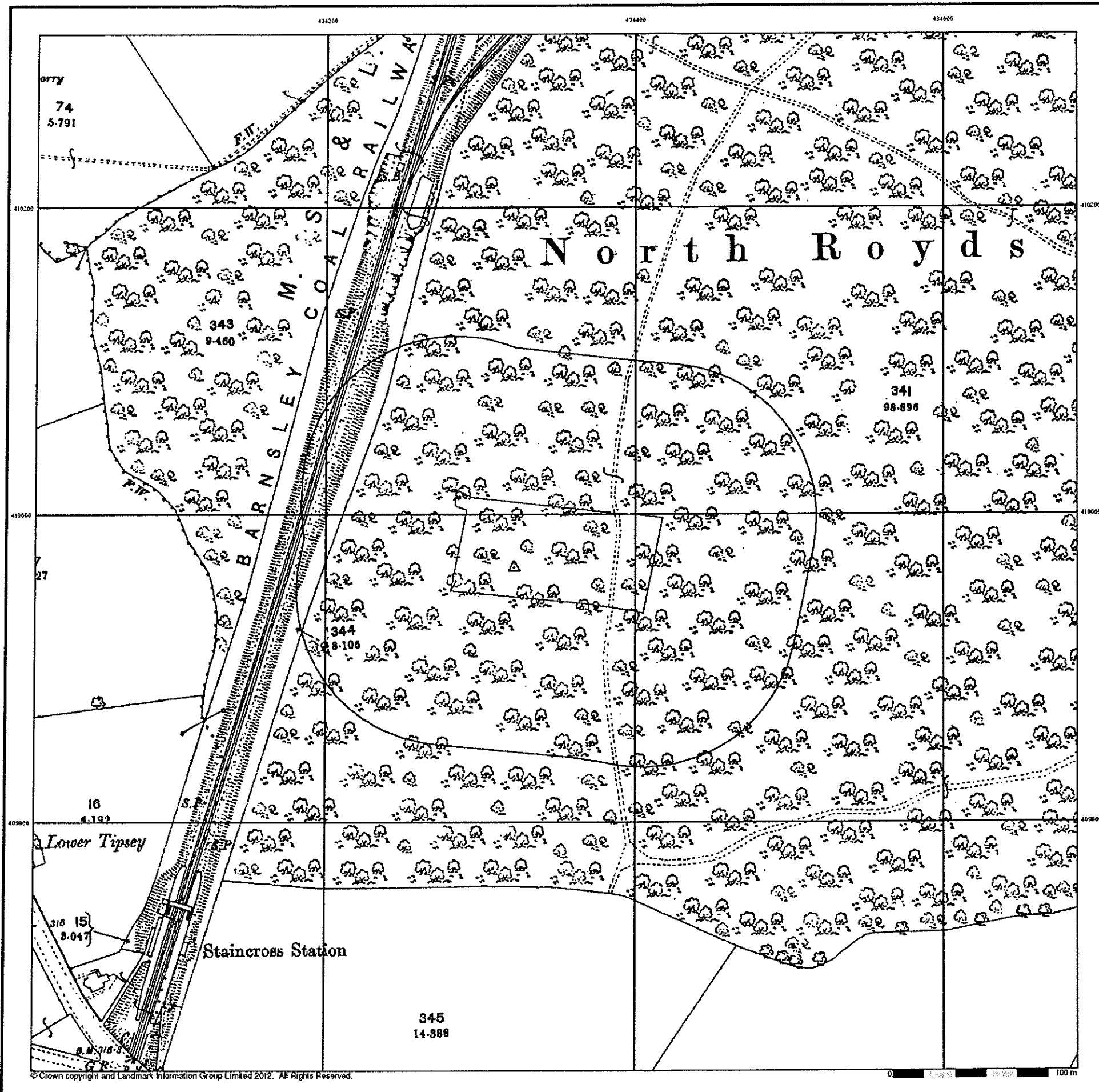
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 Slice: A
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 Search Buffer (m): 1000

Site Details

Sheerien Close, BARNSELY, South Yorkshire, S71 3NQ



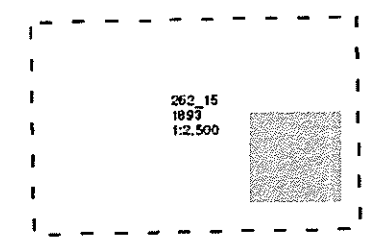
Tel: 0844 844 9952
 Fax: 0844 844 9951
 Web: www.envirocheck.co.uk



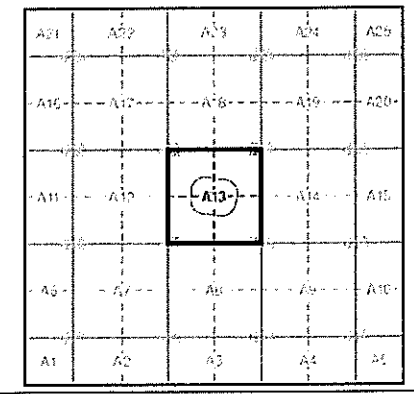
Yorkshire
 Published 1893
 Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

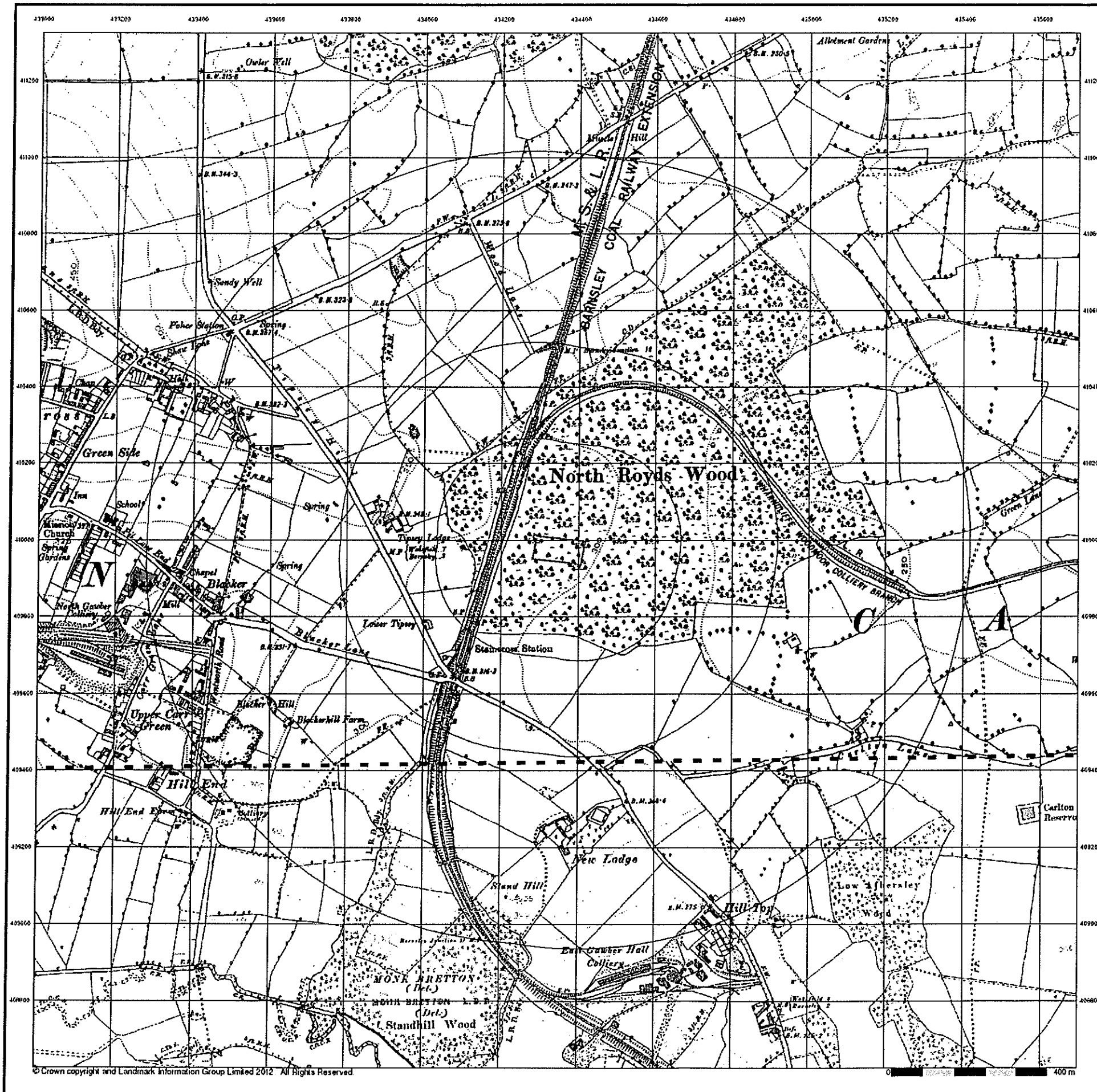
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Site Details

Sheerien Close, BARNSELY, South Yorkshire, S71 3NQ



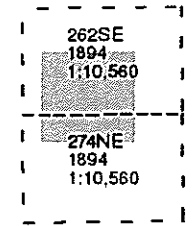
Tel: 0844 844 9952
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 Web: www.envirocheck.co.uk



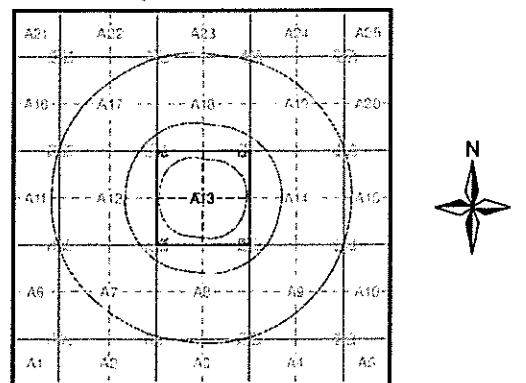
Yorkshire
Published 1894
Source map scale - 1:10,560

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

Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

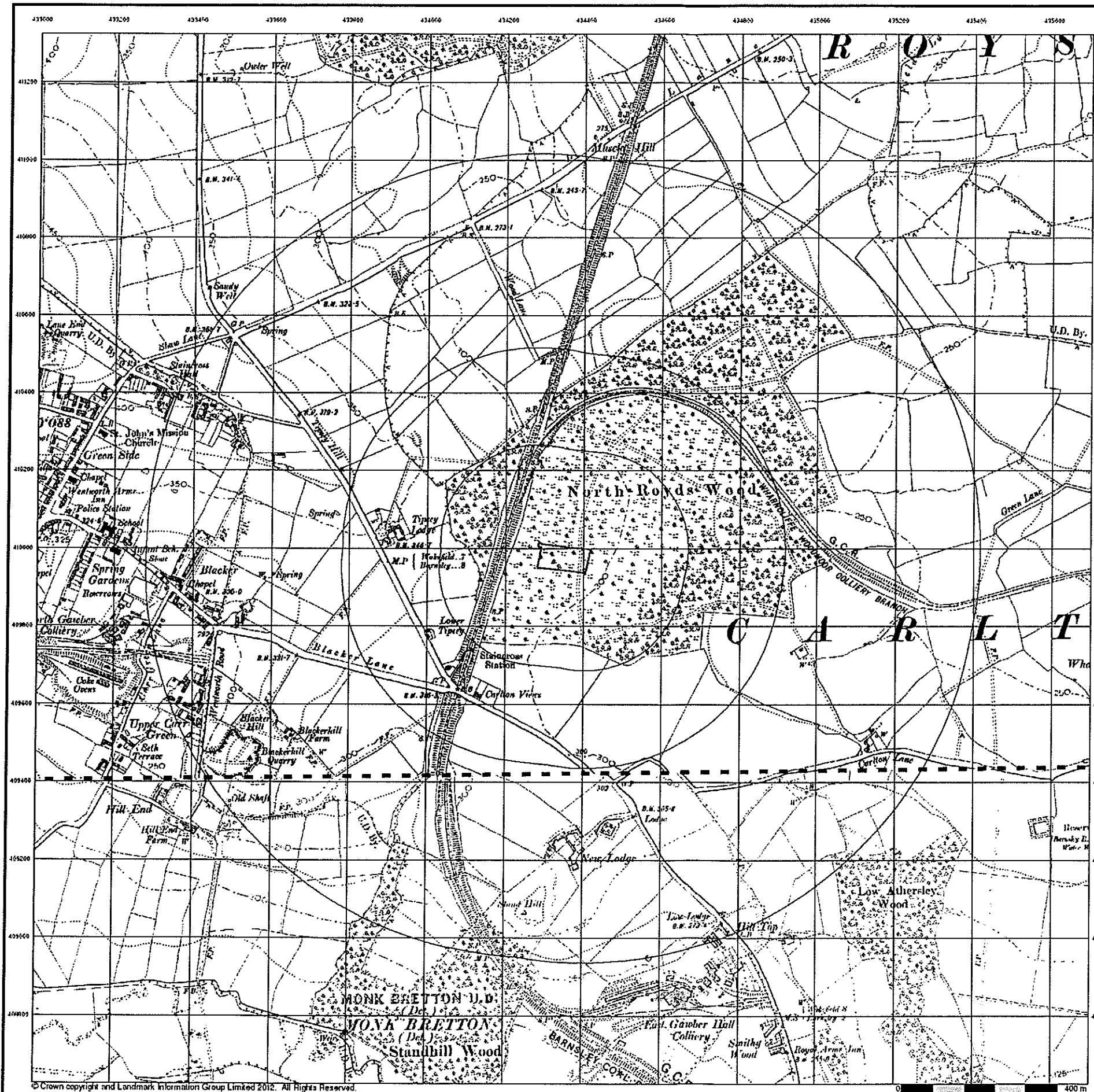
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Site Details

Sheerien Close, BARNSELY, South Yorkshire, S71 3NQ



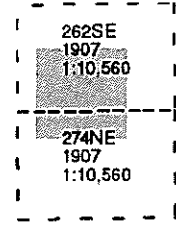
Tel 0844 844 9952
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 Web www.envirocheck.co.uk



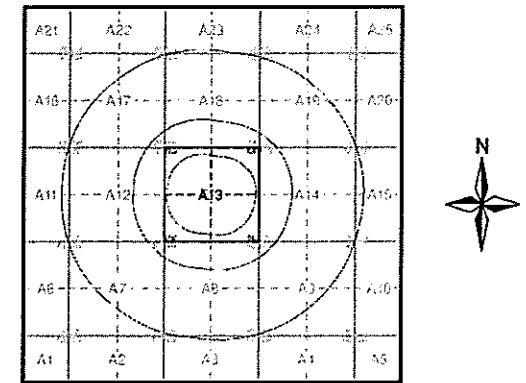
Yorkshire
Published 1907
Source map scale - 1:10,560

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

Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

Order Number: 40965594_1_1
 Customer Ref: S120835
 National Grid Reference: 434350, 409980
 Slice: A
 Site Area (Ha): 0.78
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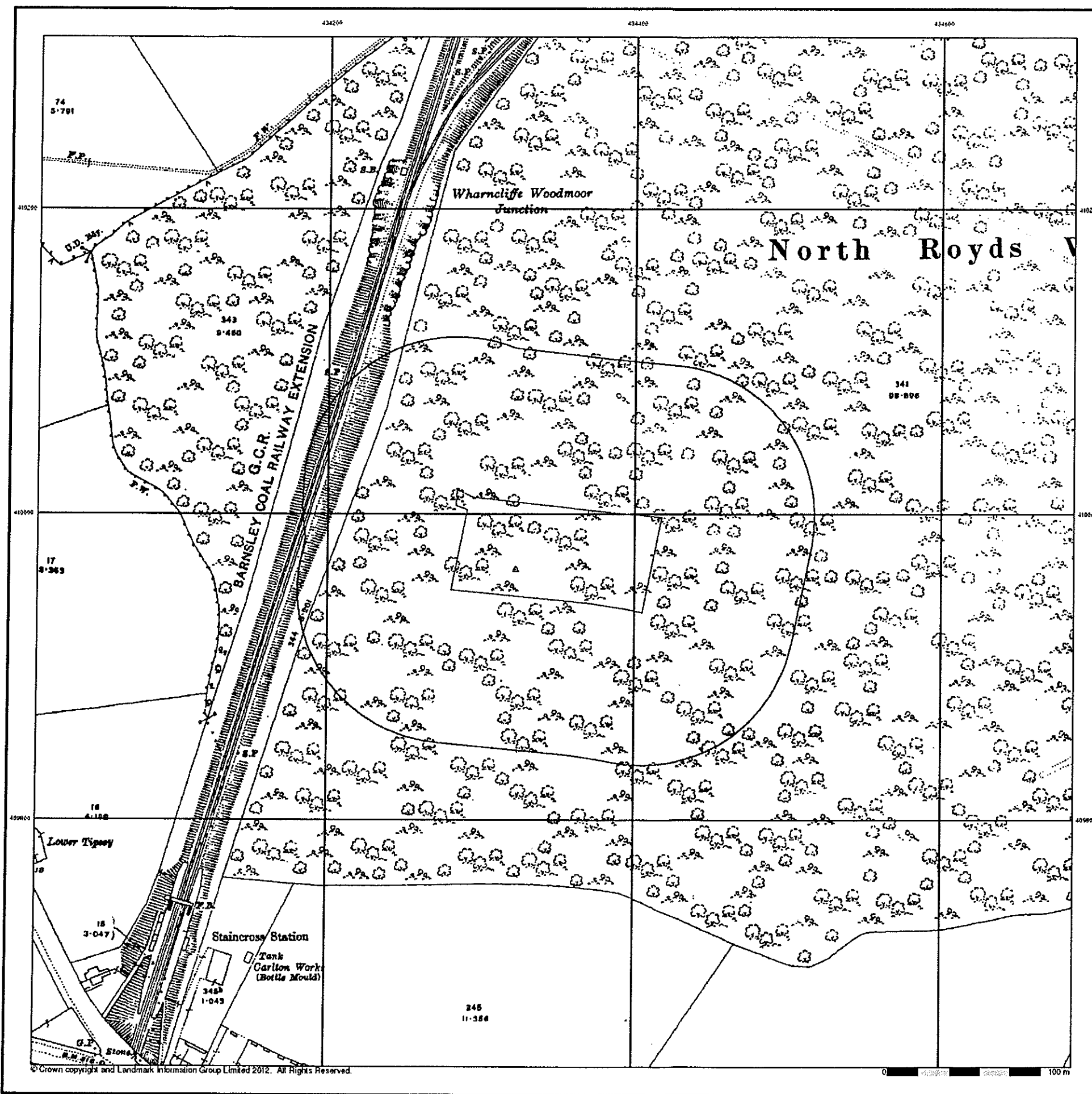
Site Details

Sheerien Close, BARNSELY, South Yorkshire, S71 3NQ



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 Fax: 0244 844 9951
 Web: www.envirocheck.co.uk

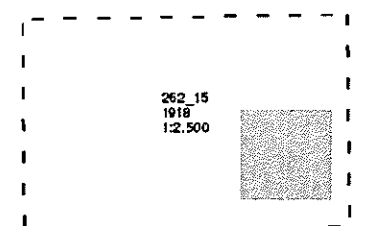
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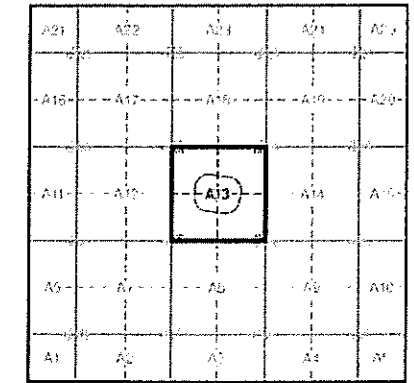
Yorkshire
Published 1918
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)



Historical Map - Segment A13



Order Details

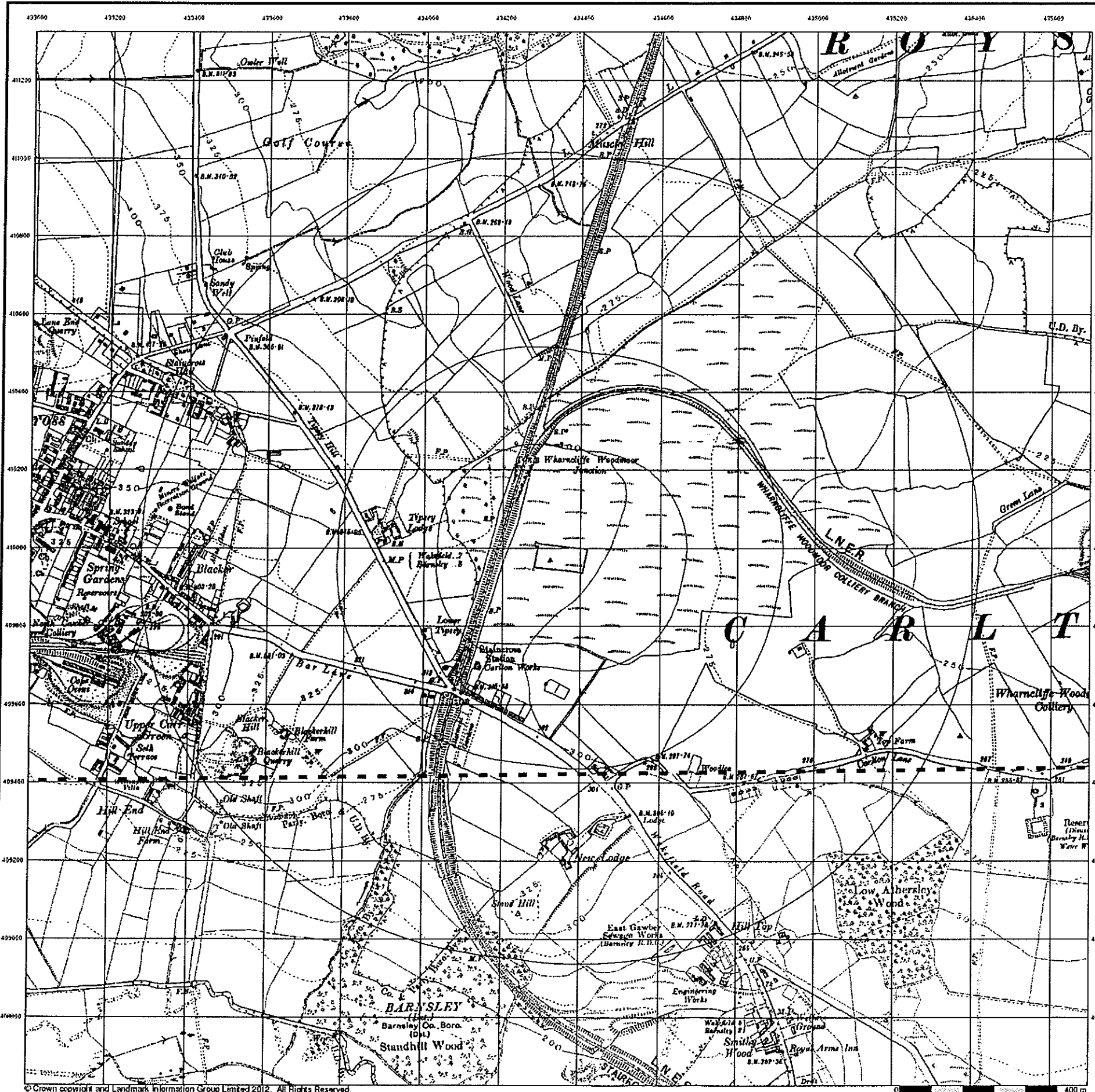
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 Customer Ref: S120835
 National Grid Reference: 434350, 409980
 Slice: A
 Site Area (Ha): 0.78
 Search Buffer (m): 100

Site Details

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Yorkshire
Published 1932

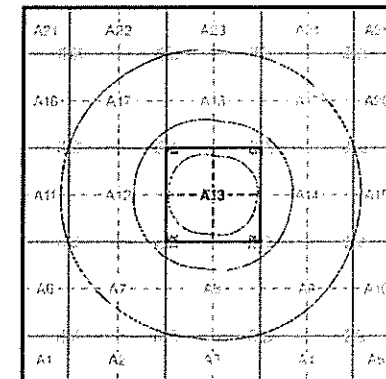
Source map scale - 1:10,560

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

Map Name(s) and Date(s)

262SE	1932	1:10,560
274NE	1932	1:10,560

Historical Map - Slice A



Order Details

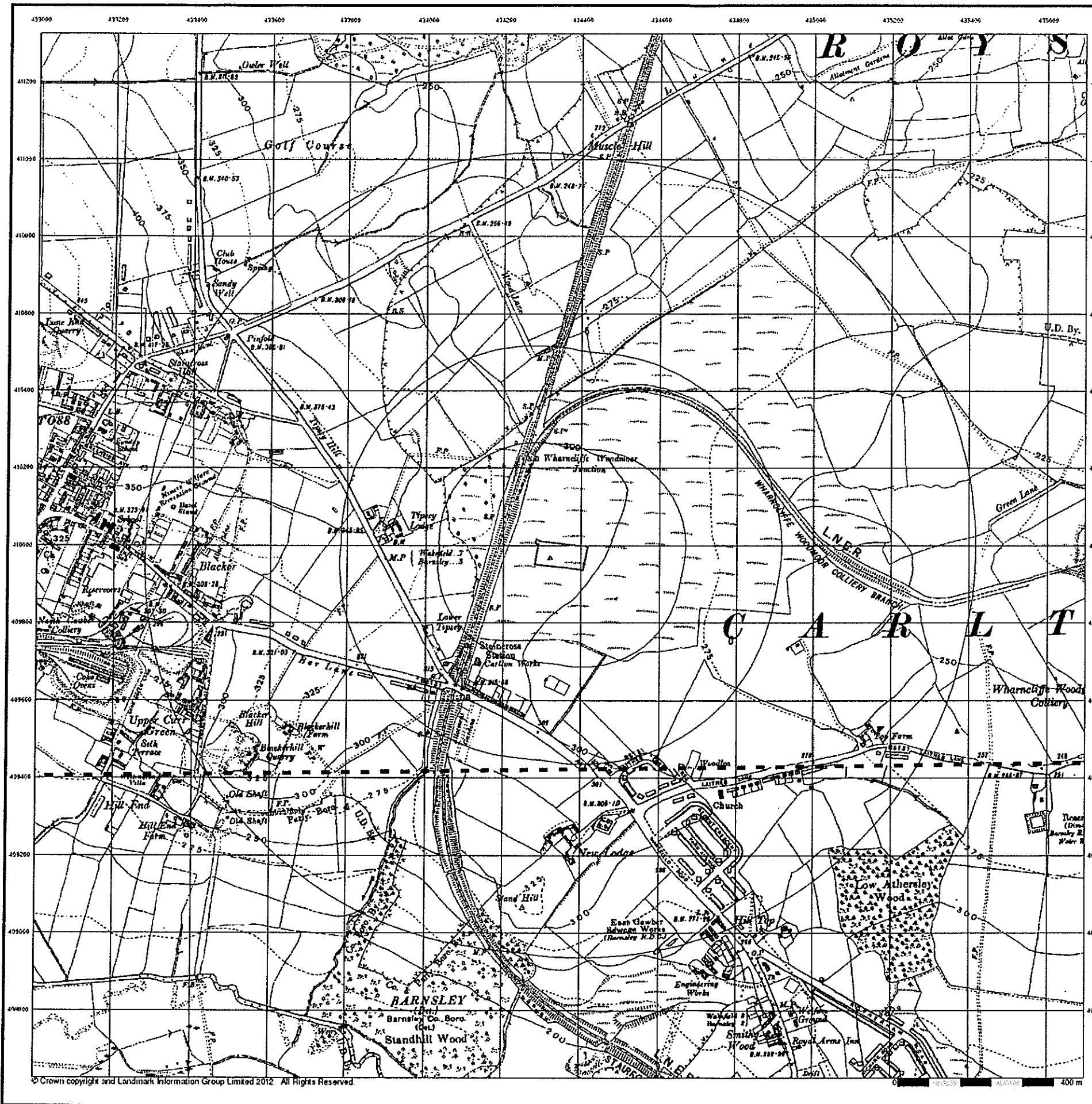
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 Search Buffer (m): 1000

Site Details

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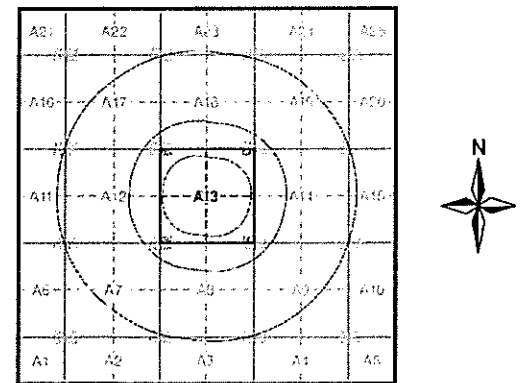
Yorkshire
Published 1938
Source map scale - 1:10,560

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

Map Name(s) and Date(s)

262SE	1938	1:10,560
274NE	1938	1:10,560

Historical Map - Slice A



Order Details

Order Number: 40965594_1_1
 Customer Ref: S120835
 National Grid Reference: 434350, 409980
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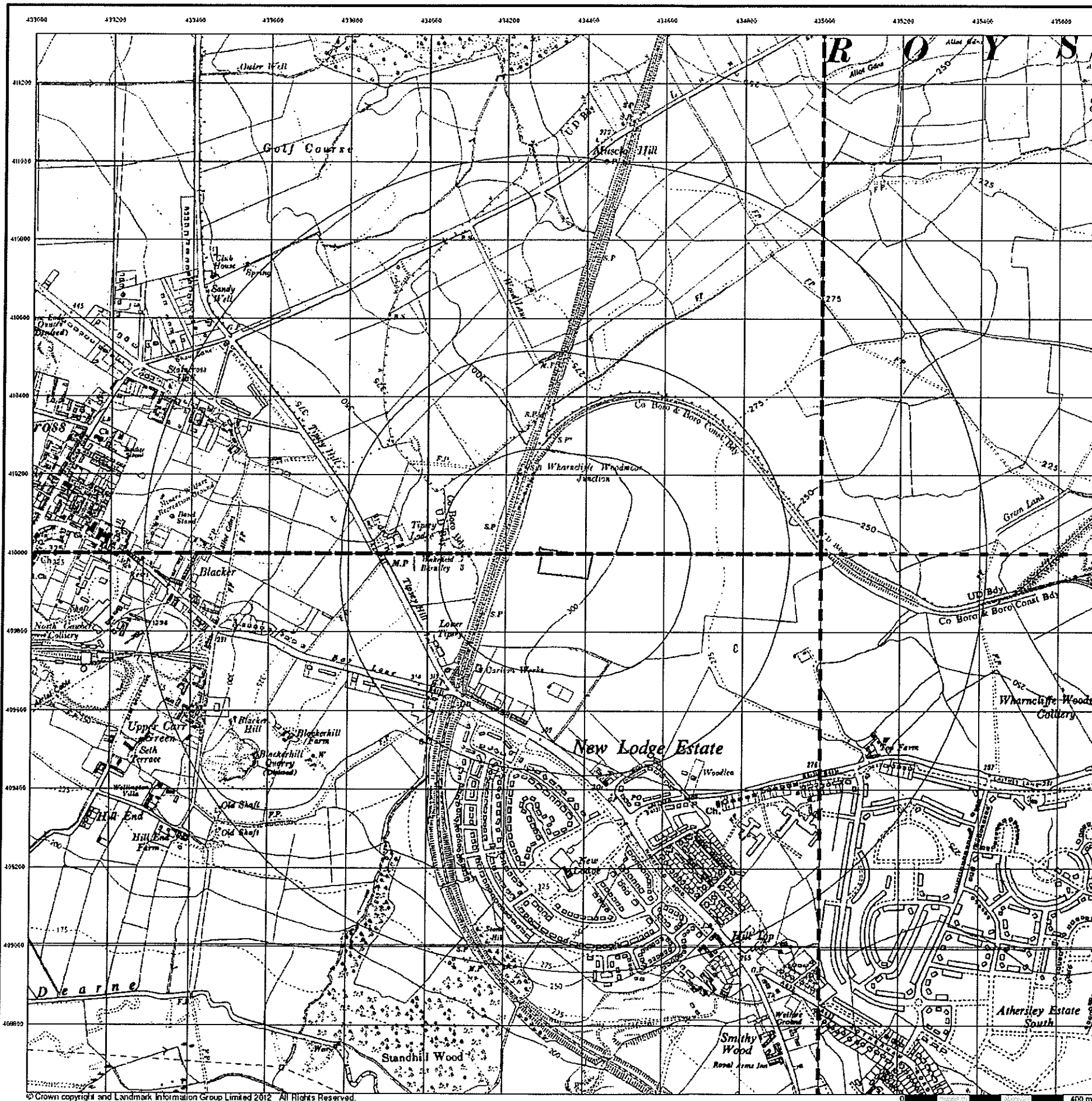
Site Details

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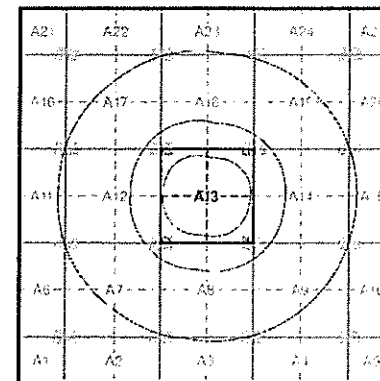
**Ordnance Survey Plan
Published 1955 - 1956
Source map scale - 1:10,000**

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

Map Name(s) and Date(s)

SE31 SW 1956 1:10,560	SE31 SE 1956 1:10,560
SE30 NW 1956 1:10,560	SE30 NE 1955 1:10,560

Historical Map - Slice A



Order Details

Order Number: 40965594_1_1
 Customer Ref: S120835
 National Grid Reference: 434350, 409980
 Slice: A
 Site Area (Ha): 0.78
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Site Details

Sheerien Close, BARNSELY, South Yorkshire, S71 3NQ



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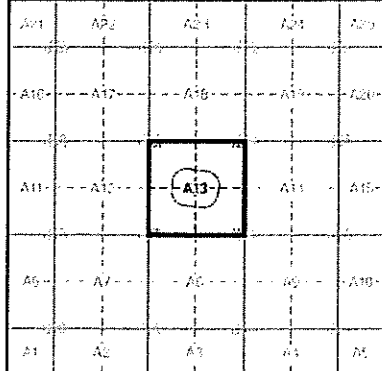
Ordnance Survey Plan
Published 1959
Source map scale - 1:1,250

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the 1:2,500 scale was adopted for mapping urban areas and by 1896 it covered the whole of what were considered to be the cultivated parts of Great Britain. The published date given below is often some years later than the surveyed date. Before 1938, all OS maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in outlying areas.

Map Name(s) and Date(s)

SE3410SW 1959 1:1,250	SE3410SE 1959 1:1,250
SE3409NW 1959 1:1,250	SE3409NE 1959 1:1,250

Historical Map - Segment A13



Order Details

Order Number: 40965594_1_1
 Customer Ref: S120835
 National Grid Reference: 434350, 409980
 Slice: A
 Site Area (Ha): 0.78
 Search Buffer (m): 100

Site Details

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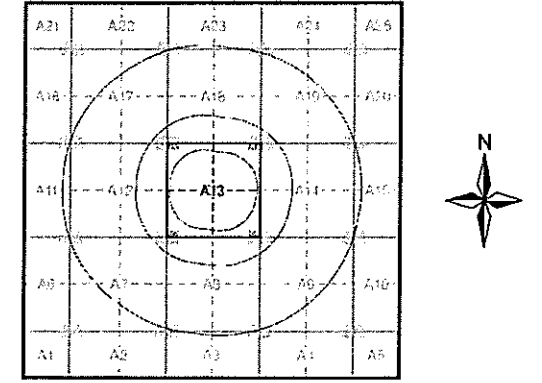
Ordnance Survey Plan
Published 1965 - 1966
Source map scale - 1:10,000

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

Map Name(s) and Date(s)

SE31SW	SE31SE
1965	1966
1:10,560	1:10,560
SE30NW	SE30NE
1966	1966
1:10,560	1:10,560

Historical Map - Slice A

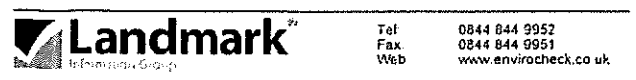


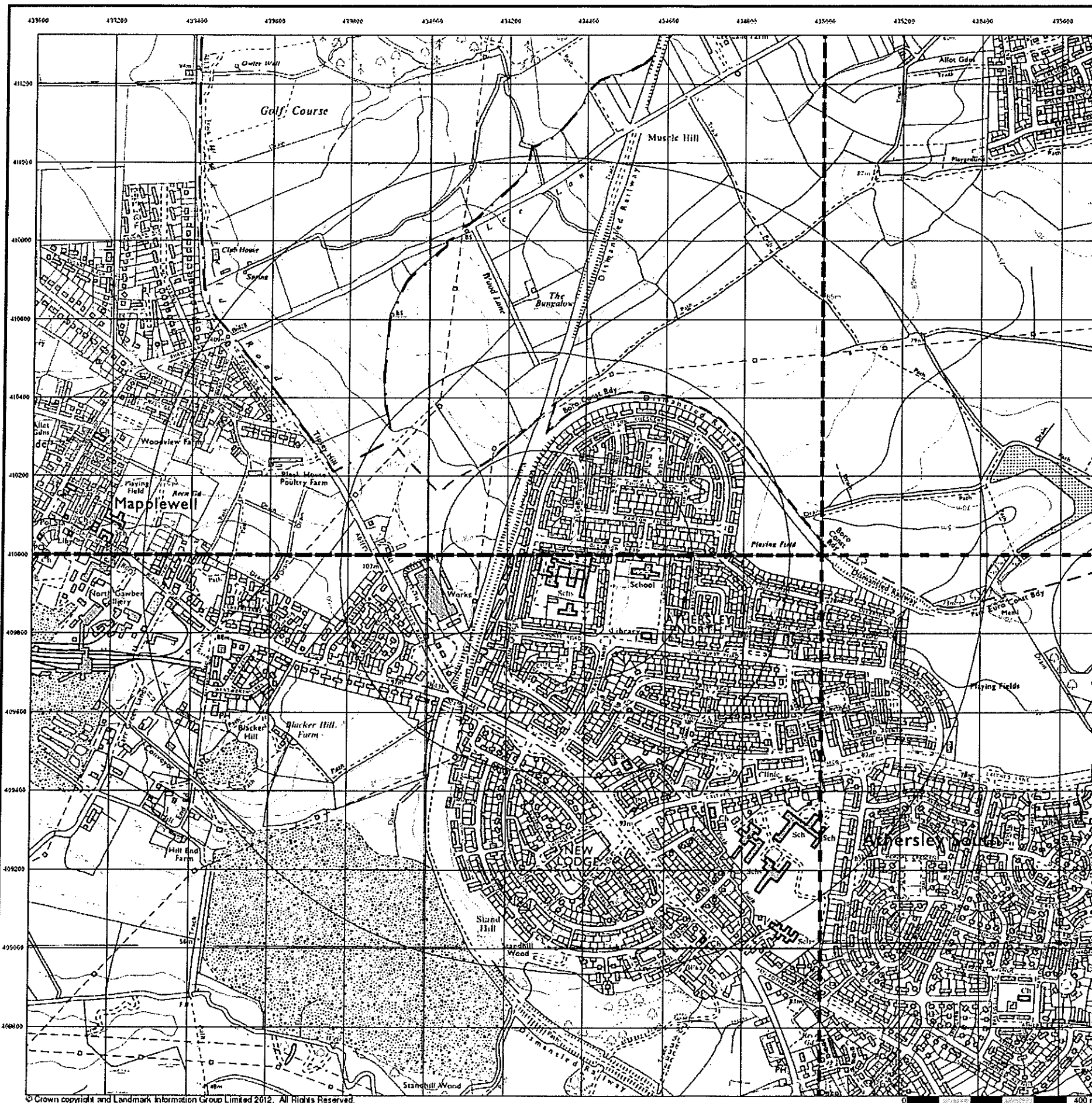
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Site Details

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Ordnance Survey Plan

Published 1980 - 1984

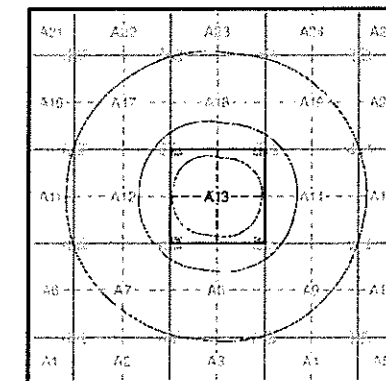
Source map scale - 1:10,000

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

Map Name(s) and Date(s)

SE31SW	SE31SE
1980	1981
1:10,000	1:10,000
SE30NW	SE30NE
1983	1984
1:10,000	1:10,000

Historical Map - Slice A



Order Details

Order Number: 40965594_1_1
 Customer Ref: S120835
 National Grid Reference: 434350, 409980
 Slice: A
 Site Area (Ha): 0.78
 Search Buffer (m): 1000

Site Details

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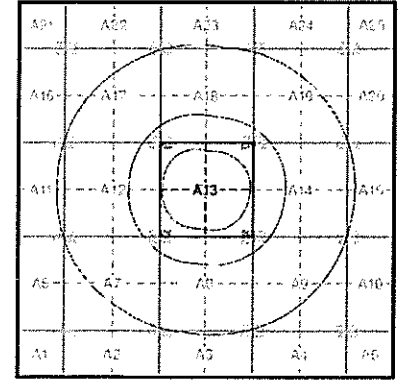
Ordnance Survey Plan
Published 1990 - 1993
Source map scale - 1:10,000

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

Map Name(s) and Date(s)

SE31 SW	SE31 SE
1991	1990
1:10,000	1:10,000
SE30 NW	SE30 NE
1993	1993
1:10,000	1:10,000

Historical Map - Slice A



Order Details

Order Number: 40965594_1_1
 Customer Ref: S120835
 National Grid Reference: 434350, 409980
 Slice: A
 Site Area (Ha): 0.78
 Search Buffer (m): 1000

Site Details

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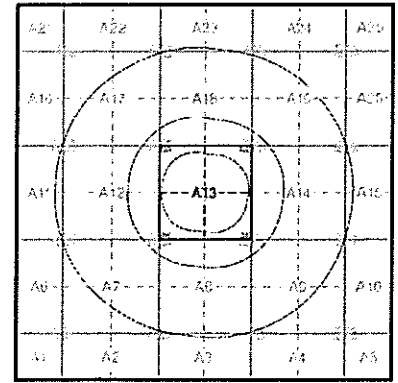
10k Raster Mapping
Published 2006
Source map scale - 1:10,000

The historical maps shown were produced from the Ordnance Survey's 1:10,000 colour raster mapping. These maps are derived from Landplan which replaced the old 1:10,000 maps originally published in 1970. The data is highly detailed showing buildings, fences and field boundaries as well as all roads, tracks and paths. Road names are also included together with the relevant road number and classification. Boundary information depiction includes county, unitary authority, district, civil parish and constituency.

Map Name(s) and Date(s)

SE31 SW 2006 1:10,000	SE31 SE 2006 1:10,000
SE30 NW 2006 1:10,000	SE30 NE 2006 1:10,000

Historical Map - Slice A



Order Details

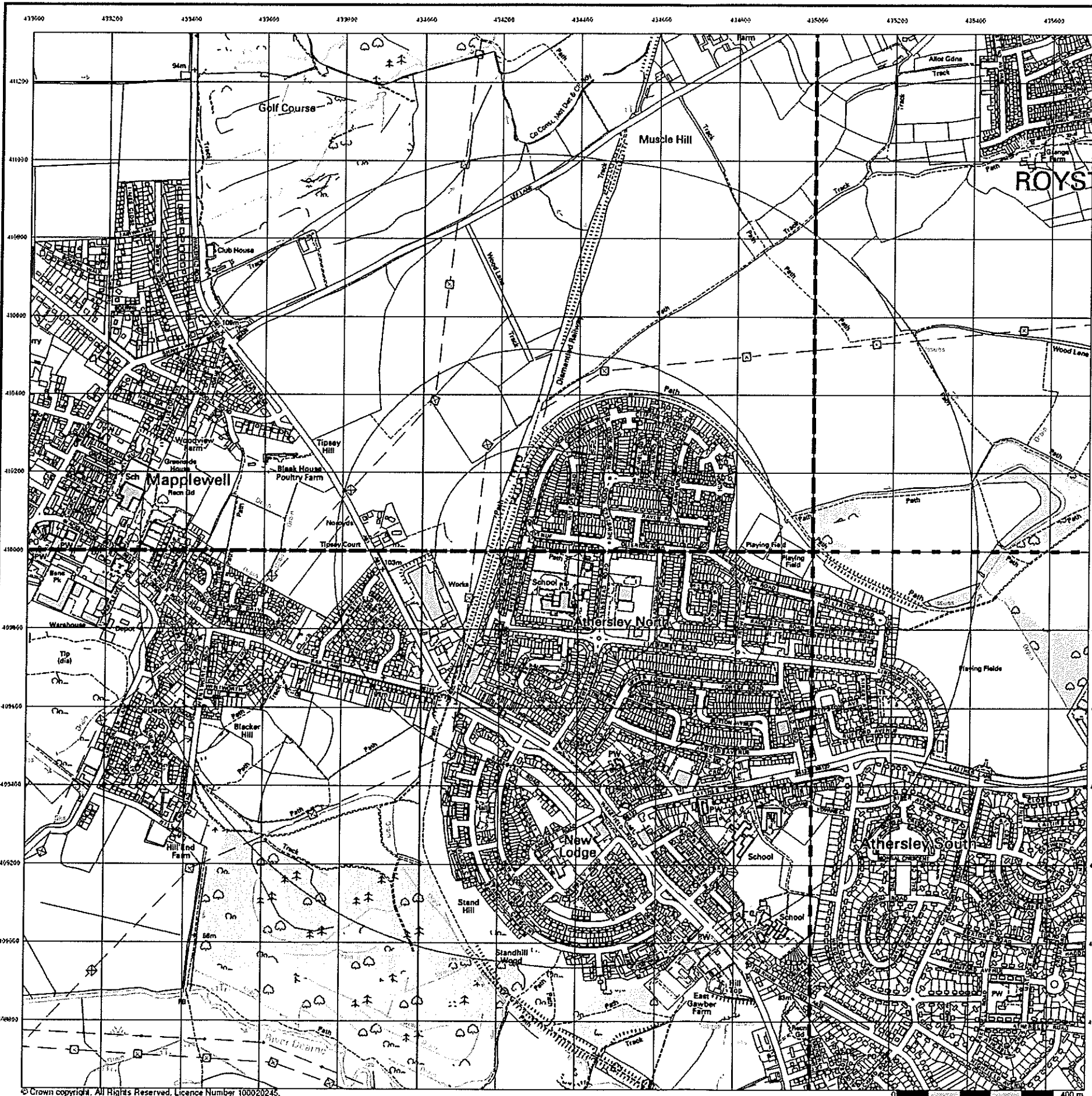
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Site Details

Sheerien Close, BARNSELY, South Yorkshire, S71 3NQ



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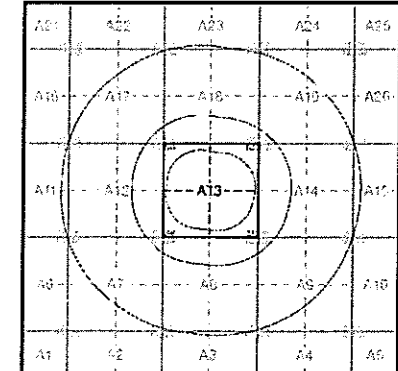
10k Raster Mapping
Published 2012
Source map scale - 1:10,000

The historical maps shown were produced from the Ordnance Survey's 1:10,000 colour raster mapping. These maps are derived from Landplan which replaced the old 1:10,000 maps originally published in 1970. The data is highly detailed showing buildings, fences and field boundaries as well as all roads, tracks and paths. Road names are also included together with the relevant road number and classification. Boundary information depiction includes county, unitary authority, district, civil parish and constituency.

Map Name(s) and Date(s)

SE31 SW 2012 1:10,000	SE31 SE 2012 1:10,000
SE30 NW 2012 1:10,000	SE30 NE 2012 1:10,000

Historical Map - Slice A



Order Details

Order Number: 40965594_1_1
 Customer Ref: S120835
 National Grid Reference: 434350, 409980
 Slice: A
 Site Area (Ha): 0.78
 Search Buffer (m): 1000

Site Details

Sheerien Close, BARNSELY, South Yorkshire, S71 3NQ



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Historical Mapping Legends

Ordnance Survey County Series 1:10,560

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

Ordnance Survey Plan 1:10,000

- Chalk Pit, Clay Pit or Quarry
- Gravel Pit
- Sand Pit
- Disused Pit or Quarry
- Refuse or Slag Heap
- Lake, Loch or Pond
- Dunes
- Boulders
- Coniferous Trees
- Non-Coniferous Trees
- Orchard
- Scrub
- Coppice
- Bracken
- Heath
- Rough Grassland
- Marsh
- Reeds
- Saltings
- Building
- Glasshouse
- Direction of Flow of Water
- Shingle
- Sand
- Sloping Masonry
- Pylon
- Electricity Transmission Line
- Pole
- Cutting
- Embankment
- Standard Gauge Multiple Track
- Standard Gauge Single Track
- Siding, Tramway or Mineral Line
- Narrow Gauge
- Geographical County
- Administrative County, County Borough or County of City
- Municipal Borough, Urban or Rural District, Burgh or District Council
- Borough, Burgh or County Constituency
- Civil Parish
- BP, BS Boundary Post or Stone
- Ch Church
- CH Club House
- F E Sta Fire Engine Station
- FB Foot Bridge
- Fn Fountain
- GP Guide Post
- MP Mile Post
- MS Mile Stone
- Pol Sta Police Station
- PO Post Office
- PC Public Convenience
- PH Public House
- SB Signal Box
- Spr Spring
- TCB Telephone Call Box
- TCP Telephone Call Post
- W Well

1:10,000 Raster Mapping

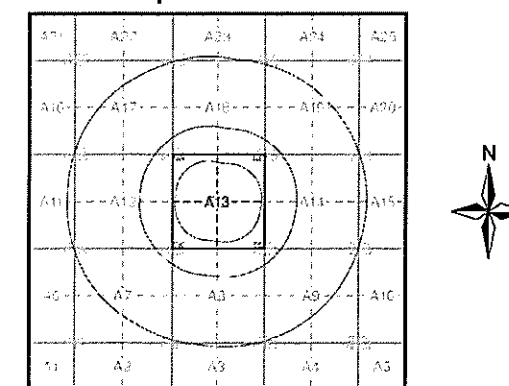
- Gravel Pit
- Refuse tip or slag heap
- Rock
- Rock (scattered)
- Boulders
- Boulders (scattered)
- Shingle
- Mud
- Sand
- Sand Pit
- Slopes
- Top of cliff
- General detail
- Underground detail
- Overhead detail
- Narrow gauge railway
- Multi-track railway
- Single track railway
- County boundary (England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



Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Yorkshire	1:10,560	1854 - 1855	2
Yorkshire	1:10,560	1894	3
Yorkshire	1:10,560	1907	4
Yorkshire	1:10,560	1932	5
Yorkshire	1:10,560	1938	6
Yorkshire	1:10,560	1938 - 1948	7
Yorkshire	1:10,560	1948	8
Ordnance Survey Plan	1:10,000	1955 - 1956	9
Ordnance Survey Plan	1:10,000	1965 - 1966	10
Ordnance Survey Plan	1:10,000	1973 - 1974	11
Ordnance Survey Plan	1:10,000	1980 - 1984	12
Ordnance Survey Plan	1:10,000	1990 - 1993	13
10K Raster Mapping	1:10,000	2006	14
10K Raster Mapping	1:10,000	2012	15

Historical Map - Slice A



Order Details

Order Number: 40965594_1_1
 Customer Ref: S120835
 National Grid Reference: 434350, 409980
 Slice: A
 Site Area (Ha): 0.78
 Search Buffer (m): 1000

Site Details

Sheerien Close, BARNSELY, South Yorkshire, S71 3NQ



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Historical Mapping Legends

Ordnance Survey County Series and Ordnance Survey Plan 1:2,500

Quarry **Gravel Pit** **Sand Pit**
Clay Pit **Shingle** **Refuse Heap**
Sloping Masonry **Flat Rock**
Marsh **Reeds** **Osiers**
Rough Pasture **Furze** **Wood**
Mixed Wood **Brushwood** **Orchard**
Fir **Ford** **Stepping Stones**
Ferry **Waterfall** **Lock**
Trig. Station **Altitude at Trig. Station**
B.M. 325-9 **Bench Mark** **Surface Level**
Arrow denotes flow of water **Antiquities (site of)**
Cutting **Embankment**
Railway crossing Road **Level Crossing** **Road crossing Railway**
Railway crossing River or Canal **Road over single stream** **Road over River or Canal**
County Boundary (Geographical)
County & Civil Parish Boundary
Administrative County & Civil Parish Boundary
County Borough Boundary (England)
Co. Boro. Bdy.
County Burgh Boundary (Scotland)
B.P. B.S. Boundary Post or Stone **P.C.B. Police Call Box**
B.R. Bridle Road **P. Pump**
E.P. Electricity Pylon **S.P. Signal Post**
F.B. Foot Bridge **SL Sluice**
F.P. Foot Path **Sp. Spring**
G.P. Guide Post or Board **T.C.B. Telephone Call Box**
M.S. Mile Stone **Tr. Trough**
M.P. M.R. Mooring Post or Ring **W. Well**

Ordnance Survey Plan, Additional SIMs and Supply of Unpublished Survey Information 1:2,500 and 1:1,250

Inactive Quarry, Chalk Pit or Clay Pit **Active Quarry, Chalk Pit or Clay Pit**
Rock **Boulders**
Cliff **Slopes** **Top**
Roofed Building **Glazed Roof Building**
Sloping Masonry **Archway**
Non-Coniferous Tree (surveyed) **Coniferous Tree (surveyed)**
Non-Coniferous Trees (not surveyed) **Coniferous Trees (not surveyed)**
Orchard Tree **Scrub** **Bracken**
Coppice, Osier **Reeds** **Marsh, Saltings**
Rough Grassland **Heath** **Culvert**
Direction of water flow **Bench Mark** **Antiquity (site of)**
Cave Entrance **Triangulation Station** **Electricity Pylon**
Electricity Transmission Line
County Boundary (Geographical)
County & Civil Parish Boundary
Civil Parish Boundary
Admin. County or County Bor. Boundary
London Borough Boundary
Symbol marking point where boundary mereing changes
BH Beer House **P. Pillar, Pole or Post**
BP, BS Boundary Post or Stone **PO Post Office**
Cn, C Capstan, Crane **PC Public Convenience**
Chy Chimney **PH Public House**
D Fn Drinking Fountain **Pp Pump**
EIP Electricity Pillar or Post **SB, S Br Signal Box or Bridge**
FAP Fire Alarm Pillar **SP, SL Signal Post or Light**
FB Foot Bridge **Spr Spring**
GP Guide Post **Tk Tank or Track**
H Hydrant or Hydraulic **TCB Telephone Call Box**
LC Level Crossing **TCP Telephone Call Post**
MH Manhole **Tr Trough**
MP Mile Post or Mooring Post **Wr Pt, Wr T Water Point, Water Tap**
MS Mile Stone **W Well**
NTL Normal Tidal Limit **Wd Pp Wind Pump**

Large-Scale National Grid Data 1:2,500 and 1:1,250

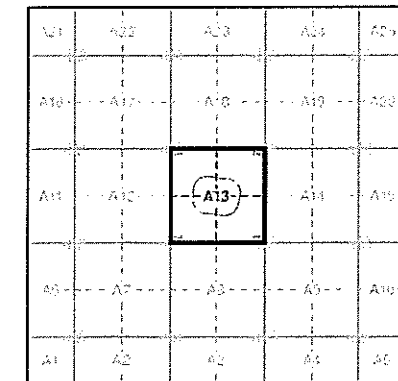
Cliff **Slopes** **Top**
Rock **Rock (scattered)**
Boulders **Boulders (scattered)**
Positioned Boulder **Scree**
Non-Coniferous Tree (surveyed) **Coniferous Tree (surveyed)**
Non-Coniferous Trees (not surveyed) **Coniferous Trees (not surveyed)**
Orchard Tree **Scrub** **Bracken**
Coppice, Osier **Reeds** **Marsh, Saltings**
Rough Grassland **Heath** **Culvert**
Direction of water flow **Triangulation Station** **Antiquity (site of)**
Electricity Transmission Line **Electricity Pylon**
BH 221.60m Bench Mark **Buildings with Building Seed**
Roofed Building **Glazed Roof Building**
Civil parish/community boundary
District boundary
County boundary
Boundary post/stone
Boundary mereing symbol (note: these always appear in opposed pairs or groups of three)
Bks Barracks **P. Pillar, Pole or Post**
Bty Battery **PO Post Office**
Cemy Cemetery **PC Public Convenience**
Chy Chimney **Pp Pump**
Cls Clatern **Ppg Sta Pumping Station**
Dismtd Rly Dismantled Railway **PW Place of Worship**
EI Gen Sta Electricity Generating Station **Sewage Ppg Sta Sewage Pumping Station**
EIP Electricity Pole, Pillar **SB, S Br Signal Box or Bridge**
EI Sub Sta Electricity Sub Station **SP, SL Signal Post or Light**
FB Filter Bed **Spr Spring**
Fn / D Fn Fountain / Drinking Ftn. **Tk Tank or Track**
Gas Gov Gas Valve Compound **Tr Trough**
GVC Gas Governor **Wd Pp Wind Pump**
GP Guide Post **Wr Pt, Wr T Water Point, Water Tap**
MH Manhole **Wks Works (building or area)**
MP, MS Mile Post or Mile Stone **W Well**



Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Yorkshire	1:2,500	1893	2
Yorkshire	1:2,500	1906	3
Yorkshire	1:2,500	1918	4
Ordnance Survey Plan	1:1,250	1959	5
Additional SIMs	1:1,250	1959 - 1991	6
Ordnance Survey Plan	1:2,500	1960 - 1962	7
Ordnance Survey Plan	1:1,250	1970	8
Supply of Unpublished Survey Information	1:1,250	1976	9
Additional SIMs	1:1,250	1991	10
Large-Scale National Grid Data	1:1,250	1993	11
Large-Scale National Grid Data	1:1,250	1994 - 1996	12
Large-Scale National Grid Data	1:1,250	1995 - 1996	13
Large-Scale National Grid Data	1:1,250	1996	14

Historical Map - Segment A13



Order Details

Order Number: 40965594_1_1
 Customer Ref: S120835
 National Grid Reference: 434350, 409980
 Slice: A
 Site Area (Ha): 0.78
 Search Buffer (m): 100

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