



Manor Grove, Royston, Barnsley
Bernard Williams Associates
S130107

Solmek Ltd
12 Yarm Road
Stockton-on-Tees
TS18 3NA
Tel: 01642 607083
Fax: 01642 612355
<http://www.solmek.com>



PHASE 1 DESK STUDY

Manor Grove, Royston, Barnsley

TABLE OF CONTENTS

1	EXECUTIVE SUMMARY	1
2	INTRODUCTION AND SCOPE OF INVESTIGATION	2
3	SITE WALKOVER AND DESCRIPTION	2
4	SITE HISTORY	3
5	ENVIRONMENTAL SETTING	4
6	CONCEPTUAL SITE MODEL	5
7	PROPOSED PHASE TWO INTRUSIVE WORKS	8
TABLE 1: SUMMARY OF SITE HISTORY		3
TABLE 2: POTENTIAL PRIORITY CONTAMINANTS		6
TABLE 3: POTENTIAL GROUND GAS POLLUTION LINKAGES		6
TABLE 4: PRELIMINARY CONCEPTUAL MODEL		8
TABLE 5: SITE INVESTIGATION RECOMMENDATIONS		8

APPENDICES

Appendix A	-	Drawings and Photographs
Appendix B	-	Historical Maps
Appendix C	-	Envirocheck Report
Appendix D	-	Mining Report
Appendix E	-	Notes on Limitations

Revision	Date	Prepared By	Checked By
Final	January 2012	P Finnimore <i>Geotechnical Engineer</i>	S Fisk <i>Geotechnical Engineer</i>

1 EXECUTIVE SUMMARY

Site Address	Manor Grove, Royston, Barnsley S71 4LL
Site Description	The site is currently used to store construction material and plant. The north, west and eastern boundaries are marked with metal fencing and brick walls. The site is relatively level in topography.
Site History	
On Site	The site was undeveloped until the constructed on Manor Court in 1970, this comprised of three building connected by corridors, two of which were located on the site with one located to the west of the site. This was demolished and the site was cleared in 2012.
Off Site	The surrounding was formerly agricultural land until the construction of housing in the 1970's.
Proposed End Use	Residential housing with soft landscaping.
Environmental Setting	
<i>Landfill & Waste</i>	No Waste Management Site and Landfills are located within 750m of site.
<i>Regulated Industries</i>	No active Contemporary Trade Directory Entries are located within 350m of the site.
<i>Geology</i>	The solid geology beneath the site is likely to comprise mudstone of the Middle Coal Measures and the drift deposits are shown to weathered rock. An unnamed Coal Seam is shown to sub-crop beneath the site.
<i>Mining</i>	The mining report indicates that there three known worked seams below the site, the shallowest is located at a depth of 292m and has a cross section of 180cm. Also possibly ancient coal mining workings are located beneath the site, for which no accurate plans or records which exist.
<i>Hydrogeology</i>	The solid geology is classified as a Secondary A Aquifer by the Environment Agency.
<i>Hydrology</i>	The nearest surface water feature is located 314m south.
<i>Flooding</i>	The site is not at risk of flooding.
<i>Radon Gas</i>	Basic radon protection measures are required for new buildings on site.
Preliminary Geotechnical Assessment	Given the expected ground conditions noted above, the use of traditional strip footings for the new structure is anticipated at present. Where loose made ground or soft/loose natural deposits are encountered, foundations will need to be deepened and should always be taken through the made ground/disturbed ground into underlying natural strata of adequate bearing capacity.
Preliminary Contamination Assessment	The desk study has shown that the site is likely to have been exposed to contamination with construction/demolition waste from the former residential development being the most likely source.
Potential Sources of Ground Gas	Underlying coal measures and deep made ground. Ground gas assessment is recommended.
Environmental Protection Act 1990	For the site to be designated as contaminated under Part 2A of the EPA 1990, a proven source-pathway-receptor linkage has to be present. No such linkage has yet been proven; however site investigation works are proposed.
Risk Assessment	Based on the information contained in this report, it is the opinion of Solmek that the site represents a low/medium environmental risk.
Phase Two Recommendations	A series of small percussive boreholes to competent ground with insitu testing and samples taken for geotechnical and contamination testing. 2no 20m Rotary boreholes to investigate ancient unrecorded mine workings Ground gas pipes installed in the small percussive boreholes.

2 INTRODUCTION AND SCOPE OF INVESTIGATION

Solmek were instructed by Bernard Williams Associates to undertake a desk study on a parcel of land off Manor Grove, Royston, Barnsley. The site is outlined for the development of residential housing with soft landscaping.

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

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.

The purpose of this Phase 1 Desk Study is to evaluate likely ground conditions and significant environmental issues at the site, and to plan the scope of subsequent phases of investigation.

This report may be regarded as a Preliminary Risk Assessment in accordance with the Environment Agency's guidance document *Model Procedures for the Management of Land Contamination* (CLR 11, 2004).

This Phase 1 Desk Study has been undertaken with due regard to current contaminated land guidance issued by the Royal Institution of Chartered Surveyors (RICS) together with BS 10175: 2001, "*Code of Practice for the Investigation of Potentially Contaminated Land*" and relevant sections of BS 5930: 1999, "*Code of Practice for Site Investigations*".

The objectives of the investigation are as follows:

- To determine the historical land use of the site from inspection of available Historical Maps
- To determine the environmental setting of the site from available sources
- To determine whether past mining may have had an influence on the site
- To determine whether the site has previously been used for purposes that may have given rise to significant ground contamination
- To provide recommendations for further investigation.

3 SITE WALKOVER AND DESCRIPTION

3.1 General

The centre of the site is located at OS Grid Ref 435500, 411370 and covers an area of approximately 0.12Ha. The site is a parcel of undeveloped land off Manor Grove, Royston, Barnsley.

The preliminary site inspection was undertaken on the 12th January 2013 and site photographs are presented in Appendix A.

3.2 Site Features

The desk study area comprises a roughly rectangular parcel of land which is located to the west of the Manor Grove, Royston. The site is currently used to store construction material and plant machinery. The north, west and eastern boundaries are marked with metal fencing and brick walls. The site is relatively level in topography.

Rubble and compacted stone were noted during the site walkover along with a number of services manholes.

3.3 Off Site Features

The site is set predominantly residential area.

4 SITE HISTORY

In order to determine the history of the site, previous editions of Historical Maps and Ordnance Survey Plans were inspected. The Envirocheck Report is presented in Appendix B.

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.

TABLE 1: SUMMARY OF SITE HISTORY

OS Map Edition	On-site Features	Off-site Features
1854 1:10,056	The appears as a parcel of agricultural land.	The surrounding area is mainly agricultural with the town of Royston located to the northeast of the site. Applehaigh Sandstone quarry is located 1.1km northwest of site.
1893 1:2,500	No changes noted.	A Brick Pond is located 95m northwest with Railway Hotel located 140m in the same direction.
1894-95 1:10,560	No changes noted.	Railway lines have been developed 500m north, west and 1.1km southwest of site.
1906 1:2,500	No changes noted.	A running track has been developed to the north of Railway Hotel and houses have been constructed 100m north of site. Orchard to the immediate northeast
1907-08 1:10,560	No significant changes noted.	A quarry is located 750m north of the site.
1918 1:2,500	No changes noted to the site.	No significant changes noted.
1932 1:10,560	No changes noted to the site.	Houses have been constructed 50m west and 500m northeast of the site. The quarry to the north is no longer labelled.
1938 1:10,560	No changes noted to the site.	Further housing has been developed 500m east of the site.
1948 1:10,560	No changes noted to the site.	Houses have been developed 700m southeast of the site.
1962 1:2,500	No changes noted to the site.	New residential housing has been constructed 100m south, 75m north of site and beyond with possible commercial structures included.
1970 1:2,500	Manor Court has been constructed on the site which consists of three building connected by corridors, two of which are located on the site with one located to the immediate west of the site.	Housing has been developed in the area surrounding the site. A bus depot is now located 110m northwest, Club is labelled 75m north and domestic garages have been constructed immediately north of site.
1976 1:1,250	No changes noted to the site.	Royston Meadstead Junior and Infant School has been constructed 220m east of the site.
1990-91 1:10,000	No changes.	Both railways have been dismantled and Appleaigh Quarry to the north is labelled as disused and a factory has been constructed 350m east of the site.
1993 1:1,250	No changes noted to the site.	No significant changes.
2006 1:10,000	No changes noted to the site.	Increase in general development in Royston.
2012 1:10,000	Manor Court has been demolished and the site has been cleared, this included the section to the immediate west of the site.	No significant changes.

Potential contamination sources identified via historical plans

The site was undeveloped until the constructed on Manor Court in 1970, with comprised three building connected by corridors, two of which were located on the site with one located to the immediate west of site. This was demolished and the site was cleared in 2012. Contamination from historical land uses are

identified with construction/demolition waste being the most likely source.

5 ENVIRONMENTAL SETTING

5.1 Information Sources

The environmental setting of the site was determined through reference to the following:

- Landmark Envirocheck Report (including historical map extracts)
- British Geological Survey (BGS) 1:50,000 scale sheet No 87 Barnsley solid and drift
- BRE Publication BR211 Radon: Guidance on Protective Measures for New Dwellings

5.2 Landfill and Waste

The Envirocheck Report indicates that there are no known landfills and sites dealing with waste within 750m radius of the site.

5.3 Regulated Industries

No active Contemporary Trade Directory Entries are located within 350m of the site.

5.4 Geology

The solid geology beneath the site is likely to comprise Mudstone of the Middle Coal Measures of Upper Carboniferous age. No drift deposits are shown and are therefore likely to comprise weathered rock.

An unnamed Coal Seam is shown to sub-crop directly beneath the site.

5.5 Mining & Quarrying

A coal mining search report for the site from David Bellis Consulting Surveyors dated, 9th January 2013 is presented in Appendix D.

The mining report indicates that there three known worked coal seams below the site, the shallowest of which is located at a depth of 292m and has a cross section of 180cm and was extracted in 1908.

The mining report highlights that there are possibly ancient coal mining workings within the likely zone of influence for which no accurate plans or records exist. The report states that there are no known shafts or adits within 20m of the property.

The Envirocheck report highlights no former BGS Mineral sites located within 750m of site.

5.6 Geological Hazards and Instability

The Envirocheck Report indicates that a very low risk is posed by collapsible ground and landslide stability hazards. No hazard is posed by compressible ground, shrinking/swelling clays, running sand or ground dissolution stability hazards.

5.7 Hydrogeology

Using the Environment Agency's Policy and Practice for the Protection of Groundwater the solid geology beneath the site is classified as a Secondary A Aquifer.

The soils on the site have a high leaching potential and the drift deposits have a low permeability.

The site does not lie within a source protection zone.

5.8 Hydrology

The nearest surface water feature is located 314m south of site.

There are no recorded discharge consents within 400m.

5.9 Sensitive Land Use

An area of adopted Green Belt is located 316m south of site.

The site lies within a Nitrate Vulnerable Zone.

5.10 Flooding

There are no historical records of flooding.

5.11 Radon Gas

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.

6 CONCEPTUAL SITE MODEL

6.1 General

Based on the information presented in the preceding sections, and in accordance with the CLR11 guidance noted in Section 1, a Preliminary Conceptual Site Model has been produced.

The main features of the model are discussed in the following sections together with preliminary recommendations where appropriate.

6.2 Likely Ground Conditions

It is expected that, based on available information, ground conditions are likely to comprise shallow made ground which is expected to be deepest in line with the footings of the former building and is likely to comprise demolition rubble. Drift deposits are expected to comprise of weathered rock, sandy clays or clayey sands.

6.3 Potential Buried Obstructions

Potential obstructions are possible from the former building; obstructions may include footings and flooring for the former buildings.

6.4 Preliminary Geotechnical Assessment

Given the expected ground conditions noted above, the use of traditional strip footings for the new structure is anticipated at present. Where loose made ground or soft/loose natural deposits are encountered footings will need to be deepened and foundations will need to be taken through the made ground/disturbed ground into underlying natural strata of adequate bearing capacity. However a full assessment cannot be carried out until a full site investigation.

6.5 Mining Assessment

The mining report highlights that there are possibly ancient coal mining workings beneath the site for which no accurate plans or records which exist). The ancient workings could be within the Unamned Coal Seam as this sub crops beneath the site, which may affect the integrity of the proposed structure. It is recommended that a site investigation is carried out. This should comprise a series of two open holes

rotary boreholes drilled to 20m depth and located around the footprint of the proposed development. This would determine the exact depth and thickness of the seam along with details of any voided areas present from workings

6.6 Preliminary Contamination Assessment

The desk study has shown that the site is likely to have been exposed to contamination with construction/demolition waste from the former residential development being the most likely source.

In view of the current site uses, chemical contamination testing is considered necessary. The following chemical testing suite should be considered for selected soil samples:

TABLE 2: POTENTIAL PRIORITY CONTAMINANTS

Inorganic Contaminants	Organic Contaminants
Arsenic, Boron, Cadmium, Chromium, Lead, Mercury, Nickel, Zinc, Selenium, Free Cyanide, Soluble Sulphate, pH, asbestos	Phenol

It should be noted that the above potential contaminants are considered to be commonly associated with the specified past land uses of the site, and adjacent land use. Risk assessment should be undertaken for contamination identified during intrusive investigation.

Potential pathways which could link the potential contaminants to end users of the site and controlled waters (receptors) include the following:

- Ingestion of soil (outdoors) / dust (indoors)
- Skin contact with soil (outdoors) / dust (indoors)
- Inhalation of dust (outdoors and indoors)
- contamination via buried water pipes
- Surface water run-off, including via existing drainage infrastructure
- Downward infiltration of leachable contaminants to groundwater

6.7 Potential Sources of Ground Gas

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

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

TABLE 3: POTENTIAL GROUND GAS POLLUTION LINKAGES

Potential Sources	Potential Pathway	Receptor
Hazardous mine gases from Coal Measures strata (CO ₂ , CO and CH ₄).	Ingress and Accumulation into buildings from vertical and horizontal migration	Future users of site are likely to include adults and children. Construction workers (in particular utility workers).
	Ingress and Accumulation	

Made ground is expected (CO ₂ , CO and CH ₄).	into buildings from vertical and horizontal migration	
Preliminary Comparison of Consequence verses Probability		
	Classification	Justification
Probability <i>(Based on Table 8.1, CIRIA C665, 2007)</i>	LOW LIKELIHOOD	Site is located within a coal mining area., Possible ground gas from made ground
Consequence <i>(Based on Table 8.2, CIRIA C665, 2007)</i>	MEDIUM	Residential housing is proposed
	Risk	Details
Consequence vs. Probability <i>(Based on Table 8.3, CIRIA C665, 2007)</i>	LOW-MODERATE RISK	It is possible that harm could arise to a designated receptor from an identified hazard. Investigation is required to clarify the risk and remedial works may be required in the long term. <i>(Based on Table 8.4, CIRIA C665, 2007)</i>

6.8 Risk Assessment for Contaminated Land

As part of this Phase 1 Desk Study, a preliminary conceptual model and risk assessment is produced. This assessment should be revised following the Phase 2 Site Investigation outlining a qualitative risk assessment. Should there be unacceptable risks to the various receptors/end-users following the Phase 2 works, then a remediation strategy may be required to outline measures to satisfy Part 2A of the Environmental Protection Act (1990). The above measures are inline with CLR11 – Model Procedures.

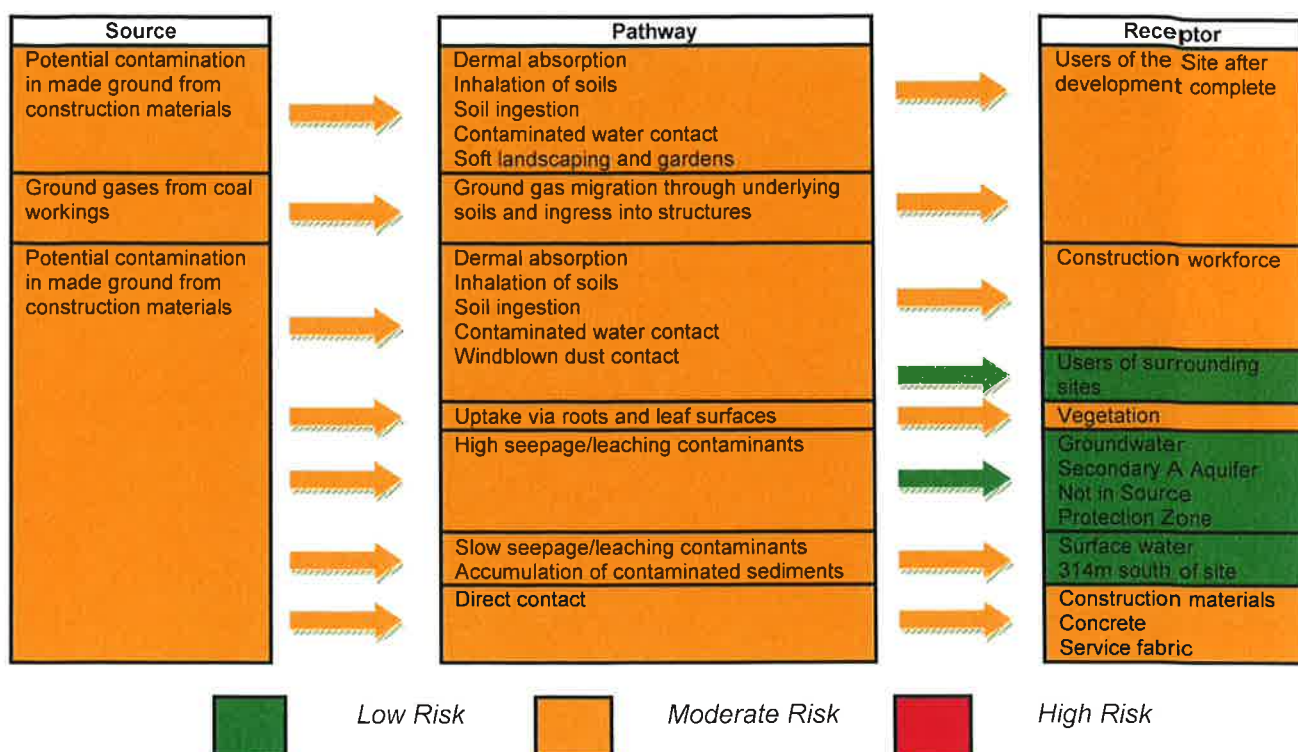
The results of the chemical contamination testing as part of the Phase 2 investigation should be compared to a series of Generic Assessment Criteria (GAC) for a residential development with plant up-take based on the most current CLEA model.

6.9 Conceptual Site Model

The conceptual model collates the salient aspects of the site to form a model which should enable comparison after fieldwork and testing. This model identifies the potential pollution linkages that may influence the proposed development and geotechnical considerations.

The risk ratings are based on the current potential liabilities and likely potential future liabilities. The risks posed by the geotechnical and contamination aspects of the site will be revised following site works, and any mitigating action required added.

TABLE 4: PRELIMINARY CONCEPTUAL MODEL



7 PROPOSED PHASE TWO INTRUSIVE WORKS

A Phase 2 Site Investigation should be undertaken to verify the assumptions made in the Preliminary Conceptual Site Model and to provide data for foundation design.

An outline ground investigation strategy is summarised below, based on the preliminary conceptual site model and information obtained during the desk study.

TABLE 5: SITE INVESTIGATION RECOMMENDATIONS

Proposed method of investigation	Purpose	Comments
Hand dug trial pits	Hand dug trial pits to 1.2m to ensure positions are clear of underground services.	To be undertaken prior to the drilling of all boreholes.
A series of percussive boreholes to competent natural ground or rockhead.	To determine shallow ground conditions. To collect soil samples for geotechnical and chemical testing. To observe soils profile, localised variations in materials and presence of groundwater.	Ensure positions are CAT scanned and service plans inspected prior to excavation. Hand vanes to be taken in cohesive deposits. SPT samples in granular strata and rock head. Disturbed and jar samples to be undertaken for chemical testing.
2 Rotary Boreholes to 20mbgl.	To investigate ancient unrecorded mine workings highlighted in the mining report.	To be performed within the footprint of proposed building.
Gas/groundwater monitoring	To observe standing groundwater levels and to allow measurements to be made of hazardous gases.	Monitoring to be undertaken following site works on a minimum of three occasions.
Chemical testing	To allow the potential risks identified within the conceptual model to be addressed.	Chemical soils testing to include metals, semi-metals and non-metals along with asbestos.
Geotechnical Testing	To confirm material properties. To provide concrete classification of materials.	Tests may include sulphate and pH, moisture content, atterberg tests, triaxial and particle size distribution tests. Further tests may be required depending on the materials encountered.

Appendix A

Drawings & Photographs



Client:	Bernard Williams Associates
Project:	Manor Grove, Royston, Barnsley
Title:	Site Location Map
DRG No:	Figure 1
Date:	January 2013



Client:	Bernard Williams Associates
Project:	Manor Grove, Royston, Barnsley
Title:	Current Site Plan
DRG No:	Figure 2
Date	January 2013



Photo 1: View north from the southern boudary of the site



Photo 2: View west from the northeast of the site.

Client:	Bernard Williams Associates
Project:	Manor Grove, Royston, Barnsley
Title:	Photo's 1 & 2
DRG No:	Figure 3
Date	January 2013



Photo 3: View north from the south of the site.

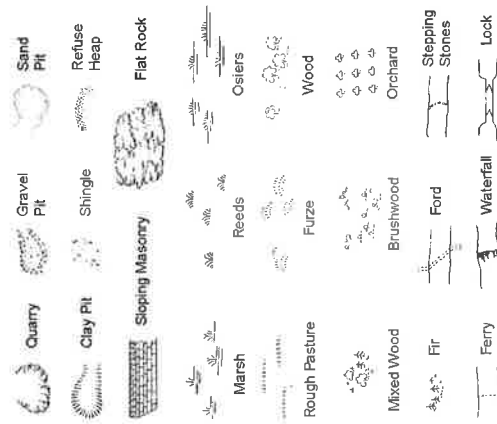


Photo 4: View south from the north of the site.

Client:	Bernard Williams Associates
Project:	Manor Grove, Royston, Barnsley
Title:	Photo's 3 & 4
DRG No:	Figure 4
Date	January 2013

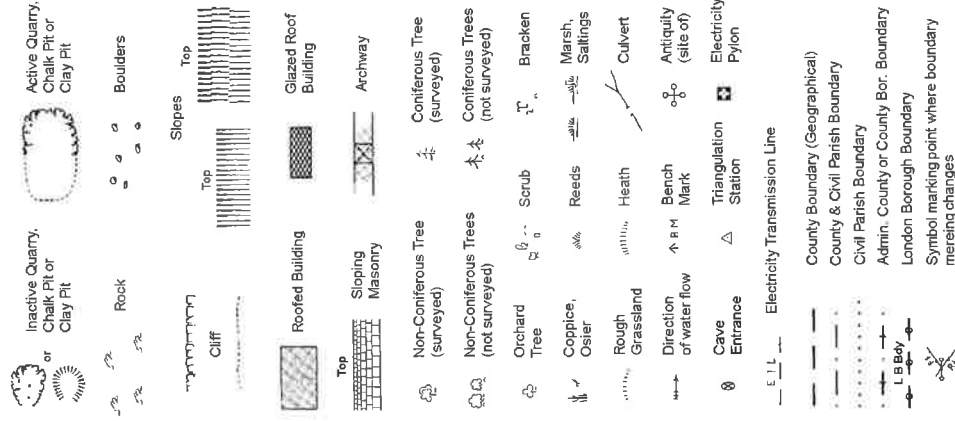
Appendix B Historical Maps

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

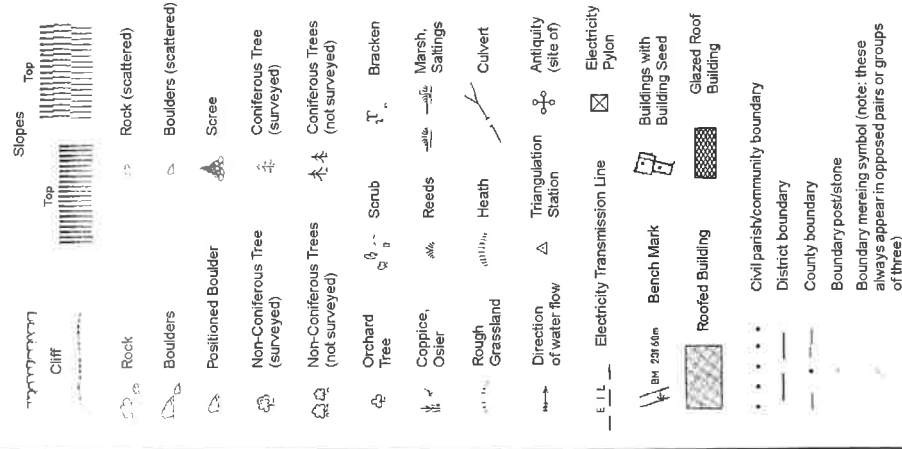


Historical Mapping Legends

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



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



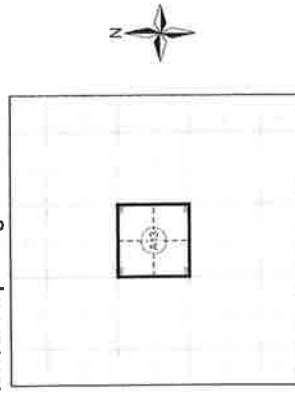
Boundary meriting symbol (note: these always appear in opposed pairs or groups of three)

Bla	Barracks	P	Pillar, Pole or Post
By	Battery	PO	Post Office
Cen	Cemetery	PC	Public Convenience
Ch	Chimney	Pp	Pump
Cle	Cistern	Pp Sta	Pumping Station
Dis	Dispersed Railway	PW	Place of Worship
El	Electricity Generating Station	Sav	Sewage Pumping Station
El P	Electricity Pole, Pillar	SB, S Br	Signal Box or Bridge
El Sub Sta	Electricity Sub Station	SP, SL	Signal Post or Light
FB	Filler Bed	Spr	Spring
Fri	Fountain	Tk	Tank or Track
Gas Gov	Gas Governor	Tr	Trough
GVC	Gas Valve Compound	Wd Pp	Wind Pump
GP	Guide Post	Wp	Water Point, Water Tap
NH	Mannhole	Wp	Works (building or area)
MP	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	1:2,500	1962	5
Ordnance Survey Plan	1:2,500	1970	6
Ordnance Survey Plan	1:2,500	1976	7
Ordnance Survey Plan	1:2,500	1978 - 1983	8
Ordnance Survey Plan	1:2,500	1986	9
Ordnance Survey Plan	1:2,500	1988	10
Ordnance Survey Plan	1:2,500	1993	11
Ordnance Survey Plan	1:2,500	1996	12
Ordnance Survey Plan	1:2,500	1998	13
Ordnance Survey Plan	1:2,500	1999	14

Historical Map - Segment A13



Order Details
 Order Number: 43395668_1_1
 Customer Ref: S130107
 National Grid Reference: 433500, 411370
 Slice: A
 Site Area (Ha): 0.12
 Search Buffer (m): 100

Site Details
 Manor Grove, Royston, BARNESLEY, South Yorkshire, S71 4LL

Historical Mapping Legends

Ordnance Survey County Series 1:10,560

Gravel Pit	Sand Pit	Other Pits
Quarry	Shingle	Orchard
Oslers	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	
Surface Level		
Sketches 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	
County & Civil Parish Boundary	Administrative County & Civil Parish Boundary	
County Borough Boundary (England)	County Borough Boundary (Scotland)	
County Borough Boundary (Scotland)	Rural District Boundary	
R.D. Bd.	Civil Parish Boundary	

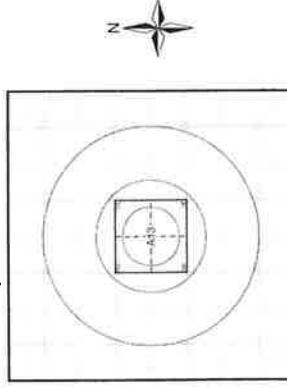
Ordnance Survey Plan 1:10,000

Chalk Pit, Clay Pit or Quarry	Gravel Pit	Disused Pit or Quarry	Lake, Loch or Pond	Boulders	Non-Confiferous Trees	Coppice
Sand Pit	Refuse or Slag Heap	Dunes	Confiferous Trees	Orchard	Bracken	Marsh
Building	Glasshouse	Sloping Masonry	Pylon	Electricity Transmission Line	Pole	
Cutting	Embankment	Standard Gauge Multiple Track	Standard Gauge Single Track	Siding, Tramway or Mineral Line	Narrow Gauge	
Road Under	Road Over	Level Crossing	Geographical County	Administrative County, County Borough or County of City	Municipal Borough, Urban or Rural District, Borough or District Council	Borough, Borough or County Constituency
Civil Parish	Shown only when not coincident with street boundary	Shown alternately when coincidence of boundaries occurs	BP, BS	Boundary Post or Stone	Police Station	
Ch	Church	PO	Post Office	PC	Public Convenience	
CH	Club House	PH	Public House	SB	Signal Box	
FB	Foot Bridge	Spr	Spring	TCP	Telephone Call Box	
GP	Guide Post	MP	Mile Post	W	Well	
MS	Mile Stone					

1:10,000 Raster Mapping

Gravel Pit	Refuse tip or slag heap	Rock (scattered)	Boulders (scattered)	Shingle	Sand	Slopes	General detail	Overhead detail	Multi-track railway	County boundary (England only)	District, Unitary, Metropolitan, London Borough boundary	Area of wooded vegetation	Non-confiferous trees (scattered)	Confiferous trees (scattered)	Orchard	Rough Grassland	Scrub	Water feature	Mean high water (springs)	Telephone line (where shown)	Bench mark (where shown)	Point feature (e.g. Guide Post or Mile Stone)	Site of antiquity	General Building
																								
Rock	Rock (scattered)	Boulders	Shingle	Sand	Slopes	General detail	Overhead detail	Multi-track railway	County boundary (England only)	District, Unitary, Metropolitan, London Borough boundary	Area of wooded vegetation	Non-confiferous trees (scattered)	Confiferous trees (scattered)	Orchard	Rough Grassland	Scrub	Water feature	Mean high water (springs)	Telephone line (where shown)	Bench mark (where shown)	Point feature (e.g. Guide Post or Mile Stone)	Site of antiquity	General Building	
																								

Historical Map - Slice A



Order Details

Order Number: 43395668_1_1
Customer Ref: S130107
National Grid Reference: 433500, 411370
Slice: A
Site Area (Ha): 0.12
Search Buffer (m): 1000

Site Details

Manor Grove, Royston, BARNESLEY, South Yorkshire, S71 4LL



Tel 0944 844 9552
Fax 0944 844 9551
Web www.envirocheck.co.uk



Historical Mapping & Photography included:

Mapping Type	Scale	Date	Pg
Yorkshire	1:10,560	1854	2
Yorkshire	1:10,560	1894 - 1895	3
Yorkshire	1:10,560	1907 - 1908	4
Yorkshire	1:10,560	1930	5
Yorkshire	1:10,560	1932	6
Yorkshire	1:10,560	1938 - 1948	7
Yorkshire	1:10,560	1938	8
Yorkshire	1:10,560	1948	9
Ordnance Survey Plan	1:10,000	1955	10
Ordnance Survey Plan	1:10,000	1965 - 1966	11
Ordnance Survey Plan	1:10,000	1980 - 1981	12
Ordnance Survey Plan	1:10,000	1980 - 1991	13
10K Raster Mapping	1:10,000	2006	14
10K Raster Mapping	1:10,000	2012	15

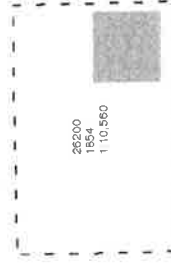
Yorkshire

Published 1854

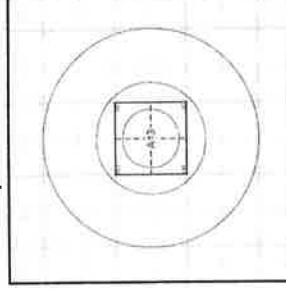
Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the Ordnance Survey archive in the 1940's. In 1854, the 1:10,560 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

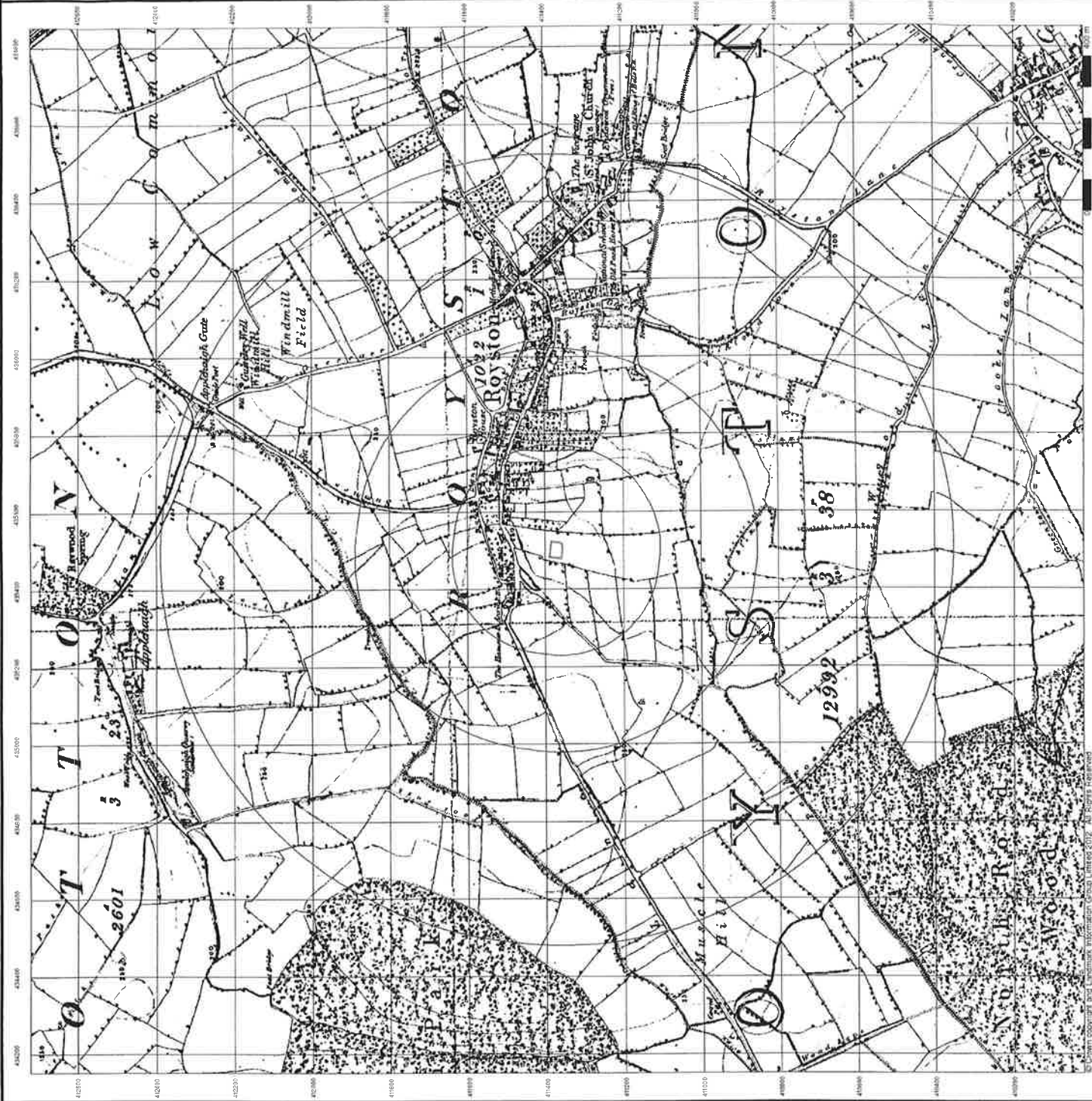


Order Details

Order Number: 43395668_1_1
 Customer Ref: S130107
 National Grid Reference: 435500, 411370
 Slice: A
 Site Area (Ha): 0.12
 Search Buffer (m): 1000

Site Details

Manor Grove, Royston, BARNLEY, South Yorkshire, S71 4LL

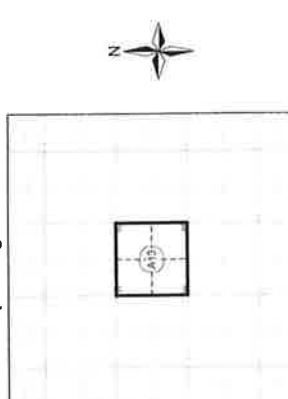


The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1840's. In 1854 the Ordnance Survey introduced a new scale of 1 inch to the mile, which covered the whole of what were considered to be the cultivated parts of Great Britain. 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 cutting areas.

Map Name(s) and Date(s)

202 12	1893
1:2,500	
202 16	1893
1:2,500	

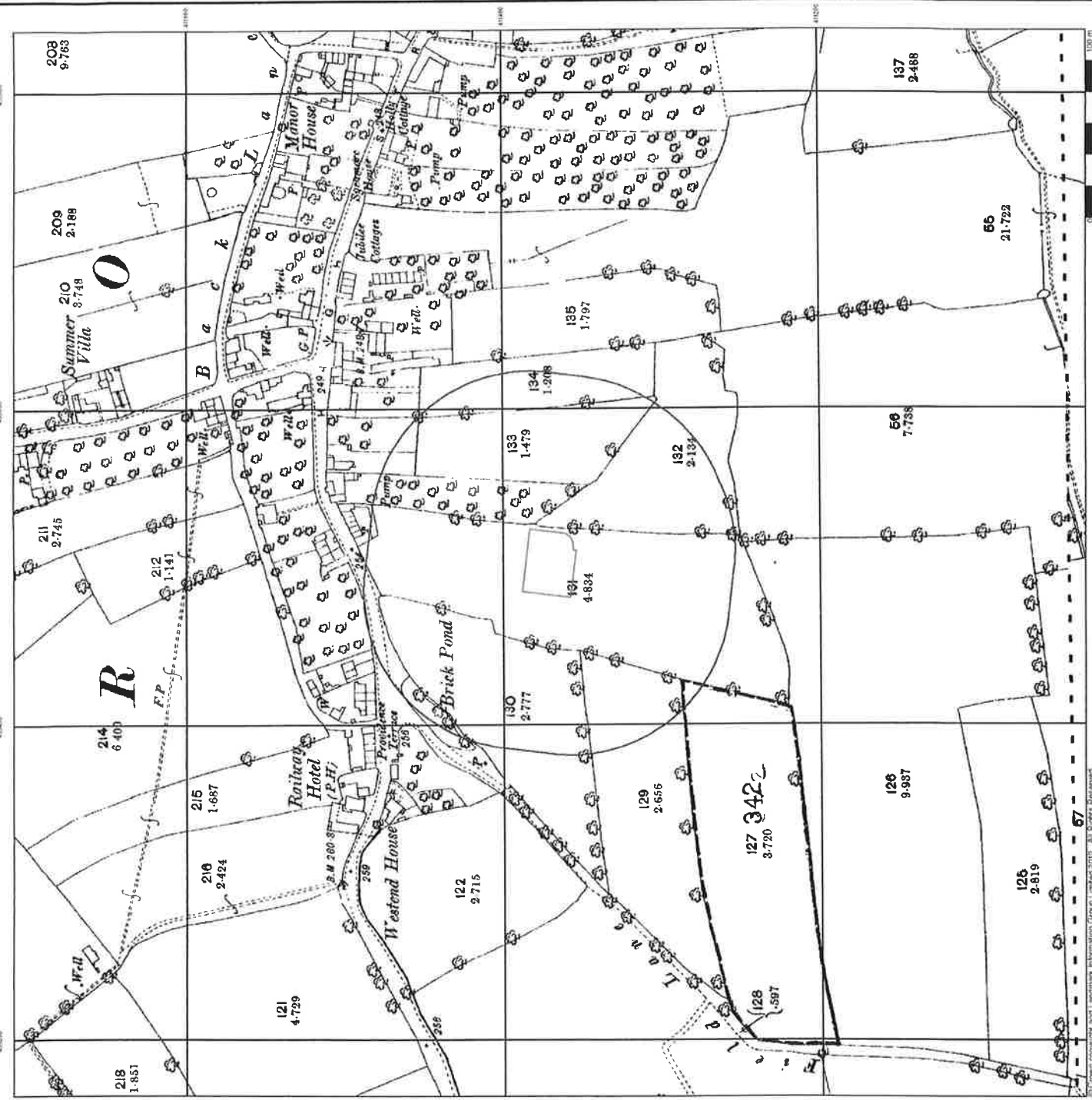
Historical Map - Segment A13



Order Details
 Order Number: 43395668_1_1
 Customer Ref: S130107
 National Grid Reference: 435500, 411370
 Slice: A
 Site Area (Ha): 0.12
 Search Buffer (m): 100

Site Details

Manor Grove, Royston, BARNESLEY, South Yorkshire, S71 4LL



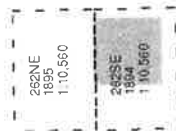
Yorkshire

Published 1894 - 1895

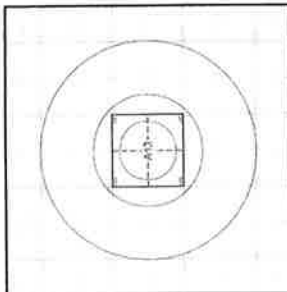
Source map scale - 1:10,560

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 1:50,000 scale was adopted for the Ordnance Survey maps. These maps were often some years later than the surveyed date. Before 1898, 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 1:50,000 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

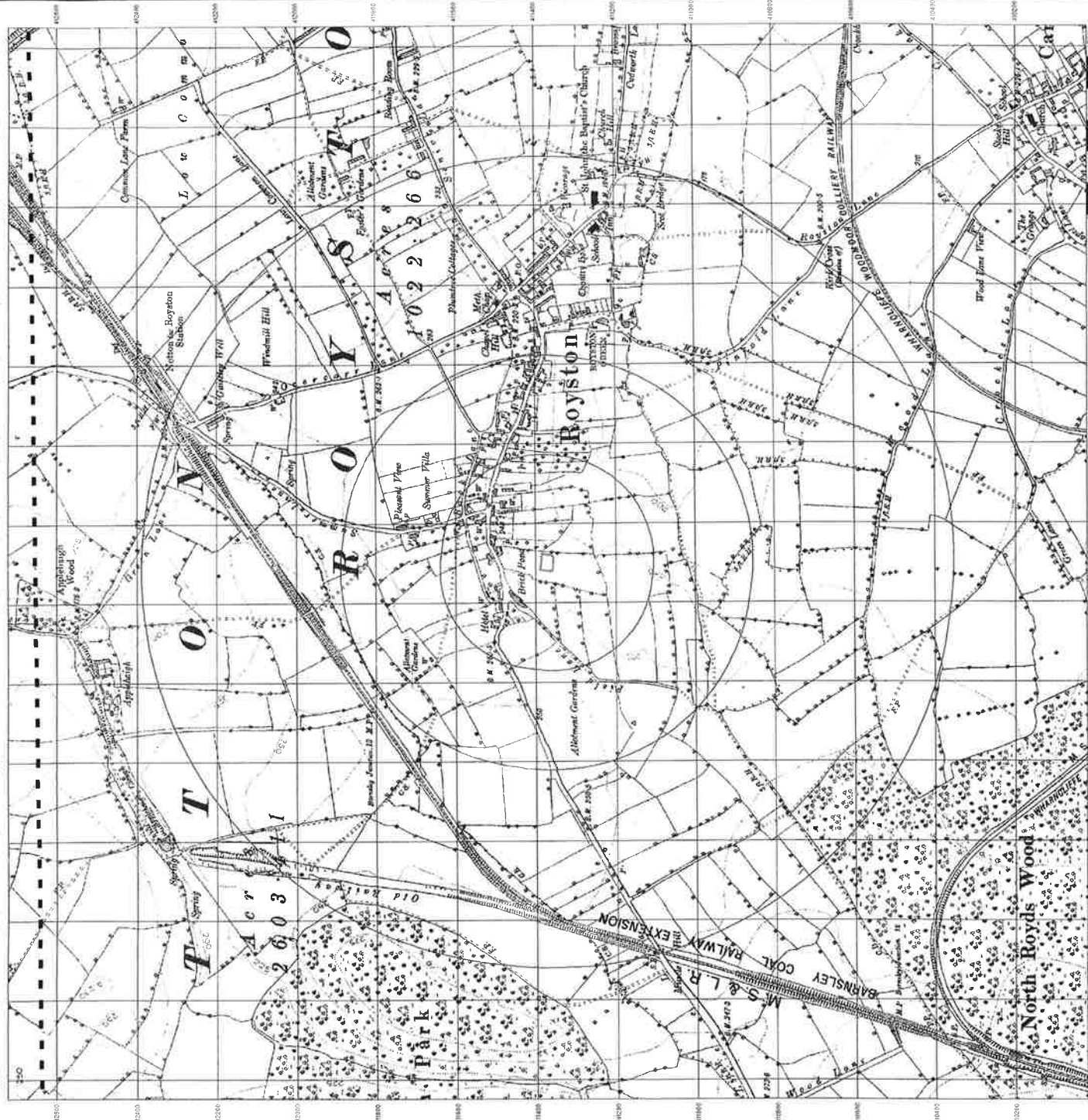


Order Details

Order Number: 43395668_1_1
 Customer Ref: S130107
 National Grid Reference: 435500, 411370
 Slice: A
 Site Area (Ha): 0.12
 Search Buffer (m): 1000

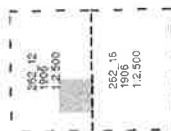
Site Details

Manor Grove, Royston, BARNESLEY, South Yorkshire, S71 4LL

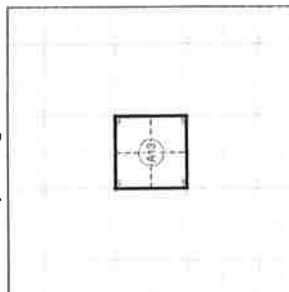


The historical maps shown were re-sourced from maps predominantly held at the scale adopted for England, Wales and Scotland in 1854, i.e. 1:250,000 scale. This scale was adopted for mapping urban areas and by 1896 in the 1:62,500 scale was considered to be the cultivated parts of Great Britain. The published 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

Order Details

Order Number: 43395668 _1_1
Customer Ref: S130107
National Grid Reference: 435500, 411370
Slice: A
Site Area (Ha): 0.12
Search Buffer (m): 100

Site Details

Site Details
Manor Grove, Royston, BARNSELY, South Yorkshire, S71 4LL



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

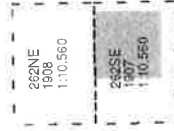
Yorkshire

Published 1907 - 1908

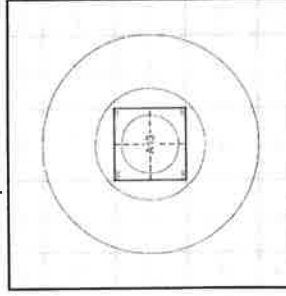
Source map scale - 1:10,560

The historical maps shown were reproduced from maps previously held at the Ordnance Survey archives in Southampton. The maps were produced at 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 adjoining 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

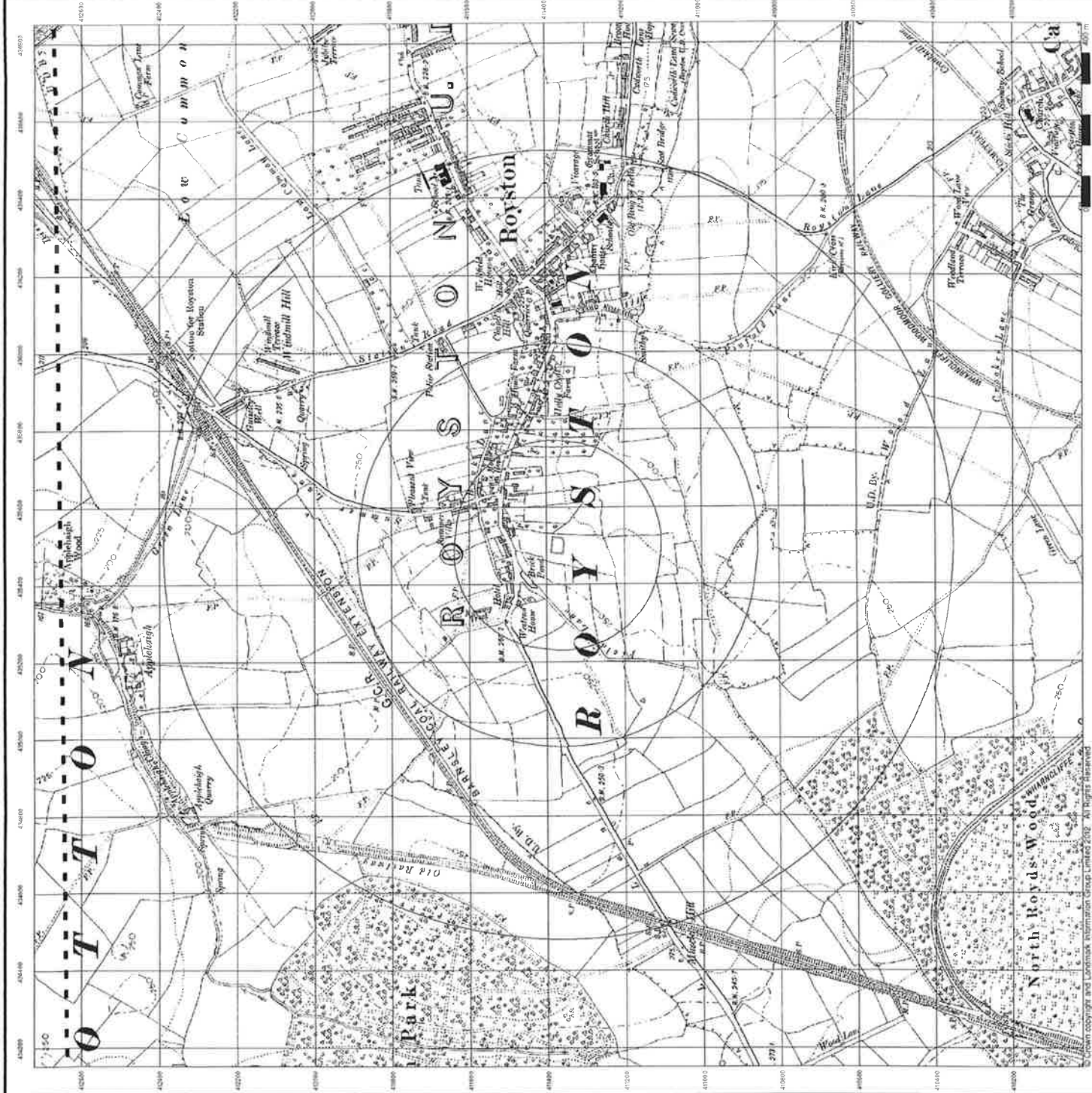


Order Details

Order Number: 43395668_1_1
 Customer Ref: S130107
 National Grid Reference: 435500, 411370
 Slice: A
 Site Area (Ha): 0.12
 Search Buffer (m): 1000

Site Details

Manor Grove, Royston, BARNESLEY, South Yorkshire, S71 4LL



Yorkshire

Published 1918

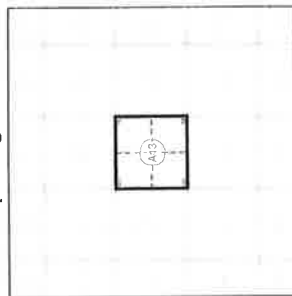
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held at the scale adopted for England, Wales and Scotland in the 1940s. In 1954, the Ordnance Survey published a series of maps of Great Britain, which covered the whole of what was 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)

202 13	1918	1:2,500
202 15	1918	1:2,500

Historical Map - Segment A13

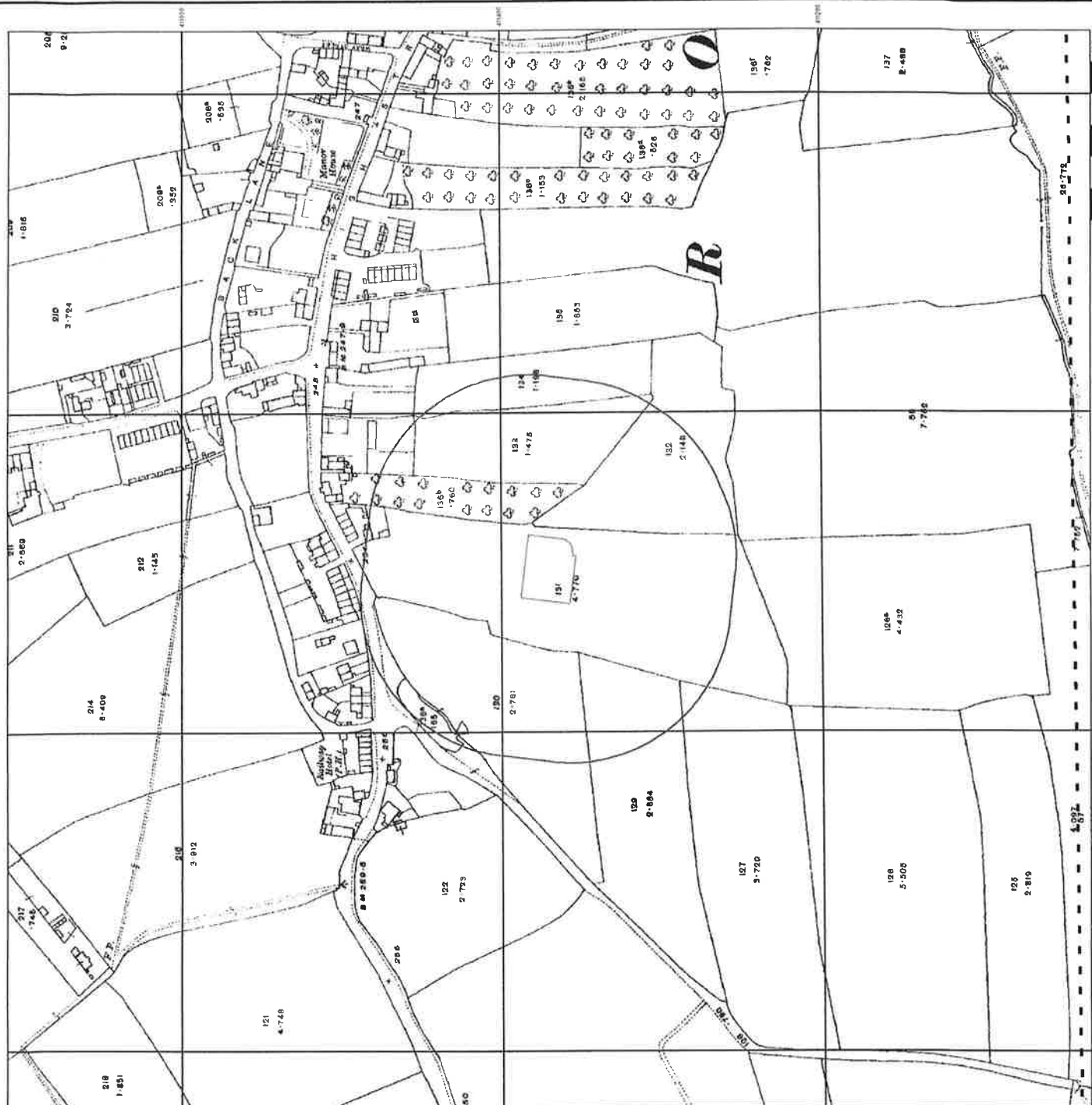


Order Details

Order Number: 43395668_1_1
 Customer Ref: S130107
 National Grid Reference: 435500, 411370
 Slice: A
 Site Area (Ha): 0.12
 Search Buffer (m): 100

Site Details

Manor Grove, Royston, BARNESLEY, South Yorkshire, S71 4LL



Yorkshire

Published 1932

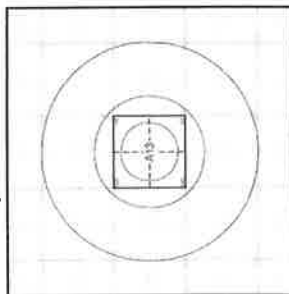
Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held at the Ordnance Survey archive in the 1940's. In 1954 the 1:50,000 scale maps for mapping urban areas were used to update the 1:10,560 maps. The published data client therefore is used 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

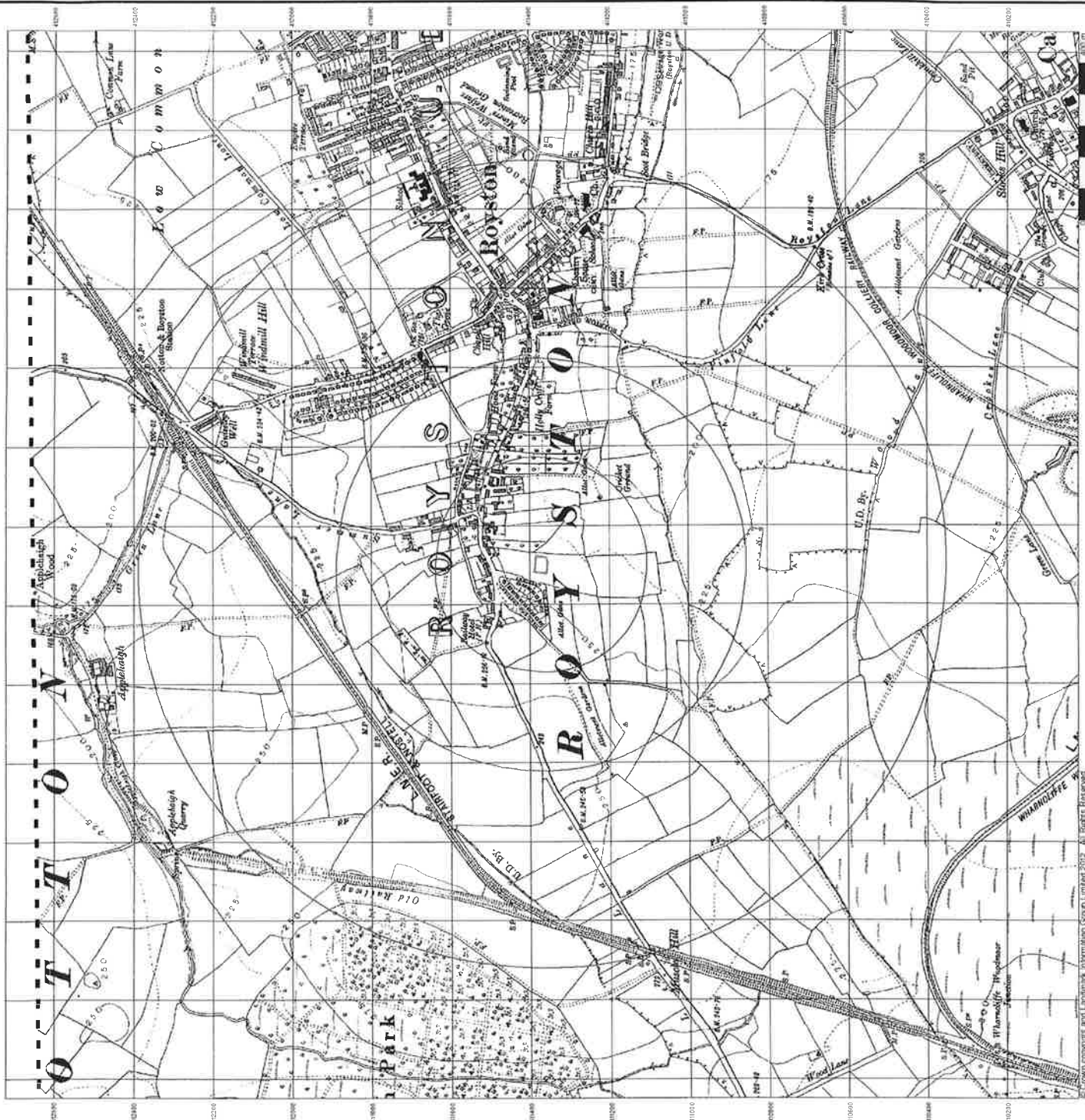


Order Details

Order Number: 43395668_1_1
Customer Ref: S130107
National Grid Reference: 435500, 411370
Slice: A
Site Area (Ha): 0.12
Search Buffer (m): 1000

Site Details

Manor Grove, Royston, BARNESLEY, South Yorkshire, S71 4LL



Yorkshire

Published 1938

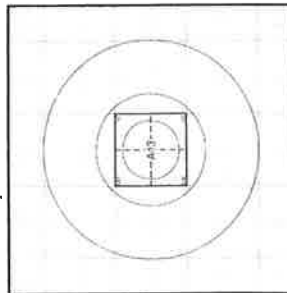
Source map scale - 1:10,560

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 often site years later than the surveyed date. Before 1938, all Ordnance Survey maps were based on the Cassini Projection, with independent surveys of a single county or group of counties, giving rise to significant inaccuracies in adjoining 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 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

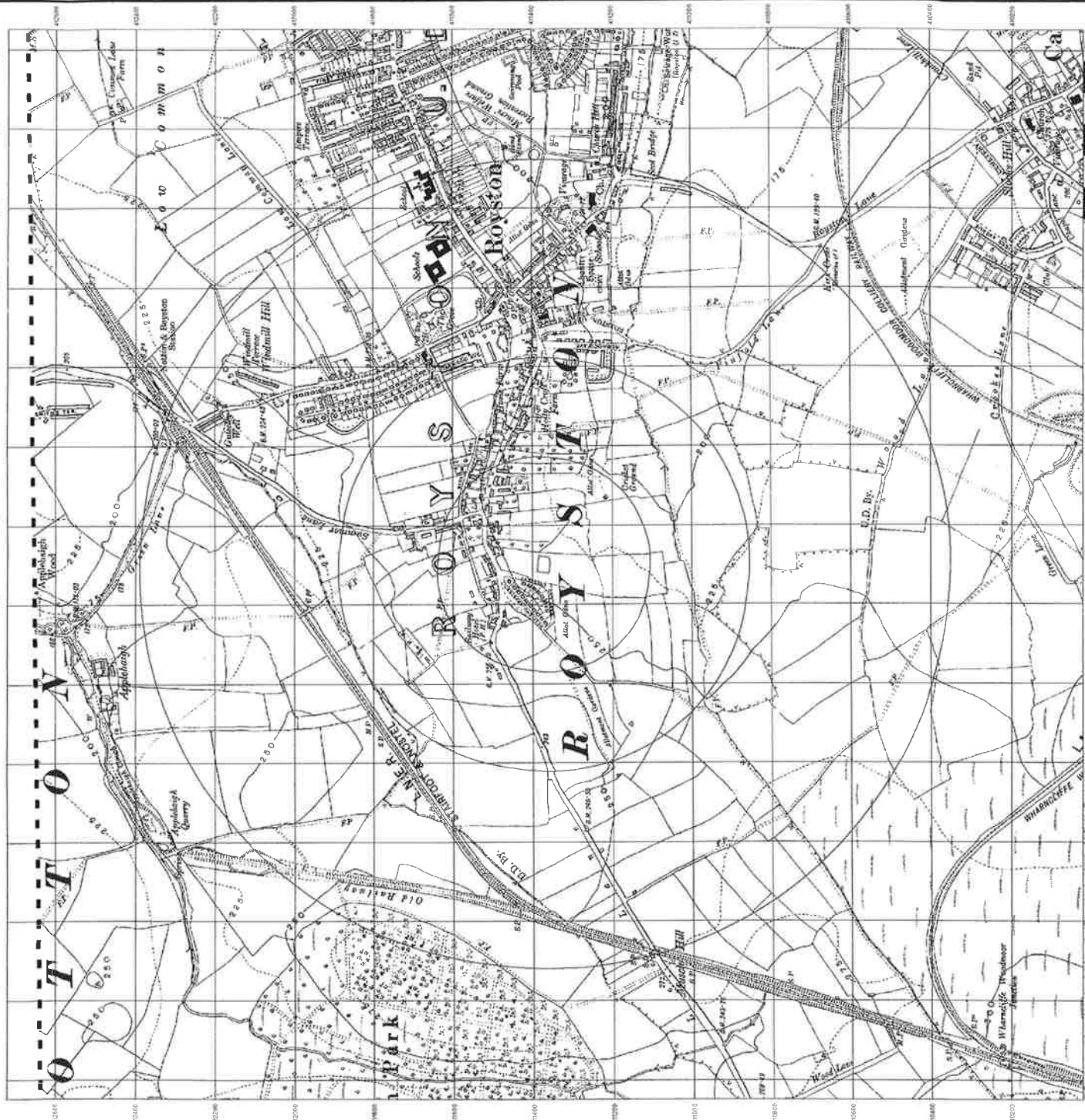


Order Details

Order Number: 43395668_1_1
 Customer Ref: S130107
 National Grid Reference: 435500, 411370
 Slice: A
 Site Area (Ha): 0.12
 Search Buffer (m): 1000

Site Details

Manor Grove, Royston, BARNESLEY, South Yorkshire, S71 4LL



Yorkshire

Published 1948

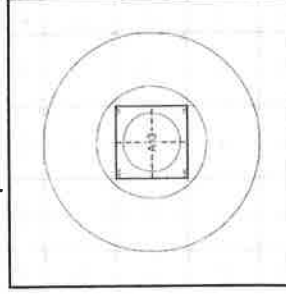
Source map scale - 1:10,560

The historical maps shown were reproduced from maps predominantly held in the Ordnance Survey archives. The first edition of the OS maps, in 1894, the 1:2,500 scale was adopted for mapping urban areas. These maps are 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 adjoining areas. In the late 1940s, 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

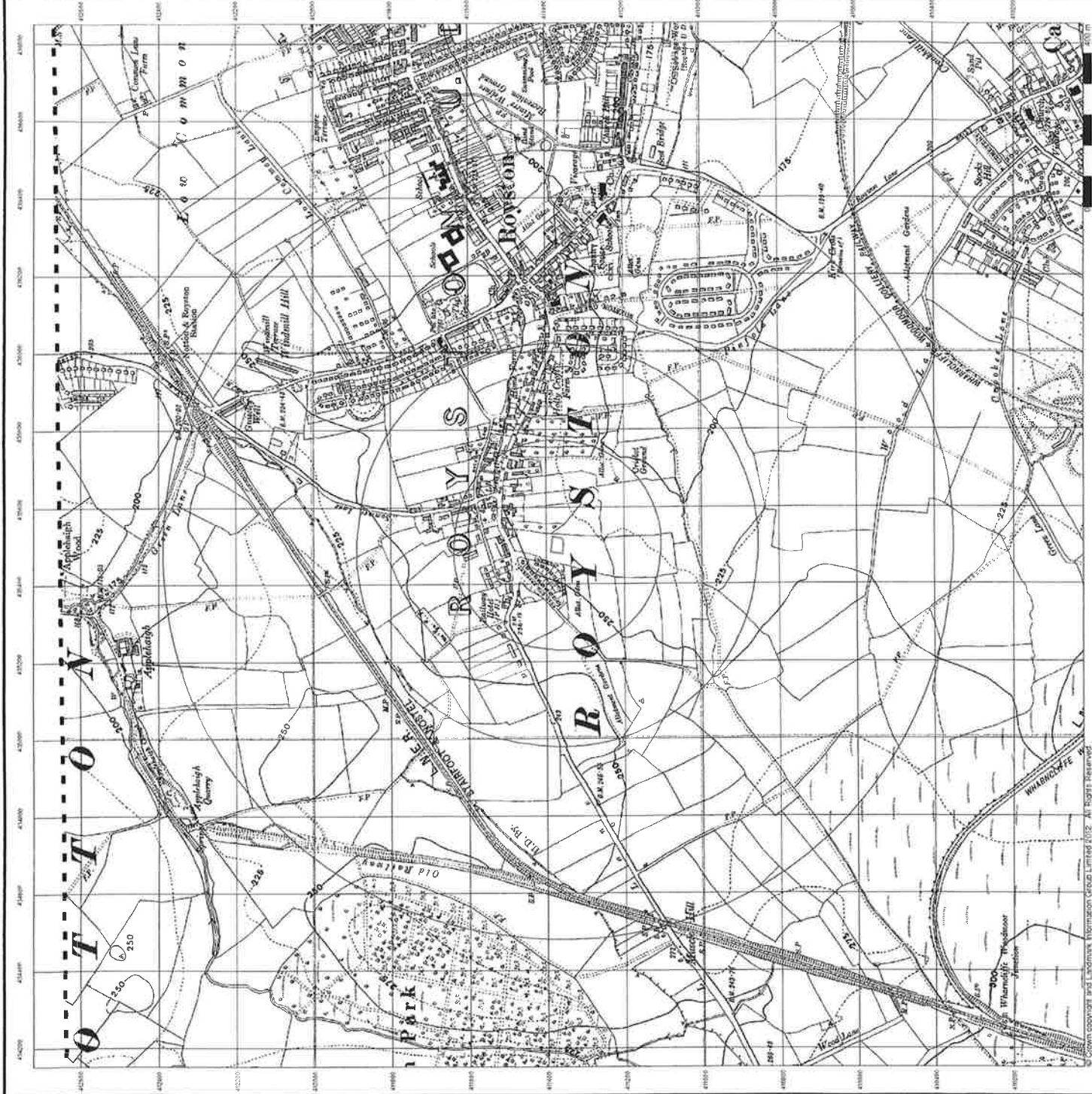


Order Details

Order Number: 43395668_1_1
 Customer Ref: S130107
 National Grid Reference: 435500, 411370
 Slice: A
 Site Area (Ha): 0.12
 Search Buffer (m): 1000

Site Details

Manor Grove, Royston, BARNESLEY, South Yorkshire, S71 4LL

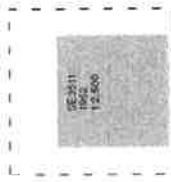


Ordnance Survey Plan Published 1962

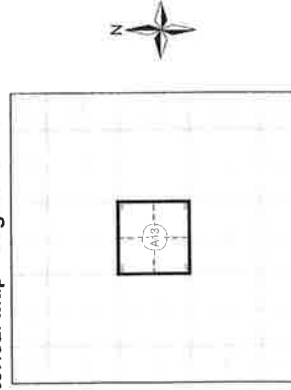
Source map scale - 1:2,500

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 to be the published 1:2,500 scale of Great Britain. The published date given below is often some years later than the surveyed data. 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

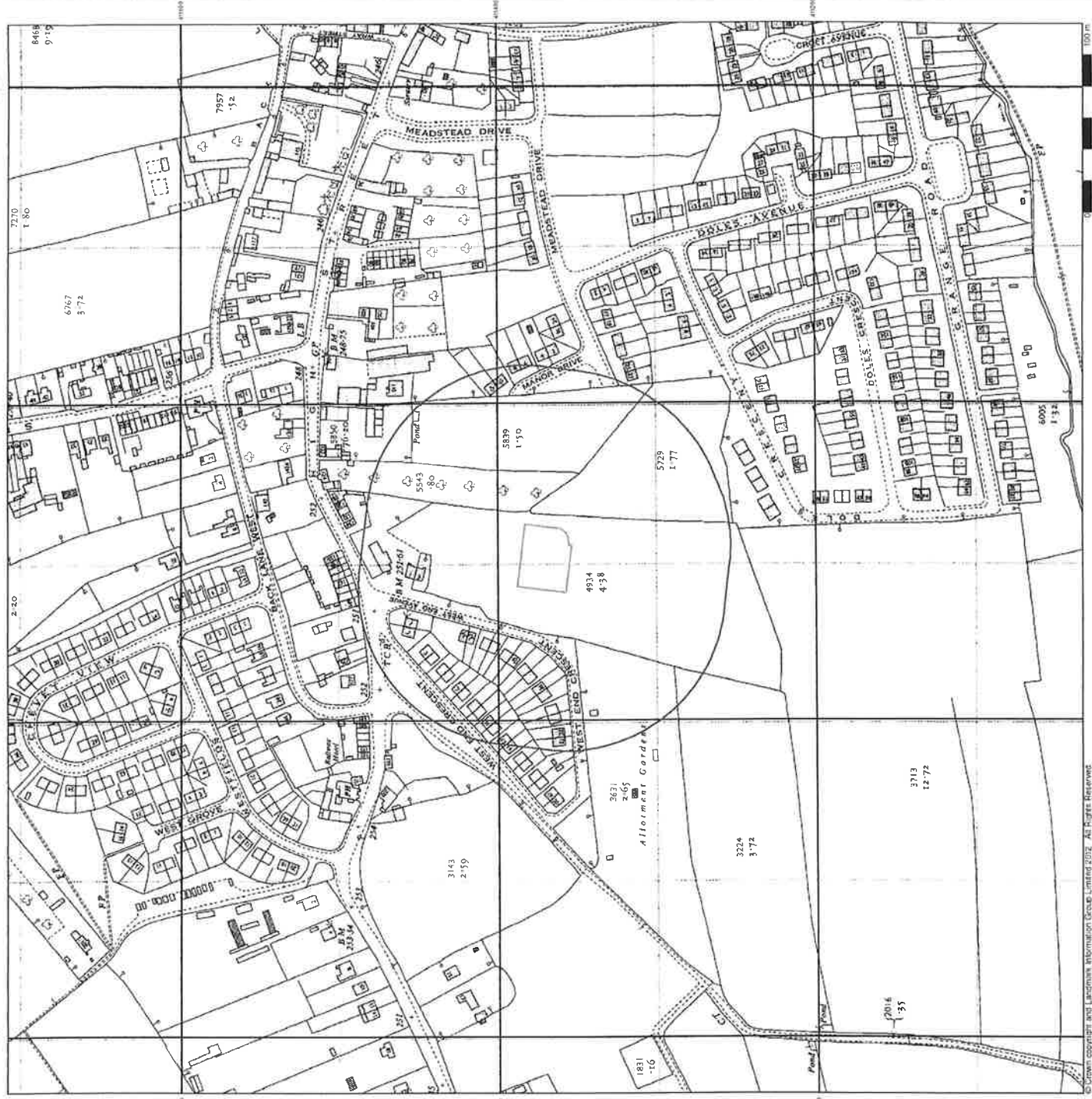


Order Details

Order Number: 43395668_1_1
Customer Ref: S130107
National Grid Reference: 435500, 411370
Site: A
Site Area (Ha): 0.12
Search Buffer (m): 100

Site Details

Manor Grove, Royston, BARNESLEY, South Yorkshire, S71 4LL



Ordnance Survey Plan Published 1970

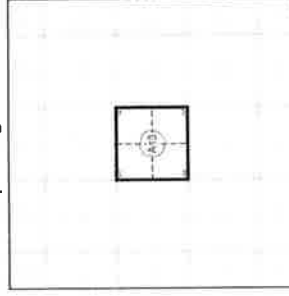
Source map scale - 1:2,500

The historical maps shown were reproduced from maps predominantly held in the Ordnance Survey archives. The first edition of the OS map of Great Britain was adopted for mapping urban areas and by 1886 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

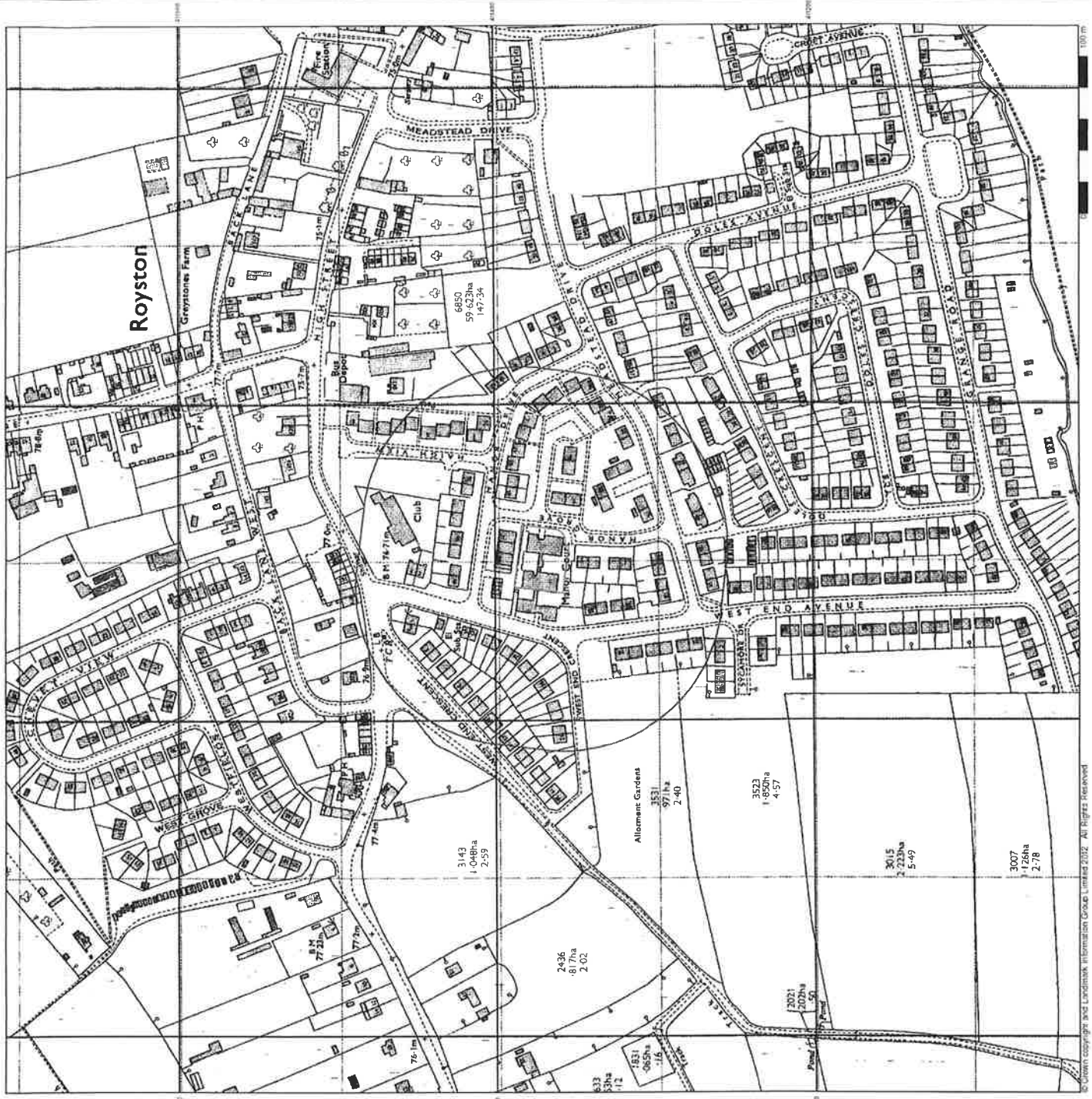


Order Details

Order Number: 43395668_1_1
Customer Ref: S130107
National Grid Reference: 435500, 411370
Site: A
Site Area (Ha): 0.12
Search Buffer (m): 100

Site Details

Manor Grove, Royston, BARNESLEY, South Yorkshire, S71 4LL



Ordnance Survey Plan Published 1976

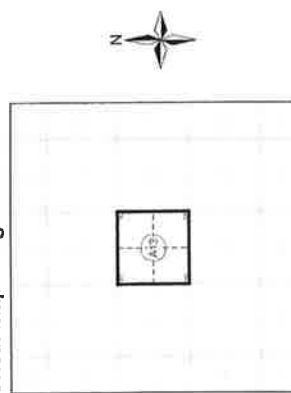
Source map scale - 1:1,250

The historical maps shown were reproduced from maps predominantly held at the Ordnance Survey, which were adopted for the Ordnance Survey in 1854. The maps were adopted for the Ordnance Survey in 1854. The maps covered the whole of what was 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)

SE 3511 NW	SE 3511 NE
1976	1976
1:1,250	1:1,250
SE 3511 SW	SE 3511 SE
1976	1976
1:1,250	1:1,250

Historical Map - Segment A13

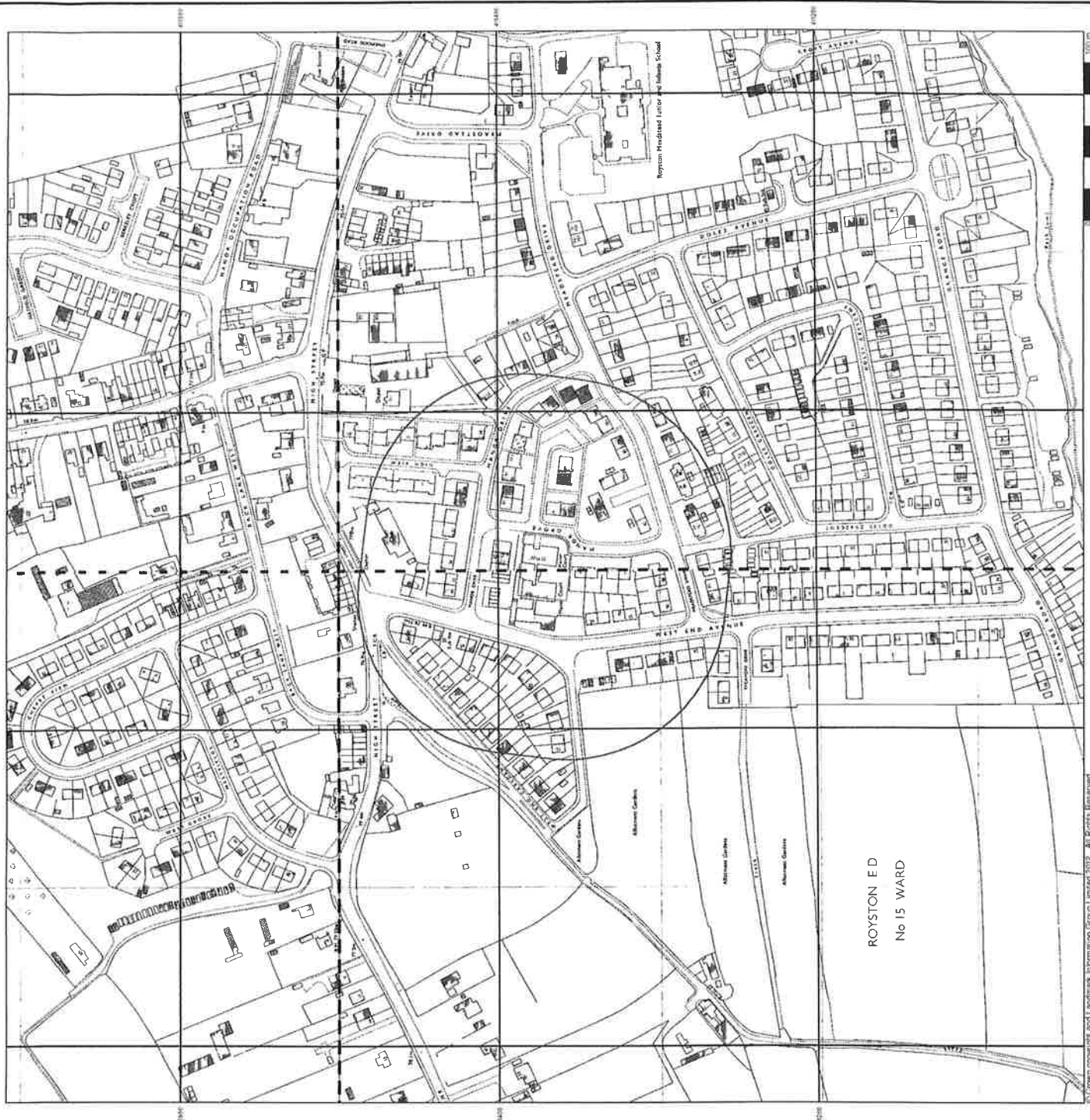


Order Details

Order Number: 43395668_1_1
Customer Ref: S130107
National Grid Reference: 435500, 411370
Site: A
Site Area (Ha): 0.12
Search Buffer (m): 100

Site Details

Manor Grove, Royston, BARNESLEY, South Yorkshire, S71 4LL



Large-Scale National Grid Data

Published 1993

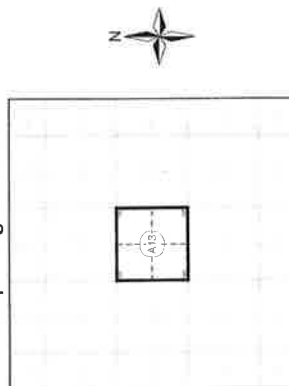
Source map scale - 1:1,250

'Large Scale National Grid Data' superseded SIV cards (Ordnance Survey's 'Small Scale National Grid Data') in 1993 and are intended to be produced until 1999. These maps were the forerunners of digital maps and provide detailed information on houses and roads but tend to show less topographic features such as vegetation. These maps were produced at both 1:2,500 and 1:1,250 scales.

Map Name(s) and Date(s)

SE3511NW	SE3511NE
1993	1993
1:1,250	1:1,250
SE3511SW	SE3511SE
1993	1993
1:1,250	1:1,250

Historical Map - Segment A13



Order Details

Order Number: 43395668_1_1
 Customer Ref: S130107
 National Grid Reference: 435500, 411370
 Slice: A
 Site Area (Ha): 0.12
 Search Buffer (m): 100

Site Details

Manor Grove, Royston, BARNESLEY, South Yorkshire, S71 4LL



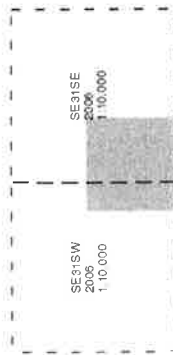
10k Raster Mapping

Published 2006

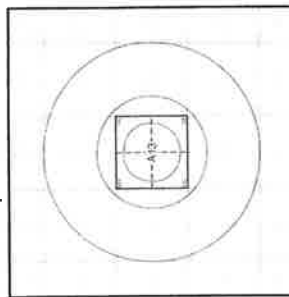
Source map scale - 1:10,000

The historical maps shown were produced from the Ordnance Survey's 1:10,000 vector maps. These maps are derived from a 1:10,000 vector map 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)



Historical Map - Slice A

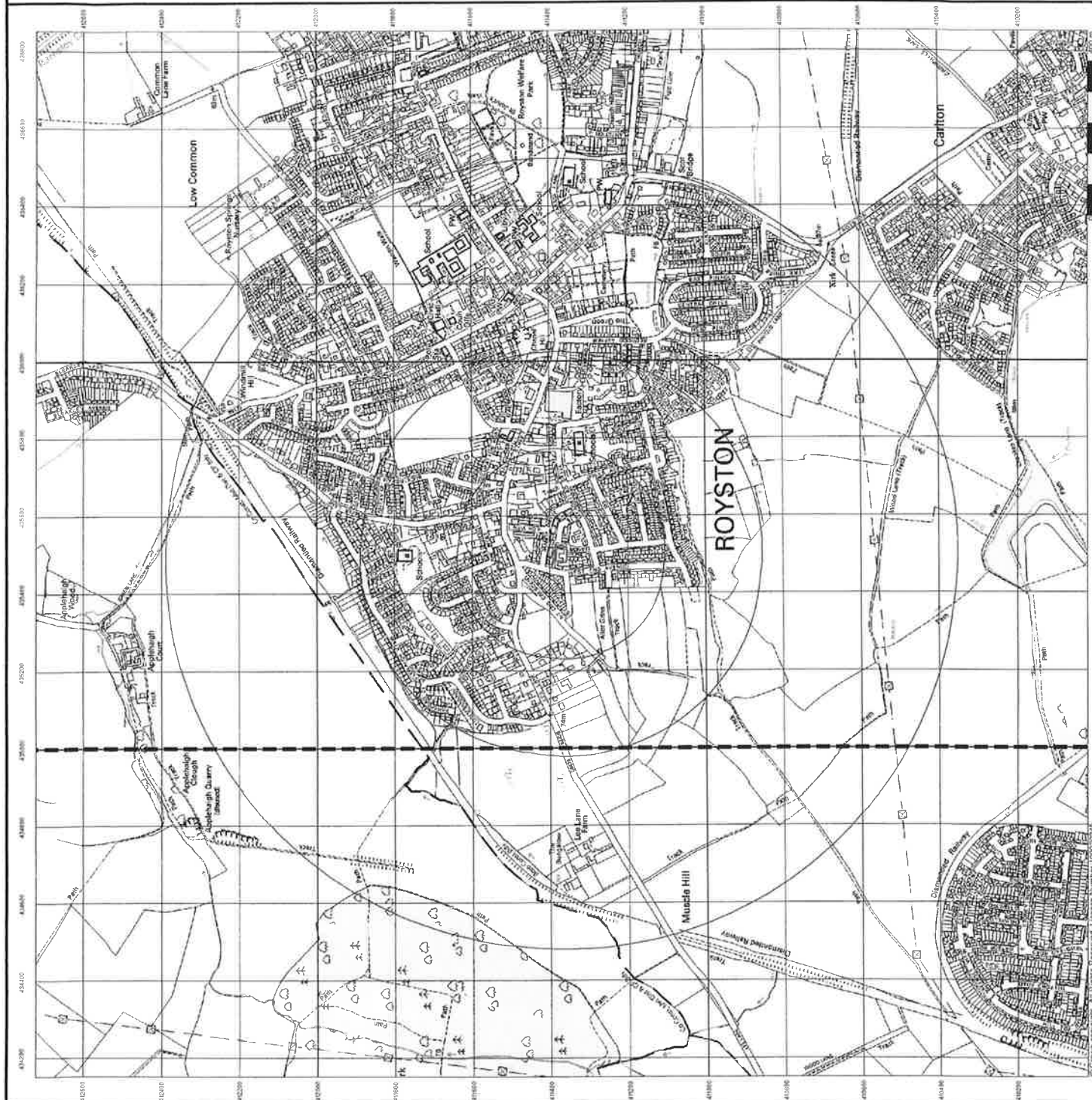


Order Details

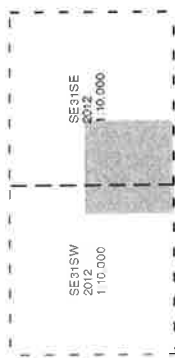
Order Number: 43395668_1_1
Customer Ref: S130107
National Grid Reference: 435500, 411370
Slice: A
Site Area (Ha): 0.12
Search Buffer (m): 1000

Site Details

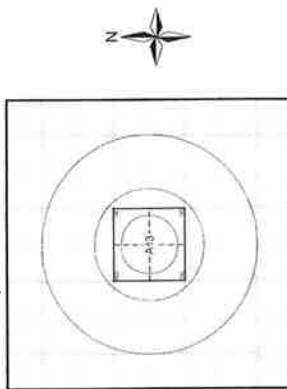
Manor Grove, Royston, BARNESLEY, South Yorkshire, S71 4LL



Map Name(s) and Date(s)



Historical Map - Slice A



Order Details

Order Details

Order Number:	43355668_1_1
Customer Ref:	S130107
National Grid Reference:	435500, 411370
Slice:	A
Site Area (Ha):	0.12
Search Buffer (m):	1000

Site Details

Site Details
Manor Grove, Royston, BARNSELY, South Yorkshire, S71 4LL



Tel 0844 844 9952
Fax 0844 844 9951
Web www.eninfo.co.uk

Appendix C

Envirocheck Report